National Screening Unit

# National Cervical Screening Programme

**Monitoring Report Number 42**

**1 July - 31 December 2014**

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## About the authors

The authors are based at Cancer Research Division at Cancer Council NSW, Sydney, Australia (formerly at UNSW). They are part of a research group (led by Prof Karen Canfell) which has as its core research focus the epidemiology of cervical cancer, cervical screening and human papillomavirus (HPV) vaccination. This research group has established an extensive track record both in research publication and in successful completion of commissioned projects related to national cervical screening programs in New Zealand, Australia and England. Expert advisors to the group's research work include Professor Dame Valerie Beral (Director, Cancer Epidemiology Unit, University of Oxford) and Professor Bruce Armstrong (Professor of Public Health, University of Sydney). The group has extensive experience in the analysis of descriptive data from cervical cancer screening programmes. The team also has a range of related skills in the analysis of linked datasets, systematic review and meta-analysis, biostatistics, health economics, and advanced statistical modelling techniques.

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## 1. Executive Summary

**Purpose**

This report provides data on performance indicators of the National Cervical Screening Programme (NCSP) for the period 1 July - 31 December 2014.

**Key points on performance/trends**

Indicator 1 — Coverage

**Target:** 80% of eligible women screened within the previous three years by 31 December 2014.

- Among an estimated 1,162,558 eligible women aged 25-69 years at the end of the monitoring period, 889,248 (76.5%) had a screening test in the previous three years.
- Coverage target was not met nationally (80% of women aged 25-69 years screened in the previous three years).
- Coverage target was met for specific five-year age groups between 45-59 years.
- Coverage target was met by three of 20 DHBs.
- Nationally, coverage targets were met for European/Other women (82.7% screened within the previous three years), but were not met for Māori, Pacific, or Asian women (61.7%, 72.1%, 62.6% respectively screened within the previous three years).
- Five-year coverage among women aged 25-69 years exceeds 80% in all DHBs, and in women in all five-year age groups between 25-69 years.
- Three-year coverage among women aged 25-69 years (76.5%) is slightly higher than that reported in the previous monitoring report (76.0%). It has increased in Pacific women, remained around the same for Māori and European/ Other women, but decreased in Asian women.
- Three-year coverage has increased in most age groups, with small increases in women aged 20-24, 25-29, 30-34, 35-39, 50-54 and 65-69 years.
- Three-year coverage decreased in 12 of 20 DHBs.
- Five-year coverage among women aged 25-69 years (90.7%) is similar to that in the previous monitoring report (90.3%).

*Screens in women aged less than 20 years*

**Target:** None

- In the three years to 31 December 2014, 8,510 women had a cervical sample taken when they were aged less than 20 years. This is less than in the previous reporting period (9,299 women).
- This represents 0.9% of all women (of any age) who were screened in the three-year period (the same as the previous

reporting period).

- Most of these women (87.6%) were aged 18-19 years at the time of their cervical sample.

*Notes*

- The estimates for the number of women eligible for screening were updated in the current report to use projections based on the 2013 Census. While this should have resulted in more accurate estimates of coverage, this change means that differences compared to recent reports should be interpreted with caution, as these may partially reflect differences in the population estimates.

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Indicator 2

First screening events

**Target:** None

- There were 21,997 women who had their first screening event during the current reporting period – an increase compared to the previous reporting period.
- First screening events generally occur among young women (median age 25 years).
- Asian women appear to have their first screening event at a later age (median age of Asian women with a first screening event 31 years) and women with a first screening event make up a higher proportion of all women screened for Asian women, compared to women in other ethnic groups.

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Indicator 3

Withdrawal rates

**Target:** Zero between ages 20-69 years

- There were 29 women aged between 20-69 years who withdrew from the NCSP Register during this six-month period. This is similar to the number of women in this age range who withdrew during the previous reporting period (32 women).

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Indicator 4

Early re-screening

**Target:** Currently reporting on the percentage of women in routine screening (previous smear negative and recommended to return in 36 months (3 years)) who returned for a smear within 30 months (2.5 years) of their index smear. Target level for this value is not yet defined.

- 16.1% of a cohort of women with a recommendation to return at the routine interval had at least one cytology sample within 30 months of their index cytology sample.
- Early re-screening varies widely between DHBs, from 8.4% in

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Whanganui to 23.0% in Waitemata.

- Early re-screening occurs in all ethnic groups, but is most common among Asian women (17.3%), and least common among Pacific women (11.6%).
- Early re-screening occurs in all age groups, but is most common in women aged 20-24 years at the end of the period (21.4%) and least common in women aged 65-69 years at the end of the period (11.5%).
- Early re-screening has slightly decreased since the previous report, from 16.8% to 16.1%.

Indicator 5 Laboratory Indicators

Indicator 5.1 Cytology reporting

The proportion of cytology samples which are LBC has remained the same since the previous reporting period, at virtually 100.0%.

*Unsatisfactory cytology*

**Target:** 0.1 - 3% for LBC

- Percent LBC samples unsatisfactory target met by six of seven laboratories, and was met nationally (1.2%).
- The rate of unsatisfactory LBC samples is unchanged since the previous report.

*Negative cytology*

**Target:** No more than 96% of satisfactory cytology samples

- Percent of samples negative target met nationally and by all seven laboratories.
- Nationally, the percent of samples which are negative (92.7%) is similar to that reported in the previous period (92.4%).

*Abnormal cytology*

**Target:** No more than 10% of satisfactory cytology samples

- Percent of samples abnormal target met nationally and by six of seven laboratories.
- Nationally, the percent of samples which are abnormal (7.3%) is similar to that reported in the previous period (7.6%).

*HSIL cytology*

**Target:** No less than 0.5% of satisfactory cytology samples

- Percent of samples HSIL target met nationally and by all of the seven laboratories.
- Percent of samples HSIL (0.9%) is the same as in the previous

report.

Indicator 5.2 Cytology positive predictive value

*HSIL + SC*

**Target:** 65% - 85% of HSIL+SC cytology samples should be histologically confirmed as high grade

- Three laboratories met the target range for HSIL+SC .
- Nationally, the positive predictive value of HSIL+SC was slightly higher for this monitoring period (84.1%) than in the previous report (83.9%).

*Other cytological abnormalities*

**Target:** None

- Nationally, the positive predictive value of ASC-H has increased compared to the previous report (50.4% in this report, 44.3% in the previous report).
- Nationally, the positive predictive value of the combination of ASC-H+HSIL+SC has increased compared to the previous report (69.6% in the previous report;71.4% in the current report).
- Nationally, the proportion of glandular cytological abnormalities identified as histological high grade has increased since the previous report, from 48.8% to 49.1% (however this measure is generally based on a comparatively small number of samples; 171 with histology in the current report).

Indicator 5.3 Accuracy of negative cytology reports

Among cytology slides within the 42 months preceding a histological diagnosis of high-grade/invasive disease originally reported as negative, benign/reactive or unsatisfactory:

**Target:** Not more than 10% identified as HS1, HS2, SC, AIS or AC1-5 (HSIL+) on review

- Nationally, 2.3% of slides originally reported as negative, benign/reactive or unsatisfactory were consistent with HSIL+ on review.
- All laboratories met the target.

**Target:** Not more than 20% identified as ASC-H, HS1, HS2, SC, AG4-5, AIS or AC1-5 (ASC-H+/AG4+) on review; aim for less than 15%

- Nationally, 4.7% of slides originally reported as negative, benign/reactive or unsatisfactory were consistent with ASC-H+/AG4+ on review.
- All laboratories met the target of less than 20% and achieved rates of less than 15%.

Indicator 5.4 Histology reporting

**Target:** None

- 14,300 histology samples were taken during the current reporting period. 439 (3.1%) of these were insufficient for diagnosis.
- Results for most severe histology from 12,067 women with samples which were sufficient for diagnosis are presented
- 52.5% of women had histology samples which were negative/ benign
- 21.3% of women had CIN2/3 or HSIL histology results.
- 46 (0.38%) women had ISCC histology results, 36 (0.30%) women had invasive adenocarcinoma histology results, and none had adenosquamous carcinoma histology results.

Indicator 5.5 Turnaround times

*Cytology*

**Target:** 90% within seven working days; 98% within 15 working days

- The seven-working-days target for cytology was met nationally (92.7% samples were reported within seven working-days), and was met by five of seven laboratories.
- The 15-working-days target was met nationally (98.7% samples were reported within 15 working-days), and was also met by five of the seven laboratories.
- Performance against the seven-working-days target has reduced slightly since the previous report (from 95.1% to 92.7%), but the number of labs meeting the target has remained at five.
- The overall proportion of cytology samples reported within 15-working-days (98.7%) is slightly lower than in the previous reporting period (99.0%).

*Histology*

**Target:** 90% within 10 working days; 98% within 15 working days

- Turnaround times for histology were slightly below the target nationally for reporting within ten working days (89.3%), and for reporting within 15 working days (93.7%).
- Targets were met by 10 of 16 laboratories (ten working day target) and seven of 16 laboratories (15 working day target).
- The overall proportion of histology samples reported within 15 days (93.7%) is very similar to that in the previous report (93.8%). The number of laboratories meeting the targets has reduced by two at both ten working days and at 15 working

days since the previous report.

*Low grade cytology with associated HPV triage testing*

**Target:** 98% within 15 working days *(updated since previous report)*

- There were 2,955 cytology samples with associated HPV triage testing in the current reporting period.
- Turnaround time was above the target: 97.8% were reported on within 15 working days.
- Four laboratories met the target.
- The proportion reported within 15 days is lower for this subgroup of cytology (97.8%) than for cytology overall (98.7%), particularly at LabPLUS and Canterbury Health Laboratories (although the former laboratory performed only a small number of cytology with accompanying HPV triage tests).

*Notes*

- Turnaround time performance may be an underestimate due to limitations in the report date recorded on NCSP Register.

Indicator 6

<u>Follow-up of women with high grade cytology – histology</u>

*Histological follow-up*

**Target:** 90% of women should have a histology report within 90 days of their high grade cytology report date; 99% should have a histology report within 180 days of their cytology report.

- Targets were not met nationally (for either 90 days or 180 days).
- 79.5% of women had a histology report within 90 days of their high grade cytology report; 86.8% of women had one within 180 days.
- Three DHBs (Hutt Valley, Nelson Marlborough and Wairarapa) met the target for histological follow-up within 90 days but no DHB met the target for 180 days.
- Nationally, the proportion of women with histological follow-up within 90 days has decreased since the previous reporting period (from 80.4% to 79.5%), as has the proportion with follow-up within 180 days (from 87.1% to 86.8%).
- Compared to the previous reporting period, the proportion of women with follow-up histology within 90 days increased for Pacific women, but decreased for Māori (from 81.0% to 74.9%), Asian (from 83.3% to 79.0%), and European/Other women (from 83.6% to 82.7%).
- The proportion of women with follow-up histology within 180

days increased compared to the previous reporting period for Māori, Pacific and Asian women, but decreased for European/Other women (although in most cases the change is small).
- The proportion of women with histological follow-up at both 90 and 180 days decreased for some age groups, particularly in women aged 45-49 years and 60-64 years.

*Any follow-up tests*

**Target:** None

- Nationally, 222 (10.4%) women have no follow-up test report (colposcopy, subsequent cytology, histology, HPV test) within 90 days of their high grade cytology report, and 130 (6.1%) women have no follow-up test report within 180 days.
- Nationally, the proportion of women with no record of a follow-up test report has increased slightly since the previous reporting period at 90 days (from 10.2% to 10.4%) but is similar at 180 days (slight decrease from 6.3% to 6.1%).
- Compared to the previous reporting period, the proportion of women with no follow-up test at 180 days has decreased for Māori and Pacific women (from 10.6% to 8.2% and from 14.5% to 12.7% respectively), but increased for Asian women (from 3.1% to 5.7%).

Indicator 7 — Colposcopy

Indicator 7.1 — Timeliness of colpscopic assessment – high grade cytology

**Target:** 95% or more of women who have evidence of clinical suspicion of invasive carcinoma, or a suspicion of invasive disease (TBS codes HS2, SC, AC1-AC5), receive colposcopy or a gynaecological assessment within 10 working days of receipt of referral. 95% or more of women who have high-grade smear abnormalities receive colposcopy within 20 working days of receipt of referral.

- There were 2,129 women with high grade cytology results who were not already under specialist management.
- This comprised 80 women with high grade results indicating a suspicion of invasive disease and 2,049 women with other high grade results.
- Among the 80 women with high grade cytology results indicating a suspicion of invasive disease, 42 had an accepted referral; 64.7% of the women were seen within 10 working days of their referral being accepted; 78.6% were seen within 20 working days of their referral being accepted. This is lower than in the previous report at 10 working days (65.7%), but higher than the previous report at 20 working days (77.1%).
- Among the 2,049 women with other high grade cytology results, 65.1% were seen within 20 working days of their

referral being accepted. This is lower than the proportion seen within 20 working days in the previous reporting period (67.2%).

- A colposcopy visit is recorded for 59 (73.8%) of the women with high grade cytology results indicating a suspicion of invasive disease, and 1,938 (94.6%) of the women with other high grade cytology results up to 31 December 2014 (follow-up time of at least six and up to 12 months).
- Nationally, the proportion of women with accepted referrals recorded on the NCSP Register has increased somewhat since the previous report (from 83.5% to 86.1%).
- In the current report histology data has been used to infer a colposcopy visit and supplement colposcopy visit data, as colposcopy data is still believed to be incomplete.

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Indicator 7.2 <u>Timeliness of colpscopic assessment – low grade cytology</u>

**Target**: 95% of women who have persistent low-grade abnormalities or a low-grade abnormality and positive HPV test, must receive a date for a colposcopy appointment within a period that does not exceed 26 weeks of the colposcopy unit accepting the referral from the smear taker.

- At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register.
- There were 4,502 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in 1 January – 30 June 2014 (the six months prior to the current monitoring period).
- Subsequent accepted referrals are recorded for 3,884 (86.3%) of these women, and subsequent colposcopy for 3,997 (88.8%) of these women.
- The median time between the cytology report date and the date the referral was accepted was six days (interquartile range (IQR): 3 - 14 days). Among women with a referral recorded, the median time between an accepted referral and the first attendance for colposcopy was 116 days (IQR: 43 – 167 days).
- Considering all women with a record of colposcopy, including those without a referral recorded on the NCSP Register, the median time between the cytology report and the first colposcopy visit was 124 days (IQR: 49 – 179 days).

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Indicator 7.3 Adequacy of reporting colposcopy

**Target:** 100% of medical notes will accurately record colposcopic findings including visibility of the squamo-columnar junction, presence or absence of a visible lesion, and colposcopic opinion regarding the nature of the abnormality.

- Based on 12,763 colposcopy visits recorded on the NCSP Register, no DHB nor the aggregate of colposcopy visits to private practice met the target of 100% completion of all recommended fields.
- The degree of visibility of the squamocolumnar junction was documented for 95.1% of colposcopies.
- Presence or absence of a lesion was documented for all colposcopies.
- Colposcopic opinion regarding abnormality grade was documented for 92.2% of colposcopies where appearance was abnormal or inconclusive.
- The type of recommended follow-up was recorded for 98.6% of colposcopy visits, and the recommended timeframe for this follow-up was recorded for 97.8% of colposcopy visits.
- All of these items were completed for 89.1% of colposcopy visits.
- Colposcopic appearance was reported as abnormal in 55.1% of colposcopies, and inconclusive in 4.7% of colposcopies.
- Completion of most recommended fields is similar to what was recorded in the previous monitoring period.
- Overall completion (89.1%) is also similar to what it was in the previous reporting period (89.4%).
- The number of colposcopies recorded on the NCSP Register has decreased by 9.6%. It is possible that this may represent differences in reporting of colposcopies rather than a true decrease in the number of colposcopies performed. Three DHBs (Counties Manukau, Northland and Waitemata) were unable to report colposcopy data for the full monitoring period, and it is likely that this is the main reason for the apparent decrease in number of colposcopies recorded.
- The number of DHBs reporting colposcopy data electronically to the NCSP Register is unchanged (five).

Indicator 7.4 Timeliness and appropriateness of treatment

**Target:** 90% or more of women with HSIL should be treated within eight weeks of histological confirmation.

- 63.2% of 2,508 women with HSIL histology (CIN2/3) during the period 1 January – 30 June 2014 have a record of treatment within eight weeks of their histology report.
- The proportion of women with histologically confirmed CIN2/3 treated within eight weeks of their histology result

being reported has increased since the previous reporting period (from 58.9% to 63.2%).
- No DHB met the target.

Treatment of histologically confirmed LSIL is not recommended by the *2008 NCSP Guidelines for Cervical Screening in New Zealand*, and the NCSP standard recommends that the number of women treated for low grade abnormalities is minimised. For descriptive purposes, the number of women with LSIL histology (CIN1, CIN not otherwise specified) who received treatment is reported here.

- There were 124 women with LSIL histology (CIN1, CIN not otherwise specified) who received treatment within 26 weeks of their LSIL histology report, and did not additionally have high grade histology in the six months preceding treatment.

Indicator 7.5 Timeliness of discharge following treatment

**Target:** 90% or more of women treated for CIN should have a colposcopy and smear within the nine-month period post treatment.

- Based on NCSP Register records, 1,717 women were treated for high grade lesions in the period July to December 2013.
- 71.6% of women treated have a record of both colposcopy and cytology within the nine months after their treatment visit. 72.9% have a record of at least a colposcopy visit (with or without cytology) in the same time period.
- No DHB met the target for follow-up within nine months post-treatment.

**Target:** 90% or more of women treated for CIN should be discharged back to the smear-taker as appropriate.

- There were 1,220 women who met the criteria for appropriate discharge within 12 months of their treatment (76.9% of women treated). Of these women, 1,074 (88.0%) were discharged to their smear-taker within 12 months.
- Thirteen DHBs met the target of discharging 90% or more women who were eligible for discharge within 12 months.

Indicator 8 HPV testing

Indicator 8.1 HPV triage of low grade cytology

**Target:** None set.

*HPV triage*

- Nationally, 97.5% of women aged 30 years or more with an

eligible ASC-US cytology result, and 96.7% of women aged 30 years or more with an eligible LSIL cytology result are recorded as having a subsequent HPV triage test.
- Among women aged 30 years or more with valid HPV triage test results, 30.5% of women with ASC-US results and 64.1% of women with LSIL results were positive for high risk HPV.

*Positive triage tests*

- Positivity for high risk HPV varied by laboratory (from 19.9% to 45.6% for ASC-US, and from 59.3% to 76.1% for LSIL)
- Positivity for high risk HPV generally decreased with increasing age.
- Small numbers of HPV triage tests occur in women aged under 30 years (in 0.7% of women with an ASC-US result, and 0.6% of women with an LSIL result; 19 women in total)
- The proportion of women who were eligible for HPV triage of low grade cytology who subsequently received a triage test is higher than that in the previous reporting period for women with ASC-US results (97.5%, compared to 95.8% in the previous report) and slightly lower than that in the previous reporting period for women with LSIL results (96.7%, compared to 97.7%).
- The proportion of women whose HPV tests were positive was somewhat higher in the current reporting period for ASC-US (30.5%, compared to 28.3% in the previous period), and for LSIL (64.1%, compared to 60.5% in the previous period).

*Histological outcomes in triage positive women who attended colposcopy*

- Among women with ASC-US cytology and a positive HPV triage test in six-month period one year prior to the current monitoring report, 88.3% of women have a record of colposcopy and 65.9% have a record of histology within 12 months of their triage test. The corresponding percentages for LSIL are 90.6% with colposcopy and 71.6% with histology within 12 months.
- Among women with colposcopy recorded within 12 months of a triage test, 17.0% of women with ASC-US cytology and 16.2% of women with LSIL cytology had a histological outcome of CIN 2 or a more serious result (CIN2+).
- Among women with histology recorded within 12 months of a triage test, 22.7% of women with ASC-US cytology and 20.5% of women with LSIL cytology had a histological outcome of CIN 2 or a more serious result (CIN2+).

Indicator 8.2 HPV test volumes

**Target:** None set.

- Nationally, 18,601 cervical samples were received at laboratories for HPV testing during the current monitoring period.
- These samples generally related to women aged 30 years or more (86.7% of all HPV test samples)
- HPV test volumes were lowest at LabPLUS (853 samples; 4.6% of all HPV test samples) and highest at Southern Community Labs (6,360 samples; 34.2% of all HPV test samples).
- Nationally, 12.3% of HPV tests were taken for follow-up of women treated for confirmed high grade squamous abnormalities in the previous four years, 37.1% were taken to manage women with high grade squamous cytology or histology more than three years ago (historical testing), 4.8% were taken at colposcopy (potentially to assist in resolving discordant results), and 15.2% were taken for HPV triage of low grade cytology in women aged 30 years or more.
- Among the remaining 30.6% of HPV tests, it appears that a large proportion may have been for follow-up of historical high grade abnormalities outside guidelines as there was no specific abnormality recorded on the NCSP Register (this may have occurred, for example, because the abnormalities pre-date either the Register or the woman's enrolment on the Register or because the abnormalities occurred overseas) (36.7% of the remaining tests; 11.2% of all HPV tests). A smaller proportion appear to have been related to follow-up of an abnormality outside guidelines (for example non-squamous abnormalities, or low grade abnormalities in cases where the guidelines recommend referral to colposcopy rather than triage; 24.3%).
- The proportion of HPV tests which are invalid is very small (0.1%).
- Overall HPV test volumes are slightly lower than those in the previous report (decreased by 0.7%).

Indicator 8.3 Historical HPV tests for follow-up of women with previous high grade abnormality

Target: None set.

- This analysis followed up 49,809 women who were eligible for historical HPV testing as at 1 October 2009 to ascertain how many women had received an HPV test for management of their historical (more than three years prior) high grade squamous abnormality.
- There were 25,387 women (51.0%) with a Round 1 historical HPV test recorded, and 18,703 women (37.5%) with a Round

2 historical HPV test recorded.

- The proportion of women who had received a historical HPV test varied by DHB, from 30.6% to 73.9% for Round 1 tests and from 19.5% to 61.8% for Round 2 tests.
- There was comparatively little variation by age in the proportion of women who had received a historical HPV test. This varied from 43.4% to 53.4% for Round 1 tests, and from 26.6% to 40.7% for Round 2 tests. The proportions were lower than this range for women aged 20-24 years at the end of the current monitoring period, however these are based on very small numbers, as there were only a small number of women this age who were eligible for historical HPV testing.
- The proportion of women who had received a historical HPV test varied somewhat by ethnicity, from 31.3% to 53.4% for Round 1 tests and from 20.2% to 40.3% for Round 2 tests.
- The proportion of eligible women with an HPV test recorded has increased since the previous report from 48.5% to 51.0% for Round 1 tests, and from 34.0% to 37.5% for Round 2 tests.
- This indicator is still being developed and further refinements are anticipated in future monitoring reports.

## 2. Background

An organised National Cervical Screening Programme (NCSP) was established in New Zealand in 1990, to reduce the number of women who develop cervical cancer and those who die from it. The Programme recommends regular cervical screening at three yearly intervals for women aged between 20 and 69 years who have ever been sexually active. Part 4A of the Health Act 1956, which came into effect in 2005, underpins the NCSP's operations to ensure the co-ordination of a high quality screening programme for all women in New Zealand.

Ongoing systematic monitoring is a requirement of an organised screening programme. Such monitoring allows the performance of the Programme to be evaluated and corrective action to be taken as required. Monitoring is carried out through a set of key indicators which cover all aspects of the screening pathway, including participation by women, their clinical outcomes, NCSP provider performance and the Programme overall.

Monitoring reports were produced quarterly from December 2000 to June 2007 (Report 27); and six monthly thereafter. The audience for these monitoring reports includes the general public, NCSP providers, and the Programme itself.

Technical information on the indicators are available from the Ministry of Health on request.

From Report 30 onwards, monitoring has been undertaken with the technical assistance of researchers based at UNSW (formerly in the Cancer Research Division at Cancer Council NSW), Sydney, Australia. This has coincided with the use of a new reporting format, incorporating more explicit definitions and utilising data from the newly developed NCSP Register, so earlier reports are not fully comparable with Report 30 onwards.

The development of these reports is ongoing. In particular, colposcopy indicators are not calculated for this report due to the incompleteness of colposcopy data on the NCSP Register relating to this time period. These indicators will be reported on when the data has improved. Work is also underway to improve accuracy and completeness of ethnicity data on the Register. Other indicators, such as the accuracy of negative cytology reports, are in development and will be reported on in future.

Approval was sought and received from the National Kaitiaki Group (NKG) for access to Māori women's data from the NCSP Register, in order to calculate various Programme indicators by ethnicity.

NCSP biannual monitoring reports are reviewed by a multidisciplinary advisory and monitoring group, representing NCSP providers and consumers. The group may make recommendations to the NSU for follow up actions.

Further information about the NCSP Advisory Group and the monitoring and performance of the NCSP is available on https://www.nsu.govt.nz/health-professionals/national-cervical-screening-programme/independent-monitoring-reports and on request from the NCSP:
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# 3. Methods

## *Data used*

The analyses in this report are based on data extracted from the NCSP Register in March 2015.

## *Age*

Unless otherwise specified, age is defined as the woman's age at the end of the reporting period, i.e. 31 December 2014

## *Hysterectomy-adjusted population*

Measures such as coverage require an estimate of the population eligible for cervical screening. This is approximated by applying a hysterectomy-adjustment to the estimated New Zealand female population, to exclude women with a hysterectomy from the eligible population. This is an imperfect adjustor of the proportion of the population eligible for screening, since women with a hysterectomy may or may not require further cervical smears, depending on the type of hysterectomy that they received.

The hysterectomy-adjustment used in this report uses estimates of the hysterectomy prevalence (both total and partial) in the New Zealand population, modelled by Alistair Gray [1], and are the adjustors recommended by the Health and Disability Intelligence Unit within the Ministry of Health. Hysterectomy incidence was estimated by fitting models to observed data on hysterectomies obtained from public and private hospital discharge data and estimates of the usually resident female population from Statitics New Zealand. The resulting estimates of hysterectomy incidence and survival in single-year age groups by calendar year were then used to estimate the prevalence of hysterectomy by five-year age group (among women aged 20-69 years) and calendar year (1988 to 2014). The 2014 estimates were employed in this monitoring report. A known limitation of these estimates of hysterectomy prevalence is that they do not take into account deaths or women who leave New Zealand after they have a hysterectomy (which would tend to result in an overestimate of hysterectomy prevalence), nor women who migrate to New Zealand who have previously had a hysterectomy (which would tend to underestimate hysterectomy prevalence). These limitations may be mitigated by the fact they are working in opposite directions, and that some women who emigrate from New Zealand do return later in their lives. Further information about the hysterectomy prevalence methodology can be found in the document '*Methodology for estimating hysterectomy prevalence in women 20-69*' (14 September 2011) by A. Gray.[1]

The hysterectomy prevalence data were applied to New Zealand population estimates from Statistics New Zealand so that estimates of the number of women in the New Zealand population (by age and ethnicity) who had not had a hysterectomy prior to 31 December 2014 were obtained. Hysterectomy prevalence figures for the whole population (the denominator) were not available by DHB or ethnicity, so age-specific hysterectomy

adjustments were applied equally across each DHB. These adjusted population estimates were then used as the denominator in the hysterectomy-adjusted calculations.

The estimates used for the New Zealand female population were the female 2013 Census population, projected to 31 December 2014. This is an update from the previous report, where the 2006 Census projections (2011 Update) were used.

## *Ethnicity analysis*

The analysis by ethnicity considered four groups – Māori, Pacific, Asian, or European/Other, based on women's prioritised ethnicity derived from level two ethnicity codes recorded on the NCSP Register. Women for whom ethnicity information were not available were included in the "European/Other ethnic groups" category. The data download used for the current analysis (NCSP Register data as at March 2015) contained ethnicity codes for approximately 98.8% of women on the NCSP Register.

Ethnicity data in New Zealand is collected during encounters with the health system, such as registering with primary care, during an admission to hospital, or during surveys. The Ministry of Health has undertaken a number of activities to improve the quality of ethnicity data, including the development in 2004 of protocols for the collection and recording of ethnicity data. Coding of ethnicity on the NCSP Register follows the classification used by the Ministry of Health.[3, 4] The NCSP is continuing with work to improve the accuracy of ethnicity recording on the register. This has included matching women's NHIs for which there is no ethnicity on the register with the Ministry of Health's NHI register to include ethnicities. This matching is done every three months.

## *Calculating NCSP coverage*

The methods developed for calculating the indicators used to monitor the NCSP are reviewed and revised approximately every three years, consistent with other international programmes. In addition, revisions to calculations are made in accordance with changes to New Zealand statistics, such as the population census data and ethnicity recordings. These changes reflect Statistics New Zealand modifications to methods for estimating population statistics. Any changes to methods for numerators or denominators are discussed with and supported by the NCSP Advisory Group. These changes are then approved by the National Screening Unit.

Until Monitoring Report 30 (1 July to 31 December 2008), coverage was calculated for women aged 20 – 69 years at the end of the monitoring period. However this includes some younger women who were not eligible for screening for the entire three years because they were aged 22 or less at the end of the three year screening period (i.e. were aged 17 – 19 years at the start of the three year period). This means that previously there may have been slightly underestimated coverage overall. Accordingly, a change to the method for measuring coverage was discussed and agreed on with the NCSP Advisory Group. The revised approach was to report coverage for women aged 25 – 69 years at the end of the monitoring period (which therefore includes women aged

22 and over at the beginning of the three year period but excludes women aged 20 or 21 years at the beginning). This approach is consistent with best practice in Australia and England. In England, until 2003, the target age range for screening was 20 - 64 years, but coverage was calculated for women aged 25 - 64 years, to ensure only women eligible throughout the period were included. Similarly in Australia, women are eligible to start screening from 18 years, but coverage is measured among women aged 20-69 years. The difference between the starting ages (two years) is the same as the recommended screening interval in Australia.

Beginning with NCSP Monitoring Report 31 (1 January to 30 June 2009), coverage has been reported using the revised method but estimates using the old method (20 - 69 years at end of period) are also included for comparison.

The difference between the new (25-69 at end of period) and the old (20 - 69 at end of period) estimates is small (about 1-2%). However the advantage of the new method is that it provides a fairer estimate of coverage (by excluding women who are not eligible for the full three year period) and allows international benchmarking with important peer group countries, including Australia and UK.

In addition to three yearly coverage, (discussed above) we also report five yearly coverage (as is also done internationally). The change in method is even more important here as women aged 20 – 24 all need to be excluded as they are not eligible for screening for the full five years prior to the end of the assessment period. Restricting the coverage estimate to the 25 - 69 age group rather than the 20 - 69 age group is even more advantageous with respect to the five year coverage indicator than the three year coverage indicator.

As with all indicators, coverage indicators and the statistics on which they are based continue to evolve and further changes in the construction of these indicators are to be expected in the future. Changes currently in progress include better methods for hysterectomy adjustment and ethnicity identifications.

## 4. Biannual NCSP Monitoring Indicators

## *Indicator 1 – Coverage*

| | |
|---|---|
| **Definition** | The proportion of all 25-69 year old women who have had a screening event (cytology sample, HPV sample or histology sample) taken in the three years prior to the end of the reporting period. This definition restricts the measure of coverage to the five-year age groups who were eligible for the entire duration of the three-year period, ie women aged 25-69 years at the end of the monitoring period. Screening coverage in women aged 20-69 years is also presented, for comparability with previous reports.<br><br>The denominator (eligible population) for this indicator is adjusted for the estimated proportion of women who have had a total hysterectomy. Women who have withdrawn from or are not enrolled on the NCSP Register are excluded from the counts of women screened.<br><br>Screening of women aged less than 20 years at the time of their cervical sample is also reported by DHB. |
| **Target** | 80% of eligible women (aged 25-69 years at the end of the period) within three years by 31 December 2014. This target applies nationally, but is also a target for each ethnicity group (80% for Māori, 80% for Asian, 80% for Pacific, 80% for European/Other). |
| **Current Situation** | As at 31 December 2014, 889, 248 (76.5%) women aged 25-69 at the end of the current reporting period had at least one cervical sample taken during the previous three years. This does not yet meet the target of 80%. 1,054,754 (90.7%) women aged 25-69 at the end of the current reporting period had at least one cervical sample taken during the previous five years.<br><br>Three-yearly coverage in women aged 25-69 years varied by DHB from 71.5% (Counties Manukau) to 81.4% (Capital & Coast). Three of the 20 DHBs achieved the 80% target in women aged 25-69 years at the end of the period (Figure 1, Table 25 ).<br><br>The target coverage of 80% of women screened at least once within three years was achieved in three out of the nine five-year age groups between 25 and 69 years. Among women aged 25-69 years at the end of the period, the target was achieved for each of the specific five-year age groups between 45 and 59 years, but was not achieved for the five-year age groups between 25 and 44 years, or 60 and 69 years. Among women aged 25-69 years at the end of the period, coverage was lowest in women aged 25-29 years (66.8%), and was highest in women aged 50-54 years (80.9%) (Figure 2, Table 24). Coverage was also low in women aged 20-24 years (53.8%), however many women in this age group were not eligible for screening for the entire three- |

year period, and so the target is not applied to this age group.

Three-yearly coverage also varied by ethnicity. Coverage targets of 80% were not met for Māori, Pacific, or Asian women. Coverage in these groups for women aged 25-69 years was 61.7%, 72.1%, and 62.6% respectively. Among European/Other women, coverage achieved was 82.7% within three years (Figure 4, Table 26). Coverage for each of Māori, Pacific, Asian or European/Other women was also explored at the DHB level. Three-yearly coverage in Māori women ranged from 45.7% (South Canterbury) to 72.5% (Hawke's Bay)(Figure 4). The target level of 80% of Māori women screened within the previous three years was not achieved in any DHB. Three-yearly coverage in Pacific women ranged from 50.6% (Northland) to 83.9% (South Canterbury)(Figure 5). The target level of 80% of Pacific women screened within the previous three years only was achieved by South Canterbury. Three-yearly coverage in Asian women ranged from 52.6% (West Coast) to 72.9% (Hutt Valley) (Figure 6). The target level of 80% of Asian women screened within the previous three years was not achieved in any DHB. Three-yearly coverage in European/Other women ranged from 76.8% (Wairarapa) to 89.9% (Auckland)(Figure 7). The target level of 80% of European/Other women screened within the previous three years was achieved in 12 DHBs (Auckland, Bay of Plenty, Capital & Coast, Counties Manukau, Hutt Valley, Lakes, Nelson Marlborough, Southern, Tairawhiti, Taranaki, Waikato and Waitemata).

When compared to the findings for three-year coverage, five-year coverage had similar patterns of variation by age, DHB, and ethnicity to three-year coverage. In women aged 25-69 years at the end of the monitoring period, five-year coverage varied from 86.0% in West Coast to 97.5% in Capital & Coast (Figure 8, Table 28); by age from 82.6% in women aged 25-29 years to 95.2% in women aged 45-49 years (Figure 9, Table 27); and from 73.3% (Asian) to 97.0% (European/Other) (Figure 10, Table 29). Five-yearly coverage in Māori women ranged from 55.3% (South Canterbury) to 90.2% (Counties Manukau)(Figure 11, Table 30). Five-yearly coverage in Pacific women ranged from 61.9% (Northland) to all women (Auckland)(Figure 12, Table 30). Five-yearly coverage in Asian women ranged from 57.8% (West Coast) to 85.1% (Hutt Valley) (Figure 13, Table 30). Five-yearly coverage in European/Other women ranged from 89.1% (West Coast) to all women (Auckland)(Figure 14, Table 30). Coverage was estimated to be over 100% of the eligible population in some cases (Table 30); this is likely due to limitations in the estimates for hysterectomy prevalence.

***Screens in women aged less than 20 years***

A total of 8,510 women who were aged less than 20 years at the time of their cervical sample had a cervical sample taken in the three years to 31 December 2014. This represents 0.9% of women who were screened at any age (Table 32).

The number of women aged less than 20 years at the time they were screened varied by DHB from 66 (Tairawhiti) to 1,401 (Canterbury), however some differences in counts are to be expected due to differences in population size and age structure between DHBs. In order to take differences in population size between DHBs into account, the number of women who were screened in the previous three years and aged 15-19 years at the time of their cervical sample in each DHB was divided by the estimated population of females aged 15-19 years in that DHB. Note that as the events occurred over a three year period, and the population estimate is for a single year, this cannot be interpreted directly as the proportion of 15-19 year old females in each DHB who have been screened in the last three years. However, this does allow the variation in DHB populations to be partly accounted for, and thus can give an indication of where screening among women aged less than 20 years is more or less common. Estimates for this proportion ranged from 3.6% (Northland) to 8.4% (Canterbury). Some smaller DHBs screen a relatively low number of women when they are younger than 20 years, but because the population is small this equates to screening women aged less than 20 years old at a comparatively high rate (for example South Canterbury, Wairarapa and West Coast). Details of screens of women aged less than 20 years by DHB are presented in Figure 15, and Table 31 to Table 33.

Further exploratory analysis determined that more than three quarters of the women who were aged less than 20 years at the time of their cervical sample were aged 18-19 years at the time (87.6% overall; range across DHBs 69.5% to 95.7%). This may represent opportunistic screening of women aged 18-19 years. This proportion varied from 69.5% in Wairarapa to 95.7% in Whanganui. Where this proportion is higher, it is indicates that a larger proportion of screening in women aged less than 20 years may be attributable to opportunistic screening of women aged 18-19 years; as this proportion decreases, it indicates that more of the screening in women aged under 20 years is occurring in women aged under 18 years, and less may be attributed to opportunistic screening of women aged 18-19 years.

**Trends**

Trends in the current report need to be interpreted with some caution, as the population estimates used were updated in the currnt report to employ projections based on 2013 Census population (rather than the 2006 Census population 2011 Update, as in previous reports). This change will have improved the estimates of coverage, however it also means that some caution is required in interpreting changes since recent reports, as these may partially reflect differences in the population estimates.

***Coverage***

Overall coverage in New Zealand among women aged 25-69 years is slightly higher in the current period (76.5% within the last three years, and 90.7% within the last five years) compared to the previous reporting period (76.0% within the last three years, and 90.3% within the last five years).

Coverage within DHBs has been relatively stable in many DHBs compared to the previous monitoring period, with the change in coverage generally being around 1 percentage point or less. In some DHBs, there has been a larger decrease (South Canterbury, Taranaki, Wairarapa and West Coast), however this may be partially due to changes in the population estimates used. In some DHBs there has been a decrease over more than one monitoring period (Hawke's Bay, Northland, Tairawhiti), and these are less likely to be due to the change in population estimates. Longer term trends by DHB are shown in Figure 16 and Table 35.

Overall trends by age are similar to those seen in the previous monitoring report. The coverage target of 80% of women within the past three years continued to be met for women in the five-year age groups between 45-59 years, but not for women outside this age range. Coverage has increased slightly overall, and in particular for women aged 30-34 years. Coverage has changed slightly in many age groups, but the increases or decreases are small (less than one percentage point). Longer term trends by age are shown in Figure 17 and Table 36.

Coverage in Māori women and European/ Other women is similar to that in the previous monitoring report; while there has been an increase in coverage in Pacific women, and a decrease in coverage in Asian women. Longer term trends by ethnicity are shown in Figure 18 and Table 37.

***Screens in women aged less than 20 years***

The number of women screened who are aged under 20 years has decreased from 9,299 in the previous reporting period to 8,510 in the current reporting period, as has the proportion of all women with screening events who are aged less than 20 years at the time of the event (from 1.1% to 1.0%). The number of women screened who are aged less than 20 years at the time has decreased in almost all DHBs (Figure 19).

The proportion of these women who were aged 18-19 years has increased somewhat since the previous reporting period (from 87.1% to 87.6%), and an increase has occurred in many DHBs (11 of 20)(Figure 20). As in previous reports, it would appear that in New Zealand overall, screens in very young women are reducing, and where these still occur they increasingly reflect opportunistic screening of 18-19 year olds.

**Comments**

As discussed in Methods (Hysterectomy-adjusted population, page 15), the hysterectomy prevalence used to make the adjustment includes all women with a hysterectomy, some of whom may still require cervical screening. These women will have been removed from the denominator, but may still appear in the numerator. As a result of these limitations, coverage must be interpreted with some caution. We explored the impact of the hysterectomy-adjustment on the results by calculating coverage as a proportion of the total New Zealand female population (ie regardless of

whether they have had a hysterectomy or not). Results for this analysis appear in Table 34.

Another limitation is that the overall population estimates used (in conjunction with the hysterectomy adjustors) have now been updated to employ projections based on 2013 Census population (rather than the 2006 Census population 2011 Update, as in previous reports). These estimates for the denominator population should be more reliable than the older projections based on the 2006 Census, however it does mean that changes in coverage may partially reflect differences in the population estimates. While this change will have improved the estimates of coverage, it also means that some caution is required in interpreting changes in coverage since recent reports.

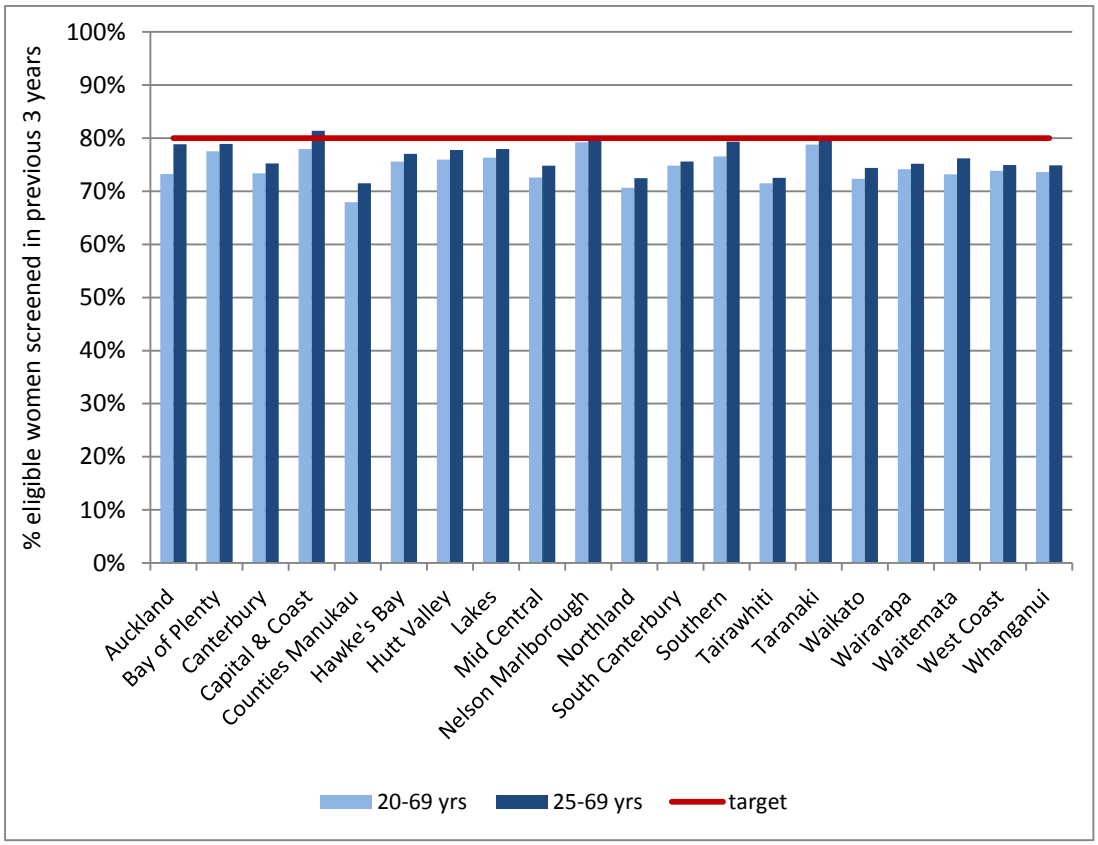
Counts of women screened used to estimate coverage (numerator) exclude women who are not enrolled on the NCSP Register, whereas the hysterectomy-adjusted population estimates (denominator) represent all women in New Zealand without a hysterectomy, regardless of whether they are enrolled on the NCSP Register. Therefore the coverage estimates may be an underestimate of the actual coverage rates achieved, however the impact is likely to be very small.

The current monitoring report employs different estimates of hysterectomy prevalence compared to that used in monitoring reports prior to Report 37. As a result, coverage estimates in the current report are not directly comparable to estimates prior to Report 37 and so trends should be interpreted with caution. Trends for earlier reporting periods were examined in the Annual Report covering 2010/2011, where coverage for recent years were re-calculated using the updated hysterectomy adjustors, to allow a better comparison to be made.

Concerns about under- and over-counting of different ethnicity groups is leading the Ministry to explore using the NHI for ethnicities as all other Ministry collections are moving to do so. In the interim this report relies on NCSP Register ethnicities..

Coverage in women aged 20-24 years is likely to remain lower than for other ages and coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.

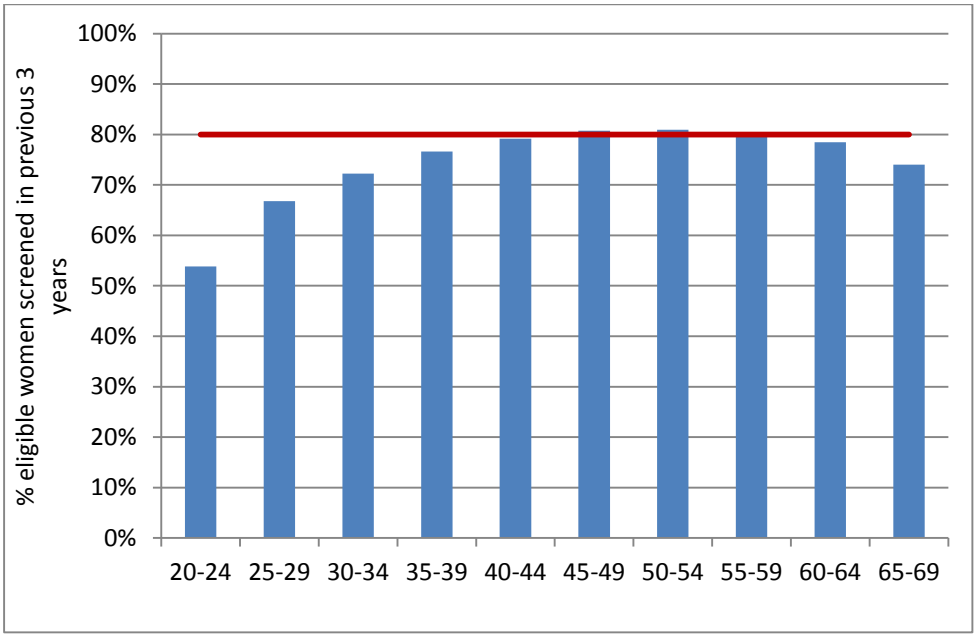
**Figure 1 - Three-year coverage by DHB (women screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population)**




*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

*Target 80%, hysterectomy adjusted. See also Table 25*

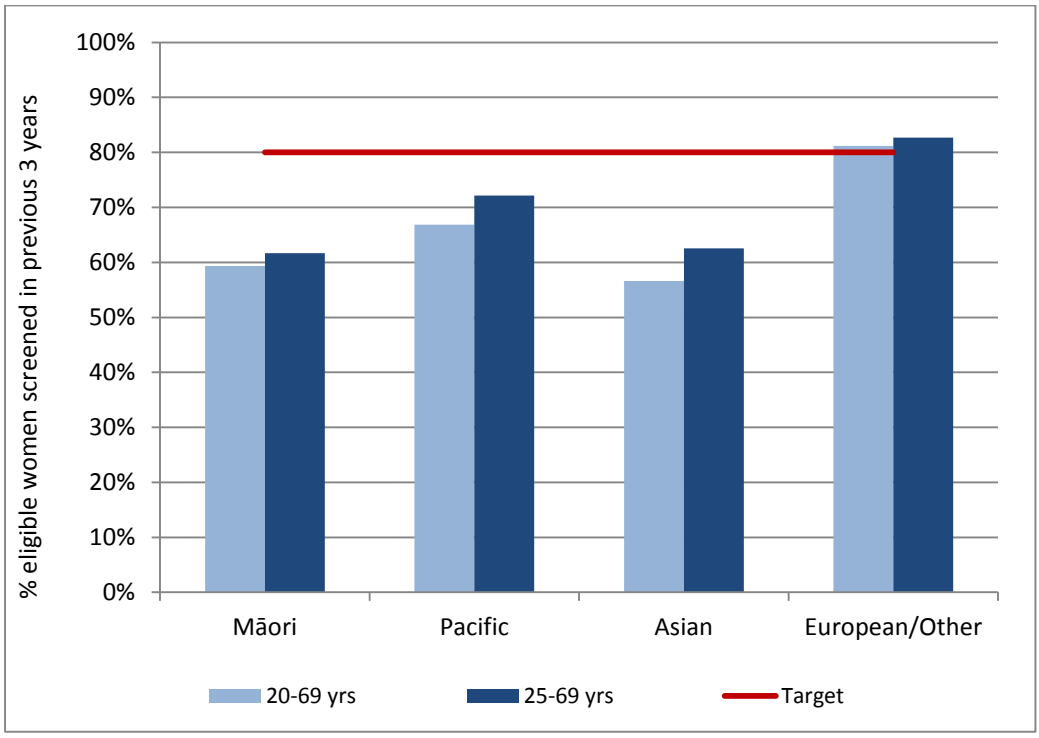
**Figure 2 - Three-year coverage by five-year age group (women 20-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population)**




*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

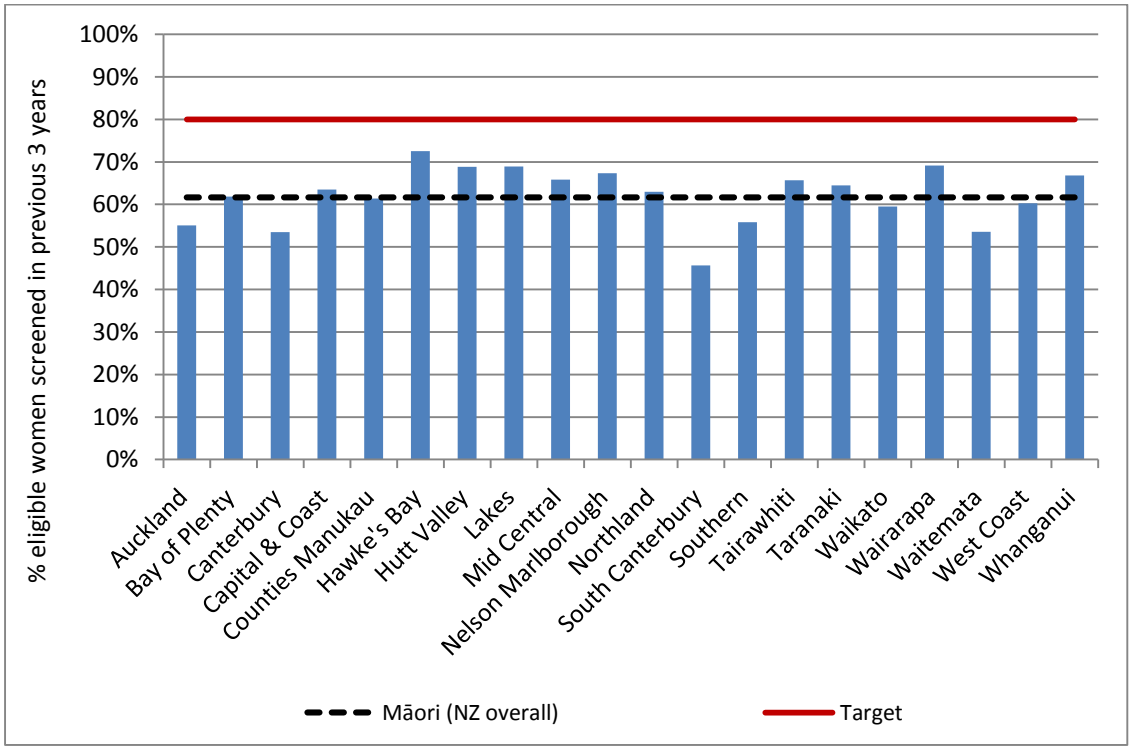
*Target: 80% for ages 25-69 years, hysterectomy adjusted. See also Table 24*

**Figure 3 - Three-year coverage (women screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by ethnicity**



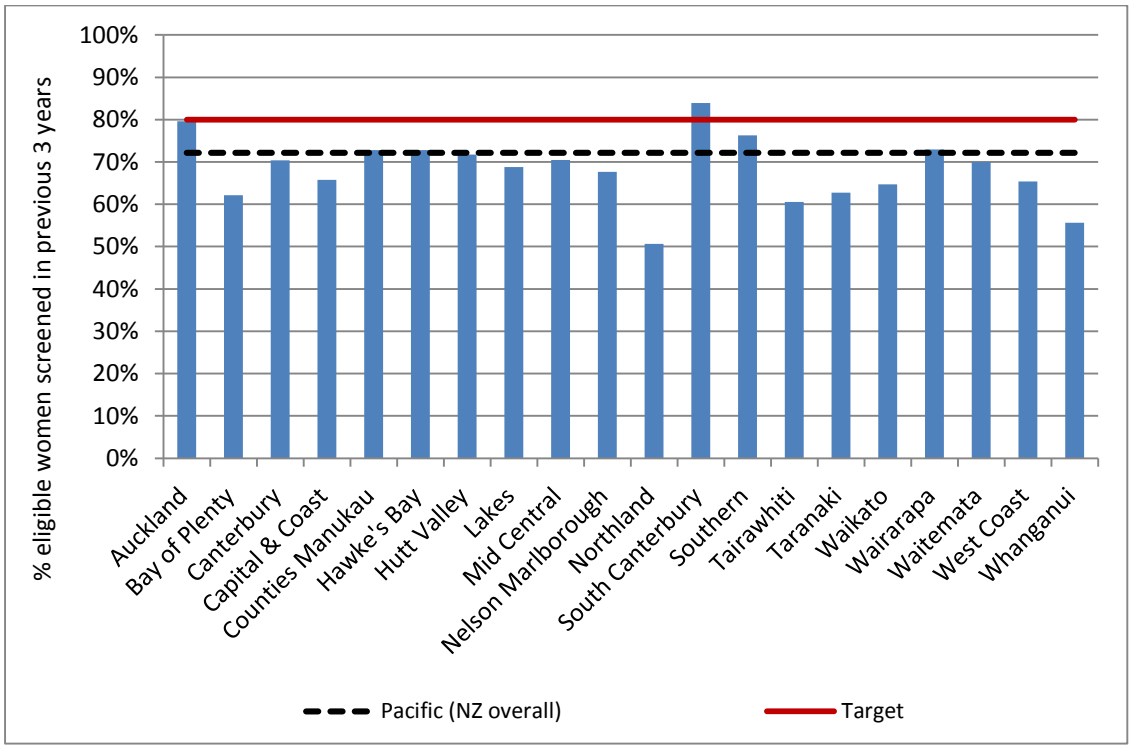

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*
*Target: 80% for ages 25-69 years, hysterectomy adjusted. See also Table 26*

**Figure 4 - Three-year coverage in Māori women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



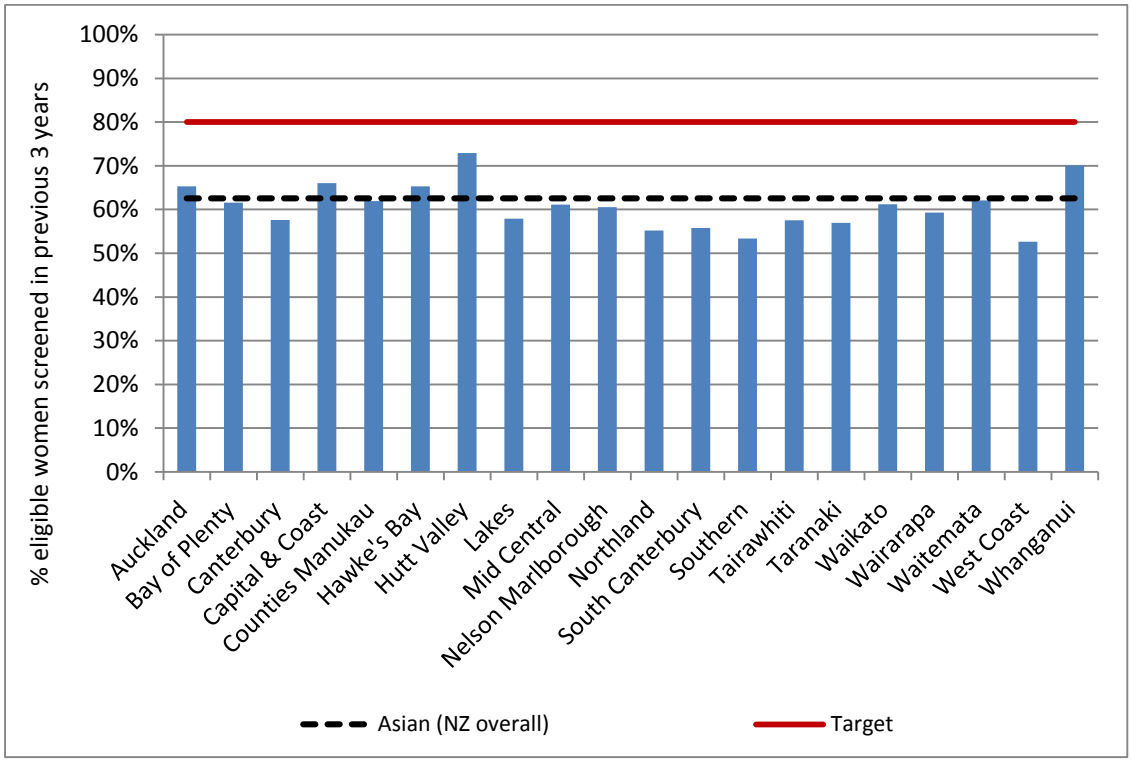

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. Target 80%, hysterectomy adjusted.*

**Figure 5 - Three-year coverage in Pacific women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



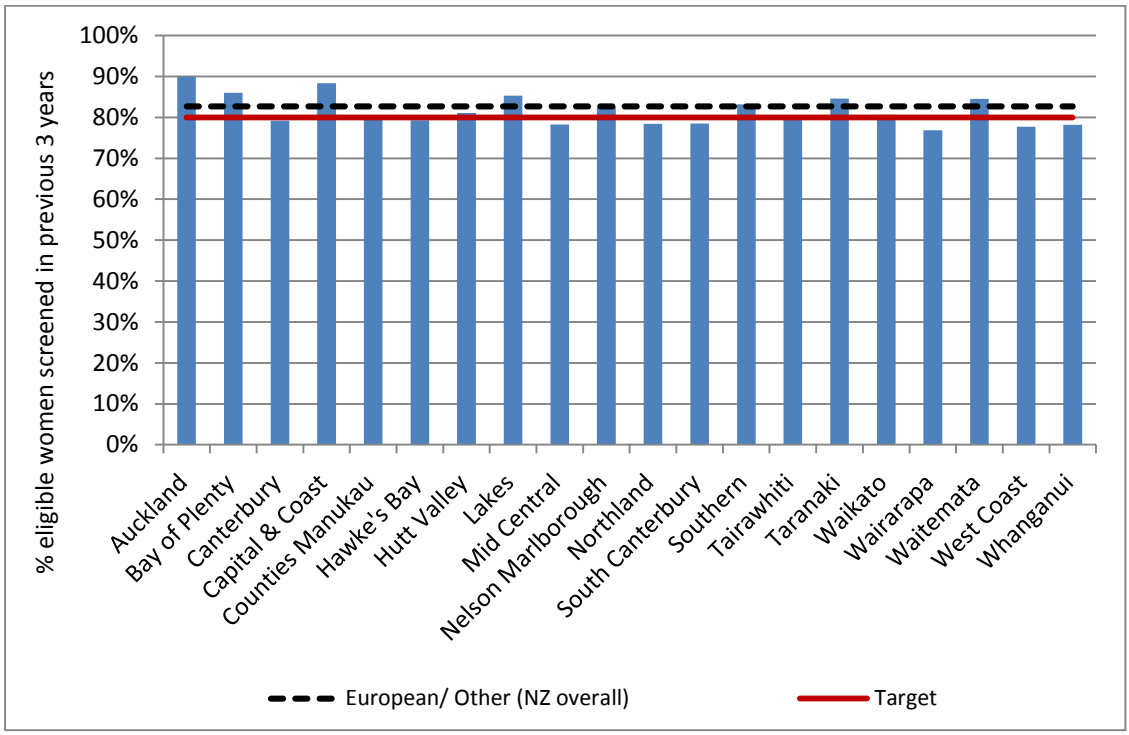

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. Target 80%, hysterectomy adjusted.*

**Figure 6 - Three-year coverage in Asian women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



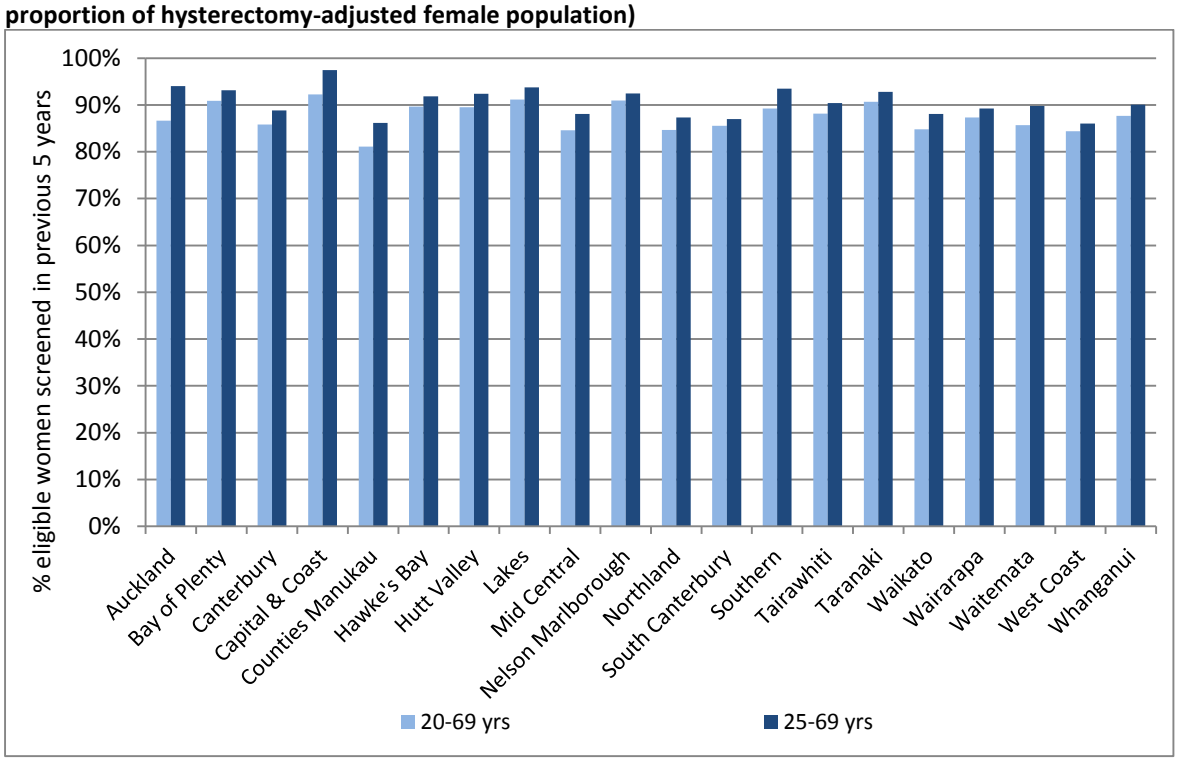

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. Target 80%, hysterectomy adjusted.*

**Figure 7 - Three-year coverage in European/ Other women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



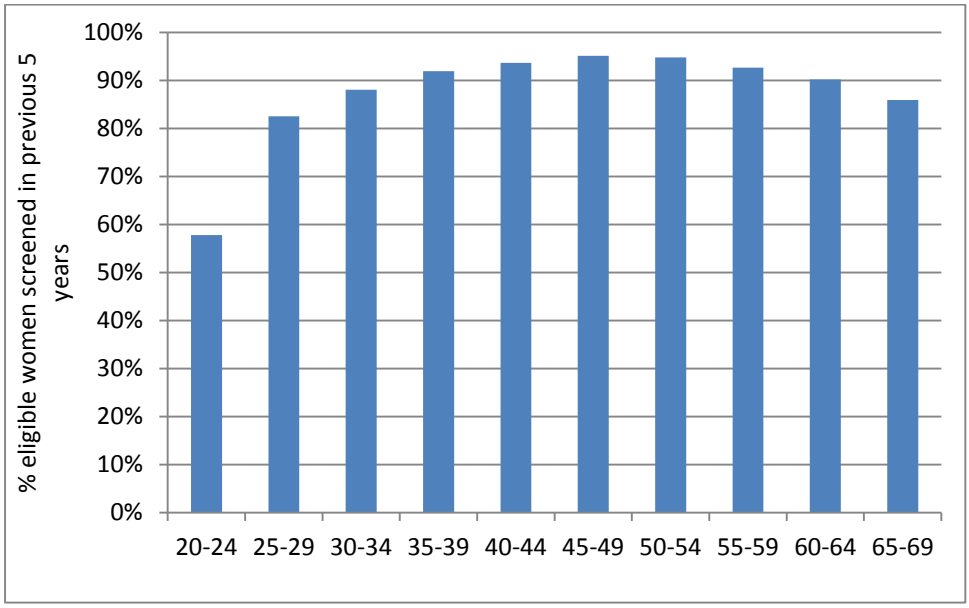

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. Target 80%, hysterectomy adjusted.*

**Figure 8 - Five-year coverage by DHB (women screened in the five years prior to 31 December 2014, as proportion of hysterectomy-adjusted female population)**



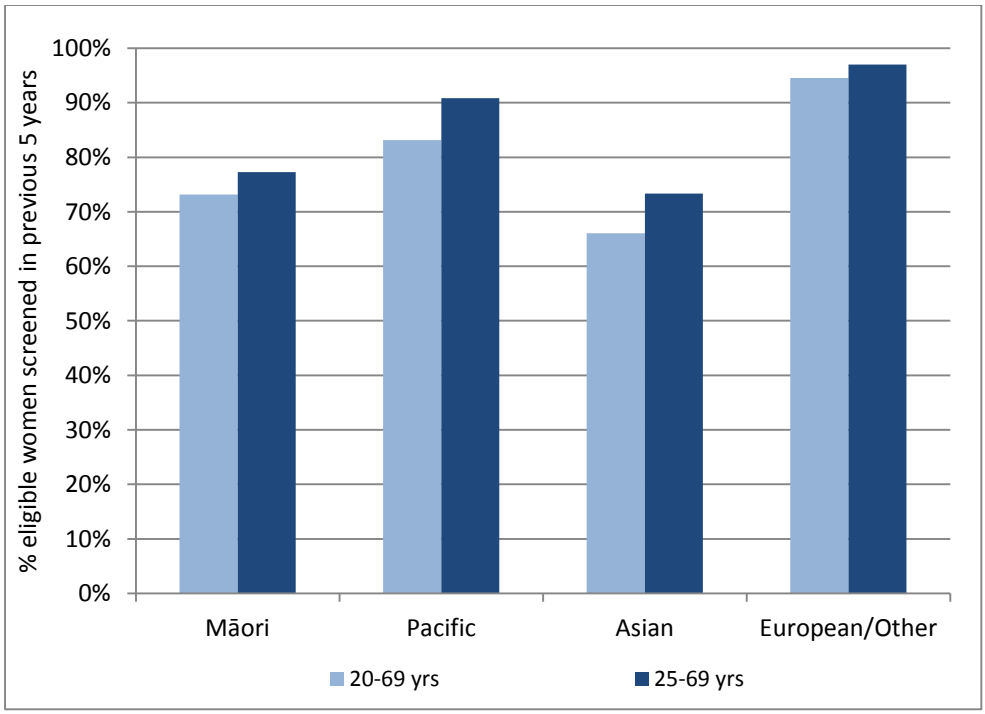

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. See also Table 28*

**Figure 9 - Five-year coverage by five-year age-group (women screened in the five years prior to 31 December 2014, as proportion of hysterectomy-adjusted female population)**



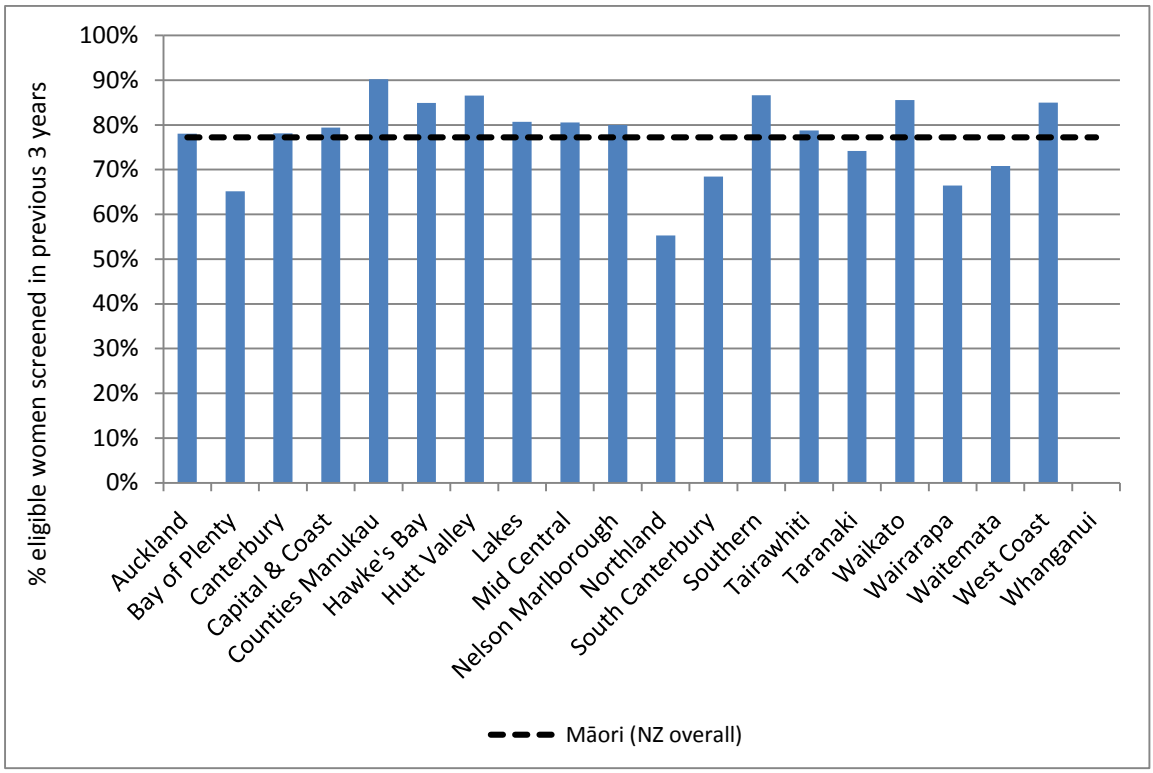

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. See also Table 27*

**Figure 10 - Five-year coverage by ethnicity (women screened in the five years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population)**



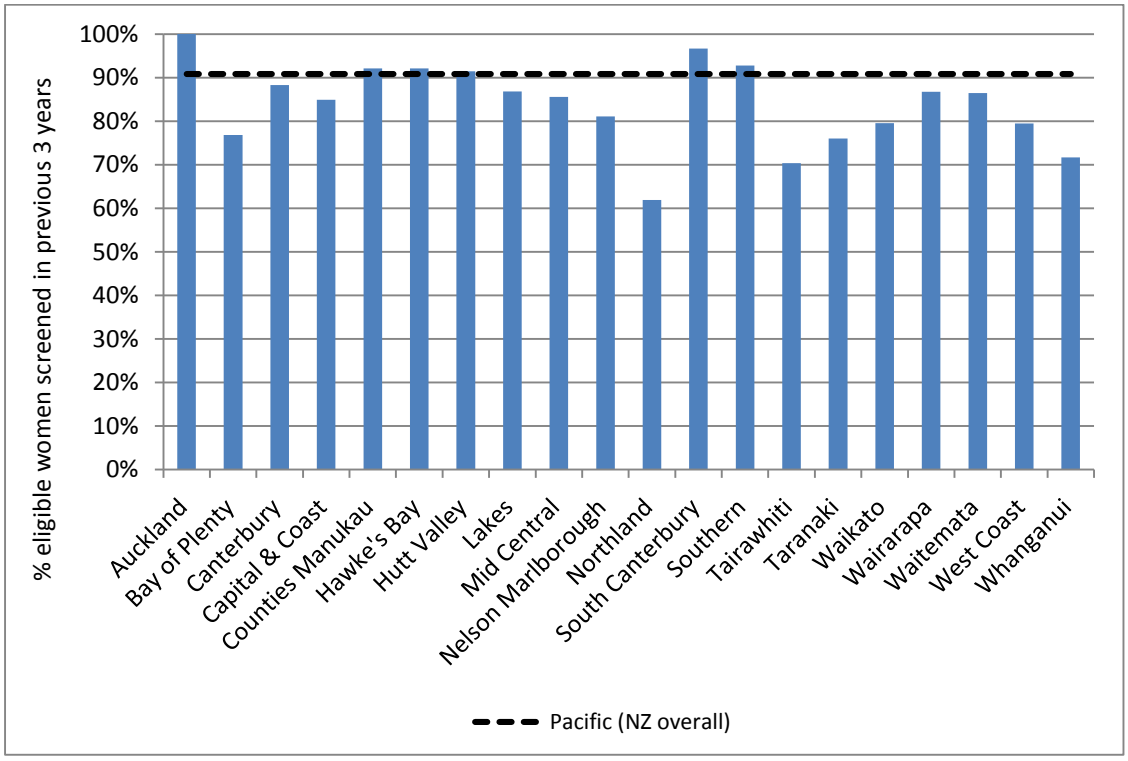

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data. See also Table 29*

**Figure 11 - Five-year coverage in Māori women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



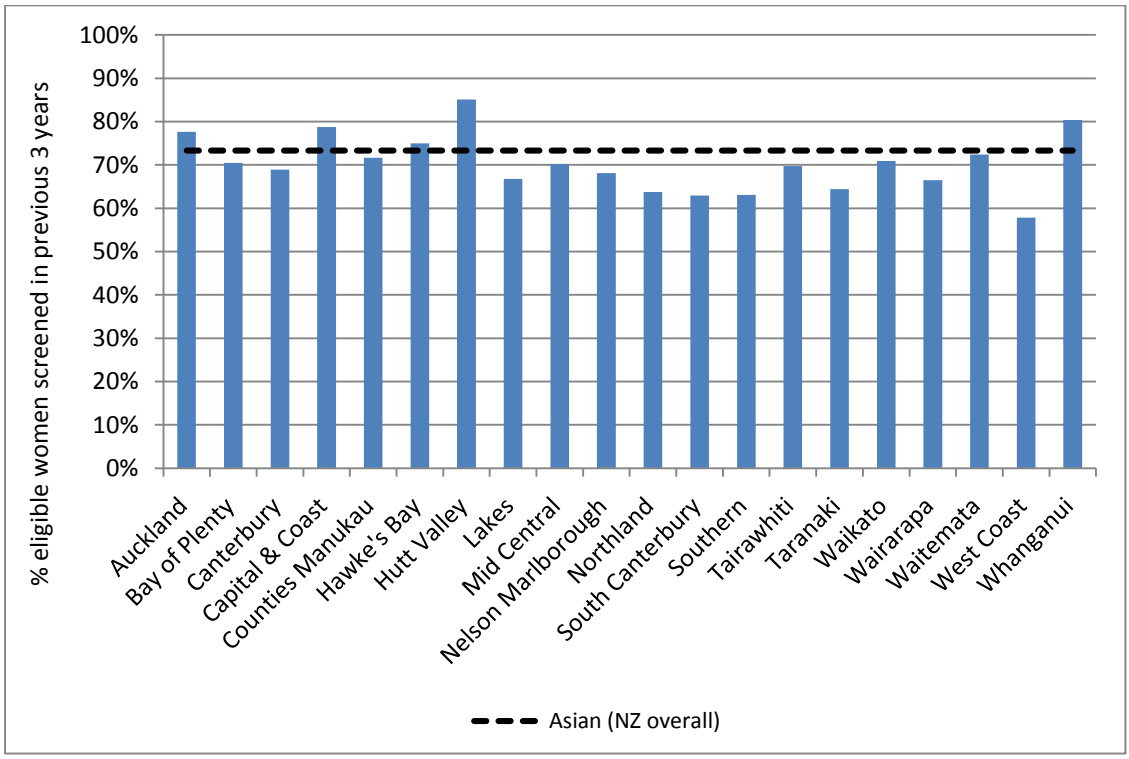

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

**Figure 12 - Five-year coverage in Pacific women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



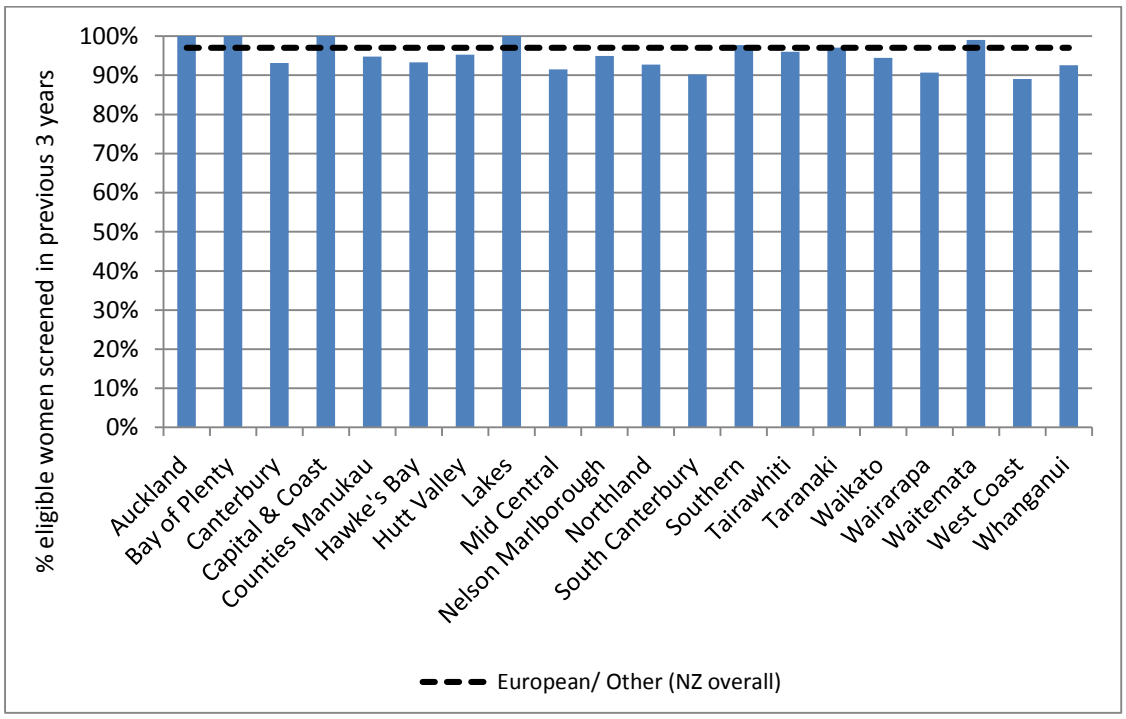

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

**Figure 13 - Five-year coverage in Asian women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



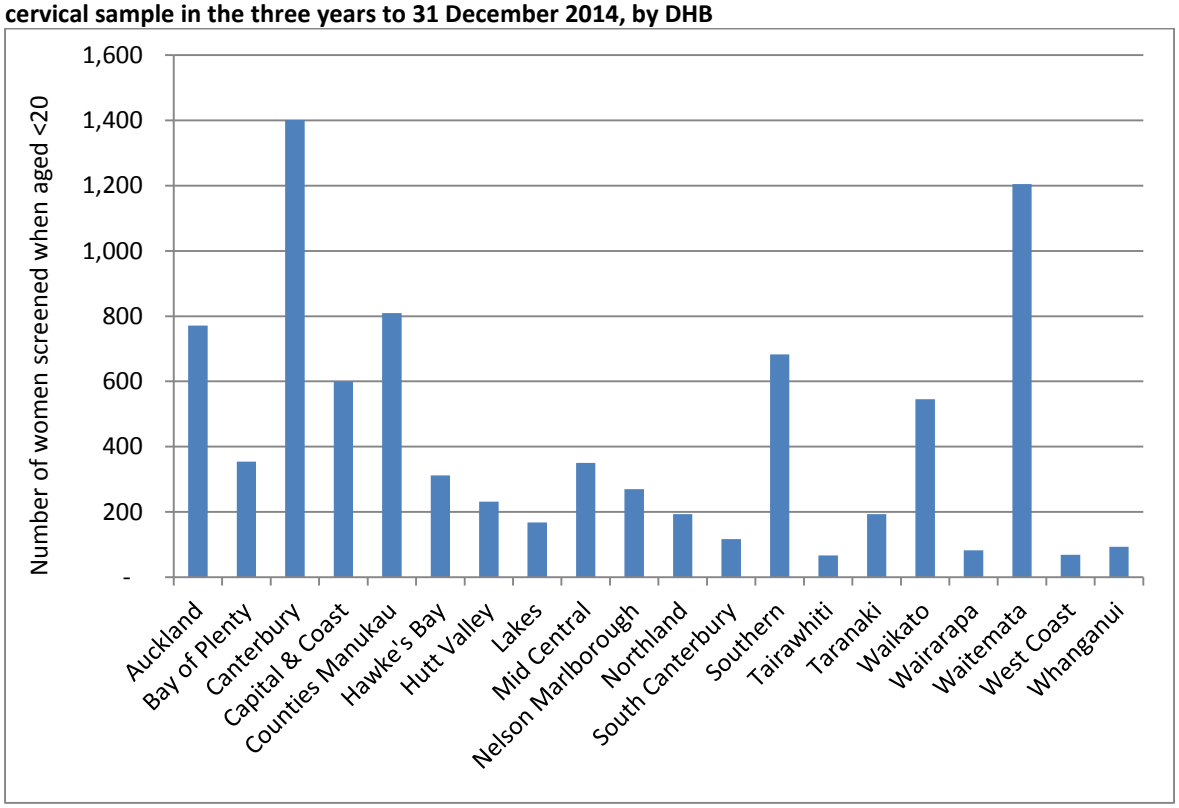

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

**Figure 14 - Five-year coverage in European/Other women (women 25-69 years screened in the three years prior to 31 December 2014, as a proportion of hysterectomy-adjusted female population), by DHB**



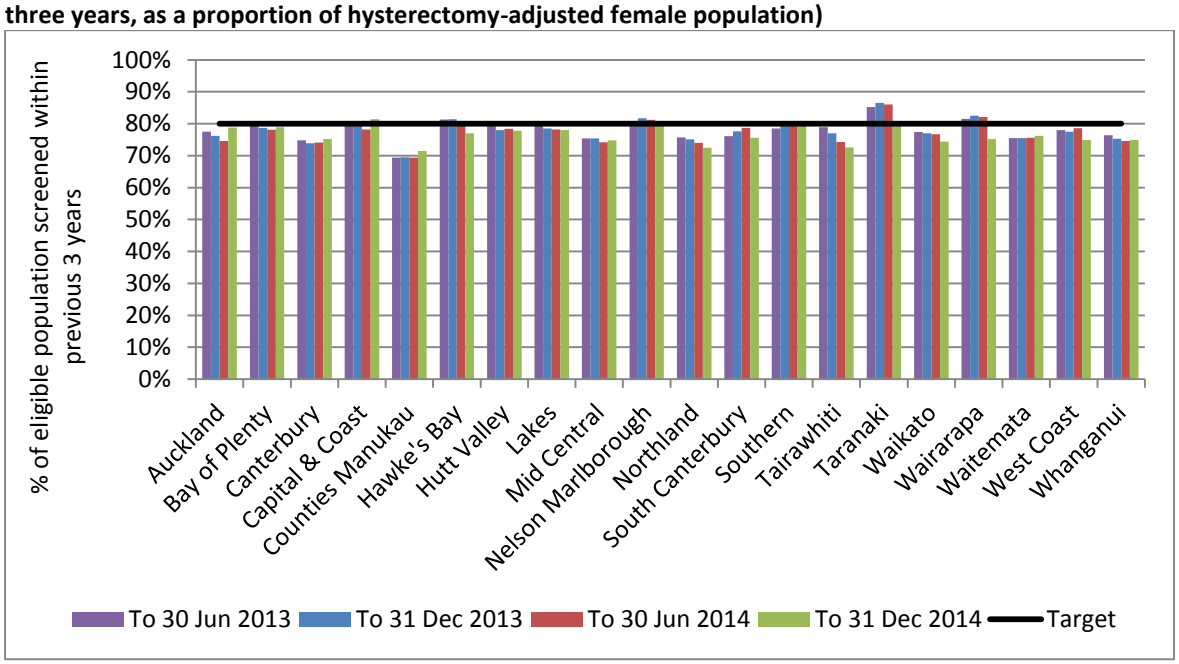

*Note: Coverage calculated using population projection for 31 December 2014 based on 2013 Census data.*

**Figure 15 - Number of women screened who were aged less than 20 years at the time of their cervical sample in the three years to 31 December 2014, by DHB**



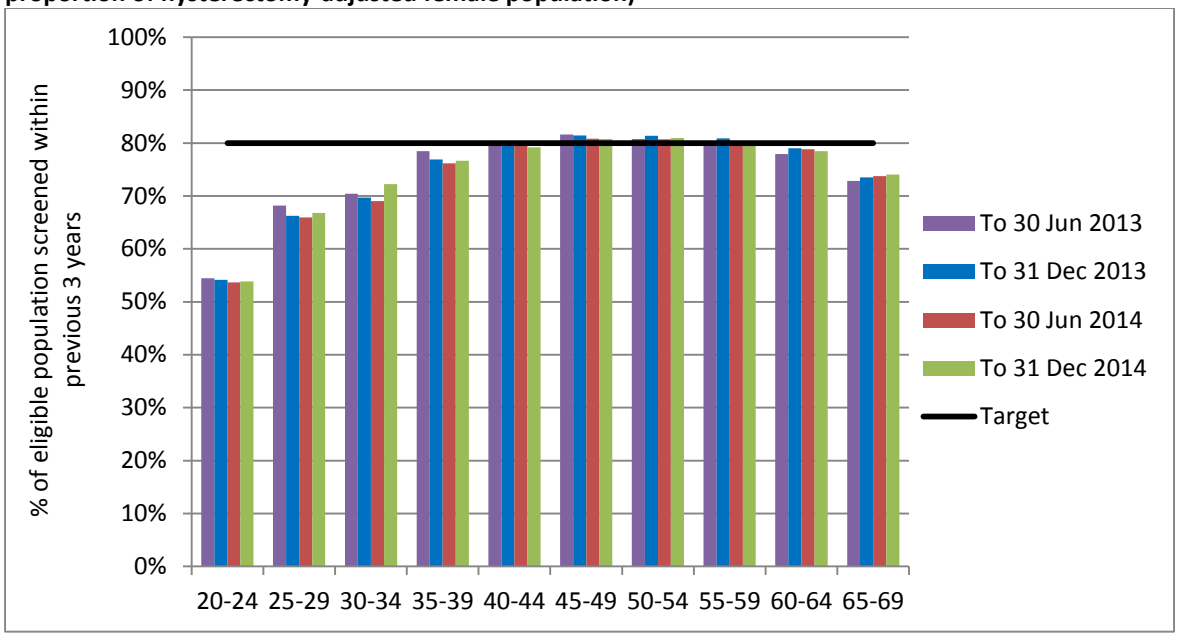

*Excludes one woman whose recorded age was less than ten years at the time of their cervical sample (likely data mis-entry). See also Table 31.*

**Figure 16 – Trends in three-year coverage by DHB (women aged 25-69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)**



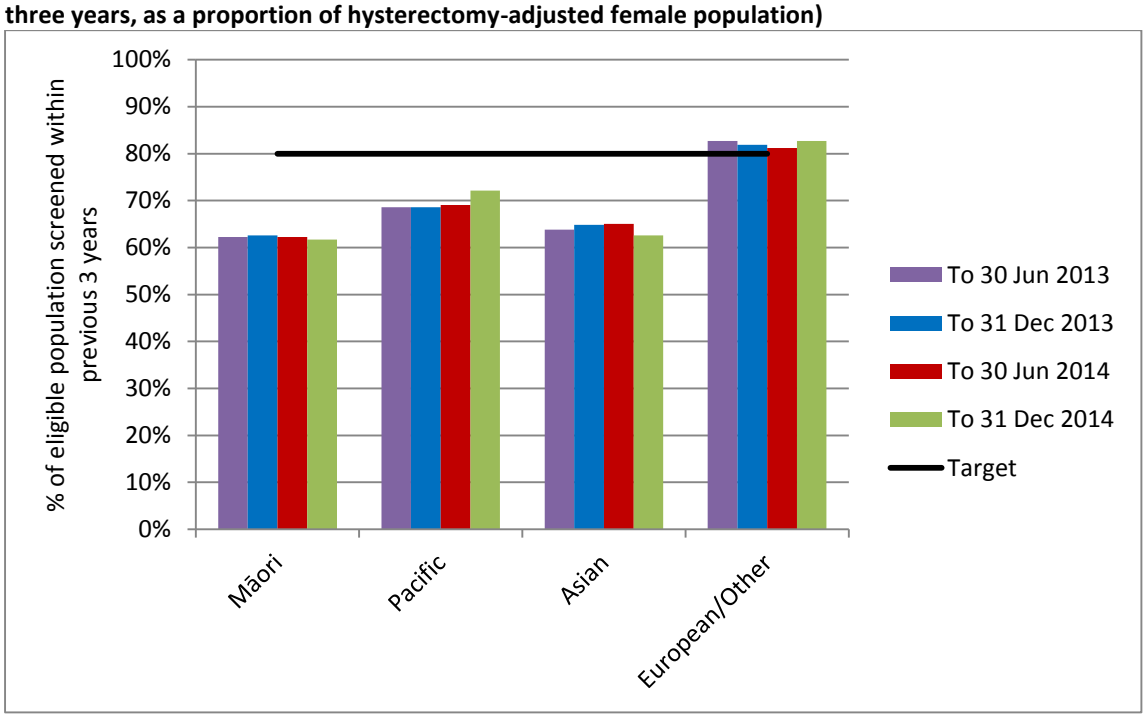

*Coverage calculated using population projection at the end date shown, based on 2013 Census data (To 31 Dec 2014 results) and 2006 Census data (results for earlier time periods).*
*Target 80%. See also Table 35*

**Figure 17 - Trends in three-year coverage by age (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)**




*Coverage calculated using population projection at the end date shown, based on 2013 Census data. Target 80%. See also Table 36*

**Figure 18 - Trends in three-year coverage by ethnicity (women aged 25-69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)**




*Coverage calculated using population projection at the end date shown, based on 2013 Census data. Target 80%. See also Table 37.*

**Figure 19 – Trends in the number of women screened in the preceding three years who were aged less than 20 years at the time of their cervical sample, by DHB**

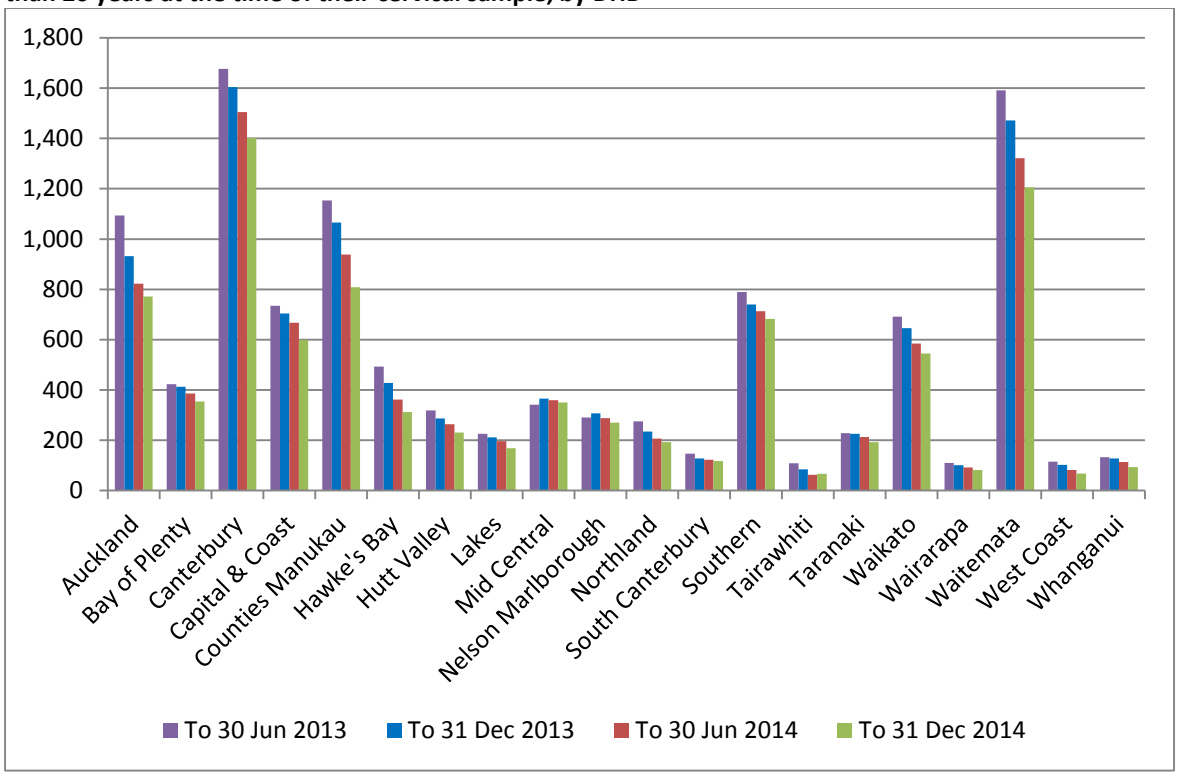
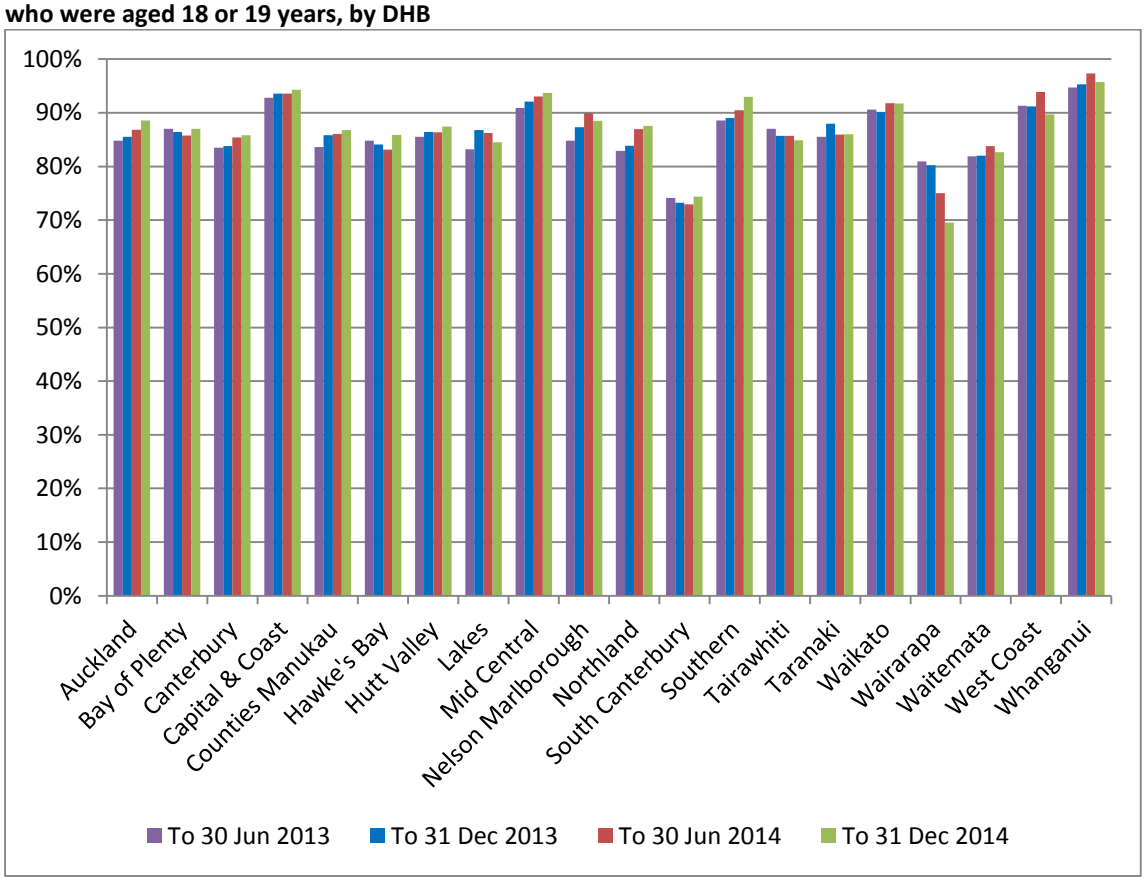



**Figure 20 – Trends in the percent of women aged less than 20 years at the time of their cervical sample who were aged 18 or 19 years, by DHB**



## *Indicator 2 – First screening events*

**Definition**

Women with no cervical (cytology, histology, or HPV) samples taken prior to the current monitoring period, who have had a cervical sample taken during the monitoring period (first event).

A woman's age is defined as her age at the end of the current reporting period (i.e. 31 December 2014).

This indicator is presented as the number of women by age, DHB and ethnicity. It is also presented as a proportion of all women in the eligible population (defined as the hysterectomy-adjusted population, aged 20-69 years), and as a proportion of all women with a cervical sample taken during this time period (screening event), by DHB.

**Target**

There are no targets for first screening events

**Current Situation**

There were 21,997 women aged 20-69 years at the end of the period who had their first screening event in the period 1 July - 31 December 2014. This constituted 10.4% of the 211,792 women aged 20-69 years with a cervical sample taken in the period (screening event), and 1.7% of the eligible population. The median age (at the end of the reporting period) of women with a first event recorded was 25 years.

The age group with the highest number of first screening events was women aged 20-24 years. 10,790 women aged 20-24 had their first screening event recorded on the register during this reporting period, accounting for 49.1% of all women aged 20-69 years with first screening events (Figure 21, Table 38). From this age group, first screening events decreased with increasing age. Women aged 20-24 years also had the highest proportion of women screened in their age group who were being screened for the first time (42.6%) (Figure 22), and the highest proportion of eligible women at that age with a first screening event recorded in the current reporting period (6.8%) (Figure 23).

The DHBs with the highest number of women aged 20-69 years with first screening events were Auckland (3,401) and Waitemata (2,932). The DHBs where women with first screening events, as a proportion of all women with screening events, were the highest were Auckland (13.5%), Capital Coast (12.5%) and Counties Manukau (12.2%). The DHBs where this proportion was lowest were Wairarapa (7.0%), Nelson Marlborough (7.2%) and Whanganui (7.2%) (Figure 24, Table 39).

The ethnic group with the highest number of women with first screening events was European/Other (12,661) (Table 40). The group with the highest proportion of their eligible population being screened for the first time was Asian women (2.8%), and the lowest was Māori women (1.3%) (Table 40). The proportion of women screened who were being screened for the first time was highest for Asian women (21.4%) (Figure 25, Table 40),. This proportion is likely to be related to the median age of women with a first screening event, which in Asian women is comparatively high (31 years, compared with 21 years for Māori women, 26 years for Pacific

women, and 23 years for European/Other women) (Table 41).

**Trends**

The number of women with a first screening event recorded on the NCSP Register has increasedslightly, from 21,343 women in the previous period, to 21,997 in the current period. Across the overall eligible population aged 20-69 years, the proportion of women with screening events that are their first screening event being recorded on the NCSP Register (10.4%) is slightly higher than the previous period (10.2%).

Patterns by age, DHB, and ethnicity are broadly similar to those seen in the previous report. As was the case in previous reports, the median age of a first screening event was older for Asian women than for Māori women and European/ Other women, and women with first screening events constituted a larger proportion of the women screened for Asian women.

Trends over the two years ending 31 December 2014 are shown in Figure 26 (by age), Figure 27 (by DHB), and Figure 28 (by ethnicity).

**Comments**

This indicator can only measure the number of women with their first screening event in New Zealand, recorded on the register since its introduction (1990). It does not capture screening events which occurred outside New Zealand, or among women who are not enrolled on the NCSP Register.

Some differences in counts and proportion of women with first screens among screened women between DHBs are to be expected due to differences in population size, immigration and age structure. Proportions have been provided to partially account for this, however they should be interpreted with caution. For example, a relatively low number of women with first screens as a proportion of all women screened could be due to either a lower number of women with first events, or a higher number of women with screening events (which could be due to high coverage, higher abnormality rates [as abnormalities require women to return more frequently], or higher early re-screening). For example, the DHB with the highest coverage, Taranaki, does not have a particularly high proportion of women with first events. If coverage remains high, then this proportion will inevitably decrease, as fewer women are available to be screened for the first time. Conversely, a relatively high number of women with first screens as a proportion of all women screened could be due to either a higher number of women with first events (due to increasing coverage), or a lower number of women with screening events (for example due to less frequent screening among women who have been screened at least once since the inception of the register).

**Figure 21 - Number of first screening events by five-year age group**

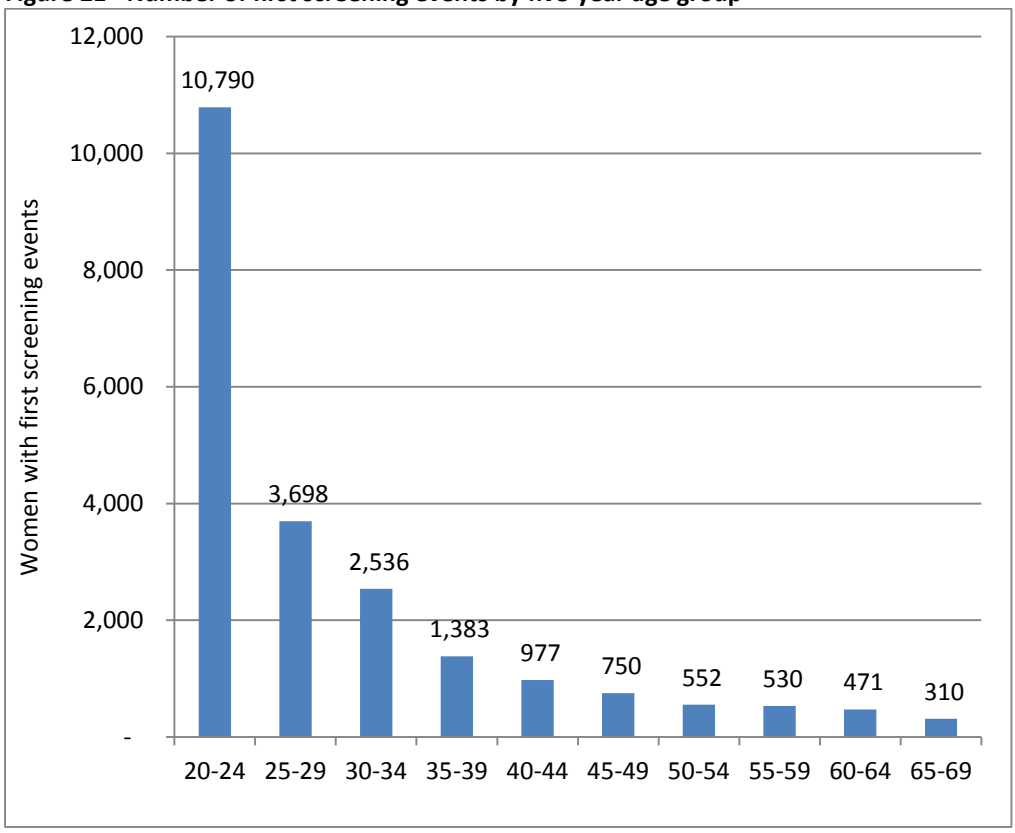



**Figure 22 – Women with first screening events as a proportion of all women screened during the reporting period, by five-year age group (women aged 20-69 years at 31 December 2014)**

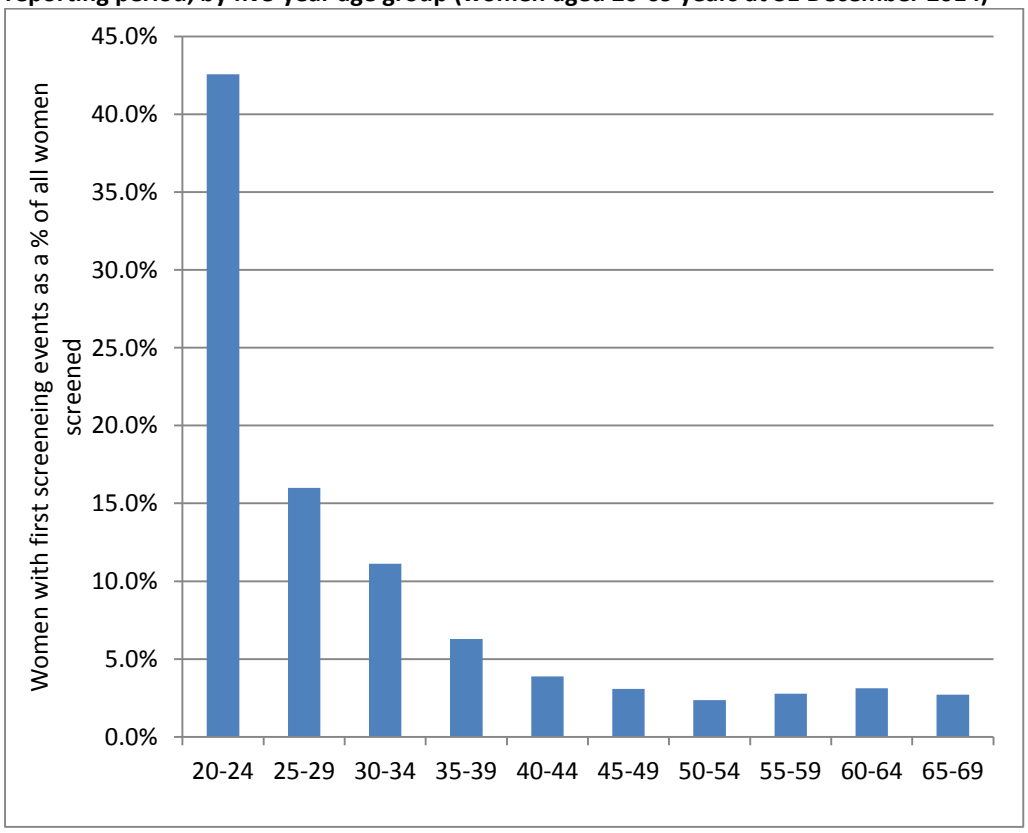
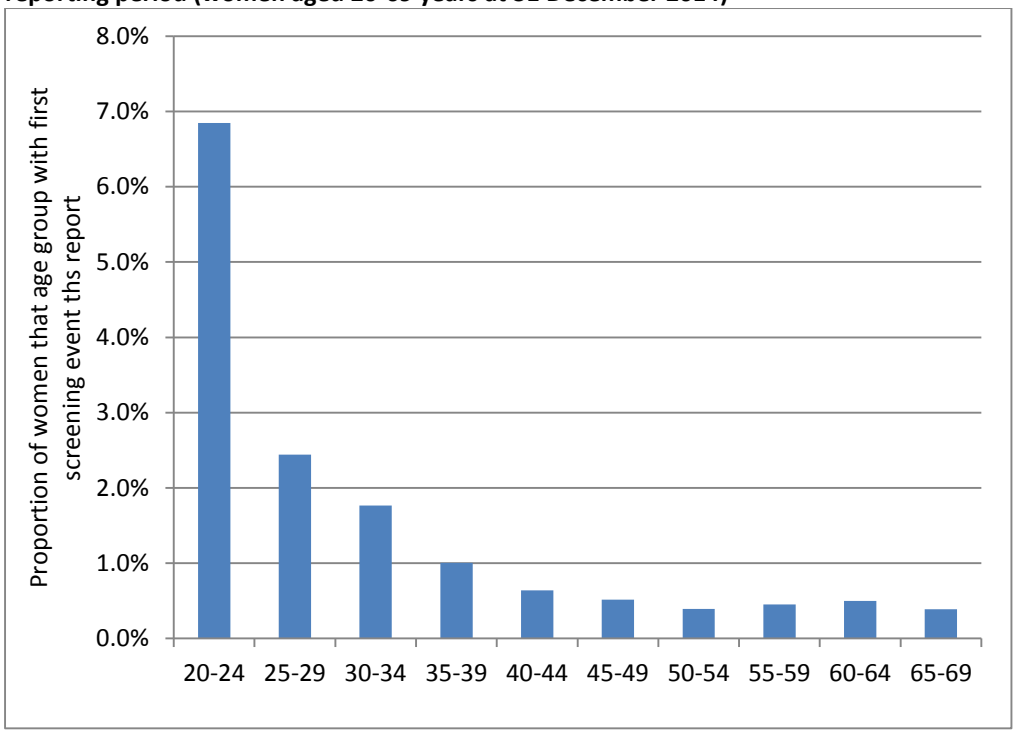


**Figure 23 - Proportion of population* in that age group with their first screening event during the reporting period (women aged 20-69 years at 31 December 2014)**




**Hysterectomy adjusted, 2013 Census data projected to 31 December 2014*

**Figure 24 - Women with first screening events as a proportion of all women screened during the reporting period, by DHB (women aged 20-69 years at 31 December 2014)**

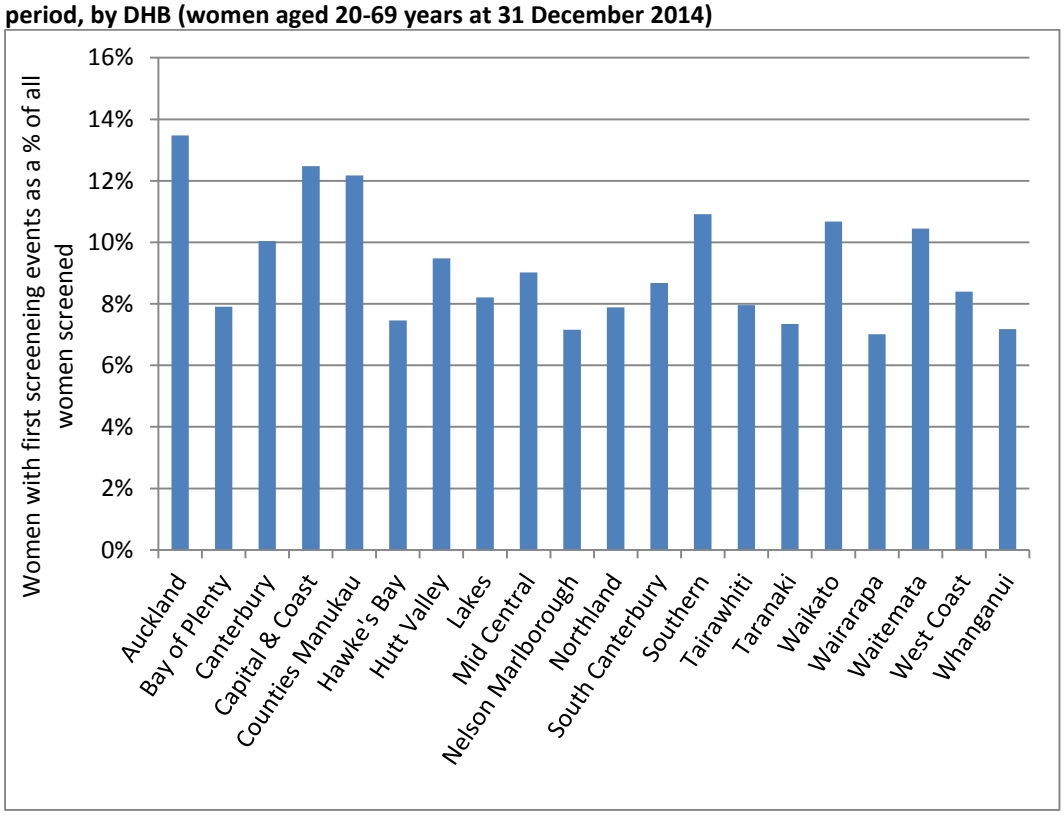


**Figure 25 - Women with first screening events as a proportion of all women screened during the reporting period, by ethnicity**

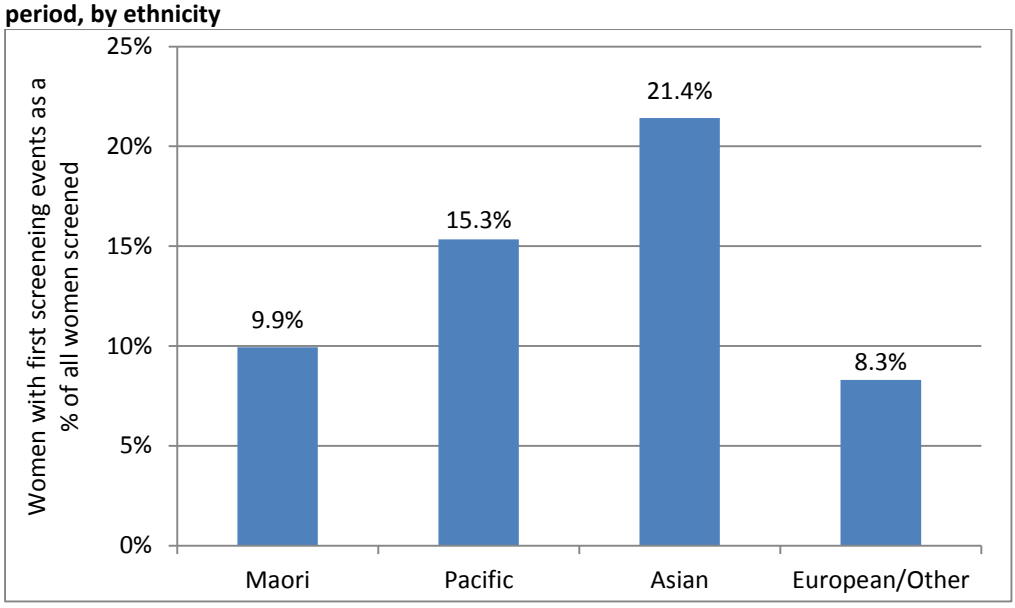



**Figure 26 – Trends in the number of women with a first screening event, by age**

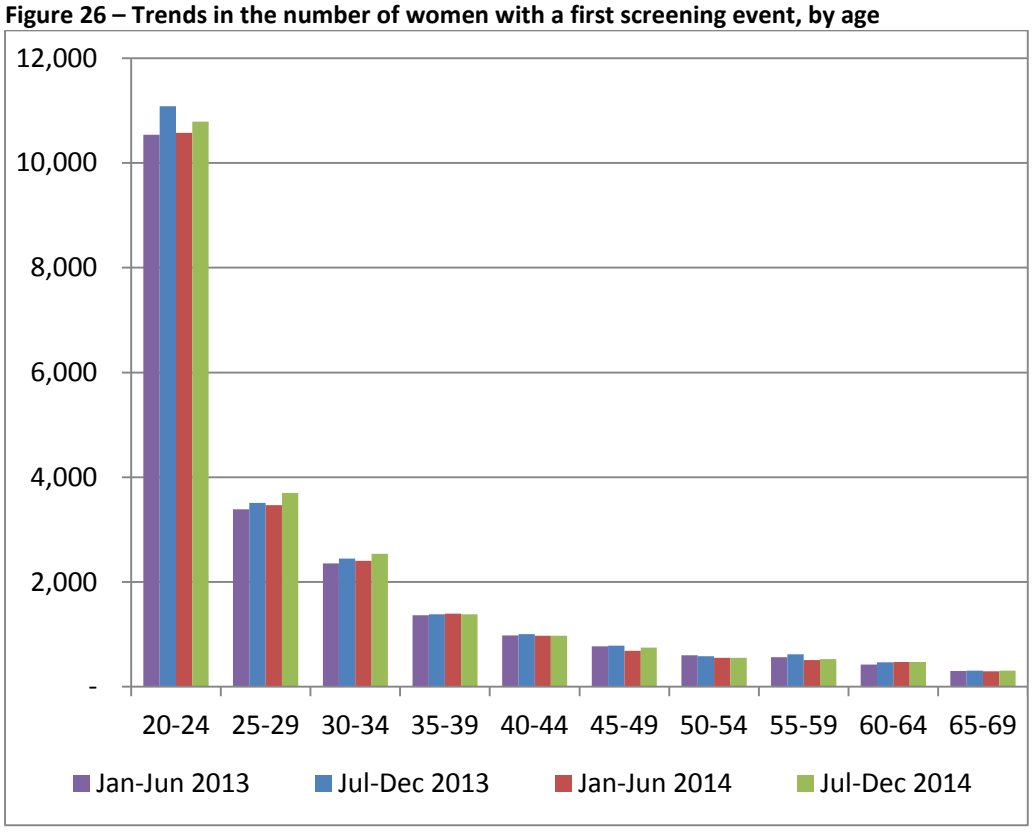


**Figure 27 - Trends in the number of women with a first screening event, by DHB**

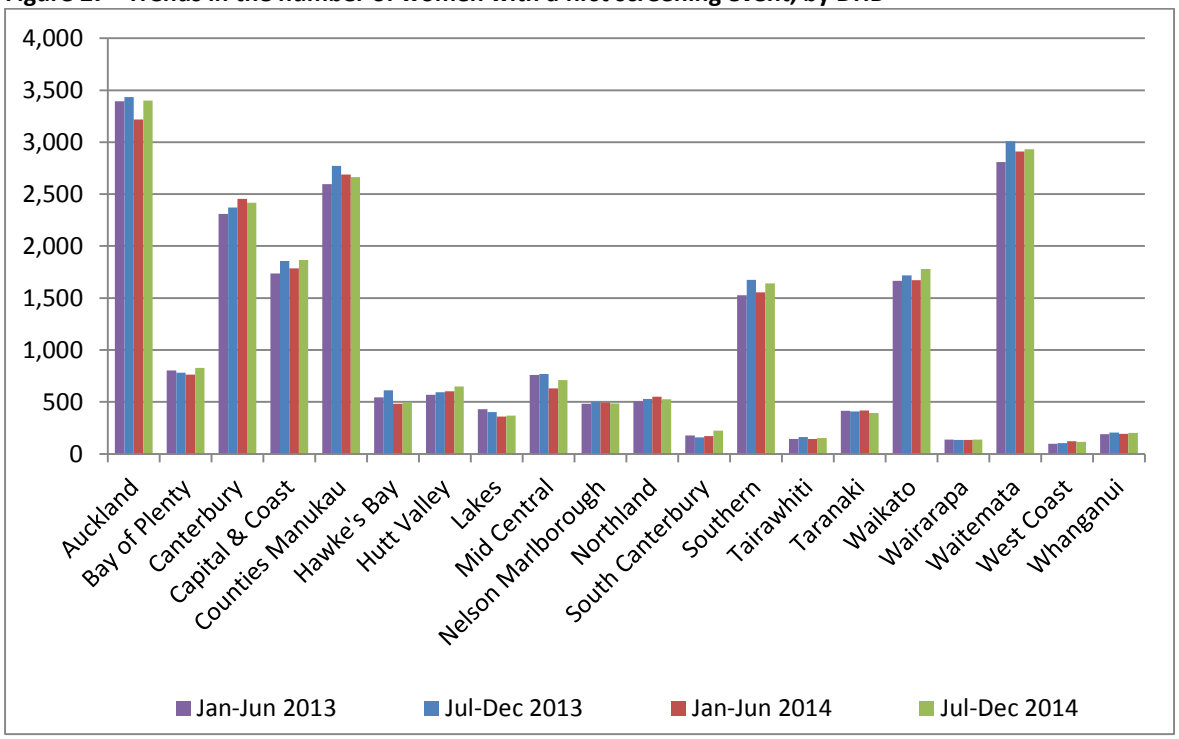
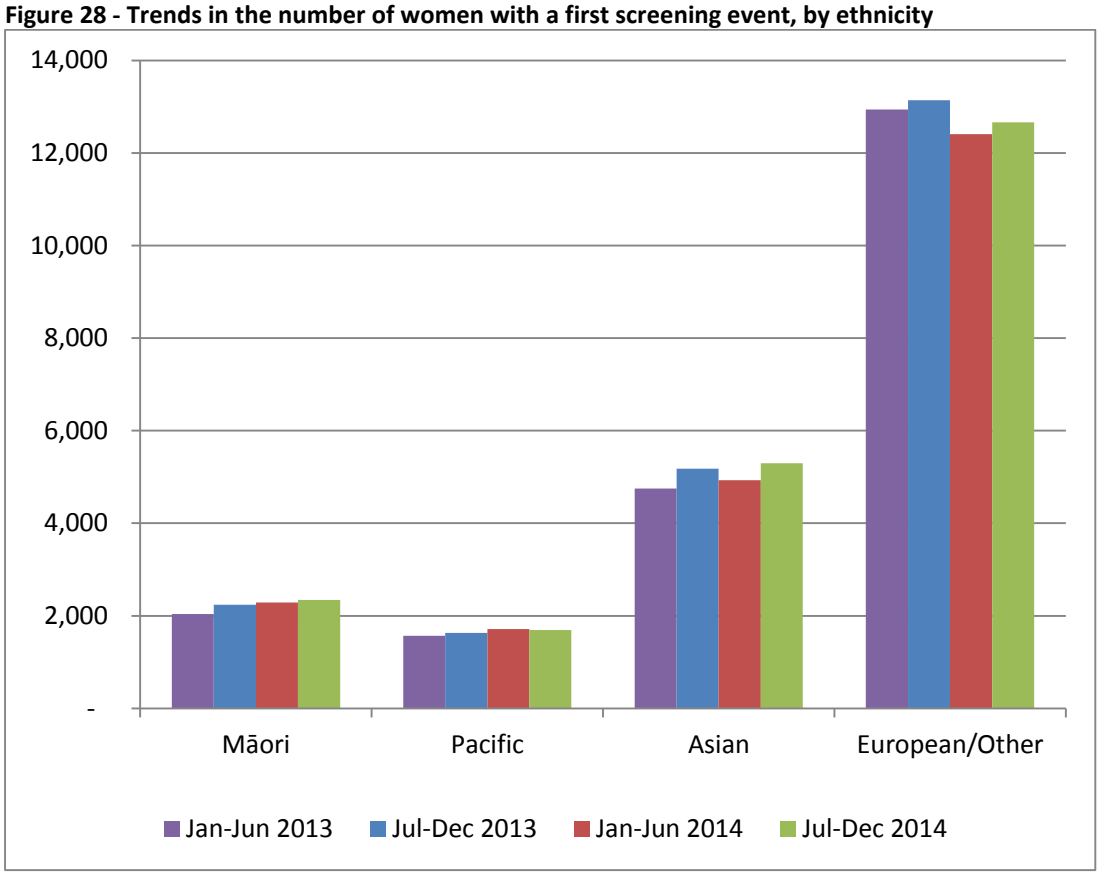


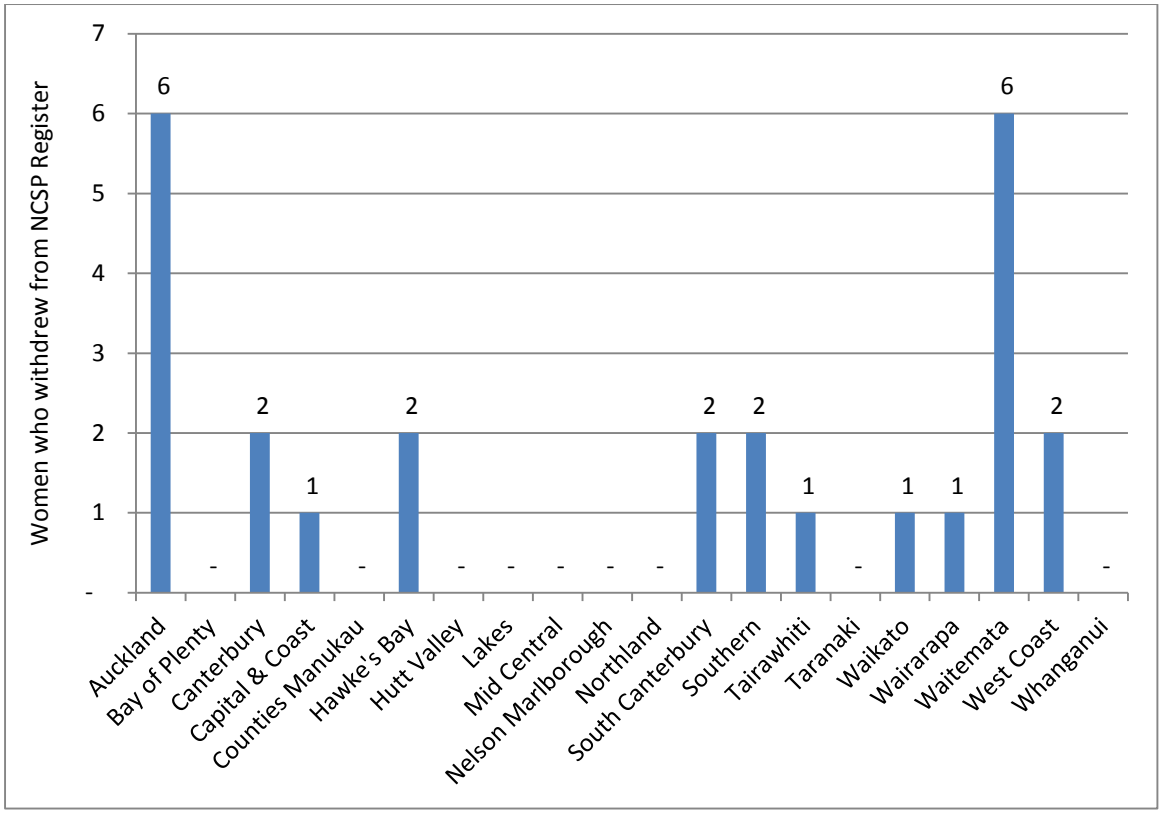

**Figure 28 - Trends in the number of women with a first screening event, by ethnicity**



## *Indicator 3 – Withdrawal rates*

| | |
|---|---|
| **Definition** | The number of women, by age-group, DHB, and ethnicity not currently enrolled in the NCSP Register and whose enrolment ended during the reporting period (withdrawals). Withdrawals relate to active withdrawals, where women specifically elect to be removed from the NCSP Register.<br><br>The proportion of women who were enrolled on the NCSP Register at 30 June 2014 (ie just prior to the commencement of the current reporting period), whose enrolment ended within the current reporting period, is also reported.<br><br>Age is defined as a woman's age at the end of the reporting period. |
| **Target** | Zero for ages 20-69 years. |
| **Current Situation** | At the commencement of the reporting period, 1,508,746 women aged 20-69 years were enrolled on the NCSP Register. During the current reporting period, 29 of these women (0.002%) withdrew from the NCSP Register.<br><br>In all DHBs, the number and proportion of women who withdrew was extremely small (maximum six women in each of Auckland and Waitemata DHB regions). No women withdrew in Bay of Plenty, Counties Manukau, Hutt Valley, Lakes, Mid Central, Nelson Marlborough, Northland, Taranaki, or Whanganui (Figure 29).<br><br>The age group with the largest number and proportion of women withdrawing were women aged 20-24 years, 45-49 years and 55-59 years (0.004% of those enrolled at the start of the reporting period) (Figure 30, Table 42).<br><br>The number and propoprtion of women withdrawing was extremely small for all ethnic groups. In total four Māori women (0.002%), two Pacific women (0.002%), four Asian women (0.003%) and 19 European/ Other women (0.002%) withdrew in the current monitoring period (Figure 31, Table 43). |
| **Trends** | The number of women who withdrew in the current reporting period (29 women) is slightly lower than in the previous reporting period (32 women). The overall number of withdrawals remains extremely small. |
| **Comments** | The proportion of women choosing to actively withdraw from the NCSP Register is extremely small.<br><br>Withdrawals relate to active withdrawals, where women specifically elect to be removed from the NCSP Register. It does not include, for example, women who have moved overseas, or who have died during the period, and who therefore are not having tests recorded on the NCSP Register. |

**Figure 29 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by DHB, 1 July - 31 December 2014**




*Excludes three women who withdrew whose DHB was not recorded*

**Figure 30 - Number of women who withdrew from the NCSP Register by age, 1 July - 31 December 2014**

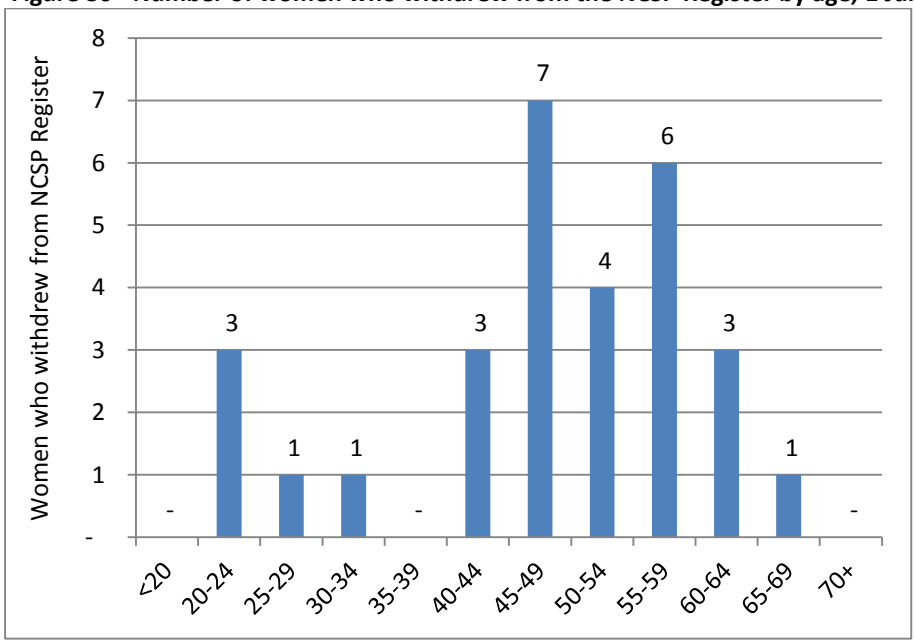
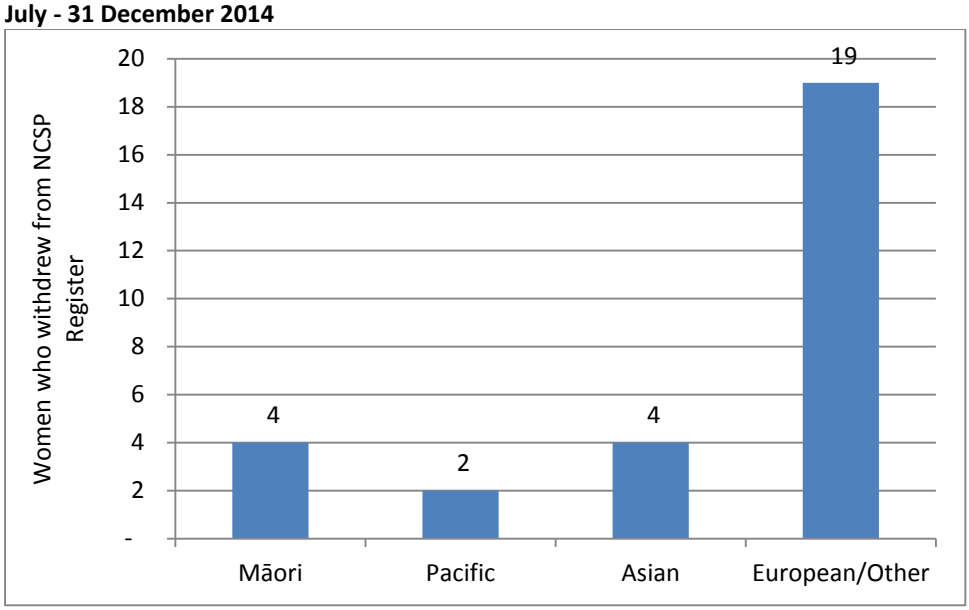


**Figure 31 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by ethnicity, 1 July - 31 December 2014**



## *Indicator 4 – Early re-screening*

| | |
|---|---|
| **Definition** | The proportion of women who returned for a smear within 30 months (2.5 years) of their index smear is calculated for a cohort of women. The cohort comprises women with an index smear taken between 1 February 2012 – 31 March 2012 (inclusive), who i) were aged 20 – 66 years at the time the smear was taken (and hence remained within the screening target age throughout the period); and ii) were given a recommendation to return at the regular interval of three years as a result of their smear in August/September 2010 (NZ Modified Bethesda code R1). Using this method of calculating the measure allows follow-up to be considered over 30 months for every individual woman.<br><br>This measure excludes women being followed according to *Guidelines for Cervical Screening in New Zealand*, for example, those with a recent report of an abnormality. It also excludes from the count of women screened early those whose "early" smear recommended urgent referral regardless of cytological findings, in view of the abnormal clinical history provided (NZ Modified Bethesda code R14).<br><br>In some cases, early re-screening may be the result of women being re-screened early in response to clinical symptoms, and this is appropriate.<br><br>For the purposes of analysis by age group, a woman's age is defined as her age at the end of the current reporting period (ie 31 December 2014). |
| **Target** | A target has not yet been set for this cohort-based calculation method. This method of calculation will result in a higher value than the old interval-based method, because all women are followed over the same length of time (30 months). A more detailed discussion of the reasons for this, and the rationale for the cohort-based method, can be found in Monitoring Report 30. |
| **Current Situation** | There were 44,737 women who had a smear taken in February or March 2012, were aged between 20-66 years at the time of their smear, and were given a recommendation to return for their next smear at the routine interval of three years. Among these women, 7,185 (16.1%) had at least one subsequent smear in the following 30 months.<br><br>There was wide variation in early re-screening by DHB. Early re-screening was most common in Waitemata (23.0%) and Auckland (20.3%), and was least common in Mid Central (8.9%) (Figure 32, Table 45).<br><br>There was also some variability by age. Younger women (aged 20-24 years at the end of the period) were most likely to be re-screened early (21.4%), and older women (aged 65-69 years) were the least likely to be re-screened early (11.5%) (Figure 33, Table 44). Rates of early re-screening are very similar across the six year age groups from 30 to 59 years. |

| | |
|---|---|
| | Among the ethnic groups considered, Asian and European/ Other women were the most likely to be re-screened early (17.3% and 16.3% respectively). Early re-screening was least common among Pacific women (11.6%) (Figure 34,<br><br>Table 46). |
| **Trends** | The level of early re-screening (16.1%) is slightly lower than in the previous monitoring report (16.8%).<br><br>DHBs with the lowest and highest levels of early re-screening are largely unchanged since the previous report. Rates of early re-screening have decreased in most DHBs. Increases were generally small or in DHBs with comparatively low levels of early re-screening. Longer terms trends by DHB are shown in Figure 35.<br><br>Early re-screening has reduced among most age groups. Longer terms trends by age are shown in Figure 36.<br><br>Early re-screening has decreased in all ethnic groups, apart from in Asian women, where it has remained the same. |
| **Comments** | Early re-screening was assessed based on cytology recommendation codes, in order to exclude from the early re-screening group women with a negative smear for whom an earlier screening visit is appropriate. Thus, only women with a recommendation that their next screening visit be in three years were eligible for inclusion in the early re-screening group (that is, in both the numerator and the denominator). Women excluded from the early re-screening group would include those who had just had their first smear or their first smear after a period of time (NCSP policy is to recommend a one year follow-up), women with atrophic changes for whom a repeat after oestrogen is recommended, women with an abnormal history or clinical symptoms, and those already under specialist care. Prior to Report 30, calculation of this indicator has not explicitly used recommendation codes to define the group of women of interest, and therefore the estimates for this measure may not be directly comparable to reports prior to Report 30.<br><br>It is important to note that whilst early re-screening rates appear to be relatively high in women aged 20-24 years, three-year coverage is much lower in this age-group. While a small proportion of women in this age group may be screened more frequently than recommended, a much larger proportion is under-screened or unscreened.<br><br>In some cases, early re-screening may be the result of women being re-screened early in response to clinical symptoms, and this is appropriate. We have used the NZ Modified Bethesda recommendation code for urgent referral regardless of cytological findings (R14) to try and exclude some of |

these cases from the count of women re-screened early, but this probably does not exclude all screens performed in response to clinical symptoms.

Note that the accuracy of this calculation is reliant on the correct use of R1 code in laboratory reports. An exploratory analysis of the accuracy of the R1 code was published in a previous monitoring report (Report 30). It suggested that R1 codes were generally accurate, and the small number of discrepancies would not have a substantial effect on the estimate for early re-screening.

**Figure 32 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB**

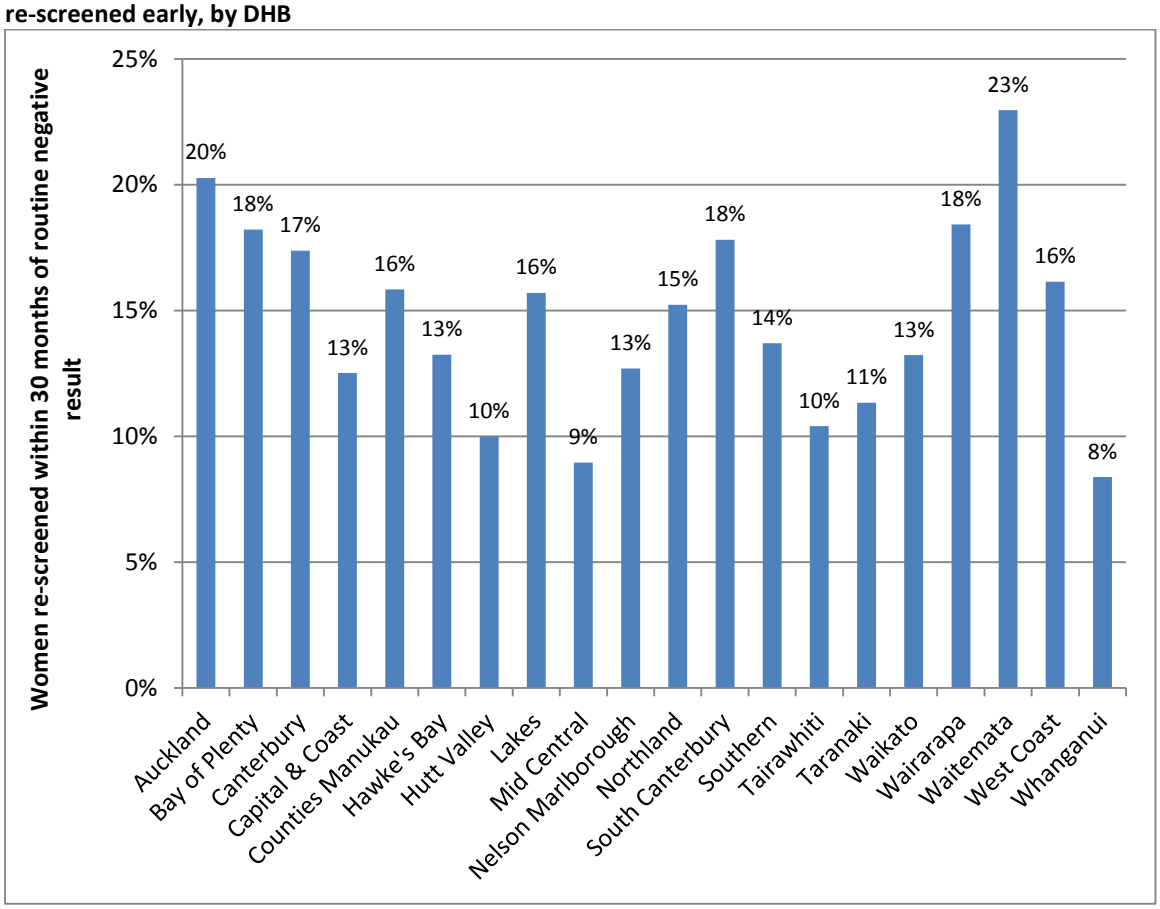


**Figure 33 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by five-year age group**

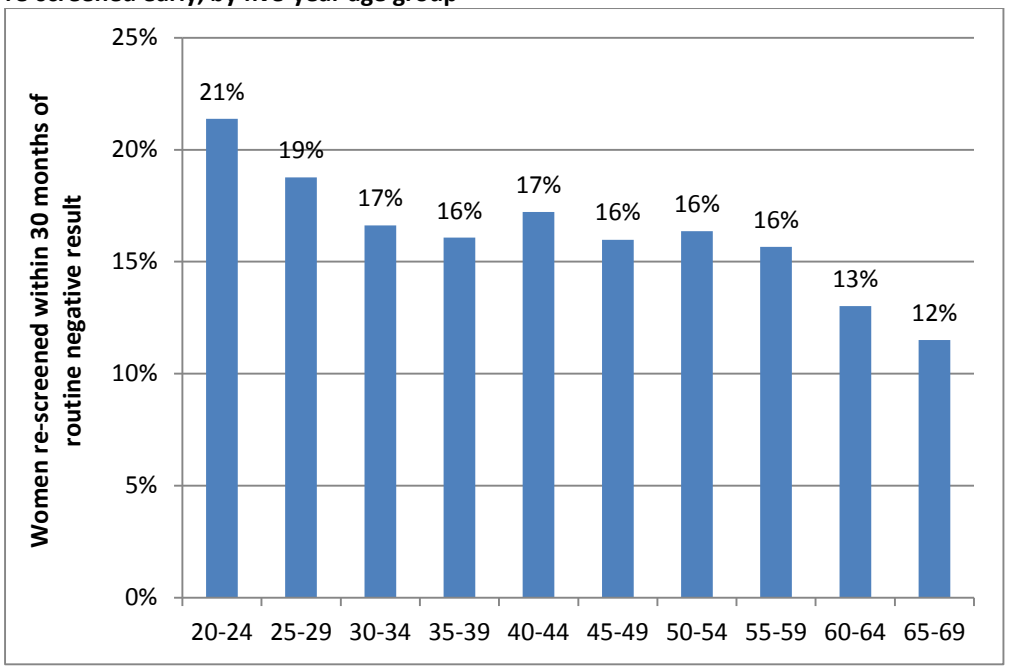



**Figure 34 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by ethnicity**

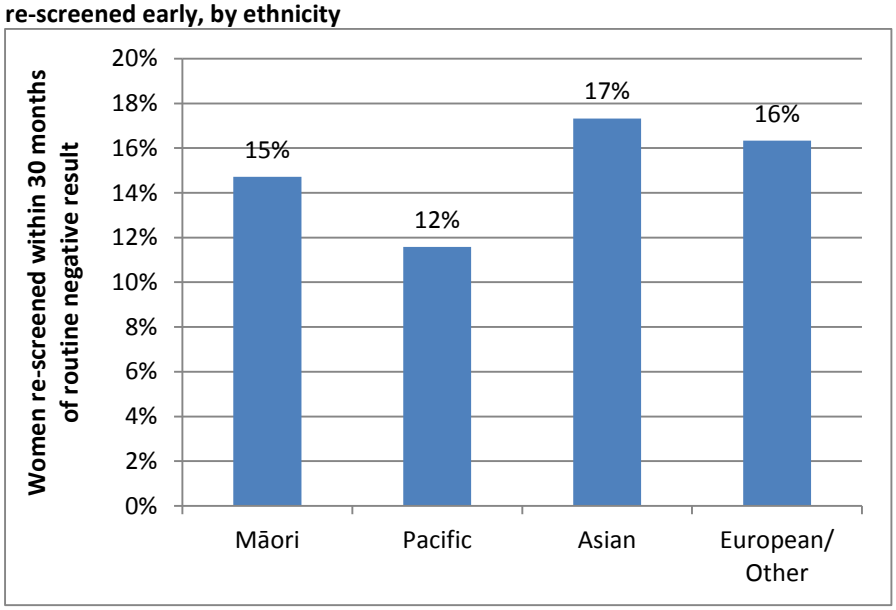


**Figure 35 – Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB**

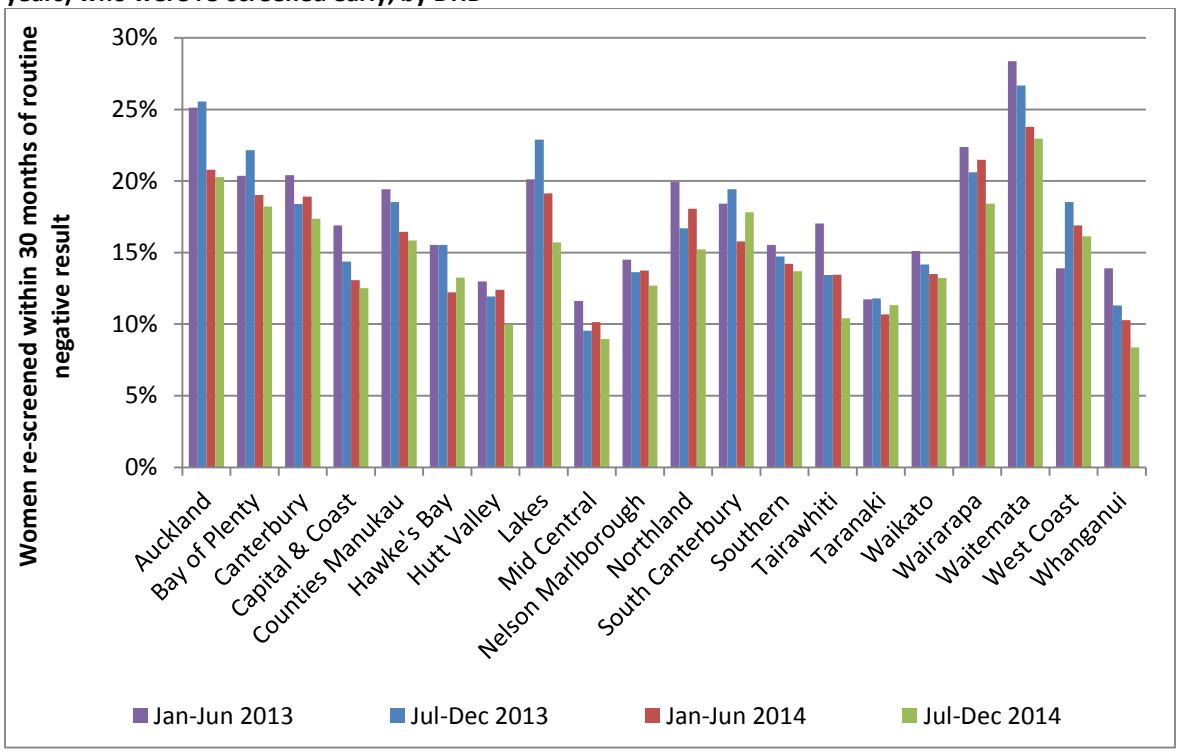
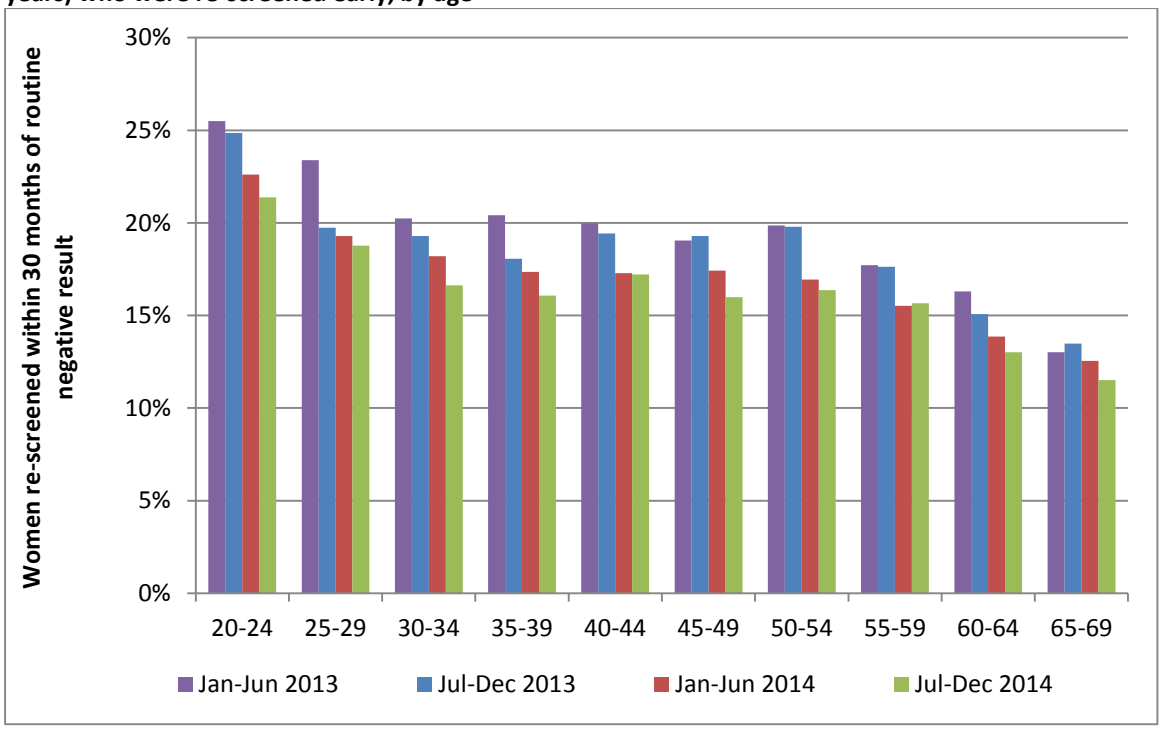



**Figure 36 - Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by age**



## *Indicator 5 – Laboratory indicators*

The indicators include cytology, histology reports (encompassing cytology and histology reporting rates, positive predictive value of cytology predicting HSIL), laboratory turnaround times, the accuracy of negative cytology reports (future development), and unsatisfactory samples. Volumes of high risk HPV (hrHPV) tests according to NCSP guidelines are included in Indicator 8.

Note that some targets within this Indicator have been updated since the previous monitoring report, consistent with the revisions in the 2013 NCSP Standard.

## Indicator 5.1 – Laboratory cytology reporting

This includes the breakdown of cytology reporting by category for squamous and glandular abnormalities reported

- Negative
- ASC-US
- LSIL
- ASC-H
- HSIL
- SC
- AGC/AIS
- Adenocarcinoma
- Malignant neoplasm
- Total abnormalities
- Unsatisfactory samples

| | |
|---|---|
| **Definition** | Bethesda codes used are provided in Appendix B.<br><br>The Bethesda reporting system (TBS), introduced in New Zealand on 1 July 2005, is a New Zealand modification of the Bethesda 2001 cytology reporting system.<br><br>The NCSP Register collects cytology results of samples taken from the cervix and vagina.<br><br>Total samples include all cytology samples (satisfactory and unsatisfactory) taken during the reporting period, including conventional, LBC, and combined samples.<br><br>Reporting rates for negative cytology, total abnormal cytology, and other reporting categories are as a percentage of all satisfactory cytology samples. |
| **Target** | 0.1 - 3% of LBC samples reported as unsatisfactory<br><br>No more than 96% of satisfactory samples reported as negative<br><br>No more than 10% of satisfactory samples reported as abnormal<br><br>No less than 0.5% of satisfactory samples reported as HSIL (Bethesda HS1 or HS2) |
| **Current Situation** | Seven laboratories reported on cytology taken during the current reporting period, the same number as in the previous reporting period. A total of 213,887 cytology samples were taken, over 99.9% of which were liquid-based cytology (LBC), two were recorded as conventional cytology, and a further two recorded as a combination of the two (Table 1). Aotea Pathology Ltd, Canterbury Health Laboratories, Diagnostic Medlab Ltd, Medlab Central Ltd and Pathlab processed only LBC samples during this reporting period. (Table 1). |

***Unsatisfactory cytology***

2,581 cytology samples (1.2%) were unsatisfactory. These are reported in more detail in Table 2 and Table 4. The remaining satisfactory samples are reported on in more detail in Table 3, and Table 5 to Table 8.

Nationally, the unsatisfactory rate for LBC was 1.2%. All of the seven laboratories had unsatisfactory rates within the target range for LBC (Figure 37, Table 4).

Unsatisfactory rates for conventional cytology have not been analysed further, due to the very small number of conventional cytology samples processed (two samples received nationally, both of these at Southern Community Laboratories).

***Negative cytology reports***

92.7% of cytology results were negative, consistent with the target of no more than 96% (Table 8). The proportion of samples which were negative varied by laboratory from 66.6% (LabPLUS) to 95.9% (Southern Community Labs). All seven laboratories met the target of no more than 96%.

***Abnormal cytology reports***

The proportion of samples which were abnormal (7.3%) also fell within the recommended range of no more than 10% (Figure 39, Table 3). This varied widely by laboratory however, from 4.1% (Southern Community Labs) to 33.4% (LabPLUS). One laboratory (LabPlus) exceeded the target (33.4%).

Abnormal cytology results were most common in younger women (Table 7, Table 8).

***HSIL cytology reports***

Overall, 0.9% of satisfactory cytology samples were HSIL, consistent with the target of at least 0.5% of samples (Figure 40, Table 6). Rates varied by laboratory from 0.5% (Aotea Pathology Ltd and Diagnostic Medlab Ltd) to 3.1% (LabPLUS). All of the seven laboratories met the HSIL target (Figure 40, Table 6).

Among women aged 20-69 years, rates of HSIL or worse were most common in women aged 25-29 years (Table 7, Table 8).

In the current report we additionally examined age-standardised rates of HSIL cytology reports. This was done to partially account for different rates which may arise in different labs due to differences in the age of the population whose cytology tests they process and over time. The age-standardised HSIL rates were very similar to the crude rates, both nationally and within each laboratory, but tended to be slightly lower (Table 47).

**Trends**

***Unsatisfactory cytology***

The unsatisfactory rate in LBC samples (1.2%) has remained unchanged since the previous reporting period, and has remained at the target range.

The number of laboratories meeting the target for unsatisfactory LBC samples has increased from six to seven since the previous reporting period.

***Negative vs abnormal cytology reports***

The proportion of satisfactory cytology samples which are negative for intraepithelial lesion or malignancy (92.7%) is broadly similar to that in the previous reporting period (92.4%), and correspondingly the proportion of cytology samples reported as abnormalities (7.3%) is also similar to the previous reporting period (7.6%). As in the previous reporting period, all laboratories met the target for negative cytology. The number of laboratories with abnormal cytology rates above the target range has decreased from three to one.

***HSIL cytology reports***

The proportion of satisfactory cytology samples reported as HSIL (0.9%) is the same as in the previous monitoring report. The number of laboratories meeting the target has increased from six to seven.

Longer term trends in the proportion of satisfactory cytology samples reported as HSIL are shown in Figure 41 and Figure 42 (trends by age) and Figure 43 (trends by laboratory). Figure 41 and Figure 43 show trends over the last four monitoring report periods (two years), consistent with other trends presented in this report. Figure 42 shows longer term trends (July 2008 to December 2014) in rates of HSIL cytology in women aged under 40 years, compared to the overall HSIL reporting rate in women of all ages. The younger age groups in this figure would be the first to be potentially affected by HPV vaccination (the oldest birth cohorts eligible for vaccination through the publicly funded program would be aged up to 24 years at the time of the current reporting period). HSIL reporting rates in women aged 20-24 years had been increasing prior to 2013, fell for two monitoring periods, and stabilised at the lower level in the previous report; however these rates have fallen again in the current report. HSIL rates in women aged less than 20 years are quite variable; this is likely to be because far fewer women of this age group attend for screening, since routine screening is not recommended for women aged less than 20 years.

**Comments**

High rates of abnormal samples from LabPLUS are consistent with previous reports, and as discussed in previous monitoring reports, it is thought that the case-mix of this laboratory (ie a significant proportion of samples received from colposcopy clinics compared to other laboratories) is an underlying factor.

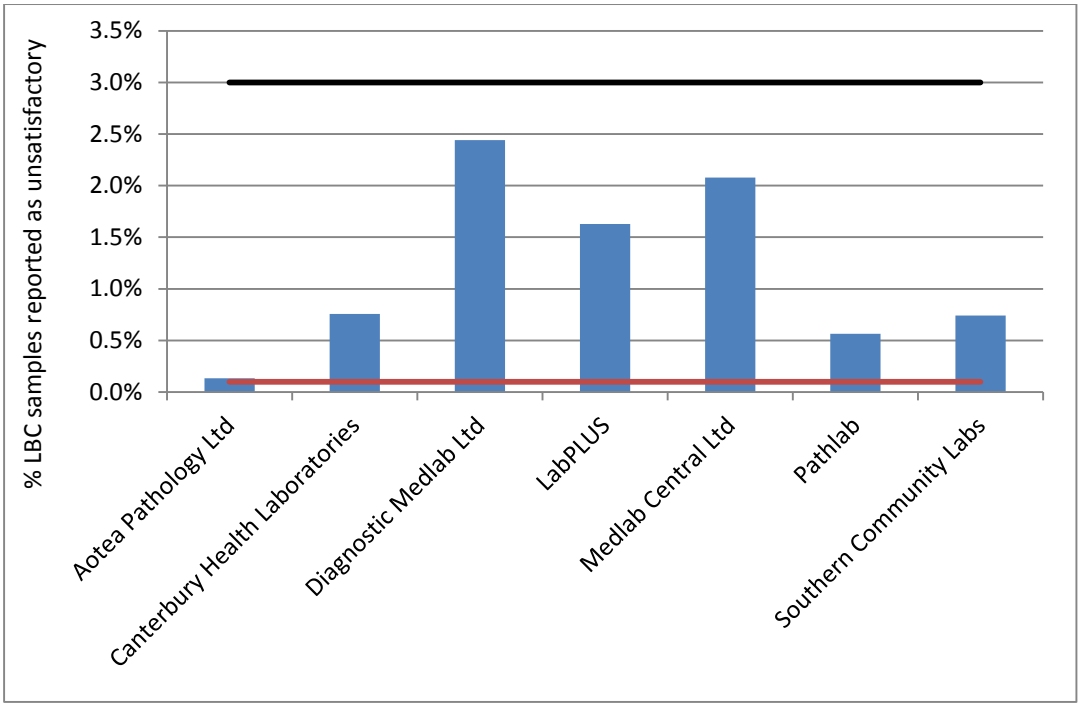
Workloads for laboratories may be regional or nationwide, and as a result, it is not always straightforward to determine the catchment population for a laboratory. Rates of negative and abnormal results for individual laboratories therefore need to be interpreted with some care, to allow for this difference in workloads and case-mix.

The national Human Papillomavirus (HPV) Immunisation Programme was introduced in New Zealand in September 2008, and involves routine vaccination of girls 12-13 years and catch-up vaccination has previously been offered to young women born in 1990 or later. International and New Zealand data indicate that many high grade squamous cytology reports are associated with HPV types which are potentially preventable by vaccination,[7-10] and that this is particularly true for younger women.[7, 11-13] It is anticipated that data will also soon be available from New Zealand to further quantify the potential impact of the Human Papillomavirus Immunisation Programme in New Zealand. As vaccinated cohorts enter the screening programme, it is anticipated that the proportion of satisfactory cytology samples reported as HSIL will gradually reduce, and that this will occur in younger age groups first (the oldest birth cohorts eligible for vaccination through the publicly funded program would be aged up to 23 years at the time of the current reporting period). Therefore, trends in the proportion of satisfactory cytology samples reported as HSIL by age are included in these monitoring reports, in order to monitor the impact of HPV vaccination over time. At the current time, it is not possible to present HSIL rates separately for vaccinated and unvaccinated women, because information relating to whether or not individual women have been vaccinated is not available on the NCSP Register. These data therefore need to be interpreted with some care, as they include results in all women, both vaccinated and unvaccinated.

In the current report we additionally examined age-standardised rates of HSIL cytology reports, in order to partially account for differences in the age of the population whose cytology tests each laboratory processes. This could be an additional factor in some laboratories having higher or lower HSIL reporting rates. As the target does not specifically relate to age-standardised rates, these results cannot be directly compared to the target; however as the target was set in 2013, standardising was done using the 2013 Census population (females). As the age-standardised HSIL rates were very similar to the crude rates within each laboratory, differences in age distribution of cytology tests reported do not appear to be a factor in differences between laboratories in HSIL reporting rates.

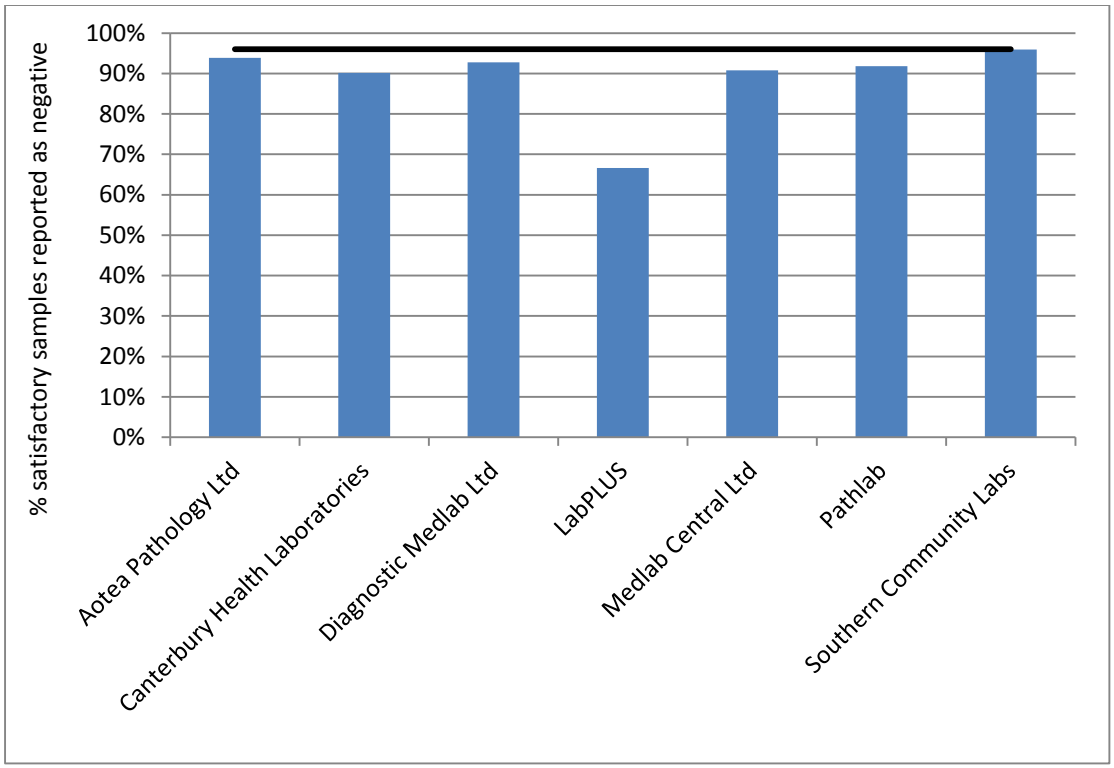
Data entry errors may be the cause of the remaining cytology tests which still appear to have involved conventional cytology only. The number of these tests is very small (81 tests; 0.04% of all samples taken during this period; virtually all at Southern Community Labs).

**Figure 37 - Proportion of total LBC samples reported as unsatisfactory by laboratory, 1 July - 31 December 2014**



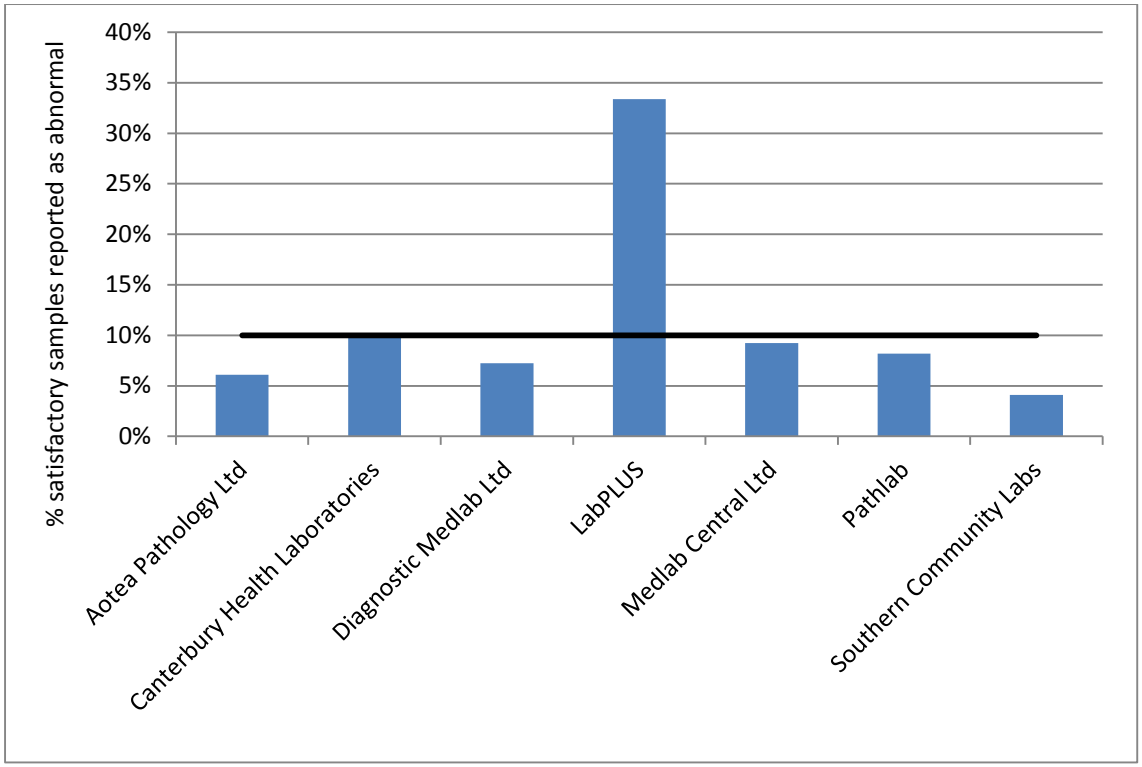

*Target for LBC: 1-5% (Black line=upper target limit; red line=lower target limit)*

**Figure 38 - Proportion of total satisfactory samples reported as negative by laboratory, 1 July - 31 December 2014**



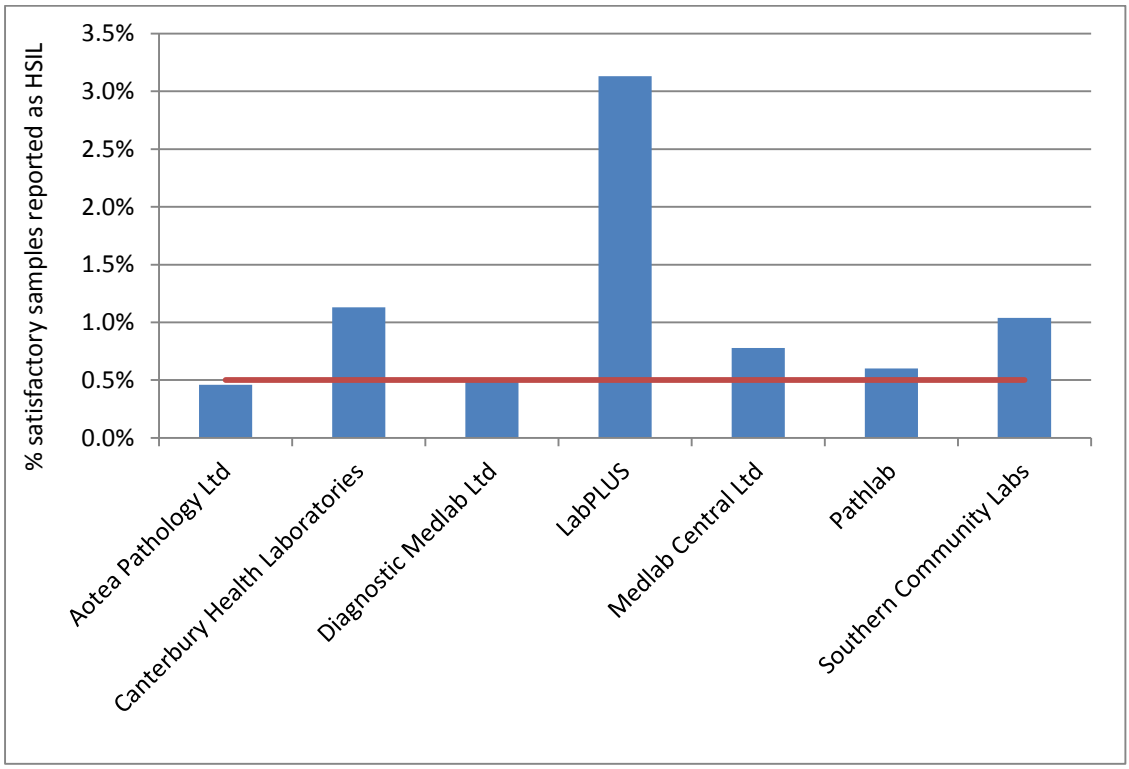

*Note: Line shows negative target of no more than 96%*

**Figure 39 - Proportion of total satisfactory samples reported as abnormalities by laboratory, 1 July - 31 December 2014**




*Note: Line shows abnormal target no more than 10%*

**Figure 40 - Proportion of total satisfactory samples reported as HSIL by laboratory, 1 July - 31 December 2014**




*Note: Line shows HSIL target of no less than 0.5%*

**Table 1 - Laboratory cytology reporting by type of cytology sample (1 July - 31 December 2014)**

| Organisation | All smears | By cytology specimen type | | | | | |
|---|---|---|---|---|---|---|---|
| | | LBC | | Conventional | | Combined | |
| | N | N | % | N | % | N | % |
| Aotea Pathology Ltd | 21,820 | 21,820 | 100.00 | 0 | 0.00 | 0 | 0.00 |
| Canterbury Health Laboratories | 11,244 | 11,244 | 100.00 | 0 | 0.00 | 0 | 0.00 |
| Diagnostic Medlab Ltd | 51,054 | 51,054 | 100.00 | 0 | 0.00 | 0 | 0.00 |
| LabPLUS | 7,856 | 7,855 | 99.99 | 0 | 0.00 | 1 | 0.01 |
| Medlab Central Ltd | 16,931 | 16,931 | 100.00 | 0 | 0.00 | 0 | 0.00 |
| Pathlab | 22,299 | 22,299 | 100.00 | 0 | 0.00 | 0 | 0.00 |
| Southern Community Labs | 82,683 | 82,680 | 100.00 | 2 | 0.00 | 1 | 0.00 |
| **TOTAL** | **213,887** | **213,883** | **100.00** | **2** | **0.001** | **2** | **0.0009** |

*Notes: Includes all samples (satisfactory and unsatisfactory)*
*Target total samples: ≥ 15,000 per annum*
*LBC refers to both ThinPrep and SurePath samples*
*Combined refers to instances where both conventional cytology and LBC were used*

**Table 2 - Satisfactory and unsatisfactory cytology reporting by laboratory (1 July - 31 December 2014)**

| Laboratory | All samples | Satisfactory | | Unsatisfactory | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| Aotea Pathology Ltd | 21,820 | 21,791 | 99.9 | 29 | 0.1 |
| Canterbury Health Laboratories | 11,244 | 11,159 | 99.2 | 85 | 0.8 |
| Diagnostic Medlab Ltd | 51,054 | 49,807 | 97.6 | 1,247 | 2.4 |
| LabPLUS | 7,856 | 7,728 | 98.4 | 128 | 1.6 |
| Medlab Central Ltd | 16,931 | 16,579 | 97.9 | 352 | 2.1 |
| Pathlab | 22,299 | 22,173 | 99.4 | 126 | 0.6 |
| Southern Community Labs | 82,683 | 82,069 | 99.3 | 614 | 0.7 |
| **Total** | **213,887** | **211,306** | **98.8** | **2,581** | **1.2** |

*See also Table* 4

**Table 3 - Laboratory cytology reporting by general result (1 July - 31 December 2014) – percentage of satisfactory samples**

| | Negative | | Abnormal | |
|---|---|---|---|---|
| **Laboratory** | **N** | **%** | **N** | **%** |
| Aotea Pathology Ltd | 20,462 | 93.9 | 1,329 | 6.1 |
| Canterbury Health Laboratories | 10,057 | 90.1 | 1,102 | 9.9 |
| Diagnostic Medlab Ltd | 46,199 | 92.8 | 3,608 | 7.2 |
| LabPLUS | 5,149 | 66.6 | 2,579 | 33.4 |
| Medlab Central Ltd | 15,049 | 90.8 | 1,530 | 9.2 |
| Pathlab | 20,354 | 91.8 | 1,819 | 8.2 |
| Southern Community Labs | 78,699 | 95.9 | 3,370 | 4.1 |
| **Total** | **195,969** | **92.7** | **15,337** | **7.3** |

*Target total negative: ≤ 96% reported as negative*
*Target total abnormal: ≤ 10% reported as abnormal*

**Table 4 - Laboratory reporting of unsatisfactory results by type of cytology sample (1 July - 31 December 2014)**

| | Conventional | | | LBC | | | Combined | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Laboratory** | **Unsat** | **Total** | **Unsat %** | **Unsat** | **Total** | **Unsat %** | **Unsat** | **Total** | **Unsat %** | **Unsat** | **Total** | **Unsa** |
| Aotea Pathology Ltd | - | - | - | 29 | 21,820 | 0.1 | - | - | - | 29 | 21,820 | |
| Canterbury Health Laboratories | - | - | - | 85 | 11,244 | 0.8 | - | - | - | 85 | 11,244 | |
| Diagnostic Medlab Ltd | - | - | - | 1,247 | 51,054 | 2.4 | - | - | - | 1,247 | 51,054 | |
| LabPLUS | - | - | - | 128 | 7,855 | 1.6 | - | 1 | 0.0 | 128 | 7,856 | |
| Medlab Central Ltd | - | - | - | 352 | 16,931 | 2.1 | - | - | - | 352 | 16,931 | |
| Pathlab | - | - | - | 126 | 22,299 | 0.6 | - | - | - | 126 | 22,299 | |
| Southern Community Labs | 1 | 2 | 50.0 | 613 | 82,680 | 0.7 | - | 1 | 0.0 | 614 | 82,683 | |
| **Total** | **1** | **2** | **50.0** | **2,580** | **213,883** | **1.2** | **-** | **2** | **0.0** | **2,581** | **213,887** | |

*Target unsatisfactory: 0.1-3% LBC. Data entry errors may be the cause of the remaining cytology tests which still appear to have involved conventional cytology.*

**Table 5 - Laboratory cytology reporting by cytological category (1 July - 31 December 2014) – counts**

| | Result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Laboratory** | **Negative** | **ASC-US** | **LSIL** | **ASC-H** | **HSIL** | **Invasive SCC** | **AGC/AIS** | **Adeno-carcinoma** | **Malignant Neoplasm** | **Total** |
| Aotea Pathology Ltd | 20,462 | 464 | 672 | 79 | 100 | 1 | 9 | 4 | - | 21,791 |
| Canterbury Health Laboratories | 10,057 | 342 | 535 | 83 | 126 | 1 | 14 | 1 | - | 11,159 |
| Diagnostic Medlab Ltd | 46,199 | 1,202 | 1,899 | 206 | 245 | 1 | 45 | 10 | - | 49,807 |
| LabPLUS | 5,149 | 785 | 1,076 | 437 | 242 | 1 | 29 | 7 | 2 | 7,728 |
| Medlab Central Ltd | 15,049 | 659 | 583 | 127 | 129 | 1 | 26 | 5 | - | 16,579 |
| Pathlab | 20,354 | 613 | 888 | 155 | 133 | 2 | 24 | 3 | 1 | 22,173 |
| Southern Community Labs | 78,699 | 530 | 1,750 | 153 | 853 | 3 | 64 | 17 | - | 82,069 |
| **Total** | **195,969** | **4,595** | **7,403** | **1,240** | **1,828** | **10** | **211** | **47** | **3** | **211,306** |

**Table 6 - Laboratory cytology reporting by cytological category (1 July - 31 December 2014) - percentage of all satisfactory samples**

| | Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Laboratory** | **Negative** | **ASC-US** | **LSIL** | **ASC-H** | **HSIL** | **Invasive SCC** | **AGC/AIS** | **Adeno-carcinoma** | **Malignant Neoplasm** |
| Aotea Pathology Ltd | 93.9 | 2.1 | 3.1 | 0.4 | 0.5 | <0.005 | 0.04 | 0.02 | - |
| Canterbury Health Laboratories | 90.1 | 3.1 | 4.8 | 0.7 | 1.1 | 0.01 | 0.13 | 0.01 | - |
| Diagnostic Medlab Ltd | 92.8 | 2.4 | 3.8 | 0.4 | 0.5 | <0.005 | 0.09 | 0.02 | - |
| LabPLUS | 66.6 | 10.2 | 13.9 | 5.7 | 3.1 | 0.01 | 0.38 | 0.09 | 0.03 |
| Medlab Central Ltd | 90.8 | 4.0 | 3.5 | 0.8 | 0.8 | 0.01 | 0.16 | 0.03 | - |
| Pathlab | 91.8 | 2.8 | 4.0 | 0.7 | 0.6 | 0.01 | 0.11 | 0.01 | <0.005 |
| Southern Community Labs | 95.9 | 0.6 | 2.1 | 0.2 | 1.0 | <0.005 | 0.08 | 0.02 | - |
| **Total** | **92.7** | **2.2** | **3.5** | **0.6** | **0.9** | **<0.005** | **0.10** | **0.02** | **<0.005** |

*Target: HSIL ≥ 0.5% reported as HSIL*

**Table 7 - Laboratory reporting of cytological category by five-year age group (1 July - 31 December 2014) – counts**

| | Cytology Result | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Age Group | Negative | ASC-US | LSIL | ASC-H | HSIL | Invasive SCC | AGC/AIS | Adeno-carcinoma | Malignant Neoplasm | Total |
| <20 | 1,003 | 49 | 159 | 14 | 9 | - | - | - | - | 1,234 |
| 20-24 | 22,195 | 960 | 2,435 | 323 | 399 | - | 12 | - | - | 26,324 |
| 25-29 | 20,075 | 664 | 1,263 | 277 | 466 | 2 | 16 | 1 | - | 22,764 |
| 30-34 | 20,688 | 493 | 820 | 175 | 298 | - | 23 | 1 | - | 22,498 |
| 35-39 | 20,340 | 461 | 594 | 107 | 212 | 2 | 23 | 3 | 1 | 21,743 |
| 40-44 | 23,343 | 499 | 582 | 92 | 157 | - | 25 | 1 | - | 24,699 |
| 45-49 | 22,381 | 463 | 480 | 79 | 100 | 1 | 19 | 3 | - | 23,526 |
| 50-54 | 21,699 | 392 | 393 | 65 | 71 | - | 30 | 6 | - | 22,656 |
| 55-59 | 17,814 | 234 | 268 | 46 | 55 | 1 | 16 | 8 | - | 18,442 |
| 60-64 | 14,140 | 193 | 215 | 36 | 31 | 1 | 13 | 13 | 2 | 14,644 |
| 65-69 | 10,486 | 135 | 140 | 18 | 16 | - | 16 | 5 | - | 10,816 |
| 70+ | 1,804 | 52 | 54 | 8 | 14 | 3 | 18 | 6 | - | 1,959 |
| **Total** | **195,968** | **4,595** | **7,403** | **1,240** | **1,828** | **10** | **211** | **47** | **3** | **211,305** |

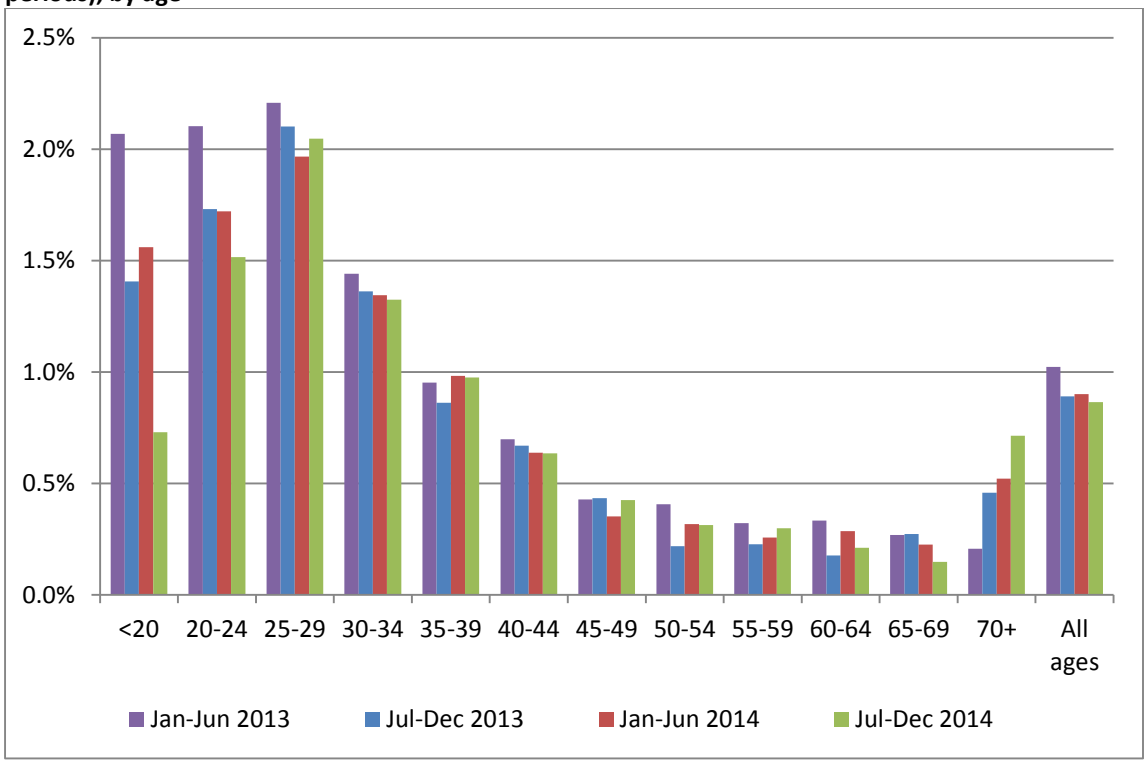
*Note: Excludes one cytology test (result negative) for which the age of the woman could not be determined, as date of birth information was missing in the NCSP Register.*

**Table 8 - Laboratory reporting of cytological category by five-year age group (1 July - 31 December 2014) - percentage of all satisfactory samples in women that age group**

| | Cytology Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age Group** | **Negative** | **ASC-US** | **LSIL** | **ASC-H** | **HSIL** | **Invasive SCC** | **AGC/AIS** | **Adeno-carcinoma** | **Malignant Neoplasm** |
| <20 | 81.3 | 4.0 | 12.9 | 1.1 | 0.7 | - | - | - | - |
| 20-24 | 84.3 | 3.6 | 9.3 | 1.2 | 1.5 | - | 0.05 | - | - |
| 25-29 | 88.2 | 2.9 | 5.5 | 1.2 | 2.0 | 0.01 | 0.07 | <0.005 | - |
| 30-34 | 92.0 | 2.2 | 3.6 | 0.8 | 1.3 | - | 0.10 | <0.005 | - |
| 35-39 | 93.5 | 2.1 | 2.7 | 0.5 | 1.0 | 0.01 | 0.11 | 0.01 | <0.005 |
| 40-44 | 94.5 | 2.0 | 2.4 | 0.4 | 0.6 | - | 0.10 | <0.005 | - |
| 45-49 | 95.1 | 2.0 | 2.0 | 0.3 | 0.4 | <0.005 | 0.08 | 0.01 | - |
| 50-54 | 95.8 | 1.7 | 1.7 | 0.3 | 0.3 | - | 0.13 | 0.03 | - |
| 55-59 | 96.6 | 1.3 | 1.5 | 0.2 | 0.3 | 0.01 | 0.09 | 0.04 | - |
| 60-64 | 96.6 | 1.3 | 1.5 | 0.2 | 0.2 | 0.01 | 0.09 | 0.09 | 0.01 |
| 65-69 | 96.9 | 1.2 | 1.3 | 0.2 | 0.1 | - | 0.15 | 0.05 | - |
| 70+ | 92.1 | 2.7 | 2.8 | 0.4 | 0.7 | 0.15 | 0.92 | 0.31 | - |
| **Total** | **92.7** | **2.2** | **3.5** | **0.6** | **0.9** | **<0.005** | **0.10** | **0.02** | **<0.005** |

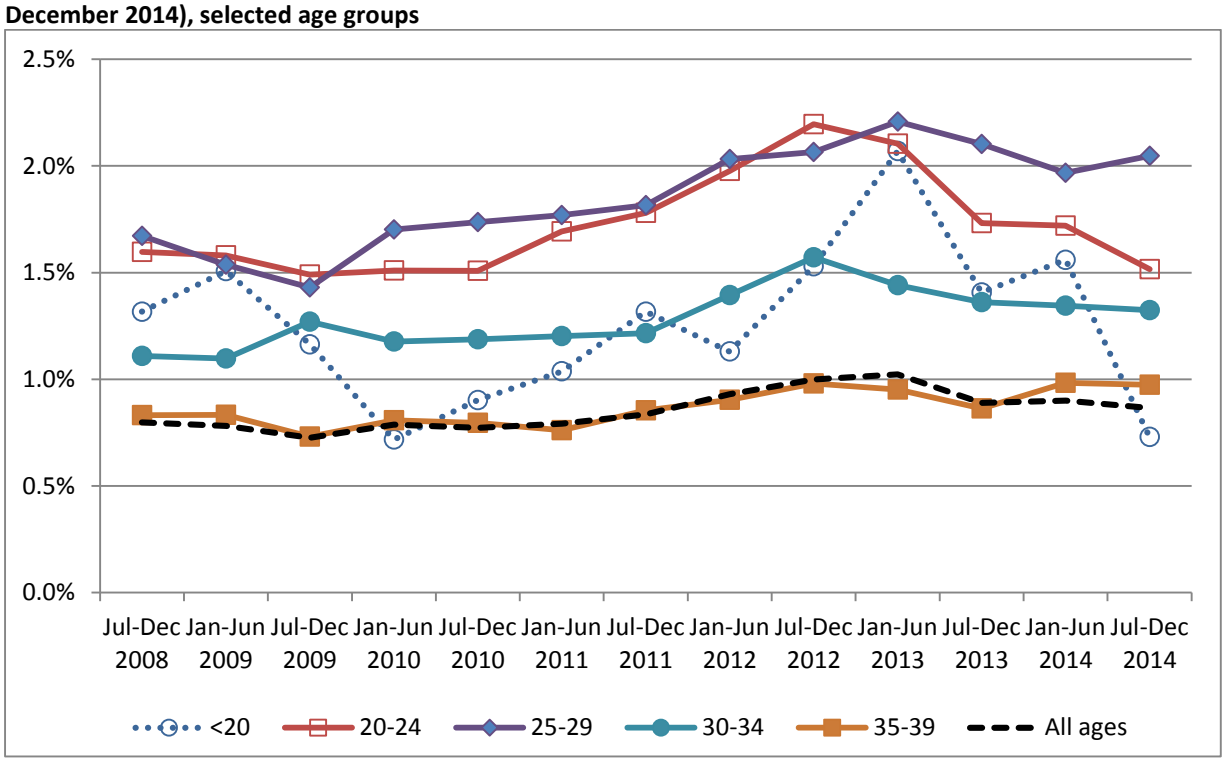
*Note: Excludes one cytology test (result negative) for which the age of the woman could not be determined, as date of birth information was missing in the NCSP Register.*

**Figure 41 – Trends in the proportion of total satisfactory samples reported as HSIL (last four reporting periods), by age**



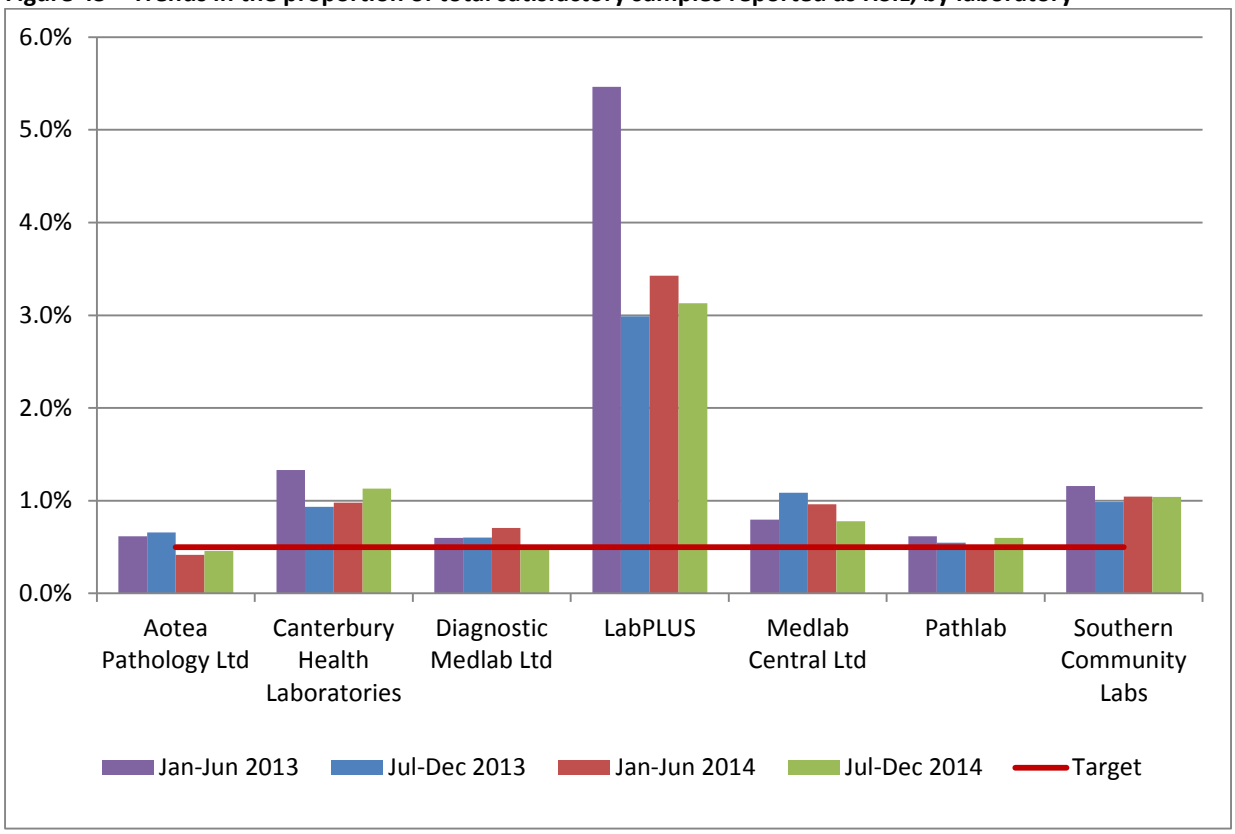

*Note: women aged less than 20 years are not routinely screened*

**Figure 42 – Longer term trends in the proportion of total satisfactory samples reported as HSIL (July 2008 – December 2014), selected age groups**




*Note: women aged less than 20 years are not routinely screened*

**Figure 43 – Trends in the proportion of total satisfactory samples reported as HSIL, by laboratory**



## Indicator 5.2 – Accuracy of cytology predicting HSIL

| | |
|---|---|
| **Definition** | The accuracy of cytology predicting HSIL (positive predictive value – PPV) is defined as the probability of a high grade histological report (CIN2/3) or higher given an HSIL/invasive squamous carcinoma cytology report.<br><br>Refer to Appendix D for detailed definitions of histological confirmation. |
| **Target** | Not less than 65% and not greater than 85%. |
| **Current Situation** | All satisfactory cytology samples collected in the six months prior to the current reporting period (ie collected from 1 January – 30 June 2014 inclusive) were identified. Where a woman had multiple samples or a report had multiple interpretation codes, the most serious cytology result category reported was used. If there were two cytology test results for a woman of the same grade, the earliest one was used. Histology samples taken up to five days prior to and up to six months after the cytology sample were then retrieved for women with a high grade cytology report. Where there were multiple histology reports for a woman in the period, the most serious abnormality category was used.<br><br>***HSIL+SC***<br><br>1,705 women with HSIL or SC cytology reports were identified. 124 of these women (7.3%) had no histology taken in the period from five days prior to six months after the cytology sample was taken. Among the remaining 1,581 for whom there was histology, 1,329 (84.1%) had their HSIL or SC cytology report confirmed by histology (Figure 44, Table 48).<br><br>All laboratories achieved the minimum target of at least 65% of cytological HSIL+SC being confirmed by histology. Three of the eight laboratories exceeded 85% of HSIL+SC being histologically confirmed (Figure 44, Table 48).<br><br>***Other cytological abnormalities***<br><br>Similar calculations for positive predictive value were performed for ASC-H; glandular abnormalites (AG1-AG5, AIS, AC1-AC4); and the combination of ASC-H, HSIL and SC. There are no targets for these measures.<br><br>***ASC-H***<br><br>1,161 women with a cytology report of ASC-H were identified. 212 (18.3%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 949 women, 478 (50.4%) were histologically confirmed as high grade. This proportion varied by laboratory, from 38.5% (Diagnostic Medlab Ltd) to 66.7% (Canterbury Health Laboratories) (Figure 45, Table 49). |

***ASC-H+HSIL+SC***

A total of 2,866 women had a cytology report of ASC-H, HSIL or SC. 336 (11.7%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 2,530 women, 1,807 (71.4%) were histologically confirmed as high grade. This proportion varied by laboratory, from 60.1% (Diagnostic Medlab Ltd) to 81.4% (Southern Community Labs). The combined positive predictive value across the 2,866 women with ASC-H, HSIL, and SC and histology available is shown in Figure 45 and Table 50.

***Glandular abnormalities***

There were 246 women with a glandular abnormality (AG1-AG5, AIS, AC1-AC4) identified. 75 women (30.5%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 171 women, 84 (48.8%) were identified as having high grade histology. This was not analysed further, as the number of samples reported on by many laboratories was too small to be meaningful.

**Trends**

***HSIL+SC***

Positive predictive value for HSIL and SC cytology has increased since the previous monitoring report (83.9% in the previous period; 84.1% in the current period). As in the previous monitoring period, all laboratories had at least 65% of their HSIL + SC cytology results confirmed by histology. The number of laboratories with PPVs above the upper target of 85% has increased from two to three. The proportion of cytology reports with histology available following HSIL or SC results is similar (93.1% in the previous report; 92.7% in the current report).

***ASC-H***

Positive predictive value for ASC-H cytology has increased, from 44.3% to 50.4%, however there is no target for this measure. The proportion of ASC-H cytology reports with histology available has remained similar in the current report compare to the previous monitoring report (81.7% in current report; 81.8% in previous report).

***ASC-H+HSIL+SC***

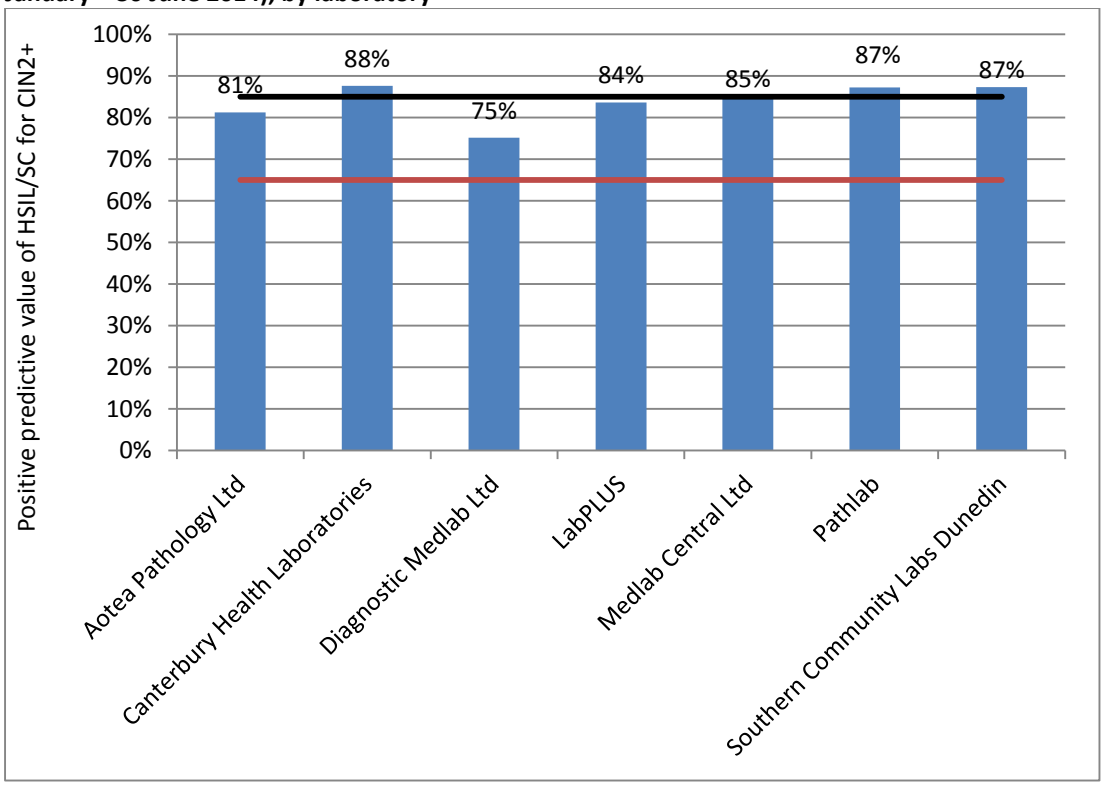
The positive predictive value for the combined group ASC-H, HSIL and SC has increased from what it was in the previous report (69.6%) to what it is in the current report (71.4%), however there are no targets for the positive predictive value of the combined group of ASC-H, HSIL and SC.

***Glandular abnormalities***

The positive predictive value of glandular abnormalities increased (from 48.8% in the previous report to 49.1% in the current report). Compared to both ASC-H cytology, and the combined group of HSIL and SC cytology, there are far

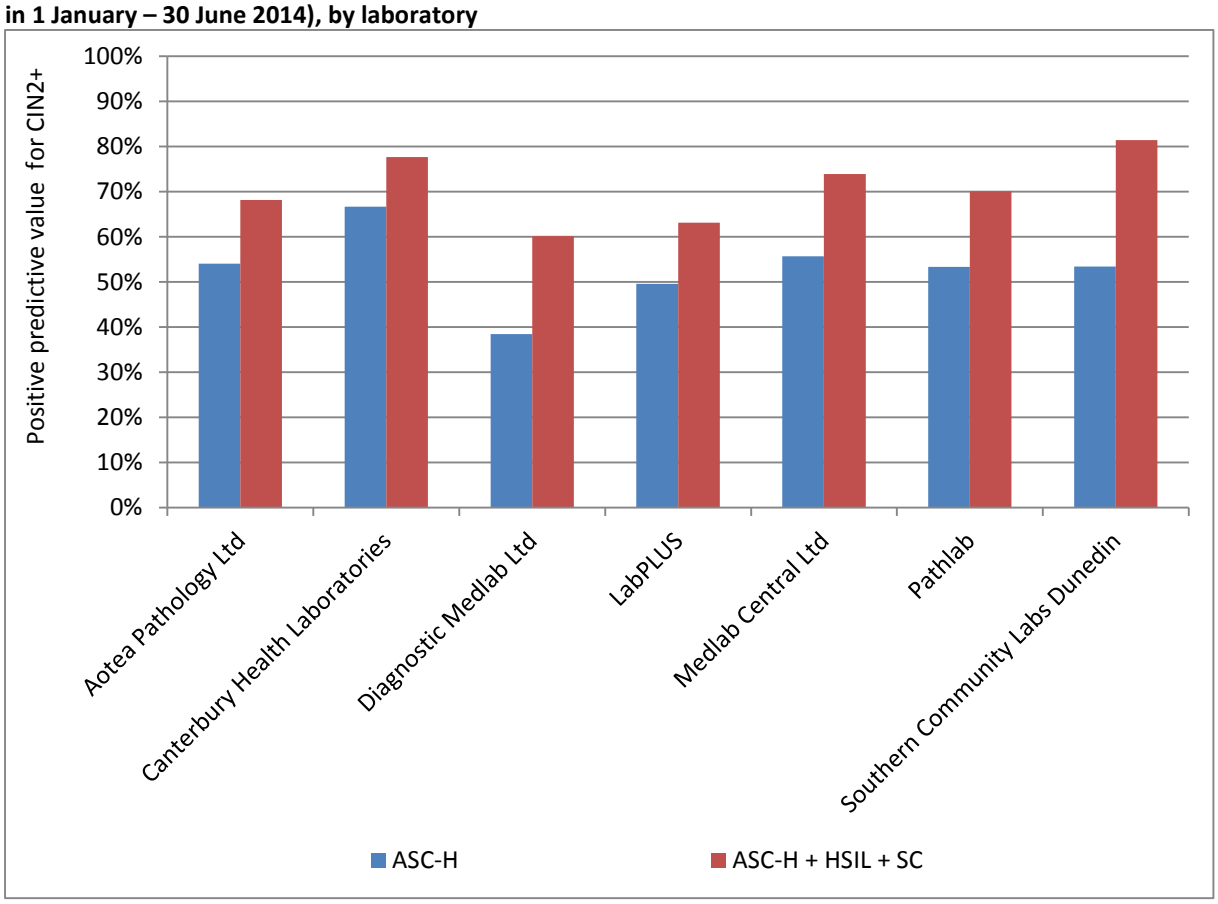
| | |
|---|---|
| | fewer glandular abnormalities, and an even smaller number with histology available. The proportion of glandular abnormalities with histology available (69.5%) is slightly lower than that in the previous reporting period (70.3%), and remains less than that for ASC-H (81.7%) and HSIL + SC (92.7%). Due to the small number of samples involved, glandular abnormalities were not analysed in further detail. |
| **Comments** | This estimate does not take into account cytology predicting HSIL for which there is no histology available. Histology may be unavailable because the woman does not attend for follow-up colposcopy, or it may not be taken if the colposcopic impression is normal. When more colposcopy data is available on the NCSP Register, it may be possible to better distinguish between these two possibilities.<br><br>The calculations also do not discriminate between cytology taken as a screening or diagnostic test. This may be a contributing factor for some laboratories with a PPV which is higher than the upper end of the target range, particularly where the colposcopically-directed cytology and corresponding histology are reported by the same laboratory as best management practice. Analysis separating community- vs clinic-derived cytology would provide a clearer picture of positive predictive value (and other reporting categories) in a screening setting. |

**Figure 44 - Positive predictive value for CIN2+ in women with HSIL or SC cytology reports (cytology in 1 January – 30 June 2014), by laboratory**




*Target: 65% - 85%*

**Figure 45 - Positive predictive value for CIN2+ in women with other high grade cytology results (cytology in 1 January – 30 June 2014), by laboratory**

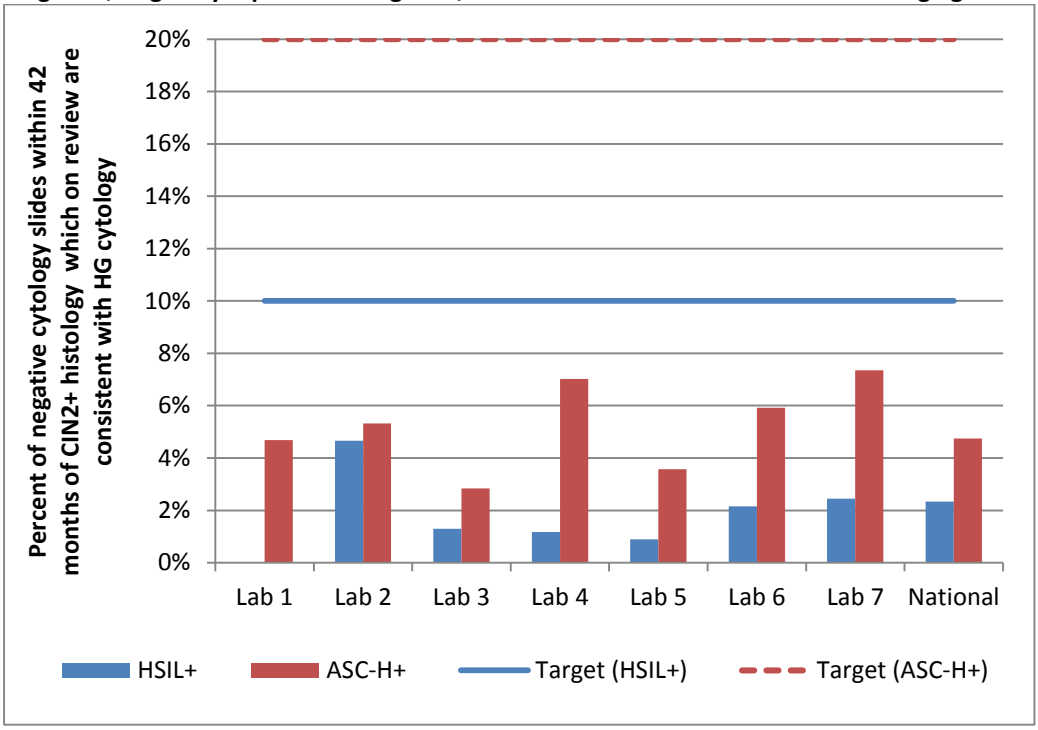


## Indicator 5.3 – Accuracy of negative cytology reports

| | |
|---|---|
| **Definition** | This indicator is under development and currently has two parts to its definition.<br><br>1. For women with a histological diagnosis of CIN2, CIN3, invasive SCC, AIS or invasive endocervical adenocarcinoma, the proportion of cytology slides originally reported within the preceding 42 months as negative, benign/reactive or unsatisfactory which on review are consistent with high grade or worse category (Standard 522).<br><br>2. The ability of a laboratory to correctly identify a negative sample.<br><br>All cases with a high-grade/invasive diagnosis on histology (CIN2, CIN3, invasive SCC, AIS or invasive endocervical adenocarcinoma) must have a review of any cytology slides that have been reported as negative, benign/reactive or unsatisfactory in the previous 42 months. Any abnormality identified as high grade or worse on review of a previously reported negative or unsatisfactory cytology slide must be documented by the laboratory. Cumulative data must be forwarded to the National Screening Unit to help ensure the accuracy of submitted negative cytology reports. |
| **Target** | No more than 10% identified as HS1, HS2, SC, AIS or AC1-5 (HSIL+) on review.<br><br>Aim for less than 15%, but not more than 20% identified as ASC-H, HS1, HS2, SC, AG4-5, AIS or AC1-5 (ASC-H +) on review. |
| **Current Situation** | Data required for this measure were not available directly from the NCSP Register for the current reporting period, but was provided by the National Screening Unit.<br><br>Data were provided for women with a histological diagnosis of high-grade/invasive disease in the period 1 January – 31 December 2014, for whom the previous cervical smear, within the 42 months prior, was negative. Nationally, 2.3% of these previous smears were consistent with HSIL+ on review, and 4.7% were consistent with ASC-H+/ AG4+ on review (Figure 46).<br><br>These results varied by laboratory, from 0% to 4.7% for HSIL+ and from 2.8% to 7.3% for ASC-H + (Figure 39). No laboratory exceeded the targets, nor the additional aim of achieving less than 15% for ASC-H. |
| **Trends** | The proportion of slides which on review were consistent with a high grade category or worse decreased in 2014 compared to 2013, from % to % for HSIL+ , and from 5.7% to 4.7% for ASC-H+. Trends by laboratory are shown in |

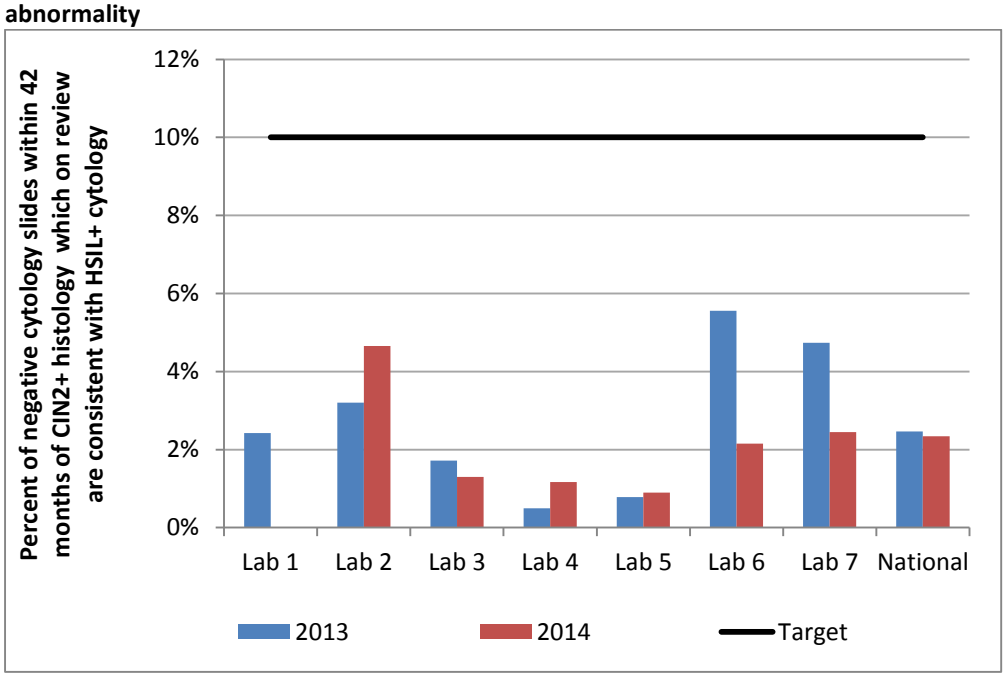
| | |
|---|---|
| | Figure 47 (HSIL+) and Figure 48 (ASC-H+). |
| **Comments** | Laboratories are not identified within the Monitoring Report for this indicator. |

**Figure 46 - Proportion of cytology slides within the 42 months preceding a high grade/ invasive histological diagnosis, originally reported as negative, which on review are consistent with a high grade abnormality**



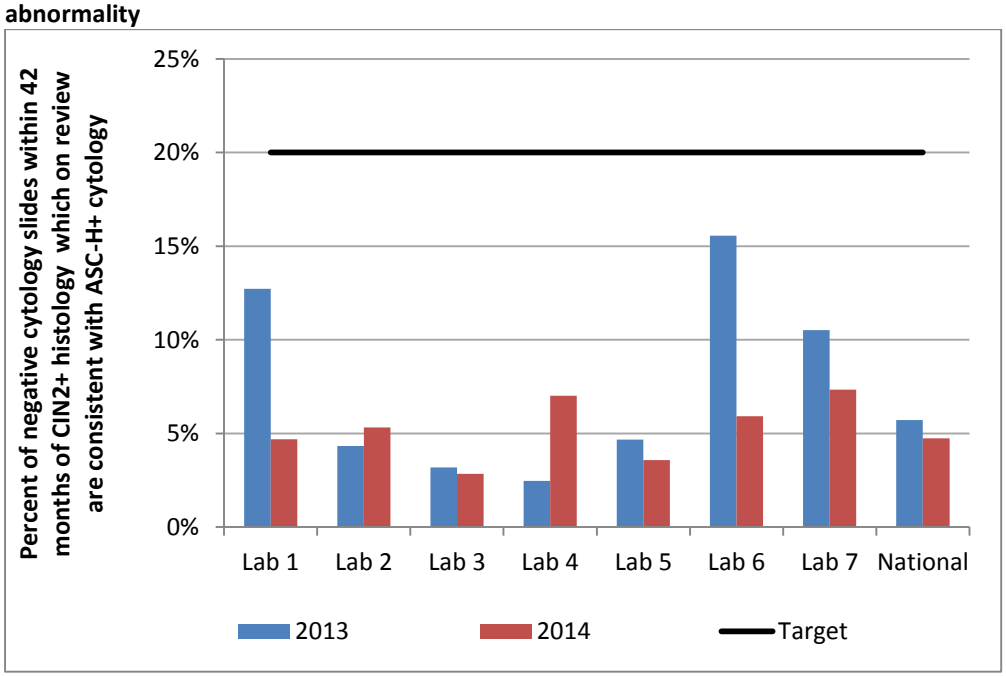

*HSIL+ includes cytology interpretation codes HS1, HS2, SC, AIS or AC1-5; ASC-H+ includes cytology interpretation codes ASH, HS1, HS2, SC, AIS or AC1-5 (see Appendix B – Bethesda 2001 New Zealand Modified ).*

**Figure 47 – Trends in the proportion of cytology slides within the 42 months preceding a high grade/ invasive histological diagnosis, originally reported as negative, which on review are consistent with HSIL or worse abnormality**




*HSIL+ includes cytology interpretation codes HS1, HS2, SC, AIS or AC1-5; (see Appendix B – Bethesda 2001 New Zealand Modified ).*

**Figure 48 – Trends in the proportion of cytology slides within the 42 months preceding a high grade/ invasive histological diagnosis, originally reported as negative, which on review are consistent with ASC-H or worse abnormality**




*ASC-H+ includes cytology interpretation codes ASH, HS1, HS2, SC, AIS or AC1-5 (see Appendix B – Bethesda 2001 New Zealand Modified ).*

## Indicator 5.4 – Histology Reporting

| | |
|---|---|
| **Definition** | The NCSP Register collects histology results of samples taken from the cervix and vagina. Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. All histology samples taken during this period were retrieved. Where a histology sample had more than one SNOMED code, or a woman had more than one histology result, the most serious (highest) ranked code was used (see Appendix C).<br><br>Results are presented both according to the detailed SNOMED category, and by broader histology diagnostic category. The mapping between SNOMED codes and diagnostic category is detailed in Appendix C.<br><br>Two versions of SNOMED are used by laboratories (1986 and 1993) depending on the laboratory software. The NCSP Register accepts both versions and for statistical purposes maps the 1986 codes to the 1993 codes.<br><br>A woman's age is defined as her age at the end of the reporting period. |
| **Target** | None |
| **Current Situation** | 14,300 histology samples were taken during the current reporting period. 439 (3.1%) of these were insufficient for diagnosis. The remaining 13,861 samples were taken from 12,067 women. Results for these women are reported on in detail in Table 9 to Table 12. The 439 samples which were insufficient for diagnosis were taken from 437 women, 57 (13.0%) of whom have a record of a subsequent histology test.<br><br>Table 9 shows histology results by detailed SNOMED category, based on the most serious (highest) ranked result for each woman in the monitoring period. Tables 12-14 show histology results by broader histology diagnostic category.<br><br>52.5% of women with histology tests had negative or benign histology results (Table 9, Table 10). 21.3% of women had high grade squamous (CIN2/3) histology results. 46 (0.38%) women had histology results which were invasive squamous cell carcinoma (ISCC), three (less than 0.05%) which were microinvasive SCC, 36 (0.30%) which were invasive adenocarcinoma, and 44 (0.3%) which were adenocarcinoma in situ. There were no women with adenosquamous carcinoma results.<br><br>The age group with the largest number of women with histology samples was women aged 25-29 years (1,599 women, Table 11). Among women aged 20-69 years, the age group with the lowest rate of women with results which were negative or HPV only was women aged 20-24 years (35.5%, Table 12). |

| | |
|---|---|
| **Trends** | The proportion of women with negative or benign histology (52.5%) is slightly higher than that reported for the previous period (51.4%). The proportion of women with HSIL histology is also very similar in the current period (21.3%) to what it was in the previous period (21.6%). The proportions were very similar to those in the previous period for women with ISCC (0.38% this period and 0.34% last period), and invasive adenocarcinoma (0.30% this period and 0.24% last period). The proportion was slightly higher for women with adenocarcinoma in situ (0.36% this period and 0.29% last period), however this follows an decrease in Report 41. |
| **Comments** | Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. Histology samples may also include samples from non-cervical sites, where there is also a cervical component in the sample, for example endometrial samples. Also, pathologists are not always able to determine the site of origin particularly in small biopsies. These are likely to be contributing to the higher number of women with adenocarcinoma histology on the NCSP Register compared to the Cancer Registry. |

**Table 9 - Histology results reporting by SNOMED category**

| SNOMED category | Women with that diagnosis | |
|---|---|---|
| | N | % |
| Negative/normal | 3,355 | 27.8 |
| Inflamation | 795 | 6.6 |
| Microglandular hyperplasia | 18 | 0.15 |
| Squamous metaplasia | 485 | 4.0 |
| Atypia | 148 | 1.2 |
| HPV | 868 | 7.2 |
| Condyloma acuminatum | 11 | 0.09 |
| Dysplasia/CIN NOS | 55 | 0.46 |
| CIN 1 (LSIL) or VAIN 1 | 1,913 | 15.9 |
| CIN 2 (HSIL) or VAIN 2 | 959 | 7.9 |
| CIN 3 (HSIL) or VAIN 3 | 1,544 | 12.8 |
| HSIL not otherwise specified | 63 | 0.5 |
| Polyp | 1,233 | 10.2 |
| Other* | 441 | 3.7 |
| Microinvasive squamous cell carcinoma | 3 | <0.05 |
| Invasive squamous cell carcinoma | 46 | 0.38 |
| Benign glandular atypia | 3 | <0.05 |
| Glandular dysplasia | 3 | <0.05 |
| Adenocarcinoma in situ | 44 | 0.36 |
| Invasive adenocarcinoma† | 36 | 0.30 |
| Adenosquamous carcinoma | - | - |
| Metastatic tumour | 17 | 0.14 |
| Undifferentiated carcinoma | - | - |
| Sarcoma | 6 | <0.05 |
| Carcinosarcoma | 1 | <0.05 |
| Choriocarcinoma | - | - |
| Miscellaneous primary tumour | 1 | <0.05 |
| Small cell carcinoma | 1 | <0.05 |
| Malignant tumour, small cell type | - | - |
| Melanoma | 3 | <0.05 |
| Other primary epithelial malignancy | 15 | 0.12 |
| **Total** | **12,067** | **100.0** |

*NOS = not otherwise specified; HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN2/3 (SNOMED code M67017; see Appendix C)*

** Other morphologic abnormality, not dysplastic or malignant. † Includes one adenocarcinoma, endocervical type (SNOMED code M83843) and 35 adenocarcinoma, not endocervical type (M81403).*

**Table 10 - Histology results reporting by diagnostic category**

| Histology diagnosis category | Women with that histology result | |
|---|---|---|
| | N | % |
| Negative/benign (non neoplastic) | 6,330 | 52.5 |
| HPV | 879 | 7.3 |
| CIN1 | 2,116 | 17.5 |
| CIN2 | 959 | 7.9 |
| CIN3 | 1,544 | 12.8 |
| HSIL not otherwise specified | 63 | 0.5 |
| Microinvasive | 3 | <0.05 |
| Invasive squamous cell carcinoma | 46 | 0.38 |
| Glandular dysplasia | 3 | <0.05 |
| Adenocarcinoma in situ | 44 | 0.36 |
| Invasive adenocarcinoma† | 36 | 0.30 |
| Adenosquamous carcinoma | - | - |
| Other cancer | 44 | 0.36 |
| **Total** | **12,067** | **100.0** |

*Details of mapping between SNOMED category and diagnostic category are included in Appendix C. HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C). † Includes one adenocarcinoma, endocervical type (SNOMED code M83843) and 35 adenocarcinoma, not endocervical type (M81403).*

**Table 11 - Histology results by age – counts**

| Histology Diagnostic Category | Age group | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <20 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70+ | Total |
| Negative/benign (non neoplastic) | 12 | 427 | 469 | 501 | 608 | 984 | 1,044 | 887 | 534 | 388 | 233 | 243 | 6,330 |
| HPV | 4 | 140 | 163 | 107 | 102 | 126 | 91 | 60 | 39 | 30 | 11 | 6 | 879 |
| CIN1 | 16 | 486 | 402 | 343 | 231 | 201 | 173 | 111 | 63 | 45 | 34 | 11 | 2,116 |
| CIN2 | 4 | 243 | 258 | 146 | 78 | 88 | 57 | 44 | 20 | 11 | 8 | 2 | 959 |
| CIN3 | 2 | 287 | 385 | 283 | 201 | 152 | 98 | 46 | 34 | 39 | 11 | 6 | 1,544 |
| HSIL not otherwise specified | - | 12 | 23 | 7 | 9 | 5 | 2 | 4 | - | 1 | - | - | 63 |
| Microinvasive | - | - | - | 2 | - | 1 | - | - | - | - | - | - | 3 |
| Invasive squamous cell carcinoma | - | 1 | 4 | 5 | 4 | 6 | 5 | 7 | 2 | - | 4 | 8 | 46 |
| Glandular dysplasia | - | - | 1 | - | 1 | - | 1 | - | - | - | - | - | 3 |
| Adenocarcinoma in situ | - | 1 | 11 | 8 | 7 | 6 | 6 | 4 | - | - | - | 1 | 44 |
| Invasive adenocarcinoma† | - | 1 | 1 | - | 5 | 3 | 4 | 7 | 3 | 2 | 3 | 7 | 36 |
| Adenosquamous carcinoma | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Other cancer | - | 1 | 1 | - | 1 | - | 5 | 3 | 8 | 3 | 6 | 16 | 44 |
| **Total** | **38** | **1,599** | **1,718** | **1,402** | **1,247** | **1,572** | **1,486** | **1,173** | **703** | **519** | **310** | **300** | **12,067** |

*HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C) † Includes one adenocarcinoma, endocervical type (SNOMED code M83843) and 35 adenocarcinoma, not endocervical type (M81403)*

**Table 12 - Histology results by age – percentages**

| Histology Diagnostic Category | Age group | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <20 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70+ |
| Negative/benign (non neoplastic) | 31.6 | 26.7 | 27.3 | 35.7 | 48.8 | 62.6 | 70.3 | 75.6 | 76.0 | 74.8 | 75.2 | 81.0 |
| HPV | 10.5 | 8.8 | 9.5 | 7.6 | 8.2 | 8.0 | 6.1 | 5.1 | 5.5 | 5.8 | 3.5 | 2.0 |
| CIN1 | 42.1 | 30.4 | 23.4 | 24.5 | 18.5 | 12.8 | 11.6 | 9.5 | 9.0 | 8.7 | 11.0 | 3.7 |
| CIN2 | 10.5 | 15.2 | 15.0 | 10.4 | 6.3 | 5.6 | 3.8 | 3.8 | 2.8 | 2.1 | 2.6 | 0.7 |
| CIN3 | 5.3 | 17.9 | 22.4 | 20.2 | 16.1 | 9.7 | 6.6 | 3.9 | 4.8 | 7.5 | 3.5 | 2.0 |
| HSIL not otherwise specified | - | 0.8 | 1.3 | 0.5 | 0.7 | 0.3 | 0.13 | 0.34 | - | 0.19 | - | - |
| Microinvasive | - | - | - | 0.14 | - | 0.06 | - | - | - | - | - | - |
| Invasive squamous cell carcinoma | - | 0.06 | 0.23 | 0.36 | 0.32 | 0.38 | 0.34 | 0.60 | 0.28 | - | 1.3 | 2.7 |
| Glandular dysplasia | - | - | 0.06 | - | 0.08 | - | 0.07 | - | - | - | - | - |
| Adenocarcinoma in situ | - | 0.06 | 0.64 | 0.57 | 0.56 | 0.38 | 0.40 | 0.34 | - | - | - | 0.33 |
| Invasive adenocarcinoma† | - | 0.06 | 0.06 | - | 0.40 | 0.19 | 0.27 | 0.60 | 0.43 | 0.39 | 1.0 | 2.3 |
| Adenosquamous carcinoma | - | - | - | - | - | - | - | - | - | - | - | - |
| Other cancer | - | 0.06 | 0.06 | - | 0.08 | - | 0.34 | 0.26 | 1.14 | 0.58 | 1.9 | 5.3 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

*HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C). † Includes one adenocarcinoma, endocervical type (SNOMED code M83843) and 35 adenocarcinoma, not endocervical type (M81403)*

## Indicator 5.5 - Laboratory turnaround times

| | |
|---|---|
| **Definition** | Turnaround time is defined as the number of working days from the date a sample is received by a laboratory, and the date which it is reported to the smear-taker or colposcopist. For the purposes of this measure, samples received and reported on the same day are defined as having a turnaround time of one day. |
| **Target** | ***Cytology***<br>Laboratories are required to report 90% of final gynaecological cytology results to smear-takers within seven working days of receipt of the sample and 98% within 15 working days (also Standard 513[14]).<br><br>***Histology***<br>Laboratories are required to report 90% of final histology results to referring colposcopists within ten working days of receipt of the sample and 98% of final histology results within 15 working days of receiving the sample (also Standard 516[14]).<br><br>***Cytology with associated hrHPV testing***<br>Laboratories are required to report 98% of final cytology test results (including those associated with HPV test) within 15 working days of receiving the sample. Here, the turnaround time is measured specifically for cytology where HPV testing is performed for low grade triage. Low grade triage is defined further in Indicator 8; here it relates to cytology samples *received at the laboratory* in the reporting period (as opposed to *samples collected* in the period, in Indicator 8). It is restricted to triage testing of women aged 30 years or more. These samples form a subset of those considered in the overall measure of turnaround time for cytology. Note that since reporting of cytology with adjunctive hrHPV testing requires that both test results be reported together (hrHPV test results must not be issued independently when adjunct to a cytology request), the turnaround time of the hrHPV test should not exceed that of the accompanying cytology. |
| **Current Situation** | ***Cytology***<br>Seven laboratories received 214,418 cytology samples during the current reporting period. Overall, 92.7% of cytology samples were reported on within seven working days, which is above the target. Nationally, 98.7% were reported on within 15 working days, which is above the target (Table 51).<br><br>Five laboratories met the target for 90% of cytology samples to be reported to smear-takers in seven working days or less (Aotea Pathology Ltd, Diagnostic Medlab Ltd, Medlab Central Ltd, Pathlab, Southern Community Labs Dunedin). The proportion of samples reported on within seven working days ranged from 78.9% (Canterbury Health Laboratories) to 96.7% (Pathlab) days (Figure 49, Table 51). |

Five laboratories met the target of 98% of samples reported within 15 working days (Aotea Pathology Ltd, Canterbury Health Laboratories , Diagnostic Medlab Ltd, Pathlab, Southern Community Labs Dunedin) (Figure 50, Table 51). The remaining laboratories had reported on over 95% of cytology samples within 15 working days.

***Histology***

Sixteen laboratories received 14,339 histology samples in the current reporting period. Overall 89.3% of samples were reported on within ten working days, which is slightly below the target. Nationally 93.7% were reported on in 15 working days or less, which below the target (Table 52).

Ten laboratories met the target of 90% of final histology results to referring colposcopists within ten working days of receipt of the sample (Aotea Pathology Ltd, Canterbury Health Laboratories, Diagnostic Medlab Ltd,Memorial Hospital Hastings Laboratory, Nelson Hospital Laboratory, North Shore Hospital Laboratory,Pathlab, Southern Community Labs Dunedin, Taranaki Medlab, Waikato Hospital Laboratory) (Figure 51, Table 52). Seven laboratories met the target of 98% of final histology results within 15 working days of receiving the sample, and three of the remaining eight had reported on at least 95% of samples within 15 days (Figure 52, Table 52).

***Low grade cytology with associated HPV triage testing***

Seven laboratories received 2,955 cytology samples during the current reporting period which were associated with HPV testing for the purpose of triage of low grade abnormalities. Overall, 97.8% of these cytology samples were reported on within 15 working days, which is slightly below the target. The proportion of cytology samples with HPV triage tests reported on within 15 days ranged from 88.2% (Canterbury Health Laboratories) to 100.0% (Aotea Pathology Ltd) (Figure 53, Table 53). The target of 98% of tests reported within 15 working days was met by four laboratories. Nationally, the proportion of cytology reported within 15 days is similar to, but slightly lower for cytology associated with low grade triage HPV testing (97.8%), compared to cytology overall (98.7%). However, the proportion of cytology tests reported within 15 working days is similar regardless of whether there is an associated HPV triage test at all labs other than Canterbury Health Laboratories and LabPLUS, however in the latter case this is based on a small number of cytology tests with associated HPV triage testing at LabPLUS (Figure 53).

**Trends**

***Cytology***

The overall proportion of samples reported on within seven working days is lower in the current report (92.7%) to that in the previous monitoring period (95.1%). The number of laboratories meeting the cytology turnaround time target of 90% for seven working days has remained at five laboratories. The proportion of samples reported on within 15 working days was slightly lower in the current reporting period (98.7%, compared to 99.0% in the previous reporting period). The number of laboratories meeting the target has remained at five. As in the previous report, in the current monitoring period

all seven laboratories had reported on at least 95% of samples within 15 working days.

***Histology***

The proportion of histology samples reported on within ten working days has decreased from 90.5% to 89.3%, and the number of labs meeting the ten-working-days target has decreased from 12 to 10. The proportion of histology samples reported on within 15 working days is slightly lower (93.7%, compared to 93.8% in the previous report). The number of laboratories meeting the fifteen-working-days target (seven) is lower than in the previous reporting period (eight). In the current period, 10 of the 16 laboratories had reported on at least 95% of samples within 15 days, which is lower than in the previous period (when it was 12).

***Cytology with associated HPV triage testing***

The proportion of cytology samples with an associated HPV triage test reported within 15 working days has decreased slightly since the previous report – from 98.2% to 97.8%.

**Comments**

In the current report, national public holidays which fall on a weekday are excluded from the count of working days. This is a small change since previous reports, where the calculations included all weekdays. This change would be expected to if anything slightly increase the proportion of samples reported on within the target timeframe compared to the method used in previous reports.

Note that the total number of cytology samples reported on in this Indicator is different from that reported in Indicator 5.1, as the inclusion criteria for the current indicator was all cytology samples *received by laboratories* within the reporting period, rather than cytology samples *collected* during the reporting period which was the criteria for Indicator 5.1.

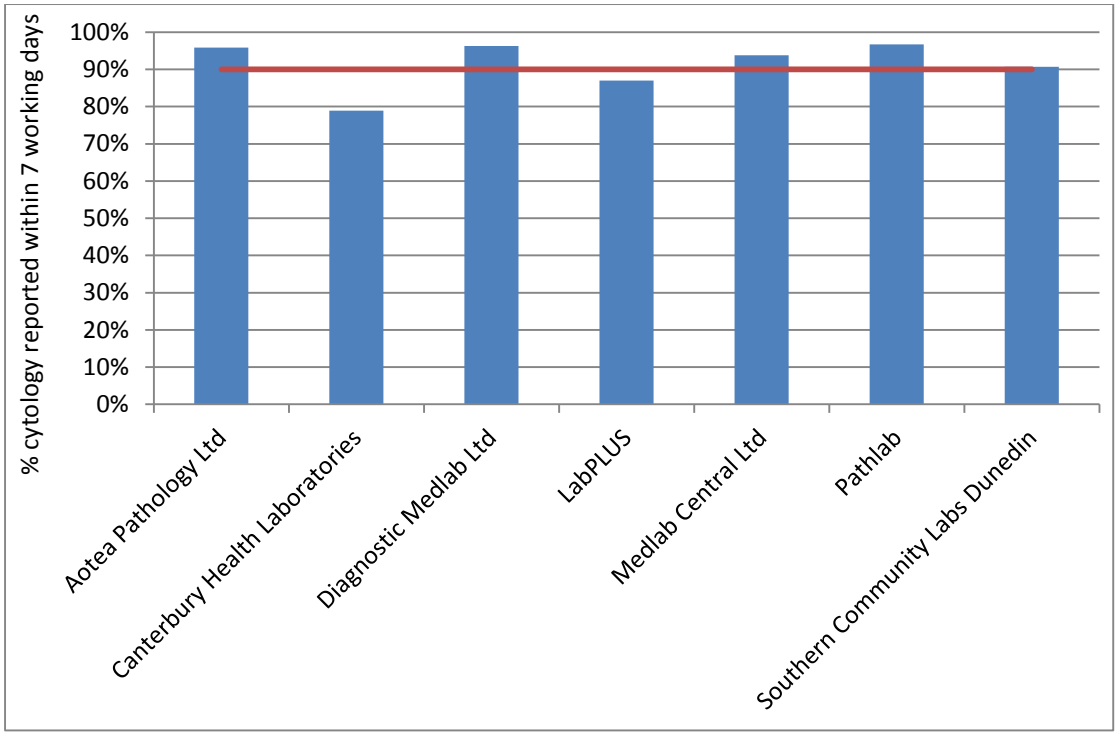
The definition used by individual laboratories for turnaround time differs. For example depending on the definition used by the laboratory, a turnaround time of one day can mean the results are reported within 24 hours, on the same day the sample is received, or on the day after the sample is received. Therefore, we have applied the same definition to all laboratories in these calculations, but because of the variation between laboratories in their internal definition, it has not been possible in this report to use a definition here which is consistent with what each individual laboratory uses.

When errors are detected in the NCSP Register, the report date in the NCSP Register is updated to reflect the date on which the report was re-transmitted after the error was resolved. The occurrence of these errors can therefore distort (and lengthen) turnaround time, as in these cases the report date recorded in the NCSP Register does not reflect the date on which results were first communicated to the smear-taker or colposcopist. The extent of this cannot be directly determined from the NCSP Register, however audit results (which invariably find better turnaround time performance) suggest

that it is a factor which should be considered in interpretation of these results. This appears to be the reason behind the substantial apparent drop in the proportion of histology tests reported on within five days and 15 days at Northland Pathology Laboratory in the current report; prior to the current reporting period these proportions has been consistently very high and the target levels achieved at this laboratory.

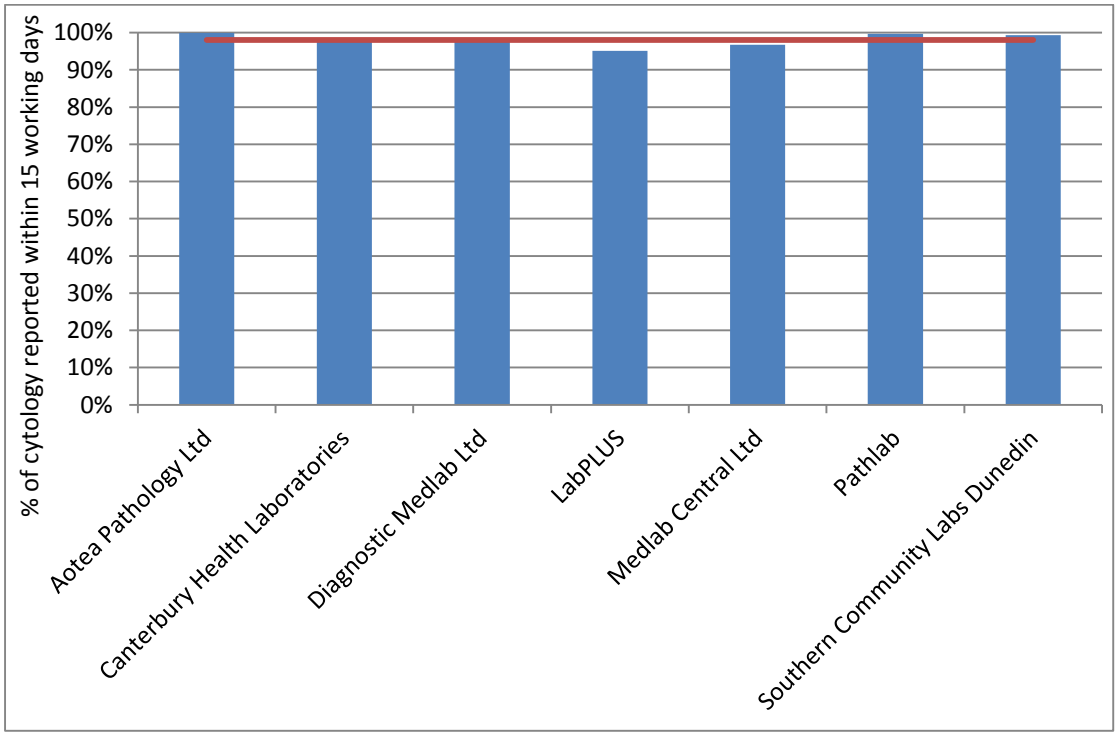
There are some possible explanantions why the turnaround time for cytology with associated HPV triage testing is longer than for other cytology. As the HPV triage test is performed in response to low grade cytology results in a subset of women (those aged 30 years or more without a recent cytological abnormality), the need for the HPV test is only apparent after the cytology result is available. Additonally, as HPV tests are generally performed in batches, laboratories with smaller HPV test volumes may take longer to accrue the required batch sizes, and therefore perform HPV tests less frequently.

**Figure 49 - Proportion of cytology samples reported within seven working days by laboratory, 1 July - 31 December 2014**



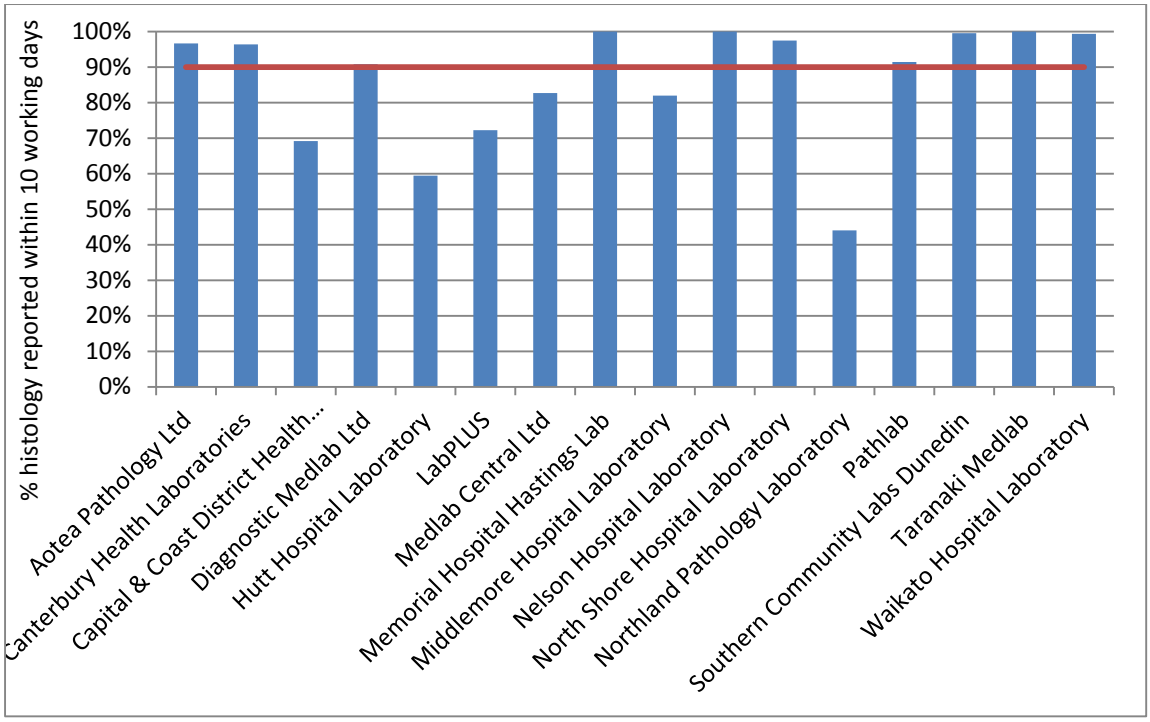

*Target: 90 % within seven working days (red line)*

**Figure 50 - Proportion of cytology samples reported within 15 working days by laboratory, 1 July - 31 December 2014**



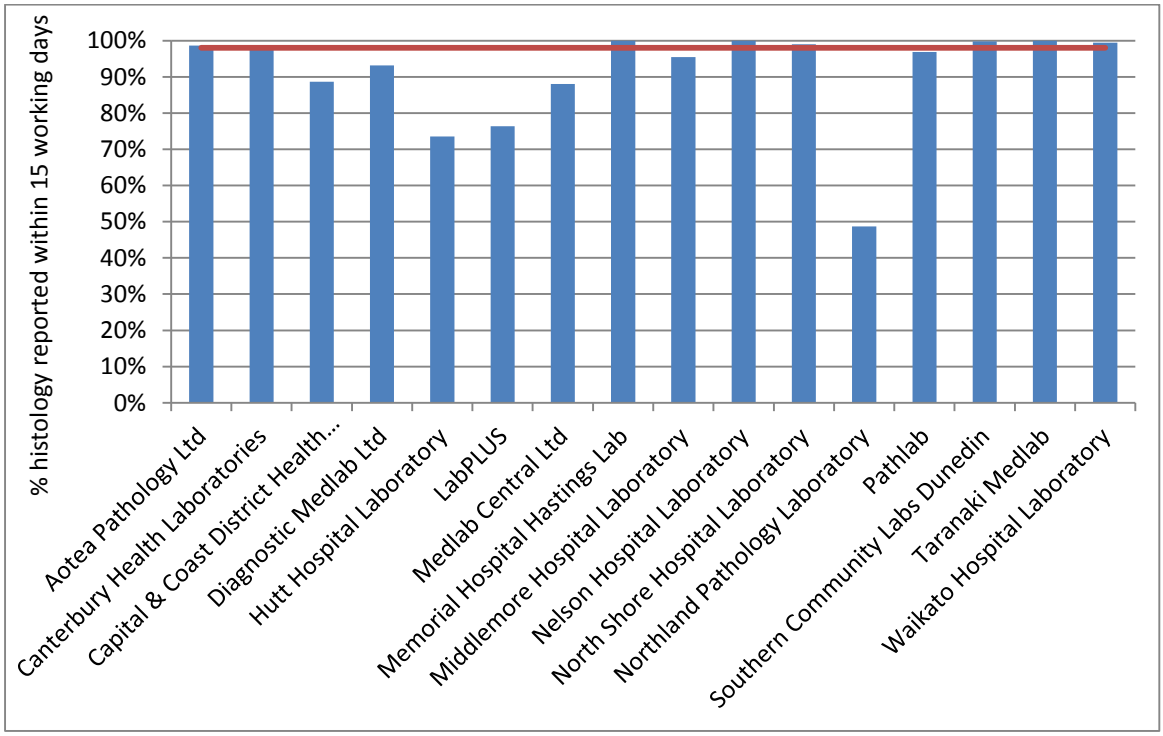

*Target: 100% within 15 working days (red line)*

**Figure 51 - Proportion of histology samples reported within ten working days by laboratory, 1 July - 31 December 2014**



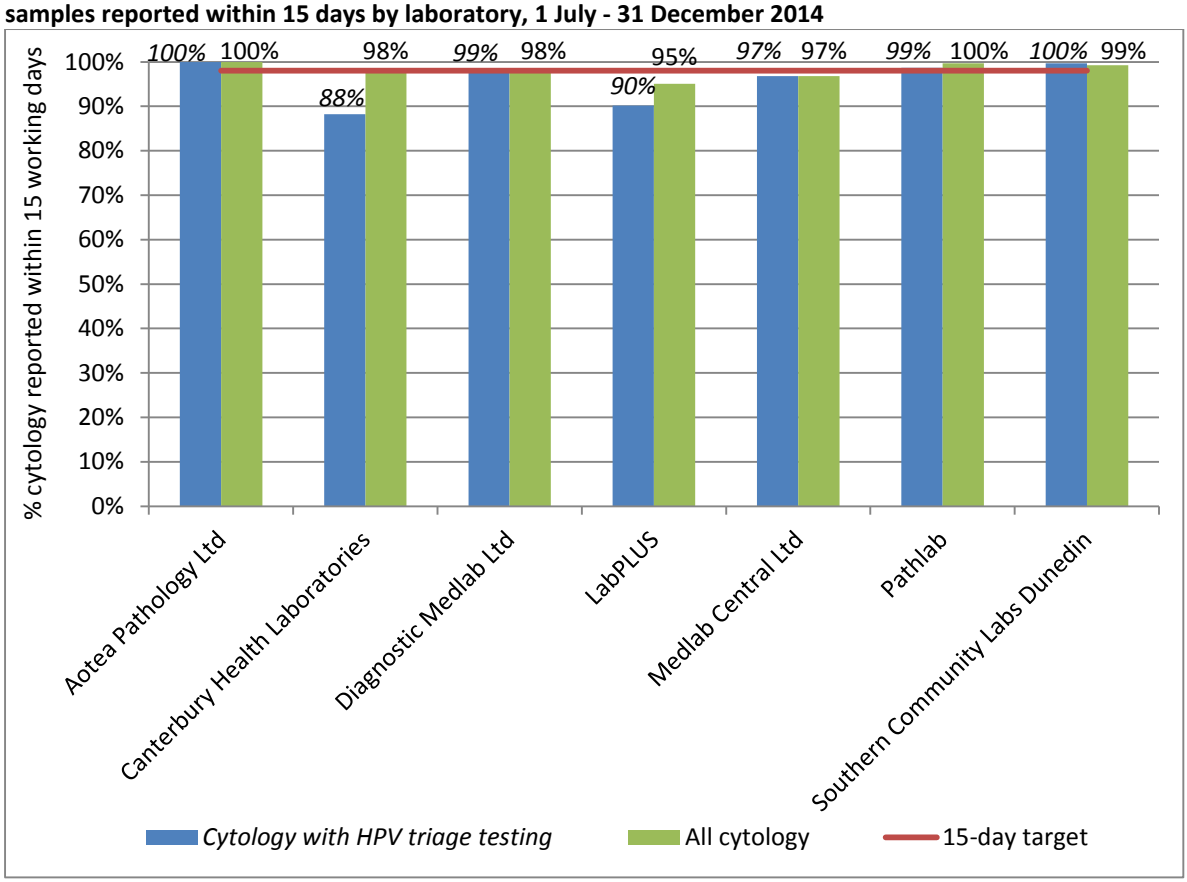

*Target: 90% within ten working days (red line)*

**Figure 52 - Proportion of histology samples reported within 15 working days by laboratory, 1 July - 31 December 2014**




*Target: 98% within 15 working days(red line)*

**Figure 53 - Proportion of cytology samples with associated HPV triage testing and of all cytology samples reported within 15 days by laboratory, 1 July - 31 December 2014**



## *Indicator 6 – Follow up women with high grade cytology, no histology*

**Definition**

The proportion of women who have had a cervical sample showing a high grade cytology result for whom a histological report has been received by the NCSP Register. This proportion is a measure of the completeness of follow up of women with high grade cytology.

Each woman with a high grade cytology result, relating to a cytology sample taken in the six months preceding the current reporting period (ie sample taken from 1 January – 30 June 2014), is followed for any histology samples taken on or after the date of the cytology sample. The period of time between the cytology and histology reports relating to these samples is calculated. The proportion of women with a histology report up to and including 90 days after their cytology report is calculated. Histology reports which occur prior to the cytology report are included, as long as the histology sample was not taken before the cytology sample, to allow for differences in turnaround times between cytology and histology.

Analyses were also performed which calculated the proportion of women with a high grade cytology result who have a histology report within 180 days of their cytology report.

For the purposes of this indicator, the following Bethesda 2001 New Zealand modified (2005) interpretation codes are included as high grade cytology: ASH, HS1, HS2, SC, AG1-AG5, AIS, AC1-AC5.

High grade cytology reports which indicated that women were already under specialist management (TBS2001 NZ modified 2005 recommendation code R13) are excluded. After these are excluded, follow-up of women who have more than one high grade cytology sample is based on the first cytology sample collected in the period.

Note that some women may be assessed at colposcopy but no biopsy taken. The colposcopy visit data for this group of women (Indicator 7.1) will supplement this indicator. An exploratory analysis was also performed here which calculated the proportion of women with high grade cytology who had no follow-up test of any kind (including colposcopy, histology sample, HPV sample, or subsequent cytology sample) within 180 days.

Note that the Programme also attempts to facilitate the follow up of all women with absent histology so that they may receive appropriate care where possible.

A woman's age is defined as her age at the end of the current reporting period (ie 31 December 2014).

**Target**

90% of women should have a histology report within 90 days of their cytology report date.

| | |
|---|---|
| | 99% of women should have a histology report within 180 days of their cytology report. |
| **Current Situation** | There were 3,509 high grade cytology results relating to samples collected in the period 1 January – 30 June 2014; 1,366 of these cytology samples were collected at a colposcopy visit or the results indicated that a woman was already under specialist management. It was assumed that these results were already being followed up in the course of this management, and so the cytology tests were excluded from this measure. This left 2,143 cytology results, which related to 2,129 women. Histological follow-up for these 2,129 women is considered in this indicator. Where women had more than one high grade cytology result relating to a sample taken in the period, histological follow-up of the earliest cytology sample taken in the period was assessed.<br><br>***Histological follow-up***<br>Nationally, 1,693 women (79.5%) had a histology report within 90 days of their cytology report, and 1,849 (86.8%) had a histology report within 180 days. These are below the targets of 90% within 90 days and 99% within 180 days.<br><br>The proportion of women with a histology report varied by DHB from 50.0% (Northland) to 94.1% (Wairarapa) within 90 days of their cytology report, and from 80.0% (Northland) to 95.2% (Hutt Valley) within 180 days of their cytology report (Figure 54, Table 13). Three DHBs met the target for the proportion of women with histology within 90 days (Hutt Valley, Nelson Marlborough and Wairarapa), but no DHB met the target for 180 days.<br><br>The proportion of women with a histology report also varies by age. Among women aged 20-69 years, the proportion varied from 53.8% (ages 60-64 years) to 84.0% (ages 30-34 years) within 90 days, and from to 66.2% (ages 60-64 years) to 91.2% (ages 30-34 years) within 180 days (Table 14). The targets were not met in any age group.<br><br>There was some variation in the proportion of women with histological follow-up by ethnicity, however the targets were not met for any group of women nationally. At 90 days, the proportion of women with histological follow-up ranged from 67.8% (Pacific women) to 82.4% (European/Other women). By 180 days, however, the difference had narrowed, and histology reports were available for 83.9% of Pacific women and 89.9% of Asian women (Table 15, Table 16). Further breakdown by DHB and ethnicity is shown in Table 15 and Table 16, and breakdown by DHB and age is shown in Table 54 and Table 55.<br><br>Among women with an urgent referral, due to a suspicion of invasive disease, a histology report was available within 90 days for 55.0% of women and within 180 days for 80.5% of women (Table 17). Among women where there was no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, |

HS1, AG1-5, AIS), 80.5% had a histology report available within 90 days and 87.5% within 180 days (Table 17).

***Women with no follow-up tests***

When follow-up tests of any kind (colposcopy, histology, HPV test, or subsequent cytology test) were considered, there were 222 women (10.4%) who had no record of any subsequent follow-up within 90 days and 130 women (6.1%) who had no record of any subsequent follow-up within 180 days on the NCSP Register (Table 18).

This varied by DHB from no women without follow-up of some kind (Wairarapa) to 25.0% (West Coast) at 90 days and from no women without follow-up of some kind (Hutt Valley, South Canterbury, Wairarapa, Whanganui) to 10.0% (West Coast) at 180 days (Figure 55, Table 18). Where there were women without any follow-up tests recorded, the number was generally small in most DHBs. At 90 days, the number remaining without follow-up was ten or fewer in 13 DHBs and a maximum of 35 women in Counties Manukau. At 180 days, the number remaining without follow-up was ten or fewer in 15 DHBs and a maximum of 23 women in Counties Manukau.

The proportion of women who had no record of any subsequent follow-up also varied by ethnicity, from 7.9% (European/Other women) to 22.0% (Pacific women) at 90 days and from 5.1% (European/Other women) to 12.7% (Pacific women) at 180 days (Figure 56).

Among women with an urgent referral, due to a suspicion of invasive disease, a follow-up test of some kind was available within 90 days for 72.5% of women and within 180 days for 75.0% of women (Table 17). At 180 days, there remained 20 women (25.0%) for whom no follow-up tests were recorded. Among women where there was no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, HS1, AG1-5, AIS), 90.2% had a follow-up test report available within 90 days and 94.6% within 180 days (Table 17). At 180 days, there remained 110 women (5.4%) for whom no follow-up tests were recorded.

**Trends**

***Histological follow-up***

The proportion of women with a histology report within 90 days has decreased somewhat since the previous reporting period (from 80.4% to 79.5% in the current period). The proportion of women with a histology report within 180 days has also decreased, from 87.1% in the previous period to 86.8% in the current period.

The proportion of women with histological follow-up has decreased overall, however, the trend still varies for individual DHBs. In a number of DHBs the proportion of women with histological follow-up has increased at 90 days and at 180 days (Auckland, Bay of Plenty, Canterbury, Capital & Coast, Hutt Valley, Mid Central, Nelson Marlborough,Wairarapa). However in some DHBs, the proportion of women with histological follow-up decreased noticeably at 90

days and at 180 days (Counties Manukau, Lakes, Northland, Southern, Waitemata, West Coast). Changes in other DHBs were smaller or varied at 90 and 180 days.

The proportion of women with follow-up histology (at both 90 days and 180 days) has decreased overall in the current monitoring period for all ethnic groups, although the drop was small for European/ Other women. The proportions of women with follow-up histology are quite variable within individual DHBs, as the number of women with high grade cytology generally becomes comparatively small when broken down by both DHB and ethnicity (except for European/ Other women, and Māori women in a couple of DHBs).

As in previous reports, the proportion of women with histological follow-up varies substantially by age, and generally seems to be lower in women aged 55 years or more, than in women younger than 50 years. Follow-up at both 90 days and 180 days has increased among women aged 50-54 years. Follow-up at both 90 days and 180 days has decreased in some ages groups, most noticeably among women aged 45-49 years and 60-64 years.

***Women with no follow-up tests***

The proportion of women with no record of a follow-up test has increased since the previous period at 90 days, from 10.2% to 10.4%, but decreased slightly at 180 days, from 6.3% to 6.1%.

Trends by DHB were complex, but reductions in the proportion of women with no follow-up test recorded at 180 days were observed in 10 of the 20 DHBs, and were greatest in Bay of Plenty, Lakes, South Canterbury, Tairawhiti, Taranaki and Wairarapa. Increases were observed in some other DHBs, and were largest in Counties Manukau, Northland and West Coast.

In the current monitoring period, the proportions of women for whom there was no follow-up test record has decreased for Māori women at both 90 days and 180 days, and has increased for Asian women at both 90 days and 180 days. In Māori women the proportion of women with no follow-up tests recorded has decreased from 15.9% to 15.7% at 90 days and from 10.6% to 8.2% at 180 days. For Asian women the proportion has increased from 6.8% to 13.2% at 90 days, and from 3.1% to 5.7% at 180 days. For Pacific women, the proportion has increased slightly from 21.8% to 22.0% at 90 days, but decreased from 14.5% to 12.7% at 180 days. For European/ Other women the proportion has decreased from 8.4% to 7.9% at 90 days, but increased slightly from 5.0% to 5.1% at 180 days.

**Comments**

The proportion of women with a follow-up test of any kind provides useful additional information. While 20.5% of women with high grade cytology reports had no record of a histology report within 90 days, the proportion without a record of a follow-up test of any kind was much lower (10.4%). The same was also true at 180 days, where 13.2% of women with high grade cytology reports had no record of a histology report within 180 days, but the proportion without a record of a follow-up test of any kind was much lower

(6.1%). Consistent with previous monitoring reports, many of the women with no follow-up histology recorded do have a record of some follow-up test. This provides reassurance that many women without histology have not been lost to follow-up.

The measure of whether or not there has been a follow-up test of any sort considers cytology, colposcopy, histology and HPV tests. Therefore changes in women with a follow-up of any kind of test may also reflect changes in the completeness of reporting on the NCSP Register for some tests. In particular, it may reflect changes in reporting of colposcopy visits on the Register over time (whereas it is expected that the completeness of lab-based tests is not likely to have changed). In particular, colposcopy data were incomplete for some DHBs in the current monitoring period, and this would potentially affect the proportion of women where no follow-up of any kind was recorded at 180 days (though it should not affect the poroportion with histology recorded). The affected DHBs are Counties Manukau (no colposcopy data after October 2014), Northland and Waitemata (no data after late November 2014 in both cases).

Note that some women presenting with cancer may be referred directly to oncology and therefore not recorded on the NCSP Register. This may have contributed to the lower rates of follow-up recorded for women with an urgent referral, due to a suspicion of invasive disease.

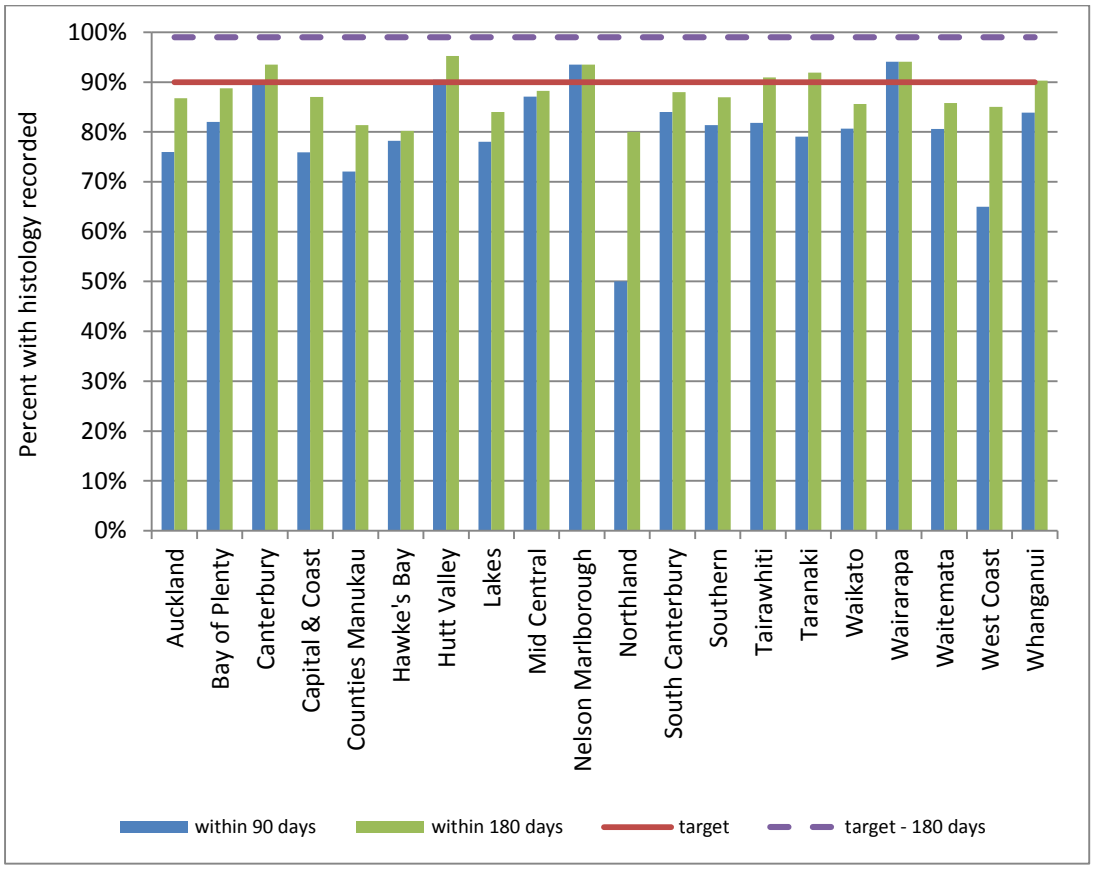
Note that while all *cytology results* which indicated that a woman was under specialist management were excluded from the measure of follow-up, not all *women* who had these cytology results were. If all cytology results for a woman indicated that she was under specialist management, she was excluded. However, any woman with at least one high grade cytology result which did *not* indicate that she was under specialist management was included in the group in whom histological follow-up was measured. It was assumed that any high grade cytology result without this indication should have been followed up in some way, regardless of other cytology results in the period. All of the cytology tests selected for follow up indicated that referral or further assessment was recommended.

The risk level for women with no recorded biopsy is difficult to ascertain because a lack of histology can be due to a number of reasons, including:

i) examined but no biopsy taken,
ii) did not attend (DNA) or refusal to attend
iii) wait time issue
iv) died or left New Zealand

Risk is also related to the degree of abnormality including microinvasive/invasive carcinoma. Women who do not or refuse to attend are at highest risk due to no colposcopic examination. Due to the significant risk for this group of women if not followed up, NCSP Portfolio Managers ensure that priority is given to follow-up of these women through DHBs.

**Figure 54 - Proportion of women with a histology report within 90 days, and within 180 days of their high grade cytology report, by DHB**




*Target: 90% within 90 days; 99% within 180 days*

**Table 13 – Women with a histology report within 90 and 180 days of a high grade cytology report, by DHB**

| DHB | High-grade cytology | Follow-up histology within 90 days | | Follow-up histology within 180 days | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| Auckland | 287 | 218 | 76.0 | 249 | 86.8 |
| Bay of Plenty | 89 | 73 | 82.0 | 79 | 88.8 |
| Canterbury | 216 | 194 | 89.8 | 202 | 93.5 |
| Capital & Coast | 108 | 82 | 75.9 | 94 | 87.0 |
| Counties Manukau | 247 | 178 | 72.1 | 201 | 81.4 |
| Hawke's Bay | 101 | 79 | 78.2 | 81 | 80.2 |
| Hutt Valley | 42 | 38 | 90.5 | 40 | 95.2 |
| Lakes | 50 | 39 | 78.0 | 42 | 84.0 |
| Mid Central | 85 | 74 | 87.1 | 75 | 88.2 |
| Nelson Marlborough | 46 | 43 | 93.5 | 43 | 93.5 |
| Northland | 60 | 30 | 50.0 | 48 | 80.0 |
| South Canterbury | 25 | 21 | 84.0 | 22 | 88.0 |
| Southern | 161 | 131 | 81.4 | 140 | 87.0 |
| Tairawhiti | 33 | 27 | 81.8 | 30 | 90.9 |
| Taranaki | 62 | 49 | 79.0 | 57 | 91.9 |
| Waikato | 181 | 146 | 80.7 | 155 | 85.6 |
| Wairarapa | 17 | 16 | 94.1 | 16 | 94.1 |
| Waitemata | 268 | 216 | 80.6 | 230 | 85.8 |
| West Coast | 20 | 13 | 65.0 | 17 | 85.0 |
| Whanganui | 31 | 26 | 83.9 | 28 | 90.3 |
| **Total** | **2,129** | **1,693** | **79.5** | **1,849** | **86.8** |

**Table 14 - Women with a histology report within 90 and 180 days of a high grade cytology report, by age**

| Age (years) | High grade cytology | Follow-Up histology Within 90 days | | Follow-up histology Within 180 days | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| <20 | 7 | 6 | 85.7 | 7 | 100.0 |
| 20-24 | 384 | 321 | 83.6 | 338 | 88.0 |
| 25-29 | 503 | 413 | 82.1 | 452 | 89.9 |
| 30-34 | 351 | 295 | 84.0 | 320 | 91.2 |
| 35-39 | 226 | 184 | 81.4 | 199 | 88.1 |
| 40-44 | 187 | 156 | 83.4 | 167 | 89.3 |
| 45-49 | 122 | 93 | 76.2 | 105 | 86.1 |
| 50-54 | 119 | 95 | 79.8 | 103 | 86.6 |
| 55-59 | 77 | 50 | 64.9 | 59 | 76.6 |
| 60-64 | 65 | 35 | 53.8 | 43 | 66.2 |
| 65-69 | 42 | 26 | 61.9 | 30 | 71.4 |
| 70+ | 46 | 19 | 41.3 | 26 | 56.5 |
| **Total** | **2,129** | **1,693** | **79.5** | **1,849** | **86.8** |

**Table 15 - Women with a histology report within 90 days of a high grade cytology report, by DHB and ethnicity**

| | Māori | | Pacific | | Asian | | European/Other | |
|---|---|---|---|---|---|---|---|---|
| **DHB** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Auckland | 12 | 60.0 | 19 | 70.4 | 37 | 78.7 | 150 | 77.7 |
| Bay of Plenty | 18 | 72.0 | - | - | 2 | 66.7 | 53 | 86.9 |
| Canterbury | 16 | 80.0 | 1 | 50.0 | 8 | 100.0 | 169 | 90.9 |
| Capital & Coast | 3 | 42.9 | 3 | 60.0 | 9 | 75.0 | 67 | 79.8 |
| Counties Manukau | 34 | 68.0 | 29 | 60.4 | 29 | 82.9 | 86 | 75.4 |
| Hawke's Bay | 32 | 84.2 | 1 | 50.0 | 0 | 0.0 | 46 | 76.7 |
| Hutt Valley | 7 | 77.8 | 3 | 100.0 | 2 | 50.0 | 26 | 100.0 |
| Lakes | 17 | 77.3 | 1 | 100.0 | 1 | 100.0 | 20 | 76.9 |
| Mid Central | 12 | 85.7 | 1 | 50.0 | 3 | 100.0 | 58 | 87.9 |
| Nelson Marlborough | 4 | 80.0 | 1 | 100.0 | 2 | 100.0 | 36 | 94.7 |
| Northland | 11 | 44.0 | - | - | - | - | 19 | 55.9 |
| South Canterbury | 3 | 60.0 | - | - | - | - | 18 | 90.0 |
| Southern | 13 | 72.2 | 4 | 66.7 | 3 | 75.0 | 111 | 83.5 |
| Tairawhiti | 16 | 94.1 | 1 | 100.0 | - | - | 10 | 66.7 |
| Taranaki | 6 | 75.0 | - | - | 3 | 100.0 | 40 | 78.4 |
| Waikato | 40 | 78.4 | 3 | 100.0 | 3 | 60.0 | 100 | 82.0 |
| Wairarapa | 5 | 100.0 | 1 | 100.0 | - | - | 10 | 90.9 |
| Waitemata | 16 | 59.3 | 12 | 80.0 | 19 | 65.5 | 169 | 85.8 |
| West Coast | 1 | 50.0 | - | - | 1 | 100.0 | 11 | 64.7 |
| Whanganui | 9 | 100.0 | - | - | 1 | 100.0 | 16 | 76.2 |
| **Total** | **275** | **72.9** | **80** | **67.8** | **123** | **77.4** | **1,215** | **82.4** |

*' – ' indicates there were no women in this sub-category with a high grade cytology report*

**Table 16 - Women with a histology report within 180 days of a high grade cytology report, by DHB and ethnicity**

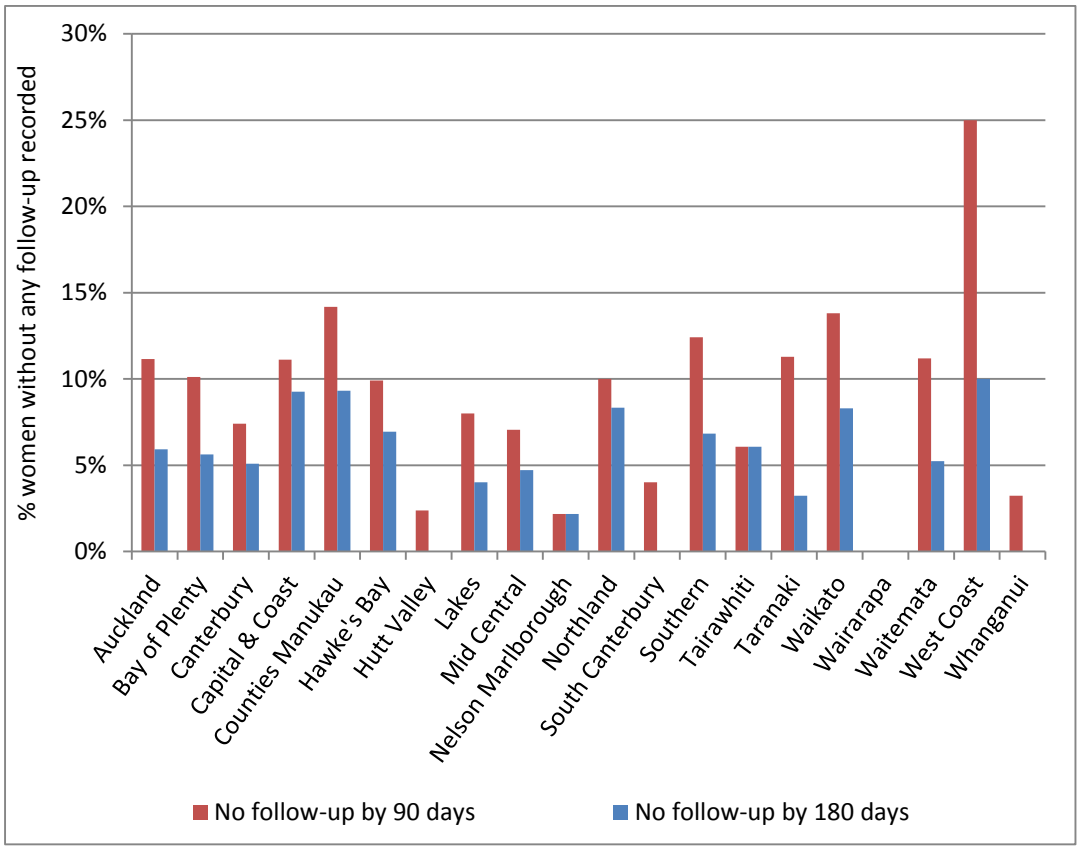
| | Māori | | Pacific | | Asian | | European/Other | |
|---|---|---|---|---|---|---|---|---|
| **DHB** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Auckland | 16 | 80.0 | 24 | 88.9 | 45 | 95.7 | 164 | 85.0 |
| Bay of Plenty | 20 | 80.0 | - | - | 3 | 100.0 | 56 | 91.8 |
| Canterbury | 17 | 85.0 | 1 | 50.0 | 8 | 100.0 | 176 | 94.6 |
| Capital & Coast | 4 | 57.1 | 5 | 100.0 | 11 | 91.7 | 74 | 88.1 |
| Counties Manukau | 40 | 80.0 | 37 | 77.1 | 32 | 91.4 | 92 | 80.7 |
| Hawke's Bay | 33 | 86.8 | 1 | 50.0 | 0 | 0.0 | 47 | 78.3 |
| Hutt Valley | 8 | 88.9 | 3 | 100.0 | 3 | 75.0 | 26 | 100.0 |
| Lakes | 19 | 86.4 | 1 | 100.0 | 1 | 100.0 | 21 | 80.8 |
| Mid Central | 12 | 85.7 | 1 | 50.0 | 3 | 100.0 | 59 | 89.4 |
| Nelson Marlborough | 4 | 80.0 | 1 | 100.0 | 2 | 100.0 | 36 | 94.7 |
| Northland | 19 | 76.0 | 1 | 100.0 | - | - | 28 | 82.4 |
| South Canterbury | 4 | 80.0 | - | - | - | - | 18 | 90.0 |
| Southern | 16 | 88.9 | 5 | 83.3 | 4 | 100.0 | 115 | 86.5 |
| Tairawhiti | 17 | 100.0 | 1 | 100.0 | - | - | 12 | 80.0 |
| Taranaki | 7 | 87.5 | - | - | 3 | 100.0 | 47 | 92.2 |
| Waikato | 44 | 86.3 | 3 | 100.0 | 4 | 80.0 | 104 | 85.2 |
| Wairarapa | 5 | 100.0 | 1 | 100.0 | - | - | 10 | 90.9 |
| Waitemata | 20 | 74.1 | 13 | 86.7 | 22 | 75.9 | 175 | 88.8 |
| West Coast | 1 | 50.0 | - | - | 1 | 100.0 | 15 | 88.2 |
| Whanganui | 9 | 100.0 | - | - | 1 | 100.0 | 18 | 85.7 |
| **Total** | **315** | **83.6** | **98** | **83.1** | **143** | **89.9** | **1,293** | **87.7** |

*' – ' indicates there were no women in this sub-category with a high grade cytology report*

**Table 17- Women with high grade cytology who have follow-up within 90 and 180 days recorded on the NCSP Register, by urgency of referral and type of follow-up**

| | Urgent referral (HS2, SC, AC1-5) | | No suspicion of invasion (ASH, HS1, AG1-5, AIS) | |
|---|---|---|---|---|
| | **N** | **%** | **N** | **%** |
| Follow-up within 90 days | | | | |
| - histology | 44 | 55.0 | 1,649 | 80.5 |
| - any follow-up | 58 | 72.5 | 1,848 | 90.2 |
| - *no follow-up* | *22* | *27.5* | *200* | *9.8* |
| Follow-up within 180 days | | | | |
| - histology | 56 | 70.0 | 1,793 | 87.5 |
| - any follow-up | 60 | 75.0 | 1,938 | 94.6 |
| - *no follow-up* | *20* | *25.0* | *110* | *5.4* |

**Figure 55 – Proportion of women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by DHB**




*No women without follow-up recorded within 180 days at Hutt Valley, South Canterbury, Wairarapa, Whanganui*

**Figure 56 - Proportion of women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by ethnicity**

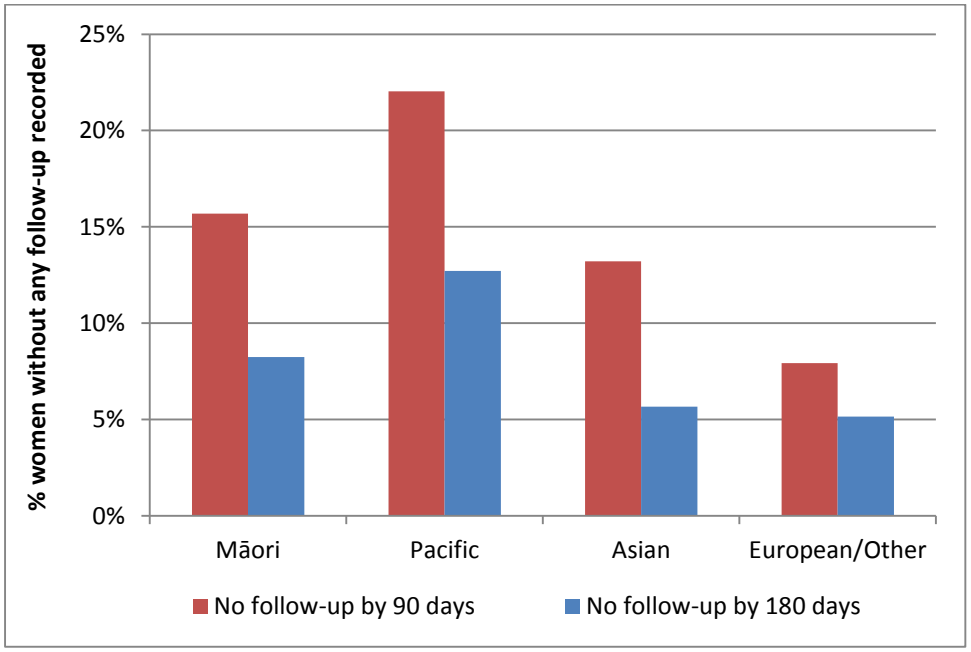


**Table 18 - Women without any follow-up test within 180 days of a high grade cytology report, by DHB**

| DHB | High-grade cytology N | Without a follow-up test by 90 days N | % | Without a follow-up test by 180 days N | % |
|---|---|---|---|---|---|
| Auckland | 287 | 32 | 11.1 | 17 | 5.9 |
| Bay of Plenty | 89 | 9 | 10.1 | 5 | 5.6 |
| Canterbury | 216 | 16 | 7.4 | 11 | 5.1 |
| Capital & Coast | 108 | 12 | 11.1 | 10 | 9.3 |
| Counties Manukau | 247 | 35 | 14.2 | 23 | 9.3 |
| Hawke's Bay | 101 | 10 | 9.9 | 7 | 6.9 |
| Hutt Valley | 42 | 1 | 2.4 | - | 0.0 |
| Lakes | 50 | 4 | 8.0 | 2 | 4.0 |
| Mid Central | 85 | 6 | 7.1 | 4 | 4.7 |
| Nelson Marlborough | 46 | 1 | 2.2 | 1 | 2.2 |
| Northland | 60 | 6 | 10.0 | 5 | 8.3 |
| South Canterbury | 25 | 1 | 4.0 | - | 0.0 |
| Southern | 161 | 19 | 11.8 | 10 | 6.2 |
| Tairawhiti | 33 | 2 | 6.1 | 2 | 6.1 |
| Taranaki | 62 | 7 | 11.3 | 2 | 3.2 |
| Waikato | 181 | 25 | 13.8 | 15 | 8.3 |
| Wairarapa | 17 | - | - | - | 0.0 |
| Waitemata | 268 | 30 | 11.2 | 14 | 5.2 |
| West Coast | 20 | 5 | 25.0 | 2 | 10.0 |
| Whanganui | 31 | 1 | 3.2 | - | 0.0 |
| *Unspecified* | - | - | | - | |
| **Total** | **2,129** | **222** | **10.5** | **130** | **6.2** |

**Table 19 - Women without any follow-up test within 180 days of a high grade cytology report, by ethnicity**

| Ethnicity | High grade cytology N | Without follow-up by 90 days N | % | Without follow-up by 180 days N | % |
|---|---|---|---|---|---|
| Māori | 376 | 59 | 15.7 | 31 | 8.2 |
| Pacific | 118 | 26 | 22.0 | 15 | 12.7 |
| Asian | 159 | 21 | 13.2 | 9 | 5.7 |
| European/Other | 1,476 | 116 | 7.9 | 75 | 5.1 |
| **Total** | **2,129** | **222** | **10.4** | **130** | **6.1** |

## *Indicator 7 – Colposcopy indicators*

These indicators report on colposcopy, against the NCSP Policies and Standards, Section 6 (2011, draft). They include the following aspects:

7.1. Timeliness of colposcopic assessment of high grade cytology results (Standard 602)

7.2. Timeliness of colposcopic assessment of low grade cytology results (Standard 602)

7.3. Adequacy of documenting colposcopy assessment (Standard 603)

7.4. Timeliness of treatment (Standard 605)

7.5. Timely discharging of women after treatment (Standard 608)

7.6. Failure or refusal to attend appointments (Standard 609)

7.7. Maintaining staff skill levels - minimum colposcopy volumes (Standard 611)

Some of these indicators (7.6, 7.7) are still in development. It is envisioned that they will be included in future monitoring reports as 2013 Colposcopy Policies and Standards data becomes available.

Colposcopy data has been recorded on the NCSP Register for a relatively short time, compared to cytology and histology data. It is possible that there is incomplete reporting of colposcopy data to the NCSP Register, and therefore results for these indicators may need to be interpreted with some caution. However it was felt that colposcopy indicators were an important quality measure of the NCSP, and reporting on them should not be unduly delayed. This was also a recommendation of the 2011 Parliamentary Review into the NCSP.[15] It is anticipated that completeness of colposcopy data on the NCSP Register will continue to improve over time.

Colposcopy data were incomplete for some DHBs in the current monitoring period, and this would potentially affect the results for some indicators in this section. As most of these colposcopy indicators are looking for follow-up in women with abnormal cytology, histology, or treatment prior to the current monitoring period, in most cases, the effect this is likely to be small. This is discussed in *Comments* section of each individual indicator. The affected DHBs are Counties Manukau (no colposcopy data after October 2014), Northland and Waitemata (no data after late November 2014 in both cases). These DHBs had commenced collecting data according to Colpscopy Policies and Standards 2013, but were in transition with respect to electronically reporting the data to the Register; this was not able to be completed before the data for this report was extracted.

Additionally, no clinic reported the full data required by Colpscopy Policies and Standards 2013 for for the full monitoring period. This means that in some cases performance indicators are not directly compared to the targets or have had to rely on proxy data to measure performance. Where relevant, this is described in the sections relating to the individual indicators.

## Indicator 7.1 – Timeliness of colposcopic assessment – high grade cytology

**Definition**

This indicator measures performance against Standard 602, and is under development. One of the data items required to report against Standard 602 (appointment date) is a Colposcopy Policies and Standards 2013 data item; however it is not yet available from all DHBs, because some are still transitioning to reporting using 2013 standards. Therefore this indicator relies on a proxy, the colposcopy visit date and is not a direct measure against directly comparable to the Standard.

It relates to the proportion of women seen at colposcopy within the recommended time period, from the time of the receipt of a referral from the smear taker for a high grade cytology. This is calculated as the time from the referral following the high grade cytology result being accepted by the colposcopy unit, to the time of the woman's first colposcopic assessment at that colposcopy unit.

High grade cytology results are included if the cytology sample was collected in the six months ending six months prior to the end of the current monitoring period. High grade cytology is defined as that associated with any of the TBS codes ASH, HS1, HS2, SC, AG1-5, AIS, AC1-5. Where a woman has more than one high grade cytology result in the relevant time period, the result from the first high grade cytology sample collected is used. Timeliness of colposcopic assessment is calculated separately for those women with clinical suspicion of invasive carcinoma, or a suspicion of invasive disease (TBS codes HS2, SC, AC1-AC5 or recommendation codes R10 or R14); and for women with other high grade cytology results (TBS codes ASH, HS1, AG1-5, AIS), since the targets differ for these two groups.

Referrals and colposcopy visits for these women were retrieved from the NCSP Register. Referrals were retrieved where the date on which the referral was accepted occurred after the date the cytology sample was collected, and the referral was accepted no later than four weeks prior to the end of the current monitoring period. Colposcopy visits recorded on the NCSP Register were retrieved if they occurred after an accepted referral (to the same DHB) and no later than the end of the current monitoring period. The difference of four weeks between the two was to ensure that there were at least four weeks of data following every accepted referral which could be searched for colposcopy visits (equivalent to the recommended time period for follow-up).

Results are reported by ethnicity and DHB. For women who attended colposcopy, DHB is assigned on the basis of the DHB of the colposcopy facility where she attended for colposcopy. The date on which the referral to that DHB was accepted is used to calculate timeliness. If there are multiple referrals for the same woman to that DHB, the date of the first accepted referral following the cytology sample is used.

| | |
|---|---|
| | Women who attended colposcopy but had no relevant referral to that DHB recorded on the NCSP Register were excluded from the calculations of timeliness (since the time between the acceptance of the referral and the colposcopy visit could not be calculated). However these women were reported on separately.<br><br>For women who did not attend colposcopy prior to the end of the current monitoring period, DHB is assigned based on the DHB of the facility which accepted the referral for that woman (where the referral was accepted no later than four weeks prior to the end of the current monitoring period). If there were multiple referrals for the same woman which occurred after the cytology sample, the most recently accepted referral within the timeframe was used.<br><br>For women who neither attended colposcopy nor had an accepted referral with any DHB, DHB is assigned on the basis of the health facility where their high grade cytology sample was collected.<br><br>Since cytology samples were collected in the six months prior to the current reporting period, this allows a follow-up period of at least six months for all women (and up to 12 months for some women) where a woman can attend colposcopy and be assigned to a DHB, or alternately have a referral accepted by a DHB.<br><br>High grade cytology tests indicating that a woman was already under specialist management (TBS=R13) were excluded from this measure. |
| **Target** | 95% or more of women who have evidence of clinical suspicion of invasive carcinoma, or a suspicion of invasive disease (TBS codes HS2, SC, AC1-AC5), receive colposcopy or a gynaecological assessment within 10 working days of receipt of referral.<br><br>95% or more of women who have high-grade smear abnormalities receive colposcopy within 20 working days of receipt of referral.<br><br>The targets for this indicator rely on records of colposcopy appointments on the NCSP Register. It has not been possible to obtain appointment date from the NCSP Register during the current reporting period, as this is a new data item in the Colposcopy Policies and Standards 2013 that no DHB reported to the Register during the current monitoring period. Therefore, as in recent reports, timeliness will be explored by looking at the time between an accepted referral and colposcopy visit, acknowledging that this is not directly comparable to the target. |
| **Current Situation** | In the period 1 January – 30 June 2014, there were 2,129 women with high grade cytology results who were not already under specialist management. There were 80 women who had results indicating suspicion of invasive disease, and the remaining 2,049 had other high grade cytology results. In total, accepted referrals were found for 1,833 (86.1%) of the 2,129 women |

(Table 56).

***Timeliness – high grade cytology indicating suspicion of invasive disease***

Accepted referrals were found for 42 (52.5%) of the 80 women who had high grade cytology indicating suspicion of invasive disease. These are broken down by the detailed cytological result in Table 59. Of these 42 women with a referral, 27 (64.3%) have a record of a colposcopy visit on the NCSP Register within ten working days of their referral, and 33 (78.6%) have a visit within 20 working days (Table 20).

Considering all 80 women with high grade cytology indicating suspicion of invasive disease, regardless of whether a referral was recorded or not, a total of 59 (73.8%) have a record of a colposcopy visit prior to 31 December 2014 (representing a follow-up period of at least six and up to 12 months after their high grade cytology).

***Timeliness – high grade cytology (no suspicion of invasive disease)***

Accepted referrals were found for 1,791 women (87.4%) of the 2,049 women. Among the women with accepted referrals, 1,166 (65.1%) were seen within 20 working days of their referral (Table 57). There was some variation by ethnicity, from 54.0% (Pacific women) to 69.0% (European/Other women) (Figure 57, Table 57). This varied by DHB from 33.3% (West Coast) to 93.8% (Hutt Valley) (Figure 58, Table 58).

In total, 1,938 (94.6%) of the 2,049 women with high grade cytology (but no suspicion of invasive disease) relating to a sample collected in the period 1 January – 30 June 2014 have a record of a colposcopy visit prior to 31 December 2014 (representing a follow-up period of at least six and up to 12 months after their high grade cytology.

**Trends**

Nationally, the proportion of women with high grade cytology indicating suspicion of invasive disease seen within the target timeframe has decreased somewhat, from 65.7% to 64.3% within ten working days. However, the percentage of women with high grade cytology indicating suspicion of invasive disease seen within 20 working days (78.6%) is higher than that in the previous report (77.1%).

The proportion of women with high grade cytology (but no suspicion of invasive disease) seen within 20 working days has decreased however, from 67.2% in the previous report to 65.1% in the current report. The proportion of all women with high grade results for whom an accepted referral was available on the NCSP Register is higher in the current report than it was in the previous report (86.1% in the current report; 83.5% in Report 41).

**Comments**

Since this indicator relies on colposcopy data in the NCSP Register, there is the possibility that incomplete reporting of referrals and colposcopy visits as at the time of the data extract from the NCSP Register (March 2015 for the

current report) has led to an underestimate of the number of women with referrals and/or follow-up colposcopy visits in a given time period. In order to help address this, in the current report, histology data are also used to help ascertain if a colposcopy visit occurred. Women with a histology sample collected after their cytology sample are assumed to have attended a colposcopy clinic for follow-up, even if a colposcopy visit is not explicitly recorded on the NCSP Register. Some DHBs were not able to load data for the latter part of the monitoring period in time for the extract of data used for this report (Counties Manukau, Northland, Waitemata); however it is not anticipated this would have a great influence on the results for this indicator. This is because the high grade cytology was collected in the previous six-month period, and follow-up colposcopy was predominantly checked for within 20 working days of the cytology result. In most cases, these 20 working days would still fall in the previous six-month period, and the remainder in the early part of the current monitoring period. In addition, as histology samples are also used as a proxy for a colposcopy visit, only colposcopy visits where no histology was collected would be affected. However, the total number of women who had attended for colposcopy by the end of the monitoring period may potentially be underestimated. This information is included for descriptive purposes however, and is not measured against a target.

Note that some women presenting with cancer may be referred directly to oncology and therefore not recorded as a colposcopy visit.

Additional information about follow-up tests performed in women with high grade cytology is included in Indicator 6. The same 2,129 women (80 with suspicion of invasive disease, 2,049 with other high grade cytology) are included in both this measure and Indicator 6. In Indicator 6, it was found that 1,999 (93.9%) had a follow-up test of some sort within 180 days. Here, colposcopy and histology records indicate that 1,997 (93.8%) women had attended colposcopy prior to 31 December 2014 (ie in a period of at least 181 days and up to one year after their high grade cytology sample). Note that there may be some differences in results by DHB, however, since in Indicator 6 the DHB assigned to a woman is her own DHB (or, where this information is not available on the NCSP Register, the DHB of her responsible health facility, based on the clinic's geographic location). In this indicator, women are assigned to a DHB based on either the DHB where they attended colposcopy, or the most recent DHB to which they have been referred (for women without colposcopy visits), or to the DHB of the health facility where the high grade cytology sample was collected (for women with no referral and no colposcopy visit). Additionally, only public clinics are assigned a DHB within Indicator 7.1; private clinics are separated out and reported on as a group.

Reasons why a woman may not attend colposcopy within the recommended timeframe include both capacity limitations within the clinic, and potentially factors related to the woman requiring follow-up. Currently there is incomplete information available on the NCSP Register about colposcopy appointments which are scheduled for women where the woman reschedules or does not attend. Therefore in this indicator it is not

possible to distinguish delays in attending colposcopy following high grade cytology which are due to capacity constraints which restrict the clinic's ability to offer timely appointments, and delays which may be due to an individual woman's need to reschedule an appointment or failure to attend. Factors which may lead a woman to delay a recommended visit include caring responsibilities, planned travel, competing prior commitments, illness, or menstruation.

In the current report, national public holidays which fall on a weekday are excluded from the count of working days. This is consistent with the previous report, but a small change since reports prior to Report 41, where the calculations included all weekdays. This change would be expected to if anything slightly increase the proportion of women who had a colposcopy visit recorded within the target timeframe compared to the method used in previous reports.

**Table 20 – Women with a high grade cytology report (suspicion of invasive disease), accepted referral and colposcopy visit, by ethnicity**

| | HG women (suspicion of invasion) | Urgent referrals received | Women seen within : | | | |
|---|---|---|---|---|---|---|
| | | | 10 working days | | 20 working days | |
| **Ethnicity** | **N** | **N** | **N** | **%** | **N** | **%** |
| Māori | 19 | 12 | 10 | 83.3 | 11 | 91.7 |
| Pacific | 7 | 3 | 1 | 33.3 | 2 | 66.7 |
| Asian | 7 | 5 | 4 | 80.0 | 4 | 80.0 |
| European/Other | 47 | 22 | 12 | 54.5 | 16 | 72.7 |
| **Total** | **80** | **42** | **27** | **64.3** | **33** | **78.6** |

**Figure 57 – Percentage of women with a high grade cytology (no suspicion of invasive disease) with a colposcopy visit within 20 working days, by ethnicity**

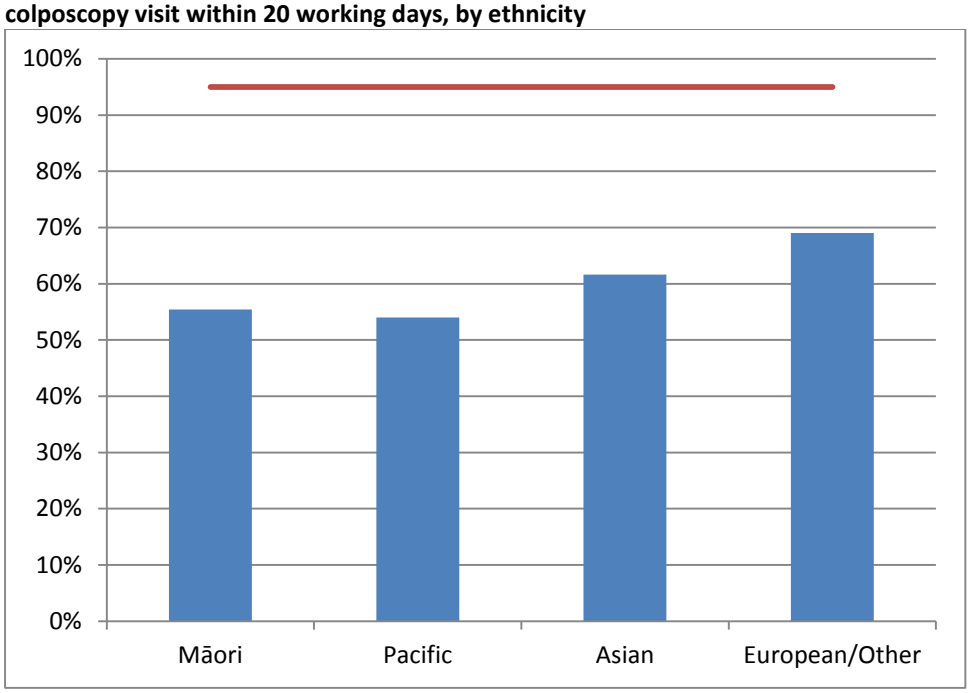
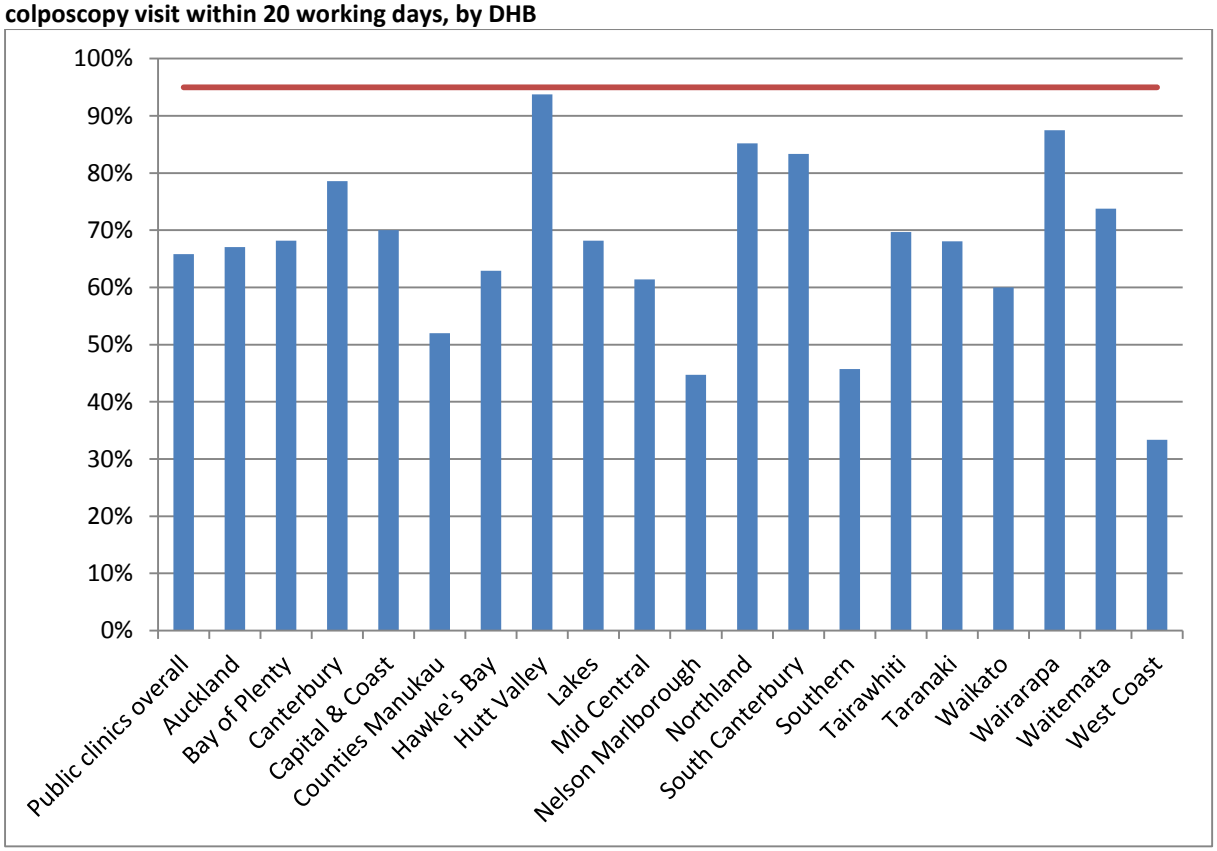



**Figure 58 – Percentage of women with a high grade cytology (no suspicion of invasive disease) with a colposcopy visit within 20 working days, by DHB**



## Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

**Definition**

This indicator measures performance against Standard 602. It is still under development. One of the data items required to report against Standard 602 (appointment date) is a Colposcopy Policies and Standards 2013 data item; however it is not yet available from all DHBs, because some are still transitioning to reporting using 2013 standards. Therefore this indicator relies on a proxy, the colposcopy visit date and is not a direct measure against directly comparable to the Standard.

It relates to the timeliness of colposcopic assessment of women with either persistent low grade cytology or a low grade cytology and concurrent positive hrHPV test.

Women were included in this measure if they had a cytology sample collected in the period 1 July – 31 December 2013 where the results was low grade (ASC-US or LSIL), and either a positive hrHPV test (within four weeks of the cytology result) or a previous low grade cytology result (within the previous five years) .

Referrals and colposcopy visits for these women were retrieved from the NCSP Register. Referrals were retrieved where the date on which the referral was accepted occurred after the date the cytology sample was collected. Colposcopy visits recorded on the NCSP Register were retrieved if they occurred after the cytology test and no later than the end of the current monitoring period (31 December 2014). In addition to explicit colposcopy visit records, histology samples in the same timeframe were used as a proxy for a colposcopy visit, to supplement colposcopy visit data.

Results are reported by ethnicity and DHB. For women who attended colposcopy, DHB is assigned on the basis of the DHB of the colposcopy facility where she attended for colposcopy (or where the histology sample was collected if a visit is not explicitly recorded). If there are multiple referrals for the same woman to that DHB, the date of the first accepted referral following the cytology sample is used.

For women who did not attend colposcopy prior to the end of the current monitoring period, DHB is assigned based on the DHB of the facility which accepted the referral for that woman. If there were multiple referrals for the same woman which occurred after the cytology sample, the most recently accepted referral within the timeframe was used.

For women who neither attended colposcopy nor had an accepted referral with any DHB, DHB is assigned on the basis of the geographic region of health facility where their low grade cytology sample was collected.

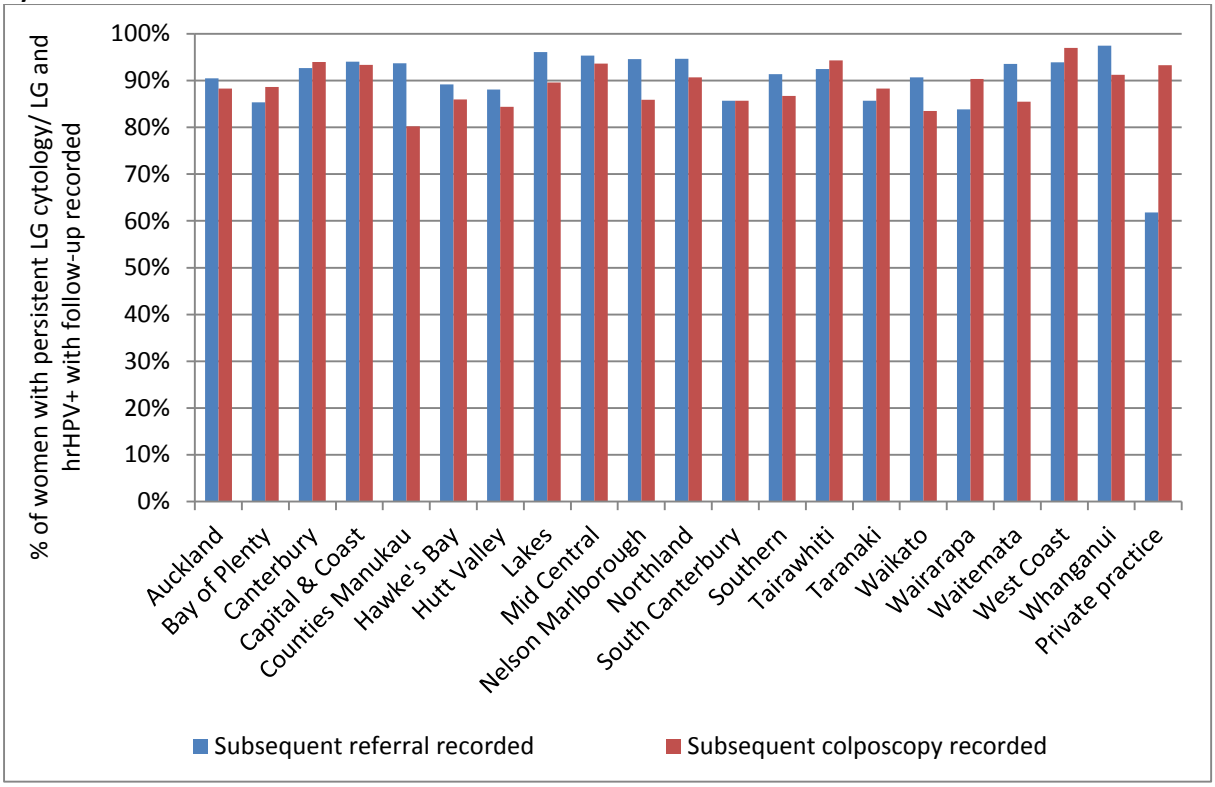
Since cytology samples were collected in the six months prior to the current reporting period, this allows a follow-up period of at least six months for all women (and up to 12 months for some women) where a woman can attend colposcopy and be assigned to a DHB, or alternately have a referral accepted by a DHB.

At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled

| | |
|---|---|
| | colposcopic appointment is not yet available in the NCSP Register. In the interim, it reports on the number and percentage of women for whom a subsequent referral and/ or a colposcopy visit are recorded, and describes the time between cytology report, referral and colposcopy visit. The time between two events is characterised in this report by the median time, and the interquartile range (IQR). These can be interpreted as follows: among women for whom colposcopy (or histology) is recorded, half are seen by the median time; 25% are seen within the time described by the lower end of the IQR and 75% within the time described by the upper end of the IQR. |
| **Target** | 95% of women who have persistent low-grade abnormalities or a low-grade abnormality and positive HPV test, must receive a date for a colposcopy appointment within a period that does not exceed 26 weeks of the colposcopy unit accepting the referral from the smear taker. |
| **Current situation** | At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register.<br><br>There were 4,502 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in the period 1 January – 30 June 2014. Subsequent accepted referrals are recorded for 3,884 (86.3%) of these women, and subsequent colposcopy for 3,997 (88.8%) of these women. Among women with a referral recorded on the NCSP Register, the median time between the cytology report date and the date the referral was accepted was six days (interquartile range (IQR): 3 - 14 days). Among women with both a referral and a colposcopy visit recorded on the NCSP Register, the median time between an accepted referral and the first attendance for colposcopy was 116 days (IQR: 43 – 167 days). Considering all women with persistent low grade cytology or low grade cytology and a positive hrHPV test, including those without a referral recorded on the NCSP Register, the median time between the cytology report and the first colposcopy visit was 124 days (IQR: 43 – 167 days).<br><br>The proportion of women for whom a subsequent referral and colposcopy visit are recorded are shown by DHB in Figure 59, and by ethnicity in Figure 60. The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 83.9% (Wairarapa) to 97.5% (Whanganui) (Figure 59). The proportion of women with a subsequent colposcopy visit recorded on the NCSP Register ranged from 80.2% (Counties Manukau) to 97.0% (West Coast)(Figure 59). The median time between the cytology result and a referral being accepted by a colposcopy clinic was less than two weeks in all 20 DHBs, and ranged from 3.5 days (Wairarapa) to 11 days (Lakes) (Table 60). The median time between the referral being accepted and the woman attending for colposcopy ranged from 62 days (Canterbury) to 233 days (Hawke's Bay) (Figure 61, Table 60).<br><br>The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 84.5% for European/Other women to 94.7% for Pacific women (Figure 60). The proportion of women with a subsequent |

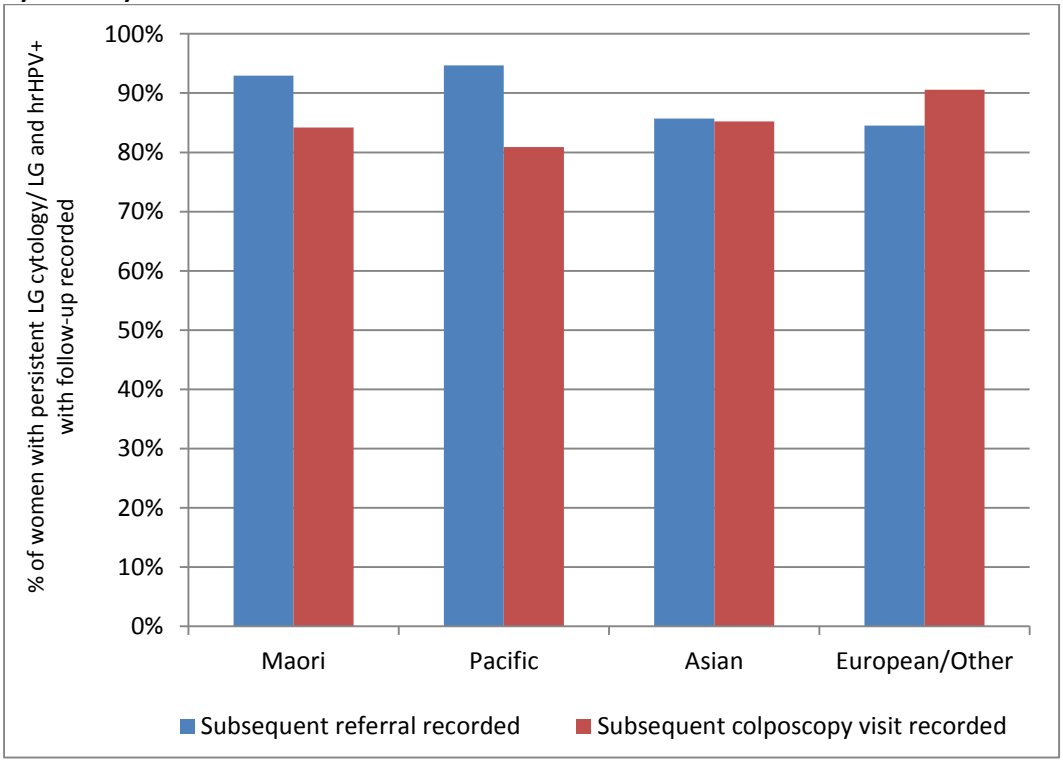
| | |
|---|---|
| | colposcopy visit recorded on the NCSP Register ranged from 80.9% (Pacific women) to 90.6% (European/Other women)(Figure 60). The median time between the cytology result and a referral being accepted by a colposcopy clinic was around one week (range six to seven days) for all groups (Table 61). The median time between the referral being accepted and the woman attending for colposcopy ranged from 110 days (European/ Other women) to 159.5 days (Pacific women)(Figure 62, Table 61). |
| **Trends** | The definitions used in this indicator have changed since the previous report, and so trends are not reported because the results are not directly comparable. For example, the current report additionally uses histology records on the NCSP Register to ascertain whether women with persistent low grade abnormalities/ low grade abnormalities in conjunction with a positive hrHPV test have attended for colposcopy, to supplement colposcopy visit records. |
| **Comments** | This indicator is still under development, and the results are not directly comparable to the target, as the date of the first colposcopy appointment scheduled is not yet available on the NCSP Register. In the interim, this indicator is a descriptive measure of how many women have a referral and/ or a colposcopy visit recorded on the NCSP Register, and of the time taken between cytology report, referral and first colposcopy visit.<br><br>Referrals or a colposcopy visit recorded are included if they occurred after the date the cytology sample was collected, and prior to the time of the data extract from the NCSP Register (March 2015). Thus the follow-up period for individual women varies from almost nine to almost 15 months. Missing colposcopy data from the latter part of 2014 for Counties Manukau, Northland and Waitemata may lead to an underestimate of the number of women who had attended colposcopy in these DHBs, and to an underestimate in the median time between cytology report or referral to the colposcopy visit. This may be mitigated by the use of histology records as an additional proxy for colposcopy visits, however this would not detect colposcopy visits where a biopsy sample was not taken.<br><br>It is evident that referrals are incompletely recorded on the NCSP Register, as some women have a record of a colposcopy visit, but no record of an accepted referral. |

**Figure 59 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by DHB**



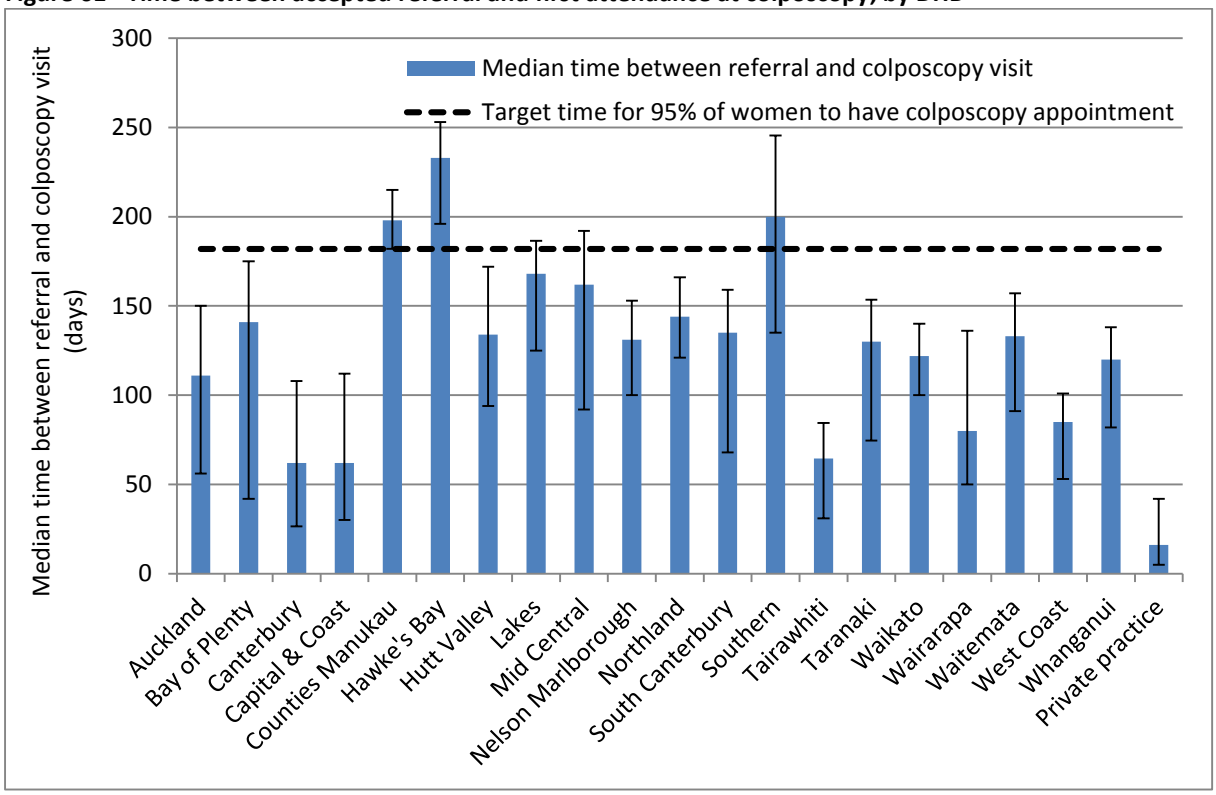

* Follow-up recorded on NCSP Register, at the time of data download. Colposcopies include both women with and women without a referral recorded.

**Figure 60 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by ethnicity**



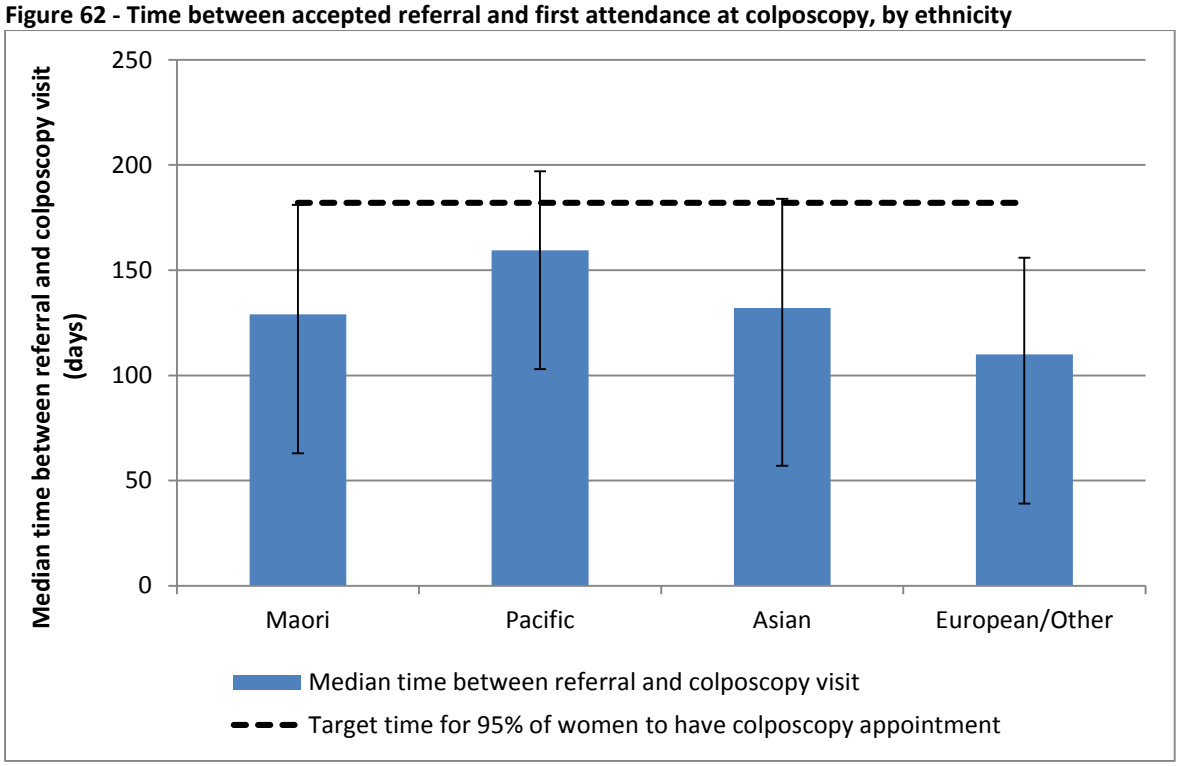

* Follow-up recorded on NCSP Register, at the time of data download. Colposcopies include both women with and women without a referral recorded.

**Figure 61 - Time between accepted referral and first attendance at colposcopy, by DHB**




Bars represent the interquartile range for time between accepted referral and first attendance at colposcopy among women with a referral recorded. Dotted line represents the target time for the first colposcopy appointment ie 26 weeks (182 days; target 95% women to have colposcopy appointment within 26 weeks of referral).

**Figure 62 - Time between accepted referral and first attendance at colposcopy, by ethnicity**




Bars represent the interquartile range for time between accepted referral and first attendance at colposcopy among women with a referral recorded. Dotted line represents the target time for the first colposcopy appointment ie 26 weeks (182 days; target 95% women to have colposcopy appointment within 26 weeks of referral.

## Indicator 7.3 – Adequacy of documenting colposcopy assessment

**Definition**

This indicator measures performance against Standard 603.

The proportion of colposcopies which occurred within the monitoring period with complete reporting of

- visibility of the squamo-columnar junction
- presence or absence of a visible lesion
- colposcopic opinion regarding the nature of the abnormality
- recommended management and follow-up
- timeframe recommended for follow-up
- all of the above items completed

Results are reported by DHB, based on the DHB of the facility where colposcopy was performed.

**Target**

100% of medical notes will accurately record colposcopic findings including:

i) visibility of the squamo-columnar junction

ii) presence or absence of a visible lesion

iii) visibility of the limits of lesion

iv) colposcopic opinion regarding the nature of the abnormality and the requirement for treatment

v) recommended management and follow-up

vi) timeframe recommended for follow-up.

Items i), ii) and first of the items in iv) can be assessed using data in the NCSP Register, and are reported on below. Item iii) and second half of item iv) cannot be assessed using data from the NCSP-R as the colposcopy data reported to the Register in the monitoring period is against the 2008 Standards (not the 2013 Standards) and therefore does not include this information.

When calculating the completeness of recording of the colposcopic opinion regarding the nature of the abnormality, this was restricted to those colposcopy visits where the presence of a lesion was either noted (colposcopic appearance recorded as abnormal), or could not be ruled out (colposcopic appearance recorded as inconclusive).

When calculating the overall completeness of all items, colposcopic opinion regarding the nature of the abnormality was only required where colposcopic appearance was recorded as either abnormal or inconclusive.

**Current Situation**

There were 12,763 colposcopy visits within the current monitoring period recorded on the NCSP Register. Documentation relating to these visits was analysed (Table 62).

Nationally, the visibility of the squamocolumnar junction was documented for 95.1% of visits; the presence or absence of a lesion was documented for 100.0% of visits; an opinion regarding the lesion grade was documented for 92.2% of visits where the presence of a lesion could not be ruled out. Additionally,the type of follow-up was documented for 98.6% of visits and the timeframe for follow-up was documented for 97.8% of visits. All of these items (where relevant) were documented for 89.1% of visits. The colposcopic appearance was reported to be abnormal in 55.1% of colpscopies, and inconclusive in 4.7% of colposcopies (Table 63).

Documentation varied by DHB, as shown in Figure 63 and Table 62. Documentation of visibility of the squamocolumnar junction, varied from 83.0% (Hawke's Bay) to 100.0% (Counties Manukau). In all DHBs, all colposcopy reports documented the presence or absence of a lesion. Recording of the opinion regarding the abnormality grade (which was only assessed here if colposcopic appearance was recorded as abnormal or inconclusive), ranged from 79.9% (Whanganui) to 98.2% (Counties Manukau). Recording of the recommended type of follow-up ranged from 93.9% (Southern) to 100% (Capital & Coast, Hutt Valley, Nelson Marlborough, Northland, South Canterbury, Tairawhiti and Wairarapa) and recording of the recommended timeframe for follow-up ranged from 93.7% (Southern) to 100% (Bay of Plenty, Nelson Marlborough, Northland, South Canterbury, Tairawhiti and Wairarapa). Overall completion rates ranged from 72.5% (Hawke's Bay) to 98.4% (Counties Manukau) (Figure 64, Table 63). Abnormal colposcopic appearance ranged from 40.8% of colposcopies (Northland) to 72.8% of colposcopies (Hutt Valley). Inconclusive colposcopic appearance ranged from 1.0% of colposcopies (Capital & Coast) to 12.9% of colposcopies (Whanganui) (Table 63).

Colposcopies performed in private practice accounted for 12.8% of all colposcopies recorded on the NCSP Register in New Zealand in the current monitoring period. The percentage of colposcopies where items were completed was similar in private practice and public clinics overall for presence or absence of a lesion (100% in both private and public) and the type of recommended follow-up (98.7% private practice; 98.6% public clinics overall). Recording of the visibility of the squamocolumnar junction was somewhat higher in private practice (97.1%) compared to public clinics overall (94.9%). Conversely recording of both opinion regarding the abnormality grade (only assessed if colposcopic appearance was recorded as abnormal or inconclusive) (91.2% private practice; 92.3% public clinics overall) and recording of the recommended timeframe (94.5% private practice; 98.2% public clinics) were somewhat lower in private practice compared to public clinics overall. Overall completion was also lower in private practice (87.2%) compared to public clinics overall (89.4%) (Table 62). Abnormal colposcopic appearance was reported somewhat less often in private practice (53.9%) compared to in public clinics (55.3%), while inconclusive colposcopic appearance was reported somewhat more often in

private practice (5.2%) than in public clinics (4.6%) (Table 63).

**Trends**

Documentation for comparable colposcopy visit items has decreased somewhat compared to that in the previous reporting period, where there had also been a drop. In this report, visibility of the squamocolumnar junction was documented for 95.1% of visits, compared to 96.0% in the previous report. The presence or absence of a lesion was documented for all visits in both this and the previous report. An opinion regarding the lesion grade was documented for 92.3% of visits where the presence of a lesion could not be ruled out in the current report, compared to 91.7% in the previous report. Recording of recommended follow-up type was documented for 98.1% of visits, the same as in the previous report, and the recommended timeframe for follow-up was recorded for 97.5% visits, compared to 97.4% in the previous report. All items (where relevant) were documented for 89.4% of visits in the current report, compared to 89.8% in the previous report. Longer term trends in the completion of all required fields are shown in Figure 64. Note, however, that two additional items which must be included in order for all items to have been reported on (recommended type and timeframe for follow-up) were added from Report 38 (1 July 2012), and so this measure is not directly comparable with that in reports prior to Report 38.

This broad trend was mirrored across most DHBs, although documentation completion did increase in some cases. Recording of the visibility of the squamocolumnar junction increased in Bay of Plenty, Hutt Valley, Lakes, Tairawhiti, Waikato, and West Coast. Recording of an opinion regarding the lesion grade (where relevant) increased in Bay of Plenty, Hutt Valley, Nelson Marlborough, South Canterbury, Tairawhiti, Wairarapa and West Coast. Completion of all items increased in Bay of Plenty, Counties Manuakau, Hutt Valley, Nelson Marlborough, Southern, Taranaki and West Coast.

The broad differences between private clinics and public clinics overall are also very similar to those observed in the previous report.

The number of colposcopies recorded on the NCSP Register decreased slightly in the current reporting period (by 9.6%) but larger changes were seen in some DHBs, for example larger decreases in Counties Manukau (55%), Canterbury (17%), Waitemata (%), Waikato (352%) and Waitemata (16%); and larger increases in Bay of Plenty (31%), and Capital & Coast (27%). It is possible that these may changes may represent more or less complete reporting of colposcopies rather than a true change in the number of colposcopies performed, but it is not possible to ascertain this directly from the data. In particular, the decreases at Counties Manukau, Northland and Waitemata are most likely due to incomplete data because these three DHBs were unable to transmit colposcopy data to the NCSP Register for part of the current monitoring period. Trends in the number of colposcopies recorded on the NCSP Register are shown in Figure 65.

**Comments**

This measure is only able to assess adequacy of documentation where colposcopy visits have been entered onto the NCSP Register. Therefore, it cannot provide an absolute estimate of adequacy if these data are incomplete on the NCSP Register. The data used in this analysis was extracted from the NCSP Register in March 2015.

Missing colposcopy data from the latter part of 2014 for Counties Manukau, Northland and Waitemata has likely led to an underestimate of the number of colposcopies in these DHBs during the monitoring period, however it is not expected to have affected the results for the completeness of colposcopy data reported.

Some items required by the standard, such as the recording of recommended follow-up type and timeframe, cannot necessarily be completed at the time of the colposcopy visit – for example because they will depend on results of histology tests or other reviews. For DHBs who electronically report data to the NCSP Register, the completeness of these fields is likely to lag behind that of other fields, because the colposcopy visit data will be loaded onto the NCSP Register soon after the visit and before this information is available. However, in all DHBs, these are not the fields with the lowest completion rates, and so these are not driving the results for completion of all required fields. In every DHB, the field with the lowest completion rate is either visibility of the squamocolumnar junction or predicted abnormality grade (only required where the presence of a lesion could not be ruled out). It is possible that the low completion rate for predicted abnormality grade could because some clinics are incorrectly interpreting the requirement to document a predicted abnormality grade (which can be documented at the time of colposcopy) as a requirement to document the diagnosed abnormality grade, after histology results are available.

Some items in the draft standard are not included in the colposcopy visit form or on the NCSP Register, in particular the visibility of the limits of the lesion, the biopsy site, and an explicit colposcopic opinion regarding the need for treatment (although a recommended follow-up timeframe is recorded, and whether follow-up is recommended with a colposcopist, oncology services, or smear taker). It is also not possible to determine the reason for the visit from the colposcopy visit form, for example if this is an first visit or a follow-up visit; or whether it was prompted by a high grade cytology result, a low grade cytology result which is either persistent or accompanied by a positive high risk HPV test result, a request for referral regardless of cytology results, or another reason.

An updated colposcopy standard was published in July 2013 (available at https://www.nsu.govt.nz/health-professionals/national-cervical-screening-programme/policies-and-standards). When the additional data fields required to report on the updated standard is available from the NCSP Register, it will be included in those monitoring reports.

**Figure 63 – Completion of colposcopic assessment fields, by DHB**

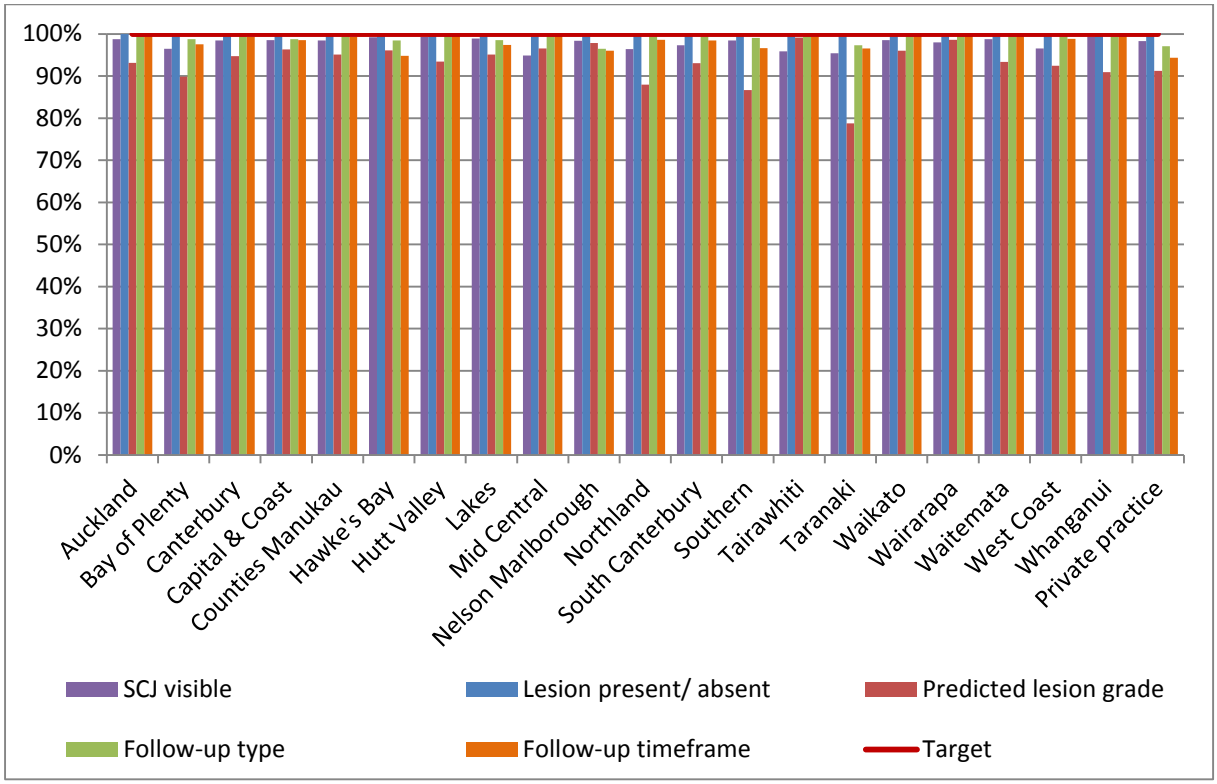
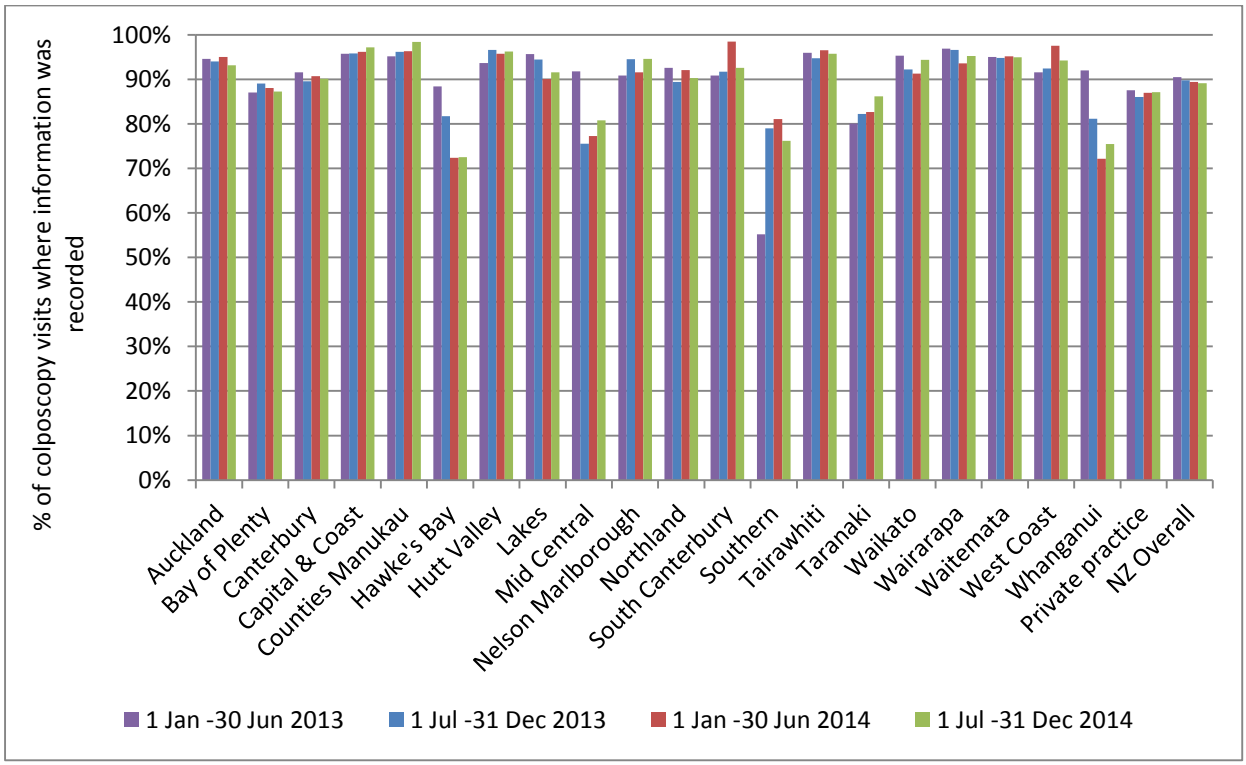
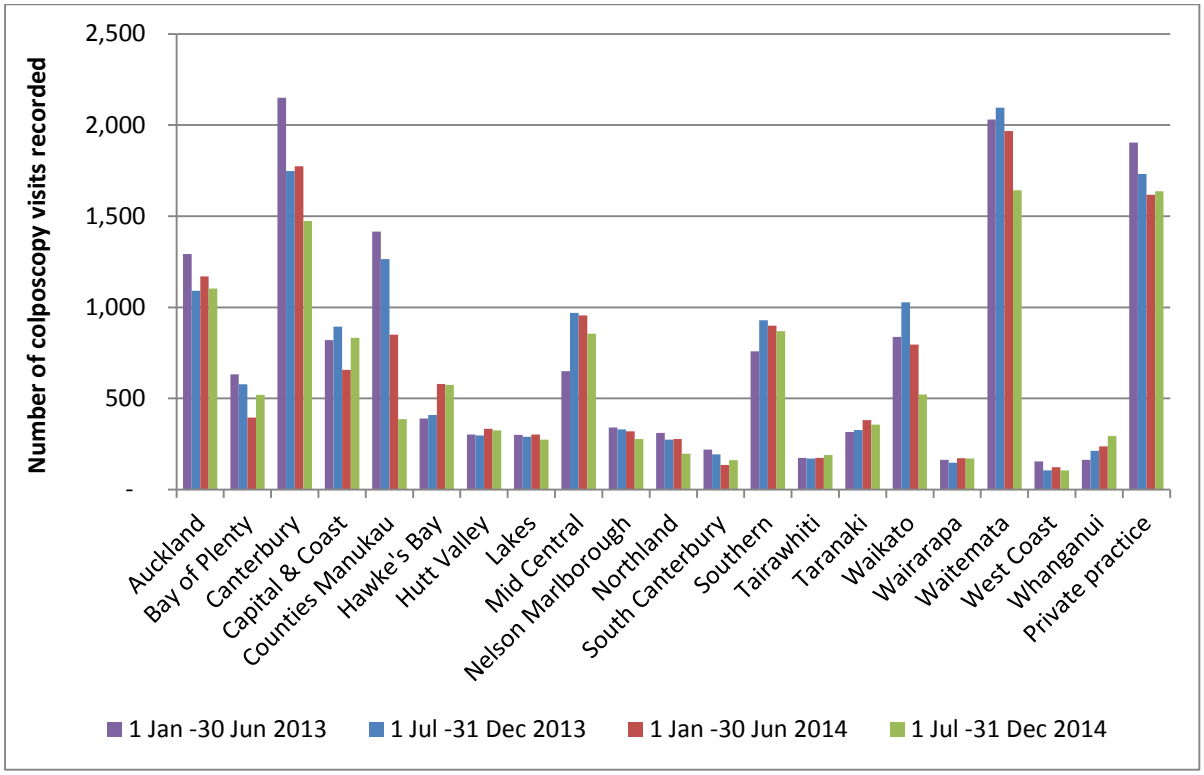



**Figure 64 – Trends in the completion of all required colposcopic assessment fields, by DHB**




*Note: Definition of 'all fields completed' changed from 1 July 2012 as two additional fields were required (follow-up type and timeframe)*

**Figure 65 – Trends in the number of colposcopies recorded on the NCSP Register, by DHB**




*Drops in Counties Manukau, Northland and Waitemata are likely because these three DHBs were not able to report colposcopy data for part of the current monitoring period (Counties Manukau no colposcopy data after October 2014; Northland and Waitemata no data after late November 2014 in both cases)*

## Indicator 7.4 – Timeliness and appropriateness of treatment

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|---|---|
| **Definition** | This indicator measures performance against Standard 605.<br><br>The proportion of women with histological high grade squamous intraepithelial lesions (HSIL) who are treated within eight weeks of histological confirmation. Histological HSIL is defined as CIN2, CIN3, CIN2/3 or HSIL not otherwise specified (SNOMED codes M67017, M74007, M74008, M80102 and M80702).<br><br>Histological LSIL is not routinely treated, as treatment is not recommended for women with low grade abnormalities in the 2013 Colposcopy Standards (consistent with 2008 NCSP *Guidelines for Cervical Screening in New Zealand*). The 2013 Colposcopy Standard recommends that the number of women who are treated with low-grade lesions (less than CIN2 on histology) be minimised. Therefore treatment of LSIL is included in this report for descriptive purposes and to examine the appropriateness (not timeliness) of treatment. This report describes the number and proportion of women with histological low grade squamous intraepithelial lesions (LSIL) who are treated. To ensure consistency in the follow-up time examined for each woman and in order to allow timely reporting, treatments are included if they occur within 26 weeks of histological confirmation. Histological LSIL is defined as CIN1 or CIN not otherwise specified (SNOMED codes M67015, M67016, M74000 and M74006).<br><br>Women are included in this indicator if they have a histology sample where the result is HSIL or LSIL (as previously defined, above), and the sample was collected in the six-month period immediately prior to the current reporting period (ie in the period 1 January – 30 June 2014). HSIL results must have been reported at least 8 weeks prior to the end of the current reporting period, and LSIL results must have been reported at least 26 weeks prior to the end of the current reporting period, in order to allow sufficient follow-up time for this indicator.<br><br>Treatment was defined as a colposcopy visit where there was a record of electrosurgical excision, laser ablation or excision, cold knife cone biopsy, or total hysterectomy. Colposcopy visits involving punch biopsies only are not included.<br><br>DHB is assigned based on the clinic where the histology sample was collected. |
| **Target** | 90% or more of women with HSIL are treated within 8 weeks of histological confirmation of CIN2/3<br><br>There is no explicit target relating to low grade lesions, but the standard recommends that the number of women who are treated with low-grade lesions (less than CIN2 on histology) be minimised. |
| **Current Situation** | There were 2,508 women with a histological diagnosis of CIN2/3 (associated with histology samples collected in the previous six months, and reported at least eight weeks prior to 31 December 2014). Of these women, 1,586 women (63.2%) were treated within eight weeks of HSIL being histologically confirmed. The proportion of women treated within eight weeks varied widely by DHB, from 37.8% (Bay of Plenty) to 89.5% (Lakes). No DHB met the target of 90% of women treated within eight weeks of histological confirmation of HSIL (Figure 66, Table 21). |

There were 2,027 women with a histological diagnosis of LSIL (associated with histology samples collected in the previous six months, and reported at least 26 weeks prior to 31 December 2014). Treatment for histological LSIL is not routinely recommended in the 2013 Colposcopy Standards or the 2008 NCSP *Guidelines for Cervical Screening in New Zealand*[16], and so timeliness of treatment is not examined or compared to a target for LSIL. However, for descriptive purposes and to examine appropriateness of treatment, follow-up records were retrieved for the 2,027 women with histological LSIL. Of these women, 124 women (6.1%) were subsequently treated (within 26 weeks of LSIL being histologically confirmed) and had no additional record of high grade histology in the six months preceding their treatment. The proportion of women subsequently treated varied widely by DHB, from no women (Tairawhiti, West Coast) to 25.0% (Northland) (Table 21). The DHB where the largest number of women were treated was Canterbury (20 women).

**Trends**

Nationally, the proportion of women with histological HSIL who are treated within eight weeks of histological confirmation has increased, from 58.9% in the previous reporting period, to 63.2% in the current reporting period.

The proportion of women with histological LSIL who were subsequently treated (within 26 weeks of LSIL being histologically confirmed) is similar to that in the current report (6.1%) and the previous report (6.0%).

The proportion of women with histological HSIL who are treated within eight weeks increased in eleven DHBs, but decreased by more than five percentage points in Canterbury, Hutt Valley, Mid Central and West Coast.

**Comments**

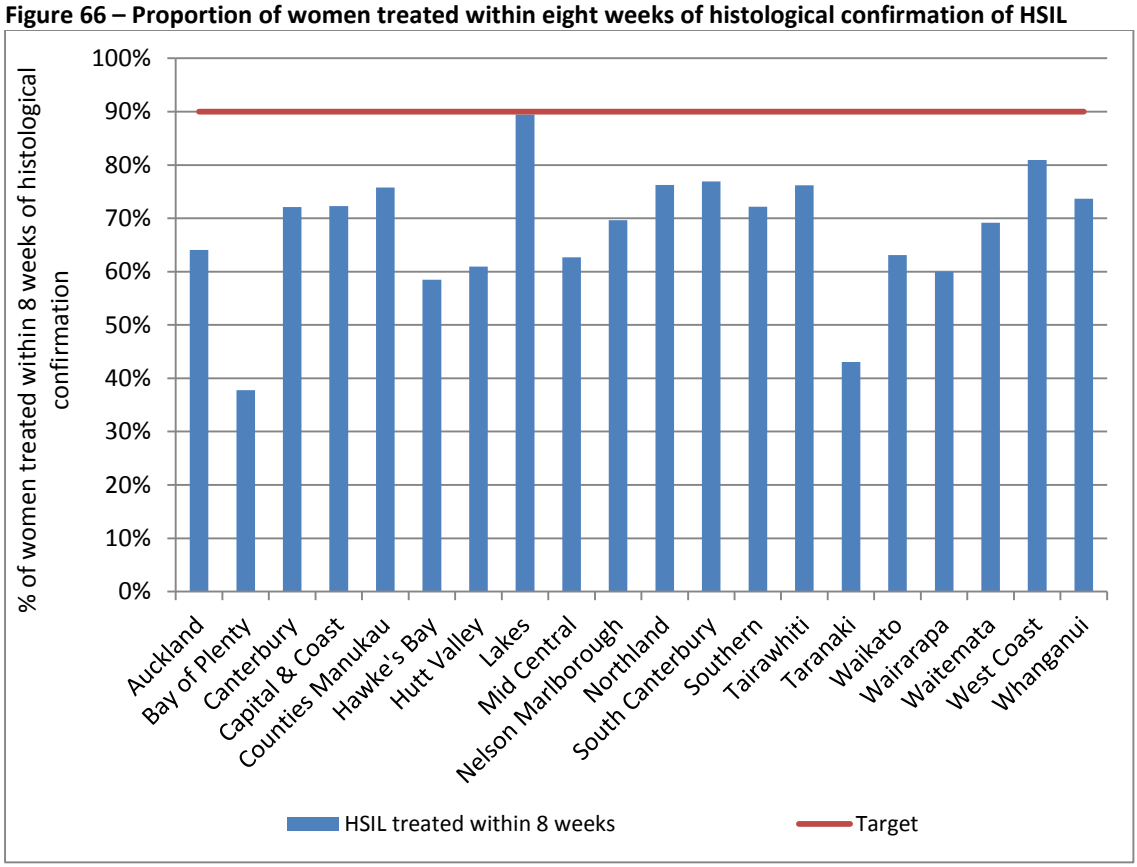
Whether or not treatment has occurred is determined for this indicator via colposcopy data in the NCSP Register. Colposcopy visit details are still largely recorded on colposcopy visit forms, and records of these forms are uploaded onto the NCSP Register. Depsite efforts to improve the quality of colposcopy data, it is most likely that colposcopy data on the NCSP Register is incomplete. If so, there may be cases where treatment occurred, but this has not been recorded on the NCSP Register (data used in this analysis was extracted from the NCSP Register in March 2015). Therefore the results for this indicator may underestimate timeliness of treatment in cases where colposcopy data are incomplete. Similarly, trends may also reflect changes in the completeness of colposcopy data recording treatment within a DHB rather than necessarily true increases or decreases in the proportion of women treated. This incomplete recording of treatment potentially affects the results for treatments for both HSIL and LSIL. In addition, missing colposcopy data from the latter part of 2014 for Counties Manukau (after October), Northland and Waitemata (after November) may also have affected the results for this reporting period. The effect on timeliness of treatment of HSIL is likely to be small, however, as the HSIL had to be histologically-confirmed in the previous six months and so the eight-week target period would have elapsed by the end of August in virtually all cases. However, it is possible the number of women treated for LSIL in these DHBs may have been underestimated.

DHB is assigned based on the clinic where the original sample confirming HSIL (or

LSIL) histology was collected. In some cases, treatment may have occurred in a different clinic to that where the original histology sample was collected. Facilities not explicitly defined as DHB (public) clinics are aggregated together as private practice. It is possible that women whose original HSIL (or LSIL) histology sample was collected outside a DHB clinic may in practice have been treated at a DHB clinic (or conversely a woman whose histology sample was collected at a DHB clinic may have been treated outside a DHB clinic). Note, however, that timeliness is assessed here by including any treatment visits, regardless of where they occurred.

The updated National Cervical Screening Programme Policies and Standards: Section 6 – Providing a Colposcopy Service requires that in future, colposcopy clinics will provide information about the "decision to treat date". At present, the "decision to treat date" is not available on the NCSP Register. When this "decision to treat date" information is available, it will be used to calculate timeliness of treatment.

**Figure 66 – Proportion of women treated within eight weeks of histological confirmation of HSIL**




*Date that histology results were reported to requesting clinician is used as the date of histological confirmation. DHB is assigned based on the clinic where the original HSIL histology sample was collected, however treatments will be included regardless of where they occurred.*

**Table 21 – Timeliness and appropriateness of treatment, by DHB**

| DHB | Women with CIN2/3 | Treated within 8 weeks | | Women with histological LSIL* | Women subsequently treated† | |
|---|---|---|---|---|---|---|
| | N | N | % | N | N | % |
| *Public clinics (overall)* | *2,133* | *1,436* | *67.3* | *1,557* | *112* | *7.2* |
| Auckland | 167 | 107 | 64.1 | 159 | 12 | 7.5 |
| Bay of Plenty | 98 | 37 | 37.8 | 97 | 1 | 1.0 |
| Canterbury | 294 | 212 | 72.1 | 393 | 20 | 5.1 |
| Capital & Coast | 101 | 73 | 72.3 | 72 | 11 | 15.3 |
| Counties Manukau | 194 | 147 | 75.8 | 213 | 18 | 8.5 |
| Hawke's Bay | 94 | 55 | 58.5 | 29 | 2 | 6.9 |
| Hutt Valley | 64 | 39 | 60.9 | 52 | 4 | 7.7 |
| Lakes | 57 | 51 | 89.5 | 44 | 8 | 18.2 |
| Mid Central | 118 | 74 | 62.7 | 65 | 8 | 12.3 |
| Nelson Marlborough | 56 | 39 | 69.6 | 25 | 1 | 4.0 |
| Northland | 59 | 45 | 76.3 | 4 | 1 | 25.0 |
| South Canterbury | 13 | 10 | 76.9 | 6 | 1 | 16.7 |
| Southern | 187 | 135 | 72.2 | 47 | 2 | 4.3 |
| Tairawhiti | 42 | 32 | 76.2 | 16 | - | - |
| Taranaki | 65 | 28 | 43.1 | 47 | 4 | 8.5 |
| Waikato | 195 | 123 | 63.1 | 66 | 2 | 3.0 |
| Wairarapa | 30 | 18 | 60.0 | 18 | 2 | 11.1 |
| Waitemata | 240 | 166 | 69.2 | 151 | 14 | 9.3 |
| West Coast | 21 | 17 | 81.0 | 32 | - | - |
| Whanganui | 38 | 28 | 73.7 | 21 | 1 | 4.8 |
| *Private Practice* | *375* | *150* | *40.0* | *470* | *12* | *2.6* |
| **Total** | **2,508** | **1,586** | **63.2** | **2,027** | **124** | **6.1** |

** CIN1, CIN not otherwise specified (SNOMED codes M67015, M67016, M74000 and M74006). CIN1 is not routinely treated (consistent with 2008 NCSP Guidelines for Cervical Screening in New Zealand), so these results are not compared to a target. They appear here for descriptive purposes and to show where the women with histologically confirmed were treated. † Includes women treated within 26 weeks of LSIL histology. Date that histology results were reported to requesting clinician is used as the date of histological confirmation. DHB is assigned based on the clinic where the original HSIL histology sample was collected, however treatments will be included regardless of where they occurred.*

## Indicator 7.5 – Timely discharging of women after treatment

**Definition**

This indicator measures performance against Standard 608.

The proportion of women treated for a high grade lesion who:

- receive colposcopy within the period up to nine months after their treatment
- receive colposcopy and cytology within the period up to nine months after their treatment
- are discharged appropriately within 12 months of their treatment

Treatment was defined as a colposcopy visit where there was a record of electrosurgical excision, laser ablation or excision, cold knife cone biopsy, or total hysterectomy. Colposcopy visits involving punch biopsies only are not included. Treatment was included if it was for a high grade lesion (CIN2, CIN3, AIS or glandular dysplasia), based on histology results for any histology specimen collected concurrent with or up to six months prior to treatment.

To allow for 12 months of follow-up information to be available, this indicator reports on women treated in the six-month period ending 12 months prior to the end of current reporting period. Records for each woman treated in the six-month period ending 12 months prior to the end of current reporting period were retrieved from the NCSP Register. Among these treated women, the number of women with a colposcopy visit, and with both a colposcopy visit and a cytology sample was calculated. Follow-up colposcopy visits were not restricted to only those within the same DHB as where initial treatment occurred; rather any colposcopy visit recorded on the NCSP Register for that woman was included. Follow-up visits were retrieved for the period up to nine months after the treatment visit.

Eligibility for discharge is not explicitly defined in the NCSP Colposcopy Standard, so based on advice from the NCSP Advisory Group, women were defined as eligible for discharge if they had a colposcopy visit and cytology test following their treatment, and their cytology result was negative.

Women were defined as having been discharged when their colposcopy report form recommended follow-up by their smear taker / referring practitioner.

Results are reported by DHB, based on the DHB of the facility where the treatment colposcopy was performed. Therefore, for the purpose of this indicator the DHB where treatment occurred was regarded as the DHB responsible for ensuring a treated women was followed up. However, as previously described, the follow-up colposcopy visit need not have occurred within that DHB.

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| **Target** | 90% or more of women treated for CIN 2 or 3 should have a colposcopy and smear within nine months post treatment<br><br>90% or more of women treated for CIN 2 or 3 should be discharged back to the smear-taker as appropriate. |
| **Current Situation** | There were 1,717 women treated for high grade lesions in the six-month period from 1 July – 31 December 2013. These women were followed up for twelve months from the date of their treatment visit.<br><br>***Follow-up post treatment***<br><br>There were 1,251 women (72.9%) with a follow-up colposcopy, and 1,229 women (71.6%) with both a follow-up colposcopy and a cytology sample in the nine month period after their treatment visit.<br><br>Figure 67 shows the percentage of treated women with a record of follow-up colposcopy, and both follow-up colposcopy and a cytology sample, in the period up to nine months post-treatment by DHB. Generally, the number of women with both cytology and colposcopy was very similar to the number of women with at least colposcopy (Table 64). The number of women with colposcopy only and no record of a cytology sample in the timeframe was at most five (Canterbury).<br><br>The percentage of women treated for high grade lesions with a record of colposcopy and cytology within the nine-month period post treatment (71.6%) is below the target value of 90%.<br><br>No DHB met the target of at least 90% of women receiving cytology and colposcopy within nine months post-treatment (Figure 67, Table 64). The percentage of treated women with a record of both follow-up colposcopy and a cytology sample in the period up to nine months post-treatment varied by DHB from 23.8% (Bay of Plenty) to 89.8% (Capital & Coast) (Figure 67, Table 64).<br><br>***Women discharged appropriately***<br><br>In total, 1,220 women (76.9% of those treated) were eligible to be discharged by 12 months after their treatment visit, and 1,074 of these women (88.0%) were discharged within 12 months of treatment (Table 64). Figure 68 shows how these percentages vary by DHB. The percentage of women eligible for discharge who were discharged within 12 months of treatment ranged from 43.8% (South Canterbury) to all eligible women (Wairarapa and West Coast) (Table 64). In some cases, the number of women eligible for discharge was small, so these results should be interpreted with caution (ten or fewer women in West Coast). Thirteen DHBs met the target of discharging 90% of women where appropriate within 12 months (Auckland, Capital & Coast, Counties Manukau, Hawke's Bay, Hutt Valley, Mid Central, Nelson Marlborough, Northland, Southern, Tairawhiti, Waikato, Wairarapa and West Coast).<br><br>In total (that is, without considering whether or not women met the criteria suggested by the NCSP Advisory Group to be eligible for discharge), 1,293 women were discharged within 12 months of being treated for a high grade |

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| | lesion (75.3% of all women treated for a high grade lesion). |
| **Trends** | The proportion of women with follow-up has increased overall (from 71.3% to 72.9% for colposcopy, and from 70.0% to 71.6% for both cytology and colposcopy). The number of DHBs meeting the target of 90%, however, has fallen to zero.<br><br>The proportion of women discharged appropriately to their smear taker by 12 months has slightly decreased overall (from 88.7% to 88.0%), however the number of DHBs meeting the target of 90% has also increased (from ten to thirteen).<br><br>Note that in many DHBs, the numbers of women treated is small, and so results are based on a small number of women (20 women or less recorded as treated on NCSP Register for South Canterbury, Wairarapa and Whanganui). |
| **Comments** | Since this indicator relies on colposcopy data in the NCSP Register, there is the possibility that incomplete reporting of colposcopy visits has led to an underestimate of the number of women with follow-up colposcopy visits and the number discharged in a given time period. The data used in this analysis was extracted from the NCSP Register in March 2015.<br><br>The target that 90% or more of women treated for CIN 2 or 3 should be discharged back to the smear taker as appropriate was assessed in this monitoring report, based on guidance from the NCSP Advisory Group as to when discharge would be appropriate. However it should be noted that neither the 2008 NCSP *Guidelines for Cervical Screening in New Zealand* nor the 2013 Colposcopy Standards themselves provide explicit guidance for when discharge back to the smear taker is appropriate.<br><br>In some circumstances, women may be treated within one DHB, but referred to another DHB for follow-up. This information is not always recorded in the NCSP Register however, and for clarity in this report, women remain assigned to the DHB where their treatment was performed. However, this measure does take into account all follow-up visits which women attend, regardless of the DHB in which they may occur.<br><br>Missing colposcopy data from the latter part of 2014 for Counties Manukau (after October), Northland and Waitemata (after November) may have affected the results for this reporting period. There is unlikely to be an effect on the proportion of women with colposcopy within nine months of their treatment, however, as the treatments occurred in July -December 2013, and so the nine-month period would have elapsed by the end of September at the latest. It is possible, however, that the discharge information for some women in these DHBs was affected, and so the proportion of women discharged appropriately within 12 months of treatment may be an underestimate. In spite of this, both Counties Manukau and Northland met the target. |

**Figure 67 – Percentage of women treated with colposcopy, and both colposcopy and cytology, within nine months post-treatment**

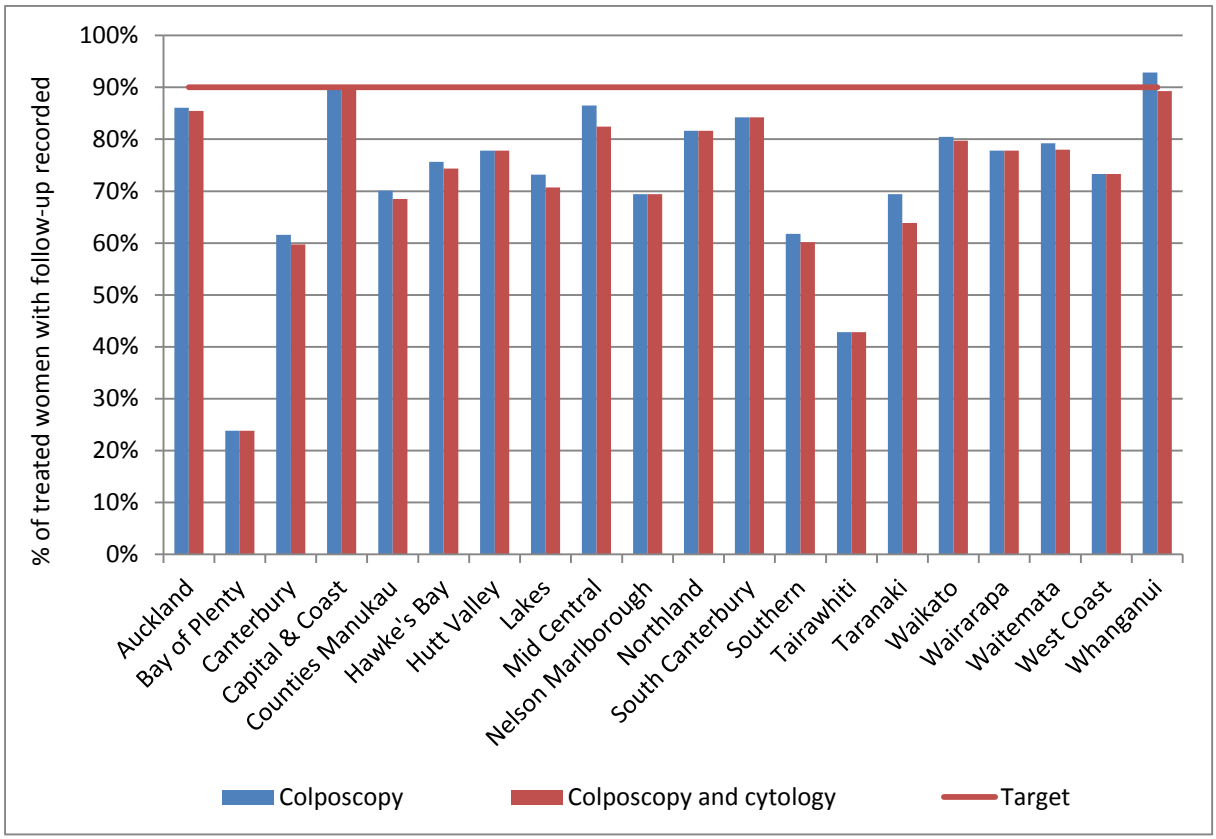
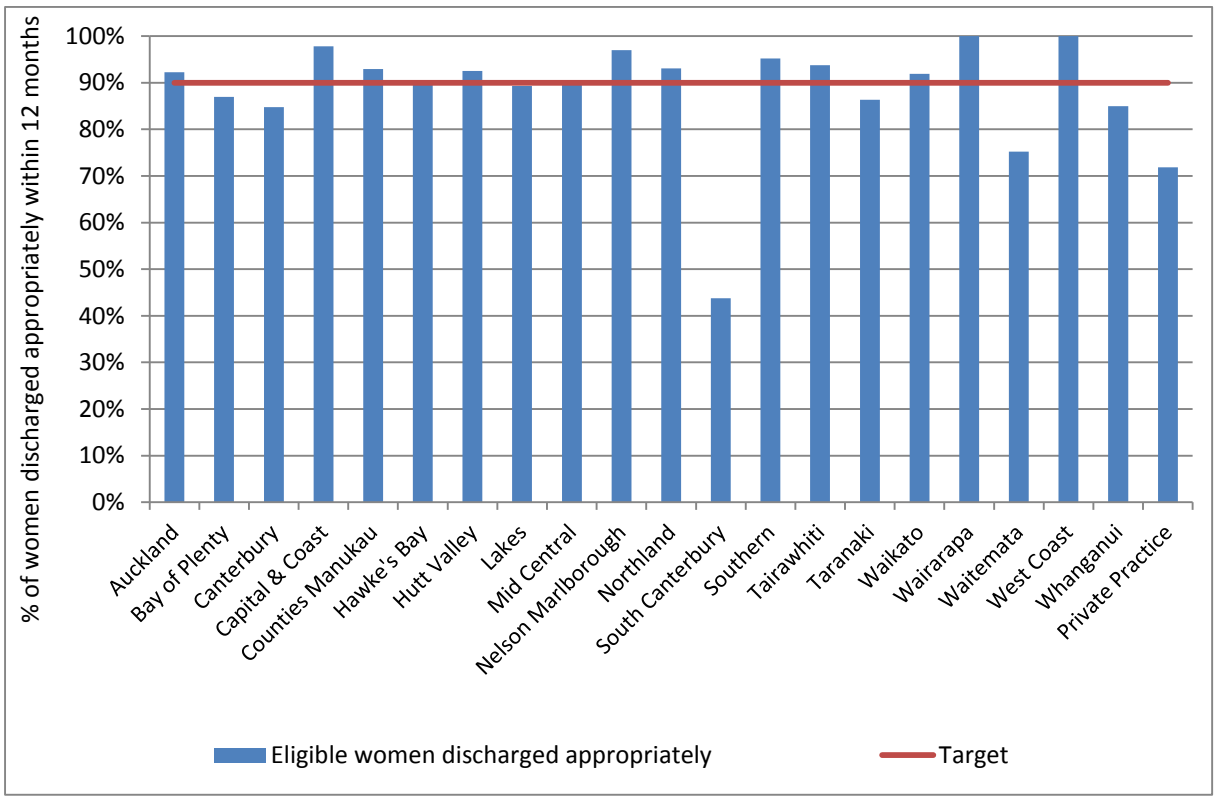



**Figure 68 – Percentage of women discharged appropriately within 12 months of treatment**



## *Indicator 8 – HPV tests*

The indicators report on the use of HPV testing. At present, they incorporate the following indicators:

8.1 Triage of low grade cytology

8.2 HPV test volumes (including purpose for which the test was performed)

8.3 Historical HPV tests for follow-up of women with previous high grade abnormality

Specific monitoring of the other uses of HPV testing is not yet included. These other purposes include:

- Management of women previously treated for CIN
- Management of women with a high grade squamous cytology result in the past followed by negative cytology
- Resolution of discordant cytology, colposcopy and histology

## Indicator 8.1 – Triage of low grade cytology

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|---|---|
| **Definition** | For women with an ASC-US or LSIL (low grade) cytology result relating to a cervical sample taken in the monitoring period, and with no recent abnormal cytology (ie abnormal cytology results relating to specimens taken in the preceding five years), the following are reported on:<br>• The number and proportion of women with a subsequent HPV triage test (by age group, and cytology laboratory)<br>• Women with an invalid HPV test result, as a proportion of those with a subsequent HPV test (by age group, and laboratory which performed the HPV test)<br>• Women with positive HPV triage result, as a proportion of women with a valid HPV test (by age group, and cytology laboratory)<br>• Histological outcomes in women where this information is available within 12 months following a positive HPV triage test<br>Where a woman has two different low grade cytology results, relating to a sample or samples collected on the same date, she is grouped in accordance with the most serious result (ie LSIL).<br>A subsequent HPV triage test is defined as an HPV test where the sample was collected at the same time or after the cytology sample, and where there is a result available (including invalid results).<br>Women whose ASC-US or LSIL cytology test is associated with a recommendation code of R14 (refer regardless of cytology result) are excluded, as they may be attending for cytology due to symptoms.<br>Women who are aged less than 30 years are excluded from this indicator if they have ever had either a high grade squamous cytology result (ASC-H, HSIL) or a high grade squamous histology result (CIN2/3), as they may be having an HPV test in order to follow-up a previous high grade squamous abnormality (cytology or histology, ie historical testing).<br>If a laboratory which performed the cytology refers the HPV test to a different laboratory, measures are based on the laboratory which performed the cytology test.<br>Measures reported by age are based on the age of the women on the date that the cytology sample was collected. |
| **Target** | Targets have not yet been set. |
| **Current Situation** | There were 885 women aged less than 30 years and 1,611 women aged 30 years or more with an ASC-US cytology result relating to a sample collected in the current monitoring period, and who had no abnormal cytology results relating to samples taken in the previous five years. The corresponding figures for LSIL are 2,209 women aged less than 30 years and 1,511 women aged 30 years or more. |

### *HPV triage*

NCSP Guidelines (2008) recommend that women aged 30 years or more who have not had an abnormal cytology report in the previous five years are offered an HPV triage test following ASC-US or LSIL cytology. Among these eligible women, 97.5% of women aged 30 years or more with an ASC-US cytology result, and 96.7% of women aged 30 years or more with an LSIL cytology result are recorded as having a subsequent HPV test (Table 66, Table 67). These proportions ranged 78.9% (LabPLUS) to 99.6% (Diagnostic Medlab Ltd) for ASC-US cytology results and from 88.0% (Medlab Central) to 99.1% (Diagnostic Medlab Ltd) for LSIL cytology results (Figure 69, Table 66, Table 67).

HPV triage is not included in the recommendations for women aged less than 30 years, and accordingly the proportions of women aged less than 30 years with a subsequent HPV test are substantially lower. Subsequent HPV tests are recorded in the NCSP Register for 0.7 of women aged less than 30 years with ASC-US results, and 0.6% of women aged less than 30 years with LSIL results. These proportions ranged from no women (Aotea Pathology Ltd, Pathlab) to 2.5% (Canterbury Health Laboratories) for women with ASC-US results, and from no women (Aotea Pathology Ltd, LabPLUS, Pathlab) to 2.2% (Canterbury Health Laboratories) for women with LSIL results (Figure 70, Table 67).

### *Positive triage tests*

Among women aged 30 years or more with valid HPV triage test results, the proportion who were positive for high risk HPV was 30.5% for women with ASC-US results, and 64.1% for women with LSIL results. These proportions varied by laboratory from 19.9% (Canterbury Health Laboratories) to 45.6% (Aotea Pathology Ltd) for women with ASC-US cytology (Figure 71), and from 59.3% (Diagnostic Medlab Ltd) to 76.1% (Canterbury Health Laboratories) for women with LSIL cytology (Figure 72; excludes LabPLUS due to very small number of samples).

The proportion of women whose HPV triage test was positive also varied by age. HPV positivity generally decreased with increasing age, although in the current reporting period HPV positivity rates for ASC-US cytology were similar across the age groups between 40 and 59 years, and there was less variation in LSIL than in ASC-US (Figure 73, Table 22).

### *Histological outcomes in triage positive women who attended colposcopy*

In order to allow sufficient time for women to have attended colposcopy following a positive triage test, histological outcomes were assessed in women with low grade cytology and a positive HPV triage test in the six-month period one year prior to the current reporting period (ie 1 July – 31 December 2013). In the period 1 July – 31 December 2013, there were 461 women with an ASC-US cytology result and positive HPV triage test, and 933 who had an LSIL cytology result and positive HPV triage test. Among these women, 407 (88.3%) of the women with ASC-US who were triage positive and

845 (90.6%) of the women with LSIL who were triage positive have a record of colposcopy and/or histology within the 12 months following their initial test results. Among the women with a record of colposcopy, 304 (74.7%) and 668 (79.1%) of the women with ASC-US and LSIL respectively have a histology record.

Histological outcomes in these women were initially considered in an analogous manner to Indicator 5.2 – that is, the number of women with CIN 2 or worse histology (CIN2+; also see Appendix D), as a percentage of women who had a histology result available. The percentage of women with histology whose histology result was CIN2+ was 22.7% for ASC-US and 20.5% of LSIL (Table 68, Table 69). These percentages varied by laboratory from 17.2% (Diagnostic Medlab Ltd) to 32.0% (Canterbury Health Laboratories) for ASC-US and from 13.3% (Diagnostic Medlab Ltd) to 29.5% (Southern Community Labs) for LSIL (Figure 74).

We additionally considered histological outcomes as a percentage of women who attended colposcopy (rather than only those with a histology result). The corresponding percentages of women with CIN2+ histology were 17.0% for ASC-US and 16.2% for LSIL (Table 68, Table 69). These percentages varied by laboratory from 11.8% (Southern Community Labs) to 27.6% (Canterbury Health Laboratories) for ASC-US and from 10.3% (Diagnostic Medlab Ltd) to 24.3% (Southern Community Labs) for LSIL (Figure 75).

Histological outcomes within 12 months in women with triage positive test results are shown by age, as a percentage of women with histology recorded (Figure 76), and as a percentage of women with colposcopy recorded (Figure 77). The percentage of women with CIN2+ histology within 12 months broadly decreased with increasing age for LSIL.

**Trends**

***HPV triage***

The proportion of women aged 30 years or more with low grade cytology (and no recent abnormal cytology in the preceding five years) who received a subsequent HPV test is somewhat higher than in the previous report for women with ASC-US results (95.8% in the previous period compared to 97.5% in the current period), and somewhat lower for women with LSIL results (97.7% in the previous period compared to 96.7% in the current period). The proportion of women aged less than 30 years with a subsequent HPV test is somewhat lower than that observed in the previous monitoring period for ASCUS (0.7%, compared to 1.3% in the previous report) but slightly higher for LSIL (0.6% in the current and 0.4% in the previous report).

***Positive triage tests***

The proportion of women aged 30 years or more who test positive for a high risk HPV type is somewhat higher for ASC-US (28.3% in the previous report; 30.5% in the current report), and also for LSIL (60.5% in the previous report; 64.1% in the current report).

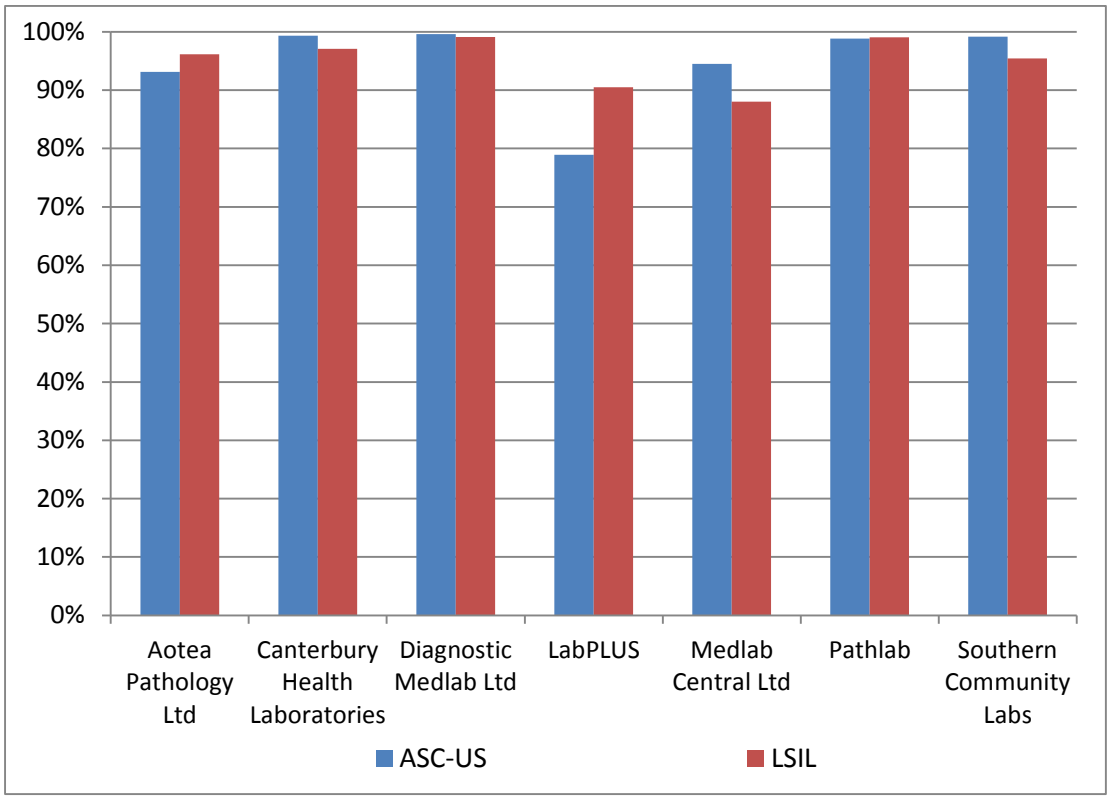
***Histological outcomes in triage positive women who attended colposcopy***

Trends are not reported for this aspect of the indiator, as this is the first report which has included these results.

**Comments**

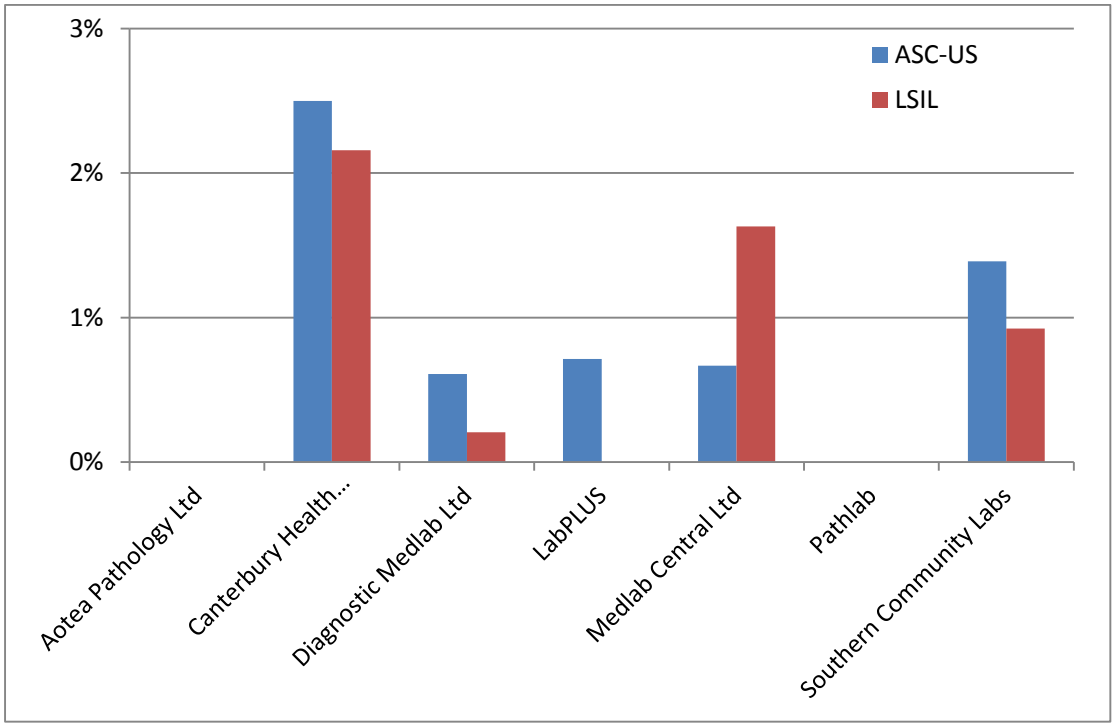
A small number of women aged less than 30 years with low grade results, no recent abnormalities (in the previous five years) and no record of any previous high grade squamous abnormality (cytological or histological) have a record of a subsequent HPV test (19 women). This is slightly fewer than in the previous report (22 women). It is uncertain whether these HPV tests were performed for the purpose of triage, or for other reasons. In this report, we excluded women aged less than 30 years from this indicator if they had ever had a previous high grade squamous abnormality (either ASC-H/ HSIL cytology, or CIN2/3 histology). This was done in order to avoid potential inadvertent inclusion in this group women being tested for HPV in concordance with the guidelines as part of "historical testing". This could occur as a result of a previous high grade squamous abnormality (either ASC-H/ HSIL cytology, or CIN2/3 histology) currently managed by annual cytology, which occurred more than five years earlier (since abnormalities within the previous five years are already taken into account). It is also possible that some women were aged 29 years at the time of their cytology sample, but 30 years at the time of the cytology result, although previous exploration has suggested that the extent of this is likely to be small.[17, 18] Another possible explanation is that these women are being followed up for a previous high grade result but this is not recorded on the NCSP Register (for example because this occurred overseas). The HPV test may also have been ordered by a specialist. However note that inadvertent inclusion of HPV tests ordered by a specialist to resolve discordant results (or for historical testing) should be minimised since women were excluded from this indicator if they had any recent abnormalities (past five years, any abnormality grade); if they had ever had a high grade squamous abnormality (but no glandular abnormality) recorded on the NCSP Register; if the sample for HPV testing was collected on the same day as a recorded colposcopy visit for that woman; or if the sample for HPV testing was collected more than five weeks after the cytology sample.

**Figure 69 – Proportion of women (aged 30 years or more) with low grade cytology who have a subsequent HPV test, by laboratory and cytology result**




*Excludes women with abnormal cytology in the five years preceding their low grade cytology sample*

**Figure 70 – Proportion of women (aged less than 30 years) with low grade cytology who have a subsequent HPV test, by laboratory and cytology result**




*Excludes women with abnormal cytology in the five years preceding their low grade cytology sample, and also women who have ever had a high grade squamous abnormality (cytology or histology)*

**Figure 71 - Proportion of HPV triage tests which are positive following ASC-US cytology (women aged 30 years or more), by cytology laboratory**

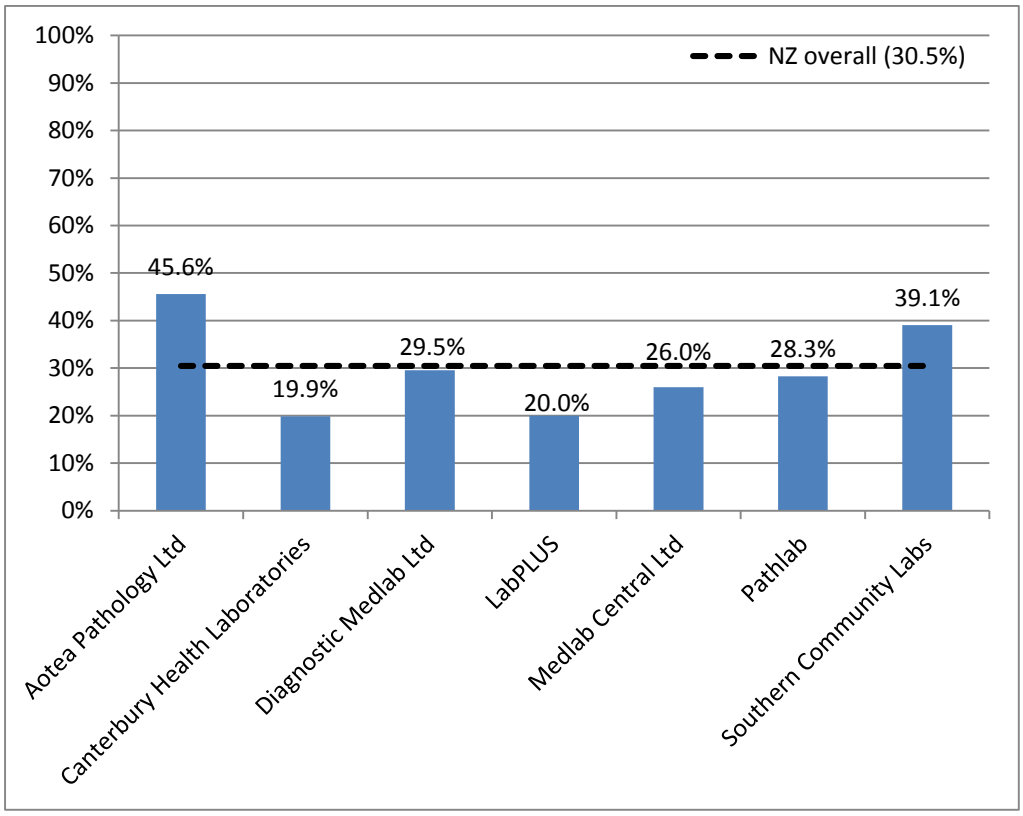
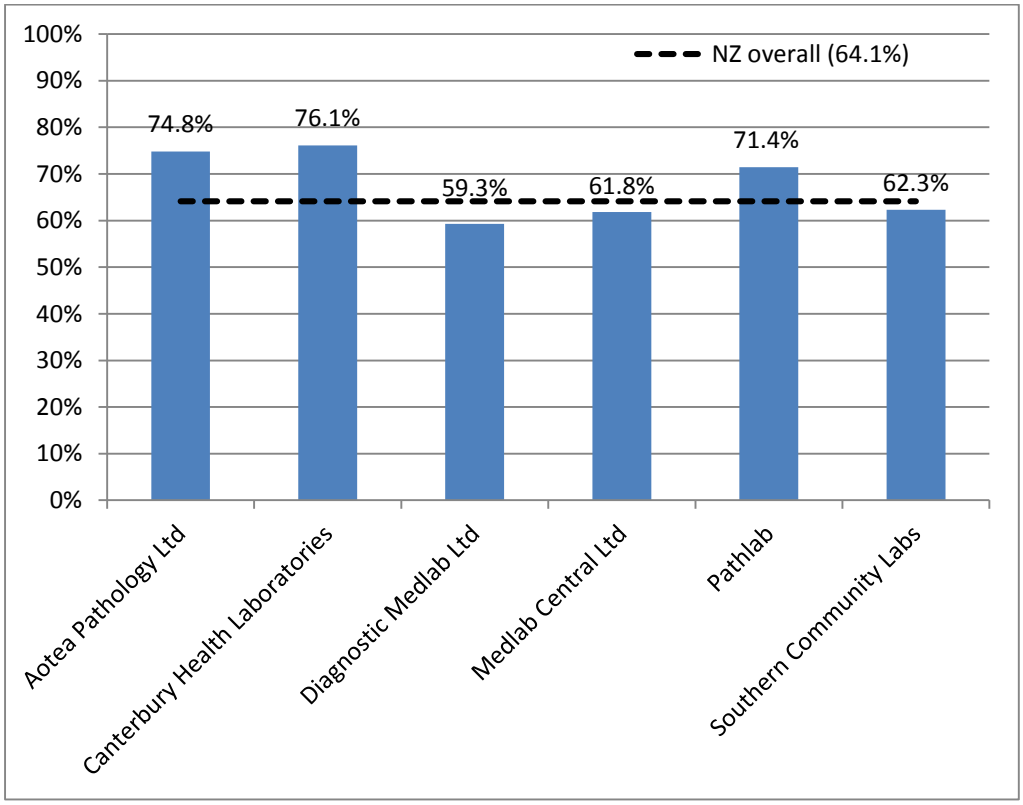
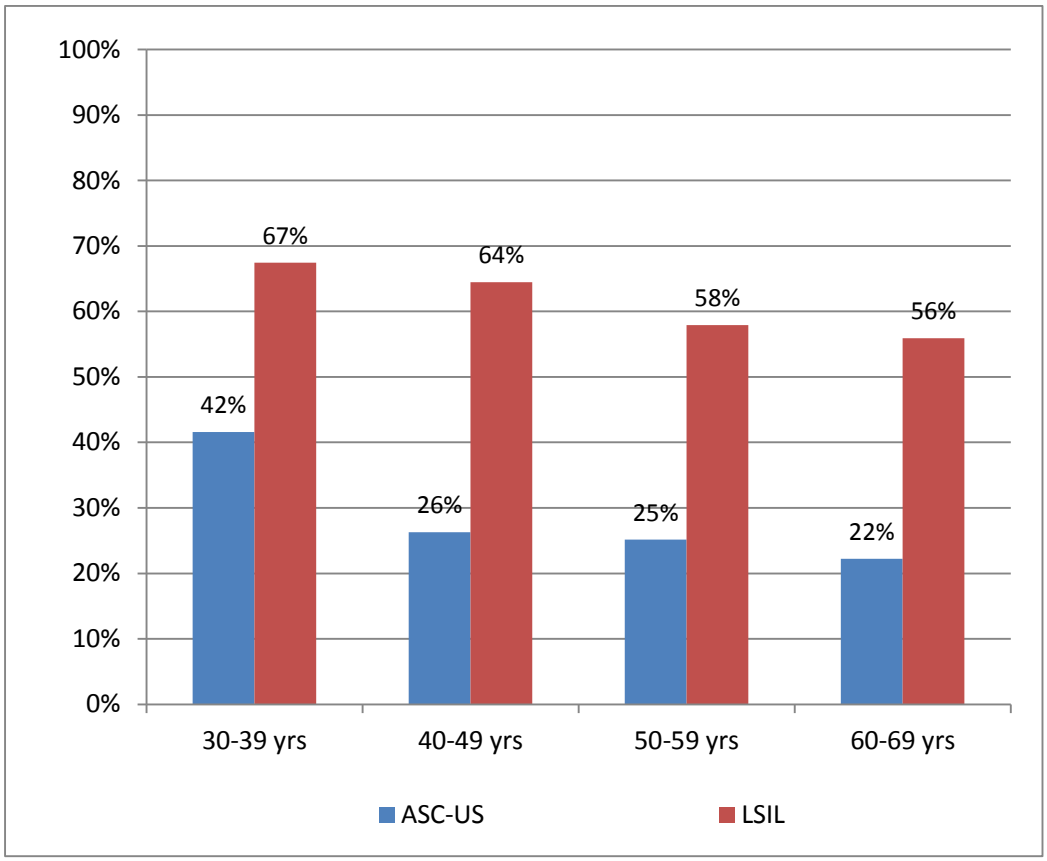



**Figure 72 - Proportion of HPV triage tests which are positive following LSIL cytology (women aged 30 years or more), by cytology laboratory**




*Excludes LabPLUS due to very small number of tests (N=6)*

**Figure 73 – Proportion of women with an HPV triage test who are HPV positive, by age and cytology result**




*Note: Excludes results for women aged less than 30 years and aged 70 years or more, since these are based on very small numbers of women with valid HPV test results.*

**Table 22 - HPV triage test results following ASC-US cytology, by age and cytology laboratory**

| Laboratory | Women with valid HPV test results | | Women with positive HPV test results (number and % within each age group) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | < 30yrs* | 30+ yrs | < 30yrs* | | 30-39 yrs | | 40-49 yrs | | 50-59 yrs | | 60-69 yrs | | 70+ yrs | |
| | N | N | N | % | N | % | N | % | N | % | N | % | N | % |
| Aotea Pathology Ltd | 0 | 136 | 0 | 0.0 | 27 | 52.9 | 21 | 39.6 | 9 | 39.1 | 3 | 42.9 | 2 | 100.0 |
| Canterbury Health Laboratories | 1 | 146 | 0 | 0.0 | 16 | 28.1 | 6 | 14.0 | 5 | 15.2 | 2 | 16.7 | 0 | 0.0 |
| Diagnostic Medlab Ltd | 1 | 508 | 1 | 100.0 | 68 | 43.3 | 41 | 24.4 | 28 | 25.0 | 13 | 19.4 | 0 | 0.0 |
| LabPLUS | 1 | 30 | 0 | 0.0 | 2 | 20.0 | 3 | 27.3 | 1 | 16.7 | 0 | 0.0 | 0 | 0.0 |
| Medlab Central Ltd | 1 | 258 | 0 | 0.0 | 32 | 41.0 | 18 | 19.8 | 12 | 21.4 | 5 | 16.1 | 0 | 0.0 |
| Pathlab | 0 | 258 | 0 | 0.0 | 35 | 43.2 | 20 | 26.0 | 13 | 19.7 | 5 | 17.2 | 0 | 0.0 |
| Southern Community Labs | 2 | 233 | 2 | 100.0 | 32 | 42.1 | 31 | 34.4 | 17 | 40.5 | 10 | 45.5 | 1 | 33.3 |
| **TOTAL** | **6** | **1,569** | **3** | **50.0** | **212** | **41.6** | **140** | **26.3** | **85** | **25.1** | **38** | **22.2** | **3** | **17.6** |

*Excludes women with abnormal cytology in the five years preceding their low grade cytology sample.* Additionally excludes women with any previous squamous high grade (cytology or histology)*

**Table 23 - HPV triage test results following LSIL cytology, by age and cytology laboratory**

| Laboratory | Women with valid HPV test results | | Women with positive HPV test results (number and % within each age group) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <30 yrs* | 30+yrs | <30 yrs* | | 30-39yrs | | 40-49yrs | | 50-59yrs | | 60-69yrs | | 70+yrs | |
| | N | N | N | % | N | % | N | % | N | % | N | % | N | % |
| Aotea Pathology Ltd | 0 | 123 | - | - | 38 | 79.2 | 31 | 70.5 | 16 | 80.0 | 6 | 60.0 | 1 | 100.0 |
| Canterbury Health Laboratories | 3 | 67 | 3 | 100.0 | 27 | 79.4 | 14 | 73.7 | 7 | 63.6 | 3 | 100.0 | 0 | 0.0 |
| Diagnostic Medlab Ltd | 1 | 538 | 1 | 100.0 | 158 | 63.2 | 88 | 57.1 | 51 | 55.4 | 21 | 52.5 | 1 | 50.0 |
| LabPLUS | 0 | 19 | - | - | 6 | 60.0 | 5 | 83.3 | 1 | 50.0 | 0 | 0.0 | 0 | 0.0 |
| Medlab Central Ltd | 3 | 110 | 3 | 100.0 | 21 | 52.5 | 30 | 75.0 | 12 | 54.5 | 5 | 62.5 | 0 | 0.0 |
| Pathlab | 0 | 203 | - | - | 61 | 79.2 | 53 | 72.6 | 21 | 56.8 | 10 | 62.5 | 0 | 0.0 |
| Southern Community Labs | 6 | 398 | 4 | 66.7 | 124 | 66.7 | 82 | 61.2 | 35 | 55.6 | 7 | 46.7 | 0 | 0.0 |
| **TOTAL** | **13** | **1,458** | **11** | **84.6** | **435** | **67.4** | **303** | **64.5** | **143** | **57.9** | **52** | **55.9** | **2** | **66.7** |

*Excludes women with abnormal cytology in the five years preceding their low grade cytology sample * Additionally excludes women with any previous squamous high grade (cytology or histology)*

**Figure 74 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of all women with histology, by laboratory**

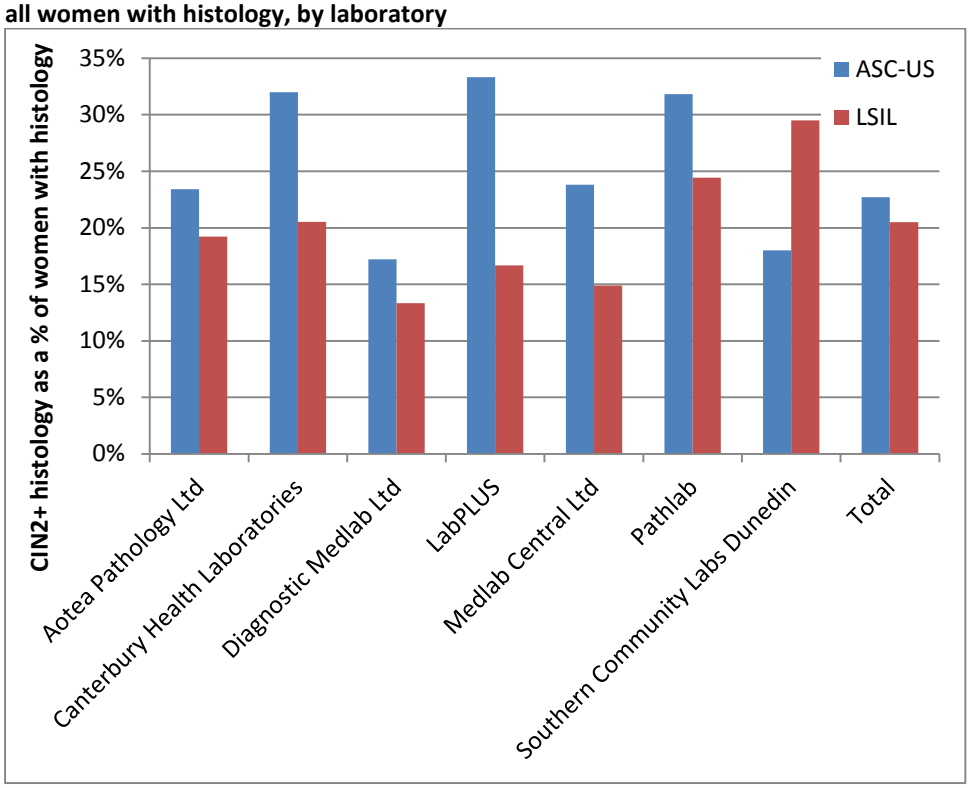



**Figure 75 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of all women who attended colposcopy, by laboratory**

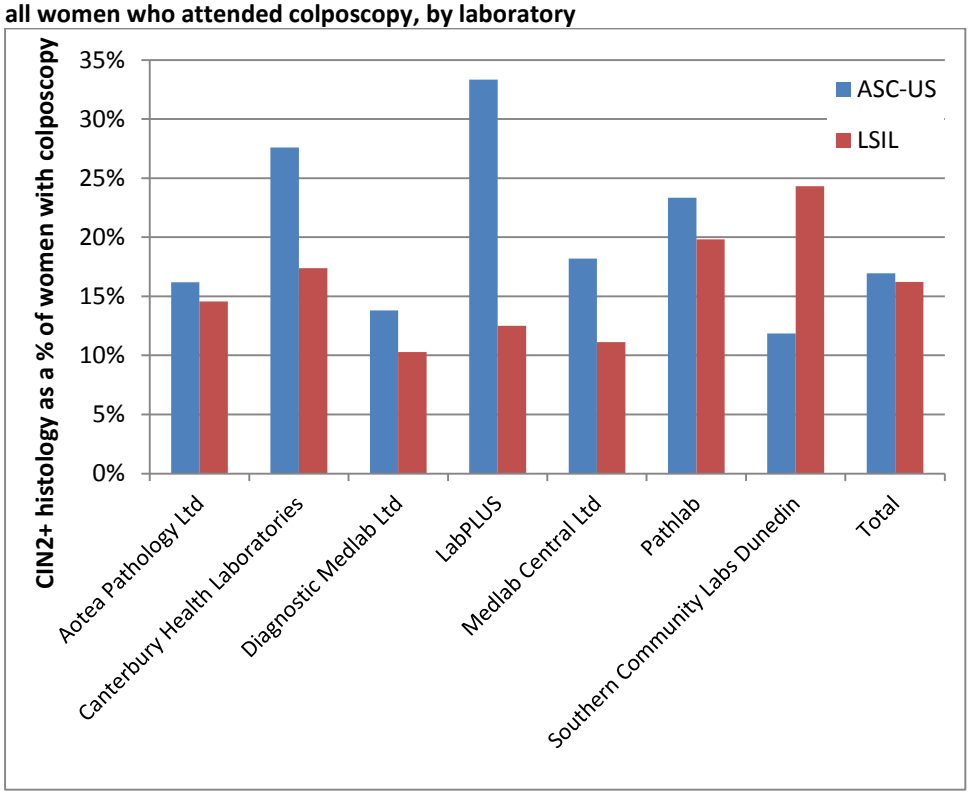


**Figure 76 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of women with histology recorded, by age**

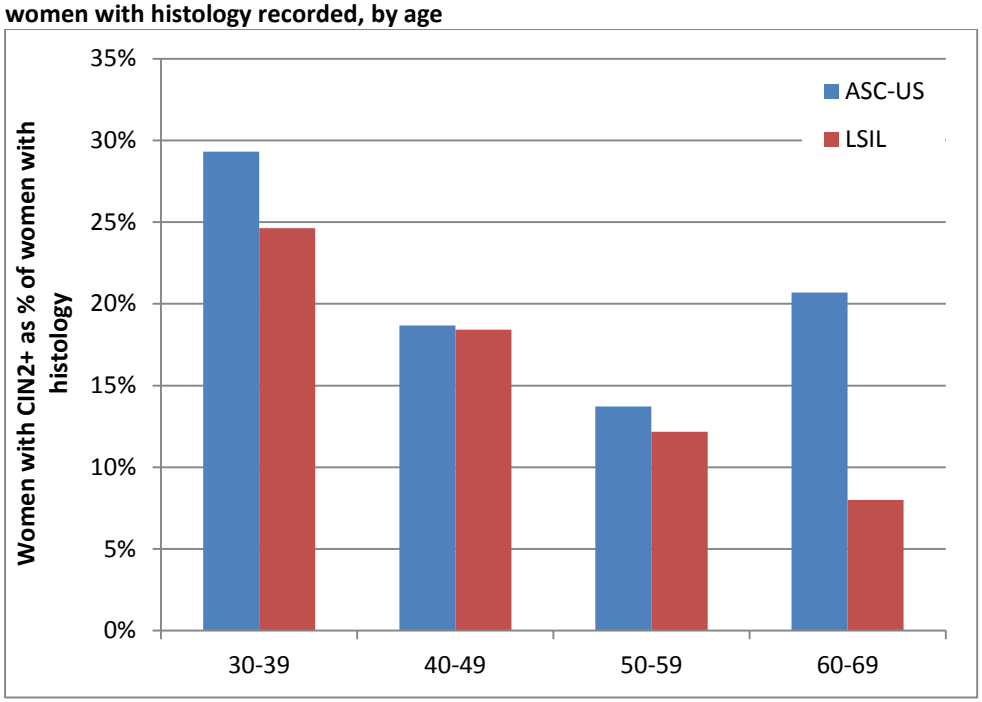
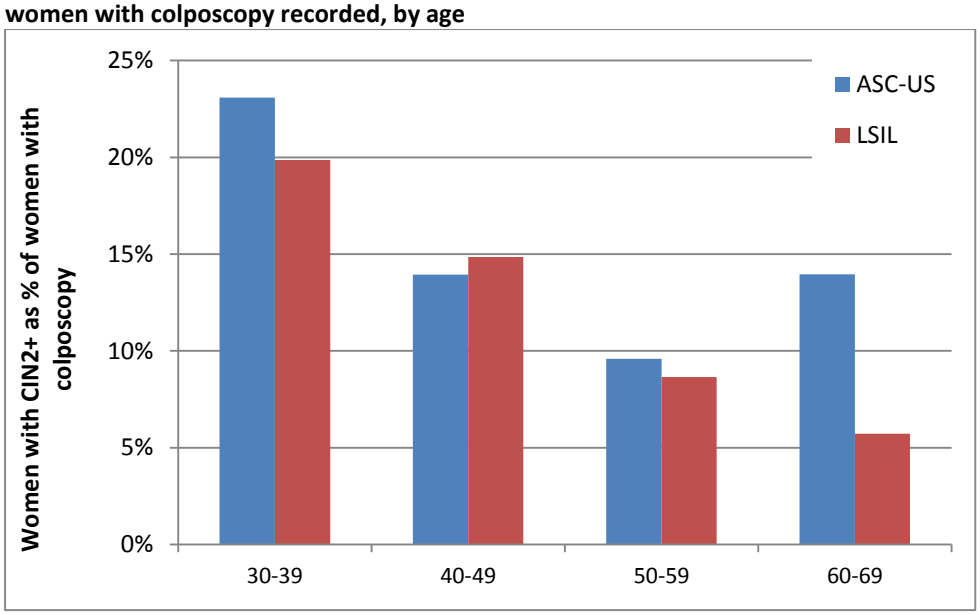



**Figure 77 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of women with colposcopy recorded, by age**



## Indicator 8.2 – HPV test volumes

**Definition**

All HPV tests received by laboratories within the monitoring period were retrieved. This volume of HPV tests (performed for any purpose) is reported on by:

- Laboratory
- Ethnicity
- Age group
- Purpose (under development)

Purpose is defined as one of the following categories:

i) Post-treatment *(women treated for high grade squamous lesions in the period six months to four years prior to the HPV sample date, to capture two rounds of testing)*

ii) Historical *(high grade squamous cytology (ASC-H/ HSIL) or histology (CIN2/3) more than three years prior to the HPV test sample)*

iii) Taken at colposcopy (*HPV sample collected on the same date as a colposcopy visit or a histology sample in the same woman)*

iv) HPV triage *(as defined in Indicator 8.1, but restricted to women aged 30 years or more at the time of the cytology specimen, and where the low grade cytology (ASC-US or LSIL) was no more than six months prior to the HPV test)*

v) Other *(tests which do not fit into any of the above categories)*

These categories are defined hierarchically in the order shown; that is, a test cannot fit into more than one category, and tests are only considered for inclusion in a category if no previous categories in the list apply.

As this indicator is still being developed, tests in the 'Other' category were explored further. The number of tests that fell into the 'Other' category was found to be relatively high in this report, but this analysis is nonetheless indicative of the appropriate purposes. It is also useful to report the extent of HrHPV tests for other purposes and the need to eliminate HrHPV tests for other purposes. For this reason the purpose of HrHPV tests are disclosed in this report, but the indicator remains under development.

Rates of invalid HPV tests are also reported on.

Measures reported by age are based on the age of the women on the date that the cytology sample was collected.

**Target**

Targets have not yet been set.

**Current Situation**

***Overall volumes***

There were 18,601 samples received by laboratories for HPV testing within the current reporting period. These are reported on further in Table 70 to Table 75.

Virtually all (98.9%) samples for HPV testing were from women aged 20-69 years. The large majority of women (86.7%) were aged 30 years or more (Figure 78, Table 74).

The number of samples received by laboratories for HPV testing ranged from 853 (LabPLUS; 4.6% of all HPV tests) to 6,360 (Southern Community Labs; 34.2% of all HPV tests) (Figure 79, Table 70).

Figure 80 and Table 70 also show for each laboratory the ratio of the number of HPV tests received, divided by the number of cytology tests reported on (expressed as a percentage). This measure provides some correction for the variation in workloads between different laboratories. It is likely, for example, that laboratories which process a larger volume of cytology tests would also undertake a larger volume of HPV tests. The ratio of HPV tests to cytology tests reported was on average 8.7% across New Zealand – that is, on average 8.7% of cytology tests are associated with an HPV test. This ratio varied by laboratory from 6.9% (Aotea Pathology Ltd; ie fewer HPV tests processed in relation to cytology tests processed than national average) to 15.3% (Canterbury Health Laboratories; ie more HPV tests processed in relation to cytology tests processed than national average).

The proportion of tests or more whose HPV test results were invalid was 0.1% (Table 71). The proportion was small for all HPV test technologies (Table 72).

The distribution of HPV tests by ethnicity is shown in Table 73.

***Purpose of HPV tests***

These HPV tests were further analysed in order to ascertain the purpose for which they were performed. Nationally, it was estimated that 2,290 (12.3%) were for post-treatment management for women treated in the past four years; 6,893 (37.1%) was for follow-up management of women with high grade squamous cytology or histology more than three years previously (historical testing); 889 (4.8%) were on samples collected at a colposcopy visit which did not fit into a previous category (possibly for resolution of discordant results); and 2,835 (15.2%) were for triage of low grade cytology in women aged 30 years or more. There were 5,694 (30.6%) HPV tests that did not fit into any of the previously described categories (Figure 81).

Further breakdowns of HPV tests by purpose are presented by age (Figure 82) and laboratory (Figure 83).

There were variations in HPV test purpose by age (Figure 82, Table 74). HPV triage (by the definition used here, and consistent with NCSP Guidelines) did not occur in women aged less than 30 years. In women aged less than 30 years, a comparatively larger proportion were taken for post-treatment follow-up management or taken at colposcopy for another reason. Follow up of women with historical high grade squamous abnormalities (more than

three years ago) was the most common reason that HPV tests were performed among women aged 30 years or more. The proportion of tests which did not fit into the prescribed categories, and were therefore classified as 'Other', broadly decreased with age up to age 35-39 years, then increased with increasing age from age 40-44 years.

HPV test purpose also varied by laboratory (Figure 83, Table 75). Among tests for which the purpose could be determined, the most common categories were historical testing (at Aotea Pathology Ltd, Canterbury Health Laboratories, Diagnostic Medlab Ltd, Medlab Central, Pathlab, Southern Community Laboratories) and post-treatment management (LabPLUS). In all labs, however, tests for which the purpose was unclear were quite common, varying from 19.4% at Pathlab to 49.2% at LabPLUS. The proportion of tests performed for post-treatment management varied from 7.2% (Pathlab) to 23.2% (LabPLUS), while the proportion performed to follow up women with historical high grade squamous abnormalities varied from 14.1% (LabPLUS) to 46.9% (Aotea Pathology Ltd). The proportion of tests where the sample was collected at colposcopy but not for one of the previous purposes ranged from 0.2% (Aotea Pathology Ltd) to 13.5% (Canterbury Health Laboratories). The proportion of tests performed for HPV triage ranged from 6.0% (LabPLUS) to 23.4% (Diagnostic Medlab Ltd).

Follow up of women with historical high grade squamous abnormalities (more than three years ago) was the most common reason that HPV tests were performed among Māori, Pacific and European/ Other women. HPV triage was the most common reason among Asian women (Table 73).

Tests in the "Other" category were further explored. A proportion of the 'Other' tests (3.0%; 170 tests) were potentially tests performed for post-treatment management, because the same woman had CIN2/3 histology recorded on the NCSP Register, however there was no explicit record of treatment available on the NCSP Register, potentially due to incomplete colposcopy data on the NCSP Register. Another 5.3% occurred after treatment, but did not meet the criteria for post-treatment management because they occurred within 6 months of treatment (1.8%; 104 tests), or after treatment of either a non-squamous high grade (1.2%; 66 tests) or a non-high grade (2.2%; 126 tests). A further 16.8% of the "Other" HPV tests occurred after a previous abnormality but one which did not meet the criteria for historical testing either because it was non-squamous (7.7%; 438 tests), not high grade (0.2%; 12 tests), or the high grade squamous cytology was less than three years ago (8.9%; 504 tests). A larger proportion (34.1%; 1,943 tests) of the "Other" tests occurred in women who did not have any specific high grade abnormality recorded on the NCSP Register, but did have a record on the NCSP Register suggesting that they had a previous high grade abnormality (although the Register does not record whether it was a squamous abnormality or not). These records predominantly indicated prior high grade cytology (27.3%; 1,553 tests), but some suggested prior high grade histology (6.8%; 390 tests). Smaller proportions of HPV tests were associated with a low grade abnormality, including either a current low grade cytology result which did not meet the criteria for triage because the woman had another recent abnormality and triage was not required (1.9%; 111 tests), or a

record suggesting a previous low grade cytology not explicitly recorded on the NCSP Register (4.2%; 241 tests). After this exploration, there remained 1,976 tests (34.7% of "Other" tests; 10.6% of all HPV tests in the monitoring period) where purpose still could not be determined.

***HPV tests at colposcopy***

HPV tests taken at colposcopy were further explored, based on the DHB of the colposcopy clinic where the sample was taken, and whether or not it was a public or a private clinic. Nationally, more of the HPV tests which were taken at colposcopy came from public facilities (631 tests; 89.1%) than from private facilities (77 tests; 10.9%), however this was consistent with the greater number of colposcopies performed in public clinics (Table 76). As the number of HPV tests collected at a colposcopy clinic is potentially reflective of the number of colposcopies performed there, a rate of HPV tests at colposcopy which takes this variation into account was derived, in order to provide more information. The rate of HPV tests at colposcopy was calculated by dividing the number of HPV tests collected at colposcopy by the total number of colposcopies within that DHB/ sector, expressed as a percentage. This rate can be broadly interpreted as the percentage of colposcopies (within a given DHB or sector) where an HPV test sample is collected. Across New Zealand, HPV test samples were collected in approximately 5.5% of colposcopies. In DHBs where HPV tests were collected at colposcopy, this value ranged from 0.3% (Hawke's Bay) to 25.2% (Lakes), and was 5.5% overall across all public DHB clinics (Figure 84, Table 76). In private practice, this rate was 5.8%. No HPV tests were taken at colposcopy in Captal & Coast, Hutt Valley, Tairawhiti, Taranaki, Wairarapa, West Coast or Whanganui.

**Trends**

Slightly fewer samples were received at laboratories for HPV testing in the current reporting period (18,601) than in the previous monitoring report (18,726; decrease of 0.7%). This was not consistent across all test purpose categories however – there was a decrease in tests performed for post-treatment management (4.7%) and in tests taken at colposcopy (6.6%) but a small increase in tests for triage of low grade cytology (1.9%). The drop in HPV tests at colposcopy is potentially explained by the drop in the number of colposcopies reported in the current monitoring period (see Indicator 7.3), especially at those DHBs where there are comparatively higher numbers of HPV tests taken at colposcopies (such as Canterbury and Waikato), and also by a drop in the rate of HPV tests at colposcopy in Lakes.

Variations in the purpose of the HPV test by age, ethnicity and laboratory, and broadly similar to that in previoius reports.

The proportion of HPV tests which are invalid remains very small.

**Comments**

HPV volumes by laboratory will vary for a number of reasons, one of which being the general volume of work in that laboratory. In order to provide some correction for the variation in workloads between different

laboratories, we calculated the ratio of HPV tests received to cytology tests reported on (Figure 80, Table 70). Other reasons for variations the rate of HPV testing by laboratory (which are not taken into account in this ratio) may include differences in the population they serve, because HPV testing is performed in specific subgroups of women. For example HPV triage testing is performed in women with low grade (ASC-US/LSIL) cytology results (but without recent abnormalities), therefore laboratories reporting higher rates of low grade abnormalities may also have higher rates of triage testing. Conversely, laboratories reporting on a larger proportion of cytology from colposcopy clinics may be less likely to perform HPV triage testing, because women attending colposcopy have generally had a recent abnormality. These issues may for example partly explain differences in the ratios in Canterbury Health Laboratories (where rates of low grade cytology results are comparatively higher) and LabPLUS (where a larger proportion of cytology comes from colposcopy clinics). To understand in more detail the reasons for the differences, an explicit exploration of the purpose for which the HPV test was performed has been examined here.

Exploration is ongoing into the potential reason for tests in the 'Other' category, as is the refinement of specifications for the analysis of purpose. Some possible explanations include follow-up of women previously treated for high grade squamous abnormalities where these abnormalities occurred outside New Zealand, prior to the woman being enrolled on the NCSP Register, or prior to the inception of the NCSP Register. The latter may potentially explain why the proportion of 'Other' tests is higher in older women than in younger women. Synopses held on the NCSP Register of previous (self-reported) high grade abnormalities have been used in this report to explore this possibility further (although these synopses do not distinguish between squamous abnormalities and glandular abnormalities; HPV testing is currently only recommended for the management of women with previous squamous abnormalities). The proportion associated with a synopsis reflecting a previous high grade abnormality (cytological or histogical) reported here (34.1%) is lower than that in the previous report (36.7%). This is consistent with the observed reduction in the number and proportion of tests performed for historical testing, and so may potentially reflect some women with high grade abnormalities more than three years ago being returned to routine screening. Alternatively it may represent improved understanding of recommendations that historical testing should only occur where there is a specific record of a high grade squamous abnormality of the NCSP Register.

Colposcopy data were not available for the full monitoring period for Counties Manukau, Northland and Waitemata. As a result, it is possible that some HPV tests were collected at colposcopy, but these were not classified as such where no histology specimen was taken.

**Figure 78 - Volume of HPV test samples received by laboratories during the monitoring period, by age**

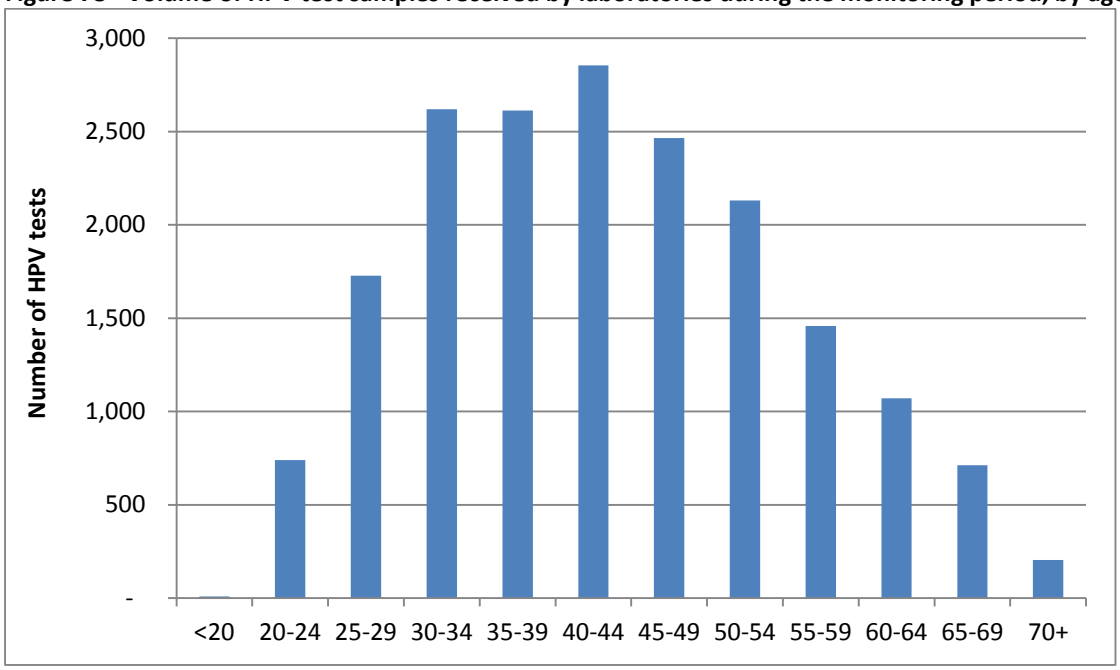



**Figure 79 - Volume of HPV test samples received by laboratories during the monitoring period, by laboratory**

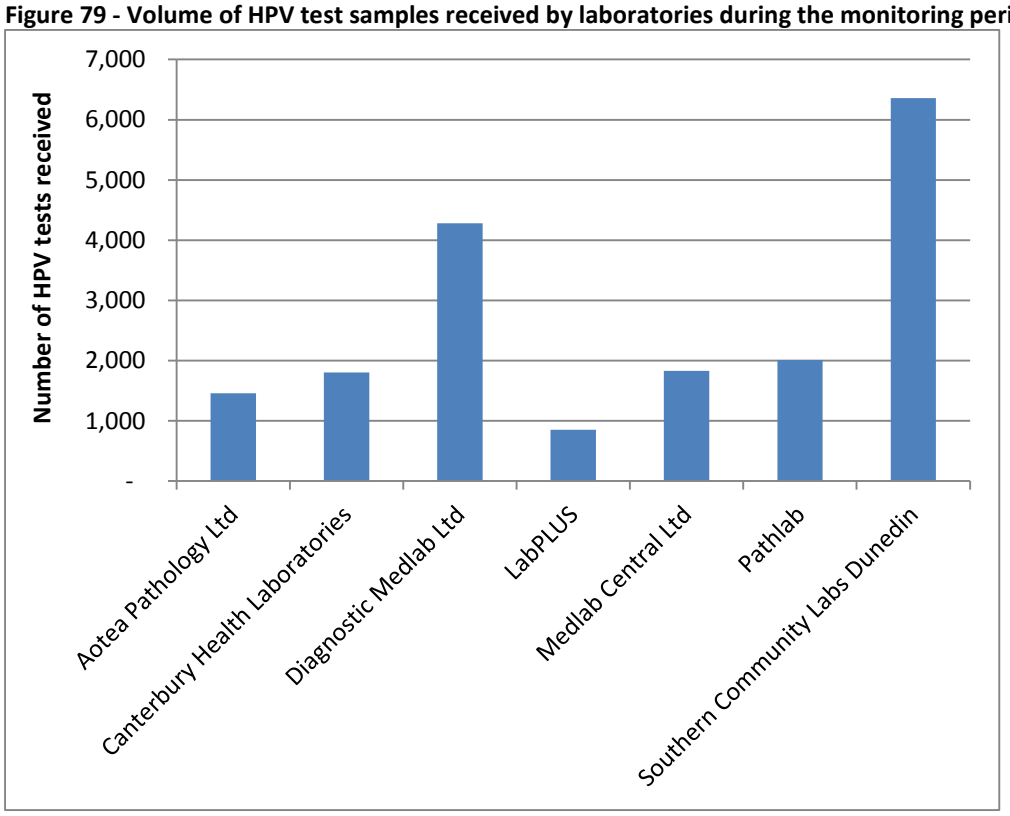
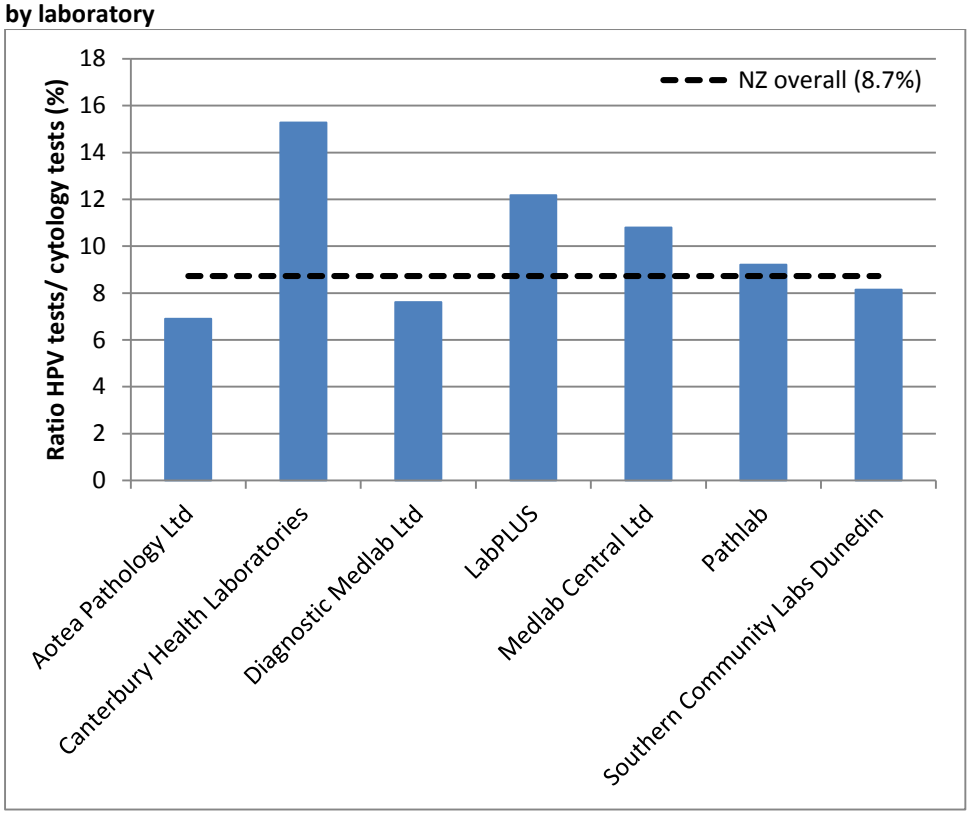


**Figure 80 –HPV test samples as a percentage of cytology test samples received during the monitoring period, by laboratory**




*HPV tests/ colposcopy can be interpreted as the percentage of cytology tests which have an associated HPV test*

**Figure 81 - Volume of HPV test samples received during the monitoring period, by purpose**

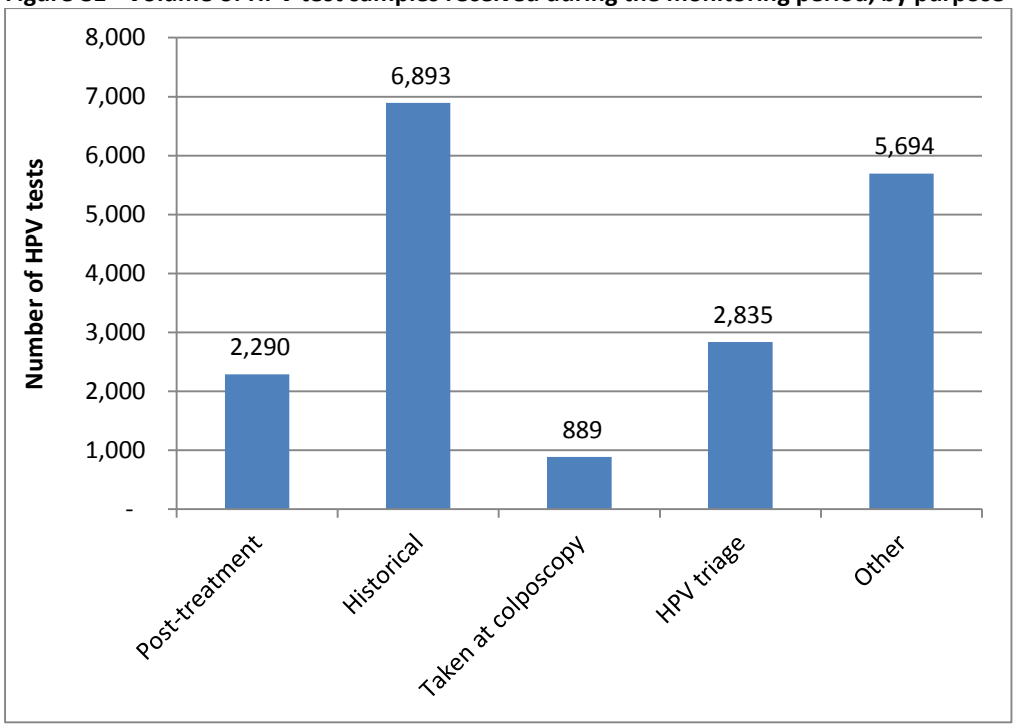


**Figure 82- HPV test samples received during the monitoring period, by purpose and age**

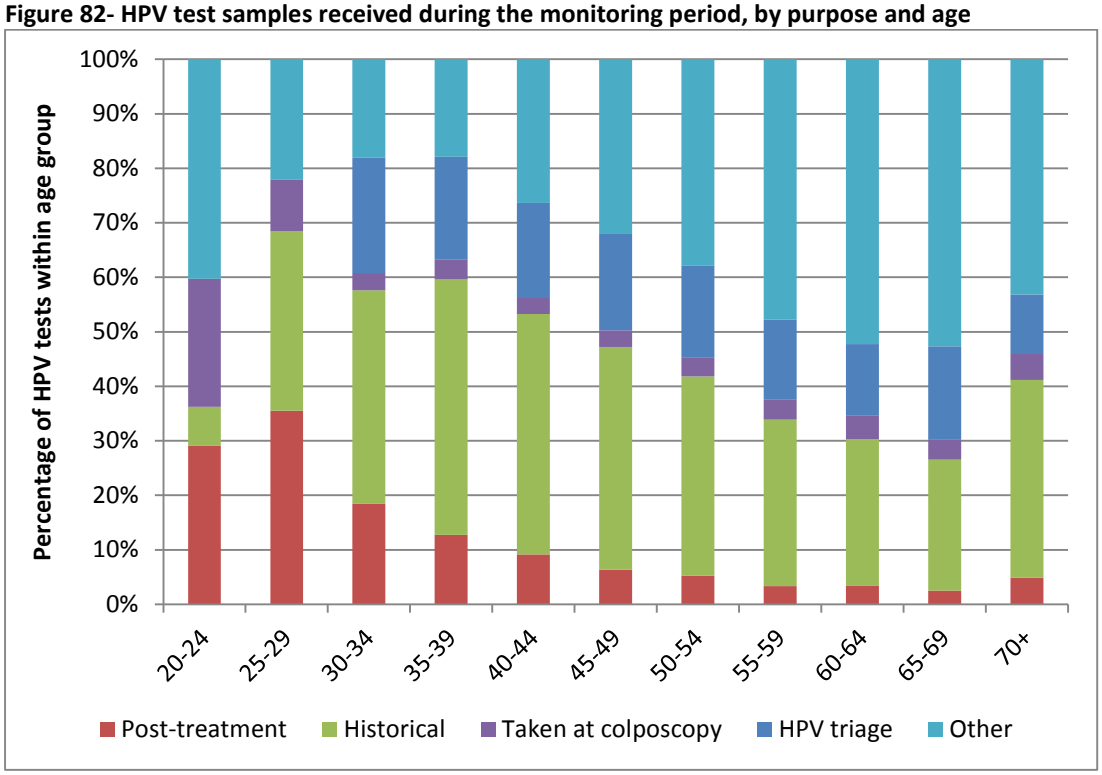



**Figure 83- HPV test samples received during the monitoring period, by purpose and laboratory**

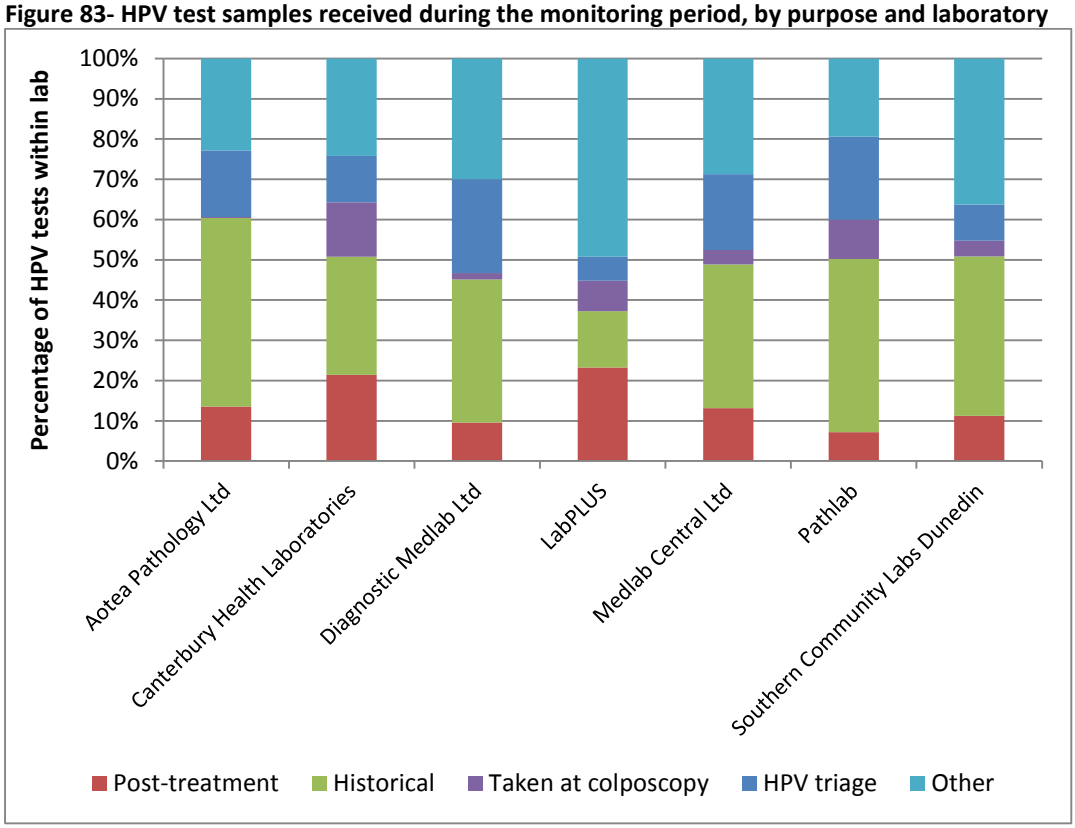
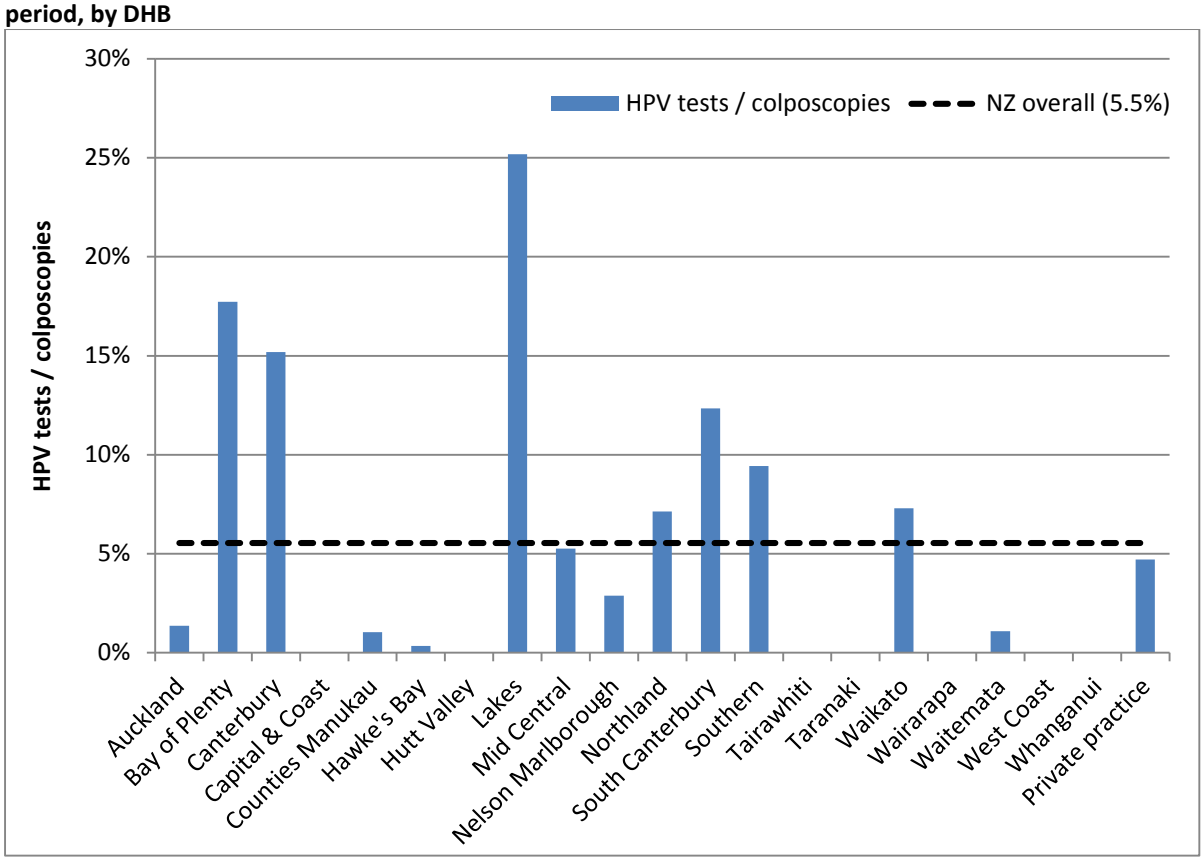


**Figure 84- HPV test samples collected at colposcopy, in relation to total colposcopies performed in the period, by DHB**




*HPV tests/ colposcopy can be interpreted broadly as the percentage of colposcopies within this DHB/ sector where a sample is collected for HPV testing. No HPV tests at colposcopy in Northland, Tairawhiti, Taranaki, Wairarapa, West Coast or Whanganui.*

## Indicator 8.3 –HPV tests for follow-up of women with a historical high grade abnormality

**Definition**

NCSP Guidelines for Cervical Screening in New Zealand state that women with a previous high grade squamous abnormality more than three years ago may benefit from two rounds of dual cytology and hrHPV testing ("historical testing"). If women test negative by both tests over two years, they can safely be screened according to the routine screening recommendations (cytology alone every three years until 70). HPV testing is not recommended for management of women with a historic non-squamous high grade abnormality.

The purpose of this indicator is to examine the extent to which historical testing is being undertaken in women who are eligible for it, and the outcomes of these tests. This indicator is still under development, however some aspects of it are included In the current monitoring report, as follows.

Test records for all women eligible for historical testing as at 1 October 2009 (the date that testing for hrHPV was introduced in New Zealand within the NCSP) were retrieved. Women are considered to have been eligible for historical testing as at 1 October 2009 if:

i) They had a high grade squamous abnormality (cytology or histology) more than three years prior to 1 October 2009; and

ii) They have not had a previous glandular abnormality prior to 1 October 2009; and

iii) Since their historical high grade squamous abnormality, they have had either only negative cytology OR no cytology OR three consecutive negative cytology tests as their most recent cytology results prior to 1 October 2009; and

iv) They had not been treated for a high grade squamous abnormality within the three years prior to 1 October 2009 *(followed up as for post-treatment women, not historical testing)*; and

v) They were alive on 1 October 2009.

Within the current report, Round 1 and Round 2 historical tests are only considered in the women within the overall group of all eligible women where:

i) the woman was still alive at the end of the current monitoring period; and

ii) she has not since had a non-squamous high grade abnormality *(no longer eligible for historical testing)*

HPV tests in these women from 1 October 2009 were retrieved. HPV tests which appeared to have been carried out for other recommended uses of HPV testing (such as HPV triage of low grade cytology; HPV tests taken at colposcopy; or HPV tests performed to follow-up treatment of a high grade

| | |
|---|---|
| | squamous abnormality within the previous three years) were excluded since they were not performed for the purpose of historical testing. After excluding those tests, the first HPV test in each woman was defined as her Round 1 historical test. A Round 2 historical test was defined as the first HPV test which occurred at least 9 months after a Round 1 historical test.<br><br>Measures reported by age are based on the age of the women at the end of the current reporting period (31 December 2014). Measures reported by DHB are based on the geographic area relating to the woman's residence (or if this information is not available, that of her responsible health provider). |
| **Target** | This is a new measure, and targets have not yet been set. |
| **Current Situation** | ***Overall women eligible for historical testing***<br><br>There were 50,507 women who, as at 1 October 2009, were eligible for HPV testing to follow-up a historical squamous high grade abnormality ("historical testing"). Of these women, 49,809 are considered in the current report (the remaining women were excluded because they were no longer alive at the end of the current monitoring period, or were no longer eligible for historical testing because they had a non-squamous high grade abnormality since 1 October 2009). There were very few women eligible for historical testing who were aged less than 25 years at the end of the current monitoring period (no women aged less than 20 years; 11 women aged 20-24 years); however this is not unexpected, as these women would generally have been less than 20 years old on 1 October 2009 (Table 77).<br><br>***HPV tests performed for historical reasons***<br><br>Overall, 25,387 (51.0%) of the women eligible for historical testing have a Round 1 historical test recorded on the NCSP Register. There were 18,703 women who also have a Round 2 historical test (37.5% of eligible women; 73.7% of those with a Round 1 test).<br><br>The proportion of women with historical tests varied by age. The proportion of women aged 20-24 years with a Round 1 test was very small, however very few women in this age group were eligible for historical testing (five women). Among women aged at least 25 years at the end of the current reporting period, the proportion of eligible women with a historical test varied from 43.4% (25-29 years) to 53.4% (40-44 years) for Round 1 tests, and from 26.6% (25-29 years) to 40.7% (60-64 years) for Round 2 tests (Figure 85, Table 77).<br><br>The proportion of eligible women with historical tests also varied by DHB, from 30.6% (Auckland) to 73.9% (Nelson Marlborough) for Round 1 tests, and from 19.5% (Counties Manukau) to 61.8% (Nelson Marlborough) for Round 2 tests (Figure 86, Table 78). The number of women eligible for historical testing in a given DHB did not appear to have any relationship with the proportion who had received a historical test (Figure 90).<br><br>The proportion of eligible women with Round 1 historical tests ranged from 31.3% in Pacific women to 53.4% in European/ Other women (Figure 87, Table |

79). For Round 2 tests, this proportion ranged from 20.2% in Pacific women to 40.3% in European/ Other women.

We explored whether the proportion of women with a historical HPV test was influenced by screening participation within the previous five years (since if women have not attended for any test, it would not be possible to initiate a historical test). The variation in the proportion of women with historical tests recorded did not appear to be fully explained by variations in screening participation, either by DHB (Figure 88) or by ethnicity (Figure 89).

**Trends**

As this Indicator is reporting on the cumulative proportion of women who were eligible for HPV testing for the management of a historical high grade squamous lesion as at 1 October 2009, the proportion is generally expected to increase over time. It has done so in this report in every DHB, ethnicity and virtually every age group. An exception is in women aged 20-24 years at the end of the current monitoring period; however this occurred as some women who had undergone testing have turned 25 in the current reporting period and are no longer included in this age group.

**Comments**

This indicator is still under development, and will continue to be refined in future monitoring reports. For example, planned refinements include reporting on the proportion of the Round 1 and Round 2 historical tests where hrHPV was detected, and on how many women are able to be returned to routine screening after two rounds of negative cytology and hrHPV tests; considering women with a historical high grade squamous abnormality who became eligible for historical testing after 1 October 2009; and taking into account whether women have attended for any screening test, since women who have not attended for any testing could not be offered historical testing. This last point has been partially explored within the current report, by considering whether there was any relationship between the variations in women with Round 1 and Round 2 historical tests by DHB or ethnicity and the variations in screening participation within the previous five years by DHB or ethnicity. An extended period of five-years was examined, since it approximately corresponds to the period since 1 October 2009 and the time of the data download from NCSP Register used within this report (March 2015), that is the period during which we searched for HPV tests in this group of women. However as women with a previous abnormality are recommended to re-attend for screening for frequently than the routine interval, the variations in overall attendance by DHB or by ethnicity may differ from the variations by DHB or ethnicity in this subgroup of women who have had a previous abnormality.

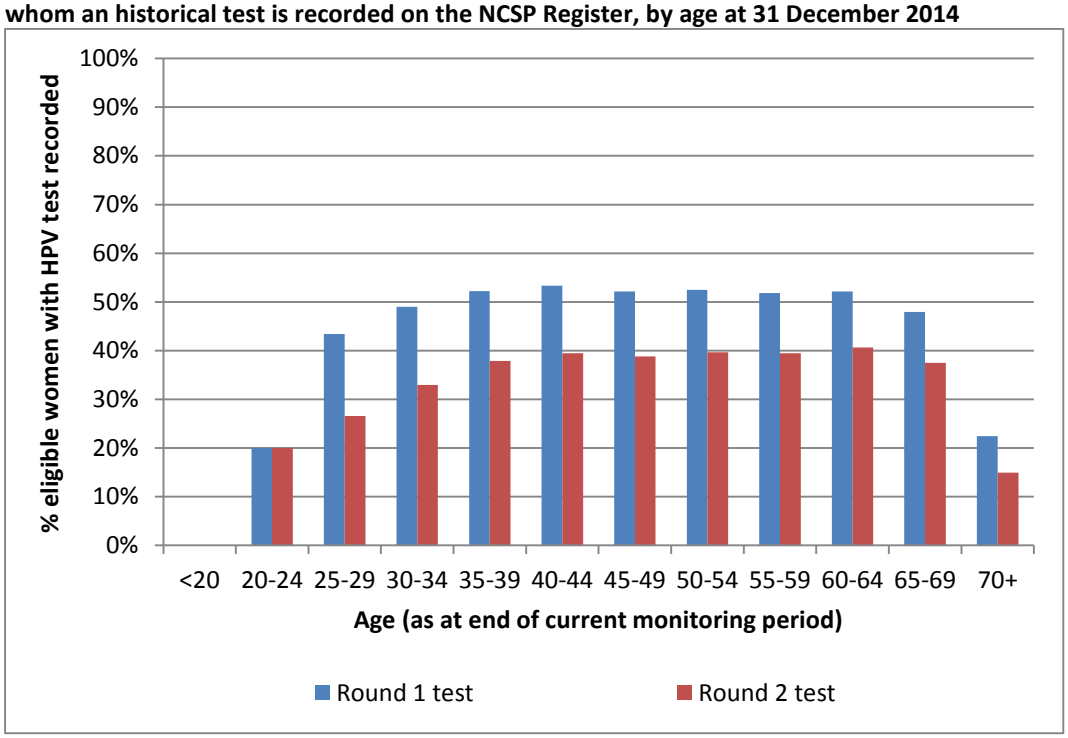
It is possible that in some cases eligible women were offered historical HPV testing, but did not consent to the test. It has not been possible to take this into account within the current report.

It is also possible that the reason some women underwent Round 1 tests, but not Round 2 tests, is because their concurrent cytology result indicated that other management (for example colposcopy referral) was required. This might be explored when this indicator is further refined to report on the test

results in women who have undergone historical testing.

This indicator currently only considers women who had a high grade squamous abnormality more than three years prior to 1 October 2009. It is anticipated that women with more recent high grade squamous abnormalities will be followed up via standard post-treatment management which also includes hrHPV testing. It is intended that future monitoring reports will also incorporate reporting on the use of hrHPV tests for the purpose of post-treatment management as a separate sub-indicator within Indicator 8.

**Figure 85 - Proportion of eligible women with squamous high grade abnormality more than 3 years ago for whom an historical test is recorded on the NCSP Register, by age at 31 December 2014**




*No women aged less than 20 at the end of the current reporting period were eligible for historical testing.*

**Figure 86 - Proportion of eligible women with squamous high grade abnormality more than 3 years ago for whom an historical test is recorded on the NCSP Register, by DHB**

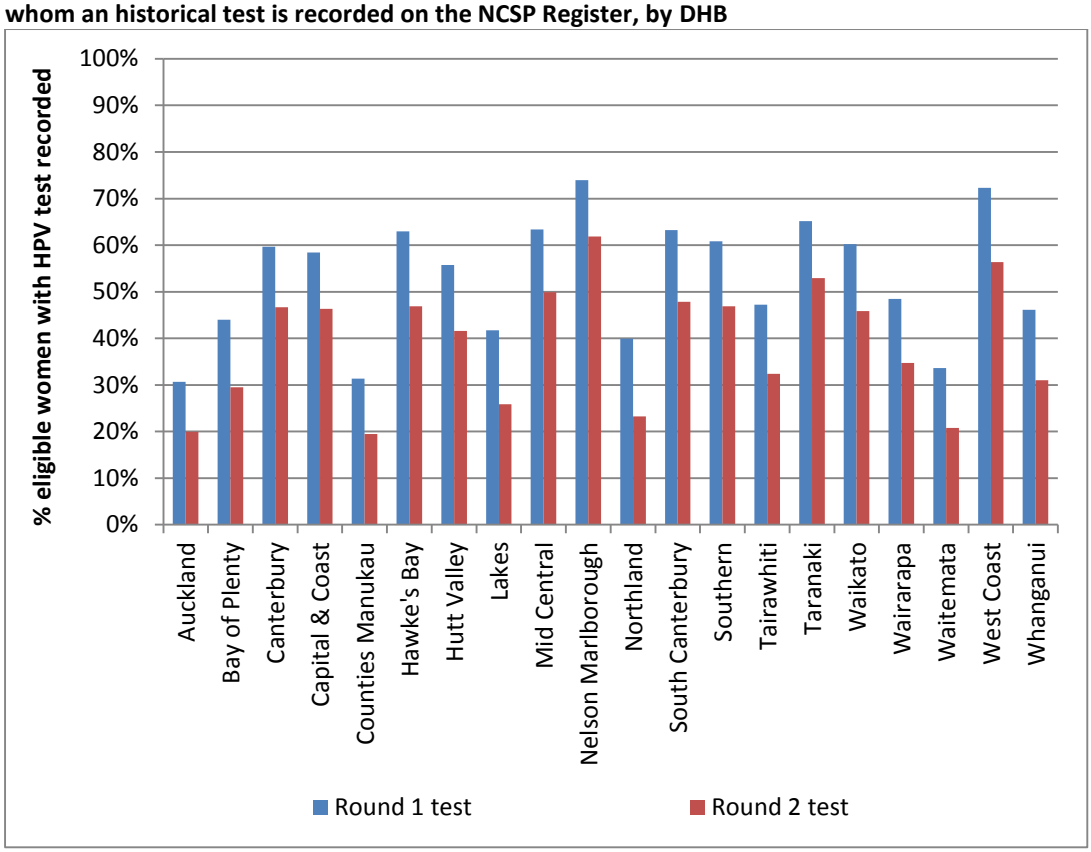



**Figure 87 - Proportion of eligible women with squamous high grade abnormality more than 3 years ago for whom an historical test is recorded on the NCSP Register, by ethnicity**

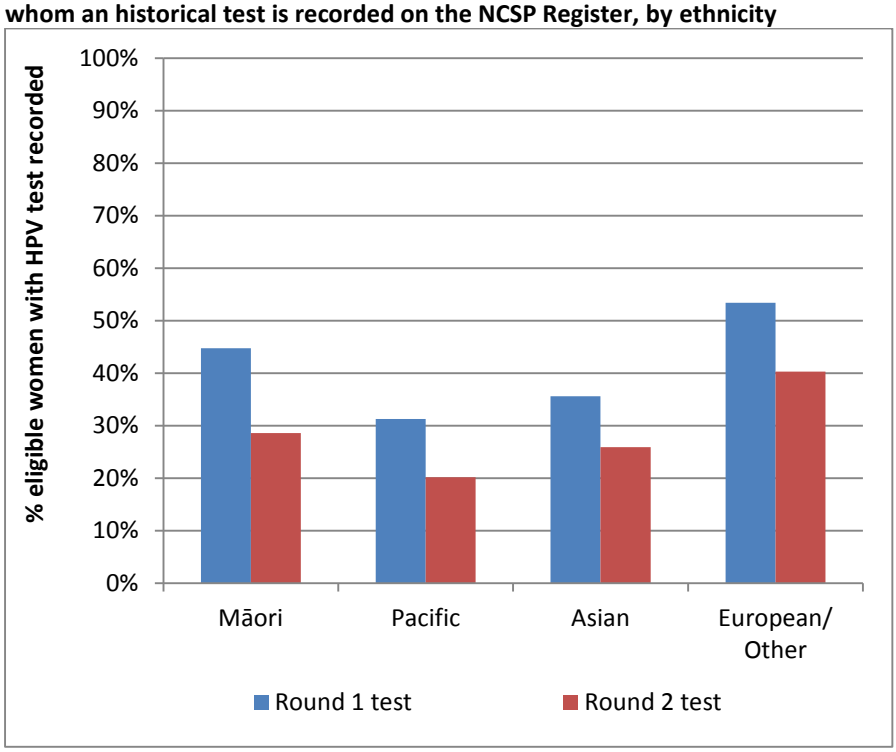
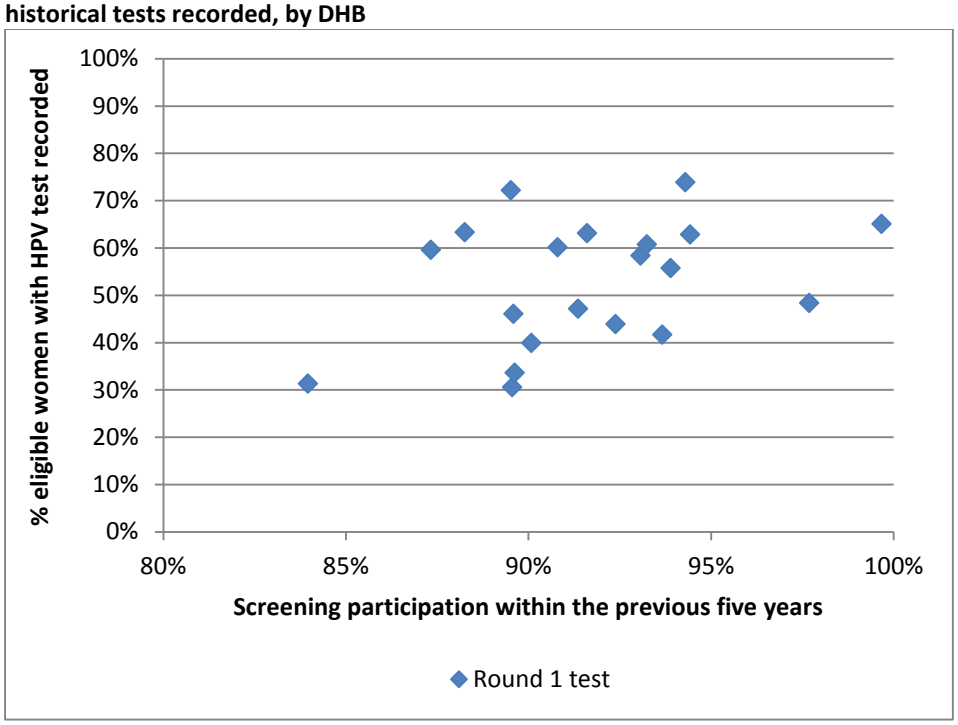
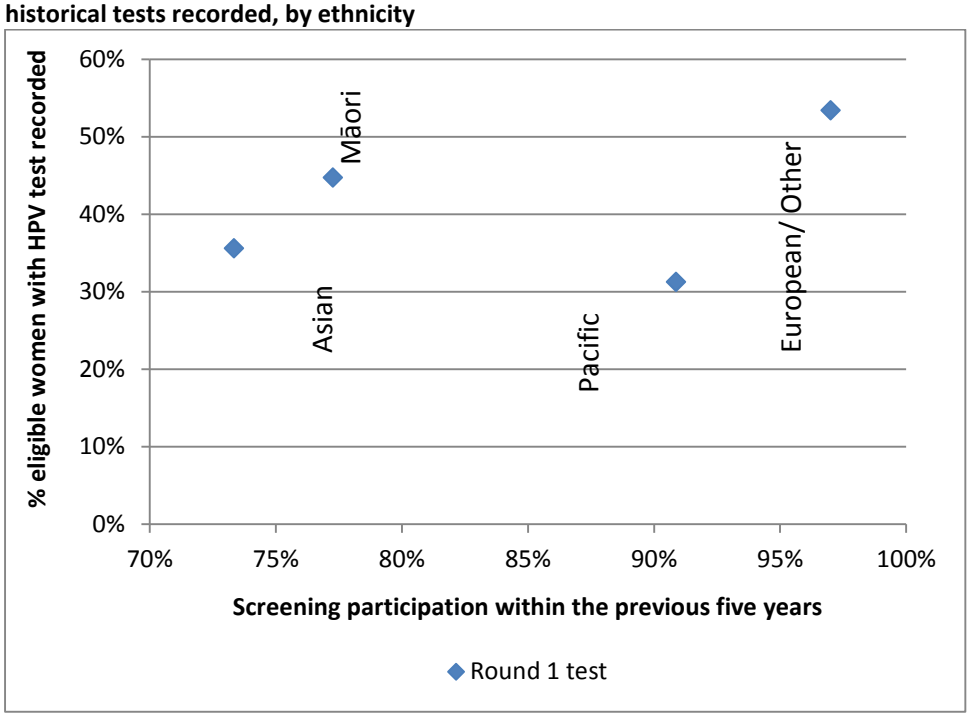


**Figure 88 – Relationship between women screened in the previous five years and proportion of women with historical tests recorded, by DHB**




*Each dot represents a DHB.*

**Figure 89 - Relationship between women screened in the previous five years and proportion of women with historical tests recorded, by ethnicity**




*Each dot represents an ethnicity*

# Appendix A – Additional data

## *Indicator 1 - Coverage*

**Table 24 - Coverage by age (women 20-69 years screened in the three years prior to 31 December 2014, hysterectomy adjusted)**

| Age | Hysterectomy adjusted population | Women screened in the the last 3 years | |
|---|---|---|---|
| | | N | % |
| 20-24 | 157,535 | 84,790 | 53.8 |
| 25-29 | 151,458 | 101,119 | 66.8 |
| 30-34 | 143,566 | 103,742 | 72.3 |
| 35-39 | 137,404 | 105,328 | 76.7 |
| 40-44 | 152,456 | 120,700 | 79.2 |
| 45-49 | 145,467 | 117,447 | 80.7 |
| 50-54 | 140,813 | 113,978 | 80.9 |
| 55-59 | 117,042 | 93,657 | 80.0 |
| 60-64 | 94,833 | 74,419 | 78.5 |
| 65-69 | 79,520 | 58,858 | 74.0 |
| **20-69** | **1,320,093** | **974,038** | **73.8** |

**Table 25 - Coverage by DHB (women 25-69 years screened in the three years prior to 31 December 2014, hysterectomy adjusted)**

| DHB | Hysterectomy adjusted population | Women screened in the the last 3 years | |
|---|---|---|---|
| | | N | % |
| Auckland | 129,596 | 102,174 | 78.8 |
| Bay of Plenty | 54,881 | 43,319 | 78.9 |
| Canterbury | 132,671 | 99,821 | 75.2 |
| Capital & Coast | 79,179 | 64,443 | 81.4 |
| Counties Manukau | 129,336 | 92,486 | 71.5 |
| Hawke's Bay | 39,805 | 30,660 | 77.0 |
| Hutt Valley | 37,555 | 29,207 | 77.8 |
| Lakes | 26,113 | 20,357 | 78.0 |
| Mid Central | 41,803 | 31,276 | 74.8 |
| Nelson Marlborough | 37,654 | 30,190 | 80.2 |
| Northland | 41,179 | 29,838 | 72.5 |
| South Canterbury | 14,621 | 11,051 | 75.6 |
| Southern | 77,265 | 61,276 | 79.3 |
| Tairawhiti | 11,621 | 8,430 | 72.5 |
| Taranaki | 29,358 | 23,547 | 80.2 |
| Waikato | 95,557 | 71,075 | 74.4 |
| Wairarapa | 10,848 | 8,157 | 75.2 |
| Waitemata | 149,812 | 114,161 | 76.2 |
| West Coast | 8,601 | 6,444 | 74.9 |
| Whanganui | 15,103 | 11,306 | 74.9 |
| ***Total*** | ***1,162,558*** | ***889,218*** | ***76.5*** |

*Excludes 30 women for whom DHB could not be determined*

**Table 26 - Coverage by ethnicity (women 25-69 years screened in the three years prior to 31 December 2014, hysterectomy adjusted)**

| Ethnicity | Hysterectomy adjusted population (ages 25-69 years) | Women screened in the the last 3 years (ages 25-69 years) | |
|---|---|---|---|
| | | N | % |
| Māori | 153,390 | 94,608 | 61.7 |
| Pacific | 64,528 | 46,553 | 72.1 |
| Asian | 163,705 | 102,438 | 62.6 |
| European/Other | 780,935 | 645,649 | 82.7 |
| **Total** | **1,162,558** | **889,248** | **76.5** |

**Table 27 - Coverage by age (women 20-69 years screened in the five years prior to 31 December 2014, hysterectomy adjusted)**

| Age | Hysterectomy adjusted population | Women screened in the the last 5 years | |
|---|---|---|---|
| | | N | % |
| 20-24 | 157,535 | 91,092 | 57.8 |
| 25-29 | 151,458 | 125,050 | 82.6 |
| 30-34 | 143,566 | 126,417 | 88.1 |
| 35-39 | 137,404 | 126,360 | 92.0 |
| 40-44 | 152,456 | 142,764 | 93.6 |
| 45-49 | 145,467 | 138,427 | 95.2 |
| 50-54 | 140,813 | 133,454 | 94.8 |
| 55-59 | 117,042 | 108,421 | 92.6 |
| 60-64 | 94,833 | 85,513 | 90.2 |
| 65-69 | 79,520 | 68,348 | 86.0 |
| **20-69** | **1,320,093** | **1,145,846** | **86.8** |

**Table 28 - Coverage by DHB (women aged 25-69 years screened in the five years prior to 31 December 2014, hysterectomy adjusted)**

| DHB | Hysterectomy adjusted population | Women screened in the the last 5 years | |
|---|---|---|---|
| | | N | % |
| Auckland | 129,596 | 121,854 | 94.0 |
| Bay of Plenty | 54,881 | 51,117 | 93.1 |
| Canterbury | 132,671 | 117,844 | 88.8 |
| Capital & Coast | 79,179 | 77,165 | 97.5 |
| Counties Manukau | 129,336 | 111,392 | 86.1 |
| Hawke's Bay | 39,805 | 36,542 | 91.8 |
| Hutt Valley | 37,555 | 34,695 | 92.4 |
| Lakes | 26,113 | 24,475 | 93.7 |
| Mid Central | 41,803 | 36,816 | 88.1 |
| Nelson Marlborough | 37,654 | 34,820 | 92.5 |
| Northland | 41,179 | 35,948 | 87.3 |
| South Canterbury | 14,621 | 12,717 | 87.0 |
| Southern | 77,265 | 72,220 | 93.5 |
| Tairawhiti | 11,621 | 10,509 | 90.4 |
| Taranaki | 29,358 | 27,240 | 92.8 |
| Waikato | 95,557 | 84,152 | 88.1 |
| Wairarapa | 10,848 | 9,677 | 89.2 |
| Waitemata | 149,812 | 134,539 | 89.8 |
| West Coast | 8,601 | 7,396 | 86.0 |
| Whanganui | 15,103 | 13,596 | 90.0 |
| ***Total*** | ***1,162,558*** | ***1,054,714*** | ***90.7*** |

*Excludes 72 women for whom DHB could not be determined*

**Table 29 - Coverage by ethnicity – women aged 25-69 years screened in the five years prior to 31 December 2014, hysterectomy adjusted**

| Ethnicity | Hysterectomy adjusted population | Women screened in the the last 5 years | |
|---|---|---|---|
| | | N | % |
| Māori | 153,390 | 118,507 | 77.3 |
| Pacific | 64,528 | 58,633 | 90.9 |
| Asian | 163,705 | 120,057 | 73.3 |
| European/Other | 780,935 | 757,557 | 97.0 |
| **TOTAL** | **1,162,558** | **1,054,754** | **90.7** |

**Table 30 - Women aged 25-69 years screened in the five years prior to 31 December 2014, by ethnicity and DHB (hysterectomy adjusted)**

| | Maori | | Pacific | | Asian | | European/Other | |
|---|---|---|---|---|---|---|---|---|
| **DHB** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Auckland | 6,542 | 69.9 | 12,315 | 101.0 | 31,014 | 77.7 | 71,983 | 105.7 |
| Bay of Plenty | 9,376 | 78.1 | 579 | 76.8 | 2,329 | 70.5 | 38,833 | 100.0 |
| Canterbury | 5,911 | 65.1 | 2,266 | 88.3 | 8,687 | 68.9 | 100,980 | 93.1 |
| Capital & Coast | 5,896 | 78.1 | 4,300 | 84.9 | 8,710 | 78.7 | 58,259 | 105.0 |
| Counties Manukau | 14,052 | 79.4 | 22,249 | 92.1 | 24,322 | 71.7 | 50,769 | 94.8 |
| Hawke's Bay | 7,880 | 90.2 | 1,035 | 92.1 | 1,287 | 75.0 | 26,340 | 93.3 |
| Hutt Valley | 4,547 | 85.0 | 2,355 | 91.5 | 3,646 | 85.1 | 24,147 | 95.3 |
| Lakes | 6,966 | 86.6 | 457 | 86.8 | 1,257 | 66.8 | 15,795 | 100.9 |
| Mid Central | 5,490 | 80.7 | 815 | 85.6 | 2,117 | 70.2 | 28,394 | 91.5 |
| Nelson Marlborough | 2,509 | 80.5 | 356 | 81.1 | 1,097 | 68.1 | 30,858 | 95.0 |
| Northland | 9,881 | 80.0 | 406 | 61.9 | 1,024 | 63.7 | 24,637 | 92.7 |
| South Canterbury | 529 | 55.3 | 98 | 96.7 | 334 | 62.9 | 11,756 | 90.2 |
| Southern | 4,157 | 68.4 | 989 | 92.8 | 2,644 | 63.0 | 64,430 | 97.7 |
| Tairawhiti | 4,573 | 86.6 | 171 | 70.4 | 235 | 69.7 | 5,530 | 96.0 |
| Taranaki | 3,400 | 78.8 | 206 | 76.0 | 829 | 64.4 | 22,805 | 97.1 |
| Waikato | 13,827 | 74.2 | 1,833 | 79.5 | 5,980 | 70.9 | 62,512 | 94.5 |
| Wairarapa | 1,300 | 85.6 | 144 | 86.8 | 212 | 66.5 | 8,021 | 90.7 |
| Waitemata | 8,106 | 66.5 | 7,777 | 86.5 | 23,775 | 72.4 | 94,881 | 99.1 |
| West Coast | 596 | 70.8 | 62 | 79.5 | 190 | 57.8 | 6,548 | 89.1 |
| Whanganui | 2,962 | 85.0 | 219 | 71.7 | 366 | 80.4 | 10,049 | 92.5 |
| ***NZ OVERALL*** | | **77.3** | | **90.9** | | **73.3** | | **97.0** |

*Ethnicity-specific estimates for some DHBs exceed 100%. This is potentially due to limitations in the hysterectomy prevalence estimators which are used to adust the eligible population.*

**Table 31 - Women under 20 years of age, and aged 15-19 years, screened in the three years prior to 31 December 2014, by DHB.**

| DHB | Number of women screened in last 3 years aged 10-20 years | aged 15-19 years | % of population aged 15-19 years screened |
|---|---|---|---|
| Auckland | 771 | 771 | 5.0 |
| Bay of Plenty | 354 | 351 | 5.2 |
| Canterbury | 1,401 | 1,399 | 8.4 |
| Capital & Coast | 599 | 597 | 5.6 |
| Counties Manukau | 809 | 807 | 4.1 |
| Hawke's Bay | 312 | 311 | 5.9 |
| Hutt Valley | 231 | 231 | 4.9 |
| Lakes | 168 | 168 | 4.8 |
| Mid Central | 350 | 350 | 5.7 |
| Nelson Marlborough | 270 | 269 | 6.7 |
| Northland | 193 | 192 | 3.6 |
| South Canterbury | 117 | 116 | 6.6 |
| Southern | 683 | 682 | 5.9 |
| Tairawhiti | 66 | 66 | 3.9 |
| Taranaki | 193 | 190 | 5.3 |
| Waikato | 545 | 543 | 4.0 |
| Wairarapa | 82 | 81 | 6.3 |
| Waitemata | 1,205 | 1,203 | 6.2 |
| West Coast | 68 | 68 | 7.8 |
| Whanganui | 93 | 93 | 4.7 |
| *Unspecified* | | - | - |
| **Total** | **8,510** | ***8,488*** | ***5.5*** |

*Excludes one woman whose recorded age was less than ten years at the time of her cervical sample (likely data misentry)*

**Table 32 – Women screened under 20 years of age, as a proportion of all women screened in the three years to 31 December 2014, by DHB**

| DHB | Women screened in last 3 years aged < 20 years | Women screened in last 3 years all ages | Proportion of women screened who were aged < 20 years (%) |
|---|---|---|---|
| Auckland | 771 | 113,267 | 0.7 |
| Bay of Plenty | 354 | 48,433 | 0.7 |
| Canterbury | 1,401 | 113,006 | 1.2 |
| Capital & Coast | 599 | 73,548 | 0.8 |
| Counties Manukau | 809 | 102,859 | 0.8 |
| Hawke's Bay | 312 | 34,209 | 0.9 |
| Hutt Valley | 231 | 32,541 | 0.7 |
| Lakes | 168 | 22,679 | 0.7 |
| Mid Central | 350 | 35,758 | 1.0 |
| Nelson Marlborough | 270 | 33,260 | 0.8 |
| Northland | 193 | 33,083 | 0.6 |
| South Canterbury | 117 | 12,333 | 0.9 |
| Southern | 683 | 70,379 | 1.0 |
| Tairawhiti | 66 | 9,497 | 0.7 |
| Taranaki | 193 | 26,263 | 0.7 |
| Waikato | 545 | 80,655 | 0.7 |
| Wairarapa | 82 | 9,172 | 0.9 |
| Waitemata | 1,205 | 126,895 | 0.9 |
| West Coast | 68 | 7,208 | 0.9 |
| Whanganui | 93 | 12,669 | 0.7 |
| *Unspecified* | - | - | - |
| **Total** | **8,510** | **997,714** | **0.9** |

*Excludes one woman whose recorded age was less than ten years at the time of her cervical sample (likely data misentry)*

**Table 33 – Women screened under 20 years of age, and women aged 18-19 years when they were screened, in the three years to 31 December 2014, by DHB**

| DHB | Number of women screened in last 3 years | | |
|---|---|---|---|
| | aged 10-19 years | aged 18-19 years | % aged 18-19 years |
| Auckland | 771 | 683 | 88.6 |
| Bay of Plenty | 354 | 308 | 87.0 |
| Canterbury | 1,401 | 1,202 | 85.8 |
| Capital & Coast | 599 | 565 | 94.3 |
| Counties Manukau | 809 | 702 | 86.8 |
| Hawke's Bay | 312 | 268 | 85.9 |
| Hutt Valley | 231 | 202 | 87.4 |
| Lakes | 168 | 142 | 84.5 |
| Mid Central | 350 | 328 | 93.7 |
| Nelson Marlborough | 270 | 239 | 88.5 |
| Northland | 193 | 169 | 87.6 |
| South Canterbury | 117 | 87 | 74.4 |
| Southern | 683 | 635 | 93.0 |
| Tairawhiti | 66 | 56 | 84.8 |
| Taranaki | 193 | 166 | 86.0 |
| Waikato | 545 | 500 | 91.7 |
| Wairarapa | 82 | 57 | 69.5 |
| Waitemata | 1,205 | 996 | 82.7 |
| West Coast | 68 | 61 | 89.7 |
| Whanganui | 93 | 89 | 95.7 |
| *Unspecified* | - | - | - |
| ***Total*** | ***8,510*** | ***7,455*** | ***87.6*** |

**Table 34 - Women (25-69 years) screened in the three years to 31 December 2014, as a percentage of the i) hysterectomy-adjustment NZ female population and ii) total NZ female population, by DHB**

| DHB | Women screened in the the last 3 years (hysterectomy-adjusted) | (no hysterectomy adjustment) |
|---|---|---|
| Auckland | 78.8 | 70.8 |
| Bay of Plenty | 78.9 | 68.7 |
| Canterbury | 75.2 | 66.2 |
| Capital & Coast | 81.4 | 72.4 |
| Counties Manukau | 71.5 | 63.6 |
| Hawke's Bay | 77.0 | 67.0 |
| Hutt Valley | 77.8 | 68.7 |
| Lakes | 78.0 | 68.3 |
| Mid Central | 74.8 | 65.5 |
| Nelson Marlborough | 80.2 | 69.4 |
| Northland | 72.5 | 62.6 |
| South Canterbury | 75.6 | 65.4 |
| Southern | 79.3 | 69.5 |
| Tairawhiti | 72.5 | 63.7 |
| Taranaki | 80.2 | 70.3 |
| Waikato | 74.4 | 65.4 |
| Wairarapa | 75.2 | 64.9 |
| Waitemata | 76.2 | 67.5 |
| West Coast | 74.9 | 65.3 |
| Whanganui | 74.9 | 65.0 |

**Table 35 - Trends in three-year coverage by DHB (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)**

| DHB | To 30 Jun 2013 | To 31 Dec 2013 | To 30 Jun 2014 | To 31 Dec 2014 |
|---|---|---|---|---|
| Auckland | 77.5% | 76.2% | 74.6% | 78.8% |
| Bay of Plenty | 80.2% | 78.7% | 78.1% | 78.9% |
| Canterbury | 74.8% | 73.9% | 74.1% | 75.2% |
| Capital & Coast | 80.1% | 79.3% | 78.2% | 81.4% |
| Counties Manukau | 69.3% | 69.5% | 69.4% | 71.5% |
| Hawke's Bay | 81.3% | 81.4% | 80.1% | 77.0% |
| Hutt Valley | 79.5% | 78.0% | 78.4% | 77.8% |
| Lakes | 79.9% | 78.5% | 78.2% | 78.0% |
| Mid Central | 75.4% | 75.4% | 74.2% | 74.8% |
| Nelson Marlborough | 80.8% | 81.7% | 81.2% | 80.2% |
| Northland | 75.7% | 75.1% | 74.0% | 72.5% |
| South Canterbury | 76.1% | 77.6% | 78.7% | 75.6% |
| Southern | 78.5% | 79.8% | 79.4% | 79.3% |
| Tairawhiti | 78.9% | 77.0% | 74.3% | 72.5% |
| Taranaki | 85.2% | 86.6% | 86.0% | 80.2% |
| Waikato | 77.4% | 77.0% | 76.7% | 74.4% |
| Wairarapa | 81.5% | 82.5% | 82.1% | 75.2% |
| Waitemata | 75.5% | 75.5% | 75.6% | 76.2% |
| West Coast | 78.0% | 77.5% | 78.6% | 74.9% |
| Whanganui | 76.4% | 75.3% | 74.6% | 74.9% |
| **Total** | **76.8%** | **76.4%** | **76.0%** | **76.5%** |

*Note: Coverage calculated using population projection as at the end date shown, based on 2006 Census data (2011 update) until June 2014, and based on 2013 Census for estimates to December 2014.*

**Table 36 - Trends in three-year coverage by age (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)**

| Age | To 30 Jun 2013 | To 31 Dec 2013 | To 30 Jun 2014 | To 31 Dec 2014 |
|---|---|---|---|---|
| 20-24 | 54.5% | 54.1% | 53.6% | 53.8% |
| 25-29 | 68.2% | 66.2% | 65.9% | 66.8% |
| 30-34 | 70.4% | 69.7% | 69.0% | 72.3% |
| 35-39 | 78.5% | 76.9% | 76.2% | 76.7% |
| 40-44 | 80.4% | 80.2% | 79.8% | 79.2% |
| 45-49 | 81.6% | 81.4% | 80.8% | 80.7% |
| 50-54 | 80.7% | 81.4% | 80.7% | 80.9% |
| 55-59 | 80.2% | 80.9% | 80.2% | 80.0% |
| 60-64 | 77.9% | 79.0% | 78.9% | 78.5% |
| 65-69 | 72.9% | 73.5% | 73.8% | 74.0% |

*Note: Coverage calculated using population projection at the end date shown, based on 2006 Census data (2011 update) until June 2014, and based on 2013 Census for estimates to December 2014.*

**Table 37 - Trends in three-year coverage by ethnicity (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)**

| Ethnicity | To 30 Jun 2013 | To 31 Dec 2013 | To 30 Jun 2014 | To 31 Dec 2014 |
|---|---|---|---|---|
| Māori | 62.2% | 62.6% | 62.3% | 61.7% |
| Pacific | 68.6% | 68.6% | 69.0% | 72.1% |
| Asian | 63.8% | 64.8% | 65.1% | 62.6% |
| European/ Other | 82.7% | 81.9% | 81.2% | 82.7% |
| **Total** | **76.8%** | **76.4%** | **76.0%** | **76.5%** |

*Note: Coverage calculated using population projection at the end date shown, based on 2006 Census data (2011 update) until June 2014, and based on 2013 Census for estimates to December 2014.*

## *Indicator 2 – First screening events*

**Table 38 - Age distribution of first screening events for period 1 July - 31 December 2014**

| Age | Women with first events | % of first events (ages 20-69 yrs) which occurred in that age group |
|---|---|---|
| 20-24 | 10,790 | 49.1 |
| 25-29 | 3,698 | 16.8 |
| 30-34 | 2,536 | 11.5 |
| 35-39 | 1,383 | 6.3 |
| 40-44 | 977 | 4.4 |
| 45-49 | 750 | 3.4 |
| 50-54 | 552 | 2.5 |
| 55-59 | 530 | 2.4 |
| 60-64 | 471 | 2.1 |
| 65-69 | 310 | 1.4 |
| ***20-69 yrs*** | ***21,997*** | ***100.0*** |

*Percentage = number of first screens in age group divided by total number of first screens x 100*

**Table 39 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by DHB, for period 1 July - 31 December 2014**

| DHB | Women with first events | As a proportion of women with a screening event | | As a proportion of eligible population | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Auckland | 3,401 | 25,249 | 13.5 | 151,902 | 2.2 |
| Bay of Plenty | 828 | 10,474 | 7.9 | 60,544 | 1.4 |
| Canterbury | 2,417 | 24,061 | 10.0 | 150,071 | 1.6 |
| Capital & Coast | 1,867 | 14,959 | 12.5 | 92,730 | 2.0 |
| Counties Manukau | 2,664 | 21,890 | 12.2 | 148,471 | 1.8 |
| Hawke's Bay | 498 | 6,677 | 7.5 | 44,037 | 1.1 |
| Hutt Valley | 649 | 6,846 | 9.5 | 41,915 | 1.5 |
| Lakes | 369 | 4,495 | 8.2 | 29,003 | 1.3 |
| Mid Central | 711 | 7,882 | 9.0 | 47,981 | 1.5 |
| Nelson Marlborough | 486 | 6,787 | 7.2 | 40,824 | 1.2 |
| Northland | 526 | 6,672 | 7.9 | 45,406 | 1.2 |
| South Canterbury | 224 | 2,581 | 8.7 | 15,948 | 1.4 |
| Southern | 1,641 | 15,040 | 10.9 | 89,632 | 1.8 |
| Tairawhiti | 154 | 1,935 | 8.0 | 12,996 | 1.2 |
| Taranaki | 393 | 5,351 | 7.3 | 32,469 | 1.2 |
| Waikato | 1,780 | 16,667 | 10.7 | 108,996 | 1.6 |
| Wairarapa | 138 | 1,967 | 7.0 | 11,933 | 1.2 |
| Waitemata | 2,932 | 28,060 | 10.4 | 168,947 | 1.7 |
| West Coast | 116 | 1,382 | 8.4 | 9,481 | 1.2 |
| Whanganui | 202 | 2,813 | 7.2 | 16,808 | 1.2 |
| **Total** | **21,996** | **211,788** | **10.4** | **1,320,093** | **1.7** |

*Note: Proportions shown are women with first screening event within a DHB, divided by i) all women with a screening event within that DHB (first or subsequent events) and ii) the hysterectomy-adjusted 2013 Census population projected to 31 December 2014 for that DHB, as a percent. Total women screened and women with first events exclude those for whom DHB could not be ascertained.*

**Table 40 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by ethnicity, for period 1 July - 31 December 2014**

| Ethnicity | Women with first events | As a proportion of women with a screening event[i] | | As a proportion of eligible population[ii] | |
|---|---|---|---|---|---|
| | | N | % | N | % |
| Māori | 2,346 | 23,590 | 9.9 | 183,412 | 1.3 |
| Pacific | 1,695 | 11,050 | 15.3 | 77,877 | 2.2 |
| Asian | 5,295 | 24,728 | 21.4 | 189,590 | 2.8 |
| European/Other | 12,661 | 152,424 | 8.3 | 869,213 | 1.5 |
| **Total** | **21,997** | **211,792** | **10.4** | **1,320,093** | **1.7** |

*Note: Proportions shown are women with first screening event within a DHB, divided by i) all women with a screening event within that DHB (first or subsequent events) and ii) the hysterectomy-adjusted 2013 Census population projected to 31 December 2014 for that DHB, as a percent*

**Table 41 – Median age of women with a first screening event, by ethnicity**

| Ethnic Group | Median Age | Mean Age |
|---|---|---|
| Māori | 21 | *25.1* |
| Pacific | 26 | *30.3* |
| Asian | 31 | *34.8* |
| European/Other | 23 | *27.6* |

## *Indicator 3 – Withdrawal rates*

**Table 42 - Number of women who withdrew from the NCSP Register 1 July - 31 December 2014 by age, and proportion of women who were enrolled at the start of the reporting period who withdrew**

| Age | Enrolled at start | Women withdrawn | |
|---|---|---|---|
| | | N | % |
| <20 | 1,343 | - | 0 |
| 20-24 | 80,908 | 3 | 0.004 |
| 25-29 | 137,657 | 1 | 0.001 |
| 30-34 | 160,792 | 1 | 0.001 |
| 35-39 | 171,115 | - | 0.000 |
| 40-44 | 196,711 | 3 | 0.002 |
| 45-49 | 190,914 | 7 | 0.004 |
| 50-54 | 186,427 | 4 | 0.002 |
| 55-59 | 155,465 | 6 | 0.004 |
| 60-64 | 125,687 | 3 | 0.002 |
| 65-69 | 103,070 | 1 | 0.001 |
| 70+ | 206,849 | - | 0.000 |
| **Total (all ages)** | **1,716,938** | **29** | **0.002** |
| **Total (20-69)** | **1,508,746** | **29** | **0.002** |

**As a proportion of women enrolled at the start of the reporting period*

**Table 43 - Number of women (aged 20-69 years) who withdrew from the NCSP Register 1 July - 31 December 2014 ethnicity, and proportion of women who were enrolled at the start of the reporting period who withdrew**

| Ethnicity | Enrolled at start | Women withdrawn | |
|---|---|---|---|
| | | N | % |
| Māori | 181,319 | 4 | 0.002 |
| Pacific | 90,829 | 2 | 0.002 |
| Asian | 157,848 | 4 | 0.003 |
| European/Other | 1,078,750 | 19 | 0.002 |
| **Total** | **1,508,746** | **29** | **0.002** |

**As a proportion of women enrolled at the start of the reporting period*

## *Indicator 4 – Early re-screening*

**Table 44 - Early re-screening by five-year age group**

| Age | Women recommended to return in 3 years | Women with >1 subsequent test | |
|---|---|---|---|
| | | N | % |
| 20-24 | 1,155 | 247 | 21.4 |
| 25-29 | 3,911 | 734 | 18.8 |
| 30-34 | 4,444 | 739 | 16.6 |
| 35-39 | 5,114 | 822 | 16.1 |
| 40-44 | 6,197 | 1,067 | 17.2 |
| 45-49 | 6,062 | 969 | 16.0 |
| 50-54 | 6,060 | 992 | 16.4 |
| 55-59 | 4,781 | 749 | 15.7 |
| 60-64 | 3,902 | 508 | 13.0 |
| 65-69 | 3,111 | 358 | 11.5 |
| **All ages** | **44,737** | **7,185** | **16.1** |

**Table 45 - Early re-screening by DHB**

| DHB | Women recommended to return in 3 years | Women with >1 subsequent test | |
|---|---|---|---|
| | | N | % |
| Auckland | 4,948 | 1,003 | 20.3 |
| Bay of Plenty | 2,218 | 404 | 18.2 |
| Canterbury | 5,254 | 913 | 17.4 |
| Capital & Coast | 3,692 | 462 | 12.5 |
| Counties Manukau | 4,268 | 676 | 15.8 |
| Hawke's Bay | 1,495 | 198 | 13.2 |
| Hutt Valley | 1,622 | 162 | 10.0 |
| Lakes | 1,038 | 163 | 15.7 |
| Mid Central | 1,531 | 137 | 8.9 |
| Nelson | | | |
| Marlborough | 1,512 | 192 | 12.7 |
| Northland | 1,373 | 209 | 15.2 |
| South Canterbury | 539 | 96 | 17.8 |
| Southern | 3,109 | 426 | 13.7 |
| Tairawhiti | 442 | 46 | 10.4 |
| Taranaki | 1,165 | 132 | 11.3 |
| Waikato | 3,492 | 462 | 13.2 |
| Wairarapa | 418 | 77 | 18.4 |
| Waitemata | 5,813 | 1,335 | 23.0 |
| West Coast | 316 | 51 | 16.1 |
| Whanganui | 489 | 41 | 8.4 |
| *Unspecified* | *3* | - | |
| **Total** | **44,734** | **7,185** | **16.1** |

**Table 46 - Early re-screening by ethnicity**

| Ethnicity | Women recommended to return in 3 years | Women with >1 subsequent test | |
|---|---|---|---|
| | | N | % |
| Māori | 4,314 | 635 | 14.7 |
| Pacific | 2,021 | 234 | 11.6 |
| Asian | 4,450 | 771 | 17.3 |
| European/ Other | 33,952 | 5,545 | 16.3 |
| **Total** | **44,737** | **7,185** | **16.1** |

## *Indicator 5 – Laboratory indicators*

### Indicator 5.1 – Laboratory cytology reporting

**Table 47 – Age-standardised percentage of satisfactory smears reported as HSIL, by laboratory**

| | % satisfactory smears reported as HSIL | |
|---|---|---|
| **Laboratory** | **Age-standardised rate* (20-69 years)** | **Crude rate** |
| Aotea Pathology Ltd | 0.40% | 0.46% |
| Canterbury Health Laboratories | 0.96% | 1.13% |
| Diagnostic Medlab Ltd | 0.47% | 0.49% |
| LabPLUS | 3.30% | 3.13% |
| Medlab Central Ltd | 0.73% | 0.78% |
| Pathlab | 0.58% | 0.60% |
| Southern Community Labs | 0.99% | 1.04% |
| **Total** | **0.82%** | **0.87%** |

** Age-standardised to the NZ 2013 Census population (females, ages 20-69 years)*

## Indicator 5.2 – Accuracy of cytology predicting HSIL

**Table 48 - Positive predictive value of a report of HSIL+SC cytology by laboratory**

| Lab | Histology available | | HSIL confirmed by histology | | No histology | | Total reports |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N |
| Aotea Pathology Ltd | 80 | 90.9 | 65 | 81.3 | 8 | 9.1 | 88 |
| Canterbury Health Laboratories | 89 | 91.8 | 78 | 87.6 | 8 | 8.2 | 97 |
| Diagnostic Medlab Ltd | 318 | 90.6 | 239 | 75.2 | 33 | 9.4 | 351 |
| LabPLUS | 153 | 96.2 | 128 | 83.7 | 6 | 3.8 | 159 |
| Medlab Central Ltd | 142 | 94.0 | 121 | 85.2 | 9 | 6.0 | 151 |
| Pathlab | 102 | 97.1 | 89 | 87.3 | 3 | 2.9 | 105 |
| Southern Community Labs Dunedin | 697 | 92.4 | 609 | 87.4 | 57 | 7.6 | 754 |
| **Total** | **1,581** | **92.7** | **1,329** | **84.1** | **124** | **7.3** | **1,705** |

*Target: 65% - 85%*

**Table 49 - Positive predictive value of a report of ASC-H cytology by laboratory**

| Lab | Histology available | | HSIL confirmed by histology | | No histology | | Total reports |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N |
| Aotea Pathology Ltd | 74 | 80.4 | 40 | 54.1 | 18 | 19.6 | 92 |
| Canterbury Health Laboratories | 81 | 86.2 | 54 | 66.7 | 13 | 13.8 | 94 |
| Diagnostic Medlab Ltd | 221 | 81.0 | 85 | 38.5 | 52 | 19.0 | 273 |
| LabPLUS | 232 | 79.2 | 115 | 49.6 | 61 | 20.8 | 293 |
| Medlab Central Ltd | 88 | 82.2 | 49 | 55.7 | 19 | 17.8 | 107 |
| Pathlab | 105 | 85.4 | 56 | 53.3 | 18 | 14.6 | 123 |
| Southern Community Labs Dunedin | 148 | 82.7 | 79 | 53.4 | 31 | 17.3 | 179 |
| **Total** | **949** | **81.7** | **478** | **50.4** | **212** | **18.3** | **1,161** |

**Table 50 - Positive predictive value of a report of ASC-H + HSIL + SC cytology by laboratory**

| Lab | Histology available | | HSIL confirmed by histology | | No histology | | Total reports |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N |
| Aotea Pathology Ltd | 154 | 85.6 | 105 | 68.2 | 26 | 14.4 | 180 |
| Canterbury Health Laboratories | 170 | 89.0 | 132 | 77.6 | 21 | 11.0 | 191 |
| Diagnostic Medlab Ltd | 539 | 86.4 | 324 | 60.1 | 85 | 13.6 | 624 |
| LabPLUS | 385 | 85.2 | 243 | 63.1 | 67 | 14.8 | 452 |
| Medlab Central Ltd | 230 | 89.1 | 170 | 73.9 | 28 | 10.9 | 258 |
| Pathlab | 207 | 90.8 | 145 | 70.0 | 21 | 9.2 | 228 |
| Southern Community Labs Dunedin | 845 | 90.6 | 688 | 81.4 | 88 | 9.4 | 933 |
| **Total** | **2,530** | **88.3** | **1,807** | **71.4** | **336** | **11.7** | **2,866** |

## Indicator 5.5 – Laboratory turnaround time

**Table 51 - Timeliness of cytology reporting by laboratory, 1 July - 31 December 2014**

| | Laboratory turnaround time - cytology | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Within 7 days | | 8-15 days | | Total within 15 days | | More than 15 days | | Total |
| **Laboratory** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** |
| Aotea Pathology Ltd | 20,940 | 95.9 | 887 | 4.1 | 21,827 | 100.0 | 8 | 0.0 | 21,835 |
| Canterbury Health Laboratories | 8,910 | 78.9 | 2,167 | 19.2 | 11,077 | 98.1 | 213 | 1.9 | 11,290 |
| Diagnostic Medlab Ltd | 49,211 | 96.3 | 880 | 1.7 | 50,091 | 98.1 | 992 | 1.9 | 51,083 |
| LabPLUS | 6,851 | 87.0 | 638 | 8.1 | 7,489 | 95.1 | 387 | 4.9 | 7,876 |
| Medlab Central Ltd | 15,950 | 93.8 | 503 | 3.0 | 16,453 | 96.8 | 548 | 3.2 | 17,001 |
| Pathlab | 21,570 | 96.7 | 660 | 3.0 | 22,230 | 99.7 | 76 | 0.3 | 22,306 |
| Southern Community Labs Dunedin | 75,311 | 90.7 | 7,119 | 8.6 | 82,430 | 99.3 | 597 | 0.7 | 83,027 |
| **Total** | **198,743** | **92.7** | **12,854** | **6.0** | **211,597** | **98.7** | **2,821** | **1.3** | **214,418** |

*Target: 90 % within seven working days and 100% within 15 working days.*

*Note: total samples reported on for this Indicator is different from that reported in Indicator 5.1. Here, 'total samples' refers to all cytology samples* received by laboratories *within the reporting period. Indicator 5.1 shows the total number of cytology samples* taken *during the period.*

**Table 52 - Timeliness of histology reporting by laboratory, 1 July - 31 December 2014**

| | Laboratory turnaround time - histology | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Within 10 days | | 10-15 days | | Total within 15 days | | More than 15 days | | Total |
| Laboratory | N | % | N | % | N | % | N | % | N |
| Aotea Pathology Ltd | 354 | 96.7 | 7 | 1.9 | 361 | 98.6 | 5 | 1.4 | 366 |
| Canterbury Health Laboratories | 1,446 | 96.4 | 20 | 1.3 | 1,466 | 97.7 | 34 | 2.3 | 1,500 |
| Capital & Coast District Health Board Pathology | 693 | 69.2 | 195 | 19.5 | 888 | 88.6 | 114 | 11.4 | 1,002 |
| Diagnostic Medlab Ltd | 1,531 | 90.9 | 39 | 2.3 | 1,570 | 93.2 | 115 | 6.8 | 1,685 |
| Hutt Hospital Laboratory | 72 | 59.5 | 17 | 14.0 | 89 | 73.6 | 32 | 26.4 | 121 |
| LabPLUS | 624 | 72.2 | 36 | 4.2 | 660 | 76.4 | 204 | 23.6 | 864 |
| Medlab Central Ltd | 1,096 | 82.7 | 71 | 5.4 | 1,167 | 88.1 | 158 | 11.9 | 1,325 |
| Memorial Hospital Hastings Lab | 78 | 100.0 | - | 0.0 | 78 | 100.0 | - | 0.0 | 78 |
| Middlemore Hospital Laboratory | 924 | 82.0 | 152 | 13.5 | 1,076 | 95.5 | 51 | 4.5 | 1,127 |
| Nelson Hospital Laboratory | 101 | 100.0 | - | 0.0 | 101 | 100.0 | - | 0.0 | 101 |
| North Shore Hospital Laboratory | 1,507 | 97.5 | 24 | 1.6 | 1,531 | 99.0 | 15 | 1.0 | 1,546 |
| Northland Pathology Laboratory | 122 | 44.0 | 13 | 4.7 | 135 | 48.7 | 142 | 51.3 | 277 |
| Pathlab | 898 | 91.4 | 53 | 5.4 | 951 | 96.8 | 31 | 3.2 | 982 |
| Southern Community Labs Dunedin | 2,860 | 99.6 | 6 | 0.2 | 2,866 | 99.8 | 6 | 0.2 | 2,872 |
| Taranaki Medlab | 327 | 100.0 | - | 0.0 | 327 | 100.0 | - | 0.0 | 327 |
| Waikato Hospital Laboratory | 165 | 99.4 | - | 0.0 | 165 | 99.4 | 1 | 0.6 | 166 |
| **Total** | **12,798** | **89.3** | **633** | **4.4** | **13,431** | **93.7** | **908** | **6.3** | **14,339** |

*Target: 90% within ten working days and 98% within 15 working days of receipt of the sample*

*Note: total histology samples reported on for this Indicator is different from that reported in Indicator 5.4. Indicator 5.5 includes all histology samples* received by laboratories *within the reporting period, while 5.4 includes all histology samples* taken *within the reporting period*

**Table 53 – Timeliness of reporting for cytology with associated HPV testing by laboratory, 1 July - 31 December 2014**

| | Laboratory turnaround time - cytology with HPV testing | | | | |
|---|---|---|---|---|---|
| | Within 15 days | | More than 15 days | | Total |
| Laboratory | N | % | N | % | N |
| Aotea Pathology Ltd | 249 | 100.0 | - | 0.0 | 249 |
| Canterbury Health Laboratories | 187 | 88.2 | 25 | 11.8 | 212 |
| Diagnostic Medlab Ltd | 992 | 98.5 | 15 | 1.5 | 1,007 |
| LabPLUS | 46 | 90.2 | 5 | 9.8 | 51 |
| Medlab Central Ltd | 361 | 96.8 | 12 | 3.2 | 373 |
| Pathlab | 450 | 98.7 | 6 | 1.3 | 456 |
| Southern Community Labs Dunedin | 605 | 99.7 | 2 | 0.3 | 607 |
| **Total** | **2,890** | **97.8** | **65** | **2.2** | **2,955** |

## *Indicator 6 – Follow-up of women with high grade cytology*

**Table 54 - Women with a histology report within 90 days of a high grade cytology report, by DHB and age**

| | <20 | | 20-24 | | 25-29 | | 30-34 | | 35-39 | | 40-44 | | 45-49 | | 50-54 | | 55-59 | | 60-64 | | 65-69 | | 70+ | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DHB** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | |
| Auckland | - | - | 36 | 80.0 | 63 | 85.1 | 44 | 84.6 | 20 | 76.9 | 17 | 70.8 | 12 | 60.0 | 14 | 73.7 | 4 | 80.0 | 3 | 25.0 | 3 | 75.0 | 2 | 33.3 | 218 |
| Bay of Plenty | - | - | 16 | 88.9 | 15 | 93.8 | 11 | 84.6 | 10 | 76.9 | 8 | 80.0 | 5 | 100.0 | 2 | 50.0 | 5 | 100.0 | 1 | 33.3 | - | - | 0 | 0.0 | 73 |
| Canterbury | 1 | 100.0 | 47 | 95.9 | 60 | 93.8 | 27 | 84.4 | 20 | 90.9 | 12 | 100.0 | 10 | 100.0 | 3 | 100.0 | 7 | 63.6 | 3 | 75.0 | 3 | 75.0 | 1 | 25.0 | 194 |
| Capital & Coast | - | - | 12 | 85.7 | 19 | 67.9 | 24 | 85.7 | 8 | 66.7 | 5 | 71.4 | 6 | 100.0 | 4 | 100.0 | 0 | 0.0 | 3 | 100.0 | - | - | 1 | 33.3 | 82 |
| Counties Manukau | - | - | 21 | 63.6 | 42 | 75.0 | 29 | 76.3 | 19 | 73.1 | 23 | 85.2 | 15 | 78.9 | 13 | 81.3 | 5 | 50.0 | 4 | 44.4 | 6 | 66.7 | 1 | 25.0 | 178 |
| Hawke's Bay | - | - | 12 | 85.7 | 15 | 65.2 | 21 | 95.5 | 5 | 100.0 | 7 | 87.5 | 4 | 80.0 | 4 | 57.1 | 3 | 75.0 | 4 | 80.0 | 3 | 60.0 | 1 | 33.3 | 79 |
| Hutt Valley | - | - | 6 | 100.0 | 9 | 90.0 | 7 | 77.8 | 8 | 88.9 | 2 | 100.0 | 1 | 100.0 | 3 | 100.0 | - | - | 2 | 100.0 | - | - | - | - | 38 |
| Lakes | - | - | 7 | 87.5 | 7 | 77.8 | 11 | 91.7 | 7 | 87.5 | 4 | 80.0 | 1 | 100.0 | 2 | 50.0 | - | - | 0 | 0.0 | - | - | 0 | 0.0 | 39 |
| Mid Central | - | - | 9 | 75.0 | 26 | 86.7 | 14 | 93.3 | 6 | 100.0 | 9 | 90.0 | 2 | 100.0 | 5 | 100.0 | 3 | 75.0 | 0 | 0.0 | - | - | - | - | 74 |
| Nelson Marlborough | - | - | 3 | 100.0 | 8 | 88.9 | 6 | 100.0 | 6 | 100.0 | 8 | 100.0 | 4 | 100.0 | 2 | 100.0 | 4 | 100.0 | 1 | 50.0 | 0 | 0.0 | 1 | 100.0 | 43 |
| Northland | - | - | 10 | 83.3 | 3 | 30.0 | 7 | 58.3 | 2 | 33.3 | 3 | 50.0 | 1 | 25.0 | 2 | 50.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 30 |
| South Canterbury | - | - | 3 | 75.0 | 2 | 100.0 | 2 | 100.0 | 3 | 60.0 | 1 | 100.0 | 1 | 100.0 | 5 | 100.0 | 0 | 0.0 | - | - | 1 | 100.0 | 3 | 100.0 | 21 |
| Southern | 1 | 100.0 | 23 | 92.0 | 34 | 77.3 | 20 | 76.9 | 15 | 100.0 | 18 | 85.7 | 6 | 75.0 | 5 | 71.4 | 1 | 33.3 | 4 | 100.0 | 2 | 100.0 | 2 | 40.0 | 131 |
| Tairawhiti | - | - | 3 | 75.0 | 10 | 90.9 | 3 | 75.0 | 4 | 100.0 | 2 | 50.0 | - | - | 1 | 50.0 | 1 | 100.0 | 2 | 100.0 | 1 | 100.0 | - | - | 27 |
| Taranaki | - | - | 11 | 100.0 | 13 | 81.3 | 6 | 85.7 | 9 | 90.0 | 5 | 71.4 | 4 | 66.7 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | - | - | 49 |
| Waikato | - | - | 32 | 88.9 | 34 | 85.0 | 18 | 78.3 | 16 | 94.1 | 20 | 95.2 | 6 | 50.0 | 14 | 93.3 | 2 | 50.0 | 2 | 40.0 | 1 | 25.0 | 1 | 25.0 | 146 |
| Wairarapa | 1 | 100.0 | 5 | 100.0 | 4 | 100.0 | 2 | 100.0 | 2 | 100.0 | - | - | 1 | 100.0 | - | - | - | - | - | - | 1 | 50.0 | - | - | 16 |
| Waitemata | 3 | 75.0 | 52 | 78.8 | 39 | 83.0 | 37 | 90.2 | 22 | 71.0 | 11 | 91.7 | 12 | 80.0 | 15 | 93.8 | 12 | 66.7 | 5 | 71.4 | 3 | 60.0 | 5 | 83.3 | 216 |
| West Coast | - | - | 4 | 50.0 | 2 | 100.0 | 3 | 100.0 | 1 | 100.0 | 1 | 50.0 | 1 | 100.0 | - | - | - | - | 1 | 50.0 | 0 | 0.0 | - | - | 13 |
| Whanganui | - | - | 9 | 81.8 | 8 | 100.0 | 3 | 75.0 | 1 | 50.0 | - | - | 1 | 100.0 | 1 | 100.0 | 1 | 50.0 | - | - | 1 | 100.0 | 1 | 100.0 | 26 |
| **Total** | **6** | **85.7** | **321** | **83.6** | **413** | **82.1** | **295** | **84.0** | **184** | **81.4** | **156** | **83.4** | **93** | **76.2** | **95** | **79.8** | **50** | **64.9** | **35** | **53.8** | **26** | **61.9** | **19** | **41.3** | **1,693** |

*'– ' indicates there were no women in this sub-category with a high grade cytology report*

**Table 55 - Women with a histology report within 180 days of a high grade cytology report, by DHB and age**

| | <20 | | 20-24 | | 25-29 | | 30-34 | | 35-39 | | 40-44 | | 45-49 | | 50-54 | | 55-59 | | 60-64 | | 65-69 | | 70+ | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DHB** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | |
| Auckland | - | - | 38 | 84.4 | 69 | 93.2 | 49 | 94.2 | 21 | 80.8 | 20 | 83.3 | 18 | 90.0 | 16 | 84.2 | 4 | 80.0 | 6 | 50.0 | 4 | 100.0 | 4 | 66.7 | 249 |
| Bay of Plenty | - | - | 16 | 88.9 | 15 | 93.8 | 12 | 92.3 | 12 | 92.3 | 10 | 100.0 | 5 | 100.0 | 2 | 50.0 | 5 | 100.0 | 1 | 33.3 | - | - | 1 | 50.0 | 79 |
| Canterbury | 1 | 100.0 | 47 | 95.9 | 61 | 95.3 | 28 | 87.5 | 22 | 100.0 | 12 | 100.0 | 10 | 100.0 | 3 | 100.0 | 10 | 90.9 | 3 | 75.0 | 3 | 75.0 | 2 | 50.0 | 202 |
| Capital & Coast | - | - | 13 | 92.9 | 24 | 85.7 | 26 | 92.9 | 9 | 75.0 | 5 | 71.4 | 6 | 100.0 | 4 | 100.0 | 3 | 100.0 | 3 | 100.0 | - | - | 1 | 33.3 | 94 |
| Counties Manukau | - | - | 24 | 72.7 | 51 | 91.1 | 33 | 86.8 | 20 | 76.9 | 23 | 85.2 | 16 | 84.2 | 13 | 81.3 | 6 | 60.0 | 5 | 55.6 | 8 | 88.9 | 2 | 50.0 | 201 |
| Hawke's Bay | - | - | 12 | 85.7 | 17 | 73.9 | 21 | 95.5 | 5 | 100.0 | 7 | 87.5 | 4 | 80.0 | 4 | 57.1 | 3 | 75.0 | 4 | 80.0 | 3 | 60.0 | 1 | 33.3 | 81 |
| Hutt Valley | - | - | 6 | 100.0 | 10 | 100.0 | 8 | 88.9 | 8 | 88.9 | 2 | 100.0 | 1 | 100.0 | 3 | 100.0 | - | - | 2 | 100.0 | - | - | - | - | 40 |
| Lakes | - | - | 7 | 87.5 | 7 | 77.8 | 12 | 100.0 | 7 | 87.5 | 4 | 80.0 | 1 | 100.0 | 3 | 75.0 | - | - | 0 | 0.0 | - | - | 1 | 50.0 | 42 |
| Mid Central | - | - | 9 | 75.0 | 27 | 90.0 | 14 | 93.3 | 6 | 100.0 | 9 | 90.0 | 2 | 100.0 | 5 | 100.0 | 3 | 75.0 | 0 | 0.0 | - | - | - | - | 75 |
| Nelson Marlborough | - | - | 3 | 100.0 | 8 | 88.9 | 6 | 100.0 | 6 | 100.0 | 8 | 100.0 | 4 | 100.0 | 2 | 100.0 | 4 | 100.0 | 1 | 50.0 | 0 | 0.0 | 1 | 100.0 | 43 |
| Northland | - | - | 11 | 91.7 | 7 | 70.0 | 9 | 75.0 | 5 | 83.3 | 5 | 83.3 | 3 | 75.0 | 4 | 100.0 | 1 | 100.0 | 2 | 100.0 | 1 | 100.0 | 0 | 0.0 | 48 |
| South Canterbury | - | - | 3 | 75.0 | 2 | 100.0 | 2 | 100.0 | 4 | 80.0 | 1 | 100.0 | 1 | 100.0 | 5 | 100.0 | 0 | 0.0 | - | - | 1 | 100.0 | 3 | 100.0 | 22 |
| Southern | 1 | 100.0 | 24 | 96.0 | 38 | 86.4 | 23 | 88.5 | 15 | 100.0 | 19 | 90.5 | 6 | 75.0 | 5 | 71.4 | 1 | 33.3 | 4 | 100.0 | 2 | 100.0 | 2 | 40.0 | 140 |
| Tairawhiti | - | - | 4 | 100.0 | 10 | 90.9 | 3 | 75.0 | 4 | 100.0 | 3 | 75.0 | - | - | 2 | 100.0 | 1 | 100.0 | 2 | 100.0 | 1 | 100.0 | - | - | 30 |
| Taranaki | - | - | 11 | 100.0 | 15 | 93.8 | 6 | 85.7 | 10 | 100.0 | 6 | 85.7 | 5 | 83.3 | 1 | 50.0 | 1 | 100.0 | 1 | 100.0 | 1 | 100.0 | - | - | 57 |
| Waikato | - | - | 32 | 88.9 | 38 | 95.0 | 20 | 87.0 | 16 | 94.1 | 20 | 95.2 | 8 | 66.7 | 14 | 93.3 | 2 | 50.0 | 2 | 40.0 | 1 | 25.0 | 2 | 50.0 | 155 |
| Wairarapa | 1 | 100.0 | 5 | 100.0 | 4 | 100.0 | 2 | 100.0 | 2 | 100.0 | - | - | 1 | 100.0 | - | - | - | - | - | - | 1 | 50.0 | - | - | 16 |
| Waitemata | 4 | 100.0 | 56 | 84.8 | 39 | 83.0 | 40 | 97.6 | 25 | 80.6 | 11 | 91.7 | 12 | 80.0 | 16 | 100.0 | 13 | 72.2 | 6 | 85.7 | 3 | 60.0 | 5 | 83.3 | 230 |
| West Coast | - | - | 7 | 87.5 | 2 | 100.0 | 3 | 100.0 | 1 | 100.0 | 2 | 100.0 | 1 | 100.0 | - | - | - | - | 1 | 50.0 | 0 | 0.0 | - | - | 17 |
| Whanganui | - | - | 10 | 90.9 | 8 | 100.0 | 3 | 75.0 | 1 | 50.0 | - | - | 1 | 100.0 | 1 | 100.0 | 2 | 100.0 | - | - | 1 | 100.0 | 1 | 100.0 | 28 |
| **Total** | **7** | **100.0** | **338** | **88.0** | **452** | **89.9** | **320** | **91.2** | **199** | **88.1** | **167** | **89.3** | **105** | **86.1** | **103** | **86.6** | **59** | **76.6** | **43** | **66.2** | **30** | **71.4** | **26** | **56.5** | **1,849** |

*' – ' indicates there were no women in this sub-category with a high grade cytology report*

## *Indicator 7 – Colposcopy indicators*

### Indicator 7.1 – Timeliness of colposcopic assessment – high grade cytology

**Table 56 - Women with high grade cytology (including cytological suspicion of invasive disease), by DHB**

| DHB | HG women | HG women with referral recorded on the NCSP Register |
|---|---|---|
| | N | N |
| Auckland | 205 | 179 |
| Bay of Plenty | 75 | 69 |
| Canterbury | 188 | 171 |
| Capital & Coast | 88 | 80 |
| Counties Manukau | 192 | 181 |
| Hawke's Bay | 94 | 64 |
| Hutt Valley | 35 | 32 |
| Lakes | 48 | 46 |
| Mid Central | 74 | 72 |
| Nelson Marlborough | 44 | 40 |
| Northland | 57 | 54 |
| South Canterbury | 22 | 18 |
| Southern | 141 | 134 |
| Tairawhiti | 33 | 33 |
| Taranaki | 55 | 47 |
| Waikato | 150 | 135 |
| Wairarapa | 17 | 17 |
| Waitemata | 199 | 190 |
| West Coast | 17 | 12 |
| Whanganui | 30 | 27 |
| *Private practice* | *365* | *232* |
| **Total** | **2,129** | **1,833** |

**Table 57 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 20 working days, by ethnicity**

| Ethnicity | HG women | Referrals received | Women seen within 20 working days | |
|---|---|---|---|---|
| | N | N | N | % |
| Māori | 358 | 332 | 184 | 55.4 |
| Pacific | 111 | 100 | 54 | 54.0 |
| Asian | 152 | 133 | 82 | 61.7 |
| European/Other | 1,428 | 1,226 | 846 | 69.0 |
| **Total** | **2,049** | **1,791** | **1,166** | **65.1** |

**Table 58 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 20 working days, by DHB**

| DHB | HG women | Referrals received | Women seen within 20 working days | |
|---|---|---|---|---|
| | N | N | N | % |
| *Public clinics overall* | *1,692* | *1,563* | *1,029* | *65.8* |
| Auckland | 191 | 173 | 116 | 67.1 |
| Bay of Plenty | 70 | 66 | 45 | 68.2 |
| Canterbury | 182 | 168 | 132 | 78.6 |
| Capital & Coast | 86 | 80 | 56 | 70.0 |
| Counties Manukau | 184 | 177 | 92 | 52.0 |
| Hawke's Bay | 88 | 62 | 39 | 62.9 |
| Hutt Valley | 35 | 32 | 30 | 93.8 |
| Lakes | 46 | 44 | 30 | 68.2 |
| Mid Central | 71 | 70 | 43 | 61.4 |
| Nelson Marlborough | 42 | 38 | 17 | 44.7 |
| Northland | 56 | 54 | 46 | 85.2 |
| South Canterbury | 21 | 18 | 15 | 83.3 |
| Southern | 134 | 129 | 59 | 45.7 |
| Tairawhiti | 33 | 33 | 23 | 69.7 |
| Taranaki | 55 | 47 | 32 | 68.1 |
| Waikato | 141 | 130 | 78 | 60.0 |
| Wairarapa | 16 | 16 | 14 | 87.5 |
| Waitemata | 195 | 187 | 138 | 73.8 |
| West Coast | 16 | 12 | 4 | 33.3 |
| Whanganui | 30 | 27 | 20 | 74.1 |
| *Private Practice* | *357* | *228* | *137* | *60.1* |
| **Total** | **2,049** | **1,791** | **1,166** | **65.1** |

**Table 59 - Women with cytological suspicion of invasive disease, by cytology result subcategory**

| Cytology result sub-category | Total women | Women with accepted referral |
|---|---|---|
| | N | N |
| HS2 | 20 | 18 |
| SC | 15 | 8 |
| AC1-5 | 31 | 7 |
| R10, R14 | 14 | 9 |
| **Total** | **80** | **42** |

## Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

**Table 60 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by DHB**

| DHB | Women with persistent LG/ LG & hrHPV positive<br>N | Women with subsequent referral recorded<br>N | Median time between cytology result and referral<br>(days) | Women with subsequent colposcopy visit recorded<br>N | Median time between referral and colposcopy visit<br>(days) | Median time between cytology result and colposcopy visit<br>(days) |
|---|---|---|---|---|---|---|
| Auckland | 514 | 465 | 6 | 454 | 111 | 130 |
| Bay of Plenty | 246 | 210 | 5 | 218 | 141 | 155.5 |
| Canterbury | 314 | 291 | 5 | 295 | 62 | 78 |
| Capital & Coast | 301 | 283 | 8 | 281 | 62 | 82 |
| Counties Manukau | 414 | 388 | 6 | 332 | 198 | 206.5 |
| Hawke's Bay | 157 | 140 | 7 | 135 | 233 | 239 |
| Hutt Valley | 109 | 96 | 7 | 92 | 134 | 150 |
| Lakes | 77 | 74 | 11 | 69 | 168 | 181 |
| Mid Central | 172 | 164 | 6 | 161 | 162 | 168 |
| Nelson Marlborough | 92 | 87 | 6 | 79 | 131 | 150 |
| Northland | 75 | 71 | 6 | 68 | 144 | 153 |
| South Canterbury | 28 | 24 | 6.5 | 24 | 135 | 147 |
| Southern | 128 | 117 | 7 | 111 | 200 | 213 |
| Tairawhiti | 53 | 49 | 7 | 50 | 64.5 | 71.5 |
| Taranaki | 77 | 66 | 7 | 68 | 130 | 149 |
| Waikato | 334 | 303 | 5 | 279 | 122 | 128 |
| Wairarapa | 31 | 26 | 3.5 | 28 | 80 | 87.5 |
| Waitemata | 434 | 406 | 5 | 371 | 133 | 143 |
| West Coast | 33 | 31 | 4 | 32 | 85 | 87.5 |
| Whanganui | 80 | 78 | 5 | 73 | 120 | 127 |
| *Private practice* | *833* | *515* | *8* | *777* | *16* | *32* |
| **Total** | **4,502** | **3,884** | **6** | **3,997** | **116** | **124** |

**Table 61 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by ethnicity**

| DHB | Women with persistent LG/ LG & hrHPV positive<br>N | Women with subsequent referral recorded<br>N | Median time between cytology result and referral<br>(days) | Women with subsequent colposcopy visit recorded<br>N | Median time between referral and colposcopy visit<br>(days) | Median time between cytology result and colposcopy visit<br>(days) |
|---|---|---|---|---|---|---|
| Māori | 608 | 565 | 7 | 512 | 129 | 141.0 |
| Pacific | 225 | 213 | 6 | 182 | 159.5 | 178.5 |
| Asian | 385 | 330 | 6 | 328 | 132 | 135 |
| European/Other | 3,284 | 2,776 | 6 | 2,975 | 110 | 112 |
| **Total** | **4,502** | **3,884** | **6** | **3,997** | **116** | **124** |

## Indicator 7.3 – Adequacy of documenting colposcopic assessment

**Table 62 - Completion of colposcopic assessment fields, by DHB**

| DHB | Total colposcopies N | % of colposcopies performed where items are completed | | | | | |
|---|---|---|---|---|---|---|---|
| | | SCJ visibility | Presence/ absence lesion | Opinion re abnormality grade | Follow-up type | Follow-up timeframe | All items complete |
| *Public clinics overall* | *11,127* | *94.9* | *100.0* | *92.3* | *98.6* | *98.2* | *89.4* |
| Auckland | 1,103 | 96.7 | 100.0 | 94.0 | 99.9 | 99.7 | 93.2 |
| Bay of Plenty | 519 | 95.2 | 100.0 | 87.1 | 99.8 | 100.0 | 87.3 |
| Canterbury | 1,474 | 95.3 | 100.0 | 93.3 | 99.6 | 99.3 | 90.2 |
| Capital & Coast | 833 | 98.6 | 100.0 | 98.2 | 100.0 | 99.5 | 97.2 |
| Counties Manukau | 386 | 100.0 | 100.0 | 98.2 | 99.7 | 99.5 | 98.4 |
| Hawke's Bay | 575 | 83.0 | 100.0 | 85.6 | 94.6 | 94.6 | 72.5 |
| Hutt Valley | 324 | 98.5 | 100.0 | 97.9 | 100.0 | 99.4 | 96.3 |
| Lakes | 274 | 99.3 | 100.0 | 92.0 | 98.9 | 98.2 | 91.6 |
| Mid Central | 856 | 88.7 | 100.0 | 89.3 | 95.2 | 95.2 | 80.8 |
| Nelson Marlborough | 277 | 99.6 | 100.0 | 92.4 | 100.0 | 100.0 | 94.6 |
| Northland | 196 | 95.4 | 100.0 | 88.9 | 100.0 | 100.0 | 90.3 |
| South Canterbury | 162 | 98.1 | 100.0 | 90.1 | 100.0 | 100.0 | 92.6 |
| Southern | 870 | 87.1 | 100.0 | 85.2 | 93.9 | 93.7 | 76.2 |
| Tairawhiti | 189 | 98.9 | 100.0 | 95.0 | 100.0 | 100.0 | 95.8 |
| Taranaki | 356 | 96.3 | 100.0 | 87.2 | 97.2 | 97.2 | 86.2 |
| Waikato | 521 | 98.5 | 100.0 | 97.1 | 99.6 | 97.9 | 94.4 |
| Wairarapa | 170 | 97.1 | 100.0 | 97.1 | 100.0 | 100.0 | 95.3 |
| Waitemata | 1,643 | 97.9 | 100.0 | 95.7 | 99.9 | 99.1 | 95.0 |
| West Coast | 105 | 97.1 | 100.0 | 97.4 | 99.0 | 99.0 | 94.3 |
| Whanganui | 294 | 87.4 | 100.0 | 79.9 | 98.3 | 98.3 | 75.5 |
| *Private practice* | *1,636* | *97.1* | *100.0* | *91.2* | *98.7* | *94.5* | *87.2* |
| **Total** | **12,763** | **95.1** | **100.0** | **92.2** | **98.6** | **97.8** | **89.1** |

*Note Counties Manukau, Northland and Waitemata likely lower numbers because these three DHBs were not able to report colposcopy data for part of the current monitoring period (Counties Manukau no colposcopy data after October 2014; Northland and Waitemata no data after late November 2014 in both cases)*

**Table 63 – Summary of colposcopic appearance findings, by DHB**

| DHB | Total colposcopies | SCJ visible* | Colposcopic appearance (as % of colposcopies where items are completed) | |
|---|---|---|---|---|
| | N | N | Abnormal | Inconclusive |
| *Public clinics overall* | *11,127* | *10,555* | *55.3* | *4.6* |
| Auckland | 1,103 | 1,067 | 58.4 | 3.7 |
| Bay of Plenty | 519 | 494 | 54.5 | 8.1 |
| Canterbury | 1,474 | 1,404 | 65.7 | 4.7 |
| Capital & Coast | 833 | 821 | 52.0 | 1.0 |
| Counties Manukau | 386 | 386 | 57.3 | 1.0 |
| Hawke's Bay | 575 | 477 | 45.6 | 7.7 |
| Hutt Valley | 324 | 319 | 72.8 | 1.5 |
| Lakes | 274 | 272 | 71.2 | 6.2 |
| Mid Central | 856 | 759 | 49.6 | 6.0 |
| Nelson Marlborough | 277 | 276 | 61.4 | 5.1 |
| Northland | 196 | 187 | 40.8 | 5.1 |
| South Canterbury | 162 | 159 | 50.6 | 5.6 |
| Southern | 870 | 758 | 49.1 | 8.5 |
| Tairawhiti | 189 | 187 | 60.3 | 3.2 |
| Taranaki | 356 | 343 | 55.6 | 8.1 |
| Waikato | 521 | 513 | 63.7 | 1.9 |
| Wairarapa | 170 | 165 | 58.2 | 1.8 |
| Waitemata | 1,643 | 1,609 | 46.1 | 2.1 |
| West Coast | 105 | 102 | 71.4 | 1.9 |
| Whanganui | 294 | 257 | 51.4 | 12.9 |
| *Private practice* | *1,636* | *1,588* | *53.9* | *5.2* |
| **Total** | **12,763** | **12,143** | **55.1** | **4.7** |

** Field has been completed  Note total colposcopies recorded in Counties Manukau, Northland and Waitemata likely lower because these DHBs were not able to report colposcopy data for part of the current monitoring period*

## Indicator 7.5 – Timely discharge of women after treatment

**Table 64 – Follow-up of treated women with colposcopy and cytology in the period up to nine months post-treatment, and discharge of eligible women**

| | Total treatments | Colposcopy & cytology within 9 months post-treatment | | Eligible for discharge | | Women discharged appropriately | |
|---|---|---|---|---|---|---|---|
| DHB | N | N | % | N | % of women treated | N | % of eligible |
| Auckland | 158 | 135 | 85.4 | 116 | 75.9 | 107 | 92.2 |
| Bay of Plenty | 42 | 10 | 23.8 | 23 | 69.0 | 20 | 87.0 |
| Canterbury | 268 | 160 | 59.7 | 197 | 80.6 | 167 | 84.8 |
| Capital & Coast | 108 | 97 | 89.8 | 92 | 88.0 | 90 | 97.8 |
| Counties Manukau | 127 | 87 | 68.5 | 71 | 63.8 | 66 | 93.0 |
| Hawke's Bay | 74 | 55 | 74.3 | 60 | 83.8 | 54 | 90.0 |
| Hutt Valley | 54 | 42 | 77.8 | 40 | 75.9 | 37 | 92.5 |
| Lakes | 41 | 29 | 70.7 | 28 | 75.6 | 25 | 89.3 |
| Mid Central | 74 | 61 | 82.4 | 60 | 81.1 | 54 | 90.0 |
| Nelson Marlborough | 49 | 34 | 69.4 | 33 | 71.4 | 32 | 97.0 |
| Northland | 49 | 40 | 81.6 | 29 | 67.3 | 27 | 93.1 |
| South Canterbury | 19 | 16 | 84.2 | 16 | 84.2 | 7 | 43.8 |
| Southern | 123 | 74 | 60.2 | 83 | 72.4 | 79 | 95.2 |
| Tairawhiti | 28 | 12 | 42.9 | 16 | 57.1 | 15 | 93.8 |
| Taranaki | 36 | 23 | 63.9 | 22 | 75.0 | 19 | 86.4 |
| Waikato | 138 | 110 | 79.7 | 111 | 84.1 | 102 | 91.9 |
| Wairarapa | 18 | 14 | 77.8 | 13 | 77.8 | 13 | 100.0 |
| Waitemata | 159 | 124 | 78.0 | 109 | 73.6 | 82 | 75.2 |
| West Coast | 15 | 11 | 73.3 | 10 | 66.7 | 10 | 100.0 |
| Whanganui | 28 | 25 | 89.3 | 20 | 75.0 | 17 | 85.0 |
| *Private Practice* | *109* | *70* | *64.2* | *71* | *84.4* | *51* | *71.8* |
| **Total** | **1,717** | **1,229** | **71.6** | **1,220** | **76.9** | **1,074** | **88.0** |

**Table 65 – Follow-up of treated women in the period up to nine months post-treatment**

| DHB | Total treatments | Colposcopy within 9 months post-treatment | | Colposcopy & cytology within 9 months post-treatment | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| Auckland | 158 | 136 | 86.1 | 135 | 85.4 |
| Bay of Plenty | 42 | 10 | 23.8 | 10 | 23.8 |
| Canterbury | 268 | 165 | 61.6 | 160 | 59.7 |
| Capital & Coast | 108 | 97 | 89.8 | 97 | 89.8 |
| Counties Manukau | 127 | 89 | 70.1 | 87 | 68.5 |
| Hawke's Bay | 74 | 56 | 75.7 | 55 | 74.3 |
| Hutt Valley | 54 | 42 | 77.8 | 42 | 77.8 |
| Lakes | 41 | 30 | 73.2 | 29 | 70.7 |
| Mid Central | 74 | 64 | 86.5 | 61 | 82.4 |
| Nelson Marlborough | 49 | 34 | 69.4 | 34 | 69.4 |
| Northland | 49 | 40 | 81.6 | 40 | 81.6 |
| South Canterbury | 19 | 16 | 84.2 | 16 | 84.2 |
| Southern | 123 | 76 | 61.8 | 74 | 60.2 |
| Tairawhiti | 28 | 12 | 42.9 | 12 | 42.9 |
| Taranaki | 36 | 25 | 69.4 | 23 | 63.9 |
| Waikato | 138 | 111 | 80.4 | 110 | 79.7 |
| Wairarapa | 18 | 14 | 77.8 | 14 | 77.8 |
| Waitemata | 159 | 126 | 79.2 | 124 | 78.0 |
| West Coast | 15 | 11 | 73.3 | 11 | 73.3 |
| Whanganui | 28 | 26 | 92.9 | 25 | 89.3 |
| *Private practice* | *109* | *71* | *65.1* | *70* | *64.2* |
| **Total** | **1,717** | **1,251** | **72.9** | **1,229** | **71.6** |

## *Indicator 8 – HPV tests*

### Indicator 8.1 – Triage of low grade cytology

**Table 66 – Triage testing of women with ASC-US cytology**

| | Total ASC-US results | | Women with an HPV test | | | |
|---|---|---|---|---|---|---|
| | aged < 30yrs | aged 30+ yrs | aged < 30yrs | | aged 30+ yrs | |
| **Laboratory** | **N** | **N** | **N** | **%** | **N** | **%** |
| Aotea Pathology Ltd | 128 | 146 | 0 | 0.0 | 136 | 93.2 |
| Canterbury Health Laboratories | 40 | 147 | 1 | 2.5 | 146 | 99.3 |
| Diagnostic Medlab Ltd | 164 | 511 | 1 | 0.6 | 509 | 99.6 |
| LabPLUS | 140 | 38 | 1 | 0.7 | 30 | 78.9 |
| Medlab Central Ltd | 150 | 273 | 1 | 0.7 | 258 | 94.5 |
| Pathlab | 119 | 261 | 0 | 0.0 | 258 | 98.9 |
| Southern Community Labs | 144 | 235 | 2 | 1.4 | 233 | 99.1 |
| **Total** | **885** | **1,611** | **6** | **0.7** | **1,570** | **97.5** |

** Where the laboratory which performed the cytology test differs from the laboratory which performed the HPV test, classification is according to the laboratory which performed the cytology test*

**Table 67 – Triage testing of women with LSIL cytology**

| | Total LSIL results | | Women with an HPV test | | | |
|---|---|---|---|---|---|---|
| | aged < 30yrs | aged 30+ yrs | aged < 30yrs | | aged 30+ yrs | |
| **Laboratory** | **N** | **N** | **N** | **%** | **N** | **%** |
| Aotea Pathology Ltd | 257 | 129 | 0 | 0.0 | 124 | 96.1 |
| Canterbury Health Laboratories | 139 | 69 | 3 | 2.2 | 67 | 97.1 |
| Diagnostic Medlab Ltd | 486 | 544 | 1 | 0.2 | 539 | 99.1 |
| LabPLUS | 222 | 21 | 0 | 0.0 | 19 | 90.5 |
| Medlab Central Ltd | 184 | 125 | 3 | 1.6 | 110 | 88.0 |
| Pathlab | 272 | 206 | 0 | 0.0 | 204 | 99.0 |
| Southern Community Labs | 649 | 417 | 6 | 0.9 | 398 | 95.4 |
| **Total** | **2,209** | **1,511** | **13** | **0.6** | **1,461** | **96.7** |

** Where the laboratory which performed the cytology test differs from the laboratory which performed the HPV test, classification is according to the laboratory which performed the cytology test*

**Table 68 – Histological outcomes within 12 months in women with ASC-US cytology and positive HPV triage test**

| Lab | Women with ASC-US cytology & positive HPV triage test | Triage positive women who attended colposcopy | | Triage positive women with histology recorded | | Triage positive women with CIN2+ histology[4] | | |
|---|---|---|---|---|---|---|---|---|
| | N | N | %[8] | N | %* | N | %† | %‡ |
| Aotea Pathology Ltd | 71 | 68 | 95.8 | 47 | 66.2 | 11 | 16.2 | 23.4 |
| Canterbury Health Laboratories | 30 | 29 | 96.7 | 25 | 83.3 | 8 | 27.6 | 32.0 |
| Diagnostic Medlab Ltd | 140 | 116 | 82.9 | 93 | 66.4 | 16 | 13.8 | 17.2 |
| LabPLUS | 4 | 3 | 75.0 | 3 | 75.0 | 1 | 33.3 | 33.3 |
| Medlab Central Ltd | 61 | 55 | 90.2 | 42 | 68.9 | 10 | 18.2 | 23.8 |
| Pathlab | 70 | 60 | 85.7 | 44 | 62.9 | 14 | 23.3 | 31.8 |
| Southern Community Labs | 85 | 76 | 89.4 | 50 | 58.8 | 9 | 11.8 | 18.0 |
| **Total** | **461** | **407** | **88.3** | **304** | **65.9** | **69** | **17.0** | **22.7** |

** % of women with ASC-US cytology and positive triage test †% of women with colposcopy ‡ % of women with histology*

**Table 69 - Histological outcomes within 12 months in women with LSIL cytology and positive HPV triage test**

| Lab | Women with LSIL cytology & positive HPV triage test | Triage positive women who attended colposcopy | | Triage positive women with histology recorded | | Triage positive women with CIN2+ histology[4] | | |
|---|---|---|---|---|---|---|---|---|
| | N | N | %[8] | N | %* | N | %† | %‡ |
| Aotea Pathology Ltd | 108 | 103 | 95.4 | 78 | 72.2 | 15 | 14.6 | 19.2 |
| Canterbury Health Laboratories | 46 | 46 | 100.0 | 39 | 84.8 | 8 | 17.4 | 20.5 |
| Diagnostic Medlab Ltd | 331 | 292 | 88.2 | 225 | 68.0 | 30 | 10.3 | 13.3 |
| LabPLUS | 9 | 8 | 88.9 | 6 | 66.7 | 1 | 12.5 | 16.7 |
| Medlab Central Ltd | 67 | 63 | 94.0 | 47 | 70.1 | 7 | 11.1 | 14.9 |
| Pathlab | 131 | 111 | 84.7 | 90 | 68.7 | 22 | 19.8 | 24.4 |
| Southern Community Labs | 241 | 222 | 92.1 | 183 | 75.9 | 54 | 24.3 | 29.5 |
| **Total** | **933** | **845** | **90.6** | **668** | **71.6** | **137** | **16.2** | **20.5** |

** % of women with LSIL cytology and positive triage test †% of women with colposcopy ‡ % of women with histology*

## Indicator 8.2 – HPV test volumes

**Table 70 – Volume of HPV test samples received during the monitoring period, by laboratory**

| Laboratory | HPV tests received | | Ratio HPV tests: smears reported (%) |
|---|---|---|---|
| | N | % of national total | |
| Aotea Pathology Ltd | 1,458 | 7.8 | 6.9 |
| Canterbury Health Laboratories | 1,804 | 9.7 | 15.3 |
| Diagnostic Medlab Ltd | 4,283 | 23.0 | 7.6 |
| LabPLUS | 853 | 4.6 | 12.2 |
| Medlab Central Ltd | 1,830 | 9.8 | 10.8 |
| Pathlab | 2,013 | 10.8 | 9.2 |
| Southern Community Labs Dunedin | 6,360 | 34.2 | 8.1 |
| **Total** | **18,601** | **100.0** | **8.7** |

**Table 71 – Invalid HPV tests, by laboratory**

| Laboratory | Total | Valid | | Invalid | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| Aotea Pathology Ltd | 1,458 | 1,456 | 99.9 | 2 | 0.1 |
| Canterbury Health Laboratories | 1,804 | 1,802 | 99.9 | 2 | 0.1 |
| Diagnostic Medlab Ltd | 4,283 | 4,278 | 99.9 | 5 | 0.1 |
| LabPLUS | 853 | 853 | 100.0 | - | 0.0 |
| Medlab Central Ltd | 1,830 | 1,830 | 100.0 | - | 0.0 |
| Pathlab | 2,013 | 2,006 | 99.7 | 7 | 0.3 |
| Southern Community Labs Dunedin | 6,360 | 6,359 | 100.0 | 1 | 0.0 |
| **Total** | **18,601** | **18,584** | **99.9** | **17** | **0.1** |

**Table 72 – Validity of HPV triage tests, by test technology**

| Test technology | Total HPV tests | | Valid | | Invalid | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Abbott RealTime | 8,164 | 43.9 | 8,161 | 100.0 | 3 | 0.0 |
| Roche COBAS 4800* | 10,437 | 56.1 | 10,423 | 99.9 | 14 | 0.1 |
| **Total** | **18,601** | **100.0** | **18,584** | **99.9** | **17** | **0.1** |

** Includes tests processed at LabPLUS which did not have test technology type explicitly recorded, but it is known that they used Roche COBAS 4800 throughout the period.*

**Table 73 - Volume of HPV test samples received during the monitoring period, by purpose and ethnicity**

| | Post-treatment | | Historical | | Taken at colposcopy | | HPV triage | | Other | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | N | % | N | % | N | % | N | % | N | % | N |
| Māori | 310 | 13.1 | 972 | 41.2 | 118 | 5.0 | 316 | 13.4 | 642 | 27.2 | 2,358 |
| Pacific | 59 | 10.8 | 171 | 31.4 | 14 | 2.6 | 161 | 29.6 | 139 | 25.6 | 544 |
| Asian | 142 | 12.6 | 270 | 23.9 | 53 | 4.7 | 337 | 29.8 | 329 | 29.1 | 1,131 |
| European/Other | 1,779 | 12.2 | 5,480 | 37.6 | 704 | 4.8 | 2,021 | 13.9 | 4,584 | 31.5 | 14,568 |
| **Total** | **2,290** | **12.3** | **6,893** | **37.1** | **889** | **4.8** | **2,835** | **15.2** | **5,694** | **30.6** | **18,601** |

**Table 74 - Volume of HPV test samples received during the monitoring period, by purpose and age**

| | Post-treatment | | Historical | | Taken at colposcopy | | HPV triage | | Other | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** |
| <20 | - | 0.0 | - | - | 2 | 25.0 | - | 0.0 | 6 | 75.0 | 8 |
| 20-24 | 215 | 29.1 | 53 | 7.2 | 174 | 23.5 | - | 0.0 | 298 | 40.3 | 740 |
| 25-29 | 614 | 35.6 | 568 | 32.9 | 163 | 9.4 | - | 0.0 | 382 | 22.1 | 1,727 |
| 30-34 | 484 | 18.5 | 1,025 | 39.1 | 84 | 3.2 | 553 | 21.1 | 474 | 18.1 | 2,620 |
| 35-39 | 333 | 12.7 | 1,224 | 46.9 | 97 | 3.7 | 491 | 18.8 | 467 | 17.9 | 2,612 |
| 40-44 | 262 | 9.2 | 1,259 | 44.1 | 84 | 2.9 | 497 | 17.4 | 753 | 26.4 | 2,855 |
| 45-49 | 156 | 6.3 | 1,008 | 40.9 | 75 | 3.0 | 436 | 17.7 | 790 | 32.0 | 2,465 |
| 50-54 | 112 | 5.3 | 779 | 36.6 | 75 | 3.5 | 359 | 16.9 | 805 | 37.8 | 2,130 |
| 55-59 | 49 | 3.4 | 445 | 30.5 | 53 | 3.6 | 214 | 14.7 | 697 | 47.8 | 1,458 |
| 60-64 | 37 | 3.5 | 287 | 26.8 | 46 | 4.3 | 141 | 13.2 | 559 | 52.2 | 1,070 |
| 65-69 | 18 | 2.5 | 171 | 24.0 | 26 | 3.7 | 122 | 17.1 | 375 | 52.7 | 712 |
| 70+ | 10 | 4.9 | 74 | 36.3 | 10 | 4.9 | 22 | 10.8 | 88 | 43.1 | 204 |
| **Total** | **2,290** | **12.3** | **6,893** | **37.1** | **889** | **4.8** | **2,835** | **15.2** | **5,694** | **30.6** | **18,601** |

**Table 75 - Volume of HPV test samples received during the monitoring period, by purpose and laboratory**

| | Post-treatment | | Historical | | Taken at colposcopy | | HPV triage | | Other | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** |
| Aotea Pathology Ltd | 197 | 13.5 | 684 | 46.9 | 3 | 0.2 | 241 | 16.5 | 333 | 22.8 | 1,458 |
| Canterbury Health Laboratories | 386 | 21.4 | 530 | 29.4 | 243 | 13.5 | 209 | 11.6 | 436 | 24.2 | 1,804 |
| Diagnostic Medlab Ltd | 410 | 9.6 | 1,521 | 35.5 | 68 | 1.6 | 1,001 | 23.4 | 1,283 | 30.0 | 4,283 |
| LabPLUS | 198 | 23.2 | 120 | 14.1 | 64 | 7.5 | 51 | 6.0 | 420 | 49.2 | 853 |
| Medlab Central Ltd | 240 | 13.1 | 654 | 35.7 | 66 | 3.6 | 344 | 18.8 | 526 | 28.7 | 1,830 |
| Pathlab | 144 | 7.2 | 867 | 43.1 | 197 | 9.8 | 415 | 20.6 | 390 | 19.4 | 2,013 |
| Southern Community Labs Dunedin | 715 | 11.2 | 2,517 | 39.6 | 248 | 3.9 | 574 | 9.0 | 2,306 | 36.3 | 6,360 |
| **Total** | **2,290** | **12.3** | **6,893** | **37.1** | **889** | **4.8** | **2,835** | **15.2** | **5,694** | **30.6** | **18,601** |

**Table 76 - HPV test samples collected at colposcopy, in relation to total colposcopies performed in the period, by DHB**

| Laboratory | HPV tests N | Colposcopies N | HPV tests / colposcopies % |
|---|---|---|---|
| *Public clinics overall* | *631* | *11,127* | *5.7* |
| Auckland | 15 | 1,103 | 1.4 |
| Bay of Plenty | 92 | 519 | 17.7 |
| Canterbury | 224 | 1,474 | 15.2 |
| Capital & Coast | - | 833 | - |
| Counties Manukau | 4 | 386 | 1.0 |
| Hawke's Bay | 2 | 575 | 0.3 |
| Hutt Valley | - | 324 | - |
| Lakes | 69 | 274 | 25.2 |
| Mid Central | 45 | 856 | 5.3 |
| Nelson Marlborough | 8 | 277 | 2.9 |
| Northland | 14 | 196 | 7.1 |
| South Canterbury | 20 | 162 | 12.3 |
| Southern | 82 | 870 | 9.4 |
| Tairawhiti | - | 189 | - |
| Taranaki | - | 356 | - |
| Waikato | 38 | 521 | 7.3 |
| Wairarapa | - | 170 | - |
| Waitemata | 18 | 1,643 | 1.1 |
| West Coast | - | 105 | - |
| Whanganui | - | 294 | - |
| *Private practice* | *77* | *1,636* | *4.7* |
| **Total** | **708** | **12,763** | **5.5** |

*HPV tests/ colposcopy can be interpreted broadly as the percentage of colposcopies within this DHB/ sector where a sample is collected for HPV testing. Consistent with the count of colposcopies column, the number of HPV tests here includes only HPV test samples where a colposcopy report record exists.*

## Indicator 8.3 –HPV tests for follow-up of women with a historical high grade abnormality

**Table 77 - Women eligible for and proportion who have received HPV testing for a historical high grade abnormality, by age at 31 December 2014**

| Age group | Number of women eligible for testing as at 1 Oct 2009 | | Round 1 test recorded | | Round 2 test recorded | |
|---|---|---|---|---|---|---|
| | All | In current report* | N | % | N | % |
| <20 | - | - | - | | - | |
| 20-24 | 5 | 5 | 1 | 20.0 | 1 | 20.0 |
| 25-29 | 751 | 749 | 325 | 43.4 | 199 | 26.6 |
| 30-34 | 4,555 | 4,539 | 2,225 | 49.0 | 1,495 | 32.9 |
| 35-39 | 8,434 | 8,389 | 4,383 | 52.2 | 3,179 | 37.9 |
| 40-44 | 11,084 | 11,027 | 5,883 | 53.4 | 4,353 | 39.5 |
| 45-49 | 8,963 | 8,891 | 4,638 | 52.2 | 3,451 | 38.8 |
| 50-54 | 6,654 | 6,561 | 3,443 | 52.5 | 2,602 | 39.7 |
| 55-59 | 4,215 | 4,153 | 2,152 | 51.8 | 1,640 | 39.5 |
| 60-64 | 2,549 | 2,476 | 1,292 | 52.2 | 1,007 | 40.7 |
| 65-69 | 1,499 | 1,444 | 692 | 47.9 | 541 | 37.5 |
| 70+ | 1,798 | 1,575 | 353 | 22.4 | 235 | 14.9 |
| **Total** | **50,507** | **49,809** | **25,387** | **51.0** | **18,703** | **37.5** |

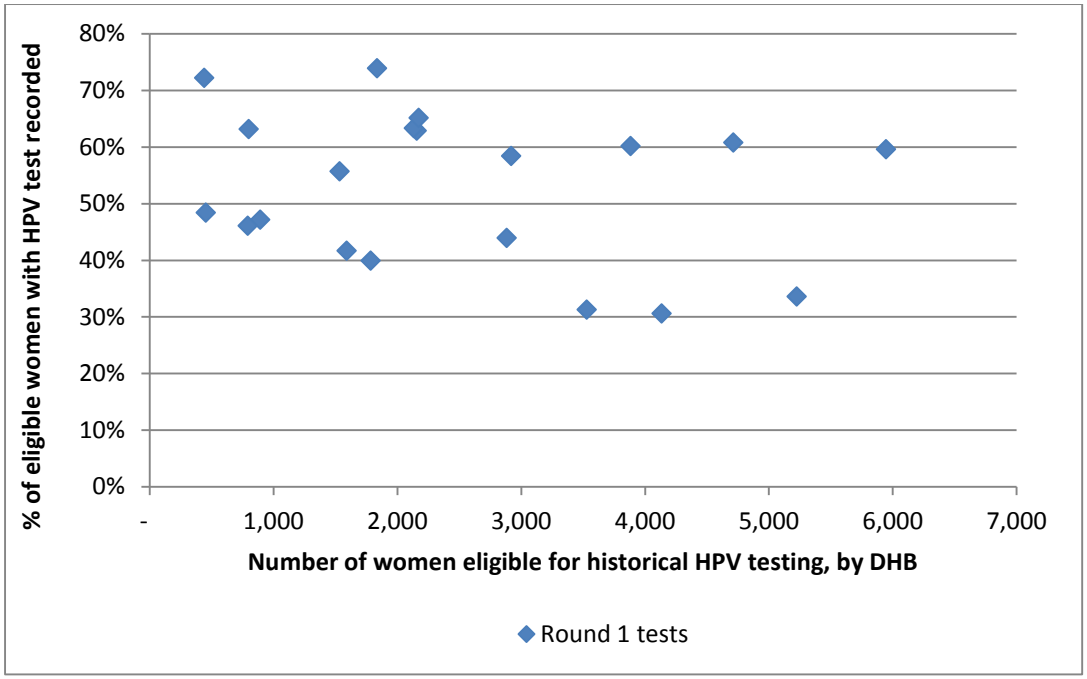
** Women are not followed up in the current report if they are no longer alive at the end of the current monitoring period; or if they have since had a non-squamous high grade abnormality (no longer eligible for HPV testing to follow-up historical high grade abnormality).*

**Table 78 - Women eligible for and proportion who have received historical HPV testing, by DHB**

| DHB | Number of women eligible for historical testing as at 1 Oct 2009 | | Round 1 test recorded | | Round 2 test recorded | |
|---|---|---|---|---|---|---|
| | All | In current report* | N | % | N | % |
| Auckland | 4,174 | 4,133 | 1,266 | 30.6 | 824 | 19.9 |
| Bay of Plenty | 2,921 | 2,882 | 1,267 | 44.0 | 849 | 29.5 |
| Canterbury | 6,024 | 5,946 | 3,548 | 59.7 | 2,777 | 46.7 |
| Capital & Coast | 2,942 | 2,917 | 1,705 | 58.5 | 1,352 | 46.3 |
| Counties Manukau | 3,583 | 3,528 | 1,106 | 31.3 | 687 | 19.5 |
| Hawke's Bay | 2,192 | 2,155 | 1,356 | 62.9 | 1,010 | 46.9 |
| Hutt Valley | 1,554 | 1,533 | 855 | 55.8 | 637 | 41.6 |
| Lakes | 1,612 | 1,589 | 663 | 41.7 | 411 | 25.9 |
| Mid Central | 2,174 | 2,133 | 1,352 | 63.4 | 1,065 | 49.9 |
| Nelson Marlborough | 1,859 | 1,834 | 1,356 | 73.9 | 1,134 | 61.8 |
| Northland | 1,818 | 1,782 | 712 | 40.0 | 414 | 23.2 |
| South Canterbury | 814 | 799 | 505 | 63.2 | 382 | 47.8 |
| Southern | 4,767 | 4,711 | 2,865 | 60.8 | 2,209 | 46.9 |
| Tairawhiti | 902 | 890 | 420 | 47.2 | 288 | 32.4 |
| Taranaki | 2,211 | 2,170 | 1,414 | 65.2 | 1,148 | 52.9 |
| Waikato | 3,936 | 3,881 | 2,336 | 60.2 | 1,779 | 45.8 |
| Wairarapa | 459 | 452 | 219 | 48.5 | 157 | 34.7 |
| Waitemata | 5,292 | 5,223 | 1,757 | 33.6 | 1,085 | 20.8 |
| West Coast | 446 | 440 | 318 | 72.3 | 248 | 56.4 |
| Whanganui | 806 | 791 | 365 | 46.1 | 245 | 31.0 |
| Unspecified | 21 | 20 | 2 | 10.0 | 2 | 10.0 |
| **Total** | **50,507** | **49,809** | **25,387** | **51.0** | **18,703** | **37.5** |

** Women are not followed up in the current report if they are no longer alive at the end of the current monitoring period; or if they have since had a non-squamous high grade abnormality (no longer eligible for historical HPV testing).*

**Figure 90 – Number of women eligible for historical testing within a DHB versus the percentage with a Round 1 historical HPV test recorded**




*Each dot represents a DHB.*
*This chart does not suggest that there is any relationship between number of women eligible for testing and percent of women who have being tested, therefore this does not seem a likely explanation for the variation in women tested in different DHBs.*

**Table 79 - Women eligible for and proportion who have received historical HPV testing, by ethnicity**

| Ethnicity | Number of women eligible for historical testing as at 1 Oct 2009 | | Round 1 test recorded | | Round 2 test recorded | |
|---|---|---|---|---|---|---|
| | All | In current report* | N | % | N | % |
| Māori | 7,681 | 7,535 | 3,371 | 44.7 | 2,153 | 28.6 |
| Pacific | 1,211 | 1,193 | 373 | 31.3 | 241 | 20.2 |
| Asian | 1,669 | 1,660 | 591 | 35.6 | 430 | 25.9 |
| European/Other | 39,946 | 39,421 | 21,052 | 53.4 | 15,879 | 40.3 |
| **Total** | **50,507** | **49,809** | **25,387** | **51.0** | **18,703** | **37.5** |

** Women are not followed up in the current report if they are no longer alive at the end of the current monitoring period; or if they have since had a non-squamous high grade abnormality (no longer eligible for historical HPV testing).*

## Appendix B – Bethesda 2001 New Zealand Modified

| TBS code | Descriptor |
|---|---|
| Specimen type | |
| CPS | Conventional pap smear |
| LBC | Liquid based cytology |
| COM | Combined (conventional and liquid based) |
| Specimen site | |
| T | Vault |
| R | Cervical |
| V | Vaginal |
| Adequacy | |
| S1 | The specimen is satisfactory for evaluation (optional free text) |
| S2 | The specimen is satisfactory for evaluation (optional free text). No endocervical/ transformation zone component present |
| UA | The specimen is unsatisfactory for evaluation because of insufficient squamous cells |
| UB | The specimen is unsatisfactory for evaluation because of poor fixation/preservation |
| UC | The specimen is unsatisfactory for evaluation because foreign material obscures the cells |
| UD | The specimen is unsatisfactory for evaluation because inflammation obscures the cells |
| UE | The specimen is unsatisfactory for evaluation because blood obscures the cells |
| UF | The specimen is unsatisfactory for evaluation because of cytolysis/autolysis |
| UG | The specimen is unsatisfactory for evaluation because … (free text) |
| General | |
| G1 | Negative for intraepithelial lesion or malignancy |
| G2 | Epithelial cell abnormality: See interpretation/result |
| G3 | Other: See interpretation/result |
| Interpretation | |
| O1 | There are organisms consistent with Trichomonas species |
| O2 | There are fungal organisms morphologically consistent with Candida species |
| O3 | There is a shift in microbiological flora that may represent bacterial vaginosis |
| O4 | There are bacteria morphologically consistent with Actinomyces species |
| O5 | There are cellular changes consistent with Herpes simplex virus |
| OT1 | There are reactive cellular changes present (optional free text) |
| OT2 | There are endometrial cells present in a woman over the age of 40 years |
| OT3 | There are atrophic cellular changes present |
| ASL | There are atypical squamous cells of undetermined significance (ASC-US) present |
| ASH | There are atypical squamous cells present. A high grade squamous intraepithelial lesion cannot be excluded (ASC-H) |
| LS | There are abnormal squamous cells consistent with a low grade squamous intraepithelial lesion (LSIL; CIN1/HPV) |
| HS1 | There are abnormal squamous cells consistent with a high grade squamous intraepithelial lesion (HSIL). The features are consistent with CINII or CINIII |
| HS2 | There are abnormal squamous cells consistent with a high grade squamous intraepithelial lesion (HSIL) with features suspicious for invasion |

| TBS code | Descriptor |
|---|---|
| SC | There are abnormal squamous cells showing changes consistent with squamous cell carcinoma |
| AG1 | There are atypical endocervical cells present |
| AG2 | There are atypical endometrial cells present |
| AG3 | There are atypical glandular cells present |
| AG4 | There are atypical endocervical cells favouring a neoplastic process |
| AG5 | There are atypical glandular cells favouring a neoplastic process |
| AIS | There are abnormal endocervical cells consistent with adenocarcinoma in-situ (AIS) |
| AC1 | There are abnormal glandular cells consistent with endocervical adenocarcinoma |
| AC2 | There are abnormal glandular cells consistent with endometrial adenocarcinoma |
| AC3 | There are abnormal glandular cells consistent with extrauterine adenocarcinoma |
| AC4 | There are abnormal glandular cells consistent with adenocarcinoma |
| AC5 | There are abnormal cells consistent with a malignant neoplasm |
| Recommendation | |
| R1 | The next smear should be taken in three years, based on the information held on the NCSP Register |
| R2 | Please repeat the smear within three months |
| R3 | Please repeat the smear within three months of the end of pregnancy |
| R4 | Please repeat the smear in three months |
| R5 | Please repeat the smear in six months |
| R6 | Please repeat the smear in 12 months |
| R7 | Because a previous smear showed atypical squamous cells or low grade changes, please repeat the smear in 12 months |
| R8 | Annual smears are indicated because of previous high grade abnormality |
| R9 | Referral for specialist assessment is indicated |
| R10 | Urgent referral for specialist assessment is indicated |
| R11 | [not in use] |
| R12 | Please repeat the smear shortly after a course of oestrogen treatment |
| R13 | Under specialist care |
| R14 | In view of the abnormal clinical history provided, urgent referral for assessment is recommended regardless of cytological findings |

# Appendix C – SNOMED categories for histological samples

| **Adequacy of specimen** | | **1986 Code** | **1993 Code** | | |
|---|---|---|---|---|---|
| Insufficient or unsatisfactory material for diagnosis | | M09000 | M09010 | | |
| There is no code for satisfactory materials. | | | | | |
| **Site (topography) of specimen** | | **1986 Code** | **1993 Code** | | |
| Vagina | | T81 | T82000 | | |
| Cervix (includes endocervix and exocervix) | | T83 | T83200 | | |
| **Summary diagnosis** | **Code stored on register** | **1986 Code** | **1993 Code** | **Diagnostic category** | **Rank*** |
| ***There will be a maximum of four M codes transmitted to the register.*** | | | | | |
| Negative result - normal tissue | | M00100 | M60000 | Negative/benign | 1 |
| Inflammation | | M40000 | M40000 | Negative/benign | 2 |
| Microglandular hyperplasia | | M72480 | M72480 | Negative/benign | 3 |
| Squamous Metaplasia | | M73000 | M73000 | Negative/benign | 4 |
| Polyp | | M76800 | M76800 | Negative/benign | 5 |
| Other (Morphologic abnormality, not dysplastic or malignant) | | M01000 | M01000 | Negative/benign | 6 |
| Atypia | | M69700 | M67000 | CIN 1 | 7 |
| Benign glandular atypia | | M81400 | M67030 | Negative/benign | 8 |
| HPV, koilocytosis, condyloma (NOS)<br>Condyloma acuminatum | M76700 | M76700<br>M76720 | M76700<br>M76720 | HPV | 9 |
| CIN I (LSIL)<br>(VAIN I when used with T81/ T82000) | | M74006 | M67016 | CIN 1 | 10 |
| Dysplasia / CIN NOS | | M74000 | M67015 | CIN 1 | 11 |
| Glandular dysplasia | | M81401 | M67031 | Glandular dysplasia | 12 |
| CIN II (HSIL)<br>(VAIN II when used with T81/ T82000) | | M74007 | | CIN 2 | 13 |
| HSIL NOS | | M67017 | M67017 | HSIL | 14 |
| CIN III (HSIL)<br>(VAIN III when used with T81/ T82000)<br>Carcinoma in situ | | M74008<br>M80102<br>M80702 | <br>M80102<br>M80702 | CIN 3 | 17<br>15<br>16 |
| Adenocarcinoma in situ | | M81402 | M81402 | Adenocarc. in situ | 18 |
| Microinvasive squamous cell carcinoma | | M80765 | M80763 | Micro-invasive | 19 |
| Invasive squamous cell carcinoma | | M80703 | M80703 | Invasive SCC | 20 |
| Adenocarcinoma (endocervical type) | | M83843 | M83843 | Invasive adenocarcinoma | 21 |
| Adenosquamous carcinoma | | M85603 | M85603 | Adenosquamous carcinoma | 22 |
| Invasive adenocarcinoma (not endocervical type) | | M81403 | M81403 | Invasive adenocarcinoma | 23 |
| Metastatic tumour | | M80006 | M80006 | Other cancer | 29 |
| Undifferentiated carcinoma | | M80203 | M80203 | Other cancer | 24 |
| Sarcoma | | M88003 | M88003 | Other cancer | 25 |
| **Other codes accepted** | **Code stored on register** | **1986 Code** | **1993 Code** | **Diagnostic category** | **Rank** |
| Carcinosarcoma | M88003 | M89803 | M89803 | Other cancer | 26 |
| Choriocarcinoma | M80003 | M91003 | M91003 | Other cancer | 27 |
| Miscellaneous primary tumour | M80003 | M80003 | M80003 | Other cancer | 28 |
| Small cell carcinoma | M80003 | M80413 | M80413 | Other cancer | 30 |
| Malignant tumour, Small cell type | M80003 | M80023 | M80023 | Other cancer | 31 |
| Melanoma | M80003 | M87203 | M87203 | Other cancer | 32 |
| Other primary epithelial malignancy | M80003 | M80103 | M80103 | Other cancer | 33 |

# Appendix D – Indicator Definitions Targets and Reporting Details

## *Positive predictive value calculations*

**Table 80 – Definition used for positive predictive value calculations**

| Histology Diagnosis | G1 | Squamous (G2) | | | | | Glandular (G2) | | | Other (G3) | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | G1 | ASL | LS | ASH | HS1/2 | SC | AG1-5 | AIS | AC1-4 | AC5 | |
| Negative | | | | q | y | y | a | a | a | | |
| Squam-Atypia NOS | | | | q | y | y | a | a | a | | |
| Squam-Low Grade/CIN1/HPV | | | | q | y | y | a | a | a | | |
| Squam-High Grade/CIN2-3 | | | | p | x | x | b | b | b | | |
| Squam MI SCC | | | | p | x | x | b | b | b | | |
| Squam-Invasive SCC | | | | p | x | x | b | b | b | | |
| Gland-Benign Atypia | | | | q | y | y | a | a | a | | |
| Gland-Dyplasia | | | | p | x | x | b | b | b | | |
| Gland-AIS | | | | p | x | x | b | b | b | | |
| Gland-Invasive Adeno | | | | p | x | x | b | b | b | | |
| Other Malignant Neoplasm | | | | p | x | x | b | b | b | | |

PPV% (ASC-H)= sum(p) / (sum(p)+sum(q))
PPV% (HSIL)= sum(x) / (sum(x)+sum(y))
PPV% (ASC-H+HSIL+SC)= (sum(p) + sum(x))/ (sum(p)+sum(q) +sum(x) + sum(y)

# Appendix E – DHB assignment for colposcopy clinics

Where results in Indicator 7 (colposcopy indicators) are provided by DHB, the clinics included in each DHB are as listed below. Assignment of individual facilities to specific DHBs was provided by the NCSP. All other colposcopy clinics were grouped together as "Private practice".

| DHB | Colposcopy clinics included* |
|---|---|
| Auckland | Ward 97 - Gynae Inpatient Auckland City Hospital<br>General Surgery – Auckland City Hospital<br>Colposcopy Clinic - Greenlane Clinical Centre<br>Gynae Outpatient Clinic – Greenlane Clinical Centre<br>Short Stay Surgical Unit – Greenlane Clinical Centre<br>Emergency Medicine – North Shore Hospital |
| Bay of Plenty | Whakatane Hospital (G)<br>Opotiki Hospital Outpatients' Department<br>Tauranga Hospital (G) |
| Canterbury | Ashburton Hospital<br>Christchurch Hospital<br>Christchurch Sexual Health Centre<br>Christchurch Women's Hospital - Colposcopy<br>Christchurch Women's Hospital - Gynaecology |
| Capital & Coast | Colposcopy Clinic – Wellington Women's Hospital Outpatients Department<br>Kenepuru Women's Outpatients' Department<br>Women's Clinic – Wellington Regional Hospital |
| Counties Manukau | Manukau Super Clinic<br>Gynaecology Clinic – [Middlemore Hospital]<br>Colposcopy Clinic – Manukau Super Clinic |
| Hawke's Bay | Chatham Islands Health Centre<br>Outpatients Dept – Napier Health Centre<br>Villa 4, Gynaecology, Hawke's Bay Hospital<br>Hawkes Bay Regional Hospital<br>Wairoa Cervical Screening<br>Wairoa Hospital |
| Hutt Valley | Women's Health Clinic – Hutt Hospital<br>Gynaecology Clinic - Hutt Hospital |
| Lakes | Rotorua Hospital (Gynae Dept)<br>Taupo Hospital |
| Mid Central | Colposcopy Clinic – Palmerston North Hospital<br>Gynaecology Clinic - Palmerston North Hospital<br>Gynaecology Clinic Horowhenua Hospital |
| Nelson Marlborough | Marlborough Maternity & Gynae<br>Nelson Outpatients Department |
| Northland | Colposcopy Clinic Whangarei Hospital<br>Kaitaia Hospital Colp Outpatients' Department<br>Bay Of Islands Hospital Outpatients' Department<br>Gynaecology Clinic Whangarei Hospital |
| South Canterbury | Timaru Hospital - Colp/Gynae |
| Southern | General Gynae Department – Dunedin Hospital |

| DHB | Colposcopy clinics included* |
|---|---|
| | Dunedin Public Hospital<br>Dunedin Colposcopy Clinic<br>Southland Hospital Gynaecology |
| Tairawhiti | Gisborne Hospital |
| Taranaki | Taranaki Health Base Hospital - Outpatients Department<br>Hawera Outpatients |
| Waikato | Te Kuiti Hospital<br>Womens Outpatient Services – Waikato Hospital<br>Tokoroa Hospital - Bev Thorn |
| Wairarapa | Gynaecology Clinic – Wairarapa Hospital |
| Waitemata | Colposcopy Clinic- Waitakere Hospital<br>Gynaecology Clinic –North Shore Hospital<br>Colposcopy Clinic- North Shore Hospital<br>Peri-Operative Department - North Shore Hospital |
| West Coast | Greymouth Hospital<br>Gynaecology Clinic Greymouth |
| Whanganui | Wanganui Hospital<br>Gynaecology Clinic – Good Health Wanganui |

* Assignment of specific facilities to a DHB was provided by the NCSP, in order to distinguish between DHB clinics and private practice, because the NCSP Register records geographic DHB and does not record public vs private clinic.

# Appendix F – Glossary

| Term | Definition |
|---|---|
| AGC | Atypical glandular cells |
| AIS | Adenocarcinoma in situ. High-grade changes to the glandular (endocervical) cells of the cervix |
| ASC-H | Atypical squamous cells of undetermined significance, cannot exclude high grade |
| ASC-US | Atypical squamous cells of undetermined significance |
| ASR | Age standardised rate |
| CI | Confidence interval |
| CIN | Cervical intra-epithelial neoplasia; CINI: low grade; CIN2 or 3: high grade |
| CIS | Carcinoma in situ. An older classification of CIN3. Abnormal cells that are confined to the surface epithelium of the cervix. |
| CPS | Conventional Pap (Papanicolaou) Smear |
| DHB | District Health Board |
| European/ Other | European women and women from non-Māori and non-Pacific ethnic groups |
| HPV | Human papillomavirus |
| HPV test | Testing for a high risk (oncogenic) subtype of human papillomavirus |
| hrHPV | A high risk (oncogenic) subtype of human papillomavirus |
| HSIL | High grade squamous intra-epithelial lesion |
| ISC | Invasive squamous carcinoma |
| LBC | Liquid based cytology |
| LSIL | Low grade squamous intra-epithelial lesion |
| NCSP | National Cervical Screening Programme |
| NILM | Negative for intraepithelial lesion or malignancy (a negative cytology report) |
| NSU | National Screening Unit of the Ministry of Health |
| NPV | Negative predictive value. The proportion of the screened population with negative test results who do not have the disease being tested for. |
| OR | Odds ratio |
| PCR | Polymerase chain reaction. A technique in molecular genetics used in many types of HPV testing |
| PPV | Positive predictive value. The proportion of the screened population with positive test results who have the disease being tested for. |
| RR | Relative risk |
| SC | Squamous cell carcinoma (TBS 2001) |
| SCC | Squamous cell carcinoma |
| SNOMED | Systematised Nomenclature of Medicine. A systematically organised collection of medical terminology including histopathological diagnoses. |
| TBS 2001 (New Zealand Modified) | The Bethesda System 2001 NZ Modified. A management system based on categorising the cytological interpretation of cellular abnormality as negative, low-grade or high-grade. |
| TZ | Transformation zone. The region of the cervix where the glandular precursor cells change to squamous cells |

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