National Screening Unit

National Cervical Screening Programme

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About the authors

The authors are based at UNSW (formerly in the Cancer Research Division at Cancer Council 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 January - 30 June 2014.

Key points on performance/trends

Indicator 1 — Coverage

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

- Among an estimated 1,159,510 eligible women aged 25-69 years at the end of the monitoring period, 880,927 (76.0%) had a screening test in the previous three years.
- Coverage target was not met nationally (80% of women aged 25-69 years screened in the previous three years).
- Coverage target was met for specific five-year age groups between 40-59 years.
- Coverage target was met by four of 20 DHBs.
- Nationally, coverage targets were met for European/Other women (81.2% screened within the previous three years), but were not met for Māori, Pacific, or Asian women (62.3%, 69.0%, 65.1% respectively screened within the previous three years).
- Five-year coverage among women aged 25-69 years exceeds 80% in all DHBs, and in women in all five-year age groups between 25-69 years.
- Three-year coverage among women aged 25-69 years (76.0%) is slightly lower than that reported in the previous monitoring report (76.4%). It has increased in Pacific and Asian women, but decreased in Māori and European/ Other women.
- Three-year coverage has decreased somewhat in all age groups except 65-69 years.
- Three-year coverage decreased in 15 of 20 DHBs.
- Five-year coverage among women aged 25-69 years (90.3%) is similar to that in the previous monitoring report (90.4%).

Screens in women aged less than 20 years

Target: None

- In the three years to 30 June 2014, 9,299 women had a cervical sample taken when they were aged less than 20 years. This is less than in the previous reporting period (10,177 women).
- This represents 0.9% of all women (of any age) who were screened in the three-year period (compared to 1.1% in previous reporting period).
- Most of these women (87.1%) were aged 18-19 years at the

time of their cervical sample.

Indicator 2	First screening events **Target:** None • There were 21,343 women who had their first screening event during the current reporting period – a small decrease compared to the previous reporting period. • First screening events generally occur among young women (median age 25 years). • Asian women appear to have their first screening event at a later age (median age of Asian women with a first screening event 31 years) and women with a first screening event make up a higher proportion of all women screened for Asian women, compared to women in other ethnic groups.
Indicator 3	Withdrawal rates **Target:** Zero between ages 20-69 years • There were 32 women aged between 20-69 years who withdrew from the NCSP Register during this six-month period. This is broadly similar to the number of women in this age range who withdrew during the previous reporting period (53 women).
Indicator 4	Early re-screening **Target:** Currently reporting on the percentage of women in routine screening (previous smear negative and recommended to return in 36 months (3 years)) who returned for a smear within 30 months (2.5 years) of their index smear. Target level for this value is not yet defined. • 16.8% 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 10.1% in Mid Central to 23.8% in Waitemata. • Early re-screening occurs in all ethnic groups, but is most common among Asian and European/ Other women (17.3%), and least common among Pacific women (12.2%). • Early re-screening occurs in all age groups, but is most common in women aged 20-24 years at the end of the period (22.6%) and least common in women aged 65-69 years at the end of the period (12.5%). • Early re-screening has decreased since the previous report, from 18.5% to 16.8%
Indicator 5	Laboratory Indicators

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

Indicator 5.1 Cytology reporting

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

Unsatisfactory cytology

Target: 0.1 - 3% for LBC *(updated since previous report)*

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

Negative cytology

Target: No more than 96% of satisfactory cytology samples

- Percent of samples negative target met nationally and by all seven laboratories.
- Nationally, the percent of samples which are negative (92.4%) is similar to that reported in the previous period (92.2%).

Abnormal cytology

Target: No more than 10% of satisfactory cytology samples

- Percent of samples abnormal target met nationally and by four of seven laboratories.
- Nationally, the percent of samples which are abnormal (7.6%) is similar to that reported in the previous period (7.8%).

HSIL cytology

Target: No less than 0.5% of satisfactory cytology samples *(updated since previous report)*

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

Indicator 5.2 Cytology positive predictive value

HSIL + SC

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

- Five laboratories met the target range for HSIL+SC .
- Nationally, the positive predictive value of HSIL+SC was slightly higher for this monitoring period (83.9%) than in the previous report (82.0%).

Other cytological abnormalities

Target: None

- Nationally, the positive predictive value of ASC-H has decreased slightly compared to the previous report (44.3% in this report, 44.9% in the previous report).
- Nationally, the positive predictive value of the combination of ASC-H+HSIL+SC has increased compared to the previous report (68.9% in the previous report; 69.6% in the current report).
- Nationally, the proportion of glandular cytological abnormalities identified as histological high grade has increased since the previous report, from 47.8% to 48.8% (however this measure is generally based on a comparatively small number of samples; 166 with histology in the current report).

Indicator 5.3

Accuracy of negative cytology reports

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

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

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

This indicator is not assessed in this report. Data for this indicator is provided annually and this indicator was last assessed in Report 40 and will be next assessed in Report 42.

Indicator 5.4

Histology reporting

Target: None

- 13,515 histology samples were taken during the current reporting period. 488 (3.6%) of these were insufficient for diagnosis.
- Results for most severe histology from 11,441 women are presented

- 51.4% of women had histology samples which were negative/ benign
- 21.6% of women had CIN2/3 or HSIL histology results.
- 39 (0.34%) women had ISCC histology results, 28 (0.24%) women had invasive adenocarcinoma histology results, and three (<0.05%) had adenosquamous carcinoma histology results.

Indicator 5.5

Turnaround times

Cytology

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

- The seven-working-days target for cytology was met nationally (95.1% samples were reported within seven working-days), and was met by five of seven laboratories.
- The 15-working-days target was met nationally (99.0% samples were reported within 15 working-days), and was also met by five of the seven laboratories.
- Performance against the seven-working-days target has increased slightly since the previous report (from 95.0% to 95.1%), and the number of labs meeting the target has remained at five.
- The overall proportion of cytology samples reported within 15-working-days (99.0%) is slightly higher than in the previous reporting period (98.4%).

Histology

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

- Turnaround times for histology were above the target nationally for reporting within ten working days (90.5%), but were below the target for reporting within 15 working days (93.8%).
- Targets were met by 12 of 16 laboratories (ten working day target) and eight of 17 laboratories (15 working day target).
- Twelve of the 16 laboratories had reported on at least 95% of samples within 15 working days.
- The overall proportion of histology samples reported within 15 days (93.8%) is somewhat lower to that in the previous report (96.9%). The number of laboratories meeting the targets has increased by one at ten working days but decreased by one at 15 working days since the previous report.

Low grade cytology with associated HPV triage testing

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

- There were 2,918 cytology samples with associated HPV triage testing in the current reporting period.
- Turnaround time was above the target: 98.2% were reported on within 15 working days.
- Six laboratories met the target.
- The proportion reported within 15 days is lower for this subgroup of cytology (98.2%) than for cytology overall (99.0%), particularly at LabPLUS (although this laboratory performed only a small number of cytology with accompanying HPV triage tests).

Notes

- Calculations no longer include national public holidays as working days where these fall on a weekday.
- 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).
- 80.4% of women had a histology report within 90 days of their high grade cytology report; 87.1% of women had one within 180 days.
- One DHB (West Coast) met the target for histological follow-up within 90 days and the same DHB was also the only one to meet the target for 180 days.
- Nationally, the proportion of women with histological follow-up within 90 days has decreased since the previous reporting period (from 82.3% to 80.4%), as has the proportion with follow-up within 180 days (from 88.4% to 87.1%).
- Compared to the previous reporting period, the proportion of women with follow-up histology within 90 days increased for Pacific women, but decreased for Māori (from 81.0% to 74.9%), Asian (from 83.3% to 79.0%), and European/Other women (from 83.6% to 82.7%).
- The proportion of women with follow-up histology within 180 days increased compared to the previous reporting period for Pacific and Asian women. Among Māori and European/Other women the proportion with follow-up histology within 180

days decreased compared to the previous reporting period (from 87.5% to 83.5% and from 89.2% to 88.3% respectively).

- The proportion of women with histological follow-up at both 90 and 180 days decreased for women aged 20-24 years, 35-39 years, and in all age groups between 50 and 69 years.

Any follow-up tests

Target: None

- Nationally, 209 (10.2%) women have no follow-up test report (colposcopy, subsequent cytology, histology, HPV test) within 90 days of their high grade cytology report, and 128 (6.3%) women have no follow-up test report within 180 days.
- Nationally, the proportion of women with no record of a follow-up test report has decreased since the previous reporting period at 90 days (from 11.2% to 10.2%) and also at 180 days (from 6.7% to 6.3%).
- Compared to the previous reporting period, the proportion of women with no follow-up test at 180 days has decreased for Pacific, Asian and European/ Other women (from 16.3% to 14.5%, from 6.3% to 3.1% and from 5.6% to 5.0% respectively), but increased for Māori women (from 8.8% to 10.6%).

Indicator 7 <u>Colposcopy</u>

Indicator 7.1 <u>Timeliness of colposcopic assessment – high grade cytology</u>

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

- There were 2,044 women with high grade cytology results who were not already under specialist management.
- This comprised 72 women with high grade results indicating a suspicion of invasive disease and 1,972 women with other high grade results.
- Among the 72 women with high grade cytology results indicating a suspicion of invasive disease, 35 had an accepted referral and 65.7% of the women referred were seen within 10 working days of their referral being accepted; 77.1% were seen within 20 working days of their referral being accepted. This is lower than in the previous report at 10 working days (70.0%), but similar to the previous report at 20 working days (77.5%).
- Among the 1,972 women with other high grade cytology results, 67.2% were seen within 20 working days of their

referral being accepted. This is higher than the proportion seen within 20 working days in the previous reporting period (60.3%).

- A colposcopy visit is recorded for 56 (77.8%) of the women with high grade cytology results indicating a suspicion of invasive disease, and 1,859 (94.3%) of the women with other high grade cytology results up to 30 June 2014 (follow-up time of at least six and up to 12 months).
- Considering all women, regardless of whether a referral was recorded or not, the median time between a high grade cytology report and a colposcopy visit was 12 days for women with cytology suspicious of invasive disease, and 20 days for women with other high grade cytology results.
- Nationally, the proportion of women with accepted referrals recorded on the NCSP Register has increased somewhat since the previous report (from 78.8% to 83.5%).
- Nationally, the median time between the high grade cytology report and the first colposcopy visit has is similar for high grade cytology indicating suspicion of invasive disease (13 days in Report 40; 12 days in the current report). For high grade cytology (no suspicion of invasive disease) the median time between the cytology report and first colposcopy visit (20 days) is shorter than in the previous report (31 days).
- In the current report histology data has been used to infer a colposcopy visit and supplement colposcopy visit data, as colposcopy data is still believed to be incomplete.

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

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

- At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register.
- There were 4,617 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in [Status] (the six months prior to the current monitoring period).
- Subsequent accepted referrals are recorded for 3,881 (84.1%) of these women, and subsequent colposcopy for 4,074 (88.2%) of these women.
- The median time between the cytology report date and the date the referral was accepted was seven days (interquartile range (IQR): 3 - 15 days). Among women with a referral

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recorded, the median time between an accepted referral and the first attendance for colposcopy was 125 days (IQR: 45 – 170 days).
- Considering all women with a record of colposcopy, including those without a referral recorded on the NCSP Register, the median time between the cytology report and the first colposcopy visit was 128.5 days (IQR: 48 – 182 days).

Indicator 7.3 Adequacy of reporting colposcopy

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

- Based on 14,113 colposcopy visits recorded on the NCSP Register, no DHB nor the aggregate of colposcopy visits to private practice met the target of 100% completion of all recommended fields.
- The degree of visibility of the squamocolumnar junction was documented for 95.1% of colposcopies.
- Presence or absence of a lesion was documented for all colposcopies.
- Colposcopic opinion regarding abnormality grade was documented for 92.3% of colposcopies where appearance was abnormal or inconclusive.
- The type of recommended follow-up was recorded for 98.1% of colposcopy visits, and the recommended timeframe for this follow-up was recorded for 97.5% of colposcopy visits.
- All of these items were completed for 89.4% of colposcopy visits.
- Colposcopic appearance was reported as abnormal in 52.5% of colposcopies, and inconclusive in 4.4% of colposcopies.
- Completion of most recommended fields is similar to what was recorded in the previous monitoring period, except for recording the visibility of the squamocolumnar junction (which has decreased) and lesion grade (which has increased).
- Overall completion (89.4%) is also lower since the previous reporting period (89.8%).
- The number of colposcopies recorded on the NCSP Register has decreased by 6.4%. It is possible that this may represent differences in reporting of colposcopies rather than a true decrease in the number of colposcopies performed.
- The number of DHBs reporting colposcopy data electronically to the NCSP Register has not increased from five (Hawke's Bay, Mid Central, Southern, Taranaki, Whanganui).

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.

- 58.9% of 2,711 women with HSIL histology (CIN2/3) during the period [Status] have a record of treatment within eight weeks of their histology report.
- The proportion of women with histologically confirmed CIN2/3 treated within eight weeks of their histology result being reported has decreased since the previous reporting period (from 59.5% to 58.9%).
- Target was met by one DHB.

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

- There were 131 women with LSIL histology (CIN1, CIN not otherwise specified) who received treatment within 26 weeks of their LSIL histology report, and did not additionally have high grade histology in the six months preceding treatment.

Indicator 7.5 Timeliness of discharge following treatment

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

- Based on NCSP Register records, 1,641 women were treated for high grade lesions in the period January to June 2013.
- 70.0% of women treated have a record of both colposcopy and cytology within the nine months after their treatment visit. 71.3% have a record of at least a colposcopy visit (with or without cytology) in the same time period.
- Two DHBs met the target for follow-up within nine months post-treatment.

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

- There were 1,094 women who met the criteria for appropriate discharge within 12 months of their treatment (73.2% of women treated). Of these women, 970 (88.7%) were discharged to their smear-taker within 12 months.
- Ten DHBs met the target of discharging 90% or more women who were eligible for discharge within 12 months.

Indicator 8 HPV testing

Indicator 8.1 HPV triage of low grade cytology

Target: None set.

- Nationally, 95.8% of women aged 30 years or more with an eligible ASC-US cytology result, and 97.7% of women aged 30 years or more with an eligible LSIL cytology result are recorded as having a subsequent HPV triage test.
- Among women aged 30 years or more with valid HPV triage test results, 28.3% of women with ASC-US results and 60.5% of women with LSIL results were positive for high risk HPV.
- Positivity for high risk HPV varied by laboratory (from 21.2% to 43.8% for ASC-US, and from 38.5% to 73.7% 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 1.3% of women with an ASC-US result, and 0.4% of women with an LSIL result; 22 women in total)
- The proportion of women who were eligible for HPV triage of low grade cytology who subsequently received a triage test is higher than that in the previous reporting period for women with ASC-US results (95.85%, compared to 96.5% in the previous report) and similar to that in the previous reporting period for women with LSIL results (97.7%, compared to 96.2%).
- The proportion of women whose HPV tests were positive was somewhat higher in the current reporting period for ASC-US (28.3%, compared to 26.4% in the previous period), and similar for LSIL (60.5%, compared to 60.0% in the previous period).

Indicator 8.2 HPV test volumes

Target: None set.

- Nationally, 18,726 cervical samples were received at laboratories for HPV testing during the current monitoring period.
- These samples generally related to women aged 30 years or more (86.5% of all HPV test samples)
- HPV test volumes were lowest at LabPLUS (868 samples; 4.6% of all HPV test samples) and highest at Southern Community Labs (6,445 samples; 34.4% of all HPV test samples).
- HPV samples were predominantly from European/Other women (14,793 samples; 79.0% of all HPV test samples).
- Nationally, 12.8% of HPV tests were taken for follow-up of women treated for confirmed high grade squamous

	abnormalities in the previous four years, 36.7% were taken to manage women with high grade squamous cytology or histology more than three years ago (historical testing), 5.1% were taken at colposcopy (potentially to assist in resolving discordant results), and 14.9% were taken for HPV triage of low grade cytology in women aged 30 years or more. • Among the remaining 30.6% of HPV tests, it appears that a large proportion were for follow-up of historical high grade abnormalities which are not recorded on the NCSP Register (and therefore outside of NCSP guidelines recommendations) (36.7% of the remaining tests; 11.2% of all HPV tests). Possible reasons for abnormalities not being recorded on the NCSP Register are because the abnormalities pre-date either the Register or the woman's enrolment on the Register or because the abnormalities 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 in cases where the guidelines recommend referral to colposcopy rather than triage; 24.3%). • HPV tests in women aged less than 25 years were most commonly for post-treatment management or taken at colposcopy for other reasons (potentially to resolve discordant results). HPV tests in women aged 25 years or more were most commonly for historical testing. • The proportion of HPV tests which are invalid is very small (0.1%). • Overall HPV test volumes are somewhat lower than those in the previous report (decreased by 6.9%). The decrease occurred across many test categories (all apart from HPV tests taken for follow-up of women treated for confirmed high grade squamous abnormalities in the previous four years), and appears to be consistent with lower volumes of other tests in the current reporting period (such as cytology, histology and colposcopy).
Indicator 8.3	<u>Historical HPV tests for follow-up of women with previous high grade abnormality</u> <u>Target:</u> None set. • This analysis followed up 49,896 women who were eligible for historical HPV testing as at 1 October 2009 to ascertain how many women had received an HPV test for management of their historical (more than three years prior) high grade squamous abnormality. • These eligible women were predominantly aged 35-54 years at the end of the current monitoring period. • There were 24,200 women (48.5%) with a Round 1 historical HPV test recorded, and 16,988 women (34.0%) with a Round

2 historical HPV test recorded.

- The proportion of women who had received a historical HPV test varied by DHB, from 27.4% to 72.3% for Round 1 tests and from 16.3% to 59.3% for Round 2 tests.
- There was comparatively little variation by age in the proportion of women who had received a historical HPV test. This varied from 42.2% to 51.1% for Round 1 tests, and from 25.1% to 36.8% for Round 2 tests. The proportions were lower than this range for women aged 20-24 years at the end of the current monitoring period, however these are based on very small numbers, as there were only a small number of women this age who were eligible for historical HPV testing.
- The proportion of women who had received a historical HPV test varied somewhat by ethnicity, from 27.8% to 51.0% for Round 1 tests and from 16.9% to 36.7% for Round 2 tests.
- This indicator is still being developed and further refinements are anticipated in future monitoring reports.

2. Background

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

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

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

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

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

The development of these reports is ongoing. In particular, some colposcopy indicators are not included in this report, as development work is ongoing. Work is also underway to improve accuracy and completeness of ethnicity data on the Register.

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 https://www.nsu.govt.nz/health-professionals/national-cervical-screening-programme/independent-monitoring-reports and on request from the NCSP:
Email: Ivan_Rowe@moh.govt.nz
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3. Methods

Data used

The analyses in this report are based on data extracted from the NCSP Register in August 2014.

Age

Unless otherwise specified, age is defined as the woman's age at the end of the reporting period, i.e. 30 June 2014.

Hysterectomy-adjusted population

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

The hysterectomy-adjustment used in this report uses estimates of the hysterectomy prevalence (both total and partial) in the New Zealand population, modelled by Alistair Gray [1], and are the adjustors recommended by the Health and Disability Intelligence Unit within the Ministry of Health. Hysterectomy incidence was estimated by fitting models to observed data on hysterectomies obtained from public and private hospital discharge data and estimates of the usually resident female population from Statitics New Zealand. The resulting estimates of hysterectomy incidence and survival in single-year age groups by calendar year were then used to estimate the prevalence of hysterectomy by five-year age group (among women aged 20-69 years) and calendar year (1988 to 2014). The 2012 estimates were employed in this monitoring report. A known limitation of these estimates of hysterectomy prevalence is that they do not take into account deaths or women who leave New Zealand after they have a hysterectomy (which would tend to result in an overestimate of hysterectomy prevalence), nor women who migrate to New Zealand who have previously had a hysterectomy (which would tend to underestimate hysterectomy prevalence). These limitations may be mitigated by the fact they are working in opposite directions, and that some women who emigrate from New Zealand do return later in their lives. Further information about the hysterectomy prevalence methodology can be found in the document '*Methodology for estimating hysterectomy prevalence in women 20-69*' (14 September 2011) by A. Gray.[1]

The hysterectomy prevalence data were applied to New Zealand population estimates from Statistics New Zealand so that estimates of the number of women in the New Zealand population (by age and ethnicity) who had not had a hysterectomy prior to 30 June 2014 were obtained. Hysterectomy prevalence figures for the whole population (the denominator) were not available by DHB or ethnicity, so age-specific hysterectomy adjustments were

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

The estimates used for the New Zealand female population were the female 2006 Census population (2011 Update), projected to 30 June 2014.

Ethnicity analysis

The analysis by ethnicity considered four groups – Māori, Pacific, Asian, or European/Other, based on women's prioritised ethnicity derived from level two ethnicity codes recorded on the NCSP Register. Women for whom ethnicity information were not available were included in the "European/Other ethnic groups" category. The data download used for the current analysis (NCSP Register data as at March 2014) contained ethnicity codes for approximately 98.7% of women on the NCSP Register.

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

Calculating NCSP coverage

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

Until Monitoring Report 30 (1 July to 31 December 2008), coverage was calculated for women aged 20 – 69 years at the end of the monitoring period. However this includes some younger women who were not eligible for screening for the entire three years because they were aged 22 or less at the end of the three year screening period (i.e. were aged 17 – 19 years at the start of the three year period). This means that previously there may have been slightly underestimated coverage overall. Accordingly, a change to the method for measuring coverage was discussed and agreed on with the NCSP Advisory Group. The revised approach was to report coverage for women aged 25 – 69 years at the end of the monitoring period (which therefore includes women aged 22 and over at the beginning of the three year period but excludes women aged 20 or 21 years at the beginning). This approach is consistent with

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

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

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

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

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

4. Biannual NCSP Monitoring Indicators

Indicator 1 – Coverage

Definition	The proportion of all 25-69 year old women who have had a screening event (cytology sample, HPV sample or histology sample) taken in the three years prior to the end of the reporting period. This definition restricts the measure of coverage to the five-year age groups who were eligible for the entire duration of the three-year period, ie women aged 25-69 years at the end of the monitoring period. Screening coverage in women aged 20-69 years is also presented, for comparability with previous reports. The denominator (eligible population) for this indicator is adjusted for the estimated proportion of women who have had a total hysterectomy. Women who have withdrawn from or are not enrolled on the NCSP Register are excluded from the counts of women screened. Screening of women aged less than 20 years at the time of their cervical sample is also reported by DHB.
Target	80% of eligible women (aged 25-69 years at the end of the period) within three years by 31 December 2014. This target applies nationally, but is also a target for each ethnicity group (80% for Māori, 80% for Asian, 80% for Pacific, 80% for European/Other).
Current Situation	As at 30 June 2014, 880,927 (76.0%) 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 does not yet meet the target of 80%. 1,046,647 (90.3%) 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 69.4% (Counties Manukau) to 86.0% (Taranaki). Four of the 20 DHBs achieved the 80% target in women aged 25-69 years at the end of the period (Figure 1, Table 33). The target coverage of 80% of women screened at least once within three years was achieved in three out of the nine five-year age groups between 25 and 69 years. Among women aged 25-69 years at the end of the period, the target was achieved for each of the specific five-year age groups between 40 and 59 years, but was not achieved for the five-year age groups between 25 and 39 years, or 60 and 69 years. Among women aged 25-69 years at the end of the period, coverage was lowest in women aged 25-29 years (65.9%), and was highest in women aged 45-49 years (80.8%) (Figure 2, Table 32). Coverage was also low in women aged 20-24 years (53.6%), however many women in this age group were not eligible for screening for the entire three-

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

Three-yearly coverage also varied by ethnicity. Coverage targets of 80% were not met for Māori, Pacific, or Asian women. Coverage in these groups for women aged 25-69 years was 62.6%, 69.0%, and 65.1% respectively. Among European/Other women, coverage achieved was 81.2% within three years (Figure 4, Table 34). Coverage for each of Māori, Pacific, Asian or European/Other women was also explored at the DHB level. Coverage in Māori women ranged from 51.1% (South Canterbury) to 79.7% (Wairarapa)(Figure 4). The target level of 80% of Māori women screened within the previous three years was not achieved in any DHB. Coverage in Pacific women ranged from 55.0% (Northland) to 100% (West Coast)(Figure 5). The target level of 80% of Pacific women screened within the previous three years was achieved in seven DHBs (Auckland, Hawke's Bay, South Canterbury, Southern, Wairarapa, West Coast and Whanganui). Coverage in Asian women ranged from 57.0% (Canterbury) to 100% (West Coast) (Figure 6). The target level of 80% of Asian women screened within the previous three years was achieved in nine DHBs (Bay of Plenty, Hawke's Bay, Hutt Valley, Lakes, Nelson Marlborough, Northland, South Canterbury, Wairarapa and West Coast). Coverage in European/Other women ranged from 76.3% (Mid Central) to 89.0% (Taranaki)(Figure 7). The target level of 80% of European/Other women screened within the previous three years was achieved in 13 DHBs (Auckland, Bay of Plenty, Capital & Coast, Hawke's Bay, Hutt Valley, Lakes, Nelson Marlborough, South Canterbury, Southern, Taranaki, Waikato, Wairarapa and Waitemata).

When compared to the findings for three-year coverage, five-year coverage had similar patterns of variation by age, DHB, and ethnicity to three-year coverage. In women aged 25-69 years at the end of the monitoring period, five-year coverage varied from 84.0% in Counties Manukau to 99.7% in Taranaki (Figure 8,Table 36); by age from 81.7% in women aged 25-29 years to 95.4% in women aged 45-49 years (Figure 9, Table 35); and from 76.9% (Asian) to 95.4% (European/Other) (Figure 10, Table 37).

Screens in women aged less than 20 years

A total of 9,299 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 30 June 2014. This excludes one sample entered into the NCSP Register, where the apparent age of the women was four years (likely representing data entry errors). 0.9% of women who were screened at any age, were aged less than 20 years at the time their cervical sample was taken (Table 39).

The number of women aged less than 20 years at the time they were screened varied by DHB from 63 (Tairawhiti) to 1,505 (Canterbury), however some differences in counts are to be expected due to differences in population size and age structure between DHBs. In order to take differences in population size between DHBs into account, the number of women who were screened in the previous three years and aged 15-19

years at the time of their cervical sample in each DHB was divided by the estimated population of females aged 15-19 years in that DHB. Note that as the events occurred over a three year period, and the population estimate is for a single year, this cannot be interpreted directly as the proportion of 15-19 year old females in each DHB who have been screened in the last three years. However, this does allow the variation in DHB populations to be partly accounted for, and thus can give an indication of where screening among women aged less than 20 years is more or less common. Estimates for this proportion ranged from 4.0% (Tairawhiti) to 9.3% (Canterbury). Some smaller DHBs screen a relatively low number of women when they are younger than 20 years, but because the population is small this equates to screening women aged less than 20 years old at a comparatively high rate (for example South Canterbury, Wairarapa and West Coast). Details of screens of women aged less than 20 years by DHB are presented in Figure 11, and Table 38 to Table 40.

Further exploratory analysis determined that more than three quarters of the women who were aged less than 20 years at the time of their cervical sample were aged 18-19 years at the time (87.1% overall; range across DHBs 73.0%- 97.4%). This may represent opportunistic screening of women aged 18-19 years. This proportion varied from 73.0% in South Canterbury to 97.4% in Whanganui. Where this proportion is higher, it is indicates that a larger proportion of screening in women aged less than 20 years may be attributable to opportunistic screening of women aged 18-19 years; as this proportion decreases, it indicates that more of the screening in women aged under 20 years is occurring in women aged under 18 years, and less may be attributed to opportunistic screening of women aged 18-19 years.

Trends

Coverage

Overall coverage in New Zealand among women aged 25-69 years is slightly lower in the current period (76.0% within the last three years, and 90.3% within the last five years) compared to the previous reporting period (76.4% within the last three years, and 90.4% within the last five years).

Coverage within DHBs has been relatively stable, compared to the previous monitoring period, with the change in coverage generally being around 1 percentage point or less. Longer term trends by DHB are shown in Figure 12 and Table 42.

Trends by age are similar to those seen in the previous monitoring report. The coverage target of 80% of women within the past three years continued to be met for women in the five-year age groups between 40-59 years, but not for women outside this age range. Coverage has increased slightly overall, and in particular for women aged 25-29 years. Coverage has decreased slightly in many age groups, but the decrease is small (less than one percentage point). Longer term trends by age are shown in Figure 13 and Table 43.

The similar coverage overall appears to be reflected in all ethnic groups, with coverage in each group very similar to that observed in the previous report. Longer term trends by ethnicity are shown in Figure 14 and Table 44.

Screens in women aged less than 20 years

The number of women screened who are aged under 20 years has decreased from 10,936 in the previous reporting period to 10,177 in the current reporting period, as has the proportion of all women with screening events who are aged less than 20 years at the time of the event (from 1.1% to 1.0%). The number of women screened who are aged less than 20 years at the time has decreased in almost all DHBs (Figure 15).

The proportion of these women who were aged 18-19 years has increased somewhat since the previous reporting period (from 85.5% to 86.2%), and an increase has occurred in many DHBs (13 of 21)(Figure 16). As in previous reports, it would appear that in New Zealand overall, screens in very young women are reducing, and where these still occur they increasingly reflect opportunistic screening of 18-19 year olds.

Comments

As discussed in Methods (Hysterectomy-adjusted population, page 15), the hysterectomy prevalence used to make the adjustment includes all women with a hysterectomy, some of whom may still require cervical screening. These women will have been removed from the denominator, but may still appear in the numerator. As a result of these limitations, coverage must be interpreted with some caution. We explored the impact of the hysterectomy-adjustment on the results by calculating coverage as a proportion of the total New Zealand female population (ie regardless of whether they have had a hysterectomy or not). Results for this analysis appear in Table 41.

Another limitation is that the overall population estimates used (in conjunction with the hysterectomy adjustors) are population projections for the end of 2013 but are based on 2006 Census population 2011 Update. This was an unavoidable limitation, because the 2011 Census was not held as planned, due to the Christchurch earthquake in February 2011, and detailed population estimates based on the 2013 Census (by ethnicity and DHB) were not yet available at the time of this analysis. However this limitation also means that some caution is required in interpreting coverage.

In the current report, the number of Pacific women and Asian women screened in the previous three years in West Coast exceeds the hysterectomy-adjusted population (but not the estimated ethnicity-specific female population) in this DHB. This may be because the hysterectomy adjustors used have been estimated for New Zealand as a whole, and are not ethnicity-specific or DHB-specific. In practice hysterectomy prevalence may vary by ethnicity or by DHB. Alternatively, this may be because women with a hysterectomy remained in the numerator, as described above.

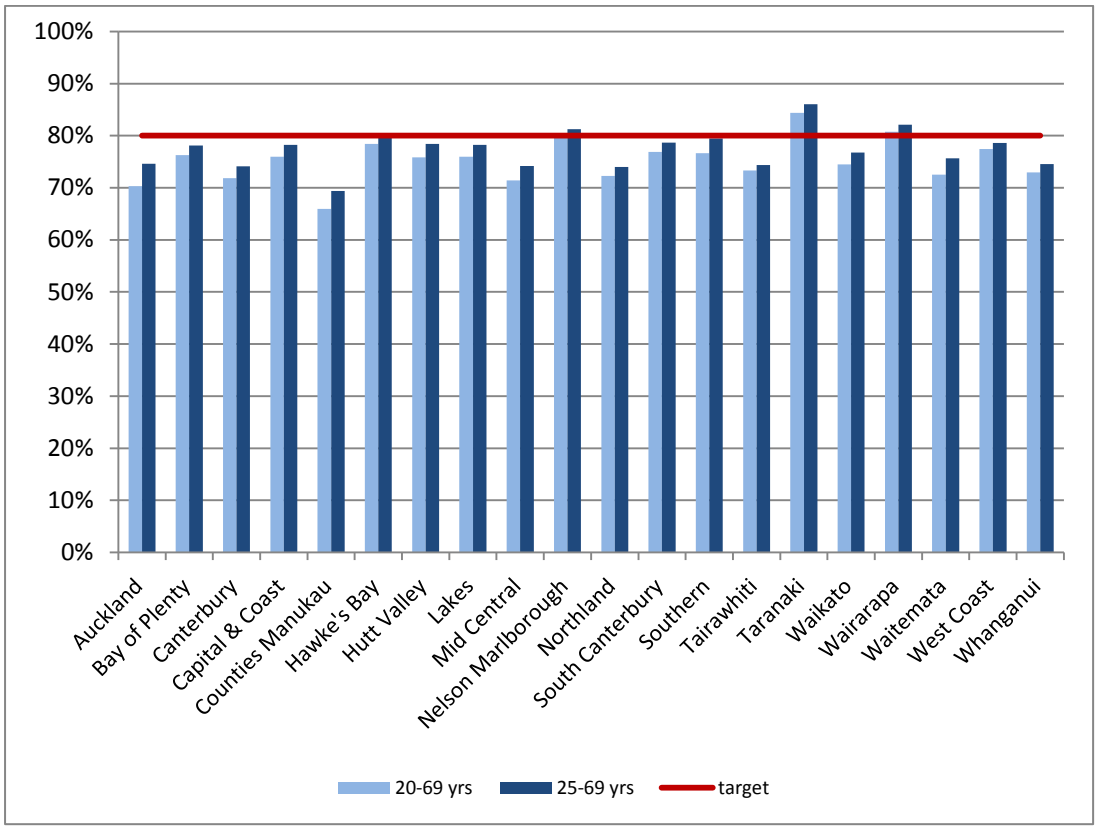
However, this latter possibility has existed over several reports, whereas the number of women screened has exceeded hysterectomy-adjusted population only since Report 38; this coincided with the hysterectomy adjustors no longer being ethnicity-specific.

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 previous explorations of misclassification via ethnicity adjustors (from *Wright 2008*)[5] indicates that this is a factor, but is unlikely to explain all of the difference in observed coverage rates by ethnicity. Estimates in this report have no longer been adjusted for undercounting, since the most recent available adjustors relate to 2008, and the periods considered for coverage are wider – ranging from mid-2010 to mid-2013 (three-year coverage), and mid-2008 to mid-2013 (five-year coverage).

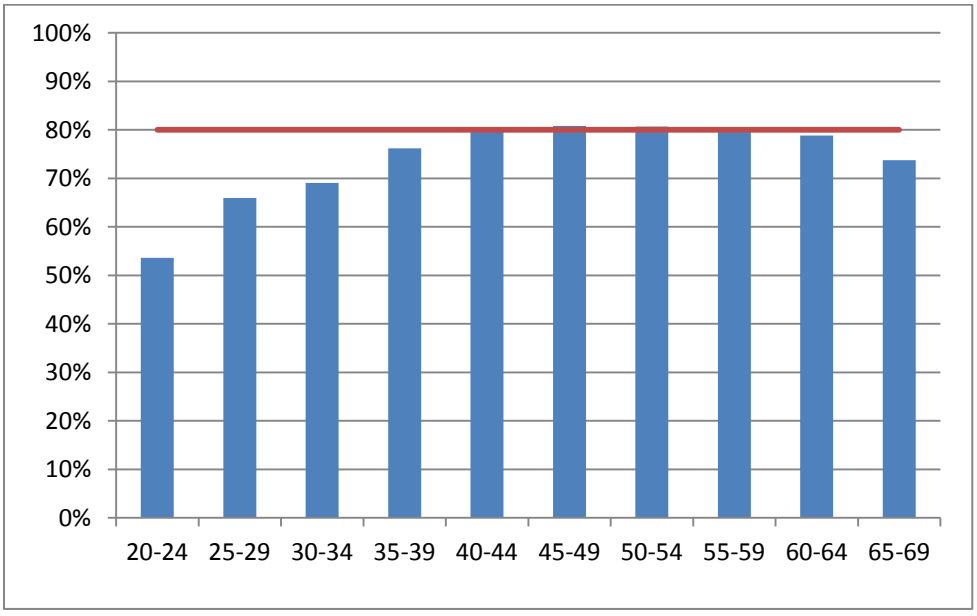
Coverage in women aged 20-24 years is likely to remain lower than for other ages and coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.

Figure 1 - Three-year coverage by DHB (women screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population)



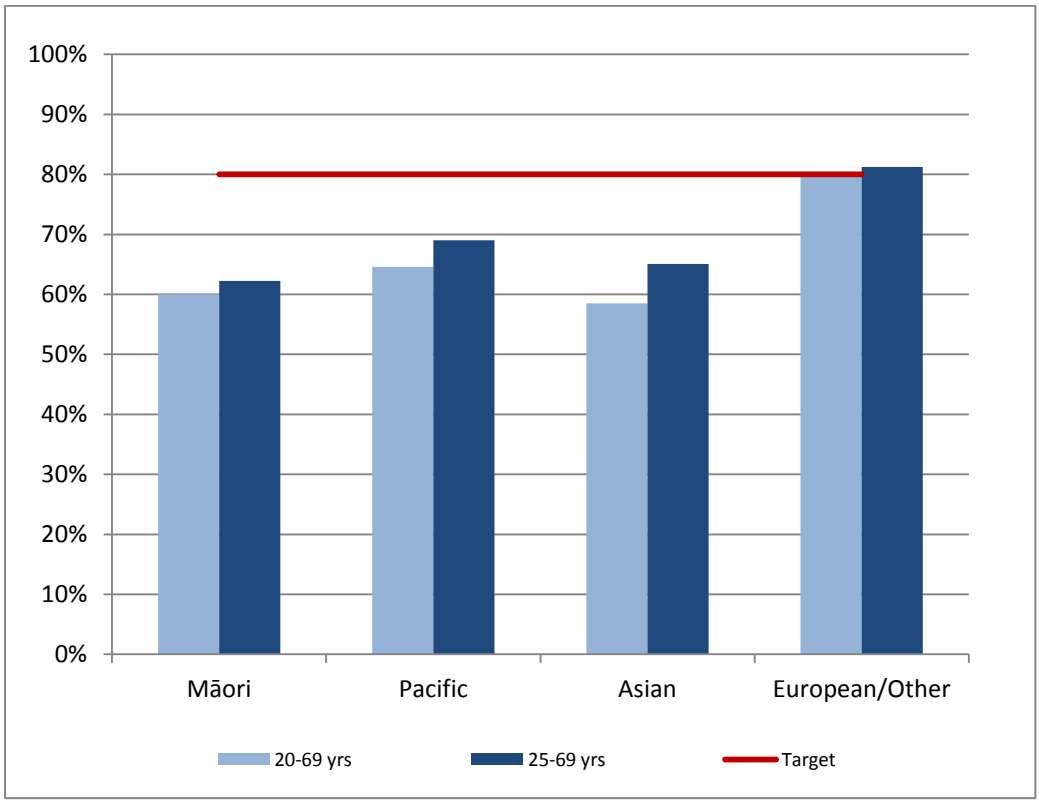
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target 80%, hysterectomy adjusted. See also Table 33

Figure 2 - Three-year coverage by five-year age group (women 20-69 years screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population)



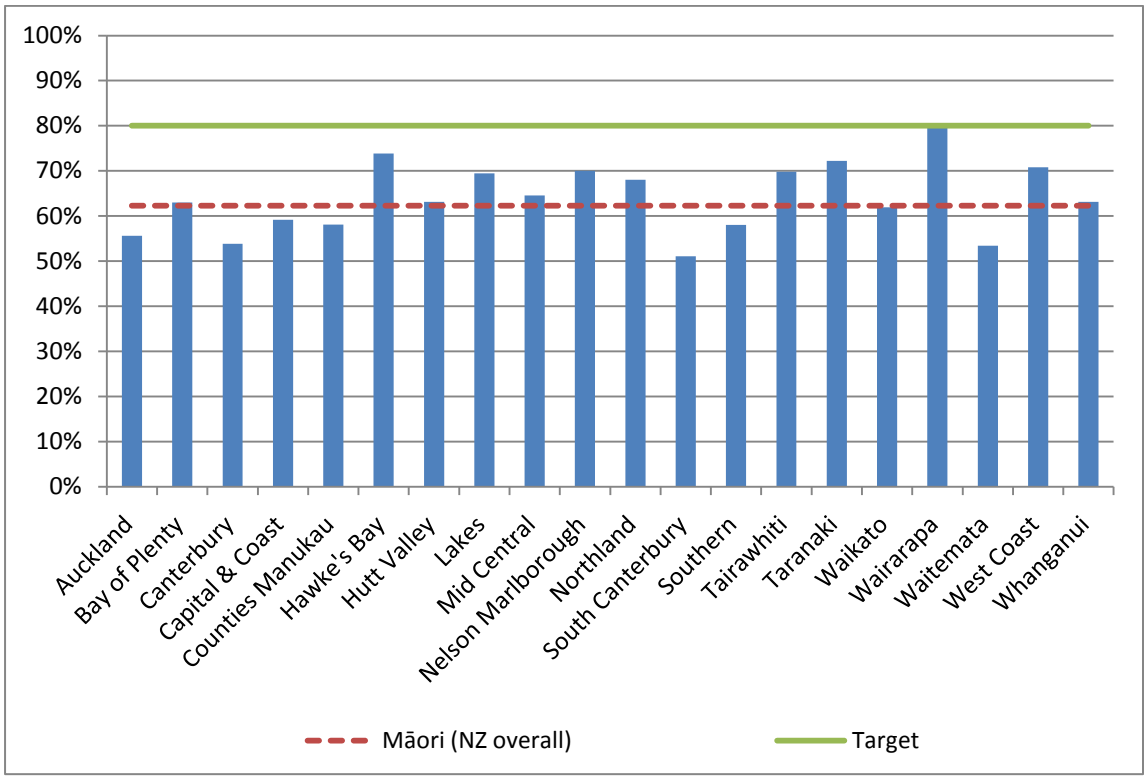
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target (red line); 80%, hysterectomy adjusted. See also Table 32

Figure 3 - Three-year coverage (women screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population), by ethnicity



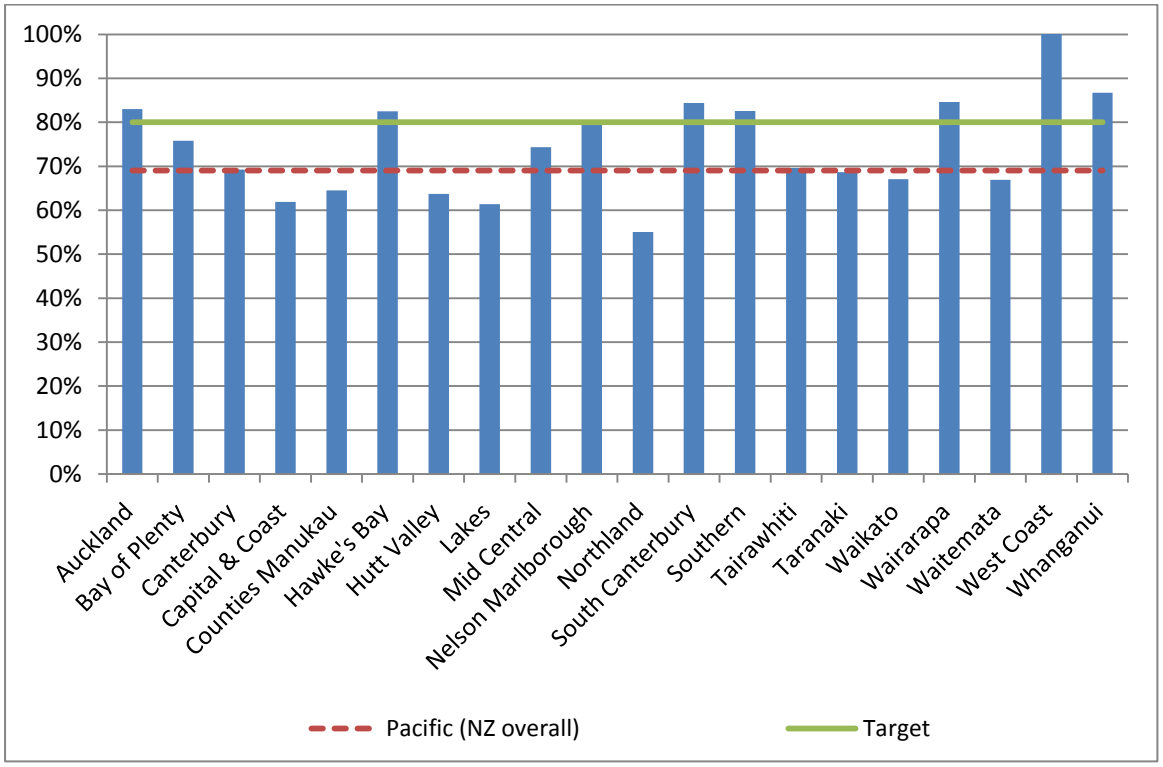
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target (red line); 80%, hysterectomy adjusted. See also Table 34

Figure 4 - Three-year coverage in Māori women (women 25-69 years screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population), by DHB



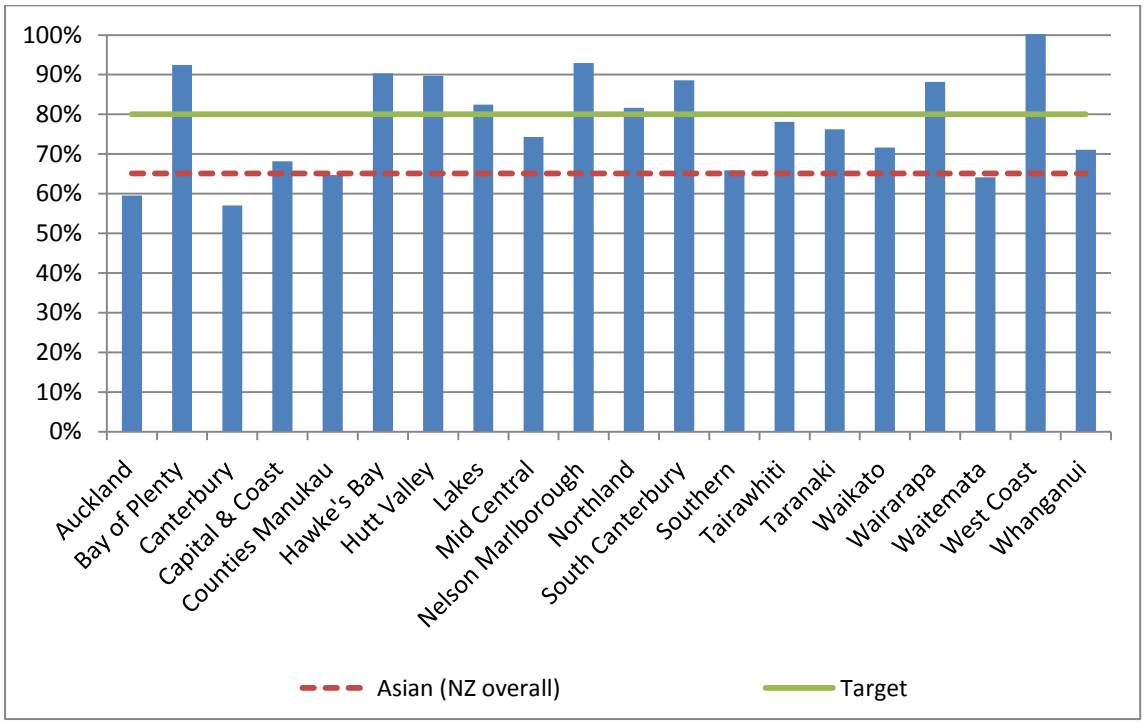
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target 80%, hysterectomy adjusted.

Figure 5 - Three-year coverage in Pacific women (women 25-69 years screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population), by DHB



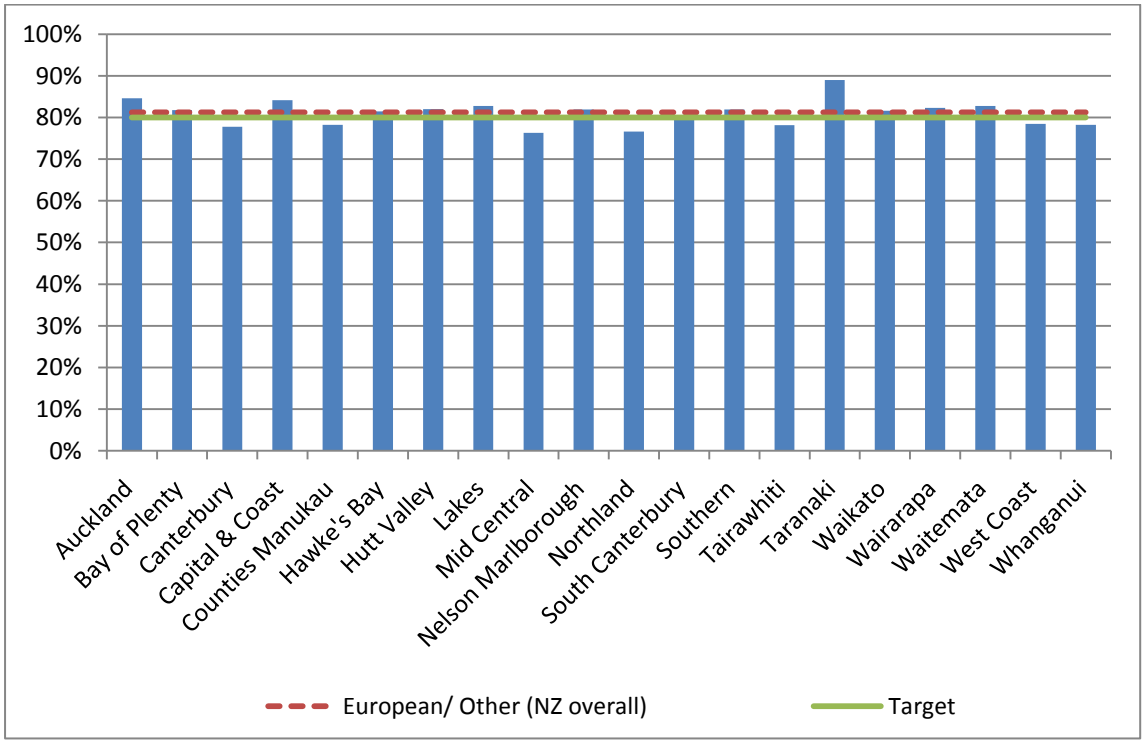
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target 80%, hysterectomy adjusted.

Figure 6 - Three-year coverage in Asian women (women 25-69 years screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population), by DHB



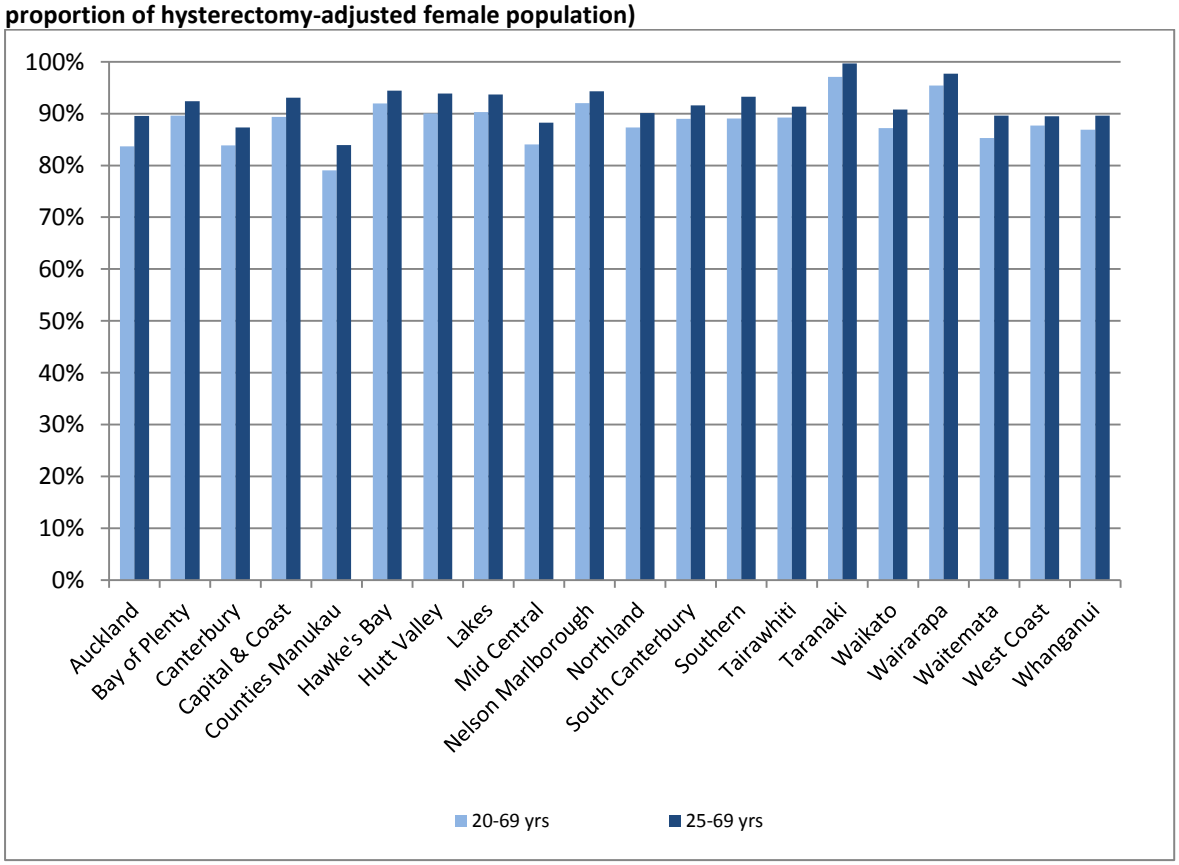
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target 80%, hysterectomy adjusted.

Figure 7 - Three-year coverage in European/ Other women (women 25-69 years screened in the three years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population), by DHB



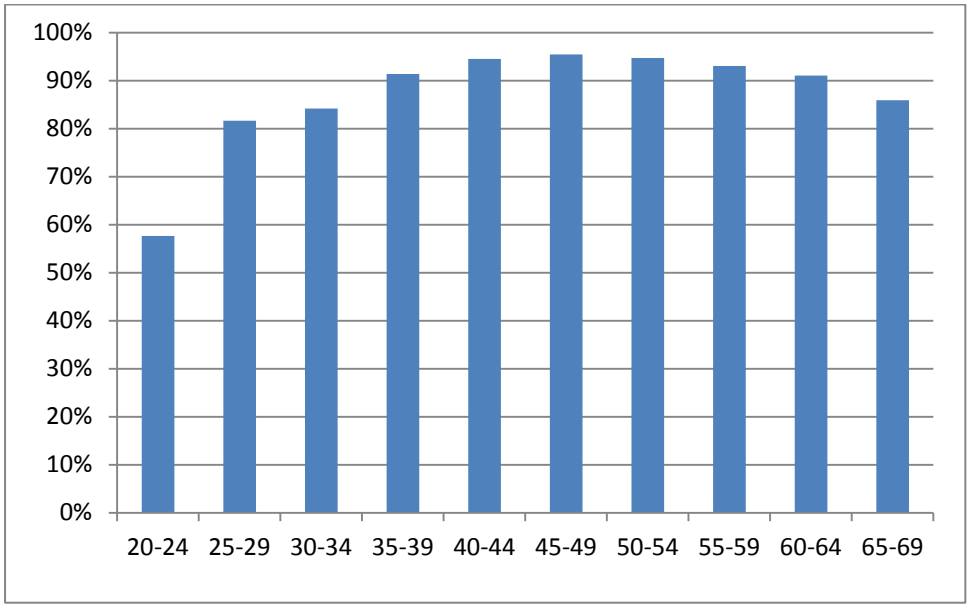
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. Target 80%, hysterectomy adjusted.

Figure 8 - Five-year coverage by DHB (women screened in the five years prior to 30 June 2014, as proportion of hysterectomy-adjusted female population)



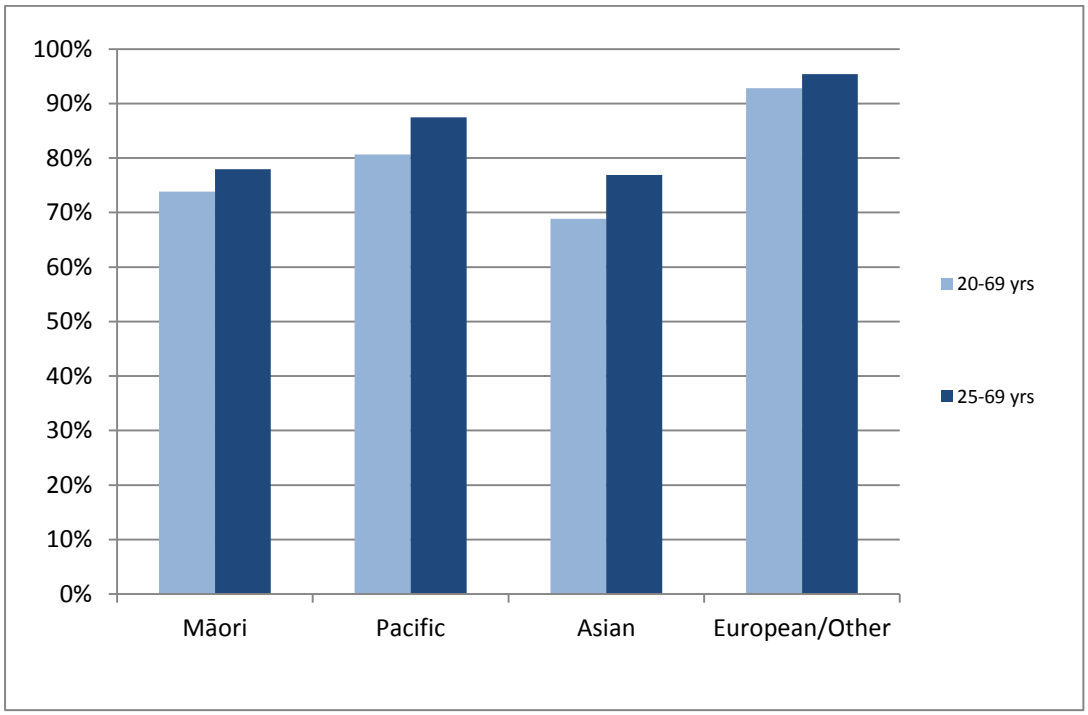
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data.
See also Table 36

Figure 9 - Five-year coverage by five-year age-group (women screened in the five years prior to 30 June 2014, as proportion of hysterectomy-adjusted female population)



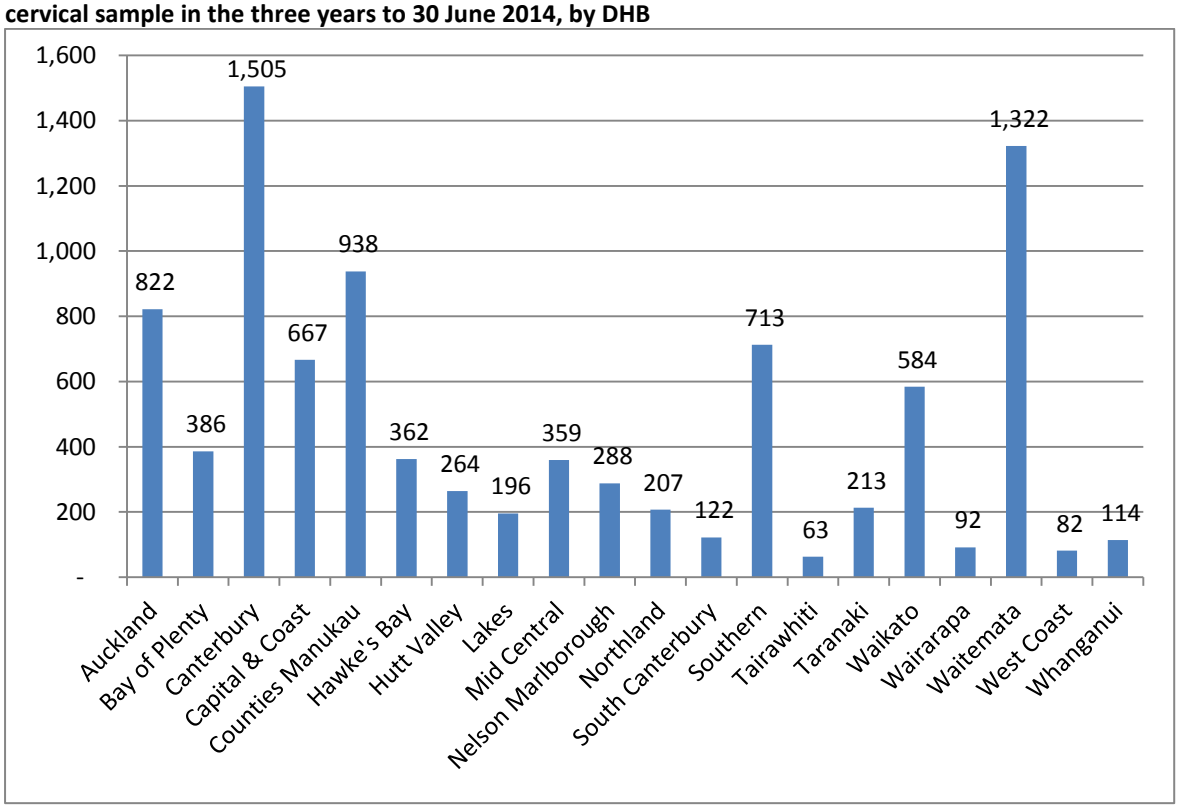
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data.
See also Table 35

Figure 10 - Five-year coverage by ethnicity (women screened in the five years prior to 30 June 2014, as a proportion of hysterectomy-adjusted female population)



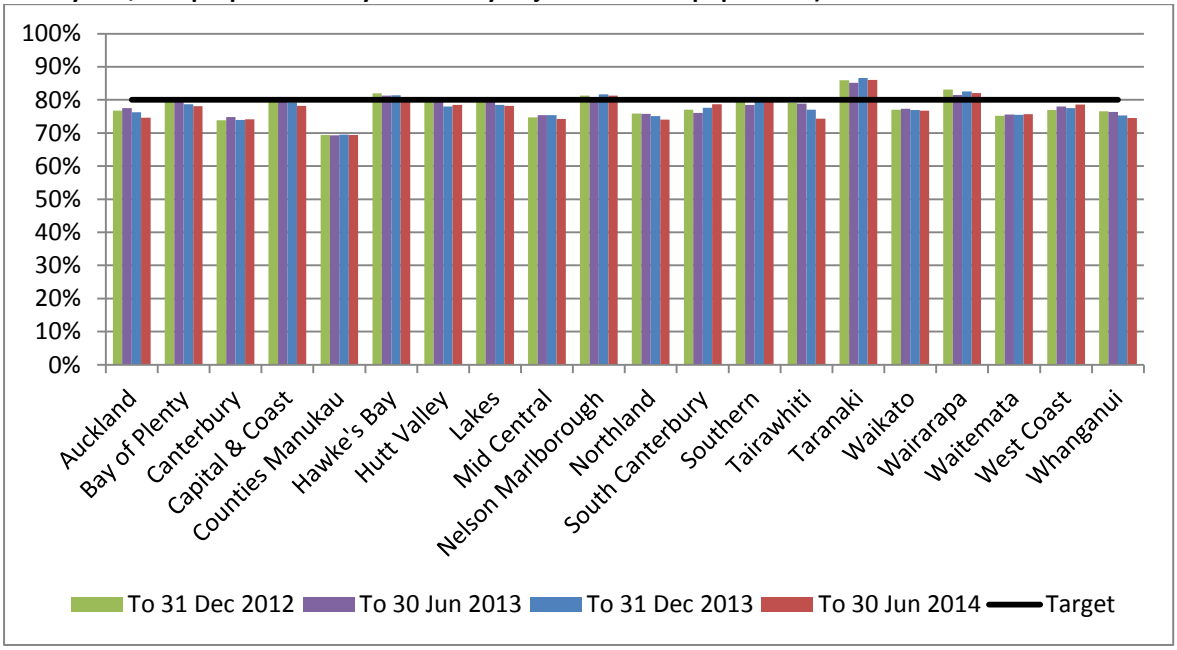
Note: Coverage calculated using population projection for 30 June 2014 based on 2006 Census data. See also Table 37

Figure 11 - Number of women screened who were aged less than 20 years at the time of their cervical sample in the three years to 30 June 2014, by DHB



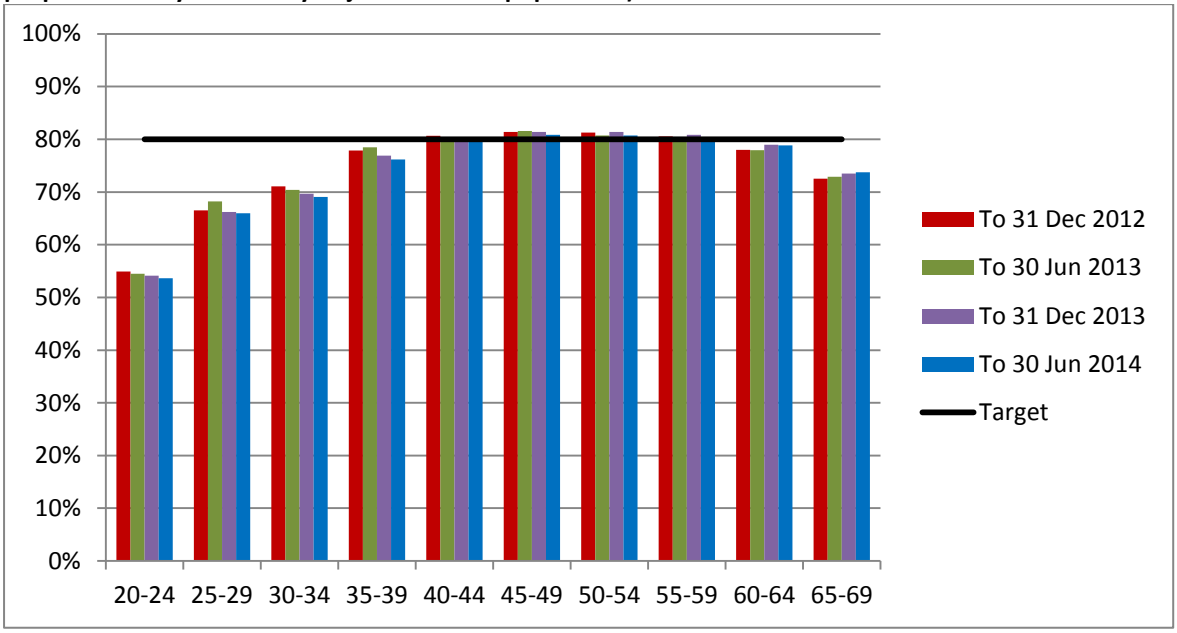
Excludes one woman whose recorded age was less than ten years at the time of their cervical sample (likely data mis-entry). See also Table 38

Figure 12 – Trends in three-year coverage by DHB (women aged 25-69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



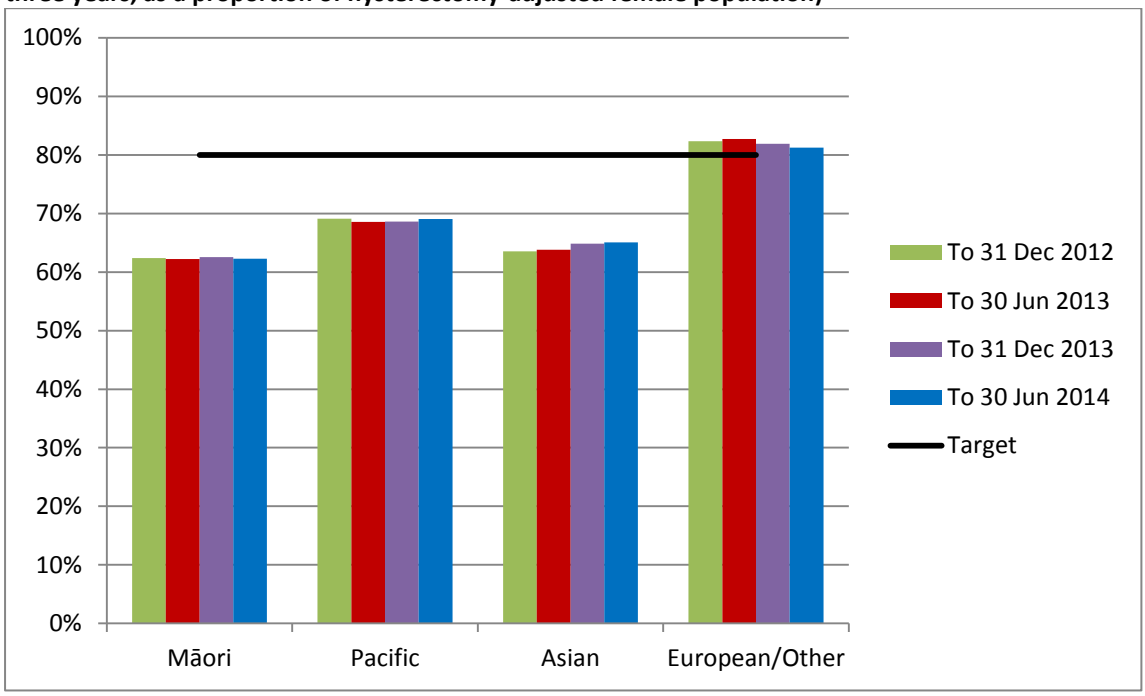
Coverage calculated using population projection at the end date shown, based on 2006 Census data. Target 80%. See also Table 42

Figure 13 - 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 80%. See also Table 43

Figure 14 - Trends in three-year coverage by ethnicity (women aged 25-69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)



Coverage calculated using population projection at the end date shown, based on 2006 Census data. Target 80%. See also Table 44.

Figure 15 – Trends in the number of women screened in the preceding three years who were aged less than 20 years at the time of their cervical sample, by DHB

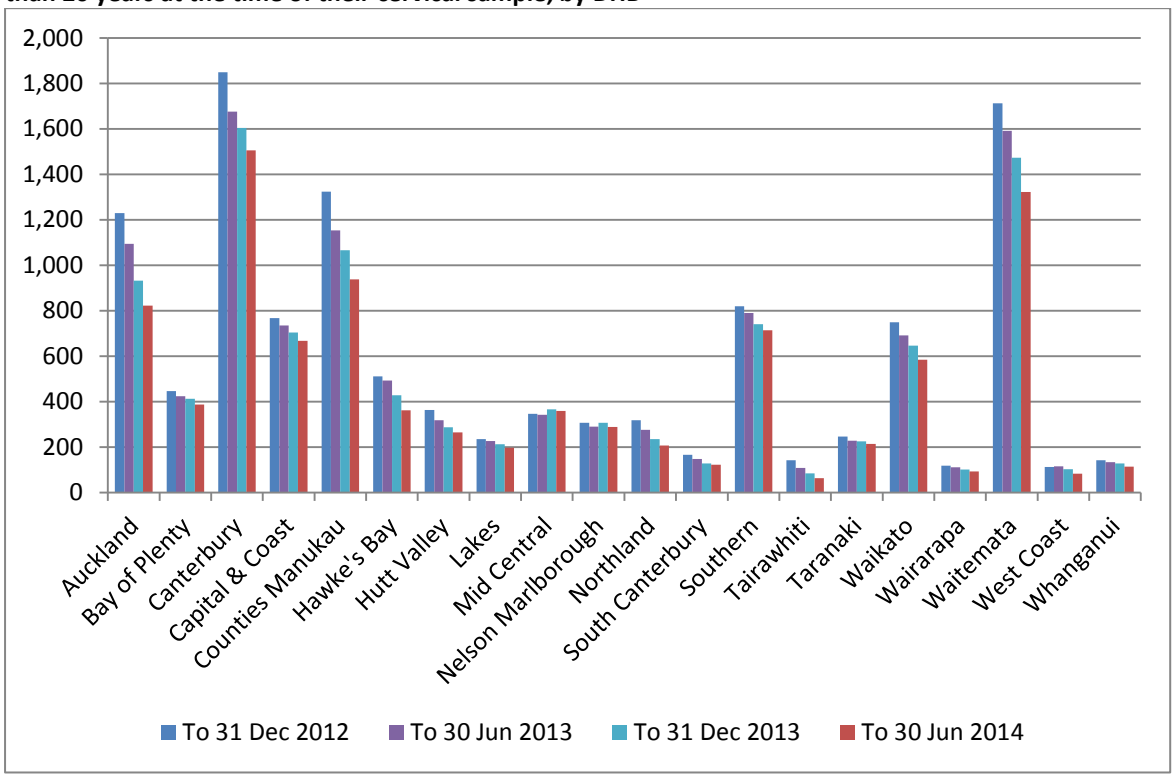
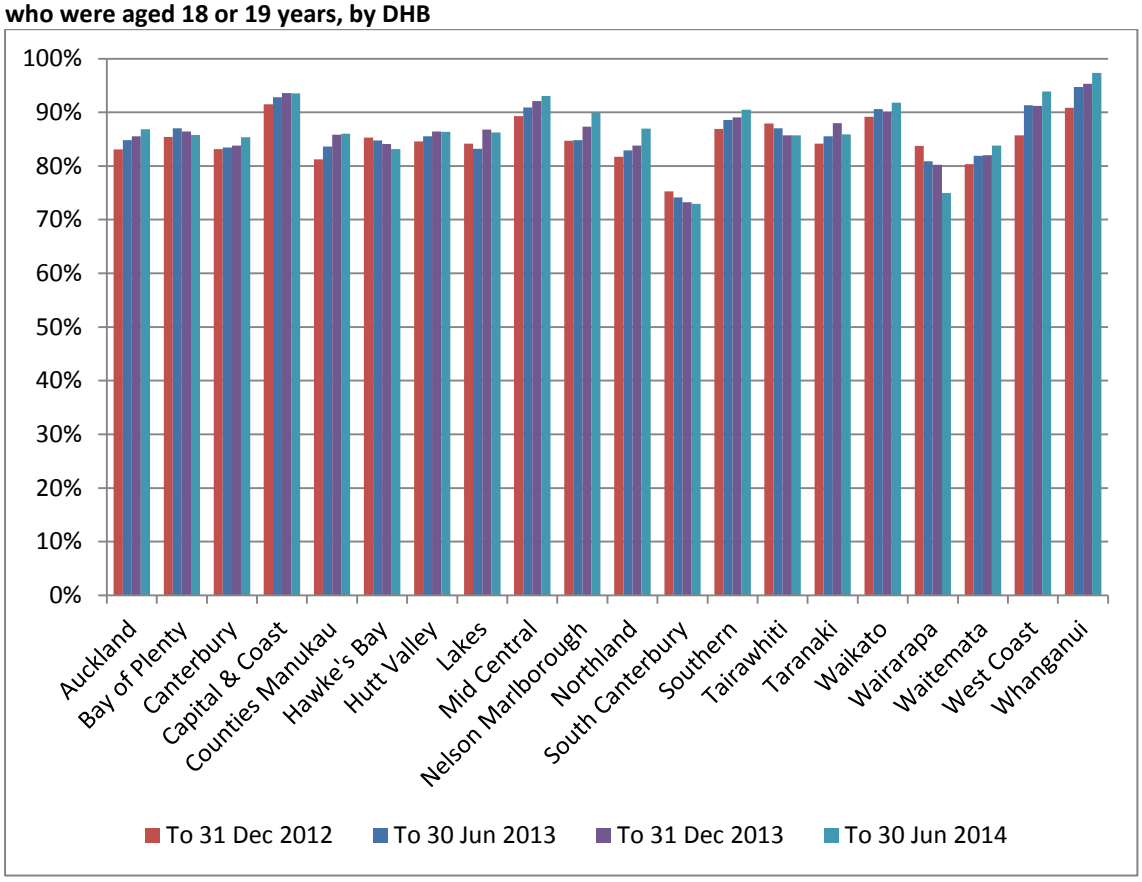


Figure 16 – Trends in the percent of women aged less than 20 years at the time of their cervical sample who were aged 18 or 19 years, by DHB



Indicator 2 – First screening events

Definition

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

A woman's age is defined as her age at the end of the current reporting period (i.e. 30 June 2014).

This indicator is presented as the number of women 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

There were 21,343 women aged 20-69 years at the end of the period who had their first screening event in the period 1 January - 30 June 2014 (Table 45). This constituted 10.2% of the 208,554 women aged 20-69 years with a cervical sample taken in the period (screening event), and 1.6% of the eligible population. The median age (at the end of the reporting period) of women with a first event recorded was 25 years.

The age group with the highest number of first screening events was women aged 20-24 years. 10,576 women aged 20-24 had their first screening event recorded on the register during this reporting period, accounting for 49.6% of all women aged 20-69 years with first screening events (Figure 17, Table 45). 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 (41.1%) (Figure 18), and the highest proportion of eligible women at that age with a first screening event recorded in the current reporting period (6.6%) (Figure 19).

The DHBs with the highest number of women aged 20-69 years with first screening events were Auckland (3,218) and Waitemata (2,909). The DHBs where women with first screening events, as a proportion of all women with screening events, were the highest were Auckland (13.1%), Counties Manukau (12.3%) and Capital Coast (11.9%). The DHBs where this proportion was lowest were South Canterbury (6.5%) and Wairarapa (6.9%) (Figure 20, Table 46).

The ethnic group with the highest number of women with first screening events was European/Other (12,409) (Table 47). The group with the highest proportion of their eligible population being screened for the first time was Asian women (2.8%), and the lowest was Māori women (1.3%) (Table 47). The proportion of women screened who were being screened for the first time was highest for Asian women (21.1%) (Table 47, Figure 21). This proportion is likely to be related to the median age of women with a first screening event, which in Asian women is comparatively

high (31 years, compared with 21 years for Māori women, 25 years for Pacific women, and 23 years for European/Other women) (Table 48).

Trends

The number of women with a first screening event recorded on the NCSP Register has decreased slightly, from 22,190 women in the previous period, to 21,343 in the current period. Across the overall eligible population aged 20-69 years, the proportion of women with screening events that are their first screening event being recorded on the NCSP Register (10.2%) is slightly lower than the previous period (10.4%).

Patterns by age, DHB, and ethnicity are broadly similar to those seen in the previous report. As was the case in previous reports, the median age of a first screening event was older for Asian women than for Māori women 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 30 June 2014 are shown in Figure 22 (by age), Figure 23 (by DHB), and Figure 24 (by ethnicity).

Comments

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

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

Figure 17 - Number of first screening events by five-year age group (women aged 20-69 years at 30 June 2014)

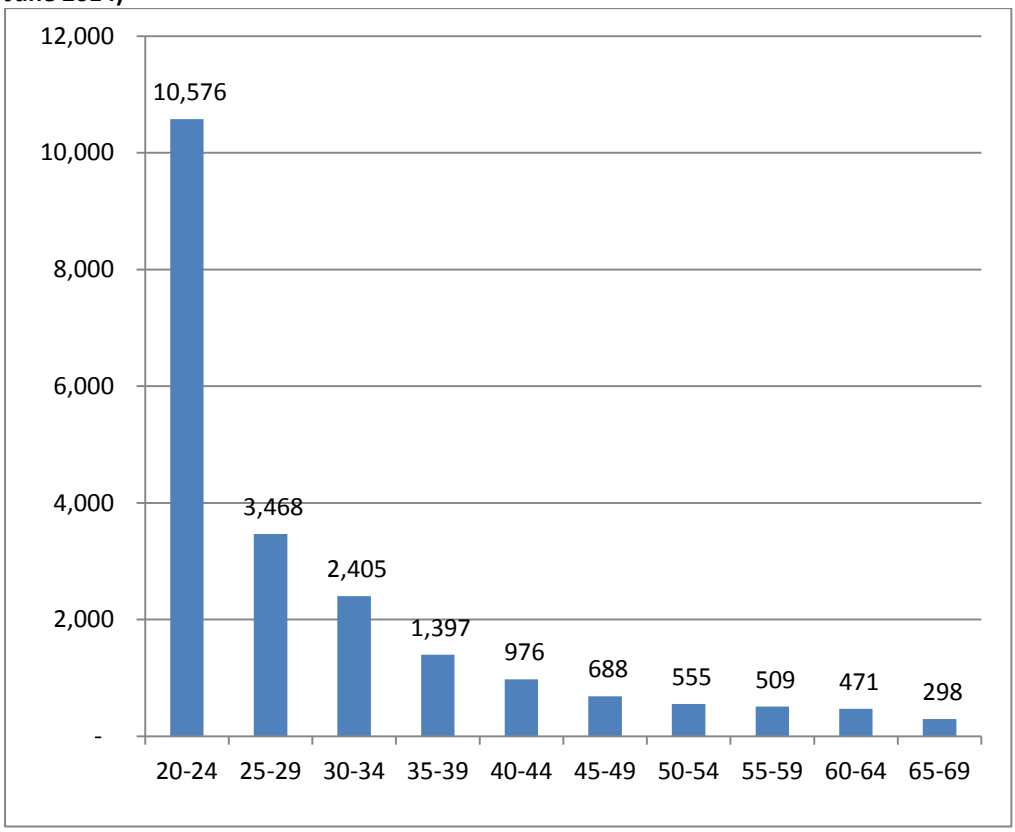


Figure 18 – Women with first screening events as a proportion of all women screened during the reporting period, by five-year age group (women aged 20-69 years at 30 June 2014)

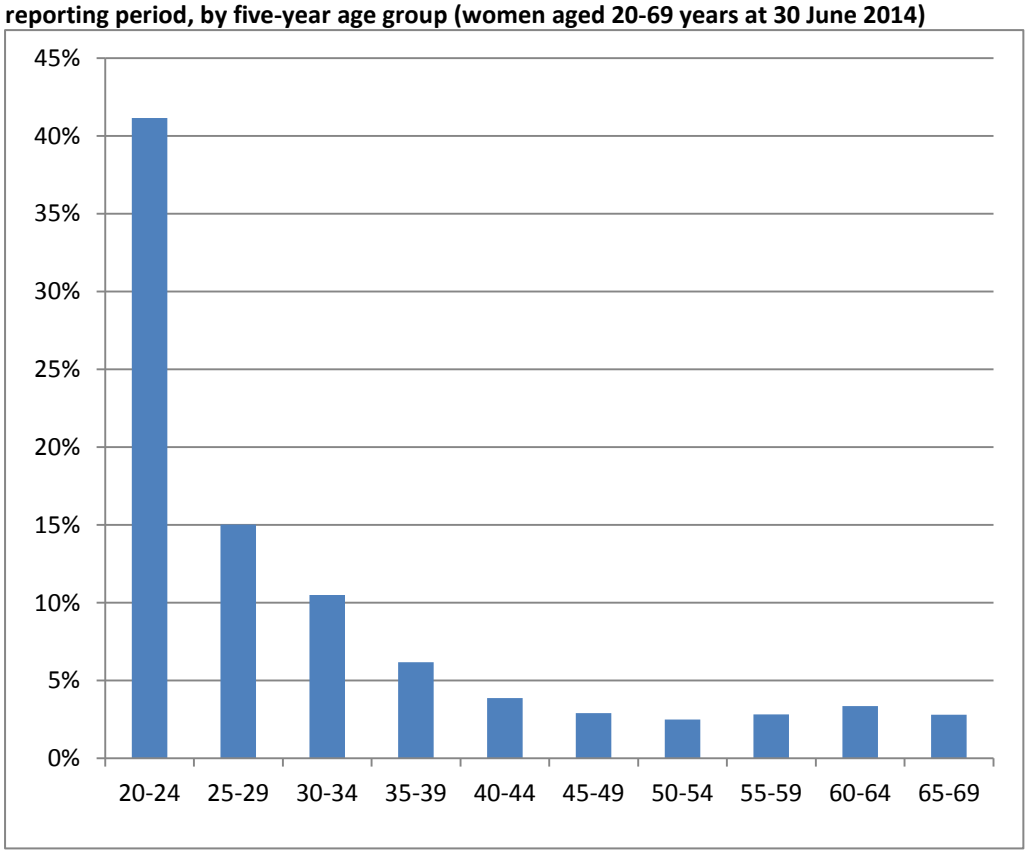
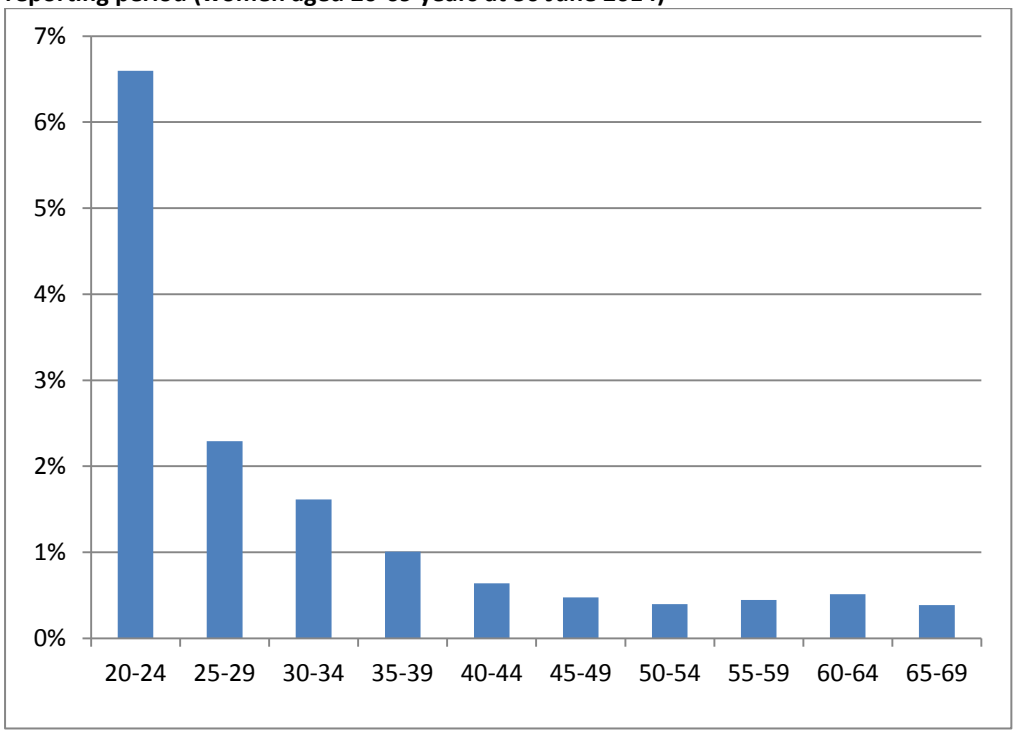


Figure 19 - Proportion of population* in that age group with their first screening event during the reporting period (women aged 20-69 years at 30 June 2014)



**Hysterectomy adjusted, 2006 Census data projected to 30 June 2014*

Figure 20 - Women with first screening events as a proportion of all women screened during the reporting period, by DHB (women aged 20-69 years at 30 June 2014)

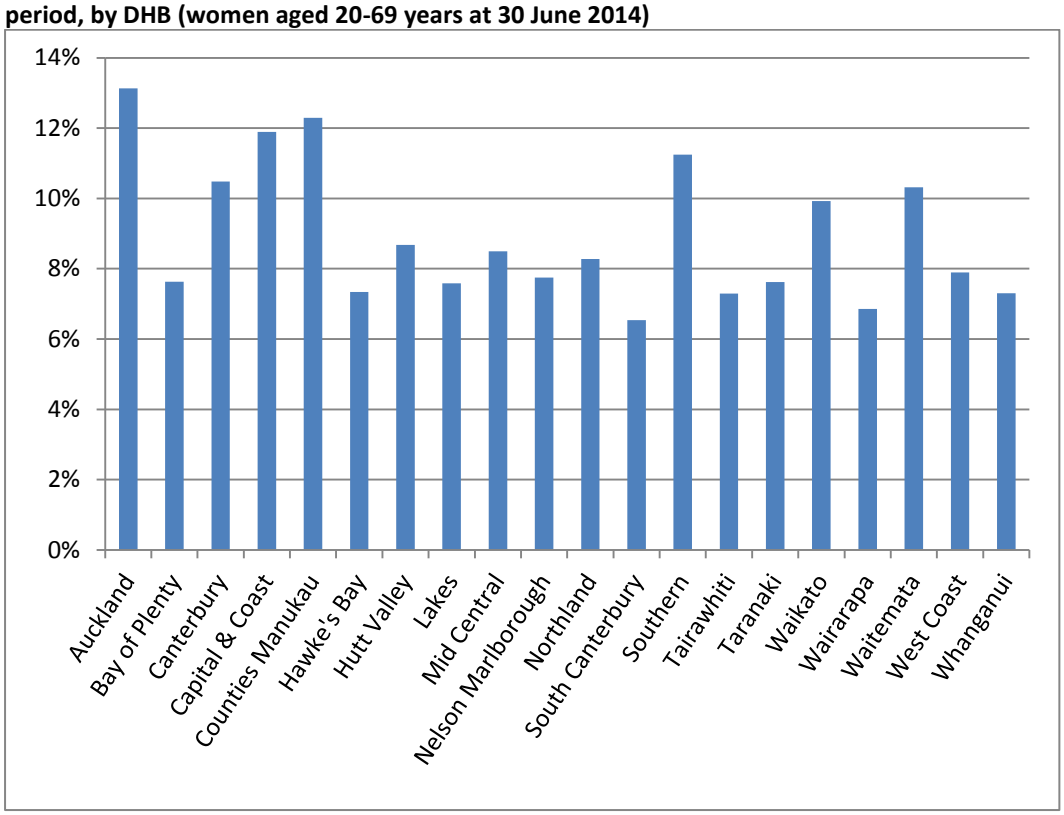


Figure 21 - Women with first screening events as a proportion of all women screened during the reporting period, by ethnicity (women aged 20-69 years at 30 June 2014)

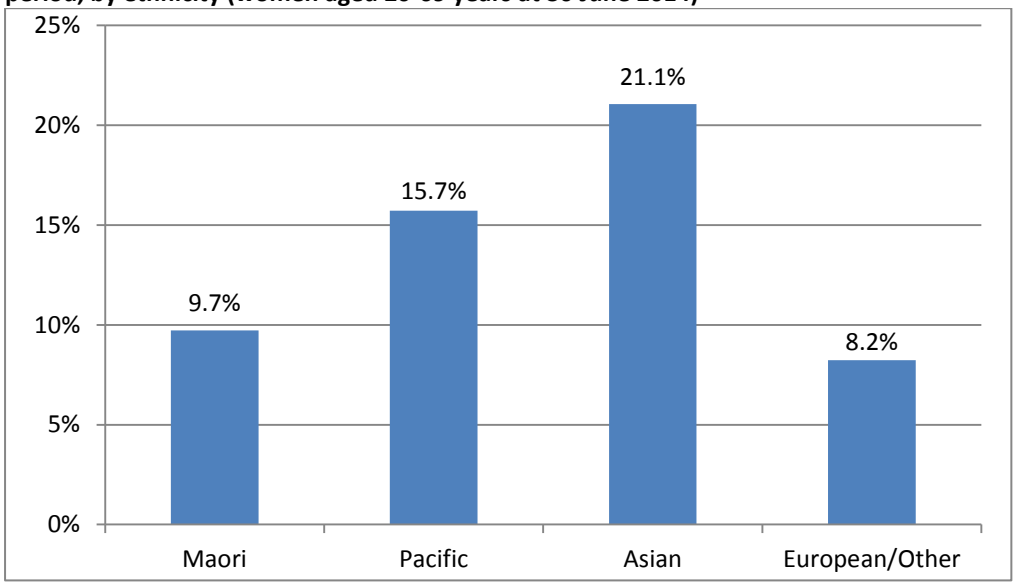


Figure 22 – Trends in the number of women with a first screening event, by age at the end of the reporting period

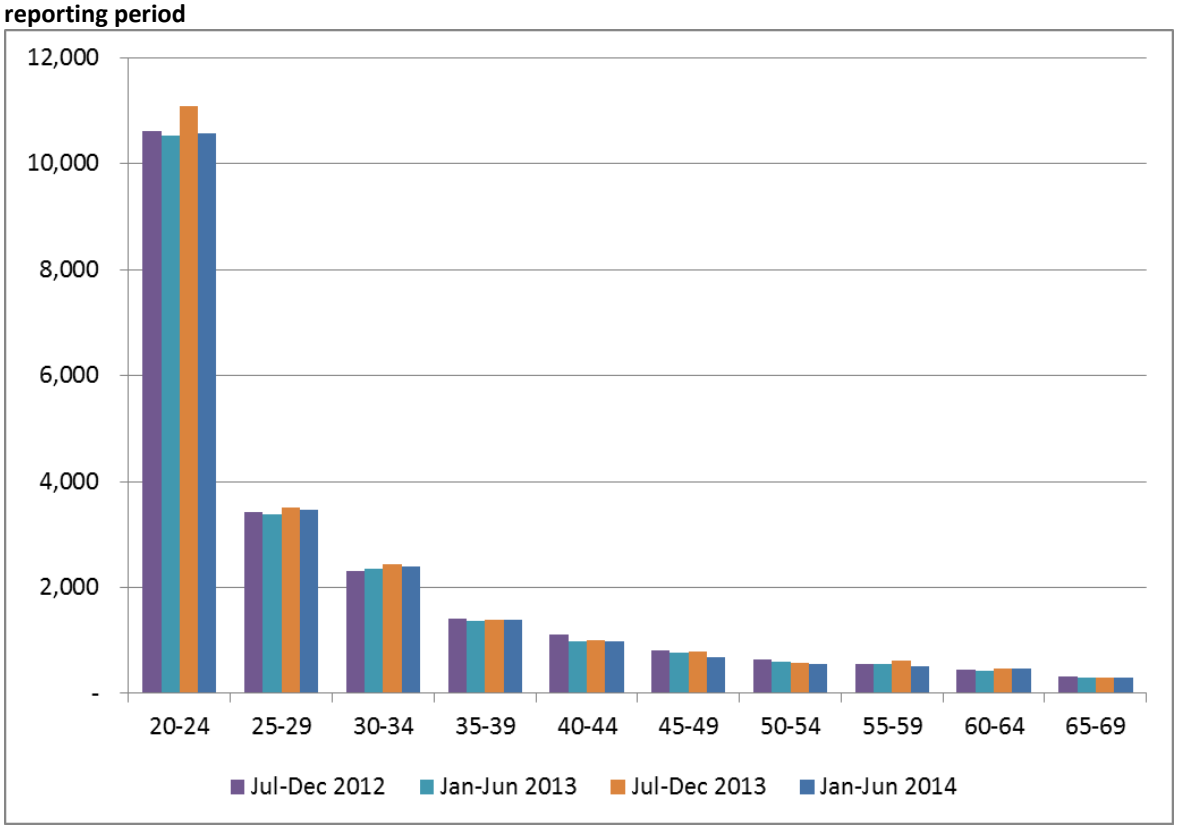


Figure 23 - Trends in the number of women aged 20-69 years at the end of the reporting period with a first screening event, by DHB

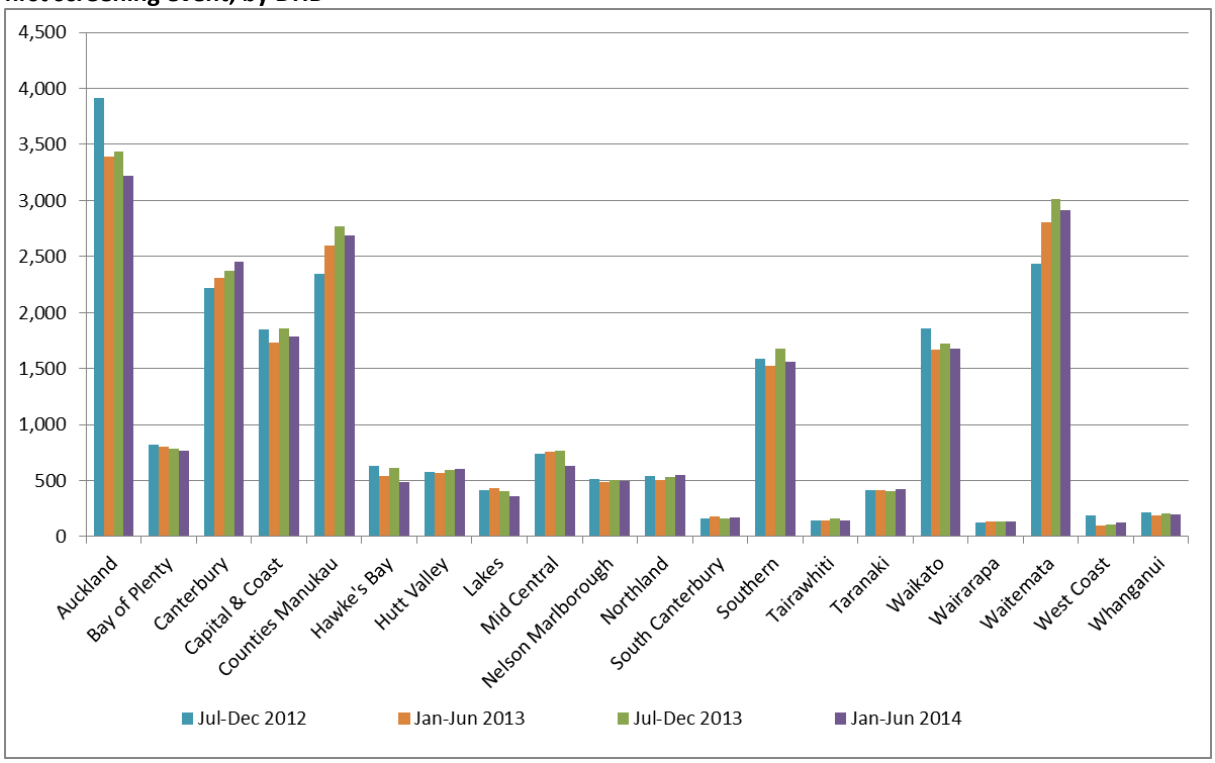
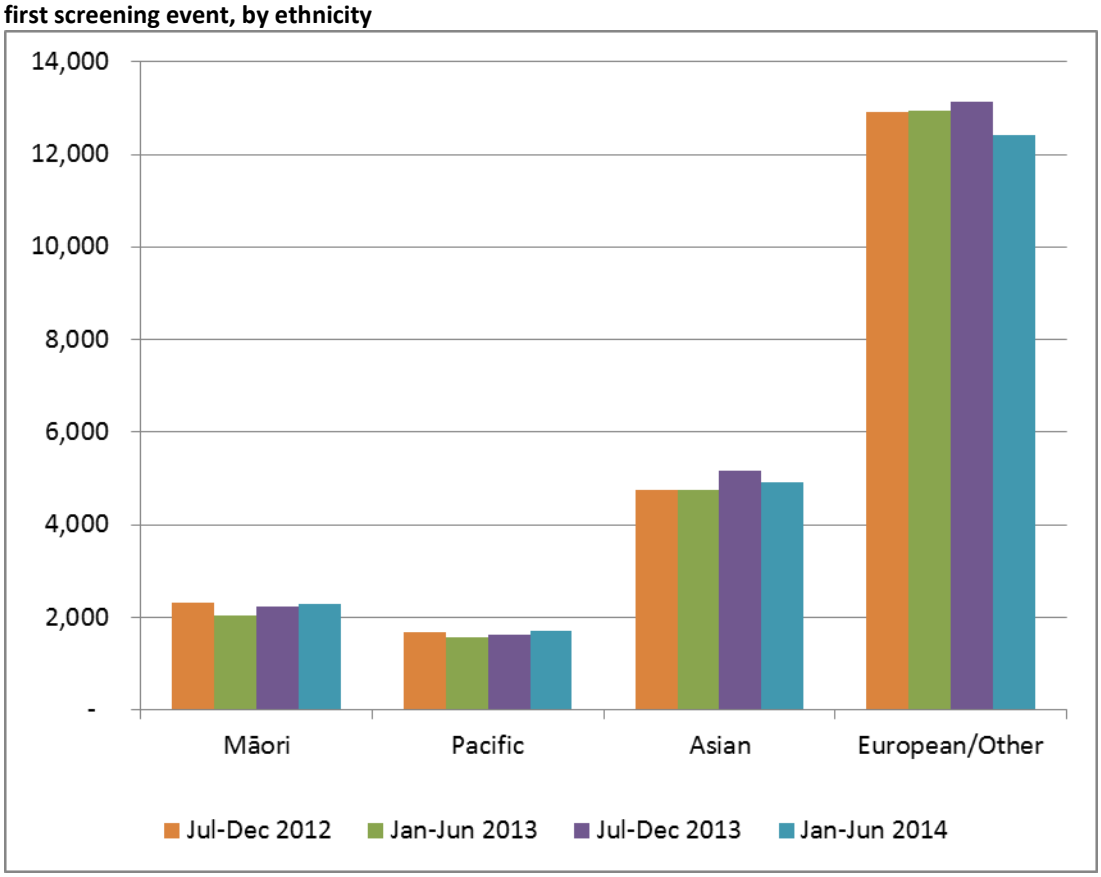


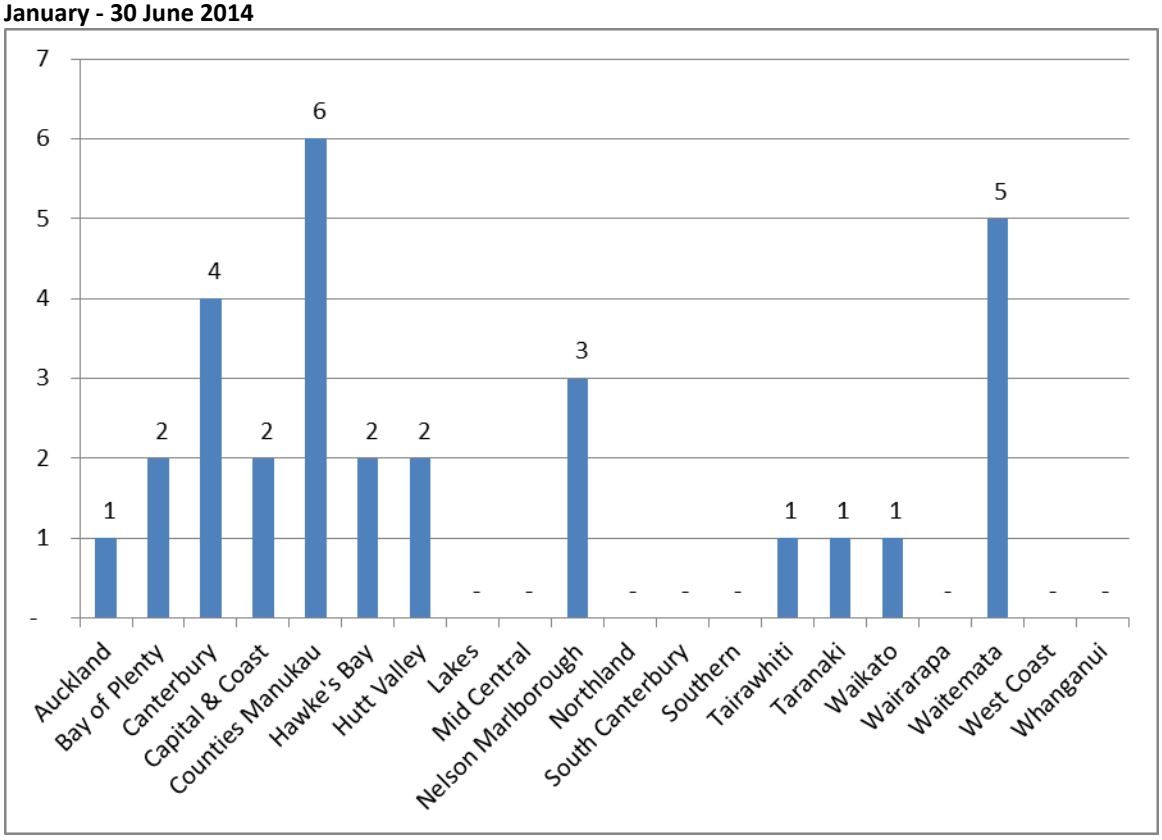
Figure 24 - Trends in the number of women aged 20-69 years at the end of the reporting period with a first screening event, by ethnicity



Indicator 3 – Withdrawal rates

Definition	The number of women, by age-group, DHB, and ethnicity not currently enrolled in the NCSP Register and whose enrolment ended during the reporting period (withdrawals). Withdrawals relate to active withdrawals, where women specifically elect to be removed from the NCSP Register. The proportion of women who were enrolled on the NCSP Register at 31 December 2013 (ie just prior to the commencement of the current reporting period), 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, 1,495,060 women aged 20-69 years were enrolled on the NCSP Register. During the current reporting period, 32 of these women (0.002%) withdrew from the NCSP Register. In all DHBs, the number and proportion of women who withdrew was extremely small (maximum six women (0.004%) in Counties Manukau). No women withdrew in Lakes, Mid Central, Northland, South Canterbury, Southern, Wairarapa, West Coast or Whanganui (Figure 25). The age group with the largest number and proportion of women withdrawing were women aged 65-69 years (seven women; 0.007% of those enrolled at the start of the reporting period) (Figure 26, Table 49). The number and proportion of women withdrawing was extremely small for all ethnic groups. In total one Māori woman (0.001%), one Pacific women (0.001%), five Asian women (0.003%) and 25 European/Other women (0.002%) withdrew in the current monitoring period (Figure 27, Table 50).
Trends	The number of women who withdrew in the current reporting period (32 women) is somewhat lower than in the previous reporting period (53 women). The overall number of withdrawals remains extremely small.
Comments	The proportion of women choosing to actively withdraw from the NCSP Register is extremely small. 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 25 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by DHB, 1 January - 30 June 2014



Excludes two women who withdrew whose DHB was not recorded

Figure 26 - Number of women who withdrew from the NCSP Register by age, 1 January - 30 June 2014

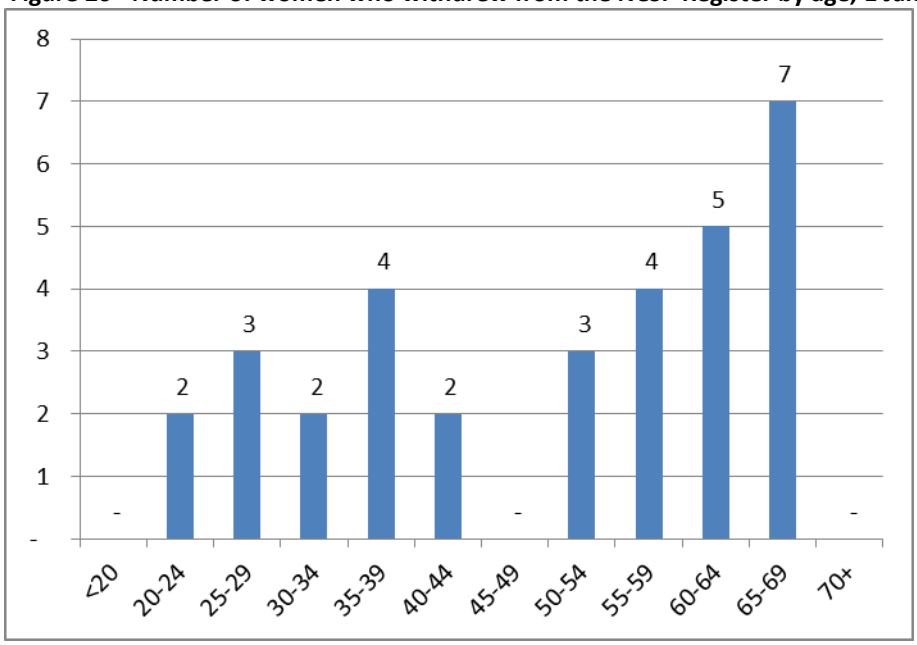
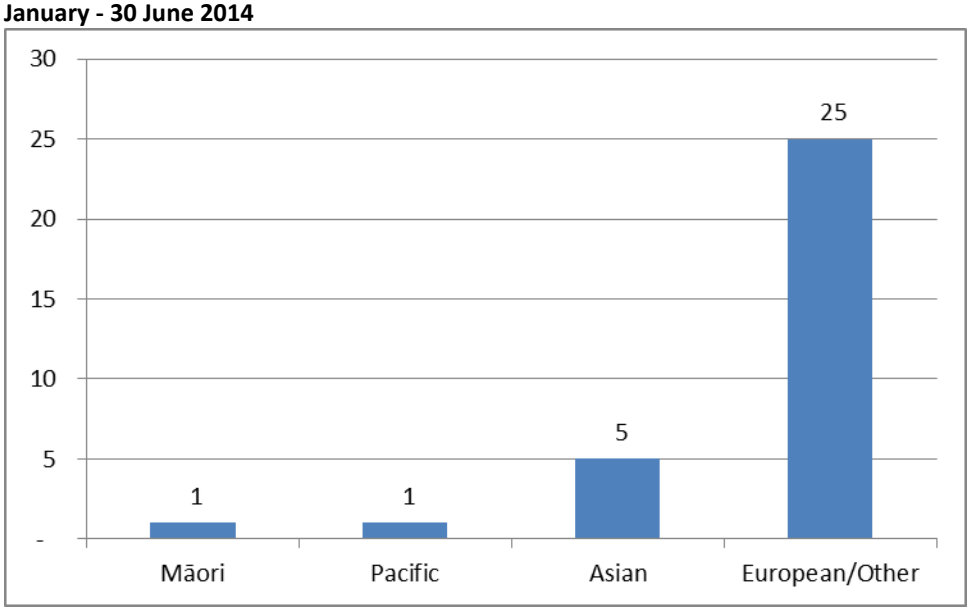


Figure 27 - Number of women (aged 20-69 years) who withdrew from the NCSP Register by ethnicity, 1 January - 30 June 2014



Indicator 4 – Early re-screening

Definition

The proportion of women who returned for a smear within 30 months (2.5 years) of their index smear is calculated for a cohort of women. The cohort comprises women with an index smear taken between 1 August 2011 – 31 September 2011 (inclusive), who i) were aged 20 – 66 years at the time the smear was taken (and hence remained within the screening target age throughout the period); and ii) were given a recommendation to return at the regular interval of three years as a result of their smear in August/September 2010 (NZ Modified Bethesda code R1). Using this method of calculating the measure allows follow-up to be considered over 30 months for every individual woman.

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 30 June 2014).

Target

A target has not yet been set for this cohort-based calculation method. This method of calculation will result in a higher value than the old interval-based method, because all women are followed over the same length of time (30 months). A more detailed discussion of the reasons for this, and the rationale for the cohort-based method, can be found in Monitoring Report 30.

Current Situation

There were 45,477 women who had a smear taken in August or September 2011, were aged between 20-66 years at the time of their smear, and were given a recommendation to return for their next smear at the routine interval of three years. Among these women, 7,661 (16.8%) had at least one subsequent smear in the following 30 months.

There was wide variation in early re-screening by DHB. Early re-screening was most common in Waitemata (23.8%) and Wairarapa (21.5%), and was least common in Mid Central (10.1%) (Figure 28, Table 51).

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 (22.6%), and older women (aged 65-69 years) were the least likely to be re-screened early (12.5%) (Figure 29, Table 52). Rates of early re-screening are very similar across the six year age groups from 30 to 59 years.

Among the ethnic groups considered, Asian and European/ Other women were the most likely to be re-screened early (17.3%). Early re-screening was least common among Pacific women (12.2%) (Figure 30, Table 52 - Early re-screening by five-year age group

Age	Women recommended	Women with >= 1 subsequent test

	to return in 3 yrs	N	%
20-24	1,274	288	22.6
25-29	3,877	748	19.3
30-34	4,383	798	18.2
35-39	5,092	884	17.4
40-44	6,264	1,083	17.3
45-49	6,144	1,070	17.4
50-54	6,197	1,050	16.9
55-59	5,058	785	15.5
60-64	4,046	561	13.9
65-69	3,142	394	12.5
All ages	**45,477**	**7,661**	**16.8**

Table 53).

Trends

The level of early re-screening (16.8%) is lower than in the previous monitoring report (18.5%).

DHBs with the lowest and highest levels of early re-screening are largely unchanged since the previous report. Rates of early re-screening have decreased in most DHBs. Increases were generally small or in DHBs with comparatively low levels of early re-screening; exceptions to this were Canterbury, Northland and Wairarapa. Longer terms trends by DHB are shown in Figure 31.

Early re-screening has reduced among all age groups. Longer terms trends by age are shown in Figure 32.

Early re-screening has decreased in all ethnic groups.

Comments

Early re-screening was assessed based on cytology recommendation codes, in order to exclude from the early re-screening group women with a negative smear for whom an earlier screening visit is appropriate. Thus, only women with a recommendation that their next screening visit be in three years were eligible for inclusion in the early re-screening group (that is, in both the numerator and the denominator). Women excluded from the early re-screening group would include those who had just had their first smear or their first smear after a period of time (NCSP policy is to recommend a one year follow-up), women with atrophic changes for whom a repeat after oestrogen is recommended, women with an abnormal history or clinical symptoms, and those already under specialist care. Prior to Report 30, calculation of this indicator 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 28 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB

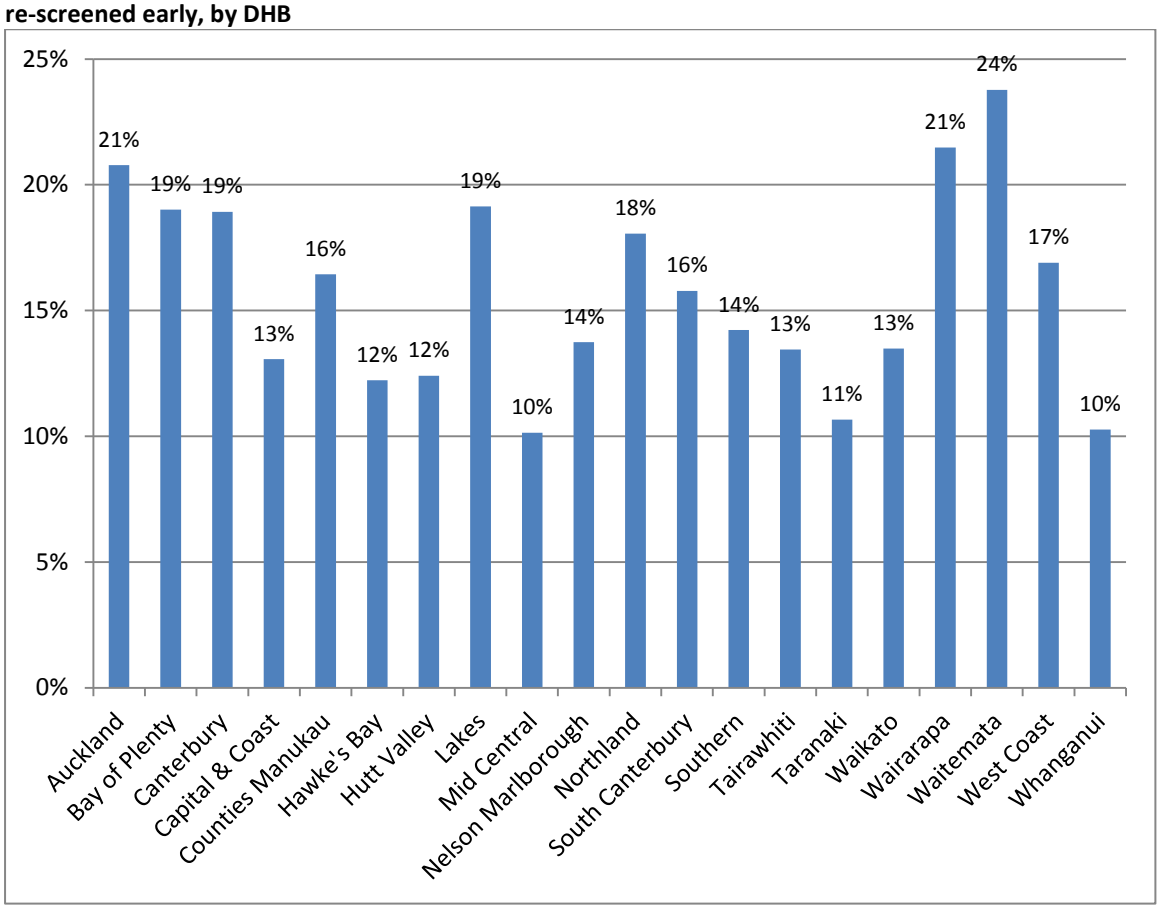


Figure 29 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by five-year age group

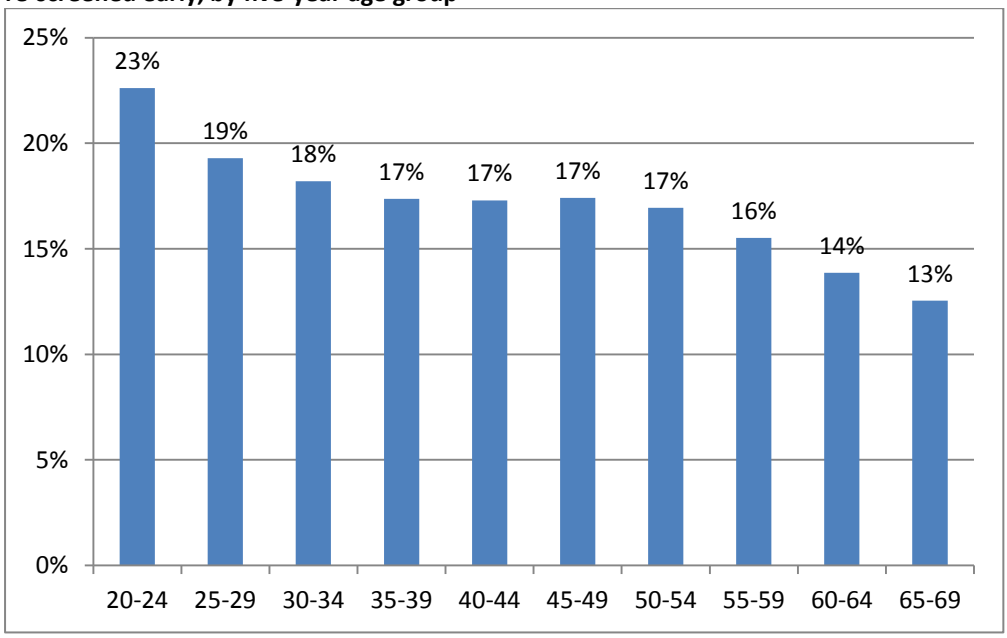


Figure 30 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by ethnicity

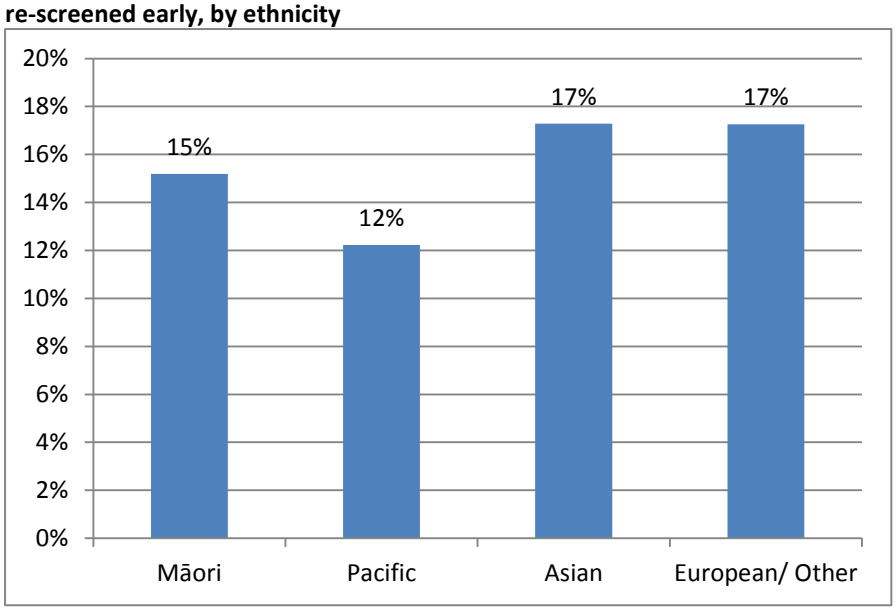


Figure 31 – Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB

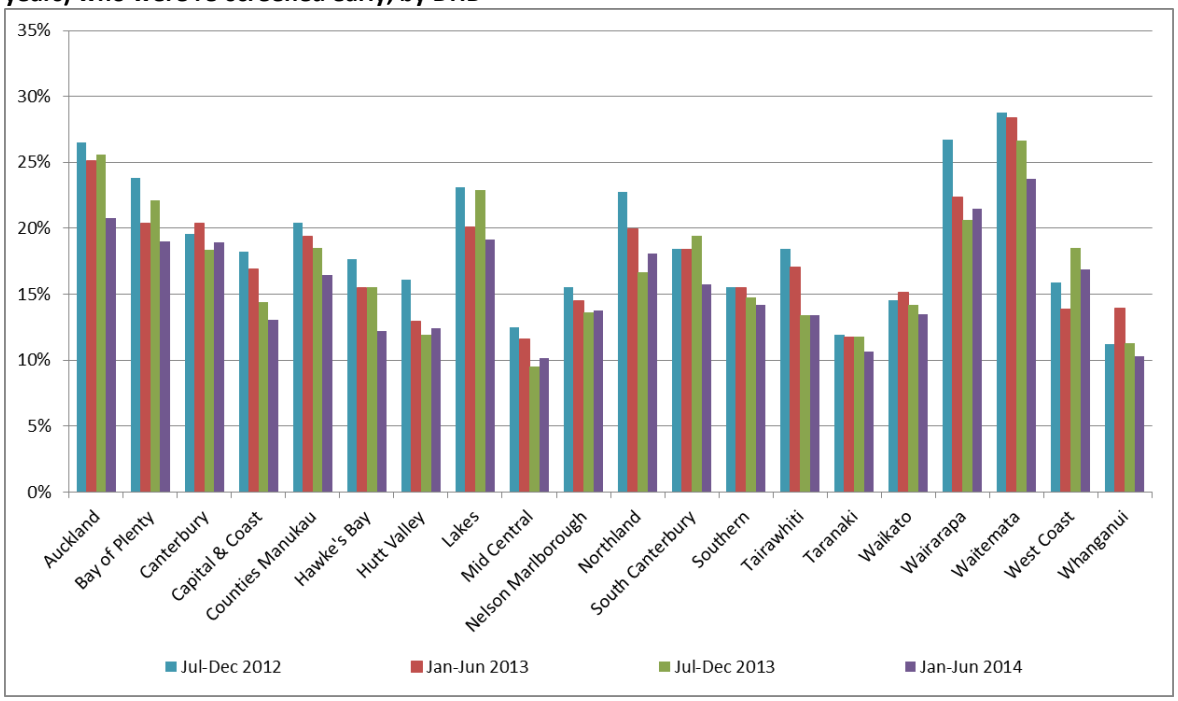
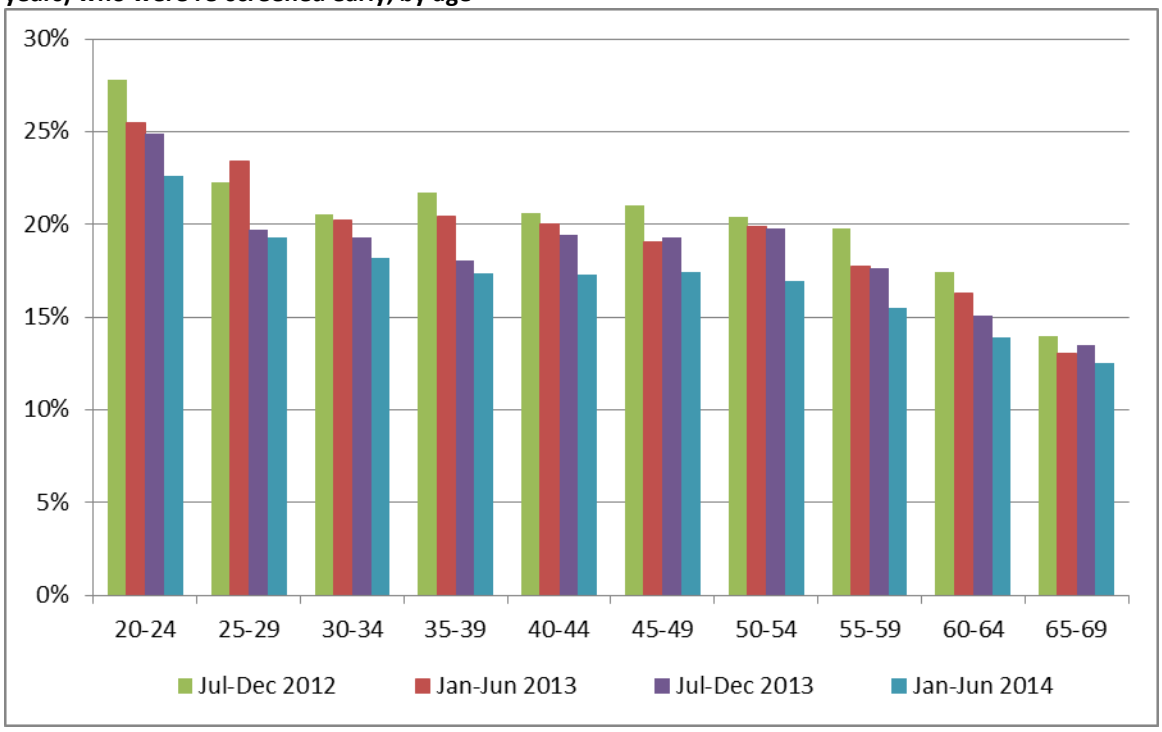


Figure 32 - Trends in the proportion of women recommended to return at the routine interval (three years) who were re-screened early, by age



Indicator 5 – Laboratory indicators

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

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

Indicator 5.1 – Laboratory cytology reporting

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

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

Definition	Bethesda codes used are provided in Appendix B. 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	0.1 - 3% of LBC samples reported as unsatisfactory No more than 96% of satisfactory samples reported as negative No more than 10% of satisfactory samples reported as abnormal No less than 0.5% of satisfactory samples reported as HSIL (Bethesda HS1 or HS2)
Current Situation	Seven laboratories reported on cytology taken during the current reporting period, the same number as in the previous reporting period. A total of 211,259 cytology samples were taken, over 99.9% of which were liquid-based cytology (LBC), 0.04% were conventional cytology, and 0.002% were a combination of the two (Table 1). Aotea Pathology Ltd, Diagnostic Medlab Ltd, Medlab Central Ltd and Pathlab processed only LBC samples during this reporting period. In the remaining labs, the number of samples where conventional cytology was used (exclusively, or in conjunction with LBC) was one in Canterbury Health Laboratories four in LabPLUS, but ranged up to 80 in Southern Community Labs (Table 1).

Unsatisfactory cytology

2,609 cytology samples (1.2%) were unsatisfactory. These are reported in more detail in Table 2 and Table 4. The remaining satisfactory samples are reported on in more detail in Table 3, and Table 5 to Table 8.

Nationally, the unsatisfactory rate for LBC was 1.2%. Six of the seven laboratories had unsatisfactory rates within the target range for LBC (Figure 33, Table 4).

Negative cytology reports

92.4% of cytology results were negative, consistent with the target of no more than 96% (Table 8). The proportion of samples which were negative varied by laboratory from 63.6% (LabPLUS) to 95.6% (Southern Community Labs). All seven laboratories met the target of no more than 96%.

Abnormal cytology reports

The proportion of samples which were abnormal (7.6%) also fell within the recommended range of no more than 10% (Figure 35, Table 3). This varied widely by laboratory however, from 4.4% (Southern Community Labs) to 36.4% (LabPLUS). Three laboratories exceeded the target (Canterbury Health Laboratories 10.5%, LabPLUS 36.4% and Medlab Central Ltd 10.8%).

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

HSIL cytology reports

Overall, 0.9% of satisfactory cytology samples were HSIL, consistent with the target of at least 0.5% of samples (Figure 36, Table 6). Rates varied by laboratory from 0.4% (Aotea Pathology Ltd) to 3.4 % (LabPLUS). Six of seven laboratories met the HSIL target (Figure 36, Table 6).

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

In the current report we additionally examined age-standardised rates of HSIL cytology reports. This was done to partially account for different rates which may arise in different labs due to differences in the age of the population whose cytology tests they process and over time. The age-standardised HSIL rates were very similar to the crude rates, both nationally and within each laboratory, but tended to be slightly lower (Table 54).

Trends

Unsatisfactory cytology

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

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

Negative vs abnormal cytology reports

The proportion of satisfactory cytology samples which are negative (92.4%) is broadly similar to that in the previous reporting period (92.2%), and correspondingly the proportion of cytology samples reported as abnormal (7.6%) is also similar to the previous reporting period (7.8%). As in the previous reporting period, all laboratories met the target for negative cytology. The number of laboratories with abnormal cytology rates above the target range has increased from two to three.

HSIL cytology reports

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

Longer term trends in the proportion of satisfactory cytology samples reported as HSIL (HSIL reporting rate) are shown in Figure 37 and Figure 38 (trends by age) and Figure 39 (trends by laboratory). Figure 37 and Figure 39 show trends over the last four monitoring report periods (two years), consistent with other trends presented in this report. Figure 38 shows longer term trends (July 2008- June 2014) in HSIL reporting rates in women aged under 40 years, compared to the overall HSIL reporting rate in women of all ages. The younger age groups in this figure would be the first to be potentially affected by HPV vaccination (the oldest birth cohorts eligible for vaccination through the publicly funded program would be aged up to 24 years at the time of the current reporting period). HSIL reporting rates in women aged 20-24 years had been increasing prior to 2013, however a fall was observed in the previous two monitoring periods; in the current report the rates remain very similar to those in the previous monitoring report (Report 40). HSIL reporting rates in women aged less than 20 years are quite variable; this is likely to be because far fewer women of this age group attend for screening, since routine screening is not recommended for women aged less than 20 years.

Comments

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

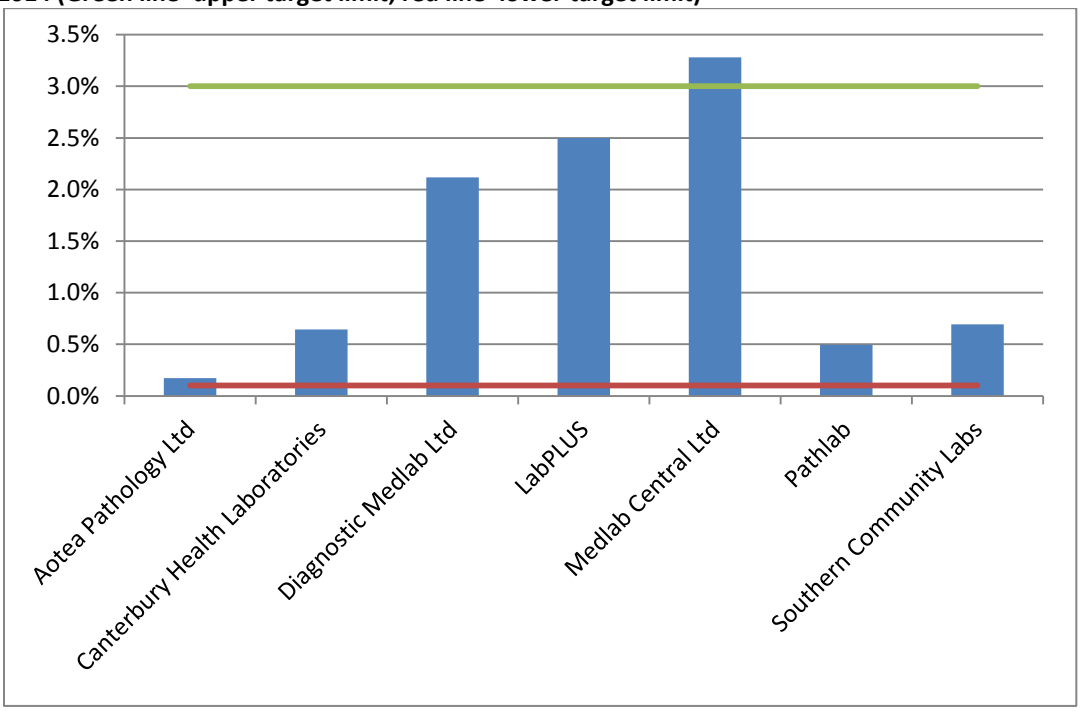
Workloads for laboratories may be regional or nationwide, and as a result, it is not always straightforward to determine the catchment population for a laboratory. Rates of negative and abnormal results for individual laboratories therefore need to be interpreted with some care, to allow for this difference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

The national Human Papillomavirus (HPV) Immunisation Programme was introduced in New Zealand in September 2008, and involves routine vaccination of girls 12-13 years and catch-up vaccination has previously been offered to young women born in 1990 or later. International and New Zealand data indicate that many high grade squamous cytology reports are associated with HPV types which are potentially preventable by vaccination,[7-10] and that this is particularly true for younger women.[7, 11-13] It is anticipated that data will also soon be available from New Zealand to further quantify the potential impact of the Human Papillomavirus Immunisation Programme in New Zealand. As vaccinated cohorts enter the screening programme, it is anticipated that the proportion of satisfactory cytology samples reported as HSIL will gradually reduce, and that this will occur in younger age groups first (the oldest birth cohorts eligible for vaccination through the publicly funded program would be aged up to 24 years at the time of the current reporting period). Therefore, trends in the proportion of satisfactory cytology samples reported as HSIL by age are included in these monitoring reports, in order to monitor the impact of HPV vaccination over time. At the current time, it is not possible to present HSIL rates separately for vaccinated and unvaccinated women, because information relating to whether or not individual women have been vaccinated is not available on the NCSP Register. These data therefore need to be interpreted with some care, as they include results in all women, both vaccinated and unvaccinated.

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

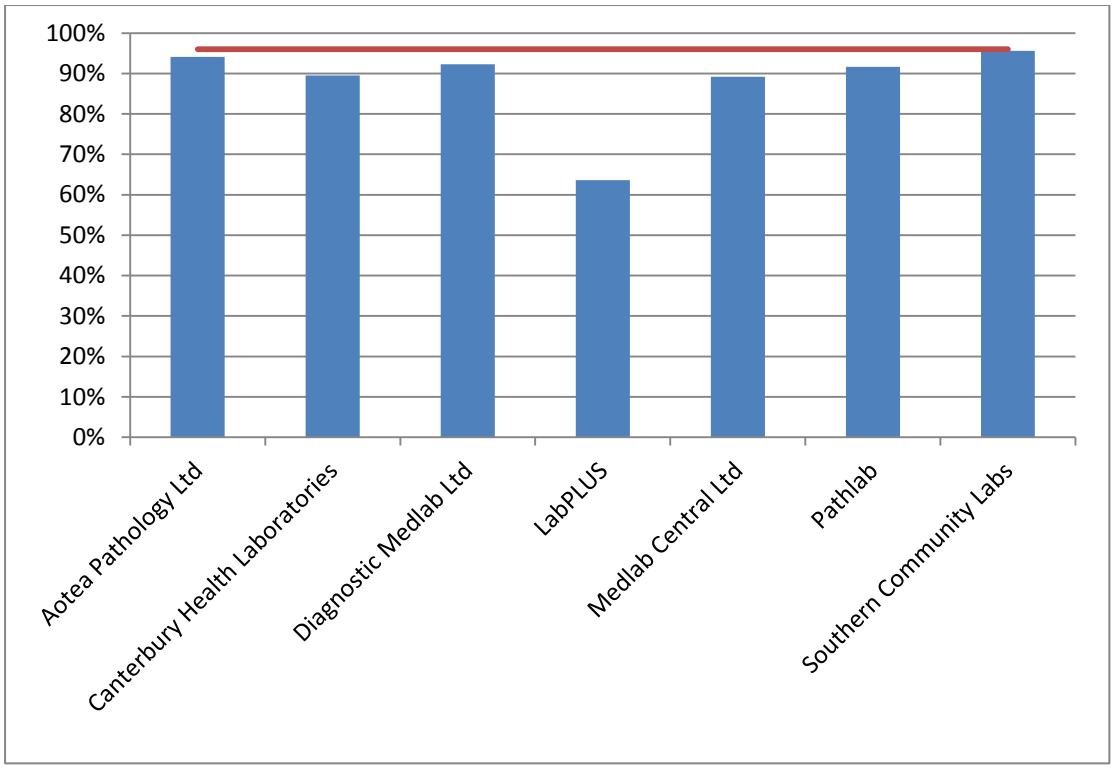
Data entry errors may be the cause of the remaining cytology tests which still appear to have involved conventional cytology only. The number of these tests is very small (81 tests; 0.04% of all samples taken during this period; virtually all at Southern Community Labs).

Figure 33 - Proportion of total LBC samples reported as unsatisfactory by laboratory, 1 January - 30 June 2014 (Green line=upper target limit; red line=lower target limit)



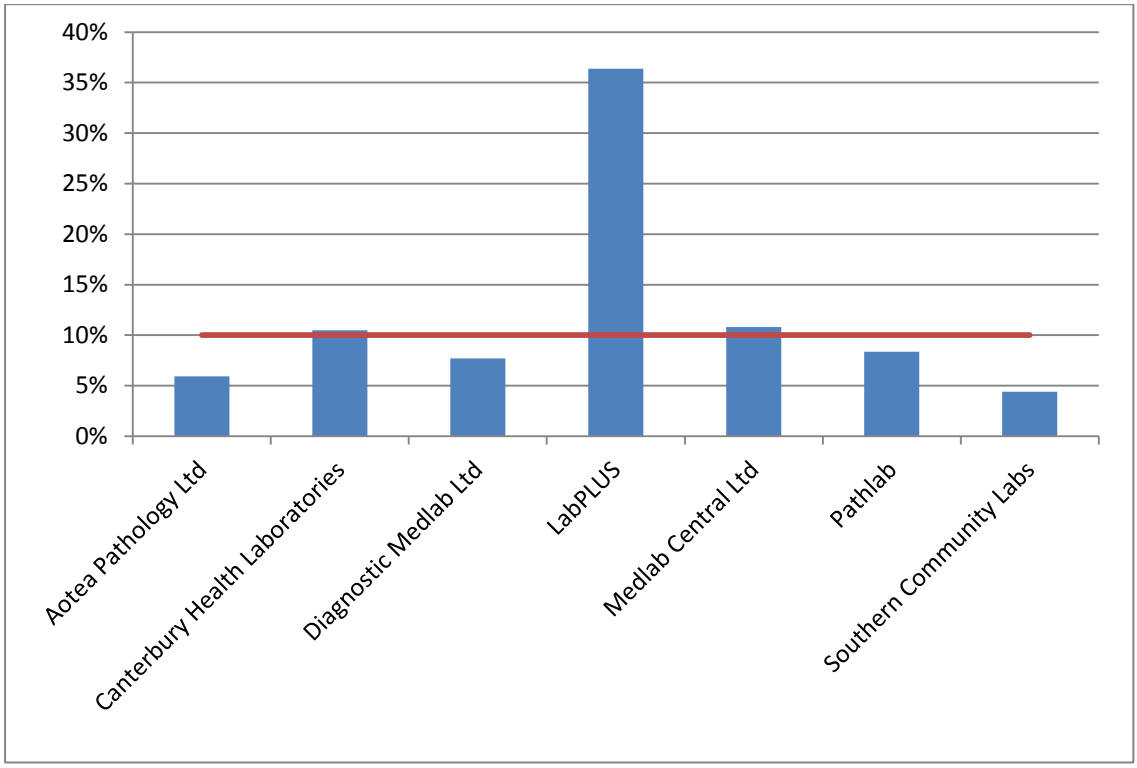
Target for LBC: 0.1-3.0%

Figure 34 - Proportion of total satisfactory samples reported as negative by laboratory, 1 January - 30 June 2014



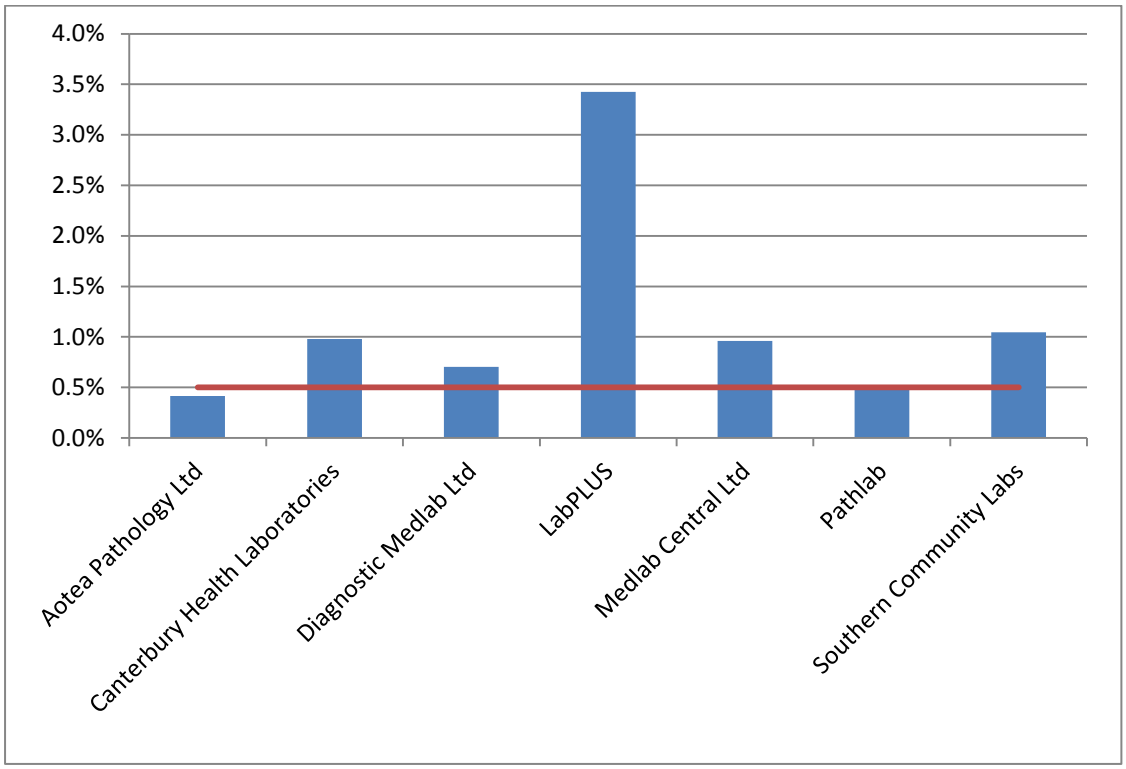
Note: Line shows negative target of no more than 96%

Figure 35 - Proportion of total satisfactory samples reported as abnormal by laboratory, 1 January - 30 June 2014



Note: Line shows abnormal target no more than 10%

Figure 36 - Proportion of total satisfactory samples reported as HSIL by laboratory, 1 January - 30 June 2014



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

Table 1 - Laboratory cytology reporting by type of cytology sample (1 January - 30 June 2014)

Organisation	All samples	By cytology specimen type					
		LBC		Conventional		Combined	
	N	N	%	N	%	N	%
Aotea Pathology Ltd	21,958	21,958	100.00	0	-	0	-
Canterbury Health Laboratories	11,624	11,623	99.99	1	0.01	0	-
Diagnostic Medlab Ltd	53,351	53,351	100.00	0	-	0	-
LabPLUS	6,646	6,642	99.94	0	-	4	0.06
Medlab Central Ltd	16,560	16,560	100.00	0	-	0	-
Pathlab	22,044	22,044	100.00	0	-	0	-
Southern Community Labs	79,076	78,995	99.90	80	0.10	1	-
Total	**211,259**	**211,173**	**99.96**	**81**	**0.038**	**5**	**0.0024**

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

Table 2 - Satisfactory and unsatisfactory cytology reporting by laboratory (1 January - 30 June 2014)

Laboratory	All Samples	Satisfactory		Unsatisfactory	
	N	N	%	N	%
Aotea Pathology Ltd	21,958	21,920	99.8	38	0.2
Canterbury Health Laboratories	11,624	11,549	99.4	75	0.6
Diagnostic Medlab Ltd	53,351	52,222	97.9	1,129	2.1
LabPLUS	6,646	6,480	97.5	166	2.5
Medlab Central	16,560	16,017	96.7	543	3.3
Pathlab	22,044	21,935	99.5	109	0.5
Southern Community Labs	79,076	78,527	99.3	549	0.7
Total	**211,259**	**208,650**	**98.8**	**2,609**	**1.2**

See also Table 4

Table 3 - Laboratory cytology reporting by general result (1 January - 30 June 2014) – percentage of satisfactory samples

Laboratory	Negative		Abnormal	
	N	%	N	%
Aotea Pathology Ltd	20,624	94.1	1,296	5.9
Canterbury Health Laboratories	10,337	89.5	1,212	10.5
Diagnostic Medlab Ltd	48,209	92.3	4,013	7.7
LabPLUS	4,123	63.6	2,357	36.4
Medlab Central Ltd	14,289	89.2	1,728	10.8
Pathlab	20,102	91.6	1,833	8.4
Southern Community Labs	75,068	95.6	3,459	4.4
Total	**192,752**	**92.4**	**15,898**	**7.6**

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

Table 4 - Laboratory reporting of unsatisfactory results by type of cytology sample (1 January - 30 June 2014)

Laboratory	Conventional			LBC			Combined			TOTAL		
	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%
Aotea Pathology Ltd	-	-	-	38	21,958	0.2	-	-	-	38	21,958	0.2
Canterbury Health Laboratories	-	1	0.0	75	11,623	0.6	-	-	-	75	11,624	0.6
Diagnostic Medlab Ltd	-	-	-	1,129	53,351	2.1	-	-	-	1,129	53,351	2.1
LabPLUS	-	-	-	166	6,642	2.5	-	4	0.0	166	6,646	2.5
Medlab Central Ltd	-	-	-	543	16,560	3.3	-	-	-	543	16,560	3.3
Pathlab	-	-	-	109	22,044	0.5	-	-	-	109	22,044	0.5
Southern Community Labs	1	80	1.3	548	78,995	0.7	-	1	0.0	549	79,076	0.7
Total	**1**	**81**	**1.2**	**2,608**	**211,173**	**1.2**	**-**	**5**	**0.0**	**2,609**	**211,259**	**1.2**

Target unsatisfactory: 0.1-3% LBC. Unsatisfactory rates for conventional and combined cytology samples were not calculated for individual laboratories due to the small number of samples.

Table 5 - Laboratory cytology reporting by cytological category (1 January - 30 June 2014) – counts

	Result									
Laboratory	**Negative**	**ASC-US**	**LSIL**	**ASC-H**	**HSIL**	**SC**	**AGC/ AIS**	**Adeno-carcinoma**	**Malignant Neoplasm**	**Total**
Aotea Pathology Ltd	20,624	482	614	95	91	1	12	1	-	21,920
Canterbury Health Laboratories	10,337	302	687	104	113	2	3	1	-	11,549
Diagnostic Medlab Ltd	48,209	1,258	2,028	301	368	3	47	8	-	52,222
LabPLUS	4,123	807	909	382	222	1	34	1	1	6,480
Medlab Central Ltd	14,289	687	732	130	154	3	15	6	1	16,017
Pathlab	20,102	657	889	143	110	3	25	6	-	21,935
Southern Community Labs	75,068	575	1,767	207	821	11	61	16	1	78,527
Total	**192,752**	**4,768**	**7,626**	**1,362**	**1,879**	**24**	**197**	**39**	**3**	**208,650**

Table 6 - Laboratory cytology reporting by cytological category (1 January - 30 June 2014) - 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	2.2	2.8	0.4	0.4	<0.005	0.05	<0.005	-
Canterbury Health Laboratories	89.5	2.6	5.9	0.9	1.0	0.02	0.03	0.01	-
Diagnostic Medlab Ltd	92.3	2.4	3.9	0.6	0.7	0.01	0.09	0.02	-
LabPLUS	63.6	12.5	14.0	5.9	3.4	0.02	0.52	0.02	0.02
Medlab Central Ltd	89.2	4.3	4.6	0.8	1.0	0.02	0.09	0.04	0.01
Pathlab	91.6	3.0	4.1	0.7	0.5	0.01	0.11	0.03	-
Southern Community Labs	95.6	0.7	2.3	0.3	1.0	0.01	0.08	0.02	<0.005
Total	**92.4**	**2.3**	**3.7**	**0.7**	**0.9**	**0.01**	**0.09**	**0.02**	**<0.005**

Target: HSIL ≥ 0.5% reported as HSIL

Table 7 - Laboratory reporting of cytological category by five-year age group (1 January - 30 June 2014) – counts

Age Group	Cytology Result									Total
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	
<20	1,066	63	185	11	21	-	-	-	-	1,346
20-24	21,964	1,041	2,632	341	455	-	11	-	-	26,444
25-29	20,214	707	1,286	298	452	1	16	-	1	22,975
30-34	20,903	522	788	208	306	1	19	-	-	22,747
35-39	20,987	443	597	116	220	1	20	1	-	22,385
40-44	23,360	504	599	129	158	-	17	4	-	24,771
45-49	21,881	461	498	73	81	3	26	-	-	23,023
50-54	20,698	430	393	66	69	6	23	4	-	21,689
55-59	16,866	247	282	46	45	2	19	5	-	17,512
60-64	13,120	193	201	39	39	2	14	7	1	13,616
65-69	9,925	123	112	19	23	2	12	6	-	10,222
70+	1,765	32	53	16	10	6	20	12	1	1,915
Total	**192,749**	**4,766**	**7,626**	**1,362**	**1,879**	**24**	**197**	**39**	**3**	**208,645**

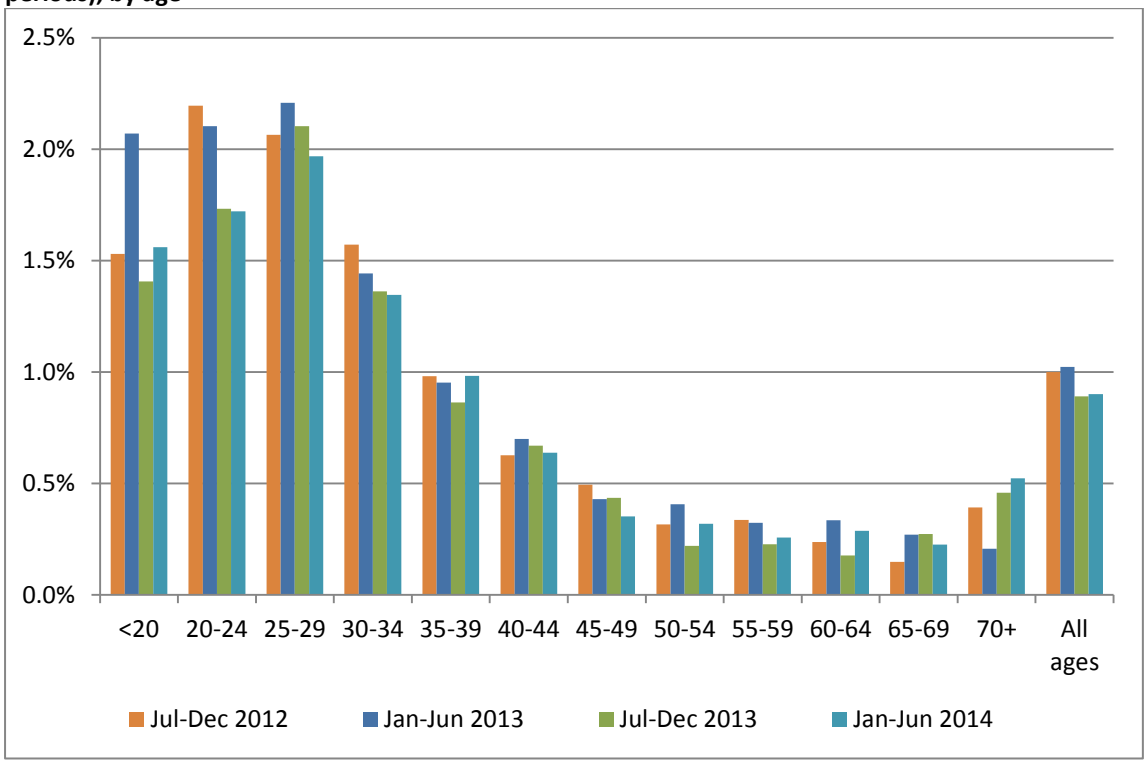
Note: Excludes five cytology tests (three negative,two ASC-US) for which the age of the woman could not be determined, as date of birth information was missing in the NCSP Register.

Table 8 - Laboratory reporting of cytological category by five-year age group (1 January - 30 June 2014) - percentage of all satisfactory samples in women that age group

Age Group	Cytology Result (Percentage of Age Group Total)								
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm
<20	79.2	4.7	13.7	0.8	1.6	-	-	-	-
20-24	83.1	3.9	10.0	1.3	1.7	-	0.04	-	-
25-29	88.0	3.1	5.6	1.3	2.0	<0.005	0.07	-	<0.005
30-34	91.9	2.3	3.5	0.9	1.3	<0.005	0.08	-	-
35-39	93.8	2.0	2.7	0.5	1.0	<0.005	0.09	<0.005	-
40-44	94.3	2.0	2.4	0.5	0.6	-	0.07	0.02	-
45-49	95.0	2.0	2.2	0.3	0.4	0.01	0.11	-	-
50-54	95.4	2.0	1.8	0.3	0.3	0.03	0.11	0.02	-
55-59	96.3	1.4	1.6	0.3	0.3	0.01	0.11	0.03	-
60-64	96.4	1.4	1.5	0.3	0.3	0.01	0.10	0.05	0.01
65-69	97.1	1.2	1.1	0.2	0.2	0.02	0.12	0.06	-
70+	92.2	1.7	2.8	0.8	0.5	0.31	1.04	0.63	0.05
Total	**92.4**	**2.3**	**3.7**	**0.7**	**0.9**	**0.01**	**0.09**	**0.02**	**<0.005**

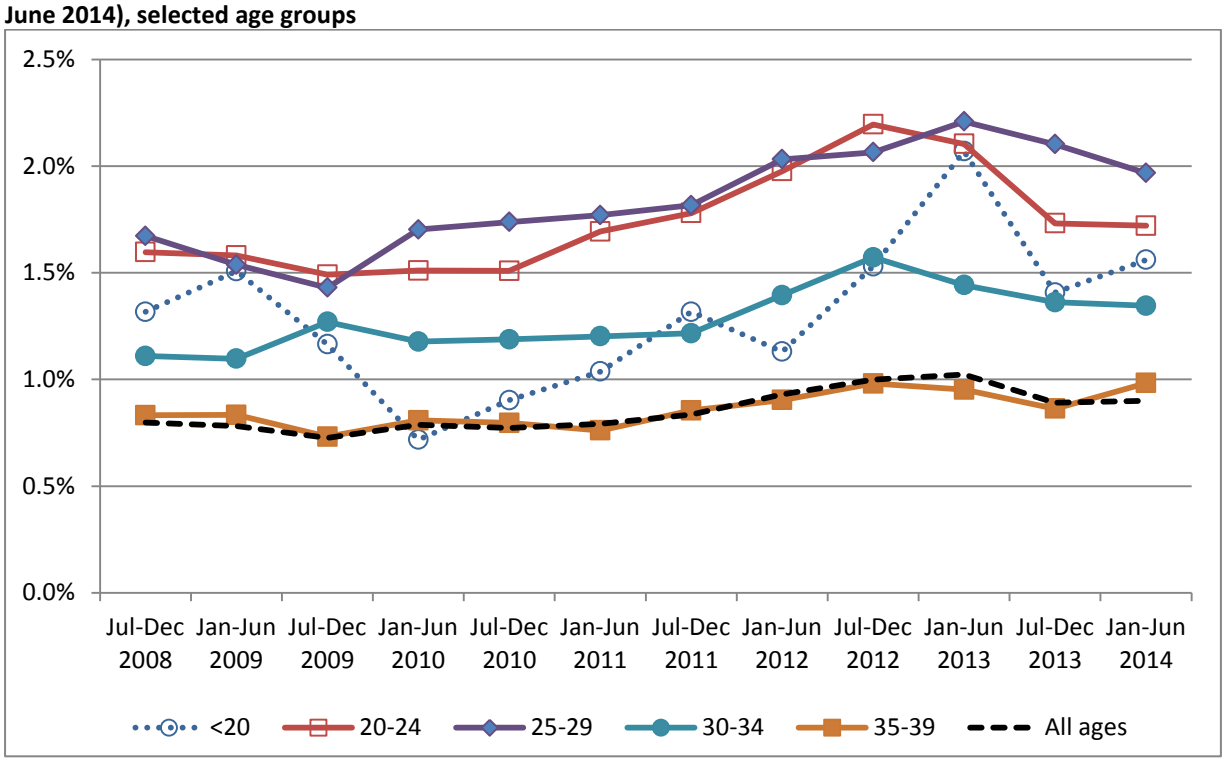
Note: Excludes five cytology tests (three negative,two ASC-US) for which the age of the woman could not be determined, as date of birth information was missing in the NCSP Register.

Figure 37 – Trends in the proportion of total satisfactory samples reported as HSIL (last four reporting periods), by age



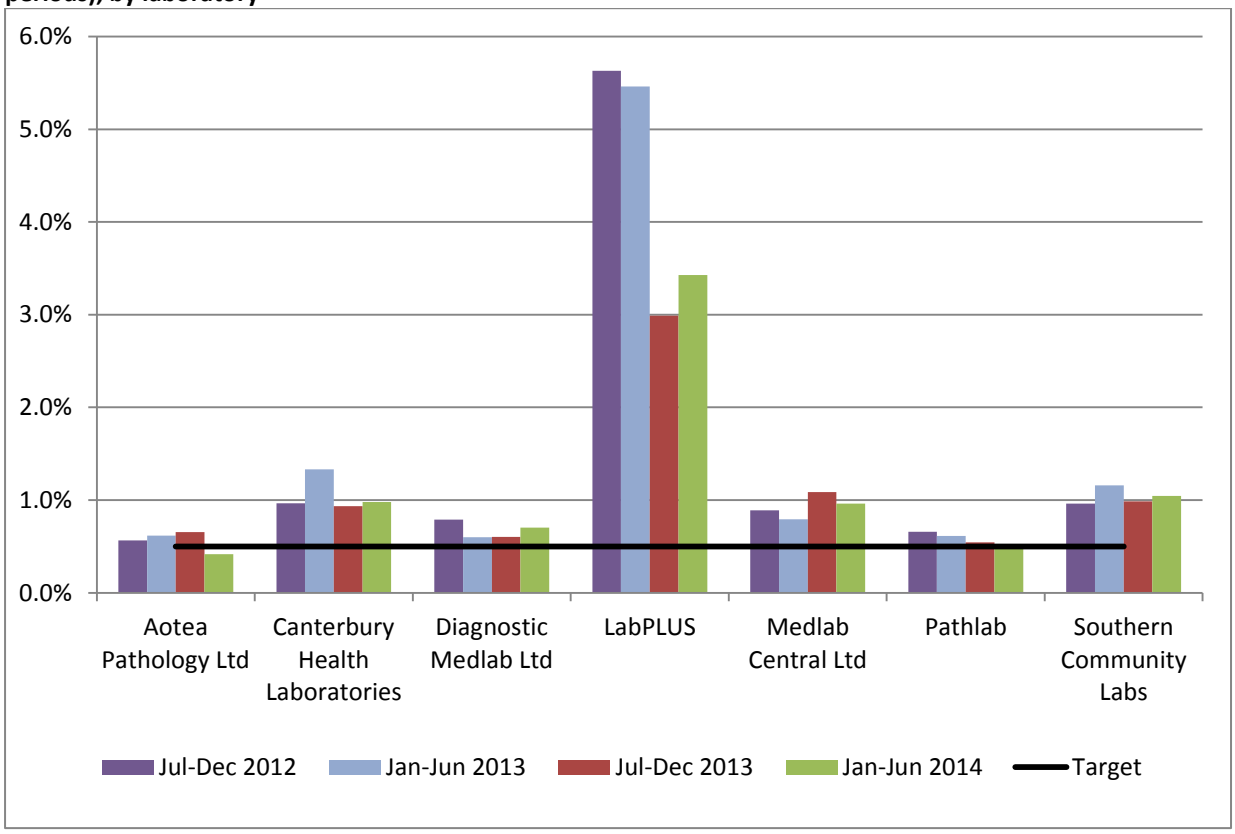
Note: women aged less than 20 years are not routinely screened

Figure 38 – Longer term trends in the proportion of total satisfactory samples reported as HSIL (July 2008 – June 2014), selected age groups



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

Figure 39 – Trends in the proportion of total satisfactory samples reported as HSIL (last four reporting periods), 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 or invasive squamous carcinoma (HSIL+SC) 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 [Status] 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*** 1,702 women with HSIL or SC cytology reports were identified. 117 of these women (6.9%) had no histology taken in the period from five days prior to six months after the cytology sample was taken. Among the remaining 1,585 women for whom there was histology, 1,330 (83.9%) had their HSIL or SC cytology report confirmed by histology (Figure 40, Table 55). All laboratories achieved the minimum target of at least 65% of cytological HSIL+SC being confirmed by histology. Two of the eight laboratories exceeded 85% of HSIL+SC being histologically confirmed (Figure 40, Table 55). ***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*** 1,122 women with a cytology report of ASC-H were identified. 230 (20.5%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 892 women, 395 (44.3%) were histologically confirmed as high grade. This proportion varied by laboratory, from 35.1% (Diagnostic Medlab Ltd) to 60.5% (Southern Community Labs) (Figure 41, Table 56).

ASC-H+HSIL+SC

A total of 2,824 women had a cytology report of ASC-H, HSIL or SC. 347 (12.3%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 2,477 women, 1,725 (69.6%) were histologically confirmed as high grade. This proportion varied by laboratory, from 60.6% (Diagnostic Medlab Ltd) to 84.3% (Southern Community Labs). The combined positive predictive value across the 2,824 women with ASC-H, HSIL, and SC and histology available is shown in Figure 41 and Table 57.

Glandular abnormalities

236 women with a glandular abnormality (AG1-AG5, AIS, AC1-AC4) were identified. 70 women (29.7%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 166 women, 81 (48.8%) were identified as having high grade histology. This was not analysed further, as the number of samples reported on by many laboratories was too small to be meaningful.

Trends

HSIL+SC

Positive predictive value for HSIL and SC cytology has increased since the previous monitoring report (82.0% in the previous period; 83.9% 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 zero to two. The proportion of cytology reports with histology available following HSIL or SC results is similar (93.5% in the previous report; 93.1% in the current report).

ASC-H

Positive predictive value for ASC-H cytology has decreased, from 44.9% to 44.3%, however there is no target for this measure. The proportion of cytology reports with histology available has decreased somewhat for ASC-H (from 81.8% to 79.5%).

ASC-H+HSIL+SC

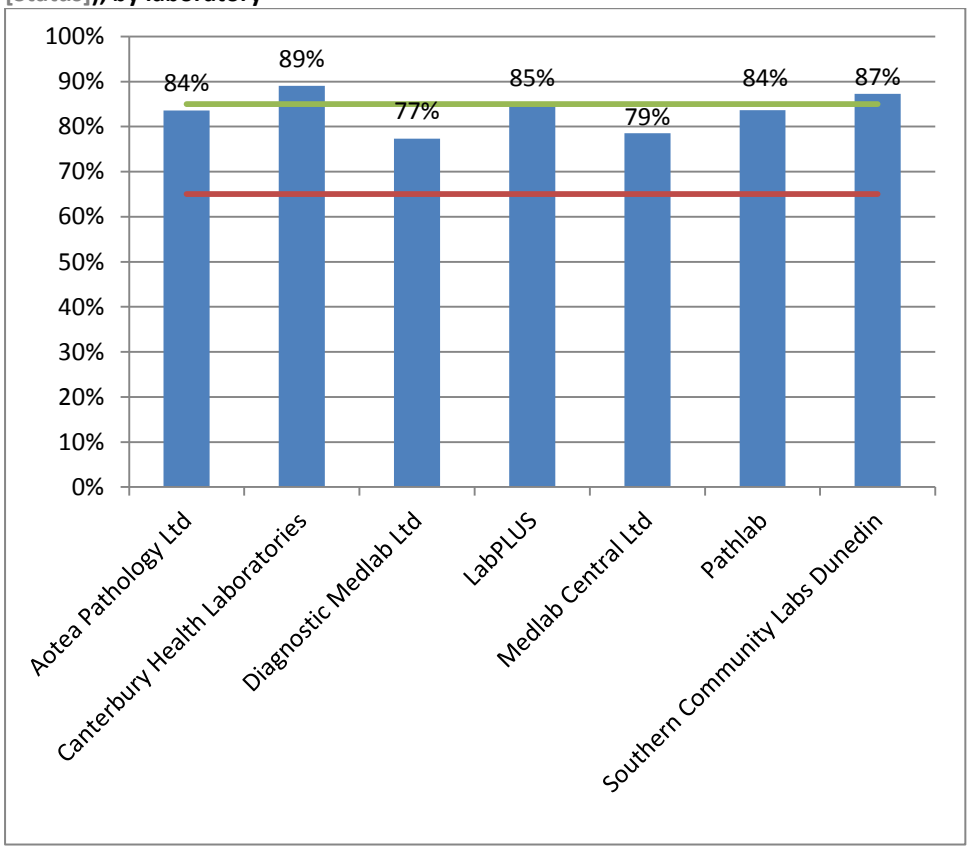
The positive predictive value for the combined group ASC-H, HSIL and SC has increased in the current report (69.6%) compared to the previous report (68.9%), however there are no targets for the positive predictive value of the combined group of ASC-H, HSIL and SC.

Glandular abnormalities

The positive predictive value of glandular abnormalities increased (from 47.8% in the previous report to 48.8% in the current report). Compared to both ASC-H cytology, and the combined group of HSIL and SC cytology, there are far

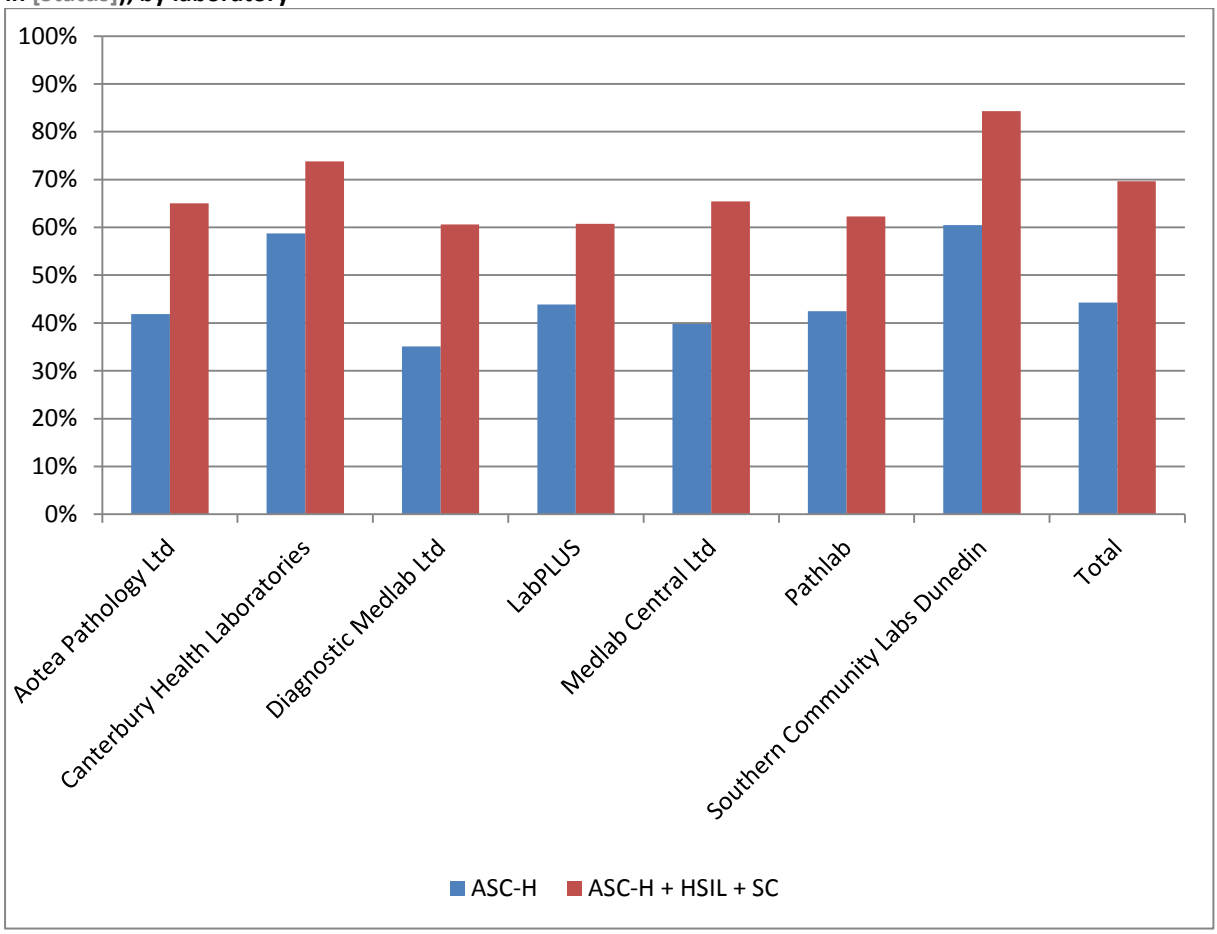
	fewer glandular abnormalities, and an even smaller number with histology available. The proportion of glandular abnormalities with histology available (70.3%) is lower than that in the previous reporting period (71.7%), and remains less than that for ASC-H (79.5%) and HSIL + SC (93.1%). Due to the small 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 are available on the NCSP Register, it may be possible to better distinguish between these two possibilities. The calculations also do not discriminate between cytology taken as a screening or diagnostic test. This may be a contributing factor for some laboratories with a PPV which is higher than the upper end of the target range, particularly where the colposcopically-directed cytology and corresponding histology are reported by the same laboratory as best management practice. Analysis separating community- vs clinic-derived cytology would provide a clearer picture of positive predictive value (and other reporting categories) in a screening setting.

Figure 40 - Positive predictive value for CIN2+ in women with HSIL or SC cytology reports (cytology in [Status]), by laboratory



Target: 65% - 85%

Figure 41 - Positive predictive value for CIN2+ in women with other high grade cytology results (cytology in [Status]), by laboratory



Indicator 5.3 – Accuracy of negative cytology reports

Definition	This indicator is under development and currently has two parts to its definition. 1. For women with a histological diagnosis of CIN2, CIN3, invasive SCC, AIS or invasive endocervical adenocarcinoma, the proportion of cytology slides originally reported within the preceding 42 months as negative, benign/reactive or unsatisfactory which on review are consistent with high grade or worse category (Standard 522). 2. The ability of a laboratory to correctly identify a negative sample. All cases with a high-grade/invasive diagnosis on histology (CIN2, CIN3, invasive SCC, AIS or invasive endocervical adenocarcinoma) must have a review of any cytology slides that have been reported as negative, benign/reactive or unsatisfactory in the previous 42 months. Any abnormality identified as high grade or worse on review of a previously reported negative or unsatisfactory cytology slide must be documented by the laboratory. Cumulative data must be forwarded to the National Screening Unit to help ensure the accuracy of submitted negative cytology reports.
Target	No more than 10% identified as HS1, HS2, SC, AIS or AC1-5 (HSIL+) on review. Aim for less than 15%, but not more than 20% identified as ASC-H, HS1, HS2, SC, AG4-5, AIS or AC1-5 (ASC-H +) on review.
Current Situation	This indicator is analysed annually. Data for women with a histological diagnosis of high-grade/invasive disease in the period 1 January – 31 December 2013 were provided in Report 40. This indicator will be provided in Report 42.
Comments	Labs are not identified within the Monitoring Report for this indicator.

Indicator 5.4 – Histology Reporting

Definition	The NCSP Register collects histology results of samples taken from the cervix and vagina. Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. All histology samples taken during this period were retrieved. Where a histology sample had more than one SNOMED code, or a woman had more than one histology result, the most serious (highest) ranked code was used (see Appendix C). Results are presented both according to the detailed SNOMED category, and by broader histology diagnostic category. The mapping between SNOMED codes and diagnostic category is detailed in Appendix C. Two versions of SNOMED are used by laboratories (1986 and 1993) depending on the laboratory software. The NCSP Register accepts both versions and for statistical purposes maps the 1986 codes to the 1993 codes. A woman's age is defined as her age at the end of the reporting period.
Target	None
Current Situation	13,515 histology samples were taken during the current reporting period. 488 (3.6%) of these were insufficient for diagnosis. The remaining 13,027 samples were taken from 11,438 women. Results for these women are reported on in detail in Table 9 to Table 12. The 488 samples which were insufficient for diagnosis were taken from 482 women, 58 (12.0%) of whom have a record of a subsequent histology test. Table 9 shows histology results by detailed SNOMED category, based on the most serious (highest) ranked result for each woman in the monitoring period. Tables 12-14 show histology results by broader histology diagnostic category. 51.4% of women with histology tests had negative or benign histology results (Table 9, Table 10). 21.6% of women had high grade squamous (CIN2/3) histology results. 39 (0.34%) women had histology results which were invasive squamous cell carcinoma (ISCC), seven (0.06%) which were microinvasive SCC, 28 (0.24%) which were invasive adenocarcinoma, three (less than 0.05%) which was adenosquamous carcinoma and 33 (0.29%) which were adenocarcinoma in situ. The age group with the largest number of women with histology samples was women aged 25-29 years (1,644 women, Table 11). Among women aged 20-69 years, the age group with the lowest rate of women with results which were negative or HPV only was women aged 20-24 years (34.2%, Table 12).

Trends	The proportion of women with negative or benign histology (51.4%) is very similar to that reported for the previous period (51.8%). The proportion of women with HSIL histology is also very similar in the current period (21.6%) to what it was in the previous period (21.3%). The proportions were very similar to those in the previous period for women with ISCC (0.34% this period and 0.42% last period), invasive adenocarcinoma (0.24% this period and 0.26% last period), and adenosquamous carcinoma (less than 0.05% in this period and last period). The proportion was lower for women with adenocarcinoma in situ (0.29% this period and 0.66% last period), however this follows an increase in Report 40.
Comments	Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. Histology samples may also include samples from non-cervical sites, where there is also a cervical component in the sample, for example endometrial samples. Also, pathologists are not always able to determine the site of origin particularly in small biopsies. These are likely to be contributing to the higher number of women with adenocarcinoma histology on the NCSP Register compared to the Cancer Registry.

Table 9 - Histology results reporting by SNOMED category

SNOMED category	Women with that diagnosis	
	N	%
Negative/normal	3,125	27.3
Inflamation	834	7.3
Microglandular hyperplasia	18	0.16
Squamous metaplasia	447	3.9
Atypia	167	1.5
HPV	906	7.9
Condyloma acuminatum	3	<0.05
Dysplasia/CIN NOS	53	0.46
CIN 1 (LSIL) or VAIN 1	1,813	15.9
CIN 2 (HSIL) or VAIN 2	838	7.3
CIN 3 (HSIL) or VAIN 3	1,492	13.0
HSIL not otherwise specified	137	1.2
Polyp	1,033	9.0
Other*	424	3.7
Microinvasive squamous cell carcinoma	7	0.06
Invasive squamous cell carcinoma	39	0.34
Benign glandular atypia	-	-
Glandular dysplasia	-	-
Adenocarcinoma in situ	33	0.29
Invasive adenocarcinoma†	28	0.24
Adenosquamous carcinoma	3	<0.05
Metastatic tumour	19	0.17
Undifferentiated carcinoma	1	<0.05
Sarcoma	3	<0.05
Carcinosarcoma	3	<0.05
Choriocarcinoma	-	-
Miscellaneous primary tumour	2	<0.05
Small cell carcinoma	2	<0.05
Malignant tumour, small cell type	-	-
Melanoma	1	<0.05
Other primary epithelial malignancy	7	0.06
Total	**11,438**	**100.0**

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

** Other morphologic abnormality, not dysplastic or malignant. † Includes no adenocarcinoma, endocervical type (SNOMED code M83843) and 28 adenocarcinoma, not endocervical type (M81403).*

Table 10 - Histology results reporting by diagnostic category

Histology diagnosis category	Women with that histology result	
	N	%
Negative/benign (non neoplastic)	5,881	51.4
HPV	909	7.9
CIN1	2,033	17.8
CIN2	838	7.3
CIN3	1,492	13.0
HSIL not otherwise specified	137	1.2
Microinvasive	7	0.06
Invasive squamous cell carcinoma	39	0.34
Glandular dysplasia	-	-
Adenocarcinoma in situ	33	0.29
Invasive adenocarcinoma†	28	0.24
Adenosquamous carcinoma	3	<0.05
Other cancer	38	0.33
Total	**11,438**	**100.0**

Details of mapping between SNOMED category and diagnostic category are included in Appendix C. HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C). † Includes no adenocarcinoma, endocervical type (SNOMED code M83843) and 28 adenocarcinoma, not endocervical type (M81403).

Table 11 - Histology results by age of woman – counts

Histology Diagnostic Category	Age group												
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Total
Negative/benign (non neoplastic)	15	387	427	484	566	916	972	811	490	324	238	251	5,881
HPV	4	162	156	139	98	126	93	60	37	18	11	5	909
CIN1	11	491	412	313	208	188	175	95	61	40	25	14	2,033
CIN2	6	246	205	133	93	67	39	24	10	6	6	3	838
CIN3	3	287	403	293	179	124	84	50	33	19	14	3	1,492
HSIL not otherwise specified	-	33	26	30	19	13	9	2	1	3	1	-	137
Microinvasive	-	-	1	-	2	1	-	-	-	1	1	1	7
Invasive squamous cell carcinoma	-	-	6	3	2	6	2	3	5	3	1	8	39
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	-	6	8	4	7	5	1	-	1	-	1	33
Invasive adenocarcinoma†	-	-	1	4	3	4	1	1	5	4	-	5	28
Adenosquamous carcinoma	-	1	-	-	-	-	-	-	1	-	-	1	3
Other cancer	-	-	1	1	1	1	1	3	5	5	6	14	38
Total	**39**	**1,607**	**1,644**	**1,408**	**1,175**	**1,453**	**1,381**	**1,050**	**648**	**424**	**303**	**306**	**11,438**

HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C) † Includes no adenocarcinoma, endocervical type (SNOMED code M83843) and 28 adenocarcinoma, not endocervical type (M81403)

Table 12 - Histology results by age of woman – percentages

Histology Diagnostic Category	Age group											
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
Negative/benign (non neoplastic)	38.5	24.1	26.0	34.4	48.2	63.0	70.4	77.2	75.6	76.4	78.5	82.0
HPV	10.3	10.1	9.5	9.9	8.3	8.7	6.7	5.7	5.7	4.2	3.6	1.6
CIN1	28.2	30.6	25.1	22.2	17.7	12.9	12.7	9.0	9.4	9.4	8.3	4.6
CIN2	15.4	15.3	12.5	9.4	7.9	4.6	2.8	2.3	1.5	1.4	2.0	1.0
CIN3	7.7	17.9	24.5	20.8	15.2	8.5	6.1	4.8	5.1	4.5	4.6	1.0
HSIL not otherwise specified	-	2.1	1.6	2.1	1.6	0.9	0.65	0.19	0.15	0.71	0.33	-
Microinvasive	-	-	0.06	-	0.17	0.07	-	-	-	0.24	0.3	0.3
Invasive squamous cell carcinoma	-	-	0.36	0.21	0.17	0.41	0.14	0.29	0.77	0.71	0.3	2.6
Glandular dysplasia	-	-	-	-	-	-	-	-	-	-	-	-
Adenocarcinoma in situ	-	-	0.36	0.57	0.34	0.48	0.36	0.10	-	0.24	-	0.33
Invasive adenocarcinoma†	-	-	0.06	0.28	0.26	0.28	0.07	0.10	0.77	0.94	-	1.6
Adenosquamous carcinoma	-	0.06	-	-	-	-	-	-	0.15	-	-	0.3
Other cancer	-	-	0.06	0.07	0.09	0.07	0.07	0.29	0.77	1.2	2.0	4.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

HSIL not otherwise specified = high grade squamous intraepithelial lesion, not otherwise specified/ CIN 2/3 (SNOMED code M67017; see Appendix C). † Includes no adenocarcinoma, endocervical type (SNOMED code M83843) and 28 adenocarcinoma, not endocervical type (M81403)

Indicator 5.5 - Laboratory turnaround times

Definition

Turnaround time is defined as the number of working days from the date a sample is received by a laboratory, and the date which it is reported to the smear-taker or colposcopist. For the purposes of this measure, samples received and reported on the same day are defined as having a turnaround time of one day.

Target

Cytology

Laboratories are required to report 90% of final gynaecological cytology results to smear-takers within seven working days of receipt of the sample and 98% within 15 working days (also Standard 513[14]).

Histology

Laboratories are required to report 90% of final histology results to referring colposcopists within ten working days of receipt of the sample and 98% of final histology results within 15 working days of receiving the sample (also Standard 516[14]).

Cytology with associated hrHPV testing

Laboratories are required to report 98% of final cytology test results (including those associated with HPV test) within 15 working days of receiving the sample. Here, the turnaround time is measured specifically for cytology where HPV testing is performed for low grade triage. Low grade triage is defined further in Indicator 8; here it relates to cytology samples *received at the laboratory* in the reporting period (as opposed to *samples collected* in the period, in Indicator 8). It is restricted to triage testing of women aged 30 years or more. These samples form a subset of those considered in the overall measure of turnaround time for cytology. Note that since reporting of cytology with adjunctive hrHPV testing requires that both test results be reported together (hrHPV test results must not be issued independently when adjunct to a cytology request), the turnaround time of the hrHPV test should not exceed that of the accompanying cytology.

Current Situation

Cytology

Seven laboratories received 210,713 cytology samples during the current reporting period. Overall, 95.1% of cytology samples were reported on within seven working days, which is above the target. Nationally, 99.0% were reported on within 15 working days, which is above the target (Table 58).

Five laboratories met the target for 90% of cytology samples to be reported to smear-takers in seven working days or less (Aotea Pathology Ltd, Diagnostic Medlab Ltd, Medlab Central Ltd, Pathlab, Southern Community Labs Dunedin). The proportion of samples reported on within seven working days ranged from 75.9% (LabPLUS) to 97.9% (Pathlab) days (Figure 42, Table 58).

Five laboratories met the target of 98% of samples reported within 15 working days (Aotea Pathology Ltd, Canterbury Health Laboratories , Diagnostic Medlab Ltd, Pathlab, Southern Community Labs Dunedin) (Figure 43, Table 58). The remaining laboratories had reported on over 96% of cytology samples within 15 working days.

Histology

Sixteen laboratories received 13,487 histology samples in the current reporting period. Overall 90.5% of samples were reported on within ten working days, which is above the target. Nationally 93.8% were reported on in 15 working days or less, which is below the target (Table 59).

Twelve laboratories met the target of 90% of final histology results to referring colposcopists within ten working days of receipt of the sample (Aotea Pathology Ltd, Canterbury Health Laboratories, Diagnostic Medlab Ltd, Medlab Central Ltd, Memorial Hospital Hastings Laboratory, Nelson Hospital Laboratory, North Shore Hospital Laboratory, Northland Pathology Laboratory, Pathlab, Southern Community Labs Dunedin, Taranaki Medlab, Waikato Hospital Laboratory) (Figure 44, Table 59). Eight laboratories met the target of 98% of final histology results within 15 working days of receiving the sample, and four of the remaining seven had reported on at least 95% of samples within 15 days (Figure 45, Table 59).

Low grade cytology with associated HPV triage testing

Seven laboratories received 2,918 cytology samples during the current reporting period which were associated with HPV testing for the purpose of triage of low grade abnormalities. Overall, 98.2% of these cytology samples were reported on within 15 working days, which is above the target. The proportion of cytology samples with HPV triage tests reported on within 15 days ranged from 81.1% (LabPLUS) to 99.6% (Aotea Pathology Ltd) (Figure 46, Table 60). The target of 98% of tests reported within 15 working days was met by six laboratories. Nationally, the proportion of cytology reported within 15 days is somewhat lower for cytology associated with low grade triage HPV testing (98.2%), compared to cytology overall (99.0%). However, the proportion of cytology tests reported within 15 working days is similar regardless of whether there is an associated HPV triage test at all labs other than LabPLUS, however this is based on a small number of cytology tests with associated HPV triage testing at LabPLUS (Figure 46).

Trends

Cytology

The overall proportion of samples reported on within seven working days is very similar in the current report (95.1%) to that in the previous monitoring period (95.0%). The number of laboratories meeting the cytology turnaround time target of 90% for seven working days has remained at five laboratories. The proportion of samples reported on within 15 working days was slightly lower in the current reporting period (99.0%, compared to 99.3% in the previous reporting period). The number of laboratories meeting the target decreased from six to five. As in the previous report, in the current monitoring period all seven laboratories had reported on at least 95% of

samples within 15 working days.

Histology

The proportion of histology samples reported on within ten working days has decreased from 92.8% to 90.5%, and the number of labs meeting the ten-working-days target has decreased from 11 to eight. The proportion of histology samples reported on within 15 working days is slightly lower (93.8%, compared to 96.9% in the previous report). The number of laboratories meeting the fifteen-working-days target (eight) is lower than in the previous reporting period (nine). In the current period, 12 of the 16 laboratories had reported on at least 95% of samples within 15 days, which is the same as in the previous period.

Cytology with associated HPV triage testing

The proportion of cytology samples with an associated HPV triage test reported within 15 working days has decreased slightly since the previous report – from 98.9% to 98.2%.

Comments

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

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

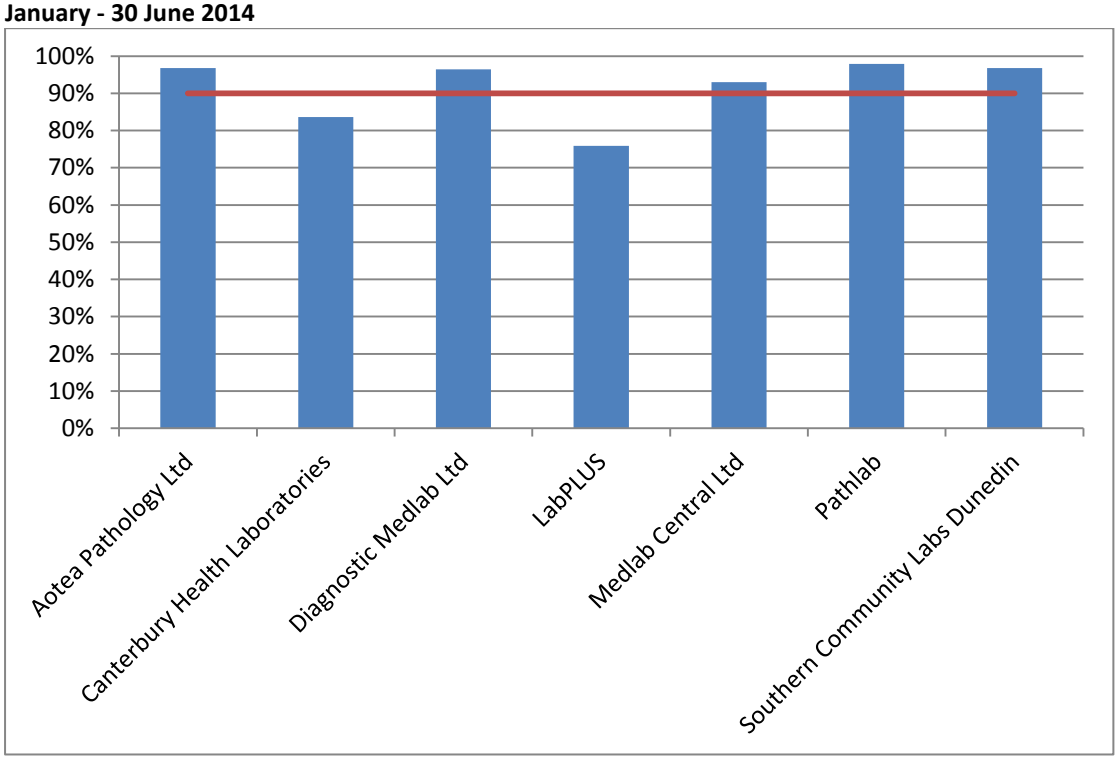
The definition used by individual laboratories for turnaround time differs. For example depending on the definition used by the laboratory, a turnaround time of one day can mean the results are reported within 24 hours, on the same day the sample is received, or on the day after the sample is received.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

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

results. In the previous report, this appears to be the reason behind the substantial apparent drop in the proportion of histology tests reported on within 15 days at Waikato Hospital Laboratory, where prior to the current reporting period this proportion has been consistently very high (more than 95% since 2009).

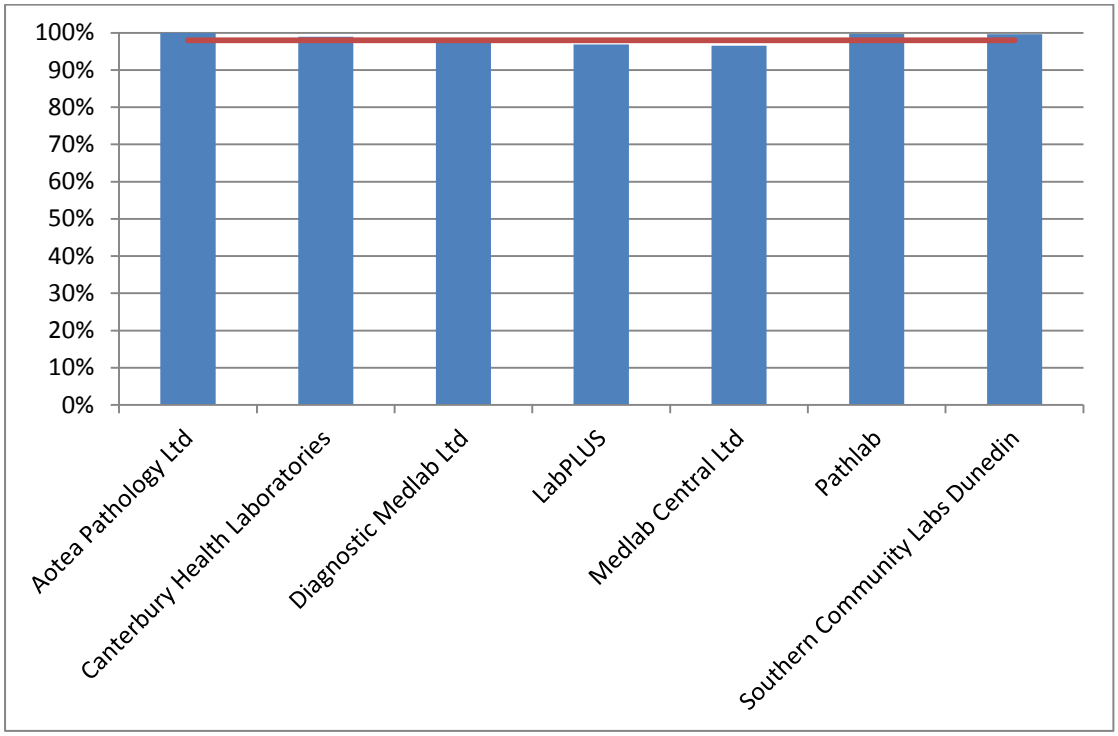
There are some possible explanantions why the turnaround time for cytology with associated HPV triage testing is longer than for other cytology. As the HPV triage test is performed in response to low grade cytology results in a subset of women (those aged 30 years or more without a recent cytological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

Figure 42 - Proportion of cytology samples reported within seven working days by laboratory, 1 January - 30 June 2014



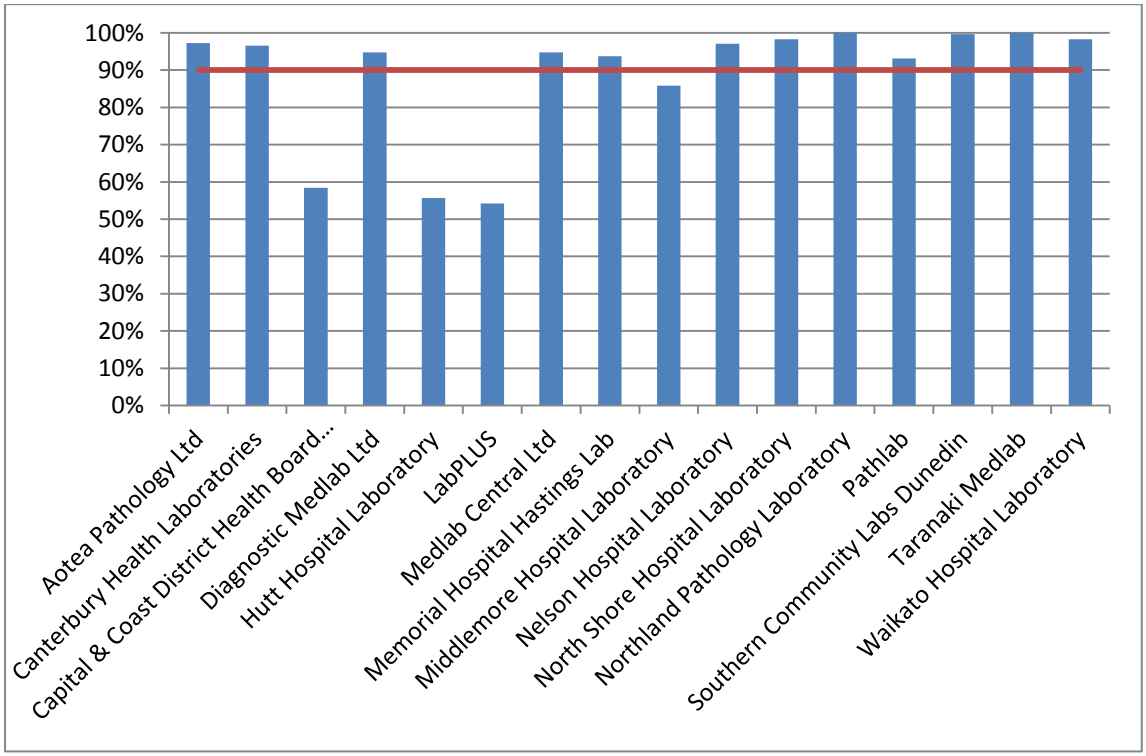
Target: 90 % within seven working days (red line)

Figure 43 - Proportion of cytology samples reported within 15 working days by laboratory, 1 January - 30 June 2014



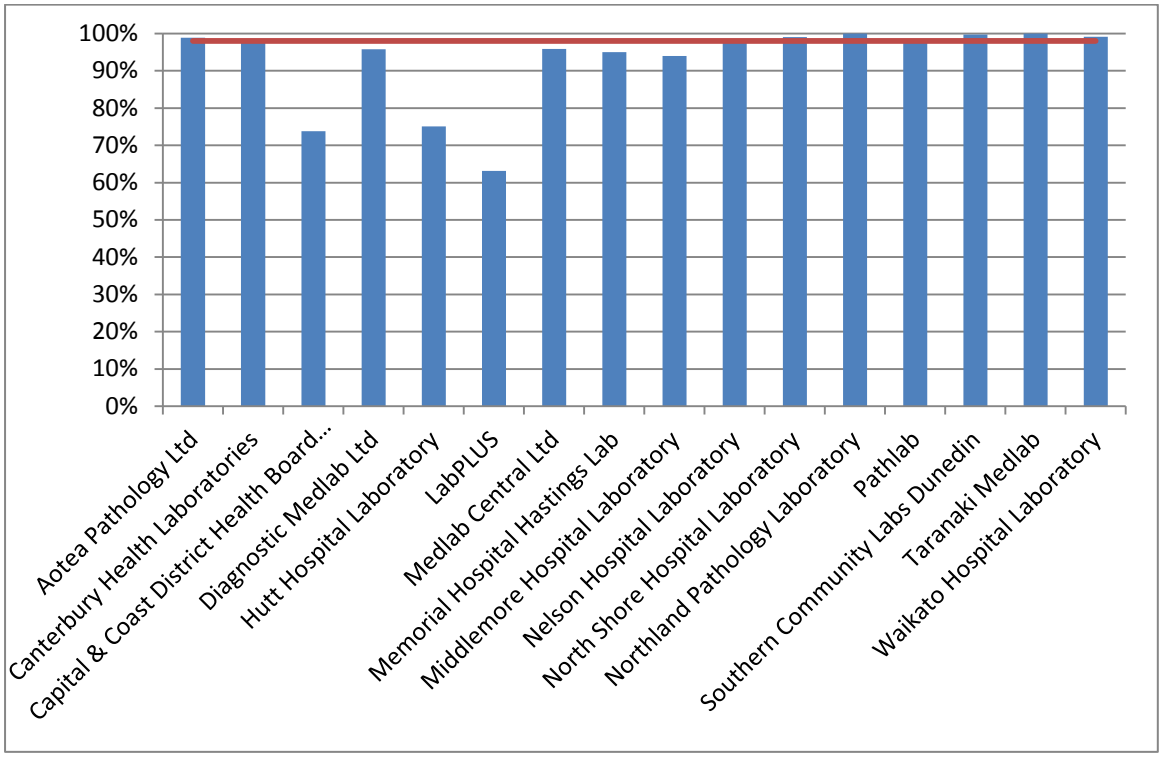
Target: 98% within 15 working days (red line)

Figure 44 - Proportion of histology samples reported within ten working days by laboratory, 1 January - 30 June 2014



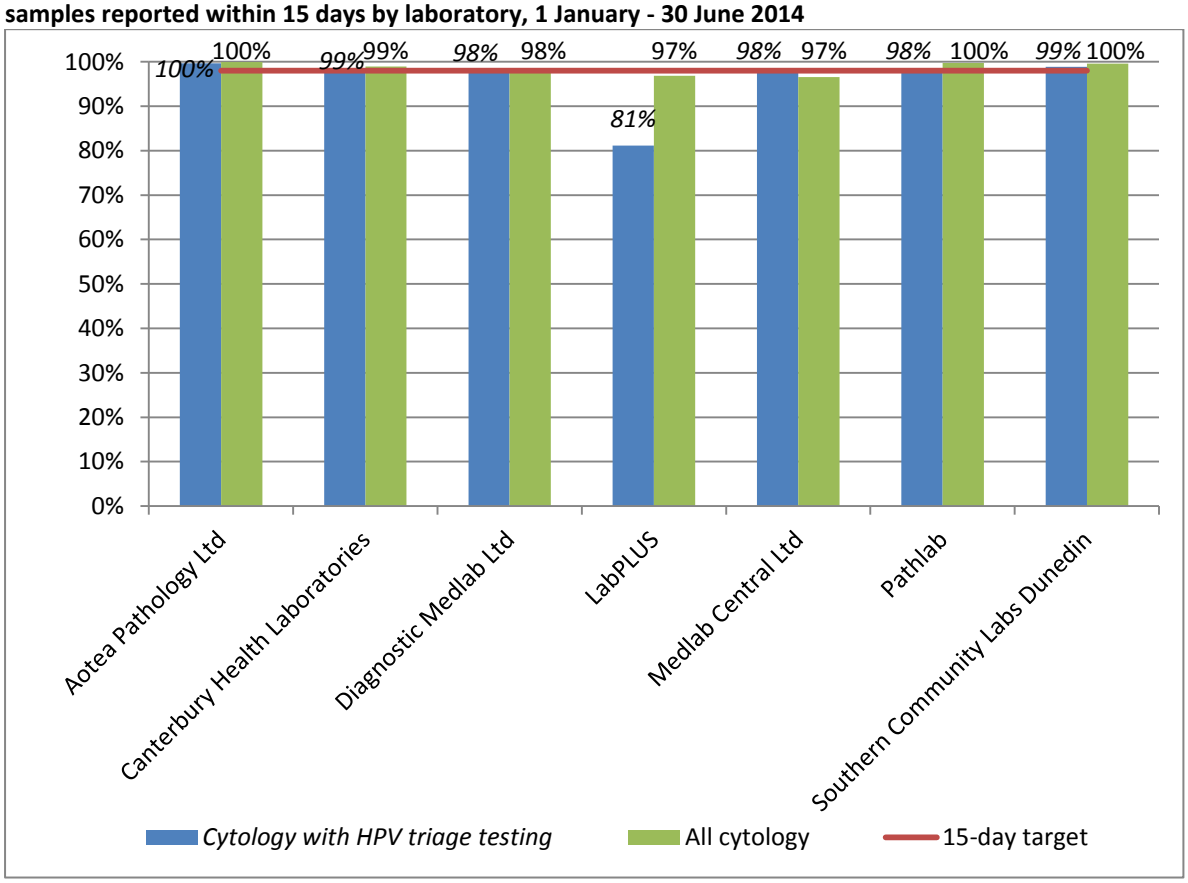
Target: 90% within ten working days (red line)

Figure 45 - Proportion of histology samples reported within 15 working days by laboratory, 1 January - 30 June 2014



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

Figure 46 - Proportion of cytology samples with associated HPV triage testing and of all cytology samples reported within 15 days by laboratory, 1 January - 30 June 2014



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

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

Definition	The proportion of women who have had a cervical sample showing a high grade cytology result for whom a histological report has been received by the NCSP Register. This proportion is a measure of the completeness of follow up of women with high grade cytology. Each woman with a high grade cytology result, relating to a cytology sample taken in the six months preceding the current reporting period (ie sample taken from [Status]), is followed for any histology samples taken on or after the date of the cytology sample. The period of time between the cytology and histology reports relating to these samples is calculated. The proportion of women with a histology report up to and including 90 days after their cytology report is calculated. Histology reports which occur prior to the cytology report are included, as long as the histology sample was not taken before the cytology sample, to allow for differences in turnaround times between cytology and histology. Analyses were also performed which calculated the proportion of women with a high grade cytology result who have a histology report within 180 days of their cytology report. For the purposes of this indicator, the following Bethesda 2001 New Zealand modified (2005) interpretation codes are included as high grade cytology: ASH, HS1, HS2, SC, AG1-AG5, AIS, AC1-AC5. High grade cytology reports which indicated that women were already under specialist management (TBS2001 NZ modified 2005 recommendation code R13) are excluded. After these are excluded, follow-up of women who have more than one high grade cytology sample is based on the first (earliest) cytology sample collected in the period. Note that some women may be assessed at colposcopy but have no biopsy taken. The colposcopy visit data for this group of women (Indicator 7.1) will supplement this indicator. An exploratory analysis was also performed here which calculated the proportion of women with high grade cytology who had no follow-up test of any kind (including colposcopy, histology sample, HPV sample, or subsequent cytology sample) within 180 days. Note that the Programme also attempts to facilitate the follow up of all women with absent histology so that they may receive appropriate care where possible. A woman's age is defined as her age at the end of the current reporting period (ie 30 June 2014).
Target	90% of women should have a histology report within 90 days of their cytology report date.

99% of women should have a histology report within 180 days of their cytology report.

Current Situation

There were 3,543 high grade cytology results relating to samples collected in the period [Status]; 1,454 of these cytology samples were collected at a colposcopy visit or the results indicated that a woman was already under specialist management. It was assumed that these results were already being followed up in the course of this management, and so the cytology tests were excluded from this measure. This left 2,089 cytology results, which related to 2,044 women. Histological follow-up for these 2,044 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, 1,644 women (80.4%) had a histology report within 90 days of their cytology report, and 2,781 (87.1%) had a histology report within 180 days. This is below the targets of 90% within 90 days and 99% within 180 days.

The proportion of women with a histology report varied by DHB from 63.6% (Wairarapa) to 90.9% (West Coast) within 90 days of their cytology report, and from 68.2% (Wairarapa) to 100.0% (West Coast) within 180 days of their cytology report (Figure 47, Table 13). One DHB met the target for the proportion of women with histology within 90 days (West Coast); and for 180 days (West Coast).

The proportion of women with a histology report also varied by age, from 56.7% (ages 70+ years) to 86.2% (ages 40-44 years) within 90 days, and from to 66.7% (ages 70+ years) to 93.6% (ages 30-34 years) within 180 days (Table 14). The targets were not met in any age group.

There was some variation in the proportion of women with histological follow-up by ethnicity, however the targets were not met for any group of women nationally. At 90 days, the proportion of women with histological follow-up ranged from 70.0% (Pacific women) to 82.7% (European/Other women). By 180 days, however, the difference had narrowed, and histology reports were available for 79.1% of Pacific women and 89.5% of Asian women (Table 15, Table 16). Further breakdown by DHB and ethnicity is shown in Table 15 and Table 16, and breakdown by DHB and age is shown in Table 61 and Table 62.

In order to allow comparison with Indicator 7.1 (colposcopic follow-up of women with high grade cytology, results were additionally stratified based on whether women were referred with clinical suspicion of invasive carcinoma, or a suspicion of invasive disease (urgent referral; TBS codes HS2, SC, AC1-AC5 or recommendation codes R10 or R14), or no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, HS1, AG1-5, AIS). Among

women with an urgent referral, due to a suspicion of invasive disease, a histology report was available within 90 days for 69.4% of women and within 180 days for 73.6% of women (Table 17). Among women where there was no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, HS1, AG1-5, AIS), 80.8% had a histology report available within 90 days and 87.6% within 180 days (Table 17).

Women with no follow-up tests

When follow-up tests of any kind (colposcopy, histology, HPV test, or subsequent cytology test) were considered, there were 209 women (10.2%) who had no record of any subsequent follow-up within 90 days and 128 women (6.3%) who had no record of any subsequent follow-up within 180 days on the NCSP Register (Table 18).

This varied by DHB from no women without follow-up of some kind (West Coast, Whanganui) to 27.3% (Wairarapa) at 90 days and from no women without follow-up of some kind (Hutt Valley, West Coast, Whanganui) to 18.2% (Wairarapa) at 180 days (Figure 48, Table 18). Where there were women without any follow-up tests recorded, the number was generally small in most DHBs. At 90 days, the number remaining without follow-up was ten or fewer in ten DHBs and a maximum of 28 women in Auckland. At 180 days, the number remaining without follow-up was ten or fewer in 15 DHBs and a maximum of 16 women in Auckland.

The proportion of women who had no record of any subsequent follow-up also varied by ethnicity, from 6.8% (Asian women) to 21.8% (Pacific women) at 90 days and from 3.1% (Asian women) to 14.5% (Pacific women) at 180 days (Table 19, Figure 49).

Among women with an urgent referral, due to a suspicion of invasive disease, a follow-up test of some kind was available within 90 days for 73.6% of women and within 180 days for 77.8% of women (Table 17). At 180 days, there remained 16 women (22.2%) for whom no follow-up tests were recorded. Among women where there was no suspicion of invasive disease (NZ modified Bethesda 2001 codes ASH, HS1, AG1-5, AIS), 90.4% had a follow-up test report available within 90 days and 94.3% within 180 days (Table 17). At 180 days, there remained 112 women (5.7%) for whom no follow-up tests were recorded.

Trends

Histological follow-up

The proportion of women with a histology report within 90 days has decreased since the previous reporting period (from 82.3% to 80.4% in the current period). The proportion of women with a histology report within 180 days has also decreased, from 88.4% in the previous period to 87.1% in the current period.

The proportion of women with histological follow-up has decreased overall, however, the trend still varies for individual DHBs. In a number of DHBs the proportion of women with histological follow-up has increased at 90 days and

at 180 days (Auckland, Hutt Valley, South Canterbury, Southern, Taranaki, West Coast, Whanganui). However in some DHBs, the proportion of women with histological follow-up decreased noticeably at 90 days and at 180 days (Bay of Plenty, Canterbury, Capital and Coast, Mid Central, Nelson Marlborough, Northland, Tairawhiti, Waikato, Wairarapa). Changes in other DHBs were smaller or varied at 90 and 180 days.

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

As in previous reports, the proportion of women with histological follow-up varies substantially by age, and generally seems to be lower in women aged 50 years or more, than in women younger than 50 years. Follow-up at both 90 days and 180 days has increased among women aged 25-29 and 45-49 years. Follow-up at both 90 days and 180 days has decreased among women aged 20-24 years, 35-39 years, and for all age groups between 50 and 69 years.

Women with no follow-up tests

The proportion of women with no record of a follow-up test has decreased since the previous period at 90 days, from 11.2% to 10.2%, and also at 180 days, from 6.7% to 6.3%.

Trends by DHB were complex, but reductions in the proportion of women with no follow-up test recorded at 180 days were observed in 11 of the 20 DHBs, and were greatest in Canterbury and Northland. Increases were observed in some other DHBs, and were largest in Hutt Valley, Nelson Marlborough and Whanganui.

In the current monitoring period, the proportions of women for whom there was no follow-up test record has decreased for Māori women at both 90 days and 180 days, and has increased for Pacific women at both 90 days and 180 days. In Māori women the proportion of women with no follow-up tests recorded has decreased from to 19.0% to 14.8% at 90 days and from 9.9% to 8.8% at 180 days. For Pacific women the proportion has increased from 19.0% to 24.4% at 90 days, and from 7.9% to 16.3% at 180 days. For Asian women, the proportion has decreased from 10.9% to 9.2% at 90 days, and increased slightly from 6.1% to 6.3% at 180 days. For European/ Other women the proportion has decreased from 10.1% to 9.6% at 90 days, but increased from 4.9% to 5.4% at 180 days.

Comments

The proportion of women with a follow-up test of any kind provides useful additional information. While 19.4% of women with high grade cytology reports had no record of a histology report within 90 days, the proportion

without a record of a follow-up test of any kind was much lower (10.2%). The same was also true at 180 days, where 12.9% of women with high grade cytology reports had no record of a histology report within 180 days, but the proportion without a record of a follow-up test of any kind was much lower (6.3%). Consistent with previous monitoring reports, many of the women with no follow-up histology recorded do have a record of some follow-up test. This provides reassurance that many women without histology have not been lost to follow-up.

The measure of whether or not there has been a follow-up test of any sort considers cytology, colposcopy, histology and HPV tests. Therefore changes in women with no follow-up tests of any kind may also reflect changes in the completeness of reporting on the NCSP Register for some tests. In particular, it may reflect changes in reporting of colposcopy visits on the Register over time (whereas it is expected that the completeness of lab-based tests is not likely to have changed).

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

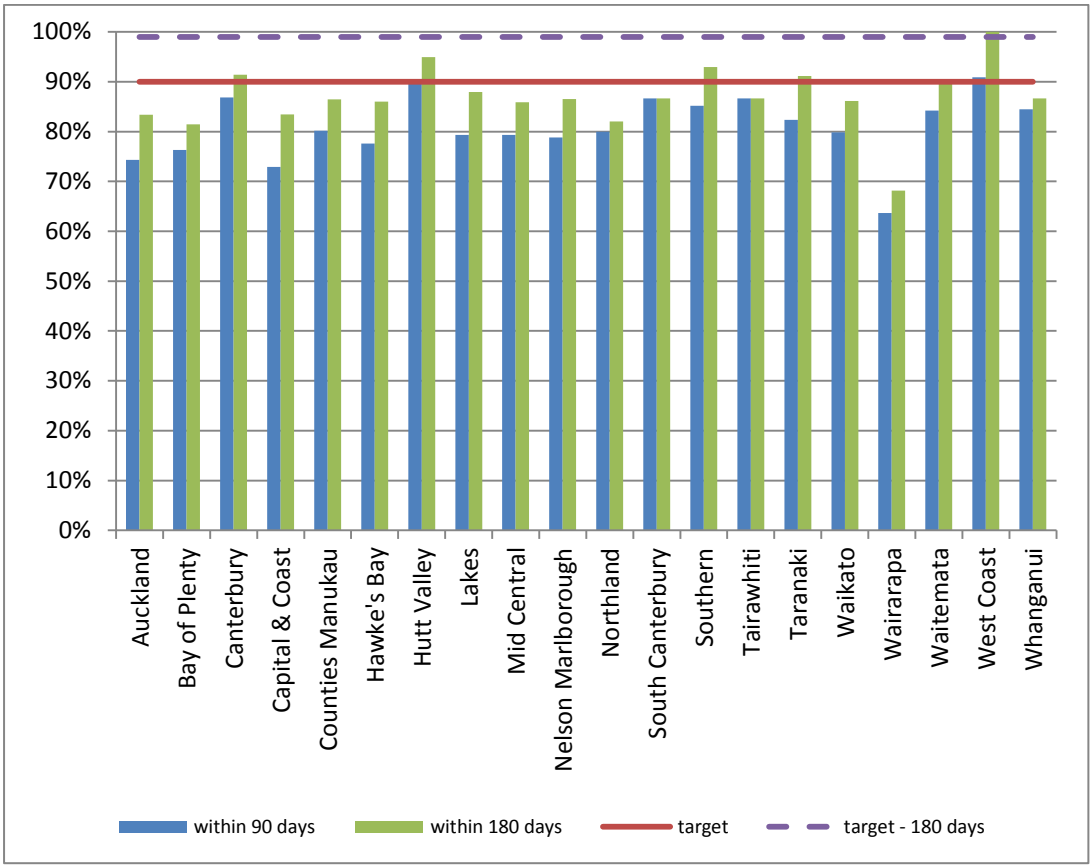
Note that while all *cytology results* which indicated that a woman was under specialist management were excluded from the measure of follow-up, not all *women* who had these cytology results were. If all cytology results for a woman indicated that she was under specialist management, she was excluded.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

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

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

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

Figure 47 - Proportion of women with a histology report within 90 days, and within 180 days of their high grade cytology report, by DHB



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

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

DHB	High-grade cytology	Follow-up histology within 90 days		Follow-up histology within 180 days	
	N	N	%	N	%
Auckland	253	188	74.3	211	83.4
Bay of Plenty	97	74	76.3	79	81.4
Canterbury	198	172	86.9	181	91.4
Capital & Coast	133	97	72.9	111	83.5
Counties Manukau	222	178	80.2	192	86.5
Hawke's Bay	107	83	77.6	92	86.0
Hutt Valley	59	53	89.8	56	94.9
Lakes	58	46	79.3	51	87.9
Mid Central	92	73	79.3	79	85.9
Nelson Marlborough	52	41	78.8	45	86.5
Northland	50	40	80.0	41	82.0
South Canterbury	15	13	86.7	13	86.7
Southern	128	109	85.2	119	93.0
Tairawhiti	15	13	86.7	13	86.7
Taranaki	68	56	82.4	62	91.2
Waikato	159	127	79.9	137	86.2
Wairarapa	22	14	63.6	15	68.2
Waitemata	260	219	84.2	234	90.0
West Coast	11	10	90.9	11	100.0
Whanganui	45	38	84.4	39	86.7
Total	**2,044**	**1,644**	**80.4**	**1,781**	**87.1**

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

Age (years)	High grade cytology	Follow-Up histology Within 90 days		Follow-up histology Within 180 days	
	N	N	%	N	%
<20	11	9	81.8	9	81.8
20-24	388	320	82.5	347	89.4
25-29	492	415	84.3	440	89.4
30-34	329	281	85.4	308	93.6
35-39	201	163	81.1	181	90.0
40-44	188	162	86.2	170	90.4
45-49	116	95	81.9	104	89.7
50-54	101	65	64.4	72	71.3
55-59	72	47	65.3	50	69.4
60-64	59	35	59.3	40	67.8
65-69	56	34	60.7	39	69.6
70+	30	17	56.7	20	66.7
Total	**2,043**	**1,643**	**80.4**	**1,780**	**87.1**

Note: date of birth information not available for one woman.

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

	Māori		Pacific		Asian		European/Other	
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Auckland	13	76.5	9	42.9	36	80.0	130	76.5
Bay of Plenty	19	70.4	1	100.0	2	66.7	52	78.8
Canterbury	8	80.0	4	66.7	13	92.9	147	87.5
Capital & Coast	5	41.7	4	80.0	5	62.5	83	76.9
Counties Manukau	27	65.9	30	71.4	27	81.8	94	88.7
Hawke's Bay	23	82.1	3	60.0	1	50.0	56	77.8
Hutt Valley	12	92.3	2	100.0	3	50.0	36	94.7
Lakes	19	73.1	-	-	1	100.0	26	83.9
Mid Central	15	75.0	3	100.0	4	80.0	51	79.7
Nelson Marlborough	5	100.0	1	100.0	3	100.0	32	74.4
Northland	17	85.0	-	-	0	0.0	23	82.1
South Canterbury	1	100.0	-	-	-	-	12	85.7
Southern	10	76.9	3	75.0	9	90.0	87	86.1
Tairawhiti	6	75.0	-	-	-	-	7	100.0
Taranaki	15	83.3	-	-	-	-	41	82.0
Waikato	26	68.4	1	100.0	4	57.1	96	85.0
Wairarapa	3	75.0	1	50.0	-	-	10	62.5
Waitemata	16	72.7	15	88.2	20	87.0	168	84.8
West Coast	2	100.0	-	-	-	-	8	88.9
Whanganui	12	85.7	-	-	-	-	26	83.9
Total	**254**	**74.9**	**77**	**70.0**	**128**	**79.0**	**1,185**	**82.7**

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

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

	Māori		Pacific		Asian		European/Other	
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Auckland	14	82.4	14	66.7	40	88.9	143	84.1
Bay of Plenty	21	77.8	1	100.0	3	100.0	54	81.8
Canterbury	10	100.0	5	83.3	14	100.0	152	90.5
Capital & Coast	7	58.3	5	100.0	7	87.5	92	85.2
Counties Manukau	33	80.5	31	73.8	30	90.9	98	92.5
Hawke's Bay	26	92.9	3	60.0	1	50.0	62	86.1
Hutt Valley	12	92.3	2	100.0	6	100.0	36	94.7
Lakes	21	80.8	-	-	1	100.0	29	93.5
Mid Central	16	80.0	3	100.0	4	80.0	56	87.5
Nelson Marlborough	5	100.0	1	100.0	3	100.0	36	83.7
Northland	18	90.0	-	-	0	0.0	23	82.1
South Canterbury	1	100.0	-	-	-	-	12	85.7
Southern	12	92.3	4	100.0	10	100.0	93	92.1
Tairawhiti	6	75.0	-	-	-	-	7	100.0
Taranaki	17	94.4	-	-	-	-	45	90.0
Waikato	29	76.3	1	100.0	6	85.7	101	89.4
Wairarapa	4	100.0	1	50.0	-	-	10	62.5
Waitemata	17	77.3	16	94.1	20	87.0	181	91.4
West Coast	2	100.0	-	-	-	-	9	100.0
Whanganui	12	85.7	-	-	-	-	27	87.1
Total	**283**	**83.5**	**87**	**79.1**	**145**	**89.5**	**1,266**	**88.3**

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

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

	Urgent referral (HS2, SC, AC1-5)		No suspicion of invasion (ASH, HS1, AG1-5, AIS)	
	N	**%**	**N**	**%**
Follow-up within 90 days				
- histology	50	69.4	1,594	80.8
- any follow-up	53	73.6	1,782	90.4
- *no follow-up*	*19*	*26.4*	*190*	*9.6*
Follow-up within 180 days				
- histology	53	73.6	1,728	87.6
- any follow-up	56	77.8	1,860	94.3
- *no follow-up*	*16*	*22.2*	*112*	*5.7*

Figure 48 – Proportion of women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by DHB

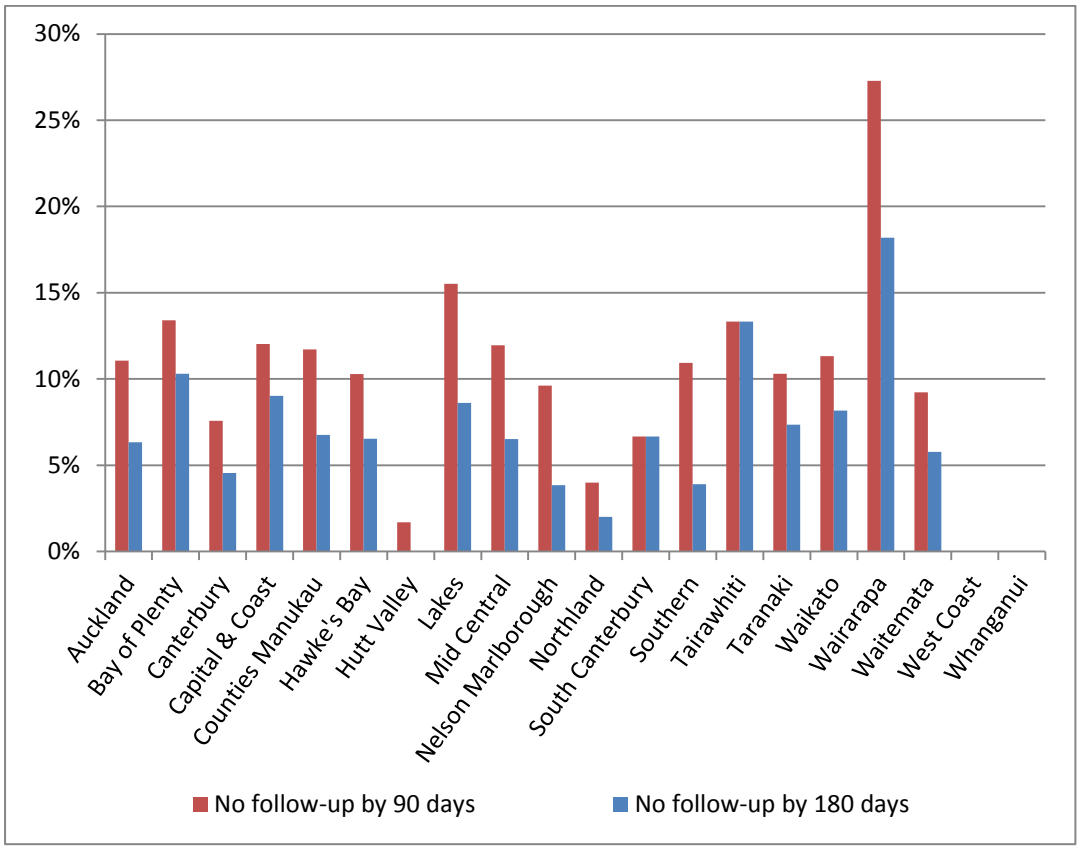


Figure 49 - Proportion of women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by ethnicity

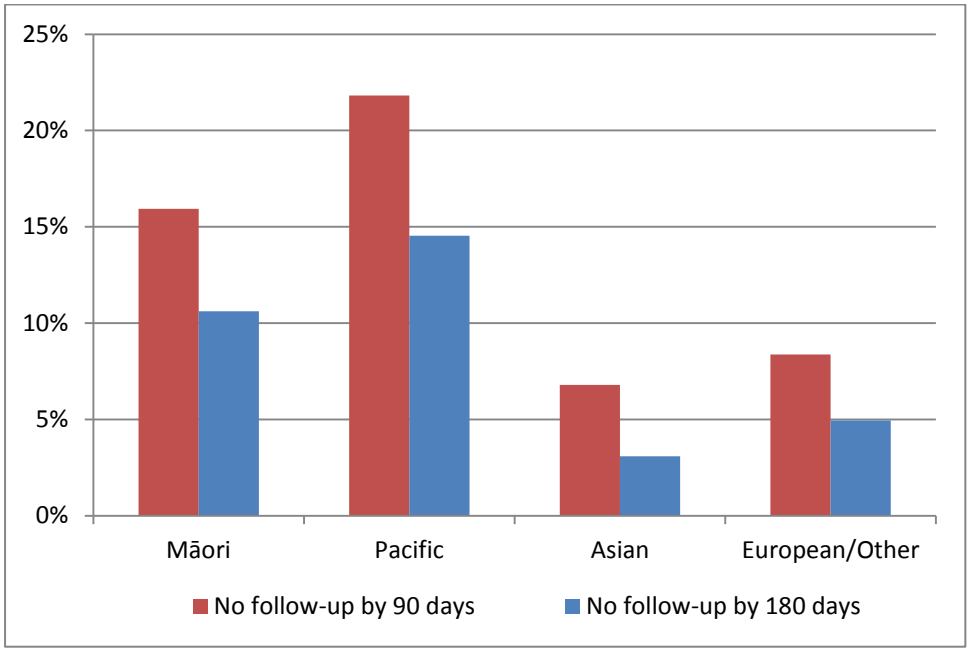


Table 18 - Women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by DHB

DHB	High-grade cytology N	Without a follow-up test by 90 days N	%	Without a follow-up test by 180 days N	%
Auckland	253	28	11.1	16	6.3
Bay of Plenty	97	13	13.4	10	10.3
Canterbury	198	15	7.6	9	4.5
Capital & Coast	133	16	12.0	12	9.0
Counties Manukau	222	26	11.7	15	6.8
Hawke's Bay	107	11	10.3	7	6.5
Hutt Valley	59	1	1.7	-	0.0
Lakes	58	9	15.5	5	8.6
Mid Central	92	11	12.0	6	6.5
Nelson Marlborough	52	5	9.6	2	3.8
Northland	50	2	4.0	1	2.0
South Canterbury	15	1	6.7	1	6.7
Southern	128	14	10.9	5	3.9
Tairawhiti	15	2	13.3	2	13.3
Taranaki	68	7	10.3	5	7.4
Waikato	159	18	11.3	13	8.2
Wairarapa	22	6	27.3	4	18.2
Waitemata	260	24	9.2	15	5.8
West Coast	11	-	-	-	0.0
Whanganui	45	-	-	-	0.0
Unspecified	-	-		-	
Total	**2,044**	**209**	**10.2**	**128**	**6.3**

Table 19 - Women without any follow-up test within 90 days and within 180 days of a high grade cytology report, by ethnicity

Ethnicity	High grade cytology N	Without follow-up by 90 days N	%	Without follow-up by 180 days N	%
Māori	339	54	15.9	36	10.6
Pacific	110	24	21.8	16	14.5
Asian	162	11	6.8	5	3.1
European/Other	1,433	120	8.4	71	5.0
Total	**2,044**	**209**	**10.2**	**128**	**6.3**

Indicator 7 – Colposcopy indicators

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

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

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

7.3. Adequacy of documenting colposcopy assessment (Standard 603)

7.4. Timeliness of treatment (Standard 605)

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

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

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

Some of these indicators (7.6, 7.7) are still in development. It is envisioned that they will be included in future monitoring reports.

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

Additionally, not all clinics were reporting the full data required by Colpscopy Policies and Standard 2013 during the current monitoring period. This means that in some cases performance indicators are not directly compared to the targets or have had to rely on proxy data to measure performance. Where relevant, this is described in the sections relating to the individual indicators.

Indicator 7.1 – Timeliness of colposcopic assessment – high grade cytology

Definition

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

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

High grade cytology results are included if the cytology sample was collected in the six months immediately preceding the current six-month 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 either clinical or cytological 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 2001 codes ASH, HS1, AG1-5, AIS), since the targets differ for these two groups.

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

Results are reported by ethnicity and DHB. For women who attended colposcopy, DHB is assigned on the basis of the DHB of the colposcopy facility where she attended for colposcopy. The date on which the referral to that DHB was accepted is used to calculate timeliness. If there are multiple referrals for the same woman to that DHB, the date of the first accepted referral following the cytology sample is used. Women who attended colposcopy but had no relevant referral to that DHB recorded on the NCSP Register were excluded from the calculations of timeliness (since the time between the acceptance of the referral and the colposcopy visit could not be calculated). However these women were reported on separately.

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 accepted referrals for the same woman which occurred after the cytology sample, the most recently accepted (latest) 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. In earlier reports (Reports 35 to 37), referral data were believed to be incomplete and so the timeliness of follow-up was investigated by calculating the time between the high grade cytology report date and first colposcopy attendance date (in days, not working days). This measure is still reported here, in order to allow comparisons with previous monitoring reports. However note that this time is not directly comparable to the target, 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 smear taker, who will then communicate the results to the woman, and discuss follow-up management with her. The smear taker 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 tests indicating that a woman was already under specialist management (either TBS=R13 or which were collected at the time of a colposcopy visit) were excluded from this measure.
Target	95% or more of women who have evidence of clinical suspicion of invasive carcinoma, or a laboratory report indicating 'features suspicious for invasion', or 'changes consistent with squamous cell carcinoma', or similar (TBS codes HS2, SC, AC1-AC5), must receive a date for a colposcopy appointment or a gynaecological assessment that is within 10 working days of receipt of the referral. 95% or more of women who have high-grade smear abnormalities must receive a date for a colposcopy appointment that is within 20 working days of receipt of the referral. At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register. In the interim, it reports on timeliness in relation to the first attendance at

colposcopy and the number and percentage of women for whom a subsequent referral and/ or a colposcopy visit are recorded.

Current Situation

In the period [Status], there were 2,044 women with high grade cytology results who were not already under specialist management. There were 72 women who had results indicating suspicion of invasive disease, and the remaining 1,972 had other high grade cytology results (Table 63).

Timeliness of follow-up was also 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.

Timeliness – high grade cytology indicating suspicion of invasive disease

Accepted referrals were found for 35 (48.6%) of the 72 women who had high grade cytology indicating suspicion of invasive disease. These are broken down by the detailed cytological result in Table 64. Of these 35 women with an accepted referral, 23 (65.7%) have a record of a colposcopy visit on the NCSP Register within ten working days of their referral, and 27 (77.1%) have a visit within 20 working days (Table 20).

The time between the referral and first colposcopy visit was also measured for all of the 32 (91.4%) women with an accepted referral who had a record of a colposcopy visit prior to or on 30 June 2014. The median period between the referral date and the first colposcopy visit date was 8 days overall; 6.5 days among Māori women, 6.5 days among Asian women, and 6 days among European/Other women (Table 22; Pacific women not reported due to small numbers attending colposcopy). This was not analysed further by DHB, due to the small numbers of women within each DHBs with these results.

Considering all 72 women with high grade cytology indicating suspicion of invasive disease, regardless of whether an accepted referral was recorded or not, a total of 56 (77.8%) have a record of a colposcopy visit prior to or on 30 June 2014 (representing a follow-up period of at least six and up to 12 months after their high grade cytology). Among these 56 women, the median time between the cytology report date and the first colposcopy visit was 12 days overall; 10 days among Māori women and Asian women, 11.5 days among Pacific women and 17 days among European/ Other women (Table 22).

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

Accepted referrals were found for 1,672 women (84.8%) of the 1,972 women. Among the women with accepted referrals, 1,124 (67.2%) were seen within 20 working days of their referral (Table 23, Table 24). This varied by DHB from 35.9% (Waikato) to 88.6% (Northland) (Table 23). There was also some variation by ethnicity, from 53.6% (Pacific women) to 70.8% (European/Other women) (Table 24).

Time between the referral and first colposcopy visit was also measured for these 1,672 women with an accepted referral. Among the 1,606 women for whom colposcopy records were found, the median period between the referral

being accepted and the first colposcopy visit date was 16 days. This was further analysed by DHB. The median waiting time between the high grade cytology report and the first colposcopy visit varied by DHB, ranging from 9.5 days (Northland) to 24 days (Waikato)(Table 25). There was less variation by ethnicity, with the median waiting times ranging from 15 days (European/ Other women) to 18 days (Māori women) (Table 26).

In total, 1,859 (94.3%) of the 1,972 women with high grade cytology (but no suspicion of invasive disease) relating to a sample collected in the period [Status] have a record of a colposcopy visit prior to or on 30 June 2014 (representing a follow-up period of at least six and up to 12 months after their high grade cytology). In 34 of these women, the date that the cytology result was originally reported to the smear taker was no longer available from the NCSP Register, because the report dates in the test record had been updated. Among the remaining 1,825 women, the median time between the cytology report and the first colposcopy visit was 20 days. This varied from 14 days in Northland to 27 days in Waikato (Table 27), and from 19 days in European/ Other women to 23.5 days in Pacific women (Table 28).

Trends

Nationally, the proportion of women with high grade cytology indicating suspicion of invasive disease seen within the target timeframe has decreased somewhat compared to the previous reporting period, from 70.0% within ten working days to 65.7% within ten working days. The percentage of women with high grade cytology indicating suspicion of invasive disease seen within 20 working days (77.1%) is similar to that in the previous report (77.5%). The proportion of women with high grade cytology (but no suspicion of invasive disease) seen within four weeks has increased however, from 60.3% in the previous report to 67.2% in the current report. The proportion of all women with high grade results (ie encompassing those with and without suspicion of invasive disease) for whom an accepted referral was available on the NCSP Register is higher in the current report than it was in the previous report (83.5% in the current report; 77.8% in Report 40).

Nationally, the median time between the cytology report and the first colposcopy visit has decreased slightly for high grade cytology indicating suspicion of invasive disease, from 13 days in Report 40 to 12 days in the current report. The median time between the cytology report and the first colposcopy visit for high grade cytology (no suspicion of invasive disease) is also shorter in the current report (20 days) compared to the previous report (31 days).

Comments

Since this indicator relies on colposcopy data in the NCSP Register, there is the possibility that incomplete reporting of referrals and colposcopy visits as at the time of the data extract from the NCSP Register (August 2014 for the current report) has led to an underestimate of the number of women with referrals and/or follow-up colposcopy visits in a given time period. In order to help address this, in the current report, histology data are also used to help ascertain if a colposcopy visit occurred. Women with a histology sample collected after their cytology sample are assumed to have attended a

colposcopy clinic for follow-up, even if a colposcopy visit is not explicitly recorded on the NCSP Register.

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

Additional information about follow-up tests performed in women with high grade cytology is included in Indicator 6. The same 2,044 women (72 with suspicion of invasive disease, 1,972 with other high grade cytology) are included in both this measure and Indicator 6. In Indicator 6, it was found that 1,860 (94.3%) had a follow-up test of some sort within 180 days. Here, colposcopy and histology records indicate that 1,915 (93.7%) women had attended colposcopy prior to or on 30 June 2014 (ie in a period of at least 181 days [approximately six months] and up to one year after their high grade cytology sample). Note that there may be some differences in results by DHB, however, since in Indicator 6 the DHB assigned to a woman is her own DHB (or, where this information is not available on the NCSP Register, the DHB of her responsible health facility, based on the clinic's geographic location). In this indicator, women are assigned to a DHB based on either the DHB where they attended colposcopy, or the most recent DHB to which they have been referred (for women without colposcopy visits), or to the DHB of the health facility where the high grade cytology sample was collected (for women with no referral and no colposcopy visit). Additionally, only public clinics are assigned a DHB within Indicator 7.1; private clinics are separated out and reported on as a group.

Reasons why a woman may not attend colposcopy within the recommended timeframe include both capacity limitations within the clinic, and potentially factors related to the woman requiring follow-up. Currently there is incomplete information available on the NCSP Register about colposcopy appointments which are scheduled for women where the woman reschedules or does not attend. Therefore in this indicator it is not possible to distinguish delays in attending colposcopy following high grade cytology which are due to capacity constraints which restrict the clinic's ability to offer timely appointments, and delays which may be due to an individual woman's need to reschedule an appointment or failure to attend. Factors which may lead a woman to delay a recommended visit include caring responsibilities, planned travel, competing prior commitments, illness, or menstruation.

In previous reports this indicator could not provide information which would allow the timeliness of colposcopic assessment among women with high grade cytology results to be compared to the targets. This was due to the comparatively small number of matching accepted referrals recorded on the NCSP Register; the date the referral is accepted is required in order to have a starting date from which to calculate the period of time between referral and colposcopy attendance. Where it was previously not possible to obtain reliable data on referrals for the current monitoring period, the time between the cytology report date and the first colposcopy visit was calculated, however this is not directly comparable to the targets. This additional estimate of waiting time has been maintained in the current report, in order to provide a comparable measure for the purposes of investigating trends. For a small number of women this could not be calculated however, as they 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).

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

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

Ethnicity	HG women (suspicion of invasion)	Accepted referrals recorded	Women seen within :			
			10 working days		20 working days	
	N	N	N	%	N	%
Māori	16	13	8	61.5	10	76.9
Pacific	5	2	1	50.0	2	100.0
Asian	7	4	3	75.0	4	100.0
European/Other	44	16	11	68.8	11	68.8
Total	**72**	**35**	**23**	**65.7**	**27**	**77.1**

Table 21 – Time between referral (suspicion of invasive disease) and first colposcopy visit date, by ethnicity

Ethnicity	HG women	Accepted referrals recorded	Women seen at colposcopy*	Median time between referral and colposcopy† (days)
	N	N	N	
Māori	16	13	12	6.5
Pacific	5	2	2	n.r.
Asian	7	4	4	6.5
European/Other	44	16	14	6
Total	**72**	**35**	**32**	**8**

** Attendence by women with an accepted referral on or after the date their referral was accepted, but only where clinic which accepted referral matches the clinic where the colposcopy visit occurred, up to 30 June 2014*
† Days between referral and colposcopy date. n.r. = not reported due to extremely small numbers of women for whom colposcopy is recorded.

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

Ethnicity	HG women	Women seen at colposcopy*	Median time between cytology report and colposcopy visit †
	N	N	(days)
Māori	16	13	10
Pacific	5	4	17
Asian	7	7	10
European/Other	44	32	11.5
Total	**72**	**56**	**12**

** Attendence at any colposcopy clinic on or after the date the high grade cytology sample was collected, including where no referral is recorded, up to 30 June 2014 † Days between cytology report date and colposcopy date. Excludes five women where waiting time between cytology report and colposcopy could not be calculated because the date the cytology result was originally reported to the smear taker was no longer available from the NCSP Register*

Table 23 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 20 working days, by DHB

DHB	HG women	Accepted referrals recorded	Women seen within 20 working days	
	N	N	N	%
Public clinics overall	1,599	1,461	995	68.1
Auckland	163	145	106	73.1
Bay of Plenty	70	61	46	75.4
Canterbury	161	149	125	83.9
Capital & Coast	103	91	75	82.4
Counties Manukau	177	166	111	66.9
Hawke's Bay	96	74	33	44.6
Hutt Valley	52	49	43	87.8
Lakes	50	48	21	43.8
Mid Central	89	84	54	64.3
Nelson Marlborough	45	40	26	65.0
Northland	45	44	39	88.6
South Canterbury	14	9	7	77.8
Southern	96	90	50	55.6
Tairawhiti	13	13	11	84.6
Taranaki	57	52	38	73.1
Waikato	125	117	42	35.9
Wairarapa	19	16	9	56.3
Waitemata	175	164	119	72.6
West Coast	9	9	6	66.7
Whanganui	40	40	34	85.0
Private Practice	*373*	*211*	*129*	*61.1*
Total	**1,972**	**1,672**	**1,124**	**67.2**

Table 24 – Women with a high grade cytology report (no suspicion of invasive disease), accepted referral and a colposcopy visit within 20 working days, by ethnicity

Ethnicity	HG women	Accepted referrals recorded	Women seen within 20 working days	
	N	N	N	%
Māori	323	290	164	56.6
Pacific	105	84	45	53.6
Asian	155	132	89	67.4
European/Other	1,389	1,166	826	70.8
Total	**1,972**	**1,672**	**1,124**	**67.2**

Table 25 – Time between referral (no suspicion of invasive disease) and colposcopy visit date, by DHB

DHB	HG women N	Accepted referrals recorded N	Women seen at colposcopy* N	Median time between referral and colposcopy† (days)
Auckland	163	145	144	17
Bay of Plenty	70	61	60	14
Canterbury	161	149	149	14
Capital & Coast	103	91	87	13
Counties Manukau	177	166	166	16
Hawke's Bay	96	74	72	21
Hutt Valley	52	49	49	11
Lakes	50	48	45	22
Mid Central	89	84	81	15
Nelson Marlborough	45	40	40	17.5
Northland	45	44	44	9.5
South Canterbury	14	9	9	10
Southern	96	90	89	20
Tairawhiti	13	13	13	14
Taranaki	57	52	51	16
Waikato	125	117	115	24
Wairarapa	19	16	16	20
Waitemata	175	164	164	16
West Coast	9	9	9	15
Whanganui	40	40	40	12
Private Practice	*373*	*211*	*163*	*10*
Total	**1,972**	**1,672**	**1,606**	**16**

** Attendence by women with an accepted referral on or after the date their referral was accepted, but only where clinic which accepted referral matches the clinic where the colposcopy visit occurred, up to 30 June 2014*
† Days between acceptance of referral and colposcopy date.

Table 26 – Time between referral (no suspicion of invasive disease) and colposcopy visit date, by ethnicity

Ethnicity	HG women N	Accepted referrals recorded N	Women seen at colposcopy* N	Median time between referral and colposcopy† (days)
Māori	323	290	267	18
Pacific	105	84	76	17
Asian	155	132	130	17
European/Other	1,389	1,166	1,133	15
Total	**1,972**	**1,672**	**1,606**	**16**

** Attendence at any colposcopy clinic after the referral was accepted, up to 30 June 2014 † Days between acceptance of referral and colposcopy date.*

Table 27 - Time between high grade cytology report (no suspicion of invasive disease) and colposcopy visit date, by DHB

DHB	HG women N	Women seen at colposcopy* N	Median time between cytology report and colposcopy visit † (days)
Auckland	163	156	22
Bay of Plenty	70	67	17
Canterbury	161	153	17
Capital & Coast	103	92	18
Counties Manukau	177	173	20
Hawke's Bay	96	92	26
Hutt Valley	52	51	17
Lakes	50	46	26
Mid Central	89	85	21
Nelson Marlborough	45	43	23
Northland	45	44	14
South Canterbury	14	14	16
Southern	96	94	26
Tairawhiti	13	13	17
Taranaki	57	55	20.5
Waikato	125	121	27
Wairarapa	19	16	23.5
Waitemata	175	170	20
West Coast	9	9	17
Whanganui	40	40	17
Private Practice	*373*	*325*	*12*
Total	**1,972**	**1,859**	**20**

** Attendence at any colposcopy clinic, including where no referral is recorded, up to 30 June 2014 † Days between cytology report date and colposcopy date. Excludes 34 women where waiting time between cytology report and colposcopy could not be calculated because the date the cytology result was originally reported to the smear taker was no longer available from the NCSP Register.*

Table 28 – 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 time between cytology report and colposcopy visit (days)
Māori	323	292	23
Pacific	105	93	23.5
Asian	155	149	21
European/Other	1,389	1,325	19
Total	**1,972**	**1,859**	**20**

** Attendence at any colposcopy clinic, including where no referral is recorded, up to 30 June 2014 † Days between cytology report date and colposcopy date. Excludes 34 women where waiting time between cytology report and colposcopy could not be calculated because the date the cytology result was originally reported to the smear taker was no longer available from the NCSP Register*

Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

Definition

This indicator measures performance against Standard 602. It is still under development.

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

Women were included in this measure if they had a cytology sample collected in the period [Status] (six-month period immediately preceding the current reporting period) where the results was low grade (ASC-US or LSIL), and either a positive hrHPV test (within four weeks of the cytology result) or a previous low grade cytology result (within the previous five years) .

Referrals and colposcopy visits for these women were retrieved from the NCSP Register. Referrals were retrieved where the date on which the referral was accepted occurred after the date the cytology sample was collected. Colposcopy visits recorded on the NCSP Register were retrieved if they occurred after the cytology test and no later than the end of the current monitoring period (30 June 2014). In addition to explicit colposcopy visit records, histology samples in the same timeframe were used as a proxy for a colposcopy visit, to supplement colposcopy visit data.

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

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

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

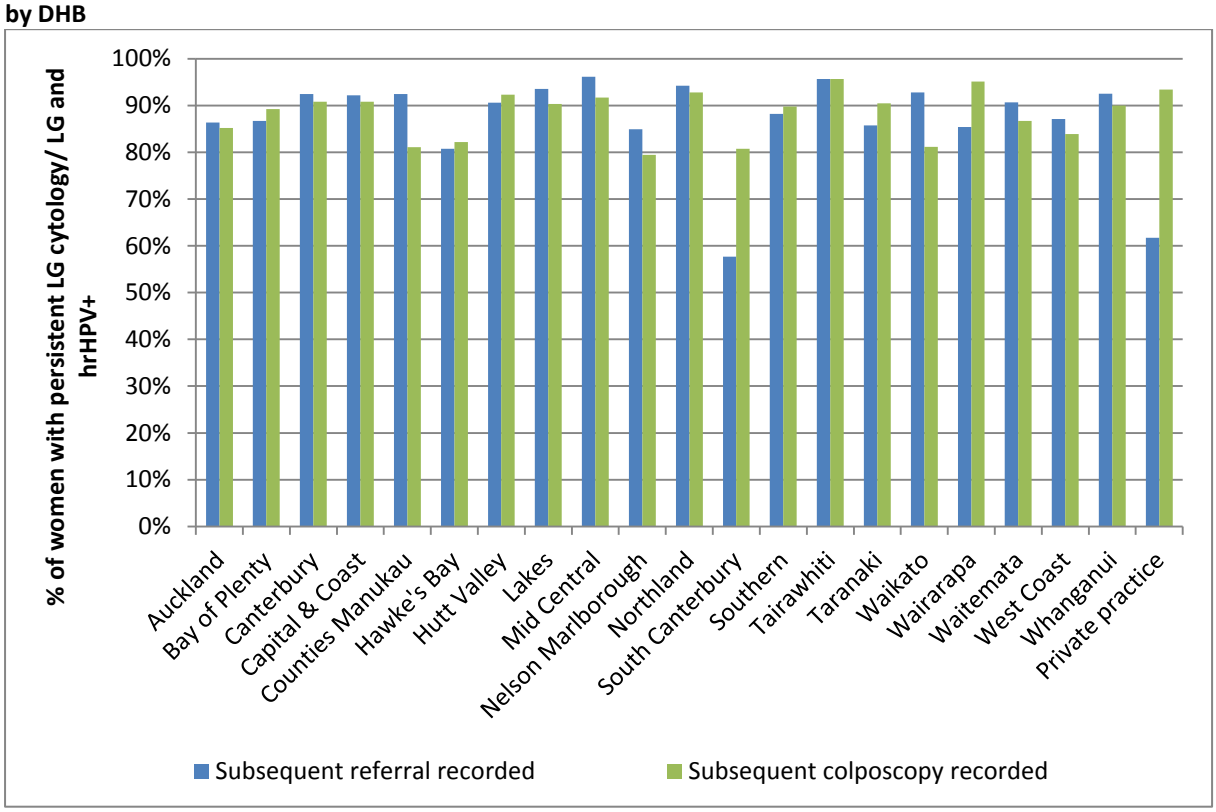
Since cytology samples were collected in the six months prior to the current reporting period, this allows a follow-up period of at least six months for all women (and up to 12 months for some women) where a woman can attend colposcopy and be assigned to a DHB, or alternately have a referral accepted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

At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register. In the interim, it reports on the number and percentage of women for whom a subsequent referral and/ or a colposcopy visit are recorded, and describes the time between cytology report, referral and colposcopy visit. The time between two events is characterised in this report by the median time, and the

	interquartile range (IQR). These can be interpreted as follows: among women for whom colposcopy (or histology) is recorded, half are seen by the median time; 25% are seen within the time described by the lower end of the IQR and 75% within the time described by the upper end of the IQR.
Target	95% of women who have persistent low-grade abnormalities or a low-grade abnormality and positive hrHPV test, must receive a date for a colposcopy appointment within a period that does not exceed 26 weeks of the colposcopy unit accepting the referral from the smear taker.
Current situation	At present, this indicator reports on aspects of follow-up, but not specifically on timeliness in relation to the standard, as the date of the first scheduled colposcopic appointment is not yet available in the NCSP Register. There were 4,617 women with persistent low grade cytology or low grade cytology and a positive hrHPV test collected in the six-month period immedeiatley preceding the current reporting period. Subsequent accepted referrals are recorded for 3,881 (84.1%) of these women, and subsequent colposcopy for 4,074 (88.2%) of these women. Among women with a referral recorded on the NCSP Register, the median time between the cytology report date and the date the referral was accepted was seven days (interquartile range (IQR): 3 - 15 days). There were 3,541 women with both an accepted referral and a colposcopy visit recorded on the NCSP Register (92.1% of women with an accepted referral). Among these women with both a referral and a colposcopy visit recorded, the median time between an accepted referral and the first attendance for colposcopy was 125 days (IQR: 45 – 170 days). Considering all women with persistent low grade cytology or low grade cytology and a positive hrHPV test, regardless of whether or not a referral was recorded on the NCSP Register, the median time between the cytology report and the first colposcopy visit was 128.5 days (IQR: 48 – 182 days). The proportion of women for whom a subsequent accepted referral and colposcopy visit are recorded are shown by DHB in Figure 50, and by ethnicity in Figure 51. The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 57.7% (South Canterbury) to 96.1% (Mid Central) (Figure 50). The proportion of women with a subsequent colposcopy visit recorded on the NCSP Register ranged from 79.5% (Nelson Marlborough) to 95.7% (Tairawhiti)(Figure 50). The median time between the cytology result and a referral being accepted by a colposcopy clinic was three weeks or less in all 20 DHBs, and ranged from four days (Wairarapa) to 21 days (South Canterbury) (Table 65). The median time between the referral being accepted and the woman attending for colposcopy ranged from 41 days (Canterbury) to 210 days (Counties Manukau) (Figure 52, Table 65). The proportion of women for whom an accepted referral was recorded on the NCSP Register ranged from 81.9% for European/Other women to 92.2% for Māori women (Figure 51). The proportion of women with a subsequent colposcopy visit recorded on the NCSP Register ranged from 78.0% (Pacific women) to 89.9% (European/Other women)(Figure 51). The median time

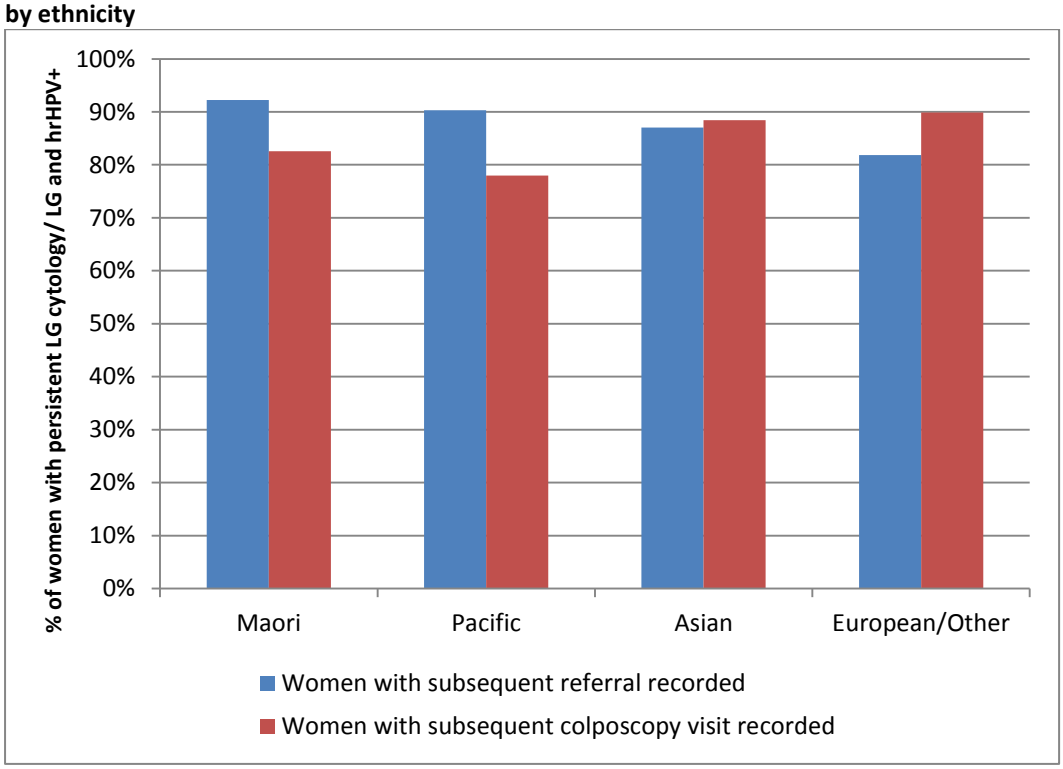
	between the cytology report date and a referral being accepted by a colposcopy clinic was around one week (range six to seven days) for all groups (Table 66). The median time between the referral being accepted and the woman attending for colposcopy ranged from 117 days (European/ Other women) to 161 days (Pacific women)(Figure 53, Table 66).
Trends	The definitions used in this indicator have changed since the previous report, and so trends are not reported because the results are not directly comparable. For example, the current report additionally uses histology records on the NCSP Register to ascertain whether women with persistent low grade abnormalities/ low grade abnormalities in conjunction with a positive hrHPV test have attended for colposcopy, to supplement colposcopy visit records.
Comments	This indicator is still under development, and the results are not directly comparable to the target, as the date of the first colposcopy appointment scheduled is not yet available on the NCSP Register. In the interim, this indicator is a descriptive measure of how many women have a referral and/ or a colposcopy visit recorded on the NCSP Register, and of the time taken between cytology report, referral and first colposcopy visit. Accepted referrals or a colposcopy visit recorded are included if they occurred after the date the cytology sample was collected, and prior to the time of the data extract from the NCSP Register (19th August 2014). Thus the follow-up period for individual women varies from almost nine to almost 15 months. It is possible that referrals are incompletely recorded on the NCSP Register, as some women have a record of a colposcopy visit, but no record of an accepted referral.

Figure 50 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by DHB



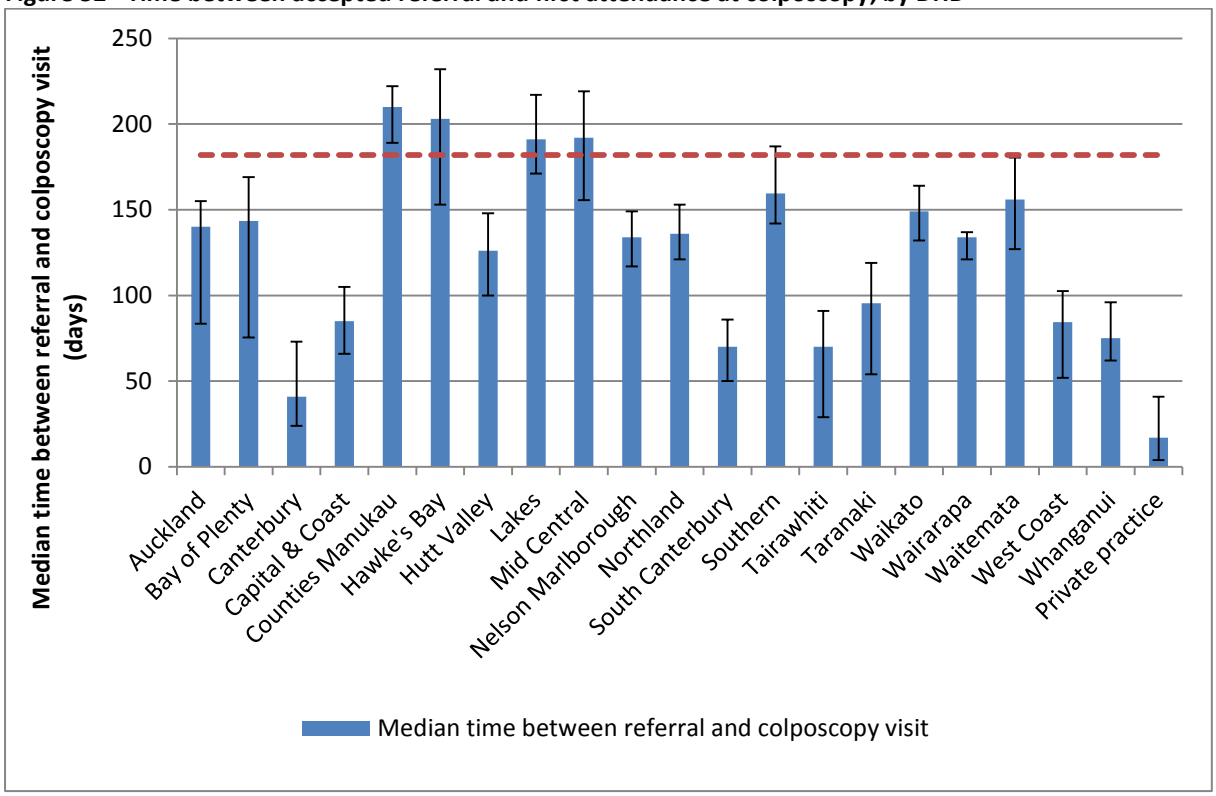
* Follow-up recorded on NCSP Register, at the time of data download. Colposcopies include both women with and women without an accepted referral recorded.

Figure 51 - Follow-up recorded* for women with persistent LG cytology/ LG cytology and positive hrHPV test, by ethnicity



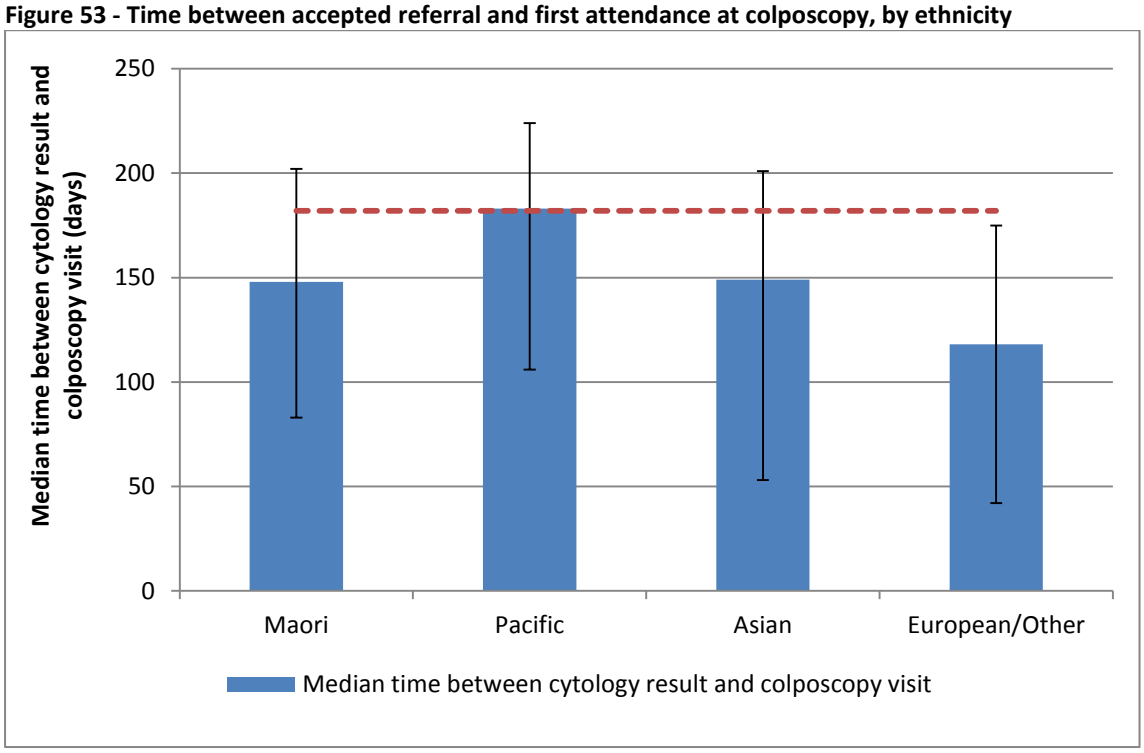
* Follow-up recorded on NCSP Register, at the time of data download. Colposcopies include both women with and women without an accepted referral recorded.

Figure 52 - Time between accepted referral and first attendance at colposcopy, by DHB



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

Figure 53 - Time between accepted referral and first attendance at colposcopy, by ethnicity



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

Indicator 7.3 – Adequacy of documenting colposcopy assessment

Definition	This indicator measures performance against Standard 603. The proportion of colposcopies which occurred within the monitoring period with complete reporting of • visibility of the squamo-columnar junction • presence or absence of a visible lesion • colposcopic opinion regarding the nature of the abnormality • recommended management and follow-up • timeframe recommended for follow-up • all of the above items completed Results are reported by DHB, based on the DHB of the facility where colposcopy was performed.
Target	100% of medical notes will accurately record colposcopic findings including: i) visibility of the squamo-columnar junction ii) presence or absence of a visible lesion iii) visibility of the limits of lesion iv) colposcopic opinion regarding the nature of the abnormality and the requirement for treatment v) recommended management and follow-up vi) timeframe recommended for follow-up. Items i), ii), v), vi) and the first of the items in iv) can be assessed using data in the NCSP Register, and are reported on below. Item iii) and second half of item iv) cannot be assessed using data from the NCSP-R as the colposcopy data reportedto the Register in the monitoring period is against the 2008 Standards (not the 2013 Standards) and therefore does not include this information. When calculating the completeness of recording of the colposcopic opinion regarding the nature of the abnormality, this was restricted to those colposcopy visits where the presence of a lesion was either noted (colposcopic appearance recorded as abnormal), or could not be ruled out (colposcopic appearance recorded as inconclusive). When calculating the overall completeness of all items, colposcopic opinion regarding the nature of the abnormality was only required where colposcopic appearance was recorded as either abnormal or inconclusive.
Current Situation	There were 14,113 colposcopy visits within the current monitoring period recorded on the NCSP Register. Documentation relating to these visits was

analysed (Table 67).

Nationally, the visibility of the squamocolumnar junction was documented for 95.1% of visits; the presence or absence of a lesion was documented for 100.0% of visits; an opinion regarding the lesion grade was documented for 92.3% of visits where the presence of a lesion could not be ruled out. Additionally,the type of follow-up was documented for 98.1% of visits and the timeframe for follow-up was documented for 97.5% of visits. All of these items (where relevant) were documented for 89.4% of visits. The colposcopic appearance was reported to be abnormal in 52.5% of colpscopies, and inconclusive in 4.4% of colposcopies (Table 68).

Documentation varied by DHB, as shown in Figure 54 and Table 67. Documentation of visibility of the squamocolumnar junction varied from 80.0% (Hawke's Bay) to 99.4% (Tairawhiti). In all DHBs, all colposcopy reports documented the presence or absence of a lesion. Recording of the opinion regarding the abnormality grade (which was only assessed here if colposcopic appearance was recorded as abnormal or inconclusive), ranged from 75.2% (Whanganui) to 97.9% (South Canterbury). Recording of the recommended type of follow-up ranged from 90.9% (Mid Central) to 100% (Capital & Coast, Hutt Valley, Northland, South Canterbury, Tairawhiti, Wairarapa and West Coast) and recording of the recommended timeframe for follow-up ranged from 90.9% (Mid Central) to 100% (Hutt Valley, South Canterbury, Tairawhiti, Wairarapa and West Coast). Overall completion rates ranged from 72.2% (Whanganui) to 98.5% (South Canterbury) (Figure 55, Table 68). Abnormal colposcopic appearance ranged from 34.6% of colposcopies (South Canterbury) to 72.1% of colposcopies (West Coast). Inconclusive colposcopic appearance ranged from 0.7% of colposcopies (South Canterbury) to 16.9% of colposcopies (Whanganui) (Table 68).

Colposcopies performed in private practice accounted for 11.5% of all colposcopies recorded on the NCSP Register in New Zealand in the current monitoring period. The percentage of colposcopies where items were completed was similar in private practice and public clinics overall for presence or absence of a lesion (100% in both private and public) and the type of recommended follow-up (97.9% private practice; 98.1% public clinics overall). Recording of the visibility of the squamocolumnar junction was somewhat higher in private practice (96.8%) compared to public clinics overall (94.9%). Conversely recording of both opinion regarding the abnormality grade (only assessed if colposcopic appearance was recorded as abnormal or inconclusive) (90.0% private practice; 92.6% public clinics overall) and recording of the recommended timeframe (95.2% private practice; 97.8% public clinics) were somewhat lower in private practice compared to public clinics overall. Overall completion was also lower in private practice (87.0%) compared to public clinics overall (89.7%) (Table 67). Abnormal colposcopic appearance was reported somewhat less often in private practice (51.9%) compared to in public clinics (52.6%), while inconclusive colposcopic appearance was reported somewhat more often in private practice (5.8%) than in public clinics (4.2%) (Table 68).

Trends Documentation for comparable colposcopy visit items has decreased

somewhat compared to that in the previous reporting period, where there had also been a drop. In this report, visibility of the squamocolumnar junction was documented for 95.1% of visits, compared to 96.0% in the previous report. The presence or absence of a lesion was documented for all visits in both this and the previous report. An opinion regarding the lesion grade was documented for 92.3% of visits where the presence of a lesion could not be ruled out in the current report, compared to 91.7% in the previous report. The type of follow-up recommended was documented for 98.1% of visits, the same as in the previous report, and the recommended timeframe for follow-up was recorded for 97.5% visits, compared to 97.4% in the previous report. All items (where relevant) were documented for 89.4% of visits in the current report, compared to 89.8% in the previous report. Longer term trends in the completion of all required fields are shown in Figure 55. Note, however, that two additional items which must be included in order for all items to have been reported on (recommended type and timeframe for follow-up) were added from Report 38 (1 July 2012), and so this measure is not directly comparable with that in reports prior to Report 38.

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

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

The number of colposcopies recorded on the NCSP Register decreased slightly in the current reporting period (by 6.4%) but larger changes were seen in some DHBs, for example larger decreases in Counties Manukau (33%) and Bay of Plenty (32%), South Canterbury (30%), Capital & Coast (27%), and Waikato (22%); and larger increases in Hawke's Bay (41%), Taranaki (17%), and Wairarapa (16%). It is possible that these changes may represent more or less complete reporting of colposcopies rather than a true change in the number of colposcopies performed, but it is not possible to ascertain this directly from the data. In particular, the increases at Mid Central and Whanganui (and smaller increases at Hawke's Bay and Taranaki) may represent more complete reporting, as these DHBs moved to electronic reporting of colposcopies in the current reporting period, meaning that colposcopy visit data is received more quickly by the NCSP Register. Trends in the number of colposcopies recorded on the NCSP Register are shown in Figure 56.

Comments

This measure is only able to assess adequacy of documentation where colposcopy visits have been entered onto the NCSP Register. Therefore, it cannot provide an absolute estimate of adequacy if these data are incomplete on the NCSP Register. The data used in this analysis was extracted from the NCSP Register in March 2014.

In the current reporting period, Hawke's Bay, Mid Central, Taranaki and Whanganui DHBs commenced reporting colposcopy data electronically to the NCSP Register. After DHBs start reporting electronically to the NCSP Register, colposcopy visit data is transmitted to the NCSP Register sooner after the visit than was previously the case in that DHB (and sooner than may occur in other DHBs where electronic reporting is not yet in place). This may have been responsible for the increase in the number of colposcopies in these DHBs in the current reporting period. All DHBs are moving to electronic reporting by June 2015, and this will be reflected in future monitoring reports.

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

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

Figure 54 – Completion of colposcopic assessment fields, by DHB

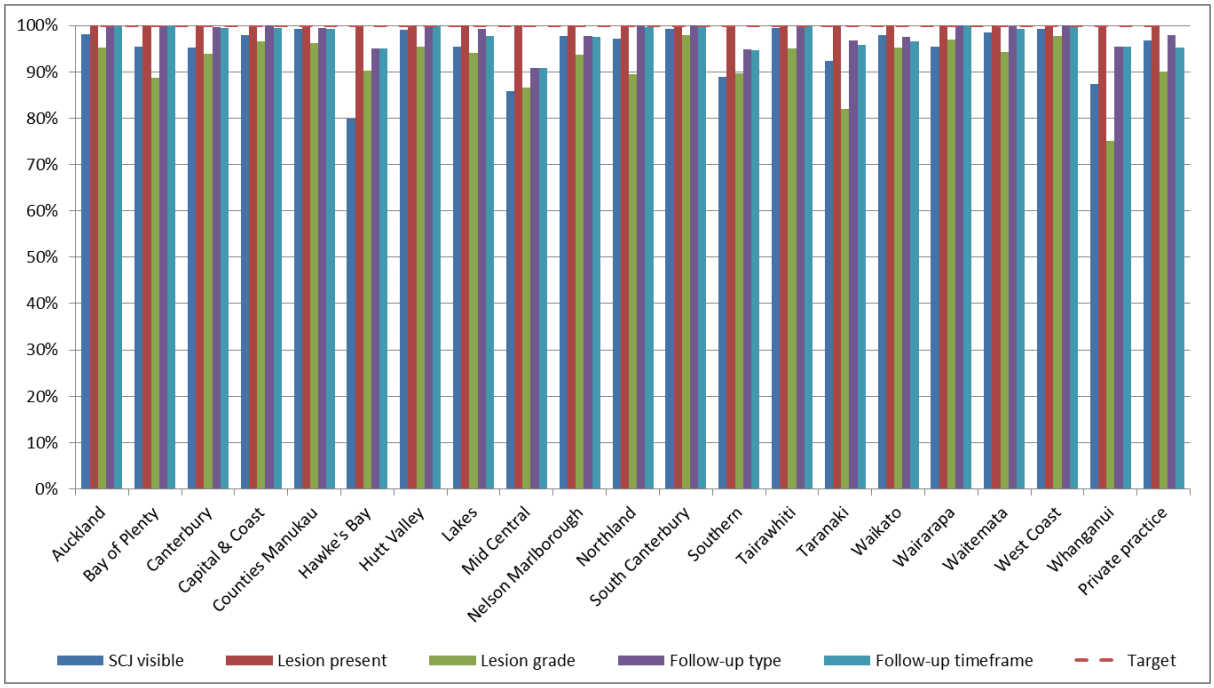
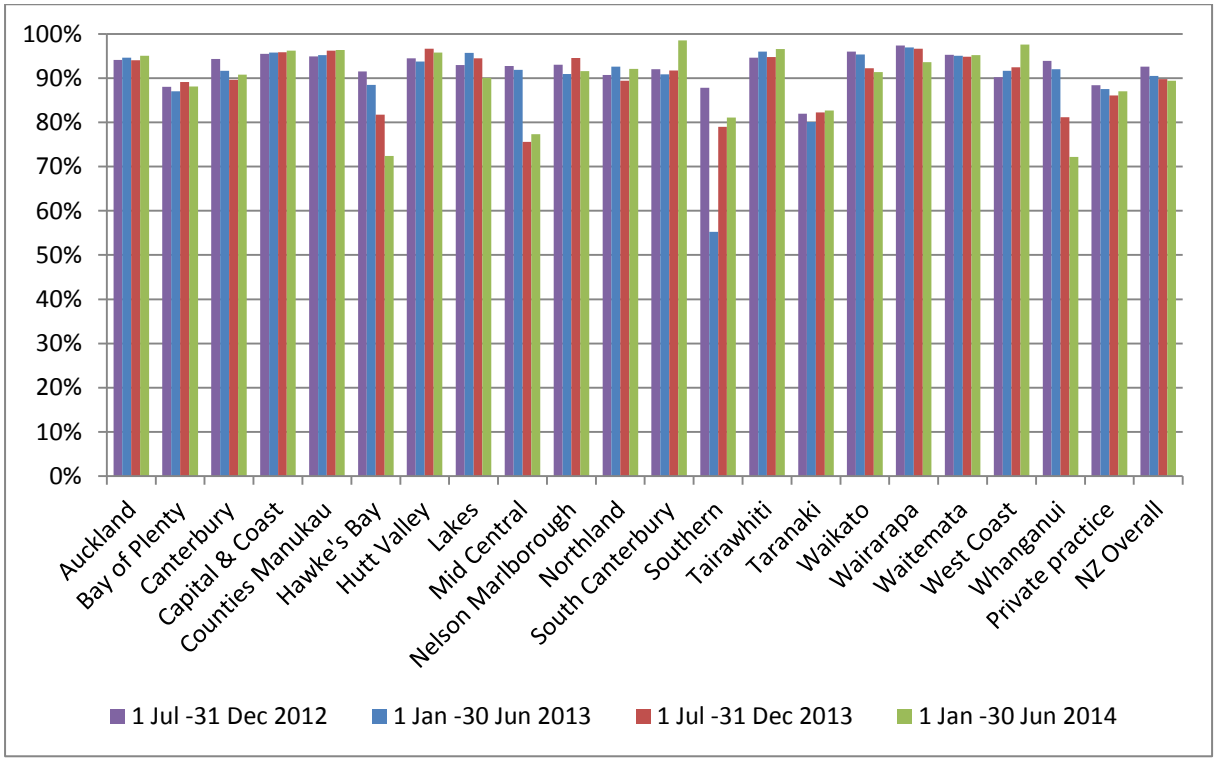
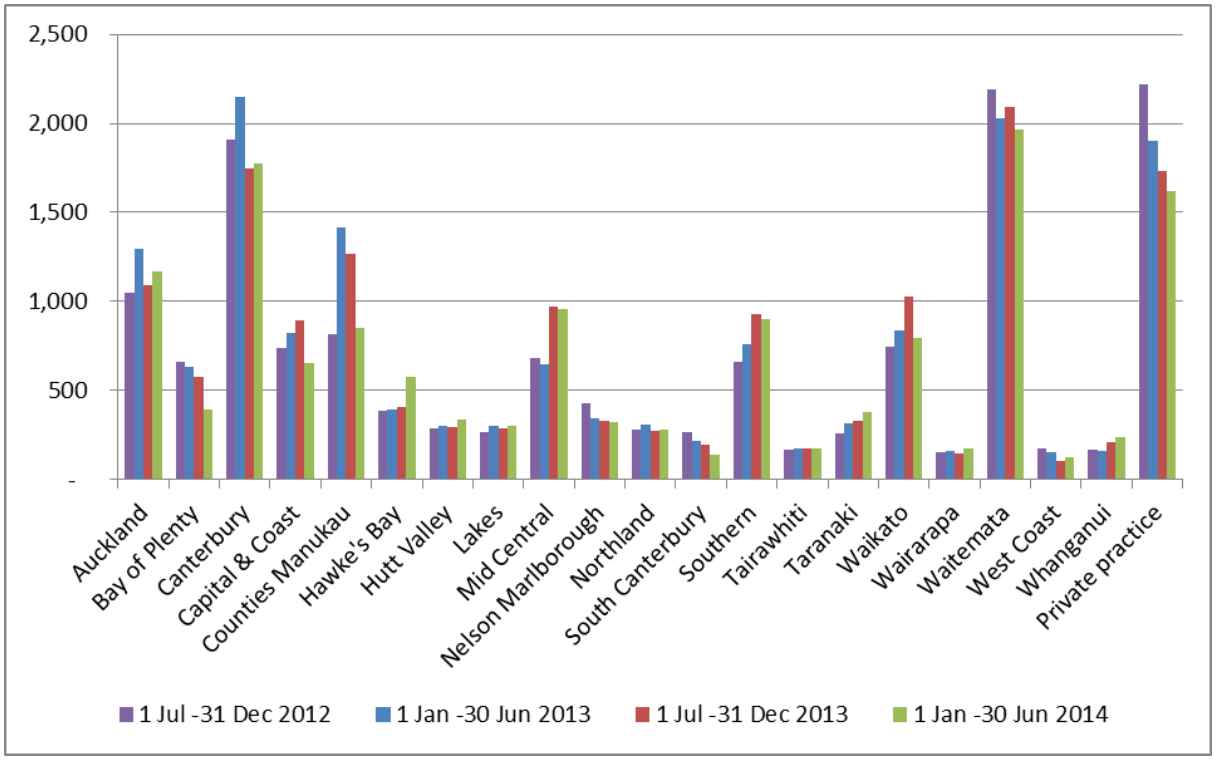


Figure 55 – Trends in the completion of all required colposcopic assessment fields, by DHB



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

Figure 56 – Trends in the number of colposcopies recorded on the NCSP Register, by DHB



Indicator 7.4 – Timeliness and appropriateness of treatment

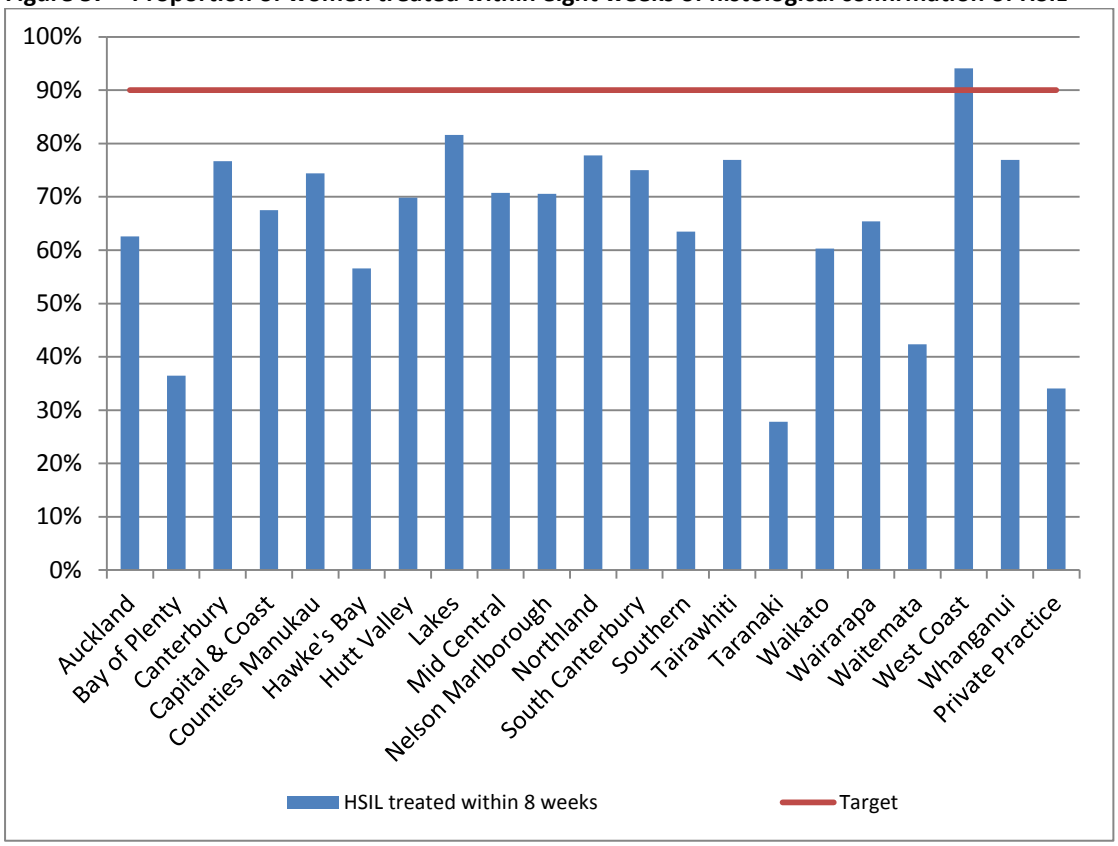
Definition	This indicator measures performance against Standard 605. The proportion of women with histological high grade squamous intraepithelial lesions (HSIL) who are treated within eight weeks of histological confirmation. Histological HSIL is defined as CIN2, CIN3, CIN2/3 or HSIL not otherwise specified (SNOMED codes M67017, M74007, M74008, M80102 and M80702). Histological LSIL is not routinely treated, as treatment is not recommended for women with low grade abnormalities in the 2013 Colposcopy Standards (consistent with 2008 NCSP *Guidelines for Cervical Screening in New Zealand*). The 2013 Colposcopy Standard recommends that the number of women who are treated with low-grade lesions (less than CIN2 on histology) be minimised. Therefore treatment of LSIL is included in this report for descriptive purposes and to examine the appropriateness (not timeliness) of treatment. This report describes the number and proportion of women with histological low grade squamous intraepithelial lesions (LSIL) who are treated. To ensure consistency in the follow-up time examined for each woman and in order to allow timely reporting, treatments are included if they occur within 26 weeks of histological confirmation. Histological LSIL is defined as CIN1 or CIN not otherwise specified (SNOMED codes M67015, M67016, M74000 and M74006). Women are included in this indicator if they have a histology sample where the result is HSIL or LSIL (as previously defined, above), and the sample was collected in the six-month period immediately prior to the current reporting period (ie in the period [Status]). 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, 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 are treated within 8 weeks of histological confirmation of HSIL (CIN2/3) There is no explicit target relating to low grade lesions, but the standard recommends that the number of women who are treated with low-grade lesions (less than CIN2 on histology) be minimised.
Current Situation	There were 2,711 women with a histological diagnosis of HSIL (associated with histology samples collected in the six months immediately preceding the current reporting period, and reported at least eight weeks prior to 30 June 2014). Of these women, 1,598 (58.9%) were treated within eight weeks of HSIL being histologically confirmed. The proportion of women treated within eight weeks varied widely by DHB, from 27.8% (Taranaki) to 94.1% (West Coast). One DHB met the target of 90% of women treated within eight weeks of histological

	confirmation of HSIL (West Coast) (Figure 57, Table 29). There were 2,179 women with a histological diagnosis of LSIL (associated with histology samples collected in the six months immediately preceding the current reporting period, and reported at least 26 weeks prior to 30 June 2014). Treatment for histological LSIL is not routinely recommended in the 2013 Colposcopy Standards or the 2008 NCSP *Guidelines for Cervical Screening in New Zealand*[16], and so timeliness of treatment is not examined or compared to a target for LSIL. However, for descriptive purposes and to examine appropriateness of treatment, follow-up records were retrieved for the 2,179 women with histological LSIL. Of these women, 131 women (6.0%) were subsequently treated (within 26 weeks of LSIL being histologically confirmed) and had no additional record of high grade histology in the six months preceding their treatment. The proportion of women subsequently treated varied widely by DHB, from no women (Nelson Marlborough, South Canterbury, Tairawhiti) to 28.6% (Northland) (Table 29). The DHB where the largest number of women were treated was Canterbury (26 women).
Trends	Nationally, the proportion of women with histological HSIL who are treated within eight weeks of histological confirmation has decreased somewhat, from 59.5% in the previous reporting period, to 58.9% in the current reporting period. The proportion of women with histological LSIL who were subsequently treated (within 26 weeks of LSIL being histologically confirmed) is slightly higher in the current report (6.0%) and the previous report (5.8%). The proportion of women with histological HSIL who are treated within eight weeks increased in several DHBs (Auckland, Bay of Plenty, Canterbury, Hawke's Bay, Northland, Southern, Wairarapa and West Coast), but decreased by more than five percentage points in Capital & Coast, Lakes, Mid Central, Nelson Marlborough, South Canterbury, Tairawhiti, Taranaki, Waitemata and Whanganui.
Comments	Whether or not treatment has occurred is determined for this indicator via colposcopy data in the NCSP Register. Colposcopy visit details are still largely recorded on colposcopy visit forms, and records of these forms are uploaded onto the NCSP Register. Depsite efforts to improve the quality of colposcopy data, it is most likely that colposcopy data on the NCSP Register is incomplete. If so, there may be cases where treatment occurred, but this has not been recorded on the NCSP Register (data used in this analysis was extracted from the NCSP Register in August 2014). Therefore the results for this indicator may underestimate timeliness of treatment in cases where colposcopy data are incomplete. Similarly, trends may also reflect changes in the completeness of colposcopy data recording treatment within a DHB rather than necessarily true increases or decreases in the proportion of women treated. An exploratory analysis suggested that colposcopy data are incomplete for treatments, as a colposcopy visit recording treatment was found for just under half of the histology samples originating from treatment biospies in January to June 2014 (991 of 2,178 treatment samples; 44.5%). This incomplete recording of treatment potentially affects the results for treatments for both HSIL and LSIL.

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

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

Figure 57 – Proportion of women treated within eight weeks of histological confirmation of HSIL



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

Table 29 – Timeliness and appropriateness of treatment, by DHB

DHB	Women with histological HSIL*	Treated within 8 weeks		Women with histological LSIL†	Women subsequently treated‡	
	N	N	%	N	N	%
Public clinics (overall)	*2,294*	*1,456*	*63.5*	*1,645*	*116*	*7.1*
Auckland	219	137	62.6	202	13	6.4
Bay of Plenty	96	35	36.5	102	1	1.0
Canterbury	330	253	76.7	344	26	7.6
Capital & Coast	157	106	67.5	115	14	12.2
Counties Manukau	176	131	74.4	209	20	9.6
Hawke's Bay	99	56	56.6	23	1	4.3
Hutt Valley	73	51	69.9	37	4	10.8
Lakes	49	40	81.6	40	4	10.0
Mid Central	106	75	70.8	83	6	7.2
Nelson Marlborough	51	36	70.6	20	-	-
Northland	63	49	77.8	7	2	28.6
South Canterbury	24	18	75.0	5	-	-
Southern	189	120	63.5	47	3	6.4
Tairawhiti	39	30	76.9	16	-	-
Taranaki	79	22	27.8	56	3	5.4
Waikato	214	129	60.3	97	1	1.0
Wairarapa	26	17	65.4	12	1	8.3
Waitemata	248	105	42.3	176	15	8.5
West Coast	17	16	94.1	28	1	3.6
Whanganui	39	30	76.9	26	1	3.8
Private Practice	*417*	*142*	*34.1*	*534*	*15*	*2.8*
Total	**2,711**	**1,598**	**58.9**	**2,179**	**131**	**6.0**

** Includes CIN2/3 and HSIL not otherwise specified (SNOMED codes M67017, M74007, M74008,M80102, M80702) † CIN1, CIN not otherwise specified (SNOMED codes M67015, M67016, M74000 and M74006). CIN1 is not routinely treated (consistent with 2008 NCSP Guidelines for Cervical Screening in New Zealand), so these results are not compared to a target. They appear here for descriptive purposes and to show where the 131 histologically confirmed LSIL women were treated. ‡ Includes women treated within 26 weeks of LSIL histology. Date that histology results were reported to requesting clinician is used as the date of histological confirmation. DHB is assigned based on the clinic where the original histology sample was collected, however treatments are included regardless of where they occurred.*

Indicator 7.5 – Timely discharging of women after treatment

Definition

This indicator measures performance against Standard 608.

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

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

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

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

Based on advice from the NCSP Advisory Group, women were defined as eligible for discharge if they had a colposcopy visit and cytology test following their treatment, and their cytology result was negative.

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

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

Target

90% or more of women treated for high grade lesions should have a colposcopy and smear within nine months post treatment

90% or more of women treated for high grade lesions should be discharged back to the smear-taker as appropriate.

Current Situation

There were 1,641 women treated for high grade lesions in the six-month period from 1 January - 30 June 2013. Records for these women in the twelve months from the date of their treatment visit were retrieved.

Follow-up post treatment

There were 1,170 women (71.3%) with a follow-up colposcopy, and 1,148 women (70.0%) with both a follow-up colposcopy and a cytology sample in the nine month period after their treatment visit (Table 69).

Figure 58 shows the percentage of treated women with a record of follow-up colposcopy, and both follow-up colposcopy and a cytology sample, in the period up to nine months post-treatment by DHB. Generally, the number of women with both cytology and colposcopy was very similar to the number of women with at least colposcopy (Table 69). The number of women with colposcopy only and no record of a cytology sample in the timeframe was at most six (Mid Central).

The percentage of women treated for high grade lesions with a record of colposcopy and cytology within the nine-month period post treatment (70.0%) is below the target value of 90%.

Two DHBs met the target of at least 90% of women receiving cytology and colposcopy within nine months post-treatment (Northland and Wairarapa) (Figure 58, Table 69). The percentage of treated women with a record of both follow-up colposcopy and a cytology sample in the period up to nine months post-treatment varied by DHB from 22.2% (Tairawhiti) to 93.38% (Northland) (Figure 58, Table 69).

Women discharged appropriately

In total, 1,094 women (73.2% of those treated) were eligible to be discharged by 12 months after their treatment visit, and 970 of these women (88.7%) were discharged within 12 months of treatment (Table 70). Figure 59 shows how these percentages vary by DHB. The percentage of women eligible for discharge who were discharged within 12 months of treatment ranged from 23.1% (South Canterbury) to all eligible women (Bay of Plenty, Northland, and Wairarapa) (Table 70). In some cases, the number of women eligible for discharge was small, so these results should be interpreted with caution (ten or fewer women in Wairarapa and Whanganui). Ten DHBs met the target of discharging 90% of women where appropriate within 12 months (Auckland, Bay of Plenty, Capital & Coast, Hutt Valley, Nelson Marlborough, Northland, Southern, Waikato, Wairarapa and Whanganui).

In total, 1,165 women were discharged within 12 months of being treated for a high grade lesion (71.0% of all women treated for a high grade lesion).

Trends

The proportion of women with follow-up has decreased overall (from 72.4% to 71.3% for colposcopy, and from 71.5% to 70.0% for both cytology and colposcopy). The number of DHBs meeting the target of 90% has remained at two).

	The proportion of women discharged appropriately to their smear taker by 12 months has also increased overall (from 87.3% to 88.7%). The number of DHBs meeting the target of 90% has also increased (from nine to ten). Note that in many DHBs, the numbers of women treated is small, and so results are based on a small number of women (20 women or less recorded as treated on NCSP Register for South Canterbury, Wairarapa and Whanganui). The definitions used for follow-up changed in Report 38, in order to reflect the updated colposcopy standard, and so are not all comparable to follow-up in reports prior to Report 38.
Comments	Since this indicator relies on colposcopy data in the NCSP Register, there is the possibility that incomplete reporting of colposcopy visits has led to an underestimate of the number of women with follow-up colposcopy visits and the number discharged in a given time period. The data used in this analysis was extracted from the NCSP Register in March 2014. The target that 90% or more of women treated for CIN 2 or 3 should be discharged back to the smear taker as appropriate was assessed in this monitoring report, based on guidance from the NCSP Advisory Group as to when discharge would be appropriate. However it should be noted that neither the 2008 NCSP *Guidelines for Cervical Screening in New Zealand* nor the 2013 Colposcopy Standards themselves provide explicit guidance for when discharge back to the smear taker is appropriate. In some circumstances, women may be treated within one DHB, but referred to another DHB for follow-up. This information is not always recorded in the NCSP Register however, and for clarity in this report, women remain assigned to the DHB where their treatment was performed. However, this measure does take into account all follow-up visits which women attend, regardless of the DHB in which they may occur.

Figure 58 – Percentage of women treated with follow-up colposcopy, and both colposcopy and cytology, within nine months post-treatment

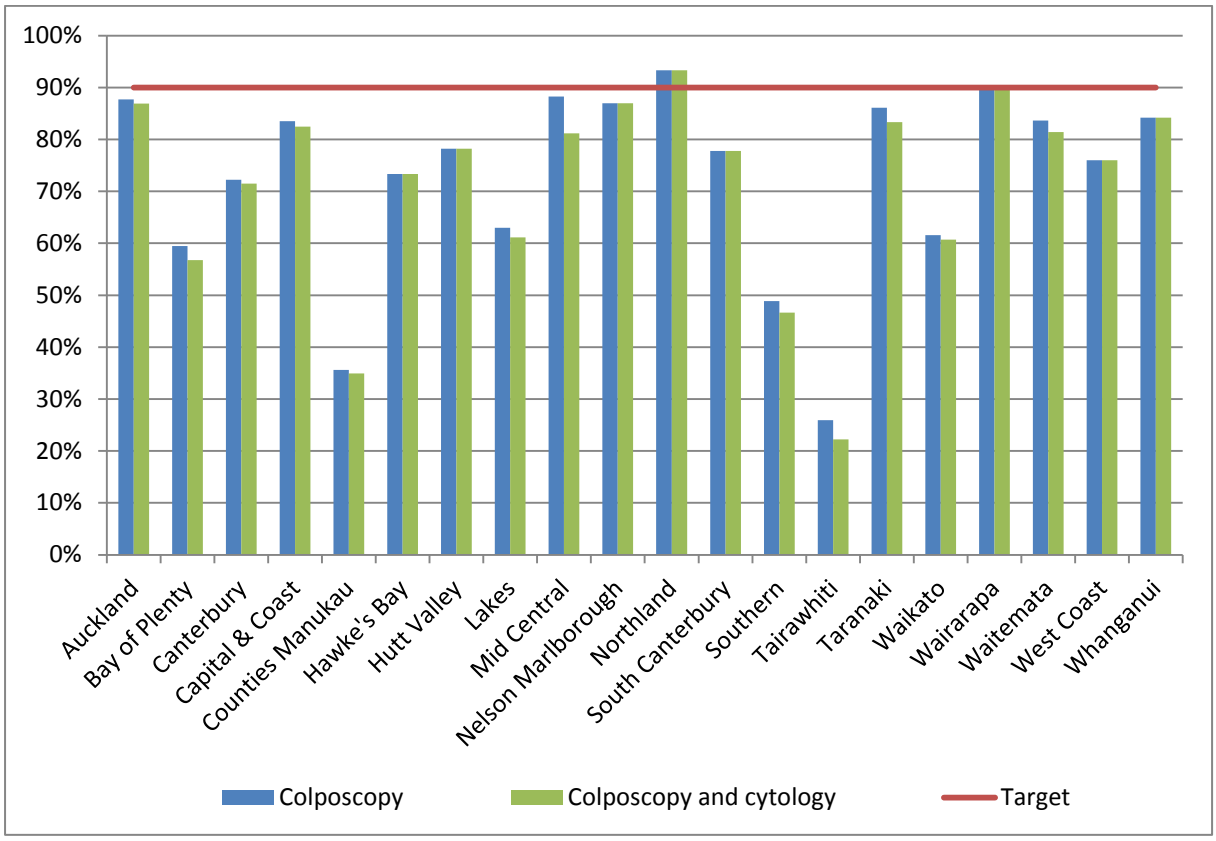
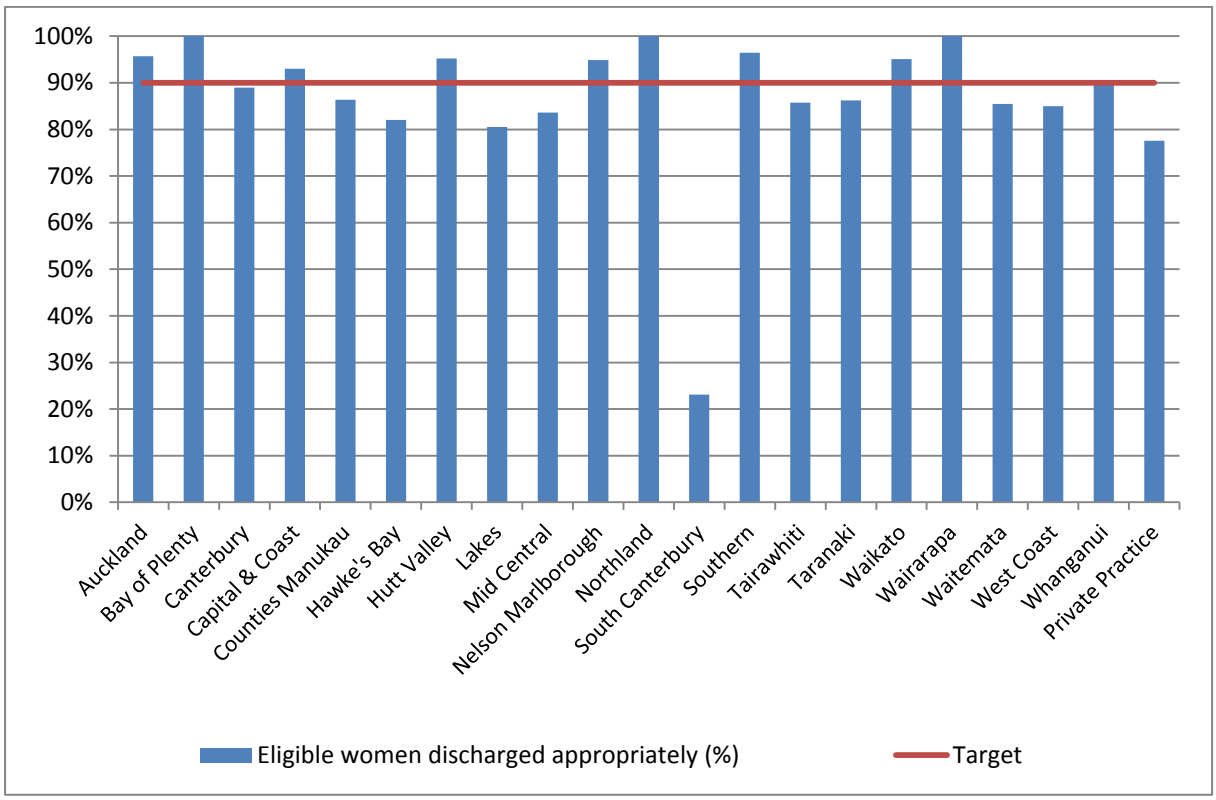


Figure 59 – Percentage of women discharged appropriately within 12 months of treatment



Indicator 8 – HPV tests

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

8.1 Triage of low grade cytology

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

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

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

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

Indicator 8.1 – Triage of low grade cytology

Definition	For women with an ASC-US or LSIL (low grade) cytology result relating to a cervical sample taken in the monitoring period, and with no recent abnormal cytology (ie abnormal cytology results relating to specimens taken in the preceding five years), the following are reported on: • The number and proportion of women with a subsequent HPV triage test (by age group, and cytology laboratory) • Women with 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 up to five weeks after the cytology sample, and where there is a HPV test result available (including invalid results). HPV tests on samples collected more than five weeks after the cytology sample were excluded they were unlikely to have been performed on the same sample, or for the purposes of HPV triage. 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 from this indicator if they have ever had either a high grade squamous cytology result (ASC-H, HSIL) or a high grade squamous histology result (CIN2/3) (as recorded on the NCSP Register), as they may be having an HPV test in order to follow-up a previous high grade squamous abnormality (cytology or histology, ie historical testing). If a laboratory which performed the cytology refers the HPV test to a different laboratory, measures are based on the laboratory which performed the cytology test. Measures reported by age are based on the age of the women on the date that the cytology sample was collected.
Target	Targets have not yet been set.
Current Situation	There were 956 women aged less than 30 years and 1,585 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 2,332 women aged less than 30 years and 1,484 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, 95.8% of women aged 30 years or more with an ASC-US cytology result, and 97.7% of women aged 30 years or more with an LSIL cytology result are recorded as having a subsequent HPV test (Table 71, Table 72). These proportions ranged 80.5% (LabPLUS) to 99.4% (Diagnostic Medlab Ltd) for ASC-US cytology results and from 92.9% (LabPLUS) to 99.6% (Diagnostic Medlab Ltd) for LSIL cytology results (Figure 60, Table 71, Table 72).

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 1.3% of women aged less than 30 years with ASC-US results, and 0.4% of women aged less than 30 years with LSIL results. These proportions ranged from no women (Diagnostic Medlab Ltd, LabPLUS, Medlab Central) to 5.6% (Canterbury Health Laboratories) for women with ASC-US results, and from no women (Aotea Pathology Ltd, LabPLUS, Pathlab) to 1.3% (SMedlab Central) for women with LSIL results (Figure 61, Table 72).

Among women aged 30 years or more with valid HPV triage test results, the proportion who were positive for high risk HPV was 28.3% for women with ASC-US results, and 60.5% for women with LSIL results. These proportions varied by laboratory from 21.2% (Canterbury Health Laboratories) to 43.8% (Southern Community Labs) for women with ASC-US cytology (Figure 62), and from 38.5% (Labplus) to 73.7% (Aotea Pathology Ltd) for women with LSIL cytology (Figure 63; excludes LabPLUS due to very small number of samples).

The proportion of women whose HPV triage test was positive also varied by age. HPV positivity generally decreased with increasing age, although in the current reporting period HPV positivity rates for ASC-US cytology were similar across the age groups between 40 and 59 years (Figure 64, Table 30).

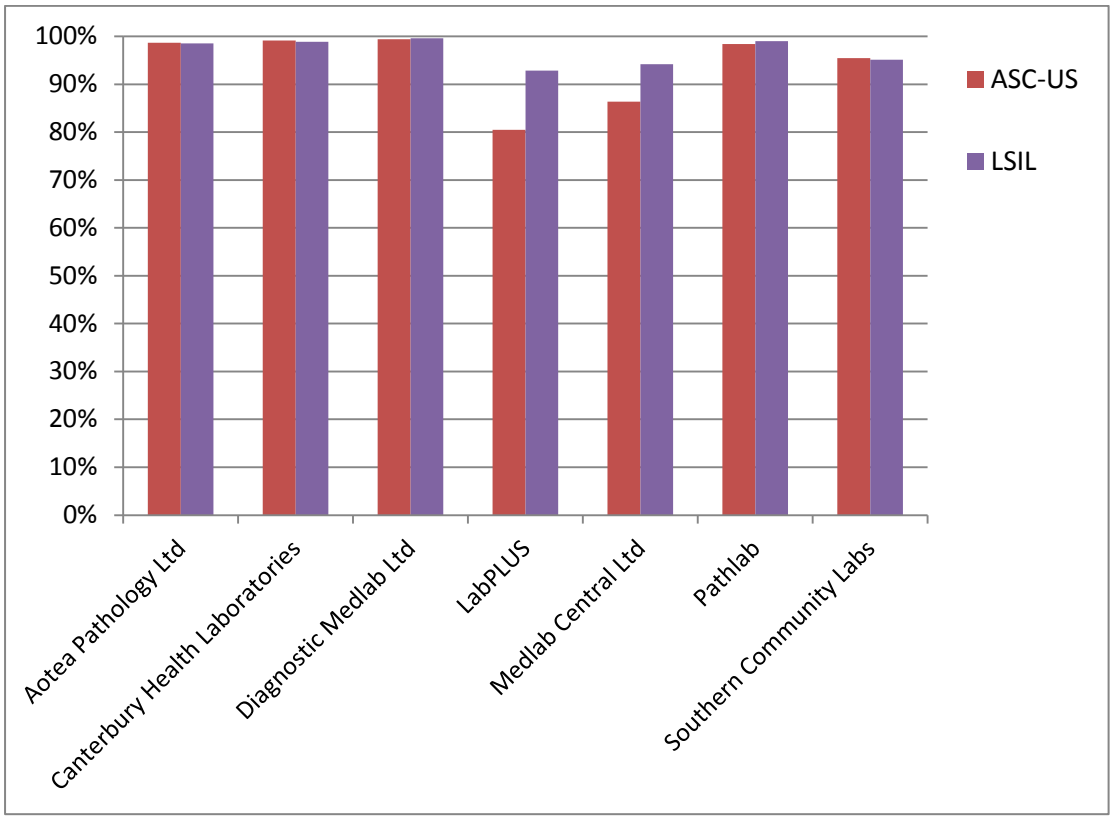
Trends

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 is very similar to the previous report for women with ASC-US results (95.9% in the previous period compared to 95.8% in the current period), and somewhat higher for women with LSIL results (95.7% in the previous period compared to 97.7% in the current period). The proportion of women aged less than 30 years with a subsequent HPV test is slightly higher than that observed in the previous monitoring period for ASC-US (1.3%, compared to 0.9% in the previous report) but slightly higher for LSIL (0.4% in the current and 0.6% in the previous report).

The proportion of women aged 30 years or more who test positive for a high risk HPV type was somewhat higher for ASC-US (26.2% in the previous report; 28.3% in the current report), and slightly higher for LSIL (60.1% in the previous report; 60.5% in the current report).

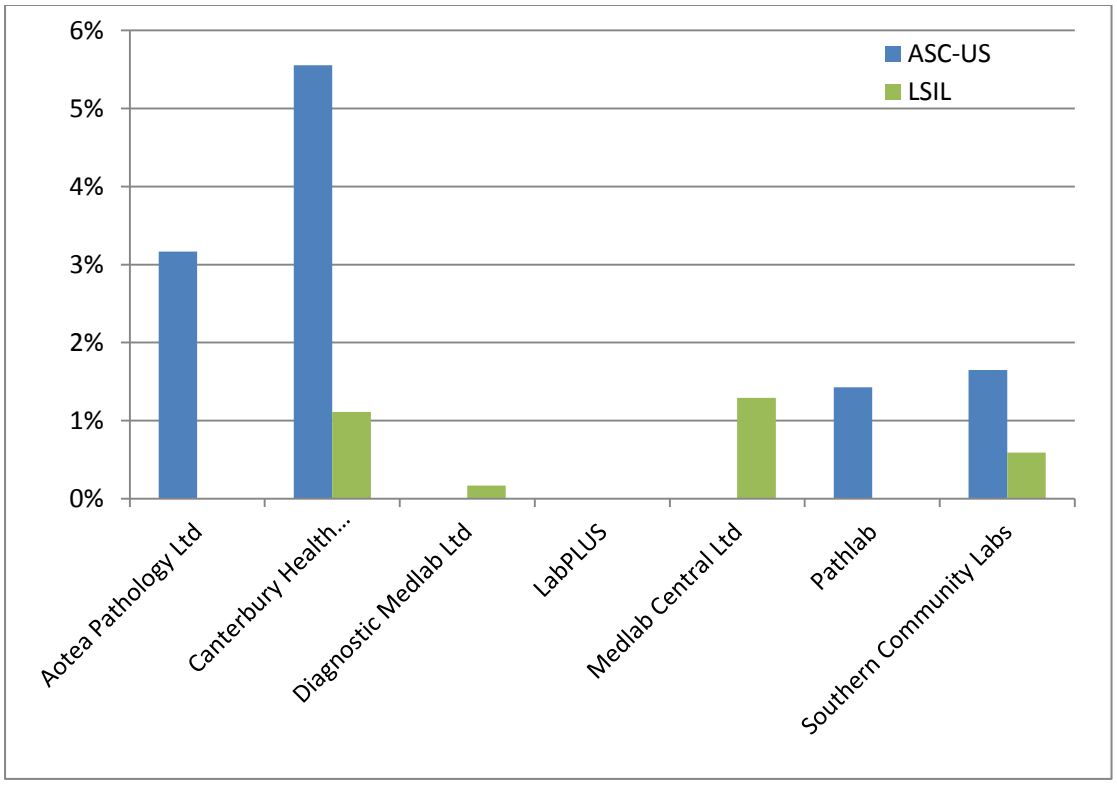
Comments	A small number of women aged less than 30 years with low grade results, no recent abnormalities (in the previous five years) and no record of any previous high grade squamous abnormality (cytological or histological) have a record of a subsequent HPV test (22 women). This is slightly fewer than in the previous report (24 women). It is uncertain whether these HPV tests were performed for the purpose of triage, or for other reasons. In this report, we excluded women aged less than 30 years from this indicator if they had ever had a previous high grade squamous abnormality (either ASC-H/ HSIL cytology, or CIN2/3 histology, as recorede on the NCSP Register). This was done in order to avoid potential inadvertent inclusion in this indicator of women being tested for HPV in concordance with the guidelines as part of "historical testing". This could occur as a result of a previous high grade squamous abnormality (either ASC-H/ HSIL cytology, or CIN2/3 histology) currently managed by annual cytology, which occurred more than five years earlier (since abnormalities within the previous five years are already taken into account). It is also possible that some women were aged 29 years at the time of their cytology sample, but 30 years at the time of the cytology result, although previous exploration has suggested that the extent of this is likely to be small.[17, 18] Another possible explanation is that these women are being followed up for a previous high grade result but this is not recorded on the NCSP Register (for example because this occurred overseas). The HPV test may also have been ordered by a specialist. However note that inadvertent inclusion of HPV tests ordered by a specialist to resolve discordant results (or for historical testing) should be minimised since women were excluded from this indicator if they had any recent abnormalities (past five years, any abnormality grade); if they had ever had a high grade squamous abnormality (but no glandular abnormality) recorded on the NCSP Register; if the sample for HPV testing was collected on the same day as a recorded colposcopy visit for that woman; or if the sample for HPV testing was collected more than five weeks after the cytology sample.

Figure 60 – Proportion of women (aged 30 years or more) with low grade cytology who had 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 61 – Proportion of women (aged less than 30 years) with low grade cytology who had a subsequent HPV test, by laboratory and cytology result



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

Figure 62 - Proportion of HPV triage tests which were positive following ASC-US cytology (women aged 30 years or more), by cytology laboratory

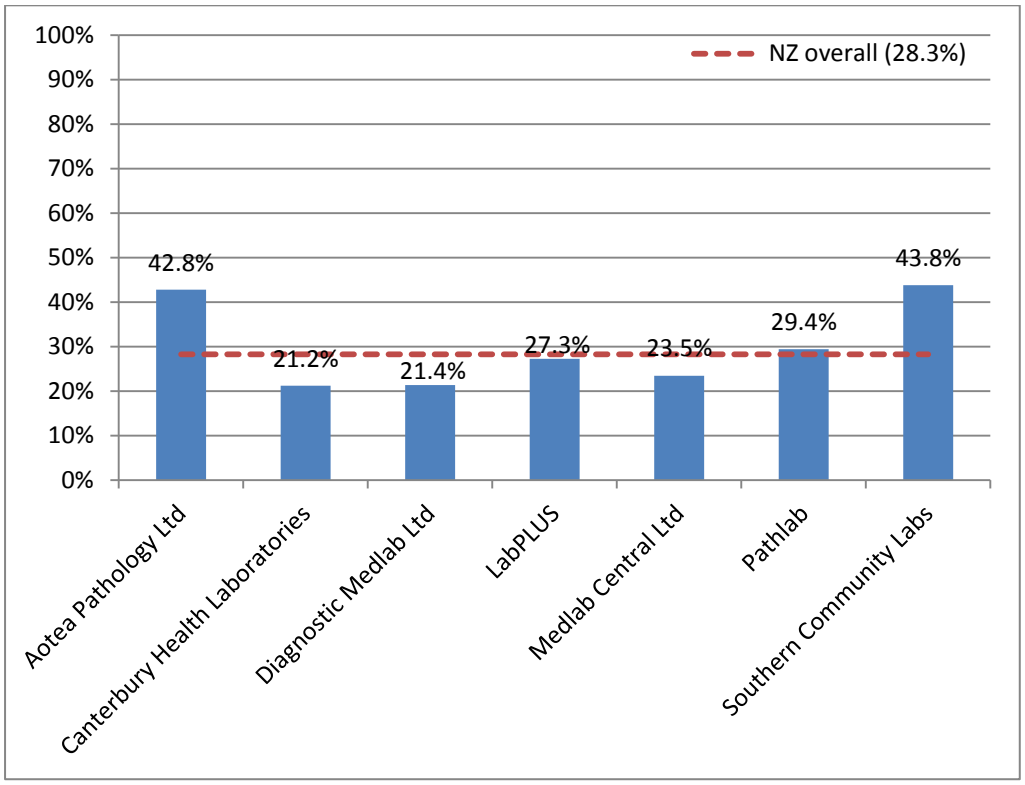
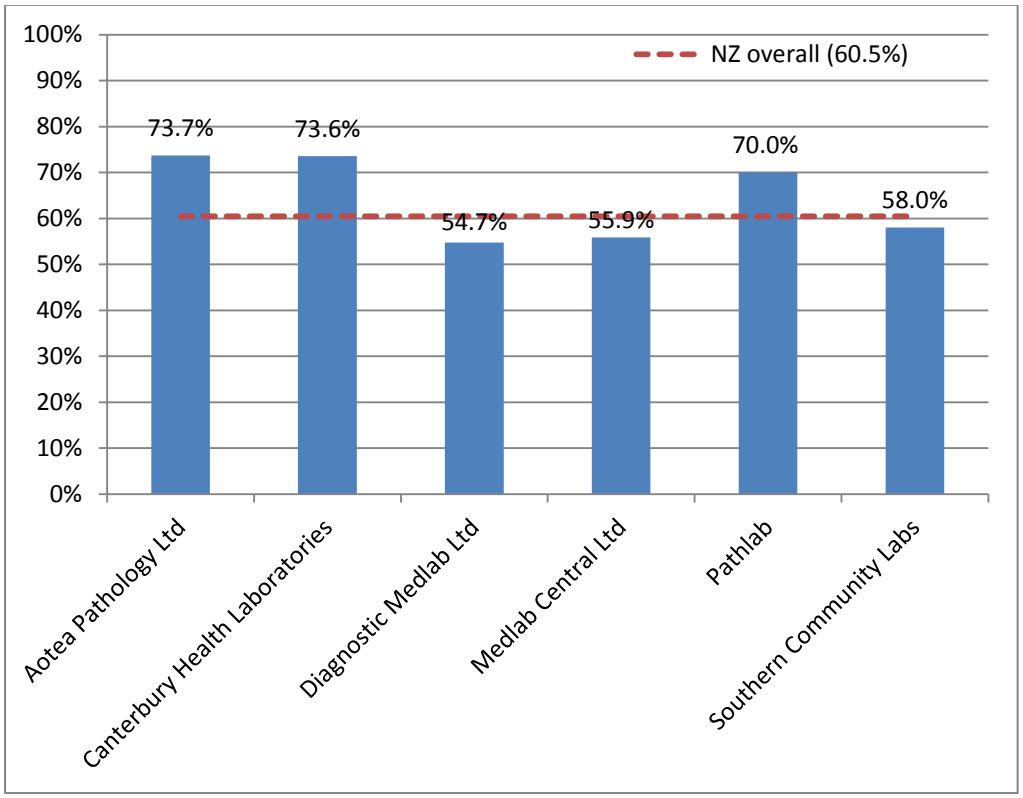
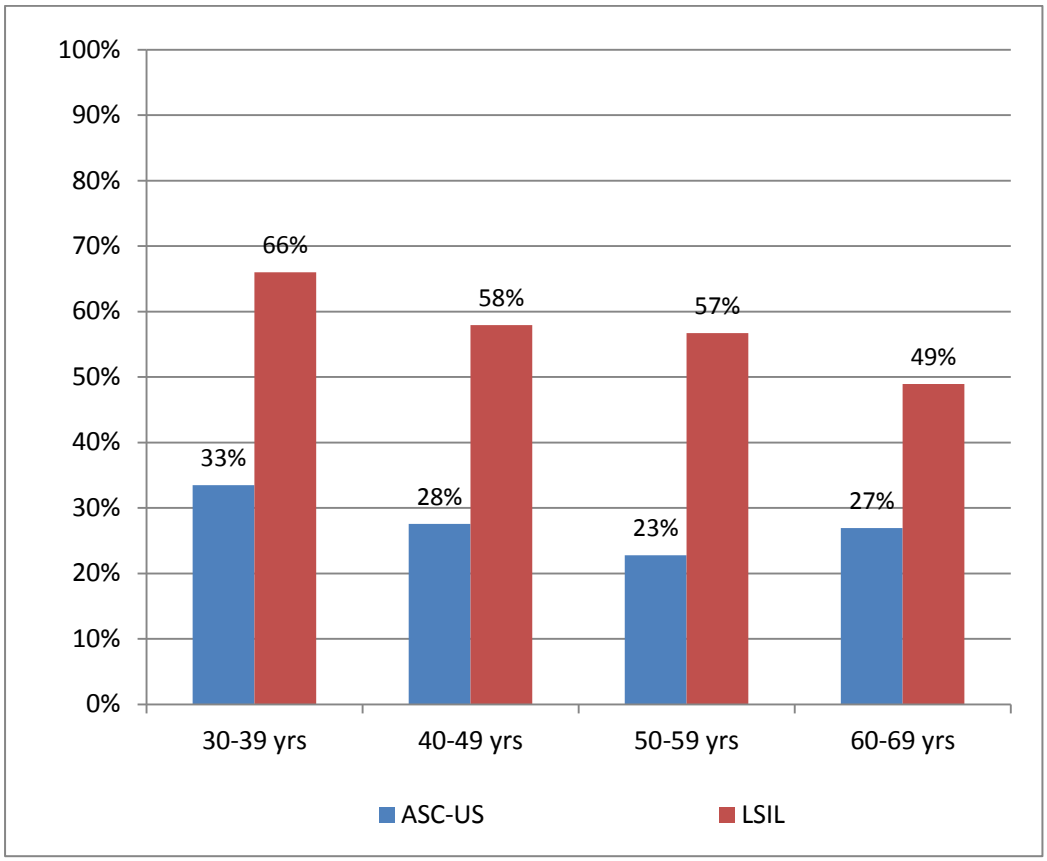


Figure 63 - Proportion of HPV triage tests which were positive following LSIL cytology (women aged 30 years or more), by cytology laboratory



Excludes LabPLUS due to very small number of tests (N=12)

Figure 64 – Proportion of women with an HPV triage test who were 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 30 - 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	5	145	4	80.0	21	44.7	27	45.8	9	37.5	5	35.7	0	0.0
Canterbury Health Laboratories	2	118	1	50.0	11	23.9	8	21.1	4	15.4	2	25.0	0	0.0
Diagnostic Medlab Ltd	0	519	0	0.0	43	28.3	34	18.7	22	18.5	12	18.8	0	0.0
LabPLUS	0	33	0	0.0	4	20.0	2	40.0	1	16.7	2	100.0	0	0.0
Medlab Central Ltd	0	247	0	0.0	24	34.3	17	18.3	10	18.2	6	24.0	1	25.0
Pathlab	2	245	1	50.0	23	30.3	23	35.4	16	21.3	9	34.6	1	33.3
Southern Community Labs	3	210	1	33.3	33	51.6	33	41.3	18	39.1	6	35.3	2	66.7
TOTAL	**12**	**1,517**	**7**	**58.3**	**159**	**33.5**	**144**	**27.6**	**80**	**22.8**	**42**	**26.9**	**4**	**30.8**

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

Table 31 - HPV triage test results following LSIL cytology, by age and cytology laboratory

Laboratory	Women with valid HPV test results		Women with positive HPV test results (number and % within each age group)											
	<30 yrs*	30+yrs	<30 yrs*		30-39yrs		40-49yrs		50-59yrs		60-69yrs		70+yrs	
	N	N	N	%	N	%	N	%	N	%	N	%	N	%
Aotea Pathology Ltd	0	137	-	-	42	72.4	33	75.0	18	72.0	8	80.0	0	0.0
Canterbury Health Laboratories	2	87	2	100.0	21	70.0	27	79.4	11	64.7	5	83.3	0	0.0
Diagnostic Medlab Ltd	1	537	1	100.0	140	59.6	93	50.8	47	53.4	14	50.0	0	0.0
LabPLUS	0	13	-	-	3	30.0	0	0.0	2	100.0	0	0.0	0	0.0
Medlab Central Ltd	3	145	3	100.0	40	66.7	26	46.4	13	59.1	2	28.6	0	0.0
Pathlab	0	200	-	-	72	81.8	36	62.1	23	63.9	8	50.0	1	50.0
Southern Community Labs	4	331	2	50.0	90	65.7	62	60.2	30	46.9	9	34.6	1	100.0
TOTAL	**10**	**1,450**	**8**	**80.0**	**408**	**66.0**	**277**	**57.9**	**144**	**56.7**	**46**	**48.9**	**2**	**33.3**

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

Indicator 8.2 – HPV test volumes

Definition

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

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

Purpose is defined as one of the following categories:

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

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

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

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

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

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

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

Rates of invalid HPV tests are also reported on.

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

Target

Targets have not yet been set.

Current Situation

Overall volumes

There were 18,726 samples received by laboratories for HPV testing within the current reporting period. These are reported on further in Table 73 to Table 78.

Virtually all (98.7%) samples for HPV testing were from women aged 20-69 years. The large majority of women (86.5%) were aged 30 years or more (Figure 65, Table 77).

The number of samples received by laboratories for HPV testing ranged from 868 (LabPLUS; 4.6% of all HPV tests) to 6,445 (Southern Community Labs; 34.4% of all HPV tests) (Figure 66, Table 73).

Figure 67 and Table 73 also show for each laboratory the ratio of the number of HPV tests received, divided by the number of cytology tests reported on (expressed as a percentage). This measure provides some correction for the variation in workloads between different laboratories. It is likely, for example, that laboratories which process a larger volume of cytology tests would also undertake a larger volume of HPV tests. The ratio of HPV tests to cytology tests reported was on average 8.8% across New Zealand – that is, on average 8.8% of cytology tests are associated with an HPV test. This ratio varied by laboratory from 6.7% (Diagnostic Medlab Ltd; ie fewer HPV tests processed in relation to cytology tests processed than national average) to 16.5% (Canterbury Health Laboratories; ie more HPV tests processed in relation to cytology tests processed than national average).

The proportion of tests or more whose HPV test results were invalid was 0.1% (Table 74). The proportion was small for all HPV test technologies (Table 75).

The distribution of HPV tests by ethnicity is shown in Table 76.

Purpose of HPV tests

These HPV tests were further analysed in order to ascertain the purpose for which they were performed. Nationally, it was estimated that 2,402 (12.8%) were for post-treatment management for women treated in the past four years; 6,864 (36.7%) was for follow-up management of women with high grade squamous cytology or histology more than three years previously (historical testing); 952 (5.1%) were on samples collected at a colposcopy visit which did not fit into a previous category (possibly for resolution of discordant results); and 2,781 (14.9%) were for triage of low grade cytology in women aged 30 years or more. There were 5,727 (30.6%) HPV tests that did not fit into any of the previously described categories (Figure 68).

Further breakdowns of HPV tests by purpose are presented by age (Figure 69) and laboratory (Figure 70).

There were variations in HPV test purpose by age (Figure 69, Table 77). HPV triage (by the definition used here, and consistent with NCSP Guidelines) did not occur in women aged less than 30 years. In women aged less than 30 years, a comparatively larger proportion were taken for post-treatment follow-up management or taken at colposcopy for another reason. Follow up of women with historical high grade squamous abnormalities (more than

three years ago) was the most common reason that HPV tests were performed among women aged 25 years or more. The proportion of tests which did not fit into the prescribed categories, and were therefore classified as 'Other', broadly decreased with age up to age 30 years, then increased with increasing age from age 30 years.

HPV test purpose also varied by laboratory (Figure 70, Table 78). Among tests for which the purpose could be determined, the most common categories were historical testing (at Aotea Pathology Ltd, Canterbury Health Laboratories, Diagnostic Medlab Ltd, Medlab Central, Pathlab, Southern Community Laboratories) and post-treatment management (LabPLUS). In all labs, however, tests for which the purpose was unclear were quite common, varying from 21.5% at Pathlab to 50.2% at LabPLUS. The proportion of tests performed for post-treatment management varied from 7.8% (Pathlab) to 26.3% (LabPLUS), while the proportion performed to follow up women with historical high grade squamous abnormalities varied from 12.4% (LabPLUS) to 46.3% (Aotea Pathology Ltd). The proportion of tests where the sample was collected at colposcopy but not for one of the previous purposes ranged from 0.4% (Aotea Pathology Ltd) to 13.1% (Canterbury Health Laboratories). The proportion of tests performed for HPV triage ranged from 5.3% (LabPLUS) to 27.0% (Diagnostic Medlab Ltd).

Follow up of women with historical high grade squamous abnormalities (more than three years ago) was the most common reason that HPV tests were performed among Māori women and European/ Other women. HPV triage was the most common reason among Pacific and Asian women (Table 76).

Tests in the "Other" category were further explored. A proportion of the 'Other' tests (2.6%; 148 tests) were potentially tests performed for post-treatment management, because the same woman had CIN2/3 histology recorded on the NCSP Register, however there was no explicit record of treatment available on the NCSP Register, potentially due to incomplete colposcopy data on the NCSP Register. Another 5.0% occurred after treatment, but did not meet the criteria for post-treatment management because they occurred within 6 months of treatment (1.7%; 100 tests), or after treatment of either a non-squamous high grade (0.8%; 45 tests) or a non-high grade (2.5%; 142 tests) lesion. A further 17.3% of the "Other" HPV tests occurred after a previous abnormality but one which did not meet the criteria for historical testing either because it was non-squamous (8.1%; 463 tests), not high grade (0.2%; 12 tests), or the high grade squamous cytology was less than three years ago (9.0%; 514 tests). A larger proportion (36.7%; 2,104 tests) of the "Other" tests occurred in women who did not have any specific high grade abnormality recorded on the NCSP Register, but did have a record on the NCSP Register suggesting that they had a previous high grade abnormality (although the Register does not record whether it was a squamous abnormality or not). These records predominantly indicated prior high grade cytology (29.0%; 1,658 tests), but some suggested prior high grade histology (7.8%; 446 tests). Smaller proportions of HPV tests were associated with a low grade abnormality, including either a current low grade cytology result which did not meet the criteria for triage because the woman had another recent abnormality and triage was not required (2.1%; 118 tests), or a

record suggesting a previous low grade cytology not explicitly recorded on the NCSP Register (4.6%; 263 tests). After this exploration, there remained 1,818 tests (31.7% of "Other" tests; 9.7% of all HPV tests in the monitoring period) where purpose still could not be determined.

HPV tests at colposcopy

HPV tests taken at colposcopy were further explored, based on the DHB of the colposcopy clinic where the sample was taken, and whether or not it was a public or a private clinic. Nationally, more of the HPV tests which were taken at colposcopy came from public facilities (689 tests; 88.0%) than from private facilities (94 tests; 12.0%), however this was consistent with the greater number of colposcopies performed in public clinics (Table 79). As the number of HPV tests collected at a colposcopy clinic is potentially reflective of the number of colposcopies performed there, a rate of HPV tests at colposcopy which takes this variation into account was derived, in order to provide more information. The rate of HPV tests at colposcopy was calculated by dividing the number of HPV tests collected at colposcopy by the total number of colposcopies within that DHB/ sector, expressed as a percentage. This rate can be broadly interpreted as the percentage of colposcopies (within a given DHB or sector) where an HPV test sample is collected. Across New Zealand, HPV test samples were collected in approximately 5.5% of colposcopies. In DHBs where HPV tests were collected at colposcopy, this value ranged from 0.3% (Hutt Valley) to 37.1% (Lakes), and was 5.5% overall across all public DHB clinics (Figure 71, Table 79). In private practice, this rate was 5.8%. No HPV tests were taken at colposcopy in Northland, Tairawhiti, Taranaki, Wairarapa, West Coast or Whanganui.

Trends

More samples were received at laboratories for HPV testing in the current reporting period (18,726) than in the previous monitoring report (20,111; decrease of 6.9%). This was not consistent across all test purpose categories however – there was an increase in tests performed for post-treatment management (6.9%) but a decrease in tests performed for management of historical high grade squamous abnormalities (11.4%), tests taken at colposcopy (12.7%) and for triage of low grade cytology (11.0%). A decrease in tests performed for historical high grade abnormalities is not unexpected, as these women are progressively returned to routine screening where appropriate, although it is a larger drop than in recent reporting periods. The drop in HPV tests at colposcopy is potentially explained by the drop in the number of colposcopies reported in the current monitoring period (see Indicator 7.3), especially at those DHBs where there are comparatively higher numbers of HPV tests taken at colposcopies (such as Bay of Plenty, Coutnies Manukau, Waikato and private practice), and also by a drop in the rate of HPV tests at colposcopy in Lakes. The drop in triage tests is potentially explained by fewer low grade cytology results and fewer women eligible for triage tests in the current reporting period. The drop in HPV tests is also broadly consistent with a drop in volumes of other tests, such as the number of cytology tests (see Indicators 5.1 and 5.5) and women with histology (see Indictaor 5.4) in the current reporting period.

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

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

Comments

HPV volumes by laboratory will vary for a number of reasons, one of which being the general volume of work in that laboratory. In order to provide some correction for the variation in workloads between different laboratories, we calculated the ratio of HPV tests received to cytology tests reported on (Figure 67, Table 73). Other reasons for variations the rate of HPV testing by laboratory (which are not taken into account in this ratio) may include differences in the population they serve, because HPV testing is performed in specific subgroups of women. For example HPV triage testing is performed in women with low grade (ASC-US/LSIL) cytology results (but without recent abnormalities), therefore laboratories reporting higher rates of low grade abnormalities may also have higher rates of triage testing. Conversely, laboratories reporting on a larger proportion of cytology from colposcopy clinics may be less likely to perform HPV triage testing, because women attending colposcopy have generally had a recent abnormality. These issues may for example partly explain differences in the ratios in Canterbury Health Laboratories (where rates of low grade cytology results are comparatively higher) and LabPLUS (where a larger proportion of cytology comes from colposcopy clinics). To understand in more detail the reasons for the differences, an explicit exploration of the purpose for which the HPV test was performed has been examined here.

Exploration is ongoing into the potential reason for tests in the 'Other' category, as is the refinement of specifications for the analysis of purpose. Some possible explanations include follow-up of women previously treated for high grade squamous abnormalities where these abnormalities occurred outside New Zealand, prior to the woman being enrolled on the NCSP Register, or prior to the inception of the NCSP Register. The latter may potentially explain why the proportion of 'Other' tests is higher in older women than in younger women. Synopses held on the NCSP Register of previous (self-reported) high grade abnormalities have been used in this report to explore this possibility further (although these synopses do not distinguish between squamous abnormalities and glandular abnormalities; HPV testing is currently only recommended for the management of women with previous squamous abnormalities). The proportion associated with a synopsis reflecting a previous high grade abnormality (cytological or histogical) reported here (36.7%) is lower than that in the previous report (43.5%). This is consistent with the observed reduction in the number and proportion of tests performed for historical testing, and so may potentially reflect some women with high grade abnormalities more than three years ago being returned to routine screening. Alternatively it may represent improved understanding of recommendations that historical testing should only occur where there is a specific record of a high grade squamous abnormality on the NCSP Register.

Figure 65 - Volume of HPV test samples received by laboratories during the monitoring period, by age

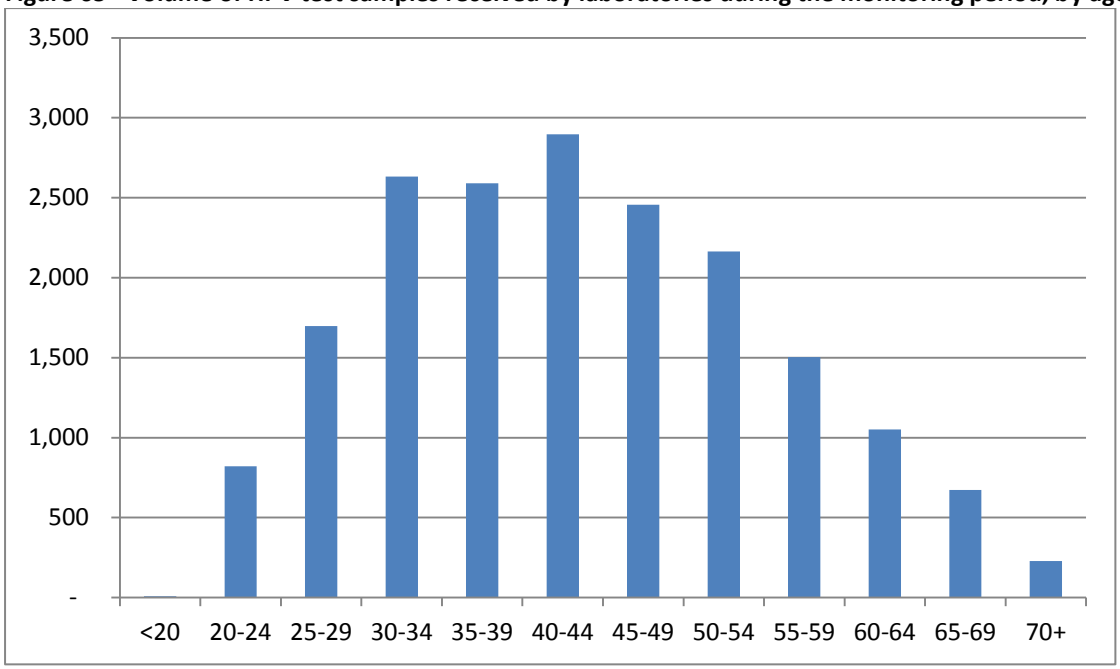


Figure 66 - Volume of HPV test samples received by laboratories during the monitoring period, by laboratory

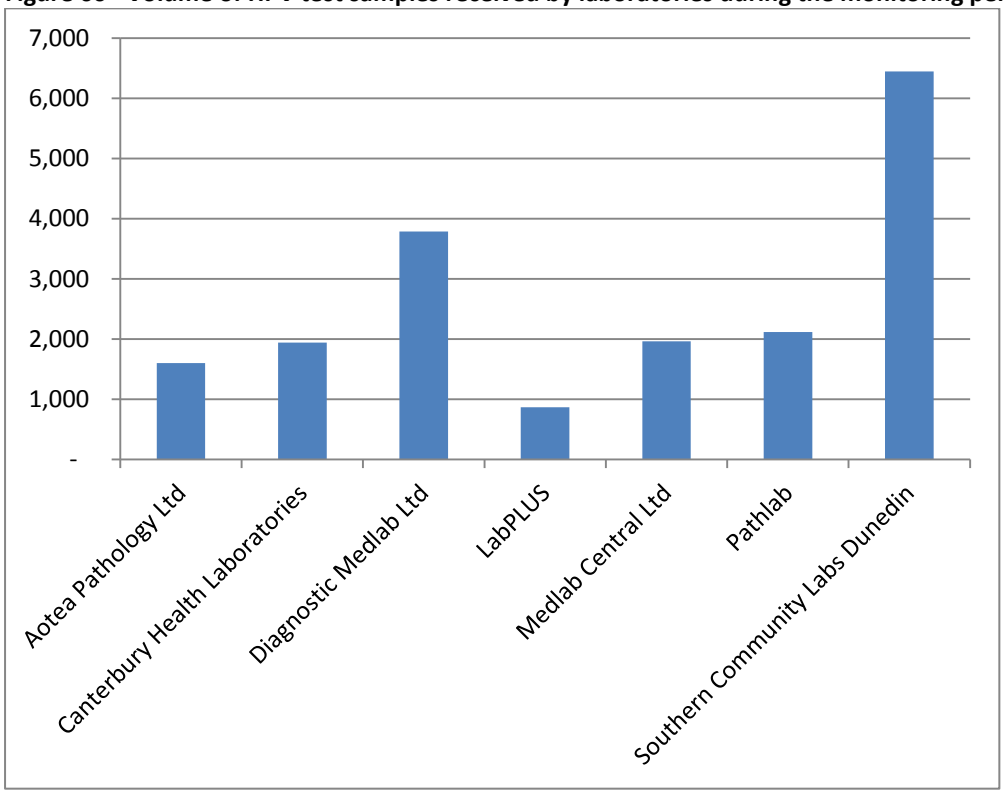
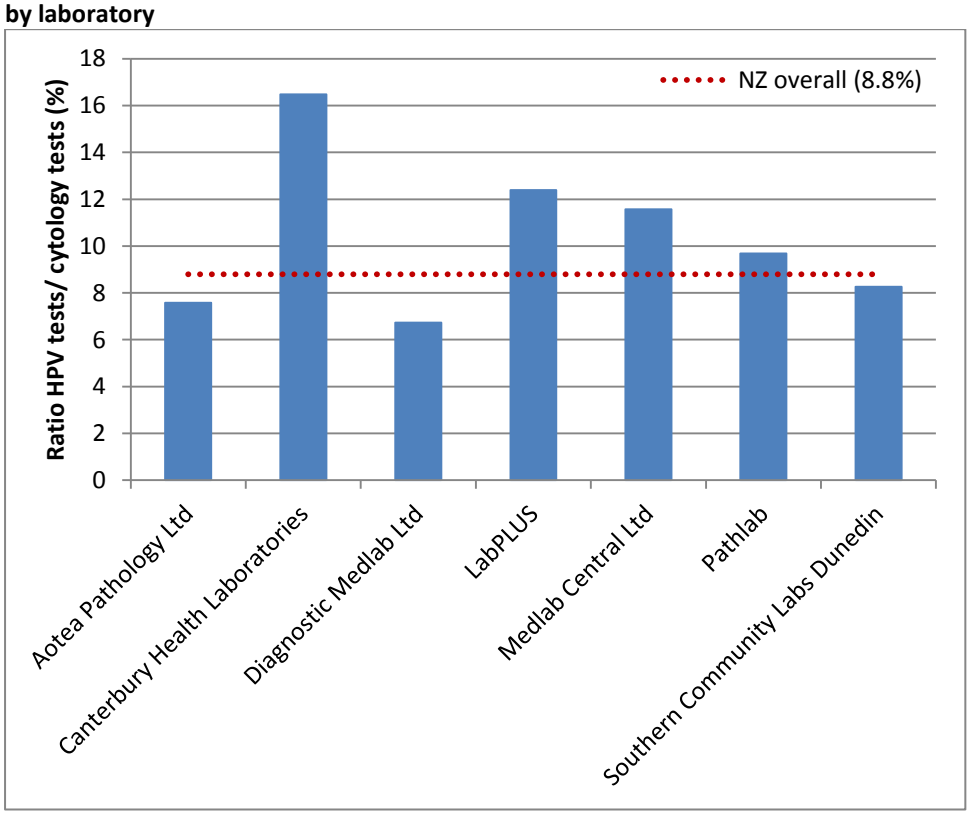


Figure 67 - HPV test samples as a percentage of cytology test samples received during the monitoring period, by laboratory



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

Figure 68 - Volume of HPV test samples received during the monitoring period, by purpose

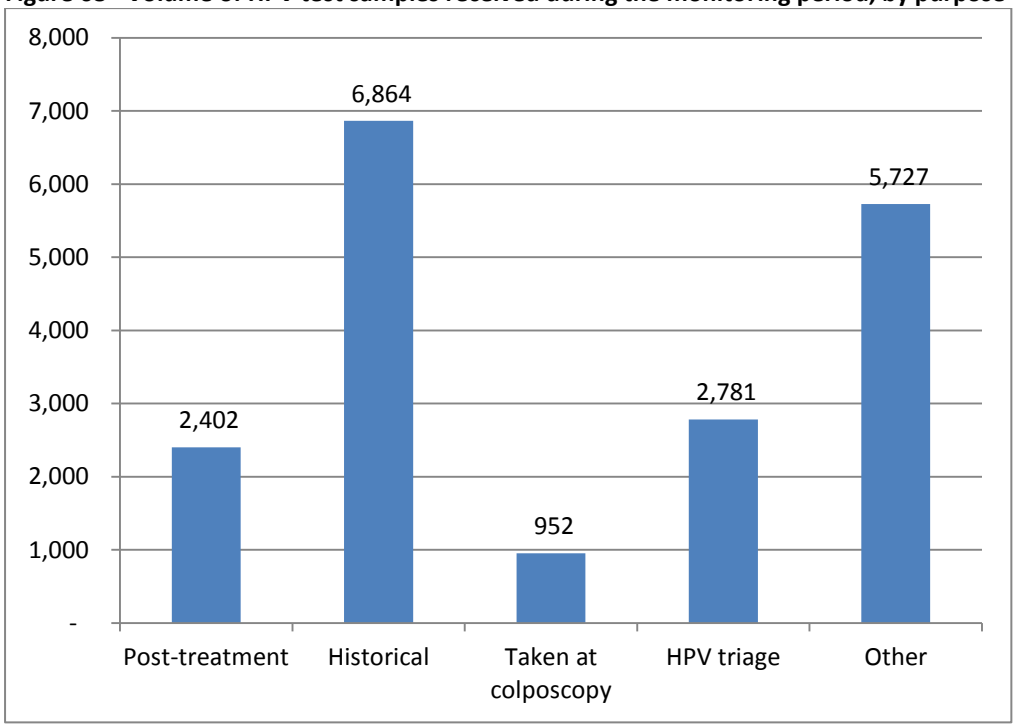


Figure 69 - HPV test samples received during the monitoring period, by purpose and age

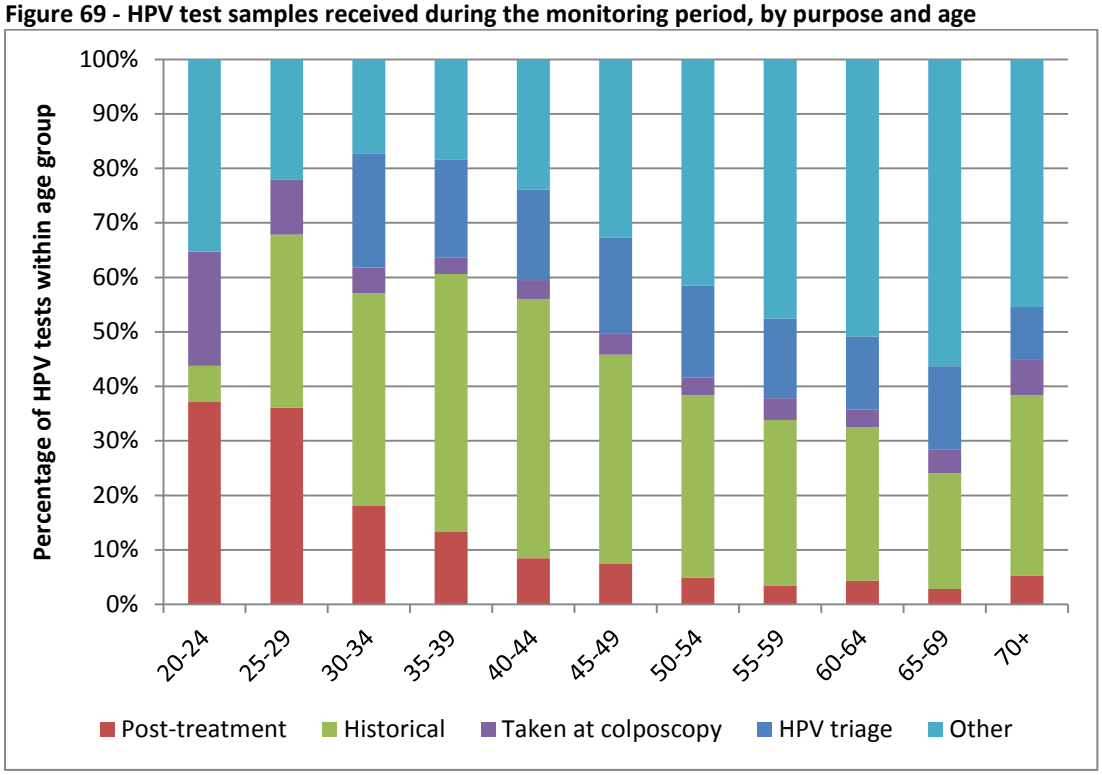


Figure 70 - HPV test samples received during the monitoring period, by purpose and laboratory

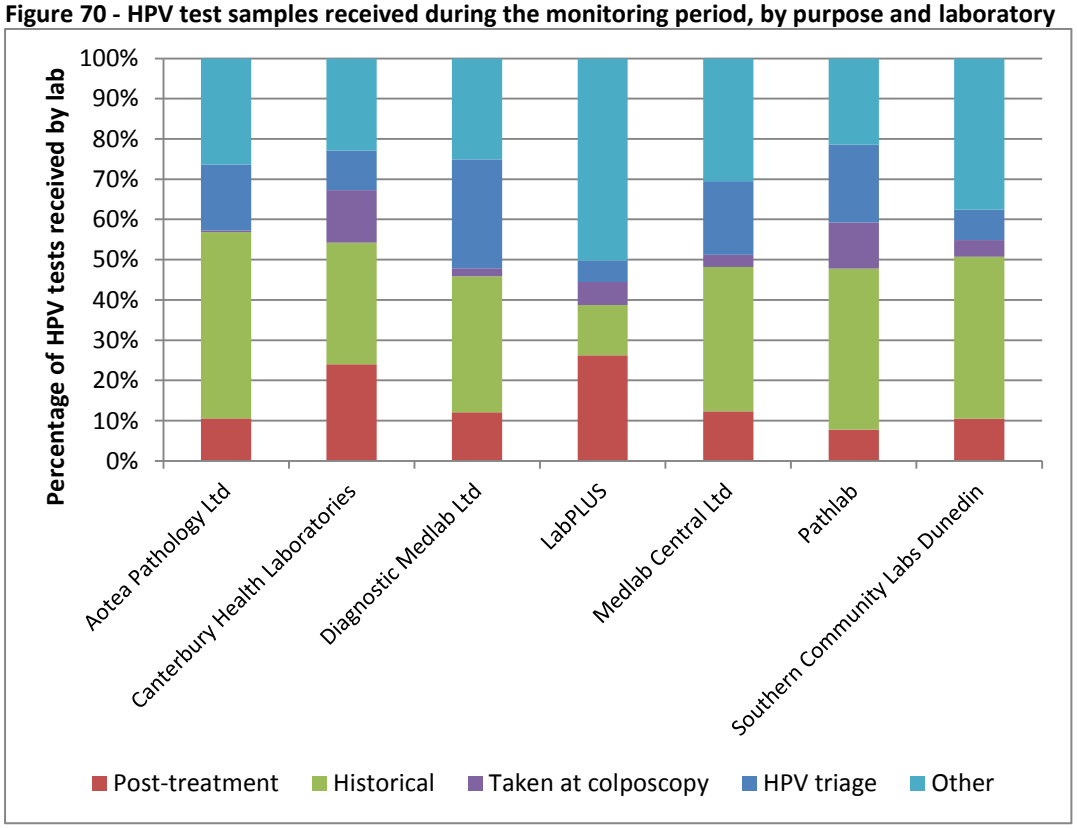
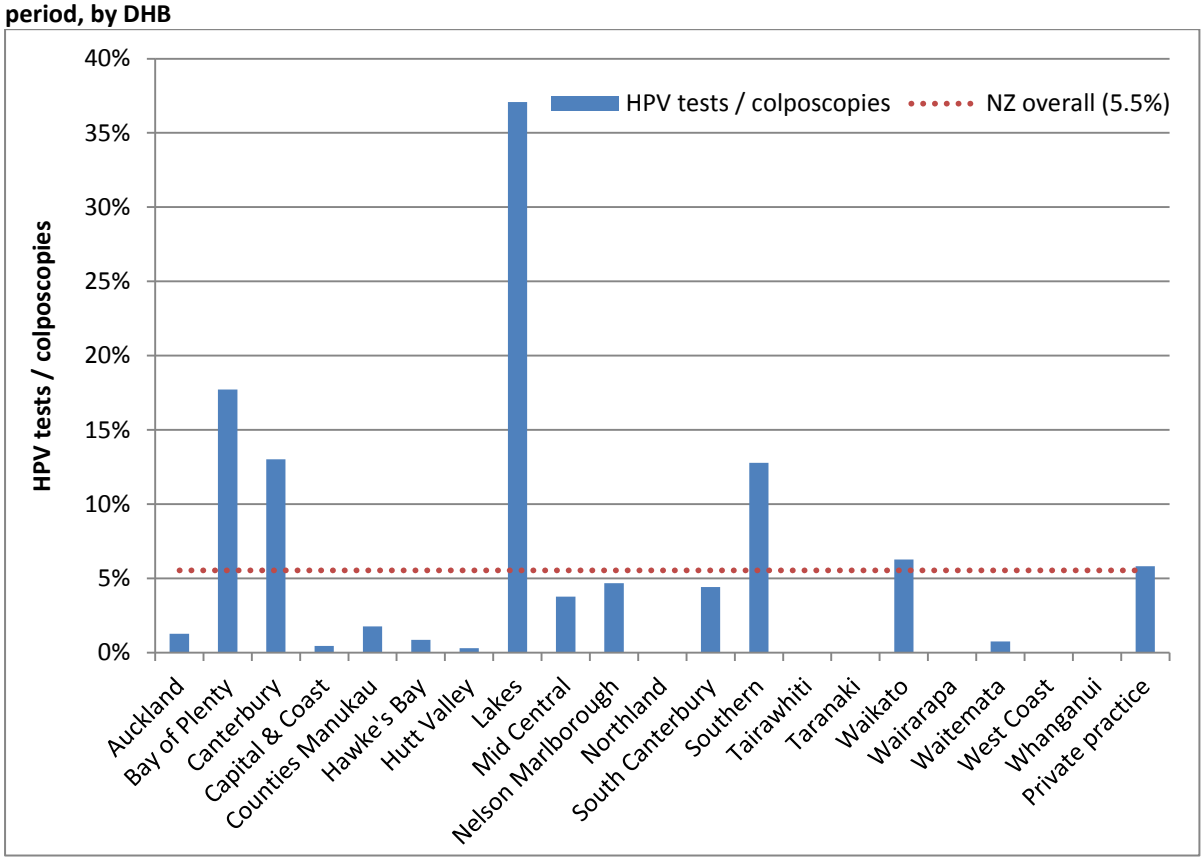


Figure 71 - HPV test samples collected at colposcopy, in relation to total colposcopies performed in the period, by DHB



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

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

Definition

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

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

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

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

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

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

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

v) They were alive on 1 October 2009.

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

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

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

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

	squamous abnormality within the previous three years) were excluded since they were not performed for the purpose of historical testing. After excluding those tests, the first HPV test in each woman was defined as her Round 1 historical test. A Round 2 historical test was defined as the first HPV test which occurred out at least 9 months after a Round 1 historical test. Measures reported by age are based on the age of the women at the end oif the current reporting period (30 June 2014). Measures reported by DHB are based on the geographic area relating to the woman's residence (or if this information is not available, that of her responsible health provider).
Target	This is a new measure, and targets have not yet been set.
Current Situation	***Overall women eligible for historical testing*** There were 50,505 women who, as at 1 October 2009, were eligible for HPV testing to follow-up a historical squamous high grade abnormality ("historical testing"). Of these women, 49,896 are considered in the current report (the remaining women were excluded because they were no longer alive at the end of the current monitoring period, or were no longer eligible for historical testing because they had a non-squamous high grade abnormality since 1 October 2009). Women eligible for historical testing were predominantly aged between 35 and 54 years as at 30 June 2014; approximately 70% of all women eligible for historical testing were aged between 35 and 54 years at the end of the current reporting period (Table 80). There were very few women eligible for historical testing who were aged less than 25 years at the end of the current monitoring period (no women aged less than 20 years; 11 women aged 20-24 years); however this is not unexpected, as these women would generally have been less than 20 years old on 1 October 2009. ***HPV tests performed for historical reasons*** Overall, 24,200 (48.5%) of the women eligible for historical testing have a Round 1 historical test recorded on the NCSP Register. There were 16,988 women who also have a Round 2 historical test (34.0% of eligible women; 70.2% of those with a Round 1 test). The proportion of women with historical tests varied by age. The proportion of women aged 20-24 years with a Round 1 test was very small, and no women had a Round 2 test, however very few women in this age group were eligible for historical testing (11 women). Among women aged at least 25 years at the end of the current reporting period, the proportion of eligible women with a historical test varied from 27.3% (25-29 years) to 51.1% (40-44 years) for Round 1 tests, and from 25.1% (25-29 years) to 36.8% (60-64 years) for Round 2 tests (Figure 72, Table 80). The proportion of eligible women with historical tests also varied by DHB, from 27.4% (Auckland) to 72.3% (Nelson Marlborough) for Round 1 tests, and from 16.3% (Auckland) to 59.3% (Nelson Marlborough) for Round 2 tests (Figure 73, Table 81). The number of women eligible for historical testing in a

given DHB did not appear to have any relationship with the proportion who had received a historical test (Figure 77).

The proportion of eligible women with Round 1 historical tests ranged from 27.8% in Pacific women to 51.0% in European/ Other women (Figure 74, Table 82). For Round 2 tests, this proportion ranged from 16.9% in Pacific women to 36.7% in European/ Other women.

We explored whether the proportion of women with a historical HPV test was influenced by screening participation within the previous five years (since if women have not attended for any test, it would not be possible to initiate a historical test). The variation in the proportion of women with historical tests recorded did not appear to be fully explained by variations in screening participation, either by DHB (Figure 75) or by ethnicity (Figure 76).

Trends

This is the first time that this indicator has been reported on, so no trend information is available.

Comments

This indicator is still under development, and will continue to be refined in future monitoring reports. For example, planned refinements include reporting on the proportion of the Round 1 and Round 2 historical tests where hrHPV was detected, and on how many women are able to be returned to routine screening after two rounds of negative cytology and hrHPV tests; considering women with a historical high grade squamous abnormality who became eligible for historical testing after 1 October 2009; and taking into account whether women have attended for any screening test, since women who have not attended for any testing could not be offered historical testing. This last point has been partially explored within the current report, by considering whether there was any relationship between the variations in women with Round 1 and Round 2 historical tests by DHB or ethnicity and the variations in screening participation within the previous five years by DHB or ethnicity. An extended period of five-years was examined, since it approximately corresponds to the period since 1 October 2009 and the time of the data download from NCSP Register used within this report (19th August 2014), that is the period during which we searched for HPV tests in this group of women. However as women with a previous abnormality are recommended to re-attend for screening more frequently than the routine interval, the variations in overall attendance by DHB or by ethnicity may differ from the variations by DHB or ethnicity in this subgroup of women who have had a previous abnormality.

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

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

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

Figure 72 - Proportion of eligible women with squamous high grade abnormality more than 3 years prior to 1 October 2009 for whom a historical test is recorded on the NCSP Register, by age at 30 June 2014

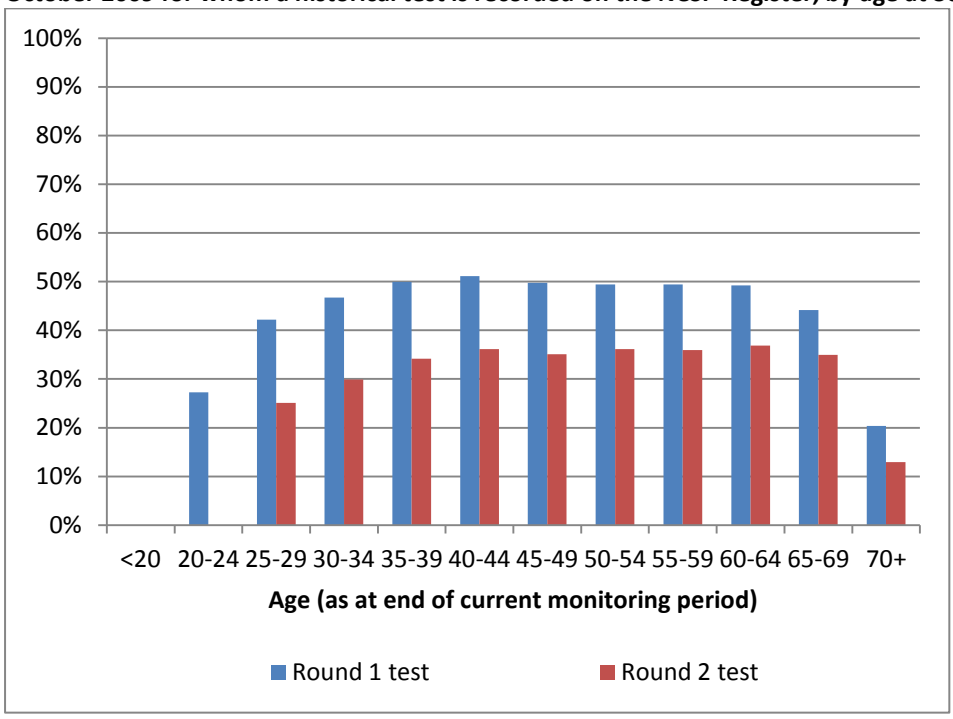


Figure 73 - Proportion of eligible women with squamous high grade abnormality more than 3 years prior to 1 October 2009 for whom a a historical test is recorded on the NCSP Register, by DHB

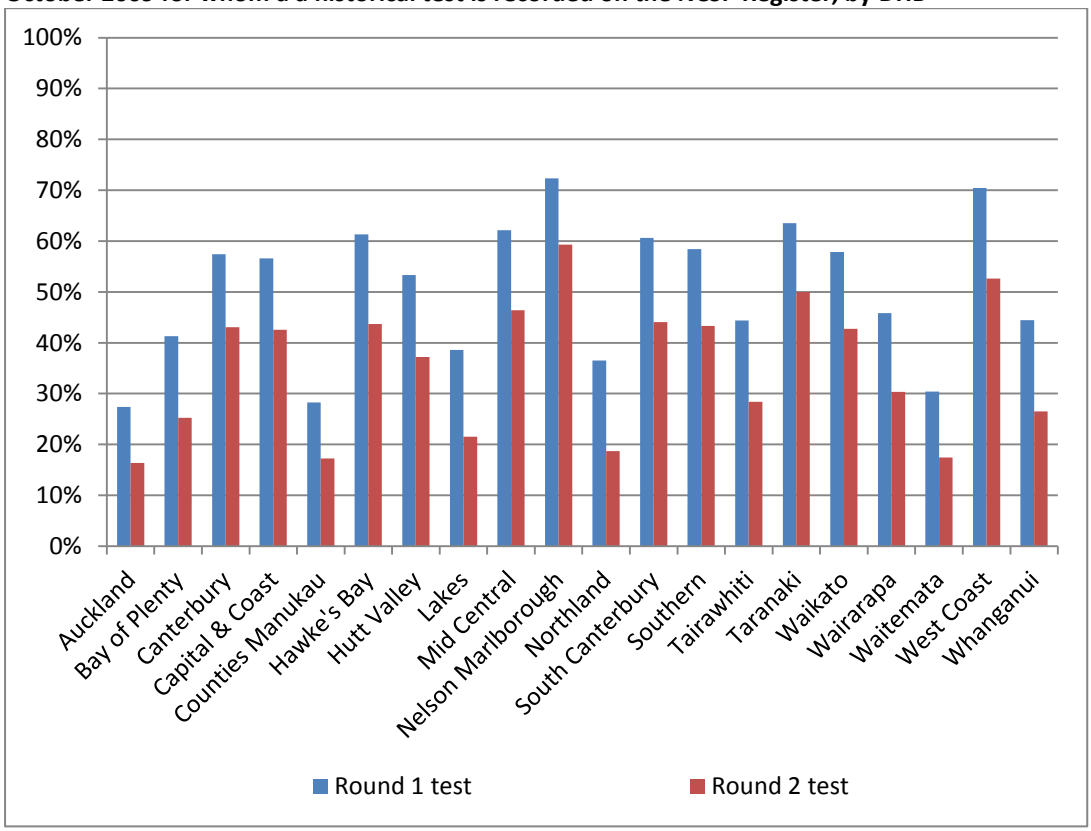


Figure 74 - Proportion of eligible women with squamous high grade abnormality more than 3 years prior to 1 October 2009 for whom a a historical test is recorded on the NCSP Register, by ethnicity

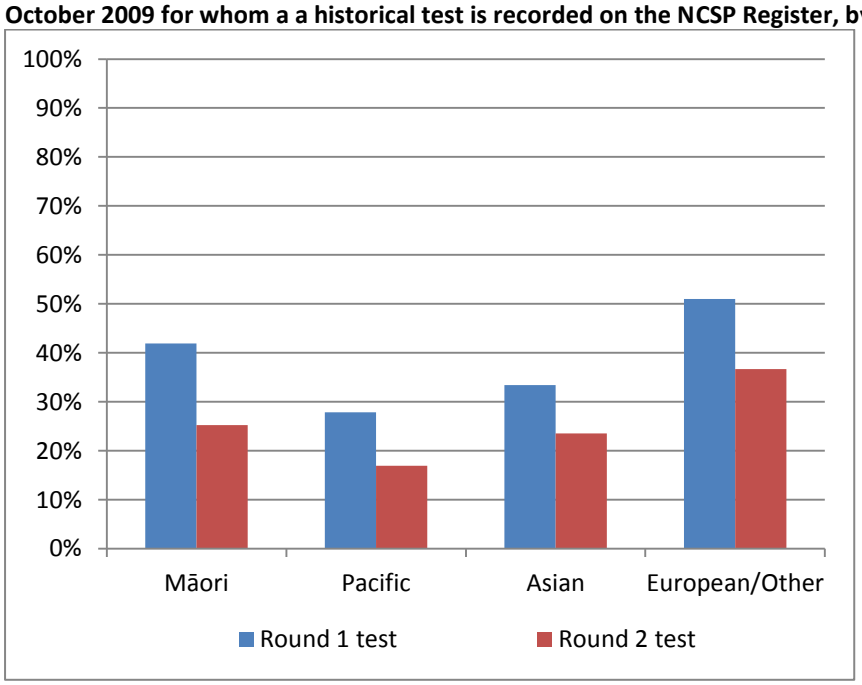
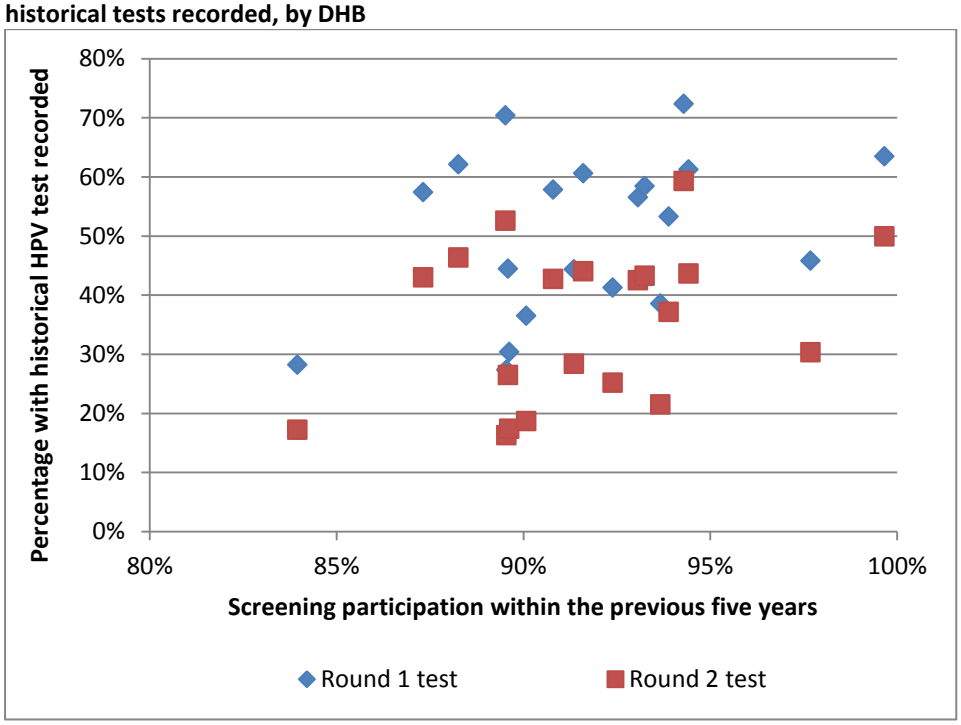
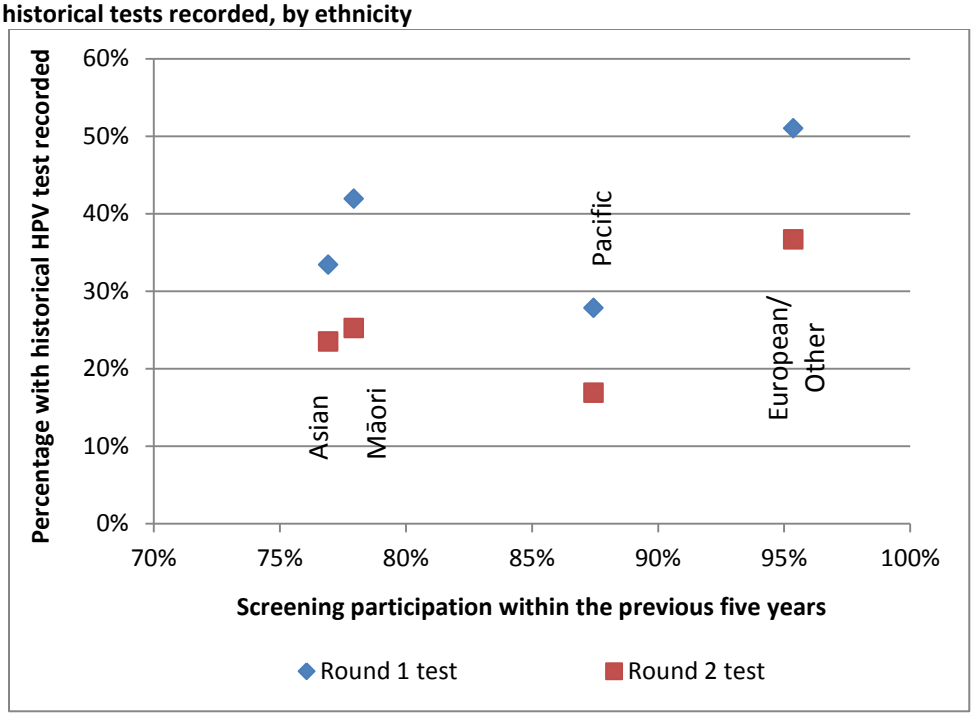


Figure 75 - Relationship between women screened in the previous five years and proportion of women with historical tests recorded, by DHB



Each dot represents a DHB. If variation in testing was predominantly attributable to variation in screening attendance (that is,whether or not women were available for testing), the dots in this chart would be likely to approximately follow a line.

Figure 76 - Relationship between women screened in the previous five years and proportion of women with historical tests recorded, by ethnicity



If variation in testing was predominantly attributable to variation in screening attendance (that is,whether or not women were available for testing), the dots in this chart would be likely to approximately follow a line.

Appendix A – Additional data

Indicator 1 - Coverage

Table 32 - Coverage by age (women 20-69 years screened in the three years prior to 30 June 2014, hysterectomy adjusted)

Age (years)	Hysterectomy-adjusted population	Women screened in the last 3 years	
		N	%
20-24	160,355	86,028	53.6
25-29	151,318	99,780	65.9
30-34	149,158	102,979	69.0
35-39	138,923	105,825	76.2
40-44	152,352	121,568	79.8
45-49	144,525	116,822	80.8
50-54	139,793	112,804	80.7
55-59	114,358	91,743	80.2
60-64	92,161	72,670	78.9
65-69	76,921	56,736	73.8
20-69	**1,319,865**	**966,955**	**73.3**

Table 33 - Coverage by DHB (women 25-69 years screened in the three years prior to 30 June 2014, hysterectomy adjusted)

DHB	Hysterectomy adjusted population	Women screened in the the last 3 years	
		N	%
Auckland	135,055	100,724	74.6
Bay of Plenty	54,870	42,849	78.1
Canterbury	133,726	99,109	74.1
Capital & Coast	82,839	64,803	78.2
Counties Manukau	131,072	90,974	69.4
Hawke's Bay	38,791	31,065	80.1
Hutt Valley	36,788	28,857	78.4
Lakes	26,059	20,385	78.2
Mid Central	41,534	30,820	74.2
Nelson Marlborough	36,490	29,647	81.2
Northland	39,795	29,450	74.0
South Canterbury	13,687	10,769	78.7
Southern	76,812	61,025	79.4
Tairawhiti	11,523	8,566	74.3
Taranaki	27,079	23,293	86.0
Waikato	91,758	70,420	76.7
Wairarapa	9,869	8,102	82.1
Waitemata	148,368	112,226	75.6
West Coast	8,249	6,483	78.6
Whanganui	15,149	11,294	74.6
Total	**1,159,510**	**880,861**	**76.0**

Excludes 66 women for whom DHB could not be determined

Table 34 - Coverage by ethnicity (women 25-69 years screened in the three years prior to 30 June 2014, hysterectomy adjusted)

Ethnicity	Hysterectomy adjusted population (ages 25-69 years)	Women screened in the last 3 years (ages 25-69 years)	
		N	%
Māori	149,300	92,959	62.3
Pacific	65,843	45,457	69.0
Asian	151,559	98,614	65.1
European/Other	792,809	643,897	81.2
Total	**1,159,510**	**880,927**	**76.0**

Table 35 - Coverage by age (women 20-69 years screened in the five years prior to 30 June 2014, hysterectomy adjusted)

Age (years)	Hysterectomy-adjusted population	Number of women screened in last 5 years	% screened in the last 5 years
20-24	160,355	92,433	57.6
25-29	151,318	123,561	81.7
30-34	149,158	125,569	84.2
35-39	138,923	126,893	91.3
40-44	152,352	143,932	94.5
45-49	144,525	137,906	95.4
50-54	139,793	132,421	94.7
55-59	114,358	106,366	93.0
60-64	92,161	83,925	91.1
65-69	76,921	66,074	85.9
20-69	**1,319,865**	**1,139,080**	**86.3**

Table 36 - Coverage by DHB (women aged 25-69 years screened in the five years prior to 30 June 2014, hysterectomy adjusted)

DHB	Hysterectomy adjusted population	Women screened in the last 5 years	
		N	%
Auckland	135,055	120,937	89.5
Bay of Plenty	54,870	50,692	92.4
Canterbury	133,726	116,769	87.3
Capital & Coast	82,839	77,092	93.1
Counties Manukau	131,072	110,042	84.0
Hawke's Bay	38,791	36,628	94.4
Hutt Valley	36,788	34,540	93.9
Lakes	26,059	24,408	93.7
Mid Central	41,534	36,657	88.3
Nelson Marlborough	36,490	34,406	94.3
Northland	39,795	35,847	90.1
South Canterbury	13,687	12,538	91.6
Southern	76,812	71,623	93.2
Tairawhiti	11,523	10,527	91.4
Taranaki	27,079	26,988	99.7
Waikato	91,758	83,313	90.8
Wairarapa	9,869	9,640	97.7
Waitemata	148,368	132,973	89.6
West Coast	8,249	7,384	89.5
Whanganui	15,149	13,571	89.6
Total	**1,159,510**	**1,046,575**	**90.3**

Excludes 72 women for whom DHB could not be determined

Table 37 - Coverage by ethnicity – women aged 25-69 years screened in the five years prior to 30 June 2014, hysterectomy adjusted

Ethnicity	Hysterectomy adjusted population	Women screened in the last 5 years	
	N	N	%
Māori	149,300	116,355	77.9
Pacific	65,843	57,578	87.4
Asian	151,559	116,582	76.9
European/Other	792,809	756,132	95.4
TOTAL	**1,159,510**	**1,046,647**	**90.3**

Table 38 - Women under 20 years of age, and aged 15-19 years, screened in the three years prior to 30 June 2014, by DHB.

	Number of women screened in last 3 years		
DHB	**aged 10-20 years**	**aged 15-19 years**	**% of population aged 15-19 years screened**
Auckland	822	822	5.8
Bay of Plenty	386	383	5.7
Canterbury	1,505	1,502	8.6
Capital & Coast	667	665	7.0
Counties Manukau	938	935	4.6
Hawke's Bay	362	361	7.1
Hutt Valley	264	263	5.4
Lakes	196	196	5.7
Mid Central	359	359	5.7
Nelson Marlborough	288	288	7.8
Northland	207	206	4.3
South Canterbury	122	122	7.8
Southern	713	712	6.7
Tairawhiti	63	63	4.0
Taranaki	213	211	6.3
Waikato	584	582	4.5
Wairarapa	92	92	8.5
Waitemata	1,322	1,321	6.7
West Coast	82	82	9.3
Whanganui	114	114	5.8
Total	**9,299**	***9,279***	**6.2**

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

Table 39 – Women screened under 20 years of age, as a proportion of all women screened in the three years to 30 June 2014, 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	822	111,903	0.7
Bay of Plenty	386	48,063	0.8
Canterbury	1,505	112,563	1.3
Capital & Coast	667	73,972	0.9
Counties Manukau	938	101,407	0.9
Hawke's Bay	362	34,748	1.0
Hutt Valley	264	32,222	0.8
Lakes	196	22,746	0.9
Mid Central	359	35,329	1.0
Nelson Marlborough	288	32,810	0.9
Northland	207	32,796	0.6
South Canterbury	122	12,010	1.0
Southern	713	70,161	1.0
Tairawhiti	63	9,670	0.7
Taranaki	213	26,071	0.8
Waikato	584	80,136	0.7
Wairarapa	92	9,107	1.0
Waitemata	1,322	124,983	1.1
West Coast	82	7,253	1.1
Whanganui	114	12,673	0.9
Total	**9,299**	**990,623**	**0.9**

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

Table 40 – Women screened under 20 years of age, and women aged 18-19 years when they were screened, in the three years to 30 June 2014, by DHB

DHB	Number of women screened in last 3 years aged 10-19 years	aged 18-19 years	% aged 18-19 years
Auckland	822	714	86.9
Bay of Plenty	386	331	85.8
Canterbury	1,505	1,285	85.4
Capital & Coast	667	624	93.6
Counties Manukau	938	807	86.0
Hawke's Bay	362	301	83.1
Hutt Valley	264	228	86.4
Lakes	196	169	86.2
Mid Central	359	334	93.0
Nelson Marlborough	288	259	89.9
Northland	207	180	87.0
South Canterbury	122	89	73.0
Southern	713	645	90.5
Tairawhiti	63	54	85.7
Taranaki	213	183	85.9
Waikato	584	536	91.8
Wairarapa	92	69	75.0
Waitemata	1,322	1,108	83.8
West Coast	82	77	93.9
Whanganui	114	111	97.4
Total	**9,299**	**8,104**	**87.1**

Table 41 - Women (25-69 years) screened in the three years to 30 June 2014, as a percentage of the i) hysterectomy-adjusted NZ female population and ii) total NZ female population, by DHB

DHB	Women screened in the last 3 years	
	(hysterectomy-adjusted)	(no hysterectomy adjustment)
Auckland	74.6	67.4
Bay of Plenty	78.1	68.1
Canterbury	74.1	65.1
Capital & Coast	78.2	70.1
Counties Manukau	69.4	61.8
Hawke's Bay	80.1	69.8
Hutt Valley	78.4	69.3
Lakes	78.2	68.7
Mid Central	74.2	65.0
Nelson Marlborough	81.2	70.4
Northland	74.0	64.1
South Canterbury	78.7	67.8
Southern	79.4	69.8
Tairawhiti	74.3	65.3
Taranaki	86.0	75.1
Waikato	76.7	67.4
Wairarapa	82.1	70.7
Waitemata	75.6	67.0
West Coast	78.6	68.4
Whanganui	74.6	64.7

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

DHB	To 31 Dec 2012	To 30 Jun 2013	To 31 Dec 2013	To 30 Jun 2014
Auckland	76.8	77.5	76.2	74.6
Bay of Plenty	79.3	80.2	78.7	78.1
Canterbury	73.9	74.8	73.9	74.1
Capital & Coast	80.6	80.1	79.3	78.2
Counties Manukau	69.4	69.3	69.5	69.4
Hawke's Bay	82.0	81.3	81.4	80.1
Hutt Valley	79.3	79.5	78.0	78.4
Lakes	79.7	79.9	78.5	78.2
Mid Central	74.8	75.4	75.4	74.2
Nelson Marlborough	81.3	80.8	81.7	81.2
Northland	75.9	75.7	75.1	74.0
South Canterbury	77.1	76.1	77.6	78.7
Southern	79.5	78.5	79.8	79.4
Tairawhiti	79.0	78.9	77.0	74.3
Taranaki	85.9	85.2	86.6	86.0
Waikato	77.1	77.4	77.0	76.7
Wairarapa	83.2	81.5	82.5	82.1
Waitemata	75.2	75.5	75.5	75.6
West Coast	76.9	78.0	77.5	78.6
Whanganui	76.5	76.4	75.3	74.6
Total	**76.7**	**76.8**	**76.4**	**76.0**

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

Table 43 - Trends in three-year coverage by age (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)

Age	To 31 Dec 2012	To 30 Jun 2013	To 31 Dec 2013	To 30 Jun 2014
20-24	54.9	54.5	54.1	53.6
25-29	66.5	68.2	66.2	65.9
30-34	71.1	70.4	69.7	69.0
35-39	77.9	78.5	76.9	76.2
40-44	80.7	80.4	80.2	79.8
45-49	81.4	81.6	81.4	80.8
50-54	81.3	80.7	81.4	80.7
55-59	80.5	80.2	80.9	80.2
60-64	78.0	77.9	79.0	78.9
65-69	72.5	72.9	73.5	73.8

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

Table 44 - Trends in three-year coverage by ethnicity (women screened in the previous three years, as a percentage of the hysterectomy-adjusted female population)

Ethnicity	To 31 Dec 2012	To 30 Jun 2013	To 31 Dec 2013	To 30 Jun 2014
Māori	62.4	62.2	62.6	62.3
Pacific	69.1	68.6	68.6	69.0
Asian	63.5	63.8	64.8	65.1
European/ Other	82.3	82.7	81.9	81.2
Total	**76.7**	**76.8**	**76.4**	**76.0**

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

Indicator 2 – First screening events

Table 45 - Age distribution of first screening events for period 1 January - 30 June 2014

Age	Women with first events	% of first events (ages 20-69 yrs) which occurred in that age group
20-24	10,576	49.6
25-29	3,468	16.2
30-34	2,405	11.3
35-39	1,397	6.5
40-44	976	4.6
45-49	688	3.2
50-54	555	2.6
55-59	509	2.4
60-64	471	2.2
65-69	298	1.4
20-69 yrs	**21,343**	**100.0**

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

Table 46 - 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 January - 30 June 2014

DHB	Women with first events	As a proportion of women with a sceening event [i]		As a proportion of eligible population [ii]	
		N	%	N	%
Auckland	3,218	24,502	13.1	156,288	2.1
Bay of Plenty	762	9,990	7.6	61,024	1.2
Canterbury	2,453	23,415	10.5	152,571	1.6
Capital & Coast	1,785	15,013	11.9	95,717	1.9
Counties Manukau	2,688	21,862	12.3	150,782	1.8
Hawke's Bay	482	6,564	7.3	43,146	1.1
Hutt Valley	603	6,946	8.7	41,546	1.5
Lakes	359	4,731	7.6	29,244	1.2
Mid Central	630	7,417	8.5	48,180	1.3
Nelson Marlborough	494	6,372	7.8	39,965	1.2
Northland	549	6,636	8.3	43,943	1.2
South Canterbury	171	2,617	6.5	15,108	1.1
Southern	1,556	13,838	11.2	89,204	1.7
Tairawhiti	143	1,960	7.3	12,885	1.1
Taranaki	419	5,495	7.6	30,146	1.4
Waikato	1,673	16,859	9.9	105,137	1.6
Wairarapa	134	1,954	6.9	10,876	1.2
Waitemata	2,909	28,188	10.3	168,039	1.7
West Coast	122	1,546	7.9	9,109	1.3
Whanganui	193	2,642	7.3	16,957	1.1
Total	**21,343**	**208,547**	**10.2**	**1,319,865**	**1.6**

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 30 June 2014 for that DHB, as a percent. Total women screened and women with first events exclude those for whom DHB could not be ascertained.

Table 47 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by ethnicity, for period 1 January - 30 June 2014

Ethnicity	Women with first events	As a proportion of women with a screening event[i]		As a proportion of eligible population[ii]	
		N	%	N	%
Māori	2,289	23,536	9.7	179,233	1.3
Pacific	1,713	10,901	15.7	79,040	2.2
Asian	4,932	23,418	21.1	177,045	2.8
European/Other	12,409	150,699	8.2	884,547	1.4
Total	**21,343**	**208,554**	**10.2**	**1,319,865**	**1.6**

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 30 June 2014 for that DHB, as a percent

Table 48 – Median age of women with a first screening event, by ethnicity

Ethnic Group	Median Age (years)
Māori	21
Pacific	25
Asian	31
European/Other	23

Indicator 3 – Withdrawal rates

Table 49 - Number of women who withdrew from the NCSP Register 1 January - 30 June 2014, and proportion of women who were enrolled at the start of the reporting period who withdrew, by age

Age group	Women enrolled at start of period	Women who withdrew during period	
		N	% *
<20	1,549	-	0
20-24	82,850	2	0.002
25-29	136,596	3	0.002
30-34	159,922	2	0.001
35-39	171,609	4	0.002
40-44	197,245	2	0.001
45-49	189,134	-	0.000
50-54	183,936	3	0.002
55-59	151,981	4	0.003
60-64	122,739	5	0.004
65-69	99,048	7	0.007
70+	198,633	-	0.000
Total	**1,695,242**	**32**	**0.002**
Total (20-69)	**1,495,060**	**32**	**0.002**

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

Table 50 - Number of women (aged 20-69 years) who withdrew from the NCSP Register 1 January - 30 June 2014, and proportion of women who were enrolled at the start of the reporting period who withdrew, by ethnicity

Age group	Women enrolled at start of period	Women who withdrew during period	
		N	% *
Māori	178,406	1	0.001
Pacific	89,013	1	0.001
Asian	153,128	5	0.003
European/Other	1,074,513	25	0.002
Total	**1,495,060**	**32**	**0.002**

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

Indicator 4 – Early re-screening

Table 51 - Early re-screening by DHB

DHB	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Auckland	4,558	947	20.8
Bay of Plenty	2,277	433	19.0
Canterbury	5,804	1,098	18.9
Capital & Coast	3,605	471	13.1
Counties Manukau	4,215	693	16.4
Hawke's Bay	1,726	211	12.2
Hutt Valley	1,572	195	12.4
Lakes	998	191	19.1
Mid Central	1,449	147	10.1
Nelson Marlborough	1,550	213	13.7
Northland	1,456	263	18.1
South Canterbury	507	80	15.8
Southern	3,410	485	14.2
Tairawhiti	476	64	13.4
Taranaki	1,134	121	10.7
Waikato	3,759	507	13.5
Wairarapa	391	84	21.5
Waitemata	5,602	1,332	23.8
West Coast	361	61	16.9
Whanganui	623	64	10.3
Total	**45,477**	**7,661**	**16.8**

Table 52 - Early re-screening by five-year age group

Age	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
20-24	1,274	288	22.6
25-29	3,877	748	19.3
30-34	4,383	798	18.2
35-39	5,092	884	17.4
40-44	6,264	1,083	17.3
45-49	6,144	1,070	17.4
50-54	6,197	1,050	16.9
55-59	5,058	785	15.5
60-64	4,046	561	13.9
65-69	3,142	394	12.5
All ages	**45,477**	**7,661**	**16.8**

Table 53 - Early re-screening by ethnicity

Ethnicity	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Māori	4,353	661	15.2
Pacific	1,946	238	12.2
Asian	4,529	783	17.3
European/ Other	34,649	5,979	17.3
Total	**45,477**	**7,661**	**16.8**

Indicator 5 – Laboratory indicators

Indicator 5.1 – Laboratory cytology reporting

Table 54 – Age-standardised percentage of satisfactory smears reported as HSIL, by laboratory

Laboratory	% satisfactory smears reported as HSIL	
	Age-standardised (20-69 years)*	Crude rate
Aotea Pathology Ltd	0.38	0.42
Canterbury Health Laboratories	0.81	0.98
Diagnostic Medlab Ltd	0.66	0.70
LabPLUS	3.29	3.43
Medlab Central Ltd	0.88	0.96
Pathlab	0.48	0.50
Southern Community Labs Dunedin	0.97	1.05
Total	0.82	0.90

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

Indicator 5.2 – Accuracy of cytology predicting HSIL

Table 55 - 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	122	92.4	102	83.6	10	7.6	132
Canterbury Health Laboratories	91	92.9	81	89.0	7	7.1	98
Diagnostic Medlab Ltd	287	92.6	222	77.4	23	7.4	310
LabPLUS	171	97.7	145	84.8	4	2.3	175
Medlab Central Ltd	163	90.6	128	78.5	17	9.4	180
Pathlab	98	88.3	82	83.7	13	11.7	111
Southern Community Labs Dunedin	653	93.8	570	87.3	43	6.2	696
Total	**1,585**	**93.1**	**1,330**	**83.9**	**117**	**6.9**	**1,702**

Target: 65% - 85%

Table 56 - 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	98	85.2	41	41.8	17	14.8	115
Canterbury Health Laboratories	92	90.2	54	58.7	10	9.8	102
Diagnostic Medlab Ltd	188	80.0	66	35.1	47	20.0	235
LabPLUS	244	74.8	107	43.9	82	25.2	326
Medlab Central Ltd	83	74.8	33	39.8	28	25.2	111
Pathlab	106	84.1	45	42.5	20	15.9	126
Southern Community Labs Dunedin	81	75.7	49	60.5	26	24.3	107
Total	**892**	**79.5**	**395**	**44.3**	**230**	**20.5**	**1,122**

Table 57 - 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	220	89.1	143	65.0	27	10.9	247
Canterbury Health Laboratories	183	91.5	135	73.8	17	8.5	200
Diagnostic Medlab Ltd	475	87.2	288	60.6	70	12.8	545
LabPLUS	415	82.8	252	60.7	86	17.2	501
Medlab Central Ltd	246	84.5	161	65.4	45	15.5	291
Pathlab	204	86.1	127	62.3	33	13.9	237
Southern Community Labs Dunedin	734	91.4	619	84.3	69	8.6	803
Total	**2,477**	**87.7**	**1,725**	**69.6**	**347**	**12.3**	**2,824**

Indicator 5.5 – Laboratory turnaround time

Table 58 - Timeliness of cytology reporting by laboratory, 1 January - 30 June 2014

Laboratory	Laboratory turnaround time - cytology								
	Within 7 working days		8-15 working days		Total within 15 working days		More than 15 working days		Total
	N	%	N	%	N	%	N	%	N
Aotea Pathology Ltd	21,225	96.8	706	3.2	21,931	100.0	6	0.0	21,937
Canterbury Health Laboratories	9,692	83.6	1,774	15.3	11,466	98.9	125	1.1	11,591
Diagnostic Medlab Ltd	51,445	96.5	1,018	1.9	52,463	98.4	867	1.6	53,330
LabPLUS	5,026	75.9	1,388	21.0	6,414	96.8	210	3.2	6,624
Medlab Central Ltd	15,339	93.0	581	3.5	15,920	96.5	570	3.5	16,490
Pathlab	21,569	97.9	404	1.8	21,973	99.7	65	0.3	22,038
Southern Community Labs Dunedin	76,177	96.8	2,195	2.8	78,372	99.6	331	0.4	78,703
Total	**200,473**	**95.1**	**8,066**	**3.8**	**208,539**	**99.0**	**2,174**	**1.0**	**210,713**

Target: 90 % within seven working days and 98% 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* collected *during the period.*

Table 59 - Timeliness of histology reporting by laboratory, 1 January - 30 June 2014

Laboratory	Laboratory turnaround time - histology								
	Within 10 working days		11-15 working days		Total within 15 working days		More than 15 working days		Total
	N	%	N	%	N	%	N	%	N
Aotea Pathology Ltd	349	97.2	6	1.7	355	98.9	4	1.1	359
Canterbury Health Laboratories	1,529	96.5	23	1.5	1,552	98.0	32	2.0	1,584
Capital & Coast District Health Board Pathology	384	58.4	101	15.4	485	73.8	172	26.2	657
Diagnostic Medlab Ltd	1,454	94.7	16	1.0	1,470	95.8	65	4.2	1,535
Hutt Hospital Laboratory	123	55.7	43	19.5	166	75.1	55	24.9	221
LabPLUS	509	54.2	84	8.9	593	63.2	346	36.8	939
Medlab Central Ltd	1,115	94.7	13	1.1	1,128	95.8	49	4.2	1,177
Memorial Hospital Hastings Lab	75	93.8	1	1.3	76	95.0	4	5.0	80
Middlemore Hospital Laboratory	904	85.8	86	8.2	990	94.0	63	6.0	1,053
Nelson Hospital Laboratory	132	97.1	1	0.7	133	97.8	3	2.2	136
North Shore Hospital Laboratory	1,306	98.3	11	0.8	1,317	99.1	12	0.9	1,329
Northland Pathology Laboratory	203	100.0	-	0.0	203	100.0	-	0.0	203
Pathlab	1,010	93.1	53	4.9	1,063	98.0	22	2.0	1,085
Southern Community Labs Dunedin	2,706	99.6	4	0.1	2,710	99.8	6	0.2	2,716
Taranaki Medlab	298	100.0	-	0.0	298	100.0	-	0.0	298
Waikato Hospital Laboratory	113	98.3	1	0.9	114	99.1	1	0.9	115
Total	**12,210**	**90.5**	**443**	**3.3**	**12,653**	**93.8**	**834**	**6.2**	**13,487**

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

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

Table 60 – Timeliness of reporting for cytology with associated HPV testing by laboratory, 1 January - 30 June 2014

	Laboratory turnaround time – cytology with HPV triage testing				
	Within 15 working days		More than 15 working days		Total
Laboratory	**N**	**%**	**N**	**%**	**N**
Aotea Pathology Ltd	275	99.6	1	0.4	276
Canterbury Health Laboratories	201	98.5	3	1.5	204
Diagnostic Medlab Ltd	1,012	98.3	18	1.7	1,030
LabPLUS	43	81.1	10	18.9	53
Medlab Central Ltd	389	98.0	8	2.0	397
Pathlab	436	98.4	7	1.6	443
Southern Community Labs Dunedin	509	98.8	6	1.2	515
Total	**2,865**	**98.2**	**53**	**1.8**	**2,918**

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

Table 61 - Women with a histology report within 90 days of a high grade cytology report, by DHB and age

	<20		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70+		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Auckland	-	-	29	80.6	48	73.8	38	88.4	22	78.6	20	76.9	7	46.7	9	60.0	5	62.5	4	50.0	4	66.7	2	66.7	188
Bay of Plenty	1	100.0	9	81.8	27	90.0	6	60.0	6	75.0	7	77.8	2	66.7	6	66.7	0	0.0	4	80.0	3	75.0	3	60.0	74
Canterbury	2	100.0	38	88.4	38	90.5	17	85.0	26	89.7	18	94.7	12	92.3	9	64.3	5	83.3	3	75.0	3	75.0	1	50.0	172
Capital & Coast	-	-	18	69.2	31	81.6	19	70.4	8	66.7	9	75.0	6	85.7	1	33.3	1	100.0	2	50.0	2	100.0	0	0.0	97
Counties Manukau	-	-	35	83.3	42	85.7	34	87.2	13	76.5	19	86.4	16	80.0	3	37.5	6	100.0	4	50.0	4	57.1	2	50.0	178
Hawke's Bay	-	-	10	62.5	27	87.1	16	88.9	7	77.8	6	85.7	2	100.0	4	80.0	2	40.0	4	66.7	4	66.7	0	0.0	82
Hutt Valley	-	-	14	87.5	11	100.0	7	87.5	6	100.0	3	100.0	3	100.0	2	100.0	4	80.0	2	50.0	1	100.0	-	-	53
Lakes	-	-	9	81.8	17	81.0	6	66.7	4	80.0	3	100.0	3	100.0	2	100.0	0	0.0	0	0.0	1	100.0	1	100.0	46
Mid Central	-	-	11	68.8	20	74.1	10	76.9	9	100.0	11	100.0	7	100.0	3	60.0	0	0.0	1	50.0	-	-	1	100.0	73
Nelson Marlborough	0	0.0	4	80.0	12	85.7	4	66.7	3	100.0	7	100.0	2	50.0	4	100.0	-	-	2	40.0	3	100.0	-	-	41
Northland	1	100.0	8	100.0	6	85.7	11	100.0	5	83.3	1	25.0	3	100.0	2	50.0	2	50.0	-	-	0	0.0	1	100.0	40
South Canterbury	-	-	4	80.0	2	100.0	3	100.0	1	100.0	-	-	3	100.0	-	-	-	-	-	-	0	0.0	-	-	13
Southern	1	100.0	23	88.5	23	79.3	27	90.0	8	88.9	10	76.9	10	100.0	3	75.0	1	50.0	1	100.0	1	50.0	1	100.0	109
Tairawhiti	-	-	4	100.0	5	83.3	1	100.0	1	50.0	1	100.0	-	-	-	-	-	-	-	-	-	-	1	100.0	13
Taranaki	-	-	15	78.9	10	83.3	10	100.0	5	83.3	6	100.0	3	100.0	3	60.0	2	50.0	1	50.0	-	-	1	100.0	56
Waikato	-	-	31	83.8	34	94.4	26	89.7	13	68.4	5	83.3	3	75.0	3	75.0	4	66.7	3	75.0	3	30.0	2	50.0	127
Wairarapa	-	-	2	66.7	5	83.3	2	50.0	0	0.0	4	80.0	-	-	-	-	1	50.0	-	-	-	-	-	-	14
Waitemata	4	100.0	45	86.5	48	84.2	36	92.3	21	84.0	28	96.6	8	72.7	8	66.7	11	73.3	4	80.0	5	71.4	1	25.0	219
West Coast	-	-	5	100.0	3	100.0	-	-	-	-	1	100.0	1	100.0	-	-	-	-	-	-	0	0.0	-	-	10
Whanganui	0	0.0	6	85.7	6	100.0	8	88.9	5	100.0	3	75.0	4	100.0	3	60.0	3	75.0	-	-	-	-	-	-	38
Total	**9**	**81.8**	**320**	**82.5**	**415**	**84.3**	**281**	**85.4**	**163**	**81.1**	**162**	**86.2**	**95**	**81.9**	**65**	**64.4**	**47**	**65.3**	**35**	**59.3**	**34**	**60.7**	**17**	**56.7**	**1,643**

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

Table 62 - Women with a histology report within 180 days of a high grade cytology report, by DHB and age

	<20		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70+		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Auckland	-	-	30	83.3	55	84.6	41	95.3	25	89.3	24	92.3	10	66.7	10	66.7	5	62.5	4	50.0	5	83.3	2	66.7	211
Bay of Plenty	1	100.0	9	81.8	27	90.0	8	80.0	6	75.0	8	88.9	2	66.7	8	88.9	0	0.0	4	80.0	3	75.0	3	60.0	79
Canterbury	2	100.0	40	93.0	39	92.9	20	100.0	27	93.1	19	100.0	12	92.3	9	64.3	5	83.3	4	100.0	3	75.0	1	50.0	181
Capital & Coast	-	-	21	80.8	33	86.8	24	88.9	9	75.0	9	75.0	6	85.7	3	100.0	1	100.0	3	75.0	2	100.0	0	0.0	111
Counties Manukau	-	-	35	83.3	43	87.8	36	92.3	15	88.2	20	90.9	18	90.0	5	62.5	6	100.0	4	50.0	6	85.7	4	100.0	192
Hawke's Bay	-	-	12	75.0	28	90.3	18	100.0	9	100.0	6	85.7	2	100.0	4	80.0	4	80.0	4	66.7	4	66.7	0	0.0	91
Hutt Valley	-	-	14	87.5	11	100.0	8	100.0	6	100.0	3	100.0	3	100.0	2	100.0	4	80.0	4	100.0	1	100.0	-	-	56
Lakes	-	-	10	90.9	19	90.5	8	88.9	4	80.0	3	100.0	3	100.0	2	100.0	0	0.0	0	0.0	1	100.0	1	100.0	51
Mid Central	-	-	16	100.0	21	77.8	10	76.9	9	100.0	11	100.0	7	100.0	3	60.0	0	0.0	1	50.0	-	-	1	100.0	79
Nelson Marlborough	0	0.0	5	100.0	12	85.7	5	83.3	3	100.0	7	100.0	4	100.0	4	100.0	-	-	2	40.0	3	100.0	-	-	45
Northland	1	100.0	8	100.0	6	85.7	11	100.0	6	100.0	1	25.0	3	100.0	2	50.0	2	50.0	-	-	0	0.0	1	100.0	41
South Canterbury	-	-	4	80.0	2	100.0	3	100.0	1	100.0	-	-	3	100.0	-	-	-	-	-	-	0	0.0	-	-	13
Southern	1	100.0	24	92.3	27	93.1	30	100.0	9	100.0	11	84.6	10	100.0	3	75.0	1	50.0	1	100.0	1	50.0	1	100.0	119
Tairawhiti	-	-	4	100.0	5	83.3	1	100.0	1	50.0	1	100.0	-	-	-	-	-	-	-	-	-	-	1	100.0	13
Taranaki	-	-	18	94.7	12	100.0	10	100.0	6	100.0	6	100.0	3	100.0	3	60.0	2	50.0	1	50.0	-	-	1	100.0	62
Waikato	-	-	33	89.2	34	94.4	26	89.7	19	100.0	5	83.3	4	100.0	3	75.0	4	66.7	3	75.0	4	40.0	2	50.0	137
Wairarapa	-	-	2	66.7	5	83.3	3	75.0	0	0.0	4	80.0	-	-	-	-	1	50.0	-	-	-	-	-	-	15
Waitemata	4	100.0	50	96.2	52	91.2	38	97.4	21	84.0	28	96.6	9	81.8	8	66.7	12	80.0	5	100.0	5	71.4	2	50.0	234
West Coast	-	-	5	100.0	3	100.0	-	-	-	-	1	100.0	1	100.0	-	-	-	-	-	-	1	100.0	-	-	11
Whanganui	0	0.0	7	100.0	6	100.0	8	88.9	5	100.0	3	75.0	4	100.0	3	60.0	3	75.0	-	-	-	-	-	-	39
Total	**9**	**81.8**	**347**	**89.4**	**440**	**89.4**	**308**	**93.6**	**181**	**90.0**	**170**	**90.4**	**104**	**89.7**	**72**	**71.3**	**50**	**69.4**	**40**	**67.8**	**39**	**69.6**	**20**	**66.7**	**1,780**

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

Indicator 7 – Colposcopy indicators

Indicator 7.1 – Timeliness of colposcopic assessment – high grade cytology

Table 63 - Women with high grade cytology (including cytological suspicion of invasive disease), by DHB

DHB	HG women (suspicion of invasive disease*) N	HG women (no suspicion of invasive disease) N
Auckland	6	163
Bay of Plenty	6	70
Canterbury	8	161
Capital & Coast	3	103
Counties Manukau	7	177
Hawke's Bay	4	96
Hutt Valley	0	52
Lakes	3	50
Mid Central	3	89
Nelson Marlborough	3	45
Northland	2	45
South Canterbury	1	14
Southern	0	96
Tairawhiti	1	13
Taranaki	2	57
Waikato	12	125
Wairarapa	0	19
Waitemata	2	175
West Coast	0	9
Whanganui	1	40
Private practice	8	373
Total	**72**	**1,972**

** High grade cytology with suspicion of invasive disease (includes NZ modified Bethesda codes HS2, SC, AC1-5) or with recommendation for urgent referral (R10, R14). There were no women referred with suspicion of invasive disease in Tairawhiti, Wairarapa, West Coast or Whanganui.*

Table 64 - Women with cytological suspicion of invasive disease, by cytology result subcategory

Cytology result sub-category	Total women N	Women with accepted referral recorded N
HS2	16	12
SC	15	8
AC1-5	29	5
R10, R14	12	10
Total	**72**	**35**

Indicator 7.2 – Timeliness of colposcopic assessment – low grade cytology

Table 65 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by DHB

DHB	Women with persistent LG/ LG & hrHPV positive N	Women with accepted referral recorded N	Median time between cytology result and referral (days)	Women with subsequent colposcopy visit recorded N	Median time between referral and colposcopy visit (days)	Median time between cytology result and colposcopy visit (days)
Auckland	514	444	6	438	140	151
Bay of Plenty	278	241	5	248	143.5	148.5
Canterbury	305	282	6	277	41	52
Capital & Coast	229	211	8	208	85	99
Counties Manukau	423	391	6	343	210	219
Hawke's Bay	140	113	8	115	203	214
Hutt Valley	117	106	9	108	126	144.5
Lakes	93	87	8	84	191	203
Mid Central	181	174	9	166	192	204.5
Nelson Marlborough	73	62	7.5	58	134	146.5
Northland	69	65	6	64	136	150
South Canterbury	26	15	21	21	70	71
Southern	186	164	7	167	159.5	168
Tairawhiti	46	44	5.5	44	70	82.5
Taranaki	63	54	7	57	95.5	120
Waikato	318	295	5	258	149	158
Wairarapa	41	35	4	39	134	136
Waitemata	451	409	6	391	156	170
West Coast	31	27	6	26	84.5	99
Whanganui	80	74	6	72	75	82
Private practice	*953*	*588*	*10*	*890*	*17*	*33*
Total	**4,617**	**3,881**	**7**	**4,074**	**125**	**128.5**

Table 66 - Follow-up of women with persistent low grade cytology/ low grade cytology and positive hrHPV test, by ethnicity

DHB	Women with persistent LG/ LG & hrHPV positive N	Women with subsequent referral recorded N	Median time between cytology result and referral (days)	Women with subsequent colposcopy visit recorded N	Median time between referral and colposcopy visit (days)	Median time between cytology result and colposcopy visit (days)
Māori	579	534	6	478	133	148.0
Pacific	227	205	7	177	161	183
Asian	424	369	7	375	143.5	149
European/Other	3,387	2,773	7	3,044	117	118
Total	**4,617**	**3,881**	**7**	**4,074**	**125**	**128.5**

Indicator 7.3 – Adequacy of documenting colposcopic assessment

Table 67 - Completion of colposcopic assessment fields, by DHB

DHB	Total colposcopies N	% of colposcopies performed where items are completed					
		SCJ visibility	Presence/ absence lesion	Opinion re abnormality grade	Follow-up type	Follow-up timeframe	All items complete
Public clinics overall	*12,496*	*94.9*	*100.0*	*92.6*	*98.1*	*97.8*	*89.7*
Auckland	1,170	98.1	100.0	95.1	99.8	99.7	95.0
Bay of Plenty	395	95.4	100.0	88.6	99.7	99.7	88.1
Canterbury	1,774	95.3	100.0	93.8	99.5	99.4	90.8
Capital & Coast	656	97.9	100.0	96.5	100.0	99.5	96.2
Counties Manukau	850	99.2	100.0	96.1	99.5	99.2	96.4
Hawke's Bay	579	80.0	100.0	90.2	95.0	95.0	72.4
Hutt Valley	333	99.1	100.0	95.5	100.0	100.0	95.8
Lakes	302	95.4	100.0	94.0	99.3	97.7	90.1
Mid Central	955	85.8	100.0	86.5	90.9	90.9	77.3
Nelson Marlborough	320	97.8	100.0	93.6	97.8	97.5	91.6
Northland	278	97.1	100.0	89.4	100.0	99.6	92.1
South Canterbury	136	99.3	100.0	97.9	100.0	100.0	98.5
Southern	899	89.0	100.0	89.7	94.8	94.7	81.1
Tairawhiti	174	99.4	100.0	94.9	100.0	100.0	96.6
Taranaki	381	92.4	100.0	81.9	96.9	95.8	82.7
Waikato	796	98.0	100.0	95.2	97.6	96.6	91.3
Wairarapa	172	95.3	100.0	96.9	100.0	100.0	93.6
Waitemata	1,967	98.6	100.0	94.2	99.8	99.2	95.2
West Coast	122	99.2	100.0	97.8	100.0	100.0	97.5
Whanganui	237	87.3	100.0	75.2	95.4	95.4	72.2
Private practice	*1,617*	*96.8*	*100.0*	*90.0*	*97.9*	*95.2*	*87.0*
Total	14,113	95.1	100.0	92.3	98.1	97.5	89.4

Table 68 – Summary of colposcopic appearance findings, by DHB

DHB	Total colposcopies	SCJ visible*	Colposcopic appearance (as % of colposcopies where items are completed)	
	N	N	Abnormal	Inconclusive
Public clinics overall	*12,496*	*11,855*	*52.6*	*4.2*
Auckland	1,170	1,148	58.6	3.0
Bay of Plenty	395	377	55.2	7.1
Canterbury	1,774	1,691	62.3	4.1
Capital & Coast	656	642	41.9	1.5
Counties Manukau	850	843	49.3	2.0
Hawke's Bay	579	463	44.4	4.8
Hutt Valley	333	330	69.7	3.3
Lakes	302	288	67.5	4.3
Mid Central	955	819	44.4	6.9
Nelson Marlborough	320	313	59.7	4.1
Northland	278	270	39.6	4.7
South Canterbury	136	135	34.6	0.7
Southern	899	800	52.2	6.0
Tairawhiti	174	173	54.0	2.9
Taranaki	381	352	38.1	8.4
Waikato	796	780	64.8	3.3
Wairarapa	172	164	55.2	1.7
Waitemata	1,967	1,939	44.6	2.7
West Coast	122	121	72.1	1.6
Whanganui	237	207	51.1	16.9
Private practice	*1,617*	*1,566*	*51.9*	*5.8*
Total	**14,113**	**13,421**	**52.5**	**4.4**

* Field has been completed

Indicator 7.5 – Timely discharging of women after treatment

Table 69 - Follow-up of treated women in the period up to nine months post-treatment

DHB	Total treatments	Colposcopy within 9 months post-treatment		Colposcopy & cytology within 9 months post-treatment	
	N	N	%	N	%
Auckland	130	114	87.7	113	86.9
Bay of Plenty	37	22	59.5	21	56.8
Canterbury	270	195	72.2	193	71.5
Capital & Coast	97	81	83.5	80	82.5
Counties Manukau	146	52	35.6	51	34.9
Hawke's Bay	60	44	73.3	44	73.3
Hutt Valley	55	43	78.2	43	78.2
Lakes	54	34	63.0	33	61.1
Mid Central	85	75	88.2	69	81.2
Nelson Marlborough	46	40	87.0	40	87.0
Northland	45	42	93.3	42	93.3
South Canterbury	18	14	77.8	14	77.8
Southern	90	44	48.9	42	46.7
Tairawhiti	27	7	25.9	6	22.2
Taranaki	36	31	86.1	30	83.3
Waikato	117	72	61.5	71	60.7
Wairarapa	10	9	90.0	9	90.0
Waitemata	183	153	83.6	149	81.4
West Coast	25	19	76.0	19	76.0
Whanganui	19	16	84.2	16	84.2
Private practice	*91*	*63*	*69.2*	*63*	*69.2*
Total	**1,641**	**1,170**	**71.3**	**1,148**	**70.0**

Table 70 – Follow-up of treated women with colposcopy and cytology in the period up to nine months post-treatment, and discharge of eligible women

	Total treatments	Colposcopy & cytology within 9 months post-treatment		Eligible for discharge		Women discharged appropriately	
DHB	**N**	**N**	**%**	**N**	**% of women treated**	**N**	**% of eligible**
Auckland	130	113	86.9	93	74.6	89	95.7
Bay of Plenty	37	21	56.8	19	70.3	19	100.0
Canterbury	270	193	71.5	191	80.4	170	89.0
Capital & Coast	97	80	82.5	72	78.4	67	93.1
Counties Manukau	146	51	34.9	44	38.4	38	86.4
Hawke's Bay	60	44	73.3	50	86.7	41	82.0
Hutt Valley	55	43	78.2	42	81.8	40	95.2
Lakes	54	33	61.1	36	77.8	29	80.6
Mid Central	85	69	81.2	61	74.1	51	83.6
Nelson Marlborough	46	40	87.0	39	87.0	37	94.9
Northland	45	42	93.3	29	64.4	29	100.0
South Canterbury	18	14	77.8	13	77.8	3	23.1
Southern	90	42	46.7	56	71.1	54	96.4
Tairawhiti	27	6	22.2	14	63.0	12	85.7
Taranaki	36	30	83.3	29	80.6	25	86.2
Waikato	117	71	60.7	81	79.5	77	95.1
Wairarapa	10	9	90.0	6	60.0	6	100.0
Waitemata	183	149	81.4	131	75.4	112	85.5
West Coast	25	19	76.0	20	80.0	17	85.0
Whanganui	19	16	84.2	10	52.6	9	90.0
Private Practice	*91*	*63*	*69.2*	*58*	*74.7*	*45*	*77.6*
Total	**1,641**	**1,148**	**70.0**	**1,094**	**73.2**	**970**	**88.7**

Indicator 8 – HPV tests

Indicator 8.1 – Triage of low grade cytology

Table 71 – Triage testing of women with ASC-US cytology

	Total ASC-US results		Women with an HPV test			
	aged < 30yrs	aged 30+ yrs	aged < 30yrs		aged 30+ yrs	
Laboratory	**N**	**N**	**N**	**%**	**N**	**%**
Aotea Pathology Ltd	158	147	5	3.2	145	98.6
Canterbury Health Laboratories	36	119	2	5.6	118	99.2
Diagnostic Medlab Ltd	199	523	0	0.0	520	99.4
LabPLUS	110	41	0	0.0	33	80.5
Medlab Central Ltd	131	286	0	0.0	247	86.4
Pathlab	140	249	2	1.4	245	98.4
Southern Community Labs	182	220	3	1.6	210	95.5
Total	**956**	**1,585**	**12**	**1.3**	**1,518**	**95.8**

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

Table 72 – 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	231	139	0	0.0	137	98.6
Canterbury Health Laboratories	180	88	2	1.1	87	98.9
Diagnostic Medlab Ltd	598	539	1	0.2	537	99.6
LabPLUS	141	14	0	0.0	13	92.9
Medlab Central Ltd	232	154	3	1.3	145	94.2
Pathlab	270	202	0	0.0	200	99.0
Southern Community Labs	680	348	4	0.6	331	95.1
Total	**2,332**	**1,484**	**10**	**0.4**	**1,450**	**97.7**

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

Indicator 8.2 – HPV test volumes

Table 73 – Volume of HPV test samples received during the monitoring period, by laboratory

Laboratory	HPV tests received		Ratio HPV: cytology tests reported (%)
	N	% of national total	
Aotea Pathology Ltd	1,602	8.6	7.6
Canterbury Health Laboratories	1,945	10.4	16.5
Diagnostic Medlab Ltd	3,788	20.2	6.7
LabPLUS	868	4.6	12.4
Medlab Central Ltd	1,962	10.5	11.6
Pathlab	2,116	11.3	9.7
Southern Community Labs Dunedin	6,445	34.4	8.3
Total	**18,726**	**100.0**	**8.8**

Table 74 – Invalid HPV tests, by laboratory

Laboratory	Total	Valid		Invalid	
	N	N	%	N	%
Aotea Pathology Ltd	1,602	1,597	99.7	5	0.3
Canterbury Health Laboratories	1,945	1,943	99.9	2	0.1
Diagnostic Medlab Ltd	3,788	3,784	99.9	4	0.1
LabPLUS	868	868	100.0	-	0.0
Medlab Central Ltd	1,962	1,962	100.0	-	0.0
Pathlab	2,116	2,113	99.9	3	0.1
Southern Community Labs Dunedin	6,445	6,444	100.0	1	0.0
Total	**18,726**	**18,711**	**99.9**	**15**	**0.1**

Table 75 – Validity of HPV triage tests, by test technology

Test technology	Total HPV tests		Valid		Invalid	
	N	%	N	%	N	%
Abbott RealTime	8,390	44.8	8,387	100.0	3	0.0
Roche COBAS 4800*	10,336	55.2	10,324	99.9	12	0.1
Total	18,726	100.0	18,711	99.9	15	0.1

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

Table 76 - Volume of HPV test samples received during the monitoring period, by purpose and ethnicity

	Post-treatment		Historical		Taken at colposcopy		HPV triage		Other		Total
Age	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Māori	321	13.3	1,014	42.0	142	5.9	311	12.9	628	26.0	2,416
Pacific	73	14.5	133	26.4	18	3.6	153	30.4	127	25.2	504
Asian	140	13.8	228	22.5	60	5.9	322	31.8	263	26.0	1,013
European/Other	1,868	12.6	5,489	37.1	732	4.9	1,995	13.5	4,709	31.8	14,793
Total	**2,402**	**12.8**	**6,864**	**36.7**	**952**	**5.1**	**2,781**	**14.9**	**5,727**	**30.6**	**18,726**

Table 77 - Volume of HPV test samples received during the monitoring period, by purpose and age

	Post-treatment		Historical		Taken at colposcopy		HPV triage		Other		Total
Age	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
<20	-	0.0	-	-	2	22.2	-	0.0	7	77.8	9
20-24	305	37.1	55	6.7	172	20.9	-	0.0	290	35.3	822
25-29	613	36.1	539	31.7	171	10.1	-	0.0	375	22.1	1,698
30-34	478	18.2	1,025	38.9	124	4.7	551	20.9	454	17.2	2,632
35-39	344	13.3	1,227	47.4	79	3.0	466	18.0	475	18.3	2,591
40-44	245	8.5	1,378	47.6	101	3.5	479	16.5	693	23.9	2,896
45-49	182	7.4	944	38.4	94	3.8	434	17.7	803	32.7	2,457
50-54	106	4.9	724	33.5	71	3.3	365	16.9	898	41.5	2,164
55-59	52	3.5	457	30.4	60	4.0	220	14.6	715	47.5	1,504
60-64	46	4.4	296	28.2	34	3.2	141	13.4	534	50.8	1,051
65-69	19	2.8	143	21.2	29	4.3	103	15.3	379	56.3	673
70+	12	5.2	76	33.2	15	6.6	22	9.6	104	45.4	229
Total	**2,402**	**12.8**	**6,864**	**36.7**	**952**	**5.1**	**2,781**	**14.9**	**5,727**	**30.6**	**18,726**

Excludes 14 women for whom date of birth information was not available

Table 78 - Volume of HPV test samples received during the monitoring period, by purpose and laboratory

	Post-treatment		Historical		Taken at colposcopy		HPV triage		Other		Total
Age	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
Aotea Pathology Ltd	169	10.5	742	46.3	6	0.4	263	16.4	422	26.3	1,602
Canterbury Health Laboratories	467	24.0	587	30.2	254	13.1	193	9.9	444	22.8	1,945
Diagnostic Medlab Ltd	457	12.1	1,282	33.8	75	2.0	1,023	27.0	951	25.1	3,788
LabPLUS	228	26.3	108	12.4	50	5.8	46	5.3	436	50.2	868
Medlab Central Ltd	241	12.3	705	35.9	58	3.0	359	18.3	599	30.5	1,962
Pathlab	165	7.8	847	40.0	241	11.4	410	19.4	453	21.4	2,116
Southern Community Labs Dunedin	675	10.5	2,593	40.2	268	4.2	487	7.6	2,422	37.6	6,445
Total	**2,402**	**12.8**	**6,864**	**36.7**	**952**	**5.1**	**2,781**	**14.9**	**5,727**	**30.6**	**18,726**

Table 79 - 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	*689*	*12,496*	*5.5*
Auckland	15	1,170	1.3
Bay of Plenty	70	395	17.7
Canterbury	231	1,774	13.0
Capital & Coast	3	656	0.5
Counties Manukau	15	850	1.8
Hawke's Bay	5	579	0.9
Hutt Valley	1	333	0.3
Lakes	112	302	37.1
Mid Central	36	955	3.8
Nelson Marlborough	15	320	4.7
Northland	-	278	-
South Canterbury	6	136	4.4
Southern	115	899	12.8
Tairawhiti	-	174	-
Taranaki	-	381	-
Waikato	50	796	6.3
Wairarapa	-	172	-
Waitemata	15	1,967	0.8
West Coast	-	122	-
Whanganui	-	237	-
Private practice	*94*	*1,617*	*5.8*
Total	**783**	**14,113**	**5.5**

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

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

Table 80 - Women eligible for and proportion who have received HPV testing for a historical high grade abnormality, by age at 30 June 2014

Age group	Number of women eligible for testing as at 1 Oct 2009		Round 1 test recorded		Round 2 test recorded	
	All	In current report*	N	%	N	%
<20	-	-	-	0.0	-	0.0
20-24	11	11	3	27.3	-	0.0
25-29	1,020	1,019	430	42.2	256	25.1
30-34	4,998	4,983	2,329	46.7	1,489	29.9
35-39	8,782	8,744	4,370	50.0	2,989	34.2
40-44	11,113	11,062	5,653	51.1	4,000	36.2
45-49	8,609	8,548	4,250	49.7	2,997	35.1
50-54	6,459	6,380	3,155	49.5	2,307	36.2
55-59	4,005	3,950	1,952	49.4	1,419	35.9
60-64	2,415	2,351	1,157	49.2	866	36.8
65-69	1,395	1,347	595	44.2	471	35.0
70+	1,698	1,501	306	20.4	194	12.9
Total	**50,505**	**49,896**	**24,200**	**48.5**	**16,988**	**34.0**

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

Table 81 - Women eligible for and proportion who have received historical HPV testing, by DHB

DHB	Number of women eligible for historical testing as at 1 Oct 2009		Round 1 test recorded		Round 2 test recorded	
	All	In current report*	N	%	N	%
Auckland	4,175	4,137	1,132	27.4	676	16.3
Bay of Plenty	2,915	2,881	1,189	41.3	727	25.2
Canterbury	6,007	5,940	3,412	57.4	2,557	43.0
Capital & Coast	2,954	2,934	1,660	56.6	1,248	42.5
Counties Manukau	3,600	3,552	1,003	28.2	612	17.2
Hawke's Bay	2,211	2,180	1,336	61.3	952	43.7
Hutt Valley	1,556	1,538	820	53.3	572	37.2
Lakes	1,595	1,578	609	38.6	340	21.5
Mid Central	2,164	2,127	1,322	62.2	987	46.4
Nelson Marlborough	1,853	1,833	1,326	72.3	1,087	59.3
Northland	1,801	1,769	646	36.5	331	18.7
South Canterbury	806	792	480	60.6	349	44.1
Southern	4,786	4,737	2,768	58.4	2,051	43.3
Tairawhiti	906	895	397	44.4	254	28.4
Taranaki	2,216	2,178	1,383	63.5	1,088	50.0
Waikato	3,936	3,890	2,251	57.9	1,663	42.8
Wairarapa	451	445	204	45.8	135	30.3
Waitemata	5,288	5,228	1,590	30.4	911	17.4
West Coast	449	443	312	70.4	233	52.6
Total	**50,505**	**49,896**	**24,200**	**48.5**	**16,988**	**34.0**

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

Figure 77 – Relationship between the number of women eligible for historical testing and the proportion of women who have undergone historical tests, by DHB.

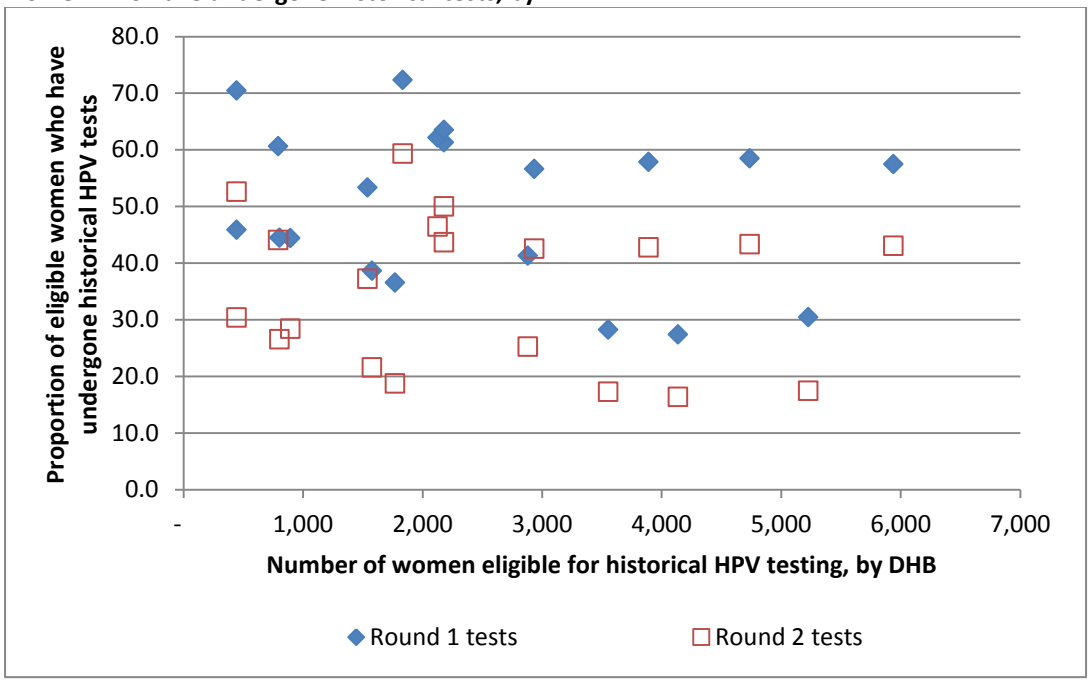


Table 82 - Women eligible for and proportion who have received historical HPV testing, by ethnicity

Ethnicity	Number of women eligible for historical testing as at 1 Oct 2009		Round 1 test recorded		Round 2 test recorded	
	All	In current report*	N	%	N	%
Māori	7,597	7,473	3,133	41.9	1,885	25.2
Pacific	1,206	1,190	331	27.8	201	16.9
Asian	1,677	1,668	557	33.4	392	23.5
European/Other	40,025	39,565	20,179	51.0	14,510	36.7
Total	**50,505**	**49,896**	**24,200**	**48.5**	**16,988**	**34.0**

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

Appendix B – Bethesda 2001 New Zealand Modified

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

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

Appendix C – SNOMED categories for histological samples

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

Appendix D – Indicator Definitions Targets and Reporting Details

Positive predictive value calculations

Table 83 – Definition used for positive predictive value calculations

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

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

Appendix E – DHB assignment for colposcopy clinics

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

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

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

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

Appendix F – Glossary

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

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