National Screening Unit

National Cervical Screening Programme

Monitoring Report 43

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

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. The Ministry of Health also provides comment on the draft report.

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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2. Methods

Data used

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

Age

Unless otherwise specified, age is defined as the woman's age at the end of the monitoring period, i.e. 30 June 2015.

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 Statistics 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 2015 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]

Gray's analysis found that age was the key determinant of hysterectomy prevalence. Therefore the 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 30 June 2015.

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 was not available were included in the "European/Other ethnic groups" category. The data download used for the current analysis (NCSP Register data as at October 2015) contained ethnicity codes for approximately 98.9% 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.[2, 3] 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 overall coverage may have been slightly underestimated. 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.

3. Biannual NCSP Monitoring Indicators

4. Executive Summary

Purpose

This report provides data on performance indicators of the National Cervical Screening Programme (NCSP) for the period 1 January - 30 June 2015.

Key points on performance/trends

Indicator 1 — Coverage

Target: 80% of eligible women screened within the previous three years.

- Among an estimated 1,172,397 eligible women aged 25-69 years at the end of the monitoring period, 896,781(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 two of 20 DHBs.
- Nationally, coverage targets were met for European/Other women (82.4% screened within the previous three years), but were not met for Māori, Pacific, or Asian women (62.2%, 73.0%, 63.5% 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 is unchanged since the previous monitoring report (76.5%). Three–year coverage has increased somewhat in Māori, Pacific and Asian women, but dereased slightly in European/ Other women.
- Three-year coverage has increased in older age groups, with small increases in women aged 40-44, 45-49, 55-59, 60-64 and 65-69 years. Coverage has decreased somewhat in women aged 20-24, 25-29 and 30-34 years .
- 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 30 June 2015, 7,859 women had a cervical sample taken when they were aged less than 20 years. This is less than in the previous monitoring period (8,510 women).

- This represents 0.8% of all women (of any age) who were screened in the three-year period (the same as the previous monitoring period).
- Most of these women (88.6%) 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. This resulted in more accurate estimates of the denominator population for coverage, but means that differences compared to recent reports should be interpreted with caution, as these partially reflect differences in the population estimates.

Indicator 2

First screening events

Target: None

- There were 23,511 women aged 20-69 who had their first screening event during the current monitoring period – an increase compared to the previous monitoring 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 was 31 years). 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.

Indicator 3

Withdrawal rates

Target: Zero between ages 20-69 years

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

Indicator 4

Early re-screening

Target: Current reporting identifies 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.

- 16.0% of a cohort of women with a recommendation to return at the routine interval had at least one cytology sample

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within 30 months of their index cytology sample.

- Early re-screening rates vary widely between DHBs, from 9.8% in Whanganui to 23.1% in Waitemata.
- Early re-screening occurs in all ethnic groups, but is most common among Asian women (17.8%), and least common among Pacific women (12.4%).
- Early re-screening occurs in all age groups, but is most common in women aged 20-24 years at the end of the period (24.0%) and least common in women aged 65-69 years at the end of the period (11.5%).
- Early re-screening (16.0%) is similar to that seen for the previous monitoring period (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 monitoring period, at 100.0%.

Unsatisfactory cytology

Target: 0.1 - 3% for LBC

- Percent LBC samples unsatisfactory target was met by six of seven laboratories, and also met nationally (1.3%).
- The national 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 was met nationally and by all seven laboratories.
- Nationally, the percent of samples which are negative (92.6%) is similar to that reported in the previous period (92.7%).

Abnormal cytology

Target: No more than 10% of satisfactory cytology samples

- Percent of samples abnormal target was met nationally and by six of seven laboratories.
- Nationally, the percent of samples which are abnormal (7.4%) is similar to that reported in the previous period (7.3%).

HSIL cytology

Target: No less than 0.5% of satisfactory cytology samples

- Percent of samples HSIL target was met nationally and by all of the seven laboratories.
- Percent of samples HSIL (0.8%) is similar to that in the previous report (0.9%).

Indicator 5.2

Cytology positive predictive value

HSIL + SC

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

- Five laboratories met the target range for HSIL+SC .
- Nationally, the positive predictive value of HSIL+SC was slightly lower for this monitoring period (83.7%) than in the previous report (84.1%).

Other cytological abnormalities

Target: None

- Nationally, the positive predictive value of ASC-H has increased compared to the previous report (51.4% in this report, 50.4% in the previous report).
- Nationally, the positive predictive value of the combination of ASC-H+HSIL+SC has increased compared to the previous report (71.4% in the previous report, 72.2% in the current report).
- Nationally, the proportion of glandular cytological abnormalities identified as histological high grade has increased since the previous report, from 49.1% to 55.1% (however this measure is generally based on a comparatively small number of samples (187 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%

This indicator is not assessed in this report. Data for this indicator

	is provided annually and this indicator was last assessed in Report 42 and will be next assessed in Report 44.
Indicator 5.4	Histology reporting **Target:** None • 13,472 histology samples were taken during the current monitoring period. 474 (3.5%) of these were insufficient for diagnosis. • Results relate to the remaining 12,998 samples, which were collected from 11,412 women. The most severe histology from 11,412 women with samples which were sufficient for diagnosis are presented. • 20.5% of women had CIN2/3 or HSIL histology results. • 46 (0.40%) women had ISCC histology results, 33 (0.29%) women had invasive adenocarcinoma histology results (six endocervical type; 27 not endocervical type), and 3 (<0.05%) 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 (93.8% samples were reported within seven working-days), and was met by five of seven laboratories. • The 15-working-days target was met nationally (98.9% 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 increased slightly since the previous report (from 92.7% to 93.8%), and the number of labs meeting the target has increased from five to six. • The overall proportion of cytology samples reported within 15-working-days (98.9%) is slightly higher than in the previous monitoring period (98.7%). *Histology* **Target:** 90% within 10 working days; 98% within 15 working days • The target was achieved nationally for reporting within ten working days (92.1%), but was below the target for reporting within 15 working days (95.7%). • Targets were met by 9 of 16 laboratories (ten working day target) and 4 of 16 laboratories (15 working day target). • The overall proportion of histology samples reported within 15 days (95.7%) has increased compared to the previous

report (93.7%). The number of laboratories meeting the targets has reduced by one at ten working days and reduced by three 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 3,175 cytology samples with associated HPV triage testing in the current monitoring period.
- Turnaround time was above the target nationally at 98.6% reported on within 15 working days.
- Five laboratories met the target.
- The proportion reported within 15 days is slightly lower for this subgroup of cytology (98.6%) than for cytology overall (98.9%), particularly at LabPLUS (although this laboratory performed a relatively 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

Follow-up of women with high grade cytology – histology

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).
- 81.4% of women had a histology report within 90 days of their high grade cytology report and 87.7% of women had one within 180 days.
- One DHB (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 increased since the previous monitoring period (from 79.5% to 81.4%), as has the proportion with follow-up within 180 days (from 86.8% to 87.7%).
- Compared to the previous monitoring period, the proportion of women with follow-up histology within 90 days increased for Pacific women (from 67.8% to 72.9%), Māori women (from 74.9% to 75.4%), Asian women (from 79.0% to 80.1%) and European/Other women (from 82.7% to 83.7%).
- The proportion of women with follow-up histology at 90 days

in the current monitoring period has increased overall for all ethnic groups, ranging from a 1.3 percentage point increase for European/ Other women (from 82.4% to 83.7%) to a 5.1 percentage point increase for Pacific women (from 67.8% to 72.9%). An increase in the proportion of women with follow-up histology at 180 days was seen for Maori and European/ Other women (from 83.6% to 83.9% and 87.7% to 89.1%, respectively), was unchanged for Pacific women (at 83.1%), and decreased for Asian women (from 89.9% to 86.5%).

- The proportion of women with histological follow-up is generally lower in women aged 50 years or more, than in women younger than 50 years. Increased proportions of women with histological follow-up recorded in the current monitoring period for women aged 55-59 (from 65% to 75% at 90 days and 77% to 82% at 180 days) and 60-64 (from 54% to 68% at 90 days and from 66% to 77% at 180 days) have reduced the size of this difference compared to that seen in previous monitoring periods.

Any follow-up tests

Target: None

- Nationally, 180 (9.0%) women have no follow-up test report (colposcopy, subsequent cytology, histology, HPV test) within 90 days of their high grade cytology report, and 104 (5.2%) women have no follow-up test report within 180 days.
- Nationally, the proportion of women with no record of a follow-up test has decreased since the previous period, from 10.4% to 9.0%, at 90 days, and from 6.2% to 5.2% at 180 days.
- Compared to the previous monitoring period, the proportion of women with no follow-up test has decreased for all ethnic groups. For Māori women the decrease was from 15.7% to 12.9% at 90 days and 8.2% to 7.3% at 180 days. For Pacific women the proportion with no follow-up test recorded decreased from 22.0% to 19.5% at 90 days, but was unchanged at 180 days (12.7%). The proportion of Asian women with no follow-up test recorded decreased from 13.2% to 10.5% at 90 days and from 5.7% to 5.3% at 180 days. And finally, the proportion of European/ Other women has decreased from 7.9% to 7.1% at 90 days, and from 5.1% to 4.1% at 180 days.

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 1,996 women with high grade cytology results who were not already under specialist management.
- This comprised 76 women with high grade results indicating a suspicion of invasive disease and 1,920 women with other high grade results.
- Among the 76 women with high grade cytology results indicating a suspicion of invasive disease, 38 (50.0%) had an accepted referral; 78.9% of these women were seen within 10 working days of their referral being accepted; 94.7% were seen within 20 working days of their referral being accepted. This is higher than in the previous report at 10 working days (64.3%), and also at 20 working days (78.6%).
- Among the 1,920 women with other high grade cytology results, 69.5% were seen within 20 working days of their referral being accepted. This is higher than the proportion seen within 20 working days in the previous monitoring period (65.1%).
- A colposcopy visit is recorded for 60 (78.9%) of the women with high grade cytology results indicating a suspicion of invasive disease, and 1,828 (95.2%) of the women with other high grade cytology results up to 30 June 2015 (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 86.1% to 87.8%).
- In the current report histology data has been used to infer a colposcopy visit and supplement colposcopy visit data, as colposcopy data remained incomplete during the monitoring period.

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 for all colposcopy clinics in the NCSP Register.
- There were 4,138 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in the 6-month period ending 12 months prior to the end of the current monitoring period (ie, between 1 January – 30 June

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2014).

- Subsequent accepted referrals are recorded for 3,374 (81.5%) of these women, and subsequent colposcopy for 3,698 (89.4%) of these women.
- Nationally, 83.6% of women attended for colposcopy within 26 weeks of their accepted referral. This varied by DHB from 43.5% (Counties Manukau) to all women (South Canterbury and West Coast), and by ethnicity, from 67.4% (Pacific women) to 86.4% (European/ Other women).

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 13,603 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 97.0% of colposcopies.
- Presence or absence of a lesion was documented for all colposcopies.
- Colposcopic opinion regarding abnormality grade was documented for 91.5% of colposcopies where appearance was abnormal or inconclusive.
- All of these items were completed for 92.1% of colposcopy visits.
- In addition, the type of recommended follow-up was recorded for 99.2% of colposcopy visits, and the recommended timeframe for this follow-up was recorded for 98.4% of colposcopy visits.
- Colposcopic appearance was reported as abnormal in 55.2% of colposcopies, and inconclusive in 5.1% of colposcopies.
- Completion of most recommended fields is similar to what was recorded in the previous monitoring period.
- Overall completion was 92.1%, which was higher than that in the previous monitoring period (89.1%).
- The number of colposcopies recorded on the NCSP Register has increased by 6.6% in the current monitoring period. However, this apparent increase was due to incomplete recording of colposcopy data on the NCSP Register from three DHBs (Counties Manukau, Northland and Waitemata) in the previous period as they transitioned to the new (2013) Colposcopy standards. If these three DHBs are excluded from the calculations in both reports, the number of colposcopies in the current monitoring period is 2.3% lower than in the previous report.

- The number of DHBs reporting colposcopy data electronically to the NCSP Register remained at 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.

- 63.4% of 2,589 women with HSIL histology (CIN2/3) during the period 1 July - 31 December 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 (63.4%) is similar to the previous monitoring period (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 157 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 CIN2/3 should have a colposcopy and smear within the nine-month period post treatment.

- Based on NCSP Register records, 1,545 women were treated for high grade lesions in the period 1 January to 30 June 2014.
- 70.5% of women treated have a record of both colposcopy and cytology within the nine months after their treatment visit. 71.8% 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 CIN2/3 should be discharged back to the smear-taker as appropriate.

- There were 1,170 women who met the criteria for appropriate discharge within 12 months of their treatment (75.7% of women treated). Of these women, 1,023 (87.4%)

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

- HPV testing indicators are about their role within the current cytology-based programme. HPV testing indicators will be reviewed and more fully developed for when HPV primary sceening is implemented in 2018.

Indicator 8.1 HPV triage of low grade cytology

Target: None set.

HPV triage

- Nationally, 96.3% of women aged 30 years or more with an eligible ASC-US cytology result, and 96.8% of women aged 30 years or more with an eligible LSIL cytology result are recorded as having a subsequent HPV triage test.
- The proportion of women who were eligible for HPV triage of low grade cytology who subsequently received an HPV triage test is lower than that in the previous monitoring period for women with ASC-US results (96.3%, compared to 97.5% in the previous report) but is similar to that in the previous monitoring period for women with LSIL results (96.8%, compared to 96.7%).

Positive triage tests

- Among women aged 30 years or more with valid HPV triage test results, 24.0% of women with ASC-US results and 61.0% of women with LSIL results were positive for high risk HPV.
- Positivity for high risk HPV varied by laboratory (from 11.1% to 36.4% for ASC-US, and from 33.3% to 76.3% for LSIL)
- Positivity for high risk HPV generally decreased with increasing age.
- The proportion of women whose HPV tests were positive was lower in the current monitoring period for ASC-US (24.0%, compared to 30.5% in the previous period), and for LSIL (61.0%, compared to 64.1% 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, 90.2% of women have a record of colposcopy and 66.7% have a record of histology within 12

months of their triage test. The corresponding percentages for LSIL are 90.5% with colposcopy and 70.1% with histology within 12 months.

- Among women with colposcopy recorded within 12 months of a triage test, 15.5% of women with ASC-US cytology and 16.8% 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, 21.0% of women with ASC-US cytology and 21.7% 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, 19,103 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 (86.4% of all HPV test samples)
- HPV test volumes were lowest at LabPLUS (740 samples; 3.9% of all HPV test samples received during the monitoring period) and highest at Southern Community Labs (6,209 samples; 32.5% of all HPV test samples).
- Nationally, 13.7% of HPV tests were taken for follow-up of women treated for confirmed high grade squamous abnormalities in the previous four years, 37.4% were taken to manage women with high grade squamous cytology or histology more than three years ago (historical testing), 4.6% were taken at colposcopy (for example to assist in resolving discordant results), and 15.9% were taken for HPV triage of low grade cytology in women aged 30 years or more.
- Among the remaining 28.3% of HPV tests, it appears that approximately one third may have been for follow-up of historical high grade abnormalities outside guidelines.
- The proportion of HPV tests that were invalid is very small (0.1%).
- Overall HPV test volumes are higher than those in the previous report (increased by 2.7%).

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

Target: None set.

- This analysis followed up 49,720 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

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squamous abnormality.

- There were 26,744 women (53.8%) with a Round 1 historical HPV test recorded, and 20,211 women (40.6%) with a Round 2 historical HPV test recorded.
- The proportion of women who had received a historical HPV test varied by DHB, from 34.2% to 75.1% for Round 1 tests and from 22.3% to 64.7% for Round 2 tests.
- There was less variation by age in the proportion of women who had received a historical HPV test than by DHB. This varied from 45.8% to 56.2% for Round 1 tests, and from 26.9% to 44.9% 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 33.8% to 56.2% for Round 1 tests and from 23.1% to 43.4% for Round 2 tests.
- The proportion of eligible women with an HPV test recorded has increased since the previous report from 51.0% to 53.8% for Round 1 tests, and from 37.5% to 40.6% for Round 2 tests.

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 monitoring 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. 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. 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. This target applies nationally, but is also a target for each DHB and ethnicity group (80% for Māori, 80% for Asian, 80% for Pacific, 80% for European/Other).
Current Situation	As at 30 June 2015, 896,781 (76.5%) women aged 25-69 at the end of the current monitoring period had at least one cervical sample taken (for cytology, HPV test or histology) during the previous three years. This did not meet the target of 80%. 1,062,998 (90.7%) women aged 25-69 at the end of the current monitoring period had at least one cervical sample taken during the previous five years. Three-yearly coverage in women aged 25-69 years varied by DHB from 71.9% (Northland) to 80.6% (Nelson Marlborough). Two of the 20 DHBs achieved the 80% target for women aged 25-69 years at the end of the period (Figure 1, Table 22). 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 62.2%, 73.0%, and 63.5% respectively. Among European/Other women, coverage achieved was 82.4% within three years (Figure 3, Table 23). Coverage for each of Māori, Pacific, Asian or European/Other women was also explored at the DHB level. Three-yearly coverage for Māori women ranged from 47.6% (South Canterbury) to 72.9% (Hawke's Bay) (Figure 3). The target level of 80% of Māori women screened within the previous three years was not achieved in any DHB. Three-yearly coverage for Pacific

women ranged from 50.1% (Northland) to 86.1% (South Canterbury) (Figure 4). The target level of 80% of Pacific women screened within the previous three years was achieved by three DHBs (Auckland, South Canterbury and Wairarapa). Three-yearly coverage in Asian women ranged from 53.5% (West Coast) to 74.7% (Hutt Valley) (Figure 5). The target level of 80% of Asian women screened within the previous three years was not achieved in any DHB. Three-yearly coverage for European/Other women ranged from 76.0% (West Coast) to 90.1% (Auckland) (Figure 6). The target level of 80% of European/Other women screened within the previous three years was achieved in 11 DHBs (Auckland, Bay of Plenty, Capital & Coast, Counties Manukau, Hutt Valley, Lakes, Nelson Marlborough, Southern, Taranaki, Waikato and Waitemata).

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 for women aged 25-29 years (66.0%), and was highest for women aged 45-49 and 50-54 years (80.8%) (Figure 14, Table 28). Coverage was also low for women aged 20-24 years (52.7%), 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.

When compared to the findings for three-year coverage, five-year coverage had similar patterns of variation by DHB, ethnicity, and age. For women aged 25-69 years at the end of the monitoring period, five-year coverage varied from 84.8% for West Coast to 96.9% in Capital & Coast (Figure 8, Table 25); and by ethnicity from 74.0% (Asian) to 96.6% (European/Other) (Figure 9, Table 26). Five-yearly coverage for Māori women ranged from 56.3% (South Canterbury) to 91.5% (Hawke's Bay) (Figure 10, Table 27). Five-yearly coverage for Pacific women ranged from 63.4% (Northland) to all women (Auckland) (Figure 11, Table 27). Five-yearly coverage for Asian women ranged from 58.6% (West Coast) to 86.2% (Hutt Valley) (Figure 12, Table 27).

Five-yearly coverage in European/Other women ranged from 87.4% (West Coast) to all women (Auckland) (Figure 13, Table 27). Coverage was estimated to be over 100% of the eligible population in some cases (Table 27); this is likely due to limitations in the estimates for hysterectomy prevalence.

Five-yearly coverage varied by age from 81.5% for women aged 25-29 years to 95.2% for women aged 45-49 years (Figure 14, Table 28)

Screens in women aged less than 20 years

A total of 7,859 women aged less than 20 years at the time of their cervical sample had a cervical sample taken in the three years to 30 June 2015. This

represents 0.8% of women who were screened at any age (Table 30).

The number of women aged less than 20 years at the time they were screened varied by DHB from 55 (Tairawhiti) to 1,311 (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 can indicate where screening among women aged less than 20 years is more or less common. Estimates for this proportion ranged from 2.8% (Northland) to 7.8% (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 29 to Table 31.

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 (88.6%). This may represent opportunistic screening of women aged 18-19 years. This proportion varied from 74.6% in Wairarapa to 95.1% in Whanganui. Where this proportion is higher, it 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 information in this report need to be interpreted with some caution, as the population estimates used were updated to employ projections based on the 2013 Census population for the current and previous monitoring periods ('to 30 Jun 2015' and 'to 31 Dec 2014'), while the earlier periods ('to 30 Jun 2014' and 'to 31 Dec 2013') employ projections based on the 2006 Census. This change will have improved the estimates of coverage, however it also means that some caution is required in interpreting changes across time, as these may partially reflect differences in the population estimates.

Coverage

Overall coverage in New Zealand among women aged 25-69 years is unchanged in the current period (76.5% within the last three years, and

90.7% within the last five years) compared to the previous monitoring period.

For women screened in the last three years, coverage has been relatively stable in many DHBs compared to the previous monitoring period, with the change generally being less than one percentage point. In some DHBs a decrease has been seen for more than one monitoring period (for example in Northland and Tairawhiti); Trends over the last four monitoring periods by DHB are shown in Figure 16 and Table 33.

The proportion of women screened in the previous three years by age was similar to the proportions in the previous monitoring report. The coverage target of 80% 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 changed by less than one percentage point for most age groups; a slightly larger decrease of 1.1 percentage points was seen for women aged 20-24 years. Trends over the last four monitoring periods by age are shown in Figure 17 and Table 36.

By ethnicity, coverage has been relatively unchanged over the last four monitoring periods for Maori, Asian, and European/Other women. The proportion of Pacific women screened has increased over this period, from 68.6% in the 3 years to 31 December 2013 to 73.0% in the 3 years to 30 June 2015) (Figure 18, Table 37).

Screens in women aged less than 20 years

The number of women screened who were aged under 20 years has decreased from 8,510 in the previous monitoring period to 7,859 in the current monitoring period, as has the proportion of all women with screening events who were aged less than 20 years at the time of the event (from 0.9% to 0.8%). The number of women screened who were 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 monitoring period (from 87.6% to 88.6%), and an increase has occurred in most DHBs (15 of 20) (Figure 20). As in previous reports, it would appear that in New Zealand overall screens in very young women are reducing, and when women aged less than 20 years are screened, it increasingly reflects opportunistic screening of 18-19 year olds.

Comments

As discussed in Methods (Hysterectomy-adjusted population, page 2), 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 32.

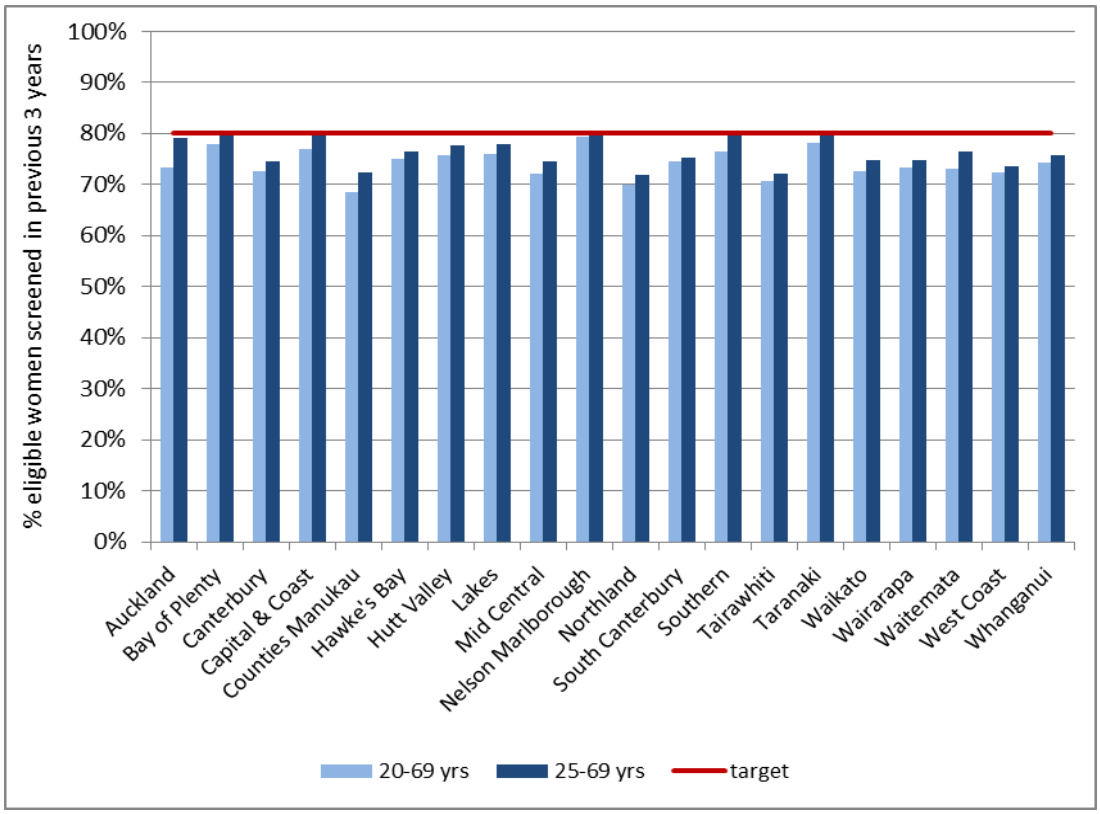
Counts of women screened used to estimate coverage (numerator) exclude women who are not enrolled on the NCSP Register, whereas the hysterectomy-adjusted population estimates (denominator) represent all women in New Zealand without a hysterectomy, regardless of whether they are enrolled on the NCSP Register. 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 monitoring 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.

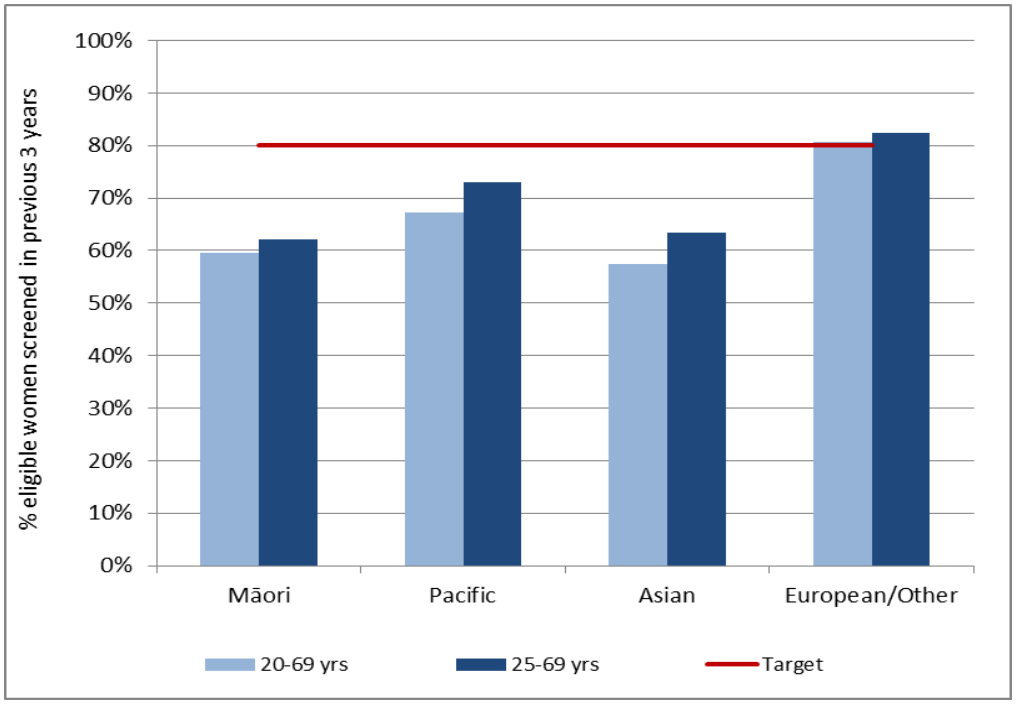
Coverage in women aged 20-24 years is likely to remain lower than for other ages and coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.

Figure 1 - Three-year coverage by DHB (women screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population)



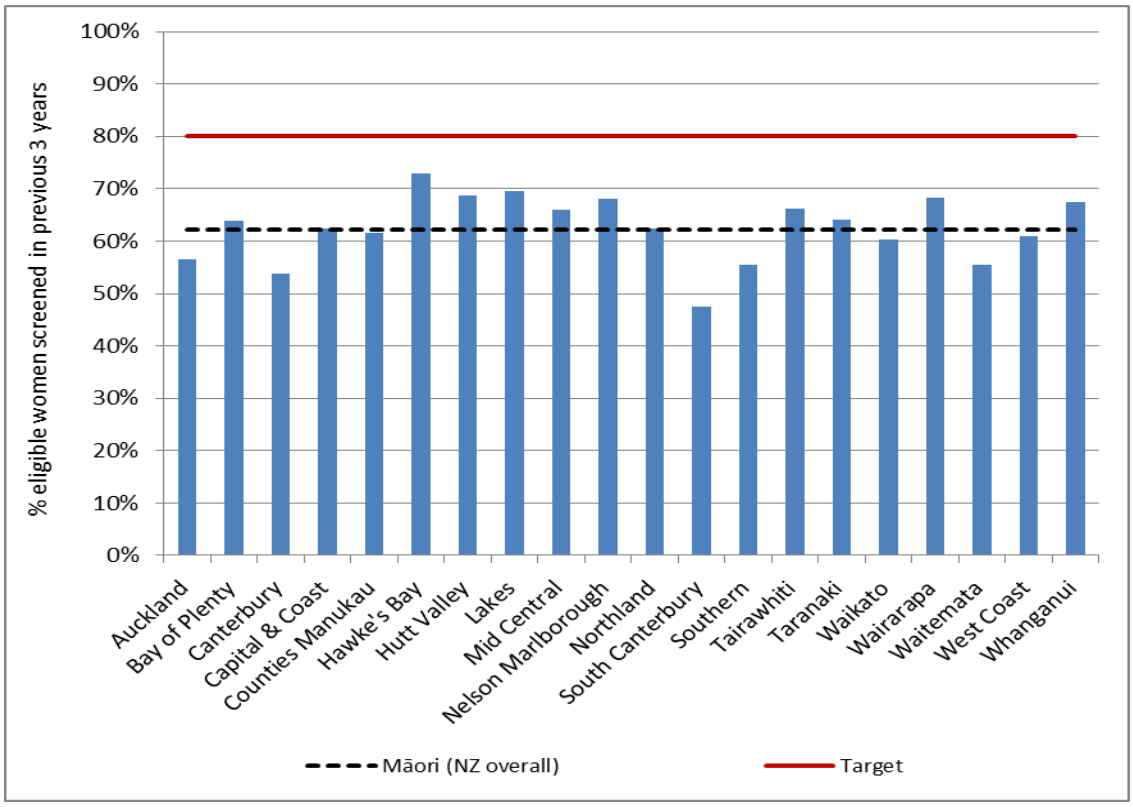
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target 80%, hysterectomy adjusted. See also Table 22

Figure 2 - Three-year coverage (women screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by ethnicity



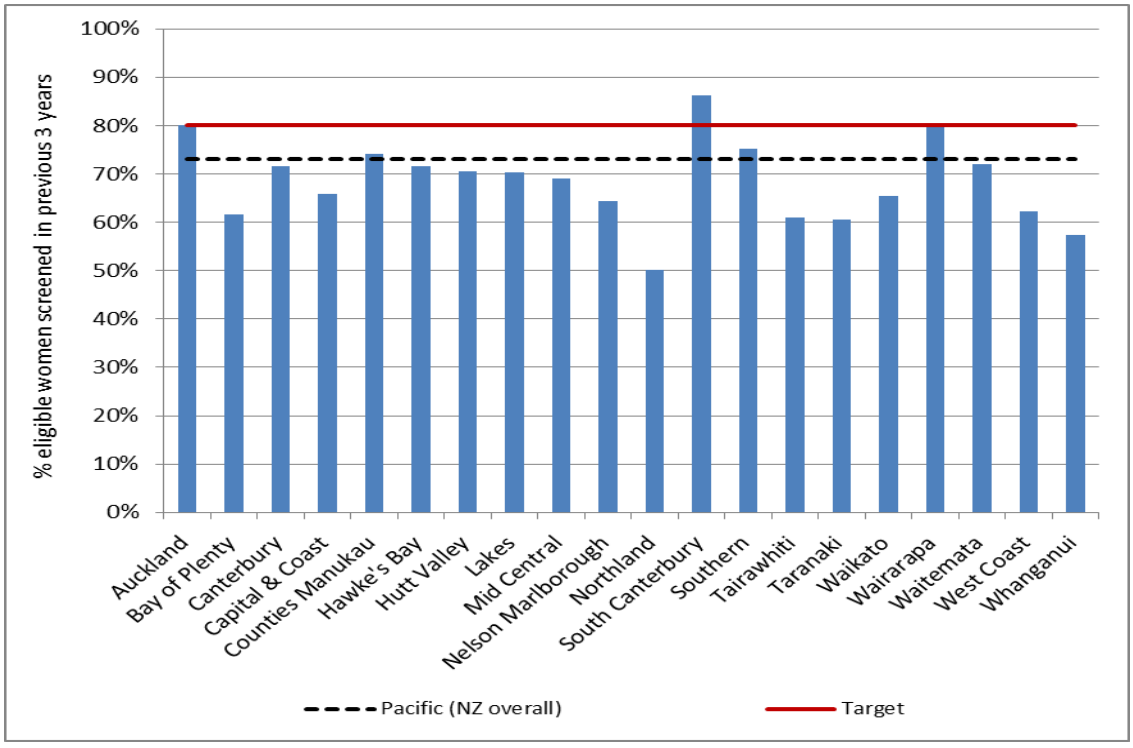
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target: 80% for ages 25-69 years, hysterectomy adjusted. See also Table 23

Figure 3 - Three-year coverage in Māori women (women 25-69 years screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



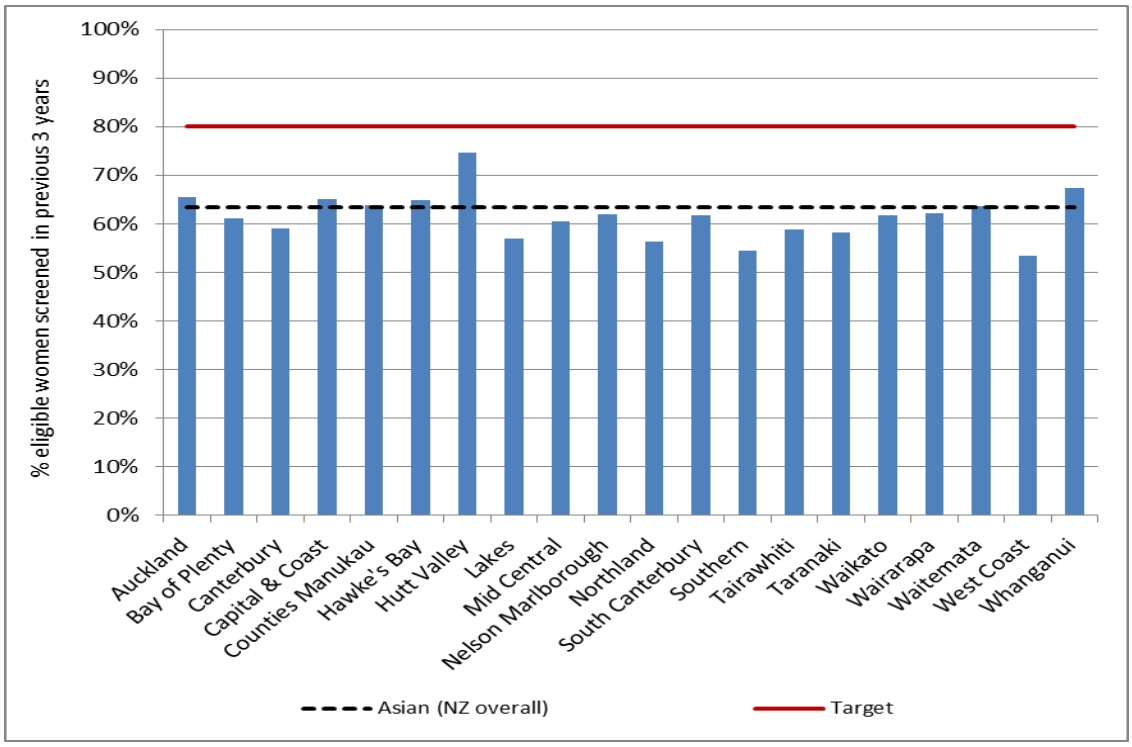
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target 80%, hysterectomy adjusted.

Figure 4 - Three-year coverage in Pacific women (women 25-69 years screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



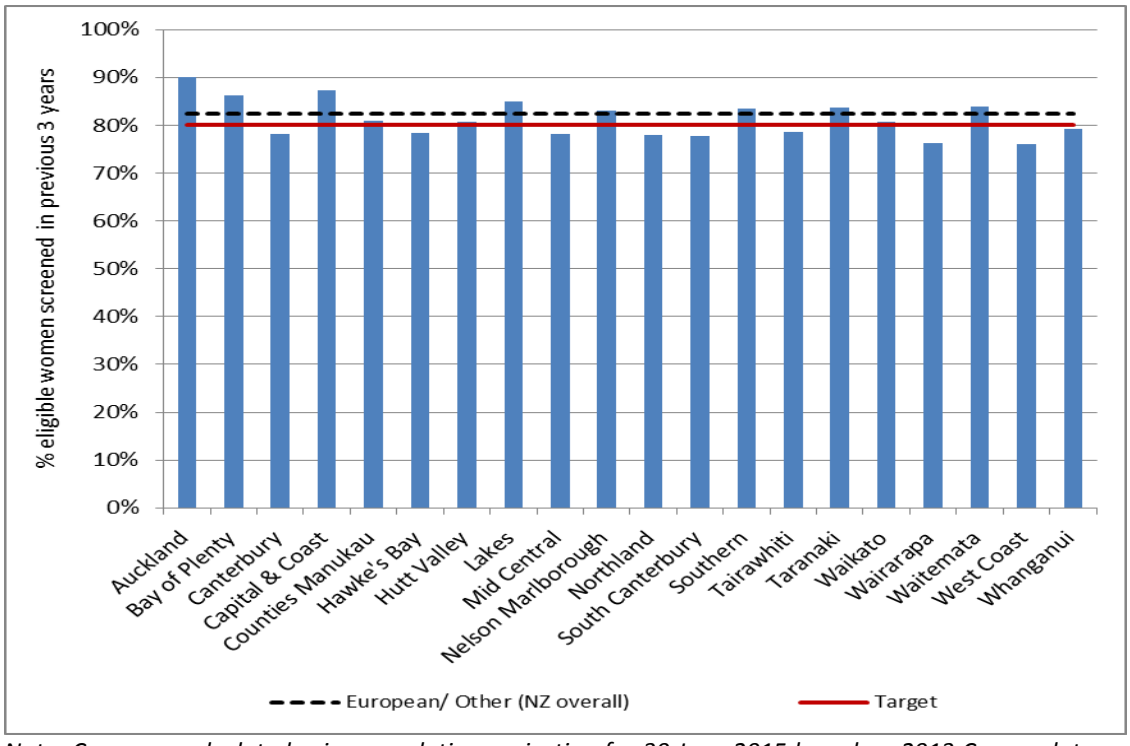
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target 80%, hysterectomy adjusted.

Figure 5 - Three-year coverage in Asian women (women 25-69 years screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



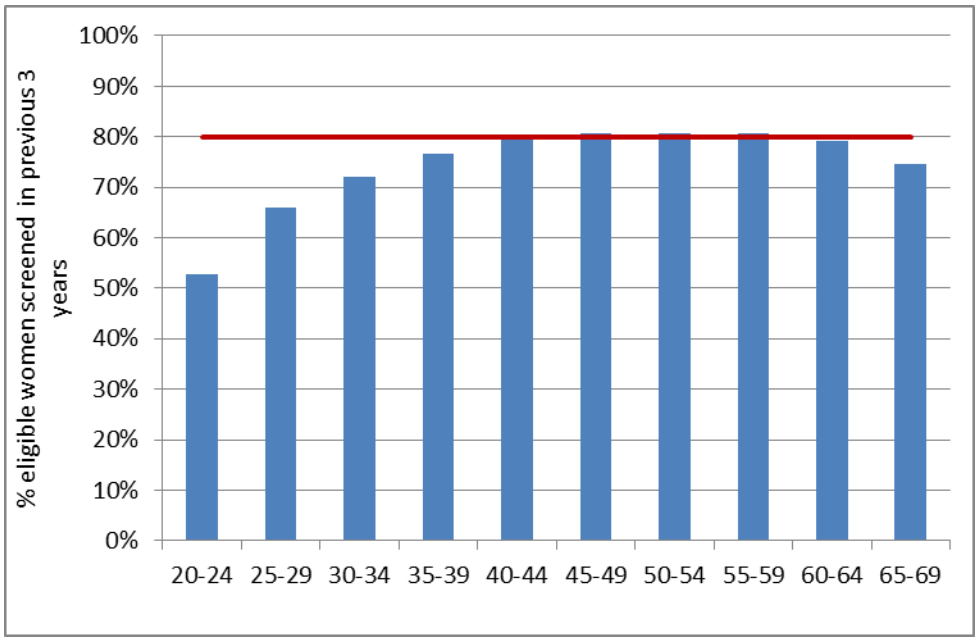
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target 80%, hysterectomy adjusted.

Figure 6 - Three-year coverage in European/ Other women (women 25-69 years screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



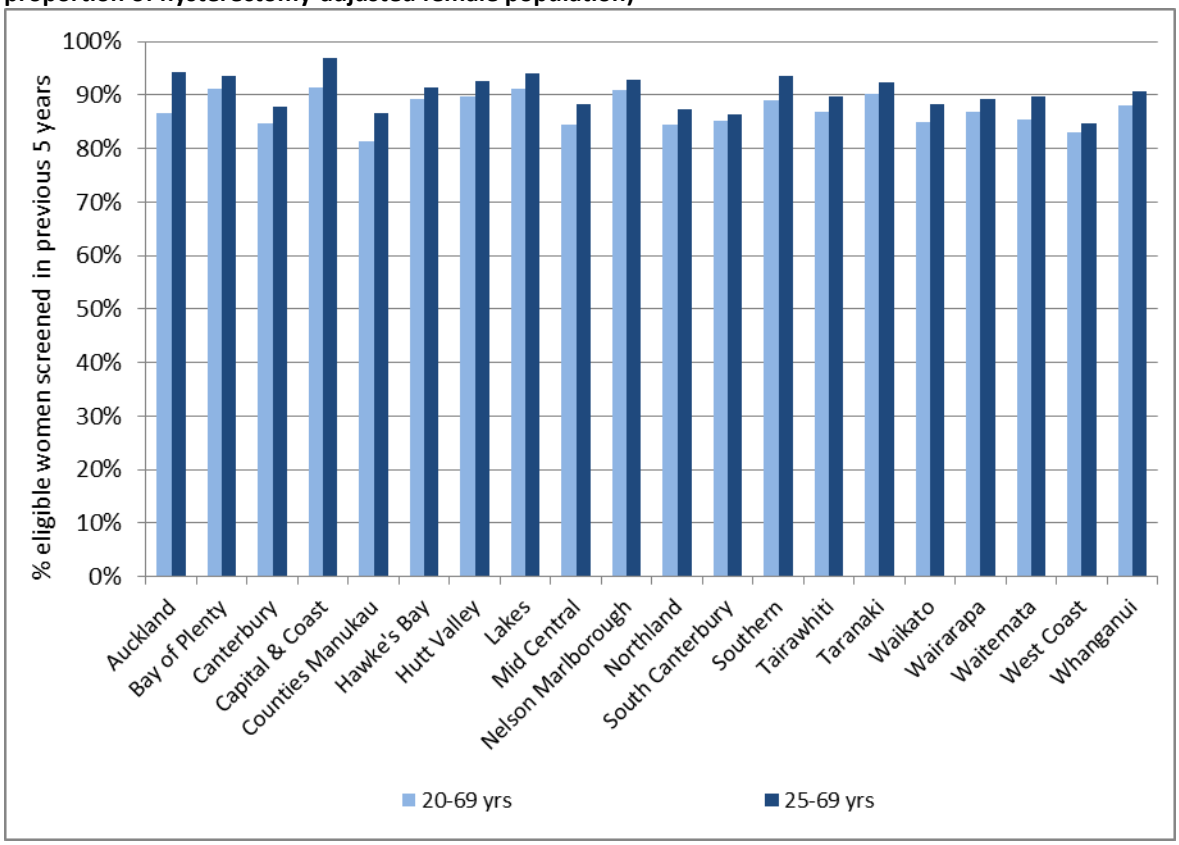
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target 80%, hysterectomy adjusted.

Figure 7 - Three-year coverage by five-year age group (women 20-69 years screened in the three years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population)



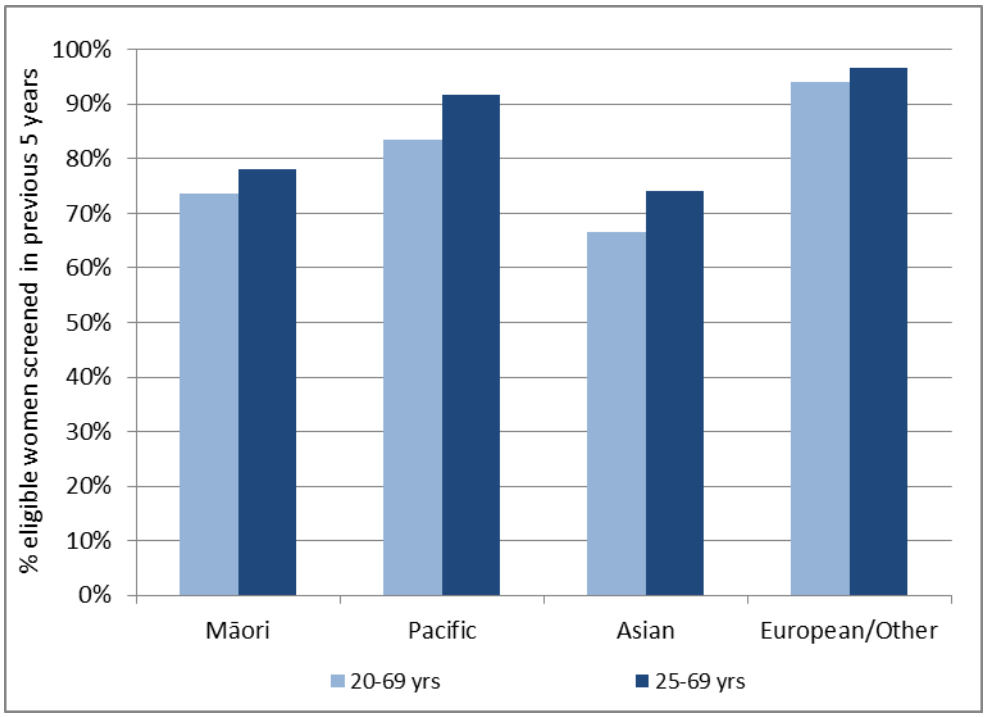
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. Target: 80% for ages 25-69 years, hysterectomy adjusted. See alsoTable 24.

Figure 8 - Five-year coverage by DHB (women screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population)



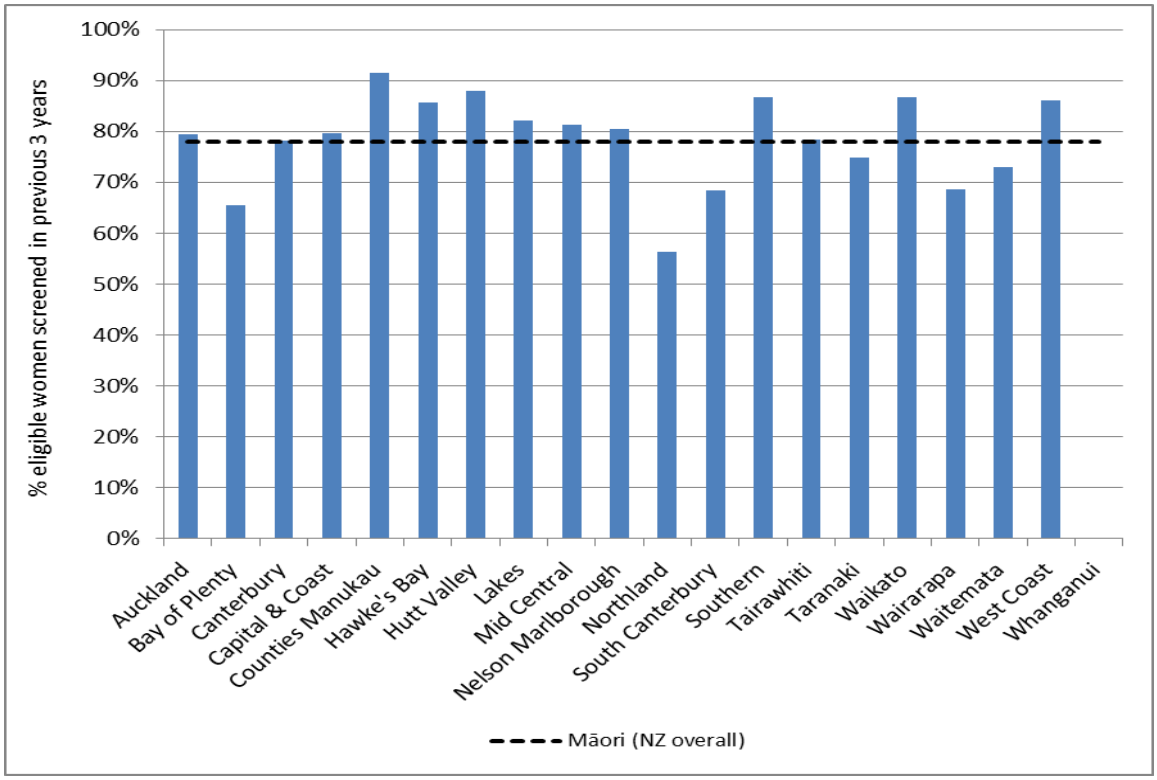
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. See also Table 25

Figure 9 - Five-year coverage by ethnicity (women screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population)



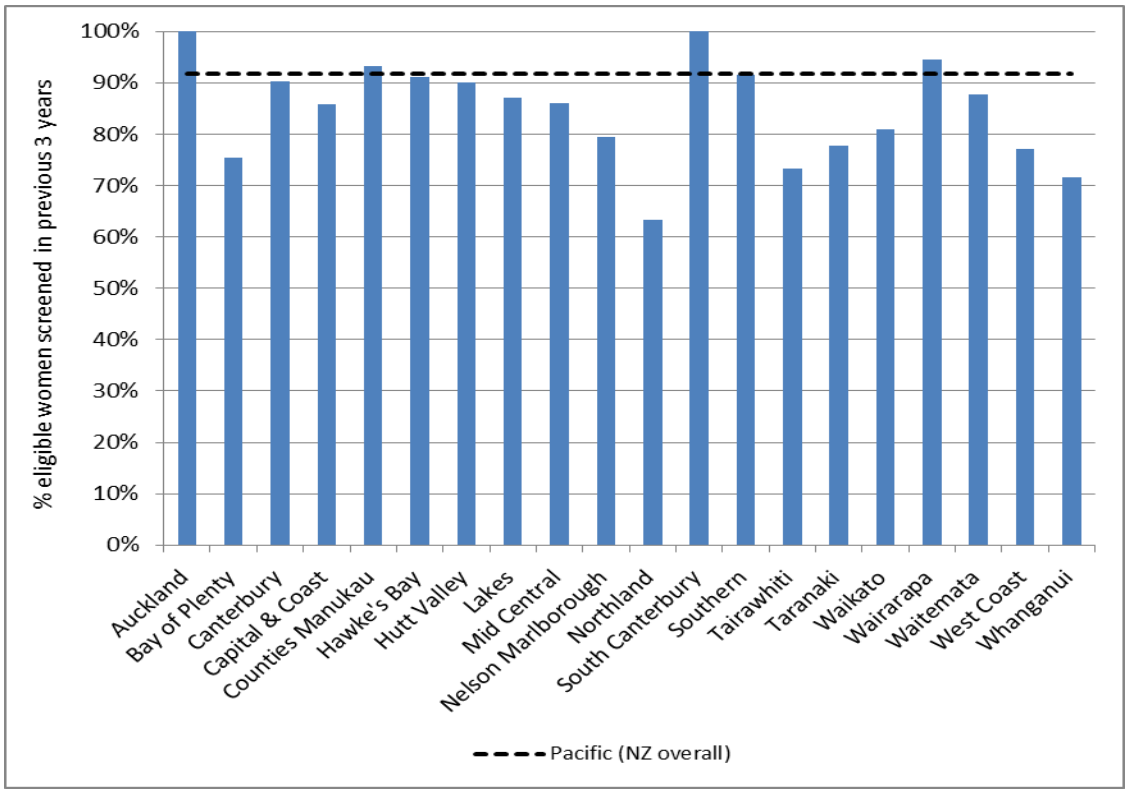
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. See also Table 26

Figure 10 - Five-year coverage in Māori women (women 25-69 years screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



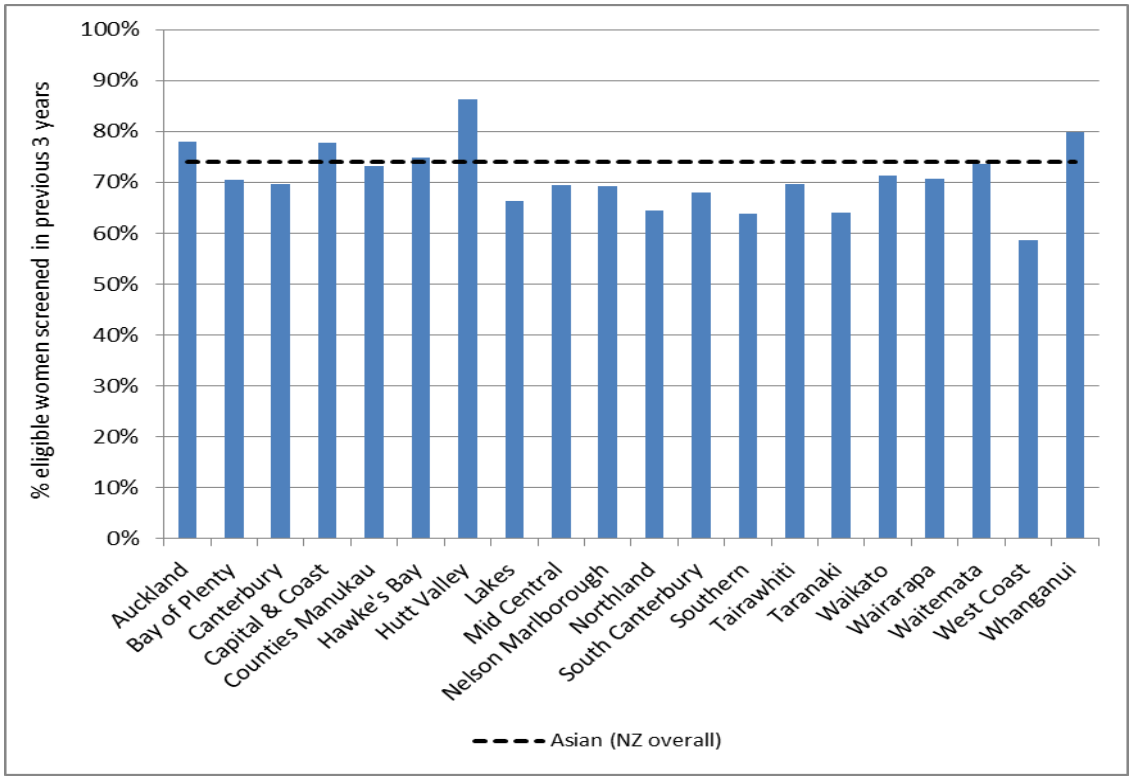
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data.

Figure 11 - Five-year coverage in Pacific women (women 25-69 years screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



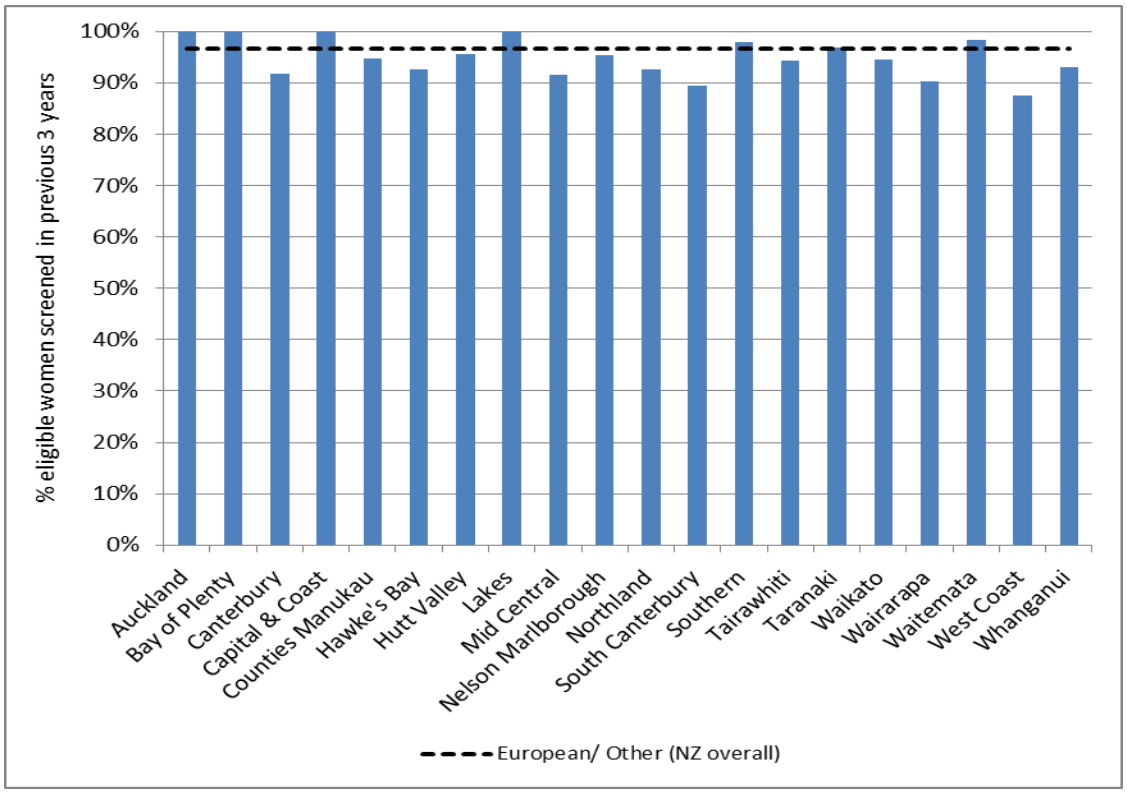
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data.

Figure 12 - Five-year coverage in Asian women (women 25-69 years screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



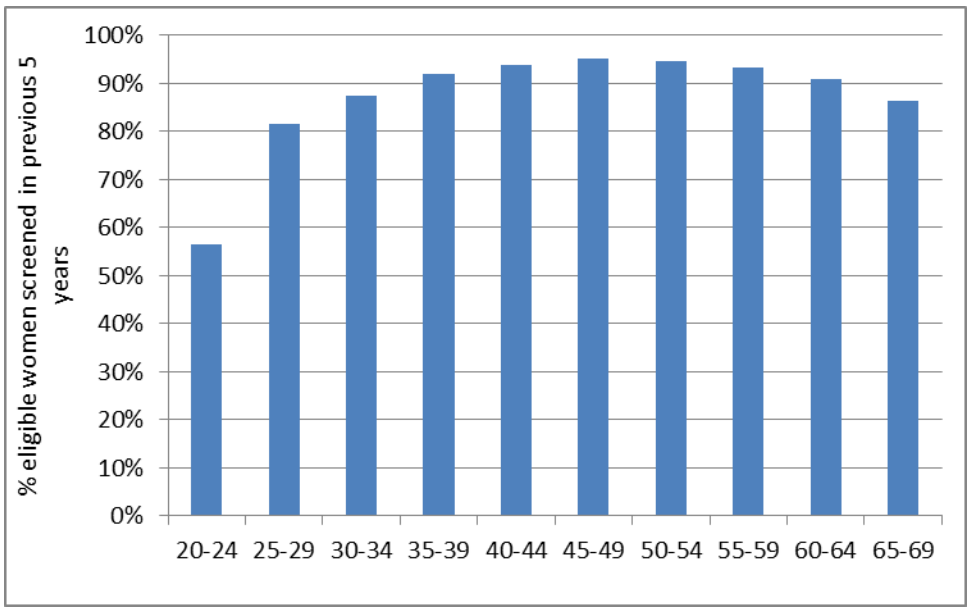
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data.

Figure 13 - Five-year coverage in European/Other women (women 25-69 years screened in the five years prior to 30 June 2015, as a proportion of hysterectomy-adjusted female population), by DHB



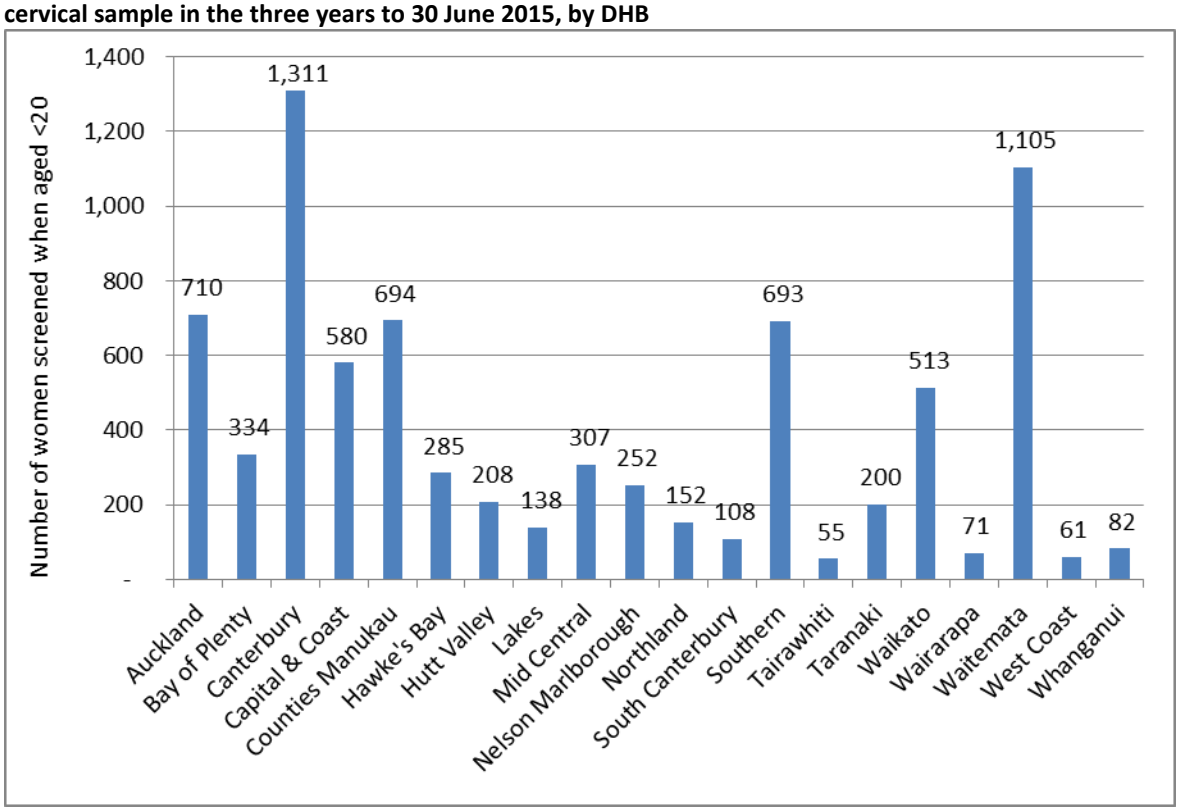
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data.

Figure 14 - Five-year coverage by five-year age-group (women screened in the five years prior to 30 June 2015, as proportion of hysterectomy-adjusted female population)



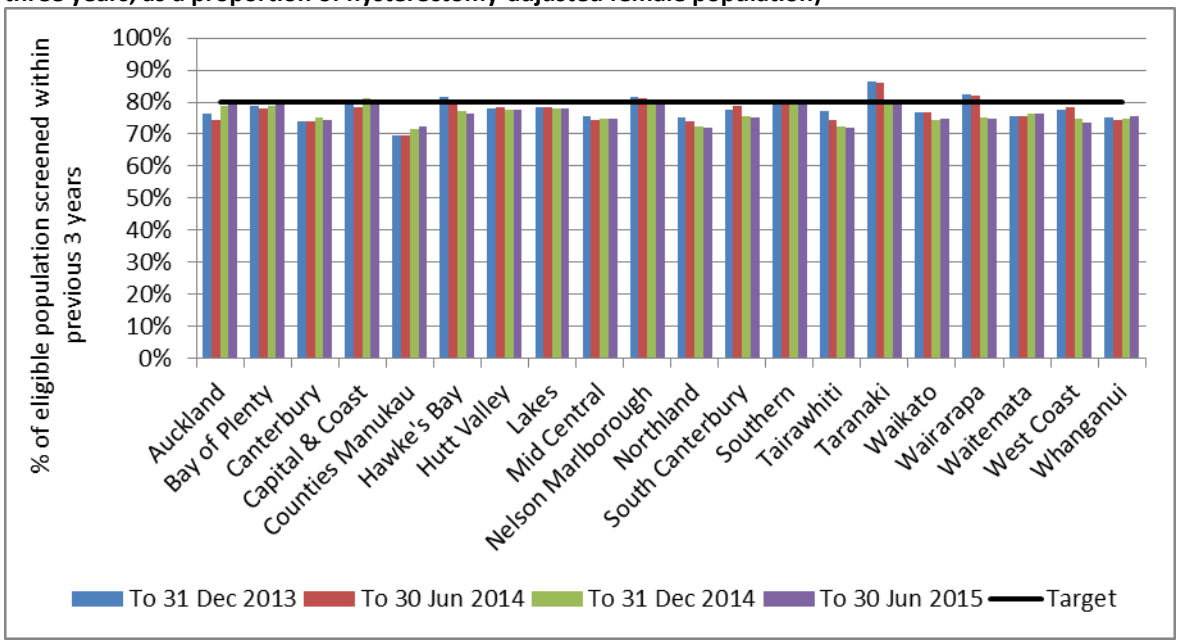
Note: Coverage calculated using population projection for 30 June 2015 based on 2013 Census data. See also Table 28 .

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 30 June 2015, by DHB



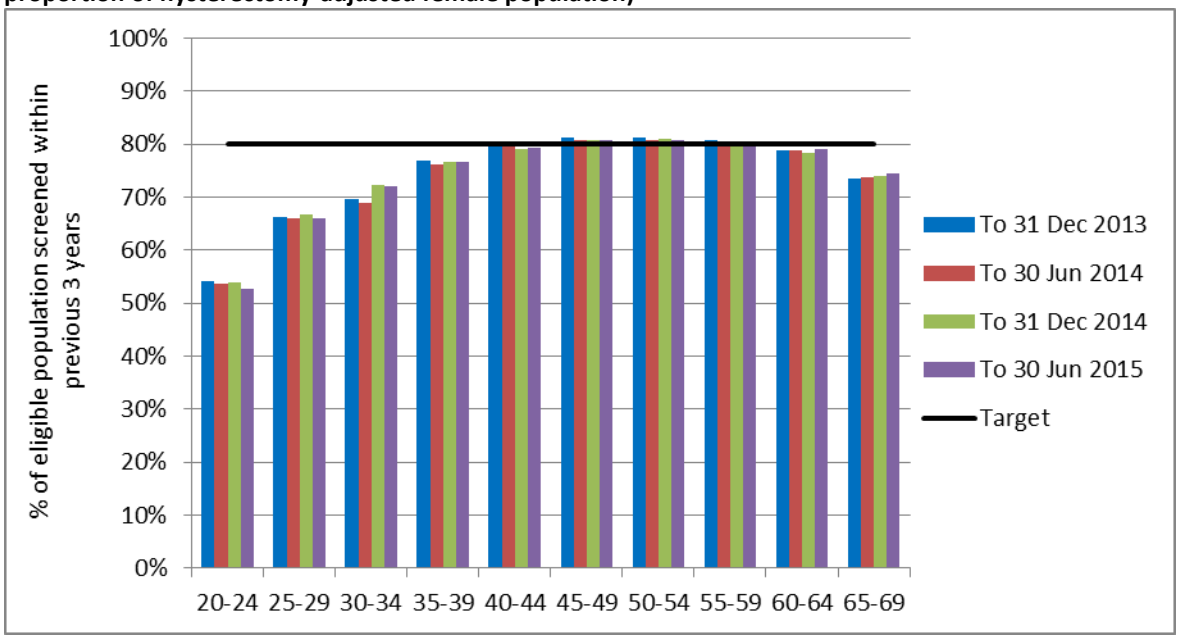
See also Table 31.

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)



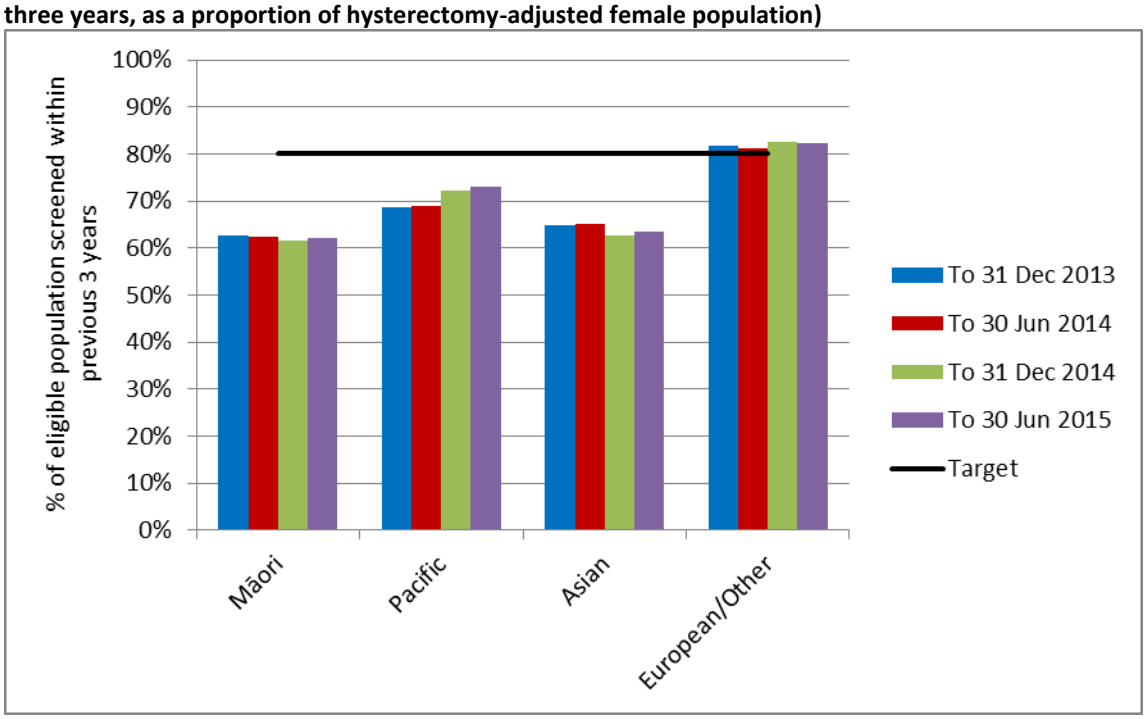
Coverage calculated using population projection at the date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.
Target 80%. See also Table 33

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 date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.
Target 80%. See also Table 34.

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 date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.
Target 80%. See also Table 35.

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

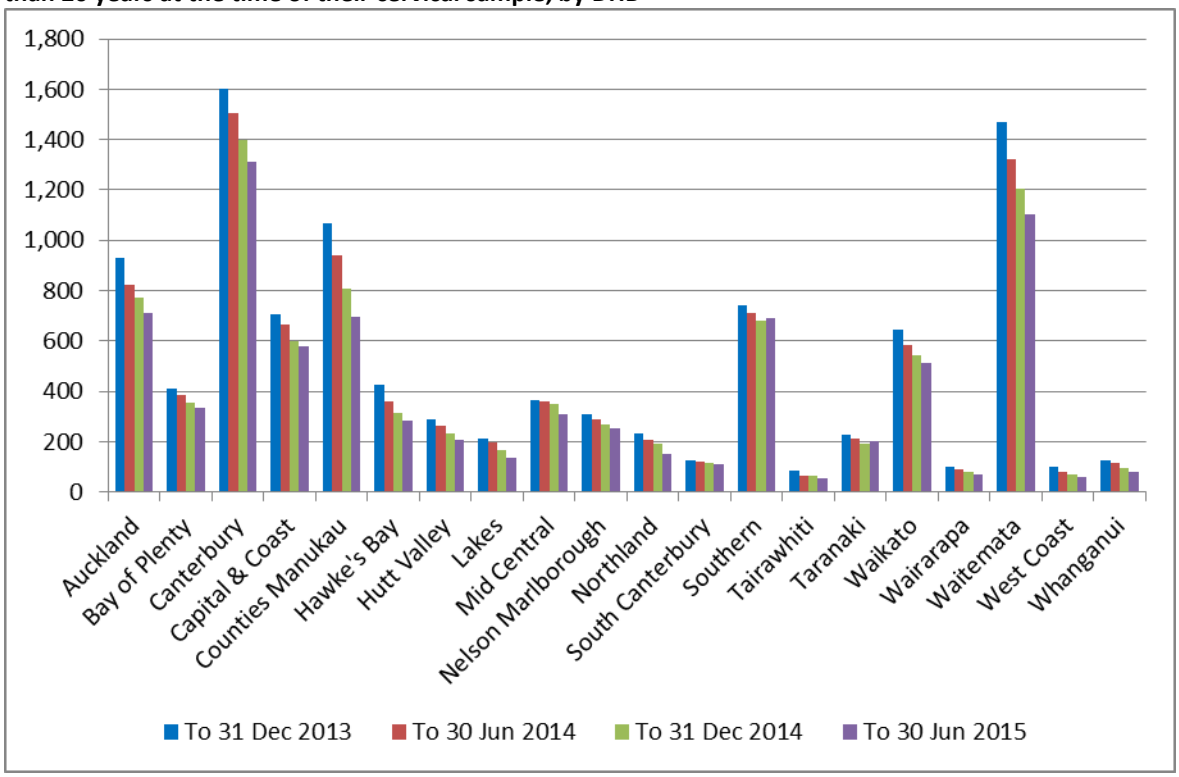
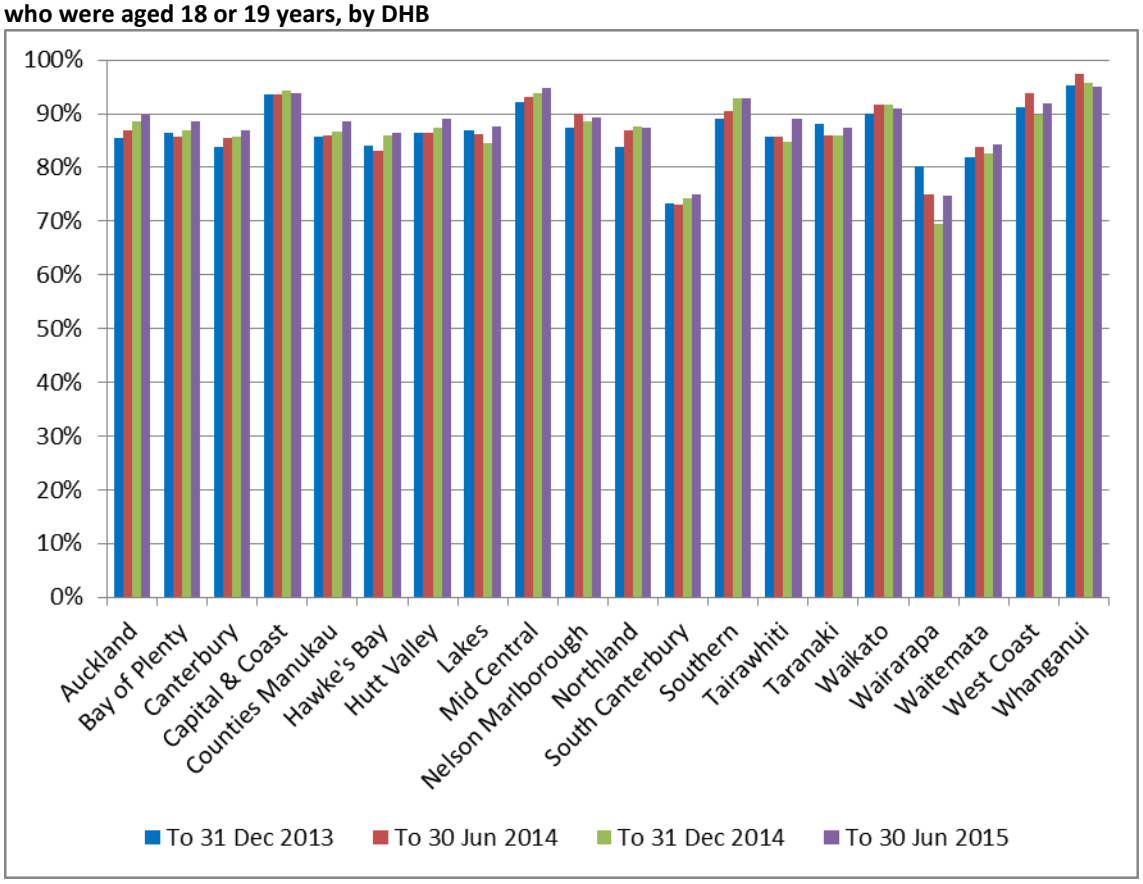


Figure 20 – Trends in the percent of women aged less than 20 years at the time of their cervical sample who were aged 18 or 19 years, by DHB



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 monitoring period (i.e. 30 June 2015).

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 monitoring period (screening event), by DHB.

Target

There are no targets for first screening events

Current Situation

There were 23,511 women aged 20-69 years at the end of the period who had their first screening event in the period 1 January - 30 June 2015. This constituted 10.7% of the 219,030 women aged 20-69 years with a cervical sample taken in the period (screening event), and 1.8% of the eligible population. The median age (at the end of the monitoring 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. 11,086 women aged 20-24 had their first screening event recorded on the register during this monitoring period, accounting for 47.2% of all women aged 20-69 years with first screening events (Figure 21, Table 36). First screening events then 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 monitoring period (6.9%) (Figure 23).

The DHBs with the highest number of women aged 20-69 years with first screening events were Auckland (3,885) and Waitemata (3,264). The DHBs where women with first screening events, as a proportion of all women with screening events, were the highest were Auckland (14.1%), Capital & Coast (13.0%) and Counties Manukau (12.5%). The DHBs where this proportion was lowest were Wairarapa (5.2%), Nelson Marlborough (7.1%) and Whanganui (7.4%) (Figure 24, Table 37).

The ethnic group with the highest number of women with first screening events was European/Other (13,273) (Table 38). The group with the highest proportion of their eligible population being screened for the first time was Asian women (3.0%), and the lowest was Māori women (1.4%) (Table 38). The proportion of women screened who were being screened for the first time was highest for Asian women (21.9%) (Figure 25, Table 38). This proportion is likely to be related to the median age of women with a first screening event, which for 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 39).

Trends

The number of women with a first screening event recorded on the NCSP Register has increased from 21,997 women in the previous period to 23,511 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 (10.7%) is slightly higher than the previous period (10.4%).

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 or 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 30 June 2015 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. 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 – Women with first screening events during the monitoring period, by five-year age group (women aged 20-69 years at 30 June 2015)

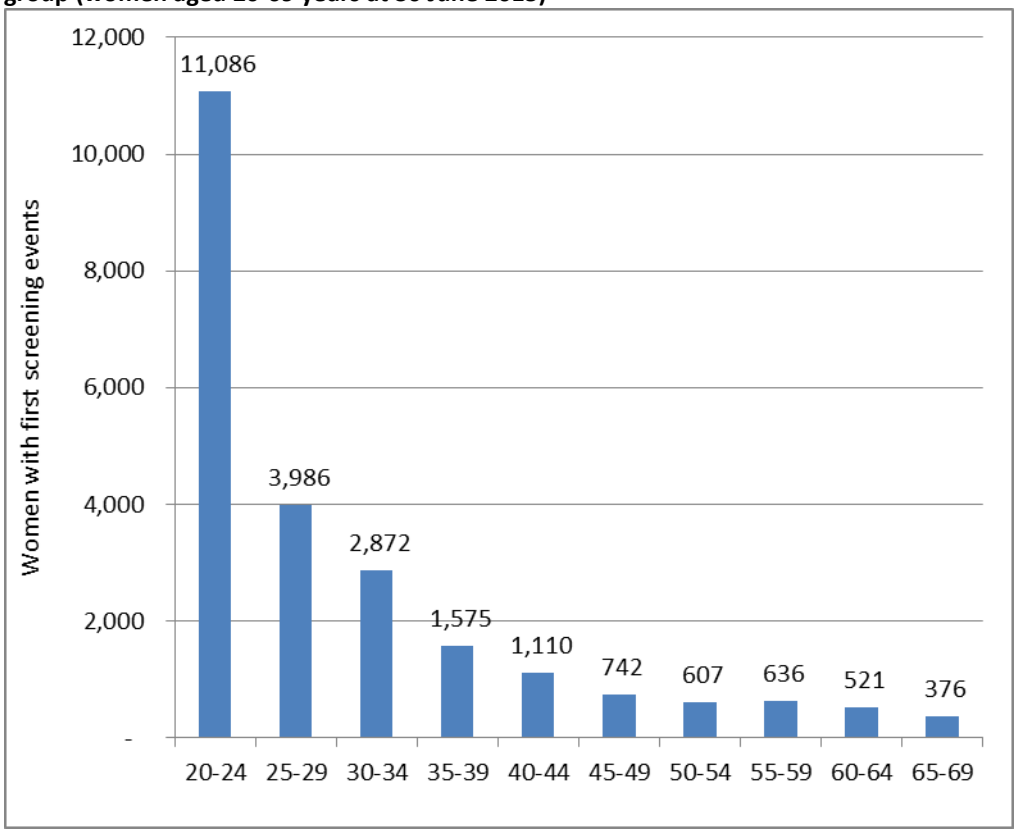


Figure 22 – Women with first screening events as a proportion of all women screened in that age group during the monitoring period, by five-year age group (women aged 20-69 years at 30 June 2015)

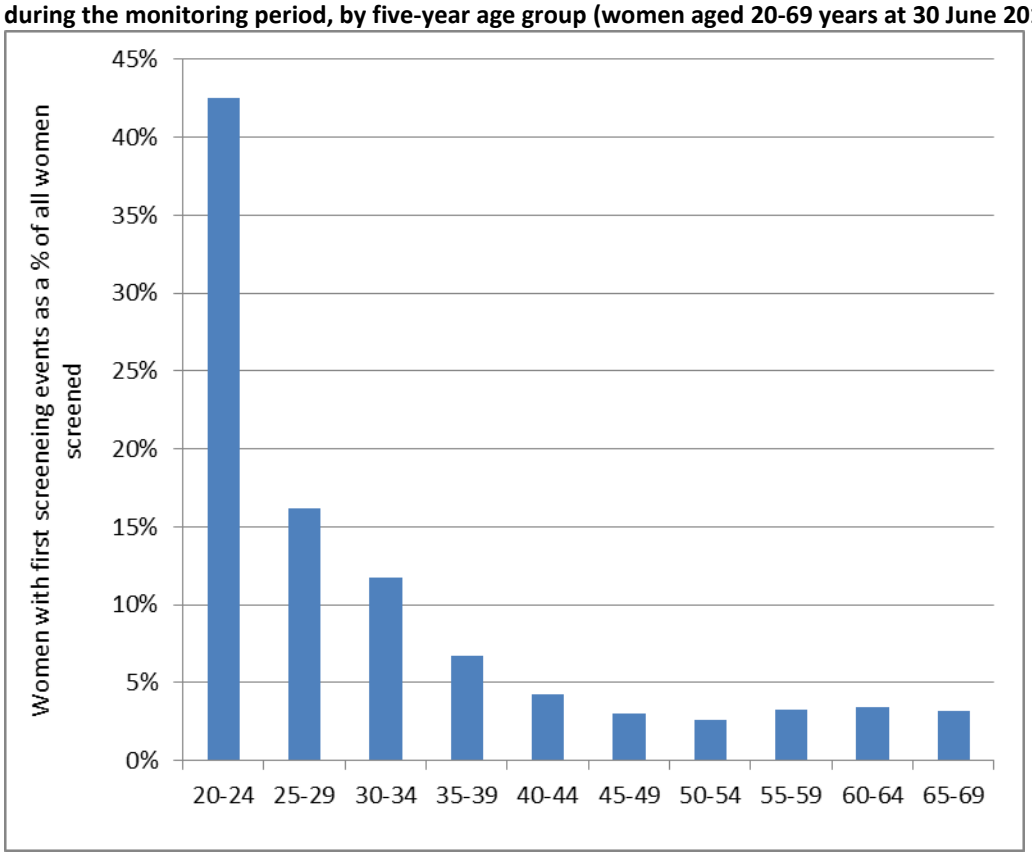
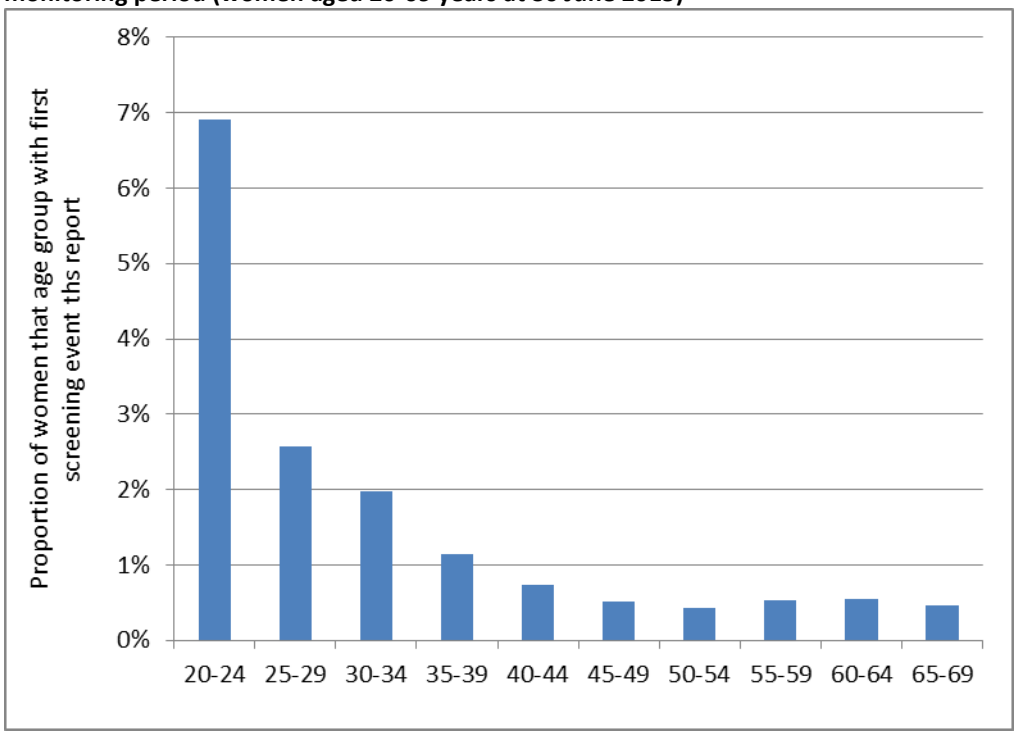


Figure 23 – Proportion of population* in that age group with their first screening event during the monitoring period (women aged 20-69 years at 30 June 2015)



**Hysterectomy adjusted, 2013 Census data projected to 30 June 2015*

Figure 24 – Women with first screening events as a proportion of all women screened during the monitoring period, by DHB (women aged 20-69 years at 30 June 2015)

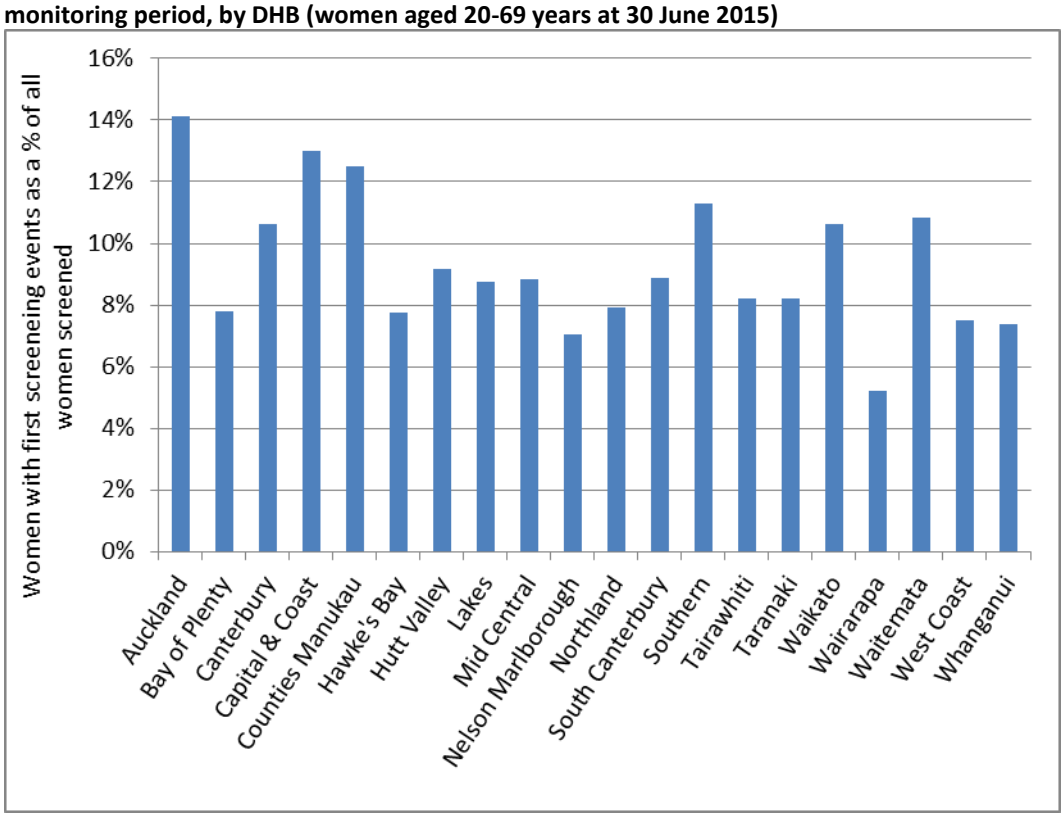


Figure 25 – Women with first screening events as a proportion of all women screened during the monitoring period, by ethnicity (women aged 20-69 years at 30 June 2015)

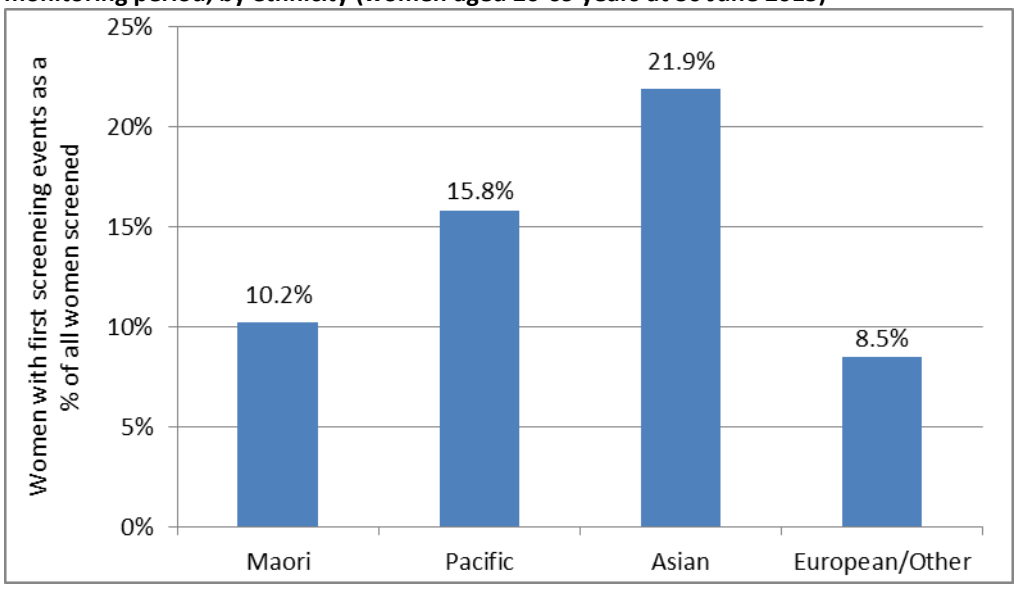


Figure 26 – Trends in the number of women with a first screening event, by age

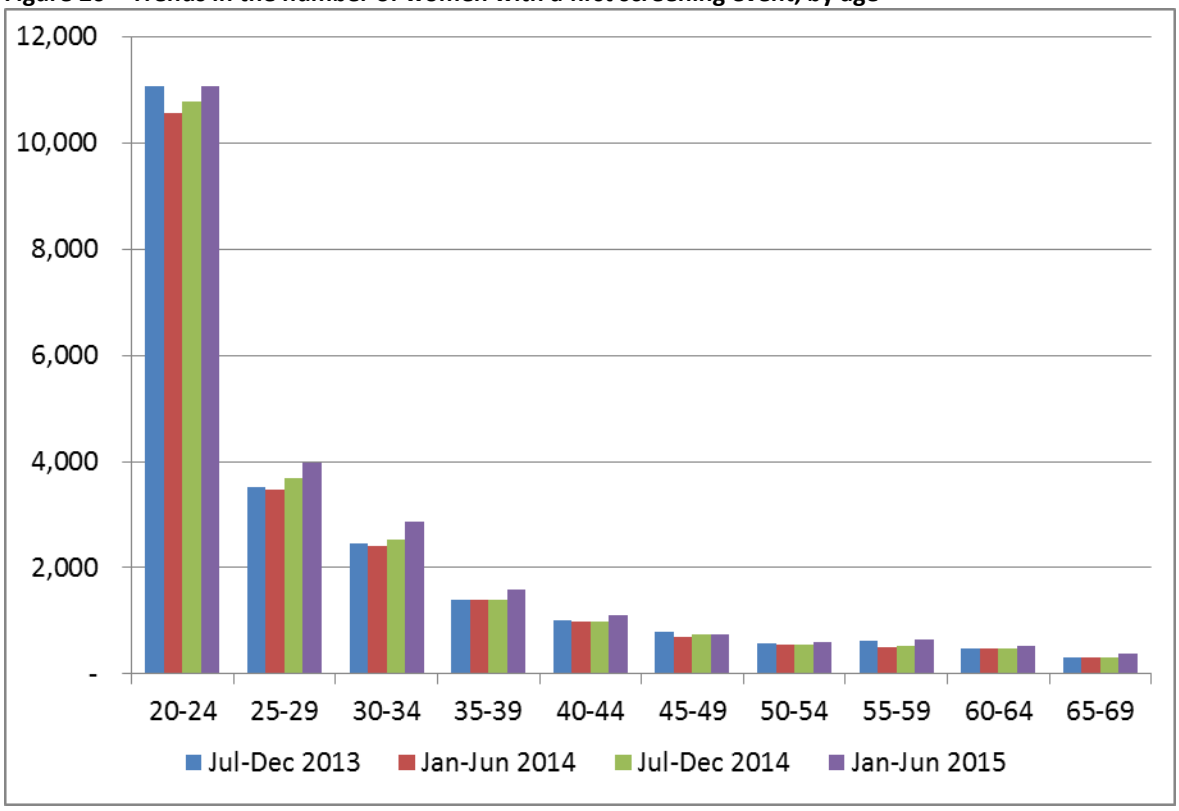


Figure 27 – Trends in the number of women with a first screening event, by DHB

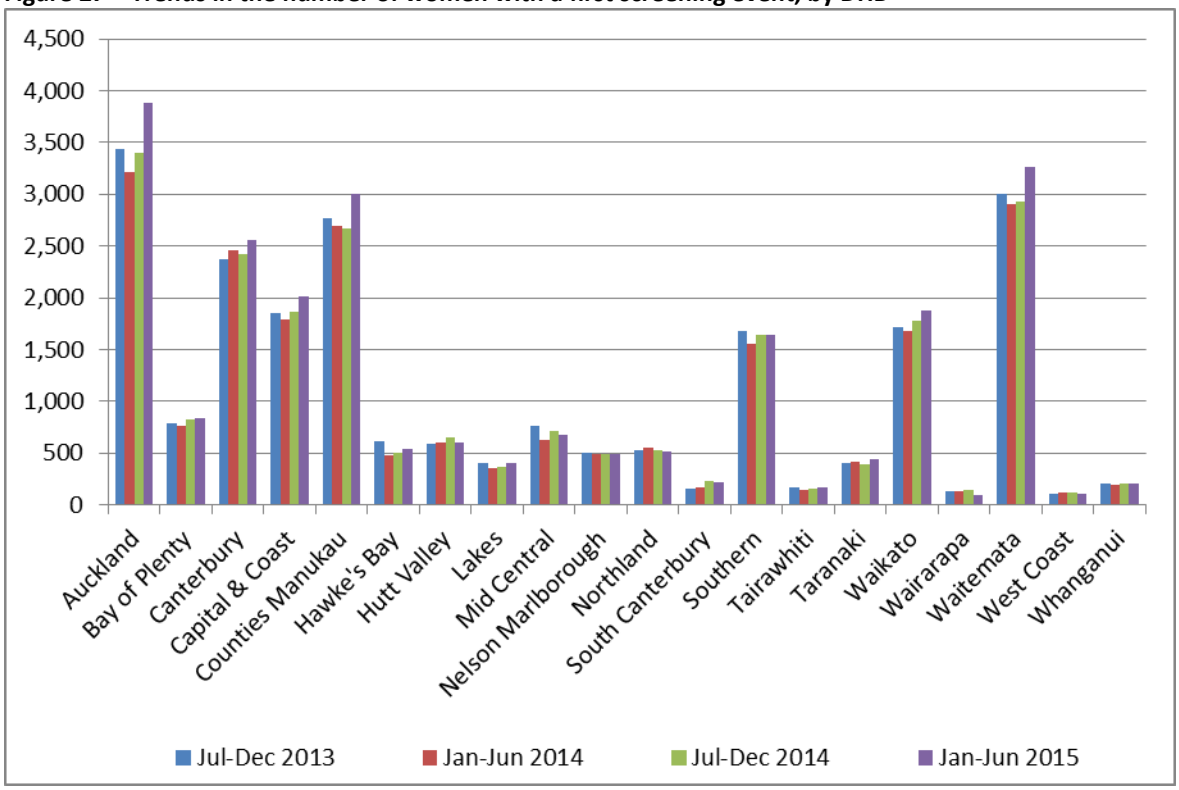
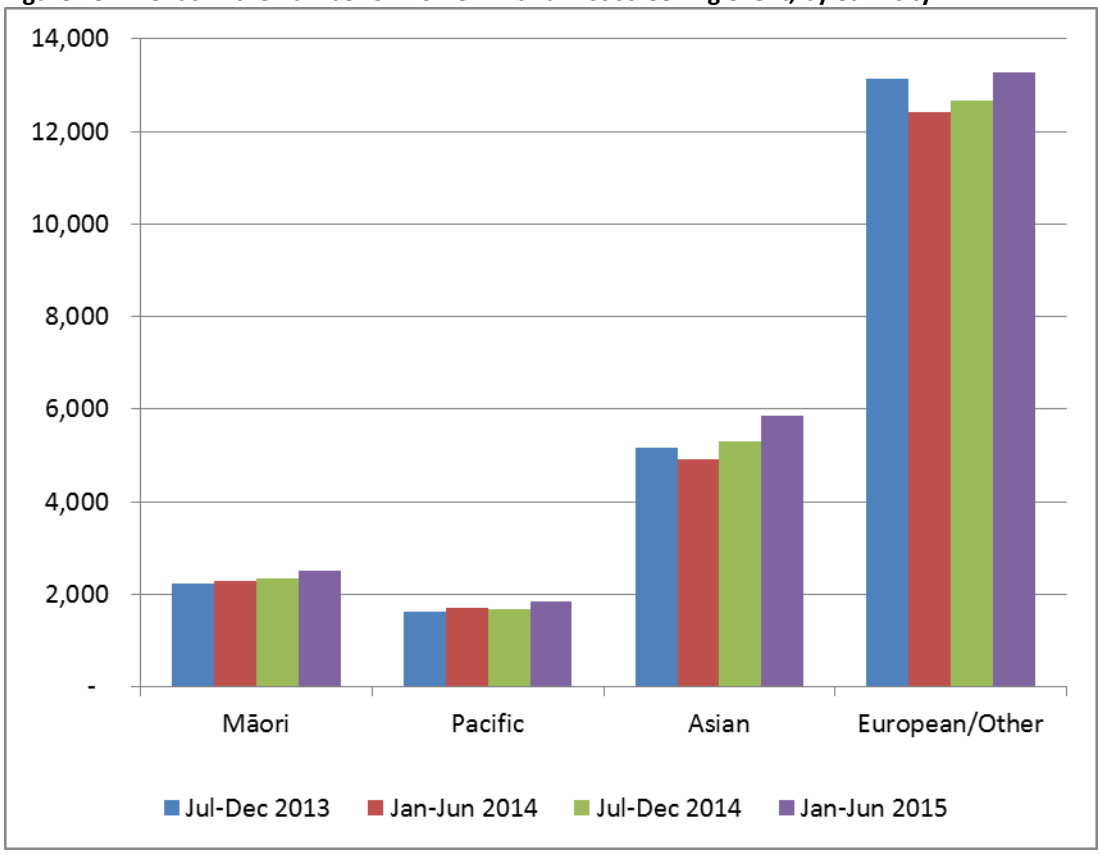


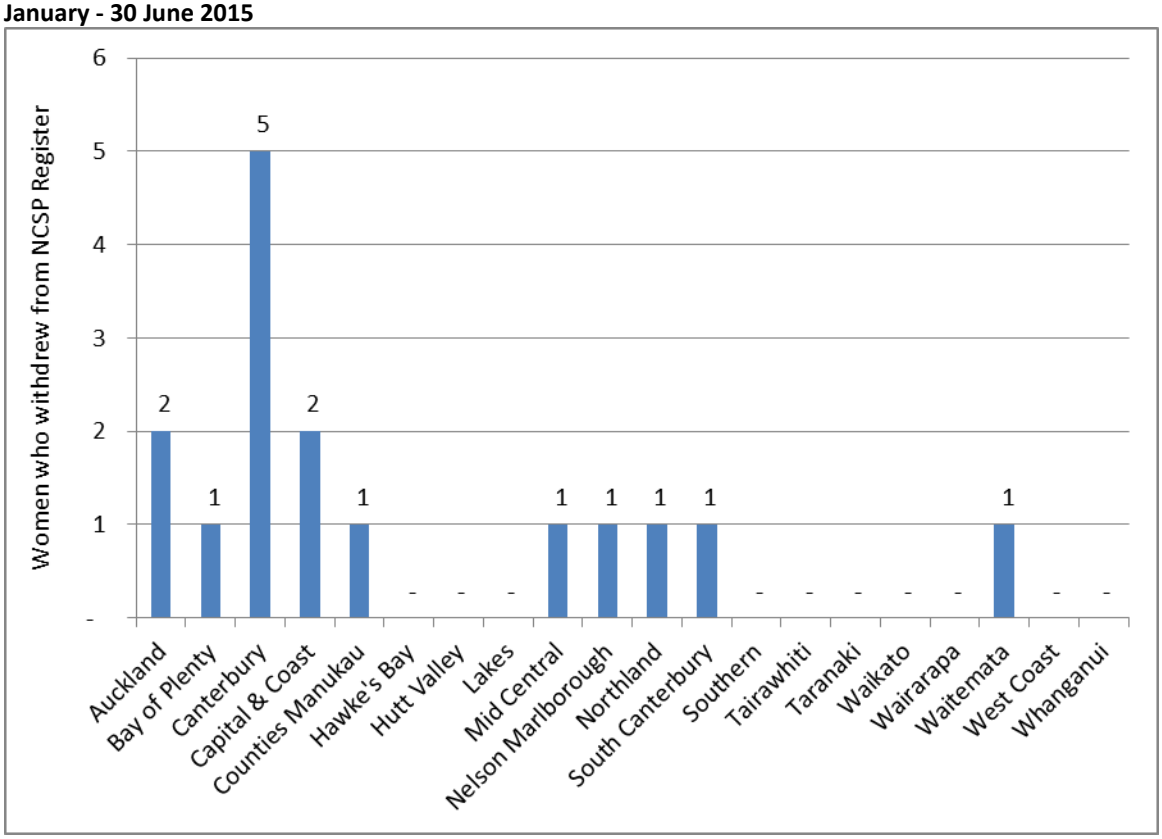
Figure 28 - Trends in the number of women with a first screening event, by ethnicity



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 monitoring period (withdrawals). Withdrawals relate to active withdrawals, where women specifically elect to be removed from the NCSP Register. The proportion of women who were enrolled on the NCSP Register as at 31 December 2014 (ie just prior to the commencement of the current monitoring period), whose enrolment ended within the current monitoring period, is also reported. Age is defined as a woman's age at the end of the monitoring period.
Target	Zero for ages 20-69 years.
Current Situation	At the commencement of the monitoring period, 1,523,023 women aged 20-69 years were enrolled on the NCSP Register. During the current monitoring period, 20 of these women (0.001%) withdrew from the NCSP Register. In all DHBs, the number and proportion of women who withdrew was extremely small (maximum five women in the Canterbury DHB region). No women withdrew in ten of the twenty DHB regions (Figure 29). The age groups with the largest numbers and proportions of women who withdrew were women aged 35-39 years (4 women, 0.002% of those enrolled at the start of the monitoring period), women aged 25-29 years and 50-54 years (each with 3 withdrawals, 0.002%) (Figure 30, Table 40). 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 41).
Trends	The number of women who withdrew in the current monitoring period (20 women) is significantly lower than in the previous monitoring period (29 women). The overall number of withdrawals continues to be extremely small.
Comments	The proportion of women choosing to actively withdraw from the NCSP Register is extremely small. 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 or who ask for no more communications but still participate in the Programme and have their results recorded on the NCSP Register.

Figure 29 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by DHB, 1 January - 30 June 2015



Excludes 4 women who withdrew whose DHB was not recorded

Figure 30 - Number of women who withdrew from the NCSP Register by age, 1 January - 30 June 2015

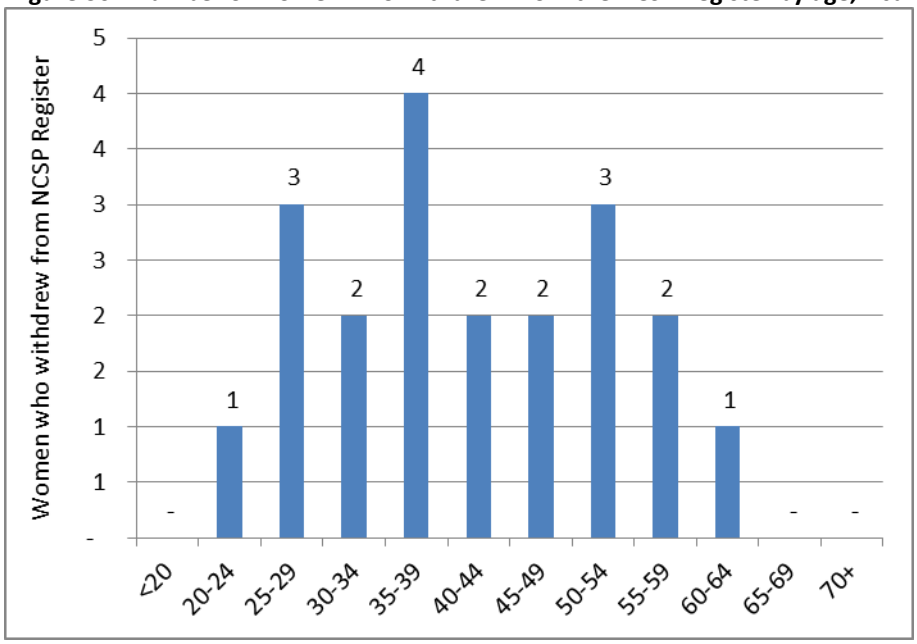
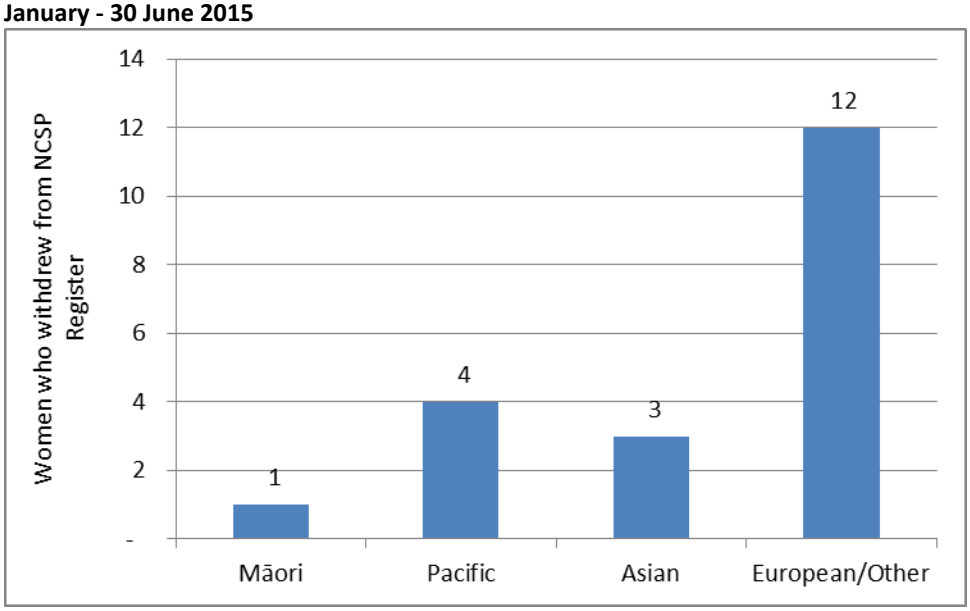


Figure 31 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by ethnicity, 1 January - 30 June 2015



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 August 2012 – 30 September 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 2012 (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. This measure excludes women who return early but are 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). 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. For the purposes of analysis by age group, a woman's age is defined as her age at the end of the current monitoring period (ie 30 June 2015).
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 43,842 women who had a smear taken in August or September 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, 7,010 (16.0%) had at least one subsequent smear in the following 30 months. There was wide variation in early re-screening by DHB. Early re-screening was most common in Waitemata (23.1%) and Auckland (20.0%), and was least common in Whanganui (9.8%) and Mid Central (10.0%) (Figure 32, Table 43). There was also variability by age. Younger women (aged 20-24 years at the end of the period) were most likely to be re-screened early (24.0%), and older women (aged 60-64 or 65-69 years) were the least likely to be re-screened early (11.1 and 11.0% for these age groups, respectively) (Figure 33, Table 42). Rates of early re-screening are quite similar across the seven five-year age

groups from 25 to 59 years (between 15% and 18%).

Among the ethnic groups considered, Asian and European/Other women were the most likely to be re-screened early (17.8% and 16.2%, respectively). Early re-screening was least common among Pacific women (12.4%) (Figure 34, Table 44).

Trends

The level of early re-screening (16.0%) is similar to that seen for the previous monitoring period (16.1%).

DHBs with the lowest and highest levels of early re-screening are unchanged since the previous report; the lowest was Whanganui (9.8% in the current monitoring period) and the highest was Waitemata (23.1%). Northland DHB saw the largest percentage point reduction (2.3 percentage points, from 15.2% to 12.9%), while Lakes saw the largest increase (2.1 percentage points, from 15.7% to 17.8%). Trends over the two years ending 30 June 2015 by DHB are shown in Figure 35.

A reduction in the level of early re-screening was seen for six of the ten five-year age groups between 20 and 69 years since the previous report. Women aged 60-64 years saw the largest percentage point reduction (by 1.9 to 11.1%). Women aged 20-24 years saw the largest increase; up 2.6 percentage points to 24.0%. Trends over the two years ending 30 June 2015 by 5-year age group are shown in Figure 36.

Early re-screening has decreased in all ethnic groups over the last two years since the July-December 2013 monitoring period; however the level of early re-screening has increased since the previous monitoring period for the Pacific and Asian ethnic groups.

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 had 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.

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.

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 the R1 recommendation 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

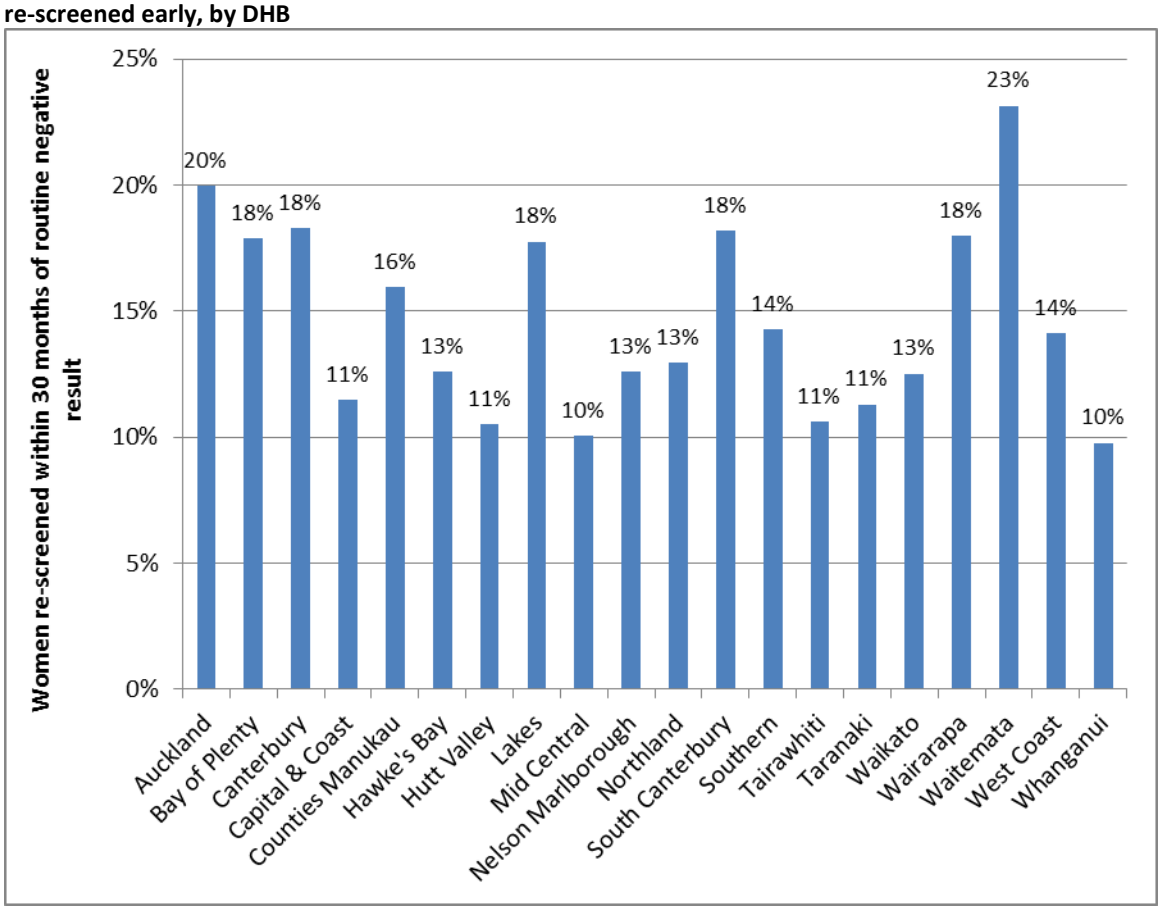


Figure 33 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by five-year age group

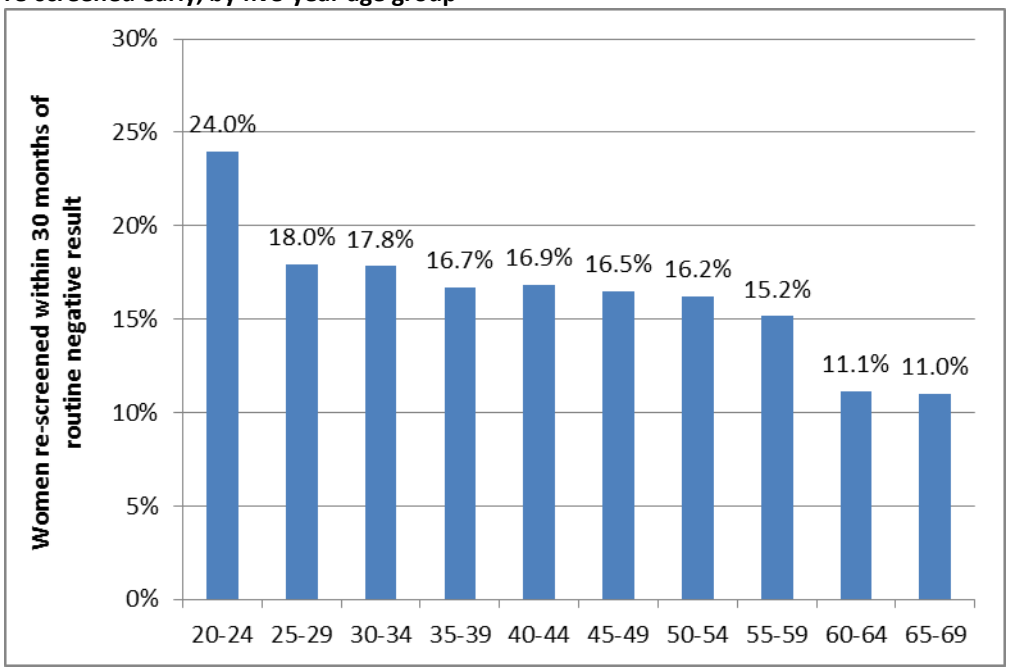


Figure 34 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by ethnicity

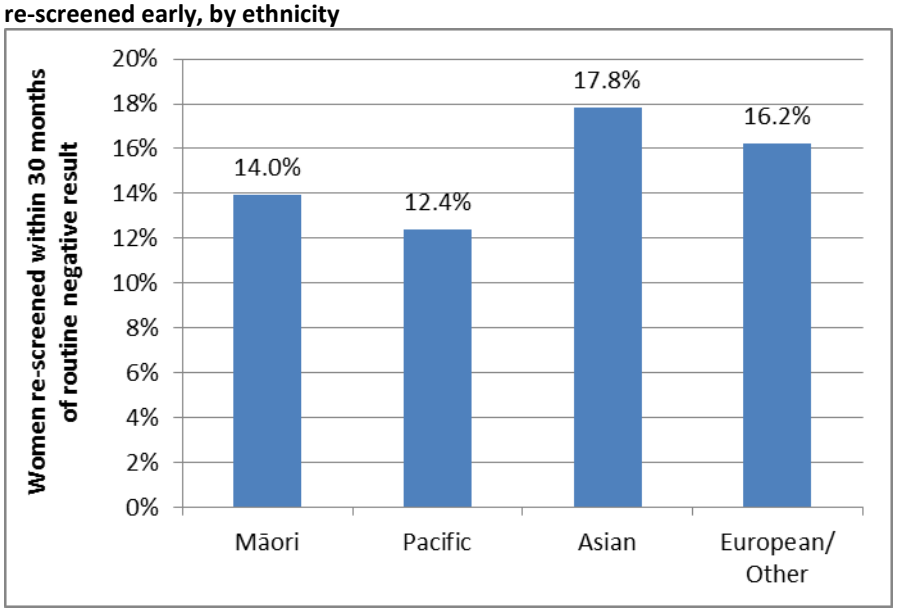


Figure 35 – Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB

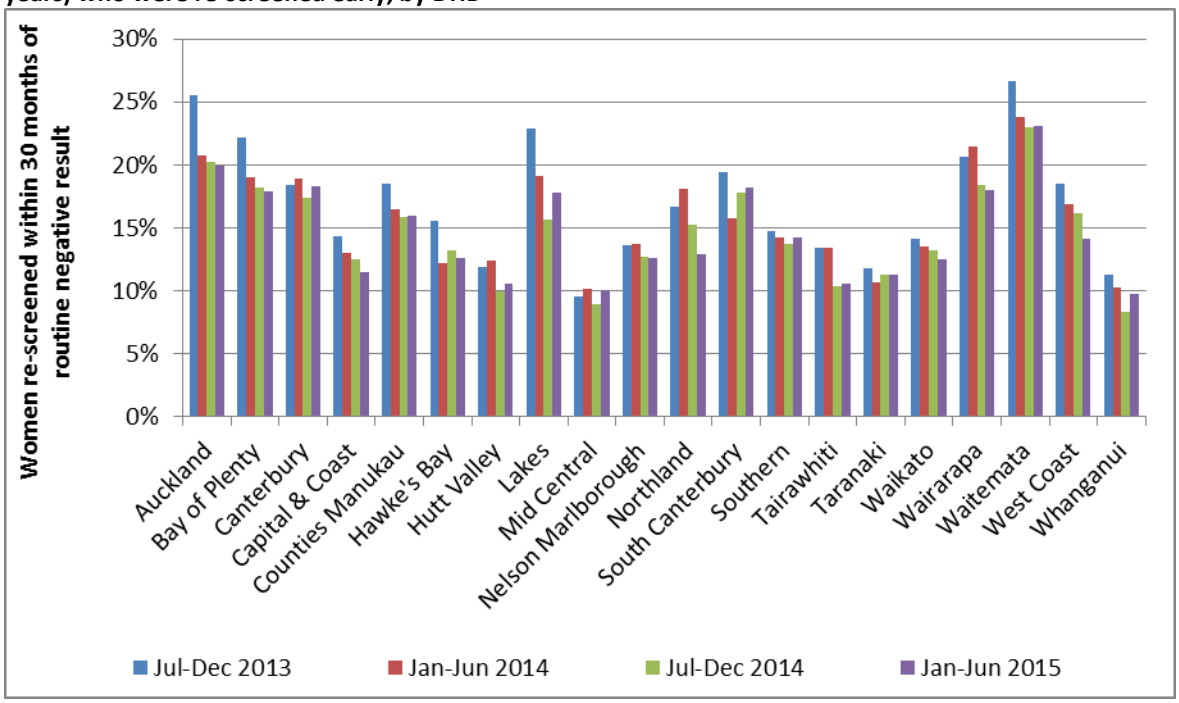
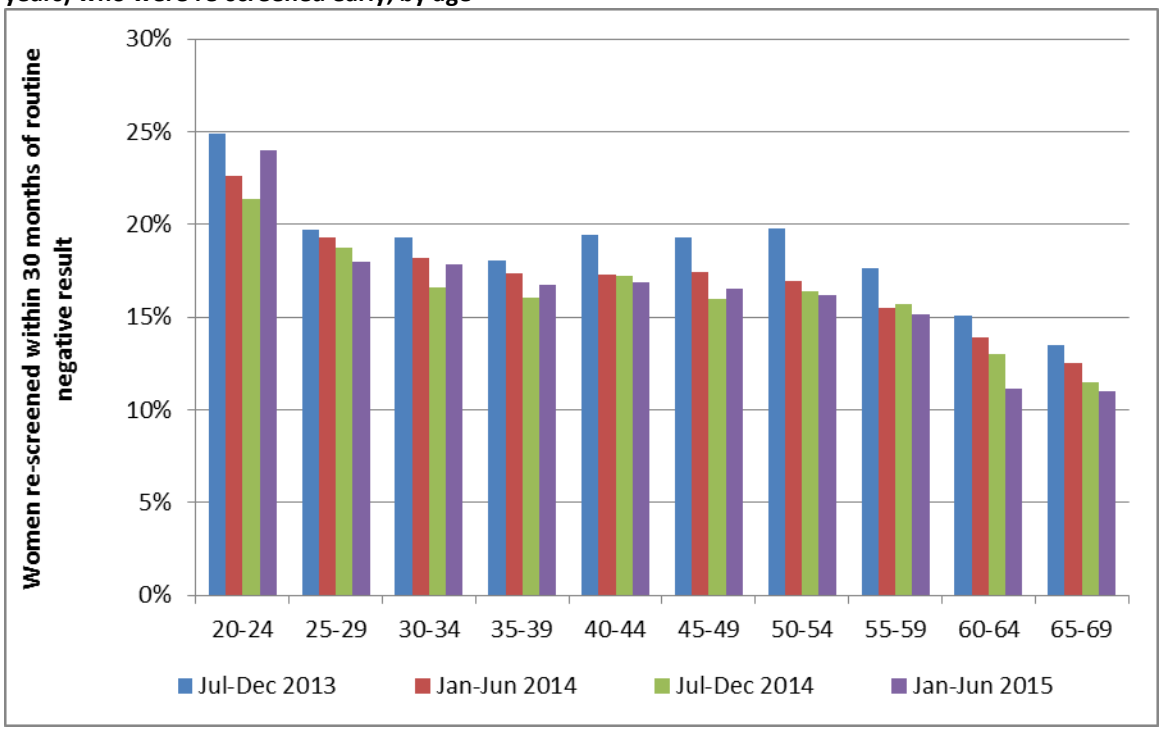


Figure 36 - Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by age



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.

On 1 February 2015 Diagnosic Medlab Ltd closed and Anotomical Pathology Services (owned by Auckland DHB) opened. This largely resulted in Diagnosic Medlab Ltd's work moving to Anatomical Pathology Services.

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. 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. The NCSP Register collects cytology results of samples taken from the cervix and vagina. Total samples include all cytology samples (satisfactory and unsatisfactory) taken during the monitoring period, including conventional, LBC, and combined samples. Reporting rates for negative cytology, total abnormal cytology, and other reporting categories are as a percentage of all satisfactory cytology samples.
Targets	0.1 - 3% of LBC samples reported as unsatisfactory No more than 96% of satisfactory samples reported as negative No more than 10% of satisfactory samples reported as abnormal 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 monitoring period, the same number as in the previous monitoring period. A total of 221,643 cytology samples were taken, all of which (100%) were liquid-based cytology (LBC) samples. ***Unsatisfactory cytology*** 2,904 cytology samples (1.3%) were unsatisfactory. These are reported by

lab in Table 1. The remaining satisfactory samples are reported on in more detail in Table 2 to Table 6.As all cytology samples taken during the monitoring period were LBC samples, the unsatisfactory rate for LBC is the same as the overall rate at 1.3%, which is within the 0.1 - 3% target range for LBC samples. All of the seven laboratories had unsatisfactory rates within the target range (Figure 37).

Negative cytology reports

92.6% of satisfactory 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 66.7% (LabPLUS) to 95.9% (Southern Community Labs). All seven laboratories met the target of no more than 96%.

Abnormal cytology reports

The proportion of satisfactory samples which were abnormal (7.4%) was consistent with the target of no more than 10% (Figure 39, Table 2). This varied by laboratory however, from 4.1% (Southern Community Labs) to 33.3% (LabPLUS). Two laboratories (LabPlus and Canterbury Health Laboratories) exceeded the target (33.3% and 11.4%, respectively).

Abnormal cytology results were more common in younger women (Table 5, Table 6).

HSIL cytology reports

Overall, 0.8% of satisfactory cytology samples were HSIL, consistent with the target of at least 0.5% of samples (Figure 40, Table 4). Rates varied by laboratory from 0.4% (Aotea Pathology Ltd and Diagnostic Medlab Ltd) to 3.3% (LabPLUS). Five of the seven laboratories met the HSIL target (Figure 40, Table 4).

Among women aged 20-69 years, rates of HSIL or worse were most common in women aged 25-29 years (Table 5, Table 6).

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 45).

Trends

Unsatisfactory cytology

Overall, the percentage of unsatisfactory LBC samples for the current monitoring period (1.3%) is similar to the 1.2% seen in the previous monitoring period, and is within the target range of 0.1 - 3%. The number of laboratories meeting the target for unsatisfactory LBC samples decreased from seven to six since the previous monitoring period.

Negative vs abnormal cytology reports

The proportion of satisfactory cytology samples which are negative for intraepithelial lesion or malignancy (92.6%) is similar to that in the previous monitoring period (92.7%), and correspondingly the proportion of cytology samples reported as abnormalities (7.4%) is also similar to the previous monitoring period (7.3%). As in the previous monitoring period, all laboratories met the target for negative cytology. The number of laboratories with abnormal cytology rates above the target of 10% increased from one to two.

HSIL cytology reports

The proportion of satisfactory cytology samples reported as HSIL (0.8%) is similar to the previous monitoring report (0.9%). The number of laboratories meeting the target of not less than 0.5% has decreased from seven to five.

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 June 2015) 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 25 years at the time of the current monitoring period). HSIL reporting rates in women aged 20-24 years had been increasing prior to 2013 and reached a high of 2.2% for the July-December 2012 period. They then fell for four monitoring periods between January 2013 and December 2014, and have risen slightly between the previous and current monitoring period (from 1.5% to 1.6%). 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

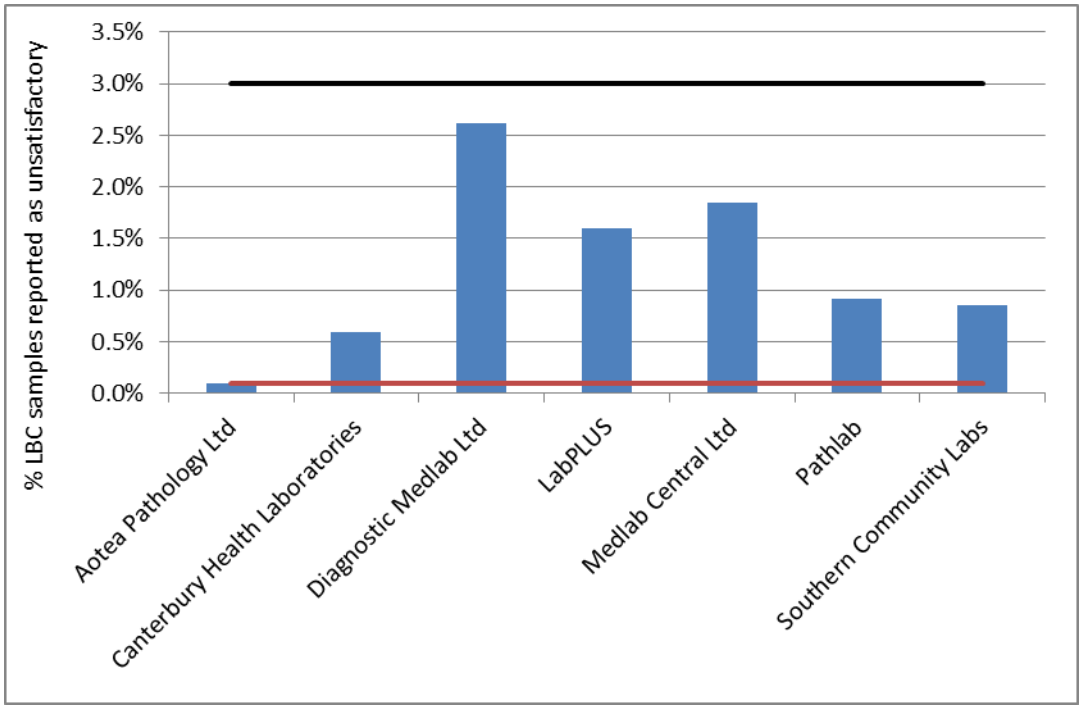
High rates of abnormal samples from LabPLUS are consistent with previous reports, and as discussed in previous monitoring reports, it is thought that the case-mix of this laboratory (ie a significant proportion of samples received from colposcopy clinics compared to other laboratories) is an underlying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

Workload catchments for laboratories may be regional or nationwide and are changing because of laboratory service restructuring. As a result, it is not 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,[4-7] and that this is particularly true for younger women.[4, 8-10] 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 25 years at the time of the current monitoring period, while the oldest birth cohorts offered vaccination at the target age of 12-13 years would be aged up to 19 years). 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.

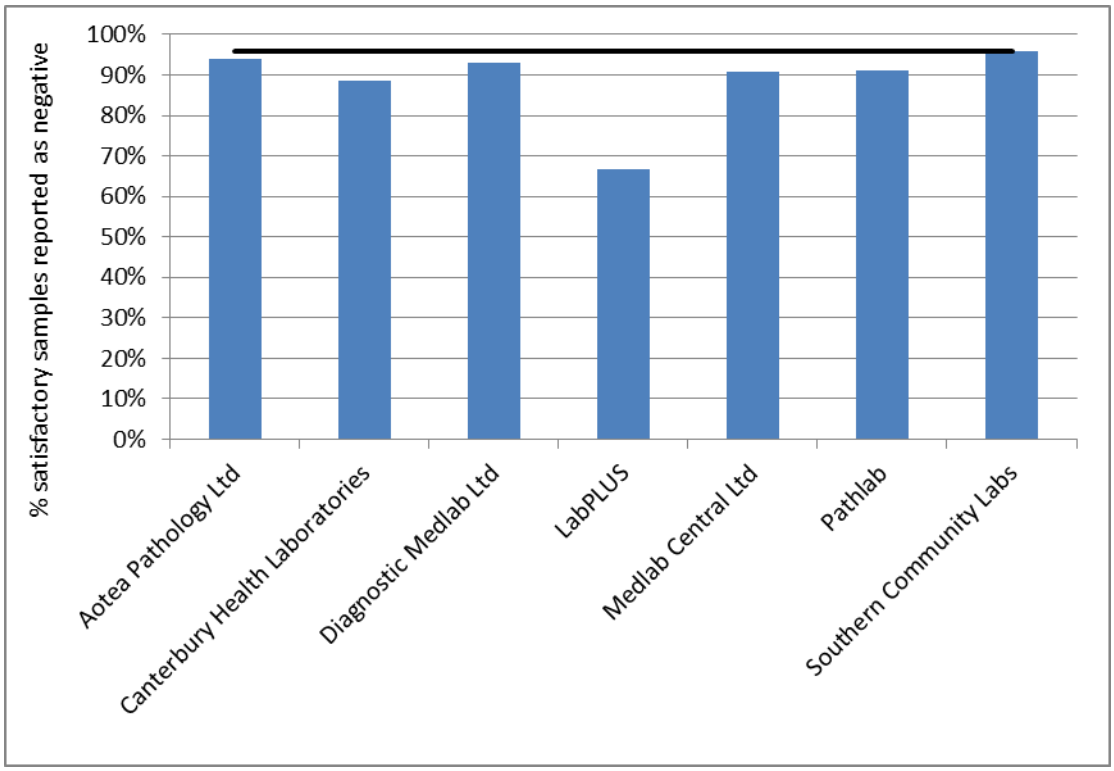
In the current report we additionally examined age-standardised rates of HSIL cytology reports, in order to partially account for differences in the age of the population whose cytology tests each laboratory processes. This could be an additional factor in some laboratories having higher or lower HSIL 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.

Figure 37 - Proportion of total LBC samples reported as unsatisfactory by laboratory, 1 January - 30 June 2015



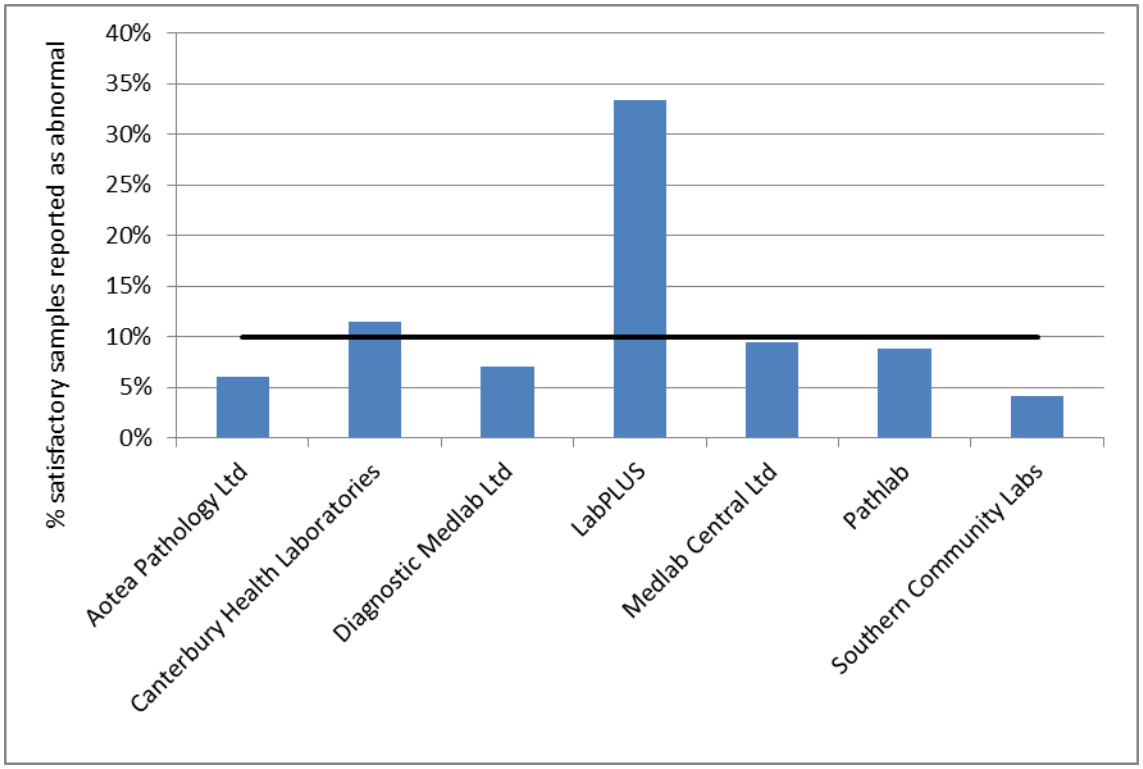
Target for LBC: 1-5% (Black line=upper target limit; red line=lower target limit)

Figure 38 - Proportion of total satisfactory samples reported as negative by laboratory, 1 January - 30 June 2015



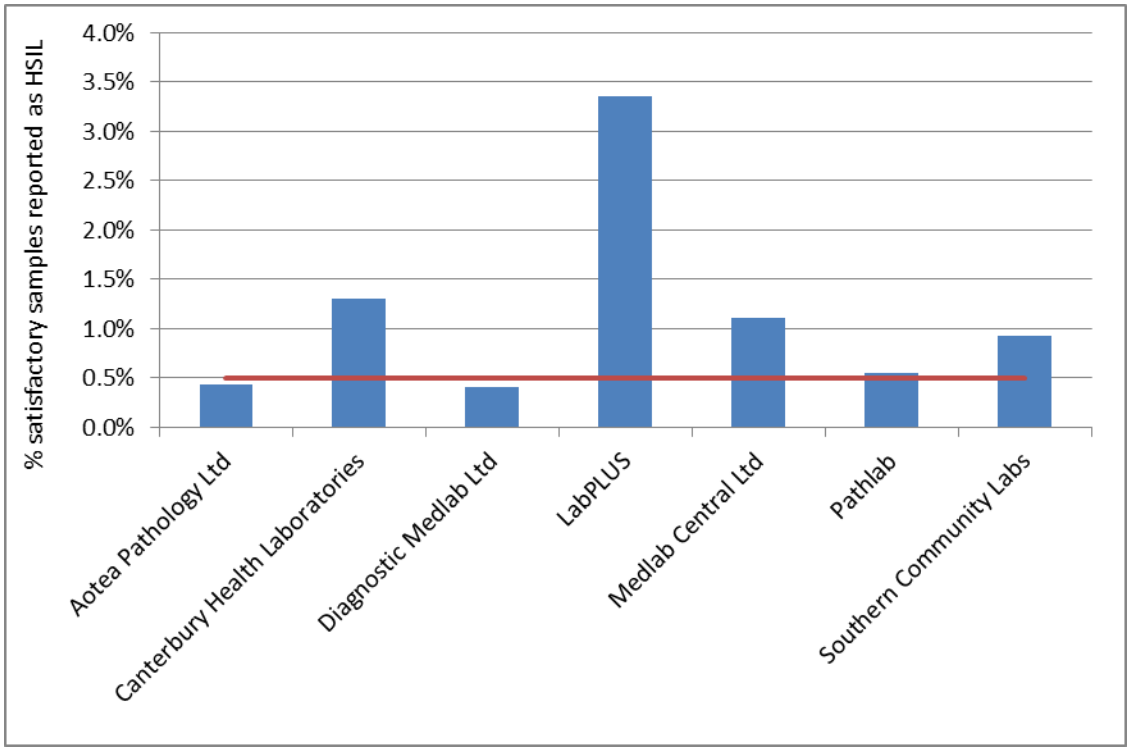
Note: Line shows negative target of no more than 96%

Figure 39 - Proportion of total satisfactory samples reported as abnormalities by laboratory, 1 January - 30 June 2015



Note: Line shows abnormal target no more than 10%

Figure 40 - Proportion of total satisfactory samples reported as HSIL by laboratory, 1 January - 30 June 2015



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

Table 1 - Satisfactory and unsatisfactory cytology reporting by laboratory (1 January - 30 June 2015)

Laboratory	All samples N	Satisfactory N	Satisfactory %	Unsatisfactory N	Unsatisfactory %
Aotea Pathology Ltd	22,128	22,105	99.9	23	0.1
Canterbury Health Laboratories	11,048	10,982	99.4	66	0.6
Diagnostic Medlab Ltd	54,917	53,480	97.4	1,437	2.6
LabPLUS	8,160	8,030	98.4	130	1.6
Medlab Central Ltd	16,915	16,603	98.2	312	1.8
Pathlab	23,830	23,613	99.1	217	0.9
Southern Community Labs	84,645	83,926	99.2	719	0.8
Total	**221,643**	**218,739**	**98.7**	**2,904**	**1.3**

Target unsatisfactory: 0.1-3% LBC.

Table 2 - Laboratory cytology reporting by general result (1 January - 30 June 2015) – percentage of satisfactory samples

Laboratory	Negative N	Negative %	Abnormal N	Abnormal %
Aotea Pathology Ltd	20,774	94.0	1,331	6.0
Canterbury Health Laboratories	9,725	88.6	1,257	11.4
Diagnostic Medlab Ltd	49,721	93.0	3,759	7.0
LabPLUS	5,352	66.7	2,678	33.3
Medlab Central Ltd	15,045	90.6	1,558	9.4
Pathlab	21,527	91.2	2,086	8.8
Southern Community Labs	80,479	95.9	3,447	4.1
Total	**202,623**	**92.6**	**16,116**	**7.4**

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

Table 3 - Laboratory cytology reporting by cytological category (1 January - 30 June 2015) – counts

	Result									
Laboratory	Negative	ASC-US	LSIL	ASC-H	HSIL	Invasive SCC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	Total
Aotea Pathology Ltd	20,774	518	620	81	97	1	12	2	-	22,105
Canterbury Health Laboratories	9,725	353	632	118	143	-	9	2	-	10,982
Diagnostic Medlab Ltd	49,721	1,273	1,938	267	216	-	57	8	-	53,480
LabPLUS	5,352	853	1,050	477	269	1	22	4	2	8,030
Medlab Central Ltd	15,045	577	663	112	185	-	17	3	1	16,603
Pathlab	21,527	732	1,013	174	129	3	26	4	5	23,613
Southern Community Labs	80,479	553	1,861	170	778	4	68	13	-	83,926
Total	**202,623**	**4,859**	**7,777**	**1,399**	**1,817**	**9**	**211**	**36**	**8**	**218,739**

Table 4 - Laboratory cytology reporting by cytological category (1 January - 30 June 2015) – 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	94.0	2.3	2.8	0.4	0.4	<0.005	0.05	0.01	-
Canterbury Health Laboratories	88.6	3.2	5.8	1.1	1.3	-	0.08	0.02	-
Diagnostic Medlab Ltd	93.0	2.4	3.6	0.5	0.4	-	0.11	0.01	-
LabPLUS	66.7	10.6	13.1	5.9	3.3	0.01	0.27	0.05	0.02
Medlab Central Ltd	90.6	3.5	4.0	0.7	1.1	-	0.10	0.02	0.01
Pathlab	91.2	3.1	4.3	0.7	0.5	0.01	0.11	0.02	0.02
Southern Community Labs	95.9	0.7	2.2	0.2	0.9	<0.005	0.08	0.02	-
Total	**92.6**	**2.2**	**3.6**	**0.6**	**0.8**	**<0.005**	**0.10**	**0.02**	**<0.005**

Target: HSIL ≥ 0.5% reported as HSIL

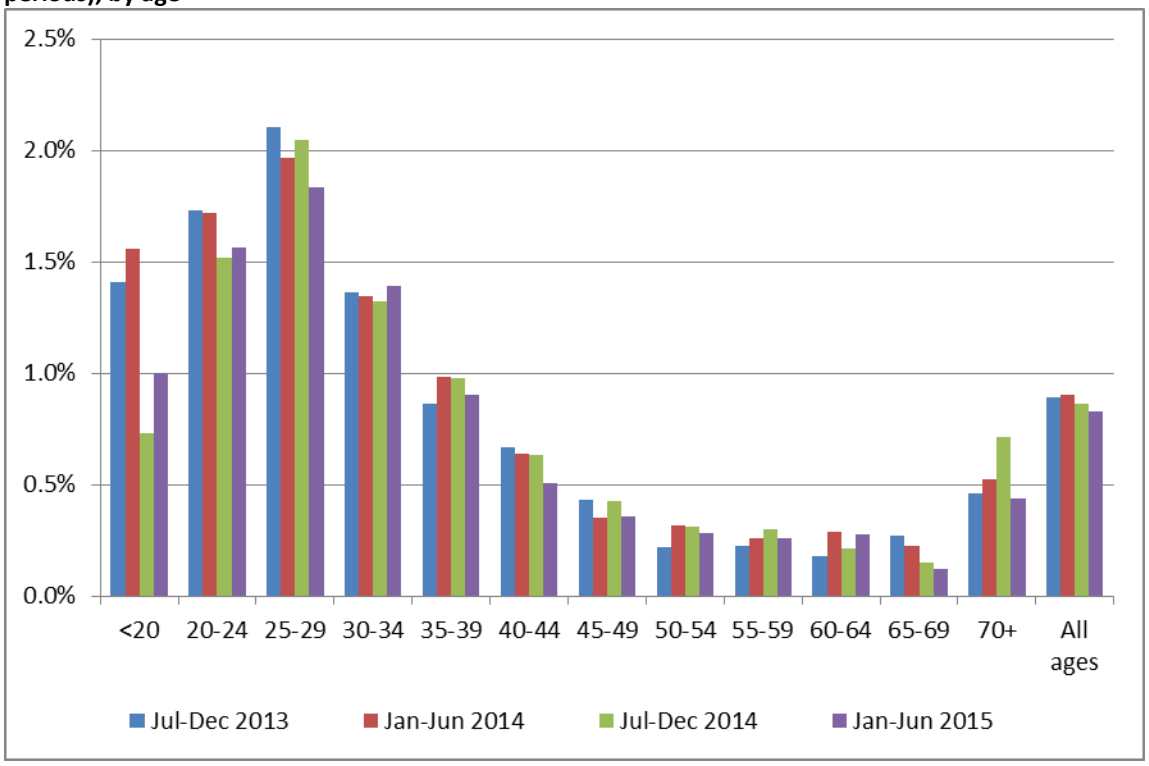
Table 5 - Laboratory reporting of cytological category by five-year age group (1 January - 30 June 2015) – counts

	Cytology Result									
Age Group	Negative	ASC-US	LSIL	ASC-H	HSIL	Invasive SCC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	Total
<20	980	44	144	18	12	-	-	-	-	1,198
20-24	22,513	1,059	2,592	329	421	-	7	-	-	26,921
25-29	21,533	722	1,371	311	447	-	20	-	-	24,404
30-34	22,289	548	849	200	337	1	28	3	-	24,255
35-39	21,614	453	614	116	208	-	18	1	-	23,024
40-44	24,212	514	547	97	130	1	19	2	2	25,524
45-49	22,706	476	517	87	86	-	36	-	-	23,908
50-54	21,891	403	459	95	65	2	25	3	3	22,946
55-59	17,959	276	292	70	48	1	27	5	1	18,679
60-64	14,227	194	205	47	41	-	12	6	1	14,733
65-69	10,978	135	144	25	14	1	7	7	1	11,312
70+	1,721	35	43	4	8	3	12	9	-	1,835
Total	**202,623**	**4,859**	**7,777**	**1,399**	**1,817**	**9**	**211**	**36**	**8**	**218,739**

Table 6 - Laboratory reporting of cytological category by five-year age group (1 January - 30 June 2015) – percentage of all satisfactory samples in women of that age group

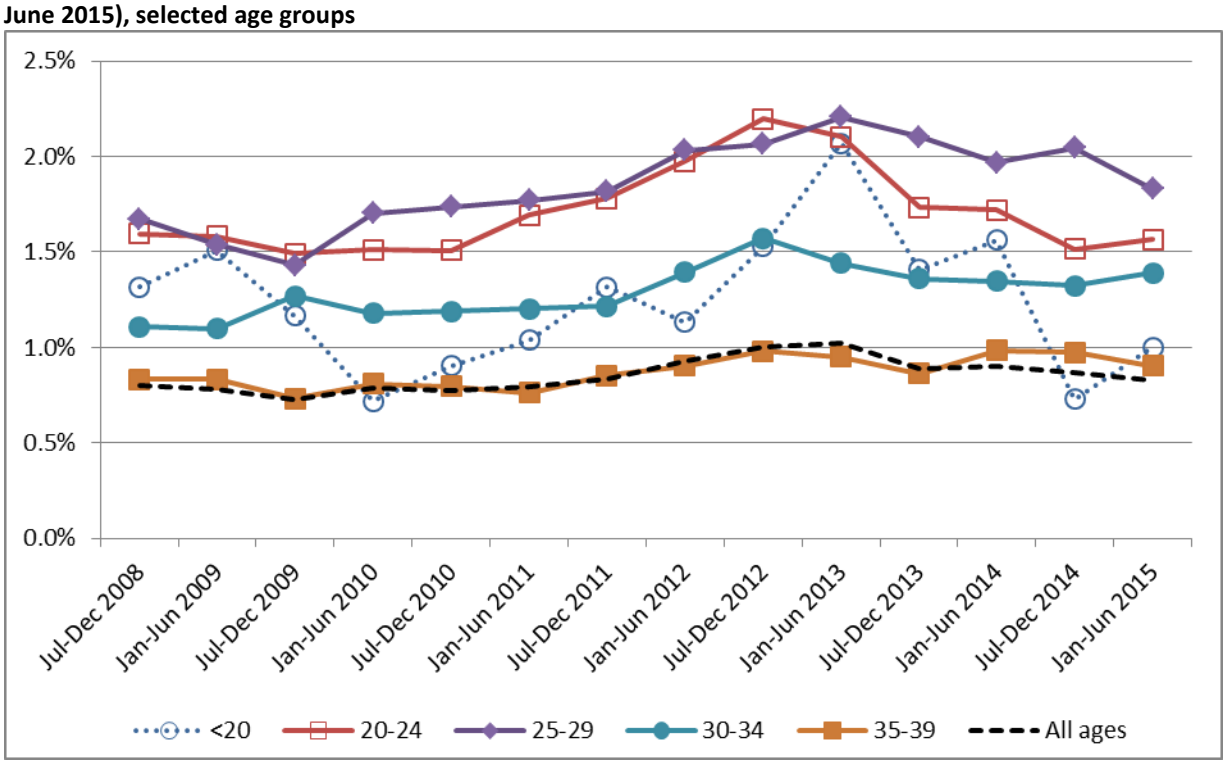
	Cytology Result								
Age Group	**Negative**	**ASC-US**	**LSIL**	**ASC-H**	**HSIL**	**Invasive SCC**	**AGC/AIS**	**Adeno-carcinoma**	**Malignant Neoplasm**
<20	81.8	3.7	12.0	1.5	1.0	-	-	-	-
20-24	83.6	3.9	9.6	1.2	1.6	-	0.03	-	-
25-29	88.2	3.0	5.6	1.3	1.8	-	0.08	-	-
30-34	91.9	2.3	3.5	0.8	1.4	<0.005	0.12	0.01	-
35-39	93.9	2.0	2.7	0.5	0.9	-	0.08	<0.005	-
40-44	94.9	2.0	2.1	0.4	0.5	<0.005	0.07	0.01	0.01
45-49	95.0	2.0	2.2	0.4	0.4	-	0.15	-	-
50-54	95.4	1.8	2.0	0.4	0.3	0.01	0.11	0.01	0.01
55-59	96.1	1.5	1.6	0.4	0.3	0.01	0.14	0.03	0.01
60-64	96.6	1.3	1.4	0.3	0.3	-	0.08	0.04	0.01
65-69	97.0	1.2	1.3	0.2	0.1	0.01	0.06	0.06	0.01
70+	93.8	1.9	2.3	0.2	0.4	0.16	0.65	0.49	-
Total	**92.6**	**2.2**	**3.6**	**0.6**	**0.8**	**<0.005**	**0.10**	**0.02**	**<0.005**

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



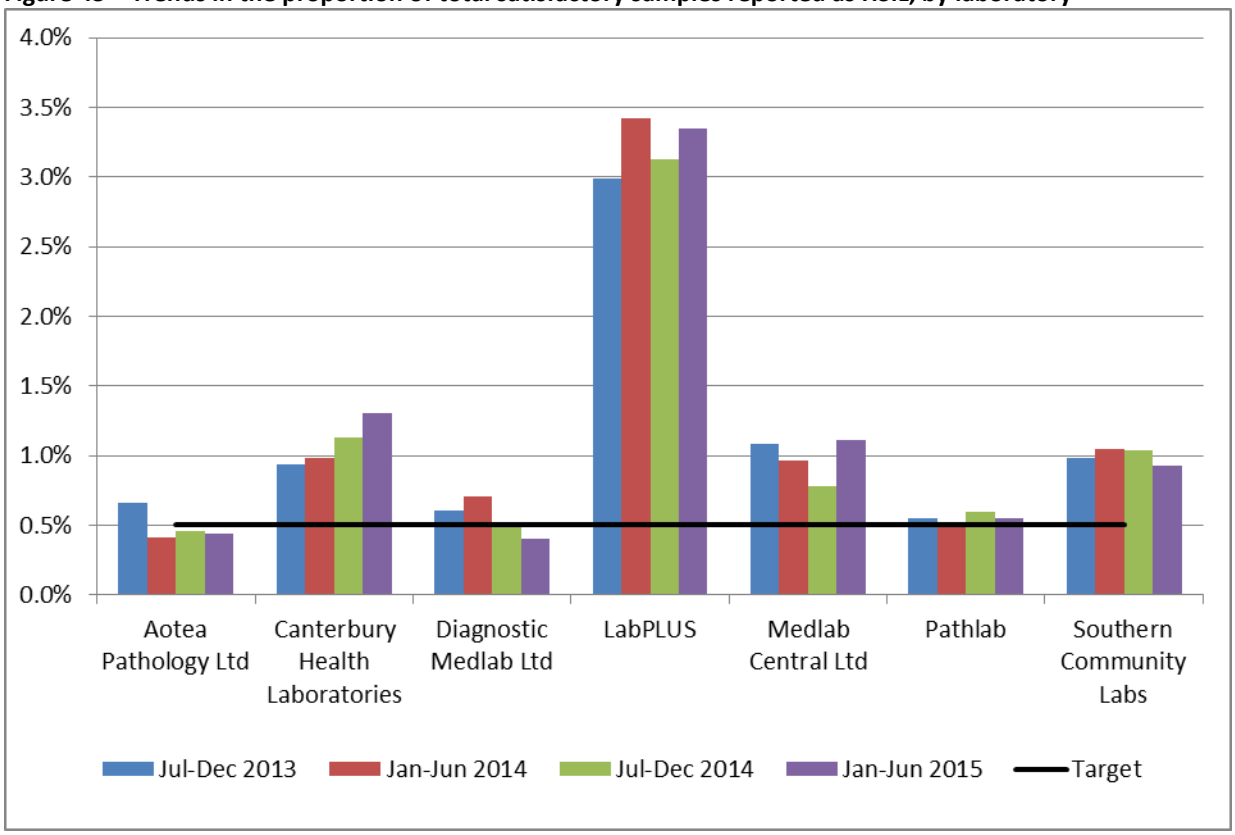
Note: women aged less than 20 years are not routinely screened

Figure 42 – Longer term trends in the proportion of total satisfactory samples reported as HSIL (July 2008 – June 2015), 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



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

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. 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 monitoring period (ie collected from 1 July - 31 December 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. ***HSIL+SC*** 1,641 women with HSIL or SC cytology reports were identified. 107 of these women (6.5%) had no histology taken in the period from five days prior to six months after the cytology sample was taken. Among the remaining 1,534 for whom there was histology, 1,284 (83.7%) had their HSIL or SC cytology report confirmed by histology (Figure 44, Table 46). By laboratory, the proportion of HSIL+SC being confirmed by histology ranged from 77.0% for Aotea Pathology Ltd to 91.9% for Canterbury Health Laboratories. All laboratories achieved the minimum target of at least 65% of cytological HSIL+SC being confirmed by histology. Two of the eight laboratories exceeded the 85% upper target margin of HSIL+SC being histologically confirmed (Figure 44, Table 46). ***Other cytological abnormalities*** 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. ***ASC-H*** 1,026 women with a cytology report of ASC-H were identified. 179 (17.4%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 847 women, 435 (51.4%) were histologically confirmed as high grade. This proportion varied by laboratory,

from 42.9% (Southern Community Labs) to 69.5% (Medlab Central Ltd) (Figure 45, Table 47).

ASC-H+HSIL+SC

A total of 2,667 women had a cytology report of ASC-H, HSIL or SC. 286 (10.7%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 2,381 women, 1,719 (72.2%) were histologically confirmed as high grade. This proportion varied by laboratory, from 64.5% (LabPLUS) to 79.4% (Canterbury Health Laboratories) (Figure 45, Table 48).

Glandular abnormalities

There were 257 women with a glandular abnormality (AG1-AG5, AIS, AC1-AC4) identified. 70 women (27.2%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 187 women, 103 (55.1%) were identified as having high grade histology. This was not analysed further, as the number of samples reported on by some laboratories was small.

Trends

HSIL+SC

Positive predictive value for HSIL and SC cytology is similar to the previous monitoring report (84.1% in the previous period; 83.7% 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 decreased from three to two. The proportion of cytology reports with histology available following HSIL or SC results is similar (92.7% in the previous report; 93.5% in the current report).

ASC-H

Positive predictive value for ASC-H cytology has increased slightly, from 50.4% to 51.4%, 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 (82.6% in current report; 81.7% in previous report).

ASC-H+HSIL+SC

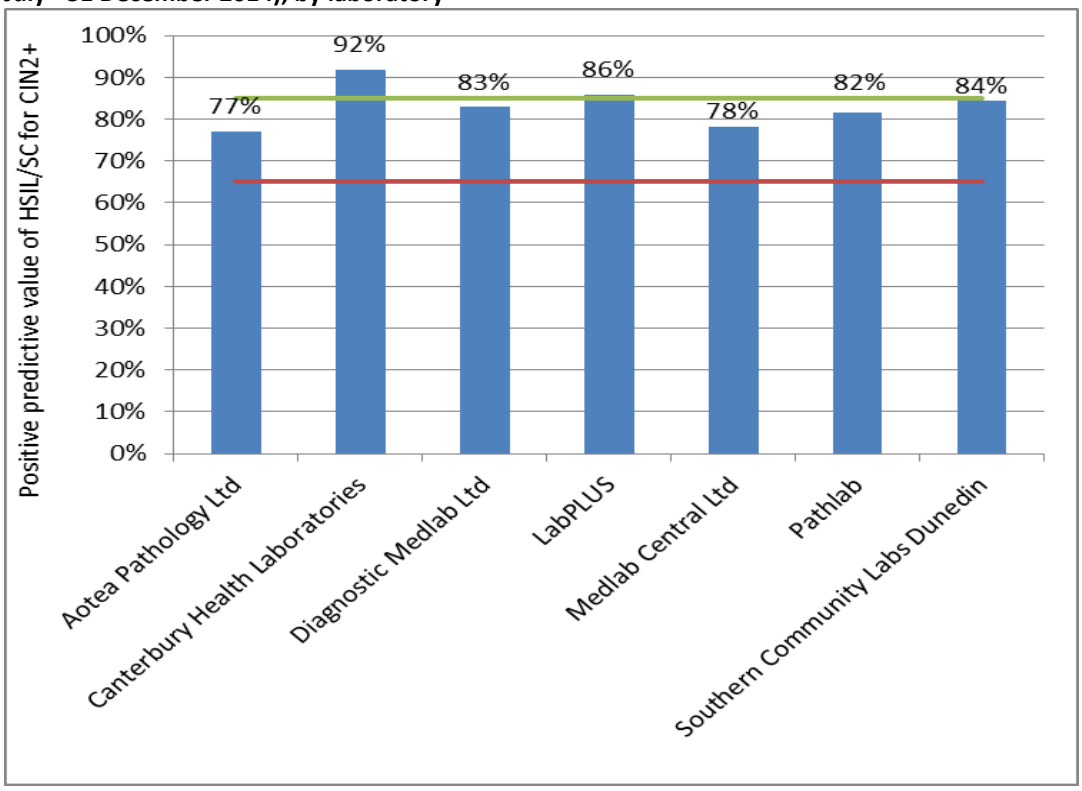
The positive predictive value for the combined group ASC-H, HSIL and SC has increased from 71.4% to 72.2% in the current report., Note that there are no targets for the positive predictive value of this combined group.

Glandular abnormalities

The positive predictive value of glandular abnormalities increased (from 49.1% in the previous report to 55.1% 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

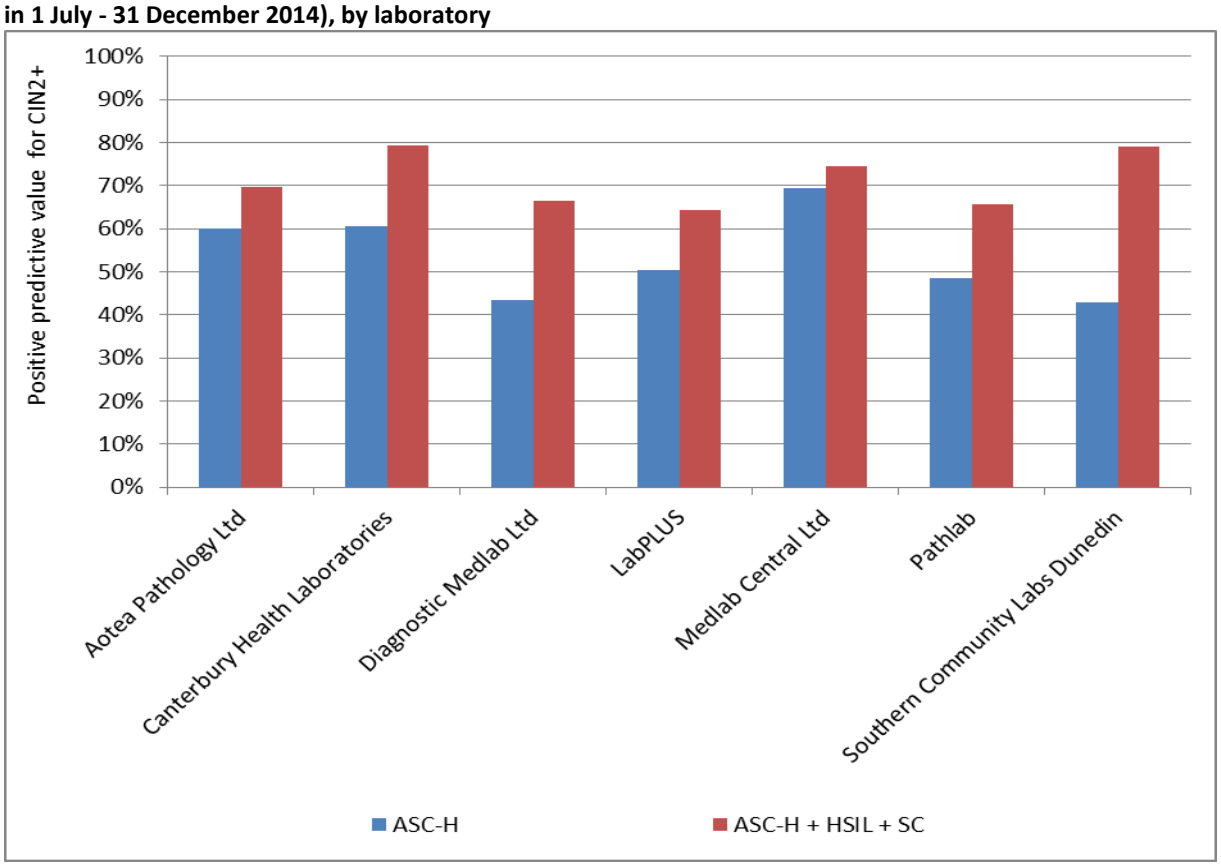
	(72.8%) is higher than that in the previous monitoring period (69.5%), and remains less than that for ASC-H (82.6%) and HSIL + SC (93.5%). Due to the small number of samples involved, glandular abnormalities were not analysed in further detail.
Comments	This estimate does not take into account cytology 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. 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 July - 31 December 2014), by laboratory



Target: 65% - 85%

Figure 45 - Positive predictive value for CIN2+ in women with other high grade cytology results (cytology in 1 July - 31 December 2014), by laboratory



Indicator 5.3 – Accuracy of negative cytology reports

Definition	This indicator has two parts to its definition. 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). 2. The ability of a laboratory to correctly identify a negative sample. 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, benign/reactive 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. 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	This indicator is analysed annually. Data for women with a histological diagnosis of high-grade/invasive disease in the period 1 January – 31 December 2014 were provided in Report 42. This indicator will be provided in Report 44.
Comments	Laboratories are not identified within the Monitoring Report for this indicator.

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). 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. 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. A woman's age is defined as her age at the end of the monitoring period.
Target	None
Current Situation	13,472 histology samples were taken during the current monitoring period. 474 (3.5%) of these were insufficient for diagnosis. The remaining 12,998 samples were taken from 11,412 women. Results for these women are reported on in detail in Table 7 to Table 10. The 474 samples which were insufficient for diagnosis were taken from 466 women, 83 (18%) of whom have a record of a subsequent sufficient histology test. Table 7 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. 52.4% of women with histology tests had negative or benign histology results (Table 8). 20.5% of women had high grade squamous (CIN2/3) histology results. 46 (0.40%) women had histology results which were invasive squamous cell carcinoma (ISCC), six (0.05%) which were microinvasive SCC, 6(0.05%) which were adenocarcinoma of the endocervical type, 27 (0.24%) which were invasive adenocarcinoma (not endocervical type), 71 (0.62%) which were adenocarcinoma in situ, and 3 (<0.05) which were adenosquamous carcinoma. The age group with the largest number of women with histology samples was women aged 25-29 years (1,601 women, Table 9). 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 (34.2%, Table 10).
Trends	The proportion of women with negative or benign histology (52.4%) is similar to that reported for the previous period (52.5%) The proportion of women with HSIL histology is also similar in the current period (20.5%) to what it was in the previous period (20.9%). The proportions were similar to those in the previous period for women with ISCC (0.40% this period and 0.38% last period), and invasive adenocarcinoma (both endocervical and non endocervical type) combined (0.29% this period and 0.30% last period). The proportion was also similar for women with adenocarcinoma in situ (0.62% this period and 0.68% last period.
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 7 - Histology results reporting by SNOMED category

SNOMED category	Women with that diagnosis N	%
Negative/normal	3,336	29.2
Inflamation	721	6.3
Microglandular hyperplasia	16	0.14
Squamous metaplasia	372	3.3
Atypia	97	0.8
HPV	880	7.7
Condyloma acuminatum	18	0.16
Dysplasia/CIN NOS	63	0.55
CIN 1 (LSIL) or VAIN 1	1,846	16.2
CIN 2 (HSIL) or VAIN 2	878	7.7
CIN 3 (HSIL) or VAIN 3	1,398	12.3
HSIL not otherwise specified	61	0.5
Polyp	1,179	10.3
Other*	350	3.1
Microinvasive squamous cell carcinoma	6	0.05
Invasive squamous cell carcinoma	46	0.40
Benign glandular atypia	5	<0.05
Glandular dysplasia	-	-
Adenocarcinoma in situ	71	0.62
Adenocarcinoma (endocervical type)	6	0.05
Invasive adenocarcinoma (not endocervical type)	27	0.24
Adenosquamous carcinoma	3	<0.05
Metastatic tumour	13	0.11
Undifferentiated carcinoma	-	-
Sarcoma	1	<0.05
Carcinosarcoma	2	<0.05
Choriocarcinoma	-	-
Miscellaneous primary tumour	2	<0.05
Small cell carcinoma	1	<0.05
Malignant tumour, small cell type	-	-
Melanoma	-	-
Other primary epithelial malignancy	14	0.12
Total	**11,412**	**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.*

Table 8 - Histology results reporting by diagnostic category

Histology diagnosis category	Women with that histology result	
	N	%
Negative/benign (non neoplastic)	5,979	52.4
HPV	898	7.9
CIN1	2,006	17.6
CIN2	878	7.7
CIN3	1,398	12.3
HSIL not otherwise specified	61	0.5
Microinvasive	6	0.05
Invasive squamous cell carcinoma	46	0.40
Glandular dysplasia	-	-
Adenocarcinoma in situ	71	0.62
Adenocarcinoma (endocervical type)	6	0.05
Invasive adenocarcinoma (not endocervical type)	27	0.24
Adenosquamous carcinoma	3	<0.05
Other cancer	33	0.29
Total	**11,412**	**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 6 adenocarcinoma, endocervical type (SNOMED code M83843) and 27 adenocarcinoma, not endocervical type (M81403).

Table 9 - 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)	20	344	406	468	542	910	1,080	784	527	344	288	266	5,979
HPV	5	157	151	132	122	87	90	66	40	24	18	6	898
CIN1	7	473	407	282	217	191	170	124	72	35	21	7	2,006
CIN2	3	227	217	152	87	78	49	30	10	17	6	2	878
CIN3	3	246	381	291	175	110	69	45	31	28	15	4	1,398
HSIL not otherwise specified	-	10	16	12	7	6	5	2	1	1	1	-	61
Microinvasive	-	-	2	-	1	-	2	-	1	-	-	-	6
Invasive squamous cell carcinoma	-	-	1	9	5	4	5	3	4	2	3	10	46
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	6	18	14	9	12	8	1	1	1	1	-	71
Adenocarcinoma endocervical type	0	0	0	0	0	3	2	0	0	0	0	1	6
Invasive adenocarcinoma (not endocervical type)	0	0	1	1	0	4	2	4	2	2	3	8	27
Adenosquamous carcinoma	-	-	-	-	-	2	-	1	-	-	-	-	3
Other cancer	-	-	1	-	1	3	4	2	5	2	6	9	33
Total	**38**	**1,463**	**1,601**	**1,361**	**1,166**	**1,410**	**1,486**	**1,062**	**694**	**456**	**362**	**313**	**11,412**

HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C)

Table 10 - 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)	52.6	23.5	25.4	34.4	46.5	64.5	72.7	73.8	75.9	75.4	79.6	85.0
HPV	13.2	10.7	9.4	9.7	10.5	6.2	6.1	6.2	5.8	5.3	5.0	1.9
CIN1	18.4	32.3	25.4	20.7	18.6	13.5	11.4	11.7	10.4	7.7	5.8	2.2
CIN2	7.9	15.5	13.6	11.2	7.5	5.5	3.3	2.8	1.4	3.7	1.7	0.6
CIN3	7.9	16.8	23.8	21.4	15.0	7.8	4.6	4.2	4.5	6.1	4.1	1.3
HSIL not otherwise specified	-	0.7	1.0	0.9	0.6	0.4	0.34	0.19	0.14	0.22	0.28	-
Microinvasive	-	-	0.12	-	0.09	-	0.13	-	0.14	-	-	-
Invasive squamous cell carcinoma	-	-	0.06	0.66	0.43	0.28	0.34	0.28	0.58	0.44	0.8	3.2
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	0.41	1.12	1.03	0.77	0.85	0.54	0.09	0.14	0.22	0.28	-
Adenocarcinoma endocervical type	0.00	0.00	0.00	0.00	0.00	0.21	0.13	0.00	0.00	0.00	0.00	0.32
Invasive adenocarcinoma (not endocervical type)	0.00	0.00	0.06	0.07	0.00	0.28	0.13	0.38	0.29	0.44	0.83	2.56
Adenosquamous carcinoma	-	-	-	-	-	0.14	-	0.09	-	-	-	-
Other cancer	-	-	0.06	-	0.09	0.21	0.27	0.19	0.72	0.44	1.7	2.9
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).

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*** 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[11]). ***Histology*** 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[11]). ***Cytology with associated hrHPV testing*** 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 monitoring 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, except where the HPV test was added after cytology was already reported.
Current Situation	***Cytology*** Seven laboratories received 220,380 cytology samples during the current monitoring period. Overall, 93.8% of cytology samples were reported within seven working days, which is above the target. Nationally, 98.9% were reported on within 15 working days, which is above the target (Table 49). 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, LabPLUS, Medlab Central Ltd, Southern Community Labs). The proportion of samples reported on within seven working days ranged from 83.7% (Canterbury Health Laboratories) to 95.5% (Southern

Community Labs) (Figure 46, Table 49).

Six 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) (Figure 47, Table 49). The remaining laboratory (Medlab Central Ltd) had reported on 97.1% of cytology samples within 15 working days.

Histology

Sixteen laboratories received 13,431 histology samples in the current monitoring period. Overall 92.1% of samples were reported on within ten working days, which is above the target. Nationally 95.7% were reported on in 15 working days or less, which is below the target (Table 50).

Nine 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, Medlab Central Ltd, Nelson Hospital Laboratory, North Shore Hospital Laboratory, Southern Community Labs Dunedin, Taranaki Medlab, Waikato Hospital Laboratory) (Figure 48, Table 50). Four laboratories met the target of 98% of final histology results within 15 working days of receiving the sample; 7 of the remaining 12 had reported on at least 95% of samples within 15 days (Figure 49, Table 50).

Low grade cytology with associated HPV triage testing

Seven laboratories received 3,175 cytology samples during the current monitoring period which were associated with HPV testing for the purpose of triage of low grade abnormalities. Overall, 98.6% of these cytology samples were reported on within 15 working days, which is above the target. The proportion of cytology samples with HPV triage tests reported on within 15 days ranged from 91.9% (LabPLUS) to 99.6% (Aotea Pathology Ltd) (Figure 50, Table 51). The target of 98% of tests reported within 15 working days was met by five laboratories. Nationally, the proportion of cytology reported within 15 days was similar for cytology associated with low grade triage HPV testing (98.6%), compared to cytology overall (98.9%). The proportion of cytology tests reported within 15 working days is also similar regardless of whether there is an associated HPV triage test at all labs other than LabPLUS, however for LabPLUS this is based on a small number of cytology tests with associated HPV triage testing (86 tests; Figure 50).

Trends

Cytology

The overall proportion of samples reported on within seven working days is higher in the current report (93.8%) than in the previous monitoring period (92.7%). 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 higher in the current monitoring period (98.9%, compared to 98.7% in the previous monitoring period). The number of laboratories meeting the target increased from five to six. All seven laboratories had reported on at least 95% of

samples within 15 working days in the current monitoring period, as was also the case in the previous monitoring period.

Histology

The proportion of histology samples reported on within ten working days has increased from 89.3% to 92.1%, however the number of labs meeting the ten-working-days target has decreased from 10 to 9. The proportion of histology samples reported on within 15 working days is higher (95.7%, compared to 93.7% in the previous report). The number of laboratories meeting the fifteen-working-days target (four) is lower than in the previous monitoring period (seven). In the current period, 11 of the 16 laboratories had reported on at least 95% of samples within 15 days, compared to 10 of 16 laboratories for the previous period.

Cytology with associated HPV triage testing

The proportion of cytology samples with an associated HPV triage test reported within 15 working days has increased slightly since the previous report – from 97.8% to 98.6%.

Comments

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 monitoring period, rather than cytology samples *collected* during the monitoring period which was the criteria for Indicator 5.1.

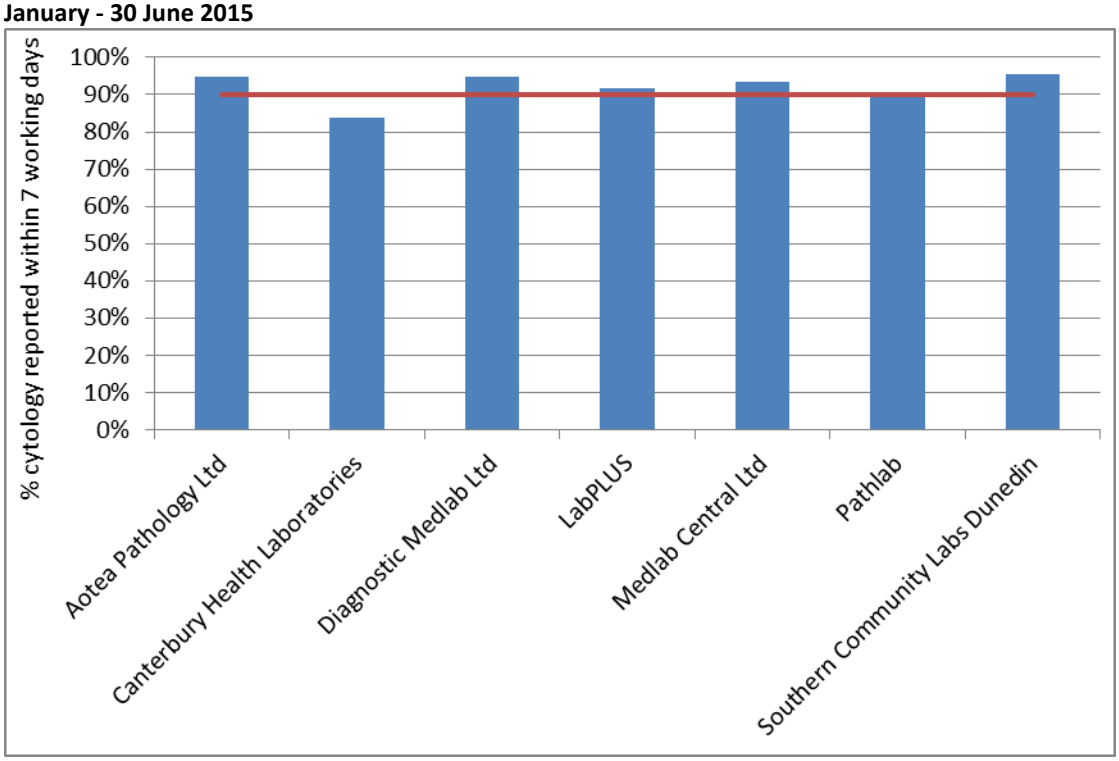
The definition used by individual laboratories for turnaround time differs. For example depending on the definition used by the laboratory, a turnaround time of one day can mean the results are reported within 24 hours, on the same day the sample is received, or on the day after the sample is received. 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.

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

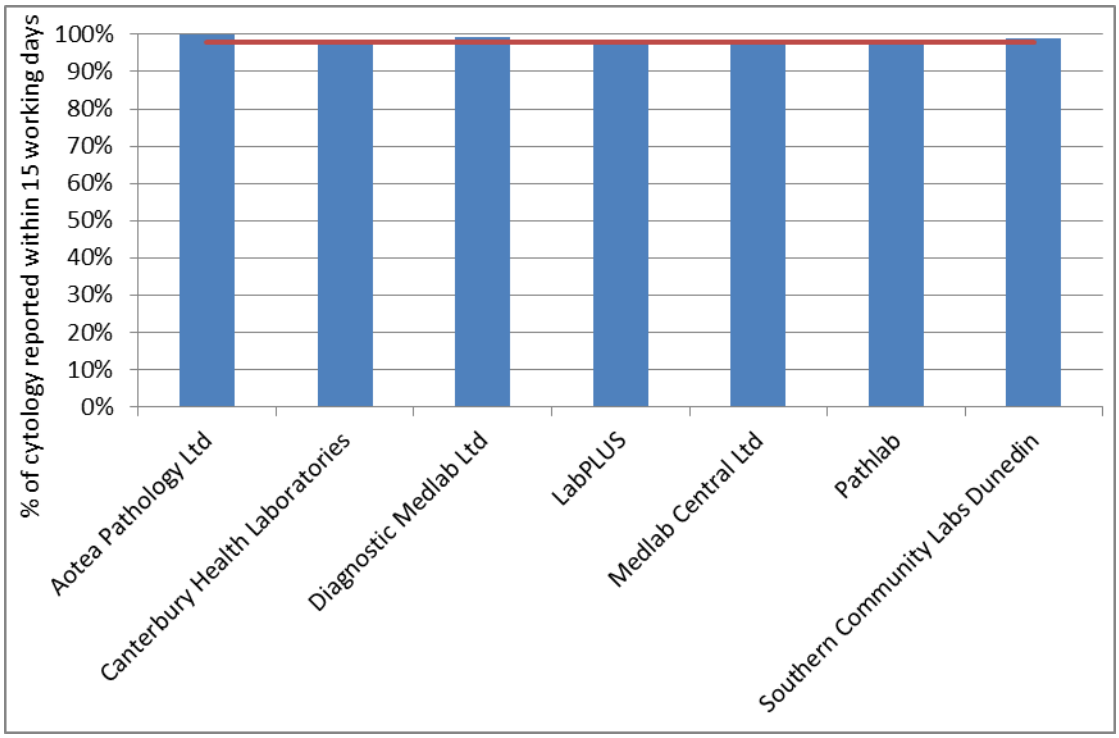
abnormality), the need for the HPV test is only apparent after the cytology result is available. Additonally, as HPV tests are generally performed in batches, laboratories with smaller HPV test volumes may take longer to accrue the required batch sizes, and therefore perform HPV tests less frequently.

Figure 46 – Proportion of cytology samples reported within seven working days by laboratory, 1 January - 30 June 2015



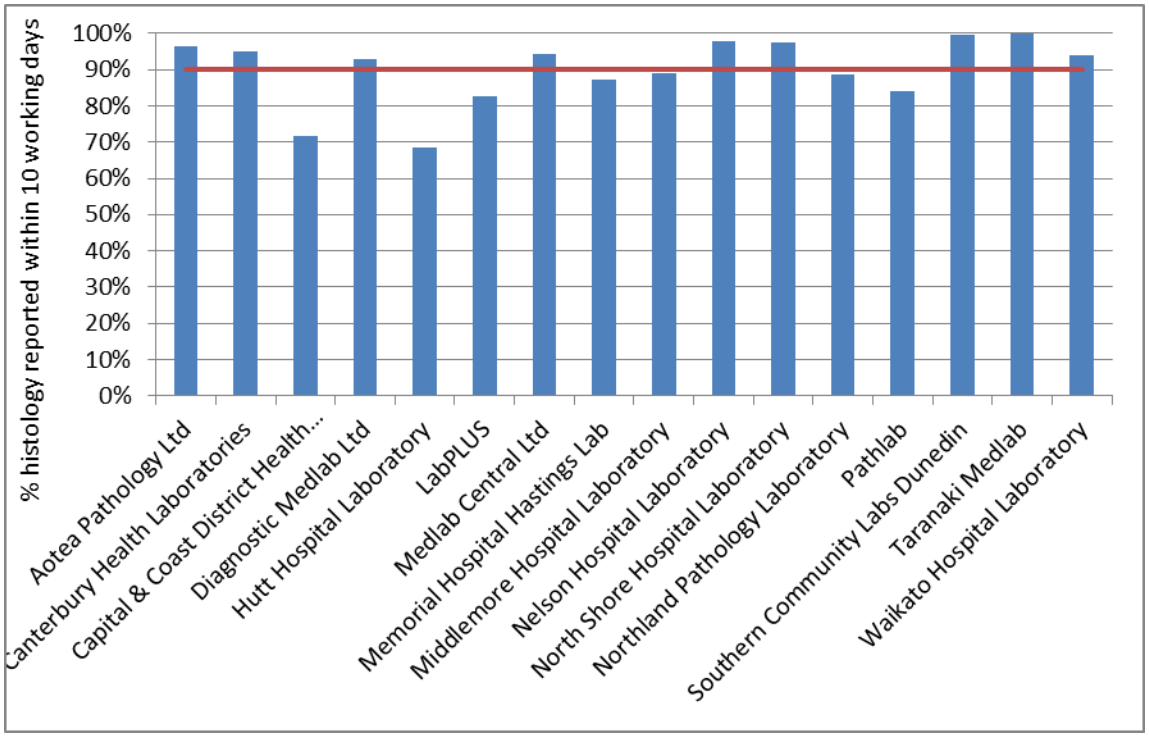
Target: 90% within seven working days (red line)

Figure 47 – Proportion of cytology samples reported within 15 working days by laboratory, 1 January - 30 June 2015



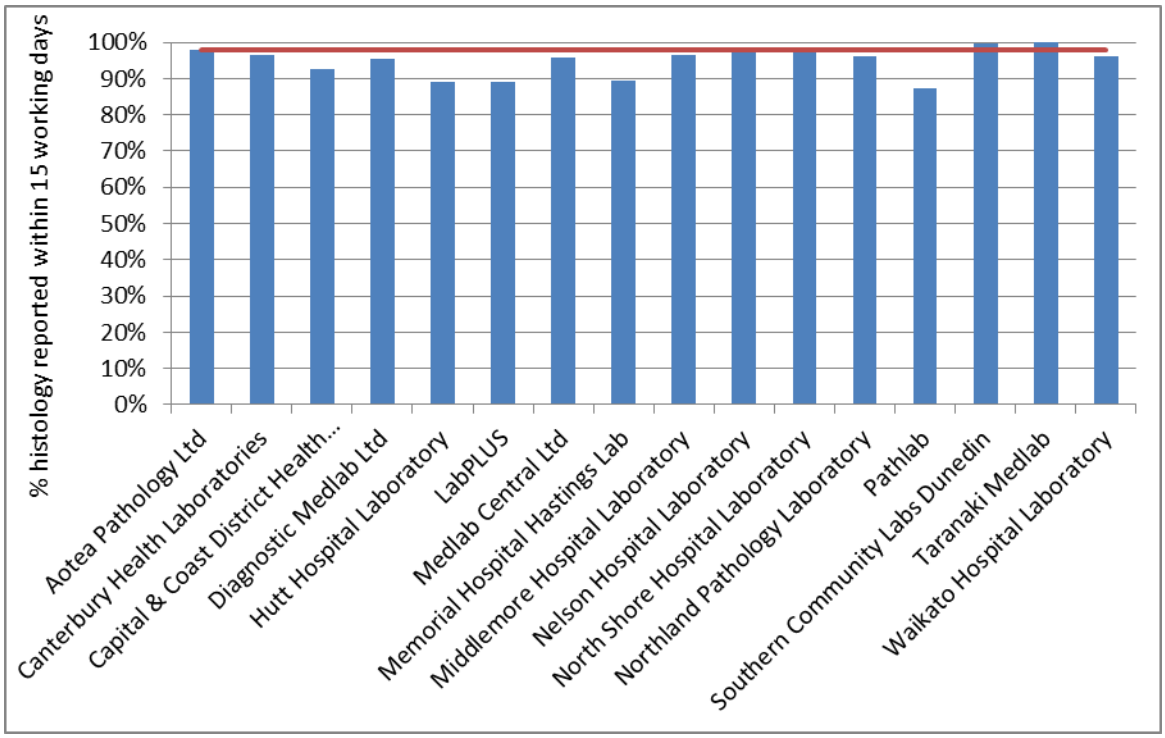
Target: 98% within 15 working days (red line)

Figure 48 – Proportion of histology samples reported within ten working days by laboratory, 1 January - 30 June 2015



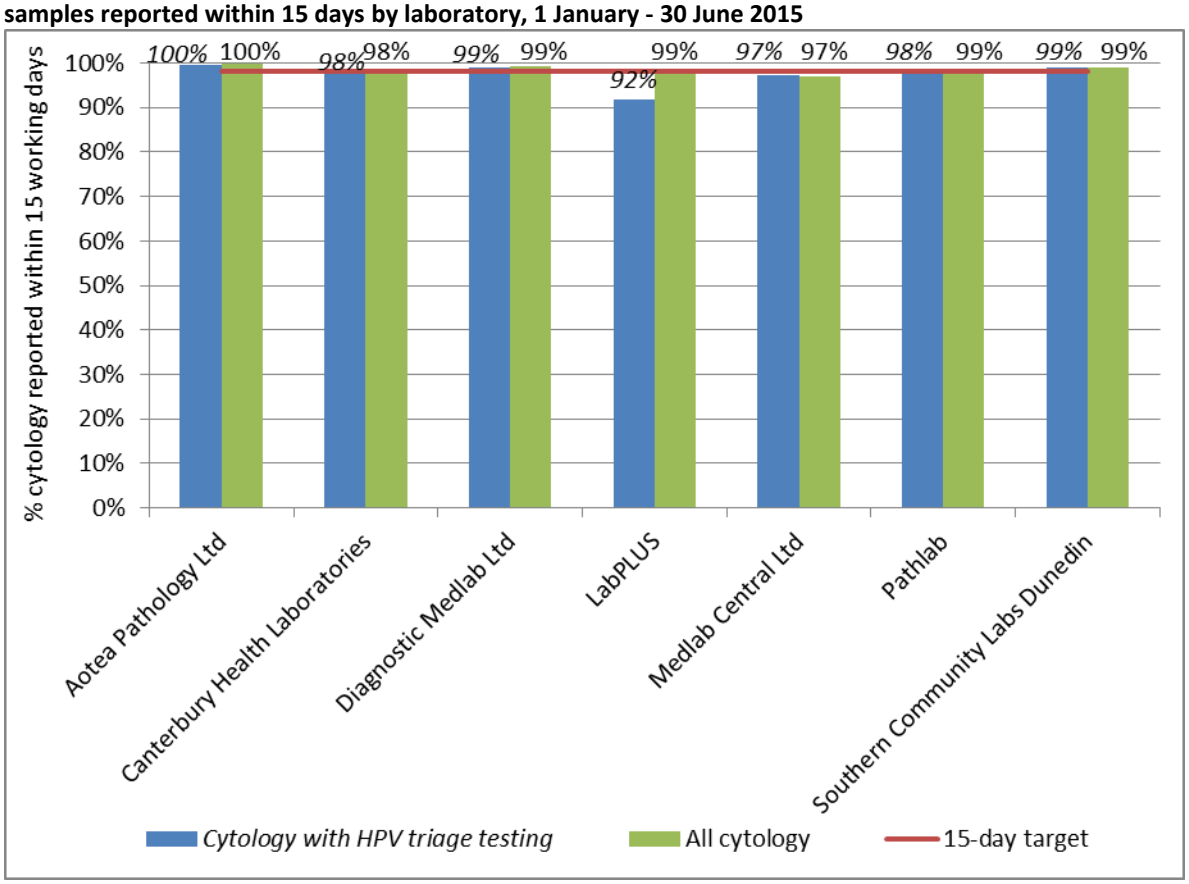
Target: 90% within ten working days (red line)

Figure 49 – Proportion of histology samples reported within 15 working days by laboratory, 1 January - 30 June 2015



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

Figure 50 – Proportion of cytology samples with associated HPV triage testing and of all cytology samples reported within 15 days by laboratory, 1 January - 30 June 2015



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

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 monitoring period (ie sample taken from 1 July - 31 December 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 (TBS 2001 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 have 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 monitoring period (ie 30 June 2015).

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 3,325 high grade cytology results relating to samples collected in the period 1 July - 31 December 2014; 1,313 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 2,012 cytology results, which related to 1,996 women. Histological follow-up for these 1,996 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.

Histological follow-up

Nationally, 1,625 women (81.4%) had a histology report within 90 days of their cytology report, and 1,750 (87.7%) had a histology report within 180 days. These were below the targets of 90% within 90 days and 99% within 180 days.

The proportion of women with a histology report varied by DHB from 68.8% (Whanganui) to 92.9% (Wairarapa) within 90 days of their cytology report, and from 71.9% (Whanganui) to 100.0% (Wairarapa) within 180 days of their cytology report (Figure 51, Table 11). Wairapapa was the only DHB to meet the target for the proportion of women with histology within 90 days and also the only DHB to meet the target for 180 days. As shown in Table 13, some DHBs had a relatively small number of women with a high grade cytology result recorded in the period (including Wairarapa, with 14 women with a high grade result), and this should be taken into account when interpreting these results.

The proportion of women with a histology report also varied by age. Among women aged 20-69 years, the proportion varied from 45.7% (ages 65-69 years) to 88.0% (ages 35-39 years) within 90 days, and from to 56.5% (ages 65-69 years) to 92.6% (ages 35-39 years) within 180 days (Table 12). The targets were not met in any age group.

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 72.9% (Pacific women) to 83.7% (European/Other women). By 180 days, however, the difference had narrowed, and histology reports were available for 83.1% of Pacific women and 89.1% of European/Other women (Table 13, Table 14). Further breakdown by DHB and ethnicity is shown in Table 13 and Table 14, and breakdown by DHB and age is shown in Table 52 and Table 53.

Among women with an urgent referral, due to a suspicion of invasive disease, a histology report was available within 90 days for 71.1% of women and within 180 days for 80.3% of women (Table 15). Among women where there was no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, HS1, AG1-5, AIS), 81.8% had a histology report available within 90 days and 88.0% within 180 days.

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 180 women (9.0%) who had no record of any subsequent follow-up within 90 days and 104 women (5.2%) who had no record of any subsequent follow-up within 180 days on the NCSP Register (Table 16).

This varied by DHB from no women without follow-up of some kind (Wairarapa) to 18.8% (West Coast) at 90 days and from no women without follow-up of some kind (Wairarapa, Whanganui) to 18.2% (Tairawhiti) at 180 days (Figure 52, Table 16). 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 14 DHBs and a maximum of 29 women in Counties Manukau. At 180 days, the number remaining without follow-up was ten or fewer in 16 DHBs, with a maximum of 16 women without follow-up in Counties Manukau.

The proportion of women who had no record of any subsequent follow-up also varied by ethnicity, from 7.1% (European/Other women) to 19.5% (Pacific women) at 90 days and from 4.1% (European/Other women) to 12.7% (Pacific women) at 180 days (Figure 53).

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 73.7% of women and within 180 days for 78.9% of women (Table 15). At 180 days, there remained 16 women (21.1%) 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), 91.7% had a follow-up test report available within 90 days and 95.4% within 180 days (Table 15). At 180 days, there remained 88 women (4.6%) for whom no follow-up tests were recorded.

Trends

Histological follow-up

The proportion of women with a histology report within 90 days has increased slightly since the previous monitoring period (from 79.5% to 81.4% in the current period). The proportion of women with a histology report within 180 days has also increased, from 86.8% in the previous period to 87.7% in the current period.

While the proportion of women with histological follow-up has increased overall, this still varies for individual DHBs. In 8 DHBs the proportion of women with histological follow-up has decreased at 90 days and at 180 days

(Auckland, Canterbury, Hutt Valley, Lakes, Nelson Marlborough, Tairawhiti, Taranaki, Whanganui). In 7 DHBs, the proportion of women with histological follow-up increased at both 90 days and at 180 days (Capital & Coast, Counties Manukau, Northland, Southern, Waikato, Waitemata, West Coast).

The proportion of women with follow-up histology at 90 days in the current monitoring period has increased overall for all ethnic groups, ranging from a 1.3 percentage point increase for European/ Other women (from 82.4% to 83.7%) to a 5.1 percentage point increase for Pacific women (from 67.8% to 72.9%). An increase in the proportion of women with follow-up histology at 180 days was seen for Maori and European/ Other women (from 83.6% to 83.9% and 87.7% to 89.1%, respectively), was unchanged for Pacific women (at 83.1%), and decreased for Asian women (from 89.9% to 86.5%). 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 is generally lower in women aged 55 years or more, than in women younger than 50 years. Increased proportions of histological follow-up in the current monitoring period for women aged 55-59 (from 65% to 75%) and 60-64 (from 54% to 68%) at 90 days have reduced the size of this difference compared to that seen in previous monitoring periods.

Women with no follow-up tests

The proportion of women with no record of a follow-up test has decreased since the previous period at 90 days, from 10.4% to 9.0%, and also at 180 days, from 6.1% to 5.2%.

Trends by DHB were complex, but reductions in the proportion of women with no follow-up test recorded at 180 days were observed in 9 of the 20 DHBs, and were greatest in Capital & Coast and Northland. Increases were observed in some other DHBs, and were largest in Tairawhiti and Hutt Valley.

In the current monitoring period, the proportions of women for whom there was no follow-up test recorded has decreased for Māori, Asian and European/ Other women at both 90 days and 180 days. For Māori women the decrease was from 15.7% to 12.9% at 90 days and 8.2% to 7.3% at 180 days. For Asian women the decrease was from 13.2% to 10.5% at 90 days, and from 5.7% to 5.3% at 180 days. For European/ Other women the proportion has decreased from 7.9% to 7.1% at 90 days, and from 5.1% to 4.1% at 180 days. For Pacific women the proportion with no follow-up test recorded decreased at 90 days from 22.0% to 19.5%, and was unchanged at 180 days (at 12.7%).

Comments

The proportion of women with a follow-up test of any kind provides useful additional information. While 18.6% 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 (9.0%). The

same was also true at 180 days, where 12.3% 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 (5.2%). 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).

Note that some women presenting with cancer may be referred directly to oncology and therefore may not be 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.

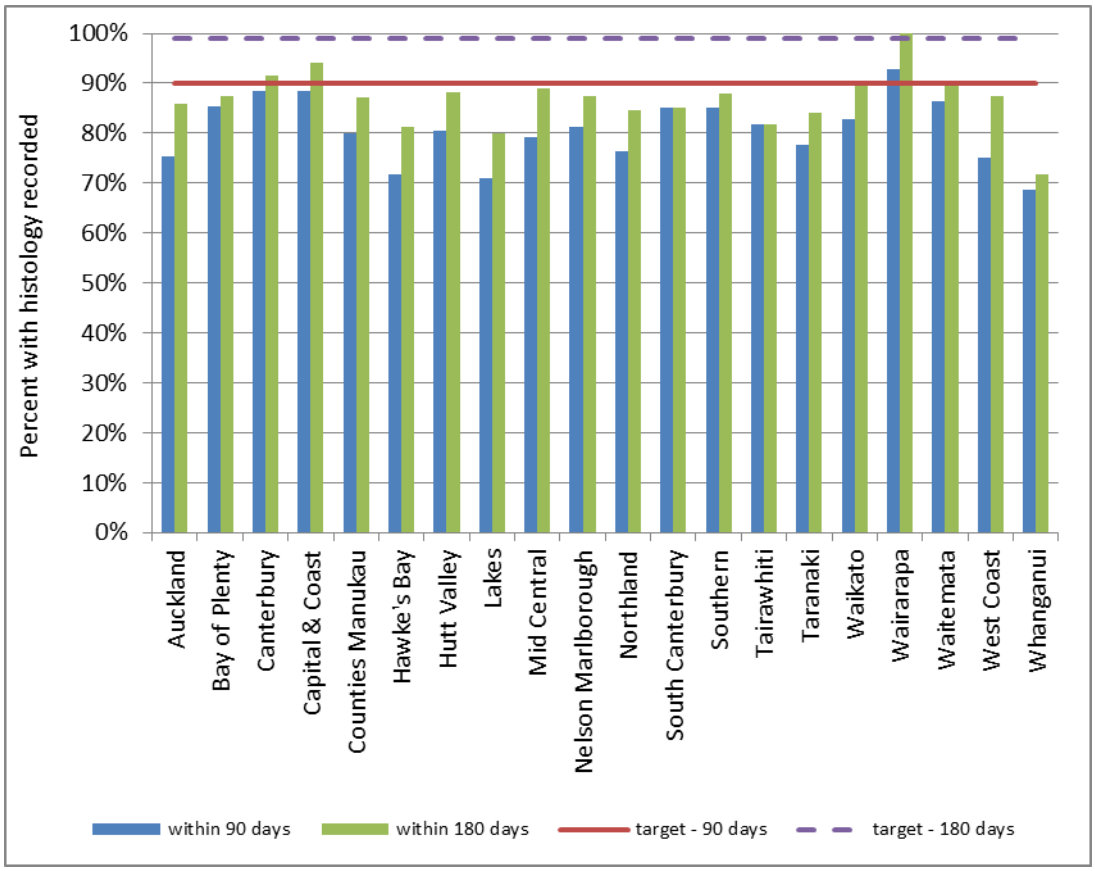
Note that while all *cytology results* which indicated that a woman was under specialist management were excluded from the measure of follow-up, not all *women* who had these cytology results were. If all cytology results for a woman indicated that she was under specialist management, she was excluded. 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 51 - 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 11 – 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	275	207	75.3	236	85.8
Bay of Plenty	103	88	85.4	90	87.4
Canterbury	225	199	88.4	206	91.6
Capital & Coast	86	76	88.4	81	94.2
Counties Manukau	195	156	80.0	170	87.2
Hawke's Bay	85	61	71.8	69	81.2
Hutt Valley	51	41	80.4	45	88.2
Lakes	55	39	70.9	44	80.0
Mid Central	91	72	79.1	81	89.0
Nelson Marlborough	64	52	81.3	56	87.5
Northland	72	55	76.4	61	84.7
South Canterbury	27	23	85.2	23	85.2
Southern	141	120	85.1	124	87.9
Tairawhiti	11	9	81.8	9	81.8
Taranaki	63	49	77.8	53	84.1
Waikato	168	139	82.7	152	90.5
Wairarapa	14	13	92.9	14	100.0
Waitemata	222	192	86.5	199	89.6
West Coast	16	12	75.0	14	87.5
Whanganui	32	22	68.8	23	71.9
Total	**1,996**	**1,625**	**81.4**	**1,750**	**87.7**

Table 12 - 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	5	4	80.0	4	80.0
20-24	358	300	83.8	323	90.2
25-29	478	404	84.5	431	90.2
30-34	333	276	82.9	300	90.1
35-39	217	191	88.0	201	92.6
40-44	151	132	87.4	139	92.1
45-49	123	102	82.9	110	89.4
50-54	107	71	66.4	80	74.8
55-59	89	67	75.3	73	82.0
60-64	56	38	67.9	43	76.8
65-69	46	21	45.7	26	56.5
70+	33	19	57.6	20	60.6
Total	**1,996**	**1,625**	**81.4**	**1,750**	**87.7**

Table 13 - 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	10	55.6	20	71.4	43	75.4	134	77.9
Bay of Plenty	30	93.8	1	100.0	4	57.1	53	84.1
Canterbury	16	88.9	4	66.7	7	77.8	172	89.6
Capital & Coast	7	87.5	3	100.0	4	100.0	62	87.3
Counties Manukau	24	66.7	29	72.5	31	81.6	72	88.9
Hawke's Bay	17	65.4	5	83.3	4	100.0	35	71.4
Hutt Valley	8	72.7	5	100.0	3	100.0	25	78.1
Lakes	15	78.9	-	-	1	100.0	23	65.7
Mid Central	12	66.7	1	100.0	2	100.0	57	81.4
Nelson Marlborough	5	100.0	1	50.0	3	100.0	43	79.6
Northland	12	70.6	2	100.0	2	100.0	39	76.5
South Canterbury	2	100.0	1	100.0	-	-	20	83.3
Southern	14	87.5	1	50.0	5	71.4	100	86.2
Tairawhiti	2	66.7	-	-	2	100.0	5	100.0
Taranaki	9	75.0	-	-	-	-	40	78.4
Waikato	29	70.7	4	57.1	2	66.7	104	88.9
Wairarapa	5	100.0	-	-	-	-	8	88.9
Waitemata	15	65.2	8	72.7	24	85.7	145	90.6
West Coast	1	100.0	-	-	0	0.0	11	78.6
Whanganui	6	100.0	1	50.0	-	-	15	62.5
Total	**239**	**75.4**	**86**	**72.9**	**137**	**80.1**	**1,163**	**83.7**

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

Table 14 - Women with a histology report within 180 days of a high grade cytology report, by DHB and ethnicity

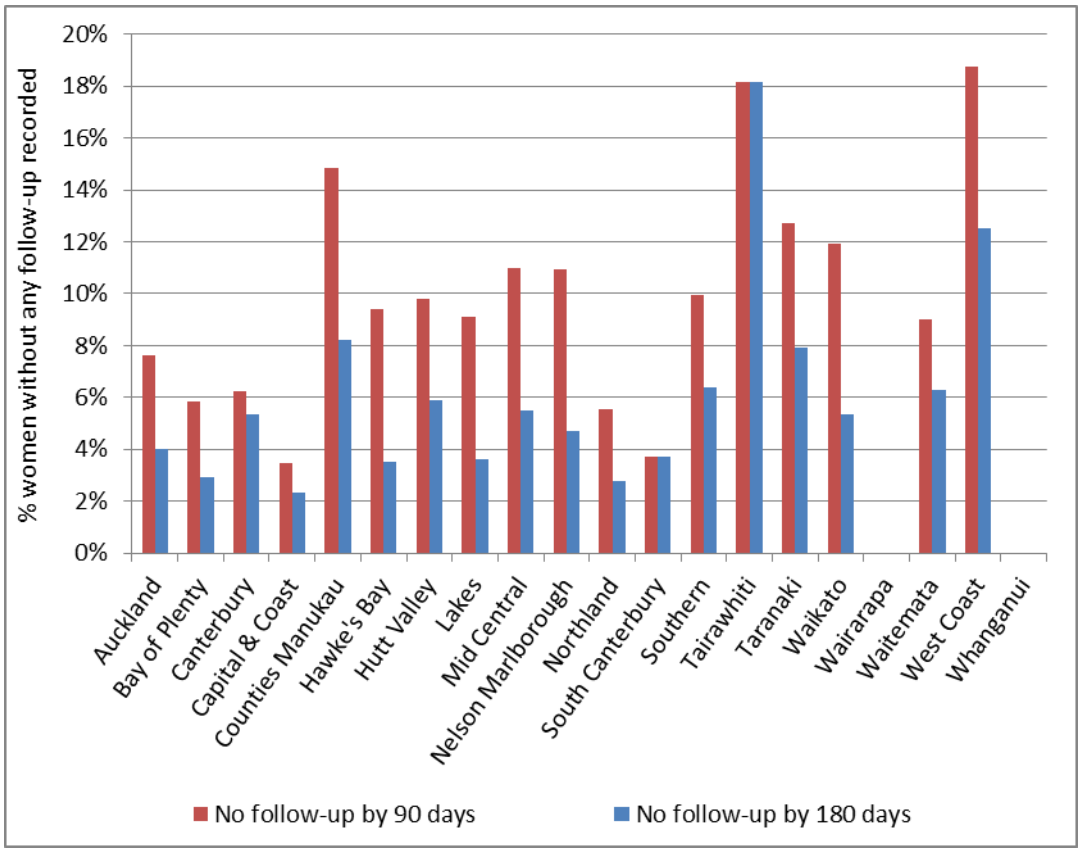
	Māori		Pacific		Asian		European/Other	
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Auckland	13	72.2	22	78.6	48	84.2	153	89.0
Bay of Plenty	30	93.8	1	100.0	5	71.4	54	85.7
Canterbury	17	94.4	5	83.3	7	77.8	177	92.2
Capital & Coast	7	87.5	3	100.0	4	100.0	67	94.4
Counties Manukau	27	75.0	34	85.0	34	89.5	75	92.6
Hawke's Bay	20	76.9	5	83.3	4	100.0	40	81.6
Hutt Valley	9	81.8	5	100.0	3	100.0	28	87.5
Lakes	15	78.9	-	-	1	100.0	28	80.0
Mid Central	16	88.9	1	100.0	2	100.0	62	88.6
Nelson Marlborough	5	100.0	2	100.0	3	100.0	46	85.2
Northland	14	82.4	2	100.0	2	100.0	43	84.3
South Canterbury	2	100.0	1	100.0	-	-	20	83.3
Southern	15	93.8	1	50.0	6	85.7	102	87.9
Tairawhiti	2	66.7	-	-	2	100.0	5	100.0
Taranaki	10	83.3	-	-	-	-	43	84.3
Waikato	35	85.4	5	71.4	2	66.7	110	94.0
Wairarapa	5	100.0	-	-	-	-	9	100.0
Waitemata	17	73.9	9	81.8	25	89.3	148	92.5
West Coast	1	100.0	-	-	-	-	13	92.9
Whanganui	6	100.0	2	100.0	-	-	15	62.5
Total	**266**	**83.9**	**98**	**83.1**	**148**	**86.5**	**1,238**	**89.1**

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

Table 15 – 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	54	71.1	1,571	81.8
- any follow-up	56	73.7	1,760	91.7
- *no follow-up*	*20*	*26.3*	*160*	*8.3*
Follow-up within 180 days				
- histology	61	80.3	1,689	88.0
- any follow-up	60	78.9	1,832	95.4
- *no follow-up*	16	21.1	88	4.6

Figure 52 – 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 for Wairarapa and Whanganui.

Figure 53 - Proportion of women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by ethnicity

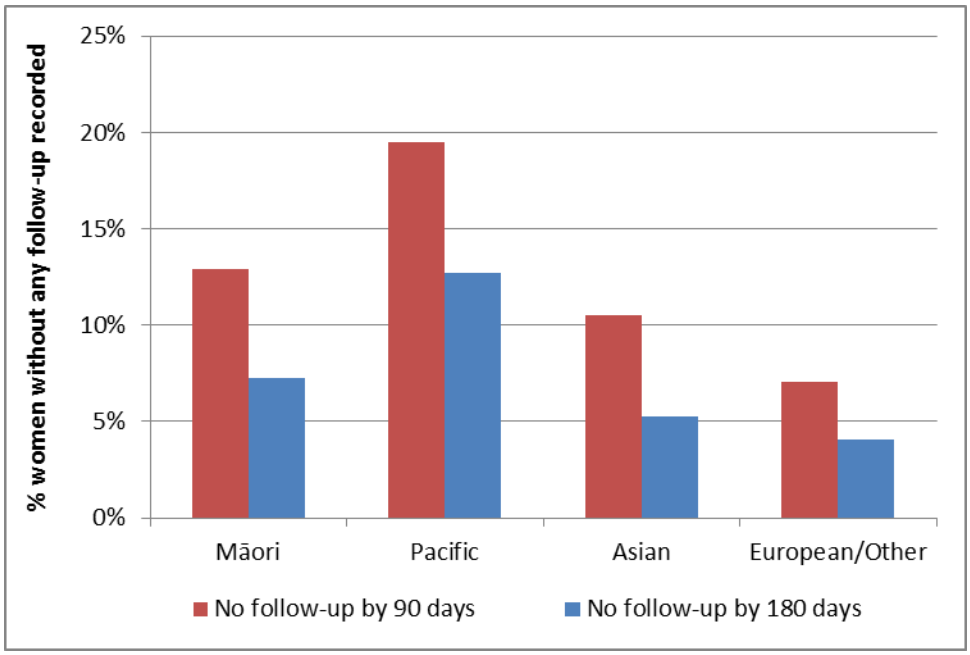


Table 16 - Women without any follow-up test within 180 days of a high grade cytology report, by DHB

DHB	High-grade cytology N	Without a follow-up test by 90 days N	%	Without a follow-up test by 180 days N	%
Auckland	275	21	7.6	11	4.0
Bay of Plenty	103	6	5.8	3	2.9
Canterbury	225	14	6.2	12	5.3
Capital & Coast	86	3	3.5	2	2.3
Counties Manukau	195	29	14.9	16	8.2
Hawke's Bay	85	8	9.4	3	3.5
Hutt Valley	51	5	9.8	3	5.9
Lakes	55	5	9.1	2	3.6
Mid Central	91	10	11.0	5	5.5
Nelson Marlborough	64	7	10.9	3	4.7
Northland	72	4	5.6	2	2.8
South Canterbury	27	1	3.7	1	3.7
Southern	141	14	9.9	9	6.4
Tairawhiti	11	2	18.2	2	18.2
Taranaki	63	8	12.7	5	7.9
Waikato	168	20	11.9	9	5.4
Wairarapa	14	-	-	-	0.0
Waitemata	222	20	9.0	14	6.3
West Coast	16	3	18.8	2	12.5
Whanganui	32	-	-	-	0.0
Unspecified	-	-	-	-	-
Total	**1,996**	**180**	**9.0**	**104**	**5.2**

Table 17 - 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	317	41	12.9	23	7.3
Pacific	118	23	19.5	15	12.7
Asian	171	18	10.5	9	5.3
European/Other	1,390	98	7.1	57	4.1
Total	**1,996**	**180**	**9.0**	**104**	**5.2**

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 not yet developed. It is envisioned that all indicators will be reviewed as part of the planned transition to primary HPV screening, and so these may be included in future monitoring reports after the program transitions.

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.[12] It is anticipated that completeness of colposcopy data on the NCSP Register will continue to improve over time. The 2015 Parliamentary Review again emphasised that achieving complete recording of colposcopy data on the NCSP Register Is essential.[13]

Additionally, no clinic reported the full data required by Colpscopy Policies and Standards 2013 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. 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 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.

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. 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. 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. Since cytology samples were collected in the six months prior to the current monitoring 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. 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. 95% or more of women who have high-grade smear abnormalities (but no suspicion of invasive disease; TBS codes ASH, HS1, AG1-5, AIS) receive colposcopy within 20 working days of receipt of referral. 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 for all women with a high grade cytology test in the six months prior to the current monitoring period, as this is a new data item in the Colposcopy Policies and Standards 2013. 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 July - 31 December 2014, there were 1,996 women with high grade cytology results who were not already under specialist management. There were 76 women who had results indicating suspicion of invasive disease, and the remaining 1,920 had other high grade cytology results. In total, accepted referrals were found for 1,752 (87.8%) of the 1,996 women (Table 54).

Timeliness – high grade cytology indicating suspicion of invasive disease

Accepted referrals were found for 38 (50.0%) of the 76 women who had high grade cytology indicating suspicion of invasive disease. These are broken down by the detailed cytological result in Table 57. Of these 38 women with a referral, 30 (78.9%) have a record of a colposcopy visit on the NCSP Register within ten working days of their referral, and 36 (94.7%) have a visit within 20 working days (Table 18).

Considering all 76 women with high grade cytology indicating suspicion of invasive disease, regardless of whether a referral was recorded or not, a total of 60 (78.9%) have a record of a colposcopy visit prior to 30 June 2015 (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 1,714 women (89.3%) of the 1,920 women. Among the women with accepted referrals, 1,191 (69.5%) were seen within 20 working days of their referral, and 1,552 (90.5%) were seen within 40 working days (Table 57). The proportion of women seen within 20 working days varied by ethnicity, from 59.1% (Maori women) to 74.3% (Asian women) (Figure 54, Table 55). This proportion also varied by DHB from 50.0% (West Coast) to 91.8% (Capital & Coast) (Figure 55, Table 56).

In total, 1,828 (95.2%) of the 1,920 women with high grade cytology (but no suspicion of invasive disease) relating to a sample collected in the period 1 July - 31 December 2014 have a record of a colposcopy visit prior to 30 June 2015 (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 (10 working days) has increased from 64.3% to 78.9%. The percentage of women with high grade cytology indicating suspicion of invasive disease seen within 20 working days (94.7%) is also higher than that in the previous report (78.6%).

The proportion of women with high grade cytology (but no suspicion of invasive disease) seen within 20 working days has increased from 65.1% in the previous report to 69.5% 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 (87.8% in the current report; 86.1% in Report 42).

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 (October 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.

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 1,996 women (76 with suspicion of invasive disease, 1,920 with other high grade cytology) are included in both this measure and Indicator 6. In Indicator 6, it was found that 1,750 (87.7%) had a follow-up test of some sort within 180 days. Here, colposcopy and histology records indicate that 1,888 (94.6%) women had attended colposcopy prior to 30 June 2015 (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.

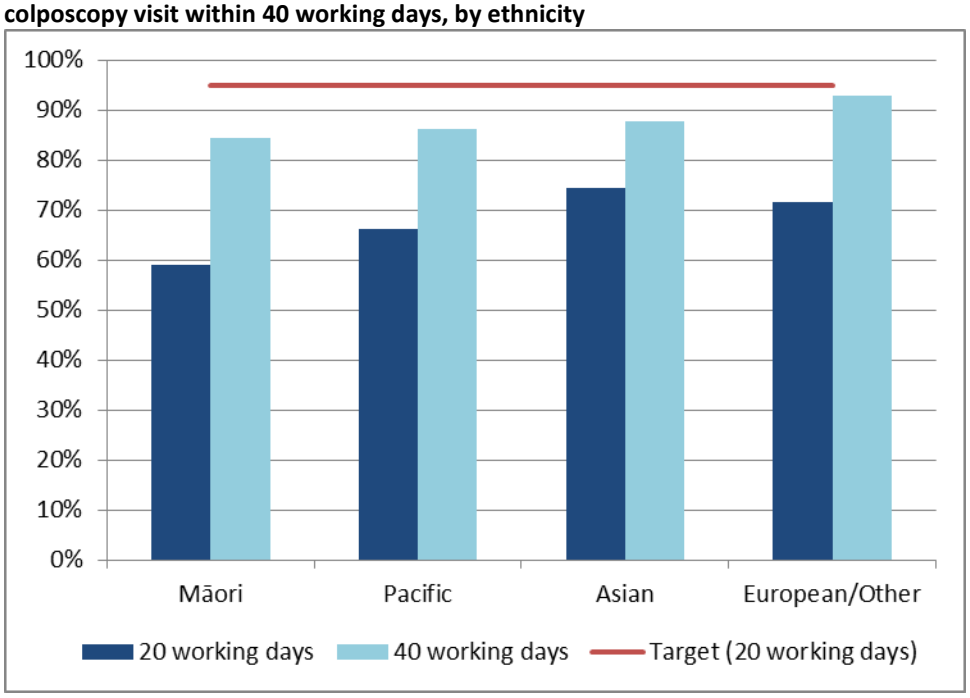
Reasons why a woman may not attend colposcopy within the recommended timeframe include both capacity limitations within the clinic, and potentially factors related to the woman requiring follow-up. Currently there is incomplete information available on the NCSP Register about colposcopy appointments 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 18 – Women with a high grade cytology report (suspicion of invasive disease), accepted referral and colposcopy visit, by ethnicity

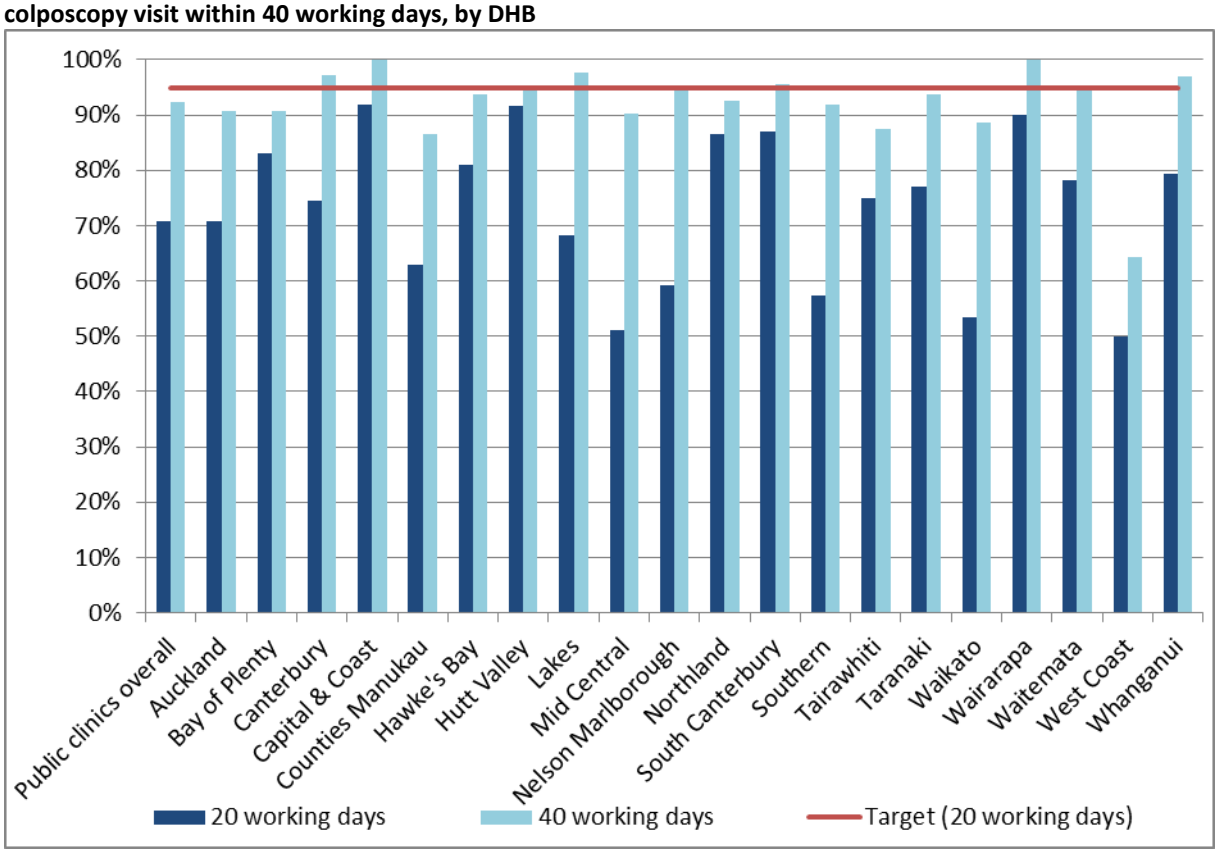
Ethnicity	HG women (suspicion of invasion)	Urgent referrals received	Women seen within :			
			10 working days		20 working days	
	N	N	N	%	N	%
Māori	11	7	5	71.4	7	100.0
Pacific	11	2	1	50.0	2	100.0
Asian	11	10	9	90.0	9	90.0
European/Other	43	19	15	78.9	18	94.7
Total	**76**	**38**	**30**	**78.9**	**36**	**94.7**

Figure 54 – Percentage of women with a high grade cytology (no suspicion of invasive disease) with a colposcopy visit within 40 working days, by ethnicity



95% target relates to colposcopy visits within 20 working days

Figure 55 – Percentage of women with a high grade cytology (no suspicion of invasive disease) with a colposcopy visit within 40 working days, by DHB



95% target relates to colposcopy visits within 20 working days

Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

Definition

This indicator measures performance against Standard 602. 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 directly comparable to the Standard.

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

Women were included in this measure if they had a cytology sample collected in the 6-month period ending 12 months prior to the end of the current monitoring period (1 January – 30 June 2014 for the current report) 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, and at least 26 weeks before the end of the current monitoring period (30 June 2015), to allow at least 26 weeks following the referral for colposcopy to occur. 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. 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 6-month period ending 12-months prior to the end of the current monitoring period, this allows a follow-up period of at least twelve months for all women (and up to 18 months for some women) where a woman can attend colposcopy and be assigned to 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 for all women with a low grade cytology test in the 6-month period 12-months prior to the end of the current monitoring period. In the interim, it reports on the number and percentage of women for whom a subsequent accepted referral and/ or a colposcopy visit are recorded, and the number and proportion of women who attended colposcopy within 26 weeks of an accepted referral.
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 for all women with a low grade cytology test in the 6-month period 12-months prior to the end of the current monitoring period. There were 4,138 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in the period 1 January – 30 June 2014. Nationally, subsequent accepted referrals are recorded for 3,374 (81.5%) of these women, and subsequent colposcopy for 3,698 (89.4%). The proportion of women for whom a subsequent referral and colposcopy visit are recorded are shown by DHB in Figure 56, and by ethnicity in Figure 57. The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 83.8% (Hutt Valley) to 96.9% (Mid Central) (Figure 56). The proportion of women with a subsequent colposcopy visit recorded on the NCSP Register ranged from 78.1% (Counties Manukau) to all women (West Coast) (Figure 56). The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 79.6% for European/Other women to 90.1% for Maori women (Figure 57). The proportion of women with a subsequent colposcopy visit recorded on the NCSP Register ranged from 79.4% (Pacific women) to 90.9% (European/Other women) (Figure 57). An estimation of the timeliness of colposcopic assessment is provided by examining the time between when a referral is accepted for a colposcopy and when a woman attended for colposcopy. For the current report 3,109 women attended colposocopy following an accepted referral being recorded on the NCSP register; 75.1% of all women with persistent low grade cytology or low grade cytology and a positive hrHPV test, and 92.1% of women who had an accepted referral following their low grade cytology. Nationally, 2,821 (83.6%) women attended for colposcopy within 26 weeks of their accepted referral (Table 58). By DHB, the proportion of women who attended for colposcopy within 26 weeks of their accepted referral ranged from 43.5% (Counties Manukau) to all women (South Canterbury and West Coast) (Figure 58). By ethnicity, this figure ranged from 67.4% of Pacific women attending

for colposcopy within 26 weeks of their accepted referral, to 86.4% of European/ Other women (Figure 59)

Nationally, 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 91 days (IQR: 57 – 152 days). Considering all women who attended for colposcopy, including those without a referral recorded on the NCSP Register, the median time between the cytology report and the first colposcopy visit was 99 days (IQR: 49 – 154 days).

Trends

The methodology used in this indicator have changed since the previous report, and the trend information provided here is not comparable with the more detailed information on the most recent time period provided above. There were also changes made to the methodology used in earlier years, for example, Reports 42 (Jul-Dec 2014) and 43 (Jan-Jun 2015) additionally used 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 had attended for colposcopy, to supplement colposcopy visit records. For this reason the trend information that is provided must be interpreted with caution. Please see the comments section of this chapter (below) for information on the changes made to this indicator for the current report, and Report 42 for a more complete description of the methodology used for the trend figures.

Nationally, over the last four monitoring periods, the median number of days between the date a referral was accepted by a clinic and the date that a woman had a colposcopy visit decreased from 153 days for the Jul-Dec 2013 monitoring period to 91 days for the Jan-Jun 2015 period. This information is presented by DHB in Figure 60. Considerable variability can be seen by DHB in this time period; for example, despite the national reduction in the median number of days between accepted referral and colposcopy, only 7 of the 21 DHBs recorded reductions in each monitoring period compared with the previous period. Trends by ethnicity are shown in Figure 61; reductions in the median time between accepted referral and colposcopy were seen for each monitoring period compared to the preceeding period for all of the four ethnic groups.

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 for all women 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 an accepted referral and first colposcopy visit.

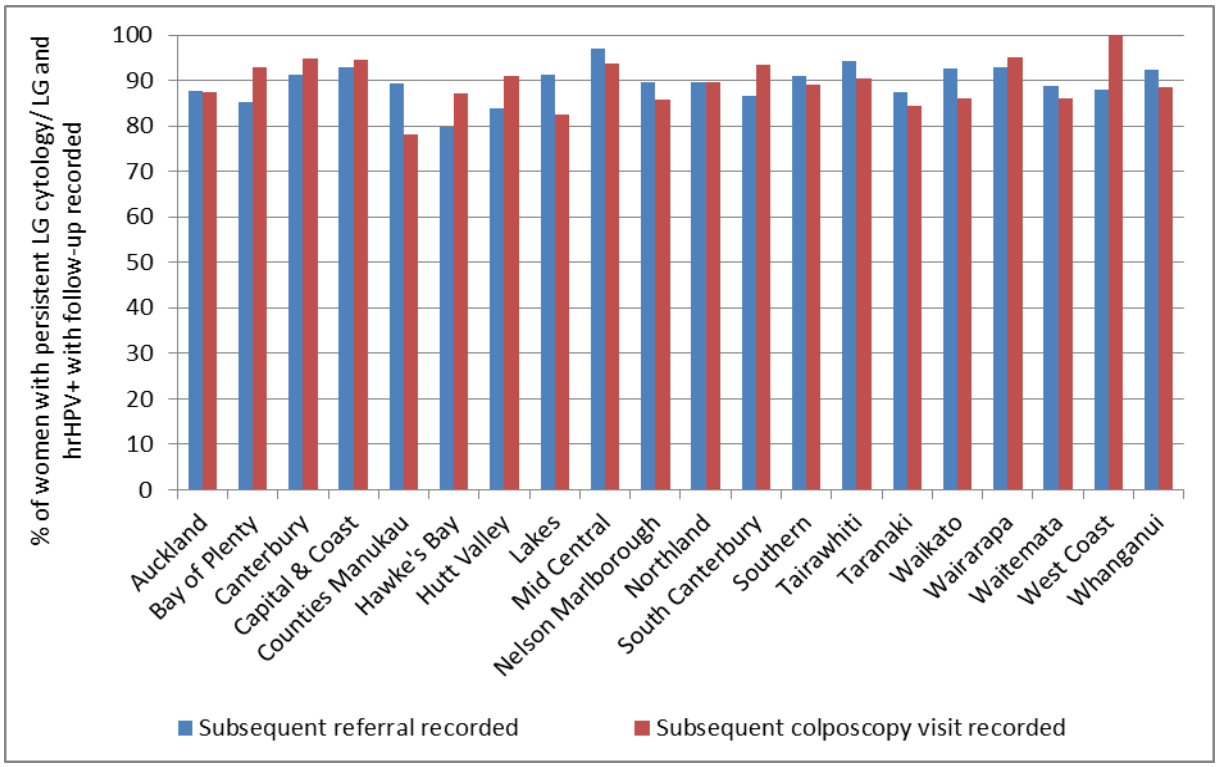
Accepted referrals are included if they occurred after the date the cytology sample was collected, and at least 26 weeks before the end of the current monitoring period (30 June 2015), to allow at least 26 weeks following the referral for colposcopy to occur. Colposcopies are included if they occurred after the date the cytology sample was collected and no later than the end of

the current monitoring period.

Several changes to the methodology for calculating this indicator were introduced for the current report. The number and proportion of women for whom the time between their accepted referral and colposcopy was 26 weeks or less is reported, rather than the median number of days between these two dates for various populations of women (for example by DHB or ethnicity). This increases the consistency between indicators 7.1 and 7.2, as indicator 7.1 is also reported in this way. The 26-week target has been calculated using business days. To improve consistency between monitoring reports, upper date limits have been applied to colposcopies and accepted referrals; colposcopies can occur no later than the end of the current monitoring period, and accepted referrals can occur no later than 26 weeks before then end of the monitoring period. Cytology tests that returned both low-grade and high-grade results have now been excluded from calculations for this indicator.

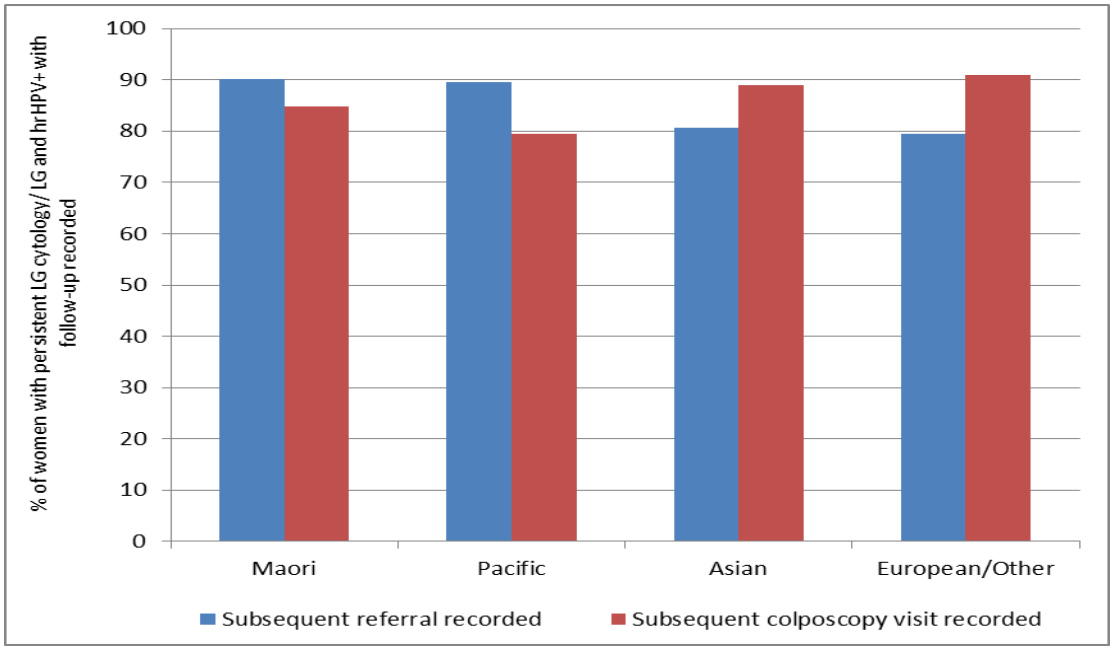
As has been the case for previous monitoring periods, it is evident that referrals are incompletely recorded on the NCSP Register, as some women have a record of a colposcopy visit, but no record of an accepted referral.

Figure 56 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by DHB



** For colposcopies 'follow-up' includes those recorded on the NCSP Register up to the end of the current monitoring period. Referrals includes those recorded on the NCSP Register up until 26 weeks prior to the end of the current monitoring period. Colposcopies include both women with and women without a referral recorded.*

Figure 57 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by ethnicity



** For colposcopies 'follow-up' includes those recorded on the NCSP Register up to the end of the current monitoring period. Referrals includes those recorded on the NCSP Register up until 26 weeks prior to the end of the current monitoring period. Colposcopies include both women with and women without a referral recorded.*

Figure 58 - Women with persistent LG cytology or LG cytology and positive hrHPV test and an accepted referral for colposcopy: percentage with a colposcopy visit recorded within 26 weeks of the date the referral was accepted, by DHB

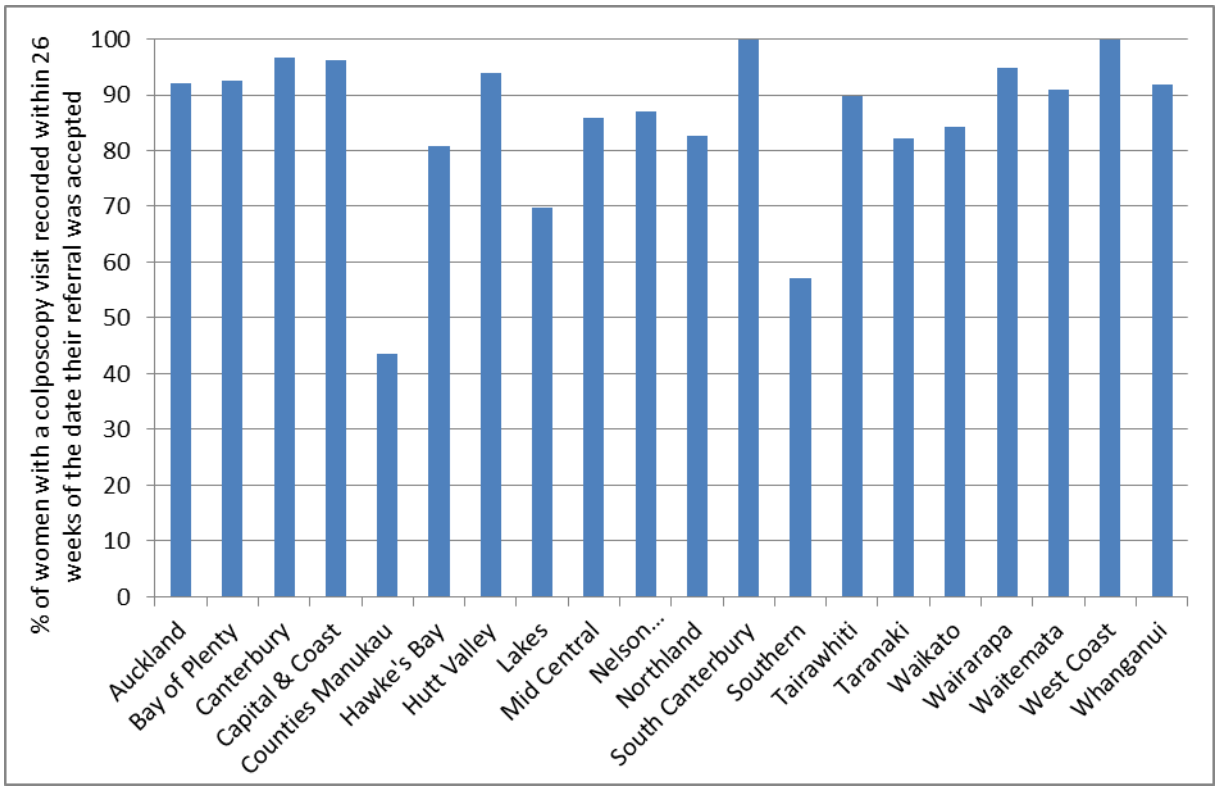


Figure 59 - Women with persistent LG cytology or LG cytology and positive hrHPV test and an accepted referral for colposcopy: percentage with a colposcopy visit recorded within 26 weeks of the date the referral was accepted, by ethnicity

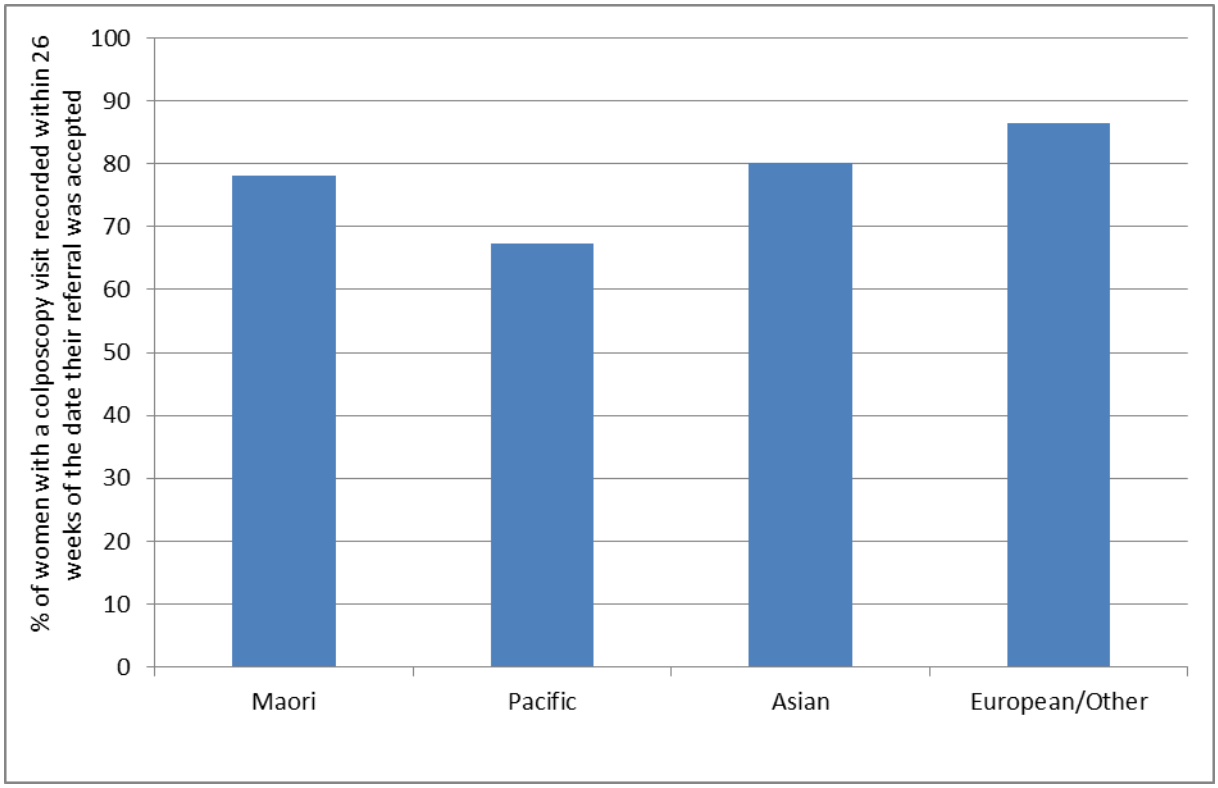


Figure 60 - Trends in time between accepted referral and first attendance at colposcopy (last four monitoring periods), by DHB

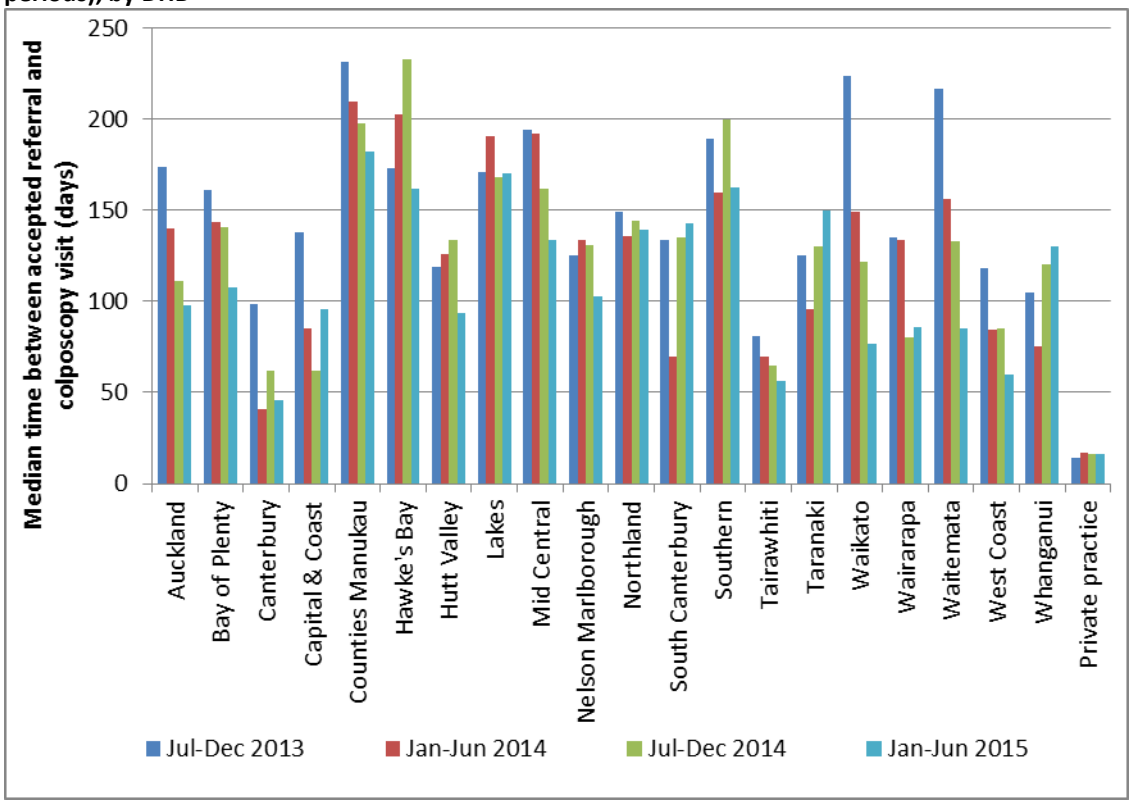
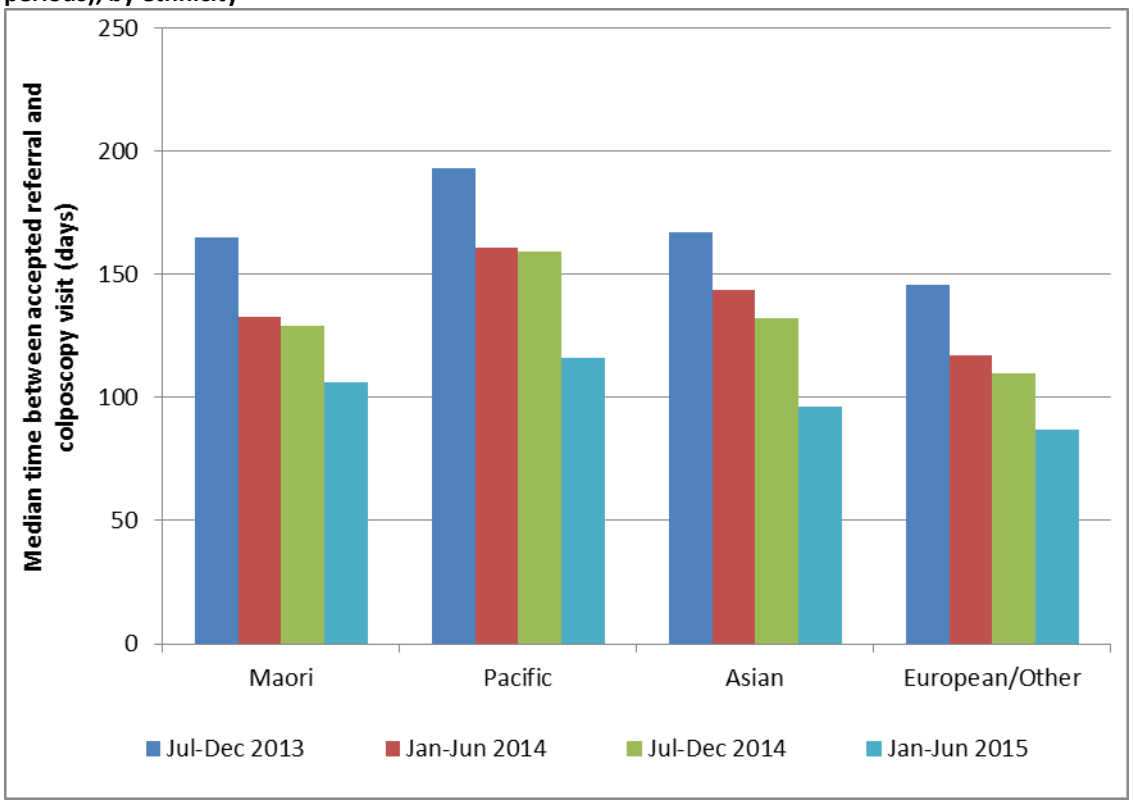


Figure 61 - Trends in time between accepted referral and first attendance at colposcopy (last four monitoring periods), by ethnicity



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 i) visibility of the squamo-columnar junction ii) presence or absence of a visible lesion iii) colposcopic opinion regarding the nature of the abnormality iv) recommended management and follow-up v) timeframe recommended for follow-up vi) items i), ii), and iii) 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), v), vi) and the first of the items in iv) can be assessed using data in the NCSP Register, and are reported on below. Item iii) and the second half of item iv) cannot currently be assessed until DHB clinics report in accordance with the 2013 Colposcopy Standards, which they did not achieve for the monitoring period. 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 items i), ii), and iii), 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 13,603 colposcopy visits within the current monitoring period recorded on the NCSP Register. Documentation relating to these visits was

analysed (Table 60).

Nationally, the visibility of the squamocolumnar junction was documented for 97.0% of visits; the presence or absence of a lesion was documented for 100% of visits; an opinion regarding the lesion grade was documented for 91.5% of visits where the presence of a lesion could not be ruled out. Additionally, the type of follow-up was documented for 99.2% of visits and the timeframe for follow-up was documented for 98.4% of visits. The visibility of the squamo-columnar junction, presence or absence of a visible lesion, and the colposcopic opinion regarding the nature of the abnormality (where relevant) were all documented for 92.1% of visits.

The colposcopic appearance was reported to be abnormal in 55.2% of colpscopies, and inconclusive in 5.1% of colposcopies (Table 61). A biopsy was more likely to have been taken at colposcopy when the colposcopic appearance was abnormal (biopsy taken at 79.1% of such colposcopies) than when it was inconclusive or normal (32.5% and 19.0%, respectively) (Table 64).

Documentation varied by DHB, as shown in Figure 62 and Table 60. Documentation of visibility of the squamocolumnar junction varied from 86.3% (Hawke's Bay) to 100.0% (South Canterbury and Whanganui). 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 84.0% (Bay of Plenty) to 97.6% (West Coast). Recording of the recommended type of follow-up ranged from 94.7% (Hawke's Bay) to 100% (Capital & Coast, Hutt Valley, South Canterbury, Tairawhiti, Wairarapa, West Coast and Whanganui) and recording of the recommended timeframe for follow-up ranged from 94.7% (Hawke's Bay) to 100% (Tairawhiti and Wairarapa). Complete documentation of the visibility of the squamo-columnar junction, presence or absence of a visible lesion, and the colposcopic opinion regarding the nature of the abnormality ranged from 79.3% (Hawke's Bay) to 97.3% (West Coast) (Figure 63, Table 612).

Abnormal colposcopic appearance ranged from 33.1% of colposcopies (Northland) to 73.9% of colposcopies (West Coast). Inconclusive colposcopic appearance ranged from 1.8% of colposcopies (West Coast) to 10.5% of colposcopies (Bay of Plenty) (Table 61). The proportion of colposcopies where a biopsy was taken also varied by DHB. When the colposcopic appearance was abnormal a biopsy was taken at 56.6% of visits in South Canturbury, up to the highest proportion of such colposcopies in Northland (97.0%). When the colposcopic appearance was normal the proportion of visits where a biopsy was taken ranged from 3.1% in Whanganui up to 42.2% in Tairawhiti (Table 64).

Colposcopies performed in private practice accounted for 11.2% of all colposcopies recorded on the NCSP Register in New Zealand in the current monitoring period. The documentation rate was the same as, or slightly lower, in private practice compared with public clinics overall; visibility of the squamocolumnar junction (96.8% for private practice and 97.0% for public clinics overall), presence or absence of a lesion (100% in both private

and public), lesion grade (90.7% for private practice and 91.6% for public clinics), follow-up type (98.1% for private practice and 99.3% for public clinics), follow-up timeframe (95.1% for private practice and 98.8% for public clinics). The proportion of colposcopies with complete documentation of the visibility of the squamo-columnar junction, presence or absence of a visible lesion, and the colposcopic opinion regarding the nature of the abnormality was 91.5% for private practice and 92.2% for public clinics overall.

Trends

For New Zealand as a whole, documentation of colposcopy visit items has remained fairly consistent over the last four monitoring periods. In the current period visibility of the squamocolumnar junction was documented for 97.0% of colposcopies compared with between 95.1% and 96.0% for the previous three monitoring periods. The presence or absence of a lesion was documented for all visits in both the current and previous three periods. In the current period an opinion regarding the lesion grade was documented for 91.5% of visits where the presence of a lesion could not be ruled out, compared with between 91.7% and 92.3% for the previous three monitoring periods. Recording of recommended follow-up type was documented for 99.2% of visits in the current period, up slightly compared with the 98.1%-98.6% seen for the previous three periods. This was similar to the small increase seen for the recommended timeframe for follow-up, which was recorded for 98.4% of visits in the current period compared with 97.4%-97.8% in the previous three periods.

Trends in the completion of all required fields are shown in Figure 61. Note, however, that two items (recommended type and timeframe for follow-up) have been removed from this calculation for the current monitoring period, so this period is not comparable with earlier ones in Figure 61. For the current monitoring period, the removal of these two items from the calculation gave a completion rate of 92.1%, compared with a rate of 91.0% when the items are included. The completion rate with or without the inclusion of these two items differed by less than one percentage point for fourteen of the 20 DHBs; the largest difference was for Hawke's Bay (79.3% without recommended type and timeframe, 74.7% with these two items included in the calculation).

Trends in the number of colposcopies recorded on the NCSP Register are shown in Figure 62. The number of colposcopies increased in the current monitoring period (by 6.6%), however this increase was likely due to incomplete transmission of colposcopy data to the NCSP Register at the time of the previous data extract by some DHBs (affecting the results from Report 42) as they transitioned to the the new (2013) Colposcopy Standards. In Report 42, it was known that colposcopy records for some visits were not yet transmitted to the NCSP Register for Counties Manukau, Northland and Waitemata. The effect of this underestimate in the previous report on the apparent increase in colposcopies in the current report was investigated by looking at the change in the number of colposcopies recorded if these three DHBs were excluded from the calculations both for the Report 42 period (1 July-31 December 2014) and the current period. When these three DHBs are

excluded, colposcopy volumes decreased by 2.3% compared to the previous monitoring period. Additionally, the underestimate was investigated by examining how many more colposcopies were reported as occurring during this earlier (1 July-31 December 2014) period, based on the current data extract, than had been recorded on the NCSP Register at the time when data were extracted for Report 42. There were differences seen in the three DHBs known to be affected by incomplete data (Counties Manukau had 776 more, Northland 79 more, and Waitemata had 452 more), but also in two other DHBs (Nelson Marlborough had 38 more, Waikato 317 more).

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 October 2015.

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 that 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. For this reason recommended type and timeframe for follow-up have been removed from the calculation of 'all items complete' for the current report. As discussed in Trends above, these are not the fields with the lowest completion rates, and therefore removing them from the calculation made a relatively small difference to 'all items complete'. 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 colposcopy standard were not included in the 2008 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. As most DHBs were still reporting to the NCSP Register using the 2008 standard during the current monitoring period, these items could not be

taken into account in this indicator for the current report.

The current colposcopy standard was published in July 2013 (available at https://www.nsu.govt.nz/health-professionals/national-cervical-screening-programme/policies-and-standards). When a sufficient number of DHBs have transitioned to the updated standard for a whole monitoring period, items from the updated standard will be included in these monitoring reports.

Figure 62 – Completion of colposcopic assessment fields, by DHB

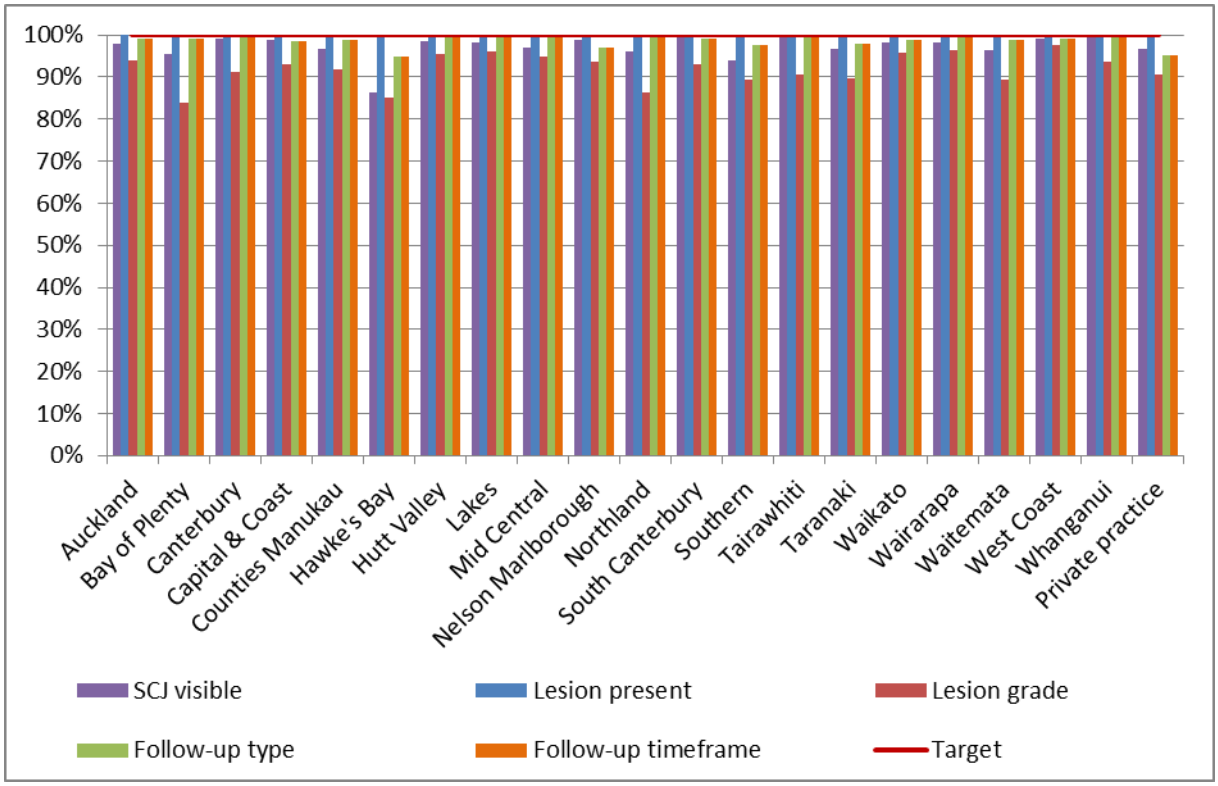
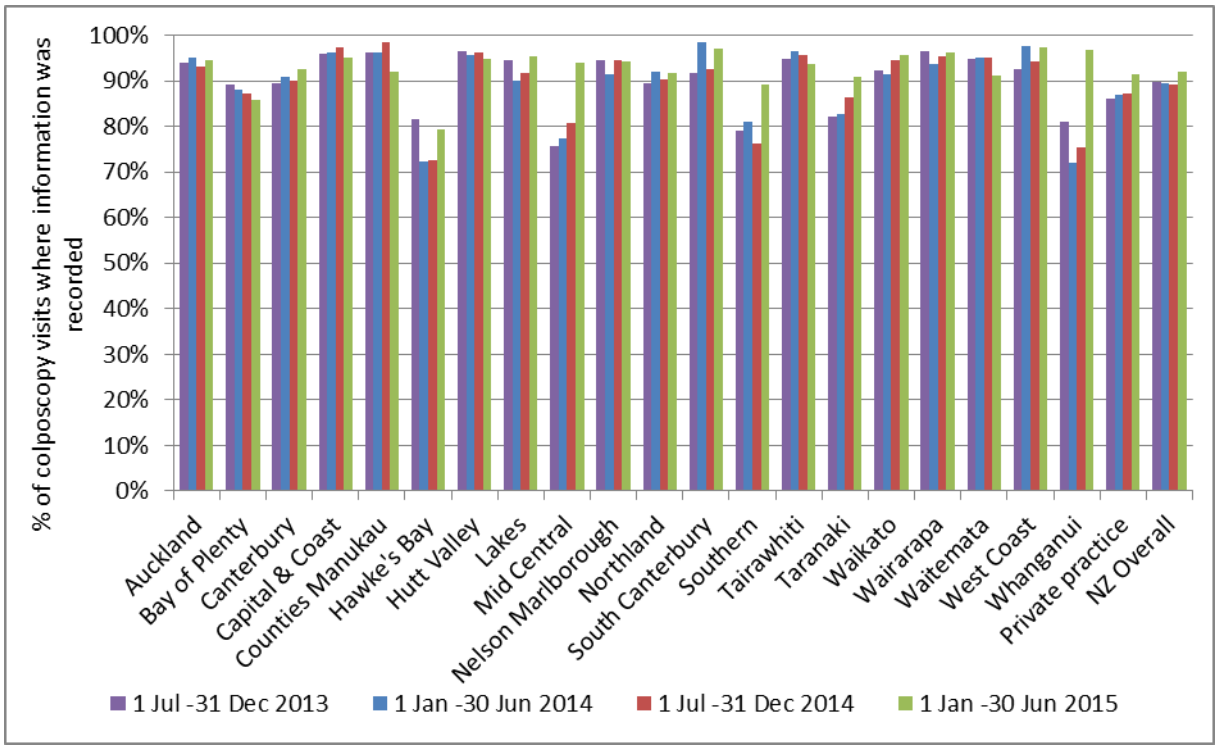
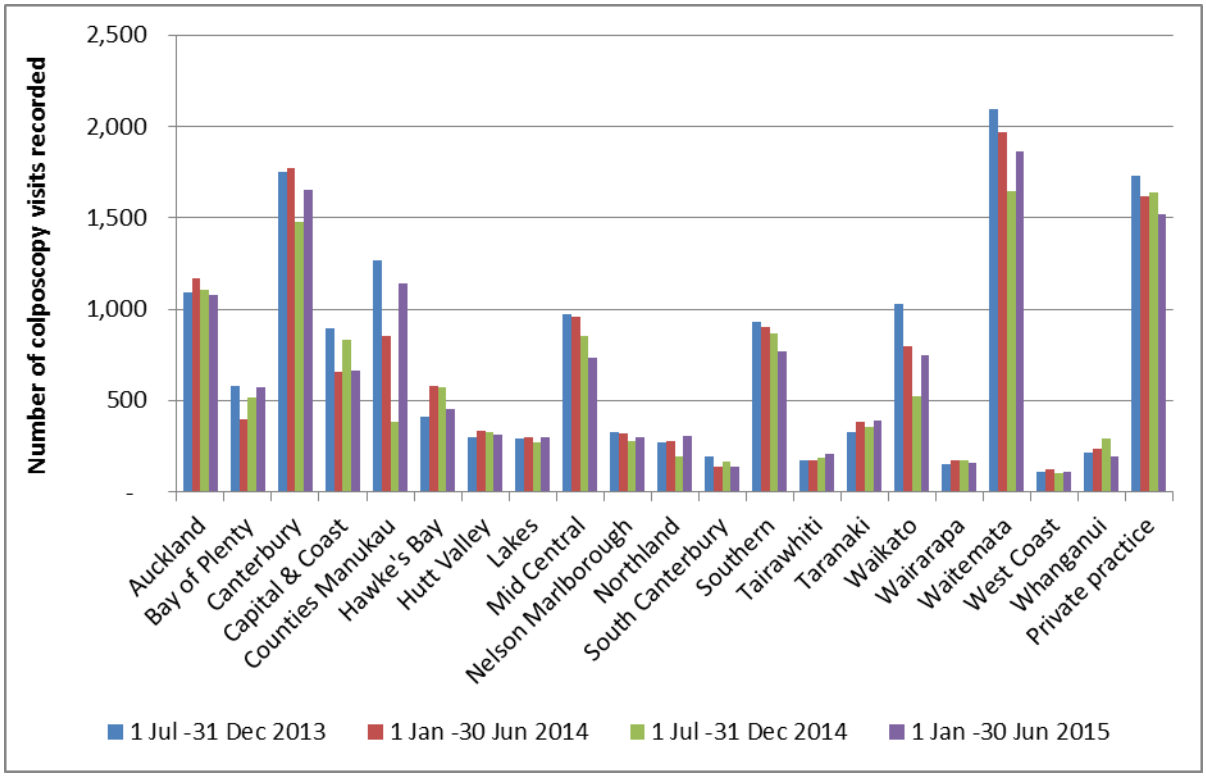


Figure 63 – Trends in the completion of all required colposcopic assessment fields, by DHB



Note: Definition of 'all fields completed' changed from 1 July 2015 as two fields were no longer included in the calculation (follow-up type and timeframe)

Figure 64 – Trends in the number of colposcopies recorded on the NCSP Register, by DHB



For the '1 Jul - 31 Dec 2014' monitoring period five DHBs were transitioning to electronic reporting of colposcopy information to the NCSP register. As a consequence an unusually large number of colposcopies which occurred in this period were not recorded on the register in time to be included in the report covering this period (from where the numbers included in this figure are drawn). The number of colposcopies added to the register for the '1 Jul - 31 Dec 2014' period after the cutoff for the previous report but before the cutoff for the current report were:Counties Manukau (776), Nelson Marlborough (38), Northland (79), Waikato (317), and Waitemata (452).

Indicator 7.4 – Timeliness and appropriateness of treatment

Definition	This indicator measures performance against Standard 605. 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 M74007, M74008, M80102, M80702 and M67017). 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 M74006, M67016, M74000 and M67015). 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 monitoring period (ie in the period 1 July - 31 December 2014). HSIL results must have been reported at least 8 weeks prior to the end of the current monitoring period, and LSIL results must have been reported at least 26 weeks prior to the end of the current monitoring period, in order to allow sufficient follow-up time for this indicator. 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. 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. 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 2,589 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 30 June 2015). Of these women, 1,641 women

(63.4%) were treated within eight weeks of HSIL being histologically confirmed. The proportion of women treated within eight weeks varied widely by DHB, from 32.9% (Taranaki) to 85.7% (Tairawhiti). No DHB met the target of 90% of women treated within eight weeks of histological confirmation of HSIL (Figure 65, Table 19).

There were 2,199 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 30 June 2015). Treatment for histological LSIL is not routinely recommended in the 2013 Colposcopy Standards or the 2008 NCSP *Guidelines for Cervical Screening in New Zealand*[14], 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 2,199 women with histological LSIL. Of these women, 157 (7.1%) 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 (Northland, South Canterbury, West Coast) to 13.8% (Nelson Marlborough) (Table 19). The DHB where the largest number of women were treated was Counties Manukau (31 women).

Trends

Nationally, the proportion of women with histological HSIL who were treated within eight weeks of histological confirmation is similar to the previous monitoring report; 63.2% in the previous report, 63.4% in the current report. The proportion of women with histological HSIL who were treated within eight weeks for the current report period increased in twelve of the 21 DHBs compared with the previous report period.

The proportion of women with histological LSIL who were subsequently treated (within 26 weeks of LSIL being histologically confirmed) has risen slightly, from 6.1% for the previous report to 7.1% in the current report.

Comments

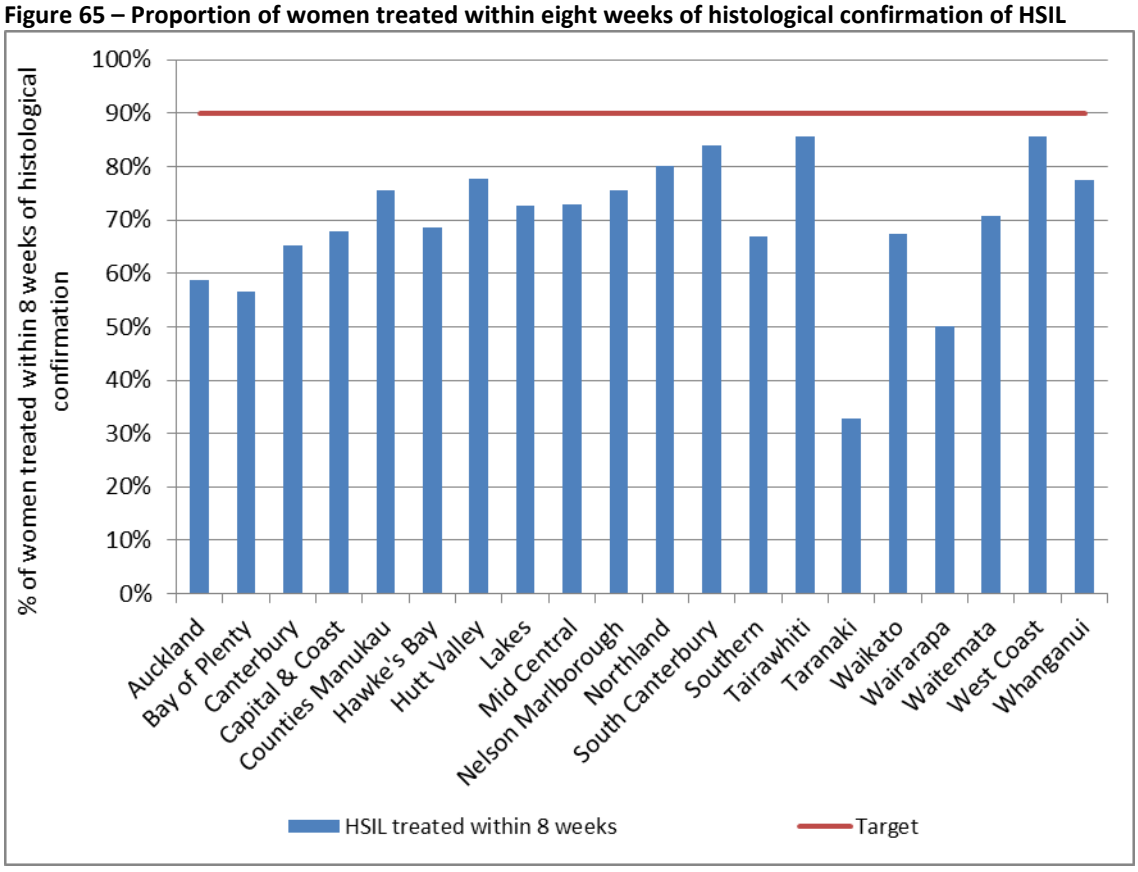
Whether or not treatment has occurred is determined for this indicator via colposcopy data in the NCSP Register. Colposcopy visit details are still largely recorded on colposcopy visit forms, and records of these forms are uploaded onto the NCSP Register. Depsite efforts to improve the quality of colposcopy 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 October 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.

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 65 – 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 19 – 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)	*2,198*	*1,493*	*67.9*	*1,737*	*136*	*7.8*
Auckland	187	110	58.8	163	8	4.9
Bay of Plenty	83	47	56.6	94	3	3.2
Canterbury	290	189	65.2	321	25	7.8
Capital & Coast	128	87	68.0	138	11	8.0
Counties Manukau	205	155	75.6	268	31	11.6
Hawke's Bay	83	57	68.7	32	2	6.3
Hutt Valley	72	56	77.8	60	6	10.0
Lakes	55	40	72.7	47	6	12.8
Mid Central	133	97	72.9	88	7	8.0
Nelson Marlborough	45	34	75.6	29	4	13.8
Northland	65	52	80.0	5	-	-
South Canterbury	25	21	84.0	5	-	-
Southern	175	117	66.9	49	3	6.1
Tairawhiti	35	30	85.7	30	2	6.7
Taranaki	73	24	32.9	50	4	8.0
Waikato	220	148	67.3	81	3	3.7
Wairarapa	30	15	50.0	24	1	4.2
Waitemata	233	165	70.8	201	19	9.5
West Coast	21	18	85.7	30	-	-
Whanganui	40	31	77.5	22	1	4.5
Private Practice	*391*	*148*	*37.9*	*462*	*21*	*4.5*
Total	**2,589**	**1,641**	**63.4**	**2,199**	**157**	**7.1**

** 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 LSIL 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 or CIN3), 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 (ie 1 January to 30 June 2014). Records for each woman treated in that 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.

Target

90% or more of women treated for CIN 2 or 3 should have a colposcopy and smear within nine months post treatment

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 1,545 women treated for CIN2 or CIN3 in the six-month period from 1 January – 30 June 2014. These women were followed up for twelve months from the date of their treatment visit. In addition, 10 women were treated following histological confirmation of high grade glandular abnormalities (AIS or glandular dysplasia). These treatments are not counted under Standard 7.5 and therefore not included in Table 63. ***Follow-up post treatment*** There were 1,109 women (71.8%) with a follow-up colposcopy, and 1,089 women (70.5%) with both a follow-up colposcopy and a cytology sample in the nine month period after their treatment visit. Figure 66 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 four (in Canterbury and Counties Manukau). Nationally, the percentage of women treated for high grade lesions with a record of colposcopy and cytology within the nine-month period post treatment (70.5%) is below the target value of 90%. No DHB met the target of at least 90% of women receiving cytology and colposcopy within nine months post-treatment (Figure 66, Table 63). 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 19.2% (Tairawhiti) to 85.1% (Auckland). ***Women discharged appropriately*** In total, 1,170 women (75.7% of those treated) were eligible to be discharged by 12 months after their treatment visit, and 1,023 of these women (87.4%) were discharged within 12 months of treatment (Table 63). Figure 67 shows how these percentages varied by DHB. The percentage of women eligible for discharge who were discharged within 12 months of treatment ranged from 62.5% (Tairawhiti) to all eligible women (West Coast and Whanganui) (Table 63). 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 South Canterbury, Tairawhiti and 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, Southern, Taranaki, Waikato, Wairarapa, West Coast and Whanganui). In total (that is, without considering whether or not women met the criteria suggested by the NCSP Advisory Group to be eligible for discharge), 1,153 women were discharged within 12 months of being treated for a high grade lesion (74.6% of all women treated for a high grade lesion).

Trends

In monitoring reports up to and including Report 42, women treated following histological confirmation of glandular abnormalities were also included in this indicator, along with those treated for CIN2 and CIN3 treatments. Consequently the proportions of women followed up or discharged appropriately in this report are not exactly comparable with previous reports, because the group of women included is slightly different. However, since the number of women treated for high grade glandular abnormalities consititute a small component of the overall group (10 women, compared to 1,545 women treated for CIN2/3 in the current report), results would predominantly relate to women treated for CIN2/3. Therefore, trends are still reported on here, but should be interpreted with caution. The proportion of women with follow-up has decreased slightly overall (from 72.9% to 71.8% for colposcopy, and from 71.6% to 70.5% for both cytology and colposcopy). No DHBs met the target of 90% of women having colposcopy and cytology within 9 months of treatment, which was also the case for the previous monitoring period.

The proportion of women discharged appropriately to their smear taker by 12 months has decreased slightly (at 88.0% and 87.4% for the previous report and current report, respectfully). The number of DHBs meeting the target of 90% remained the same at 13.

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 October 2015.

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 provide explicit guidance for when discharge back to the smear taker is appropriate.

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.

Previous monitoring reports included all women treated for a high grade lesion in this indicator, including women treated for AIS or glandular dysplasia, in addition to those treated for CIN2 or CIN3. As the current report only considers women treated for CIN2 or CIN3 lesions, trends are not directly comparable between this and previous monitoring reports. However, since the number of women treated for high grade glandular abnormalities consititute a small proportion of the overall group treated for high grade abnormalities (10 women treated for glandular abnormalities,

compared to 1,545 women treated for CIN2/3 in the current report), results in previous reports would have predominantly related to women treated for CIN2/3. There were also small changes to the calculation for the proportion of women that were discharged appropriately, as originally discharge referrals could only be recorded in the NCSP Register via a colposcopy visit entry; whereas now discharge referrals are recorded separately . Therefore changes observed over time may be due to the changes in reporting and must be interpreted with caution.

Figure 66 – Percentage of women treated with colposcopy, and both colposcopy and cytology, within nine months post-treatment

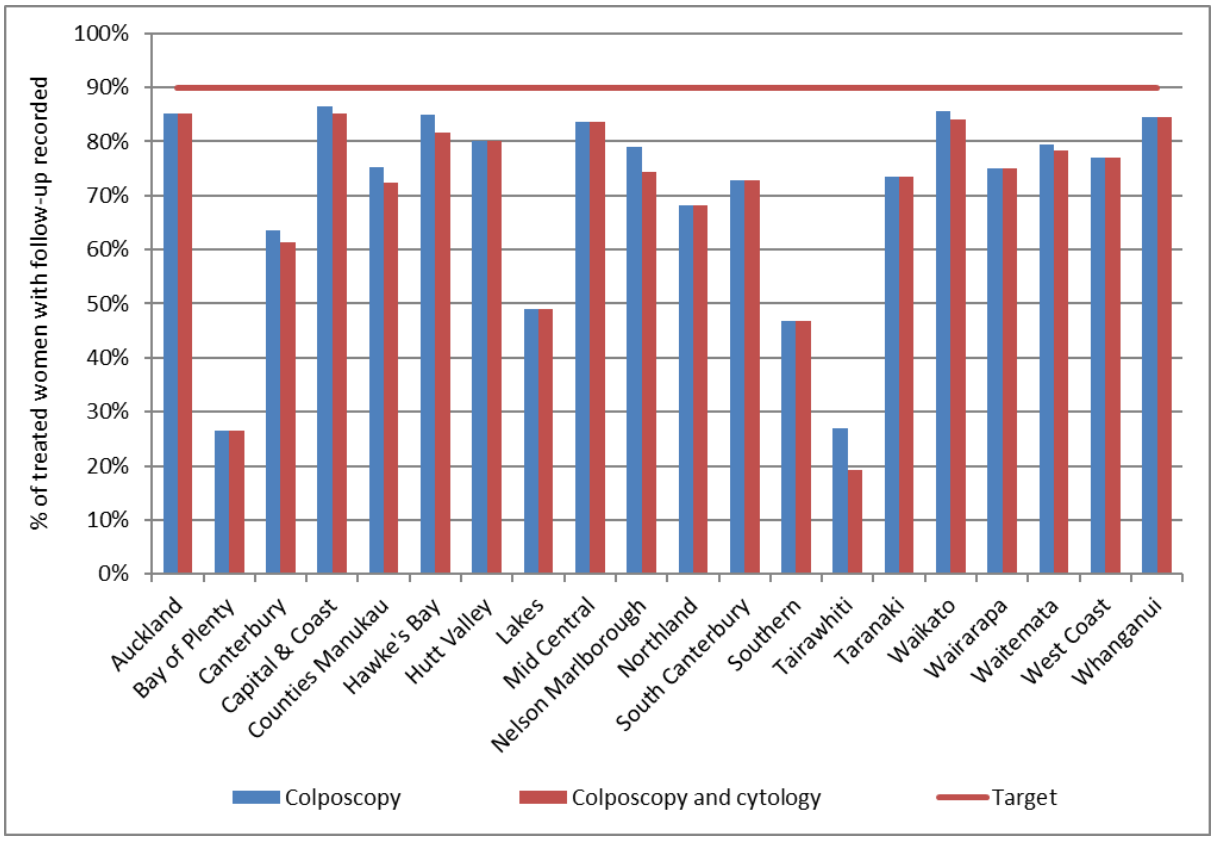
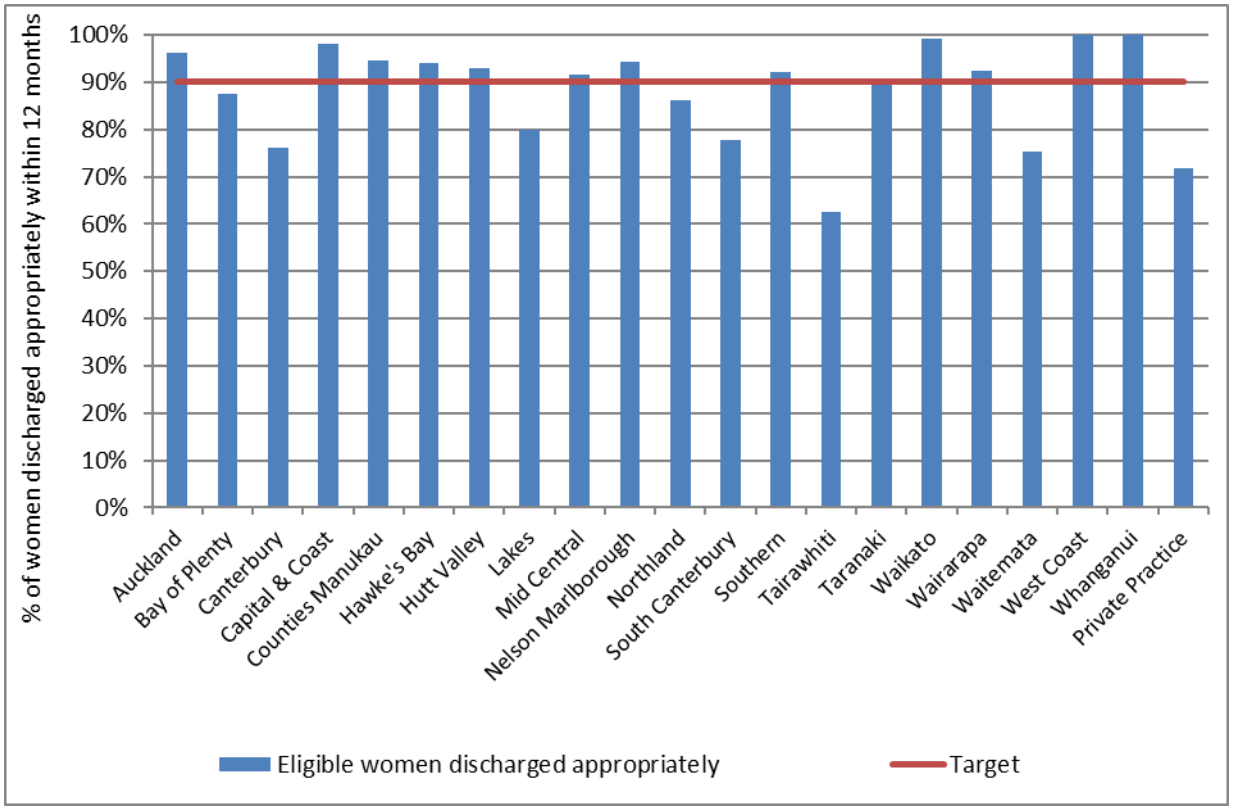


Figure 67 – Percentage of women discharged appropriately within 12 months of treatment



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

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: • The number and proportion of women with a subsequent HPV triage test (by age group, and cytology laboratory) • 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) • Women with positive HPV triage result, as a proportion of women with a valid HPV test (by age group, and cytology laboratory) • Histological outcomes in women where this information is available within 12 months following a positive HPV triage test 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). 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). 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 symptomatic. 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). 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. 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 1,015 women aged less than 30 years and 1,720 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 2,341 women aged less than 30 years and 1,607 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 a HPV triage test following ASC-US or LSIL cytology. Among these eligible women, 96.3% of women aged 30 years or more with an ASC-US cytology result, and 96.8% of women aged 30 years or more with an LSIL cytology result are recorded as having a subsequent HPV test (Table 65, Table 66). These proportions ranged 71.4% (LabPLUS) to 100% (Canterbury Health Laboratories) for ASC-US cytology results and from 84.4% (LabPLUS) to 100% (Pathlab) for LSIL cytology results (Figure 68, Table 65, Table 66).

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 0.4% of women aged less than 30 years with LSIL results. These proportions ranged from no women (LabPLUS and Medlab Central) to 2.6% (Canterbury Health Laboratories) for women with ASC-US results, and from no women (Canterbury Health Laboratories and Pathlab) to 1.1% (Medlab Central) for women with LSIL results (Figure 69, Table 66).

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 24.0% for women with ASC-US results, and 61.0% for women with LSIL results. These proportions varied by laboratory from 11.1% (LabPLUS) to 36.4% (Aotea Pathology Ltd) for women with ASC-US cytology (Figure 70), and from 33.3% (LabPLUS) to 76.3% (Aotea Pathology Ltd) for women with LSIL cytology (Figure 71). Note that these proportions should be interpreted cautiously for LabPLUS due to the small number of women (27 women aged 30 years or more with valid HPV triage test results, 9 of these women positive for high risk HPV).

The proportion of women whose HPV triage test was positive also varied by age. Among women 30 years or older, HPV positivity rates were highest for those aged 30-39 years (32.5% for women with ASC-US cytology, 68.6% for those with LSIL cytology). For women with ASC-US results, the positivity rates for each of the 10-year age groups between 40 and 69 years were very similar (between 19.7% and 20.3%). For women with LSIL results, the positivity rates were between 51.6% and 56.7% for these 10-year age groups (Figure 72, Table 20).

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 1 January – 30 June 2014. In this period, there were 429 women with an ASC-US cytology result and positive HPV triage test, and 880 who had an LSIL cytology result and positive HPV triage test. 387 (90.2%) of the women with ASC-US who were triage positive and 796 (90.5%) of the

women with LSIL who were triage positive had a record of colposcopy and/or histology within the 12 months following their initial test results. Among the women with a record of colposcopy, 286 (73.9%) and 617 (77.5%) 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 21.0% for ASC-US and 21.7% for LSIL (Table 67, Table 68). These percentages varied by laboratory from 11.8% (Canterbury Health Laboratories) to 32.4% (Medlab Central Ltd) for ASC-US and from 14.3% (Pathlab) to 37.3% (Medlab Central Ltd) for LSIL (Figure 73; note that this excludes LabPLUS, as for this time period there were no triage positive women with CIN2+ histology).

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 15.5% for ASC-US and 16.8% for LSIL (Table 67, Table 68). These percentages varied by laboratory from 9.1% (Canterbury Health Laboratories) to 22.6% (Medlab Central Ltd) for ASC-US and from 10.7% (Pathlab) to 27.5% (Medlab Central Ltd) for LSIL (Figure 74).

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 75), and as a percentage of women with colposcopy recorded (Figure 76). Among women aged 30-69 years, the percentage of women with CIN2+ histology within 12 months decreased with increasing age for LSIL. For ASC-US this pattern was less clear; the highest percentage of CIN2+ histology was seen for younger women (those aged 30-39 years), and the lowest percentage for older women (aged 60-69 years), however women aged 50-59 had a higher percentage of CIN2+ histology than women aged 40-49.

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 lower than in the previous report for women with ASC-US results (97.5% in the previous period compared to 96.3% in the current period), and similar for women with LSIL results (96.7% in the previous period compared to 96.8% in the current period). The proportion of women aged less than 30 years with a subsequent HPV test is unchanged from the previous monitoring period for ASC-US or LSIL results (0.7% for ASC-US, 0.4% for LSIL).

Positive triage tests

The proportion of women aged 30 years or more who tested positive for a high risk HPV type was lower for ASC-US (30.5% in the previous report; 24.0% in the current report), and also for LSIL (64.1% in the previous report; 61.0% in the current report).

Histological outcomes in triage positive women who attended colposcopy

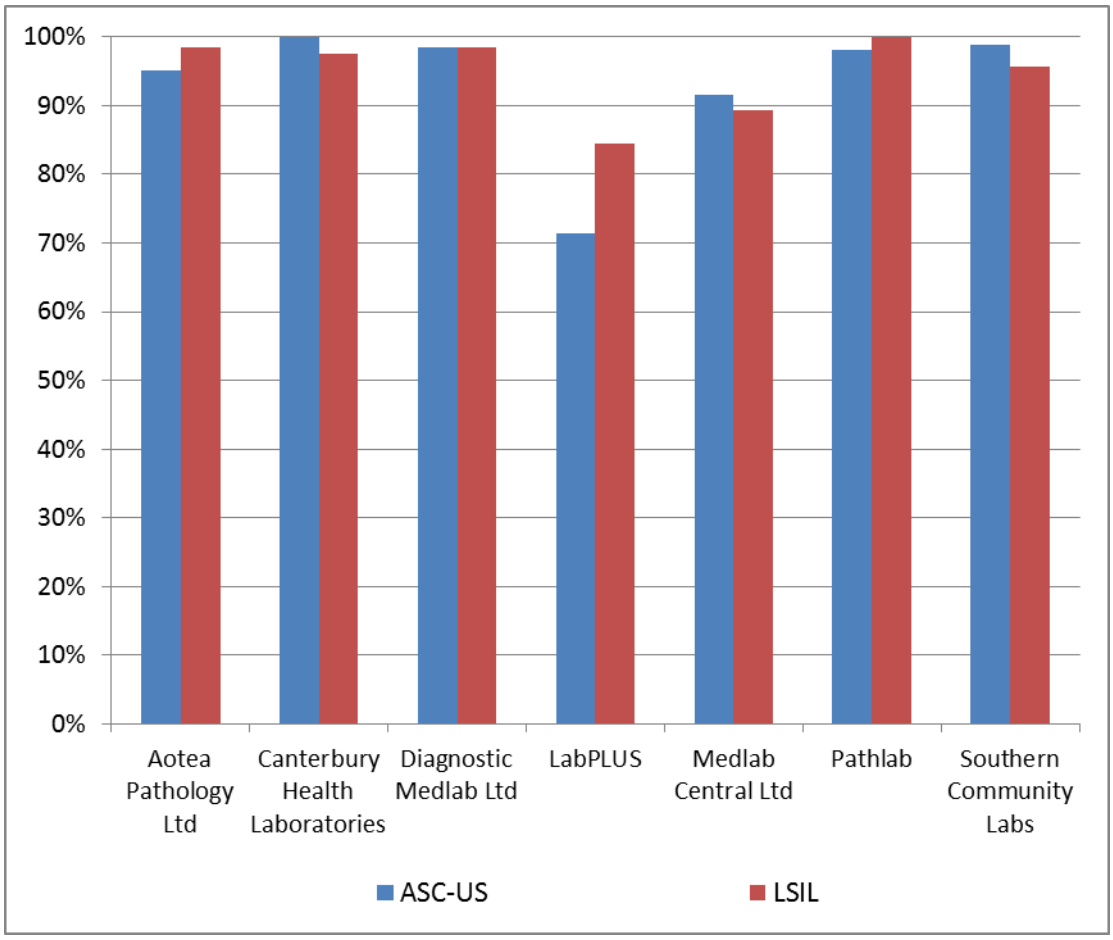
90.2% of women with ASC-US cytology and a positive HPV triage test in the six-month reference period for the current report had a record of colposcopy and/or histology within the 12 months following their test result, up from the 88.3% seen for the previous report. For the current report 73.9% of these women with colposcopy also had a histology record, compared with 74.7% for the previous report, and of these women with a histology record, the histology result was CIN2+ for 21.0% of women in the current report, compared with 22.7% in the previous report.

For women with LSIL cytology and a positive HPV triage test in the reference period for the current report, 90.5% had a record of colposcopy and/or histology within 12 months of their result, which was very similar to the 90.6% of women in the previous report. The percentage of these women who also had histology has decreased from 79.1% in the previous report to 77.5% in the current report, while the histology result was CIN2+ for 20.5% of women in the previous report compared with 21.7% in the current report.

Comments

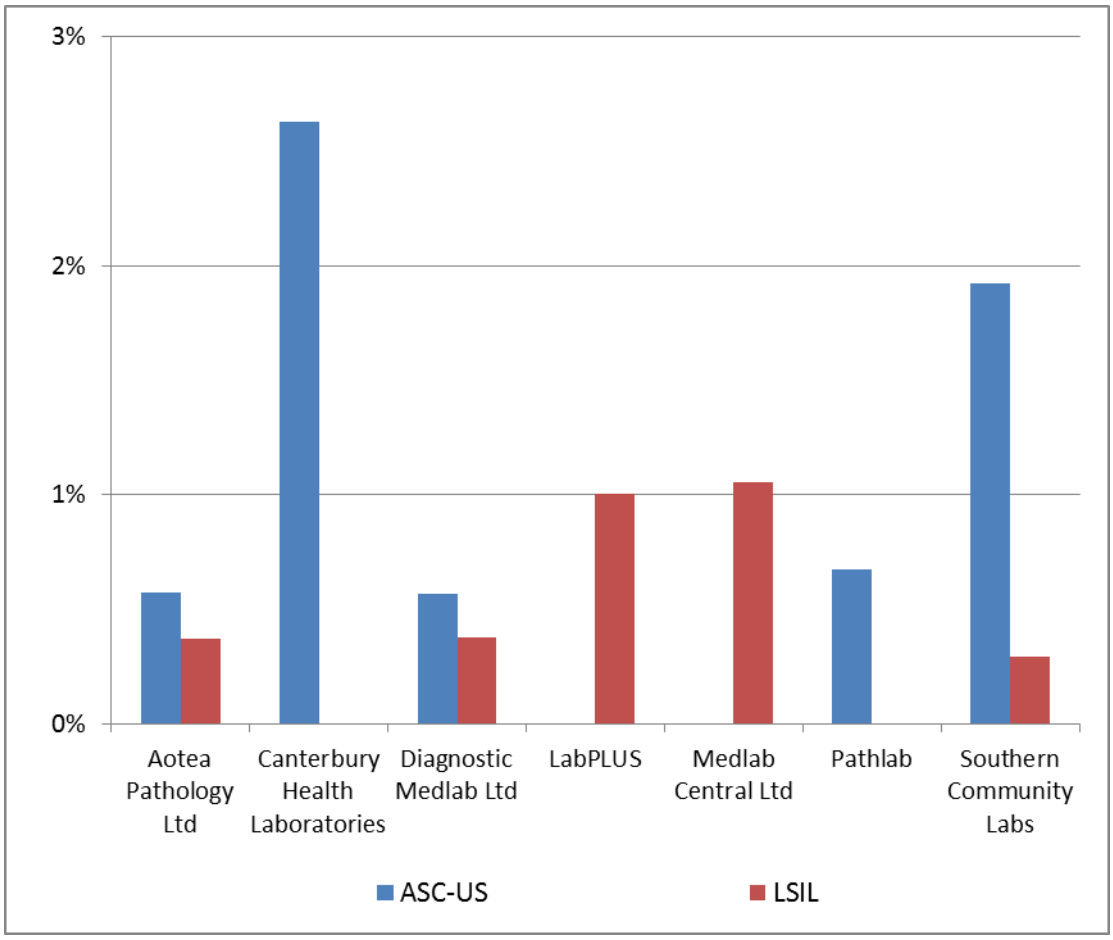
A small number of women aged less than 30 years with low grade results, no recent abnormalities (in the previous five years) and no record of any previous high grade squamous abnormality (cytological or histological) have a record of a subsequent HPV test (16 women). This is slightly fewer than in the previous report (19 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.[15, 16] 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 68 – 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 69 – 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 70 - Proportion of HPV triage tests which are positive following ASC-US cytology (women aged 30 years or more), by cytology laboratory

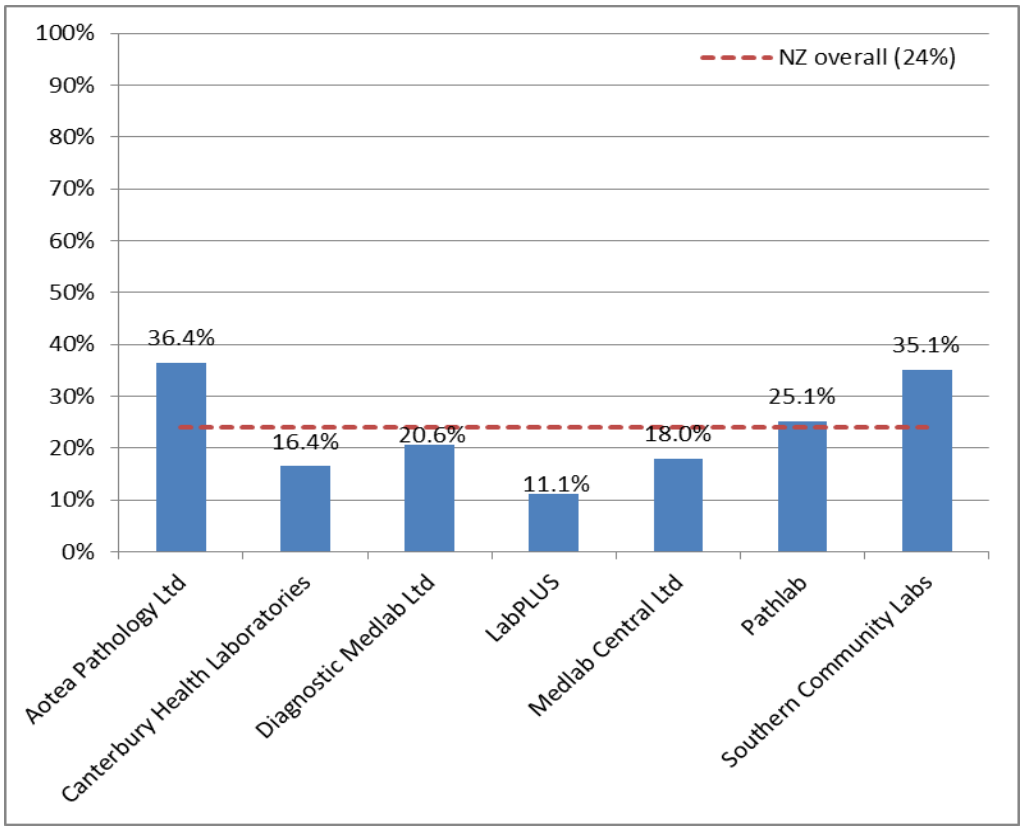


Figure 71 - Proportion of HPV triage tests which are positive following LSIL cytology (women aged 30 years or more), by cytology laboratory

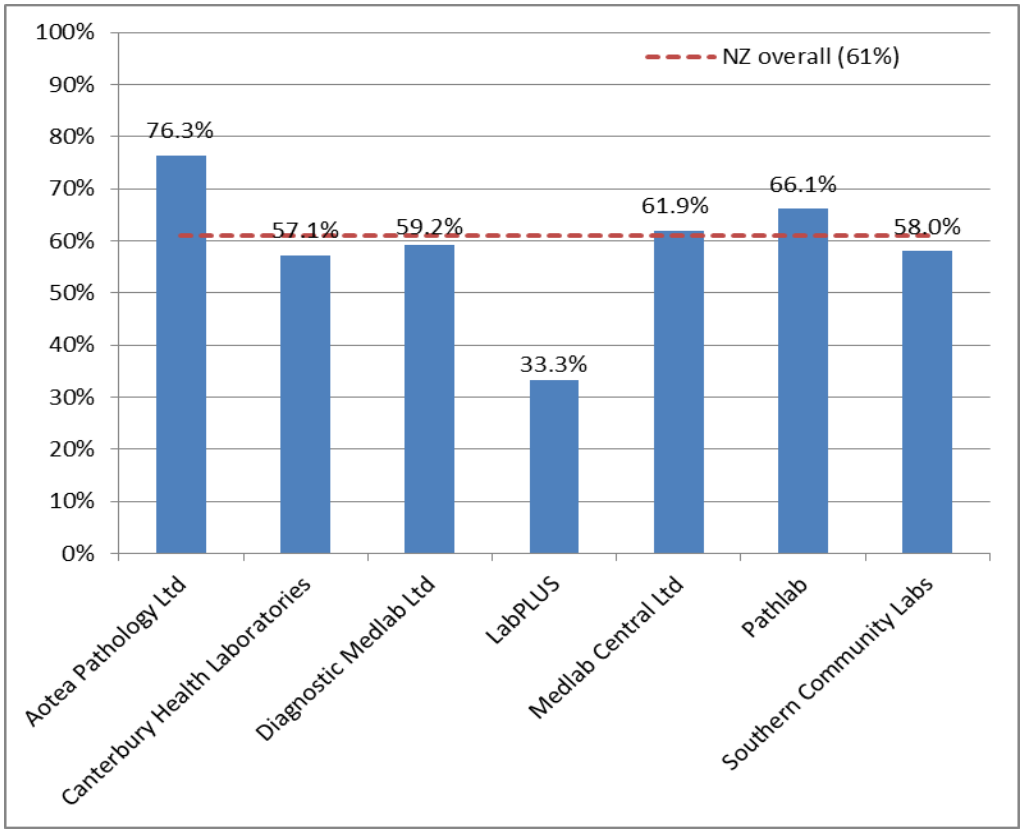
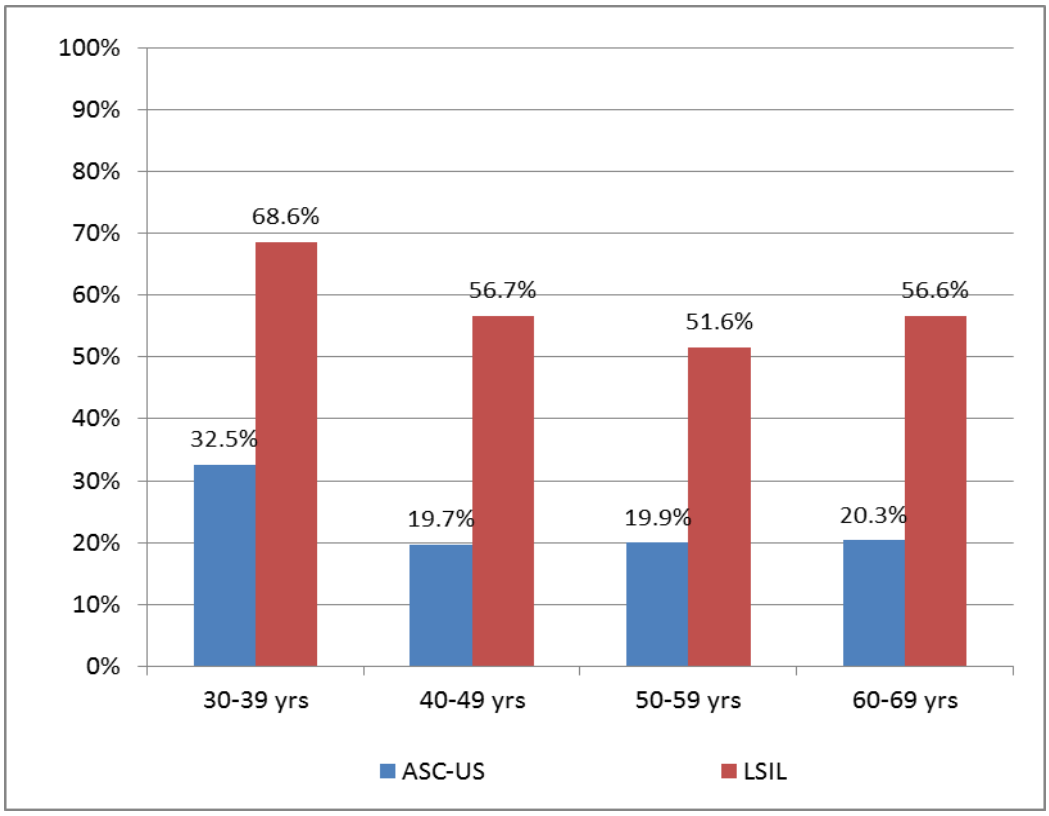


Figure 72 – Proportion of women with an HPV triage test who are HPV positive, by age and cytology result



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 20 - 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	1	154	0	-	30	51.7	12	20.7	6	28.6	6	40.0	2	100.0
Canterbury Health Laboratories	1	152	1	100.0	12	22.6	5	10.6	6	15.4	2	15.4	0	-
Diagnostic Medlab Ltd	1	549	1	100.0	62	32.1	29	16.4	16	12.9	6	12.2	0	-
LabPLUS	0	45	0	-	1	6.7	1	6.7	2	16.7	1	33.3	0	-
Medlab Central Ltd	0	217	0	-	14	21.5	15	20.3	6	11.8	4	14.8	0	-
Pathlab	1	299	1	100.0	23	32.9	25	23.8	19	24.7	7	15.9	1	33.3
Southern Community Labs	3	239	2	66.7	31	39.7	25	26.9	19	40.4	9	42.9	0	-
TOTAL	**7**	**1,655**	**5**	**71.4**	**173**	**32.5**	**112**	**19.7**	**74**	**19.9**	**35**	**20.3**	**3**	**27.3**

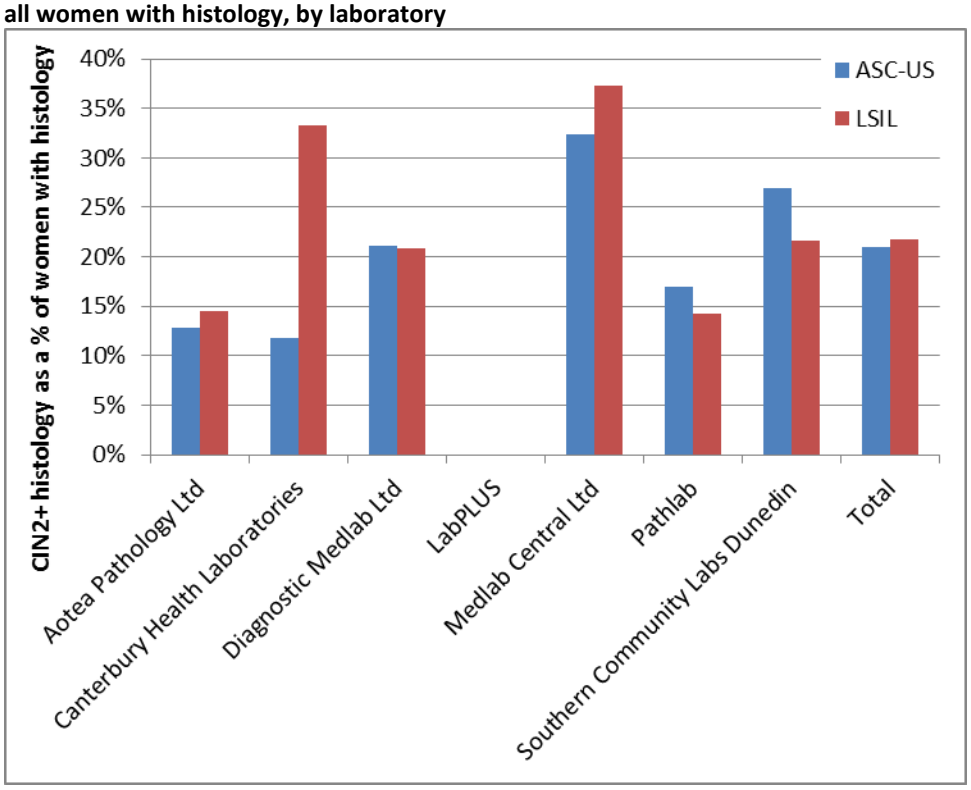
Excludes women with abnormal cytology in the five years preceding their low grade cytology sample. Additionally excludes women with any previous squamous high grade (cytology or histology)*

Table 21 - 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)											
	< 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	1	131	1	100.0	57	85.1	25	65.8	14	70.0	4	66.7	0	-
Canterbury Health Laboratories	0	77	0	-	21	52.5	14	63.6	8	66.7	1	33.3	0	-
Diagnostic Medlab Ltd	2	520	2	100.0	152	69.1	93	52.5	47	49.5	16	57.1	0	-
LabPLUS	2	27	1	50.0	5	41.7	2	20.0	2	50.0	0	-	0	-
Medlab Central Ltd	2	126	1	50.0	38	71.7	18	50.0	17	58.6	4	57.1	1	100.0
Pathlab	0	233	0	-	71	72.4	45	67.2	23	56.1	15	55.6	0	-
Southern Community Labs	2	440	2	100.0	125	64.4	75	57.7	35	42.7	20	58.8	0	-
TOTAL	**9**	**1,554**	**7**	**77.8**	**469**	**68.6**	**272**	**56.7**	**146**	**51.6**	**60**	**56.6**	**1**	**100.0**

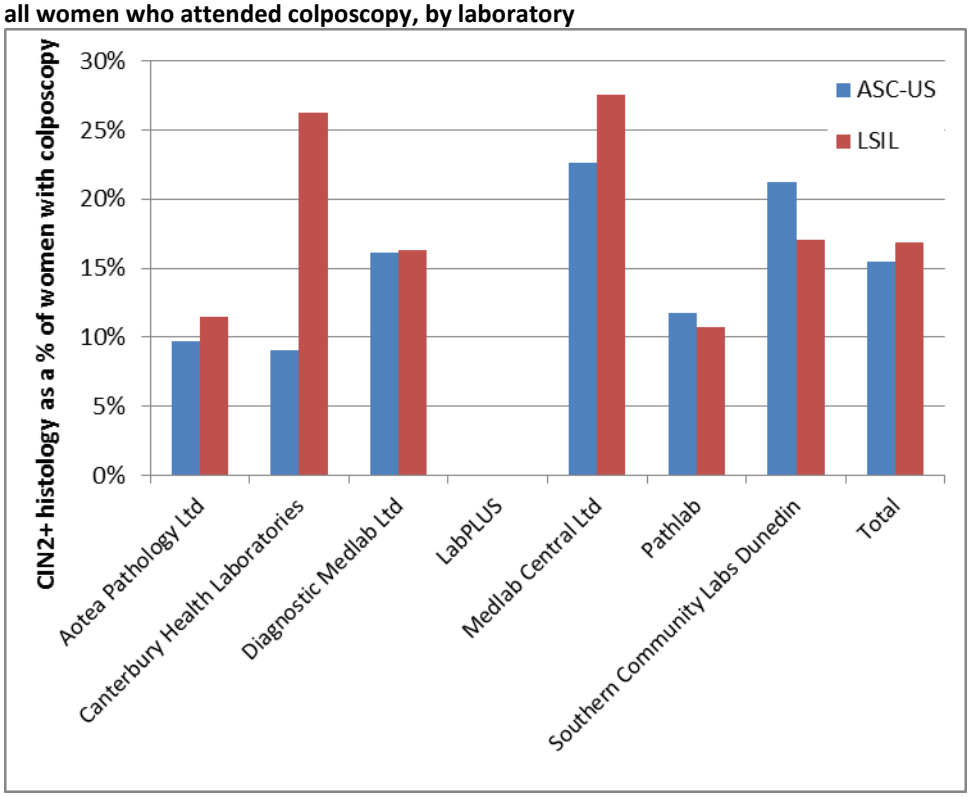
*Excludes women with abnormal cytology in the five years preceding their low grade cytology sample * Additionally excludes women with any previous squamous high grade (cytology or histology)*

Figure 73 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of all women with histology, by laboratory



There were no women with cytology samples processed by LabPLUS who had histologically-confirmed CIN2+ for this monitoring period.

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



There were no women with cytology samples processed by LabPLUS who had histologically-confirmed CIN2+ for this monitoring period.

Figure 75 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of women with histology recorded, by age

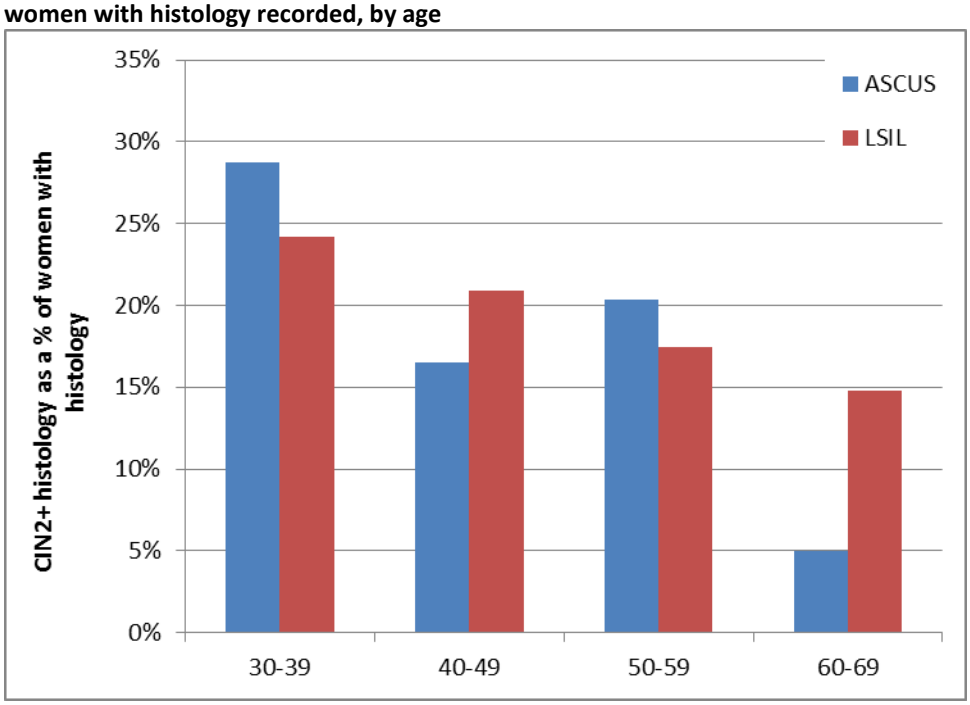
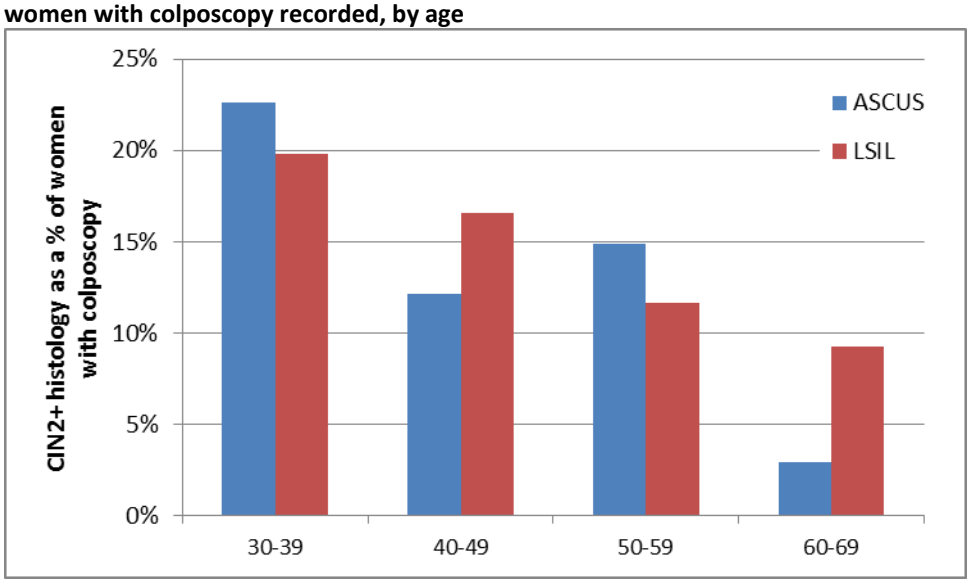


Figure 76 - Triage positive women with histologically-confirmed CIN2+ within 12 months, as a percentage of women with colposcopy recorded, by age



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 (specifically CIN2/3) 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 that are not within the NCSP guidelines. For this reason the purpose of HrHPV tests are discussed in this report.

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 19,103 samples received by laboratories for HPV testing within the current monitoring period. These are reported on further in Table 69 to Table 74.

Virtually all (98.9%) samples for HPV testing were from women aged 20-69 years. The large majority of women (86.4%) were aged 30 years or more (Figure 77, Table 73).

The number of samples received by laboratories for HPV testing ranged from 740 (LabPLUS; 3.9% of all HPV tests) to 6,209 (Southern Community Labs; 32.5% of all HPV tests) (Figure 78, Table 69).

Figure 79 and Table 69 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 6.7% (Aotea Pathology Ltd; ie fewer HPV tests processed in relation to cytology tests processed than national average) to 16.4% (Canterbury Health Laboratories; ie more HPV tests processed in relation to cytology tests processed than national average).

The proportion of HPV tests with invalid results was 0.1% (Table 70). The proportion was small for both HPV test technologies reported (Table 71).

The distribution of HPV tests by ethnicity is shown in Table 72.

Purpose of HPV tests

These HPV tests were further analysed in order to ascertain the purpose for which they were performed. Nationally, it was calculated that 2,620 (13.7%) were for post-treatment management for women treated in the past four years; 7,154 (37.4%) was for follow-up management of women with high grade squamous cytology or histology more than three years previously (historical testing); 883 (4.6%) were on samples collected at a colposcopy visit which did not fit into a previous category (possibly for resolution of discordant results); and 3,041 (15.9%) were for triage of low grade cytology in women aged 30 years or more. There were 5,405 (28.3%) HPV tests that did not fit into any of the previously described categories (Figure 80).

Further breakdowns of HPV tests by purpose are presented by age (Figure 81), laboratory (Figure 82), and ethnicity (Table 72).

There were variations in HPV test purpose by age (Figure 81, Table 73). 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. 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 in the 5-year age

groups between 30 and 54 years. Tests which did not fit into the prescribed categories, and were therefore classified as 'Other', were the most common classification among women aged 55 years and older.

HPV test purpose also varied by laboratory (Figure 82, Table 74). 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 18.7% at Canterbury Health Laboratories to 47.6% at LabPLUS. The proportion of tests performed for post-treatment management varied from 8.7% (Pathlab) to 24.4% (Canterbury Health Laboratories), while the proportion performed to follow up women with historical high grade squamous abnormalities varied from 13.5% (LabPLUS) to 45.7% (Pathlab). 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 16.3% (Canterbury Health Laboratories). The proportion of tests performed for HPV triage ranged from 9.6% (LabPLUS) to 24.0% (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 and European/ Other women. HPV triage was the most common reason among Pacific and Asian women (Table 72).

Tests in the 'Other' category were further explored. A proportion of the 'Other' tests (3.1%; 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 5.4% occurred after treatment, but did not meet the criteria for post-treatment management because they occurred within 6 months of treatment (2.0%; 106 tests), or after treatment of either a non-squamous high grade (0.9%; 50 tests) or a non-high grade (2.4%; 130 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 (8.4%; 453 tests), not high grade (0.2%; 10 tests), or the high grade squamous cytology was less than three years ago (9.3%; 503 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 (27.2%; 1,471 tests), but some suggested prior high grade histology (7.5%; 403 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 (2.1%; 116 tests), or a record suggesting a previous low grade cytology not explicitly recorded on the NCSP Register (4.4%; 238

tests). After this exploration, there remained 1,751 tests (32.4% of "Other" tests; 9.2% 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 thatwere taken at colposcopy came from public facilities (699 tests; 93.6%) than from private facilities (48 tests; 6.4%). The proportion of HPV tests taken at colposcopy in public clinics was greater than the proportion of colposcopies performed in public clinics (88.8%; Table 75). 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 or across private colposcopy clinics, 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 0.2% (Hawke's Bay) to 31.0% (Lakes), and was 5.8% overall across all public DHB clinics (Figure 83, Table 75). In private practice, this rate was 3.2%. No HPV tests were taken at colposcopy in Captal & Coast, Hutt Valley, Tairawhiti, Taranaki, Wairarapa, West Coast or Whanganui.

Trends

More samples were received at laboratories for HPV testing in the current monitoring period (19,103) than in the previous monitoring report (18,601; an increase of 2.7%). This was not consistent across all test purpose categories however – there was a larger increase in tests performed for post-treatment management (14.4%), in tests for triage of low grade cytology (7.3%), and historical testing (3.8%), while the number of tests which did not fit into the prescribed categories dropped by 5.1%.

The number of samples received by Pathlab for HPV testing in the current report period increased by 36.1% (from 2,013 to 2,739) compared with the previous report period. The number received by LabPLUS decreased by 13.2% (from 853 to 740 tests). The number of samples received by the remaining laboratories varied by less than three percent from the number received in the previous period.

Variations in the purpose of the HPV test by age and ethnicity were broadly similar to that in previous 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 79, Table 69). Other reasons for variations in 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 (34.7%) is similar to that in the previous report (34.1%), and the number of tests in this category has fallen since the previous report (from 1,943 to 1,874). A reduction in the number and proportion of tests performed for historical testing had been seen over several monitoring periods prior to the current one, which 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.

Figure 77 - Volume of HPV test samples received by laboratories during the monitoring period, by age

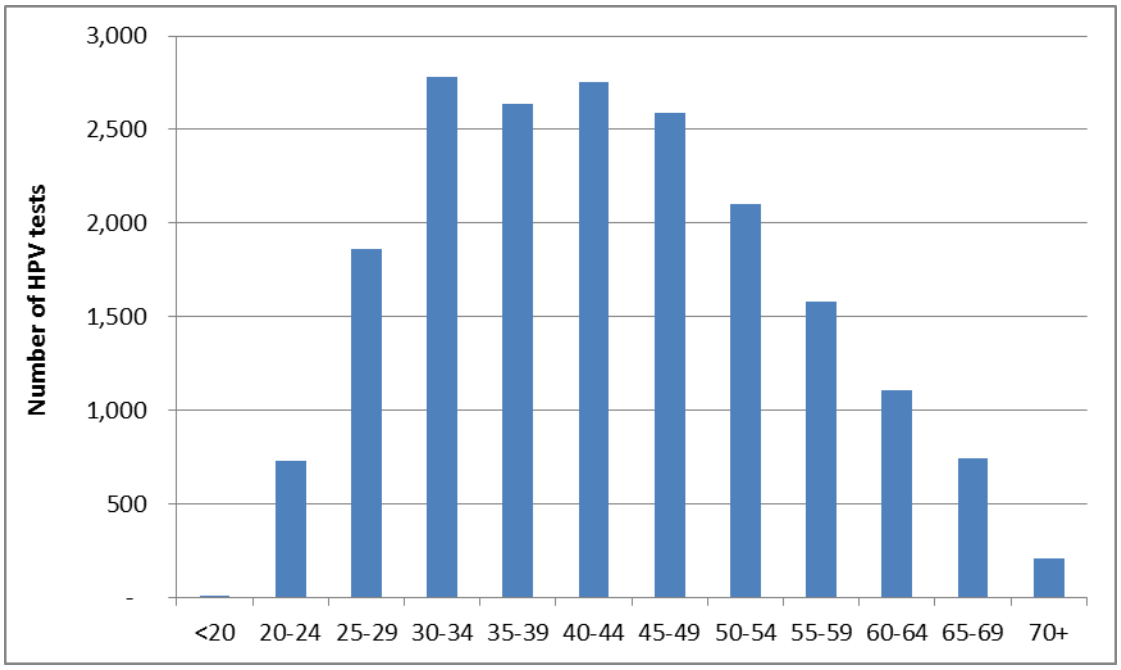


Figure 78 - Volume of HPV test samples received by laboratories during the monitoring period, by laboratory

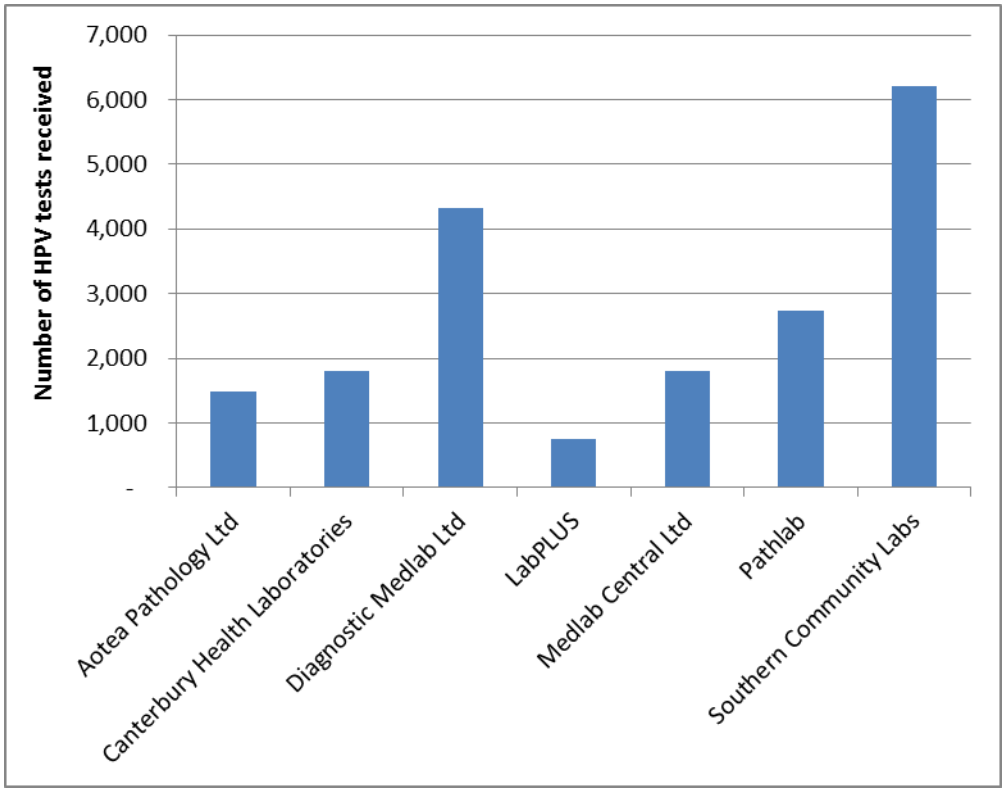
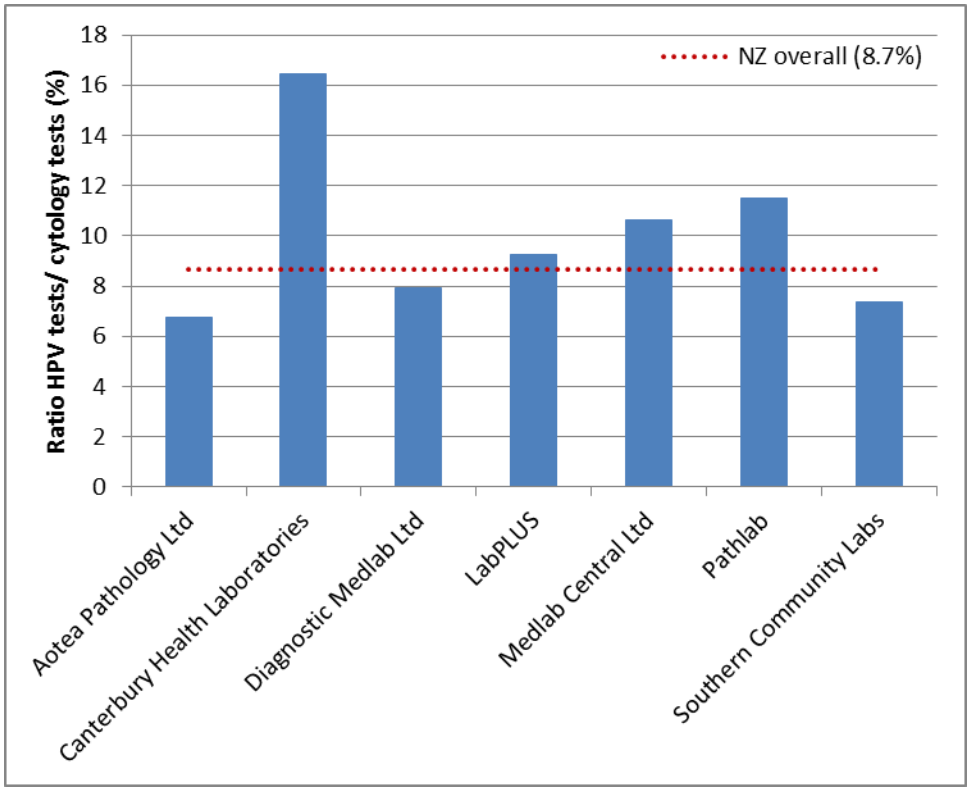


Figure 79 –HPV test samples as a percentage of cytology test samples received during the monitoring period, by laboratory



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

Figure 80 - Volume of HPV test samples received during the monitoring period, by purpose

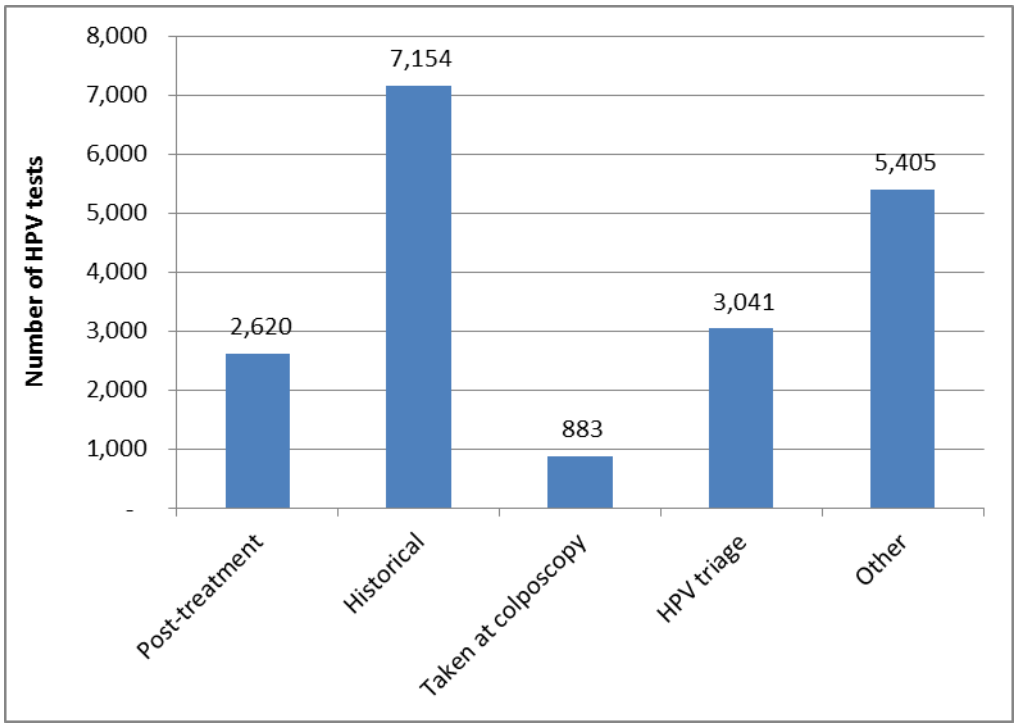


Figure 81- HPV test samples received during the monitoring period, by purpose and age

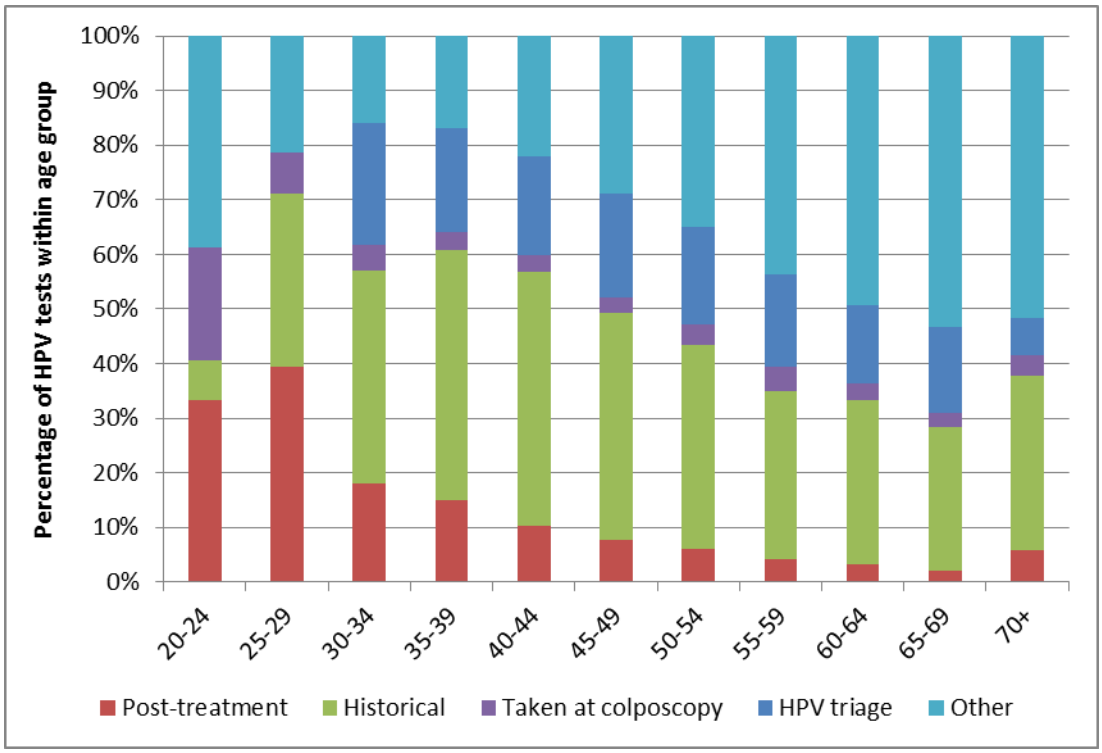


Figure 82- HPV test samples received during the monitoring period, by purpose and laboratory

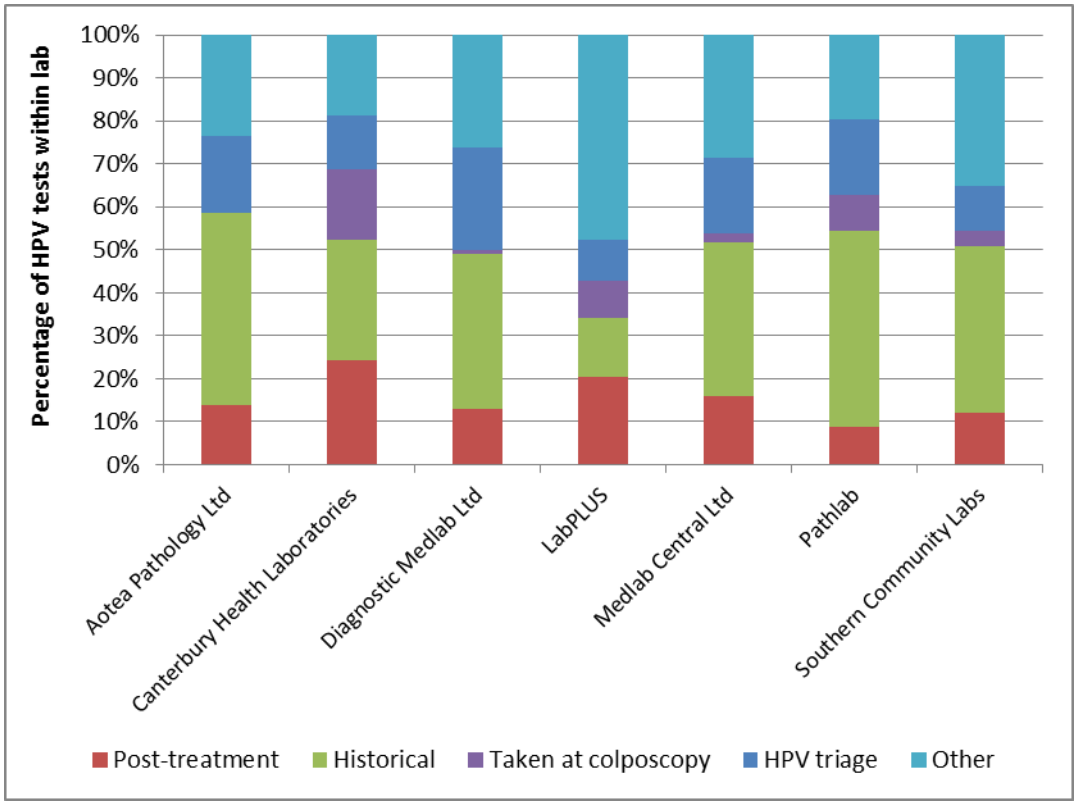
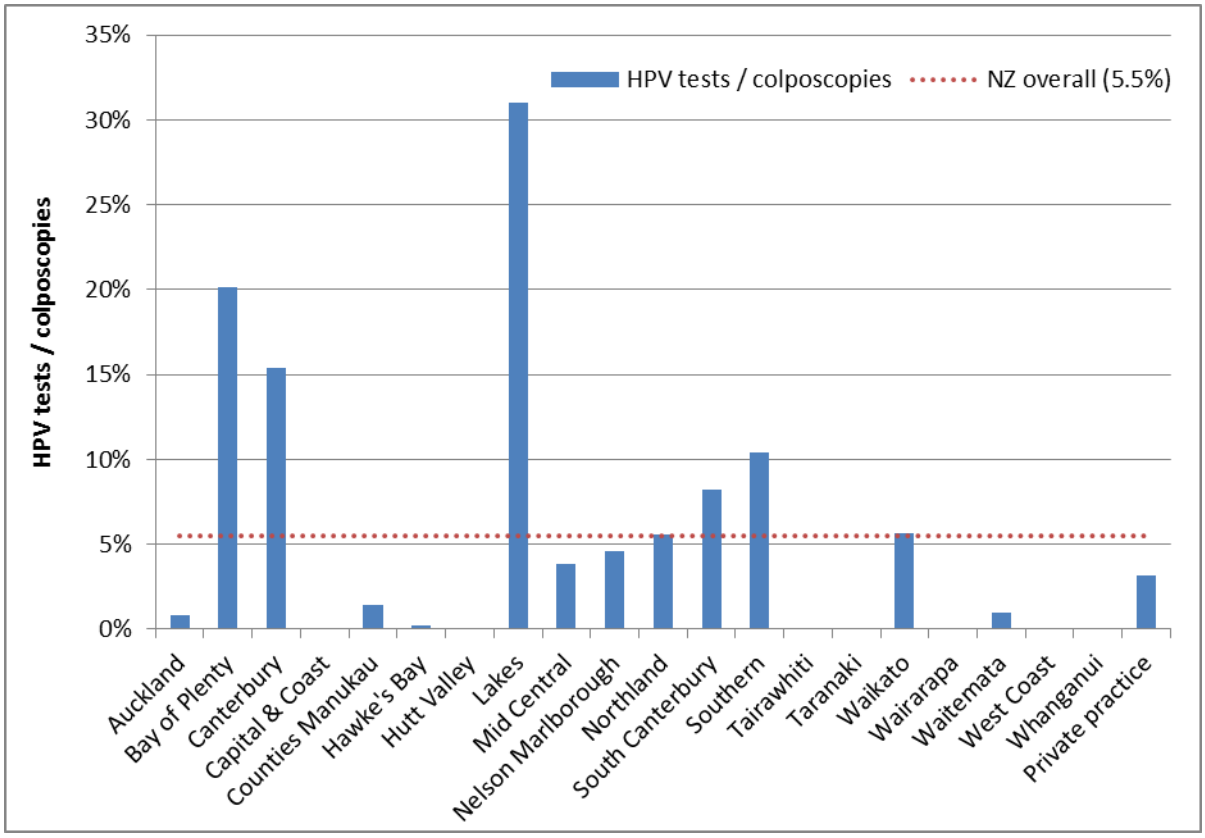


Figure 83- HPV test samples collected at colposcopy, in relation to total colposcopies performed in the period, by DHB



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 Capital & Coast, Hutt Valley, 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 (ASC-H, HSIL, CIN2/3) 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)*

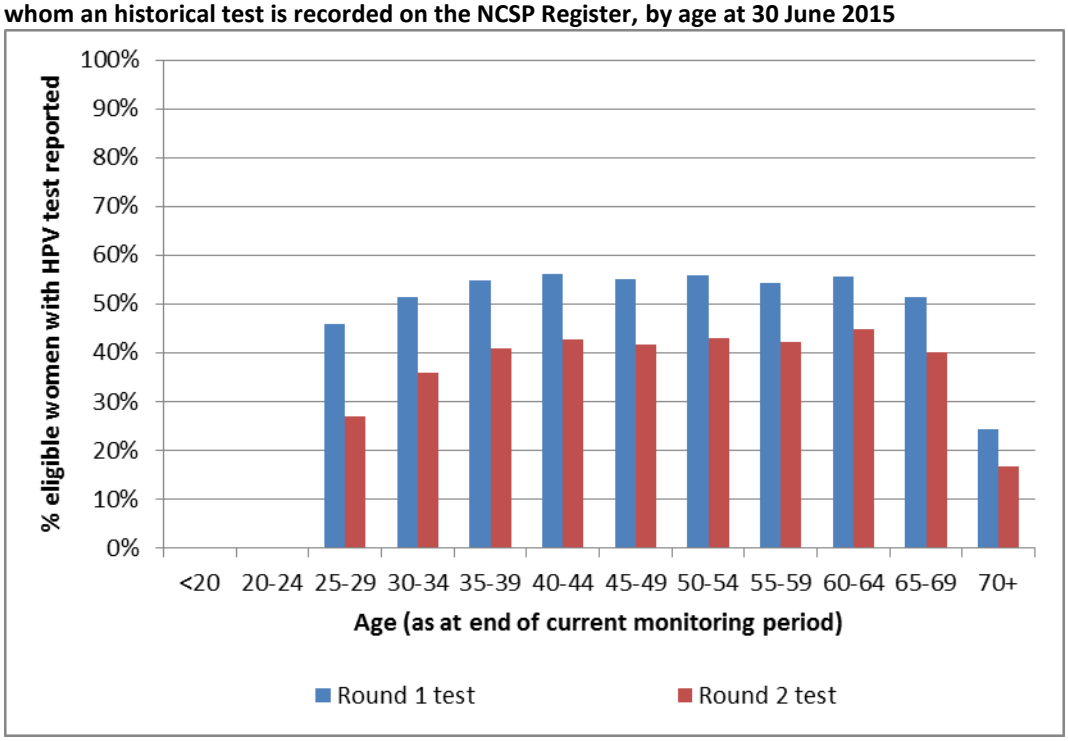
HPV tests in these women from 1 October 2009 were retrieved. HPV tests which appeared to have been carried out for other recommended uses of HPV testing (such as HPV triage of low grade cytology; HPV tests taken at

	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. Measures reported by age are based on the age of the women at the end of the current monitoring period (30 June 2015). 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*** There were 50,509 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, 49,720 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 was one woman eligible for historical testing who were aged less than 25 years at the end of the current monitoring period; however this is not unexpected, as these women would generally have been less than 20 years old on 1 October 2009 (Table 76). ***HPV tests performed for historical reasons*** Overall, 26,744 (53.8%) of the women eligible for historical testing have a Round 1 historical test recorded on the NCSP Register. There were 20,211 women who also have a Round 2 historical test (40.6% of eligible women; 75.6% of those with a Round 1 test). The proportion of women with historical tests varied by age. Among women aged at least 25 years at the end of the current monitoring period, the proportion of eligible women with a historical test varied from 45.8% (25-29 years) to 56.2% (40-44 years) for Round 1 tests, and from 26.9% (25-29 years) to 44.9% (60-64 years) for Round 2 tests (Figure 84, Table 76). The proportion of eligible women with historical tests also varied by DHB, from 34.2% (Auckland) to 75.1% (Nelson Marlborough) for Round 1 tests, and from 22.3% (Counties Manukau) to 64.7% (Nelson Marlborough) for Round 2 tests (Figure 85, Table 77). 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 89). The proportion of eligible women with Round 1 historical tests ranged from 33.8% in Pacific women to 56.2% in European/ Other women (Figure 86, Table 78). For Round 2 tests, this proportion ranged from 23.1% in Pacific women to 43.4% 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 87) or by ethnicity (Figure 88).
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 monitoring period and are no longer included in this age group.
Comments	This indicator is still under development. 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 broadly corresponds to the period since 1 October 2009 and the time of the data download from NCSP Register used within this report (October 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 was intended that future monitoring reports would also incorporate reporting on the use of hrHPV tests for the purpose of post-treatment management as a separate sub-indicator within Indicator 8; however development of additional indicators has been suspended prior to the program's planned transition to primary HPV screening, as indicators will be reviewed as part of the transition process.

Figure 84 - 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 30 June 2015



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

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 DHB

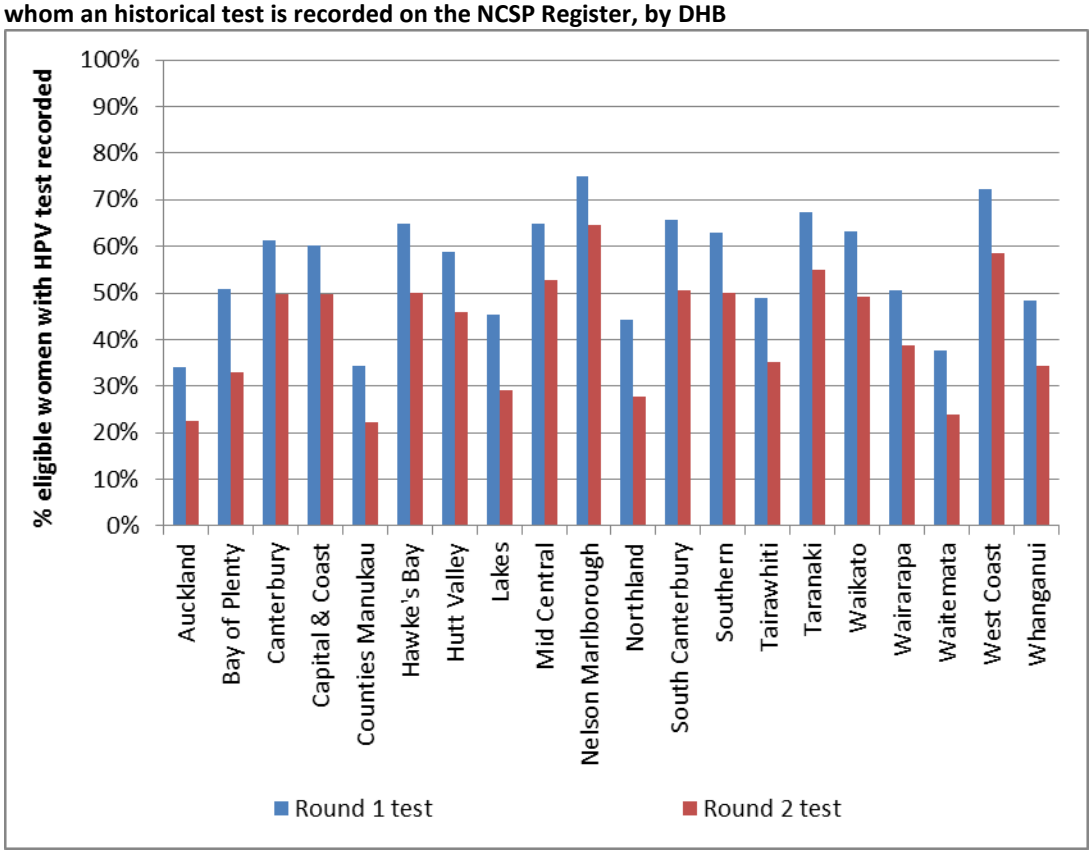


Figure 86 - Proportion of eligible women with squamous high grade abnormality more than 3 years ago for whom an historical test is recorded on the NCSP Register, by ethnicity

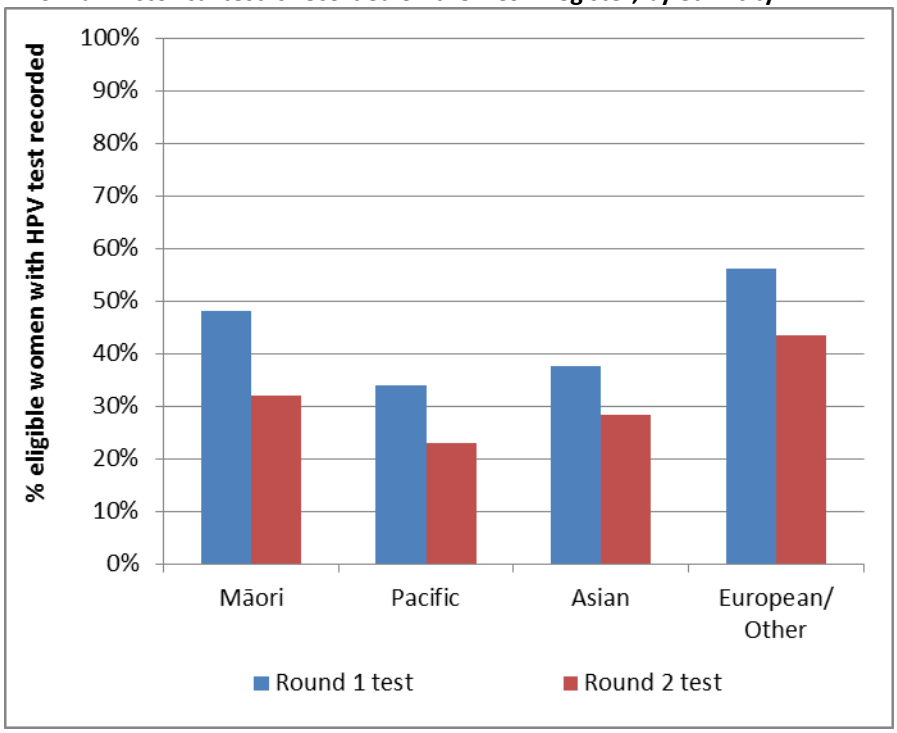
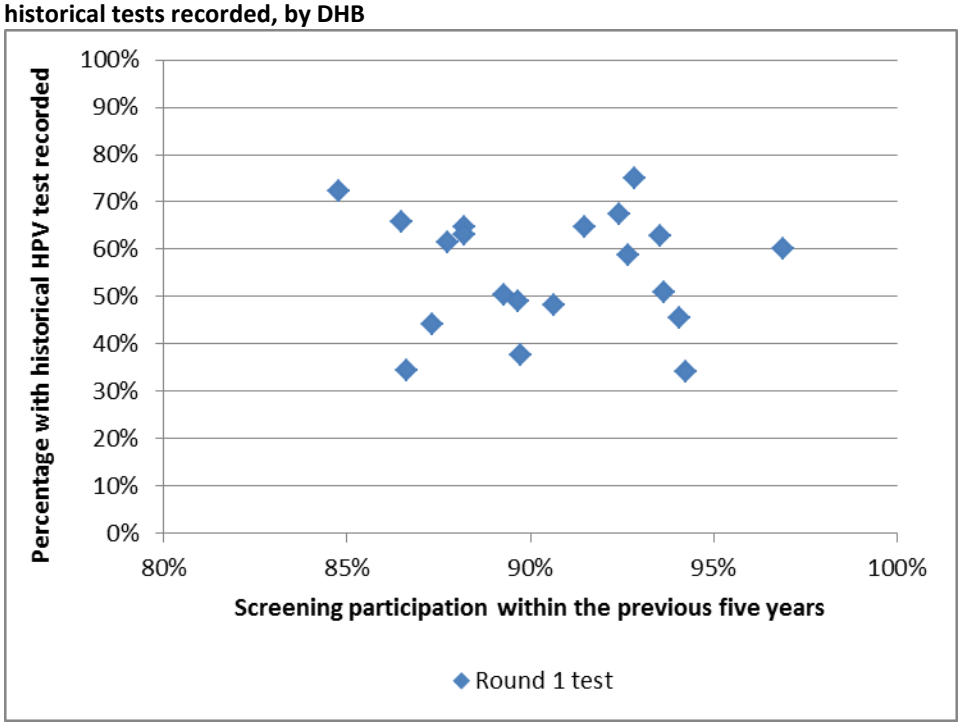
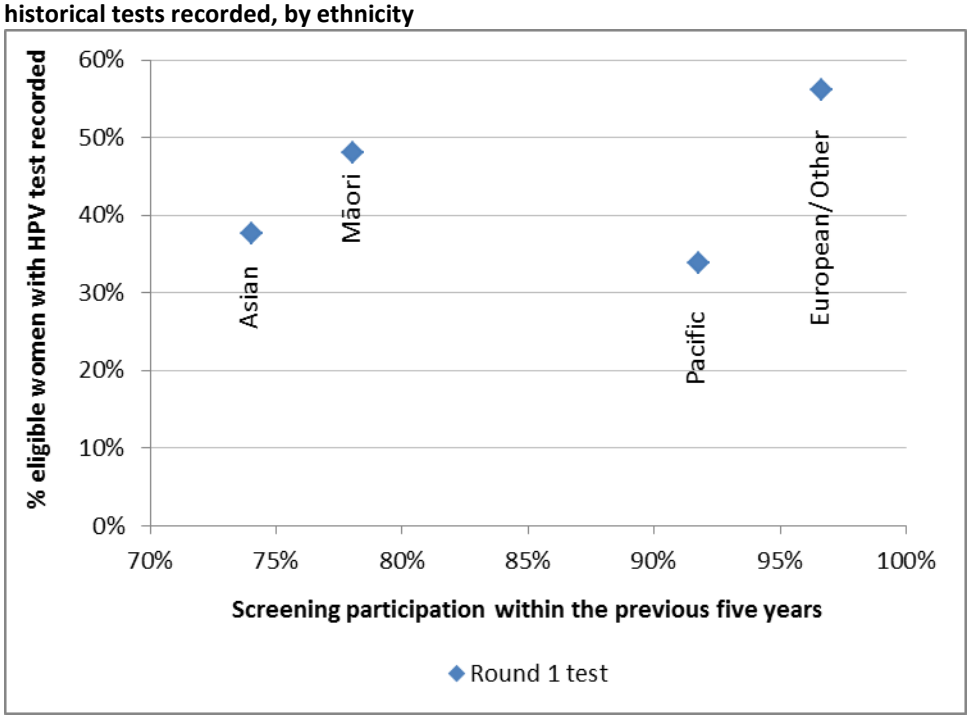


Figure 87 – Relationship between women screened in the previous five years and proportion of women with historical tests recorded, by DHB



Each dot represents a DHB.

Figure 88 - 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 22 - Coverage by DHB (women 25-69 years screened in the three years prior to 30 June 2015, hysterectomy adjusted)

DHB	Hysterectomy adjusted population	Women screened in the the last 3 years	
		N	%
Auckland	131,073	103,702	79.1
Bay of Plenty	55,277	43,942	79.5
Canterbury	134,170	100,005	74.5
Capital & Coast	79,514	63,976	80.5
Counties Manukau	130,991	94,916	72.5
Hawke's Bay	39,968	30,537	76.4
Hutt Valley	37,741	29,301	77.6
Lakes	26,184	20,378	77.8
Mid Central	41,951	31,299	74.6
Nelson Marlborough	37,815	30,481	80.6
Northland	41,401	29,760	71.9
South Canterbury	14,699	11,059	75.2
Southern	77,536	61,691	79.6
Tairawhiti	11,684	8,413	72.0
Taranaki	29,697	23,604	79.5
Waikato	96,367	71,967	74.7
Wairarapa	10,929	8,179	74.8
Waitemata	151,635	115,752	76.3
West Coast	8,646	6,357	73.5
Whanganui	15,119	11,448	75.7
Total	**1,172,397**	**896,767**	**76.5**

Excludes 14 women for whom DHB could not be determined

Table 23 - Coverage by ethnicity (women 25-69 years screened in the three years prior to 30 June 2015, hysterectomy adjusted)

Ethnicity	Hysterectomy adjusted population (ages 25-69 years)	Women screened in the the last 3 years (ages 25-69 years)	
		N	%
Māori	154,760	96,217	62.2
Pacific	65,230	47,637	73.0
Asian	167,697	106,485	63.5
European/Other	784,710	646,442	82.4
Total	**1,172,397**	**896,781**	**76.5**

Table 24 - Coverage by age (women 20-69 years screened in the three years prior to 30 June 2015, hysterectomy adjusted)

Age	Hysterectomy adjusted population	Women screened in the the last 3 years	
		N	%
20-24	160,620	84,663	52.7
25-29	155,182	102,477	66.0
30-34	145,343	104,696	72.0
35-39	137,234	105,268	76.7
40-44	151,348	120,053	79.3
45-49	146,074	117,998	80.8
50-54	141,187	114,059	80.8
55-59	118,756	95,753	80.6
60-64	95,924	75,834	79.1
65-69	81,349	60,643	74.5
20-69	**1,333,017**	**981,444**	**73.6**

Table 25 - Coverage by DHB (women aged 25-69 years screened in the five years prior to 30 June 2015, hysterectomy adjusted)

DHB	Hysterectomy adjusted population	Women screened in the the last 5 years	
		N	%
Auckland	131,073	123,535	94.2
Bay of Plenty	55,277	51,755	93.6
Canterbury	134,170	117,746	87.8
Capital & Coast	79,514	77,044	96.9
Counties Manukau	130,991	113,476	86.6
Hawke's Bay	39,968	36,555	91.5
Hutt Valley	37,741	34,969	92.7
Lakes	26,184	24,626	94.0
Mid Central	41,951	36,999	88.2
Nelson Marlborough	37,815	35,104	92.8
Northland	41,401	36,147	87.3
South Canterbury	14,699	12,714	86.5
Southern	77,536	72,531	93.5
Tairawhiti	11,684	10,477	89.7
Taranaki	29,697	27,441	92.4
Waikato	96,367	84,997	88.2
Wairarapa	10,929	9,758	89.3
Waitemata	151,635	136,064	89.7
West Coast	8,646	7,331	84.8
Whanganui	15,119	13,705	90.6
Total	**1,172,397**	**1,062,974**	**90.7**

Excludes 24 women for whom DHB could not be determined

Table 26 - Coverage by ethnicity – women aged 25-69 years screened in the five years prior to 30 June 2015, hysterectomy adjusted

Ethnicity	Hysterectomy adjusted population	Women screened in the the last 5 years	
		N	%
Māori	154,760	120,787	78.0
Pacific	65,230	59,841	91.7
Asian	167,697	124,131	74.0
European/Other	784,710	758,239	96.6
TOTAL	**1,172,397**	**1,062,998**	**90.7**

Table 27 - Women aged 25-69 years screened in the five years prior to 30 June 2015, by ethnicity and DHB (hysterectomy adjusted)

	Maori		Pacific		Asian		European/Other	
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Auckland	6,722	71.1	12,490	102.2	31,795	77.9	72,528	105.7
Bay of Plenty	9,594	79.4	587	75.4	2,408	70.4	39,166	100.4
Canterbury	6,027	65.5	2,351	90.2	9,001	69.6	100,367	91.7
Capital & Coast	5,963	78.3	4,342	85.8	8,757	77.8	57,982	104.3
Counties Manukau	14,209	79.6	22,804	93.1	25,506	73.2	50,957	94.7
Hawke's Bay	8,041	91.5	1,049	91.1	1,317	74.9	26,148	92.5
Hutt Valley	4,611	85.6	2,330	90.0	3,745	86.2	24,283	95.5
Lakes	7,095	87.9	462	87.0	1,283	66.2	15,786	100.9
Mid Central	5,607	82.0	831	85.9	2,135	69.5	28,426	91.5
Nelson Marlborough	2,558	81.2	356	79.5	1,140	69.1	31,050	95.3
Northland	10,043	80.5	427	63.4	1,061	64.5	24,616	92.5
South Canterbury	537	56.3	101	100.0	371	67.9	11,705	89.4
Southern	4,203	68.4	1,000	91.5	2,746	63.8	64,582	97.9
Tairawhiti	4,594	86.8	182	73.4	239	69.7	5,462	94.2
Taranaki	3,429	78.4	213	77.7	856	64.1	22,943	96.7
Waikato	14,119	74.9	1,904	81.0	6,149	71.4	62,825	94.4
Wairarapa	1,338	86.7	155	94.5	228	70.6	8,037	90.3
Waitemata	8,464	68.6	7,976	87.7	24,829	73.5	94,795	98.3
West Coast	622	72.9	57	77.0	195	58.6	6,457	87.4
Whanganui	3,000	86.2	222	71.6	369	79.9	10,114	93.1
NZ OVERALL		**78.0**		**91.7**		**74.0**		**96.6**

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

Table 28 - Coverage by age (women 20-69 years screened in the five years prior to 30 June 2015, hysterectomy adjusted)

Age	Hysterectomy adjusted population	Women screened in the the last 5 years	
		N	%
20-24	160,620	90,650	56.4
25-29	155,182	126,539	81.5
30-34	145,343	127,246	87.5
35-39	137,234	126,228	92.0
40-44	151,348	141,969	93.8
45-49	146,074	139,077	95.2
50-54	141,187	133,623	94.6
55-59	118,756	110,932	93.4
60-64	95,924	87,114	90.8
65-69	81,349	70,270	86.4
20-69	**1,333,017**	**1,153,648**	**86.5**

Table 29 - Women under 20 years of age, and aged 15-19 years, screened in the three years prior to 30 June 2015, by DHB.

DHB	Number of women screened in last 3 years		% of population aged 15-19 years screened
	aged 10-20 years	aged 15-19 years	
Auckland	710	710	4.6
Bay of Plenty	334	332	4.9
Canterbury	1,311	1,309	7.8
Capital & Coast	580	578	5.4
Counties Manukau	694	692	3.5
Hawke's Bay	285	284	5.3
Hutt Valley	208	208	4.4
Lakes	138	137	3.9
Mid Central	307	307	5.0
Nelson Marlborough	252	251	6.2
Northland	152	151	2.8
South Canterbury	108	107	6.1
Southern	693	692	6.0
Tairawhiti	55	55	3.3
Taranaki	200	197	5.5
Waikato	513	512	3.8
Wairarapa	71	70	5.4
Waitemata	1,105	1,104	5.7
West Coast	61	61	7.1
Whanganui	82	82	4.2
Unspecified	-	-	-
Total	**7,859**	**7,839**	**5.1**

Table 30 – Women screened under 20 years of age, as a proportion of all women screened in the three years to 30 June 2015, 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	710	114,898	0.6
Bay of Plenty	334	49,058	0.7
Canterbury	1,311	113,124	1.2
Capital & Coast	580	73,130	0.8
Counties Manukau	694	105,312	0.7
Hawke's Bay	285	34,099	0.8
Hutt Valley	208	32,631	0.6
Lakes	138	22,633	0.6
Mid Central	307	35,716	0.9
Nelson Marlborough	252	33,539	0.8
Northland	152	32,970	0.5
South Canterbury	108	12,345	0.9
Southern	693	70,820	1.0
Tairawhiti	55	9,450	0.6
Taranaki	200	26,359	0.8
Waikato	513	81,708	0.6
Wairarapa	71	9,154	0.8
Waitemata	1,105	128,537	0.9
West Coast	61	7,121	0.9
Whanganui	82	12,816	0.6
Unspecified	-	-	-
Total	**7,859**	**1,005,420**	**0.8**

Table 31 – Women screened under 20 years of age, and women aged 18-19 years when they were screened, in the three years to 30 June 2015, by DHB

DHB	Number of women screened in last 3 years		
	aged 10-19 years	aged 18-19 years	% aged 18-19 years
Auckland	710	637	89.7
Bay of Plenty	334	296	88.6
Canterbury	1,311	1,140	87.0
Capital & Coast	580	544	93.8
Counties Manukau	694	615	88.6
Hawke's Bay	285	246	86.3
Hutt Valley	208	185	88.9
Lakes	138	121	87.7
Mid Central	307	291	94.8
Nelson Marlborough	252	225	89.3
Northland	152	133	87.5
South Canterbury	108	81	75.0
Southern	693	643	92.8
Tairawhiti	55	49	89.1
Taranaki	200	175	87.5
Waikato	513	467	91.0
Wairarapa	71	53	74.6
Waitemata	1,105	931	84.3
West Coast	61	56	91.8
Whanganui	82	78	95.1
Unspecified	-	-	-
Total	**7,859**	**6,966**	**88.6**

Table 32 - Women (25-69 years) screened in the three years to 30 June 2015, 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	79.1	71.0
Bay of Plenty	79.5	69.1
Canterbury	74.5	65.5
Capital & Coast	80.5	71.6
Counties Manukau	72.5	64.5
Hawke's Bay	76.4	66.4
Hutt Valley	77.6	68.5
Lakes	77.8	68.1
Mid Central	74.6	65.2
Nelson Marlborough	80.6	69.7
Northland	71.9	62.1
South Canterbury	75.2	65.1
Southern	79.6	69.7
Tairawhiti	72.0	63.2
Taranaki	79.5	69.6
Waikato	74.7	65.6
Wairarapa	74.8	64.6
Waitemata	76.3	67.6
West Coast	73.5	64.1
Whanganui	75.7	65.7

Table 33 - 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 31 Dec 2013	To 30 Jun 2014	To 31 Dec 2014	To 30 Jun 2015
Auckland	76.2%	74.6%	78.8%	79.1%
Bay of Plenty	78.7%	78.1%	78.9%	79.5%
Canterbury	73.9%	74.1%	75.2%	74.5%
Capital & Coast	79.3%	78.2%	81.4%	80.5%
Counties Manukau	69.5%	69.4%	71.5%	72.5%
Hawke's Bay	81.4%	80.1%	77.0%	76.4%
Hutt Valley	78.0%	78.4%	77.8%	77.6%
Lakes	78.5%	78.2%	78.0%	77.8%
Mid Central	75.4%	74.2%	74.8%	74.6%
Nelson Marlborough	81.7%	81.2%	80.2%	80.6%
Northland	75.1%	74.0%	72.5%	71.9%
South Canterbury	77.6%	78.7%	75.6%	75.2%
Southern	79.8%	79.4%	79.3%	79.6%
Tairawhiti	77.0%	74.3%	72.5%	72.0%
Taranaki	86.6%	86.0%	80.2%	79.5%
Waikato	77.0%	76.7%	74.4%	74.7%
Wairarapa	82.5%	82.1%	75.2%	74.8%
Waitemata	75.5%	75.6%	76.2%	76.3%
West Coast	77.5%	78.6%	74.9%	73.5%
Whanganui	75.3%	74.6%	74.9%	75.7%
Total	**76.4%**	**76.0%**	**76.5%**	**76.5%**

Coverage calculated using population projection at the date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.

Table 34 - 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 31 Dec 2013	To 30 Jun 2014	To 31 Dec 2014	To 30 Jun 2015
20-24	54.1%	53.6%	53.8%	52.7%
25-29	66.2%	65.9%	66.8%	66.0%
30-34	69.7%	69.0%	72.3%	72.0%
35-39	76.9%	76.2%	76.7%	76.7%
40-44	80.2%	79.8%	79.2%	79.3%
45-49	81.4%	80.8%	80.7%	80.8%
50-54	81.4%	80.7%	80.9%	80.8%
55-59	80.9%	80.2%	80.0%	80.6%
60-64	79.0%	78.9%	78.5%	79.1%
65-69	73.5%	73.8%	74.0%	74.5%

Coverage calculated using population projection at the date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.

Table 35 - 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 31 Dec 2013	To 30 Jun 2014	To 31 Dec 2014	To 30 Jun 2015
Māori	62.6%	62.3%	61.7%	62.2%
Pacific	68.6%	69.0%	72.1%	73.0%
Asian	64.8%	65.1%	62.6%	63.5%
European/ Other	81.9%	81.2%	82.7%	82.4%
Total	**76.4%**	**76.0%**	**76.5%**	**76.5%**

Coverage calculated using population projection at the date shown based on 2013 Census data for 31 Dec 2014 and 30 Jun 2015, and 2006 Census data for 31 Dec 2013 and 30 Jun 2014.

Indicator 2 – First screening events

Table 36 - Age distribution of first screening events for period 1 January - 30 June 2015

Age	Women with first events	% of first events (ages 20-69 yrs) which occurred in that age group
20-24	11,086	47.2
25-29	3,986	17.0
30-34	2,872	12.2
35-39	1,575	6.7
40-44	1,110	4.7
45-49	742	3.2
50-54	607	2.6
55-59	636	2.7
60-64	521	2.2
65-69	376	1.6
20-69 yrs	**23,511**	***100.0***

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

Table 37 - Women (aged 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 January - 30 June 2015

DHB	Women with first events	As a proportion of women with a screening event		As a proportion of eligible population	
		N	%	N	%
Auckland	3,885	27,520	14.1	153,895	2.5
Bay of Plenty	836	10,719	7.8	61,048	1.4
Canterbury	2,563	24,149	10.6	151,900	1.7
Capital & Coast	2,011	15,451	13.0	93,387	2.2
Counties Manukau	3,001	24,030	12.5	150,614	2.0
Hawke's Bay	535	6,912	7.7	44,213	1.2
Hutt Valley	597	6,514	9.2	42,117	1.4
Lakes	402	4,593	8.8	29,054	1.4
Mid Central	677	7,650	8.8	48,190	1.4
Nelson Marlborough	486	6,881	7.1	41,054	1.2
Northland	515	6,490	7.9	45,717	1.1
South Canterbury	218	2,457	8.9	16,045	1.4
Southern	1,637	14,495	11.3	90,183	1.8
Tairawhiti	169	2,062	8.2	13,084	1.3
Taranaki	435	5,304	8.2	32,851	1.3
Waikato	1,871	17,618	10.6	110,010	1.7
Wairarapa	100	1,920	5.2	12,050	0.8
Waitemata	3,264	30,109	10.8	171,208	1.9
West Coast	109	1,449	7.5	9,543	1.1
Whanganui	200	2,707	7.4	16,854	1.2
Total	**23,511**	**219,030**	**10.7**	**1,333,017**	**1.8**

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 30 June 2015 for that DHB, as a percent. Total women screened and women with first events exclude those for whom DHB could not be ascertained.

Table 38 - 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 January - 30 June 2015

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	2,513	24,597	10.2	185,225	1.4
Pacific	1,857	11,759	15.8	78,859	2.4
Asian	5,868	26,797	21.9	194,348	3.0
European/Other	13,273	155,877	8.5	874,585	1.5
Total	**23,511**	**219,030**	**10.7**	**1,333,017**	**1.8**

Note: Proportions shown are women with first screening event in an ethnicity group, divided by i) all women with a screening event within that ethnicity group (first or subsequent events) and ii) the hysterectomy-adjusted 2013 Census population projected to 30 June 2015 for that ethnicity group, as a percent.

Table 39 – Median age of women with a first screening event, by ethnicity, for period 1 January - 30 June 2015

Ethnic Group	Median Age	Mean Age
Māori	21	25.1
Pacific	25	30.2
Asian	31	35.2
European/Other	23	28.0

Indicator 3 – Withdrawal rates

Table 40 - Number of women who withdrew from the NCSP Register 1 January - 30 June 2015 by age, and proportion of women who were enrolled at the start of the monitoring period who withdrew

Age	Enrolled at start	Women withdrawn	
		N	%
<20	1,154	-	0
20-24	80,152	1	0.001
25-29	139,114	3	0.002
30-34	161,653	2	0.001
35-39	171,088	4	0.002
40-44	196,229	2	0.001
45-49	192,967	2	0.001
50-54	187,713	3	0.002
55-59	159,218	2	0.001
60-64	128,465	1	0.001
65-69	106,424	-	0.000
70+	215,408	-	0.000
Total (all ages)	**1,739,585**	**20**	**0.001**
Total (20-69)	***1,523,023***	***20***	***0.001***

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

Table 41 - Number of women (aged 20-69 years) who withdrew from the NCSP Register 1 January - 30 June 2015 by ethnicity, and proportion of women who were enrolled at the start of the monitoring period who withdrew

Ethnicity	Enrolled at start	Women withdrawn	
	N	N	%
Māori	184,341	1	0.001
Pacific	92,635	4	0.004
Asian	162,753	3	0.002
European/Other	1,083,294	12	0.001
Total	**1,523,023**	**20**	**0.001**

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

Indicator 4 – Early re-screening

Table 42 - Early re-screening by five-year age group

Age	Women recommended to return in 3 years	Women with >1 subsequent test	
		N	%
20-24	1,214	291	24.0
25-29	3,791	681	18.0
30-34	4,299	767	17.8
35-39	4,651	777	16.7
40-44	5,961	1,005	16.9
45-49	6,051	999	16.5
50-54	6,044	979	16.2
55-59	4,892	742	15.2
60-64	3,821	426	11.1
65-69	3,118	343	11.0
All ages	**43,842**	**7,010**	**16.0**

Table 43 - Early re-screening by DHB

DHB	Women recommended to return in 3 years	Women with >1 subsequent test	
		N	%
Auckland	4,683	936	20.0
Bay of Plenty	2,302	412	17.9
Canterbury	5,143	940	18.3
Capital & Coast	3,148	361	11.5
Counties Manukau	4,174	666	16.0
Hawke's Bay	1,826	230	12.6
Hutt Valley	1,463	154	10.5
Lakes	1,042	185	17.8
Mid Central	1,453	146	10.0
Nelson			
Marlborough	1,586	200	12.6
Northland	1,499	194	12.9
South Canterbury	550	100	18.2
Southern	3,191	456	14.3
Tairawhiti	424	45	10.6
Taranaki	1,204	136	11.3
Waikato	3,507	439	12.5
Wairarapa	423	76	18.0
Waitemata	5,324	1,232	23.1
West Coast	326	46	14.1
Whanganui	573	56	9.8
Unspecified	1	-	
Total	**43,841**	**7,010**	**16.0**

Table 44 - Early re-screening by ethnicity

Ethnicity	Women recommended to return in 3 years	Women with >1 subsequent test	
		N	%
Māori	4,619	645	14.0
Pacific	2,010	249	12.4
Asian	4,518	806	17.8
European/ Other	32,695	5,310	16.2
Total	**43,842**	**7,010**	**16.0**

Indicator 5 – Laboratory indicators

Indicator 5.1 – Laboratory cytology reporting

Table 45 – 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	0.39%	0.44%
Canterbury Health Laboratories	1.17%	1.30%
Diagnostic Medlab Ltd	0.39%	0.40%
LabPLUS	3.17%	3.35%
Medlab Central Ltd	1.04%	1.11%
Pathlab	0.52%	0.55%
Southern Community Labs	0.87%	0.93%
Total	**0.82%**	**0.83%**

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

Indicator 5.2 – Accuracy of cytology predicting HSIL

Table 46 - 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	87	91.6	67	77.0	8	8.4	95
Canterbury Health Laboratories	99	94.3	91	91.9	6	5.7	105
Diagnostic Medlab Ltd	216	91.1	179	82.9	21	8.9	237
LabPLUS	176	96.7	151	85.8	6	3.3	182
Medlab Central Ltd	115	92.0	90	78.3	10	8.0	125
Pathlab	119	96.7	97	81.5	4	3.3	123
Southern Community Labs Dunedin	722	93.3	609	84.3	52	6.7	774
Total	**1,534**	**93.5**	**1,284**	**83.7**	**107**	**6.5**	**1,641**

Target: 65% - 85%

Table 47 - 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	65	83.3	39	60.0	13	16.7	78
Canterbury Health Laboratories	66	88.0	40	60.6	9	12.0	75
Diagnostic Medlab Ltd	152	83.1	66	43.4	31	16.9	183
LabPLUS	266	81.1	134	50.4	62	18.9	328
Medlab Central Ltd	82	81.2	57	69.5	19	18.8	101
Pathlab	111	86.7	54	48.6	17	13.3	128
Southern Community Labs Dunedin	105	78.9	45	42.9	28	21.1	133
Total	**847**	**82.6**	**435**	**51.4**	**179**	**17.4**	**1,026**

Table 48 - 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	152	87.9	106	69.7	21	12.1	173
Canterbury Health Laboratories	165	91.7	131	79.4	15	8.3	180
Diagnostic Medlab Ltd	368	87.6	245	66.6	52	12.4	420
LabPLUS	442	86.7	285	64.5	68	13.3	510
Medlab Central Ltd	197	87.2	147	74.6	29	12.8	226
Pathlab	230	91.6	151	65.7	21	8.4	251
Southern Community Labs Dunedin	827	91.2	654	79.1	80	8.8	907
Total	**2,381**	**89.3**	**1,719**	**72.2**	**286**	**10.7**	**2,667**

Indicator 5.5 – Laboratory turnaround time

Table 49 - Timeliness of cytology reporting by laboratory, 1 January - 30 June 2015

	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	21,006	94.9	1,120	5.1	22,126	>99.95	8	<0.05	22,134
Canterbury Health Laboratories	9,210	83.7	1,605	14.6	10,815	98.3	185	1.7	11,000
Diagnostic Medlab Ltd	51,725	94.9	2,315	4.2	54,040	99.2	441	0.8	54,481
LabPLUS	7,363	91.9	541	6.7	7,904	98.6	112	1.4	8,016
Medlab Central Ltd	15,738	93.4	611	3.6	16,349	97.1	494	2.9	16,843
Pathlab	21,334	89.5	2,184	9.2	23,518	98.7	314	1.3	23,832
Southern Community Labs Dunedin	80,282	95.5	2,838	3.4	83,120	98.9	954	1.1	84,074
Total	**206,658**	**93.8**	**11,214**	**5.1**	**217,872**	**98.9**	**2,508**	**1.1**	**220,380**

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 monitoring period. Indicator 5.1 shows the total number of cytology samples* taken *during the period.*

Table 50 - Timeliness of histology reporting by laboratory, 1 January - 30 June 2015

	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	327	96.5	5	1.5	332	97.9	7	2.1	339
Canterbury Health Laboratories	1,564	94.9	28	1.7	1,592	96.6	56	3.4	1,648
Capital & Coast District Health Board Pathology	403	71.8	117	20.9	520	92.7	41	7.3	561
Diagnostic Medlab Ltd	1,434	92.9	40	2.6	1,474	95.5	70	4.5	1,544
Hutt Hospital Laboratory	219	68.7	65	20.4	284	89.0	35	11.0	319
LabPLUS	772	82.7	61	6.5	833	89.2	101	10.8	934
Medlab Central Ltd	1,105	94.4	18	1.5	1,123	95.9	48	4.1	1,171
Memorial Hospital Hastings Lab	75	87.2	2	2.3	77	89.5	9	10.5	86
Middlemore Hospital Laboratory	914	89.2	77	7.5	991	96.7	34	3.3	1,025
Nelson Hospital Laboratory	140	97.9	1	0.7	141	98.6	2	1.4	143
North Shore Hospital Laboratory	1,262	97.5	10	0.8	1,272	98.3	22	1.7	1,294
Northland Pathology Laboratory	200	88.5	17	7.5	217	96.0	9	4.0	226
Pathlab	885	84.0	36	3.4	921	87.5	132	12.5	1,053
Southern Community Labs Dunedin	2,577	99.5	4	0.2	2,581	99.7	9	0.3	2,590
Taranaki Medlab	314	100.0	-	0.0	314	100.0	-	0.0	314
Waikato Hospital Laboratory	173	94.0	4	2.2	177	96.2	7	3.8	184
Total	**12,364**	**92.1**	**485**	**3.6**	**12,849**	**95.7**	**582**	**4.3**	**13,431**

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 monitoring period, while 5.4 includes all histology samples* taken *within the monitoring period*

Table 51 – Timeliness of reporting for cytology with associated HPV testing by laboratory, 1 January - 30 June 2015

	Laboratory turnaround time - cytology with HPV testing				
	Within 15 days		More than 15 days		Total
Laboratory	N	%	N	%	N
Aotea Pathology Ltd	281	99.6	1	0.4	282
Canterbury Health Laboratories	221	98.2	4	1.8	225
Diagnostic Medlab Ltd	1,030	99.1	9	0.9	1,039
LabPLUS	79	91.9	7	8.1	86
Medlab Central Ltd	342	97.2	10	2.8	352
Pathlab	515	98.3	9	1.7	524
Southern Community Labs Dunedin	661	99.1	6	0.9	667
Total	**3,129**	**98.6**	**46**	**1.4**	**3,175**

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

Table 52 - 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	-	-	44	83.0	50	82.0	37	75.5	21	80.8	19	76.0	10	71.4	13	72.2	5	62.5	3	27.3	4	50.0	1	50.0	207
Bay of Plenty	-	-	13	92.9	22	81.5	15	83.3	7	87.5	5	83.3	6	85.7	8	80.0	6	100.0	3	100.0	2	66.7	1	100.0	88
Canterbury	-	-	42	91.3	53	93.0	35	92.1	21	95.5	16	88.9	16	80.0	5	55.6	6	85.7	2	66.7	2	50.0	1	100.0	199
Capital & Coast	-	-	11	100.0	20	90.9	19	95.0	16	100.0	5	100.0	1	50.0	1	50.0	3	75.0	0	0.0	0	0.0	0	0.0	76
Counties Manukau	-	-	23	76.7	31	81.6	22	71.0	23	82.1	12	100.0	15	93.8	9	75.0	8	88.9	5	100.0	3	37.5	5	83.3	156
Hawke's Bay	0	0.0	14	100.0	12	63.2	10	76.9	5	71.4	6	75.0	2	66.7	4	66.7	5	71.4	1	50.0	2	40.0	-	-	61
Hutt Valley	-	-	6	75.0	10	76.9	11	91.7	4	100.0	3	100.0	2	100.0	3	50.0	1	100.0	-	-	1	100.0	0	0.0	41
Lakes	-	-	5	55.6	16	84.2	4	57.1	5	71.4	1	100.0	4	100.0	1	50.0	-	-	2	66.7	1	50.0	0	0.0	39
Mid Central	1	100.0	17	81.0	17	77.3	12	85.7	10	100.0	4	80.0	4	66.7	2	50.0	1	33.3	2	100.0	1	50.0	1	100.0	72
Nelson Marlborough	1	100.0	7	87.5	10	83.3	9	100.0	8	88.9	6	100.0	7	100.0	2	66.7	1	33.3	0	0.0	1	50.0	0	0.0	52
Northland	-	-	10	76.9	10	76.9	9	64.3	4	80.0	6	100.0	5	83.3	4	80.0	4	100.0	2	66.7	1	50.0	0	0.0	55
South Canterbury	-	-	8	100.0	3	75.0	3	100.0	3	100.0	5	100.0	-	-	1	50.0	-	-	0	0.0	-	-	0	0.0	23
Southern	1	100.0	29	82.9	25	86.2	24	92.3	16	94.1	7	87.5	4	100.0	7	77.8	3	50.0	2	100.0	1	50.0	1	50.0	120
Tairawhiti	-	-	1	100.0	3	100.0	2	66.7	-	-	1	100.0	-	-	-	-	0	0.0	2	100.0	-	-	-	-	9
Taranaki	-	-	10	83.3	14	73.7	3	75.0	8	80.0	4	80.0	1	100.0	3	75.0	4	80.0	1	100.0	0	0.0	1	100.0	49
Waikato	-	-	19	76.0	46	92.0	21	80.8	16	100.0	15	93.8	7	63.6	3	42.9	7	77.8	5	83.3	0	0.0	-	-	139
Wairarapa	-	-	4	80.0	2	100.0	-	-	1	100.0	1	100.0	-	-	1	100.0	1	100.0	1	100.0	1	100.0	1	100.0	13
Waitemata	1	100.0	31	88.6	53	89.8	34	85.0	20	87.0	14	82.4	15	93.8	4	80.0	8	80.0	4	100.0	1	50.0	7	70.0	192
West Coast	-	-	3	75.0	3	100.0	1	100.0	1	33.3	-	-	1	50.0	-	-	1	100.0	2	100.0	-	-	-	-	12
Whanganui	-	-	3	50.0	4	66.7	5	100.0	2	100.0	2	66.7	2	100.0	0	0.0	3	75.0	1	50.0	-	-	-	-	22
Total	**4**	**80.0**	**300**	**83.8**	**404**	**84.5**	**276**	**82.9**	**191**	**88.0**	**132**	**87.4**	**102**	**82.9**	**71**	**66.4**	**67**	**75.3**	**38**	**67.9**	**21**	**45.7**	**19**	**57.6**	**1,625**

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

Table 53 - 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	-	-	49	92.5	57	93.4	44	89.8	24	92.3	20	80.0	10	71.4	14	77.8	7	87.5	5	45.5	5	62.5	1	50.0	236
Bay of Plenty	-	-	13	92.9	22	81.5	15	83.3	7	87.5	6	100.0	6	85.7	8	80.0	6	100.0	3	100.0	3	100.0	1	100.0	90
Canterbury	-	-	44	95.7	54	94.7	35	92.1	22	100.0	18	100.0	17	85.0	5	55.6	6	85.7	2	66.7	2	50.0	1	100.0	206
Capital & Coast	-	-	11	100.0	21	95.5	19	95.0	16	100.0	5	100.0	2	100.0	2	100.0	3	75.0	1	50.0	1	100.0	0	0.0	81
Counties Manukau	-	-	25	83.3	32	84.2	27	87.1	25	89.3	12	100.0	16	100.0	10	83.3	9	100.0	5	100.0	4	50.0	5	83.3	170
Hawke's Bay	0	0.0	14	100.0	16	84.2	11	84.6	5	71.4	7	87.5	3	100.0	4	66.7	5	71.4	2	100.0	2	40.0	-	-	69
Hutt Valley	-	-	7	87.5	11	84.6	12	100.0	4	100.0	3	100.0	2	100.0	4	66.7	1	100.0	-	-	1	100.0	0	0.0	45
Lakes	-	-	7	77.8	16	84.2	6	85.7	5	71.4	1	100.0	4	100.0	2	100.0	-	-	2	66.7	1	50.0	0	0.0	44
Mid Central	1	100.0	18	85.7	21	95.5	14	100.0	10	100.0	4	80.0	5	83.3	3	75.0	1	33.3	2	100.0	1	50.0	1	100.0	81
Nelson	1	100.0	7	87.5	11	91.7	9	100.0	9	100.0	6	100.0	7	100.0	2	66.7	2	66.7	0	0.0	1	50.0	1	33.3	56
Marlborough	-	-	12	92.3	11	84.6	11	78.6	4	80.0	6	100.0	5	83.3	4	80.0	4	100.0	3	100.0	1	50.0	0	0.0	61
Northland	-	-	8	100.0	3	75.0	3	100.0	3	100.0	5	100.0	-	-	1	50.0	-	-	0	0.0	-	-	0	0.0	23
South Canterbury	1	100.0	31	88.6	25	86.2	26	100.0	16	94.1	7	87.5	4	100.0	7	77.8	3	50.0	2	100.0	1	50.0	1	50.0	124
Southern	-	-	1	100.0	3	100.0	2	66.7	-	-	1	100.0	-	-	-	-	0	0.0	2	100.0	-	-	-	-	9
Tairawhiti	-	-	10	83.3	16	84.2	3	75.0	10	100.0	4	80.0	1	100.0	3	75.0	4	80.0	1	100.0	0	0.0	1	100.0	53
Taranaki	-	-	22	88.0	49	98.0	22	84.6	16	100.0	16	100.0	9	81.8	5	71.4	7	77.8	5	83.3	1	50.0	-	-	152
Waikato	-	-	5	100.0	2	100.0	-	-	1	100.0	1	100.0	-	-	1	100.0	1	100.0	1	100.0	1	100.0	1	100.0	14
Wairarapa	-	-	32	91.4	54	91.5	35	87.5	21	91.3	15	88.2	15	93.8	4	80.0	10	100.0	4	100.0	1	50.0	7	70.0	199
Waitemata	1	100.0	4	100.0	3	100.0	1	100.0	1	33.3	-	-	2	100.0	-	-	1	100.0	2	100.0	-	-	-	-	14
West Coast	-	-	3	50.0	4	66.7	5	100.0	2	100.0	2	66.7	2	100.0	1	50.0	3	75.0	1	50.0	-	-	-	-	23
Whanganui	-	-	**323**	**90.2**	**431**	**90.2**	**300**	**90.1**	**201**	**92.6**	**139**	**92.1**	**110**	**89.4**	**80**	**74.8**	**73**	**82.0**	**43**	**76.8**	**26**	**56.5**	**20**	**60.6**	**1,750**
Total	**4**	**80.0**																							

'– ' 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 54 - 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	197	175
Bay of Plenty	80	71
Canterbury	192	177
Capital & Coast	67	63
Counties Manukau	169	160
Hawke's Bay	79	65
Hutt Valley	41	36
Lakes	48	44
Mid Central	86	82
Nelson Marlborough	59	54
Northland	70	69
South Canterbury	27	23
Southern	123	111
Tairawhiti	10	9
Taranaki	54	48
Waikato	145	134
Wairarapa	14	11
Waitemata	171	160
West Coast	16	15
Whanganui	34	34
Private practice	314	211
Total	**1,996**	**1,752**

Table 55 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 40 working days, by ethnicity

Ethnicity	HG women	Referrals received	Women seen within 20 working days		Women seen within 40 working days	
	N	N	N	%	N	%
Māori	306	286	169	59.1	241	84.3
Pacific	107	95	63	66.3	82	86.3
Asian	160	148	110	74.3	130	87.8
European/Other	1,347	1,185	849	71.6	1,099	92.7
Total	**1,920**	**1,714**	**1,191**	**69.5**	**1,552**	**90.5**

Table 56 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 40 working days, by DHB

DHB	HG women	Referrals received	Women seen within 20 working days		Women seen within 40 working days	
	N	N	N	%	N	%
Public clinics overall	*1,610*	*1,505*	*1,064*	*70.7*	*1,391*	*92.4*
Auckland	181	171	121	70.8	155	90.6
Bay of Plenty	73	65	54	83.1	59	90.8
Canterbury	187	173	129	74.6	168	97.1
Capital & Coast	63	61	56	91.8	61	100.0
Counties Manukau	163	156	98	62.8	135	86.5
Hawke's Bay	76	63	51	81.0	59	93.7
Hutt Valley	40	36	33	91.7	34	94.4
Lakes	44	41	28	68.3	40	97.6
Mid Central	85	82	42	51.2	74	90.2
Nelson Marlborough	58	54	32	59.3	51	94.4
Northland	68	67	58	86.6	62	92.5
South Canterbury	26	23	20	87.0	22	95.7
Southern	121	110	63	57.3	101	91.8
Tairawhiti	8	8	6	75.0	7	87.5
Taranaki	54	48	37	77.1	45	93.8
Waikato	139	133	71	53.4	118	88.7
Wairarapa	12	10	9	90.0	10	100.0
Waitemata	163	156	122	78.2	148	94.9
West Coast	15	14	7	50.0	9	64.3
Whanganui	34	34	27	79.4	33	97.1
Private Practice	*310*	*209*	*127*	*60.8*	*161*	*77.0*
Total	**1,920**	**1,714**	**1,191**	**69.5**	**1,552**	**90.5**

Table 57 - Women with cytological suspicion of invasive disease, by cytology result subcategory

Cytology result sub-category	Total women	Women with accepted referral
	N	N
HS2	25	23
SC	8	6
AC1-5	35	6
R10, R14	8	3
Total	**76**	**38**

Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

Table 58 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by DHB

DHB	LG women	Women with subsequent referral recorded		Women with subsequent colposcopy visit recorded		Women with colposcopy subsequent to referral recorded		Women with colposcopy subsequent to referral recorded AND referral:colposcopy interval <= 26 weeks	
	N	N	%*	N	% *	N	% †	N	% †
Auckland	462	405	87.7	404	87.4	383	94.6	373	92.1
Bay of Plenty	239	204	85.4	222	92.9	197	96.6	189	92.6
Canterbury	295	269	91.2	280	94.9	264	98.1	260	96.7
Capital & Coast	223	207	92.8	211	94.6	204	98.6	199	96.1
Counties Manukau	352	315	89.5	275	78.1	253	80.3	137	43.5
Hawke's Bay	118	94	79.7	103	87.3	90	95.7	76	80.9
Hutt Valley	99	83	83.8	90	90.9	79	95.2	78	94.0
Lakes	80	73	91.3	66	82.5	65	89.0	51	69.9
Mid Central	161	156	96.9	151	93.8	148	94.9	134	85.9
Nelson Marlborough	77	69	89.6	66	85.7	62	89.9	60	87.0
Northland	58	52	89.7	52	89.7	48	92.3	43	82.7
South Canterbury	15	13	86.7	14	93.3	13	100.0	13	100.0
Southern	146	133	91.1	130	89.0	126	94.7	76	57.1
Tairawhiti	52	49	94.2	47	90.4	45	91.8	44	89.8
Taranaki	71	62	87.3	60	84.5	57	91.9	51	82.3
Waikato	315	292	92.7	271	86.0	261	89.4	246	84.2
Wairarapa	42	39	92.9	40	95.2	37	94.9	37	94.9
Waitemata	410	364	88.8	353	86.1	338	92.9	331	90.9
West Coast	33	29	87.9	33	100.0	29	100.0	29	100.0
Whanganui	79	73	92.4	70	88.6	68	93.2	67	91.8
Private practice	*811*	*393*	*48.5*	*760*	*93.7*	*342*	*87.0*	*327*	*83.2*
Total	**4,138**	**3,374**	**81.5**	**3,698**	**89.4**	**3,109**	**92.1**	**2,821**	**83.6**

*LG women = women with persistent LG/ who are LG & hrHPV positive * Percentage of women with persistent LG/ who are LG & hrHPV positive † percentage of women with a referral*

Table 59 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by ethnicity

Ethnicity	LG women	Women with subsequent referral recorded		Women with subsequent colposcopy visit recorded		Women with colposcopy subsequent to referral recorded		Women with colposcopy subsequent to referral recorded AND referral:colposcopy interval <= 26 weeks	
	N	N	%*	N	% *	N	% †	N	% †
Māori	544	490	90.1	461	84.7	428	87.3	383	78.2
Pacific	209	187	89.5	166	79.4	154	82.4	126	67.4
Asian	381	307	80.6	339	89.0	285	92.8	246	80.1
European/Other	3,004	2,390	79.6	2,732	90.9	2,242	93.8	2,066	86.4
Total	**4,138**	**3,374**	**81.5**	**3,698**	**89.4**	**3,109**	**92.1**	**2,821**	**83.6**

*LG women = women with persistent LG/ who are LG & hrHPV positive * Percentage of women with persistent LG/ who are LG & hrHPV positive † percentage of women with a referral*

Indicator 7.3 – Adequacy of documenting colposcopic assessment

Table 60 - Completion of colposcopic assessment fields, by DHB

DHB	Total colposcopies N	% of colposcopies performed where items are completed:					
		SCJ visibility[(i)]	Presence/ absence lesion[(ii)]	Opinion re abnormality grade[(iii)]	Follow-up type	Follow-up timeframe	Items i, ii, & iii complete
Public clinics overall	*12,083*	*97.0*	*100.0*	*91.6*	*99.3*	*98.8*	*92.2*
Auckland	1,078	98.1	100.0	94.0	99.4	99.0	94.4
Bay of Plenty	571	95.4	100.0	84.0	99.8	99.1	85.8
Canterbury	1,654	99.1	100.0	91.2	99.9	99.6	92.6
Capital & Coast	666	98.8	100.0	92.9	100.0	98.6	95.0
Counties Manukau	1,140	96.8	100.0	91.8	99.5	98.9	92.1
Hawke's Bay	454	86.3	100.0	85.0	94.7	94.7	79.3
Hutt Valley	315	98.4	100.0	95.3	100.0	99.7	94.9
Lakes	300	98.3	100.0	96.0	99.3	99.3	95.3
Mid Central	734	97.1	100.0	94.8	99.9	99.5	94.0
Nelson Marlborough	302	98.7	100.0	93.5	97.4	97.0	94.4
Northland	305	96.1	100.0	86.3	99.3	99.3	91.8
South Canterbury	134	100.0	100.0	93.0	100.0	99.3	97.0
Southern	768	93.9	100.0	89.4	97.9	97.5	89.2
Tairawhiti	209	99.5	100.0	90.5	100.0	100.0	93.8
Taranaki	387	96.6	100.0	89.6	97.9	97.9	91.0
Waikato	745	98.3	100.0	95.8	99.3	98.8	95.6
Wairarapa	157	98.1	100.0	96.5	100.0	100.0	96.2
Waitemata	1,862	96.4	100.0	89.4	99.7	98.8	91.2
West Coast	111	99.1	100.0	97.6	100.0	99.1	97.3
Whanganui	191	100.0	100.0	93.5	100.0	99.5	96.9
Private practice	1,520	*96.8*	*100.0*	*90.7*	*98.1*	*95.1*	*91.5*
Total	**13,603**	**97.0**	**100.0**	**91.5**	**99.2**	**98.4**	**92.1**

Table 61 – 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	*12,083*	*11,722*	*55.4*	*5.1*
Auckland	1,078	1,057	59.6	3.8
Bay of Plenty	571	545	55.0	10.5
Canterbury	1,654	1,639	67.4	6.5
Capital & Coast	666	658	49.1	3.8
Counties Manukau	1,140	1,103	52.2	4.6
Hawke's Bay	454	392	44.9	7.9
Hutt Valley	315	310	71.1	3.5
Lakes	300	295	71.7	3.0
Mid Central	734	713	59.1	3.3
Nelson Marlborough	302	298	61.9	4.3
Northland	305	293	33.1	5.2
South Canterbury	134	134	39.6	3.0
Southern	768	721	48.6	5.7
Tairawhiti	209	208	54.5	5.7
Taranaki	387	374	53.5	6.2
Waikato	745	732	61.6	2.7
Wairarapa	157	154	52.2	1.9
Waitemata	1,862	1,795	47.4	5.6
West Coast	111	110	73.9	1.8
Whanganui	191	191	45.5	3.1
Private practice	*1,520*	*1,471*	*53.8*	*5.5*
Total	**13,603**	**13,193**	**55.2**	**5.1**

** Field has been completed*

Table 62 – Biopsies by colposcopic appearance and DHB

DHB	Colposcopic appearance								
	Abnormal			Inconclusive			Normal		
	Total	Biopsy taken		Total	Biopsy taken		Total	Biopsy taken	
	N	N	%	N	N	%	N	N	%
Public clinics overall	*6,697*	*5,255*	*78.5*	*615*	*178*	*28.9*	*4,771*	*832*	*17.4*
Auckland	642	456	71.0	41	14	34.1	395	36	9.1
Bay of Plenty	314	233	74.2	60	33	55.0	197	20	10.2
Canterbury	1,115	863	77.4	107	34	31.8	432	94	21.8
Capital & Coast	327	238	72.8	25	10	40.0	314	62	19.7
Counties Manukau	595	541	90.9	53	5	9.4	492	41	8.3
Hawke's Bay	204	130	63.7	36	3	8.3	214	40	18.7
Hutt Valley	224	182	81.3	11	3	27.3	80	11	13.8
Lakes	215	154	71.6	9	2	22.2	76	12	15.8
Mid Central	434	303	69.8	24	3	12.5	276	50	18.1
Nelson Marlborough	187	169	90.4	13	2	15.4	102	30	29.4
Northland	101	98	97.0	16	9	56.3	188	46	24.5
South Canterbury	53	30	56.6	4	-	-	77	5	6.5
Southern	373	284	76.1	44	13	29.5	351	98	27.9
Tairawhiti	114	78	68.4	12	6	50.0	83	35	42.2
Taranaki	207	186	89.9	24	4	16.7	156	17	10.9
Waikato	459	321	69.9	20	8	40.0	266	41	15.4
Wairarapa	82	65	79.3	3	2	66.7	72	13	18.1
Waitemata	882	810	91.8	105	25	23.8	875	169	19.3
West Coast	82	63	76.8	2	-	-	27	9	33.3
Whanganui	87	51	58.6	6	2	33.3	98	3	3.1
Private practice	*818*	*693*	*84.7*	*84*	*49*	*58.3*	*618*	*190*	*30.7*
Total	**7,515**	**5,948**	**79.1**	**699**	**227**	**32.5**	**5,389**	**1,022**	**19.0**

Indicator 7.5 – Timely discharge of women after treatment

Table 63 – 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	114	97	85.1	80	70.2	77	96.3
Bay of Plenty	34	9	26.5	24	70.6	21	87.5
Canterbury	189	116	61.4	156	82.5	119	76.3
Capital & Coast	67	57	85.1	53	79.1	52	98.1
Counties Manukau	141	102	72.3	93	66.0	88	94.6
Hawke's Bay	60	49	81.7	50	83.3	47	94.0
Hutt Valley	35	28	80.0	28	80.0	26	92.9
Lakes	49	24	49.0	35	71.4	28	80.0
Mid Central	86	72	83.7	71	82.6	65	91.5
Nelson Marlborough	43	32	74.4	35	81.4	33	94.3
Northland	41	28	68.3	29	70.7	25	86.2
South Canterbury	11	8	72.7	9	81.8	7	77.8
Southern	137	64	46.7	102	74.5	94	92.2
Tairawhiti	26	5	19.2	8	30.8	5	62.5
Taranaki	34	25	73.5	31	91.2	28	90.3
Waikato	138	116	84.1	116	84.1	115	99.1
Wairarapa	16	12	75.0	13	81.3	12	92.3
Waitemata	166	130	78.3	117	70.5	88	75.2
West Coast	13	10	76.9	7	53.8	7	100.0
Whanganui	26	22	84.6	17	65.4	17	100.0
Private Practice	*119*	*83*	*69.7*	*96*	*80.7*	*69*	*71.9*
Total	**1,545**	**1,089**	**70.5**	**1,170**	**75.7**	**1,023**	**87.4**

Table 64 – 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	114	97	85.1	97	85.1
Bay of Plenty	34	9	26.5	9	26.5
Canterbury	189	120	63.5	116	61.4
Capital & Coast	67	58	86.6	57	85.1
Counties Manukau	141	106	75.2	102	72.3
Hawke's Bay	60	51	85.0	49	81.7
Hutt Valley	35	28	80.0	28	80.0
Lakes	49	24	49.0	24	49.0
Mid Central	86	72	83.7	72	83.7
Nelson Marlborough	43	34	79.1	32	74.4
Northland	41	28	68.3	28	68.3
South Canterbury	11	8	72.7	8	72.7
Southern	137	64	46.7	64	46.7
Tairawhiti	26	7	26.9	5	19.2
Taranaki	34	25	73.5	25	73.5
Waikato	138	118	85.5	116	84.1
Wairarapa	16	12	75.0	12	75.0
Waitemata	166	132	79.5	130	78.3
West Coast	13	10	76.9	10	76.9
Whanganui	26	22	84.6	22	84.6
Private practice	*119*	*84*	*70.6*	*83*	*69.7*
Total	**1,545**	**1,109**	**71.8**	**1,089**	**70.5**

Indicator 8 – HPV tests

Indicator 8.1 – Triage of low grade cytology

Table 65 – 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	174	162	1	0.6	154	95.1
Canterbury Health Laboratories	38	152	1	2.6	152	100.0
Diagnostic Medlab Ltd	176	559	1	0.6	550	98.4
LabPLUS	203	63	0	0.0	45	71.4
Medlab Central Ltd	120	237	0	0.0	217	91.6
Pathlab	148	305	1	0.7	299	98.0
Southern Community Labs	156	242	3	1.9	239	98.8
Total	**1,015**	**1,720**	**7**	**0.7**	**1,656**	**96.3**

** 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 66 – 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	270	133	1	0.4	131	98.5
Canterbury Health Laboratories	145	79	0	0.0	77	97.5
Diagnostic Medlab Ltd	534	528	2	0.4	520	98.5
LabPLUS	199	32	2	1.0	27	84.4
Medlab Central Ltd	190	141	2	1.1	126	89.4
Pathlab	327	234	0	0.0	234	100.0
Southern Community Labs	676	460	2	0.3	440	95.7
Total	**2,341**	**1,607**	**9**	**0.4**	**1,555**	**96.8**

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

Laboratory	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		
	N	N	%*	N	%*	N	%†	%‡
Aotea Pathology Ltd	62	62	100.0	47	75.8	6	9.7	12.8
Canterbury Health Laboratories	25	22	88.0	17	68.0	2	9.1	11.8
Diagnostic Medlab Ltd	111	93	83.8	71	64.0	15	16.1	21.1
LabPLUS	9	9	100.0	4	44.4	0	-	-
Medlab Central Ltd	58	53	91.4	37	63.8	12	22.6	32.4
Pathlab	73	68	93.2	47	64.4	8	11.8	17.0
Southern Community Labs	91	80	87.9	63	69.2	17	21.3	27.0
Total	**429**	**387**	**90.2**	**286**	**66.7**	**60**	**15.5**	**21.0**

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

Table 68 - Histological outcomes within 12 months in women with LSIL cytology and positive HPV triage test

Laboratory	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		
	N	N	%*	N	%*	N	%†	%‡
Aotea Pathology Ltd	101	96	95.0	76	75.2	11	11.5	14.5
Canterbury Health Laboratories	64	61	95.3	48	75.0	16	26.2	33.3
Diagnostic Medlab Ltd	295	257	87.1	202	68.5	42	16.3	20.8
LabPLUS	5	5	100.0	2	40.0	0	-	-
Medlab Central Ltd	82	80	97.6	59	72.0	22	27.5	37.3
Pathlab	141	121	85.8	91	64.5	13	10.7	14.3
Southern Community Labs	192	176	91.7	139	72.4	30	17.0	21.6
Total	**880**	**796**	**90.5**	**617**	**70.1**	**134**	**16.8**	**21.7**

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

Indicator 8.2 – HPV test volumes

Table 69 – 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	1,493	7.8	6.7
Canterbury Health Laboratories	1,809	9.5	16.4
Diagnostic Medlab Ltd	4,321	22.6	7.9
LabPLUS	740	3.9	9.2
Medlab Central Ltd	1,792	9.4	10.6
Pathlab	2,739	14.3	11.5
Southern Community Labs	6,209	32.5	7.4
Total	**19,103**	**100.0**	**8.7**

Table 70 – Invalid HPV tests, by laboratory

Laboratory	Total	Valid		Invalid	
	N	N	%	N	%
Aotea Pathology Ltd	1,493	1,487	99.6	6	0.4
Canterbury Health Laboratories	1,809	1,809	100.0	-	-
Diagnostic Medlab Ltd	4,321	4,314	99.8	7	0.2
LabPLUS	740	740	100.0	-	-
Medlab Central Ltd	1,792	1,792	100.0	-	-
Pathlab	2,739	2,731	99.7	8	0.3
Southern Community Labs	6,209	6,207	100.0	2	<0.05
Total	**19,103**	**19,080**	**99.9**	**23**	**0.1**

Table 71 – Validity of HPV triage tests, by test technology

Test technology	Total HPV tests		Valid		Invalid	
	N	%	N	%	N	%
Abbott RealTime	8,018	42.0	8,016	100.0	2	<0.05
Roche COBAS 4800*	11,085	58.0	11,064	99.8	21	0.2
Total	**19,103**	**100.0**	**19,080**	**99.9**	**23**	**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 72 - 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	338	13.8	1,056	43.1	104	4.2	360	14.7	590	24.1	2,448
Pacific	84	13.7	167	27.3	19	3.1	202	33.0	140	22.9	612
Asian	210	17.7	264	22.2	52	4.4	381	32.1	281	23.7	1,188
European/Other	1,988	13.4	5,667	38.1	708	4.8	2,098	14.1	4,394	29.6	14,855
Total	**2,620**	**13.7**	**7,154**	**37.4**	**883**	**4.6**	**3,041**	**15.9**	**5,405**	**28.3**	**19,103**

Table 73 - 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	-	-	-	-	1	20.0	-	-	4	80.0	5
20-24	244	33.3	53	7.2	151	20.6	-	-	284	38.8	732
25-29	736	39.5	588	31.6	143	7.7	-	-	396	21.3	1,863
30-34	500	18.0	1,084	39.0	131	4.7	621	22.3	444	16.0	2,780
35-39	397	15.1	1,206	45.7	89	3.4	497	18.8	448	17.0	2,637
40-44	284	10.3	1,284	46.6	83	3.0	499	18.1	605	22.0	2,755
45-49	201	7.8	1,077	41.6	70	2.7	497	19.2	747	28.8	2,592
50-54	127	6.1	782	37.3	83	4.0	373	17.8	734	35.0	2,099
55-59	66	4.2	485	30.7	70	4.4	267	16.9	691	43.8	1,579
60-64	37	3.3	333	30.0	35	3.2	157	14.1	548	49.4	1,110
65-69	16	2.2	195	26.3	19	2.6	116	15.6	396	53.4	742
70+	12	5.7	67	32.1	8	3.8	14	6.7	108	51.7	209
Total	**2,620**	**13.7**	**7,154**	**37.4**	**883**	**4.6**	**3,041**	**15.9**	**5,405**	**28.3**	**19,103**

Table 74 - 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	205	13.7	668	44.7	3	0.2	265	17.7	352	23.6	1,493
Canterbury Health Laboratories	441	24.4	507	28.0	294	16.3	229	12.7	338	18.7	1,809
Diagnostic Medlab Ltd	554	12.8	1,570	36.3	31	0.7	1,039	24.0	1,127	26.1	4,321
LabPLUS	152	20.5	100	13.5	65	8.8	71	9.6	352	47.6	740
Medlab Central Ltd	285	15.9	641	35.8	39	2.2	314	17.5	513	28.6	1,792
Pathlab	237	8.7	1,251	45.7	230	8.4	486	17.7	535	19.5	2,739
Southern Community Labs	746	12.0	2,417	38.9	221	3.6	637	10.3	2,188	35.2	6,209
Total	**2,620**	**13.7**	**7,154**	**37.4**	**883**	**4.6**	**3,041**	**15.9**	**5,405**	**28.3**	**19,103**

Table 75 - 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	*699*	*12,083*	*5.8*
Auckland	9	1,078	0.8
Bay of Plenty	115	571	20.1
Canterbury	255	1,654	15.4
Capital & Coast	-	666	-
Counties Manukau	16	1,140	1.4
Hawke's Bay	1	454	0.2
Hutt Valley	-	315	-
Lakes	93	300	31.0
Mid Central	28	734	3.8
Nelson Marlborough	14	302	4.6
Northland	17	305	5.6
South Canterbury	11	134	8.2
Southern	80	768	10.4
Tairawhiti	-	209	-
Taranaki	-	387	-
Waikato	42	745	5.6
Wairarapa	-	157	-
Waitemata	18	1,862	1.0
West Coast	-	111	-
Whanganui	-	191	-
Private practice	48	1,520	3.2
Total	**747**	**13,603**	**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 76 - Women eligible for and proportion who have received HPV testing for a historical high grade abnormality, by age at 30 June 2015

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	1	1	-	0.0	-	0.0
25-29	542	539	247	45.8	145	26.9
30-34	4,167	4,150	2,132	51.4	1,488	35.9
35-39	8,032	7,985	4,368	54.7	3,265	40.9
40-44	11,059	11,001	6,186	56.2	4,689	42.6
45-49	9,221	9,143	5,038	55.1	3,821	41.8
50-54	6,868	6,758	3,777	55.9	2,909	43.0
55-59	4,448	4,374	2,374	54.3	1,842	42.1
60-64	2,672	2,587	1,435	55.5	1,162	44.9
65-69	1,590	1,525	784	51.4	612	40.1
70+	1,909	1,657	403	24.3	278	16.8
Total	**50,509**	**49,720**	**26,744**	**53.8**	**20,211**	**40.6**

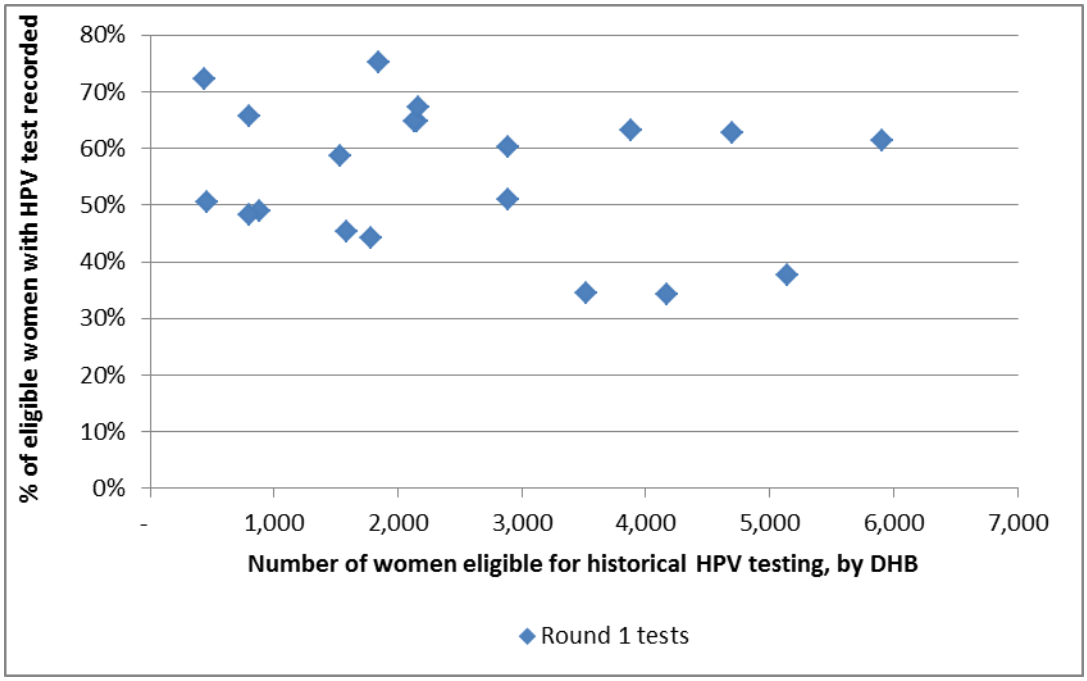
** Women are not followed up in the current report if they are no longer alive at the end of the current monitoring period; or if they have since had a non-squamous high grade abnormality (no longer eligible for HPV testing to follow-up historical high grade abnormality).*

Table 77 - 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	4,221	4,174	1,427	34.2	943	22.6
Bay of Plenty	2,940	2,891	1,472	50.9	954	33.0
Canterbury	5,987	5,904	3,624	61.4	2,930	49.6
Capital & Coast	2,920	2,893	1,741	60.2	1,436	49.6
Counties Manukau	3,580	3,519	1,212	34.4	785	22.3
Hawke's Bay	2,194	2,151	1,393	64.8	1,076	50.0
Hutt Valley	1,558	1,534	900	58.7	703	45.8
Lakes	1,610	1,585	719	45.4	460	29.0
Mid Central	2,184	2,137	1,383	64.7	1,125	52.6
Nelson Marlborough	1,874	1,848	1,388	75.1	1,195	64.7
Northland	1,829	1,785	788	44.1	494	27.7
South Canterbury	817	801	526	65.7	406	50.7
Southern	4,768	4,703	2,953	62.8	2,347	49.9
Tairawhiti	899	884	433	49.0	310	35.1
Taranaki	2,213	2,169	1,460	67.3	1,193	55.0
Waikato	3,944	3,885	2,454	63.2	1,908	49.1
Wairarapa	471	464	234	50.4	180	38.8
Waitemata	5,227	5,146	1,936	37.6	1,236	24.0
West Coast	442	435	314	72.2	255	58.6
Whanganui	816	799	386	48.3	274	34.3
Unspecified	15	13	1	7.7	1	7.7
Total	**50,509**	**49,720**	**26,744**	**53.8**	**20,211**	**40.6**

** 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 89 – 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 78 - 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	7,723	7,554	3,633	48.1	2,410	31.9
Pacific	1,219	1,197	405	33.8	276	23.1
Asian	1,678	1,667	626	37.6	472	28.3
European/Other	39,889	39,302	22,080	56.2	17,053	43.4
Total	**50,509**	**49,720**	**26,744**	**53.8**	**20,211**	**40.6**

** 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) Condyloma acuminatum	M76700	M76700 M76720	M76700 M76720	HPV	9
CIN I (LSIL) (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) (VAIN II when used with T81/ T82000)		M74007		CIN 2	13
HSIL NOS		M67017	M67017	HSIL	14
CIN III (HSIL) (VAIN III when used with T81/ T82000) Carcinoma in situ		M74008 M80102 M80702	 M80102 M80702	CIN 3	17 15 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 79 – 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 General Surgery – Auckland City Hospital Colposcopy Clinic - Greenlane Clinical Centre Gynae Outpatient Clinic – Greenlane Clinical Centre Short Stay Surgical Unit – Greenlane Clinical Centre Emergency Medicine – North Shore Hospital
Bay of Plenty	Whakatane Hospital (G) Opotiki Hospital Outpatients' Department Tauranga Hospital (G)
Canterbury	Ashburton Hospital Christchurch Hospital Christchurch Sexual Health Centre Christchurch Women's Hospital - Colposcopy Christchurch Women's Hospital - Gynaecology
Capital & Coast	Colposcopy Clinic – Wellington Women's Hospital Outpatients Department Kenepuru Women's Outpatients' Department Women's Clinic – Wellington Regional Hospital
Counties Manukau	Manukau Super Clinic Gynaecology Clinic – [Middlemore Hospital] Colposcopy Clinic – Manukau Super Clinic
Hawke's Bay	Chatham Islands Health Centre Outpatients Dept – Napier Health Centre Villa 4, Gynaecology, Hawke's Bay Hospital Hawkes Bay Regional Hospital Wairoa Cervical Screening Wairoa Hospital
Hutt Valley	Women's Health Clinic – Hutt Hospital Gynaecology Clinic - Hutt Hospital
Lakes	Rotorua Hospital (Gynae Dept) Taupo Hospital
Mid Central	Colposcopy Clinic – Palmerston North Hospital Gynaecology Clinic - Palmerston North Hospital Gynaecology Clinic Horowhenua Hospital
Nelson Marlborough	Marlborough Maternity & Gynae Nelson Outpatients Department
Northland	Colposcopy Clinic Whangarei Hospital Kaitaia Hospital Colp Outpatients' Department Bay Of Islands Hospital Outpatients' Department Gynaecology Clinic Whangarei Hospital
South Canterbury	Timaru Hospital - Colp/Gynae
Southern	General Gynae Department – Dunedin Hospital

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