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Interval Cancers in BreastScreen Aotearoa

2008–2009

National Screening Unit

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Glossary

Assessment consists of the further investigation of a mammographic abnormality reported at screening.

Early review, ***early recall*** or ***extended assessment*** refers to a woman who is assessed and not cleared for routine rescreening, but is referred for further assessment within 12 months of the index screen.

Initial screening includes all women who attend BSA for the first time. Also referred to as first round screening.

Rescreening refers to the next screening examination after the screening episode in the index screening year being evaluated.

A ***screening episode*** consists of the screening examination and assessment, if necessary. For the purpose of determining interval cancer rates, early review, early recall or extended assessment within 12 months of initial screen is not considered part of the screening episode.

Subsequent screening includes all women who have previously been screened by BSA.

Symptoms refer to the self-report of a breast lump and/or blood-stained or watery nipple discharge.

Lead Provider abbreviations

BSAL	BreastScreen Auckland Limited
BSCM	BreastScreen Counties Manukau
BSWN	BreastScreen Waitemata Northland
BSM	BreastScreen Midland
BSCC	BreastScreen Coast to Coast
BSC	BreastScreen Central
BSSL	BreastScreen South Limited
BSHC	BreastScreen Health Care

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Introduction

This report presents analysis of interval cancers from the BreastScreen Aotearoa (BSA) programme. Interval cancers are those diagnosed between a normal screening result and the next scheduled screen (in BSA this interval is two years). The report covers 2008–2009 screens and makes comparisons to previously published BSA data and international results.

Methods

Data on women screened in the BSA programme during 2008 and 2009 was matched to breast cancer diagnoses in the NZ Cancer Registry (NZCR). Interval cancer rates were calculated per 10,000 women screened according to whether they occurred within 12 months or 12–24 months of a normal screen. Results were reported by type of screen (initial or subsequent), five-year age group, ethnicity, year of screen, and Lead Provider. Programme sensitivity (the proportion of cancers detected by the screening programme) was calculated for the total BSA programme using the same breakdowns.

Results

Interval cancers

For the 2008–2009 screening period the interval cancer rate for cancers less than 12 months following a normal screen was 5.9 per 10,000 women screened (245 interval cancers), and the interval cancer rate for cancers in the 12–24 months following a normal screen was 10.6 per 10,000 women screened (441 interval cancers). These results are consistent with rates from 1999–2007 and are comparable to other screening programmes internationally. At Lead Provider level, BSCM was the only provider to have results significantly different to the total programme result. For less than 12-month interval cancers the BSCM rates were lower for both initial and subsequent screens.

Programme sensitivity

For 2008–2009 a total of 1,757 breast cancers were detected by screening. Programme sensitivity for <12 months interval cancers was 87.8% and sensitivity for 12–24 month interval cancers was 79.9%. Programme sensitivity increased between 2007 and 2008 but levelled off in 2009 due to a drop in sensitivity for initial screens. At provider level, BSCM had higher sensitivity than the national rate for interval cancers less than 12 months for both initial and subsequent screens. BSHC had lower sensitivity for initial screens for 12–24 months interval cancers than the national rate.

Conclusion

BSA interval cancer and programme sensitivity results are comparable to other screening programmes internationally. Some differences were seen at Lead Provider level with BSCM having lower interval cancer rates and higher sensitivity than national results for interval cancers less than 12 months.

1 Introduction

The goal of population-based breast screening programmes is to reduce mortality from breast cancer. Screening does not prevent the development of cancer, but rather detects the disease at an earlier stage. Early detection can reduce both illness and death from breast cancer. BreastScreen Aotearoa (BSA) started screening eligible New Zealand women aged 50–64 years in December 1998 after two successful pilots. In 2004, the eligible age range was extended to 45–69 years. BSA services are delivered via a network of eight Lead Providers, their sub-contracted providers, and mobile units. Women are invited to attend screening at two-yearly intervals. All mammograms are independently read by two radiologists who each assess whether to routinely re-screen or recall the woman for assessment. Differing assessments are reviewed by a third radiologist. For all of the years covered by this report, most of the screening was done using film mammography. The first BSA Lead Provider began transitioning to digital in 2007 and the programme became fully digital in 2013.

Analysis of interval cancer rates is an important part of monitoring the effectiveness of a breast cancer screening programme alongside regular programme monitoring reports. An interval cancer is a cancer that is diagnosed between a negative (normal) screen and the time the next screen would have occurred. In BSA, this is a cancer diagnosed within two years of a negative screen. Interval cancers can be separated into those that were not visible on the most recent screening mammogram ('true intervals') and those that were visible but not identified by the screening process ('missed cancers'). In keeping with international practice, BSA Lead Providers undertake regular internal audit to categorise interval cancers and improve the quality of radiologists' performance.

The purpose of this report is to present information on two-year interval breast cancers from the BSA mammographic screening programme and to compare this with published results from other programmes internationally. This report presents analysis of interval cancers occurring in BSA during 2008 and 2009, repeating the approach used in the 1999–2007 interval cancer analysis completed for the NSU by Taylor, Wall and Morrell (2012).

This report presents interval cancer rates and programme sensitivity. Interval cancers have been calculated per 10,000 women screened. Programme sensitivity has been calculated as the proportion of breast cancers diagnosed in screened women that were detected by the BSA programme for a given screening period. Sensitivity is directly related to the number of interval cancers. The lower the number of interval cancers, the higher the sensitivity of the programme.

Interval cancers were analysed according to whether they occurred after an initial screen or a subsequent screen, by age, ethnicity, year of screen, and whether they occurred within 12 months or 12–24 months of a normal screen. This last distinction is important because interval cancers diagnosed within 12 months following are normal screen are more likely to be cancers missed in the screening process, while those diagnosed between 12 and 24 months are more likely to be 'true' interval cancers.

2 Methods

2.1 Screening cohort

This analysis is based on women that underwent screening between 1 January 2008 and 31 December 2009. Data on women screened during the period was extracted from the BSA reporting system by the National Screening Unit (NSU).

2.2 Interval cancer definition

For this analysis interval cancers were defined as cases of primary invasive cancer diagnosed within 24 months after a normal screening mammogram, or an abnormal mammogram with a normal assessment by a BSA Lead Provider. In BSA, when a woman's assessment result is unclear she may be placed on early recall for further assessment in six months. In these instances, if the woman was then diagnosed with cancer these cases were included in the study dataset. Cases of Ductal carcinoma *in situ* (DCIS) and lobular carcinoma *in situ* (LCIS) were excluded, as were cases of Paget's disease of the nipple without an underlying invasive cancer. See Table 1 for a full list of case definitions.

Table 1: Case definition for invasive breast cancer

Histopathology	Included
High-grade DCIS with or without necrosis	No
Invasive cribriform	Yes
Invasive duct not otherwise specified	Yes
Invasive lobular classical	Yes
Invasive lobular variant	Yes
Invasive medullary	Yes
Invasive mucinous	Yes
Invasive tubular	Yes
Lobular carcinoma in situ LCIS	No
Mixed Invasive ductal/lobular	Yes
Non-high grade DCIS with necrosis	No
Non-high grade DCIS without necrosis	No
Other DCIS	No
Other primary invasive malignancy	Yes

2.3 Matching between BSA and Cancer Registry data

The NSU provided the NZ Cancer Registry (NZCR) with a list of National Health Index (NHI) numbers[1] and dates of birth for women screened by BSA between 1 January 2008 and 31 December 2009. The NZCR matched this list to breast cancer diagnoses and provided this information together with demographics back to the NSU.

The NSU calculated the difference in dates between cancer diagnosis and screening episode. Histopathology codes were mapped to DCIS, LCIS or Invasive morphological types. Date of birth mismatches between the BSA database and the NZCR data were identified and flagged in the study database. All fields from the Cancer Registry that were sent as alpha or numerical codes were mapped to the appropriate descriptions and loaded into the database. Records were excluded if:

- the cancer was diagnosed more than 24 months after screening (if 24–25 months manually checked first)
- the cancer was diagnosed by the BSA programme, except if on extended assessment (early review) or
- the cancer was DCIS or LCIS.

The resulting list of provisional interval cancers was manually reviewed by an external clinical advisor. Duplicates were removed and data entry and matching errors resolved. The remaining list, complete with all variables, was separated and sent to the appropriate BSA Lead Providers for checking against their own records. Where applicable, BSA Lead Providers provided the final diagnosis for each screening record, and flagged whether they agreed or disagreed that the record was an interval cancer according to the provided definition. If they disagreed with the record being an interval cancer then reasons were supplied. Lead Providers also sent details of any interval cancers they had recorded that were not on the NZCR. The returned spreadsheets were then compiled by the NSU and reviewed for a second time by the external clinical advisor using the additional information received from providers. The following further exclusions were made:

- cancers diagnosed outside the programme after being correctly recalled for assessment by BSA
- local recurrence or regional or systemic metastases from a previously treated cancer
- symptomatic patient, given symptom letter by BSA
- contralateral diagnosis after BSA diagnosis
- no or unknown histology
- cancer diagnosed > 24 months after screening episode
- incorrect NHI
- subsequent metastatic disease after previous interval
- recalled by BSA and was still in BSA assessment
- had been recalled and diagnosed by BSA.

[1] An NHI number is a unique seven-character identification number assigned to health care users by the Ministry of Health and recorded in the national NHI database. As it is unique to the individual user, NHI numbers can be used to link data from different heath collections.

Because of inconsistent reporting and ascertainment of symptoms, the presence or absence of symptoms was not used as a criterion to determine whether a cancer diagnosed either within or outside the BSA programme was an interval cancer.

BSA Lead Providers also forwarded details of 4 additional cancers that were not already on the Lead Provider interval spreadsheets. These were added to the set for analysis.

Table 2: Exclusions from interval cancer

Reason excluded	Number
Recalled by BSA but cancer diagnosed outside the programme	10
Local recurrence or metastases from a previous cancer	2
Symptomatic patient, given symptom letter by BSA	2
Contralateral diagnosis after BSA diagnosis	3
No or unknown histology	46
Cancer diagnosed > 24 months after screening episode	24
Incorrect NHI	1
Previous primary interval, now metastases	1
Recalled by BSA and still in BSA assessment	2
Recalled by BSA and diagnosed by BSA	26

2.4 Interval cancer rates

Interval cancers were analysed according to whether they occurred after an initial screen or a subsequent screen, by five-year age group (using age at time of screen), ethnicity, year of screen, and whether they occurred within 12 months or 12–24 months of a normal screen. Consistent with the previous report for 1999–2007, the denominator used for rate calculations was the number of screens minus the number of cancers detected through screening in a given screening year, age group, ethnicity group or by a Lead Provider. This means that the counts of women screened given in the tables actually show the number of women that had a normal screen. For comparisons by age group and ethnicity, interval cancer rates have been aggregated for 2008–2009 due to low numbers.

2.5 Programme sensitivity

Programme sensitivity is defined as the proportion of cancers detected by the screening programme. It was calculated by dividing the number of screen detected cancers by the total number of cancers diagnosed in screened women (screen detected and interval cancers). Sensitivity was calculated for the total BSA programme, by five-year age group, ethnicity and BSA Lead Provider. Time trends have been included for initial, subsequent and total screens at programme level, and for total screens at Lead Provider level (due to low numbers).

2.6 Confidence interval calculations

Interval cancer rates and programme sensitivity percentages presented in this report are accompanied by 95% confidence intervals (CIs). These were calculated using Wilson's method for a binomial distribution formula. The 95% CI indicates that there is a 5% chance that the 'true' value lies outside the range of values contained by the CI. Therefore, the wider the CI, the less precise the estimate is to the true result. CIs can indicate whether there is a statistically significant difference in reported rates across groups. Where CIs do not overlap this means that it is unlikely that the difference occurred by chance.

3 Results

3.1 Programme interval cancers

For 2008–2009, 245 interval cancers occurred in the first 12 months following a normal screen giving an interval cancer rate of 5.9 per 10,000 women screened (see Table 3). There were 441 interval cancers in the 12–24 months following a normal screen giving an interval cancer rate of 10.6 per 10,000 women screened (see Table 4). The total number of interval cancers detected for the 2008–2009 screening period was 686. Both the first year and second year interval cancer rates were below the targets set out in the BSA National Policy and Quality Standards (first year target ≤ 7.1 per 10,000 and second year target ≤ 15 per 10,000).

There was no consistent trend in interval cancers by age for 2008–2009 aggregated data (see Figure 1). Interval cancers occurring in the first 12 months after a normal screen decreased with increasing age from 8.6 per 10,000 screens for women 45–49 years to 3.9 per 10,000 screens for women 55–59 years, before increasing again for women 60–64 years (5.0 per 10,000) and again for women 65 years and over (5.4 per 10,000). Interval cancer rates by age for 12–24 months following a normal screen followed the same pattern, with the highest rate for women 45–49 years (11.7 per 10,000) decreasing to 8.9 per 10,000 for women 55–59 years, and then increasing for the older two age groups.

Figure 2 shows the trend in interval cancer rates over time, combining data for 2008–2009 with previously reported data for the 1999–2007. Interval cancer rates for the first 12 months following a normal screen decreased from 6.5 per 10,000 for 2007 to 5.4 per 10,000 for the 2009 year as a result of a decrease in interval cancers from subsequent screens. For 12–24 months interval cancers the results for 2008–2009 continue the overall downward trend since 1999, but 2009 showed a slight increase in interval cancer rates for subsequent screens. Total interval cancers (0–24 months) for 2008–2009 were consistent with the previous trend which saw rates plateau at around 19 per 10,000 screens. The total interval cancer rate for 2009 was 18 per 10,000 screens.

3.2 Programme sensitivity

For 2008–2009 a total of 1,757 breast cancers were detected by screening. Programme sensitivity for <12 months interval cancers was 87.8% (see Table 5) and sensitivity for 12–24 month interval cancers was 79.9% (see Table 6). In general, programme sensitivity increased with age for <12 month, 12–24 month and total 0–24 months interval cancers (although increases were less marked between older age groups) (see Figure 3). Programme sensitivity increased between 2007 and 2008 but levelled off in 2009 due to a drop in sensitivity for initial screens (see Figure 4).

3.3 BSA Lead Provider results

For <12-month interval cancers, BSCM was the only BSA Lead Provider with an interval cancer rate that was significantly different from the total BSA programme result. BSCM rates for each of initial, subsequent and total screens were lower than the respective national rates. For 12–24 month interval cancers the BSWN rate for subsequent screens is higher but with slightly overlapping CIs. For 0–24-month interval cancers the BSCM rate was lower but, once again, with a small overlap in CIs (see Figure 5).

For programme sensitivity, BSCM had a higher sensitivity than the total BSA result for <12-month interval cancers, and also for 0–24-month interval cancers. For 12–24 and 0–24 months BSHC had a lower sensitivity for initial screens than the national result (see Figure 6).

Comparison of trends for total interval cancer rates by provider by year show that BSCC and BSCM had consistently decreasing rates over the most recent 3–4 years. BSWN and BSSL rates were relatively consistently, while trends for other providers were unclear (see Figure 7). Figure 8 compares time trends for programme sensitivity by provider. Results for most providers have fluctuated over time above and below 70%.

See Tables 13 to 16 in the appendix for more detail on individual BSA Lead Provider results for 2008–2009.

3.4 Trends by ethnicity

Data by ethnicity was only available for 2008–2009. As Figures 9 and 10 show, while some variance is evident in results by ethnicity, the very small numbers involved for some groups (particularly Pacific) means there is a large amount of uncertainty, leading to overlapping CIs. However, interval cancer rates appear to be lower for Pacific women for 12–24-month interval cancers for subsequent and total screens. These lower interval cancer rates correspond with higher sensitivity for 12–24-month interval cancers than the overall national result. Sensitivity also appears higher for Māori women compared to national when looking at total screens.

Table 3: First-year (<12 months) interval breast cancers after an initial or subsequent screen by age group and screening year, BSA programme, 2008–2009

Age group (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
2008									
45-49	22	27,862	7.9 (5.3, 11.8)	25	20,239	12.4 (8.7, 17.9)	47	48,101	9.8 (7.5, 12.9)
50-54	8	10,967	7.3 (3.9, 14.2)	17	32,109	5.3 (3.4, 8.4)	25	43,076	5.8 (4.0, 8.5)
55-59	1	3,602	2.8 (0.5, 15.7)	16	39,797	4.0 (2.5, 6.5)	17	43,399	3.9 (2.5, 6.2)
60-64	2	2,157	9.3 (3.0, 33.3)	19	35,995	5.3 (3.4, 8.2)	21	38,152	5.5 (3.7, 8.4)
65+	0	1,370	0.0 (0.0, 28.0)	18	27,194	6.6 (4.3, 10.4)	18	28,564	6.3 (4.1, 9.9)
All	33	45,958	7.2 (5.2, 10.0)	95	155,334	6.1 (5.0, 7.4)	128	201,292	6.4 (5.4, 7.5)
2009									
45-49	28	29,685	9.4 (6.7, 13.5)	12	23,842	5.0 (2.9, 8.7)	40	53,527	7.5 (5.6, 10.1)
50-54	6	9,556	6.3 (3.0, 13.5)	23	39,410	5.8 (4.0, 8.7)	29	48,966	5.9 (4.2, 8.4)
55-59	2	3,886	5.1 (1.6, 18.6)	14	38,128	3.7 (2.2, 6.1)	16	42,014	3.8 (2.4, 6.2)
60-64	1	2,221	4.5 (0.9, 25.3)	17	38,136	4.5 (2.8, 7.1)	18	40,357	4.5 (2.9, 7.0)
65+	3	1,328	22.6 (10.3, 63.6)	11	29,624	3.7 (2.1, 6.6)	14	30,952	4.5 (2.7, 7.5)
All	40	46,676	8.6 (6.4, 11.6)	77	169,140	4.6 (3.7, 5.7)	117	215,816	5.4 (4.6, 6.5)
2008-2009									
45-49	50	57,547	8.7 (6.7, 11.3)	37	44,081	8.4 (6.2, 11.5)	87	101,628	8.6 (7.0, 10.5)
50-54	14	20,523	6.8 (4.2, 11.3)	40	71,519	5.6 (4.2, 7.6)	54	92,042	5.9 (4.5, 7.6)
55-59	3	7,488	4.0 (1.4, 11.7)	30	77,925	3.8 (2.7, 5.5)	33	85,413	3.9 (2.8, 5.4)
60-64	3	4,378	6.9 (2.6, 19.9)	36	74,131	4.9 (3.5, 6.7)	39	78,509	5.0 (3.7, 6.8)
65+	3	2,698	11.1 (4.4, 32.0)	29	56,818	5.1 (3.6, 7.3)	32	59,516	5.4 (3.9, 7.5)
All	73	92,634	7.9 (6.3, 9.8)	172	324,474	5.3 (4.6, 6.1)	245	417,108	5.9 (5.2, 6.6)

Table 4: Second-year (12 to <24 months) interval breast cancers after an initial or subsequent screen by age group and screening year, BSA programme, 2008–2009

Age group (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
2008									
45-49	36	27,862	12.9 (9.6, 17.6)	20	20,239	9.9 (6.6, 15.0)	56	48,101	11.6 (9.1, 14.9)
50-54	7	10,967	6.4 (3.2, 13.0)	33	32,109	10.3 (7.5, 14.2)	40	43,076	9.3 (7.0, 12.5)
55-59	3	3,602	8.3 (3.2, 24.1)	31	39,797	7.8 (5.6, 10.9)	34	43,399	7.8 (5.7, 10.8)
60-64	5	2,157	23.2 (12.2, 51.9)	40	35,995	11.1 (8.4, 14.9)	45	38,152	11.8 (9.0, 15.6)
65+	2	1,370	14.6 (5.2, 51.8)	25	27,194	9.2 (6.4, 13.4)	27	28,564	9.5 (6.7, 13.6)
All	53	45,958	11.5 (9.0, 14.9)	149	155,334	9.6 (8.2, 11.2)	202	201,292	10.0 (8.8, 11.4)
2009									
45-49	36	29,685	12.1 (9.0, 16.5)	27	23,842	11.3 (8.0, 16.2)	63	53,527	11.8 (9.4, 14.9)
50-54	9	9,556	9.4 (5.2, 17.6)	45	39,410	11.4 (8.7, 15.1)	54	48,966	11.0 (8.6, 14.2)
55-59	2	3,886	5.1 (1.6, 18.6)	40	38,128	10.5 (7.9, 14.1)	42	42,014	10.0 (7.5, 13.4)
60-64	7	2,221	31.5 (19.0, 61.2)	36	38,136	9.4 (7.0, 12.9)	43	40,357	10.7 (8.1, 14.2)
65+	1	1,328	7.5 (1.7, 42.1)	36	29,624	12.2 (9.0, 16.6)	37	30,952	12.0 (8.9, 16.2)
All	55	46,676	11.8 (9.2, 15.1)	184	169,140	10.9 (9.5, 12.5)	239	215,816	11.1 (9.8, 12.5)
2008-2009									
45-49	72	57,547	12.5 (10.1, 15.6)	47	44,081	10.7 (8.2, 14.0)	119	101,628	11.7 (9.9, 13.9)
50-54	16	20,523	7.8 (4.9, 12.5)	78	71,519	10.9 (8.9, 13.5)	94	92,042	10.2 (8.5, 12.4)
55-59	5	7,488	6.7 (3.0, 15.4)	71	77,925	9.1 (7.3, 11.4)	76	85,413	8.9 (7.2, 11.0)
60-64	12	4,378	27.4 (17.9, 45.7)	76	74,131	10.3 (8.3, 12.7)	88	78,509	11.2 (9.2, 13.7)
65+	3	2,698	11.1 (4.4, 32.0)	61	56,818	10.7 (8.5, 13.6)	64	59,516	10.8 (8.6, 13.6)
All	108	92,634	11.7 (9.8, 13.9)	333	324,474	10.3 (9.3, 11.4)	441	417,108	10.6 (9.7, 11.6)

Figure 1: Interval cancers by five-year age group 45–69 years, initial and subsequent screens, 2008–2009 aggregated, with 95% confidence intervals

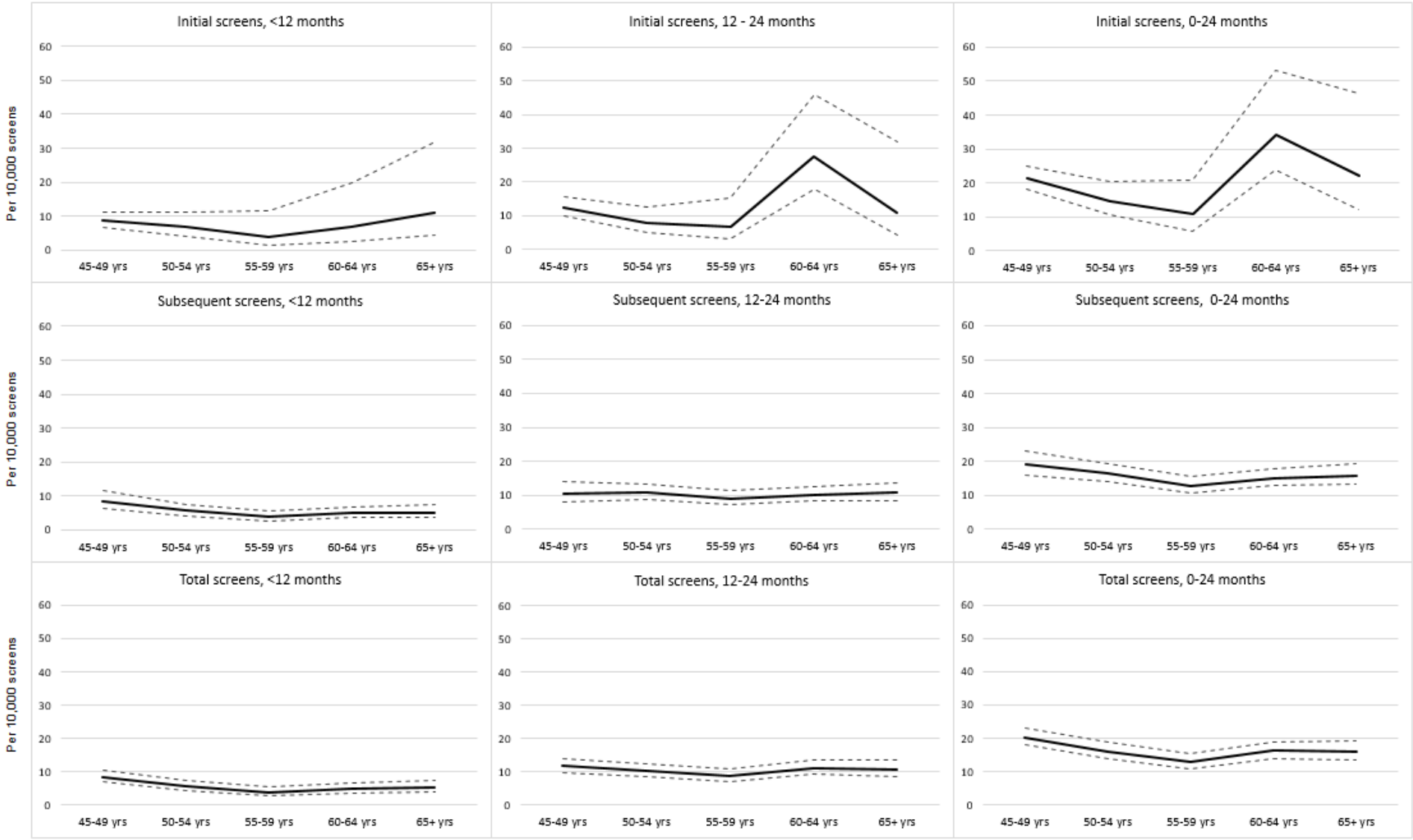


Figure 2: Interval cancers occurring in first year (<12 months) and second year (12–24 months) following initial or subsequent screens occurring in 1999–2009, women aged 45–69 years, with 95% confidence intervals

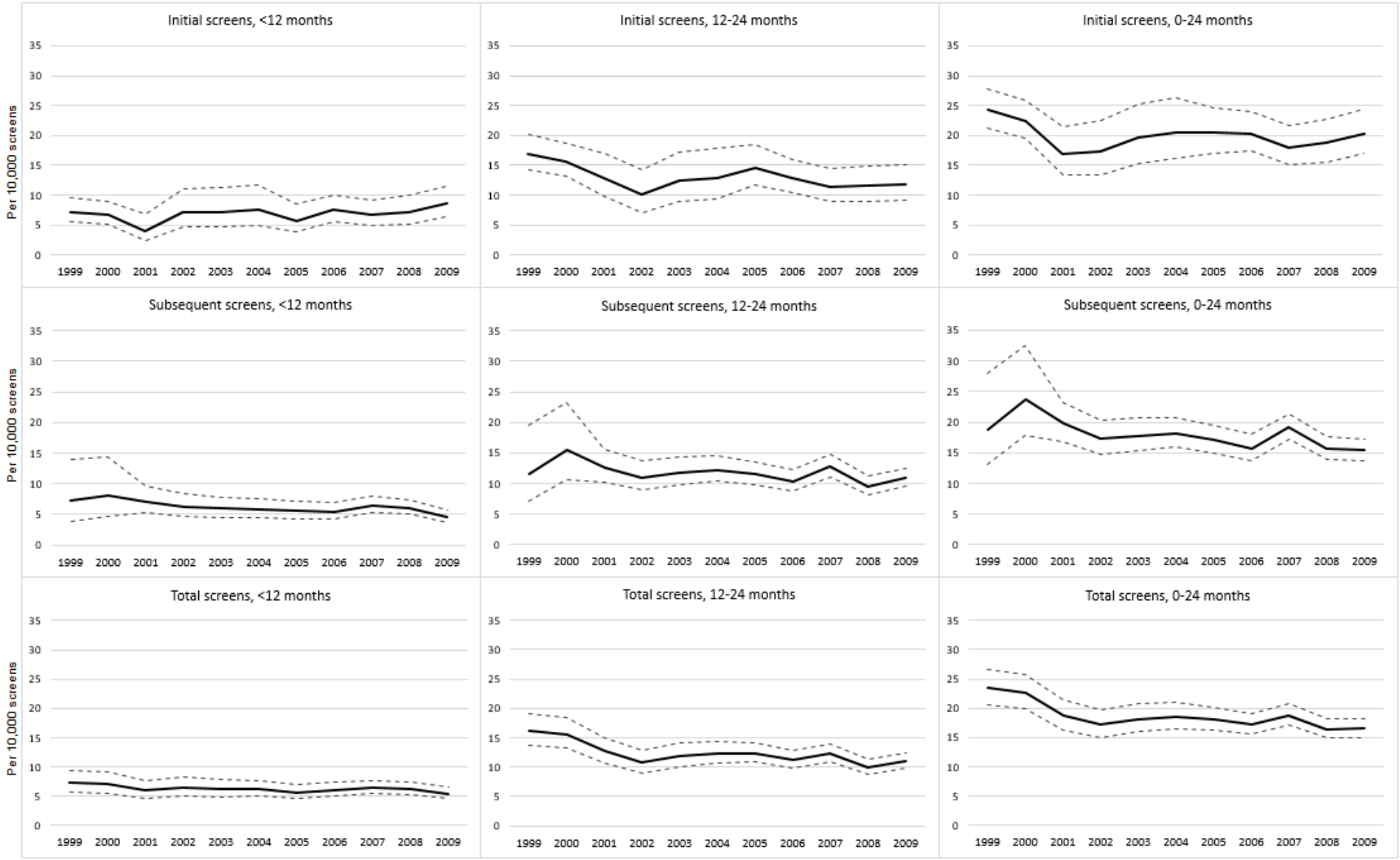


Table 5: First-year (<12 months) programme sensitivity (%) after an initial or subsequent screen by age group and screening year, 2008–2009

Age group (yr)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)
2008									
45-49	22	112	83.6 (76.4, 88.9)	25	41	62.1 (50.1, 72.9)	47	153	76.5 (70.2, 81.8)
50-54	8	70	89.7 (81.0, 94.7)	17	88	83.8 (75.6, 89.6)	25	158	86.3 (80.6, 90.6)
55-59	1	22	95.7 (79.0, 99.2)	16	147	90.2 (84.7, 93.9)	17	169	90.9 (85.9, 94.2)
60-64	2	27	93.1 (78.0, 98.1)	19	165	89.7 (84.4, 93.3)	21	192	90.1 (85.4, 93.5)
65+	0	15	100.0 (79.6, 100.0)	18	157	89.7 (84.3, 93.4)	18	172	90.5 (85.5, 93.9)
All	33	246	88.2 (83.9, 91.5)	95	598	86.3 (83.5, 88.7)	128	844	86.8 (84.6, 88.8)
2009									
45-49	28	88	75.9 (67.3, 82.7)	12	53	81.5 (70.4, 89.1)	40	141	77.9 (71.3, 83.3)
50-54	6	42	87.5 (75.3, 94.1)	23	107	82.3 (74.8, 87.9)	29	149	83.7 (77.6, 88.4)
55-59	2	39	95.1 (83.9, 98.7)	14	155	91.7 (86.6, 95.0)	16	194	92.4 (88.0, 95.3)
60-64	1	34	97.1 (85.5, 99.5)	17	203	92.3 (88.0, 95.1)	18	237	92.9 (89.1, 95.5)
65+	3	21	87.5 (69.0, 95.7)	11	171	94.0 (89.5, 96.6)	14	192	93.2 (88.9, 95.9)
All	40	224	84.8 (80.0, 88.7)	77	689	89.9 (87.6, 91.9)	117	913	88.6 (86.6, 90.4)
2008-2009									
45-49	50	200	80.0 (74.6, 84.5)	37	94	71.8 (63.5, 78.8)	87	294	77.2 (72.7, 81.1)
50-54	14	112	88.9 (82.2, 93.3)	40	195	83.0 (77.7, 87.2)	54	307	85.0 (81.0, 88.4)
55-59	3	61	95.3 (87.1, 98.4)	30	302	91.0 (87.4, 93.6)	33	363	91.7 (88.5, 94.0)
60-64	3	61	95.3 (87.1, 98.4)	36	368	91.1 (87.9, 93.5)	39	429	91.7 (88.8, 93.8)
65+	3	36	92.3 (79.7, 97.3)	29	328	91.9 (88.6, 94.3)	32	364	91.9 (88.8, 94.2)
All	73	470	86.6 (83.4, 89.2)	172	1,287	88.2 (86.5, 89.8)	245	1,757	87.8 (86.3, 89.1)

Table 6: Second-year (12 to <24 months) programme sensitivity (%) after an initial or subsequent screen by age group and screening year, 2008–2009

Age group (yr)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)
2008									
45-49	36	112	75.7 (68.2, 81.9)	20	41	67.2 (54.7, 77.7)	56	153	73.2 (66.8, 78.8)
50-54	7	70	90.9 (82.4, 95.5)	33	88	72.7 (64.2, 79.9)	40	158	79.8 (73.7, 84.8)
55-59	3	22	88.0 (70.0, 95.8)	31	147	82.6 (76.3, 87.5)	34	169	83.3 (77.5, 87.8)
60-64	5	27	84.4 (68.2, 93.1)	40	165	80.5 (74.5, 85.3)	45	192	81.0 (75.5, 85.5)
65+	2	15	88.2 (65.7, 96.7)	25	157	86.3 (80.5, 90.5)	27	172	86.4 (81.0, 90.5)
All	53	246	82.3 (77.5, 86.2)	149	598	80.1 (77.0, 82.8)	202	844	80.7 (78.2, 83.0)
2009	0								
45-49	36	88	71.0 (62.4, 78.2)	27	53	66.3 (55.4, 75.7)	63	141	69.1 (62.5, 75.1)
50-54	9	42	82.4 (69.7, 90.4)	45	107	70.4 (62.7, 77.1)	54	149	73.4 (66.9, 79.0)
55-59	2	39	95.1 (83.9, 98.7)	40	155	79.5 (73.3, 84.6)	42	194	82.2 (76.8, 86.6)
60-64	7	34	82.9 (68.7, 91.5)	36	203	84.9 (79.9, 88.9)	43	237	84.6 (80.0, 88.4)
65+	1	21	95.5 (78.2, 99.2)	36	171	82.6 (76.9, 87.2)	37	192	83.8 (78.5, 88.0)
All	55	224	80.3 (75.2, 84.5)	184	689	78.9 (76.1, 81.5)	239	913	79.3 (76.8, 81.5)
2008-2009									
45-49	72	200	73.5 (68.0, 78.4)	47	94	66.7 (58.5, 73.9)	119	294	71.2 (66.6, 75.3)
50-54	16	112	87.5 (80.7, 92.2)	78	195	71.4 (65.8, 76.5)	94	307	76.6 (72.2, 80.4)
55-59	5	61	92.4 (83.5, 96.7)	71	302	81.0 (76.7, 84.6)	76	363	82.7 (78.9, 85.9)
60-64	12	61	83.6 (73.4, 90.3)	76	368	82.9 (79.1, 86.1)	88	429	83.0 (79.5, 86.0)
65+	3	36	92.3 (79.7, 97.3)	61	328	84.3 (80.4, 87.6)	64	364	85.0 (81.4, 88.1)
All	108	470	81.3 (77.9, 84.3)	333	1,287	79.4 (77.4, 81.3)	441	1,757	79.9 (78.2, 81.6)

Figure 3: Programme sensitivity by age 45–69 years, by interval cancers in first and second year following initial or subsequent screen, with 95% confidence intervals, 2008–2009

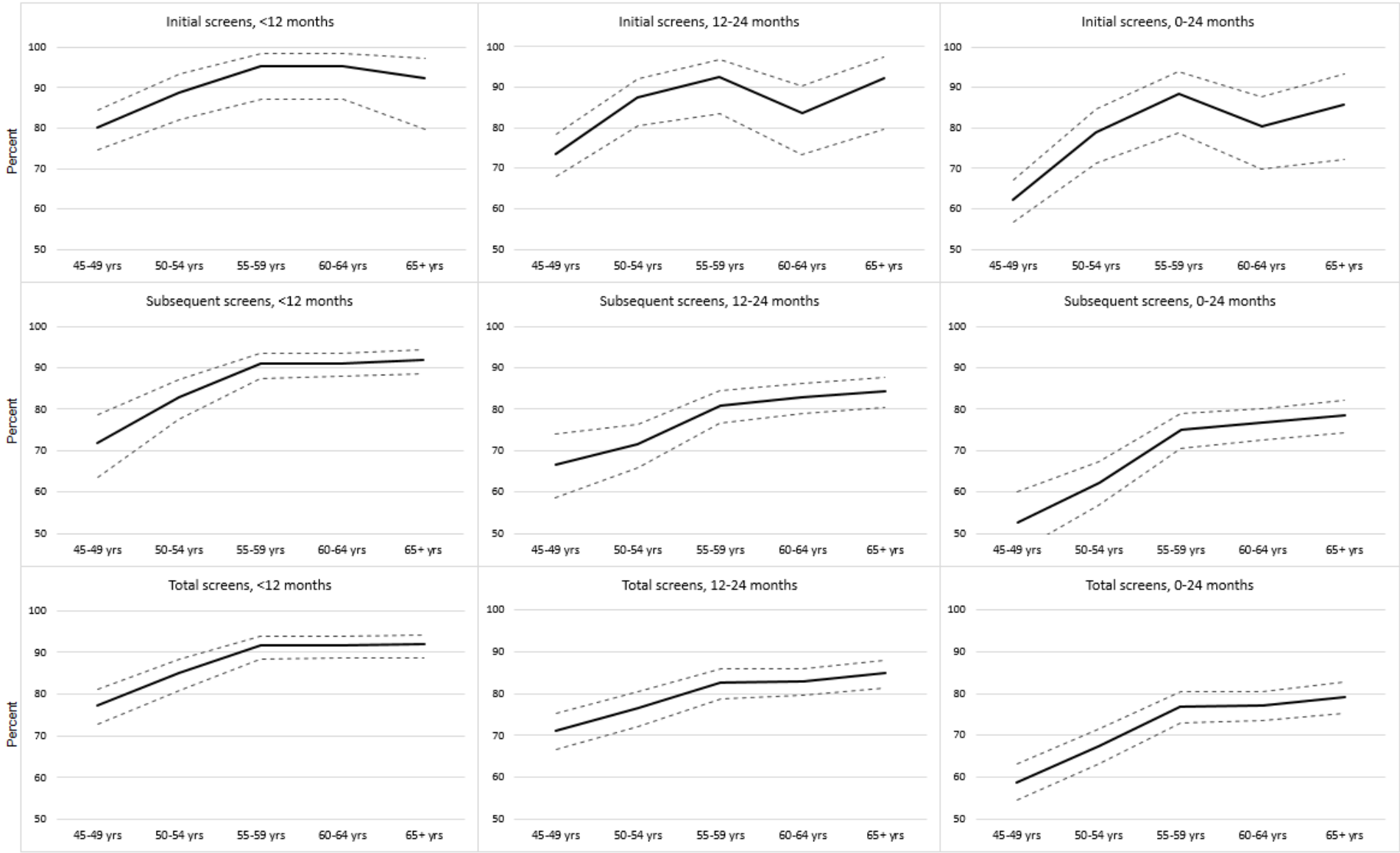


Figure 4: Programme sensitivity (%) by first and subsequent screens in relation to interval cancers in the first year (<12 months) and second year (12–24 months) following screens occurring in 1999–2009, with 95% confidence intervals

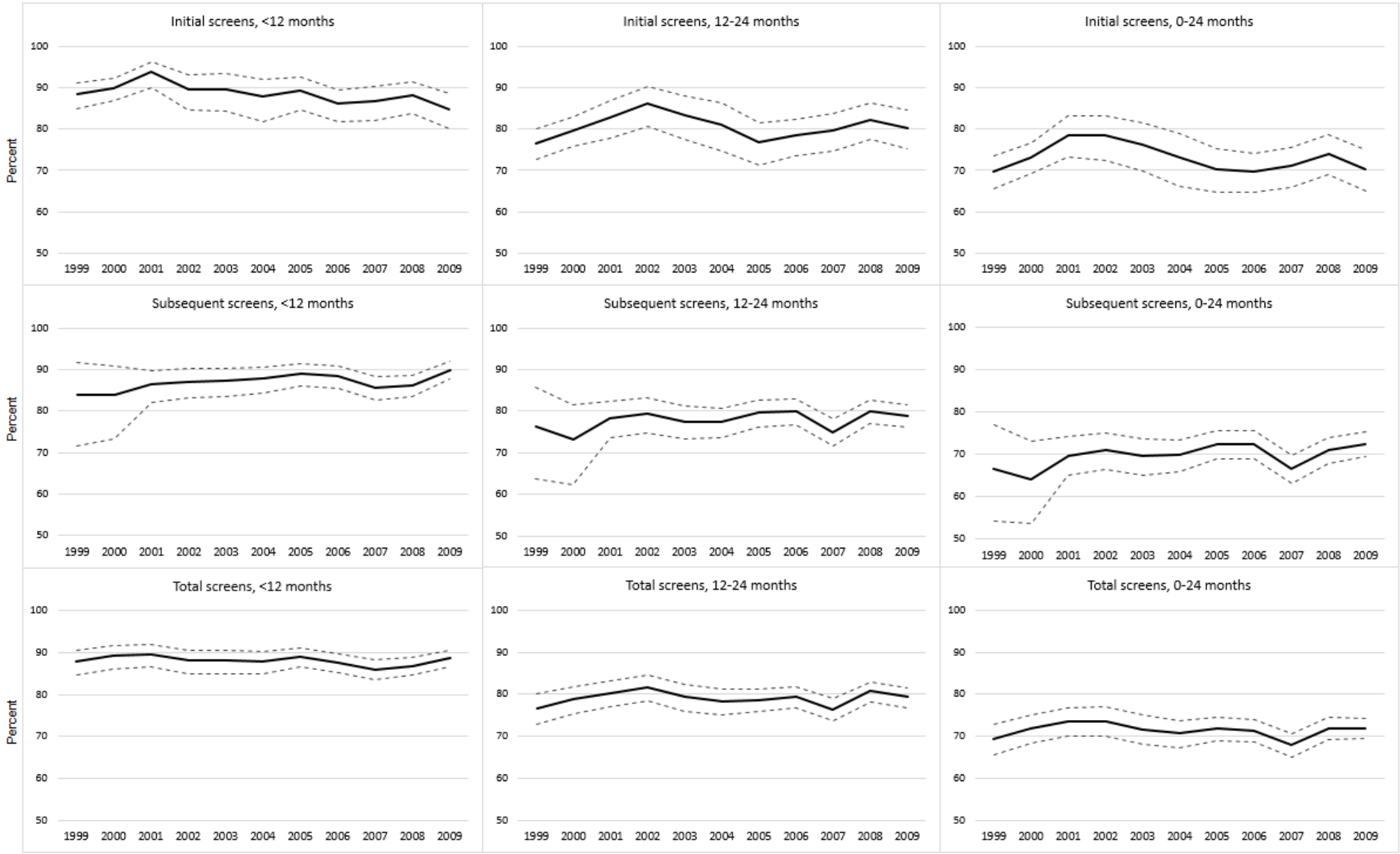


Figure 5: Interval cancer rates by BSA Lead Provider, by first- and second-year interval cancers and by initial and subsequent screens, with 95% confidence intervals, 2008–2009

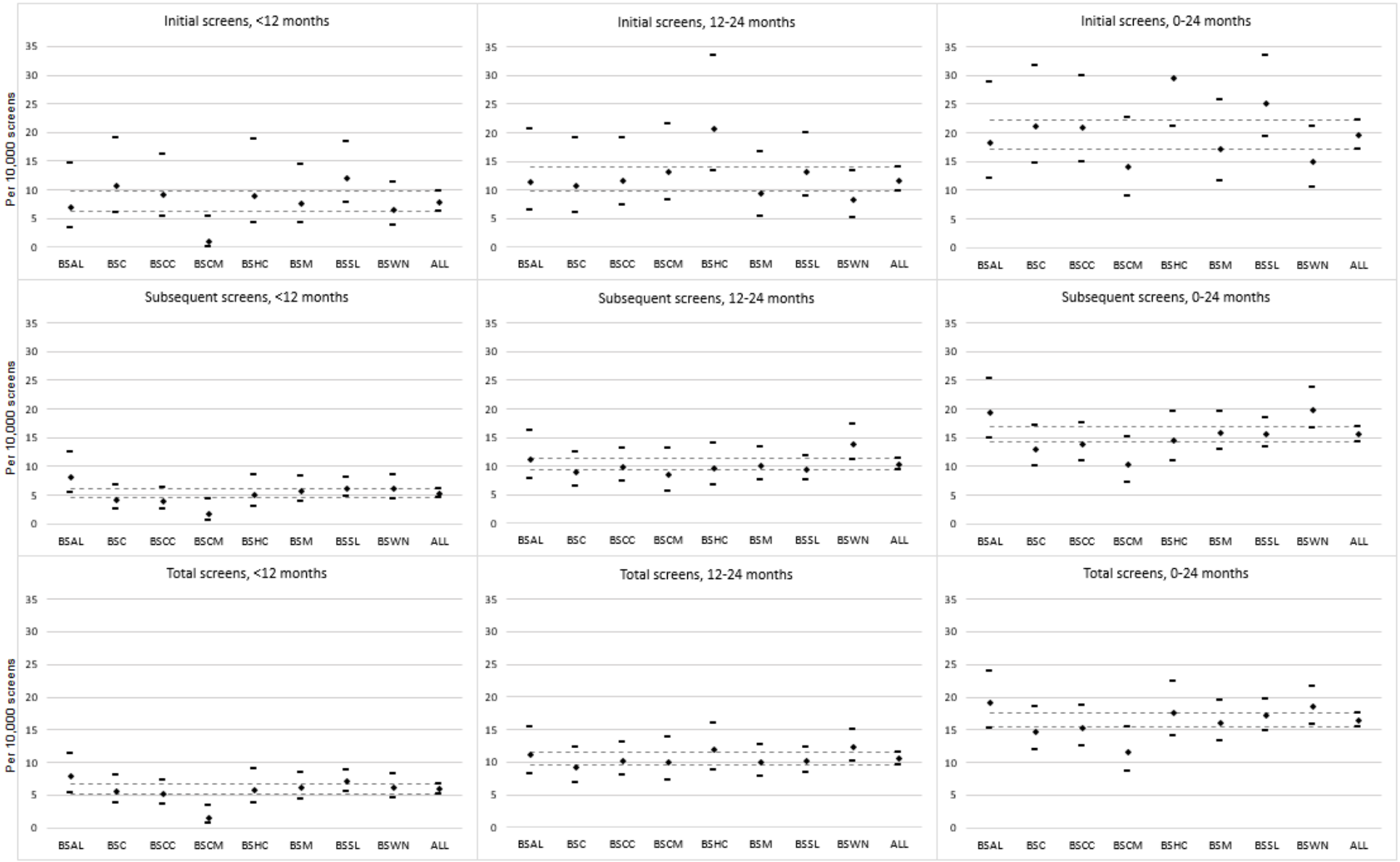


Figure 6: Programme sensitivity by BSA Lead Provider, by first- and second-year interval cancers and by initial and subsequent screens, with 95% confidence intervals, 2008–2009

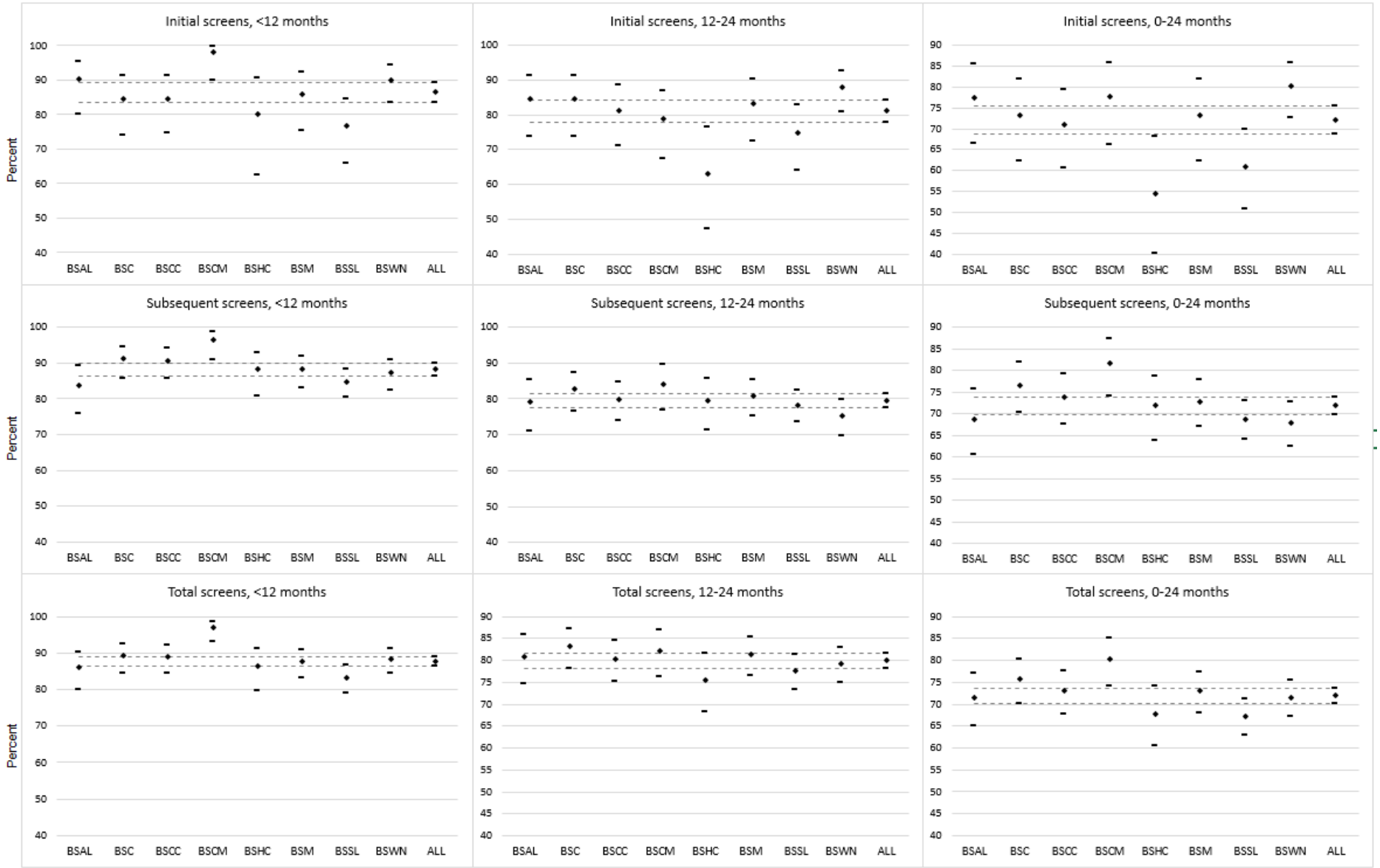


Table 7: First-year (<12 months) interval breast cancers after an initial or subsequent screen by ethnicity and screening year, 2008–2009

Ethnicity (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
2008									
Māori	1	5,636	1.8 (0.3, 10.0)	6	10,561	5.7 (2.7, 12.3)	7	16,197	4.3 (2.2, 8.9)
Pacific	1	2,868	3.5 (0.7, 19.6)	2	4,176	4.8 (1.4, 17.3)	3	7,044	4.3 (1.5, 12.4)
Other	31	37,454	8.3 (6.0, 11.6)	87	140,597	6.2 (5.1, 7.6)	118	178,051	6.6 (5.6, 7.9)
All	33	45,958	7.2 (5.2, 10.0)	95	155,334	6.1 (5.0, 7.4)	128	201,292	6.4 (5.4, 7.5)
2009									
Māori	5	5,902	8.5 (3.9, 19.5)	5	13,122	3.8 (1.7, 8.9)	10	19,024	5.3 (2.9, 9.6)
Pacific	0	2,820	0.0 (0.0, 13.6)	0	4,980	0.0 (0.0, 7.7)	0	7,800	0.0 (0.0, 4.9)
Other	35	37,954	9.2 (6.8, 12.7)	72	151,038	4.8 (3.8, 6.0)	107	188,992	5.7 (4.7, 6.8)
All	40	46,676	8.6 (6.4, 11.6)	77	169,140	4.6 (3.7, 5.7)	117	215,816	5.4 (4.6, 6.5)
2008-2009									
Māori	6	11,538	5.2 (2.5, 11.2)	11	23,683	4.6 (2.7, 8.3)	17	35,221	4.8 (3.1, 7.7)
Pacific	1	5,688	1.8 (0.3, 9.9)	2	9,156	2.2 (0.6, 7.9)	3	14,844	2.0 (0.7, 5.9)
Other	66	75,408	8.8 (7.0, 11.0)	159	291,635	5.5 (4.7, 6.3)	225	367,043	6.1 (5.4, 7.0)
All	73	92,634	7.9 (6.3, 9.8)	172	324,474	5.3 (4.6, 6.1)	245	417,108	5.9 (5.2, 6.6)

Table 8: Second-year (12–24 months) interval breast cancers after an initial or subsequent screen by ethnicity and screening year, 2008–2009

Ethnicity (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
2008									
Māori	3	5,636	5.3 (1.9, 15.5)	12	10,561	11.4 (6.9, 19.5)	15	16,197	9.3 (5.8, 15.1)
Pacific	2	2,868	7.0 (2.2, 25.1)	2	4,176	4.8 (1.4, 17.3)	4	7,044	5.7 (2.4, 14.5)
Other	48	37,454	12.8 (9.9, 16.8)	135	140,597	9.6 (8.2, 11.3)	183	178,051	10.3 (9.0, 11.8)
All	53	45,958	11.5 (9.0, 14.9)	149	155,334	9.6 (8.2, 11.2)	202	201,292	10.0 (8.8, 11.4)
2009									
Māori	9	5,902	15.2 (8.8, 28.2)	16	13,122	12.2 (7.9, 19.4)	25	19,024	13.1 (9.2, 19.1)
Pacific	2	2,820	7.1 (2.2, 25.5)		4,980	0.0 (0.0, 7.7)	2	7,800	2.6 (0.7, 9.3)
Other	44	37,954	11.6 (8.8, 15.4)	168	151,038	11.1 (9.7, 12.8)	212	188,992	11.2 (9.9, 12.7)
All	55	46,676	11.8 (9.2, 15.1)	184	169,140	10.9 (9.5, 12.5)	239	215,816	11.1 (9.8, 12.5)
2008-2009									
Māori	12	11,538	10.4 (6.2, 17.9)	28	23,683	11.8 (8.4, 16.8)	40	35,221	11.4 (8.5, 15.3)
Pacific	4	5,688	7.0 (3.0, 17.9)	2	9,156	2.2 (0.6, 7.9)	6	14,844	4.0 (1.9, 8.8)
Other	92	75,408	12.2 (10.1, 14.8)	303	291,635	10.4 (9.3, 11.6)	395	367,043	10.8 (9.8, 11.8)
All	108	92,634	11.7 (9.8, 13.9)	333	324,474	10.3 (9.3, 11.4)	441	417,108	10.6 (9.7, 11.6)

Table 9: First-year (<12 months) programme sensitivity (%) after an initial or subsequent screen by ethnicity and screening year, 2008–2009

Ethnicity (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval Cancers	Screen Detected	Sensitivity (95% CI)	Interval Cancers	Screen Detected	Sensitivity (95% CI)	Interval Cancers	Screen Detected	Sensitivity (95% CI)
2008									
Māori	1	56	98.2 (90.7, 99.7)	6	68	91.9 (83.4, 96.2)	7	124	94.7 (89.4, 97.4)
Pacific	1	21	95.5 (78.2, 99.2)	2	12	85.7 (60.1, 96.0)	3	33	91.7 (78.2, 97.1)
Other	31	169	84.5 (78.8, 88.9)	87	518	85.6 (82.6, 88.2)	118	687	85.3 (82.7, 87.6)
All	33	246	88.2 (83.9, 91.5)	95	598	86.3 (83.5, 88.7)	128	844	86.8 (84.6, 88.8)
2009									
Māori	5	43	89.6 (77.8, 95.5)	5	92	94.8 (88.5, 97.8)	10	135	93.1 (87.8, 96.2)
Pacific	0	17	100.0 (81.6, 100.0)	0	20	100.0 (83.9, 100.0)	0	37	100.0 (90.6, 100.0)
Other	35	164	82.4 (76.5, 87.1)	72	577	88.9 (86.3, 91.1)	107	741	87.4 (85.0, 89.4)
All	40	224	84.8 (80.0, 88.7)	77	689	89.9 (87.6, 91.9)	117	913	88.6 (86.6, 90.4)
2008-2009									
Māori	6	99	94.3 (88.1, 97.4)	11	160	93.6 (88.8, 96.4)	17	259	93.8 (90.4, 96.1)
Pacific	1	38	97.4 (86.8, 99.5)	2	32	94.1 (80.9, 98.4)	3	70	95.9 (88.6, 98.6)
Other	66	333	83.5 (79.5, 86.8)	159	1,095	87.3 (85.4, 89.0)	225	1,428	86.4 (84.7, 88.0)
All	73	470	86.6 (83.4, 89.2)	172	1,287	88.2 (86.5, 89.8)	245	1,757	87.8 (86.3, 89.1)

Table 10: Second-year (12–24 months) programme sensitivity (%) after an initial or subsequent screen by ethnicity and screening year, 2008–2009

Ethnicity (year)	Initial Screens			Subsequent Screens			All Screens		
	Interval Cancers	Screen Detected	Sensitivity (95% CI)	Interval Cancers	Screen Detected	Sensitivity (95% CI)	Interval Cancers	Screen Detected	Sensitivity (95% CI)
2008									
Māori	3	56	94.9 (86.1, 98.3)	12	68	85.0 (75.6, 91.2)	15	124	89.2 (83.0, 93.4)
Pacific	2	21	91.3 (73.2, 97.6)	2	12	85.7 (60.1, 96.0)	4	33	89.2 (75.3, 95.7)
Other	48	169	77.9 (71.9, 82.9)	135	518	79.3 (76.1, 82.3)	183	687	79.0 (76.1, 81.5)
All	53	246	82.3 (77.5, 86.2)	149	598	80.1 (77.0, 82.8)	202	844	80.7 (78.2, 83.0)
2009									
Māori	9	43	82.7 (70.3, 90.6)	16	92	85.2 (77.3, 90.7)	25	135	84.4 (78.0, 89.2)
Pacific	2	17	89.5 (68.6, 97.1)	0	20	100.0 (83.9, 100.0)	2	37	94.9 (83.1, 98.6)
Other	44	164	78.8 (72.8, 83.8)	168	577	77.4 (74.3, 80.3)	212	741	77.8 (75.0, 80.3)
All	55	224	80.3 (75.2, 84.5)	184	689	78.9 (76.1, 81.5)	239	913	79.3 (76.8, 81.5)
2008-2009									
Māori	12	99	89.2 (82.0, 93.7)	28	160	85.1 (79.3, 89.5)	40	259	86.6 (82.3, 90.0)
Pacific	4	38	90.5 (77.9, 96.2)	2	32	94.1 (80.9, 98.4)	6	70	92.1 (83.8, 96.3)
Other	92	333	78.4 (74.2, 82.0)	303	1,095	78.3 (76.1, 80.4)	395	1,428	78.3 (76.4, 80.2)
All	108	470	81.3 (77.9, 84.3)	333	1,287	79.4 (77.4, 81.3)	441	1,757	79.9 (78.2, 81.6)

Figure 7: Trends in interval cancer rates by BSA Lead Provider, 1999–2009, with 95% confidence intervals

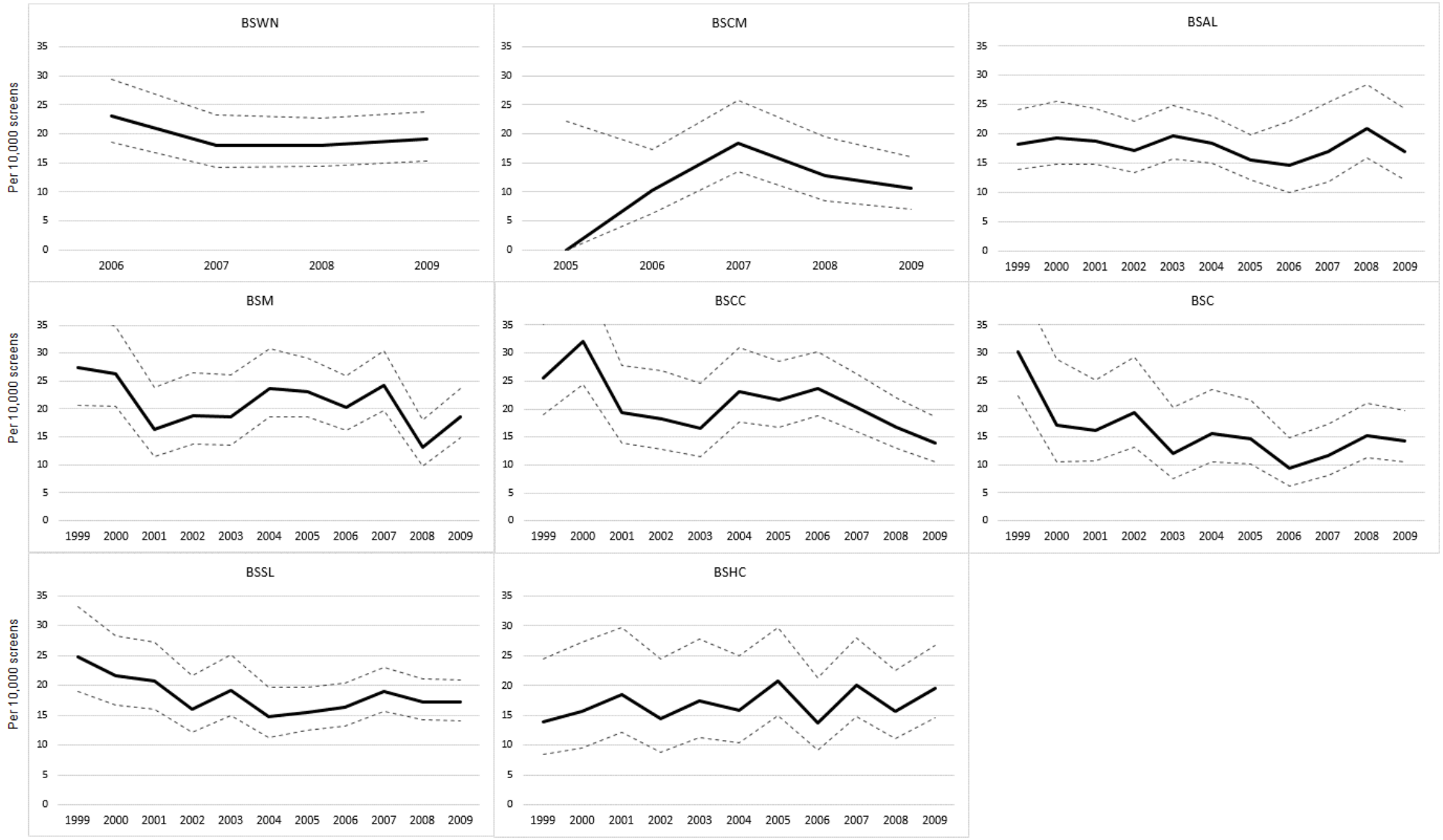


Figure 8: Trends in programme sensitivity by BSA Lead Provider, 1999–2009, with 95% confidence intervals

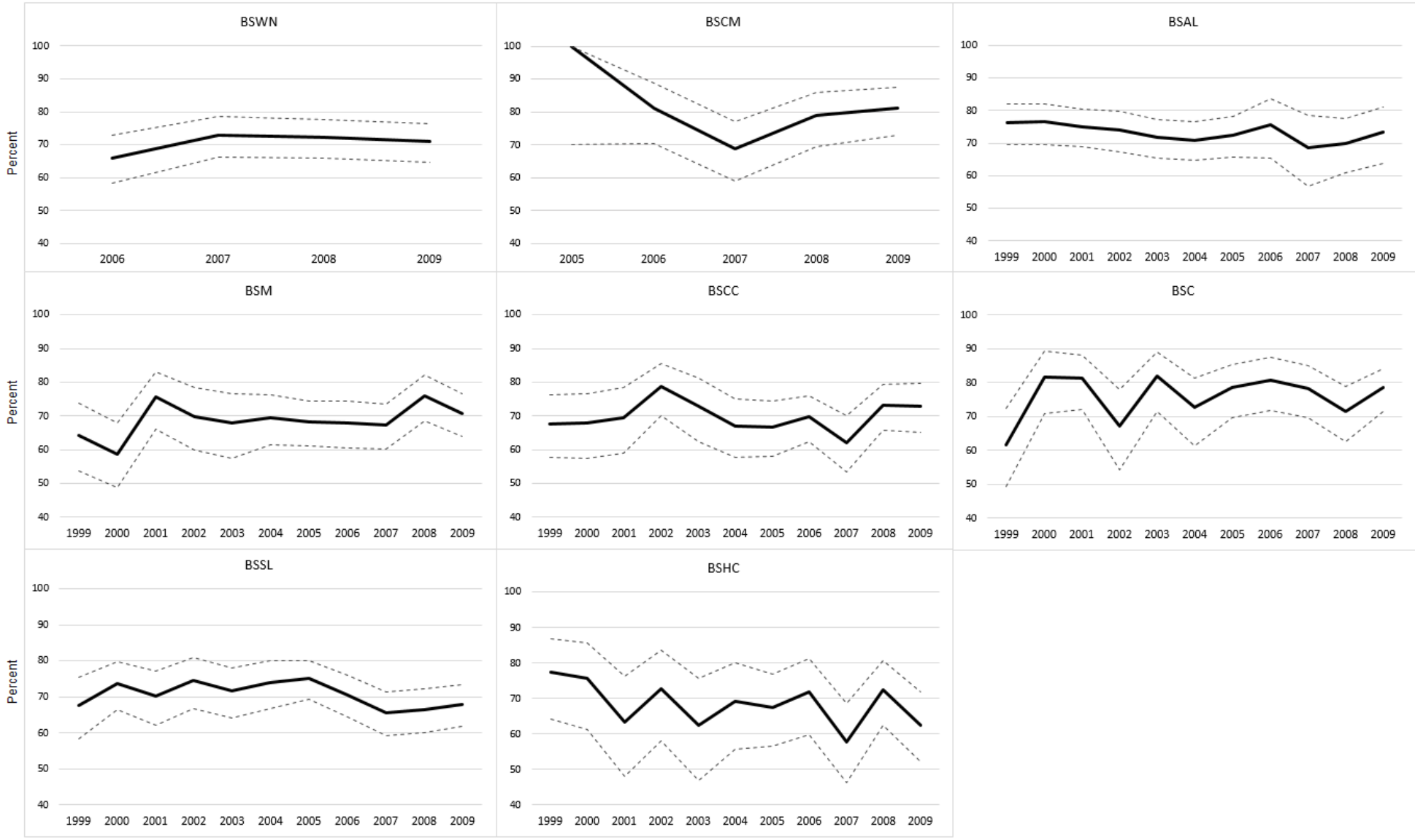


Figure 9: Interval cancer rates by ethnicity, by first- and second-year interval cancers and by initial and subsequent screens, with 95% confidence intervals, 2008–2009

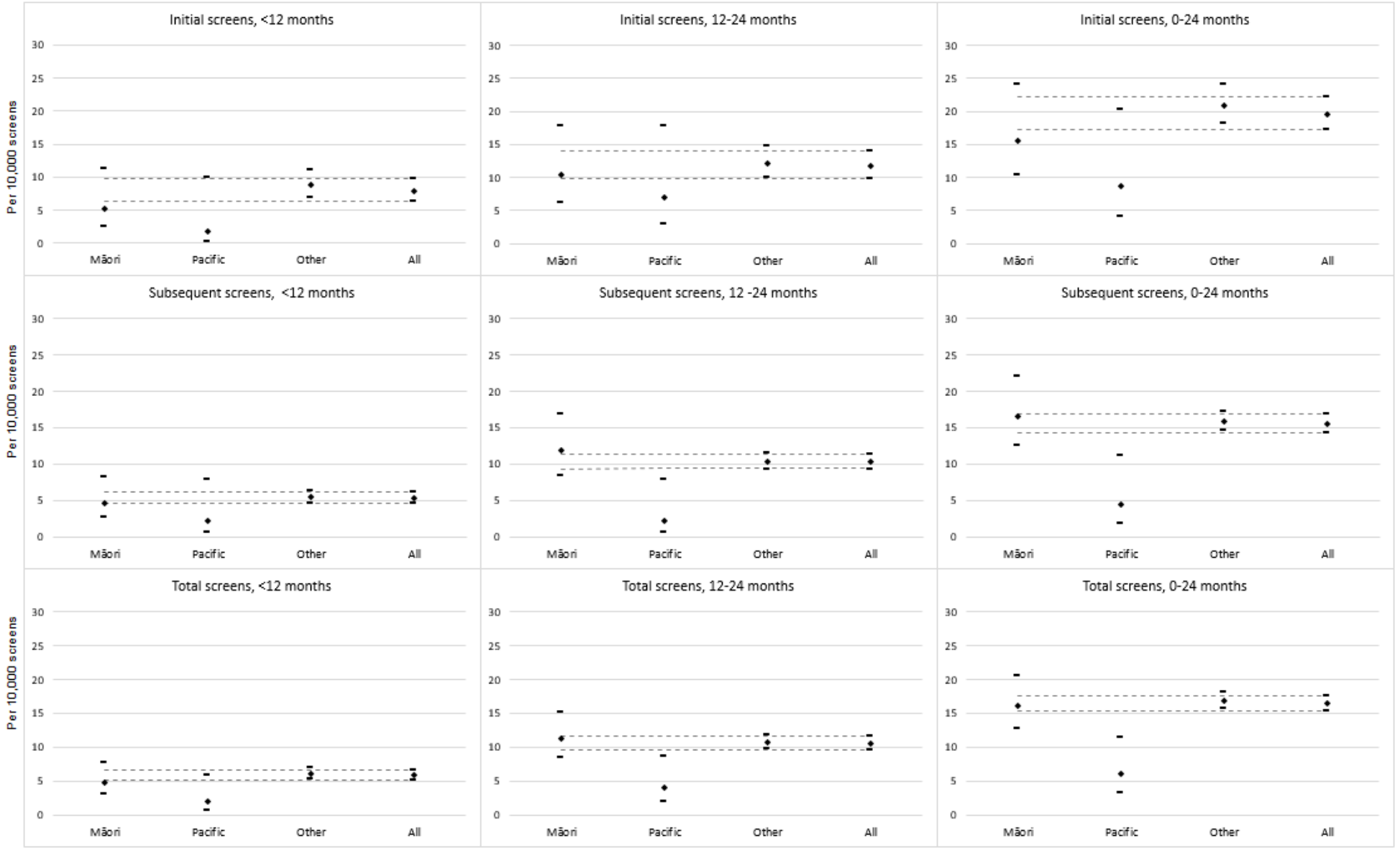
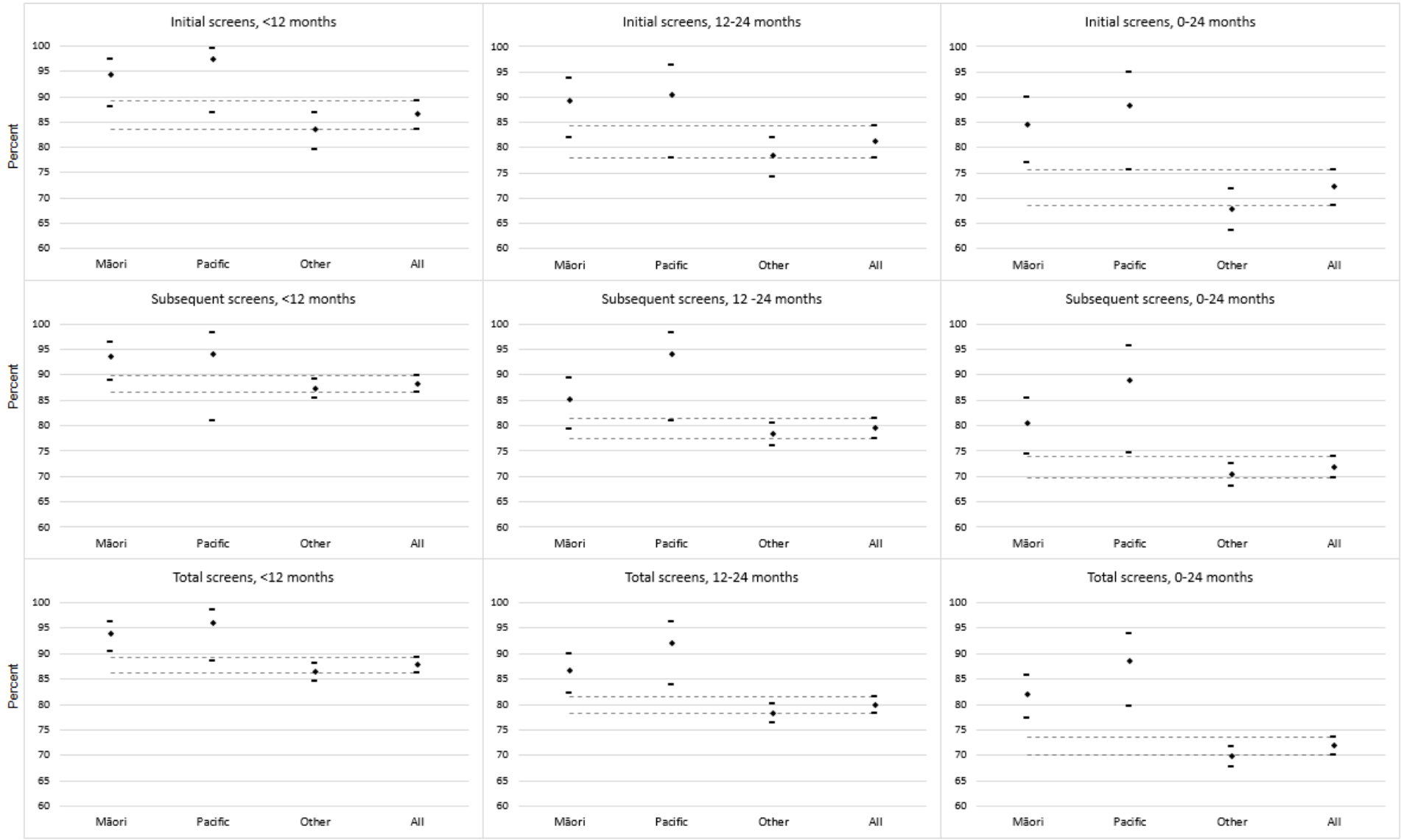


Figure 10: Programme sensitivity by ethnicity, by first- and second-year interval cancers and by initial and subsequent screens, with 95% confidence intervals, 2008–2009



4 International comparisons

Tables 11 and 12 show a comparison of BSA interval cancer rates and programme sensitivity against recently published results for BreastScreen Australia (Australian Institute of Health and Welfare 2014) and interval cancer rates from the UK (Offman & Duffy 2012). Results have also been calculated for women 50–69 years for BSA to match the starting age of other programmes.

BSA interval cancer rates are not significantly different from comparable programmes. While noting the overlap in confidence intervals, there appears to be a bigger difference in interval cancer rates for initial versus subsequent screens in BSA for interval cancers less than 12 months when compared with Australia. However this difference reduces when BSA rates are calculated for women 50–69 years.

Results for programme sensitivity are not significantly different to BreastScreen Australia. No new published results for programme sensitivity for other countries were available at the time of writing this report. As for interval cancer rates, BSA sensitivity results improve when calculated for women 50–69 years.

Table 11: BSA 2008–09 interval cancer rates compared with the Australian and UK national screening programmes

Programme	Target age group	Screening period	Interval cancers per 10,000 screened (95% CI)		
				First year (< 12 months)	Second year (12 - 24 months)
BreastScreen Aotearoa, New Zealand	45 - 69	2008-2009	*Initial*	7.9 (6.3, 9.8)	11.7 (9.8, 13.9)
			Subsequent	5.3 (4.6, 6.1)	10.3 (9.3, 11.4)
			Total screens	5.9 (5.2, 6.6)	10.6 (9.7, 11.6)
	50 - 69	2008-2009	*Initial*	6.6 (4.5, 9.7)	10.3 (7.6, 14.0)
			Subsequent	4.8 (4.1, 5.7)	10.2 (9.1, 11.4)
Australia	50 - 69	2007-2009	*Initial*	6.1 (4.9, 7.5)	12.0 (10.2, 13.9)
			Subsequent	6.4 (6.0, 6.8)	12.2 (11.6, 12.7)
NHS UK	50 - 64	2003-2004	*Total screens*	5.5 (4.2, 6.4)	11.4 (8.8, 13.6)
		2004-2005	*Total screens*	4.6 (3.4, 5.7)	10.2 (8.4, 11.7)

Table 12: BSA 2008–09 programme sensitivity compared with the Australian national screening programme

Programme	Target age group	Screening period	Interval cancers per 10,000 screened (95% CI)		
				First year (< 12 months)	Second year (12 - 24 months)
BreastScreen Aotearoa, New Zealand	45 - 69	2008-2009	*Initial*	86.6 (83.4, 89.2)	81.3 (77.9, 84.3)
			Subsequent	88.2 (86.5, 89.8)	79.4 (77.4, 81.3)
			Total screens	87.8 (86.3, 89.1)	79.9 (78.2, 81.6)
	50 - 69	2008-2009	*Initial*	92.2 (88.5, 94.7)	88.2 (84.1, 91.4)
			Subsequent	89.8 (88.1, 91.3)	80.7 (78.6, 82.6)
Australia	50 - 69	2007-2009	*Initial*	92.8 (87.9, 97.9)	82.4 (78.0, 87.0)
			Subsequent	87.4 (85.5, 89.4)	72.8 (71.2, 74.4)

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Australian Institute of Health and Welfare. 2014. *BreastScreen Australia monitoring report 2011–2012. Cancer Series no.86. Cat. No. CAN83*. Canberra: Australian Institute of Health and Welfare.

Offman J, Duffy SW. 2012. *National Collation of Breast Interval Cancer Data: screening years 1 April 2003–31 March 2005*. NHS Cancer Screening Programmes: Sheffield UK.

Taylor R, Wall M, Morrell S. 2012. *Interval Cancers in BreastScreen Aotearoa, 1999–2007*. University of New South Wales, Australia.

Appendix

Table 13: First-year (<12 months) interval breast cancers after an initial or subsequent screen by age group and BSA Lead Provider, 2008–2009

Age group (provider)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
BSNN									
45–49	8	10,379	7.7 (4.1, 15.0)	8	6,910	11.6 (6.3, 22.4)	16	17,289	9.3 (5.9, 14.8)
50–54	2	4,206	4.8 (1.4, 17.2)	4	10,412	3.8 (1.6, 9.8)	6	14,618	4.1 (1.9, 8.9)
55–59	1	1,738	5.8 (1.2, 32.3)	7	11,893	5.9 (3.0, 12.0)	8	13,631	5.9 (3.1, 11.5)
60–64	1	1,109	9.0 (2.2, 50.3)	7	11,419	6.1 (3.1, 12.5)	8	12,528	6.4 (3.4, 12.5)
65+	0	741	0.0 (0.0, 51.6)	4	8,706	4.6 (1.9, 11.7)	4	9,447	4.2 (1.7, 10.8)
All	12	18,173	6.6 (3.9, 11.4)	30	49,340	6.1 (4.3, 8.6)	42	67,513	6.2 (4.7, 8.3)
BSCN									
45–49	1	6,088	1.6 (0.3, 9.3)	1	2,744	3.6 (0.7, 20.5)	2	8,832	2.3 (0.7, 8.2)
50–54	0	2,618	0.0 (0.0, 14.7)	1	4,996	2.0 (0.4, 11.3)	1	7,614	1.3 (0.2, 7.4)
55–59	0	973	0.0 (0.0, 39.3)	2	5,875	3.4 (1.0, 12.3)	2	6,848	2.9 (0.8, 10.6)
60–64	0	631	0.0 (0.0, 60.5)	0	5,534	0.0 (0.0, 6.9)	0	6,165	0.0 (0.0, 6.2)
65+	0	361	0.0 (0.0, 105.3)	0	4,153	0.0 (0.0, 9.2)	0	4,514	0.0 (0.0, 8.5)
All	1	10,671	0.9 (0.2, 5.3)	4	23,302	1.7 (0.7, 4.4)	5	33,973	1.5 (0.6, 3.4)
BSAL									
45–49	3	5,046	5.9 (2.2, 17.3)	3	3,315	9.0 (3.5, 26.2)	6	8,361	7.2 (3.5, 15.5)
50–54	2	2,035	9.8 (3.2, 35.2)	4	5,282	7.6 (3.2, 19.2)	6	7,317	8.2 (4.0, 17.6)
55–59	0	877	0.0 (0.0, 43.6)	2	5,862	3.4 (1.0, 12.4)	2	6,739	3.0 (0.9, 10.8)
60–64	1	519	19.3 (6.0, 105.7)	6	5,169	11.6 (5.8, 24.8)	7	5,688	12.3 (6.5, 24.8)
65+	0	300	0.0 (0.0, 126.4)	4	3,634	11.0 (4.8, 27.7)	4	3,934	10.2 (4.4, 25.7)
All	6	8,777	6.8 (3.3, 14.7)	19	23,262	8.2 (5.4, 12.6)	25	32,039	7.8 (5.4, 11.4)
BSW									
45–49	5	6,889	7.3 (3.3, 16.8)	8	5,227	15.3 (8.5, 29.4)	13	12,116	10.7 (6.6, 18.0)
50–54	2	2,892	6.9 (2.2, 24.9)	4	9,324	4.3 (1.7, 10.9)	6	12,216	4.9 (2.3, 10.6)
55–59	1	1,069	9.4 (2.3, 52.2)	2	10,684	1.9 (0.5, 6.8)	3	11,753	2.6 (0.9, 7.5)
60–64	0	538	0.0 (0.0, 70.9)	5	10,937	4.6 (2.0, 10.6)	5	11,475	4.4 (1.9, 10.1)
65+	1	313	31.9 (12.9, 171.4)	7	9,374	7.5 (3.8, 15.2)	8	9,687	8.3 (4.4, 16.1)
All	9	11,701	7.7 (4.2, 14.4)	26	45,546	5.7 (4.0, 8.3)	35	57,247	6.1 (4.5, 8.4)
BSCC									
45–49	6	7,199	8.3 (4.1, 17.9)	5	5,233	9.6 (4.5, 22.0)	11	12,432	8.8 (5.2, 15.6)
50–54	2	2,855	7.0 (2.2, 25.2)	3	9,313	3.2 (1.1, 9.4)	5	12,168	4.1 (1.8, 9.5)
55–59	1	1,006	9.9 (2.4, 55.4)	4	10,477	3.8 (1.5, 9.7)	5	11,483	4.4 (1.9, 10.1)
60–64	1	576	17.4 (5.2, 95.6)	2	10,074	2.0 (0.6, 7.2)	3	10,650	2.8 (1.0, 8.2)
65+	1	372	26.9 (9.9, 145.5)	3	7,793	3.8 (1.4, 11.2)	4	8,165	4.9 (2.0, 12.5)
All	11	12,008	9.2 (5.4, 16.2)	17	42,890	4.0 (2.5, 6.3)	28	54,898	5.1 (3.6, 7.3)
BSC									
45–49	7	5,827	12.0 (6.3, 24.3)	0	4,664	0.0 (0.0, 8.2)	7	10,491	6.7 (3.4, 13.6)
50–54	3	2,258	13.3 (5.4, 38.1)	8	7,832	10.2 (5.5, 19.8)	11	10,090	10.9 (6.4, 19.2)
55–59	0	697	0.0 (0.0, 54.8)	0	8,970	0.0 (0.0, 4.3)	0	9,667	0.0 (0.0, 4.0)
60–64	0	393	0.0 (0.0, 96.8)	4	8,292	4.8 (2.0, 12.3)	4	8,685	4.6 (1.9, 11.7)
65+	0	247	0.0 (0.0, 153.1)	3	6,240	4.8 (1.7, 14.0)	3	6,487	4.6 (1.7, 13.5)
All	10	9,422	10.6 (6.1, 19.2)	15	35,998	4.2 (2.6, 6.8)	25	45,420	5.5 (3.8, 8.1)
BSSL									
45–49	15	11,544	13.0 (8.3, 21.0)	11	12,888	8.5 (5.0, 15.1)	26	24,432	10.6 (7.5, 15.4)
50–54	2	2,108	9.5 (3.1, 34.0)	12	18,266	6.6 (3.9, 11.4)	14	20,374	6.9 (4.2, 11.4)
55–59	0	727	0.0 (0.0, 52.6)	11	17,853	6.2 (3.5, 10.9)	11	18,580	5.9 (3.4, 10.5)
60–64	0	437	0.0 (0.0, 87.1)	10	16,758	6.0 (3.3, 10.9)	10	17,195	5.8 (3.3, 10.6)
65+	1	275	36.4 (15.9, 193.6)	4	12,302	3.3 (1.3, 8.3)	5	12,577	4.0 (1.8, 9.2)
All	18	15,091	11.9 (7.9, 18.5)	48	78,067	6.1 (4.7, 8.1)	66	93,158	7.1 (5.6, 9.0)
BSHC									
45–49	5	4,575	10.9 (5.2, 25.1)	1	3,100	3.2 (0.6, 18.2)	6	7,675	7.8 (3.8, 16.8)
50–54	1	1,551	6.4 (1.4, 36.1)	4	6,094	6.6 (2.7, 16.7)	5	7,645	6.5 (3.0, 15.1)
55–59	0	401	0.0 (0.0, 94.9)	2	6,311	3.2 (0.9, 11.5)	2	6,712	3.0 (0.9, 10.8)
60–64	0	175	0.0 (0.0, 214.8)	2	5,948	3.4 (1.0, 12.2)	2	6,123	3.3 (1.0, 11.8)
65+	0	89	0.0 (0.0, 413.8)	4	4,616	8.7 (3.7, 21.9)	4	4,705	8.5 (3.6, 21.5)
All	6	6,791	8.8 (4.3, 19.0)	13	26,069	5.0 (3.0, 8.5)	19	32,860	5.8 (3.8, 9.0)

Table 14: Second-year (12–24 months) interval breast cancers after an initial or subsequent screen by age group and BSA Lead Provider, 2008–2009

	Initial Screens			Subsequent Screens			All Screens		
Age group (provider)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)	Interval cancers	Women screened	Rate/10,000 screened (95% CI)
BSWN									
45–49	13	10,379	12.5 (7.7, 21.0)	8	6,910	11.6 (6.3, 22.4)	21	17,289	12.1 (8.3, 18.2)
50–54	0	4,206	0.0 (0.0, 9.1)	17	10,412	16.3 (10.8, 25.5)	17	14,618	11.6 (7.6, 18.3)
55–59	1	1,738	5.8 (1.2, 32.3)	14	11,893	11.8 (7.4, 19.4)	15	13,631	11.0 (7.0, 17.8)
60–64	1	1,109	9.0 (2.2, 50.3)	15	11,419	13.1 (8.4, 21.2)	16	12,528	12.8 (8.3, 20.3)
65+	0	741	0.0 (0.0, 51.6)	14	8,706	16.1 (10.3, 26.3)	14	9,447	14.8 (9.4, 24.3)
All	15	18,173	8.3 (5.2, 13.4)	68	49,340	13.8 (11.1, 17.2)	83	67,513	12.3 (10.1, 15.1)
BSCM									
45–49	8	6,088	13.1 (7.2, 25.3)	1	2,744	3.6 (0.7, 20.5)	9	8,832	10.2 (5.7, 19.0)
50–54	3	2,618	11.5 (4.6, 33.0)	5	4,996	10.0 (4.7, 23.0)	8	7,614	10.5 (5.7, 20.4)
55–59	1	973	10.3 (2.6, 57.2)	6	5,875	10.2 (5.1, 21.9)	7	6,848	10.2 (5.3, 20.7)
60–64	1	631	15.8 (4.6, 87.4)	4	5,534	7.2 (3.0, 18.3)	5	6,165	8.1 (3.7, 18.7)
65+	1	361	27.7 (10.4, 149.8)	4	4,153	9.6 (4.2, 24.3)	5	4,514	11.1 (5.2, 25.4)
All	14	10,671	13.1 (8.3, 21.6)	20	23,302	8.6 (5.7, 13.1)	34	33,973	10.0 (7.3, 13.8)
BSAL									
45–49	5	5,046	9.9 (4.6, 22.8)	5	3,315	15.1 (7.4, 34.3)	10	8,361	12.0 (6.9, 21.6)
50–54	1	2,035	4.9 (1.0, 27.6)	6	5,282	11.4 (5.7, 24.3)	7	7,317	9.6 (5.0, 19.4)
55–59	0	877	0.0 (0.0, 43.6)	4	5,862	6.8 (2.9, 17.3)	4	6,739	5.9 (2.5, 15.1)
60–64	3	519	57.8 (38.2, 150.0)	5	5,169	9.7 (4.5, 22.2)	8	5,688	14.1 (7.8, 27.1)
65+	1	300	33.3 (13.8, 178.4)	6	3,634	16.5 (8.6, 34.9)	7	3,934	17.8 (9.8, 35.6)
All	10	8,777	11.4 (6.6, 20.6)	26	23,262	11.2 (7.9, 16.1)	36	32,039	11.2 (8.3, 15.3)
BSW									
45–49	4	6,889	5.8 (2.4, 14.8)	3	5,227	5.7 (2.1, 16.7)	7	12,116	5.8 (2.9, 11.8)
50–54	2	2,892	6.9 (2.2, 24.9)	11	9,324	11.8 (7.0, 20.7)	13	12,216	10.6 (6.5, 17.9)
55–59	2	1,069	18.7 (7.2, 65.9)	11	10,684	10.3 (6.1, 18.1)	13	11,753	11.1 (6.8, 18.6)
60–64	3	538	55.8 (20.4, 161.3)	18	10,937	16.5 (11.0, 25.4)	21	11,475	18.3 (12.7, 27.2)
65+	0	313	0.0 (0.0, 121.2)	3	9,374	3.2 (1.1, 9.4)	3	9,687	3.1 (1.1, 9.1)
All	11	11,701	9.4 (5.5, 16.6)	46	45,546	10.1 (7.7, 13.3)	57	57,247	10.0 (7.8, 12.8)
BSCC									
45–49	5	7,199	6.9 (3.2, 16.1)	5	5,233	9.6 (4.5, 22.0)	10	12,432	8.0 (4.6, 14.6)
50–54	6	2,855	21.0 (11.3, 44.1)	9	9,313	9.7 (5.4, 18.1)	15	12,168	12.3 (7.9, 20.0)
55–59	0	1,006	0.0 (0.0, 38.0)	13	10,477	12.4 (7.7, 20.8)	13	11,483	11.3 (7.0, 19.0)
60–64	2	576	34.7 (16.7, 118.5)	5	10,074	5.0 (2.2, 11.5)	7	10,650	6.6 (3.3, 13.4)
65+	1	372	26.9 (9.9, 145.5)	10	7,793	12.8 (7.5, 23.1)	11	8,165	13.5 (8.1, 23.6)
All	14	12,008	11.7 (7.3, 19.2)	42	42,890	9.8 (7.4, 13.1)	56	54,898	10.2 (8.0, 13.1)
BSC									
45–49	8	5,827	13.7 (7.6, 26.4)	4	4,664	8.6 (3.7, 21.7)	12	10,491	11.4 (6.9, 19.6)
50–54	1	2,258	4.4 (0.9, 24.9)	8	7,832	10.2 (5.5, 19.8)	9	10,090	8.9 (4.9, 16.7)
55–59	1	697	14.3 (4.0, 79.4)	4	8,970	4.5 (1.8, 11.4)	5	9,667	5.2 (2.3, 12.0)
60–64	0	393	0.0 (0.0, 96.8)	6	8,292	7.2 (3.5, 15.6)	6	8,685	6.9 (3.3, 14.9)
65+	0	247	0.0 (0.0, 153.1)	10	6,240	16.0 (9.5, 28.7)	10	6,487	15.4 (9.1, 27.6)
All	10	9,422	10.6 (6.1, 19.2)	32	35,998	8.9 (6.4, 12.4)	42	45,420	9.2 (7.0, 12.4)
BSSL									
45–49	19	11,544	16.5 (11.2, 25.1)	21	12,888	16.3 (11.2, 24.3)	40	24,432	16.4 (12.5, 21.9)
50–54	1	2,108	4.7 (1.0, 26.7)	11	18,266	6.0 (3.5, 10.7)	12	20,374	5.9 (3.5, 10.2)
55–59	0	727	0.0 (0.0, 52.6)	15	17,853	8.4 (5.3, 13.7)	15	18,580	8.1 (5.1, 13.2)
60–64	0	437	0.0 (0.0, 87.1)	16	16,758	9.5 (6.1, 15.3)	16	17,195	9.3 (5.9, 14.9)
65+	0	275	0.0 (0.0, 137.8)	11	12,302	8.9 (5.2, 15.8)	11	12,577	8.7 (5.1, 15.4)
All	20	15,091	13.3 (9.0, 20.1)	74	78,067	9.5 (7.7, 11.8)	94	93,158	10.1 (8.4, 12.2)
BSHC									
45–49	10	4,575	21.9 (13.4, 38.7)	0	3,100	0.0 (0.0, 12.4)	10	7,675	13.0 (7.6, 23.5)
50–54	2	1,551	12.9 (4.5, 45.9)	11	6,094	18.1 (11.0, 31.3)	13	7,645	17.0 (10.7, 28.3)
55–59	0	401	0.0 (0.0, 94.9)	4	6,311	6.3 (2.6, 16.1)	4	6,712	6.0 (2.5, 15.2)
60–64	2	175	114.3 (129.2,	7	5,948	11.8 (6.2, 23.8)	9	6,123	14.7 (8.4, 27.2)
65+	0	89	0.0 (0.0, 413.8)	3	4,616	6.5 (2.4, 18.9)	3	4,705	6.4 (2.4, 18.5)
All	14	6,791	20.6 (13.4, 33.5)	25	26,069	9.6 (6.7, 14.0)	39	32,860	11.9 (8.9, 16.0)

Table 15: First-year (<12 months) programme sensitivity (%) after an initial or subsequent screen by age group and BSA Lead Provider, 2008–2009

Age group (provider)	Initial Screens			Subsequent Screens			All Screens		
	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)
BSWN									
45-49	8	39	83.0 (69.9, 91.1)	8	20	71.4 (52.9, 84.7)	16	59	78.7 (68.1, 86.4)
50-54	2	25	92.6 (76.6, 97.9)	4	32	88.9 (74.7, 95.6)	6	57	90.5 (80.7, 95.6)
55-59	1	16	94.1 (73.0, 99.0)	7	54	88.5 (78.2, 94.3)	8	70	89.7 (81.0, 94.7)
60-64	1	18	94.7 (75.4, 99.1)	7	49	87.5 (76.4, 93.8)	8	67	89.3 (80.3, 94.5)
65+	0	11	100.0 (74.1, 100.0)	4	51	92.7 (82.7, 97.1)	4	62	93.9 (85.4, 97.6)
All	12	109	90.1 (83.5, 94.2)	30	206	87.3 (82.4, 90.9)	42	315	88.2 (84.5, 91.2)
BSCM								-	
45-49	1	15	93.8 (71.7, 98.9)	1	4	80.0 (37.6, 96.4)	2	19	90.5 (71.1, 97.3)
50-54	0	15	100.0 (79.6, 100.0)	1	15	93.8 (71.7, 98.9)	1	30	96.8 (83.8, 99.4)
55-59	0	9	100.0 (70.1, 100.0)	2	22	91.7 (74.2, 97.7)	2	31	93.9 (80.4, 98.3)
60-64	0	8	100.0 (67.6, 100.0)	0	33	100.0 (89.6,	0	41	100.0 (91.4, 100.0)
65+	0	5	100.0 (56.6, 100.0)	0	32	100.0 (89.3,	0	37	100.0 (90.6,
All	1	52	98.1 (90.1, 99.7)	4	106	96.4 (91.0, 98.6)	5	158	96.9 (93.0, 98.7)
BSAL									
45-49	3	22	88.0 (70.0, 95.8)	3	3	50.0 (18.8, 81.2)	6	25	80.6 (63.7, 90.8)
50-54	2	16	88.9 (67.2, 96.9)	4	15	78.9 (56.7, 91.5)	6	31	83.8 (68.9, 92.3)
55-59	0	4	100.0 (51.0, 100.0)	2	26	92.9 (77.4, 98.0)	2	30	93.8 (79.9, 98.3)
60-64	1	8	88.9 (56.5, 98.0)	6	33	84.6 (70.3, 92.8)	7	41	85.4 (72.8, 92.8)
65+	0	5	100.0 (56.6, 100.0)	4	21	84.0 (65.3, 93.6)	4	26	86.7 (70.3, 94.7)
All	6	55	90.2 (80.2, 95.4)	19	98	83.8 (76.0, 89.4)	25	153	86.0 (80.1, 90.3)
BSM									
45-49	5	21	80.8 (62.1, 91.5)	8	13	61.9 (40.9, 79.2)	13	34	72.3 (58.2, 83.1)
50-54	2	9	81.8 (52.3, 94.9)	4	28	87.5 (71.9, 95.0)	6	37	86.0 (72.7, 93.4)
55-59	1	8	88.9 (56.5, 98.0)	2	36	94.7 (82.7, 98.5)	3	44	93.6 (82.8, 97.8)
60-64	0	13	100.0 (77.2, 100.0)	5	56	91.8 (82.2, 96.4)	5	69	93.2 (85.1, 97.1)
65+	1	4	80.0 (37.6, 96.4)	7	60	89.6 (80.0, 94.8)	8	64	88.9 (79.6, 94.3)
All	9	55	85.9 (75.4, 92.4)	26	193	88.1 (83.2, 91.8)	35	248	87.6 (83.3, 91.0)
BSCC									
45-49	6	29	82.9 (67.3, 91.9)	5	8	61.5 (35.5, 82.3)	11	37	77.1 (63.5, 86.7)
50-54	2	12	85.7 (60.1, 96.0)	3	27	90.0 (74.4, 96.5)	5	39	88.6 (76.0, 95.0)
55-59	1	12	92.3 (66.7, 98.6)	4	43	91.5 (80.1, 96.6)	5	55	91.7 (81.9, 96.4)
60-64	1	5	83.3 (43.6, 97.0)	2	49	96.1 (86.8, 98.9)	3	54	94.7 (85.6, 98.2)
65+	1	3	75.0 (30.1, 95.4)	3	39	92.9 (81.0, 97.5)	4	42	91.3 (79.7, 96.6)
All	11	61	84.7 (74.7, 91.2)	17	166	90.7 (85.6, 94.1)	28	227	89.0 (84.6, 92.3)
BSC									
45-49	7	21	75.0 (56.6, 87.3)	0	11	100.0 (74.1, 100.0)	7	32	82.1 (67.3, 91.0)
50-54	3	18	85.7 (65.4, 95.0)	8	23	74.2 (56.8, 86.3)	11	41	78.8 (66.0, 87.8)
55-59	0	7	100.0 (64.6, 100.0)	0	37	100.0 (90.6,	0	44	100.0 (92.0,
60-64	0	5	100.0 (56.6, 100.0)	4	44	91.7 (80.4, 96.7)	4	49	92.5 (82.1, 97.0)
65+	0	4	100.0 (51.0, 100.0)	3	38	92.7 (80.6, 97.5)	3	42	93.3 (82.1, 97.7)
All	10	55	84.6 (73.9, 91.4)	15	153	91.1 (85.8, 94.5)	25	208	89.3 (84.6, 92.6)
BSSL									
45-49	15	41	73.2 (60.4, 83.0)	11	25	69.4 (53.1, 82.0)	26	66	71.7 (61.8, 79.9)
50-54	2	9	81.8 (52.3, 94.9)	12	37	75.5 (61.9, 85.4)	14	46	76.7 (64.6, 85.6)
55-59	0	4	100.0 (51.0, 100.0)	11	59	84.3 (74.0, 91.0)	11	63	85.1 (75.3, 91.5)
60-64	0	3	100.0 (43.9, 100.0)	10	79	88.8 (80.5, 93.8)	10	82	89.1 (81.1, 94.0)
65+	1	2	66.7 (20.8, 93.9)	4	68	94.4 (86.6, 97.8)	5	70	93.3 (85.3, 97.1)
All	18	59	76.6 (66.0, 84.7)	48	268	84.8 (80.4, 88.3)	66	327	83.2 (79.2, 86.6)
BSHC									
45-49	5	12	70.6 (46.9, 86.7)	1	10	90.9 (62.3, 98.4)	6	22	78.6 (60.5, 89.8)
50-54	1	8	88.9 (56.5, 98.0)	4	18	81.8 (61.5, 92.7)	5	26	83.9 (67.4, 92.9)
55-59*	0	1	100.0 (20.7, 100.0)	2	25	92.6 (76.6, 97.9)	2	26	92.9 (77.4, 98.0)
60-64*	0	1	100.0 (20.7, 100.0)	2	25	92.6 (76.6, 97.9)	2	26	92.9 (77.4, 98.0)
65+	0	2	100.0 (34.2, 100.0)	4	19	82.6 (62.9, 93.0)	4	21	84.0 (65.3, 93.6)
All	6	24	80.0 (62.7, 90.5)	13	97	88.2 (80.8, 93.0)	19	121	86.4 (79.8, 91.1)

* The BSHC values for the 55–59 and 60–64 year age groups were the same and are correctly shown.

Table 16: Second-year (12 to <24 months) programme sensitivity (%) after an initial or subsequent screen by age group and BSA Lead Provider, 2008–2009

	Initial Screens			Subsequent Screens			All Screens		
Age group (provider)	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)	Interval cancers	Screen detected	Sensitivity (95% CI)
BSHN									
45–49	13	39	75.0 (61.8, 84.8)	8	20	71.4 (52.9, 84.7)	21	59	73.8 (63.2, 82.1)
50–54	0	25	100.0 (86.7, 100.0)	17	32	65.3 (51.3, 77.1)	17	57	77.0 (66.3, 85.1)
55–59	1	16	94.1 (73.0, 99.0)	14	54	79.4 (68.4, 87.3)	15	70	82.4 (72.9, 89.0)
60–64	1	18	94.7 (75.4, 99.1)	15	49	76.6 (64.9, 85.3)	16	67	80.7 (71.0, 87.8)
65+	0	11	100.0 (74.1, 100.0)	14	51	78.5 (67.0, 86.7)	14	62	81.6 (71.4, 88.7)
All	15	109	87.9 (81.0, 92.5)	68	206	75.2 (69.7, 79.9)	83	315	79.1 (74.9, 82.8)
BSCN									
45–49	8	15	65.2 (44.9, 81.2)	1	4	80.0 (37.6, 96.4)	9	19	67.9 (49.3, 82.1)
50–54	3	15	83.3 (60.8, 94.2)	5	15	75.0 (53.1, 88.8)	8	30	78.9 (63.7, 88.9)
55–59	1	9	90.0 (59.6, 98.2)	6	22	78.6 (60.5, 89.8)	7	31	81.6 (66.6, 90.8)
60–64	1	8	88.9 (56.5, 98.0)	4	33	89.2 (75.3, 95.7)	5	41	89.1 (77.0, 95.3)
65+	1	5	83.3 (43.6, 97.0)	4	32	88.9 (74.7, 95.6)	5	37	88.1 (75.0, 94.8)
All	14	52	78.8 (67.5, 86.9)	20	106	84.1 (76.8, 89.5)	34	158	82.3 (76.3, 87.0)
BSAL									
45–49	5	22	81.5 (63.3, 91.8)	5	3	37.5 (13.7, 69.4)	10	25	71.4 (54.9, 83.7)
50–54	1	16	94.1 (73.0, 99.0)	6	15	71.4 (50.0, 86.2)	7	31	81.6 (66.6, 90.8)
55–59	0	4	100.0 (51.0, 100.0)	4	26	86.7 (70.3, 94.7)	4	30	88.2 (73.4, 95.3)
60–64	3	8	72.7 (43.4, 90.3)	5	33	86.8 (72.7, 94.2)	8	41	83.7 (71.0, 91.5)
65+	1	5	83.3 (43.6, 97.0)	6	21	77.8 (59.2, 89.4)	7	26	78.8 (62.2, 89.3)
All	10	55	84.6 (73.9, 91.4)	26	98	79.0 (71.0, 85.3)	36	153	81.0 (74.8, 85.9)
BSW									
45–49	4	21	84.0 (65.3, 93.6)	3	13	81.3 (57.0, 93.4)	7	34	82.9 (68.7, 91.5)
50–54	2	9	81.8 (52.3, 94.9)	11	28	71.8 (56.2, 83.5)	13	37	74.0 (60.4, 84.1)
55–59	2	8	80.0 (49.0, 94.3)	11	36	76.6 (62.8, 86.4)	13	44	77.2 (64.8, 86.2)
60–64	3	13	81.3 (57.0, 93.4)	18	56	75.7 (64.8, 84.0)	21	69	76.7 (66.9, 84.2)
65+	0	4	100.0 (51.0, 100.0)	3	60	95.2 (86.9, 98.4)	3	64	95.5 (87.6, 98.5)
All	11	55	83.3 (72.6, 90.4)	46	193	80.8 (75.3, 85.2)	57	248	81.3 (76.6, 85.3)
BSCC									
45–49	5	29	85.3 (69.9, 93.6)	5	8	61.5 (35.5, 82.3)	10	37	78.7 (65.1, 88.0)
50–54	6	12	66.7 (43.7, 83.7)	9	27	75.0 (58.9, 86.2)	15	39	72.2 (59.1, 82.4)
55–59	0	12	100.0 (75.8, 100.0)	13	43	76.8 (64.2, 85.9)	13	55	80.9 (70.0, 88.5)
60–64	2	5	71.4 (35.9, 91.8)	5	49	90.7 (80.1, 96.0)	7	54	88.5 (78.2, 94.3)
65+	1	3	75.0 (30.1, 95.4)	10	39	79.6 (66.4, 88.5)	11	42	79.2 (66.5, 88.0)
All	14	61	81.3 (71.1, 88.5)	42	166	79.8 (73.8, 84.7)	56	227	80.2 (75.2, 84.4)
BSC									
45–49	8	21	72.4 (54.3, 85.3)	4	11	73.3 (48.0, 89.1)	12	32	72.7 (58.2, 83.7)
50–54	1	18	94.7 (75.4, 99.1)	8	23	74.2 (56.8, 86.3)	9	41	82.0 (69.2, 90.2)
55–59	1	7	87.5 (52.9, 97.8)	4	37	90.2 (77.5, 96.1)	5	44	89.8 (78.2, 95.6)
60–64	0	5	100.0 (56.6, 100.0)	6	44	88.0 (76.2, 94.4)	6	49	89.1 (78.2, 94.9)
65+	0	4	100.0 (51.0, 100.0)	10	38	79.2 (65.7, 88.3)	10	42	80.8 (68.1, 89.2)
All	10	55	84.6 (73.9, 91.4)	32	153	82.7 (76.6, 87.5)	42	208	83.2 (78.1, 87.3)
BSSL									
45–49	19	41	68.3 (55.8, 78.7)	21	25	54.3 (40.2, 67.8)	40	66	62.3 (52.8, 70.9)
50–54	1	9	90.0 (59.6, 98.2)	11	37	77.1 (63.5, 86.7)	12	46	79.3 (67.2, 87.7)
55–59	0	4	100.0 (51.0, 100.0)	15	59	79.7 (69.2, 87.3)	15	63	80.8 (70.7, 88.0)
60–64	0	3	100.0 (43.9, 100.0)	16	79	83.2 (74.4, 89.4)	16	82	83.7 (75.1, 89.7)
65+	0	2	100.0 (34.2, 100.0)	11	68	86.1 (76.8, 92.0)	11	70	86.4 (77.3, 92.2)
All	20	59	74.7 (64.1, 83.0)	74	268	78.4 (73.7, 82.4)	94	327	77.7 (73.5, 81.4)
BSHC									
45–49	10	12	54.5 (34.7, 73.1)	0	10	100.0 (72.2,	10	22	68.8 (51.4, 82.0)
50–54	2	8	80.0 (49.0, 94.3)	11	18	62.1 (44.0, 77.3)	13	26	66.7 (51.0, 79.4)
55–59	0	1	100.0 (20.7, 100.0)	4	25	86.2 (69.4, 94.5)	4	26	86.7 (70.3, 94.7)
60–64	2	1	33.3 (6.1, 79.2)	7	25	78.1 (61.2, 89.0)	9	26	74.3 (57.9, 85.8)
65+	0	2	100.0 (34.2, 100.0)	3	19	86.4 (66.7, 95.3)	3	21	87.5 (69.0, 95.7)
All	14	24	63.2 (47.3, 76.6)	25	97	79.5 (71.5, 85.7)	39	121	75.6 (68.4, 81.6)