National Screening Unit

National Cervical Screening Programme

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About the authors

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

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1. Executive Summary

Purpose

This report provides data on performance indicators of the National Cervical Screening Programme (NCSP) for the period 1 July to 31 December 2011.

Key points on performance/trends

Indicator 1 — Coverage

Target: 75% of eligible women had a screening test within the previous three years

- Coverage target was met nationally (75.0% of women aged 25-69 years screened in the previous three years).
- Coverage target was met for specific five-year age groups between 35-59 years.
- Coverage target was met by 13 of 21 DHBs.
- Coverage targets were met for European/ Other women, but were not met for Māori, Pacific, or Asian women.
- Five-year coverage among women aged 25-69 years exceeds 80% in all DHBs, and in women in five-year age groups between 25-64 years.
- Coverage in women aged 20-24 years is likely to remain lower than for other ages because age is defined at the end of the monitoring period. 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.
- Undercounting of some ethnic groups may partially explain the disparities between ethnic groups.
- Three coverage among women aged 25-69 years is slightly higher overall to that reported in the previous monitoring report, and has decreased among women aged 30-39 years, but has increased in 8 of the 21 DHBs.
- Five-year coverage among women aged 25-69 years is slightly higher than in the previous monitoring report.

Screens in women aged less than 20 years

Target: None

- In the three years to 31 December 2011, there were 13,748 women who had a cervical sample taken when they were aged less than 20 years. This is less than in the previous reporting period (14,792 women).
- This represents 1.4% of all women (of any age) who were screened in the three-year period (compared to 1.5% in previous reporting period).
- Most of these women (82.3%) were aged 18-19 years at the time of their cervical sample.

Indicator 2	First screening events **Target:** None • There were 21,715 women who had their first screening event during the current reporting period – slightly more than in the previous reporting period. • First screening events generally occur among young women (median age 24 years). • Asian women appear to have their first screening event at a later age (median age of Asian women with a first screening event 32 years) and women with a first screening event make up a higher proportion of all women screened for Asian women, compared to women in other ethnic groups.
Indicator 3	Withdrawal rates **Target:** Zero between ages 20-69 years • 39 women aged between 20-69 years withdrew from the NCSP Register during this six-month period (0.003% of women within this age range who were enrolled at the beginning of the current reporting period, ie as at 30 June 2011). This is similar to the number of women in this age range who withdrew during the previous reporting period (44 women).
Indicator 4	Early re-screening **Target:** Not yet defined • 22.5% of a cohort of women with a recommendation to return at the routine interval had at least one cytology sample within 30 months of their index cytology sample. • Early re-screening varies widely between DHBs, from 13.2% in Taranaki to 31.8% in Waitemata. • Early re-screening occurs in all ethnic groups, but is most common among Asian women (25.2%), and least common among Pacific women (18.3%). • Early re-screening occurs in all age groups, but is most common in women aged 20-24 years at the end of the period (29.6%) and least common in women aged 65-69 years at the end of the period (16.4%). • Early re-screening has decreased since the previous report.
Indicator 5	Laboratory Indicators
Indicator 5.1	Cytology reporting The proportion of cytology samples which are LBC has continued

to increase since the previous reporting period. There are now fewer than 0.02% tests which are conventional cytology only.

Unsatisfactory cytology

Target: 1-5% for LBC; 1-8% for conventional cytology

- Percent LBC samples unsatisfactory target met by four of eight laboratories, and was met nationally (1.1%). The rate of unsatisfactory samples has increased slightly for LBC since the previous report, from 1.0% to 1.1%, and so has remained in the target range.

Negative cytology

Target: No more than 96% of satisfactory cytology samples

- Percent of samples negative target met nationally and by all eight laboratories.
- Nationally, the percent of samples which are negative (92.1%) is similar to that reported in the previous period (92.3%).

Abnormal cytology

Target: No more than 10% of satisfactory cytology samples

- Percent of samples abnormal target met nationally and by six of eight laboratories.
- Nationally, the percent of samples which are abnormal (7.9%) is slightly higher than that reported in the previous period (7.7%).

HSIL cytology

Target: No less than 0.6% of satisfactory cytology samples

- Percent of samples HSIL target met nationally and by seven of eight laboratories. One lab has been below the target level over multiple monitoring reports.
- Percent of samples HSIL (0.8%) is unchanged since the previous report.

Indicator 5.2 <u>Cytology positive predictive value</u>

HSIL + SC

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

- All eight laboratories achieved the minimum target of at least 65% of cytological HSIL +SC being confirmed by histology.
- Four of the eight laboratories exceeded the maximum target of 85% of HSIL+SC being histologically confirmed.
- Nationally, the positive predictive value of HSIL+SC for this

monitoring period was 83.5%, which is higher than in the previous report (82.1%).

Other cytological abnormalities

Target: None

- Nationally, the positive predictive value of ASC-H is similar to that in the previous report (51.4% in this report, 51.1% in the previous report).
- Nationally, the positive predictive value of the combination of ASC-H+HSIL+SC is similar to that in the previous report (70.0% in the previous report; 70.9% in the current report).
- Nationally, the positive predictive value of glandular abnormalities has increased since the previous report, from 57.1% to 57.6% (however this measure is generally based on a comparatively small number of samples; 144 with histology in the current report).

Indicator 5.3 — Accuracy of negative cytology reports

Not assessed

Indicator 5.4 — Histology reporting

Target: None

- 13,284 histology samples were taken during the current reporting period; 332 (2.5%) were insufficient for diagnosis.
- The remaining 12,952 samples were taken from 11,277 women.
- Results for the most severe histology from these 11,277 women are presented.
- 51.6% of these women had histology samples which were negative/ benign.
- 22.7% of these women had CIN2/3 or HSIL histology results.
- 55 (0.5%) women had ISCC histology results, 39 (0.3%) women had invasive adenocarcinoma histology results, and one (<0.05%) had adenosquamous carcinoma histology results.

Indicator 5.5 — Turnaround times

Cytology

Target: 90% within seven working days; 100% within 15 working days

- The seven-working-days target for cytology was met nationally (93.0% samples were reported within seven working-days), and was met by five of eight laboratories.
- The 15-working-days target was not met nationally (98.6% samples were reported within 15 working-days), but was met

by one of eight laboratories.

- Seven of the eight laboratories had reported on at least 95% of samples within 15 days; five of the eight had reported on more than 99% of samples.
- Performance against the seven-working-days target has decreased slightly since the previous report (from 93.8% to 93.0%), and the number of labs meeting the target (from six to five).
- The overall proportion of cytology samples reported within 15-working-days has increased since the previous report (from 98.0% to 98.6%), but the number of labs meeting the target has stayed the same (one).

Histology

Target: 90% within 5 working days; 99% within 15 working days

- Turnaround times for histology were below the target nationally (78.9% samples were reported within five working days, 95.7% within 15 working days), but targets were met by five of 17 laboratories (five-day target) and six of 17 laboratories (15-day target).
- 12 of the 17 laboratories had reported on at least 95% of samples within 15 days.
- The overall proportion of histology samples reported within five and 15 days has increased since the previous reporting period (from 76.9% to 78.9% within five days, and from 94.6% to 95.7% within 15 days), however the number of laboratories meeting the five-day target (five) remained the same and decreased for the 15-day target (six).

Low grade cytology with associated HPV triage testing

Target: 100% within 15 working days

- There were 3,317 cytology samples with associated HPV triage testing in the current reporting period.
- Turnaround time was below target: 96.5% were reported on within 15 working days.
- One laboratory met the target
- The proportion reported within 15 days is somewhat lower for this subgroup of cytology (96.5%) than for cytology overall (98.6%), particularly at Canterbury Health Laboratories and LabPLUS (although the latter performed only a small number of such 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).
- 78.4% of women had a histology report within 90 days of their high grade cytology report; 85.9 % of women had one within 180 days.
- No DHB met the targets for histological follow-up within 90 days and within 180 days.
- Nationally, the proportion of women with histological follow-up within 90 days has increased since the previous reporting period (from 73.8% to 78.4%), as has the proportion with follow-up within 180 days, although to a lesser extent (85.9 % during the current reporting period, compared to 83.2% during the previous reporting period).
- Compared to the previous reporting period, the proportion of women with follow-up histology within 90 days increased for Māori and European/ Other women, and decreased for Pacific women. Among Asian women the proportion with follow-up histology within 90 days was similar to that in the previous reporting period.
- The proportion of women with follow-up histology within 180 days increased compared to the previous reporting period for Māori, European/ Other and Asian women. Among Pacific women the proportion with follow-up histology within 180 days decreased compared to the previous reporting period.
- The proportion of women with histological follow-up at 90 and 180 days increased for women aged 25-29 years, 35-39 years, 40-44 years and 45-49 years, but this generally a followed an observed decrease in the previous reporting period.

Any follow-up tests

Target: None

- Nationally, 134 (6.5 %) women have no follow-up test report (colposcopy, subsequent cytology, histology, HPV test) within 180 days of their cytology report.
- Nationally, the proportion of women with no record of a follow-up test report at 180 days has increased since the previous reporting period (from 5.8% to 6.5%).
- Compared to the previous reporting period, the proportion of women with no follow-up test at 180 days has decreased for Māori and European/ Other women and increased for Pacific and Asian women.

Indicator 7	Colposcopy
Indicator 7.1	Timeliness of colpscopic assessment – high grade cytology **Target:** Not reported against in this report, as referral data believed to be unreliable. • There were 2,049 women with high grade cytology results who were not already under specialist management. • This comprised 75 women with high grade results indicating a suspicion of invasive disease and 1,974 women with other high grade results. Missing records for one women in the latter group meant that follow-up could only be assessed for 1,973 women with other high grade results. • The median time between a high grade cytology report and a colposcopy visit was 9.5 days for women with cytology suspicious of invasive disease, and 36 days for women with other high grade cytology results. • A colposcopy visit is recorded for 1,655 (81%) women up to December 31 2011 (follow-up time of at least six and up to 12 months). Colposcopy data are believed to be incomplete, however, as this is lower than the number and proportion of women with histological follow-up within 180 days in Indicator 6 (1,760 women; 85.9%).
Indicator 7.2	Timeliness of colpscopic assessment – low grade cytology Not assessed
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. • There were 12,877 colposcopies recorded in the current monitoring period (data as at September 2012, supplied by Ministry of Health from the NCSP Register). • Based on an analysis of 11,281 colposcopy visits recorded on the NCSP Register as at 5 March 2012, no DHB met the target of 100% completion of recommended fields. • The degree of visibility of the squamocolumnar junction was documented for 98.1% of colposcopies. • Presence or absence of a lesion was documented for all colposcopies. • Colposcopic opinion regarding abnormality grade was documented for 94.2% of colposcopies where appearance was abnormal or inconclusive. • All of these items were completed for 94.9% of colposcopy visits.

- Colposcopic appearance was reported as abnormal in 55% of colposcopies, and inconclusive in 3.5% of colposcopies.
- Completion of each recommended field has improved slightly for most fields. Documenting whether or not the squamocolumnar junction was visible increased from 97.8% in the previous report to 98.1% in this report. Documenting an opinion regarding the lesion grade increased from 93.2% in the previous report to 94.2% in this report. Completion of all items increased from 94.2% in the previous report to 94.9% in this report.

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.

- 28.4% of women with HSIL histology (CIN2/3) were treated within eight weeks of their histology report.
- Target was met by one DHB.
- 7.1% of women with LSIL histology (CIN1, CIN not otherwise specified) were subsequently treated (considering a period of up to 26 weeks of their histology report). This proportion is presented for descriptive purposes and assessing appropriateness of treatment only. Timeliness is not assessed for treatment of histologically confirmed LSIL as treatment of histologically confirmed LSIL is not routinely recommended by the *2008 NCSP Guidelines for Cervical Screening in New Zealand*.

Indicator 7.5 Timeliness of discharge following treatment

Target: 90% or more of women treated for CIN should have a colposcopy and smear within the six to 12 month period post treatment.

- 57.1% of women treated for high grade lesions have a record of both colposcopy and cytology in the period at least six but no more than 12 months after their treatment visit. 59.2% of have a record of colposcopy visit (with or without cytology) in the same period.
- No DHB met the target for follow-up within the period six to 12 months post-treatment.
- The proportion of women with follow-up colposcopy and cytology in the period six to 12 months post-treatment has increased since the previous report (from 53.6% to 57.1%).

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

- There were 600 women who met the criteria for appropriate discharge within 12 months of their treatment (46.0% of

women treated). Of these women who were eligible for discharge, 464 (77.3%) were discharged to their smear taker within 12 months.

- Six DHBs met the target of discharging 90% or more women who were eligible for discharge within 12 months.
- The proportion of women who are discharged appropriately within 12 months decreased from 78.4% in the previous reporting period, to 77.3% in the current report
- 159 (12.2%) of women were discharged less than six months after their treatment visit. This is lower than in the preious report (19.0%).

Indicator 8 HPV testing

Indicator 8.1 HPV triage of low grade cytology

Target: None set.

- Nationally, 93.3% of women aged 30 years or more with an ASC-US cytology result, and 92.2% of women aged 30 years or more with an LSIL cytology result are recorded as having a subsequent HPV triage test.
- Among women aged 30 years or more with valid HPV triage test results, 25% of women with ASC-US results and 61% of women with LSIL results were positive for high risk HPV.
- Positivity for high risk HPV varied by laboratory (from 11% to 55% for ASC-US, and from 40% to 80% for LSIL)
- Positivity for high risk HPV generally decreased with increasing age.
- Small numbers of HPV triage tests occur in women aged under 30 years (in 1.2% of women with an ASC-US result, and 0.9% of women with an LSIL result; 40 women in total)
- The proportion of women who were eligible for HPV triage of low grade cytology who subsequently received a triage test has decreased compared to the previous reporting period (from 94.2% to 93.3% for women with ASC-US results, and has increased from 92.1% to 92.2% for women with LSIL results).
- The proportion of women whose HPV tests were positive was somewhat lower in the current reporting period for ASC-US (25%, compared to 29% in the previous period), and slightly higher for LSIL (61%, compared to 60% in the previous period).

Indicator 8.2 HPV test volumes

Overall volumes

Target: None set.

- Nationally, 21,244 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 (91.3% of all HPV test samples)
- HPV samples were predominantly from European/ Other women (83.4% of all HPV test samples).
- HPV test volumes were lowest at LabPLUS (621 samples; 2.9% of all HPV test samples) and highest at Southern Community Labs Dunedin (6,694 samples; 31.5% of all HPV test samples).
- Overall HPV test volumes have increased (by 18%) since the previous report, although this is consistent with the phasing in of HPV testing as a recent recommendation.

Test purpose

- Nationally, 16.4% HPV tests are taken for HPV triage of low grade cytology in women aged 30 years or more, 5.8% were taken for follow-up of women treated in the previous three years, 46.0% were taken to manage women with high grade squamous abnormalities more than three years ago, and 3.3% were taken at colposcopy (potentially to assist in resolving discordant results).
- Among the remainder (28.6%), it is likely that a large proportion were for follow-up of historical high grade abnormalities which are not recorded on the NCSP Register (for example because they pre-date the Register, or occurred overseas). A smaller proportion appear to have been related to follow-up of an abnormality outside guidelines recommendations (for example non-squamous abnormalities, or low grade abnormalities where the guidelines recommend referral to colposcopy).
- HPV tests in women aged less than 30 years were most commonly for post-treatment management. HPV tests in women aged 30 years or more were most commonly for follow-up of women with high grade squamous abnormalities more than three years ago.
- Follow-up of women with high grade squamous abnormalities more than three years ago was the most common reason for HPV tests among Māori and European/ Other women. HPV triage was the most common reason for an HPV test among Pacific and Asian women.

HPV tests at colposcopy

- Nationally, HPV tests taken at colposcopy mostly originate from public facilities (77%).
- In the current monitoring period, approximately 5% of colposcopies were associated with an HPV test. This rate was 4.6% in public clinics (overall) and 6.9% in private practice (overall).
- There were six DHBs where no HPV tests were collected at colposcopy.

2. Background

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

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

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

Technical information on the indicators is available in a separate report (Technical Specification for Monitoring Reports) available on the website:
http://www.nsu.govt.nz/health-professionals/1063.aspx

From Report 30 onwards, monitoring has been undertaken with technical assistance of a research group previously located at the Cancer Council of New South Wales (CCNSW), now relocated to the University of NSW. This has coincided with use of a new reporting format, incorporating more explicit definitions and utilising data from the newly developed NCSP Register, so earlier reports are not fully comparable with Report 30 onwards.

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

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

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

Further information about the NCSP Advisory Group and the monitoring and performance of the NCSP is available on http://www.nsu.govt.nz/health-professionals/1072.aspx and on request from the Programme.

3. Methods

Age

Unless otherwise specified, age is defined as the woman's age at the end of the reporting period, i.e. 31 December 2011.

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 the Public Health Intelligence unit of the Ministry of Health.[1] The hysterectomy prevalence was estimated by extracting information about procedures from hospital discharge data. Central estimates of survival and hysterectomy incidence in five-year age groups and five-year periods by ethnicity were then used to determine the prevalence of hysterectomy in all age groups, ethnicities and years. The 2007 data was taken from these estimates (the most recent data available). Further information about the hysterectomy prevalence methodology can be found in the document '*Setting Outcome Targets for the National Cervical Screening Programme. A Report for the National Screening Unit. November 2003*' by S. Paul, M. Tobias, and C. Wright.

The hysterectomy prevalence data were applied to New Zealand population estimates from Statistics New Zealand so that estimates of the number of women in the New Zealand population (by age and ethnicity) who had not had a hysterectomy prior to 31 December 2011 were obtained. Hysterectomy prevalence figures for the whole population (the denominator) were not available by DHB, so age- and ethnicity-specific hysterectomy adjustments were applied equally across each DHB. These adjusted population estimates were then used as the denominator in the hysterectomy-adjusted calculations.

The estimates used for the New Zealand female population were the female 2006 Census population, projected to 30 June 2011.

While the hysterectomy prevalence estimates were the best estimates available at the time of the analysis, they are becoming outdated. They relate to 2007, while this report covers a period up until the end of December 2011. In light of these limitations, measures which rely on the hysterectomy-adjusted population, particularly coverage, need to be interpreted with caution. It is also possible that the extent to which the estimated hysterectomy-adjusted population differs from the true population may vary by ethnicity and/ or by DHB. This may occur, for example if the age-specific prevalence of hysterectomy has changed more in some DHBs or ethnic groups than in others.

Ethnicity analysis

The analysis by ethnicity considered four groups – Māori, Pacific, Asian, or European/Other, based on women's priority two ethnicity codes recorded on the NCSP Register. Women for whom ethnicity information were not available were included in the "European/Other ethnic groups" category. The data download used for the current analysis (NCSP Register data as at 5 March 2012) contained ethnicity codes for approximately 95% 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. For example, ethnicity data held on the NCSP Register was updated in October 2011, by redistributing women whose ethnicity was recorded on the NCSP Register as "Not stated" using their ethnicity on the NHI register. As women whose ethnicity was listed as "Not stated" are included in the European/ Other group for ethnicity analyses, this redistribution of ethnicities has had the effect of slightly reducing coverage in European/ Other women in the current report, while slight increases were seen in other ethnic groups.

Previous reports by the Health & Disability Intelligence Unit investigated potential ethnic undercounting in the NCSP Register, by comparing NCSP Register data to data from the National Health Index (NHI) and Register of Births, Deaths & Marriages (BDM). Undercounting of Māori, Pacific, and Asian women (and as a result, overcounting of European/Other women) was found, although the degree to which this occurred varied by age-group, and has changed over time. Undercounting was estimated to be around 20% for each of the Māori, Pacific, and Asian groups in 2007. Undercounting may result in underestimates for some measures (for example coverage, first screening events, withdrawals) in Māori, Pacific, and Asian women, and overestimates for these measures in European/Other women.

The second Health & Disability Intelligence Unit report (*Wright 2008*)[4] calculated ethnicity adjustors for NCSP Register data in the period 1998-2007, based on the data from NHI and BDM. The effect of the ethnicity adjustors is to increase the number of women included in each measure who are Māori, Pacific, or Asian to compensate for undercounting, and thus to reduce it for European/Other. In this monitoring report, ethnicity adjustors for 2007 from *Wright 2008* are applied to counts derived from the NSCP Register to explore the potential impact of under-counting on ethnicity-specific coverage. Unadjusted estimates for coverage are provided as the main results, consistent with previous monitoring reports; adjusted estimates are provided for illustrative purposes. Adjustors are not directly applicable to the full time period covered by this report however, so adjusted measures should be interpreted with caution.

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.

Prior to Monitoring Report 30 (covering the period 1 July to 31 December 2008), coverage was calculated for women aged 20 – 69 years at the end of the monitoring period. However this includes some younger women who were not eligible for screening for the entire three years because they were aged 22 or less at the end of the three year screening period (i.e. were aged 17 – 19 years at the start of the three year period). This means that previously there may have been slightly underestimated coverage overall. Accordingly, a change to the method for measuring coverage was discussed and agreed on with the NCSP Advisory Group. The revised approach was to report coverage for women aged 25 – 69 years at the end of the monitoring period (which therefore includes women aged 22 and over at the beginning of the three year period but excludes women aged 20 or 21 years at the beginning). This approach is consistent with best practice in Australia and England. In England, until 2003, the target age range for screening was 20-64 years, but coverage was calculated for women aged 25-64 years, to ensure only women eligible throughout the period were included. Similarly in Australia, women are eligible to start screening from 18 years, but coverage is measured among women aged 20-69 years. The difference between the starting ages (two years) is the same as the recommended screening interval in Australia.

Beginning with NCSP Monitoring Report 30 (1 July to 31 December 2008), coverage has been reported using the revised method but estimates using the old method (20-69 years at end of period) are also included for comparison.

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

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

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

4. Biannual NCSP Monitoring Indicators

Indicator 1 – Coverage

Definition	The proportion of all 25-69 year old women who have had a screening event (cytology sample, HPV sample or histology sample) taken in the three years prior to the end of the reporting period. This definition restricts the measure of coverage to the five-year age groups who were eligible for the entire duration of the three-year period, ie women aged 25-69 years at the end of the monitoring period. Screening coverage in women aged 20-69 years is also presented, for comparability with previous reports. The denominator (eligible population) for this indicator is adjusted for the estimated proportion of women who have had a 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	75% of eligible women within three years (from 1 January 2012, the coverage target is changing to 80% overall and for each ethnic group by 31 December 2014)
Current Situation	As at 31 December 2011, 858,019 (75.0%) women aged 25-69 at the end of the current reporting period had at least one cervical sample taken during the previous three years. This meets the target of 75%. 1,010,848 (88.3%) women aged 25-69 at the end of the current reporting 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 66.7% (Counties Manukau) to 83.9% (Taranaki). 13 of the 21 DHBs achieved the 75% target in women aged 25-69 years at the end of the period (Figure 1, Table 29). The target coverage of 75% of women screened at least once within three years was achieved in half of the five-year age groups between 20 and 69 years. The target was achieved for each of the specific five-year age groups between 35-59 years, but not for the five-year age groups between 20 and 34 years, or 60 and 69 years. Coverage was lowest in women aged 20-24 years (54.4%), however many women in this age group were not eligible for screening for the entire three-year period. Coverage was highest in women aged 50-54 years (81.4%) (Figure 2, Table 28). Three-yearly coverage also varied by ethnicity. Coverage targets of 75% were not met for Māori, Pacific, or Asian women. Coverage in these groups

for women aged 25-69 years was 57.9%, 61.7%, and 56.0% respectively. Among European/Other women, coverage achieved was 83.0% within three years (Figure 3, Table 30). Undercounting of some ethnic groups on the NCSP Register may account for some of this discrepancy. We explored the impact on the results of applying ethnicity adjustors estimated by Wright (*Wright 2008*), to re-weight the counts of women screened based on the level of under- and over-counting for different ethnic groups. As expected, the adjustment narrows the gap between the groups, such that it ranges from 68.4% (Pacific) to 77.1% (European/ Other) among women aged 25-69 years, and from 64.6% (Pacific) to 75.3% (European/ Other) among women aged 20-69 years. Adjusted estimates are shown in Table 31 and Table 32. It is anticipated tht this exploratory analysis will not be included in future reports, as the adjustors are becoming outdated, and it is believed that accuracy of ethnicity data has improved, as described in more detail in the *Comments* section.

When compared to the findings for three-year coverage, five-year coverage had similar patterns of variation by age, DHB, and ethnicity to three-year coverage. Five-year coverage varied by age from 58.6% in women aged 20-24 years to 94.8% in women aged 50-54 years (Figure 5, Table 33). Among women aged 25-69 years at the end of the period, it ranged from 80.7 % in Counties Manukau to 96.4% in Taranaki (Figure 4,Table 34), and from 65.7% (Asian) to 96.9% (European/Other) (Figure 6, Table 35).

Screens in women aged less than 20 years

A total of 13,748 women who were aged less than 20 years at the time of their cervical sample had a cervical sample taken in the three years to 31 December 2011. This excludes two samples entered into the NCSP Register, where the apparent ages of the women were four and seven years. 1.4% of women who were screened at any age, were aged less than 20 years at the time their cervical sample was taken (Table 37).

The number of women aged less than 20 years at the time they were screened varied by DHB from 111 (West Coast) to 2,163 (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 women were aged 15-19 years at the time of their screening event and the events occurred over a three year period, whereas the population estimate is for women aged 15-19 years in a single year, this cannot be interpreted directly as the proportion of 15-19 year old females in each DHB who have been screened in the last three years. However, this does allow the variation in DHB populations to be partly accounted for, and thus can give an indication of where screening among women aged less than 20 years is more or less common. Estimates for this proportion ranged from 5.8 %

(Whanganui and Mid Central) to 13.3% (South 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 and Wairarapa). Details of screens of women aged less than 20 years by DHB are presented in Figure 7, and Table 36 to Table 38.

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 (82.3% overall; range across DHBs 74.4%- 93.4%). This may represent opportunistic screening of women aged 18-19 years. This proportion varied from 74.4% in South Canterbury to 93.4% in Mid Central. 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

Coverage

Overall coverage in New Zealand among women aged 25-69 years is similar in the current period (75.0% within the last three years, and 88.3% within the last five years) compared to the previous reporting period (74.7% within the last three years, and 88.1% within the last five years).

Coverage within DHBs has been relatively stable, compared to the previous monitoring period, with the possible exception of West Coast (coverage increased from 68.5% to 70.3%) and South Canterbury (coverage increased from 74.1% to 76.1%). Longer term trends by DHB are shown in Figure 8 and Table 40.

Trends by age are similar to those seen in the previous monitoring report, with the coverage target of 75% of women within the past three years met for women in the five-year age groups between 35-59 years, but not for women outside this age range. Among women in the younger age groups (20-24 and 25-29), coverage has increased in the current compared to the previous reporting period, but the absolute increase is small (less than one percent). For women aged 30-34 years coverage has decreased slightly for the second consecutive reporting period, although the absolute drop is small (less than two percentage points over the two reporting periods). Longer term trends by age are shown in Figure 9 and Table 41.

Coverage has also remained relatively stable within ethnic groups. There has been a small increase in three-year coverage among Māori, Pacific and Asian women, and a small decrease among and European/ Other women since the previous reporting period. However, this may reflect improvements in the ethnicity data held on the NCSP Register, as many women previously

included in the European/ Other as a result of having no ethnicity recorded, have been redistributed to more accurately reflect their ethnicity, based on data on the NHI Register (see *Comments* section for further details). Longer term trends by ethnicity are shown in Figure 10 and Table 42.

Screens in women aged less than 20 years

The number of women screened who are aged under 20 years has decreased from 14,792 in the previous reporting period to 13,748 in the current reporting period, as has the proportion of all women with screening events who are aged less than 20 years at the time of the event (from 1.5% to 1.4%). The number of women screened who are aged less than 20 years at the time has decreased in all DHBs.

The proportion of these women who were aged 18-19 years has increased somewhat since the previous reporting period (from 81% to 82%), and this increase has occurred in many DHBs (20 of 21). A small decrease was seen in Hawke's Bay and Hutt Valley however, both were less than 1%. Therefore it would appear that in New Zealand overall, screens in very young women are reducing, and where these still occur they increasingly reflect opportunistic screening of 18-19 year olds.

Comments

As discussed in Methods (*Hysterectomy-adjusted population*, page 13), 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 39.

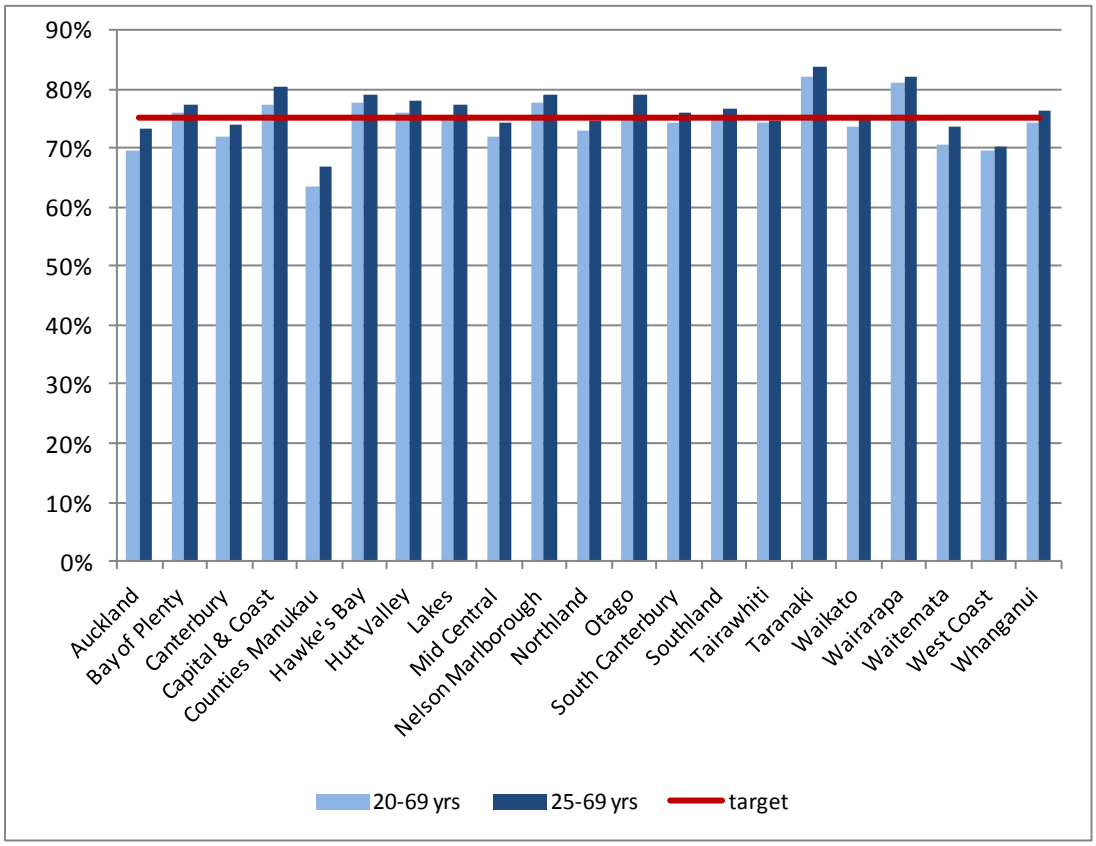
Counts of women screened used to estimate coverage (numerator) exclude women who are not enrolled on the NCSP Register, whereas the hysterectomy-adjusted population estimates (denominator) represent all women in New Zealand without a hysterectomy, regardless of whether they are enrolled on the NCSP Register.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

Misclassification of women's ethnicity (leading to under- and over-counting of different ethnicity groups) may be contributing in part to the differences in coverage achieved in different ethnicity groups. Our exploration of misclassification via ethnicity adjustors indicates that this is a factor, but is unlikely to explain all of the difference in observed coverage rates by ethnicity. Estimates which have adjusted for undercounting should be interpreted with caution however, since adjustors relate to 2007, and the periods considered for coverage are wider – ranging from mid-2008 to mid-

2011 (three-year coverage), and mid-2006 to mid-2011 (five-year coverage). As is the case for the primary (unadjusted) estimates, they also rely on the accuracy of the hysterectomy-adjusted population estimate. These adjustors have been used for illustrative purposes, however it is envisioned that they will not be included in future monitoring reports. This is because it is believed that recording of ethnicity data held on the NCSP Register has improved since the previous reporting period. Ethnicity data on the NCSP Register was updated in October 2011, by redistributing women whose ethnicity was recorded on the NCSP Register as "Not stated" using their ethnicity on the NHI register. As women whose ethnicity was listed as "Not stated" are included in the European/ Other group for ethnicity analyses, this redistribution of ethnicities has had the effect of slightly reducing coverage in European/ Other women in the current report, while slight increases were seen in other ethnic groups. It is envisioned that ethnicity data for women whose ethnicity is recorded as "Not stated" on the NCSP Register will continue to be updated by regular comparisons with the NHI Register (quarterly updates are planned).

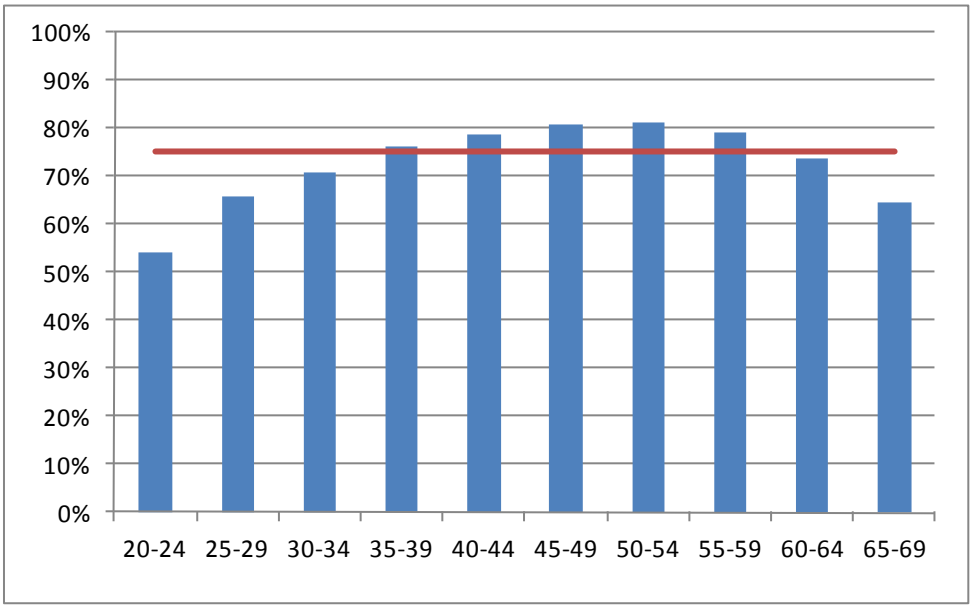
Coverage in women aged 20-24 years is likely to remain lower than for other ages and coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.

Figure 1 - Three-year coverage by DHB (women screened in the three years prior to 31 December 2011, as a proportion of hysterectomy-adjusted female population)



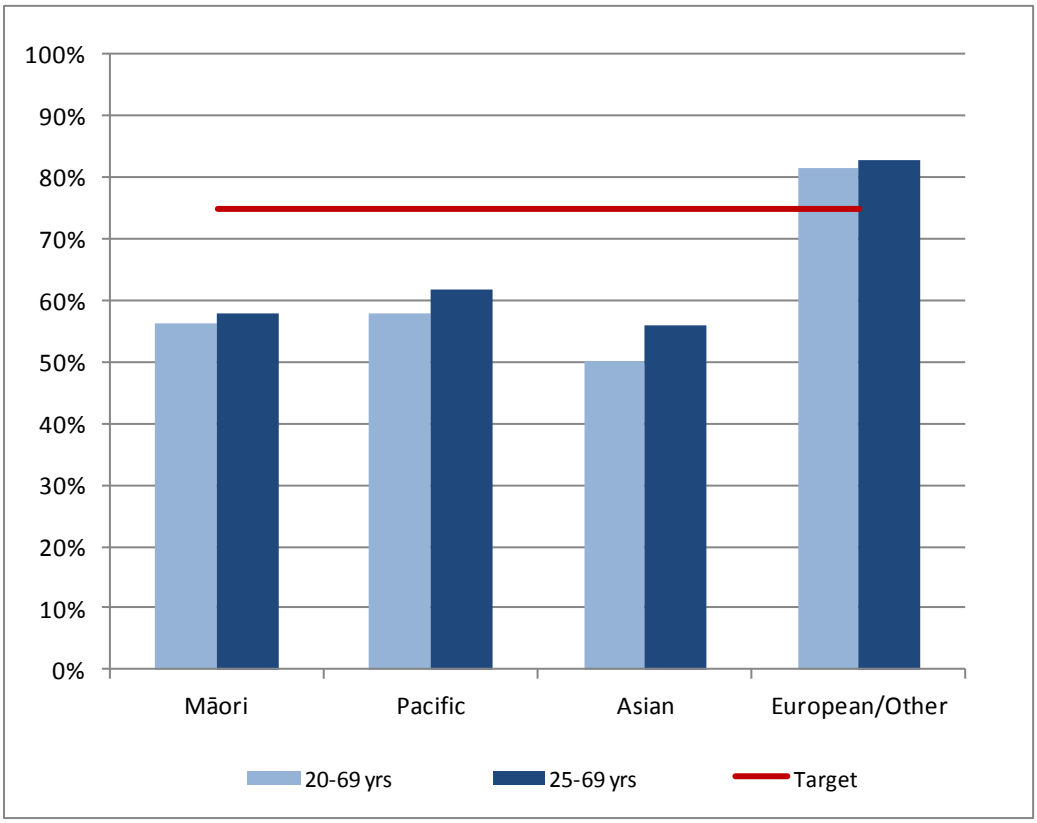
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data. Target 75%, hysterectomy adjusted.
See also Table 29

Figure 2 - Three-year coverage by five-year age group (women 20-69 years screened in the three years prior to 31 December 2011, as a proportion of hysterectomy-adjusted female population)



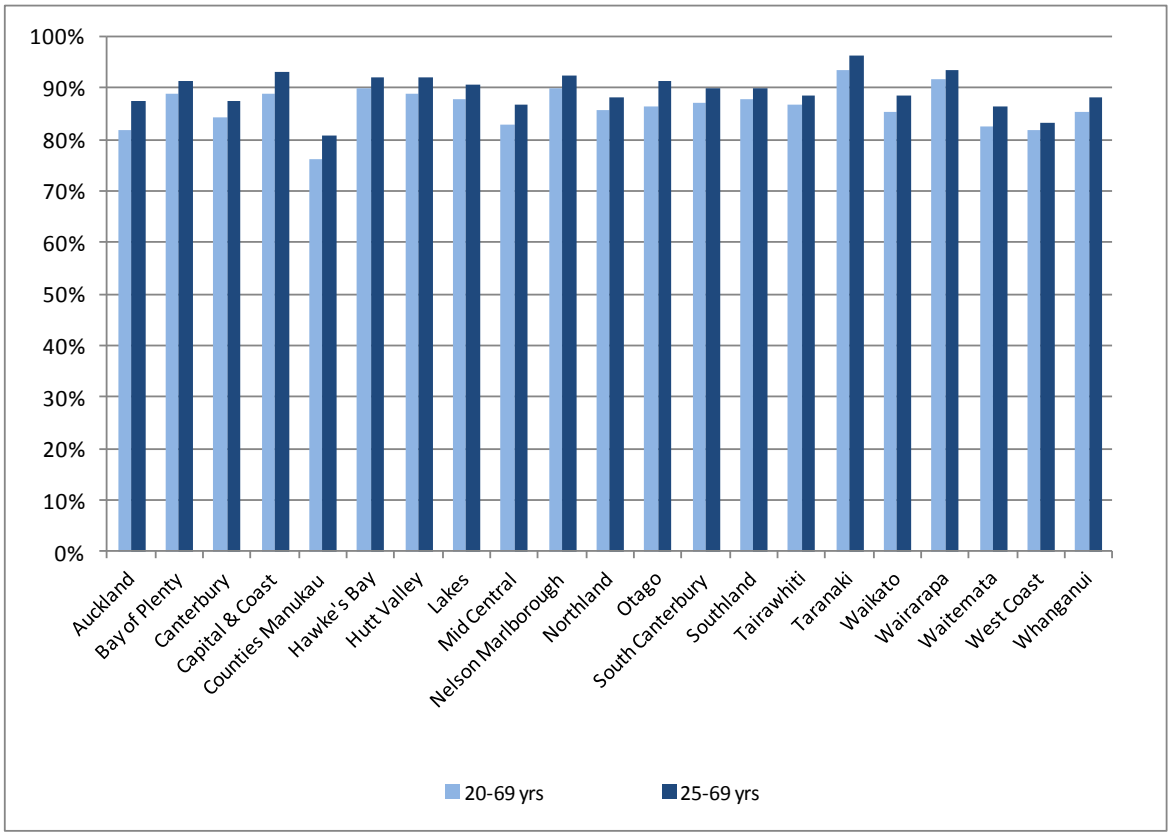
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data. Target (red line); 75%, hysterectomy adjusted.
See also Table 28

Figure 3 - Three-year coverage by ethnicity (women screened in the three years prior to 31 December 2011, as a proportion of hysterectomy-adjusted female population)



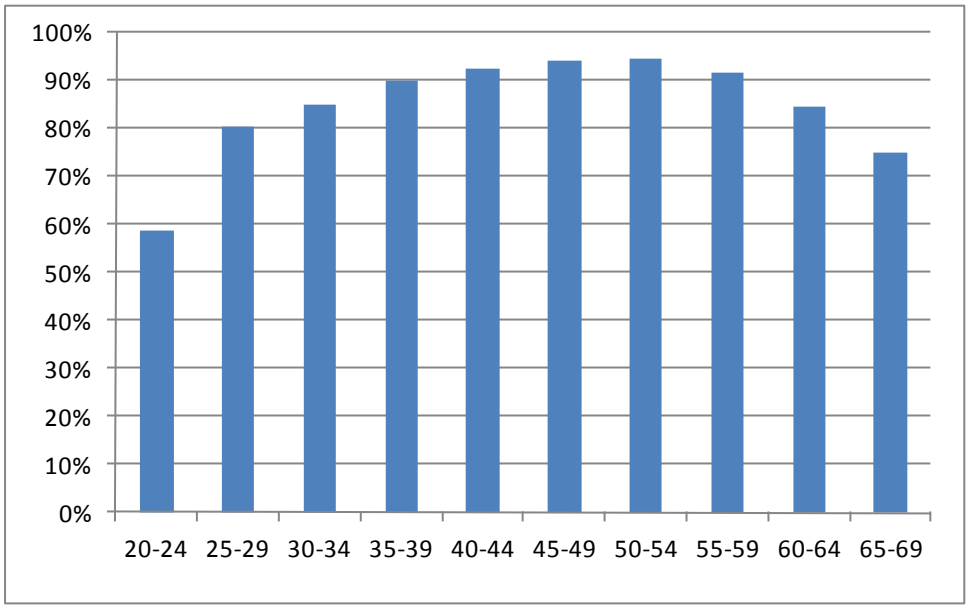
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data. Target 75%, hysterectomy adjusted.
See also Table 30

Figure 4 - Five-year coverage by DHB (women screened in the five years prior to 31 December 2011, as proportion of hysterectomy-adjusted female population)



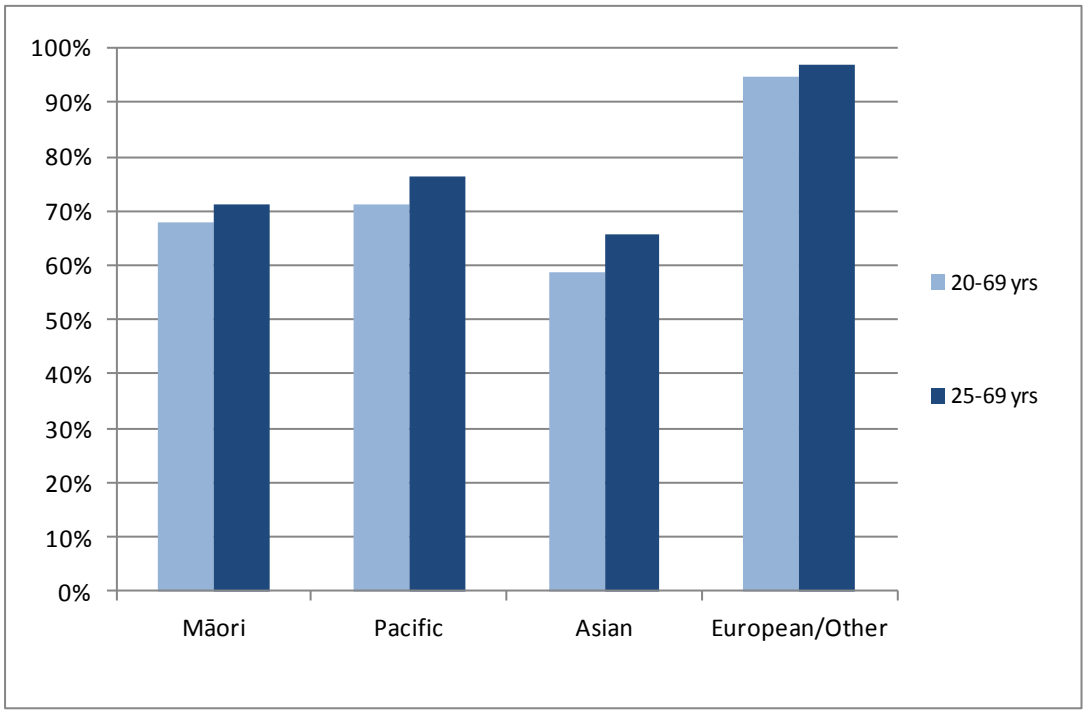
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data.
See also Table 34

Figure 5 - Five-year coverage by five-year age-group (women screened in the five years prior to 31 December 2011, as proportion of hysterectomy-adjusted female population)



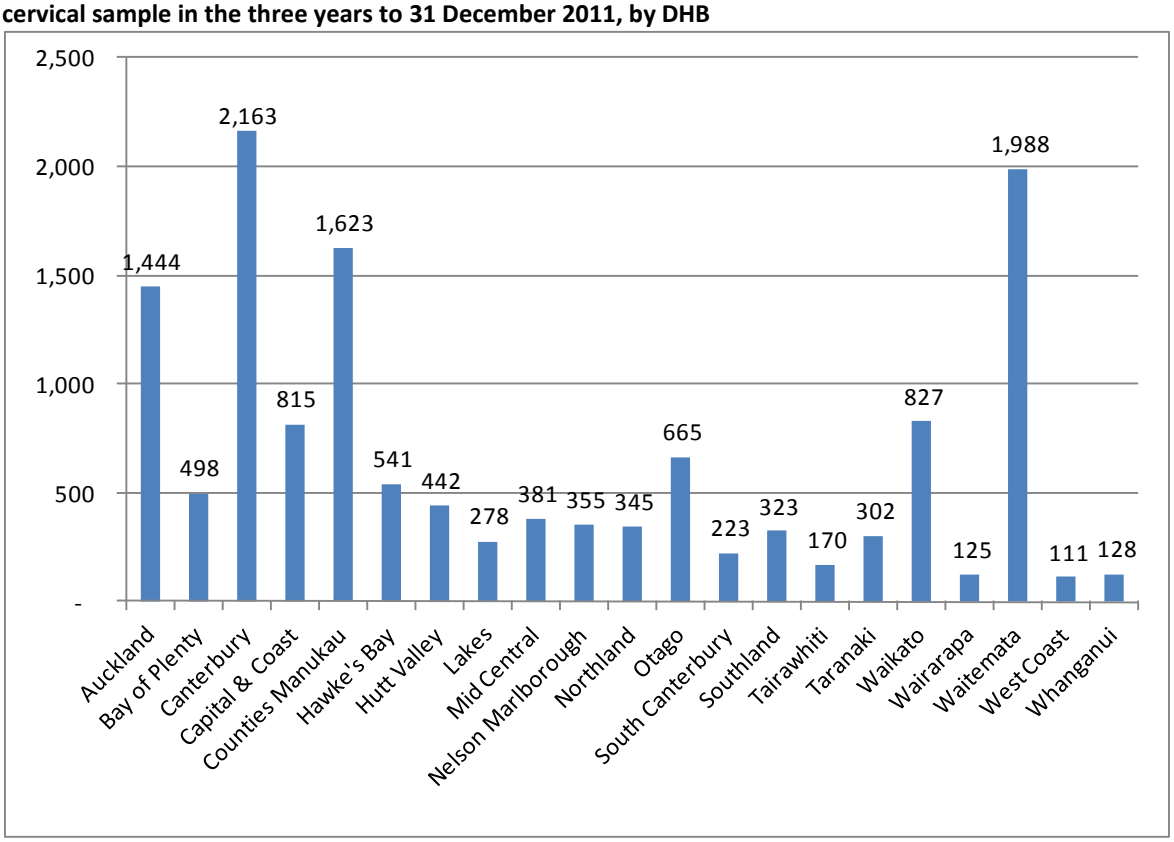
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data.
See also Table 33

Figure 6 - Five-year coverage by ethnicity (women screened in the five years prior to 31 December 2011, as a proportion of hysterectomy-adjusted female population)



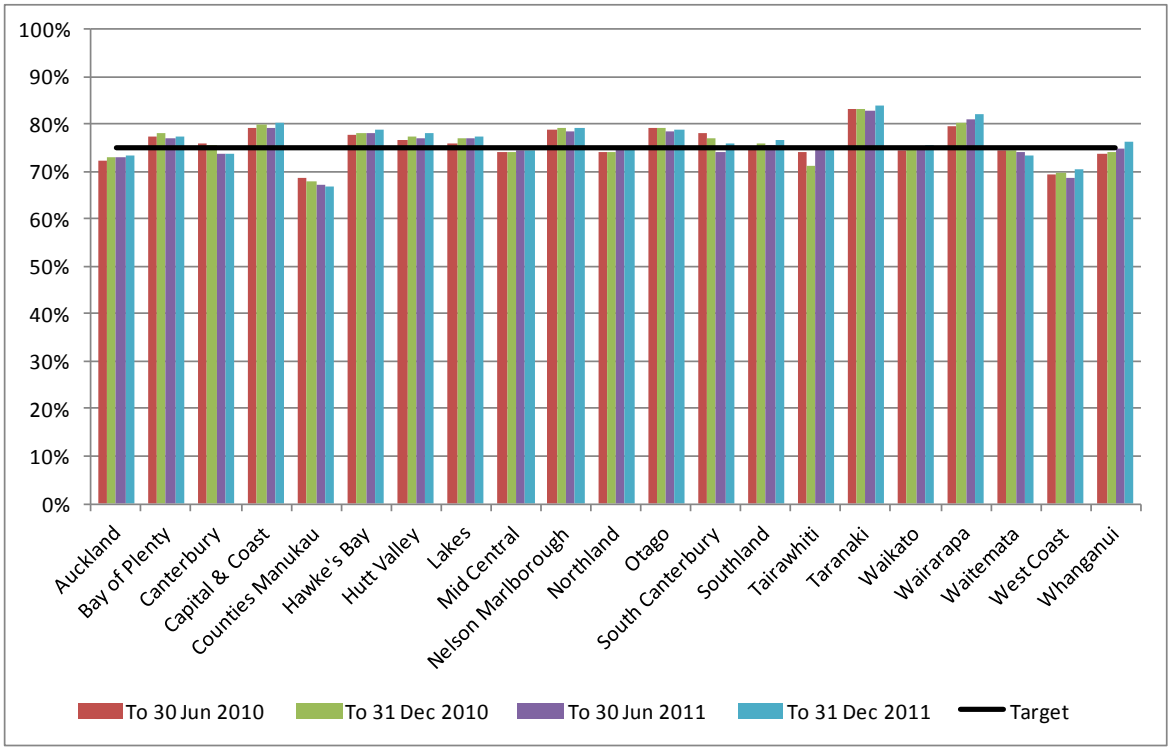
Note: Coverage calculated using population projection for end-2011 based on 2006 Census data.
See also Table 35

Figure 7 - Number of women screened who were aged less than 20 years at the time of their cervical sample in the three years to 31 December 2011, by DHB



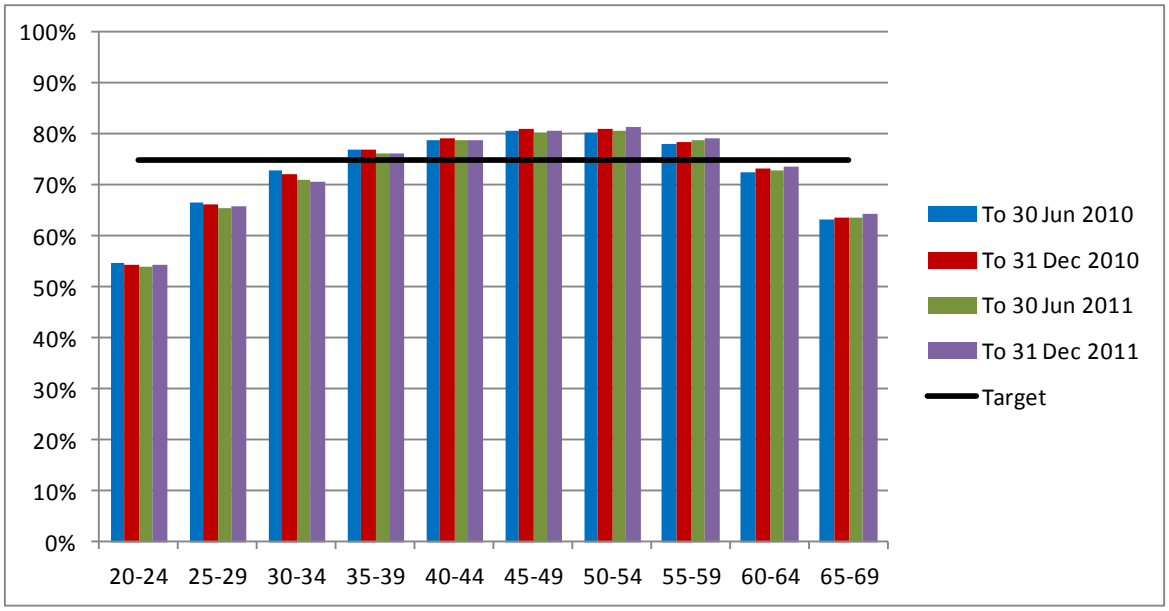
Excludes one woman whose DHB was unknown
See also Table 36 for rates which take into account the variation in population size between DHBs.

Figure 8 – Trends in three-year coverage by DHB (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



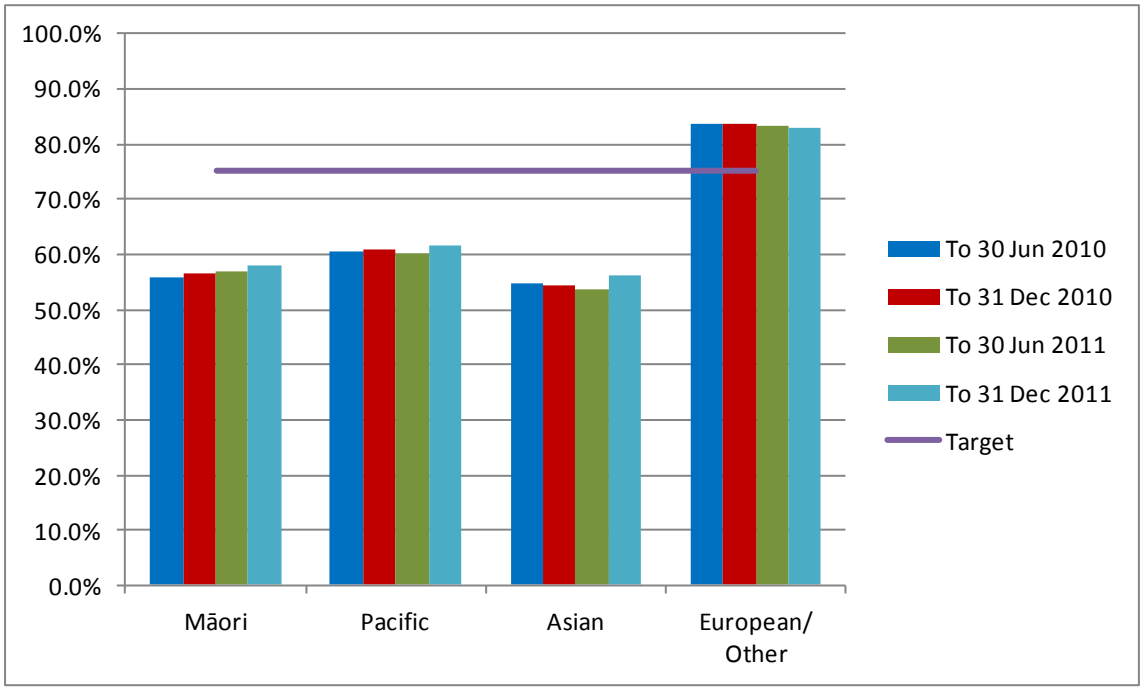
Coverage calculated using population projection at the end date shown, based on 2006 Census data.
Target 75%.
See also Table 40

Figure 9 - Trends in three-year coverage by age (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



Coverage calculated using population projection at the end date shown, based on 2006 Census data.
Target 75%.
See also Table 41

Figure 10 - Trends in three-year coverage by ethnicity (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



Coverage calculated using population projection at the end date shown, based on 2006 Census data.
Target 75%.
See also Table 42.

Indicator 2 – First screening events

Definition

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

A woman's age is defined as her age at the end of the current reporting period (i.e. 31 December 2011).

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

Target

There are no targets for first screening events

Current Situation

21,715 women aged 20-69 years at the end of the period had their first screening event in the period 1 July to 31 December 2011. This constituted 10.2% of the 213,637 women aged 20-69 years with a cervical sample taken in the period (screening event), and 1.7% of the eligible population. The median age (at the end of the reporting period) of women with a first event recorded was 24 years.

The age group with the highest number of first screening events was women aged 20-24 years. 10,908 women aged 20-24 had their first screening event recorded on the register during this reporting period, accounting for 50.2% of all women aged 20-69 years with first screening events (Figure 11, Table 43). From this age group, first screening events decreased with increasing age. Women aged 20-24 years also had the highest proportion of women screened in their age group who were being screened for the first time (40.9%) (Figure 12), and the highest proportion of eligible women at that age with a first screening event recorded in the current reporting period (6.9%) (Figure 13).

The DHBs with the highest number of women aged 20-69 years with first screening events were Auckland (3,989) and Waitemata (2,390). The DHBs where women with first screening events, as a proportion of all women with screening events, was the highest were Auckland (16.3%), and Capital & Coast (12.4%). The DHB where this proportion was lowest was Wairarapa (5.3%) (Figure 14, Table 1).

The ethnic group with the highest number of women with first screening events was European/Other (14,720) (Table 2). The group with the highest proportion of their eligible population being screened for the first time was Asian women (2.0%), and was lowest for Māori women (1.2%) (Table 2). The proportion of women screened who were being screened for the first time was highest for Asian women (17.8%) (Table 2, Figure 15). This proportion is likely to be related to the median age of women with a first screening event, which in Asian women is comparatively high (32 years, compared with 22 years for Māori women, 27 years for Pacific women, and 23 years for European/Other women) (Table 3).

Trends

The number of women with a first screening event recorded on the NCSP Register has increased slightly, from 20,835 women in the previous period, to 21,715 in the current period. The proportion of the eligible population that this represents (1.7%) is slightly higher than the previous reporting period. The proportion of women with screening events who are women with their first screening event being recorded on the NCSP Register (10.2%) is also slighlty higher to the previous period (9.9%).

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

Trends over the two years ending 31 December 2011 are shown in Figure 56 (by age), Figure 57 (by DHB), and Figure 58 (by ethnicity).

Comments

Note that this indicator can only measure the number of women with their first screening event where this occurs in New Zealand, and is 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 and age structure. Proportions have been provided to partially account for this, however they should be interpreted with caution. For example, a relatively low number of women with first screens as a proportion of all women screened could be due to either a lower number of women with first events, or a higher number of women with screening events (which could be due to high coverage, or higher abnormality rates, as the latter require women to return more frequently). 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 11 - Number of first screening events by five-year age group

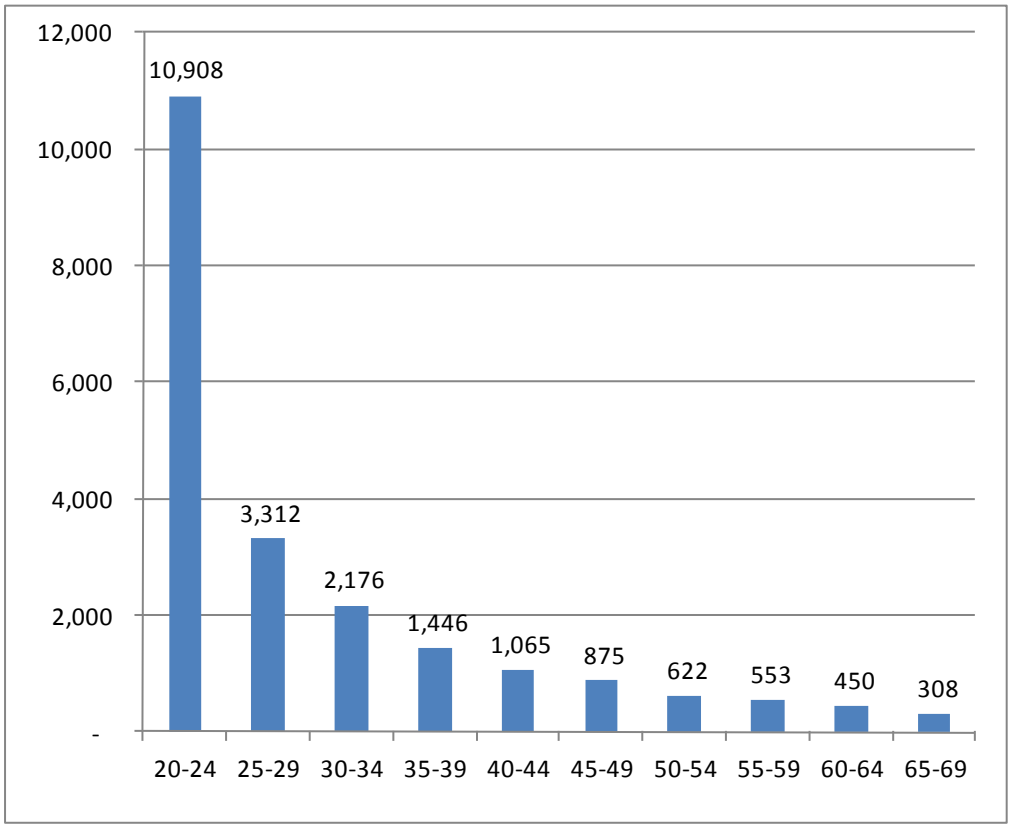


Figure 12 – Women with first screening events as a proportion of all women screened during the reporting period, by five-year age group (women aged 20-69 years at 31 December 2011)

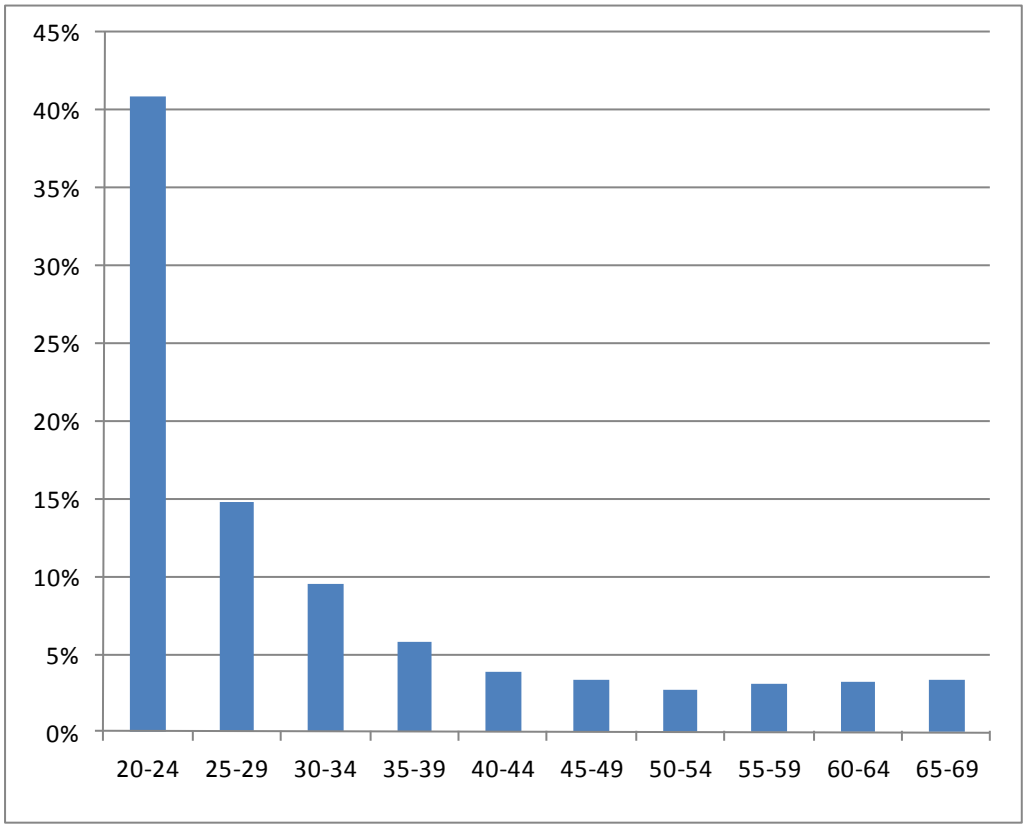
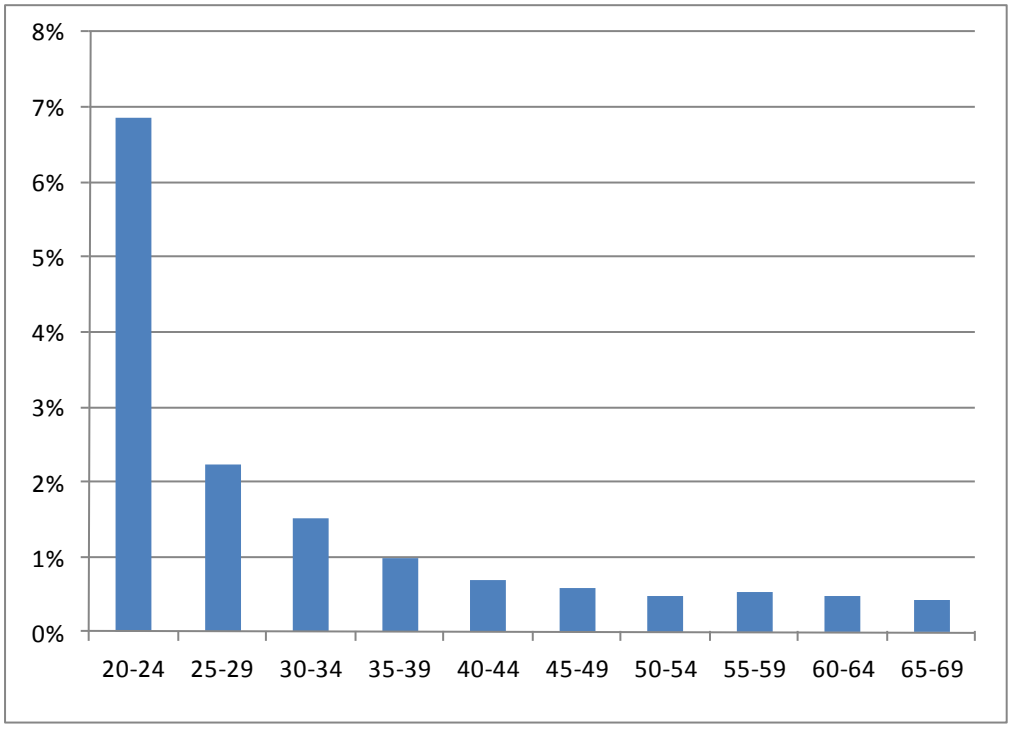


Figure 13 - Proportion of population* in that age group with their first screening event during the reporting period (women aged 20-69 years at 31 December 2011)



**Hysterectomy adjusted, 2006 Census data projected to mid-2011*

Figure 14 - Women with first screening events as a proportion of all women screened during the reporting period, by DHB (women aged 20-69 years at 31 December 2011)

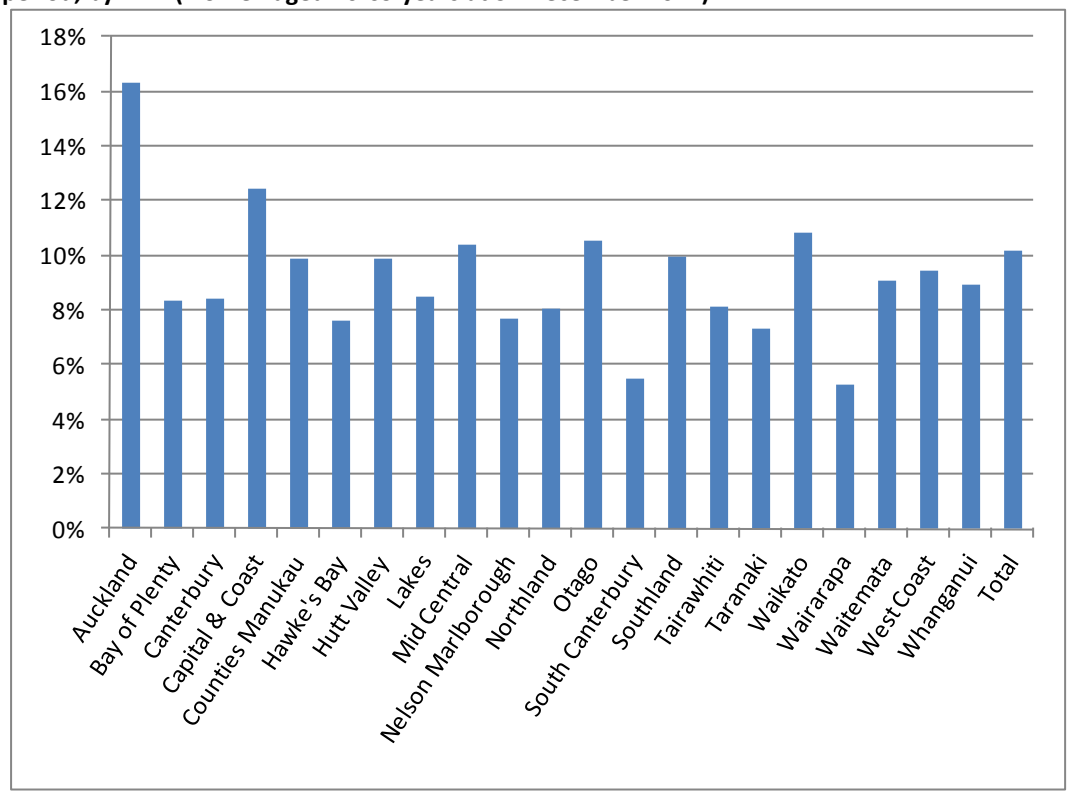


Figure 15 - Women with first screening events as a proportion of all women screened during the reporting period, by ethnicity

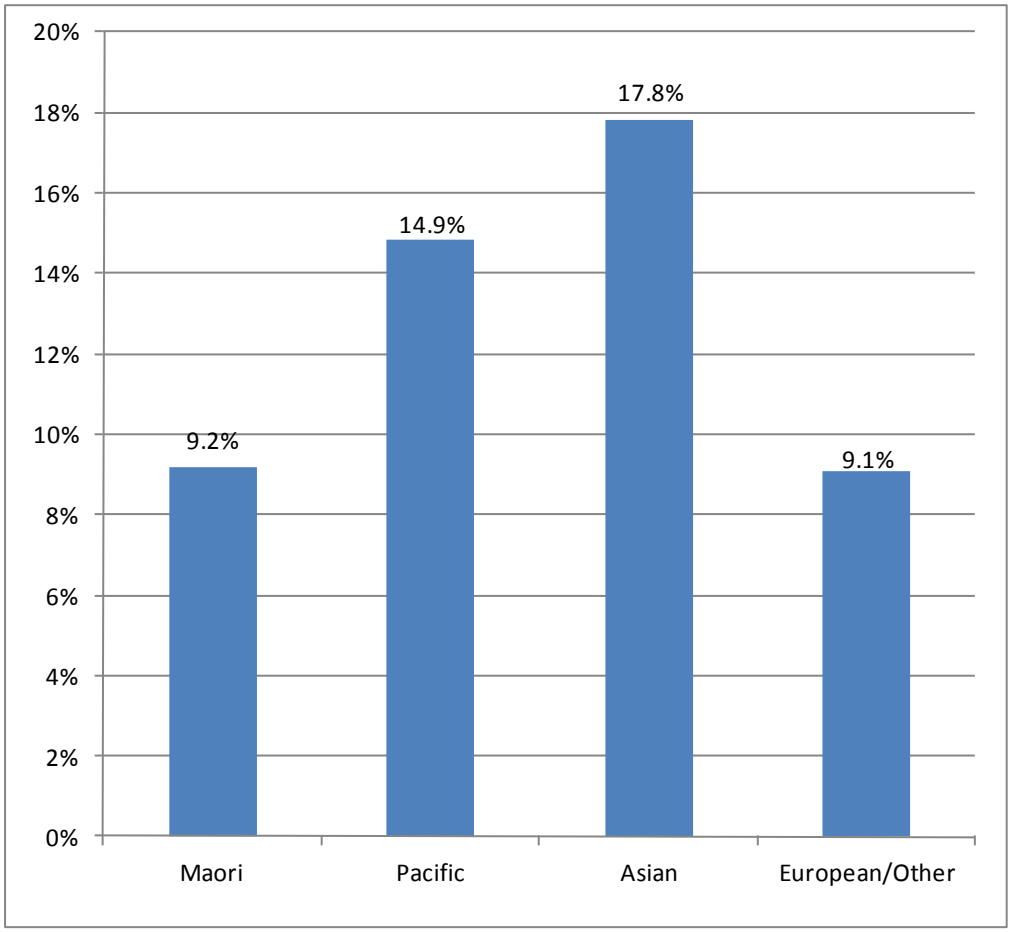


Table 1 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by DHB, for period 1 July – 31 December 2011

DHB	Women with first events	As a propotion of women with a sceening event [i]		As a proportion of eligigble population [ii]	
		N	%	N	%
Auckland	3,989	24,448	16.3	153,079	2.6
Bay of Plenty	864	10,390	8.3	59,623	1.4
Canterbury	2,131	25,369	8.4	149,721	1.4
Capital & Coast	2,061	16,558	12.4	94,593	2.2
Counties Manukau	2,033	20,513	9.9	148,054	1.4
Hawke's Bay	577	7,570	7.6	43,274	1.3
Hutt Valley	680	6,904	9.8	41,868	1.6
Lakes	409	4,799	8.5	29,466	1.4
Mid Central	787	7,576	10.4	47,919	1.6
Nelson Marlborough	517	6,704	7.7	39,448	1.3
Northland	550	6,806	8.1	43,825	1.3
Otago	1,024	9,692	10.6	55,978	1.8
South Canterbury	128	2,347	5.5	15,138	0.8
Southland	571	5,731	10.0	32,453	1.8
Tairawhiti	185	2,288	8.1	13,018	1.4
Taranaki	405	5,534	7.3	30,211	1.3
Waikato	1,890	17,506	10.8	104,324	1.8
Wairarapa	103	1,959	5.3	10,891	0.9
Waitemata	2,390	26,263	9.1	164,209	1.5
West Coast	150	1,584	9.5	9,144	1.6
Whanganui	271	3,025	9.0	17,182	1.6
Total	**21,715**	**213,566**	**10.2**	**1,303,418**	**1.7**

Note: Proportions shown are women with first screening event within a DHB, divided by i) all women with a screening event within that DHB (first or subsequent events) and ii) the hysterectomy-adjusted 2006 census population projected to 31 December 2011 for that DHB, as a percent. Total women screened excludes those for whom DHB could not be ascertained.

Table 2 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by ethnicity, for period 1 July – 31 December 2011

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	2,111	22,938	9.2	180,276	1.2
Pacific	1,467	9,871	14.9	80,197	1.8
Asian	3,417	19,164	17.8	171,569	2.0
European/Other	14,720	161,664	9.1	871,376	1.7
Total	**21,715**	**213,637**	**10.2**	**1,303,418**	**1.7**

Note: Proportions shown are women with first screening event within a DHB, divided by i) all women with a screening event within that DHB (first or subsequent events) and ii) the hysterectomy-adjusted 2006 census population projected to 31 December 2011 for that DHB, as a percent

Table 3 – Median age of women with a first screening event, by ethnicity

Ethnicity	Median Age
Māori	22
Pacific	27
Asian	32
European/ Other	23

Indicator 3 – Withdrawal rates

Definition	The number of women, by age-group, DHB, and ethnicity who are not currently enrolled in the NCSP Register and whose enrolment ended during the reporting period (withdrawals). Withdrawals relate to active withdrawals, where women specifically elect to be removed from the NCSP Register. The proportion of women who were enrolled on the NCSP Register at 31 December 2010, whose enrolment ended within the current reporting period, is also reported. Age is defined as a woman's age at the end of the reporting period.
Target	Zero for ages 20-69 years.
Current Situation	At the commencement of the reporting period, 1,416,012 women aged 20-69 years, and 1,581,433 women in total were enrolled on the NCSP Register. 39 women withdrew from the NCSP Register during the reporting period, all of whom were aged 20-69 years at the end of the monitoring period (0.003% of women who were enrolled at the commencement of the period) (Table 4). In all DHBs the proportion of those enrolled at the beginning of the period who withdrew was extremely small (maximum 0.007% in Tairawhiti and Nelson Marlborough). The DHBs with the largest number of withdrawals were Auckland (six women) and Canterbury and Waitemata (both had five women withdraw) (Figure 16, Table 44). No women withdrew in Hutt Valley, South Canterbury, Southland, Waikato, Wairarapa, West Coast or Whanganui during this period (Table 44). The age groups with the largest proportion of women withdrawing among those who were enrolled at the beginning of the period were women who were aged 20-24years at the end of the period (0.006%), however the number of women in this age group enrolled on the NCSP Register is much smaller than for other age groups. (Table 4, Figure 17). In all ethnic groups the number and proportion of women aged 20-69 years withdrawing was extremely small (one Māori women (0.001%); two Pacific women (0.003%); three Asian women (0.002%), 33 European/Other women (0.003%)) (Table 5, Figure 18).
Trends	The number of women who withdrew in the current reporting period (39 aged 20-69 years, 39 any age) is slightly lower than in the previous reporting period (44 aged 20-69 years; 45 any age), however the proportion is unchanged. The overall number of withdrawals remain 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.

Figure 16 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by DHB, 1 July – 31 December 2011

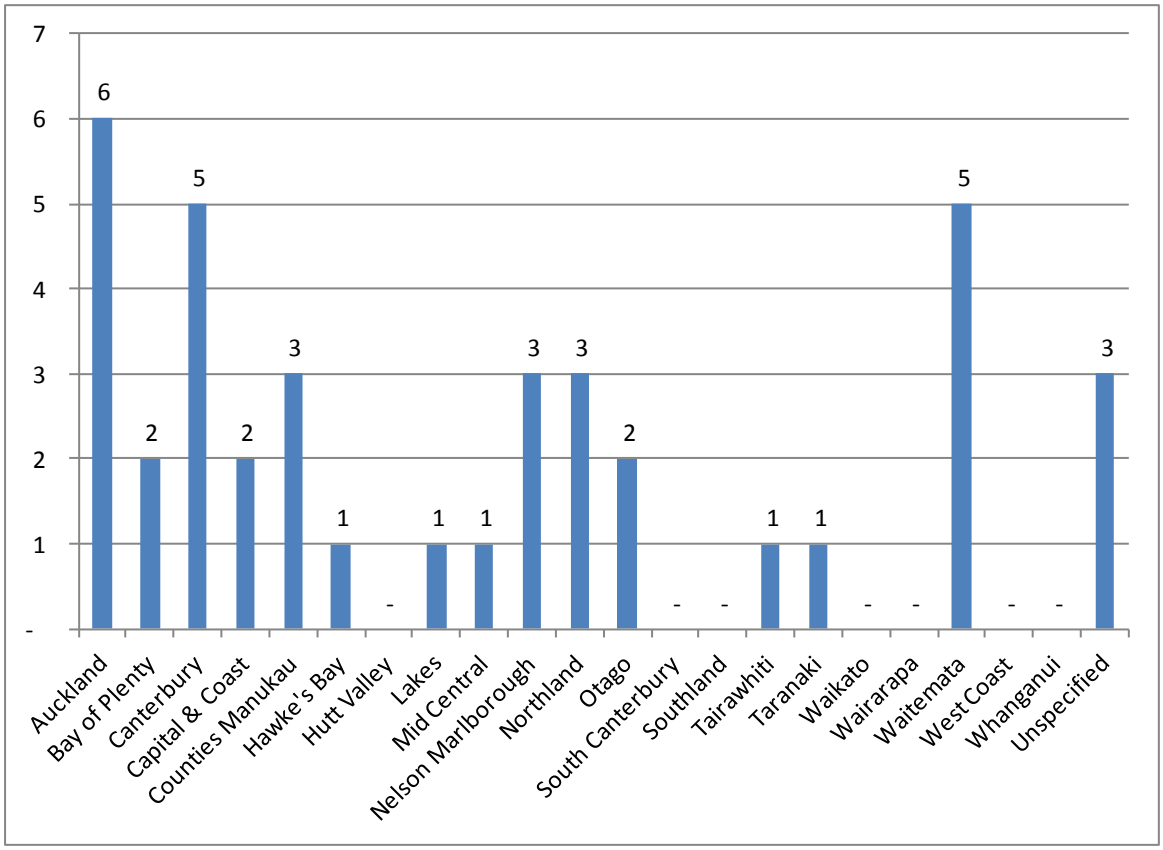


Figure 17 - Number of women who withdrew from the NCSP Register by age, 1 July – 31 December 2011

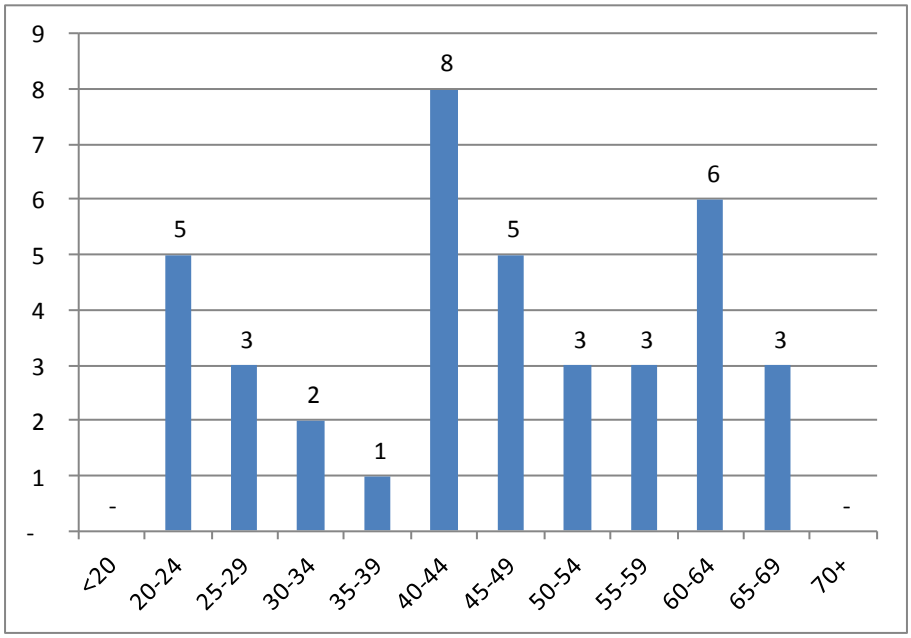


Figure 18 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by ethnicity, 1 July – 31 December 2011

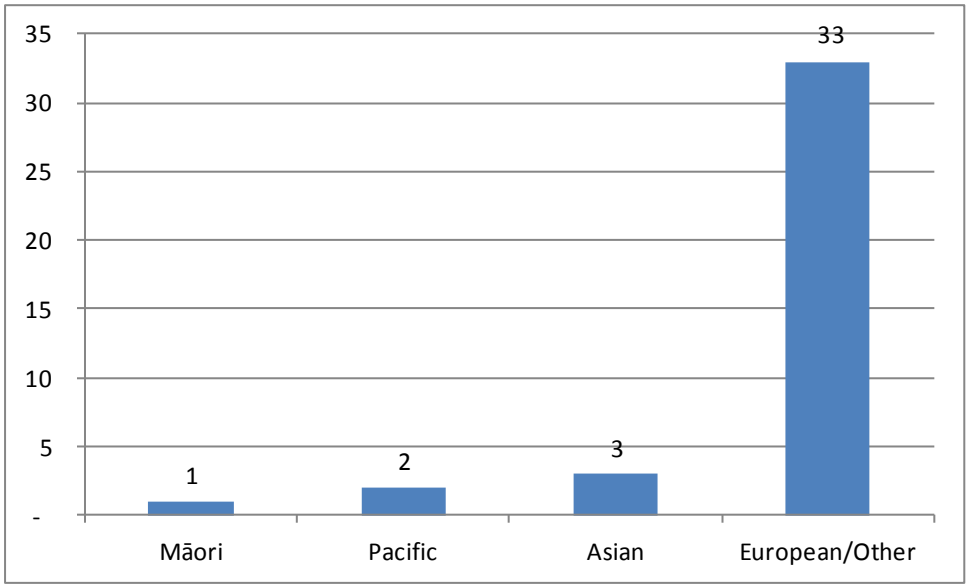


Table 4 - Number of women who withdrew from the NCSP Register 1 July – 31 December 2011 by age, and proportion of women who were enrolled at the start of the reporting period who withdrew

Age group	Women enrolled at start of period	Women who withdrew during period	
		N	% *
<20	3,001	-	0
20-24	83,508	5	0.006
25-29	133,109	3	0.002
30-34	154,481	2	0.001
35-39	178,054	1	0.001
40-44	192,211	8	0.004
45-49	183,795	5	0.003
50-54	166,078	3	0.002
55-59	134,059	3	0.002
60-64	110,969	6	0.005
65-69	79,748	3	0.004
70+	162,420	-	0.000
Total	**1,581,433**	**39**	**0.002**
Total (20-69)	**1,416,012**	**39**	**0.003**

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

Table 5 - Number of women (aged 20-69 years) who withdrew from the NCSP Register 1 July – 31 December 2011 ethnicity, and proportion of women who were enrolled at the start of the reporting period who withdrew

Age group	Women enrolled at start of period	Women who withdrew during period	
		N	% *
Māori	163,296	1	0.001
Pacific	77,533	2	0.003
Asian	122,817	3	0.002
European/Other	1,052,366	33	0.003
Total	**1,416,012**	**39**	**0.003**

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

Indicator 4 – Early re-screening

Definition

The proportion of women who returned for a smear within 30 months (2.5 years) of their index smear is calculated for a cohort of women. The cohort comprises women with an index smear taken between 1 February 2009 – 31 March 2009 (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 February/ March 2009 (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 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 reporting period (ie 31 December 2011).

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

42,932 women had a smear taken in February or March 2009, 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, 9,659 (22.5%) 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 (31.8%) and Auckland (30.1%) and Lakes (27.4%), and was least common in Taranaki (13.2%) (Figure 19, Table 46).

There was also some variability by age. Younger women (aged 20-24 years at the end of the period) were most likely to be re-screened early (29.6%), and older women (aged 65-69 years) were the least likely to be re-screened early (16.4%) (Figure 20, Table 45). Rates of early re-screening are very similar across the five year age groups from 25 to 59 years.

	Among the ethnic groups considered, Asian women were the most likely to be re-screened early (25.2%). Early re-screening was least common among Pacific women (18.3%) (Figure 21, Table 47).
Trends	The level of early re-screening is lower than in the previous monitoring report, when it was 23.7%. DHBs with the lowest and highest levels of early re-screening are largely unchanged since the previous report, except for the substantial drop in Lakes (from 32.1% to 27.4%). Rates of early re-screening have decreased in most DHBs, but increases were seen in Northland, Southland, Waikato and Whanganui. Longer terms trends by DHB are shown in Figure 22. Early re-screening has reduced among almost all age groups, although the reductions have been smallest among women aged 30-34 years, and women aged 45-49 years. Longer terms trends by age are shown in Figure 23. Early re-screening has also decreased in all ethnic groups except for Pacific women who experienced a slight increase (less than one percent).
Comments	Early re-screening was assessed based on cytology recommendation codes, in order to exclude from the early re-screening group women with a negative smear for whom an earlier screening visit is appropriate. Thus, only women with a recommendation that their next screening visit be in three years were eligible for inclusion in the early re-screening group (that is, in both the numerator and the denominator). Women excluded from the early re-screening group would include those who had just had their first smear or their first smear after a period of time (NCSP policy is to recommend a one year follow-up), women with atrophic changes for whom a repeat after oestrogen is recommended, women with an abnormal history or clinical symptoms, and those already under specialist care. Prior to Report 30, calculation of this indicator has not explicitly used recommendation codes to define the group of women of interest, and therefore the estimates for this measure may not be directly comparable to reports prior to Report 30. 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 R1 code in laboratory reports. An exploratory analysis of the accuracy of the R1 code was published in a previous monitoring report (Report 30). It suggested that R1 codes were generally accurate, and the small number of discrepancies would not have a substantial effect on the estimate for early re-screening.

Figure 19 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB

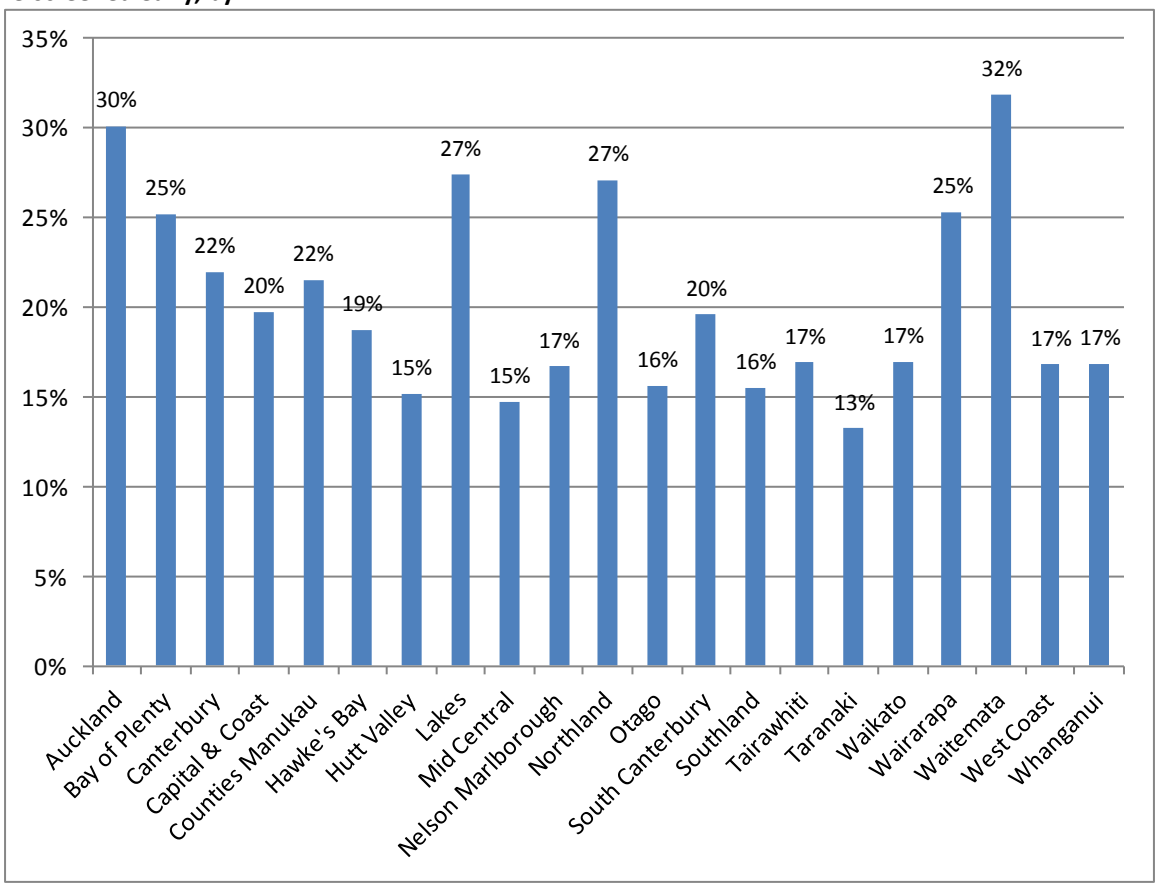


Figure 20 - Proportion of women recommended to return a the routine interval (three years) who were re-screened early, by five-year age group

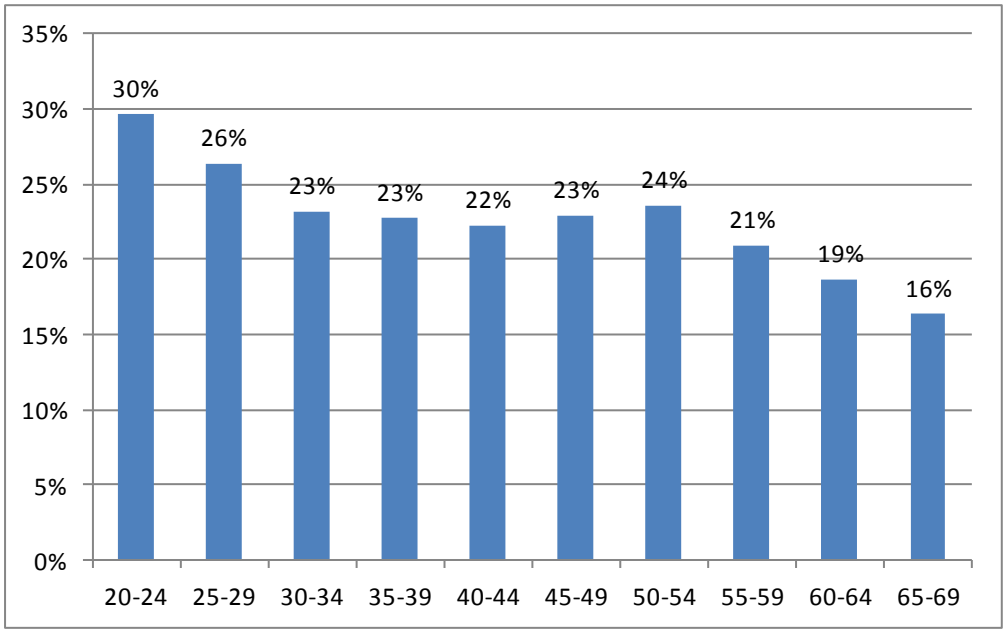


Figure 21 - Proportion of women recommended to return a the routine interval (three years) who were re-screened early, by ethnicity

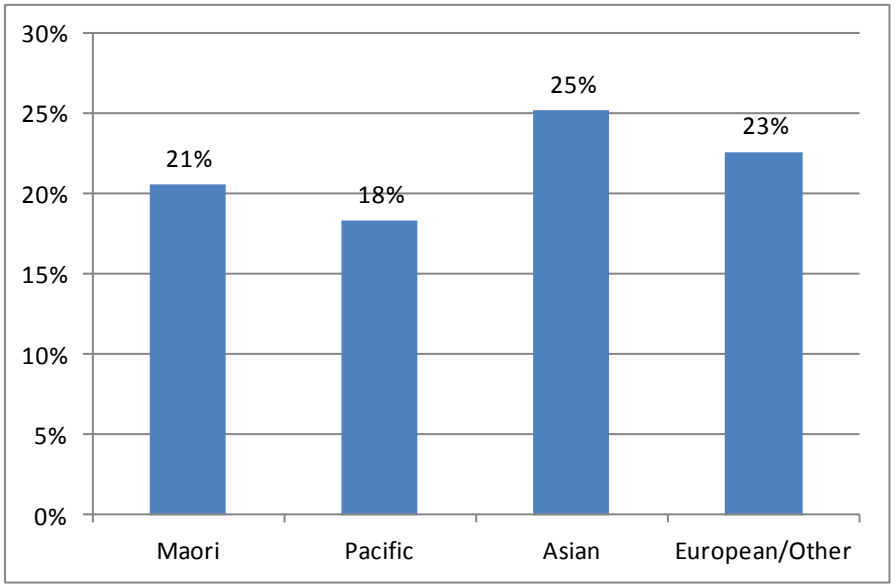


Figure 22 – Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB

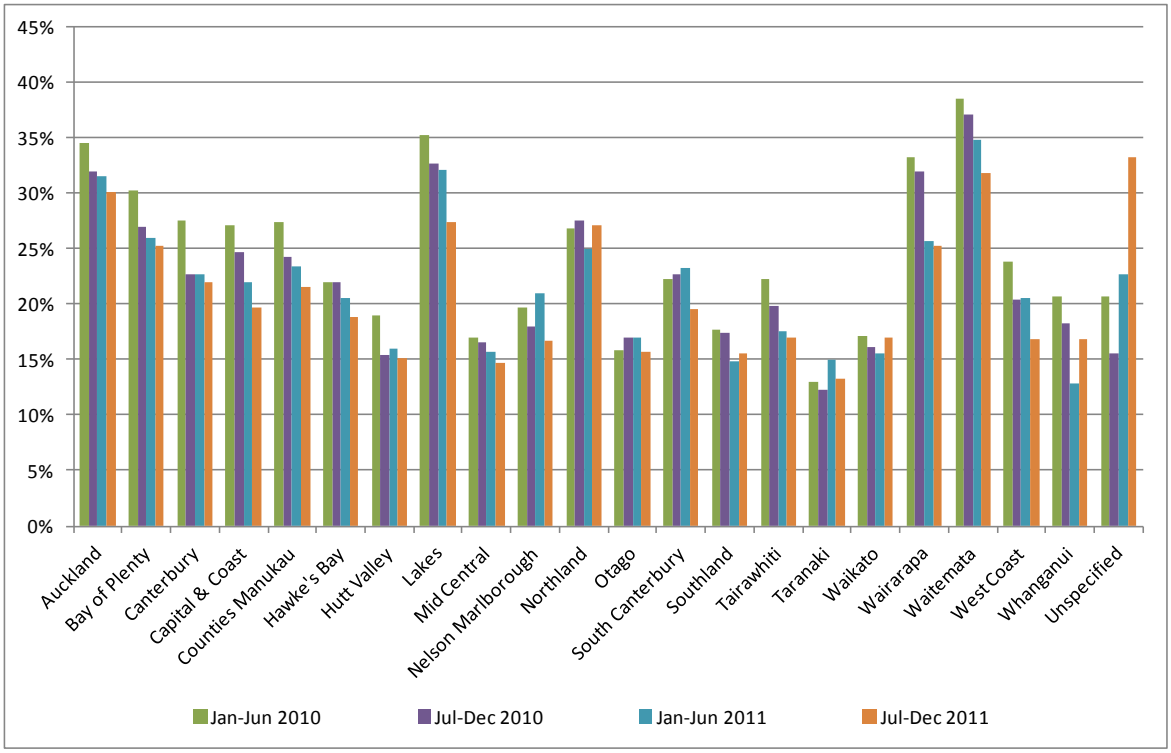
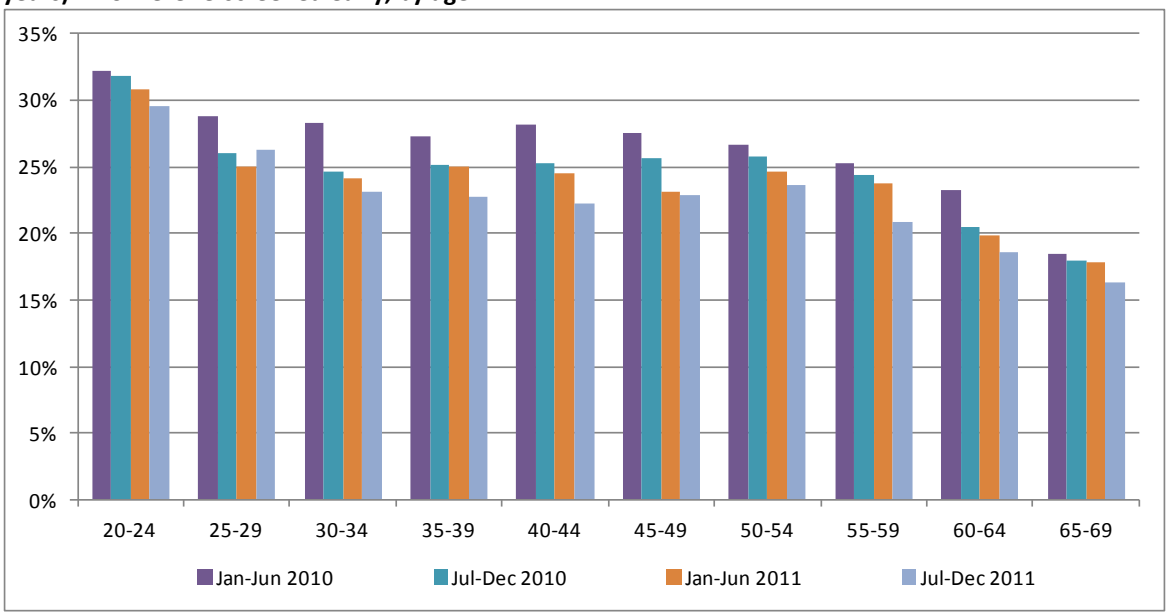


Figure 23 - Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by age



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 HrHPV tests according to NCSP guidelines are included in Indicator 8.

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 reporting 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.
Target	1-5% 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 0.6% of satisfactory samples reported as HSIL (Bethesda HS1 or HS2)

Current Situation

Eight laboratories reported on cytology taken during this reporting period. A total of 216,228 cytology samples were taken, virtually all of which were liquid-based cytology (LBC), 0.02% were conventional cytology, and 0.01% were a combination of the two (Table 6). In all laboratories, virtually all samples are LBC. Diagnostic Medlab Ltd, Medlab Central Ltd and Medlab South Christchurch processed only LBC during this reporting period. In the remaining labs, the number of non-LBC samples ranged from one (Aotea Pathology Ltd and Canterbury Health Laboratories) to 31 (Southern Community Labs) (Table 6).

Unsatisfactory cytology

2,461 cytology samples (1.1%) were unsatisfactory. These are reported on in more detail in Table 7 and Table 9. The remaining satisfactory samples are reported on in more detail in Table 8, and Table 10 to Table 13.

Nationally, the unsatisfactory rate for LBC was 1.1%. Four of the eight laboratories had unsatisfactory rates within the target range for LBC (Figure 24, Table 9). No laboratories had rates above the upper target of 5%, but four laboratories had rates below the 1% lower target (Aotea Pathology Ltd 0.1%, Canterbury Health Laboratories 0.3%, Pathlab 0.1%, Southern Community Labs 0.6%).

Unsatisfactory rates for conventional cytology have not been analysed further by laboratory, due to the small number of conventional cytology samples processed in each laboratory (38 samples nationally).

Negative cytology reports

92.1 % of cytology results were negative, consistent with the target of no more than 96% (Figure 25, Table 8). The proportion of samples which were negative varied by laboratory from 68.5 % (LabPLUS) to 95.7 % (Southern Community Labs). All eight laboratories met the target of no more than 96%.

Abnormal cytology reports

The proportion of samples which were abnormal (7.9 %) also fell within the recommended range of no more than 10% (Figure 26, Table 8). This varied widely by laboratory however, from 4.3% (Southern Community Labs) to 31.5% (LabPLUS). Two laboratories exceeded the target (Canterbury Health Laboratories 12.1% and LabPLUS 31.5%).

Abnormal cytology results were most common in younger women (aged less than 30 years) (Table 12, Table 13).

HSIL cytology reports

Overall, 0.8% of cytology samples were HSIL, consistent with the target of at least 0.6% of samples (Figure 27, Table 11). Rates varied by laboratory from 0.5% (Aotea Pathlogy Ltd) to 4.7% (LabPLUS). One laboratory had a rate of HSIL below target levels (Aotea Pathlogy Ltd 0.5%).

Rates of HSIL or worse were most common in women aged 25-29 years (Table 12, Table 13).

Trends

Unsatisfactory cytology

The unsatisfactory rate in LBC samples has risen from 1.0% to 1.1% in the current reporting period, and therefore has remained at the target range.

The number of laboratories meeting the target for unsatisfactory LBC samples (four of eight laboratories) has remained the same as it was in the previous reporting period. The number of laboratories with unsatisfactory rates for LBC below the lower target of 1% has also remained the same as the previous reporting period (four).

Negative vs abnormal cytology reports

The proportion of satisfactory cytology samples which are negative for intraepithelial lesion or malignancy (92.1%) is slighty lower to that in the previous reporting period (92.3%), and correspondingly the proportion of cytology samples reported as abnormalities (7.9%) is higher than that in the previous reporting period (7.7%). As in the previous reporting period, all laboratories met the target for negative cytology. The number meeting the target for abnormal samples has remained the same at six since the previous reporting period. The same two laboratories had abnormal cytology rates above the target range.

HSIL cytology reports

The proportion of satisfactory cytology samples reported as HSIL has remained the same as in the previous monitoring report (0.8%). The number of laboratories meeting the target of at least 0.6% has increased from five to seven, as the rate of HSIL samples has increased at Pathlab and Diagnostic Medlab Limited.

Longer term trends in the proportion of satisfactory cytology samples reported as HSIL are shown in Figure 28 (trends by age) and Figure 29 (trends by laboratory).

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 higher proportion of samples received from colposcopy clinics compared to other laboratories) is a factor underlying the observed higher rate for this laboratory.

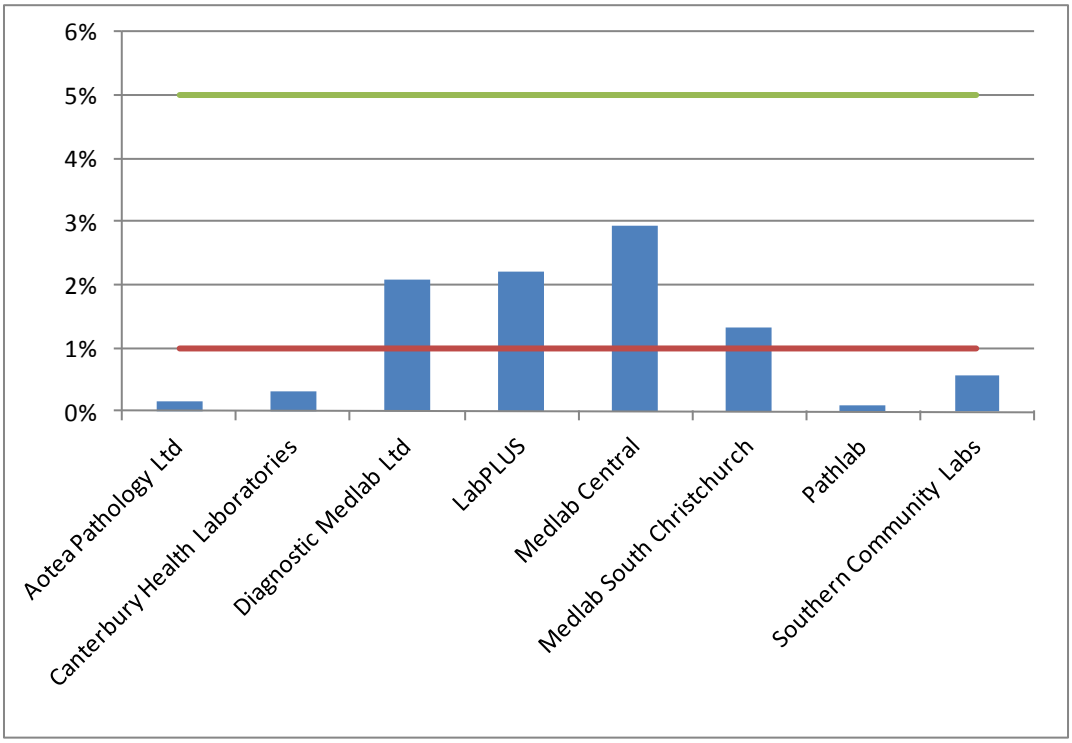
The targets for unsatisfactory cytology applies to both types of LBC (ThinPrep and SurePath). It is uncertain if this is applicable, as the techniques used to produce slides from the liquid samples differ between test technologies - ThinPrep is a filtration-based method, whereas SurePath is a centrifugation-based method. There is limited evidence on the appropriate lower level for

unsatisfactory cytology using SurePath, however results from a pooled analysis suggest that unsatisfactory rates may differ between the technologies.[5] Use of different LBC test technologies by different laboratories may be a factor in the variation in rates of unsatisfactory cytology (it is believed that all laboratories with unsatisfactory rates below 1% for LBC use SurePath). The target for unsatisfactory LBC samples will be reviewed as more evidence becomes available.

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 for women aged up to 19 years. International data indicate that many high grade squamous cytology reports are associated with HPV types which are potentially preventable by vaccination,[6-8] and that this is particularly true for younger women.[9-11] 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. Therefore, trends in the proportion of satisfactory cytology samples reported as HSIL by age will be included in future 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 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.

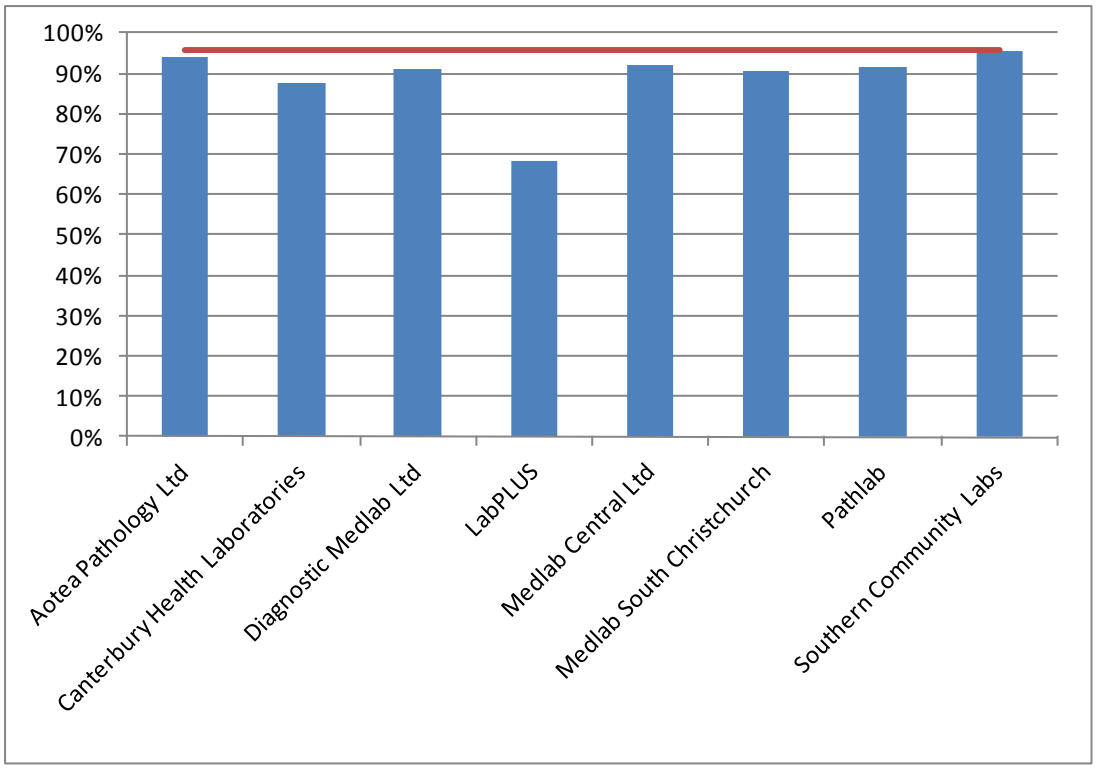
It is possible that data entry errors may be the cause of the remaining cytology tests which still appear to have involved conventional cytology only. The number of these tests is small (38 tests; 0.02% of all samples taken during this period).

Figure 24 - Proportion of total LBC samples reported as unsatisfactory by laboratory, 1 July – 31 December 2011 (Green line=upper target limit; red line=lower target limit)



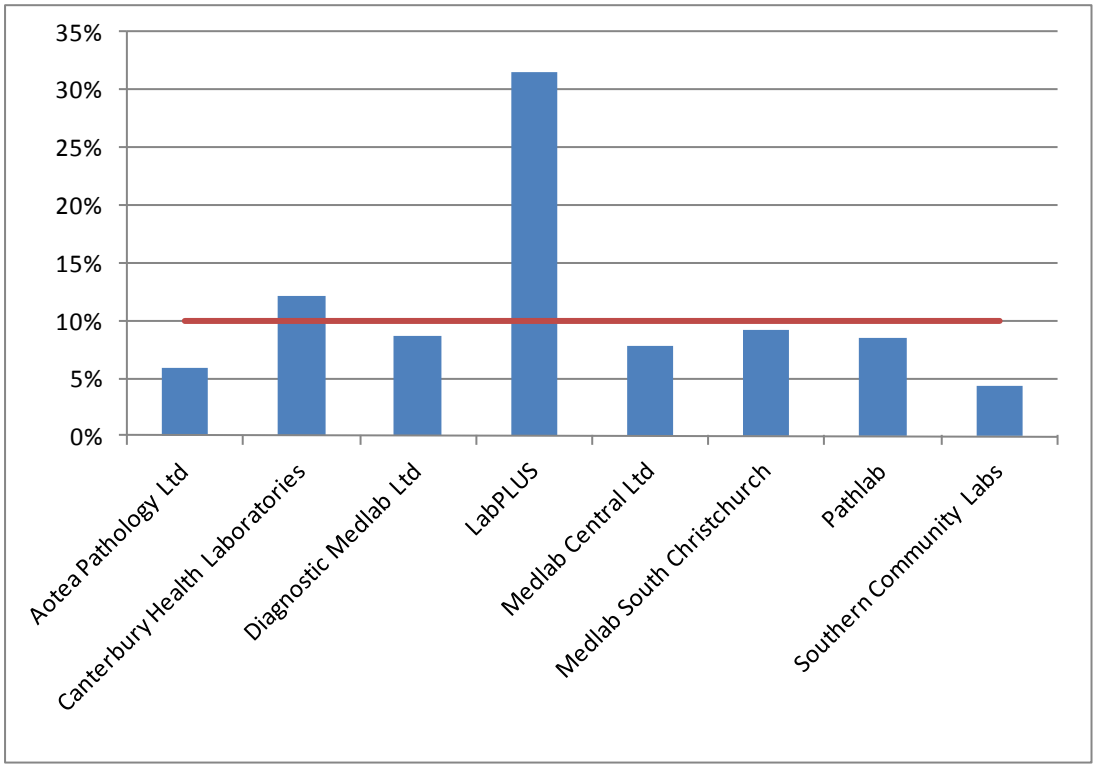
Target for LBC: 1-5%

Figure 25 - Proportion of total satisfactory samples reported as negative by laboratory, 1 July – 31 December 2011



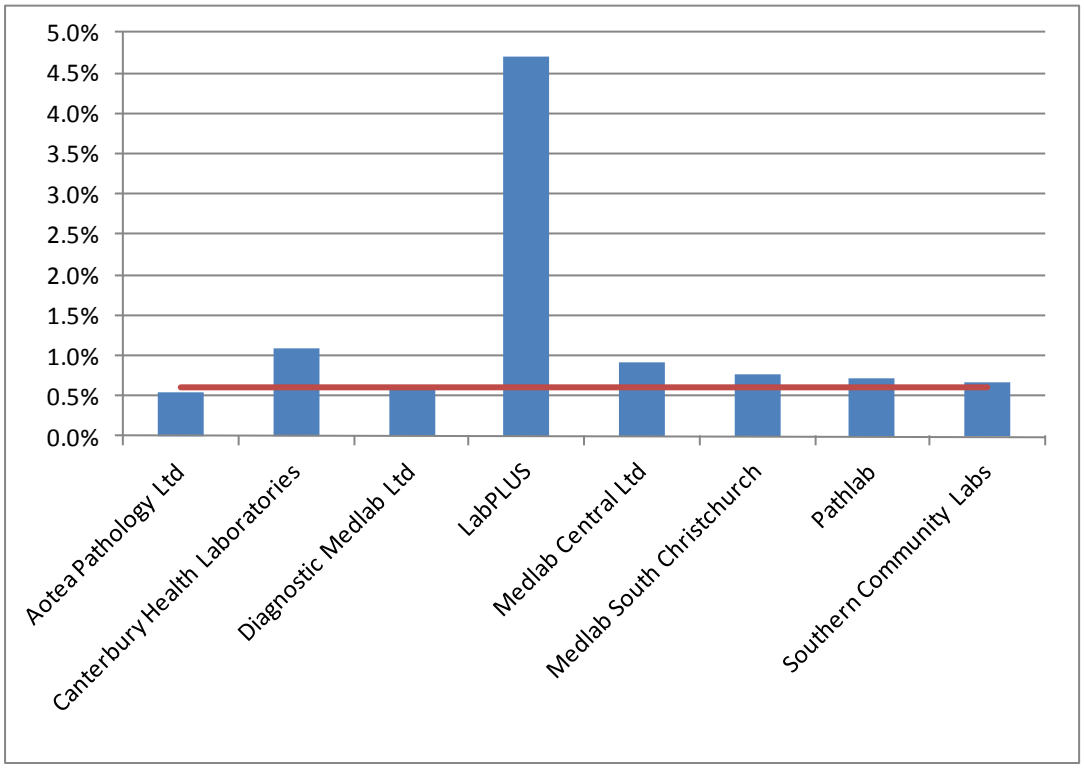
Note: Line shows negative target of no more than 96%

Figure 26 - Proportion of total satisfactory samples reported as abnormalities by laboratory, 1 July – 31 December 2011



Note: Line shows abnormal target no more than 10%

Figure 27 - Proportion of total satisfactory samples reported as HSIL by laboratory, 1 July – 31 December 2011



Note: Line shows HSIL target of no less than 0.6%

Table 6 - Laboratory cytology reporting by type of cytology sample (1 July – 31 December 2011)

Organisation	All samples	By cytology specimen type					
		LBC		Conventional		Combined	
	N	N	%	N	%	N	%
Aotea Pathology Ltd	23,162	23,160	100.0	1	0.00	1	0.00
Canterbury Health Laboratories	11,190	11,185	100.0	1	0.01	4	0.04
Diagnostic Medlab Ltd	50,453	50,452	100.0	0	0.00	1	0.00
LabPLUS	7,776	7,773	100.0	3	0.04	0	0.00
Medlab Central Ltd	18,084	18,084	100.0	0	0.00	0	0.00
Medlab South Christchurch	16,094	16,094	100.0	0	0.00	0	0.00
Pathlab	21,381	21,379	100.0	2	0.01	0	0.00
Southern Community Labs	68,088	68,052	99.9	31	0.05	5	0.01
TOTAL	**216,228**	**216,179**	**100.0**	**38**	**0.02**	**11**	**0.01**

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

Table 7 - Satisfactory and unsatisfactory cytology reporting by laboratory (1 July – 31 December 2011)

Laboratory	All Samples	Satisfactory		Unsatisfactory	
	N	N	%	N	%
Aotea Pathology Ltd	23,162	23,129	99.9	33	0.1
Canterbury Health Laboratories	11,190	11,156	99.7	34	0.3
Diagnostic Medlab Ltd	50,453	49,396	97.9	1,057	2.1
LabPLUS	7,776	7,604	97.8	172	2.2
Medlab Central	18,084	17,554	97.1	530	2.9
Medlab South Christchurch	16,094	15,880	98.7	214	1.3
Pathlab	21,381	21,360	99.9	21	0.1
Southern Community Labs	68,088	67,688	99.4	400	0.6
Total	**216,228**	**213,767**	**98.9**	**2,461**	**1.1**

See also Table 9

Table 8 - Laboratory cytology reporting by general result (1 July – 31 December 2011) – percentage of satisfactory samples

Laboratory	Negative		Abnormal	
	N	%	N	%
Aotea Pathology Ltd	21,775	94.1	1,354	5.9
Canterbury Health Laboratories	9,802	87.9	1,354	12.1
Diagnostic Medlab Ltd	45,080	91.3	4,316	8.7
LabPLUS	5,209	68.5	2,395	31.5
Medlab Central Ltd	16,184	92.2	1,370	7.8
Medlab South Christchurch	14,422	90.8	1,458	9.2
Pathlab	19,540	91.5	1,820	8.5
Southern Community Labs	64,793	95.7	2,895	4.3
Total	**196,805**	**92.1**	**16,962**	**7.9**

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

Table 9 - Laboratory reporting of unsatisfactory results by type of cytology sample (1 July – 31 December 2011)

Laboratory	Conventional			LBC			Combined			TOTAL		
	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%
Aotea Pathology Ltd	-			33	23,160	0.1	-			33	23,162	0.1
Canterbury Health Laboratories	-			34	11,185	0.3	-			34	11,190	0.3
Diagnostic Medlab Ltd	-			1,057	50,452	2.1	-			1,057	50,453	2.1
LabPLUS	-			172	7,773	2.2	-			172	7,776	2.2
Medlab Central Ltd	-			530	18,084	2.9	-			530	18,084	2.9
Medlab South Christchurch	-			214	16,094	1.3	-			214	16,094	1.3
Pathlab	-			21	21,379	0.1	-			21	21,381	0.1
Southern Community Labs	7			393	68,052	0.6	-			400	68,088	0.6
Total	**7**	**38**	**18.4**	**2,454**	**216,179**	**1.1**	**-**	**11**	**0.0**	**2,461**	**216,228**	**1.1**

Target unsatisfactory: 1-5% LBC. Unsatisfactory rates for conventional and combined cytology samples were not calculated for individual laboratories due to the small number of samples.

Table 10 - Laboratory cytology reporting by cytological category (1 July – 31 December 2011) – counts

	Result									
Laboratory	**Negative**	**ASC-US**	**LSIL**	**ASC-H**	**HSIL**	**SC**	**AGC/ AIS**	**Adeno-carcinoma**	**Malignant Neoplasm**	**Total**
Aotea Pathology Ltd	21,775	468	647	94	127	3	9	6	-	23,129
Canterbury Health Laboratories	9,802	431	643	138	121	3	10	8	-	11,156
Diagnostic Medlab Ltd	45,080	1,505	2,238	233	300	1	34	5	-	49,396
LabPLUS	5,209	793	795	426	358	2	17	4	-	7,604
Medlab Central Ltd	16,184	401	673	117	159	-	16	4	-	17,554
Medlab South Christchurch	14,422	583	514	218	123	2	18	-	-	15,880
Pathlab	19,540	505	1,016	128	152	-	14	5	-	21,360
Southern Community Labs	64,793	573	1,738	93	445	6	28	12	-	67,688
Total	**196,805**	**5,259**	**8,264**	**1,447**	**1,785**	**17**	**146**	**44**	**-**	**213,767**

Table 11 - Laboratory cytology reporting by cytological category (1 July – 31 December 2011) - percentage of all satisfactory samples

	Percentage of Laboratory's Result								
Laboratory	**Negative**	**ASC-US**	**LSIL**	**ASC-H**	**HSIL**	**SC**	**AGC/AIS**	**Adeno-carcinoma**	**Malignant Neoplasm**
Aotea Pathology Ltd	94.1	2.0	2.8	0.4	0.5	0.01	0.04	0.03	-
Canterbury Health Laboratories	87.9	3.9	5.8	1.2	1.1	0.03	0.09	0.07	-
Diagnostic Medlab Ltd	91.3	3.0	4.5	0.5	0.6	<0.005	0.07	0.01	-
LabPLUS	68.5	10.4	10.5	5.6	4.7	0.03	0.22	0.05	-
Medlab Central Ltd	92.2	2.3	3.8	0.7	0.9	-	0.09	0.02	-
Medlab South Christchurch	90.8	3.7	3.2	1.4	0.8	0.01	0.11	-	-
Pathlab	91.5	2.4	4.8	0.6	0.7	-	0.07	0.02	-
Southern Community Labs	95.7	0.8	2.6	0.1	0.7	0.01	0.04	0.02	-
Total	**92.1**	**2.5**	**3.9**	**0.7**	**0.8**	**0.01**	**0.07**	**0.02**	**-**

Note: Target: HSIL ≥ 0.6% reported as HSIL

Table 12 - Laboratory reporting of cytological category by five-year age group (1 July – 31 December 2011) – counts

Age Group	Cytology Result									Total
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	
<20	1,673	98	295	32	28	-	-	-	-	2,126
20-24	22,023	1,216	2,992	421	483	-	4	1	-	27,140
25-29	19,241	753	1,377	284	401	-	18	2	-	22,076
30-34	20,576	542	859	195	273	-	8	1	-	22,454
35-39	23,225	545	675	146	212	1	11	1	-	24,816
40-44	24,963	550	634	104	152	2	23	1	-	26,429
45-49	23,730	554	505	74	90	2	16	1	-	24,972
50-54	21,228	419	390	51	58	3	19	5	-	22,173
55-59	16,346	272	239	62	45	-	25	3	-	16,992
60-64	13,398	177	163	34	28	2	12	7	-	13,821
65-69	8,443	98	92	26	10	5	5	6	-	8,685
70+	1,959	35	43	18	5	2	5	16	-	2,083
Total	**196,805**	**5,259**	**8,264**	**1,447**	**1,785**	**17**	**146**	**44**	**-**	**213,767**

Table 13 - Laboratory reporting of cytological category by five-year age group (1 July – 31 December 2011) - percentage of all satisfactory samples in women that age group

Age Group	Percentage of Age Group Total								
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm
<20	78.7	4.6	13.9	1.5	1.3	-	-	-	-
20-24	81.1	4.5	11.0	1.6	1.8	-	0.01	<0.005	-
25-29	87.2	3.4	6.2	1.3	1.8	-	0.08	0.01	-
30-34	91.6	2.4	3.8	0.9	1.2	-	0.04	<0.005	-
35-39	93.6	2.2	2.7	0.6	0.9	<0.005	0.04	<0.005	-
40-44	94.5	2.1	2.4	0.4	0.6	0.01	0.09	<0.005	-
45-49	95.0	2.2	2.0	0.3	0.4	0.01	0.06	<0.005	-
50-54	95.7	1.9	1.8	0.2	0.3	0.01	0.09	0.02	-
55-59	96.2	1.6	1.4	0.4	0.3	-	0.15	0.02	-
60-64	96.9	1.3	1.2	0.2	0.2	0.01	0.09	0.05	-
65-69	97.2	1.1	1.1	0.3	0.1	0.06	0.06	0.07	-
70+	94.0	1.7	2.1	0.9	0.2	0.10	0.24	0.77	-
Total	**92.1**	**2.5**	**3.9**	**0.7**	**0.8**	**0.01**	**0.07**	**0.02**	**-**

Figure 28 – Trends in the proportion of total satisfactory samples reported as HSIL, by age

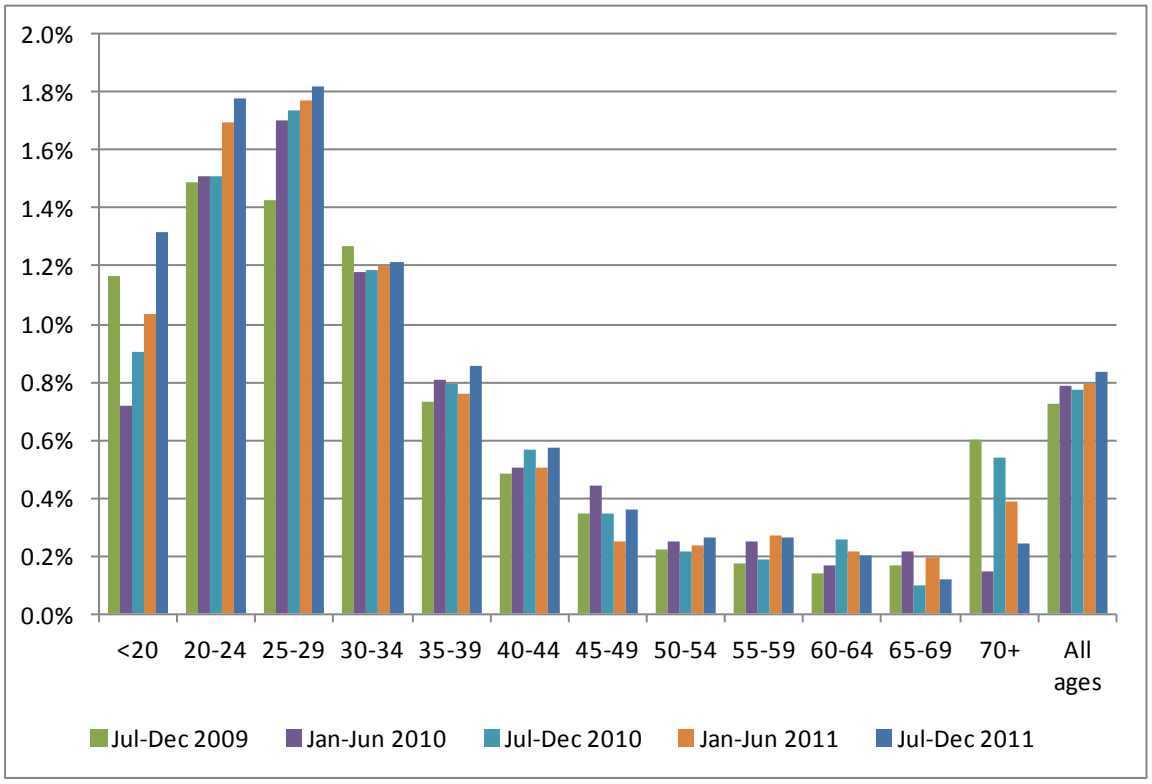
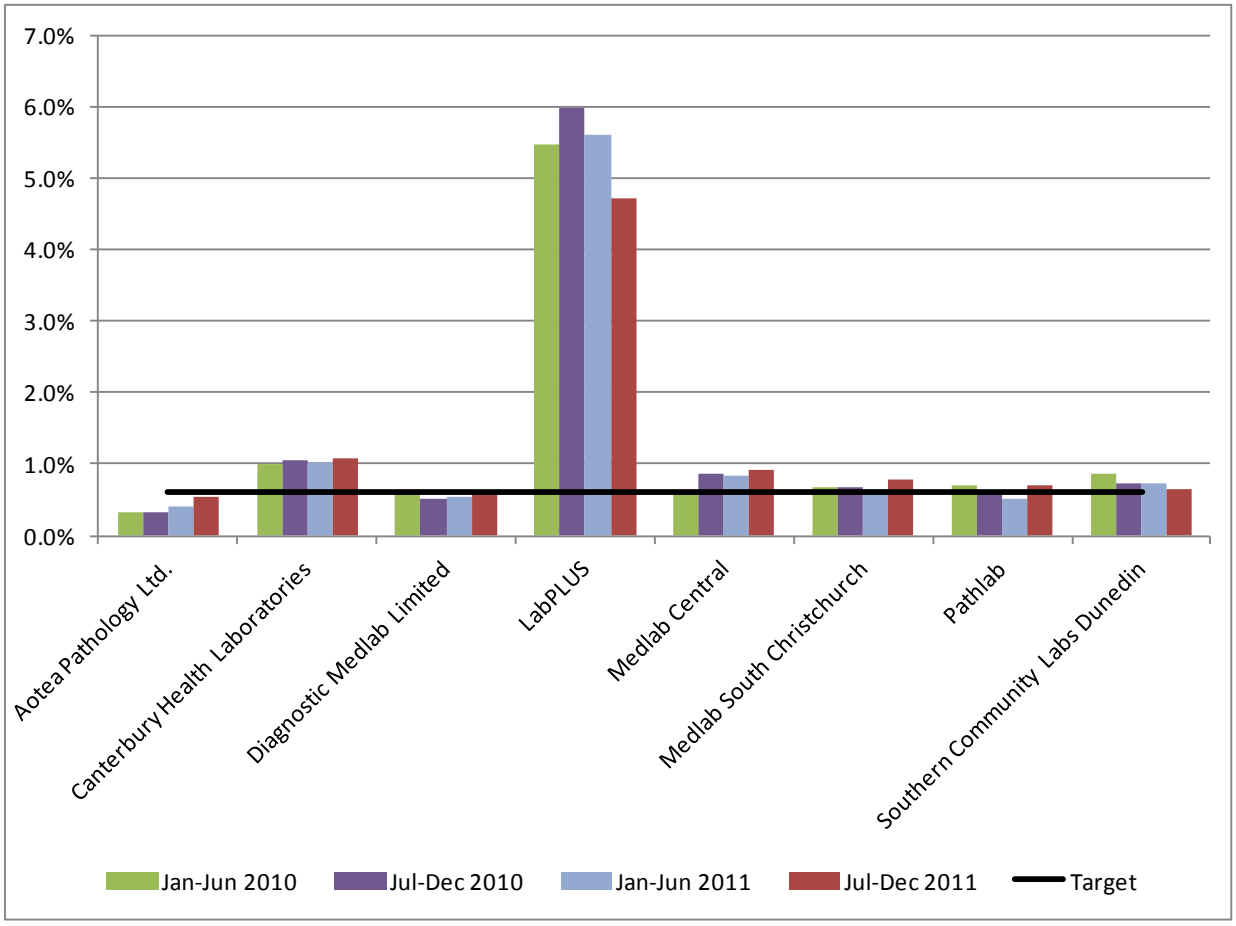


Figure 29 – Trends in the proportion of total satisfactory samples reported as HSIL, by laboratory



Indicator 5.2 – Accuracy of cytology predicting HSIL

Definition	The accuracy of cytology predicting HSIL (positive predictive value – PPV) is defined as the probability of a high grade histological report (CIN2/3) or higher given an HSIL/invasive squamous carcinoma cytology report. Refer to Appendix D for detailed definitions of histological confirmation.
Target	Not less than 65% and not greater than 85%.
Current Situation	All satisfactory cytology samples collected in the six months prior to the current reporting period (ie collected from 1 January until 30 June 2011 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*** 1,554 women with HSIL or SC cytology reports were identified. 150 of these women (9.7%) had no histology taken in the period from five days prior to six months after the cytology sample was taken. Among the remaining 1,404 for whom there was histology, 1,173 (83.5%) had their HSIL/SC cytology confirmed by histology (Figure 30, Table 48). All laboratories achieved the minimum target of at least 65% of cytological HSIL +SC being confirmed by histology. Four laboratories exceeded 85% of HSIL+SC being histologically confirmed – Southern Community Labs Dunedin (85.2) Canterbury Health Laboratories (92.2%), Medlab Central Ltd (86.2 %) and Pathlab (87.1%) (Figure 30, Table 48). ***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*** 1,118 women with a cytology report of ASC-H were identified. 209 (18.7%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 909 women, 467 (51.4%) were histologically confirmed as high grade. This proportion varied by laboratory,

from 43.9% (LabPLUS) to 66.1% (Medlab Central Ltd) (Figure 31, Table 49).

ASC-H+HSIL+SC

A total of 2,672 women had a cytology report of ASC-H, HSIL or SC. 359 (13.4%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 2,313 women, 1,640 (70.9%) were histologically confirmed as high grade. This proportion varied by laboratory, from 62.7% (Medlab South Christchurch) to 81.0% (Southern Community Labs Dunedin). The combined positive predictive value across the 2,313 women with ASC-H, HSIL, and SC and histology available is shown in Figure 31 and Table 50.

Glandular abnormalities

193 women with a glandular abnormality (AG1-AG5, AIS, AC1-AC4) were identified. 49 women (25.4%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 144 women, 83 (57.6%) were identified as having histological high grade. This was not analysed further, as the number of samples reported on by many laboratories was too small to be meaningful.

Trends

HSIL+SC

Positive predictive value for HSIL and SC cytology has increased since the previous monitoring report (82.1% in the previous period; 83.5% in the current period). As in the previous monitoring period, all laboratories had at least 65% of their HSIL + SC cytology results confirmed by histology. The number of laboratories with PPVs above the upper target of 85% has increased from one to four. The proportion of cytology reports with histology available has decreased for HSIL or SC (91.0% in the previous report; 90.3% in the current report).

ASC-H

Positive predictive value for ASC-H cytology has increased slightly, from 51.1% to 51.4%, however there is no target for this measure. The proportion of cytology reports with histology available has increased for ASC-H (from 76.8% to 81.3%).

ASC-H+HSIL+SC

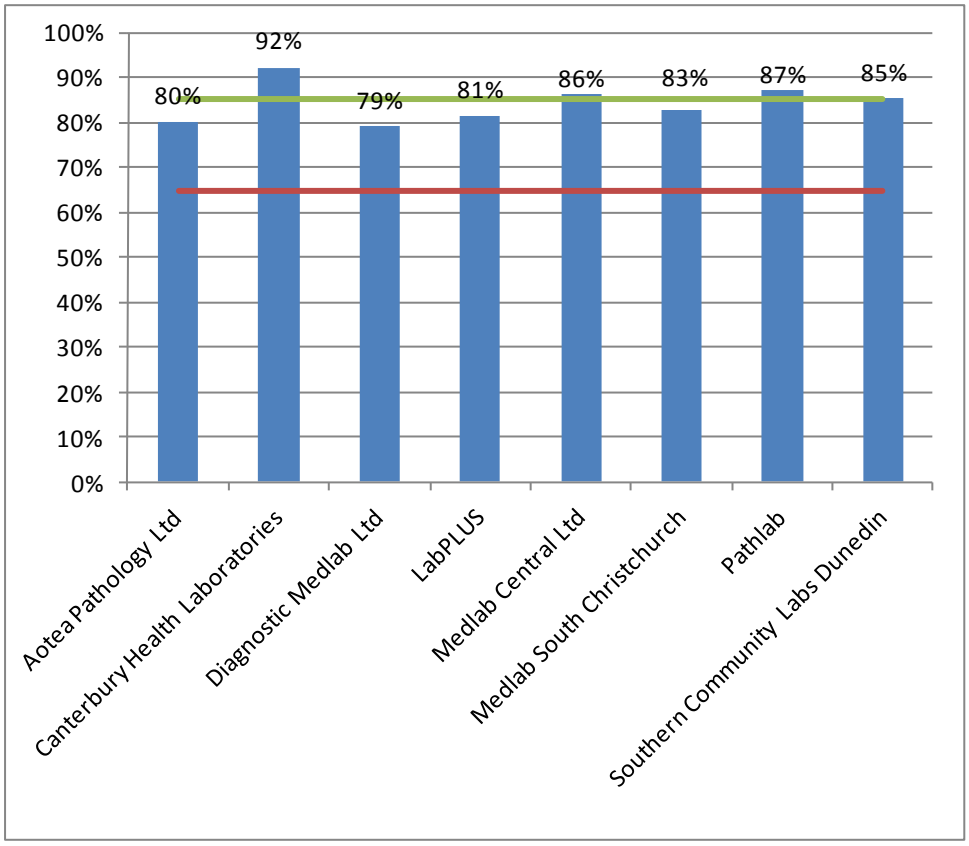
The positive predictive value for the combined group ASC-H, HSIL and SC was very similar in the previous report (70.0%) to what it is in the current report (70.9%), however there are no targets for the positive predictive value of the combined group of ASC-H, HSIL and SC.

Glandular abnormalities

The positive predictive value of glandular abnormalities increased (from 57.1% in the previous report to 57.6% in the current report). Compared to

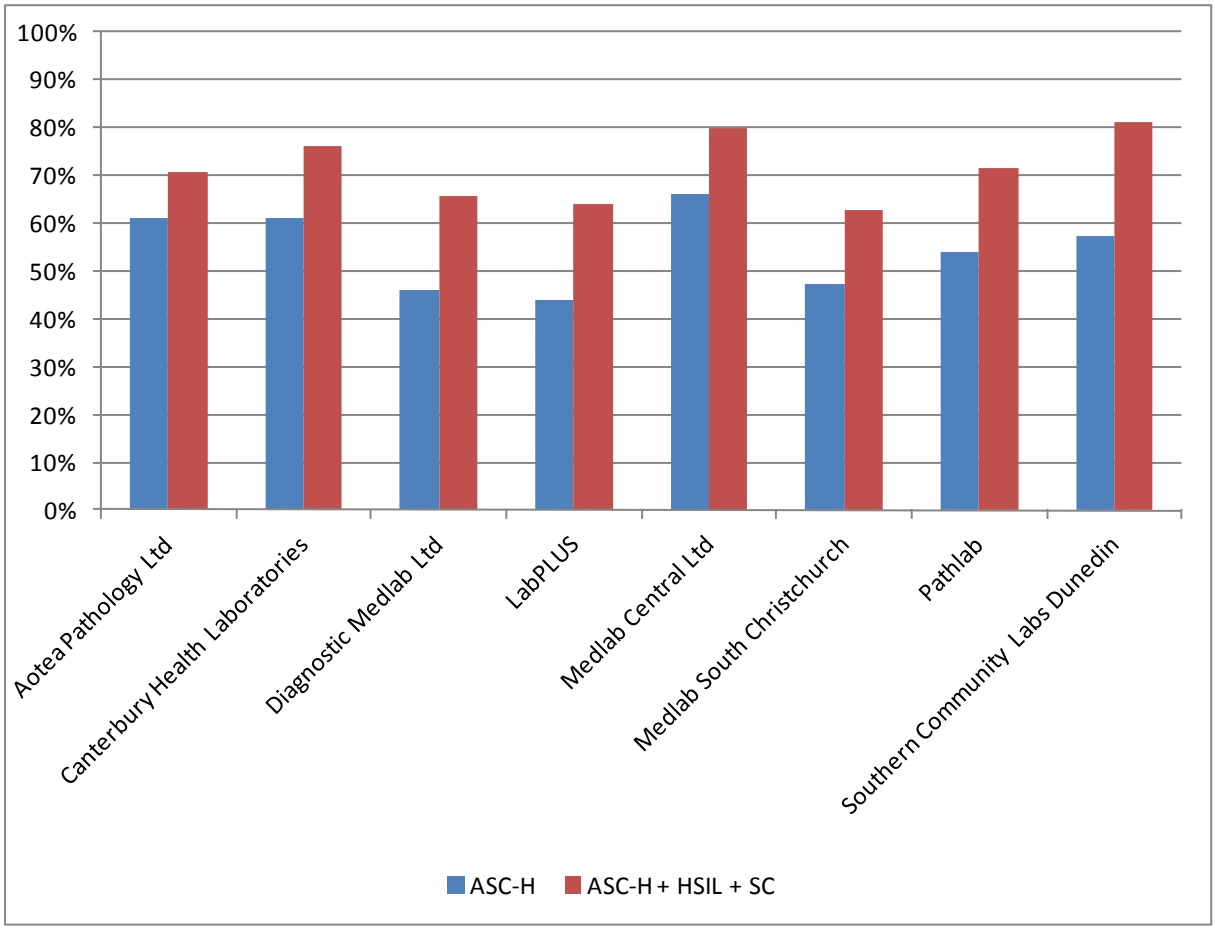
	both ASC-H cytology, and the combined group of HSIL and SC cytology, there are far fewer glandular abnormalities, and an even smaller number with histology available. The proportion of glandular abnormalities with histology available (74.6%) is greater to that in the previous reporting period (68.0%), but remains less than that for ASC-H (81.3%) and HSIL+SC (90.3%). 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 PPV (and other reporting categories) in a screening setting.

Figure 30 - Positive predictive value for CIN2+ in women with HSIL or SC cytology reports by laboratory, 1 July – 31 December 2011



Target: 65% - 85%

Figure 31 - Positive predictive value for CIN2+ in women with other high grade cytology results, by laboratory 1 July – 31 December 2011



Indicator 5.3 – Accuracy of negative cytology reports

Definition	This indicator is under development and currently has two parts to its definition. 1. The percentage of negative cytology samples (excluding unsatisfactory samples which are reported separately) with subsequent high grade or worse histology that are upgraded to high grade or worse category following slide review. 2. The ability of a laboratory to correctly identify a negative sample.
Current Situation	Data required for this measure was not available from the NCSP Register for the current reporting period. While some data are provided by laboratories to the NCSP, methodology is not consistent between laboratories. As a result of these methodological differences, it was considered that comparisons should not be made between laboratories.

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). 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. The Ministry of Health holds the NZ licence for SNOMED CT and the NCSP is in the early stages of investigating its use. A woman's age is defined as her age at the end of the reporting period.
Target	None
Current Situation	13,284 histology samples were taken during the current reporting period. 332 (2.5%) of these were insufficient for diagnosis. The remaining 12,952 samples were taken from 11,277 women. Results for these women are reported on in detail in Table 14 - Table 17. The 332 samples which were insufficient for diagnosis were taken from 331 women, 56 (17%) of whom have a record of a subsequent histology test. 51.6% of women with histology tests had negative or benign histology results (Table 14, Table 15). 22.7% of women had high grade squamous (CIN2/3) histology results. 55 (0.5%) women had histology results which were invasive squamous cell carcinoma (ISCC), five (<0.05%) which were microinvasive SCC, 39 (0.3%) which were invasive adenocarcinoma, one (<0.05%) which was adenosquamous carcinoma and 26 (0.2%) which were adenocarcinoma in situ. The age group with the largest number of women with histology samples was women aged 20-24 years (1,716 women, Table 16). This was also the age group with the lowest rate of women with results which were negative or HPV only (31.4%, Table 17).
Trends	The proportion of women with negative or benign histology (51.6%) is slightly higher than that reported for the previous period (January - June 2011; 51.3%). The proportion of women with HSIL histology is slightly higher in the current period (22.7%) than in the previous period (22.5%) The proportions were similar to those in the previous period for women with ISCC (0.5% this period; 0.5% last period), invasive adenocarcinoma (0.3% this period; 0.3%

	last period), adenosquamous carcinoma (<0.05% in both periods), and adenocarcinoma in situ (0.2% this period; 0.3% 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. This is likely to be contributing to the higher number of women with adenocarcinoma histology on the NCSP Register compared to the Cancer Registry.

Table 14 - Histology results reporting by SNOMED category

SNOMED category	Women with that diagnosis	
	N	%
Negative/normal	2,897	25.7
Inflamation	814	7.2
Microglandular hyperplasia	10	0.09
Squamous metaplasia	449	4.0
Atypia	99	0.9
HPV	904	8.0
Condyloma acuminatum	4	<0.05
Dysplasia/CIN NOS	70	0.6
CIN 1 (LSIL) or VAIN 1	1,669	14.8
CIN 2 (HSIL) or VAIN 2	711	6.3
CIN 3 (HSIL) or VAIN 3	1,107	9.8
HSIL not otherwise specified	743	6.6
Polyp	1,027	9.1
Other*	616	5.5
Microinvasive squamous cell carcinoma	5	<0.05
Invasive squamous cell carcinoma	55	0.5
Benign glandular atypia	2	<0.05
Glandular dysplasia	-	-
Adenocarcinoma in situ	26	0.2
Invasive adenocarcinoma	39	0.3
Adenosquamous carcinoma	1	<0.05
Metastatic tumour	12	0.1
Undifferentiated carcinoma	1	<0.05
Sarcoma	1	<0.05
Carcinosarcoma	1	<0.05
Choriocarcinoma	-	-
Miscellaneous primary tumour	2	<0.05
Small cell carcinoma	-	-
Malignant tumour, small cell type	1	<0.05
Melanoma	-	-
Other primary epithelial malignancy	11	0.1
Total	**11,277**	**100**

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 15 - Histology results reporting by diagnostic group

Histology diagnosis category	Women with that histology result	
	N	%
Negative/benign (non neoplastic)	5,815	51.6
HPV	908	8.1
CIN1	1,838	16.3
CIN2	711	6.3
CIN3	1,107	9.8
HSIL not otherwise specified	743	6.6
Microinvasive	5	<0.05
Invasive squamous cell carcinoma	55	0.5
Glandular dysplasia	-	-
Adenocarcinoma in situ	26	0.2
Invasive adenocarcinoma	39	0.3
Adenosquamous carcinoma	1	<0.05
Other cancer	29	0.3
Total	**11,277**	**100**

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

Table 16 - Histology results by age – counts

Histology 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)	25	346	424	458	576	912	1,059	822	456	301	190	246	5,815
HPV	10	192	138	145	98	100	98	67	31	21	7	1	908
CIN1	15	471	352	282	182	179	155	90	52	37	17	6	1,838
CIN2	13	212	179	94	88	52	29	19	12	7	3	3	711
CIN3	10	289	259	186	136	87	57	30	25	16	10	2	1,107
HSIL	6	202	178	117	99	70	38	14	10	7	1	1	743
Microinvasive	-	-	1	-	3	-	-	-	-	-	1	-	5
Invasive squamous cell carcinoma	-	-	4	9	5	9	2	7	5	3	5	6	55
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	4	4	4	4	4	1	2	2	-	-	1	26
Invasive adenocarcinoma	-	-	3	4	4	2	4	1	7	3	5	6	39
Adenosquamous carcinoma	-	-	-	-	-	-	1	-	-	-	-	-	1
Other cancer	-	-	1	2	-	-	1	3	6	2	6	8	29
Total	**79**	**1,716**	**1,543**	**1,301**	**1,195**	**1,415**	**1,445**	**1,055**	**606**	**397**	**245**	**280**	**11,277**

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

Table 17 - Histology results by age – percentages

Histology Category	Age group											
	<20	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70+**
Negative/benign (non neoplastic)	31.6	20.2	27.5	35.2	48.2	64.5	73.3	77.9	75.2	75.8	77.6	87.9
HPV	12.7	11.2	8.9	11.1	8.2	7.1	6.8	6.4	5.1	5.3	2.9	0.4
CIN1	19.0	27.4	22.8	21.7	15.2	12.7	10.7	8.5	8.6	9.3	6.9	2.1
CIN2	16.5	12.4	11.6	7.2	7.4	3.7	2.0	1.8	2.0	1.8	1.2	1.1
CIN3	12.7	16.8	16.8	14.3	11.4	6.1	3.9	2.8	4.1	4.0	4.1	0.7
HSIL	7.6	11.8	11.5	9.0	8.3	4.9	2.6	1.3	1.7	1.8	0.4	0.4
Microinvasive	-	-	0.1	-	0.3	-	-	-	-	-	0.4	-
Invasive squamous cell carcinoma	-	-	0.3	0.7	0.4	0.6	0.1	0.7	0.8	0.8	2.0	2.1
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	0.2	0.3	0.3	0.3	0.3	0.1	0.2	0.3	-	-	0.4
Invasive adenocarcinoma	-	-	0.2	0.3	0.3	0.1	0.3	0.1	1.2	0.8	2.0	2.1
Adenosquamous carcinoma	-	-	-	-	-	-	0.1	-	-	-	-	-
Other cancer	-	-	0.1	0.2	-	-	0.1	0.3	1.0	0.5	2.4	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 100% within 15 working days (also Standard 513[12]).

Histology

Laboratories are required to report 90% of final histology results to referring colposcopists within five working days of receipt of the sample and 99% of final histology results within 15 working days of receiving the sample (also Standard 516[12]).

Cytology with associated HPV testing

Laboratories are required to report 100% of final cytology test results (including those associated with HPV test) within 15 working days of receiving the sample. Here, the turnaround time is measured specifically for cytology where HPV testing is performed for low grade triage. Low grade triage is defined further in Indicator 8; here it relates to cytology samples *received at the laboratory* in the reporting period (as opposed to *samples collected* in the period, in Indicator 8). It is restricted to triage testing of women aged 30 years or more. These samples form a subset of those considered in the overall measure of turnaround time for cytology.

Current Situation

Cytology

Eight laboratories received 217,115 cytology samples during the current reporting period. Overall, 93.0% of cytology samples were reported on within seven working days, which is above the target. Nationally, 98.6% were reported on within 15 working days, which is below the target (Table 51).

Five laboratories met the target for 90% of cytology samples to be reported to smear-takers in seven days or less (Medlab Central Ltd, Diagnostic Medlab Ltd, Medlab South Christchurch, Pathlab and Southern Community Labs Dunedin). The proportion of samples reported on within seven working days ranged from 79.7% (Medlab Central Ltd) to 100.0% (Medlab South Christchurch).

One laboratory met the target of 100% of samples reported within 15 working days (Medlab South Christchurch) (Figure 32, Figure 33, Table 51). Of the remaining seven laboratories, four had reported on at least 99% of cytology samples within 15 days (Medlab Central Ltd, Diagnostic Medlab Ltd,

Pathlab and Southern Community Labs Dunedin), and another two laboratories had reported on more than 95% within 15 working days.

Histology

17 laboratories received 13,307 histology samples in the current reporting period. Overall 78.9% of samples were reported on within five working days, and 95.7% were reported on in 15 working days or less. These values are below the targets (Table 52).

Five laboratories met the target of 90% of final histology results to referring colposcopists within five working days of receipt of the sample (Canterbury Health Laboratories, Medlab South Christchurch, Northland Pathology Laboratory, Southern Community Labs Dunedin and Taranaki Medlab) (Figure 34, Table 52). Six laboratories met the target of 99% of final histology results within 15 working days of receiving the sample, and six of the remaining eleven had reported on at least 95% of samples within 15 days (Figure 35, Table 52).

Cytology with associated HPV triage testing

Eight laboratories received 3,104 cytology samples during the current reporting period which were associated with HPV testing for the purpose of triage of low grade abnormalities. Overall, 96.5% of these cytology samples were reported on within 15 working days, which is below the target. The proportion of cytology samples with HPV triage tests reported on within 15 days ranged from 78.4% (LabPLUS) to 100.0% (Medlab South Christchurch) (Figure 36, Table 53). The target of 100% of tests reported within 15 working days was met by one laboratory (Medlab South Christchurch). Nationally, the proportion of cytology reported within 15 days is somewhat lower for cytology associated with low grade triage HPV testing (96.5%), compared to cytology overall (98.6%). This is not true for all laboratories, however. Generally, the proportion of cytology tests reported within 15 days is similar regardless of whether there is an associated HPV triage test.The proportion of cytology tests reported within 15 days is noticeably lower for those cytology tests with an associated HPV triage test at Canterbury Health Laboratories (and also at LabPLUS, but based on a small number of cytology tests with associated HPV triage testing) (Figure 36).

Trends

Cytology

The overall proportion of samples reported on within seven working days decreased slightly in this period, from 93.8% in the previous monitoring period to 93.0% in the current period. The number of laboratories meeting the cytology turnaround time target of 90% for seven working days has decreased in the current monitoring period to five of the eight laboratories, compared to six in the previous period. The proportion of samples reported on within 15 working days was higher in the current reporting period (98.6%, compared to 98.0% in the previous reporting period), but the number of laboratories meeting the target remained the same as in the previous report (one). In the current monitoring period seven of the eight laboratories had

reported on at least 95% of samples within 15 days, which is is one more then in the previous report .

Histology

Overall, the proportion of histology samples reported on within five working days is higher than it was in the previous reporting period (78.9% during this period compared to 76.9% in the previous report), and the proportion reported on within 15 working days is also higher (95.7%, compared to 94.6% in the previous report). The number of laboratories meeting the five-working-days target is the same as the previous reporting period (five), while the number of laboratories meeting the 15-working-days target (six) is one fewer than in the previous reporting period (seven). In the current period, 12 laboratories had reported on at least 95% of samples within 15 days compared with 16 in the previous period.

Cytology with associated HPV triage testing

Nationally, the percentage of cytology with an HPV triage test reported within 15 working days in the current report (96.5%) is very similar to that in the previous report (96.6%) . As in the previous monitoring period, one laboratory met the target. The proportion of samples reported within 15 working days has increased at Canterbury Health Laboratories, Diagnostic Medlab Ltd and LabPLUS.

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 *received by laboratories* within the reporting period, rather than cytology where the sample *was collected* during the reporting period which was the criteria for Indicator 5.1. Similarly, the total number of histology samples reported on in this Indicator is different from that reported in Indicator 5.4, as the inclusion criteria for the current indicator was all histology *received by laboratories* within the reporting period, rather than histology where the sample *was collected* during the reporting period which was the criteria for Indicator 5.4.

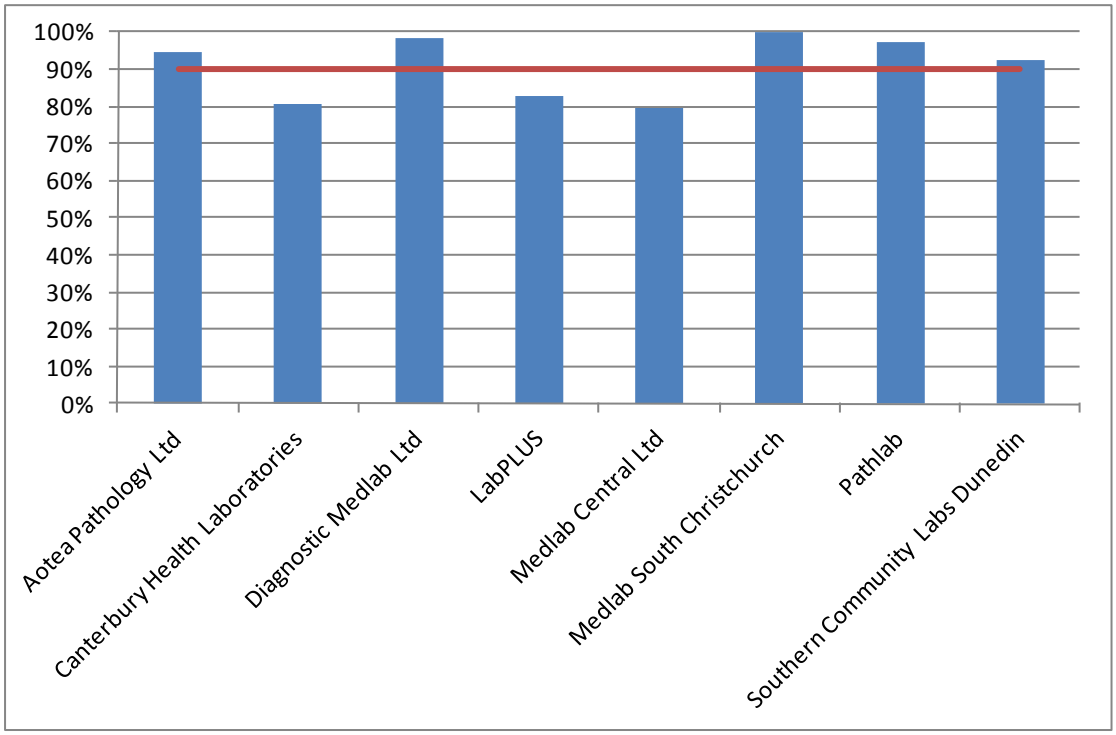
The definition used by individual laboratories for turnaround time differs. For example depending on the definition used by the laboratory, a turnaround time of one day can mean the results are reported within 24 hours, on the same day the sample is received, or on the day after the sample is received. Therefore, while we have applied the same definition to all laboratories in these calculations, 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.

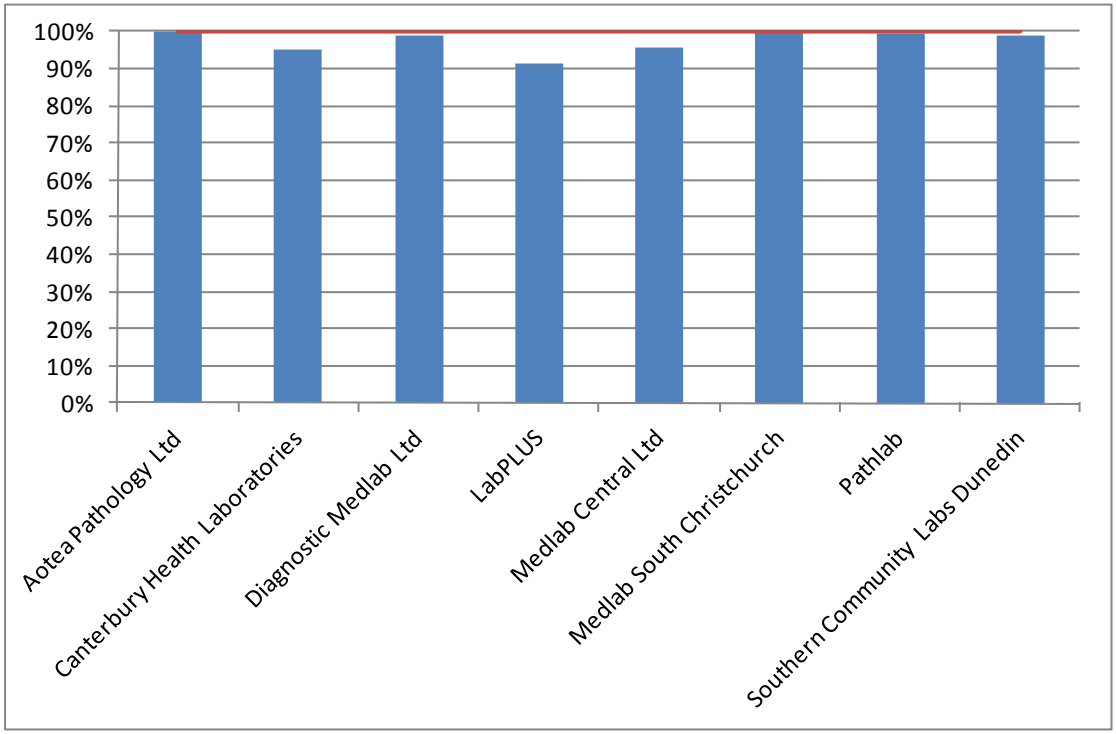
The calculations currently include public holidays which fall on a weekday as working days.

Figure 32 - Proportion of cytology samples reported within seven working days by laboratory, 1 July – 31 December 2011



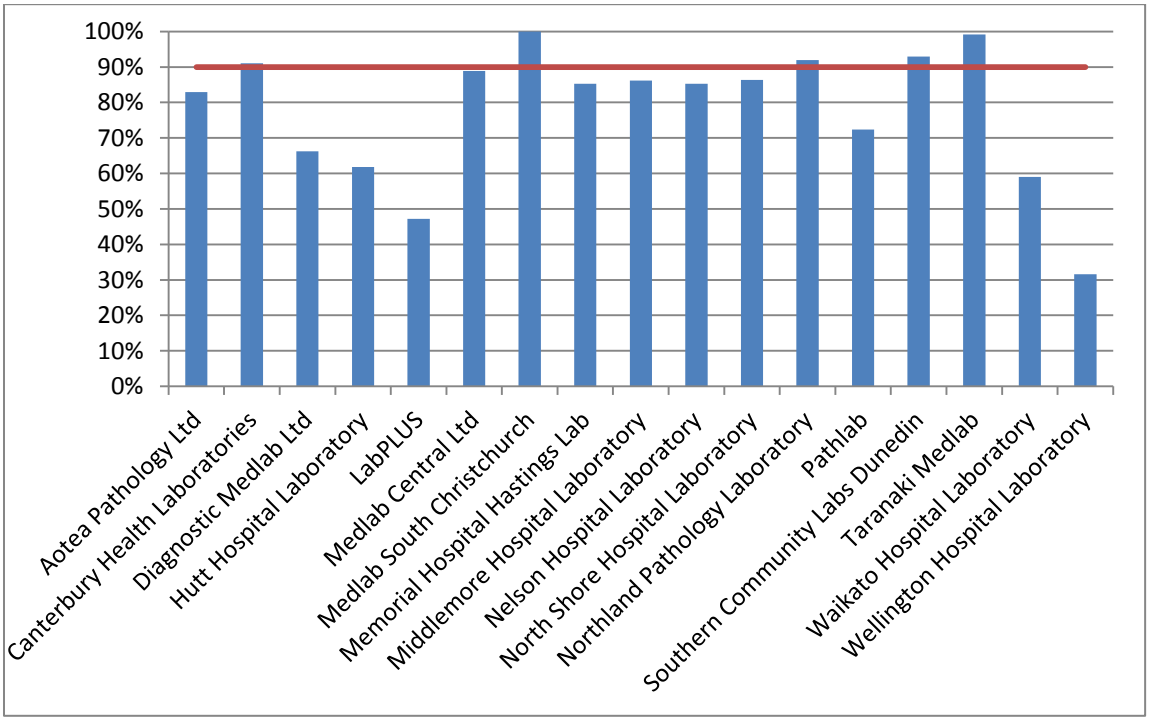
Target: 90 % within seven working days (red line)

Figure 33 - Proportion of cytology samples reported within 15 working days by laboratory, 1 July – 31 December 2011



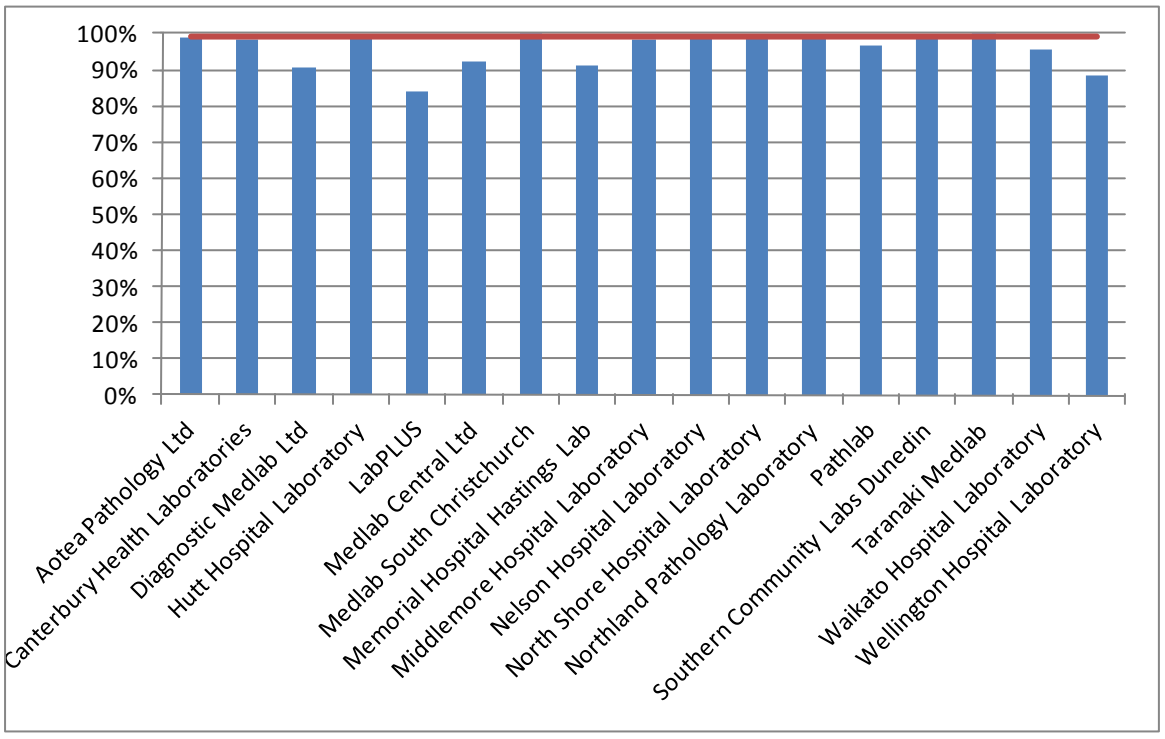
Target: 100% within 15 working days (red line)

Figure 34 - Proportion of histology samples reported within five working days by laboratory, 1 July – 31 December 2011



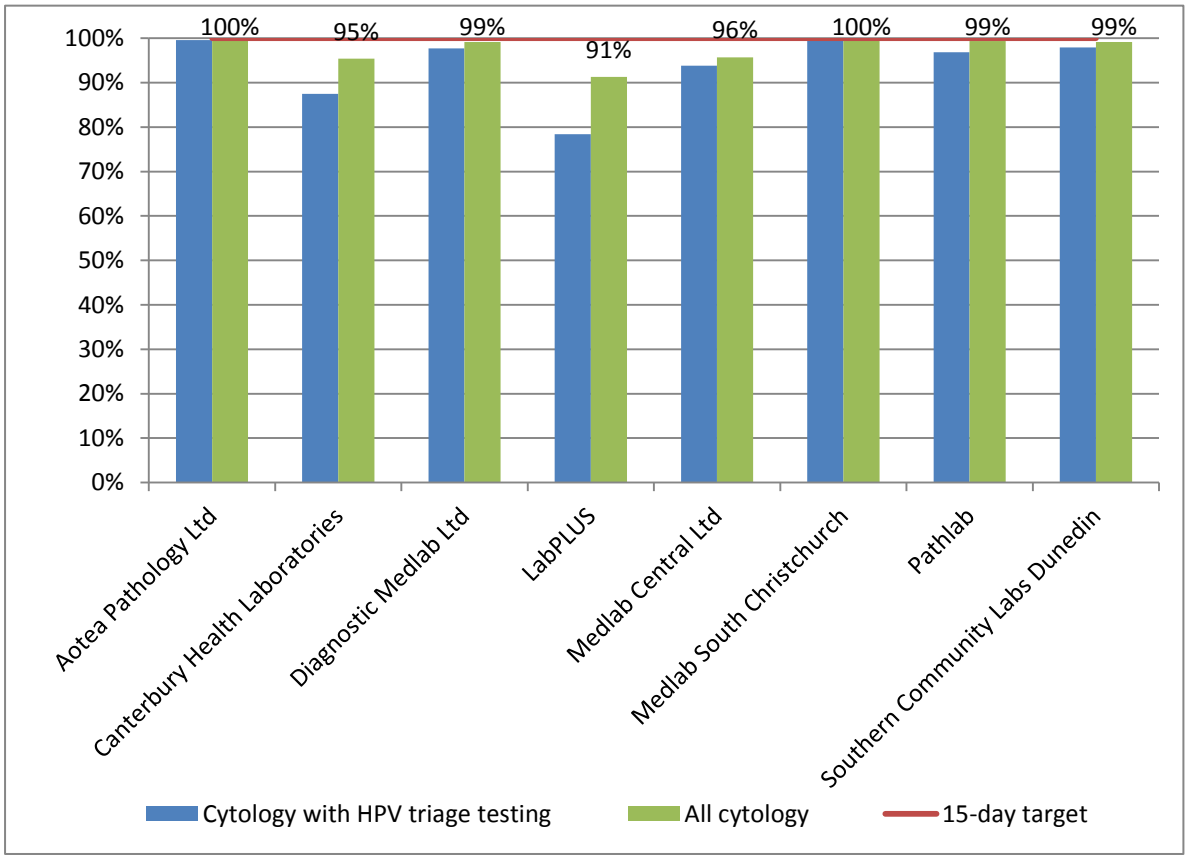
Target: 90% withing five working days (red line)

Figure 35 - Proportion of histology samples reported within 15 working days by laboratory, 1 July – 31 December 2011



Target: 99% within 15 working days(red line)

Figure 36 - Proportion of cytology samples with associated HPV triage testing and of all cytology samples reported within 15 days by laboratory, 1 July – 31 December 2011



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

Definition

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

Each woman with a high grade cytology result, relating to a cytology sample taken in the six months preceding the current reporting period (ie sample taken from 1 January to 30 June 2011), 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.

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

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

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

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

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

A woman's age is defined as her age at the end of the current reporting period (ie 31 December 2011).

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 3,273 high grade cytology results relating to samples collected in the period 1 January to 30 June 2011; 1,106 of these cytology 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 2,167 cytology results, which related to 2,049 women. Histological follow-up for these 2,049 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, 1,606 women (78.4%) had a histology report within 90 days of their cytology report, and 1,760 (85.9%) had a histology report within 180 days. This is below the target of 90% within 90 days. The proportion of women with a histology report within 90 days of their cytology report varied by DHB from 60.7% (Whanganui) to 89.6% (Hutt Valley). At 180 days 67.9% (Whanganui) to 95.2% (West Coast) (Figure 37, Table 54). No DHB met the target for the proportion of women with histology within 90 days, or the target for 180 days. The proportion of women with a histology report also varies by age, from 47.5% (ages 65-69 years) to 85.8 % (ages 40-44 years) within 90 days, and from to 68.6% (ages 60-64 years) to 93.8% (ages 40-44 years) within 180 days (Table 55). 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. Histological follow-up of Māori women was 72.6% at 90 days, and 81.3% at 180 days. Histological follow-up at 90 days ranged from 62.8% (Pacific women) to 81.2% (European/Other women). By 180 days, however, the difference had narrowed slightly, and histology reports were available for 73.3% of Pacific women and 87.8% of European women/women from other ethnic groups (Table 18, Table 19). Further breakdown by DHB and ethnicity is shown in Table 18 and Table 19, and breakdown by DHB and age is shown in Table 20 and Table 21. ***Women with no follow-up tests*** When follow-up tests of any kind (colposcopy, histology, HPV test, or subsequent cytology test) were considered, there remained 134 women (6.5%) who had no record of any subsequent follow-up within 180 days on the NCSP Register (Table 56).

This varied by DHB at 180 days from 0.0% (ie no women, Hutt Valley and West Coast) to 9.9% (Waikato) (Figure 38, Table 56). It also varied by ethnicity, from 6.2% (European/Other ethnic groups) to 9.3% (Pacific) at 180 days (Figure 39, Table 57).

Trends

Histological follow-up

The proportion of women with a histology report within 90 days is higher than that in the previous reporting period (73.8% in the previous reporting period; 78.4% in the current period). The proportion of women with a histology report within 180 days has also increased, from 83.2% within 180 days in the previous period to 85.9% in the current period.

The proportion of women with histological follow-up has increased overall, however, the trend still varies for individual DHBs. In a number of DHBs the proportion of women with histological follow-up has increased at 90 days (Bay of Plenty, Canterbury, Counties Manukau, Hutt Valley, Lakes, Mid Central, Northland, Otago, South Canterbury, Southland, Tairawhiti, Taranaki, Wairarapa, Waitemata, Whanganui) and at 180 days (Bay of Plenty, Canterbury, Counties Manukau, Hutt Valley, Lakes, Mid Central, Otago, South Canterbury, Southland, Tairawhiti, Wairarapa, Waitemata, West Coast, Whanganui). However in some DHBs, the proportion of women with histological follow-up decreased noticeably at 90 days (Auckland, Hawkes Bay, Nelson Marlborough and Waikato) and 180 days (Auckland, Capital & Coast, Hawke's Bay, Northland, Waikato). Changes in other DHBs were smaller.

The proportion of women with follow-up histology has increased overall in the current monitoring period for Māori women and European/ Other women (at both 90 days and 180 days). The proportion of Asian women with follow-up histology was unchanged at 90 days and increased at 180 days in the current monitoring period. The proportion of Pacific women with follow-up histology has decreased at both 90 days and 180 days in the current monitoring period, although results in this group tend to be more variable as they are based on a smaller number of women than are results for the other ethnic groups. These proportions are quite variable within individual DHBs, as the number of women with high grade cytology generally becomes comparatively small when broken down by both DHB and ethnicity (except for European/ Other women, and Māori women in a couple of DHBs).

As in previous reports, the proportion of women with histological follow-up varies substantially by age, and generally seems to be lower in women aged 50 years or more, than in women younger than 50 years. There was an overall increase in the proportion of women with follow-up histology in a number of age groups. Follow-up at both 90 days and 180 days has increased among women aged 20-24years, 25-29 years, 35-39 years, 40-44 years and 45-49 years. Follow-up at 90 days (but not at 180 days) has increased among women aged 30-34 years, 50-54 years, and 55-59 years, suggesting that the

balance of follow-up in the two time periods in these women has moved towards the earlier half of the 180 days period. Conversely, follow-up at 90 days (but not at 180 days) has decreased among women aged 60-64 years and 65-69 years, suggesting that the balance of follow-up in the two time periods in these women has moved towards the latter half of the period (ie between 91-180 days).

Women with no follow-up tests

The proportion of women with no record of a follow-up test has increased since the previous period, from 5.8% to 6.5% at 180 days.

Trends by DHB were complex, but reductions in the proportion of women with no follow-up test recorded were observed in 10 of the 21 DHBs, and were greatest in Hutt Valley, Lakes, and West Coast. In Mid Central, this proportion is the lowest observed since reporting began on this measure.

There were increases in some DHBs, although in some cases these followed an decrease in the previous period, and so may not be part of a trend (for example in Capital & Coast, Hawke's Bay, Southland, Taranaki and Waikato). In some DHBs, however, this proportion has increased more than once so may reflect an increasing trend (for example in Whanganui).

In the current monitoring period, there were lower proportions of women for whom there was no follow-up test record among Māori women only and increases in all the other ethnic groups. In Māori women the proportion of women with no follow-up tests recorded at 180 days decreased from 7.9% to 6.4%. For Pacific women there was an increase from 8.1% to 9.3% at 180 days. For Asian women, the increase was from 8.5% to 9.0% at 180 days. For European/ Other women the increase was from 5.0% to 6.2% at 180 days.

Comments

The proportion of women with a follow-up test of any kind provides useful additional information. While 14.1% of women with high grade cytology reports had no record of a histology report within 180 days, the proportion without a record of a follow-up test of any kind was much lower (6.5%). Consistent with previous monitoring reports, over half of the women with no follow-up histology recorded do have a record of some follow-up test. This provides reassurance that the majority of 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 an increase in women with a follow-up of any kind of test may also reflect more complete reporting on the NCSP Register for some tests. In particular, it may reflect more complete reporting of colposcopy visits on the Register over time, and in particular since the most recent reporting period (whereas it is expected that the completeness of the data relating to lab-based tests is not likely to have changed).

Note that while all *cytology results* which indicated that a woman was under

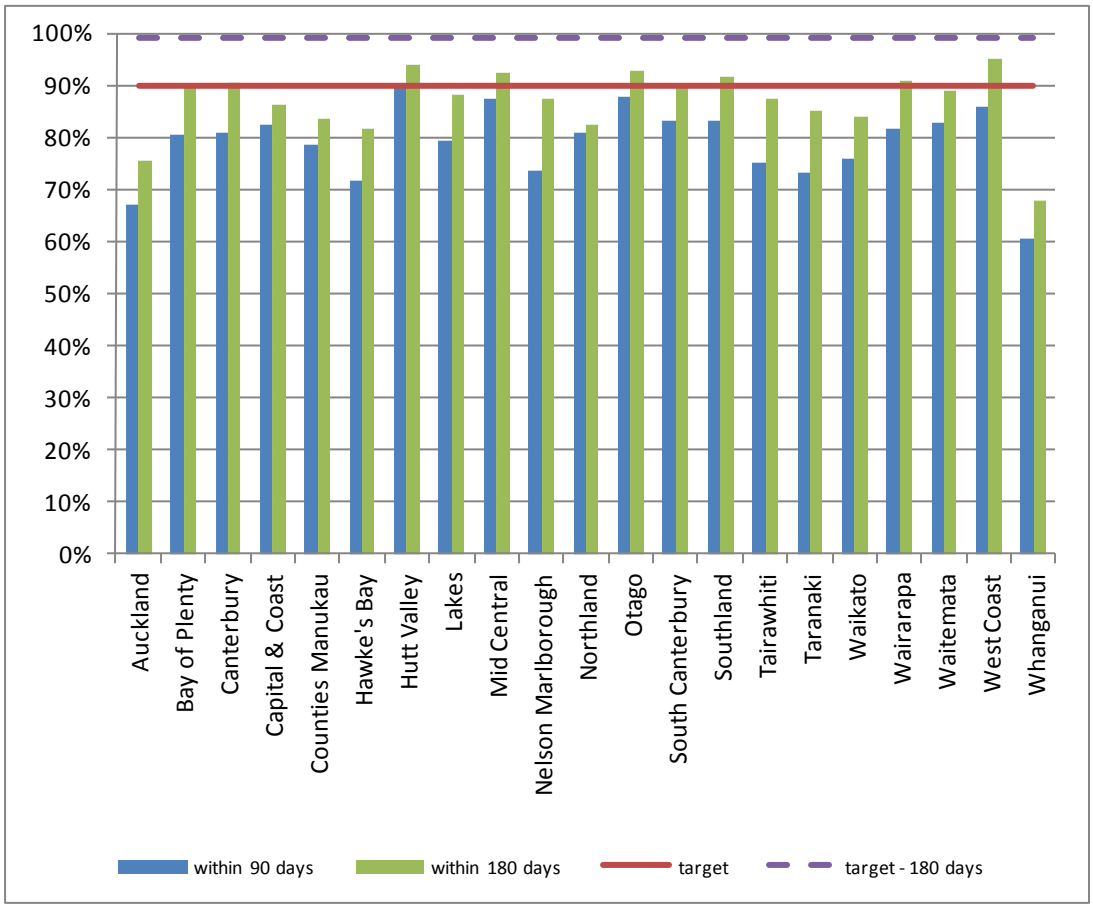
specialist management were excluded from the measure of follow-up, not all *women* who had these cytology results were. If all cytology results for a woman indicated that she was under specialist management, she was excluded. However, any woman with at least one high grade cytology result which did *not* 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 included recommendation codes which 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)/ 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/ 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 Performance Management Analysts ensure that priority is given to follow-up of these women through DHBs. Risk is also related to the degree of abnormality including microinvasive/invasive carcinoma.

Figure 37 - 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 18 - 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	50.0	10	47.6	26	68.4	119	71.3
Bay of Plenty	21	80.8	0	0.0	5	100.0	61	80.3
Canterbury	11	68.8	3	75.0	6	85.7	155	82.0
Capital & Coast	8	72.7	4	80.0	3	100.0	74	83.1
Counties Manukau	22	73.3	22	75.9	25	71.4	84	83.2
Hawke's Bay	26	72.2	0	0.0	0	0.0	40	76.9
Hutt Valley	6	66.7	5	100.0	1	100.0	31	93.9
Lakes	8	72.7	0	0.0	1	100.0	18	81.8
Mid Central	13	81.3	-	-	1	100.0	42	89.4
Nelson Marlborough	3	50.0	-	-	0	0.0	67	75.3
Northland	20	80.0	-	-	-	-	24	82.8
Otago	9	75.0	0	0.0	2	100.0	61	89.7
South Canterbury	2	100.0	-	-	2	100.0	21	80.8
Southland	10	76.9	-	-	0	0.0	30	88.2
Tairawhiti	8	72.7	0	0.0	-	-	4	80.0
Taranaki	8	88.9	-	-	-	-	39	69.6
Waikato	28	63.6	-	-	8	72.7	107	79.9
Wairarapa	4	80.0	0	0.0	0	0.0	14	82.4
Waitemata	23	79.3	-	-	-	-	182	87.9
West Coast	3	75.0	0	0.0	0	0.0	15	88.2
Whanganui	6	75.0	-	-	-	-	10	55.6
Total	**249**	**72.6**	**54**	**62.8**	**105**	**72.9**	**1,198**	**81.2**

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

Table 19 - 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	12	60.0	12	57.1	32	84.2	130	77.8
Bay of Plenty	23	88.5	0	0.0	5	100.0	69	90.8
Canterbury	14	87.5	3	75.0	7	100.0	171	90.5
Capital & Coast	9	81.8	5	100.0	3	100.0	76	85.4
Counties Manukau	23	76.7	24	82.8	29	82.9	87	86.1
Hawke's Bay	31	86.1	1	50.0	1	50.0	42	80.8
Hutt Valley	7	77.8	5	100.0	1	100.0	32	97.0
Lakes	8	72.7	0	0.0	1	100.0	21	95.5
Mid Central	13	81.3	-	-	1	100.0	45	95.7
Nelson Marlborough	3	50.0	-	-	0	0.0	80	89.9
Northland	20	80.0	-	-	-	-	25	86.2
Otago	10	83.3	0	0.0	2	100.0	64	94.1
South Canterbury	2	100.0	-	-	2	100.0	23	88.5
Southland	12	92.3	-	-	0	0.0	31	91.2
Tairawhiti	9	81.8	0	0.0	-	-	5	100.0
Taranaki	8	88.9	-	-	-	-	47	83.9
Waikato	35	79.5	-	-	8	72.7	115	85.8
Wairarapa	5	100.0	0	0.0	0	0.0	15	88.2
Waitemata	25	86.2	-	-	-	-	191	92.3
West Coast	4	100.0	0	0.0	0	0.0	16	94.1
Whanganui	6	75.0	-	-	-	-	11	61.1
Total	**279**	**81.3**	**63**	**73.3**	**122**	**84.7**	**1,296**	**87.8**

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

Table 20 - Women (ages 20-69 years) with a histology report within 90 days of a high grade cytology report, by DHB and age

	20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Auckland	37	61.7	44	72.1	25	69.4	25	86.2	13	76.5	3	60.0	8	100.0	5	41.7	3	50.0	1	20.0	165
Bay of Plenty	17	81.0	18	81.8	8	80.0	17	94.4	7	87.5	4	80.0	4	66.7	2	66.7	4	100.0	3	60.0	87
Canterbury	38	77.6	49	87.5	25	86.2	19	79.2	13	76.5	7	87.5	7	77.8	6	75.0	5	71.4	2	50.0	175
Capital & Coast	22	81.5	28	80.0	17	100.0	8	72.7	5	100.0	2	66.7	2	100.0	3	60.0	-	-	0	0.0	89
Counties Manukau	46	76.7	27	81.8	25	86.2	12	92.3	12	85.7	11	78.6	7	77.8	6	54.5	2	100.0	3	50.0	153
Hawke's Bay	14	77.8	14	70.0	10	71.4	10	76.9	9	90.0	2	50.0	1	100.0	2	100.0	1	33.3	1	25.0	66
Hutt Valley	9	81.8	6	85.7	8	100.0	3	100.0	6	100.0	3	75.0	1	100.0	3	100.0	1	50.0	2	100.0	43
Lakes	8	88.9	3	60.0	7	100.0	4	100.0	1	100.0	2	100.0	-	-	2	66.7	0	0.0	-	-	27
Mid Central	24	88.9	17	85.0	5	100.0	4	100.0	2	100.0	1	100.0	1	100.0	2	100.0	0	0.0	-	-	56
Nelson	22	81.5	16	72.7	6	75.0	5	55.6	7	87.5	3	100.0	4	80.0	3	60.0	1	25.0	2	100.0	70
Marlborough																					
Northland	9	64.3	11	100.0	5	71.4	3	100.0	4	100.0	3	100.0	6	75.0	2	100.0	-	-	1	100.0	46
Otago	22	91.7	17	94.4	6	75.0	9	100.0	5	100.0	2	100.0	2	50.0	3	60.0	2	100.0	-	-	72
South Canterbury	6	75.0	4	66.7	6	85.7	5	100.0	2	100.0	1	100.0	-	-	-	-	-	-	-	-	25
Southland	16	100.0	8	100.0	4	44.4	6	85.7	2	100.0	-	-	0	0.0	2	100.0	1	100.0	-	-	40
Tairawhiti	2	100.0	1	33.3	3	60.0	3	100.0	2	100.0	-	-	-	-	1	100.0	-	-	-	-	12
Taranaki	7	87.5	15	83.3	7	77.8	7	70.0	7	63.6	1	100.0	3	60.0	-	-	2	66.7	0	0.0	49
Waikato	33	75.0	44	74.6	20	83.3	15	71.4	13	100.0	7	77.8	4	66.7	4	80.0	3	50.0	2	50.0	145
Wairarapa	5	100.0	2	66.7	4	66.7	1	100.0	3	100.0	1	100.0	-	-	0	0.0	1	100.0	-	-	18
Waitemata	58	84.1	48	82.8	43	93.5	27	90.0	22	81.5	12	85.7	8	61.5	5	50.0	3	60.0	2	50.0	233
West Coast	7	100.0	6	85.7	2	50.0	-	-	-	-	2	100.0	-	-	1	100.0	-	-	-	-	18
Whanganui	4	50.0	5	83.3	2	100.0	0	0.0	4	80.0	-	-	1	100.0	1	50.0	0	0.0	-	-	17
Total	**406**	**79.0**	**383**	**80.1**	**238**	**82.1**	**183**	**83.6**	**139**	**85.8**	**67**	**81.7**	**59**	**73.8**	**53**	**63.9**	**29**	**56.9**	**19**	**47.5**	**1,606**

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

Table 21 - Women (ages 20-69 years) with a histology report within 180 days of a high grade cytology report, by DHB and age

	20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Auckland	30	83.3	49	80.3	30	83.3	26	89.7	14	82.4	3	60.0	8	100.0	8	66.7	3	50.0	1	20.0	186
Bay of Plenty	9	90.0	20	90.9	9	90.0	17	94.4	8	100.0	5	100.0	4	66.7	2	66.7	4	100.0	2	66.7	97
Canterbury	28	96.6	52	92.9	28	96.6	21	87.5	17	100.0	8	100.0	7	77.8	6	75.0	7	100.0	6	75.0	195
Capital & Coast	17	100.0	29	82.9	17	100.0	9	81.8	5	100.0	2	66.7	2	100.0	4	80.0	-	-	4	80.0	93
Counties Manukau	25	86.2	28	84.8	25	86.2	12	92.3	12	85.7	11	78.6	8	88.9	8	72.7	2	100.0	8	72.7	163
Hawke's Bay	10	71.4	17	85.0	10	71.4	11	84.6	10	100.0	4	100.0	1	100.0	2	100.0	1	33.3	2	100.0	75
Hutt Valley	8	100.0	6	85.7	8	100.0	3	100.0	6	100.0	4	100.0	1	100.0	3	100.0	2	100.0	3	100.0	45
Lakes	7	100.0	4	80.0	7	100.0	4	100.0	1	100.0	2	100.0	-	-	2	66.7	1	33.3	2	66.7	30
Mid Central	5	100.0	18	90.0	5	100.0	4	100.0	2	100.0	1	100.0	1	100.0	2	100.0	0	0.0	2	100.0	59
Nelson Marlborough	7	87.5	19	86.4	7	87.5	8	88.9	8	100.0	3	100.0	4	80.0	4	80.0	3	75.0	4	80.0	83
Northland	5	71.4	11	100.0	5	71.4	3	100.0	4	100.0	3	100.0	6	75.0	2	100.0	-	-	2	100.0	47
Otago	7	87.5	18	100.0	7	87.5	9	100.0	5	100.0	2	100.0	2	50.0	3	60.0	2	100.0	3	60.0	76
South Canterbury	6	85.7	5	83.3	6	85.7	5	100.0	2	100.0	1	100.0	-	-	-	-	-	-	-	-	27
Southland	7	77.8	8	100.0	7	77.8	7	100.0	2	100.0	-	-	0	0.0	2	100.0	1	100.0	2	100.0	44
Tairawhiti	3	60.0	3	100.0	3	60.0	3	100.0	2	100.0	-	-	-	-	1	100.0	-	-	1	100.0	14
Taranaki	7	77.8	18	100.0	7	77.8	9	90.0	9	81.8	1	100.0	3	60.0	-	-	2	66.7	-	-	57
Waikato	20	83.3	51	86.4	20	83.3	16	76.2	13	100.0	7	77.8	4	66.7	4	80.0	3	50.0	4	80.0	160
Wairarapa	6	100.0	2	66.7	6	100.0	1	100.0	3	100.0	1	100.0	-	-	0	0.0	1	100.0	0	0.0	20
Waitemata	45	97.8	53	91.4	45	97.8	28	93.3	25	92.6	13	92.9	8	61.5	6	60.0	3	60.0	6	60.0	250
West Coast	3	75.0	7	100.0	3	75.0	-	-	-	-	2	100.0	-	-	1	100.0	-	-	1	100.0	20
Whanganui	2	100.0	5	83.3	2	100.0	0	0.0	4	80.0	-	-	1	100.0	2	100.0	0	0.0	2	100.0	19
Total	**440**	**85.6**	**423**	**88.5**	**257**	**88.6**	**196**	**89.5**	**152**	**93.8**	**73**	**89.0**	**60**	**75.0**	**62**	**74.7**	**35**	**68.6**	**28**	**70.0**	**1,760**

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

Figure 38 – Proportion of women without any follow-up test within 180 days of a high grade cytology report, by DHB

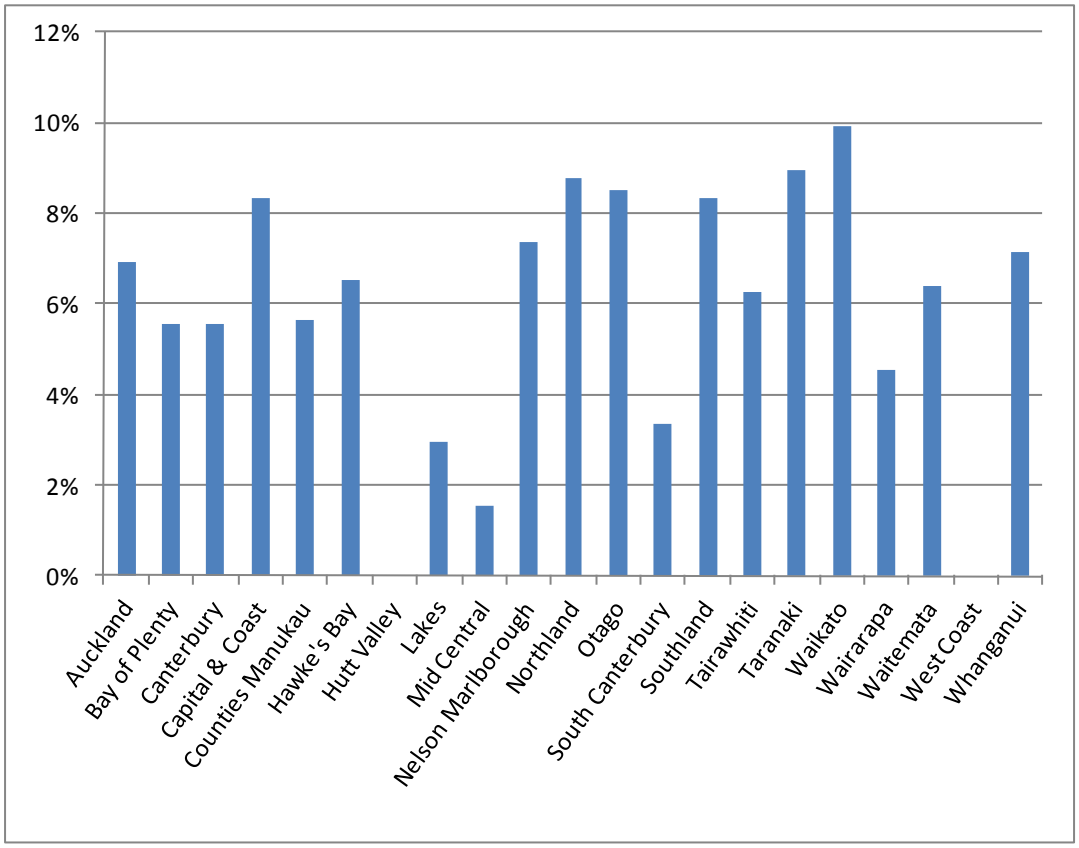
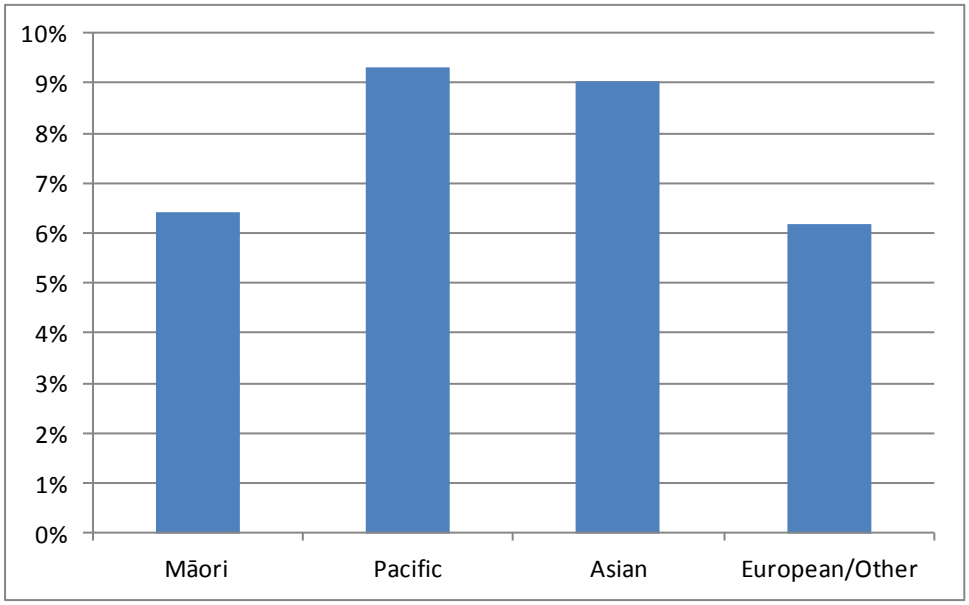


Figure 39 - Proportion of women without any follow-up test within 180 days of a high grade cytology report, by ethnicity



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 (7.2, 7.6, 7.7) are still in development. It is envisioned that they will be included in Monitoring Report 37.

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 Partliamentary Review into the NCSP.[13] It is anticipated that completeness of colposcopy data on the NCSP Register will continue to improve over time.

The data used for the Colpsocopy and HL7 chapters was extracted from the NCSP Register on 14 September 2012 and therefore differs to that used for the remainder of this report.
This decision was made because of comments made about the colposcopy data used in drafting this report when the National Screening Unit (NSU) consulted DHB colposcopists about the indicators in July 2012. An exception is the data used for Indicator 7.3 (Adequacy of documenting colposcopy assessment), due to irregularities noted in the recording of colposcopy data in the September 2012 download

These comments led the NSU to consult DHB colposcopy services on the draft colposcopy chapters of Monitoring Reports 35 and 36 on 6 August 2012. DHB's were invited to verify the aggregate data in the chapters of the draft reports or provide data to correct and update the chapters by early September.

On 14 September 2012 the NCSP Register extracted all colposcopy referral, visit and 'did not attend' data for 2011 (the period covered by Monitoring Reports 35 and 36) to compare with data received from DHBs. From then to late October 2012, the NSU offered to provide DHBs with their colposcopy data on the Register to help them identify what data was missing.

It was soon identified that the aggregate data in the chapters of draft Monitoring Reports 35 and 36 inadvertently included private colposcopy data where reporting on the performance of a DHB's colposcopy services. Separating private colposcopy data resulted in 16 DHB colposcopy services having referrals, colposcopies and treatment data within 10% of the data extracted from the NCSP Register.

The other five DHB colposcopy services were asked to match their data against that which the NSU gave them from the Register and to supply that to the Register. However, this report does not reflect their efforts to update the Register.

Given these factors the NSU recommends caution in interpreting the colposcopy indicators in this report.

Indicator 7.1 – Timeliness of colposcopic assessment – high grade cytology

Definition

This indicator measures performance against Standard 602, and is under development.

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.

Referral data for the current monitoring period are believed to be incomplete, therefore timeliness of colposcopic assessment in relation to the referral date could not be assessed in this report. Instead, the timeliness of follow-up was investigated by calculating the time between the high grade cytology report date and first colposcopy attendance date. This time is not directly comparable to the target however, because there are multiple steps in the process between the high grade cytology report and the date the woman attends for colposcopy, several of which are beyond the control of the colposcopy clinic. Typically, a high grade cytology report will be sent back to the smeartaker, who will then communicate the results to the woman, and discuss follow-up management with her. The smeartaker will provide a referral for the woman to the relevant colposcopy service. Once the service has accepted the referral, they will arrange for a colposcopy appointment to be offered to the woman.

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

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

	(equivalent to the recommended time period for follow-up). For the remaining women, the first colposcopy visit recorded on the NCSP Register which occurred after the cytology report date and no later than the end of the current monitoring period was retrieved (regardless of the DHB where it occurred and with or without an accepted referral). 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. 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 reporting period, this allows a follow-up period of at least six months for all women (and up to 12 months for some women) where a woman can attend colposcopy and be assigned to a DHB, or alternately have a referral accepted by a DHB. 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 five 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.
Current Situation	In the period 1 January – 30 June 2011, there were 2,049 women with high grade cytology results who were not already under specialist management. 75 women had results indicating suspicion of invasive disease, and the remaining 1,974 had other high grade cytology results. Referral data for these women are believed to be incomplete, therefore timeliness of colposcopic assessment in relation to the referral date could not be assessed. Instead, the timeliness of follow-up was investigated by calculating the time between the high grade cytology report date and first colposcopy attendance date. This time is not directly comparable to the target. The current report also describes the number of women with a colposcopy recorded on the NCSP Register by the end of the monitoring period (a period of six to twelve months after the high grade cytology

sample was collected). This report also includes the number of referrals based on data provided by the Ministry of Health from an NCSP Register extract on 14 September 2012

Timeliness – high grade cytology indicating suspicion of invasive disease

In total, 34 (45%) of the 75 women with high grade cytology indicating suspicion of invasive disease relating to a sample collected in 1 January – 30 June 2011 have a record of a colposcopy visit prior to prior to 31 December 2011 (representing a follow-up period of at least six and up to 12 months after their high grade cytology)(Table 22). Among these women, the median period between the cytology report date and colposcopy visit date was 9.5 days overall, and ranged from eight days among European/Other women to 15 days among Asian women (numbers were too small for Pacific women for results to be meaningful)(Table 22). This was not analysed further by DHB, due to the small numbers of women within each DHBs with these results.

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

Among the 1,974 women with high grade cytology (no suspicion of invasive disease), records were no longer available for one woman, and so it was not possible to determine if she had attended for colposcopy or not. Additionally, for 11 women the date that the cytology result was reported to the smeartaker was no longer available from the NCSP Register. Among the remaining 1,962 women, colposcopy records were found for 1,610 (82%) women (Table 23). Among these 1,610 women, the median period between the cytology report date and colposcopy visit date was 36 days. This was further analysed by DHB. The median waiting time between the high grade cytology report and the first colposcopy visit varied widely by DHB, ranging from 21.5 days (Mid Central) to 65 days (Waikato)(Table 23). There was less variation by ethnicity, with the median waiting times ranging from 35 days (European/ Other women) to 43 days (Māori women) (Table 24).

In total, 1,621 (82%) of the 1,973 women with high grade cytology (but no suspicion of invasive disease) relating to a sample collected in January-June 2011 have a record of a colposcopy visit prior to 31 December 2011 (representing a follow-up period of at least six and up to 12 months after their high grade cytology).

Trends

Nationally, the median waiting time is very similar to that in the previous reporting period. For high grade cytology indicating suspicion of invasive disease it remained unchanged, at 11 days. For high grade cytology (no suspicion of invasive disease) it increased slightly from 35 days to 36 days.

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 in

a given time period. The data used in this analysis was extracted from the NCSP Register in September 2012.

This indicator could not provide information which would allow the timeliness of colposcopic assessment among women with high grade cytology results to the targets. For timeliness to be compared with the guidelines, there must be a record of an accepted referral on the NCSP Register, in order to have a starting date from which to calculate the period of time between referral and colposcopy attendence. It has not been possible to obtain reliable data on referrals for the current monitoring period. In lieu of this, the time between the cytology report date and the first colposcopy visit was calculated, however this is not directly comparable to the targets. This is because there are several steps in the process from the high grade cytology report and the date the woman attends for colposcopy, several of which are beyond the control of the colposcopy clinic. Typically, a high grade cytology report will be sent back to the smeartaker, who will then communicate the results to the woman, and discuss follow-up management with her. The smeartaker will provide a referral for the woman to the relevant colposcopy service. Once the service has accepted the referral, they will arrange for a colposcopy appointment to be offered to the woman. Therefore, by using the cytology report date rather than the date the colposcopy clinic received and accepted the referral, other factors are included in this time period which are beyond the control of the colposcopy service, including the time between the report being sent to the smeartaker's clinic and when it is seen and actioned by the smeartaker; and potential delays in contacting the woman to discuss results and arrange follow-up. A small number of women had cytology results which suggested that the dates in the test record had been updated. This was suggested by a colposcopy visit which occurred after the cytology sample was collected, but before the cytology report date recorded on the NCSP Register (the time between the date the cytology sample was collected and the cytology report date on the NCSP Register was also longer than usual).

Additionally there may be a delay between the first scheduled colposcopy visit and the first visit date, for example if the woman needs to reschedule or does not attend for a scheduled appointment. 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, so at the present time it is not possible to take this into account in assessing this indicator. It is envisioned that in future the date of the first scheduled colposcopy visit will be available on the NCSP Register, as this date is now included in the reporting requirements in the updated colposcopy standard (effective from 1 July 2013). 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. 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.

Additional information about follow-up tests performed in women with high grade cytology is included in Indicator 6. The same 2,049 women (75 with suspicion of invasive disease, 1,974 other high grade cytology) are included in both this measure and Indicator 6. In Indicator 6, it was found that 1,760 women (85.9%) of women had histology within 180 days, and 1,915 (93.5%) had a follow-up test of some sort. Here, colposcopy records indicate that 1,657 (80.9%) women had attended colposcopy prior to 31 December 2011. This strongly suggests that colposcopy data must be incomplete, as more women had histology within 180 days than had colposcopy in a period of at least 181 days 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; private clinics are separated out and reported on as a group in this indicator.

Some cytology results (AC1-5) may have reflected results for endometrial cells. Histology in these cases would not be recorded on the NCSP Register, unless there was also a cervical component.

Colposcopy visit data used in this report was updated with data extracted from the NCSP Register in September 2012. Although colposcopies were only included up to 31 December 2011 (consistent with the end date of the monitoring period and previous monitoring reports), this allowed more time for colposcopy reports to be sent in to the NCSP Register. However, in the updated download, aspects of cytology records for three women originally included in the indicator were missing. We have attempted to include these women here in order to align results with Indicator 6. One woman had no record of colposcopy prior to 31 December 2011, however two women were recorded as having a colposcopy visit in the original data (downloaded from the NCSP Register in March 2012), but not in the data downloaded in September 2012. All records for one of these two women were missing from the September 2012 extract from the NCSP Register. It is possible that this woman withdrew from the NCSP Register between March 2012 and September 2012. For consistency of reporting these two colposcopies have not been included in tables here, as for all other women, data downloaded in September 2012 is used to ascertain whether they attended colposcopy or not. However based on the older download, these women attended colposcopy within 62 days of their cytology report date, and within 28 days of receipt of referral.

Table 22 - Waiting time between high grade cytology report (suspicion of invasive disease) and colposcopy visit date, by ethnicity

Ethnicity	HG women N	Women seen at colposcopy N	Median waiting time (days)
Māori	15	9	7
Pacific	3	*	*
Asian	7	5	15
European/Other	50	19	8
Total	**75**	**34**	**9.5**

** numbers were too small for Pacific women for results to be meaningful*

Table 23 - Waiting time between high grade cytology report (no suspicion of invasive disease) and colposcopy visit date, by DHB

DHB	HG women N	Referrals received* N	Women seen at colposcopy† N	Median waiting time (days)
Auckland	181	*167*	144	48
Bay of Plenty	89	*116*	79	39
Canterbury	173	*284*	162	39.5
Capital & Coast	67	*93*	56	36
Counties Manukau	143	*224*	117	34
Hawke's Bay	79	*85*	76	40
Hutt Valley	44	*77*	41	27
Lakes	26	*52*	24	24.5
Mid Central	64	*85*	60	21.5
Nelson Marlborough	77	*109*	63	54
Northland	48	*49*	42	26
Otago	65	*58*	62	42
South Canterbury	29	*44*	27	35
Southland	35	*42*	28	52.5
Tairawhiti	14	*32*	14	47.5
Taranaki	63	*62*	58	32
Waikato	146	*136*	103	65
Wairarapa	19	*11*	18	24.5
Waitemata	219	*237*	186	35
West Coast	21	*22*	20	30.5
Whanganui	23	*49*	19	25
Private practice	*346*		*211*	*22*
Total	**1,974**	***2,282***	**1,610**	**36**

*Waiting time is time between date that high grade cytology was reported to requestor and first colposcopy appointment. This cannot be compared to the target, which relates to the time between referral being accepted and subsequent visit. Total HG women includes results for three additional women whose records were inconsistent between the March 2012 and September 2012 download (one from Auckland, one from Capital & Coast and one from Southland), but are included for consistency with other parts of the report. * Data on referrals provided by the Ministry of Health from an NCSP Register extract 14 September 2012. † Excludes 11 women where the date that the cytology result was reported to the smeartaker was no longer available from the NCSP Register*

Table 24 - Waiting time between high grade cytology report (no suspicion of invasive disease) and colposcopy visit date, by ethnicity

Ethnicity	HG women N	Women seen at colposcopy N	Median waiting time (days)
Māori	321	266	43
Pacific	87	64	42.5
Asian	142	115	40
European/Other	1,423	1,165	35
Total	**1,974**	**1,610**	**36**

Total HG women includes one additional women whose records are no longer available, but is included in the total for consistency with other parts of the report.

Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

Definition	This indicator measures performance against Standard 602. It is still under development.
Target	95% of women who have persistent low-grade abnormalities or a low-grade abnormality and positive HPV test, must receive colposcopy within 26 weeks of the colposcopy unit accepting the referral from the smear taker.

Indicator 7.3 – Adequacy of documenting colposcopy assessment

Definition	This indicator measures performance against Standard 603. The proportion of colposcopies which occurred within the monitoring period with complete reporting of • visibility of the squamo-columnar junction • presence or absence of a visible lesion • colposcopic opinion regarding the nature of the abnormality • all of the above items completed Results are reported by DHB, based on the DHB of the facility where colposcopy was performed.
Target	100% of medical notes will accurately record colposcopic findings including: i) visibility of the squamo-columnar junction ii) presence or absence of a visible lesion iii) visibility of the limits of lesion iv) colposcopic opinion regarding the nature of the abnormality and the requirement for treatment. Items i), ii) and first of the items in iv) can be assessed using data in the NCSP Register, and are reported on below. Item iii) and second half of item iv) cannot be assessed using data from the NCSP-R as the current colposcopy report form does not include this information. The current colposcopy form is available at: http://www.nsu.govt.nz/files/NCSP/Colposcopy_Visit_Reporting_Form_Latest_2012.pdf 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). Similarly, when calculating the overall completeness of all items, colposcopic opinion regarding the nature of the abnormality was only required where colposcopic appearance was recorded as either abnormal or inconclusive.
Current Situation	Total numbers of colposcopies were re-extracted from the NCSP Register in September 2012 by the Ministry of Health, as part of a process of

consulatation and verification with DHB colposcopy clinics. In this report the number of colposcopies recorded as occurring within each DHB uses results of this analysis by the Ministry of Health. Based on that analysis, there were 12,877 colposcopy visits within the current monitoring period recorded on the NCSP Register (as at September 2012). Completion of required fields in the colposcopy report form was assessed based on an analysis of the 11,281 colposcopy visits which were recorded on the NCSP Register as of 5 March 2012.

Nationally, the visibility of the squamocolumnar junction was documented for 98.1% of visits; the presence or absence of a lesion was documented for all visits; an opinion regarding the lesion grade was documented for 94.2% of visits where the presence of a lesion could not be ruled out; and all of these items (where relevant) were documented for 94.9% of visits (Table 58). The colposcopic appearance was reported to be abnormal in 55% of colpscopies, and inconclusive in 3.5% of colposcopies (Table 59)

Documentation varied by DHB, as shown in Figure 40 and Table 58. For visibility of the squamocolumnar junction, it varied from 92.2% (Taranaki) to 100.0% (Lakes). In all DHBs, all colposcopy reports documented the presence or absence of a lesion. Documenting an opinion regarding the abnormality grade (which was only assessed here if colposcopic appearance was recorded as abnormal or inconclusive) ranged from 85.2% (Southland) to 98.8% (Wairarapa). Overall completion rates ranged from 86.7% (Southland) to 98.1% (Lakes). Abnormal colposcopic appearance ranged from 41% of colposcopies (Otago, Taranaki) to 71% of colposcopies (Hutt Valley). Inconclusive colposcopic appearance ranged from 0.7% of colposcopies (Wairarapa) to 8.0% of colposcopies (West Coast)(Table 59).

Trends

Documentation for each of the colposcopy visit items is very similar to that in the previous reporting period, with small increases some items. In this report, visibility of the squamocolumnar junction was documented for 98.1% of visits, compared to 97.9% in the previous report. The presence or absence of a lesion was documented for all visits in both this report and the previous report. An opinion regarding the lesion grade was documented for 94.2% of visits where the presence of a lesion could not be ruled out in the current report, compared to 93.2% in the previous report. All of these items (where relevant) were documented for 94.9% of visits in the current report, compared to 94.2% in the previous report.

Trends varied by DHB, however in most cases the changes were improvements or small. Some somewhat larger decreases in reporting whether or not the squamocolumnar junction was visible occurred in South Canterbury, Southland, Taranaki and Whanganui. Documentation of an opinion regarding the lesion grade decreased in some DHBs (in particular in Southland and Whanganui) and increased in others (in particular in Taranaki). Completion of all fields increased in most DHBs, but decreased in some DHBs (in particular in Southland and Whanganui).

Comments

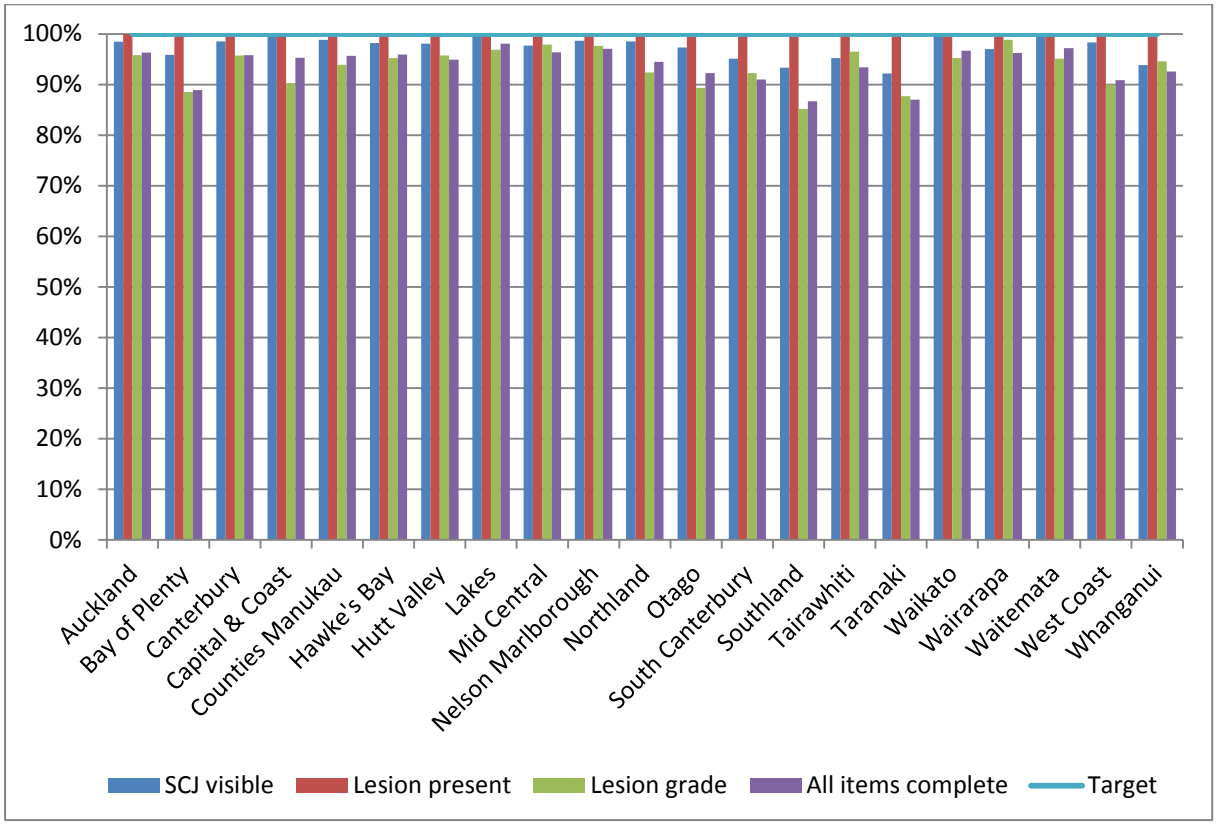
The total numbers of colposcopies recorded as occurring within each DHB

and information about the colposcopic appearance within DHB clinics uses results of an an analysis by the Ministry of Health, performed as part of a process of consulatation and verification with DHB colposcopy clinics. Data for that analysis was extracted in September 2012. However due to issues relating to the loss of the NCSP Register data warehouse around this time, it was not possible to re-analyse this updated data to assess completion of colposcopy report fields required by the standard. Assessment of colposcopy report form completion was based on data extracted from the NCSP Register on 5 March 2012. Results for this period should therefore be interpreted with caution.

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.

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

Figure 40 – Completion of colposcopic assessment fields, by DHB



Based on an analysis of 11,281 colposcopy visits which were recorded on the NCSP Register as of 5 March 2012

Indicator 7.4 – Timeliness and appropriateness of treatment

Definition	This indicator measures performance against Standard 605. Timeliness is assessed via the proportion of women with histological squamous intraepithelial lesions (HSIL) who are treated within 8 weeks of histological confirmation. Histological HSIL is defined as CIN2, CIN3, CIN2/3 or HSIL not otherwise specified (SNOMED codes M67017, M74007, M74008,M80102, M80702). Histological LSIL is not routinely treated however treatment of LSIL is included in this report for descriptive purposes and to examine the appropriateness of treatment. This report describes the proportion of women with histological low grade squamous intraepithelial lesions (LSIL) who are treated. To ensure consistency in the follow-up time examined for each woman and in order to allow timely reporting, treatments are included if they occur within 26 weeks of histological confirmation. Histological LSIL is defined as CIN1 or CIN not otherwise specified (SNOMED codes M67015, M67016, M74000, M74006). Women are included in this indicator if they have a histology sample where the result is HSIL or LSIL (as defined above), and the sample was collected in the six-month period immediately prior to the current reporting period (ie in the period 1 January – 30 June 2011). For the purposes of this measure, the date that histology results were reported to the requesting clinician is used as the date of histological confirmation. HSIL results must have been reported at least 8 weeks prior to the end of the current reporting period, and LSIL results must have been reported at least 26 weeks prior to the end of the current reporting period, in order to allow sufficient follow-up time for this indicator. Treatment was defined as a colposcopy visit where there was a record of electrosurgical excision, laser ablation or excision, cold knife cone biopsy, sub-total hysterectomy 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 also a target of 90% or more of women with histological LSIL have completed treatment within 26 weeks of the decision to treat. However, as the decision to treat is not recorded on the NCSP Register, and histological LSIL is not routinely treated (consistent with 2008 NCSP *Guidelines for Cervical Screening in New Zealand*), treatment of histological LSIL will not be compared against a target. It appears in this report for descriptive purposes only.
Current Situation	There were 2,597 women with a histological diagnosis of CIN2/3 (associated with histology samples collected in the previous six months, and reported at least eight weeks prior to 31 December 2011). Of these women, 737 women

(28.4%) were treated within eight weeks of HSIL being histologically confirmed. The proportion of women treated within eight weeks varied widely by DHB, from 8.4% (Otago) to 100.0% (Counties Manukau)(Table 25). One DHB met the target of 90% of women treated within eight weeks of histological confirmation of HSIL (Counties Manukau)(Figure 41, Table 25).

There were 1,879 women with a histological diagnosis of LSIL (associated with histology samples collected in the previous six months, and reported at least 26 weeks prior to 31 December 2011). The decision to treat is not explicitly recorded on the NCSP Register, therefore timeliness of treatment cannot be examined for LSIL, because treatment is not routinely recommended in the 2008 NCSP *Guidelines for Cervical Screening in New Zealand*[14] for histological LSIL. However for descriptive purposes, follow-up treatment records were retrieved for the 1,879 women with histological LSIL. Of these women, 133 women (7.1%) were treated. The proportion of women with LSIL who were treated varied widely by DHB, from 0% (Counties Manukau, Otago, Tairawhiti, Waikato, Wairarapa, Whanganui) to 26.7% (Northland)(Table 25).

Trends

This indicator has not been included in recent monitoring reports, therefore trend analysis could not be performed.

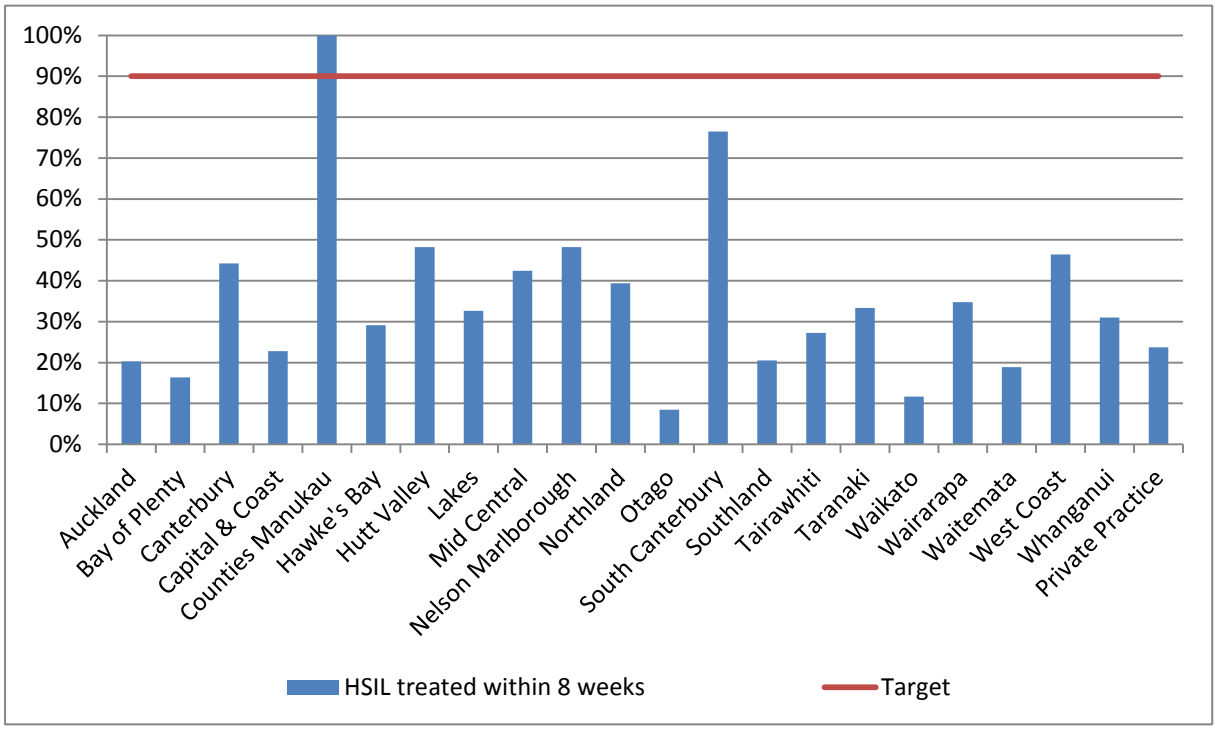
Comments

Whether or not treatment has occurred is determined for this indicator via colposcopy data in the NCSP Register. Colposcopy visit details are recorded on colposcopy visit forms, and records of these forms are uploaded onto the NCSP Register, however, it is possible that colposcopy data on the NCSP Register may be incomplete. If so, there may be cases where treatment occurred, but this has not been recorded on the NCSP Register. Therefore the results for this indicator may underestimate timeliness of treatment in cases where colposcopy data are incomplete. The data used in this analysis was extracted from the NCSP Register in September 2012.

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. However, in assessing timeliness of treatment, this report takes into account any treatments for a woman which are recorded on the NCSP Register (via colposcopy data), regardless of where treatment 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 41 – 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.

Table 25 – Timeliness and appropriateness of treatment, by DHB

DHB	Women with CIN2/3	Treated within 8 weeks		Women with histological LSIL*	Women treated*	
	N	N	%	N	N	%
Auckland	158	32	20.3	93	9	9.7
Bay of Plenty	110	18	16.4	63	4	6.3
Canterbury	319	141	44.2	324	19	5.9
Capital & Coast	57	13	22.8	58	4	6.9
Counties Manukau	1	1	100.0	-	-	-
Hawke's Bay	79	23	29.1	27	2	7.4
Hutt Valley	56	27	48.2	22	2	9.1
Lakes	49	16	32.7	29	2	6.9
Mid Central	132	56	42.4	66	2	3.0
Nelson Marlborough	114	55	48.2	57	7	12.3
Northland	61	24	39.3	15	4	26.7
Otago	83	7	8.4	32	-	-
South Canterbury	17	13	76.5	29	7	24.1
Southland	39	8	20.5	22	2	9.1
Tairawhiti	33	9	27.3	13	-	-
Taranaki	60	20	33.3	40	1	2.5
Waikato	146	17	11.6	45	-	-
Wairarapa	23	8	34.8	11	-	-
Waitemata	223	42	18.8	118	18	15.3
West Coast	28	13	46.4	37	1	2.7
Whanganui	29	9	31.0	4	-	-
Private practice	*780*	*185*	*23.7*	*774*	*49*	*6.3*
Total	**2,597**	**737**	**28.4**	**1,879**	**133**	**7.1**

** CIN1, CIN not otherwise specified (SNOMED codes M67015, M67016, M74000, 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 only. A consistent follow-up period of 26 weeks since the date of their LSIL histology report is used for all women.*

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 histology sample was collected.

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 6-12 months after their treatment
- receive colposcopy and cytology within the period 6-12 months after their treatment
- are discharged appropriately within 12 months of their treatment

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

To allow for 12 months of follow-up information to be available, this indicator reports on women treated in the six-month period ending 12 months prior to the end of current reporting period. Records for each woman treated for CIN2/3 in the six-month period ending 12 months prior to the end of current reporting period were retrieved from the NCSP Register. Among these treated women, the number of women with a colposcopy visit, and with both a colposcopy visit and a cytology sample in the period from at least six months and up to 12 months after the treatment visit 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.

Based on advice from the NCSP Advisory Group, women were defined as eligible for discharge if they had a colposcopy visit and cytology test in the period six to 12 months 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 smeartaker/ 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 in that DHB.
Target	90% or more of women treated for CIN should have a colposcopy and smear within the six- to 12-month period post treatment 90% or more of women treated for CIN should be discharged back to the smear taker as appropriate
Current Situation	There were 1,305 women treated for high grade lesions in the six-month period from 1 July-31 December 2010. These women were followed up for twelve months from the date of their treatment visit. ***Follow-up post treatment*** There were 772 women (59.2%) with a follow-up colposcopy, and 745 women (57.1%) with both a follow-up colposcopy and a cytology sample in the period of at least six and no more than 12 months after their treatment visit (Table 60, Table 61). 159 women (12.2%) had already been discharged prior to six months after their treatment visit (Table 61). Figure 42 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 from six to 12 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 61). The number of women with colposcopy only and no record of a cytology sample in the timeframe varied from zero (Counties Manukau, Hawke's Bay, Hutt Valley, Lakes, South Canterbury, Southland, Taranaki, Waikato, Wairarapa and West Coast) to four (Canterbury). The percentage of women treated for high grade lesions with a record of colposcopy and cytology within the six- to 12-month period post treatment (57.1%) is below the target value of 90%. No DHB met the target of at least 90% of women receiving cytology and colposcopy within the period of at least six but no more than 12 months post-treatment. The percentage of treated women with a record of both follow-up colposcopy and a cytology sample in the period from six to 12 months post-treatment varied by DHB from 19.0% (Tairawhiti) to 76.9% (West Coast) (Figure 42, Table 60). In total, 159 women (12.2%) were discharged prior to six months after their treatment visit (Table 61). ***Women discharged appropriately*** In total, 600 women (46.0% of those treated) were eligible to be discharged by 12 months after their treatment visit, and 464 of these women (77.3%) were discharged within 12 months of treatment (Table 60). Figure 43 shows how these percentages vary by DHB. The percentage of women eligible for discharge who were discharged within 12 months of treatment ranged from 0% (South Canterbury, Tairawhiti) to 100.0% (Bay of Plenty, Hutt Valley, Wairarapa)(Figure 43, Table 60). In some cases, the number of women eligible for discharge was small, so these results should be interpreted with caution (less than 10 women

	in Bay of Plenty, Lakes, South Canterbury, Southland, Tairawhiti, Taranaki, Wairarapa, West Coast and Whanganui). Six DHBs met the target of discharging 90%of women where appropriate within 12 months (Bay of Plenty, Hawke's Bay, Hutt Valley, Waikato, Wairarapa and Whanganui).
Trends	Nationally, the proportion of women treated who have follow-up colposcopy and cytology in the period six to 12 months post-treatment has increased (from 53.6% to 57.1%). A similar trend was seen when considering the proportion of women treated who have follow-up colposcopy (with or without cytology)(from 56.6% to 59.2%). A slightly higher proportion of treated women were eligible for discharge by 12 months in the current reporting period (46.0% of treated women) compared to the previous reporting period (45.3%). The proportion of women who are discharged appropriately within 12 months decreased from 78.4% in the previous reporting period, to 77.3% in the current report. The proportion of women discharged to their smeartaker less than six months after they were treated has decreased overall (from 19.0% in the previous report to 12.2% in the current report). Note that in many DHBs, the numbers of women treated is small, and so results are based on a small number of women.
Comments	Since this indicator relies on colposcopy data in the NCSP Register, there is the possibility that incomplete reporting of colposcopy visits and treatment visits has led to an underestimate of the number of women treated, the number of women with follow-up colposcopy visits and the number of women discharged in a given time period. The target that 90% or more of women treated for CIN 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 the guidelines themselves do not 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 any follow-up visits which women attend, regardless of the DHB in which they may occur.

Figure 42 – Percentage of women treated with colposcopy, and both colposcopy and cytology, in the period from six to 12 months after treatment

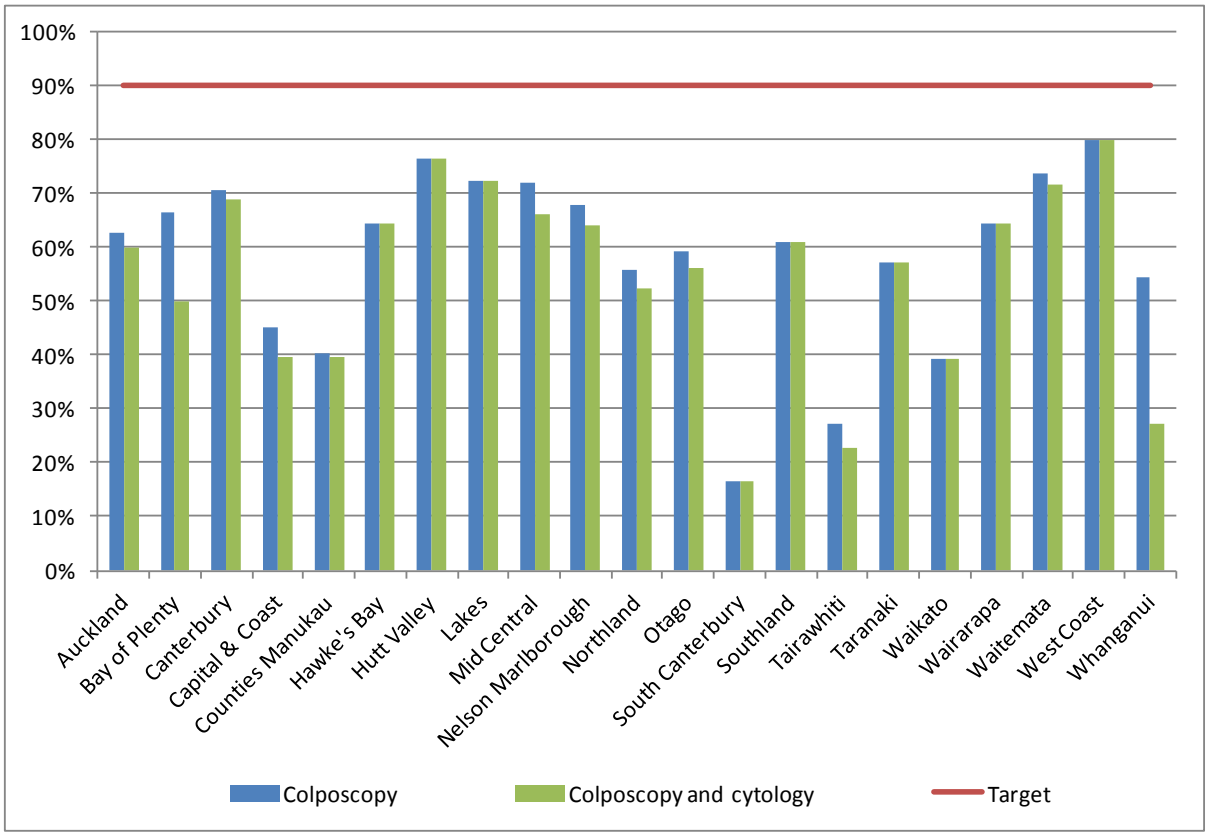
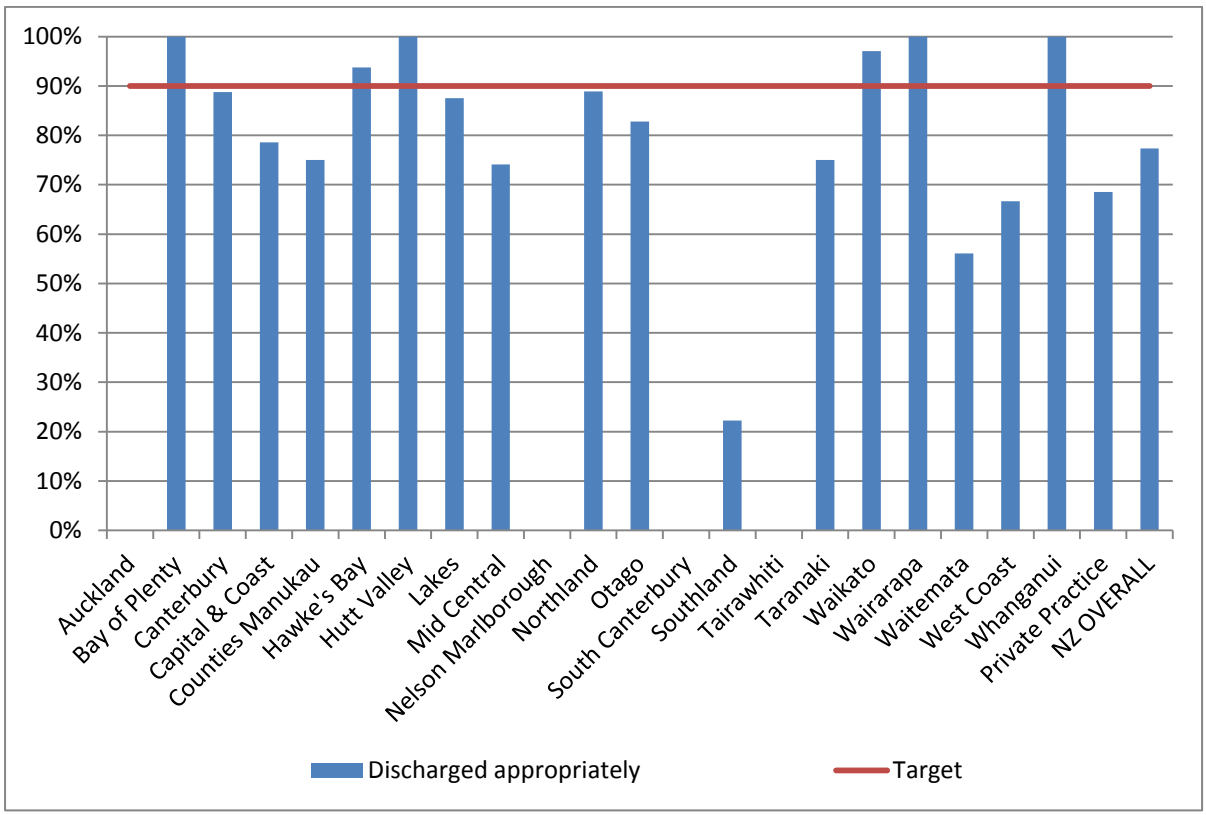


Figure 43 – Percentage of women discharged appropriately within 12 months of treatment



No women were eligible for discharge in Auckland or Neslon Marlborough. Small numbers of women eligible for discharge in some DHBs

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)

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)

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 attending for cytology due to symptoms.

Women who are aged less than 30 years are excluded if they have ever had either a high grade squamous cytology result (ASC-H, HSIL) or a high grade squamous histology result (CIN2/3).

The following measures are also reported on:

- Invalid HPV tests, as a proportion of all HPV triage tests, by HPV test technology
- Number of days between the collection dates recorded for the cytology sample and the HPV test sample, by laboratory

In some cases, the laboratory performing the cytology differs from that performing the HPV triage test. Measures reporting by laboratory which show i) the proportion of women with a triage test, and ii) the proportion of those women with a positive HPV triage test, are based on the laboratory which performed the cytology. Measures reporting on the proportion of HPV test results which are valid versus invalid are based on the laboratory which performed the HPV triage 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 1,202 women aged less than 30 years and 1,868 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 2,709 women aged less than 30 years and 1,665 women aged 30 years or more. NCSP Guidelines (2008) recommend that women aged 30 years or more who have not had an abnormal cytology report in the previous five years are offered an HPV triage test following ASC-US or LSIL cytology. Among these eligible women, 93.3% of women aged 30 years or more with an ASC-US cytology result, and 92.2% of women aged 30 years or more with an LSIL cytology result are recorded as having a subsequent HPV test (Table 62, Table 63). These proportions ranged 81.6% (LabPLUS) to 99.2% (Aotea Pathology Ltd) for ASC-US cytology results and from 71.4% (LabPLUS) to 99.1% (Aotea Pathology Ltd) for LSIL cytology results (Figure 44, Table 62, Table 63). 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 1.2% of women aged less than 30 years with ASC-US results, and 0.9% of women aged less than 30 years with LSIL results. These proportions ranged from 0% (Southern Community Labs) to 5.5% (Medlab Central Ltd) for women with ASC-US results, and from 0% (Medlab South Christchurch, LabPLUS) to 2.9% (Canterbury Health Laboratories) for women with LSIL results (Figure 45, Table 62, Table 63). No HPV triage tests in women aged 30 years or more were invalid in the current reporting period (Table 64, Table 65). Only Abbott RealTime and Roche cobas were used for HPV triage tests in the current reporting period. No HPV triage tests relating to the current monitoring period were performed using Digene HC2 or Roche Amplicor (Table 66). Among women aged 30 years or more with valid HPV triage test results, the proportion who were positive for high risk HPV was 25% for women with ASC-US results, and 61% for women with LSIL results. These proportions varied by laboratory from 11% (Canterbury Health Laboratories) to 55% (Pathlab) for women with ASC-US cytology (Figure 46), and from 40% (LabPLUS) to 80% (Aotea Pathology Ltd) for women with LSIL cytology (Figure 47, Table 26, Table 27). However the number of HPV triage tests performed at LabPLUS for LSIL cytology was very small (five; results for LabPLUS are omitted from Figure 47). The proportion of women whose HPV triage test was positive also varied by age. HPV positivity generally decreased with increasing age (Figure 48, Table 26, Table 27). HPV positivity among women aged 70 years or more with ASCUS cytology appears higher than in some younger women, although these results are based on smaller numbers of women (Table 23).

Trends

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 has decreased since the previous report, from 94.2% to 93.3% for women with ASC-US results, and increased from 91.1% to 92.2% for women with LSIL results. The proportion of women aged less than 30 years with a subsequent HPV test is similar for ASCUS and LSIL

The proportion of women whose tests are invalid remains very small.

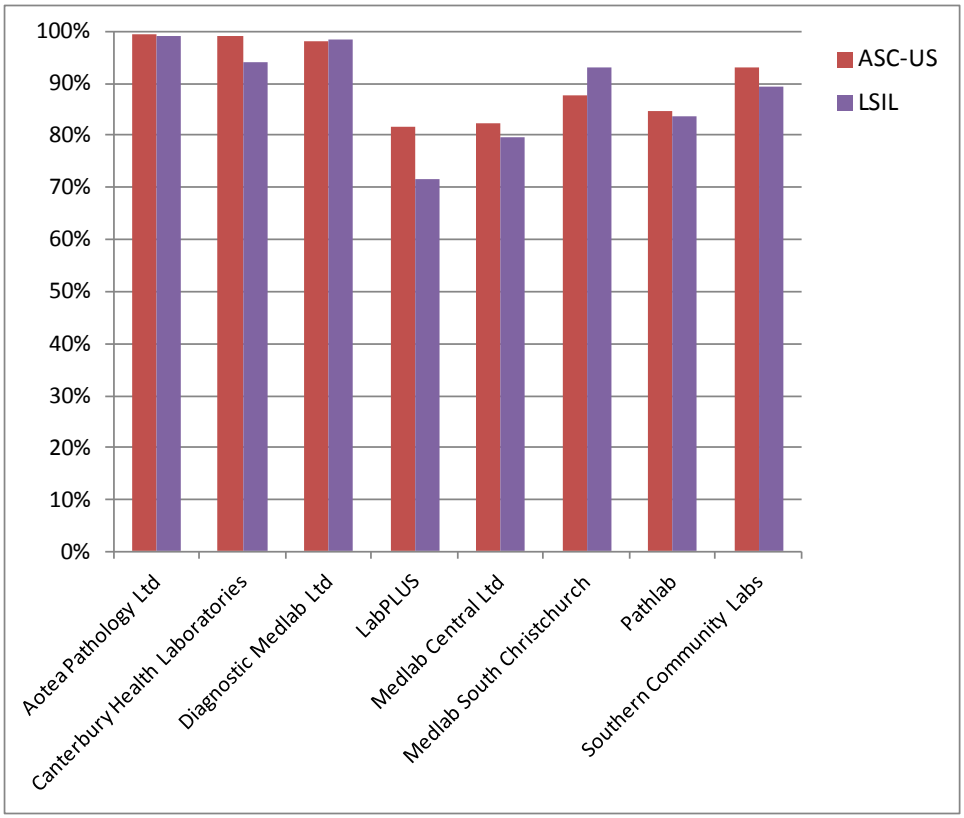
The proportion of women aged 30 years or more who test positive for a high risk HPV type is somewhat lower than that reported in the previous monitoring report. Among women with ASC-US results there was an decrease from 29% in the previous report to 25% in the current report, and for LSIL a small increase from 60% in the previous report to 61% in the current report.

Comments

A small number of women (N=40) aged less than 30 years with low grade results and no recent abnormalities (in the previous five years) have a record of a subsequent HPV test. 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 as part of "historical testing". This can 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. 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]

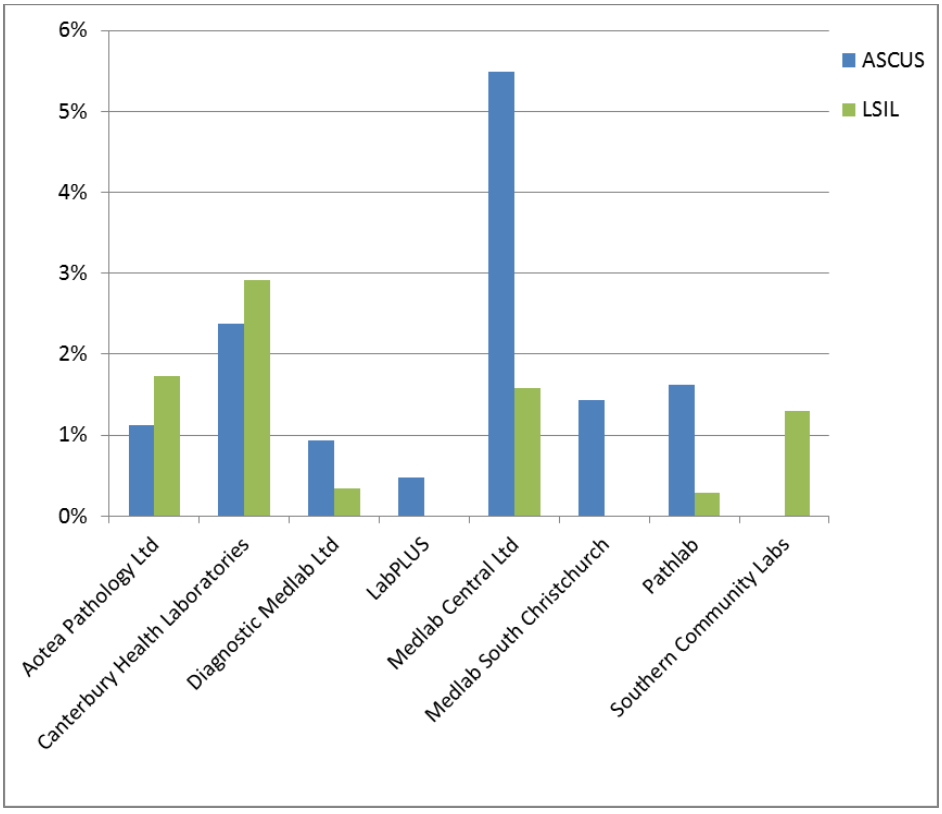
The NCSP Register does not contain codes for all of the HPV test technologies used. In particular, there is no code for cobas® 4800 (Roche), and these tests appear to be coded as either Roche Amplicor or Other. In the current monitoring report, we have attempted to correct the estimates for the validity of HPV tests by test technology type to reflect the actual test used. Based on information provided by the laboratories, all laboratories used only one HPV test type during this period - either Abbott RealTime (Canterbury Health Laboratories, Southern Community Labs) or cobas (Aotea, Diagnostic Medlab Ltd, LabPLUS, Medlab Central Ltd, Medlab South Christchurch and Pathlab). Therefore test technology types were recoded for the purposes of this analysis based on the laboratory where they were processed. As occurred in the previous reporting period, Medlab South Christchurch sent samples requiring HPV testing to Diagnostic Medlab during part of the current reporting period, as a result of the Christchurch earthquake in February 2011 (samples were affected between February 22nd and August 2011), however both Medlab South Christchurch and Diagnostic Medlab Ltd were using cobas throughout the latter half of 2011.

Figure 44 – 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 45 – 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

Figure 46 - Proportion of HPV triage tests which are positive following ASC-US cytology (women aged 30 years or more) , by cytology laboratory

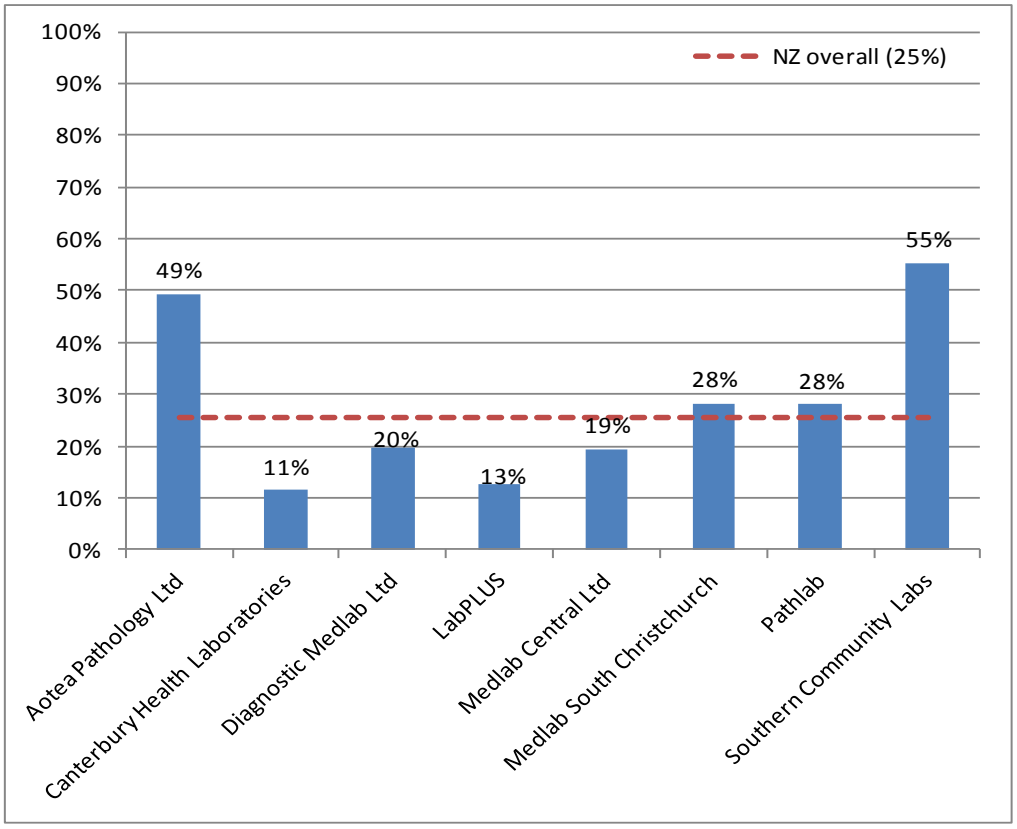
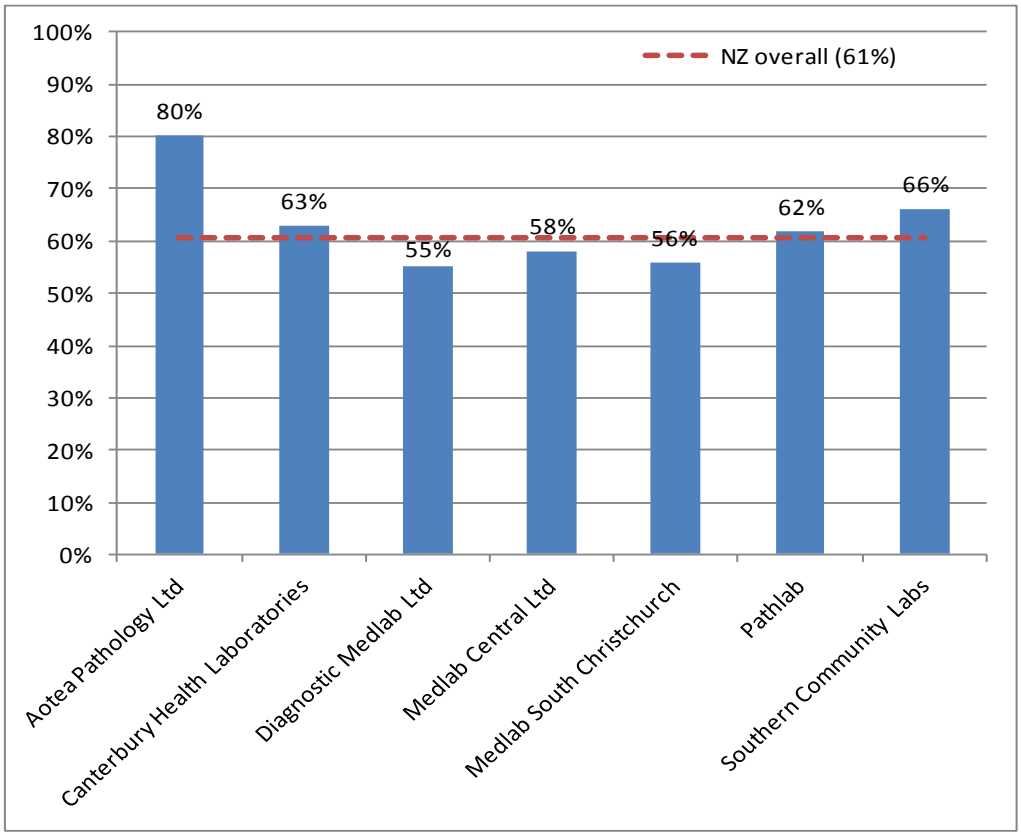
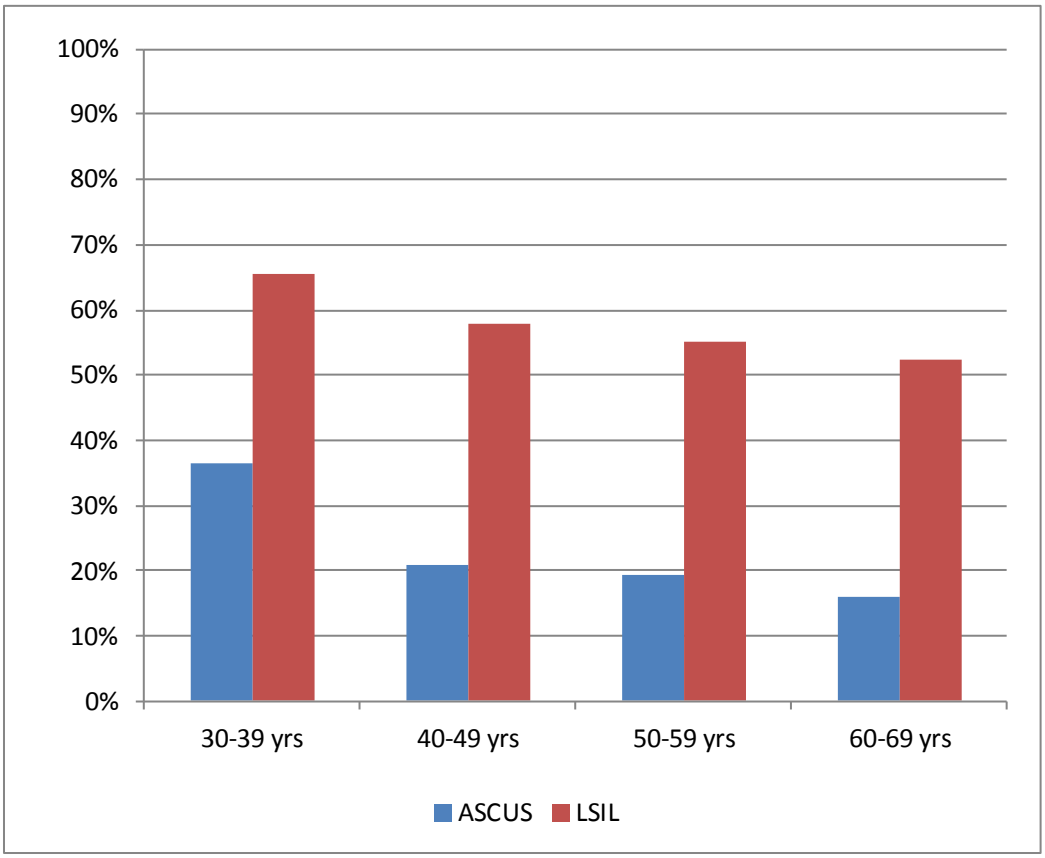


Figure 47 - Proportion of HPV triage tests which are positive following LSIL cytology (women aged 30 years or more) , by cytology laboratory



Excludes results for LabPLUS due to the small number of samples tested (five).

Figure 48 – 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 26 - 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	2	132	2	100.0	39	70.9	18	43.9	7	26.9	1	11.1	0	0.0
Canterbury Health Laboratories	1	219	0	0.0	13	17.1	8	10.3	2	4.5	2	10.0	0	0.0
Diagnostic Medlab Ltd	2	694	1	50.0	75	31.1	28	12.1	22	14.6	11	16.4	0	0.0
LabPLUS	1	40	1	100.0	3	17.6	2	11.8	0	0.0	0	0.0	0	0.0
Medlab Central Ltd	5	149	1	20.0	16	38.1	5	10.2	6	16.2	2	10.5	0	0.0
Medlab South Christchurch	2	209	2	100.0	24	34.3	21	23.9	10	25.6	4	33.3	0	0.0
Pathlab	2	150	1	50.0	17	35.4	14	28.6	9	23.1	1	9.1	1	33.3
Southern Community Labs	0	150	0	0.0	32	60.4	33	55.0	15	55.6	3	30.0	0	0.0
TOTAL	**15**	**1743**	**8**	**53.3**	**219**	**36.4**	**129**	**21.0**	**71**	**19.4**	**24**	**16.0**	**1**	**8.3**

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

Table 27 - HPV triage test results following LSIL cytology, by age and cytology laboratory

Laboratory	Women with valid HPV test results		Women with positive HPV test results (number and % within each age group)											
	<30 yrs	30+yrs	<30 yrs		30-39yrs		40-49yrs		50-59yrs		60-69yrs		70+yrs	
	N	N	N	%	N	%	N	%	N	%	N	%	N	%
Aotea Pathology Ltd	5	111	3	60.0	55	84.6	22	73.3	10	76.9	2	66.7	0	0.0
Canterbury Health Laboratories	4	97	3	75.0	18	60.0	26	65.0	13	56.5	3	100.0	1	100.0
Diagnostic Medlab Ltd	2	590	1	50.0	173	61.8	109	56.5	36	40.9	7	30.4	1	16.7
LabPLUS	0	5	-	-	0	0.0	1	33.3	1	100	0	0.0	0	0.0
Medlab Central Ltd	4	117	2	50.0	37	60.7	19	59.4	9	47.4	1	33.3	2	100.0
Medlab South Christchurch	0	118	-	-	29	56.9	27	54.0	6	66.7	4	50.0	0	0.0
Pathlab	1	186	0	0.0	51	60.0	34	58.6	26	72.2	2	40.0	2	100.0
Southern Community Labs	9	311	9	100.0	104	74.3	55	55.6	31	62.0	16	72.7	0	0.0
TOTAL	**25**	**1,535**	**18**	**72.0**	**467**	**65.5**	**293**	**58.0**	**132**	**55.2**	**35**	**52.2**	**6**	**54.5**

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

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) HPV triage *(as defined in Indicator 8.1, but restricted to women aged 30 years or more at the time of the cytology specimen)*

ii) Post-treatment *(women treated for high grade squamous lesions in the period 6 months to 4 years prior to the HPV sample date)*

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

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

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 the appropriate purposes. It is also useful to report the extent of HrHPV tests for other purposes and the need to eliminate HrHPV tests for other purposes. For this reason the purpose of HrHPV tests are disclosed in this report, but the indicator remains under development.

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

Target

This measure is still being developed, and targets have not yet been set.

Current Situation

Overall volumes

There were 21,244 samples received by laboratories for HPV testing within the current reporting period.

Virtually all (99.0%) samples for HPV testing were from women aged 20-69

years. The large majority of women (91.3%) were aged 30 years or more (Figure 49, Table 67).

The majority of HPV test samples (83.4%) were performed on cervical samples from European/Other women, and the number of HPV tests performed was smallest among Pacific women (475, or 2.2% of all HPV tests) (Figure 50, Table 68). There were 2,191 tests (10.3% of all HPV tests) in Māori women, and 853 tests in Asian women (4.0% of all HPV tests).

The number of samples received by laboratories for HPV testing ranged from 621 (LabPLUS; 2.9% of all HPV tests) to 6,694 (Southern Community Labs Dunedin; 31.5% of all HPV tests) (Figure 51, Table 69Table 69). Table 69 also shows 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. The ratio of HPV tests to cytology tests reported varied by laboratory from 6.1% (Diagnostic Medlab Ltd) to 17.9% (Canterbury Health Laboratories).

Purpose of HPV tests

These samples were further analysed in order to evaluate the purpose for which they were performed. Nationally, it was estimated that 3,474 (16.4%) were for triage of low grade cytology in women aged 30 years or more; 1,232 (5.8%) were for post-treatment management for women treated in the past four years; 9,764 (46.0%) was for follow-up management of women with high grade cytology or histology more than three years previously (historical testing); and 694 (3.3%) were on samples collected at a colposcopy visit which did not fit into a previous category (possibly for resolution of discordant results). The remaining 6,080 (28.6%) HPV tests did not fit into any of the previously described categories (Figure 52). These are discussed further in the *Comments* section. It is likely a substantial proportion were historical testing in relation to previous abnormalities which are not recorded on the NCSP Register.

Further breakdowns of HPV tests by purpose are presented by age (Figure 53) and laboratory (Figure 54).

There were variations in HPV test purpose by age (Figure 53, Table 70). HPV triage (by the definition used here) only occurred in women aged 30 years or more. In women aged less than 30 years, a comparatively larger proportion were taken as post-treatment follow-up management, or taken at colposcopy for another reason. In women aged 30 years or more, HPV tests were most commonly for the purpose of historical testing, where a purpose could be identified. The proportion of tests which did not fit into the prescribed categories, and were therefore classified as 'Other', broadly increased with increasing age.

HPV test purpose also varied by laboratory (Figure 54, Table 71). Among tests for which the purpose could be determined, the most common categories were historical testing (at Aotea Pathology Ltd, Canterbury Health Laboratories, Medlab Central, Medlab South Christchurch, Pathlab, Southern

Community Laboratories), HPV triage (Diagnostic Medlab Ltd), and post-treatment management (LabPLUS). The proportion of tests performed for HPV triage ranged from 7.1% (Southern Community Laboratories) to 45.0% (Diagnostic Medlab Ltd). The proportion of tests performed for post-treatment management varied from 2.2% (Diagnostic Medlab Ltd) to 28.0% (LabPLUS), while the proportion performed to follow up women with historical high grade squamous abnormalities varied from 14.5% (LabPLUS) to 53.6% (Southern Community Laboratories).

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 women and European/ Other women. HPV triage was the most common reason among Pacific and Asian women (Table 72Table 72).

HPV tests at colposcopy

HPV tests taken at colposcopy were further explored, based on the DHB of the colposcopy clinic where the sample was taken, and whether or not it was a public or a private clinic. Nationally, more of the HPV tests which were taken at colposcopy came from public facilities (433; 77%) than from private facilities (127; 23%), however this was consistent with the greater number of colposcopies performed in public clinics (Table 73). The number of HPV tests collected at a colposcopy clinic is potentially reflective of the number of colposcopies performed there. Therefore, a rate of HPV tests at colposcopy which takes this variation in colposcopy volumes into account was derived, in order to provide more information. The rate of HPV tests at colposcopy was calculated by dividing the number of HPV tests collected at colposcopy by the total number of colposcopies within that DHB/ sector, expressed as a percentage. This rate can be broadly interpreted as the percentage of colposcopies (within a given DHB or sector) where an HPV test sample is collected. Across New Zealand, HPV test samples were collected in approximately 5% of colposcopies. This value ranged from 0.4% (Waitemata) to 20.0% (Bay of Plenty), and was 4.6% across all public DHB clinics (Figure 55, Table 73). In private practice, this rate was 6.9%. No HPV tests were taken at colposcopy in Hutt Valley, Northland, Tairawhiti, Taranaki, West Coast or Whanganui.

Trends

More samples were received at laboratories for HPV testing in the current reporting period (21,244) than in the previous monitoring report (18,010) – an increase of approximately 18%. This increase has occurred broadly, that is the distribution of where these samples come from is largely unchanged, in terms of ethnicity, age group and laboratory. The exception is that a somewhat smaller share of HPV tests were performed at Diagnostic Medlab Ltd, and a somewhat larger share at Medlab South Christchurch compared to in the previous reporting period. HPV test volumes at Medlab South Chrstchurch increased by 62% since the previous report (compared to an 18% increase nationally). This change is potentially attributable to changes in processing of HPV tests which occurred as a result of the Christchurch

earthquake in February 2011. For approximately six months after the earthquake, samples which would normally have been processd at Medlab South Christchurch were instead processed at Diagnostic Medlab Limited. During the current reporting period, however, this stopped, and HPV samples were once again processed at Medlab South Christchurch.

The proportion of samples for HPV testing which related to woman aged less than 30 years is somewhat lower in the current reporting period (8.7%) compared to what it was in the previous period (9.2%).

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

There remained a substantial number (6,080; 28.6% of all tests) of HPV tests did not fit into any of the pre-defined purpose categories. These were further explored to determine if in some cases they were similar to, but not fully compliant with, recommended uses. In some cases (350), the tests were used after a recent CIN2/3 histology result, for which there was no record of treatment. These tests may in practice have been performed for post-treatment management, but the colposcopy reports documenting the treatment are not included on the NCSP Register. Some tests appear to have been used to follow-up a previous abnormality, which was either not a squamous abnormality (141 tests), high grade cytology which was too recent to fit the criteria for historical testing (381), or both recent and not squamous (30). A small number (17) were preceded by a histology or cytology test indicating cervical cancer, rather than high grade. There were also 240 tests which were performed within six months of a low grade cytology result, but which did not meet the criteria for HPV triage as the woman had an abnormality recorded within the previous five years (in which case the guidelines recommend direct referral to colposcopy, not HPV triage).

However, this left 4,921 tests for which there was still no clear purpose. As a result, and as part of developing this indicator, a more detailed audit was performed on a sample of HPV tests (N=203 tests) which originally fell into this category in the current reporting period (in a draft report). The information gleaned was used to further refine the definition of purpose used within Reports 35-37. As a result, 58 (29%) tests were able to be categorised either by use consistent with the guidelines, or a use as above which was similar to, but not fully compliant with, recommended uses. Of the remaining 145 tests, a large proportion (86%) had a synopsis on the NCSP Register which suggested an abnormality had been previously detected (although there was no specific record of either high grade squamous histology or cytology recorded on the NCSP Register). These cases may reflect a previous high grade lesion prior to the inception of the NCSP Register (consistent with a higher proportion of 'Other' tests in older women), or which occurred while a woman was not enrolled on the Register, or not residing in New Zealand. The remainder (N=20 tests; 14% of tests still classified as unexplained after updating definitions of purpose) either had no abnormality recorded (including via a synopsis), or the abnormality was low grade only. Although the results from the subset of 'Other' tests audited here (which were processed by a single laboratory) may not be directly applicable to all 'Other' tests, if a similar pattern had occurred within all 'Other' tests in this time period, high grade synopses may have accounted for around 70% of 'Other' tests.

Figure 49 - Volume of HPV test samples received by laboratories during the monitoring period, by age

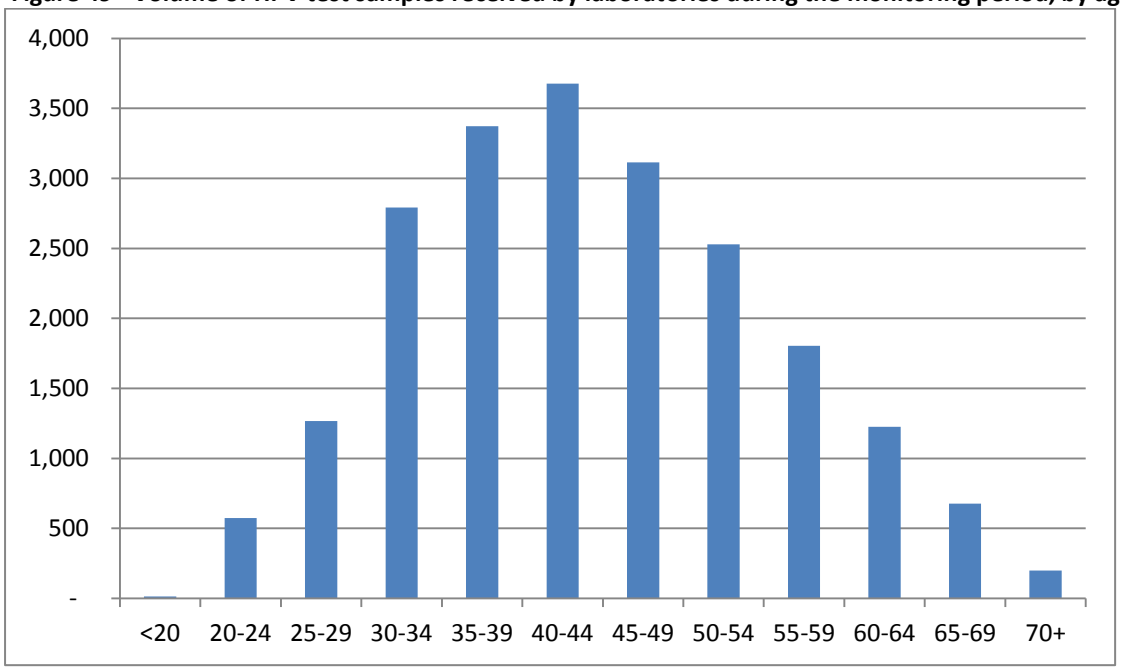


Figure 50 - Volume of HPV test samples received by laboratories during the monitoring period, by ethnicity

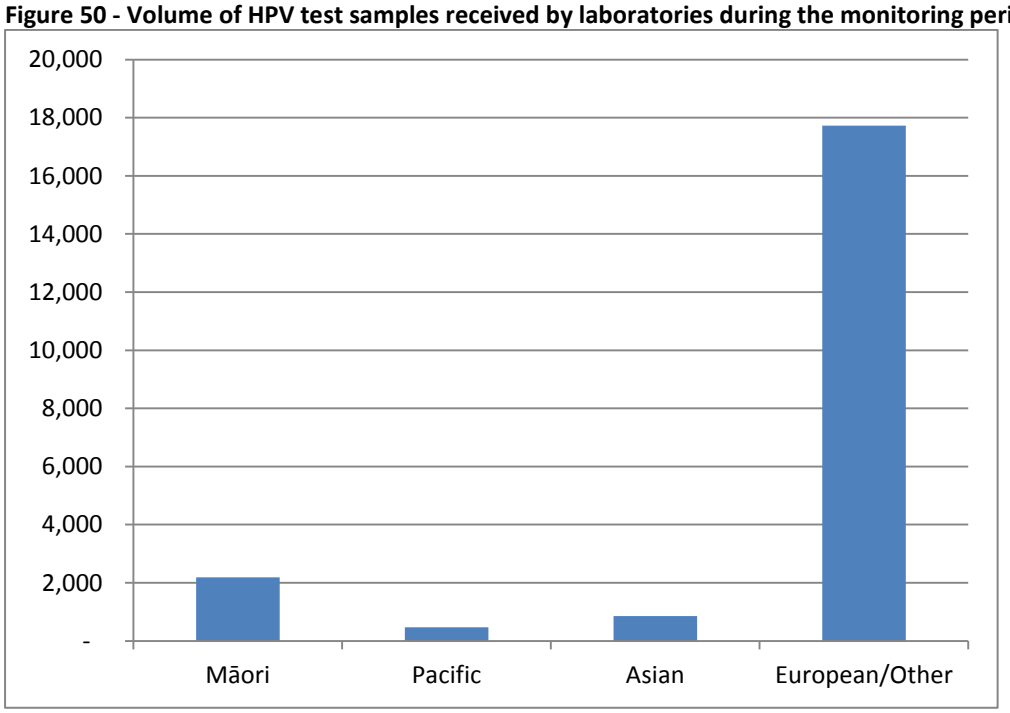
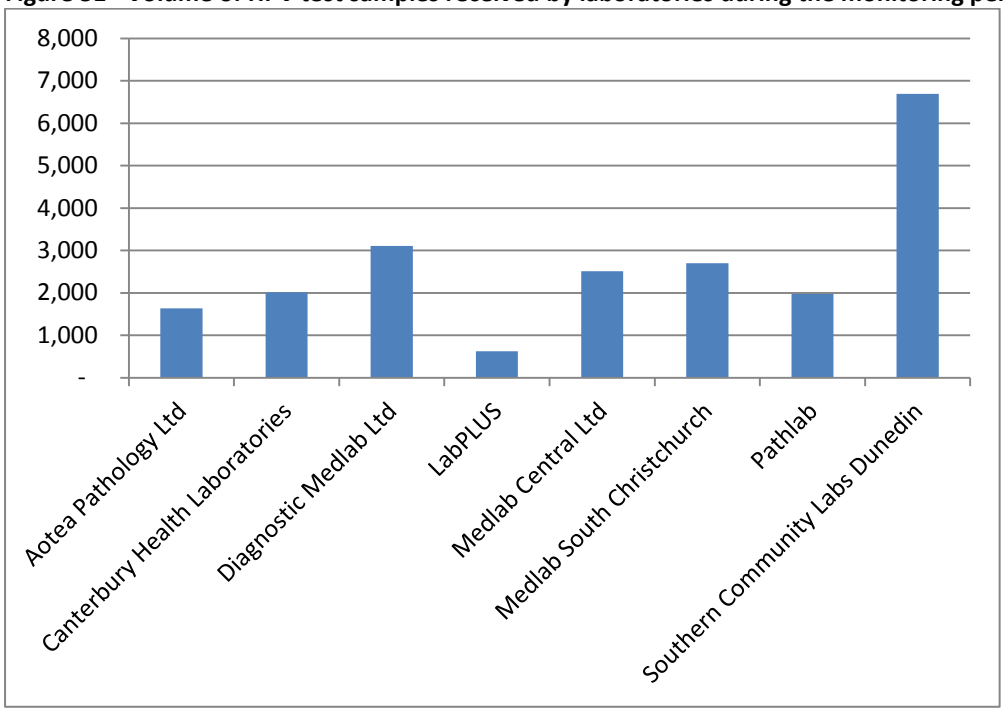


Figure 51 - Volume of HPV test samples received by laboratories during the monitoring period, by laboratory



Note that some tests received by Medlab South Christchurch were processed by Diagnostic Medlab Ltd during the current reporting period.

Figure 52 - Volume of HPV test samples received during the monitoring period, by purpose

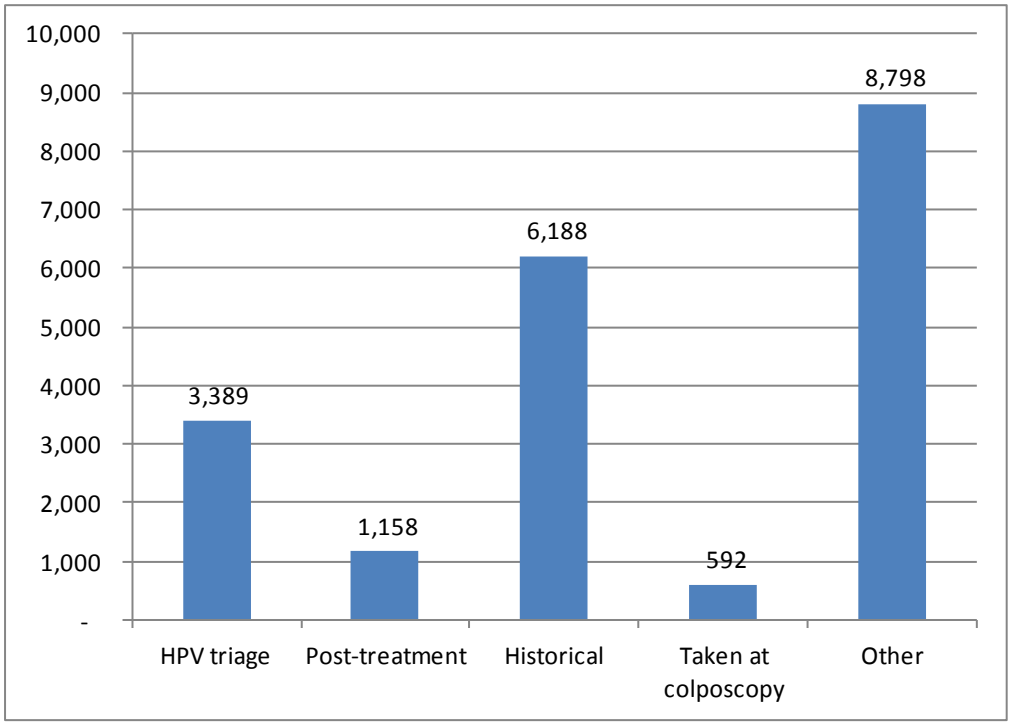


Figure 53- Percentage of HPV test samples received during the monitoring period estimated as attributable to each test purpose, by age

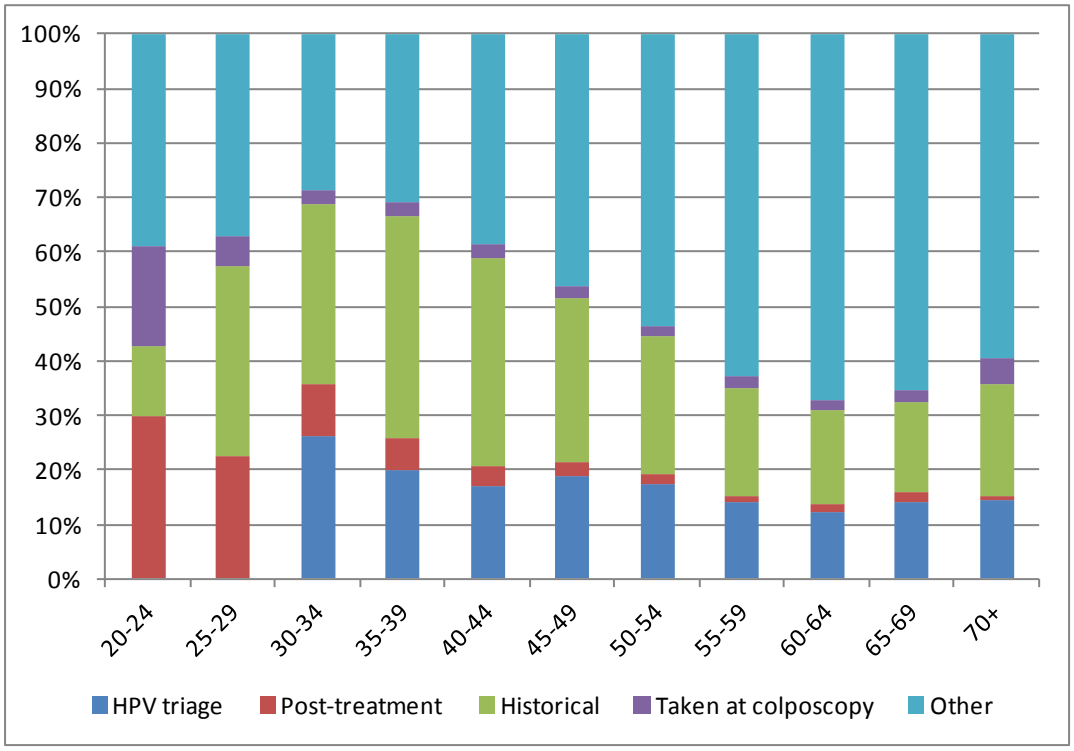


Figure 54- Percentage of HPV test samples received during the monitoring period estimated as attributable to each test purpose, by laboratory

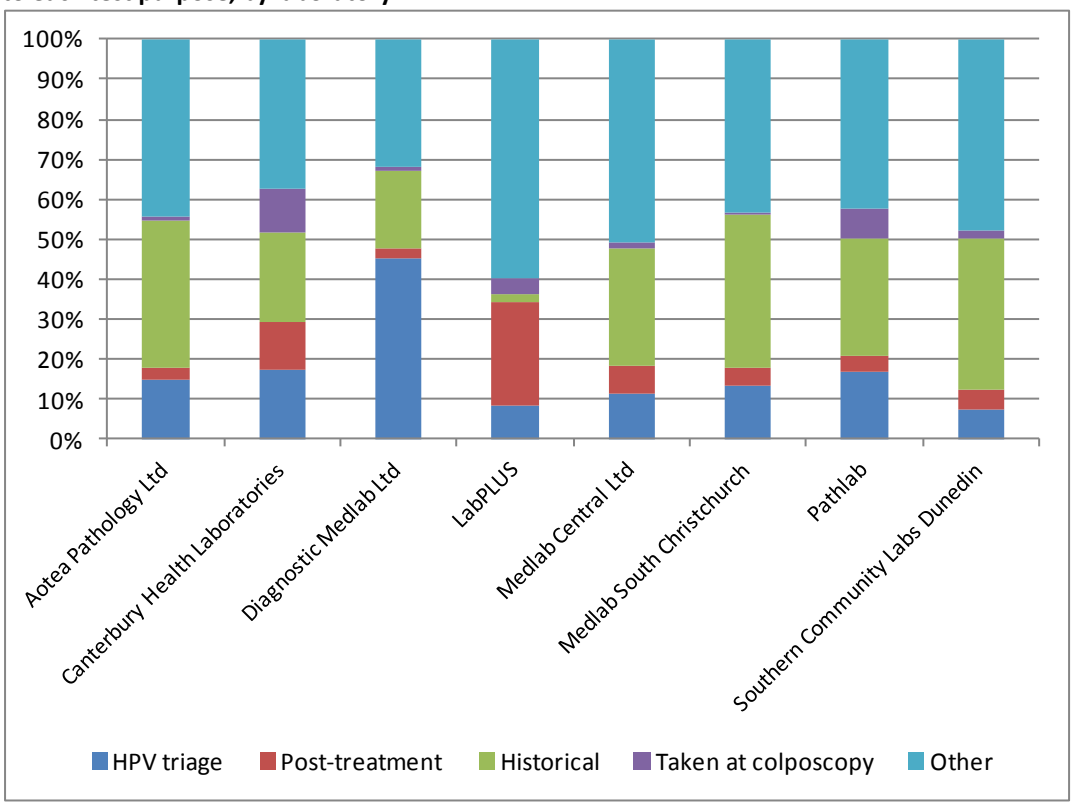
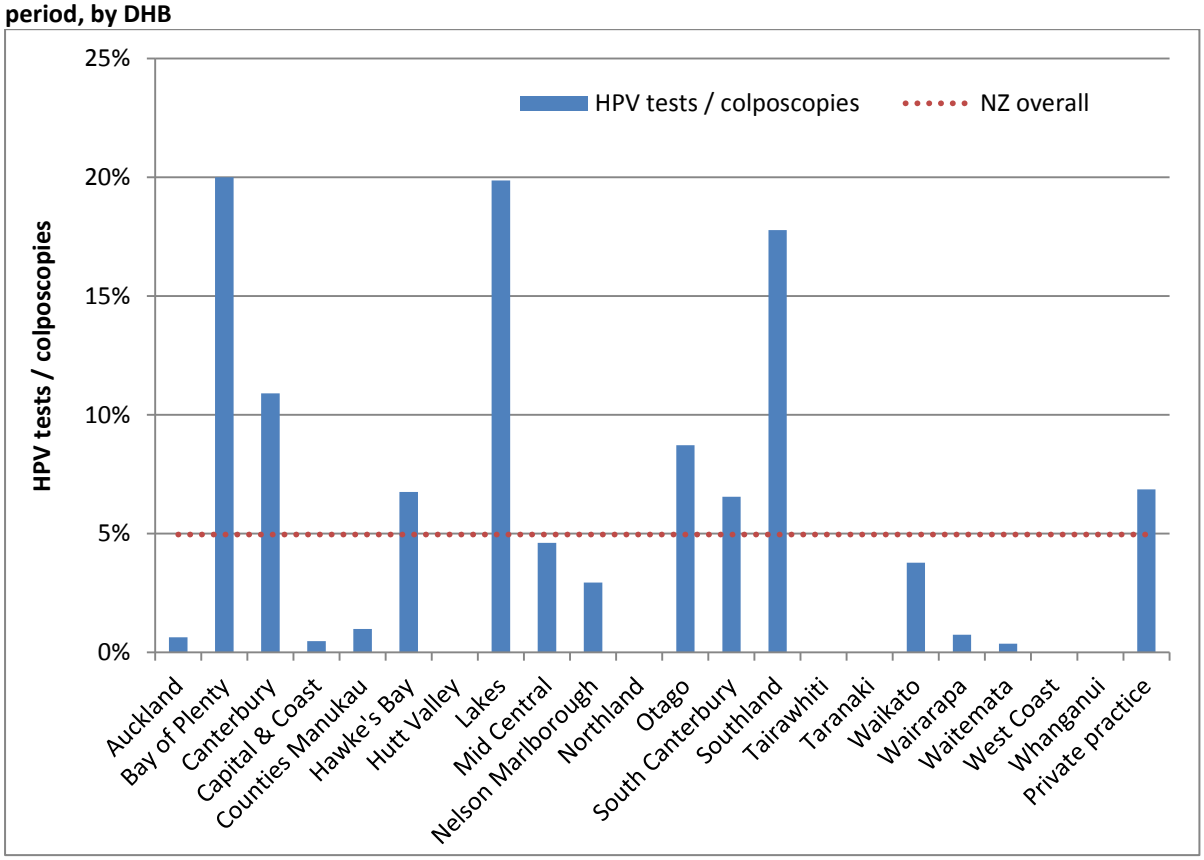


Figure 55- HPV test samples collected at colposcopy, in relation to total colposcopies performed in the period, by DHB



HPV tests/ colposcopy can be interpreted broadly as the percentage of colposcopies within this DHB/ sector where a sample is collected for HPV testing. Includes colposcopies and HPV test samples at colposcopy where a colposcopy record exists on the NCSP Register.

Appendix A – Additional data

Indicator 1 - Coverage

Table 28 - Coverage by age (women 20-69 years screened in the three years prior to 31 December 2011, hysterectomy adjusted)

Age (years)	Hysterectomy-adjusted population	Women screened in the last 3 years	
		N	%
20-24	159,019	86,463	54.4
25-29	149,221	98,037	65.7
30-34	143,506	101,436	70.7
35-39	148,615	113,224	76.2
40-44	156,382	123,387	78.9
45-49	146,868	118,444	80.6
50-54	129,589	105,485	81.4
55-59	104,630	82,767	79.1
60-64	92,181	67,964	73.7
65-69	73,406	47,275	64.4
Total	**1,303,418**	**944,482**	**72.5**

Target: 75%

Table 29 - Coverage by DHB (women 25-69 years screened in the three years prior to 31 December 2011, hysterectomy adjusted)

DHB	Hysterectomy-adjusted population	Women screened in the last 3 years	
		N	%
Auckland	132,259	97,120	73.4
Bay of Plenty	53,650	41,590	77.5
Canterbury	131,632	97,157	73.8
Capital & Coast	81,366	65,299	80.3
Counties Manukau	128,831	85,972	66.7
Hawke's Bay	38,735	30,574	78.9
Hutt Valley	37,086	28,975	78.1
Lakes	26,197	20,278	77.4
Mid Central	41,188	30,659	74.4
Nelson Marlborough	35,899	28,384	79.1
Northland	39,546	29,583	74.8
Otago	46,910	37,034	78.9
South Canterbury	13,663	10,391	76.1
Southland	29,066	22,269	76.6
Tairawhiti	11,595	8,675	74.8
Taranaki	27,004	22,653	83.9
Waikato	91,084	68,686	75.4
Wairarapa	9,891	8,129	82.2
Waitemata	145,244	106,866	73.6
West Coast	8,301	5,840	70.3
Whanganui	15,248	11,630	76.3
Total	**1,144,398**	**857,764**	**75.0**

Target: 75% Excludes 255 women for whom DHB could not be determined

Table 30 - Coverage by ethnicity (women 25-69 years screened in the three years prior to 31 December 2011, hysterectomy adjusted)

Ethnicity	Hysterectomy adjusted population (ages 25-69 years)	Women screened in the last 3 years (ages 25-69 years)	
		N	%
Māori	149,881	86,844	57.9
Pacific	67,202	41,435	61.7
Asian	146,624	82,157	56.0
European/Other	780,691	647,583	83.0
Total	**1,144,398**	**858,019**	**75.0**

Table 31 - Coverage by ethnicity (women 25-69 years screened in the three years prior to 31 December 2011, hysterectomy adjusted) – counts weighted using ethnicity adjustors to correct for undercounting in NCSP Register

Ethnicity	Hysterectomy adjusted population (ages 25-69 years)	Women screened in the last 3 years (ages 25-69 years; adjusted for ethnicity misclassification)	
		N	%
Māori	149,881	103,305	68.9
Pacific	67,202	45,948	68.4
Asian	146,624	107,440	73.3
European/Other	780,691	602,016	77.1

Table 32 - Coverage by ethnicity (women 20-69 years screened in the three years prior to 31 December 2011, hysterectomy adjusted) – counts weighted using ethnicity adjustors to correct for undercounting in NCSP Register

Ethnicity	Hysterectomy adjusted population (ages 20-69 years)	Women screened in the last 3 years (ages 20-69 years; adjusted for ethnicity misclassification)	
		N	%
Māori	180,276	122,032	67.7
Pacific	80,197	51,786	64.6
Asian	171,569	112,447	65.5
European/Other	871,376	656,032	75.3

Table 33 - Coverage by age (women 20-69 years screened in the five years prior to 31 December 2011, hysterectomy adjusted)

Age (years)	Hysterectomy-adjusted population	Number of women screened in last 5 years	% screened in the last 5 years
20-24	159,019	93,125	58.6
25-29	149,221	119,692	80.2
30-34	143,506	122,097	85.1
35-39	148,615	134,016	90.2
40-44	156,382	144,929	92.7
45-49	146,868	138,567	94.3
50-54	129,589	122,817	94.8
55-59	104,630	95,699	91.5
60-64	92,181	78,002	84.6
65-69	73,406	55,029	75.0
Total	**1,303,418**	**1,103,973**	**84.7**

Table 34 - Coverage by DHB (women aged 25-69 years screened in the five years prior to 31 December 2011, hysterectomy adjusted)

DHB	Hysterectomy adjusted population	Women screened in the last 5 years	
		N	%
Auckland	132,259	115,620	87.4
Bay of Plenty	53,650	48,984	91.3
Canterbury	131,632	115,268	87.6
Capital & Coast	81,366	75,696	93.0
Counties Manukau	128,831	103,910	80.7
Hawke's Bay	38,735	35,672	92.1
Hutt Valley	37,086	34,189	92.2
Lakes	26,197	23,765	90.7
Mid Central	41,188	35,812	86.9
Nelson Marlborough	35,899	33,204	92.5
Northland	39,546	34,897	88.2
Otago	46,910	42,867	91.4
South Canterbury	13,663	12,272	89.8
Southland	29,066	26,168	90.0
Tairawhiti	11,595	10,260	88.5
Taranaki	27,004	26,026	96.4
Waikato	91,084	80,583	88.5
Wairarapa	9,891	9,258	93.6
Waitemata	145,244	125,721	86.6
West Coast	8,301	6,909	83.2
Whanganui	15,248	13,452	88.2
Total	**1,144,398**	**1,010,533**	**88.3**

Excludes 315 women for whom DHB could not be determined

Table 35 - Coverage by ethnicity – women aged 25-69 years screened in the five years prior to 31 December 2011, hysterectomy adjusted

Ethnicity	Hysterectomy adjusted population	Women screened in the last 5 years	
	N	N	%
Māori	149,881	106,635	71.1
Pacific	67,202	51,383	76.5
Asian	146,624	96,311	65.7
European/Other	780,691	756,519	96.9
TOTAL	**1,144,398**	**1,010,848**	**88.3**

Table 36 - Women under 20 years of age, and aged 15-19 years, screened in the three years prior to 31 December 2011, by DHB.

DHB	Number of women screened in last 3 years		Number of women screened at age 15-19 yrs as % of population aged 15-19 yrs
	aged 10 - 19 yrs	aged 15-19 yrs	
Auckland	1,444	1,436	9.7
Bay of Plenty	498	497	7.1
Canterbury	2,163	2,151	12.0
Capital & Coast	815	814	8.4
Counties Manukau	1,623	1,614	8.1
Hawke's Bay	541	539	10.2
Hutt Valley	442	440	8.6
Lakes	278	278	7.7
Mid Central	381	380	5.8
Nelson Marlborough	355	355	8.9
Northland	345	340	6.6
Otago	665	663	8.4
South Canterbury	223	221	13.3
Southland	323	323	10.0
Tairawhiti	170	169	9.9
Taranaki	302	301	8.5
Waikato	827	825	6.2
Wairarapa	125	124	10.2
Waitemata	1,988	1,980	10.0
West Coast	111	111	10.8
Whanganui	128	127	5.8
Unspecified	1		
Total	**13,748**	**13,688**	**8.8**

Excludes two women who were recorded as aged less than ten years at the time of their cervical sample

Table 37 – Women screened under 20 years of age, as a proportion of all women screened in the three years to 31 December 2011, by DHB

DHB	Number of women screened in last 3 years		Proportion of women screened who were aged < 20 years (%)
	aged < 20 years	all ages	
Auckland	1,444	108,535	1.3
Bay of Plenty	498	47,008	1.1
Canterbury	2,163	110,695	2.0
Capital & Coast	815	74,559	1.1
Counties Manukau	1,623	96,352	1.7
Hawke's Bay	541	34,702	1.6
Hutt Valley	442	32,643	1.4
Lakes	278	22,752	1.2
Mid Central	381	35,450	1.1
Nelson Marlborough	355	31,529	1.1
Northland	345	33,180	1.0
Otago	665	43,659	1.5
South Canterbury	223	11,706	1.9
Southland	323	25,140	1.3
Tairawhiti	170	9,926	1.7
Taranaki	302	25,496	1.2
Waikato	827	78,486	1.1
Wairarapa	125	9,119	1.4
Waitemata	1,988	119,412	1.7
West Coast	111	6,565	1.7
Whanganui	128	13,148	1.0
Unspecified	*1*		
Total	**13,748**	**970,062**	**1.4**

Excludes two females who were aged four and seven years at the time of their cervical samples

Table 38 – Women screened under 20 years of age, and women aged 18-19 years when they were screened, in the three years to 31 December 2011, by DHB

DHB	Number of women screened in last 3 years		
	aged 10-19 years	aged 18-19 years	% aged 18-19 years
Auckland	1,444	1,175	81.4
Bay of Plenty	498	419	84.1
Canterbury	2,163	1,755	81.1
Capital & Coast	815	729	89.4
Counties Manukau	1,623	1,280	78.9
Hawke's Bay	541	446	82.4
Hutt Valley	442	362	81.9
Lakes	278	238	85.6
Mid Central	381	356	93.4
Nelson Marlborough	355	296	83.4
Northland	345	282	81.7
Otago	665	545	82.0
South Canterbury	223	166	74.4
Southland	323	267	82.7
Tairawhiti	170	134	78.8
Taranaki	302	252	83.4
Waikato	827	725	87.7
Wairarapa	125	103	82.4
Waitemata	1,988	1,584	79.7
West Coast	111	91	82.0
Whanganui	128	111	86.7
Unspecified	1	1	100.0
Total	**13,748**	**11,317**	**82.3**

Table 39 - Women aged 25-69 years screened in the three years to 31 December 2011, as a percentage of i) the hysterectomy-adjustment NZ female population and ii) the total NZ female population, by DHB

DHB	Women screened in the last 3 years (hysterectomy-adjusted)	Women screened in the last 3 years (no hysterectomy adjustment)
Auckland	73.4	67.8
Bay of Plenty	77.5	68.1
Canterbury	73.8	65.1
Capital & Coast	80.3	72.8
Counties Manukau	66.7	61.3
Hawke's Bay	78.9	69.4
Hutt Valley	78.1	70.0
Lakes	77.4	69.0
Mid Central	74.4	65.7
Nelson Marlborough	79.1	68.5
Northland	74.8	65.5
Otago	78.9	69.1
South Canterbury	76.1	65.4
Southland	76.6	67.8
Tairawhiti	74.8	67.2
Taranaki	83.9	73.5
Waikato	75.4	66.9
Wairarapa	82.2	70.9
Waitemata	73.6	66.1
West Coast	70.3	61.2
Whanganui	76.3	66.7

Table 40 - Trends in three-year coverage by DHB (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)

DHB	To 30 Jun 2010	To 31 Dec 2010	To 30 Jun 2011	To 31 Dec 2011
Auckland	72.4%	73.0%	73.2%	73.4%
Bay of Plenty	77.5%	78.0%	77.1%	77.5%
Canterbury	76.0%	75.7%	73.7%	73.8%
Capital & Coast	79.1%	79.8%	79.3%	80.3%
Counties Manukau	68.5%	68.1%	67.3%	66.7%
Hawke's Bay	77.7%	78.2%	78.2%	78.9%
Hutt Valley	76.7%	77.4%	76.9%	78.1%
Lakes	76.0%	77.0%	77.0%	77.4%
Mid Central	74.1%	74.1%	74.5%	74.4%
Nelson Marlborough	78.9%	79.4%	78.6%	79.1%
Northland	74.1%	74.2%	75.2%	74.8%
Otago	79.3%	79.3%	78.3%	78.9%
South Canterbury	78.0%	76.9%	74.1%	76.1%
Southland	75.4%	76.0%	75.5%	76.6%
Tairawhiti	74.3%	71.1%	74.8%	74.8%
Taranaki	83.3%	83.3%	82.9%	83.9%
Waikato	74.7%	75.0%	75.0%	75.4%
Wairarapa	79.4%	80.3%	81.2%	82.2%
Waitemata	74.6%	74.7%	74.0%	73.6%
West Coast	69.3%	69.7%	68.5%	70.3%
Whanganui	73.9%	74.1%	74.8%	76.3%

Note: Coverage calculated using population projection as at the end date shown, based on 2006 Census data. Target 75%.

Table 41 - Trends in three-year coverage by age (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)

Age	To 30 Jun 2010	To 31 Dec 2010	To 30 Jun 2011	To 31 Dec 2011
20-24	54.8%	54.4%	54.1%	54.4%
25-29	66.7%	66.3%	65.3%	65.7%
30-34	72.9%	72.3%	71.2%	70.7%
35-39	77.0%	77.0%	76.3%	76.2%
40-44	78.7%	79.0%	78.8%	78.9%
45-49	80.6%	80.9%	80.2%	80.6%
50-54	80.3%	80.9%	80.8%	81.4%
55-59	78.1%	78.5%	78.7%	79.1%
60-64	72.4%	73.1%	73.1%	73.7%
65-69	63.1%	63.5%	63.6%	64.4%

Note: Coverage calculated using population projection at the end date shown, based on 2006 Census data. Target 75%.

Table 42 - Trends in three-year coverage by ethnicity (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)

Ethnicity	To 30 Jun 2010	To 31 Dec 2010	To 30 Jun 2011	To 31 Dec 2011
Māori	55.9%	56.4%	56.8%	57.9%
Pacific	60.5%	60.9%	60.0%	61.7%
Asian	54.6%	54.3%	53.6%	56.0%
European/ Other	83.6%	83.8%	83.3%	83.0%
NZ overall	**75.1%**	**75.2%**	**74.7%**	**75.0%**

Note: Coverage calculated using population projection at the end date shown, based on 2006 Census data. Target 75%.

Indicator 2 – First screening events

Table 43 - Age distribution of first screening events for period 1 July – 31 December 2011

Age	Women with first events	% of first events (ages 20-69 yrs) which occurred in that age group
20-24	10,908	50.2
25-29	3,312	15.3
30-34	2,176	10.0
35-39	1,446	6.7
40-44	1,065	4.9
45-49	875	4.0
50-54	622	2.9
55-59	553	2.5
60-64	450	2.1
65-69	308	1.4
20-69 yrs	**21,715**	

Note: Percentage = number of first screens in age group divided by total number of first screens multiplied by 100

Figure 56 – Trends in the number of women with a first screening event, by age

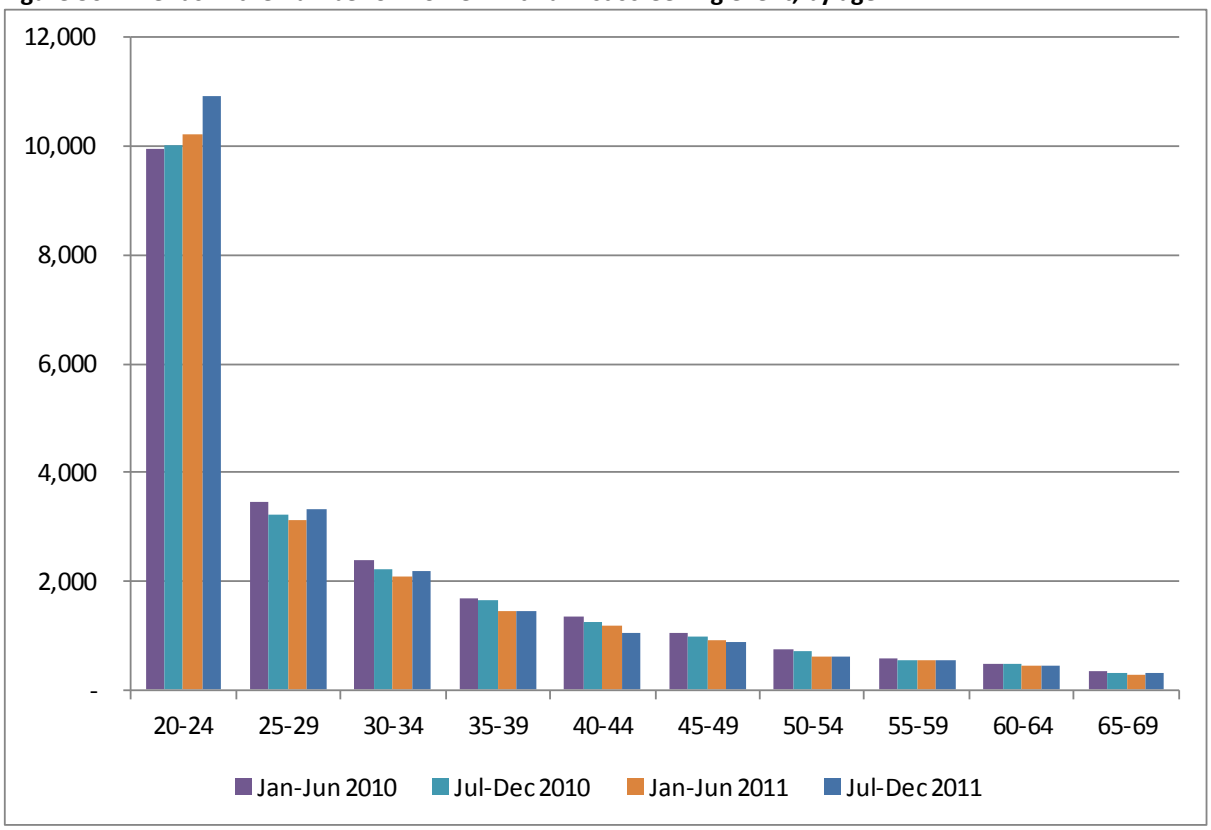


Figure 57 - Trends in the number of women with a first screening event, by DHB

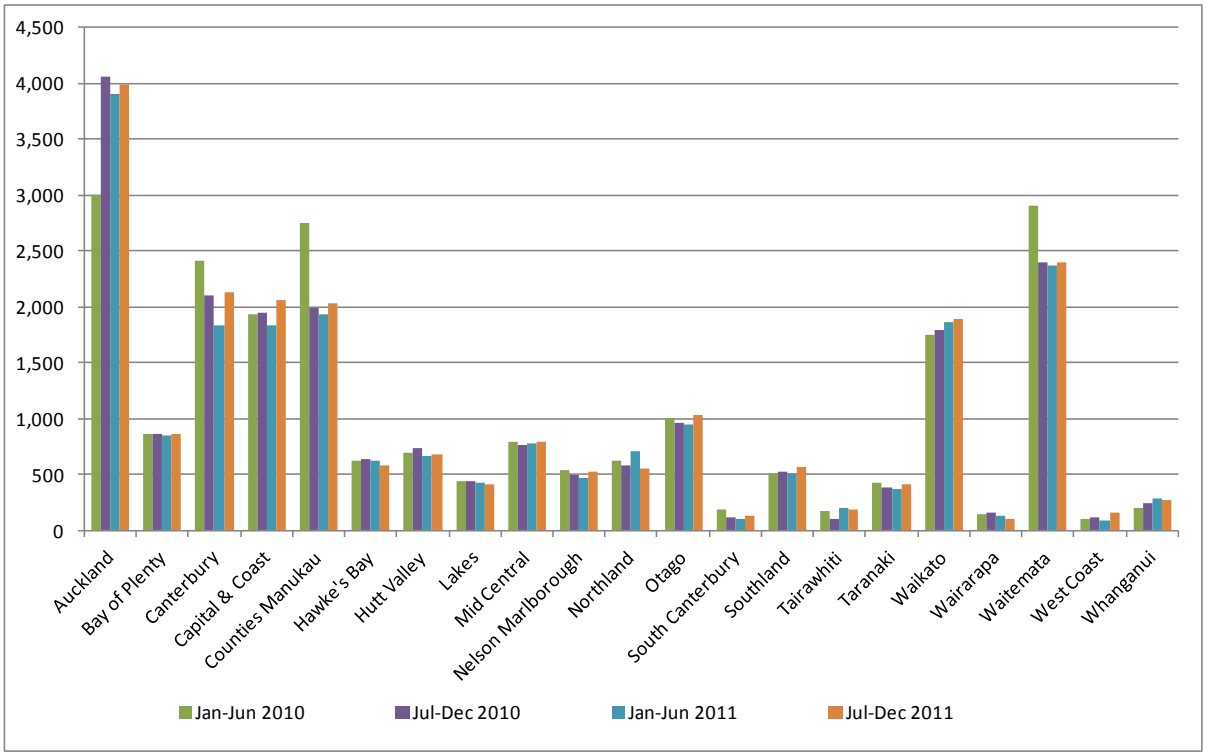
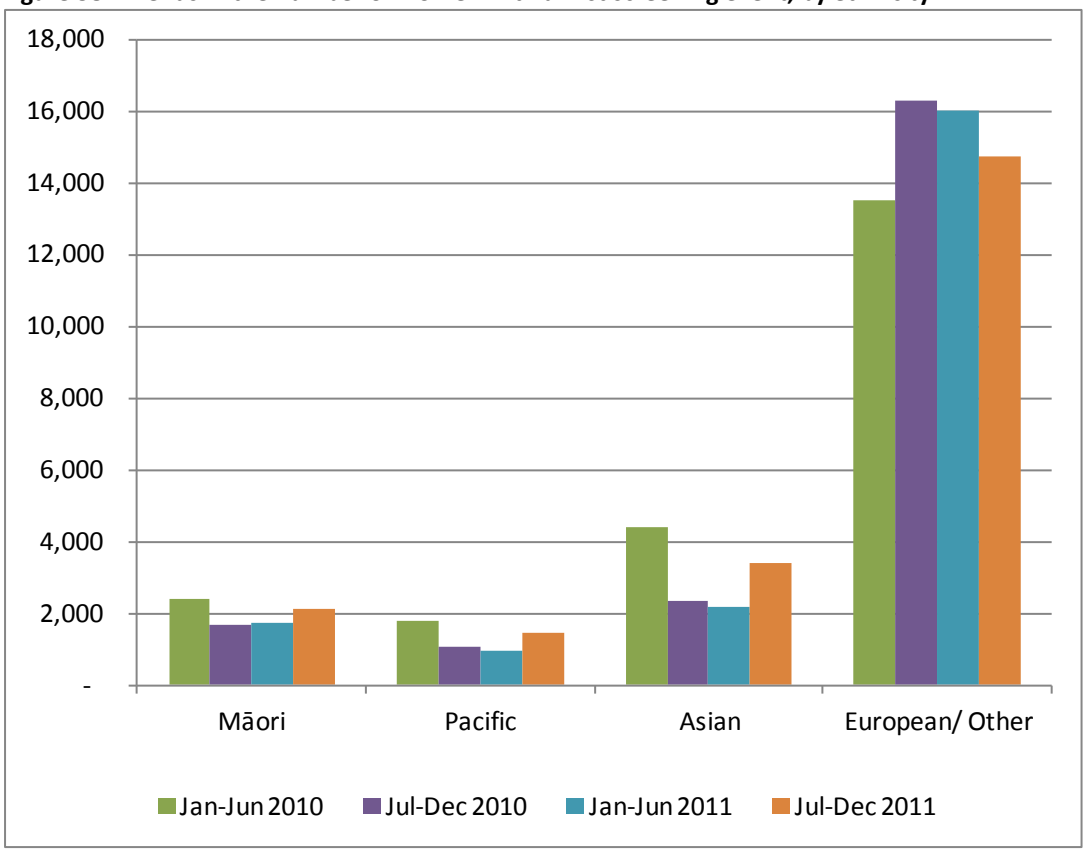


Figure 58 - Trends in the number of women with a first screening event, by ethnicity



Indicator 3 – Withdrawals

Table 44 - Withdrawal rates by DHB for the period 1 July – 31 December 2011

DHB	Enrolled at start	Women withdrawn	
		N	%
Auckland	171,133	6	0.004
Bay of Plenty	67,597	2	0.003
Canterbury	160,905	5	0.003
Capital & Coast	107,821	2	0.002
Counties Manukau	147,104	3	0.002
Hawke's Bay	49,235	1	0.002
Hutt Valley	48,959	-	0.000
Lakes	34,049	1	0.003
Mid Central	50,566	1	0.002
Nelson Marlborough	43,792	3	0.007
Northland	47,433	3	0.006
Otago	60,670	2	0.003
South Canterbury	16,296	-	0.000
Southland	36,301	-	0.000
Tairawhiti	14,387	1	0.007
Taranaki	34,415	1	0.003
Waikato	111,440	-	0.000
Wairarapa	12,065	-	0.000
Waitemata	171,362	5	0.003
West Coast	9,458	-	0.000
Whanganui	18,963	-	0.000
Unspecified	2,061	3	0.146
Total	**1,416,012**	**39**	**0.003**

Indicator 4 – Early re-screening

Table 45 - Early re-screening by five-year age group, 1 July – 31 December 2011 (cohort method)

Age	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
20-24	1,233	365	29.6
25-29	4,075	1,073	26.3
30-34	4,368	1,011	23.1
35-39	5,379	1,222	22.7
40-44	6,181	1,375	22.2
45-49	6,132	1,404	22.9
50-54	5,404	1,274	23.6
55-59	4,260	891	20.9
60-64	3,479	648	18.6
65-69	2,421	396	16.4
Total	**42,932**	**9,659**	**22.5**

Table 46 - Early re-screening by DHB, 1 July – 31 December 2011 (cohort method)

DHB	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Auckland	4,693	1,414	30.1
Bay of Plenty	2,007	506	25.2
Canterbury	5,280	1,161	22.0
Capital & Coast	3,672	725	19.7
Counties Manukau	4,197	904	21.5
Hawke's Bay	1,438	270	18.8
Hutt Valley	1,409	214	15.2
Lakes	1,063	291	27.4
Mid Central	1,512	223	14.7
Nelson Marlborough	1,352	226	16.7
Northland	1,350	366	27.1
Otago	1,725	270	15.7
South Canterbury	612	120	19.6
Southland	1,056	164	15.5
Tairawhiti	455	77	16.9
Taranaki	1,080	143	13.2
Waikato	3,081	523	17.0
Wairarapa	423	107	25.3
Waitemata	5,696	1,814	31.8
West Coast	286	48	16.8
Whanganui	539	91	16.9
Unspecified	6	2	33.3
Total	**42,932**	**9,659**	**22.5**

Table 47 - Early re-screening by ethnicity, 1 July – 31 December 2011 (cohort method)

Ethnicity	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Māori	3,678	756	20.6
Pacific	1,685	309	18.3
Asian	3,675	925	25.2
European/Other	33,894	7,669	22.6
Total	**42,932**	**9,659**	**22.5**

Indicator 5 – Laboratory indicators

Indicator 5.2 – Accuracy of cytology predicting HSIL

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

Laboratory	Histology available		HSIL confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	80	87.0	64	80.0	12	13.0	92
Canterbury Health Laboratories	90	92.8	83	92.2	7	7.2	97
Diagnostic Medlab Ltd	262	88.5	207	79.0	34	11.5	296
LabPLUS	286	91.1	233	81.5	28	8.9	314
Medlab Central Ltd	130	87.2	112	86.2	19	12.8	149
Medlab South Christchurch	70	92.1	58	82.9	6	7.9	76
Pathlab	93	92.1	81	87.1	8	7.9	101
Southern Community Labs Dunedin	393	91.6	335	85.2	36	8.4	429
Total	**1,404**	**90.3**	**1,173**	**83.5**	**150**	**9.7**	**1,554**

Target: 65% - 85%

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

Laboratory	Histology available		ASC-H confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	80	82.5	49	61.3	17	17.5	97
Canterbury Health Laboratories	98	85.2	60	61.2	17	14.8	115
Diagnostic Medlab Ltd	176	80.4	81	46.0	43	19.6	219
LabPLUS	253	80.8	111	43.9	60	19.2	313
Medlab Central Ltd	56	71.8	37	66.1	22	28.2	78
Medlab South Christchurch	91	89.2	43	47.3	11	10.8	102
Pathlab	85	79.4	46	54.1	22	20.6	107
Southern Community Labs Dunedin	70	80.5	40	57.1	17	19.5	87
Total	**909**	**81.3**	**467**	**51.4**	**209**	**18.7**	**1,118**

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

Laboratory	Histology available		Abnormality confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	160	84.7	113	70.6	29	15.3	189
Canterbury Health Laboratories	188	88.7	143	76.1	24	11.3	212
Diagnostic Medlab Ltd	438	85.0	288	65.8	77	15.0	515
LabPLUS	539	86.0	344	63.8	88	14.0	627
Medlab Central Ltd	186	81.9	149	80.1	41	18.1	227
Medlab South Christchurch	161	90.4	101	62.7	17	9.6	178
Pathlab	178	85.6	127	71.3	30	14.4	208
Southern Community Labs Dunedin	463	89.7	375	81.0	53	10.3	516
Total	**2,313**	**86.6**	**1,640**	**70.9**	**359**	**13.4**	**2,672**

Indicator 5.5 – Laboratory turnaround time

Table 51 - Timeliness of cytology reporting by laboratory, 1 July – 31 December 2011

Laboratory	Laboratory turnaround time - cytology								
	Within 7 days		8-15 days		Total within 15 days		More than 15 days		Total
	N	%	N	%	N	%	N	%	N
Medlab Central Ltd	21,872	94.4	1,264	5.5	23,136	99.9	26	0.1	23,162
Canterbury Health Laboratories	9,040	80.5	1,667	14.8	10,707	95.4	519	4.6	11,226
Diagnostic Medlab Ltd	49,670	98.1	532	1.1	50,202	99.2	412	0.8	50,614
LabPLUS	6,541	82.7	682	8.6	7,223	91.3	691	8.7	7,914
Medlab Central Ltd	14,556	79.7	2,915	16.0	17,471	95.7	783	4.3	18,254
Medlab South Christchurch	16,131	100.0	-	0.0	16,131	100.0	-	0.0	16,131
Pathlab	20,774	97.2	472	2.2	21,246	99.4	135	0.6	21,381
Southern Community Labs Dunedin	63,350	92.6	4,502	6.6	67,852	99.2	581	0.8	68,433
	-	0.0	-	0.0	-	-	-	0.0	-
Total	**201,934**	**93.0**	**12,034**	**5.5**	**213,968**	**98.6**	**3,147**	**1.4**	**217,115**

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

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

Table 52 - Timeliness of histology reporting by laboratory, 1 July – 31 December 2011

Laboratory	Laboratory turnaround time - histology								
	Within 5 days		6-15 days		Total within 15 days		More than 15 days		Total
	N	%	N	%	N	%	N	%	N
Aotea Pathology Ltd	325	82.9	62	15.8	387	98.7	5	1.3	392
Canterbury Health Laboratories	1,457	91.1	118	7.4	1,575	98.4	25	1.6	1,600
Diagnostic Medlab Ltd	1,048	66.2	385	24.3	1,433	90.5	150	9.5	1,583
Hutt Hospital Laboratory	201	61.8	123	37.8	324	99.7	1	0.3	325
LabPLUS	402	47.2	315	37.0	717	84.2	135	15.8	852
Medlab Central Ltd	940	88.8	36	3.4	976	92.2	82	7.8	1,058
Medlab South Christchurch	161	100.0	-	0.0	161	100.0	-	0.0	161
Memorial Hospital Hastings Lab	75	85.2	5	5.7	80	90.9	8	9.1	88
Middlemore Hospital Laboratory	1,025	86.2	147	12.4	1,172	98.6	17	1.4	1,189
Nelson Hospital Laboratory	464	85.3	76	14.0	540	99.3	4	0.7	544
North Shore Hospital Laboratory	993	86.3	143	12.4	1,136	98.8	14	1.2	1,150
Northland Pathology Laboratory	241	92.0	20	7.6	261	99.6	1	0.4	262
Pathlab	731	72.4	244	24.2	975	96.5	35	3.5	1,010
Southern Community Labs Dunedin	1,912	92.9	136	6.6	2,048	99.5	10	0.5	2,058
Taranaki Medlab	225	99.1	2	0.9	227	100.0	-	0.0	227
Waikato Hospital Laboratory	105	59.0	65	36.5	170	95.5	8	4.5	178
Wellington Hospital Laboratory	199	31.6	357	56.7	556	88.3	74	11.7	630
Total	**10,504**	**78.9**	**2,234**	**16.8**	**12,738**	**95.7**	**569**	**4.3**	**13,307**

Target: 90% within five working days and 99% within 15 working days

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

Table 53 – Timeliness of reporting for cytology with associated HPV testing by laboratory, 1 July – 31 December 2011

	Laboratory turnaround time – cytology with HPV triage testing				
	Within 15 days		More than 15 days		Total
Laboratory	**N**	**%**	**N**	**%**	**N**
Aotea Pathology Ltd	227	99.6	1	0.4	228
Canterbury Health Laboratories	258	87.5	37	12.5	295
Diagnostic Medlab Ltd	1,187	97.7	28	2.3	1,215
LabPLUS	29	78.4	8	21.6	37
Medlab Central Ltd	244	93.8	16	6.2	260
Medlab South Christchurch	316	100.0	-	0.0	316
Pathlab	305	96.8	10	3.2	315
Southern Community Labs Dunedin	429	97.9	9	2.1	438
Total	**2,995**	**96.5**	**109**	**3.5**	**3,104**

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

Table 54 – 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	246	165	67.1	186	75.6
Bay of Plenty	108	87	80.6	97	89.8
Canterbury	216	175	81.0	195	90.3
Capital & Coast	108	89	82.4	93	86.1
Counties Manukau	195	153	78.5	163	83.6
Hawke's Bay	92	66	71.7	75	81.5
Hutt Valley	48	43	89.6	45	93.8
Lakes	34	27	79.4	30	88.2
Mid Central	64	56	87.5	59	92.2
Nelson Marlborough	95	70	73.7	83	87.4
Northland	57	46	80.7	47	82.5
Otago	82	72	87.8	76	92.7
South Canterbury	30	25	83.3	27	90.0
Southland	48	40	83.3	44	91.7
Tairawhiti	16	12	75.0	14	87.5
Taranaki	67	49	73.1	57	85.1
Waikato	191	145	75.9	160	83.8
Wairarapa	22	18	81.8	20	90.9
Waitemata	281	233	82.9	250	89.0
West Coast	21	18	85.7	20	95.2
Whanganui	28	17	60.7	19	67.9
TOTAL	**2,049**	**1,606**	**78.4**	**1,760**	**85.9**

Table 55 - Women with a histology report within 90 and 180 days of a high grade cytology report, by age

Age (years)	High grade Cytolgy	Follow-Up histology Within 90 days		Follow-up histology Within 180 days	
	N	N	%	N	%
<20	17	12	70.6	12	70.6
20-24	514	406	79.0	440	85.6
25-29	478	383	80.1	423	88.5
30-34	290	238	82.1	257	88.6
35-39	219	183	83.6	196	89.5
40-44	162	139	85.8	152	93.8
45-49	82	67	81.7	73	89.0
50-54	80	59	73.8	60	75.0
55-59	83	53	63.9	62	74.7
60-64	51	29	56.9	35	68.6
65-69	40	19	47.5	28	70.0
70+	33	18	54.5	22	66.7
Total	**2,049**	**1,606**	**78.4**	**1,760**	**85.9**

Table 56 - Women without any follow-up test within 180 days of a high grade cytology report, by DHB

DHB	High-grade cytology	Without a follow-up test by 180 days	
	N	N	%
Auckland	246	17	6.9
Bay of Plenty	108	6	5.6
Canterbury	216	12	5.6
Capital & Coast	108	9	8.3
Counties Manukau	195	11	5.6
Hawke's Bay	92	6	6.5
Hutt Valley	48	-	0.0
Lakes	34	1	2.9
Mid Central	64	1	1.6
Nelson Marlborough	95	7	7.4
Northland	57	5	8.8
Otago	82	7	8.5
South Canterbury	30	1	3.3
Southland	48	4	8.3
Tairawhiti	16	1	6.3
Taranaki	67	6	9.0
Waikato	191	19	9.9
Wairarapa	22	1	4.5
Waitemata	281	18	6.4
West Coast	21	-	0.0
Whanganui	28	2	7.1
Total	**2,049**	**134**	**6.5**

Table 57 - Women without any follow-up test within 180 days of a high grade cytology report, by ethnicity

Ethnicity	High-grade cytology	Without a follow-up test by 180 days	
	N	N	%
Māori	343	22	6.4
Pacific	86	8	9.3
Asian	144	13	9.0
European/Other	1,476	91	6.2
Total	**2,049**	**134**	**6.5**

Indicator 7 – Colposcopy indicators

Indicator 7.3 – Adequacy of documenting colposcopic assessment

Table 58 - Completion of colposcopic assessment fields, by DHB

DHB	Total colposcopies N	% of colposcopies performed where items are completed			
		SCJ visibility	Presence/ absence lesion	Opinion re abnormality grade	All items complete
Auckland	938	98.4	100.0	95.8	96.3
Bay of Plenty	553	95.9	100.0	88.5	88.9
Canterbury	1,604	98.5	100.0	95.7	95.8
Capital & Coast	206	99.5	100.0	90.3	95.3
Counties Manukau	929	98.8	100.0	93.9	95.7
Hawke's Bay	339	98.2	100.0	95.2	95.9
Hutt Valley	315	98.1	100.0	95.7	94.9
Lakes	150	100.0	100.0	96.9	98.1
Mid Central	607	97.7	100.0	97.9	96.4
Nelson Marlborough	500	98.7	100.0	97.6	97.1
Northland	546	98.5	100.0	92.4	94.5
Otago	315	97.3	100.0	89.4	92.3
South Canterbury	246	95.1	100.0	92.2	91.0
Southland	79	93.3	100.0	85.2	86.7
Tairawhiti	172	95.2	100.0	96.5	93.4
Taranaki	317	92.2	100.0	87.7	87.0
Waikato	448	99.8	100.0	95.2	96.7
Wairarapa	135	97.0	100.0	98.8	96.3
Waitemata	1,655	99.4	100.0	95.1	97.2
West Coast	250	98.3	100.0	90.0	90.8
Whanganui	160	93.8	100.0	94.6	92.6
Private practice	*2,413*	*98.1*	*100.0*	*92.8*	*93.7*
Total	**12,877**	**98.1**	**100.0**	**94.2**	**94.9**

Number of colposcopies in this table uses data extracted from the NCSP Register in September 2012 and provided in summarised form by the Ministry of Health, that was used to consult the DHBs on colposcopy in October and November 2012. Percentage of colposcopy reports with completion of assessment fields derived from an analysis of 11,281 colposcopy reports held on the NCSP Register as at March 2012. Results should therefore be interpreted with caution.

Table 59 - Summary of colposcopic appearance findings, by DHB

DHB	Total colposcopies N	Colposcopic appearance (as % of colposcopies where items are completed)		
		SCJ visible	Abnormal	Inconclusive
Auckland	938	94	48	2.0
Bay of Plenty	553	91	58	6.3
Canterbury	1,604	88	65	3.1
Capital & Coast	206	93	44	2.9
Counties Manukau	929	92	52	3.4
Hawke's Bay	339	92	47	4.4
Hutt Valley	315	89	71	2.9
Lakes	150	89	59	2.0
Mid Central	607	93	63	1.3
Nelson Marlborough	500	94	64	1.8
Northland	546	94	48	3.7
Otago	315	90	41	5.7
South Canterbury	246	91	48	4.1
Southland	79	85	58	6.3
Tairawhiti	172	84	67	2.3
Taranaki	317	85	41	6.6
Waikato	448	96	61	2.9
Wairarapa	135	97	61	0.7
Waitemata	1,655	85	44	2.2
West Coast	250	78	68	8.0
Whanganui	160	91	44	1.3
Private practice	*2,413*	-	*56*	*4.4*
Total	**12,877**	**90**	**55**	**3.5**

This table uses data extracted in September 2012 by the Ministry of Health, that was used to consult the DHBs on colposcopy in October and November 2012. Results for private practice based on data for 1,849 colposcopies extracted from the NCSP Register in March 2012, and should therefore be interpreted with caution.

Indicator 7.5 – Timely discharge of women after treatment

Table 60 – Follow-up of treated women with colposcopy and cytology in the period from six to 12 months post-treatment, and discharge of eligible women

DHB	Total treatments	With colposcopy & cytology in period 6-12 months post-treatment		Eligible for discharge	% of women treated	Women discharged appropriately	
	N	N	%	N		N	% of eligible
Auckland	117	-		0	n/a	0	n/a
Bay of Plenty	55	11	50.0	7	31.8	7	100.0
Canterbury	313	212	69.1	160	52.1	142	88.8
Capital & Coast	45	21	41.2	14	27.5	11	78.6
Counties Manukau	129	46	38.7	40	33.6	30	75.0
Hawke's Bay	63	38	74.5	32	62.7	30	93.8
Hutt Valley	47	23	76.7	20	66.7	20	100.0
Lakes	27	8	66.7	8	66.7	7	87.5
Mid Central	82	31	66.0	27	57.4	20	74.1
Nelson Marlborough	96	0	0.0	0	n/a	-	n/a
Northland	99	27	52.9	18	35.3	16	88.9
Otago	38	31	60.8	29	56.9	24	82.8
South Canterbury	23	1	16.7	1	16.7	-	0.0
Southland	7	13	59.1	9	40.9	2	22.2
Tairawhiti	34	4	19.0	3	14.3	-	0.0
Taranaki	32	8	61.5	8	61.5	6	75.0
Waikato	91	38	45.8	34	41.0	33	97.1
Wairarapa	23	5	62.5	2	25.0	2	100.0
Waitemata	202	151	73.3	123	59.7	69	56.1
West Coast	42	10	76.9	9	69.2	6	66.7
Whanganui	40	3	30.0	2	20.0	2	100.0
Private Practice	*295*	*64*	*35.2*	*54*	*29.7*	*37*	*68.5*
NZ OVERALL	**1,781**	**745**	**57.1**	**600**	**46.0**	**464**	**77.3**

Total treatments in this table uses data provided by the Ministry of Health, which extractedfrom the NCSP Register in September 2012 that was used to consult the DHBs on colposcopy in October and November 2012. It is not restricted specifically to treatment for CIN2/3. The other columns in the table also use data extracted September 2012,

*but the total numbers of treatments differ (1,305 compared to 1,781) as it is restricted to treatments for CIN2/3. Given this, this table must be treated with caution. * No treatments found for Auckland or Nelson Marlborough in data download used to calculate percentages.*

Table 61 –Follow-up of treated women in the period from six to 12 months post-treatment, and women discharged prior to six months post-treatment

	Total treatments	Discharged within 6 months of treatment		With colposcopy in period 6-12 months post-treatment		With colposcopy & cytology in period 6-12 months post-treatment	
	N	N	%	N	%	N	%
Auckland*	117	-		-		-	
Bay of Plenty	55	5	22.7	14	63.6	11	50.0
Canterbury	313	11	3.6	216	70.4	212	69.1
Capital & Coast	45	4	7.8	24	47.1	21	41.2
Counties Manukau	129	8	6.7	46	38.7	46	38.7
Hawke's Bay	63	2	3.9	38	74.5	38	74.5
Hutt Valley	47	4	13.3	23	76.7	23	76.7
Lakes	27	1	8.3	8	66.7	8	66.7
Mid Central	82	8	17.0	32	68.1	31	66.0
Nelson Marlborough	96	-	0.0	0	0.0	0	0.0
Northland	99	16	31.4	28	54.9	27	52.9
Otago	38	7	13.7	32	62.7	31	60.8
South Canterbury	23	-	0.0	1	16.7	1	16.7
Southland	7	-	0.0	13	59.1	13	59.1
Tairawhiti	34	-	0.0	5	23.8	4	19.0
Taranaki	32	6	46.2	8	61.5	8	61.5
Waikato	91	3	3.6	38	45.8	38	45.8
Wairarapa	23	1	12.5	5	62.5	5	62.5
Waitemata	202	22	10.7	153	74.3	151	73.3
West Coast	42	1	7.7	10	76.9	10	76.9
Whanganui	40	4	40.0	6	60.0	3	30.0
Private practice	*295*	*56*	*30.8*	*72*	*39.6*	*64*	*35.2*
Total	**1,781**	**159**	**12.2**	**772**	**59.2**	**745**	**57.1**

*Total treatments in this table uses data provided by the Ministry of Health, extracted in September 2012 that was used to consult the DHBs on colposcopy in October and November 2012 for the total number of treatments. It is not restricted specifically to treatment for CIN2/3. The other columns in the table also use data extracted September 2012, but the total numbers of treatments differ (1,305 compared to 1,781) as it is restricted to treatments for CIN2/3. Given this, this table must be treated with caution. * No treatments found for Auckland or Nelson Marlborough in data download used to calculate percentages.*

Indicator 8 – HPV tests

Indicator 8.1 – Triage of low grade cytology

Table 62 – Triage testing of women with ASC-US cytology

	Total ASC-US results		Women with an HPV test			
	women aged < 30yrs	women aged 30+ yrs	women aged < 30yrs		women aged 30+ yrs	
Laboratory	**N**	**N**	**N**	**%**	**N**	**%**
Aotea Pathology Ltd	179	133	2	1.1	132	99.2
Canterbury Health Laboratories	42	221	1	2.4	219	99.1
Diagnostic Medlab Ltd	214	708	2	0.9	694	98.0
LabPLUS	208	49	1	0.5	40	81.6
Medlab Central Ltd	91	181	5	5.5	149	82.3
Medlab South Christchurch	139	238	2	1.4	209	87.8
Pathlab	123	177	2	1.6	150	84.7
Southern Community Labs	206	161	0	0.0	150	93.2
Total	**1,202**	**1,868**	**15**	**1.2**	**1,743**	**93.3**

** 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 63 – 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	289	112	5	1.7	111	99.1
Canterbury Health Laboratories	137	103	4	2.9	97	94.2
Diagnostic Medlab Ltd	591	599	2	0.3	590	98.5
LabPLUS	223	7	0	0.0	5	71.4
Medlab Central Ltd	253	147	4	1.6	117	79.6
Medlab South Christchurch	183	127	0	0.0	118	92.9
Pathlab	342	222	1	0.3	186	83.8
Southern Community Labs	691	348	9	1.3	311	89.4
Total	**2,709**	**1,665**	**25**	**0.9**	**1,535**	**92.2**

** 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 64 – Invalid HPV triage tests following ASC-US cytology, by laboratory

	Total ASC-US results		Women with invalid HPV results			
	aged < 30yrs	aged 30+ yrs	aged < 30yrs		aged 30+ yrs	
Laboratory	**N**	**N**	**N**	**%**	**N**	**%**
Aotea Pathology Ltd	2	132	0	0	0	0.0
Canterbury Health Laboratories	1	219	0	0	0	0.0
Diagnostic Medlab Ltd	3	752	0	0	0	0.0
LabPLUS	1	40	0	0	0	0.0
Medlab Central Ltd	5	149	0	0	0	0.0
Medlab South Christchurch	1	151	0	0	0	0.0
Pathlab	1	149	0	0	0	0.0
Southern Community Labs	1	151	0	0	0	0.0
Total	**15**	**1,743**	**0**	**0**	**0**	**0.0**

** 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 HPV test, therefore laboratory totals may differ from those in Table 61*

Table 65 – Invalid HPV triage tests following LSIL cytology, by laboratory

	Total LSIL results		Women with invalid HPV results			
	aged < 30yrs	aged 30+ yrs	aged < 30yrs		aged 30+ yrs	
Laboratory	**N**	**N**	**N**	**%**	**N**	**%**
Aotea Pathology Ltd	5	111	0	0	0	0.0
Canterbury Health Laboratories	4	97	0	0	0	0.0
Diagnostic Medlab Ltd	2	616	0	0	0	0.0
LabPLUS	1	5	0	0	0	0.0
Medlab Central Ltd	4	117	0	0	0	0.0
Medlab South Christchurch	0	92	0	0	0	0.0
Pathlab	1	185	0	0	0	0.0
Southern Community Labs	8	312	0	0	0	0.0
Total	**25**	**1,535**	**0**	**0**	**0**	**0.0**

** 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 HPV test, therefore laboratory totals may differ from those in Table 63*

Table 66 – Validity of HPV triage tests, by test technology

Test technology	Total HPV triage test results	Invalid		Valid	
	N	**N**	**%**	**N**	**%**
Abbott RealTime	793	-	0	793	100
Digene HC2	-	-	0.0	-	0.0
Roche Amplicor	-	-	0.0	-	100.0
Roche COBAS 4800	2,525	-	0.0	2,525	100.0
Total	**3,318**	**-**	**0.0**	**3,318**	**100.0**

Indicator 8.2 – HPV test volumes

Table 67 – Volume of HPV test samples received by laboratories during the monitoring period, by age

	HPV tests received	
Age	**N**	**% of national total**
<20	15	0.1
20-24	574	2.7
25-29	1,266	6.0
30-34	2,792	13.1
35-39	3,373	15.9
40-44	3,676	17.3
45-49	3,113	14.7
50-54	2,529	11.9
55-59	1,803	8.5
60-64	1,226	5.8
65-69	678	3.2
70+	199	0.9
Total	**21,244**	**100.0**

Table 68 - Volume of HPV test samples received by laboratories during the monitoring period, by ethnicity

	HPV tests received	
Ethnicity	**N**	**% of national total**
Māori	2,191	10.3
Pacific	475	2.2
Asian	853	4.0
European/Other	17,725	83.4
Total	**21,244**	**100.0**

Table 69 – Volume of HPV test samples received during the monitoring period, by laboratory

	HPV tests received		Ratio HPV tests: smears reported
Laboratory	**N**	**% of national total**	**(%)**
Aotea Pathology Ltd	1,633	7.7	7.1
Canterbury Health Laboratories	2,010	9.5	17.9
Diagnostic Medlab Ltd	3,104	14.6	6.1
LabPLUS	621	2.9	7.8
Medlab Central Ltd	2,512	11.8	13.8
Medlab South Christchurch	2,696	12.7	16.7
Pathlab	1,974	9.3	9.2
Southern Community Labs Dunedin	6,694	31.5	9.8
Total	**21,244**	**100.0**	**9.8**

Note that some tests received by Medlab South Christchurch were processed by Diagnostic Medlab Ltd during the current reporting period.

Table 70 - Volume of HPV test samples received during the monitoring period, by purpose and age

	HPV triage		Post-treatment		Historical		Taken at colposcopy		Other		Total
Age	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
<20	-	0.0	1	6.7	1	6.7	4	26.7	9	60.0	15
20-24	-	0.0	148	25.8	141	24.6	113	19.7	172	30.0	574
25-29	-	0.0	267	21.1	732	57.8	68	5.4	199	15.7	1,266
30-34	703	25.2	252	9.0	1,355	48.5	84	3.0	398	14.3	2,792
35-39	654	19.4	204	6.0	1,894	56.2	103	3.1	518	15.4	3,373
40-44	624	17.0	146	4.0	1,968	53.5	96	2.6	842	22.9	3,676
45-49	566	18.2	83	2.7	1,411	45.3	72	2.3	981	31.5	3,113
50-54	429	17.0	60	2.4	980	38.8	53	2.1	1,007	39.8	2,529
55-59	238	13.2	29	1.6	617	34.2	43	2.4	876	48.6	1,803
60-64	141	11.5	20	1.6	379	30.9	35	2.9	651	53.1	1,226
65-69	91	13.4	20	2.9	215	31.7	17	2.5	335	49.4	678
70+	28	14.1	2	1.0	71	35.7	6	3.0	92	46.2	199
Total	**3,474**	**16.4**	**1,232**	**5.8**	**9,764**	**46.0**	**694**	**3.3**	**6,080**	**28.6**	**21,244**

Table 71 - Volume of HPV test samples received during the monitoring period, by purpose and laboratory

	HPV triage		Post-treatment		Historical		Taken at colposcopy		Other		Total
Laboratory	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Aotea Pathology Ltd	243	14.9	49	3.0	870	53.3	21	1.3	450	27.6	1,633
Canterbury Health Laboratories	348	17.3	230	11.4	694	34.5	207	10.3	531	26.4	2,010
Diagnostic Medlab Ltd	1,396	45.0	68	2.2	927	29.9	43	1.4	670	21.6	3,104
LabPLUS	53	8.5	174	28.0	90	14.5	54	8.7	250	40.3	621
Medlab Central Ltd	271	10.8	186	7.4	1,182	47.1	33	1.3	840	33.4	2,512
Medlab South Christchurch	359	13.3	79	2.9	1,437	53.3	35	1.3	786	29.2	2,696
Pathlab	329	16.7	71	3.6	978	49.5	147	7.4	449	22.7	1,974
Southern Community Labs Dunedin	475	7.1	375	5.6	3,586	53.6	154	2.3	2,104	31.4	6,694
Total	**3,474**	**16.4**	**1,232**	**5.8**	**9,764**	**46.0**	**694**	**3.3**	**6,080**	**28.6**	**21,244**

Table 72 - Volume of HPV test samples received during the monitoring period, by purpose and ethnicity

	HPV triage		Post-treatment		Historical		Taken at colposcopy		Other		Total
Ethnicity	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Māori	330	15.1	155	7.1	1,128	51.5	62	2.8	516	23.6	2,191
Pacific	203	42.7	34	7.2	142	29.9	19	4.0	77	16.2	475
Asian	322	37.7	68	8.0	236	27.7	41	4.8	186	21.8	853
European/Other	2,619	14.8	975	5.5	8,258	46.6	572	3.2	5,301	29.9	17,725
Total	**3,474**	**16.4**	**1,232**	**5.8**	**9,764**	**46.0**	**694**	**3.3**	**6,080**	**28.6**	**21,244**

Table 73 - 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	*433*	*9,432*	*4.6*
Auckland	6	951	0.6
Bay of Plenty	92	460	20.0
Canterbury	170	1,558	10.9
Capital & Coast	1	211	0.5
Counties Manukau	9	920	1.0
Hawke's Bay	15	222	6.8
Hutt Valley	-	316	-
Lakes	31	156	19.9
Mid Central	24	521	4.6
Nelson Marlborough	11	374	2.9
Northland	-	271	-
Otago	26	298	8.7
South Canterbury	16	244	6.6
Southland	8	45	17.8
Tairawhiti	-	167	-
Taranaki	-	308	-
Waikato	16	424	3.8
Wairarapa	1	134	0.7
Waitemata	6	1,651	0.4
West Coast	-	120	-
Whanganui	-	81	-
Private practice	127	1,849	6.9
Total	**559**	**11,281**	**5.0**

HPV tests/ colposcopy can be interpreted broadly as the percentage of colposcopies within this DHB/ sector where a sample is collected for HPV testing. Includes only 559 HPV test samples where a colposcopy report record exists on the NCSP Register. The remaining 135 HPV tests are believed to have been taken at colposcopybecause a histology sample was collected on the same date.

Appendix B – Bethesda 2001 New Zealand Modified (2005)

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 vaginalis
O2	There are fungal organisms morphologically consistent with Candida species
O3	There is a shift in microbiological flora suggestive of 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
Atypia		M69700	M67000	CIN 1	7
HPV, koilocytosis, condyloma (NOS) Condyloma acuminatum	 M76700	M76700 M76720	M76700 M76720	HPV	9
Dysplasia / CIN NOS		M74000	M67015	CIN 1	10
CIN I (LSIL) (VAIN I when used with T81/ T82000)		M74006	M67016	CIN 1	11
CIN II (HSIL) (VAIN II when used with T81/ T82000)		M74007		CIN 2	15
CIN III (HSIL) (VAIN III when used with T81/ T82000) Carcinoma in situ		M74008 M80102 M80702	 M80102 M80702	CIN 3	16 17 18
HSIL NOS		M67017	M67017	HSIL	14
Polyp		M76800	M76800	Negative/benign	5
Other (Morphologic abnormality, not dysplastic or malignant)		M01000	M01000	Negative/benign	6
Microinvasive squamous cell carcinoma		M80765	M80763	Micro-invasive	19
Invasive squamous cell carcinoma		M80703	M80703	Invasive SCC	22
Benign glandular atypia		M81400	M67030	Negative/benign	8
Glandular dysplasia		M81401	M67031	Glandular dysplasia	12
Adenocarcinoma in situ		M81402	M81402	Adenocarc. in situ	13
Invasive adenocarcinoma		M81403	M81403	Invasive adenocarcinoma	21
Adenosquamous carcinoma		M85603	M85603	Adenosquamous carcinoma	20
Metastatic tumour		M80006	M80006	Other cancer	28
Undifferentiated carcinoma		M80203	M80203	Other cancer	23
Sarcoma		M88003	M88003	Other cancer	24
Other codes accepted	**Code stored on register**	**1986 Code**	**1993 Code**	**Diagnostic category**	**Rank**
Carcinosarcoma	M88003	M89803	M89803	Other cancer	25
Choriocarcinoma	M80003	M91003	M91003	Other cancer	26
Miscellaneous primary tumour	M80003	M80003	M80003	Other cancer	27
Small cell carcinoma	M80003	M80413	M80413	Other cancer	29
Malignant tumour, Small cell type	M80003	M80023	M80023	Other cancer	30
Melanoma	M80003	M87203	M87203	Other cancer	31
Other primary epithelial malignancy	M80003	M80103	M80103	Other cancer	32

Appendix D – Indicator Definitions Targets and Reporting Details

Positive predictive value calculations

Table 74 – 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 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
Otago	General Gynae Department – Dunedin Hospital Dunedin Public Hospital

DHB	Colposcopy clinics included*
	Dunedin Colposcopy Clinic
South Canterbury	Timaru Hospital - Colp/Gynae
Southland	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 facilities to a DHB was provided by the NCSP

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
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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