National Screening Unit

National Cervical Screening Programme

Monitoring Report Number 31

1 January – 30 June 2009

Technical report No. 31

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By Megan Smith[1], Robert Walker[1], Mark Clements[2], and Karen Canfell[1,3]

[1] Cancer Epidemiology Unit, Cancer Council NSW, Sydney NSW Australia
[2] National Centre for Epidemiology and Population Health, Australian National University, Canberra ACT Australia
[3] School of Public Health, University of Sydney, Sydney NSW Australia

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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 2009 to 30 June 2009.

Key points on performance/trends

Indicator 1 — Coverage

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

- Coverage target was met nationally (78.6% of women aged 25-69 years screened in the previous three years).
- Coverage target was met for specific five-year age groups between 25-29 years and 35-64 years.
- Coverage target was met by 17 of 21 DHBs.
- Coverage targets were not met for Māori, Pacific, or Asian women.
- Five year coverage among women aged 25-69 years exceeds 80% in all DHBs, and in women in all age groups between 25-69 years.
- Coverage in women aged 20-24 years is likely to remain lower than for other ages because age is defined at the end of the monitoring period. Coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.
- Coverage has increased nationally, and particularly in Asian and Pacific women (from 59.7% to 62.2% in Pacific women, and from 61.5% to 64.3% in Asian women, compared to coverage in the three years to 31 December 2008), however disparities remain between ethnic groups.

Screens in women aged less than 20 years

Target: None

- In the three years to 30 June 2009, there were 20,563 women who had a cervical sample taken when they were aged less than 20 years.
- This represents 2.2% of all women (of any age) who were screened in the three-year period.
- Most of these women were aged 18-19 years (75%).

Indicator 2 — First screening events

Target: None

- The number of first screening events has increased since the previous reporting period.
- First screening events generally occur among young women (median age 27 years).
- Asian and Pacific women appear to have their first screening event

at a later age (median ages of women with a first screening event 32 years and 29 years, respectively) than Māori women and European/Other women (median ages of women with a first screening event 22 years and 26 years, respectively).

Indicator 3 Withdrawal rates

Target: Zero between ages 20-69 years

- 56 women aged between 20-69 years withdrew from the register during this six-month period (0.004% of those enrolled at 1 January 2009). This is approximately half the number that withdrew during the previous reporting period.

Indicator 4 Early re-screening

Target: Not yet defined

- Approximately 29% of a cohort of women with a recommendation to return at the routine interval (three years) had at least one cytology within 30 months of their index cytology sample
- Early re-screening occurs in all ethnic groups, but is most common among Asian women, and least common among Pacific women.
- Early re-screening has decreased slightly since the previous report, mostly among women aged 20-24 years, but it has increased slightly among Asian women.

Indicator 5.1 Cytology reporting

Unsatisfactory cytology

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

- Percent conventional cytology samples unsatisfactory target met nationally, and by all nine laboratories.
- Percent LBC samples unsatisfactory target met nationally, and by three of nine laboratories.
- The rate of unsatisfactory samples has increased nationally for LBC, and increased slightly for conventional cytology.

Negative cytology

Target: No more than 96% of cytology samples

- Percent of samples negative target met nationally and by all laboratories.

Abnormal cytology

Target: No more than 10% of cytology samples

- Percent of cytology abnormal target met nationally and by seven of nine laboratories.

- Nationally, the rate of abnormal smears has decreased slightly since the previous report.

HSIL cytology

Target: No less than 0.6% of cytology samples

- Percent of cytology HSIL target met nationally and by five of nine laboratories.

Indicator 5.2 Cytology positive predictive value

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

- All laboratories met the minimum target for HSIL+SC of 65%.
- Five of nine laboratories met the maximum target for HSIL+SC of 85%.
- Nationally, the positive predictive value of HSIL+SC has decreased slightly compared with the previous report.
- Nationally, the positive predictive value of ASC-H has increased slightly compared with the previous report.
- Nationally, the positive predictive value of the combination of ASC-H+HSIL+SC has decreased slightly compared with the previous report.
- Nationally, the positive predictive value of glandular abnormalities has decreased (however based on a comparatively small number of samples).

Indicator 5.3 Accuracy of negative cytology reports

Not assessed

Indicator 5.4 Histology reporting

Target: None

- 13,736 histology samples were taken during the current reporting period; 272 (2.4%) were unsatisfactory
- Results for most severe histology from 11,882 women are presented
- 54% of women had histology samples which were benign
- 20.7% of women had HSIL histology results.
- 49 (0.4%) women had invasive SCC histology results, 45 (0.4%) women had invasive adenocarcinoma histology results, and three (0.03%) had adenosquamous carcinoma histology results.

Indicator 5.5 Turnaround times

Cytology

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

- Targets for cytology turnaround time were not met nationally, but were met by four of nine laboratories (both the seven day target and the 15 day target). All nine laboratories had reported on more than 98% of samples within 15 days.
- Although one fewer lab met the seven day cytology target, turnaround time performance has improved nationally, and in particular at Canterbury Health Laboratories (from 28.5% to 50.4% within seven days, and from 67.6% to 98.7% within 15 days).

Histology

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

- Turnaround times for histology were slightly below the target nationally, but were met by 10 of 20 laboratories (five day target) and 13 of 20 laboratories (15 day target). All 20 laboratories had reported on at least 90% of samples within 15 days.
- Turnaround time performance is slightly worse for histology, although substantial improvements were made at Southern Community Labs Christchurch (from 80.7% to 93.8% within five days, and from 84.5% to 95.1% within 15 days).

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

- Targets were not met nationally, nor by any DHB for the proportion of women with a histology report within 90 days or within 180 days of their cytology report.
- 75.0% of women had a histology report within 90 days of their high grade cytology report; 83.7% have one within 180 days.
- Nationally, the proportion of women with histological follow-up has decreased slightly since the previous reporting period.

Any follow-up tests

Target: None

- Nationally, 93.4% of women have a follow-up test (colposcopy, subsequent cytology, histology) within 180 days of their cytology report. By 360 days, 96.9% of women have a follow-up test report.
- Nationally, the proportion of women with any follow-up test (colposcopy, subsequent cytology, histology) has increased since the previous reporting period.

Indicator 7 — Colposcopy indicators

Not assessed (indicators are in development).

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. The Health (National Cervical Screening Programme) Amendment Act, which came into effect in 2004, underpins the NCSP's operations to ensure the co-ordination of a high quality screening programme for all women in New Zealand.

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

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

Technical information on the indicators is available in a separate report (Technical Specification for Monitoring Reports) available on the website, www.cervicalscreening.govt.nz

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

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

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

NCSP biannual monitoring reports are reviewed by a multidisciplinary advisory and monitoring group representing NCSP providers and consumers. The group may make recommendations to the NSU for follow-up actions (refer www.nsu.govt.nz/health-professionals/1072.asp).

Further information about the NCSP Advisory Group and the monitoring and performance of the NCSP is available on www.nsu.govt.nz and on request from the NCSP Programme Leader:
Email: Mihikore_Andrews@moh.govt.nz
Phone: (09) 580 9025
Fax: 09 580 9001

3. Methods

Age

Unless otherwise specified, age is defined as the woman's age at the end of the reporting period, i.e. 30 June 2009.

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 have required further cervical smears, depending on the type of hysterectomy that they received.

The hysterectomy-adjustment used in this report uses estimates of the hysterectomy prevalence (both total and partial) in the New Zealand population, modelled by the Public Health Intelligence unit of the Ministry of Health. The hysterectomy prevalence was estimated by extracting information about procedures from hospital discharge data. Central estimates of survival and hysterectomy incidence in five-year age groups and five-year periods by ethnicity were then used to determine the prevalence of hysterectomy in all age groups, ethnicities and years. The 2006 data was taken from these estimates. Further information about the hysterectomy prevalence methodology can be found in the document *Setting Outcome Targets for the National Cervical Screening Programme. A Report for the National Screening Unit. November 2003* by S. Paul, M. Tobias, and C. Wright.

The hysterectomy prevalence data were applied to New Zealand population estimates from Statistics New Zealand so that estimates of the number of women in the New Zealand population (by age and ethnicity) who had not had a hysterectomy prior to 1 January 2007 were obtained. Hysterectomy prevalence figures for the whole population (the denominator) were not available by DHB, so age- and ethnicity-specific hysterectomy adjustments were applied equally across each DHB. These adjusted population estimates were then used as the denominator in the hysterectomy-adjusted calculations.

The total population estimates used were the 2001 Census population, projected to 2006. This method was used, rather than directly using the 2006 Census population, firstly to allow comparison with previous reports, and secondly because at the time the analysis was performed, estimates were not available from the 2006 census for Asian women by DHB (rather, Asian women were grouped with European/Other women within each DHB).

While both the hysterectomy prevalence estimates and the underlying population estimates were the best estimates available at the time of the analysis, both are becoming outdated. Both relate to 2006, while this report covers a period up until mid-2009. The population estimate is also compromised by being a projection, rather than being directly based on the 2006 Census. In light of these limitations, measures which rely on the hysterectomy-adjusted population, particularly coverage, need to be interpreted with caution. It is also possible that the extent to

which the estimated hysterectomy-adjusted population differs from the true population may vary by ethnicity and/or by DHB. This may occur, for example if an ethnic group is growing faster than was projected, and in comparison to other ethnic groups; or if the age-specific prevalence of hysterectomy has changed more in some DHBs than in others.

Ethnicity analysis

The analysis by ethnicity considered four groups – Māori, Pacific, Asian, or European/ Other, based on their priority two ethnicity codes recorded on the NCSP Register. Women for whom ethnicity information was not available were grouped in the "European/ Other" category. The data download used for the current analysis (NCSP Register data as at July 2010) contained ethnicity codes for approximately 93% 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[1] [2]. The NCSP is continuing with work to improve the accuracy of ethnicity recording on the register.

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

The second Health & Disability Intelligence Unit report (Wright 2008)[3] calculated ethnicity adjustors for NCSP Register data in the period 1998-2007, based on the data from NHI and BDM. The effect of the ethnicity adjustors is to increase the number of women included in each measure who are Māori, Pacific, or Asian to compensate for undercounting, and thus to reduce it for European/Other. In this monitoring report, ethnicity adjustors for 2006 from Wright 2008 are applied to counts derived from the NCSP Register to explore the potential impact of under-counting on ethnicity-specific indicators, such as coverage. Adjustors are also not used in any of the laboratory measures, which are not presented by ethnicity. For all measures presented by ethnicity, unadjusted estimates are provided as the main results, consistent with previous monitoring reports; adjusted estimates are provided for illustrative purposes. Adjustors are not directly applicable to the full time period covered by this report however, so adjusted measures should be interpreted with caution.

[1] Ministry of Health, 2004. *Ethnicity Data Protocols for the Health and Disability Sector* Wellington; Ministry of Health. Available at www.moh.govt.nz

[2] Ministry of Health, 2006. *Asian Health Chart Book* Wellington, Ministry of Health. Available at www.moh.govt.nz

[3] Craig Wright. Health & Disability Intelligence Unit. Report Number 2: Accuracy of Ethnicity Data in the National Cervical Screening Programme Register (NCSP-R). September 2008.

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 36 months 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.

The indicator is adjusted for the estimated proportion of women who have had a hysterectomy. Women who have withdrawn from or are not enrolled on the NCSP Register are excluded.

Previously, coverage has been defined as the proportion of all 20-69 year old women who have had a screening event, HPV test or histology taken in the 36 months prior to the end of the reporting period. Some results for this age group are shown as supplementary information.

Screening of women aged less than 20 years is also reported by DHB.

Target

75% of eligible women within three years

Current Situation

Coverage

826,492 (78.6%) 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 is above the target of 75%. 91.6% of 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 72.7% (Whanganui) to 87.1% (Taranaki). 17 of the 21 DHBs achieved the 75% target in women aged 25-69 years at the end of the period (Figure 1, Table 23).

The target coverage of 75% of women screened at least once in 36 months was achieved for women aged 25-29 years and for each of the specific five-year age groups between 35-64 years, but not for women aged 20-24 years, 30-34 years, or 65-69 years. Coverage was lowest in women aged 20-24 years (59.0%), however many women in this age group were not eligible for screening for the entire three-year period. Coverage was highest in women aged 50-54 years (86.8%) (Figure 2, Table 22).

Three-yearly coverage also varied by ethnicity. Coverage targets of 75% were not met for Māori, Pacific, or Asian women. Coverage in these groups for women aged 25-69 years was 56.5%, 62.2%, and 64.3% respectively. Among

European/Other women, coverage achieved was 86.0% (Figure 3, Table 24). Undercounting of some ethnic groups on the NCSP Register may account for some of this discrepancy. We explored the impact on the results of applying ethnicity adjustors estimated by Wright (2008) to re-weight the counts of women screened based on the level of under- and over-counting for different ethnic groups. As expected, the adjustment narrows the gap between the groups, such that it ranges from 66.8% (Māori) to 78.0% (European/ Other) among women aged 20-69 years, and from 67.5% (Māori) to 84.4% (Asian) among women aged 25-69 years. Adjusted estimates are shown in Table 25 and Table 26.

When compared to the findings for three-year coverage, five-year coverage had similar patterns of variation by age, DHB, and ethnicity to three-year coverage. Five-year coverage varied by age from 64.2% in women aged 20-24 years to 100% in women aged 50-54 years (Figure 5, Table 27). Among women aged 25-69 years at the end of the period, it ranged from 85.5% in Whanganui to 99.7% in Taranaki (Figure 4,Table 28), and from 68.6% (Māori) to 99.5% (European/ Other) (Figure 6, Table 29).

Screens in women aged less than 20 years

A total of 20,563 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 2009. 2.2% of women who were screened at any age were aged less than 20 years at the time their cervical sample was taken (Table 31).

The number of women aged less than 20 at the time they were screened varied by DHB from 149 (West Coast) to 3,475 (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 most common. Estimates for this proportion ranged from 7.9% (Waikato) to 19.0% (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 <20 year olds at a relatively high rate (South Canterbury, West Coast). Details of screens of women aged less than 20 years by DHB are presented in Figure 7, Table 31 and Table 30.

Further exploratory analysis determined that approximately three quarters of the women who were aged less than 20 years at the time of their cervical sample were aged 18-19 years (75% overall; range across DHBs 64%-84%). This

may represent opportunistic screening of women aged 18-19 years.

Trends

Coverage

Overall coverage rates in New Zealand among women aged 25-69 years at the end of the monitoring period have increased slightly from 77.5% in the three years to 31 December 2008 to 78.6% in the three years to 30 June 2009.

Coverage among women aged 25-69 years has increased in all ethnic groups since the previous report: from 55.4% to 56.5% in Māori women, from 59.7% to 62.2% in Pacific women, from 61.5% to 64.3% in Asian women, and from 85.3% to 86.0% among European/Other women.

Screens in women aged less than 20 years

The number of women screened who were aged under 20 years has decreased from 21,990 in the previous reporting period to 20,563 in the current reporting period, as has the proportion of all women with screening events who were aged less than 20 years at the time of the event. The proportion of these women who were aged 18-19 years has increased slightly since the previous reporting period (from 73% to 75%). The number of women screened who are aged less than 20 years has decreased in all DHBs.

Comments

Calculated coverage in women aged 50-54 years in the previous five years exceeds 100%. This is likely to be because the denominator estimate is not perfect. As discussed in Methods (*Hysterectomy-adjusted population*, page 6), 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. Also, the unadjusted population is based on the 2001 census data, projected to 2006, whereas the time period for screening considered here is July 2004 – June 2009.

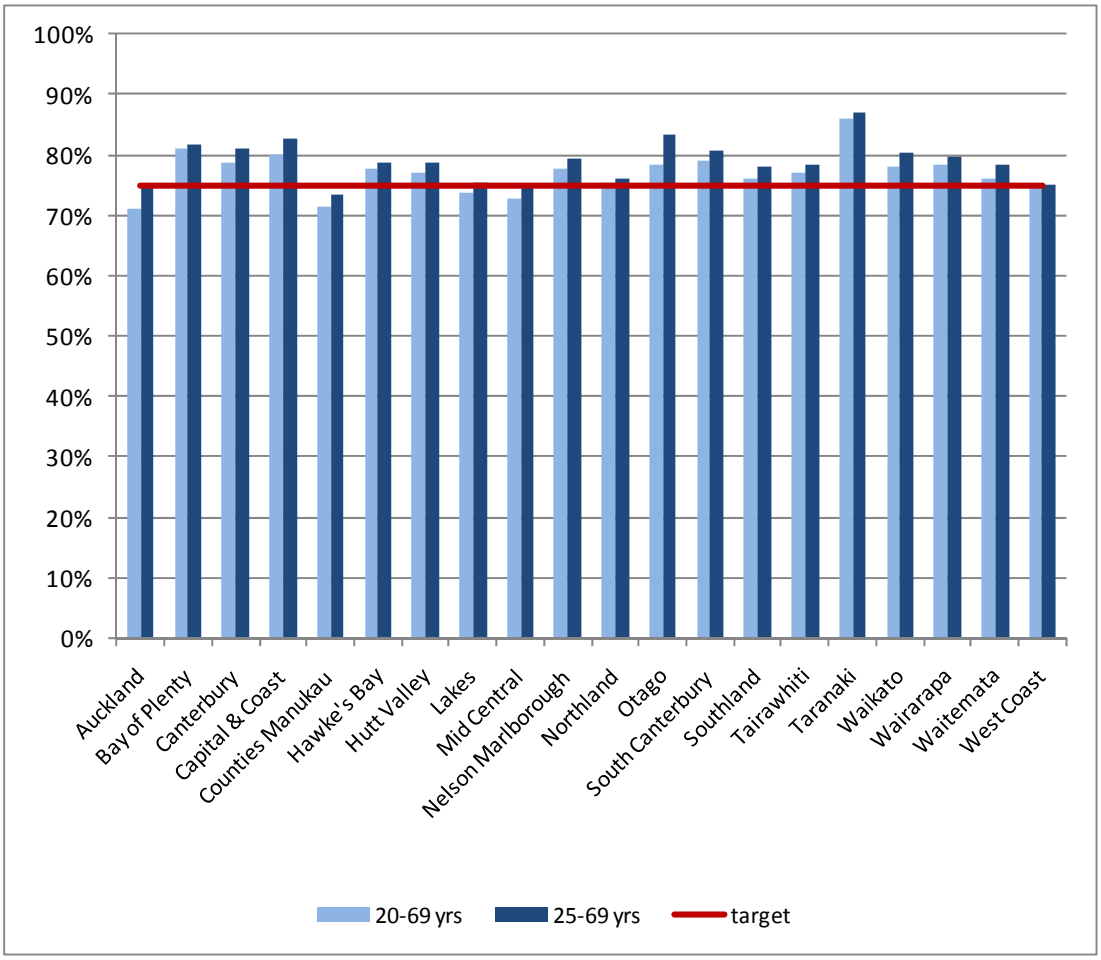
Coverage in women aged 20-24 years is likely to remain lower than for other ages and coverage in this age group should be interpreted with caution, as many women will have had a shorter period in which they were eligible for screening.

As discussed in the Methods section *Hysterectomy-adjusted population* (page 6), coverage must be interpreted with particular caution, due to the limitations in the estimates for the hysterectomy-adjusted population and the influence this estimate has on coverage.

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

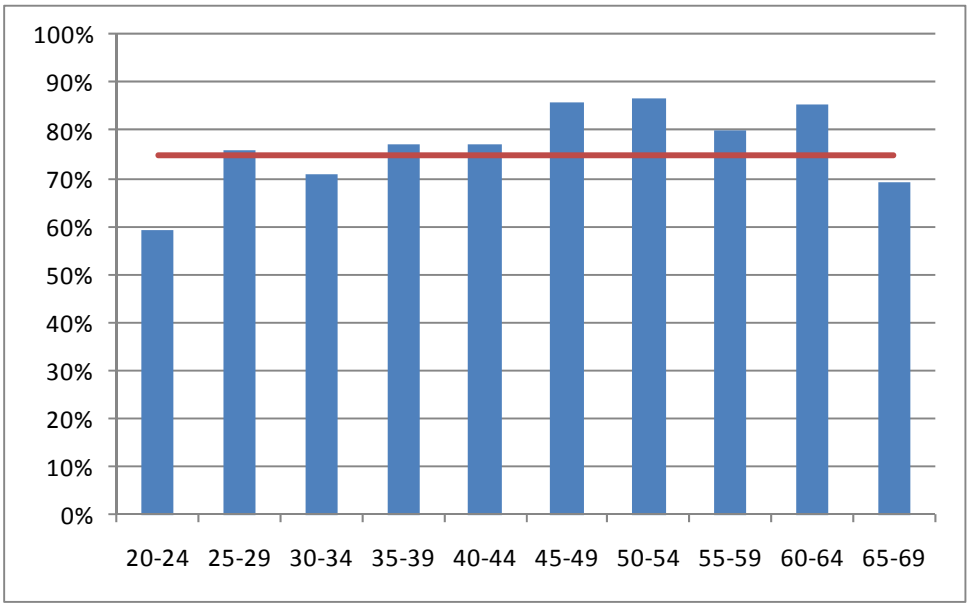
caution however, since adjustors relate to 2006, and the periods considered for coverage are wider – ranging from mid 2006-mid 2009 (three-year coverage), and mid 2004-mid 2009 (five-year coverage). Like the primary (unadjusted) estimates, they also rely on the accuracy of the hysterectomy-adjusted population estimate.

Figure 1 - Three-year coverage by DHB (women screened in the three years prior to 30 June 2009, as a proportion of hysterectomy-adjusted 2006 female population)



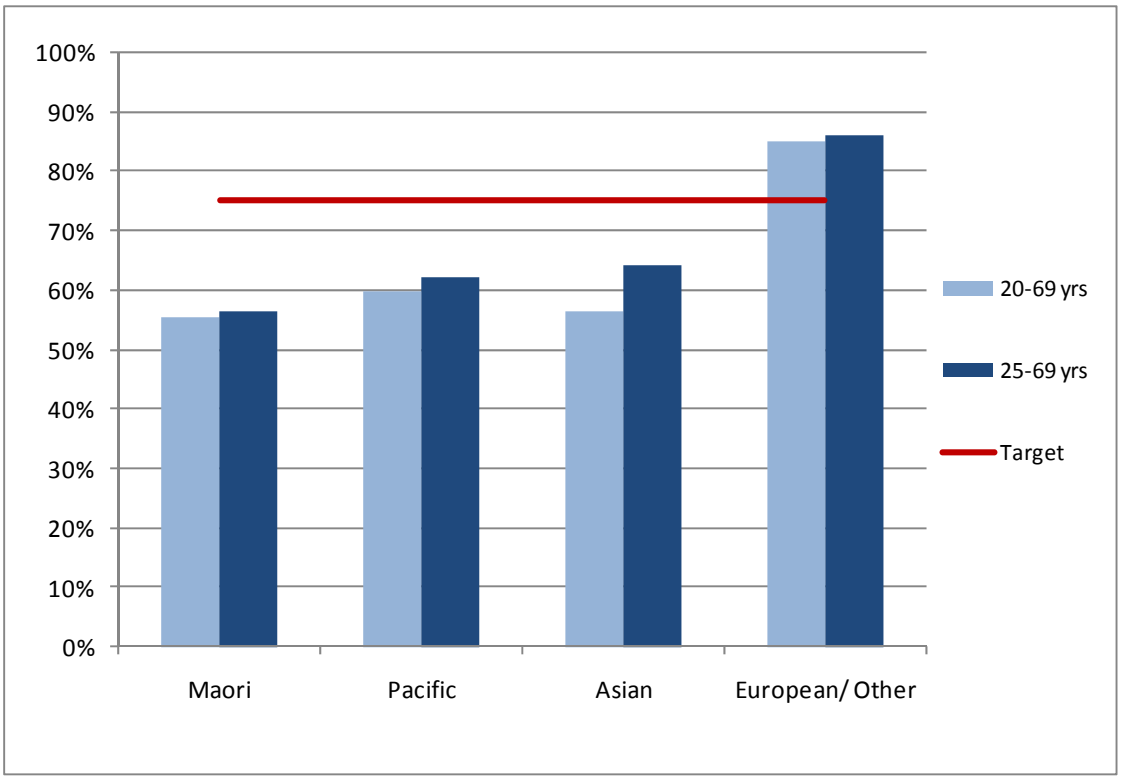
Note: Coverage calculated using population projection for 2006 based on 2001 Census data. Target 75%, hysterectomy adjusted.

Figure 2 - Three-year coverage by five-year age group (women 20-69 years screened in the three years prior to 30 June 2009, as a proportion of hysterectomy-adjusted 2006 female population)



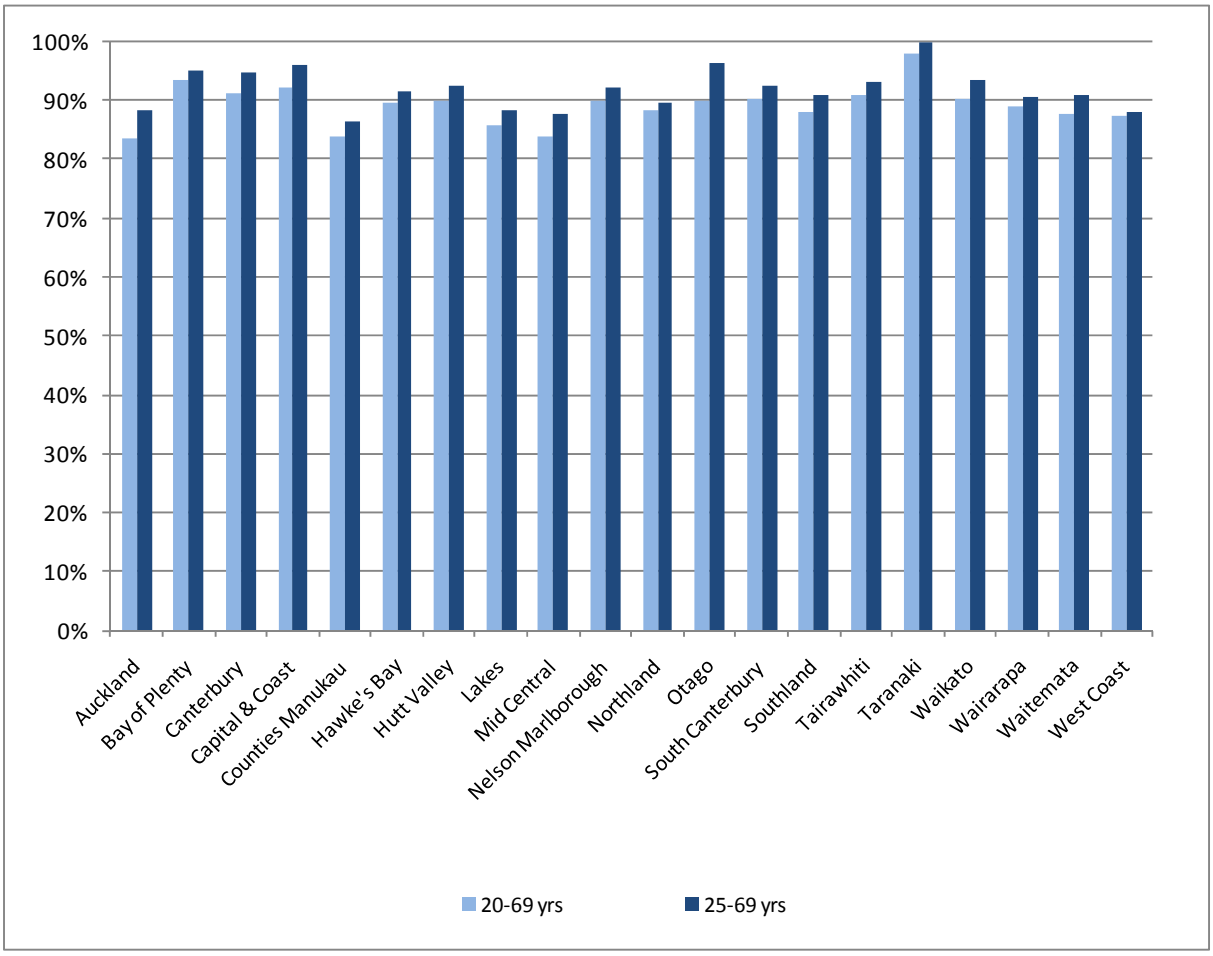
Note: Coverage calculated using population projection for 2006 based on 2001 Census data. Target 75%, hysterectomy adjusted (red line).

Figure 3 - Three-year coverage by ethnicity (women screened in the three years prior to 30 June 2009, as a proportion of hysterectomy-adjusted 2006 female population)



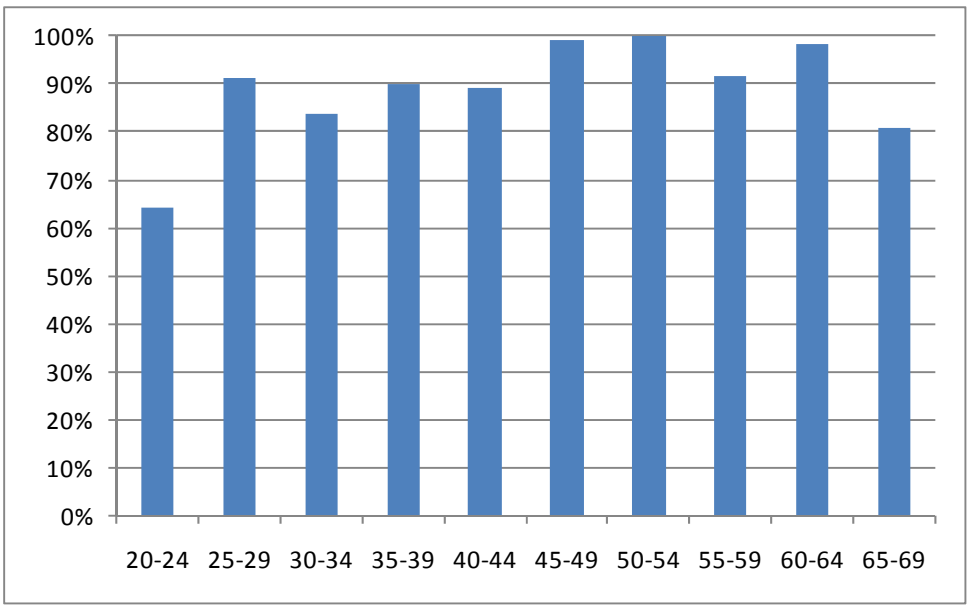
Note: Coverage calculated using population projection for 2006 based on 2001 Census data. Target 75%, hysterectomy adjusted.

Figure 4 - Five-year coverage by DHB (women screened in the five years prior to 30 June 2009, as proportion of hysterectomy-adjusted 2006 female population)



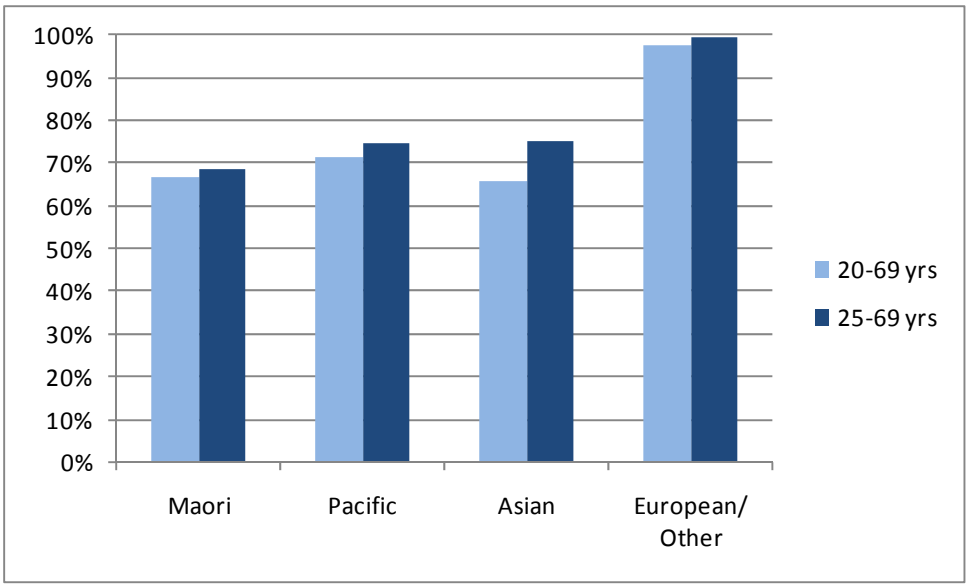
Note: Coverage calculated using population projection for 2006 based on 2001 Census data.

Figure 5 - Five-year coverage by five-year age-group (women screened in the five years prior to 30 June 2009, as proportion of hysterectomy-adjusted 2006 female population)



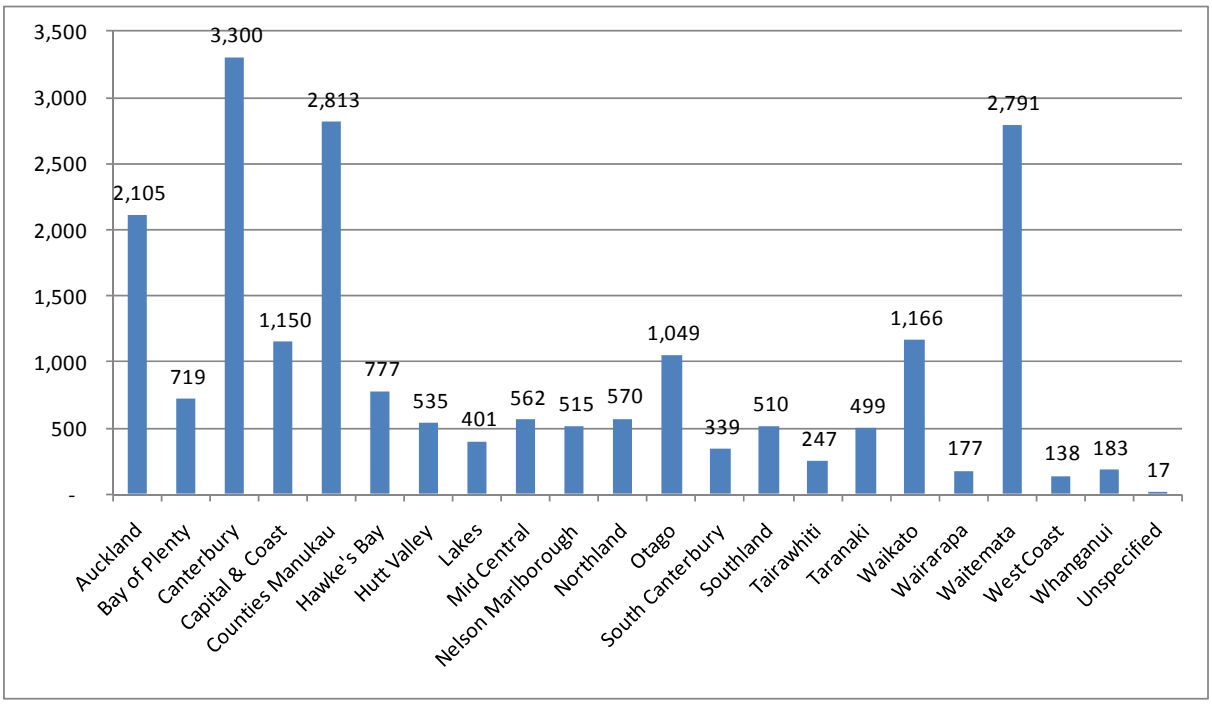
Note: Coverage calculated using population projection for 2006 based on 2001 Census data.

Figure 6 - Five-year coverage by ethnicity (women screened in the five years prior to 30 June 2009, as a proportion of hysterectomy-adjusted 2006 female population)



Note: Coverage calculated using population projection for 2006 based on 2001 Census data.

Figure 7 - Number of women screened who were under 20 years of age at the time of their cervical sample in the three years to 30 June 2009, by DHB



Indicator 2 – First screening events

Definition

Women with no cytology, histology, or HPV test 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 2009).

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 20-29 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

24,040 women aged 20-69 years at the end of the period had their first screening event in the period 1 January – 30 June 2009. This constituted 11.1% of the 217,181 women aged 20-69 years with a cervical sample taken in the period (screening event), and 2.0% of the eligible population. The median age (at the end of the reporting period) of women with a first event recorded was 27 years.

The age group with the highest number of first screening events was women aged 20-24 years. 9,755 women aged 20-24 had their first screening event recorded on the register during this reporting period, accounting for 40.6% of all women aged 20-69 years with first screening events (Figure 8, Table 32). From this age group, first screening events decreased with increasing age. Women aged 20-24 years also had the highest proportion of eligible women at that age with a first screening event recorded (7.0%) (Figure 10).

The DHBs with the highest number of women aged 20-69 years with first screening events were Auckland (3,621), Waitemata (3,270), and Counties Manukau (2,936). The DHBs where women with first screening events, as a proportion of all women with screening events, was the highest were Auckland (14.7%), Counties Manukau (13.5%), and Capital Coast (13.2%). The DHBs where this proportion was lowest were Wairarapa (6.8%) and South Canterbury (7.3%) (Figure 11, Table 1).

The ethnic group with the highest number of women with first screening events was European/ Other ethnic groups (15,135)(Table 2). This mainly reflects their larger population size, however, as the group with the highest proportion of their eligible population being screened for the first time was Asian women (3.7%), compared to 1.8% for European/ Other (Table 2). The proportion of women screened who were being screened for the first time was also highest for Asian women (25.9%) (Table 2, Figure 12). This proportion is likely to be related to the median age of women with a first screening event, as groups where it is comparatively high (25.9% for Asian women, 19.1% for Pacific women) also have an

	older median age of women with a first screening even (32 years for Asian women, 29 years for Pacific women) (Table 3).
Trends	The number of women with a first screening event recorded on the NCSP Register has increased slightly, from 23,024 women in the previous reporting period, to 24,040 in the current period. The proportion of the eligible population that this represents is very similar to what it was in the previous reporting period (1.9%). The proportion of women with screening events who are women with their first screening event being recorded on the NCSP Register is slightly higher compared to the previous period (10.7%), even though the number of women screened has also increased. Patterns by age, DHB, and ethnicity are very similar to those seen in the previous report. As was the case in the previous report, the median age of a first screening event was older for Asian and Pacific women than for Māori women and European/Other women, and women with first screening events constituted a larger proportion of the women screened for Asian and Pacific women.
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 taken outside New Zealand. Some differences in counts and proportion of women with first screens among screened women between DHBs are to be expected due to differences in population size and age structure. Proportions have been provided to partially account for this, however they should be interpreted with caution. For example, a relatively low number of women with first screens as a proportion of all women screened could be due to either a lower number of women with first events, or a higher number of women with screening events (which could be due to high coverage, or higher abnormality rates, as the latter require women to return more frequently). For example the DHB with the highest coverage, Taranaki, does not have a particularly high proportion of women with first events. If coverage remains high, then this proportion will inevitably decrease, as fewer women are available to be screened for the first time. Conversely, a relatively high number of women with first screens as a proportion of all women screened could be due to either a higher number of women with first events (due to increasing coverage), or a lower number of women with screening events (for example due to less frequent screening among women who have been screened at least once since the inception of the register).

Figure 8 - Number of women with first screening events by five-year age group

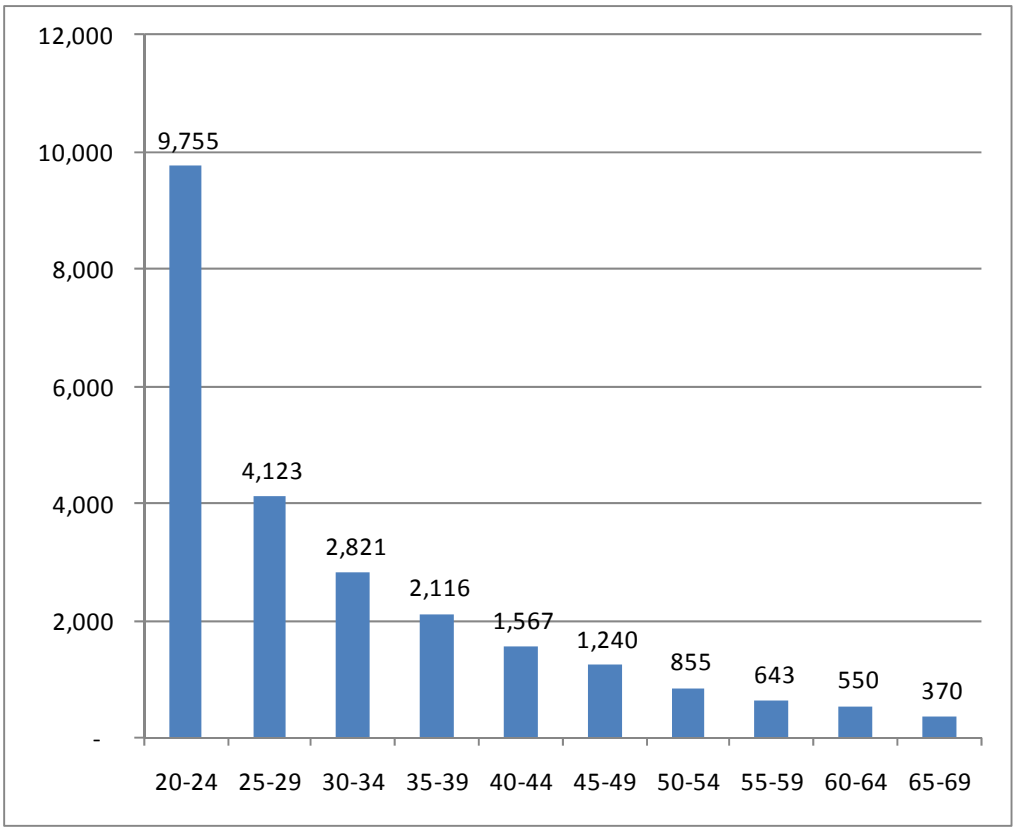


Figure 9 - Women with first screening events as a proportion of all women screened during the reporting period, by five-year age group (women aged 20-69 years)

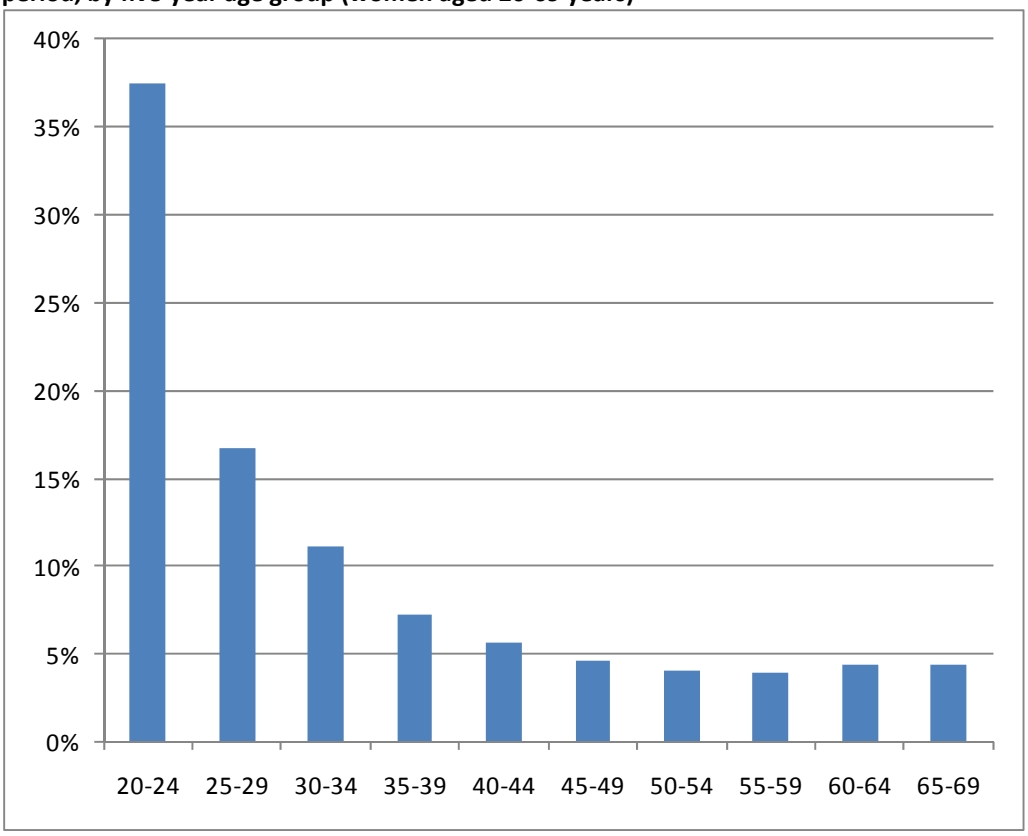
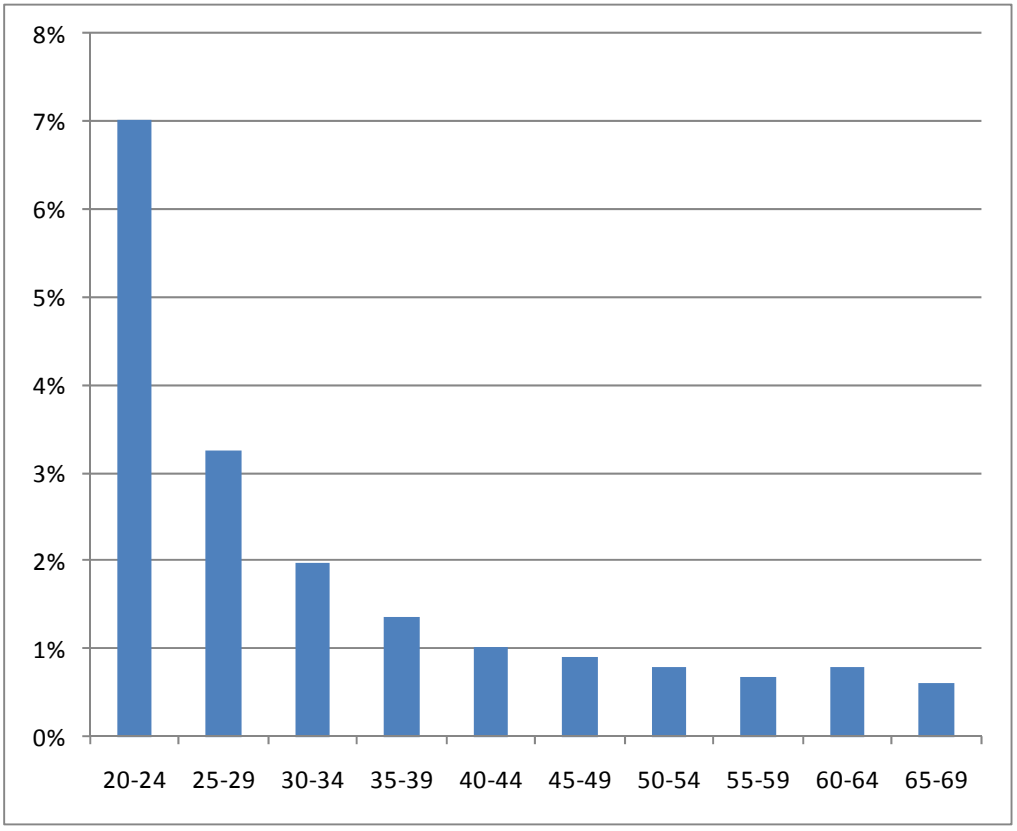


Figure 10 - Proportion of population* (women aged 20-69 years) in that age group with their first screening event during the reporting period



**Hysterectomy adjusted, 2006*

Figure 11 - Women with first screening events as a proportion of all women screened during the reporting period, by DHB (women aged 20-69 years)

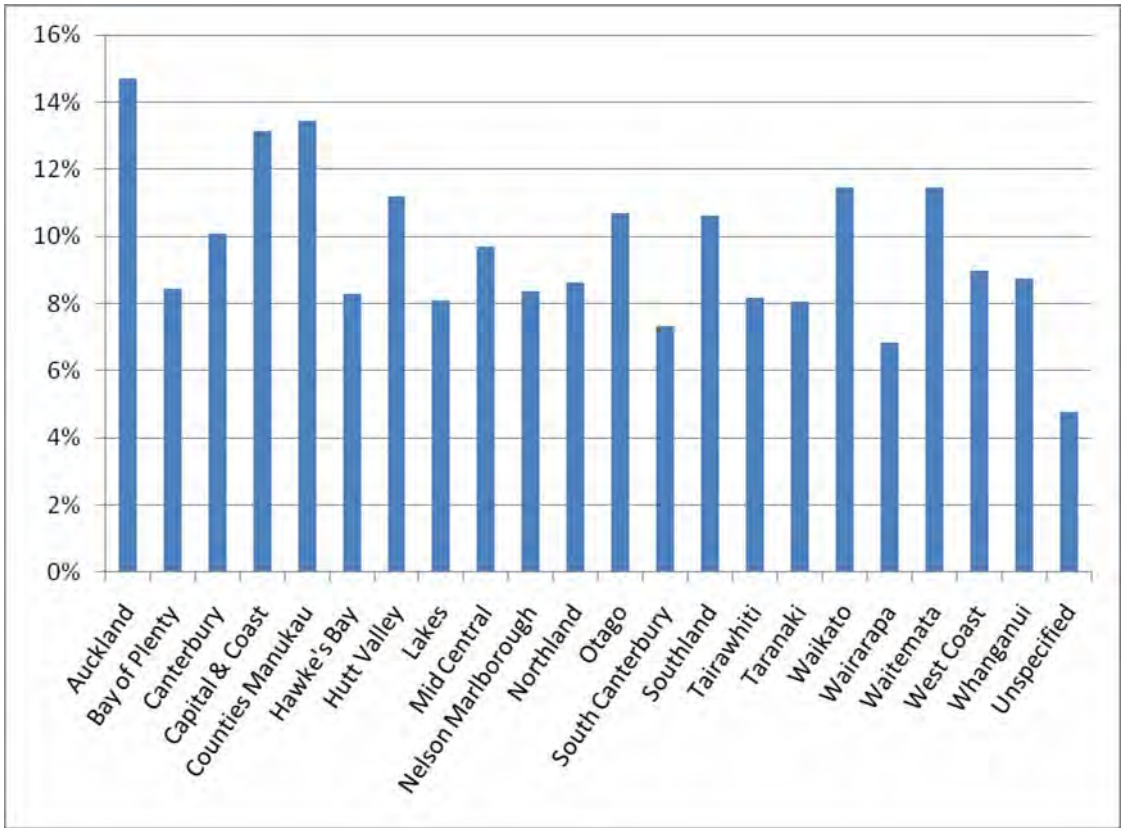


Figure 12 - Women with first screening events as a proportion of all women screened during the reporting period, by ethnicity

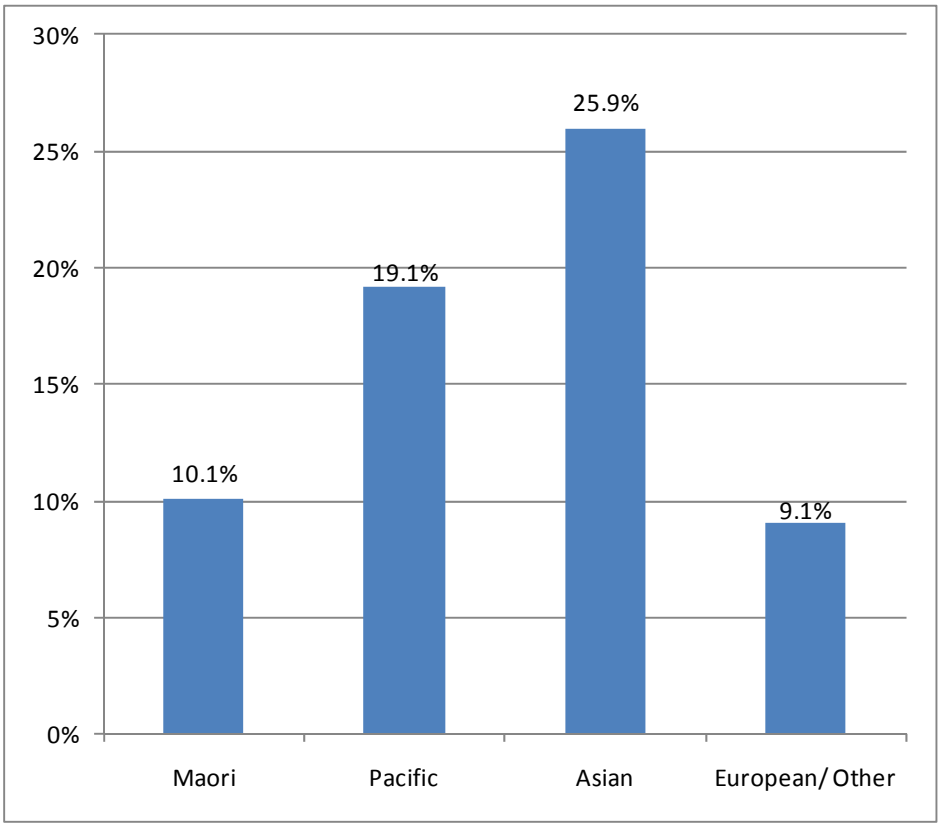


Table 1 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by DHB, for period 1 January to 30 June 2009

DHB	Women with first events	As a proportion of women with a screening event[i]		As a proportion of eligible population[ii]	
		N	%	N	%
Auckland	3,621	24,601	14.7	139,690	2.6
Bay of Plenty	899	10,652	8.4	54,335	1.7
Canterbury	2,615	25,982	10.1	136,342	1.9
Capital & Coast	2,202	16,744	13.2	86,142	2.6
Counties Manukau	2,936	21,811	13.5	126,416	2.3
Hawke's Bay	612	7,380	8.3	41,024	1.5
Hutt Valley	749	6,695	11.2	39,406	1.9
Lakes	398	4,927	8.1	28,822	1.4
Mid Central	766	7,909	9.7	45,257	1.7
Nelson Marlborough	581	6,944	8.4	38,268	1.5
Northland	626	7,263	8.6	40,572	1.5
Otago	990	9,244	10.7	52,175	1.9
South Canterbury	207	2,819	7.3	14,366	1.4
Southland	559	5,274	10.6	30,987	1.8
Tairawhiti	182	2,230	8.2	12,037	1.5
Taranaki	442	5,484	8.1	28,295	1.6
Waikato	1,870	16,304	11.5	94,294	2.0
Wairarapa	144	2,104	6.8	10,529	1.4
Waitemata	3,270	28,561	11.4	146,592	2.2
West Coast	123	1,373	9.0	8,263	1.5
Whanganui	243	2,775	8.8	16,953	1.4
Unspecified	5	105	4.8	-	-
Total	**24,040**	**217,181**	**11.1**	**1,190,853**	**2.0**

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 event) and ii) the hysterectomy-adjusted 2006 census population for that DHB, as a percent

Table 2 - Women (ages 20-69 years) with first screening events as a proportion of i) total number of women with screening events, and ii) eligible women, by ethnicity, for period 1 January to 30 June 2009

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	2,180	21,649	10.1	163,913	1.3
Pacific	1,872	9,778	19.1	68,598	2.7
Asian	4,853	18,703	25.9	129,626	3.7
European/ Other	15,135	167,051	9.1	828,716	1.8

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

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

Ethnicity	Median Age (years)
Māori	22
Pacific	29
Asian	32
European/ Other	26

Indicator 3 – Withdrawal rates

Definition	The number of women, by age-group and DHB, not currently enrolled on 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 as at 31 December 2008, whose enrolment ended within the reporting period. 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, 1,325,161 women aged 20-69 years, and 1,458,686 women in total were enrolled on the NCSP Register. 59 women withdrew from the NCSP Register during the reporting period, 56 of whom were aged 20-69 years at the end of the monitoring period (0.004% of women who were enrolled at the commencement of the period) (Table 4). The DHBs with the largest number of withdrawals were Waitemata (eight women) and Canterbury (seven women)(Figure 13, Table 33). In all DHBs the proportion of those enrolled at the beginning of the period who withdrew was extremely small (<0.02%). No women withdrew in Bay of Plenty, South Canterbury, Wairarapa or West Coast during this period (Table 33). The age groups with the largest proportion of women withdrawing among those who were enrolled at the beginning of the period were women who were aged 55-59 years at the end of the period (0.008%) and women aged 65-69 years at the end of the period (0.006%). Among women aged 70 years or more at the end of the reporting period (outside the screening target age range), 0.002% withdrew during the reporting period (Table 4, Figure 14). The ethnic group with the highest proportion of women withdrawing was Asian women, however the proportion was still extremely small (0.006%)(Table 5, Figure 15).
Trends	The number of women who withdrew in the current reporting period (56 aged 20-69 years, 59 any age) is approximately half the number who withdrew in the previous reporting period (110 aged 20-69 years; 111 any age).
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 13 - Number of women who withdrew from the NCSP Register by DHB, 1 January 2009 - 30 June 2009

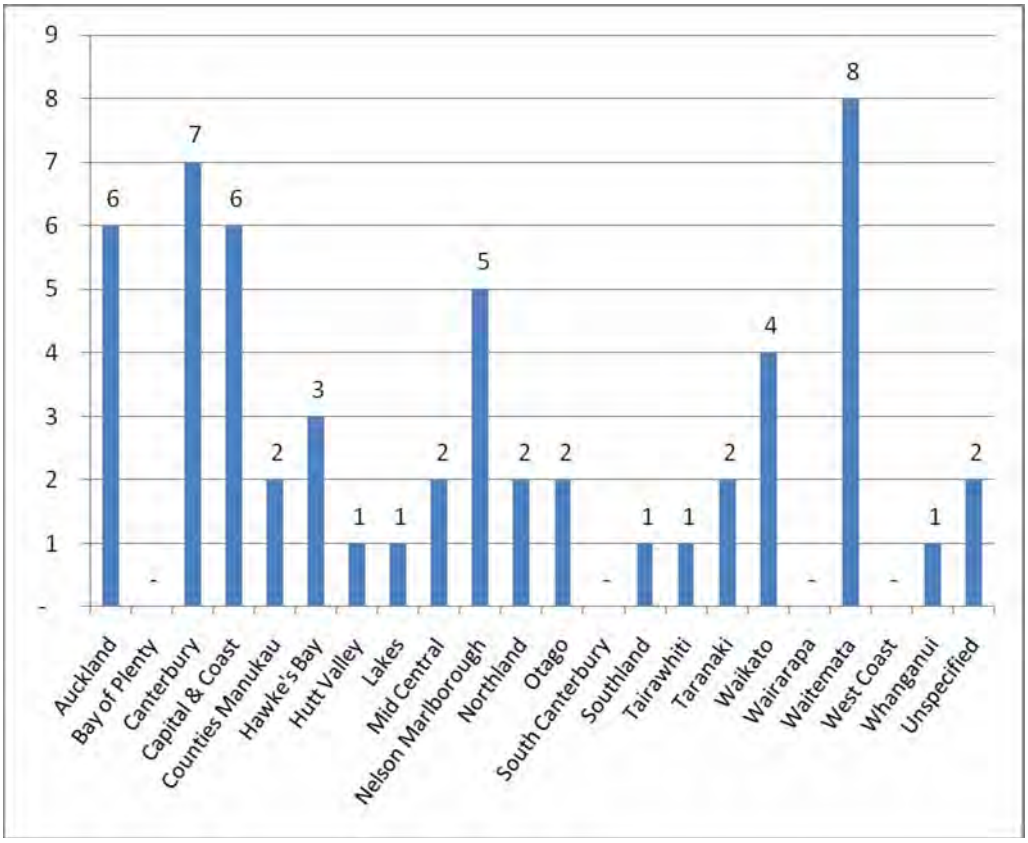


Figure 14 - Number of women who withdrew from the NCSP Register by age, 1 January 2009 - 30 June 2009

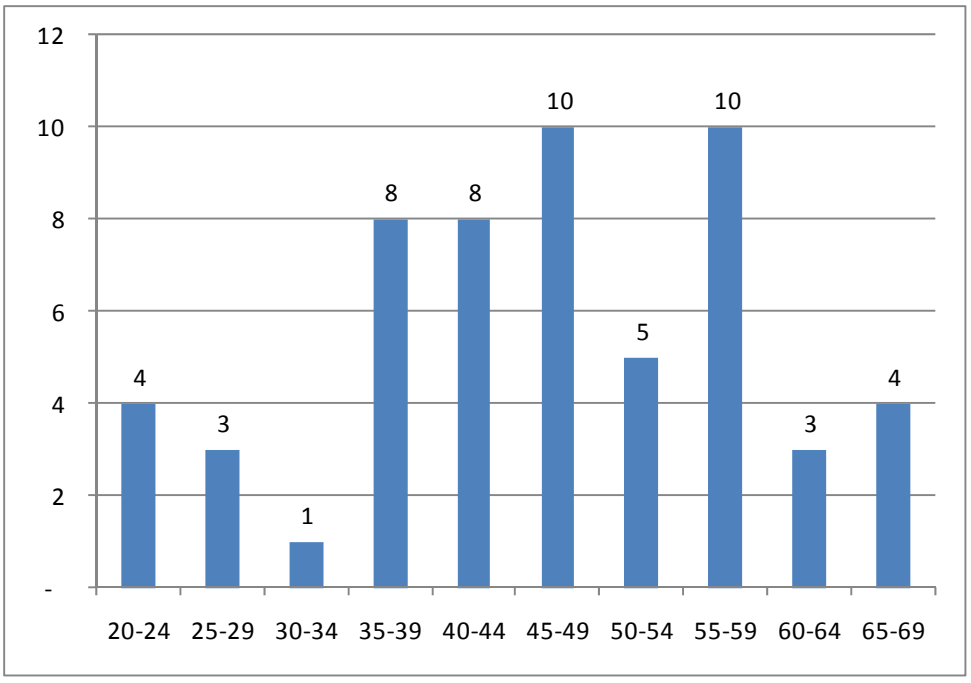


Figure 15 - Number of women who withdrew from the NCSP Register by ethnicity, 1 January 2009 - 30 June 2009

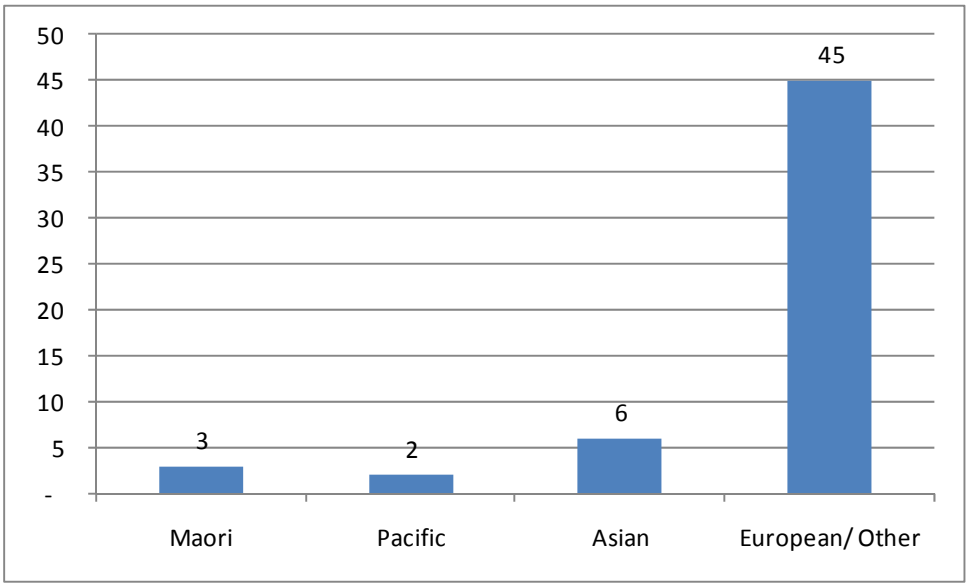


Table 4 - Number of women who withdrew from the NCSP Register 1 January 2009 - 30 June 2009 by age, and proportion of women who were enrolled at the start of the reporting period who withdrew

Age group	Women enrolled at start of period	Women who withdrew during period	
		N	% *
<20	5,828	-	0
20-24	80,699	4	0.005
25-29	129,121	3	0.002
30-34	152,292	1	0.001
35-39	182,844	8	0.004
40-44	178,231	8	0.004
45-49	175,788	10	0.006
50-54	145,640	5	0.003
55-59	117,670	10	0.008
60-64	95,097	3	0.003
65-69	67,779	4	0.006
70+	127,697	3	0.002
Total (all ages)	**1,458,686**	**59**	**0.004**
Total (ages 20-69)	**1,325,161**	**56**	**0.004**

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

Table 5 - Number of women (aged 20-69 years) who withdrew from the Programme 1 January 2009 - 30 June 2009 by ethnicity, and proportion of women who were enrolled at the start of the reporting period who withdrew

Ethnicity	Women enrolled at start of period	Women who withdrew during period	
		N	% *
Māori	148,083	3	0.002
Pacific	67,599	2	0.003
Asian	98,795	6	0.006
European/ Other	1,010,684	45	0.004
Total	**1,325,161**	**56**	**0.004**

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

Indicator 4 – Early re-screening

Definition

The proportion of women who returned for a routine 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 2006 – 30 September 2006 (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 2006 (TBS 2001 NZ Modified code R1). Using this method of calculating the measure allows the 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 (TBS 2001 NZ Modified 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 2009).

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

40,634 women had a smear taken in August or September 2006, 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 3 years. Among these women, 11,702 (28.8%) 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 (41.6%) and Auckland (39.2%), and was least common in Taranaki (14.4%) (Figure 16, Table 35).

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 (33.8%), and older women (aged 65-69 years) were the least likely to be re-screened early (20.3%) (Figure 17, Table 34).

Among the ethnic groups considered, Asian women were the most likely to be re-screened early (36.2%). There was comparatively little difference between the other three groups, but Pacific women were the least likely to return early (26.4%) (Figure 18, Table 36).

Trends

The level of early re-screening is slightly lower than in the previous monitoring report, when it was 29.3%.

DHBs with the lowest and highest levels of early re-screening are largely unchanged since the previous report, although the level of re-screening has reduced in the DHBs where early re-screening was most common in the previous report.

Compared to the previous report, early re-screening has reduced in women aged 20-24 years, and is largely unchanged in other age groups. Early re-screening has increased slightly in Asian women.

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 five year period (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.

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 Bethesda System 2001 NZ Modified recommendation code for urgent referral regardless of cytological findings (R14) to try and exclude some of these cases, but this probably does not exclude all screens performed in response to clinical symptoms.

Note that the accuracy of the new 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 the 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 16 - Proportion of women recommended to return at the routine interval (three years) who were re-screened early, by DHB (cohort method)

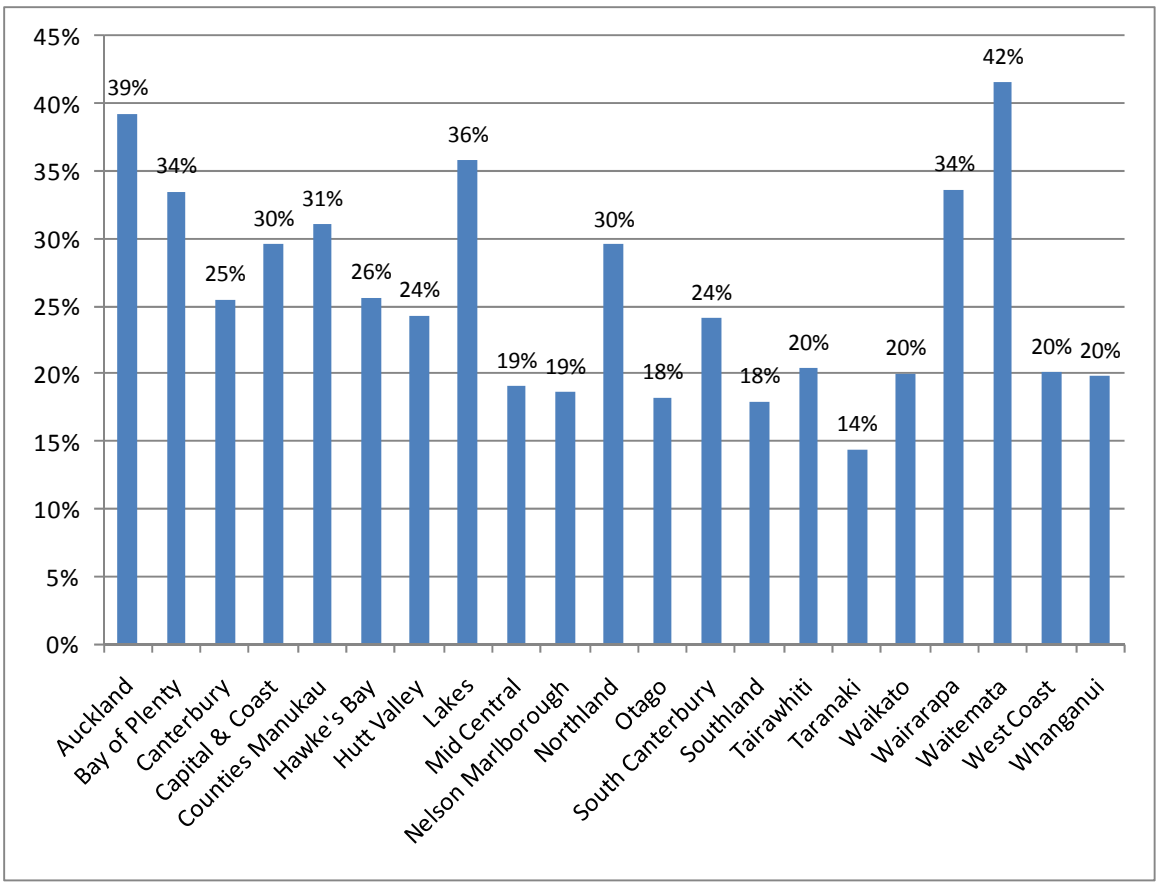


Figure 17 - Proportion of women recommended to return a the routine interval (three years) who were re-screened early, by five-year age group (cohort method)

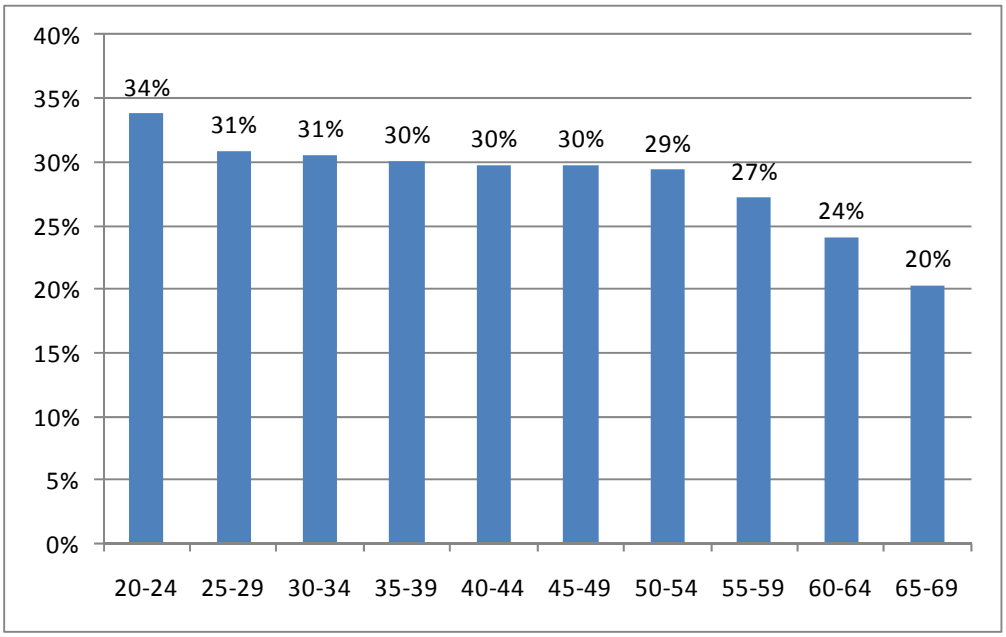
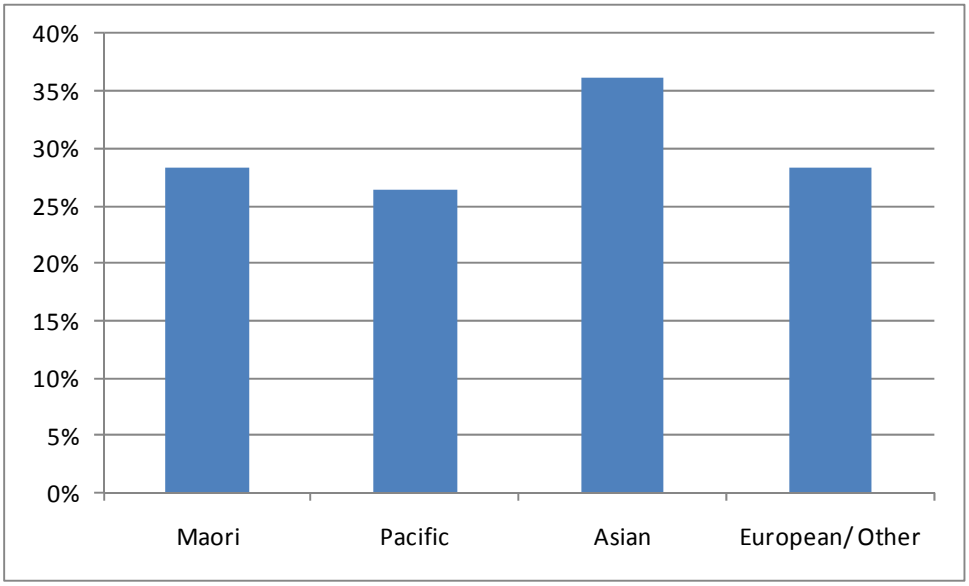


Figure 18 - Proportion of women recommended to return a the routine interval (three years) who were re-screened early, by ethnicity (cohort method)



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. In future, reports will include volumes of HrHPV tests according to NCSP guidelines.

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 and LBC samples. Reporting rates for negative cytology, total abnormal cytology, and other reporting categories are as a percentage of all satisfactory cytology samples.
Targets	1-5% of LBC and 1-8% of conventional cytology samples reported as unsatisfactory. No more than 96% of satisfactory cytology samples reported as negative. No more than 10% of satisfactory samples reported as abnormal. No less than 0.6% of satisfactory samples reported as HSIL (Bethesda HS1 or HS2).
Current Situation	Nine laboratories reported on cytology taken during this reporting period. A total of 222,803 cytology samples were taken, 44.7% of which were liquid based

cytology (LBC), 54.3% were conventional cytology, and 0.9% were a combination of the two (Table 6). The kinds of cytology processed (conventional vs. LBC) varied widely by laboratory. The proportion of cytology samples that were LBC varied from 4.1% (Medlab Central Ltd) to 98.6% (Canterbury Health Laboratories), and the proportion that were conventional cytology varied from 1.0% (Canterbury Health Laboratories) to 95.6% (Medlab Central Ltd). All laboratories had a comparatively small proportion of combined conventional and LBC samples (maximum 2.4% at Auckland LabPLUS) (Table 6).

Unsatisfactory cytology

6,540 cytology samples (2.9%) were unsatisfactory. These are reported on in more detail in Table 7 and Table 9. The remaining satisfactory samples are reported on in more detail in Table 8, and Table 10 to Table 13.

Unsatisfactory rates varied by cytology type, but the way in which it varied was not consistent for all laboratories (Table 9). Nationally, combined samples had a slightly lower unsatisfactory rate (2.1%) than LBC (2.3%), and conventional cytology had the highest unsatisfactory rate (3.5%). The unsatisfactory rates were lowest in Southern Community Labs Christchurch (0.7%) and Canterbury Health Laboratories (0.7%), and highest in Diagnostic Medlab Ltd (5.4%). LBC samples were associated with lower unsatisfactory rates in seven of the nine laboratories, but not in Auckland LabPLUS (conventional cytology 2.6% unsatisfactory, LBC 4.1% unsatisfactory), and Medlab Central Ltd (conventional cytology 1.1% unsatisfactory, LBC 8.5% unsatisfactory), however LBC samples form a much lower proportion of the samples analysed at these two laboratories (Medlab Central Ltd 4.1%, and Auckland LabPLUS 14.6% compared to 44.7% nationally). All laboratories had unsatisfactory rates within the target range for conventional cytology, however only three laboratories were within the target range for LBC (Aotea Pathology Ltd, Auckland LabPLUS and Medlab South Christchurch). Two laboratories had unsatisfactory rates higher than the 5% target for LBC (Diagnostic Medlab Ltd 5.3%, Medlab Central Ltd 8.5%), while four laboratories had rates below the 1% lower target (Canterbury Health Laboratories 0.7%,Pathlab 0.6%, Southern Community Labs Christchurch 0.3%, and Southern Community Labs Dunedin 0.6%)(Figure 19 and Figure 20).

Negative cytology reports

92.2% 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 lab from 84.2% (Auckland LabPLUS) to 95.8% (Southern Community Labs Christchurch), but all laboratories met the target (Figure 21).

Abnormal cytology reports

The proportion of samples which were abnormal (7.8%) also fell within the recommended range of no more than 10% (Figure 22, Table 8). This varied widely by laboratory however, from 4.2% (Southern Community Labs Christchurch) to 15.8% (Auckland LabPLUS). Two laboratories exceeded the target, although in one case very slightly (Auckland LabPLUS 15.2%, Pathlab

10.2%).

Abnormal cytology results were most common in younger women influenced particularly by ASC-US/LSIL rates in the under 30 age groups (Tables 12, 13).

HSIL cytology reports

Overall, 0.8% of cytology samples were HSIL, consistent with the target of at least 0.6% of samples (Figure 23, Table 11). Rates varied by laboratory from 0.3% (Diagnostic Medlab Ltd) to 2.2% (Auckland LabPLUS). Four laboratories had rates of HSIL below target levels (Aotea Pathology Ltd 0.4%, Diagnostic Medlab Ltd 0.3%, Medlab South Christchurch 0.5%, Southern Community Labs – Christchurch 0.5%) (Figure 23).

Rates of HSIL or worse were most common in women aged 70+ years (Table 12, Table 13). HSIL and ASC-H rates were most common in under 40 age groups.

Trends

Unsatisfactory cytology

The unsatisfactory rate in conventional cytology samples has increased slightly, from 3.4% in the previous reporting, to 3.5% in the current reporting period. The unsatisfactory rate in LBC samples has also increased slightly, from 2.1% in the previous reporting, to 2.3% in the current reporting period. One laboratory decreased its unsatisfactory rates overall, and for all test technologies (Pathlab). The unsatisfactory rate for LBC decreased at Aotea Pathology Ltd, but increased at Diagnostic Medlab Ltd and Medlab Central Ltd.

Fewer laboratories have met the target for unsatisfactory LBC samples of (three of nine laboratories) compared to the previous reporting period (six of nine laboratories). During the previous period, all laboratories met the upper target, and three were below the lower target. In the current period, two laboratories have unsatisfactory rates higher than the upper target, and the number below the lower target has increased to four laboratories.

Negative vs abnormal cytology reports

Overall abnormalities have decreased slightly since the previous reporting period, from 8.1% to 7.8%, and correspondingly the proportion of cytology samples reported as negative for dysplasia or malignancy has increased slightly from 91.9% to 92.2%. The number of laboratories meeting targets for negative and abnormal samples has remained consistent since the previous reporting period.

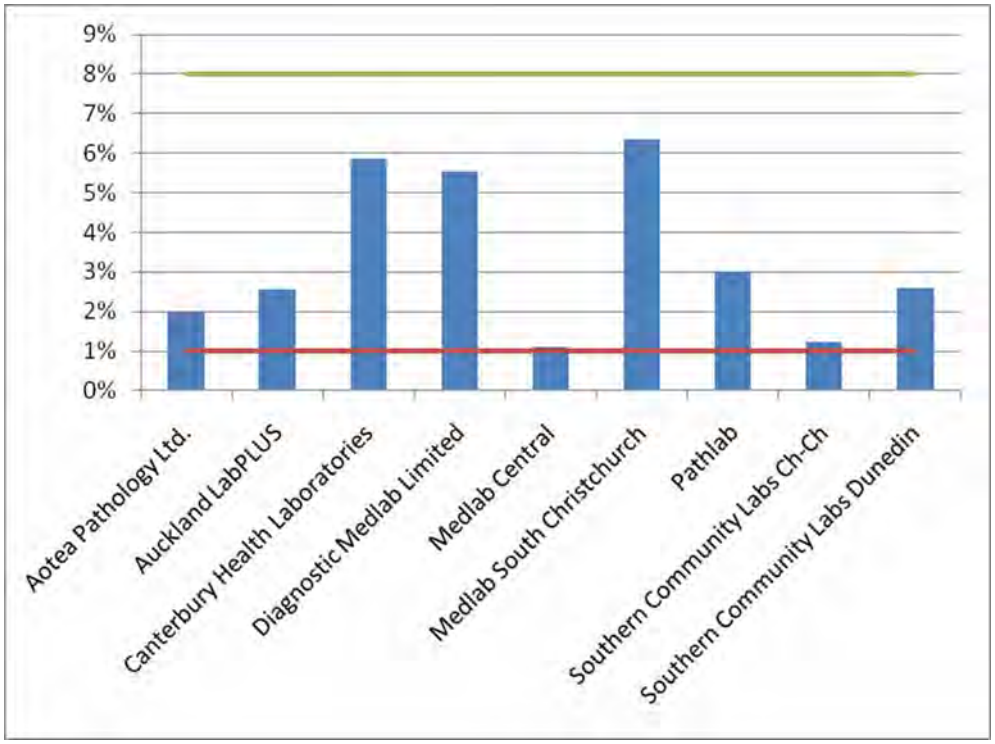
HSIL cytology reports

The proportion of cytology samples reported as HSIL has remained steady at 0.8%. Two fewer laboratories have met the target for HSIL rates, as the rate of HSIL smears has fallen slightly at Medlab South Christchurch and Southern Community Labs – Christchurch, from just on the lower target to just below the

	lower target.
Comments	High rates of abnormal samples from Auckland LabPLUS are consistent with previous reports, although the rates have decreased since the previous reporting period. It is possible that the case-mix of this laboratory (ie a higher proportion of samples received from colposcopy clinics compared to other laboratories) is one of the factors underlying the observed higher rate for this laboratory. Four laboratories (including two laboratories in previous reports) have HSIL rates below the minimum target of 0.6% of total satisfactory samples. The relative rates of invasive cancer categories between squamous (11 cases, 0.01%) and glandular (36 cases, 0.02%) interpreted cytologically (not histologically confirmed), is similar to the previous report. This may in part be due to the effectiveness of the Programme in reducing invasive squamous lesions by good detection of high grade precursor lesions. However, a true increase in glandular lesions cannot be excluded as a co-factor. The majority (34 of 36) invasive glandular lesions occurred in the 50-70+ age group. The PPV of cytology for all glandular abnormalities was 39.7%. The national workload is approximately 9:11 LBC:CPS, demonstrating an increase in LBC from 34.9% (previous report) to 44.7% of total workload. Breakdown of the overall unsatisfactory rate of 2.9% for all samples (no change from previous report) shows a lower rate of 2.3% for LBC compared to 3.5% for CPS but with variation between individual laboratories. At present, there are targets for unsatisfactory cytology common to all types of LBC (ThinPrep and SurePath. This may not be appropriate, as the techniques used to produce slides from the liquid samples differ between test technologies – ThinPrep is a filtration-based method, whereas SurePath is a centrifugation-based method. There is limited evidence on the appropriate lower level for unsatisfactory cytology using SurePath, however results from a pooled analysis suggest that unsatisfactory rates may differ between the technologies[4]. Use of different LBC test technologies by different laboratories may be a factor in the variation in rates of unsatisfactory cytology. The ability to be able to reprocess unsatisfactory LBC samples may also contribute to overall lower unsatisfactory rates. The target for unsatisfactory LBC samples will be reviewed as more evidence becomes available. Southern Community Labs Christchurch ceased reporting on cytology in July 2010.

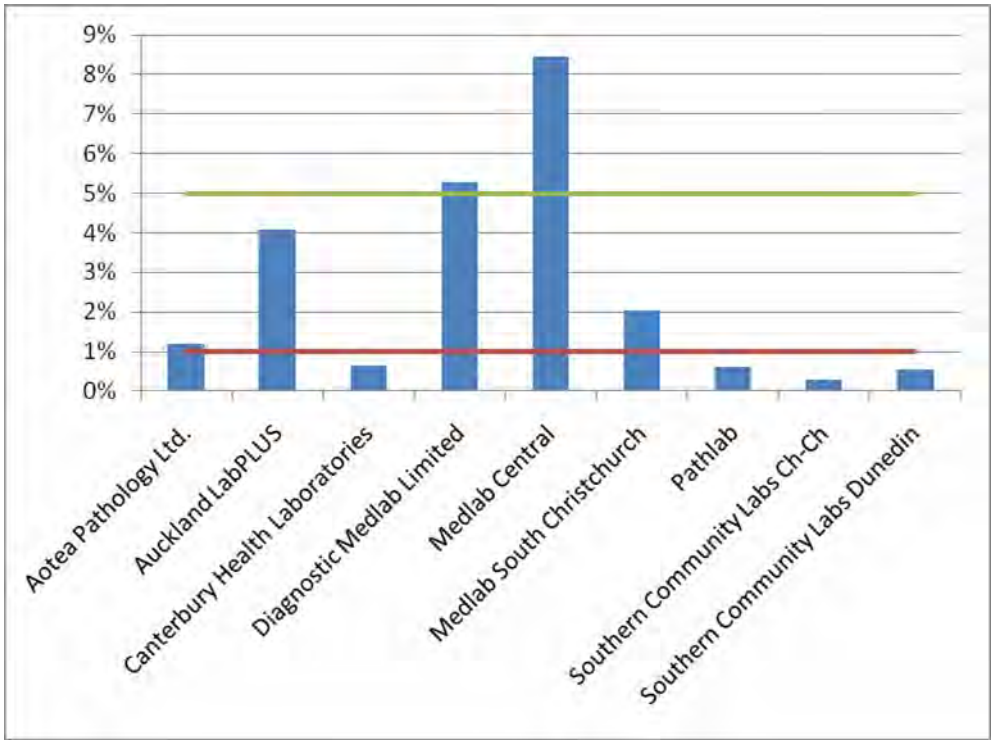
[4] Krahn, M., McLachlin M., *et al*. 2008. *Liquid-based techniques for cervical cancer screening: systematic review and cost-effectiveness analysis*. Technology report number 103. Ottawa: Canadian Agency for Drugs and Technologies in Health.

Figure 19 - Proportion of total conventional cytology samples reported as unsatisfactory by laboratory, 1 January - 30 June 2009



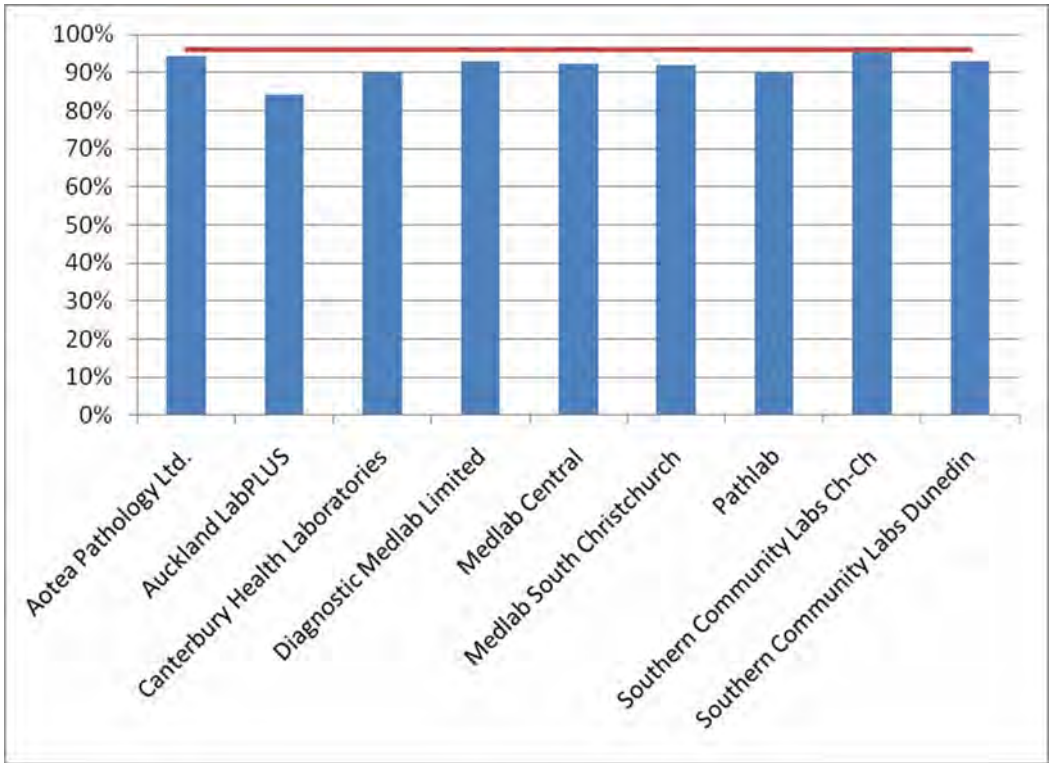
Target for conventional cytology: 1-8%. (Green line=upper target limit; red line=lower target limit)

Figure 20 - Proportion of total LBC samples reported as unsatisfactory by laboratory, 1 January - 30 June 2009



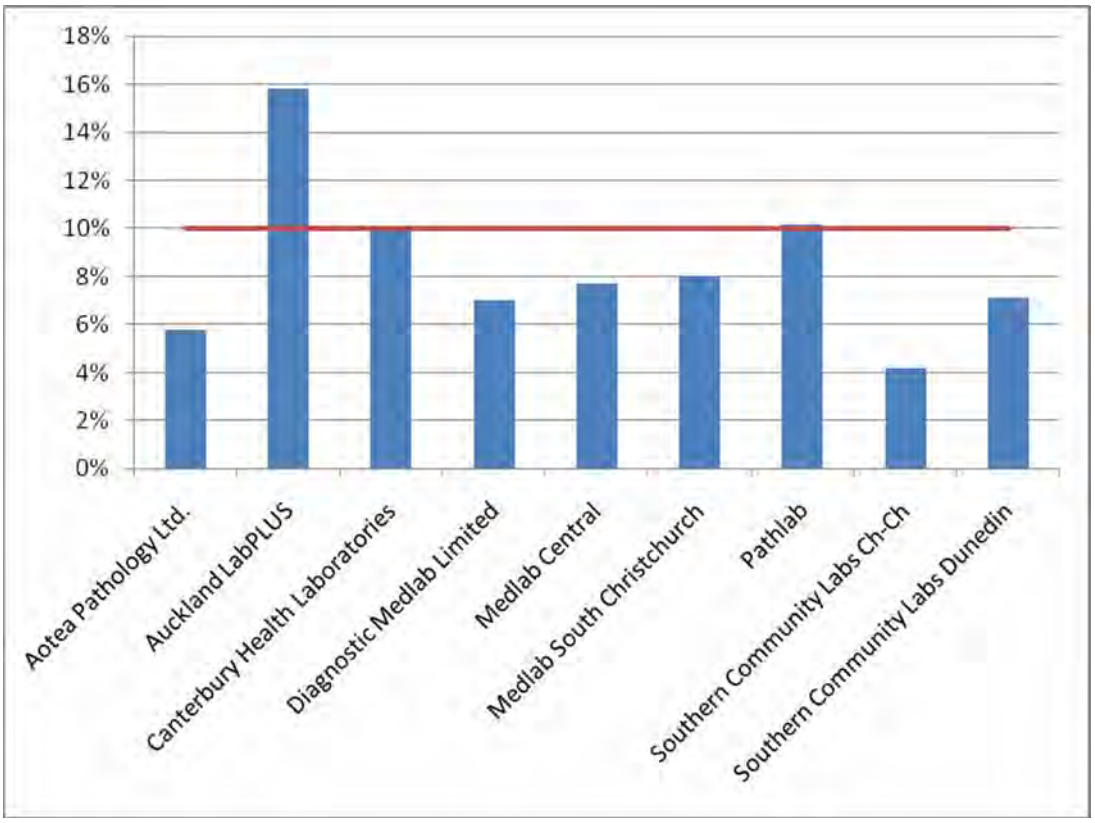
Target for LBC: 1-5%. (Green line=upper target limit; red line=lower target limit)

Figure 21 - Proportion of total satisfactory samples reported as negative by laboratory, 1 January - 30 June 2009



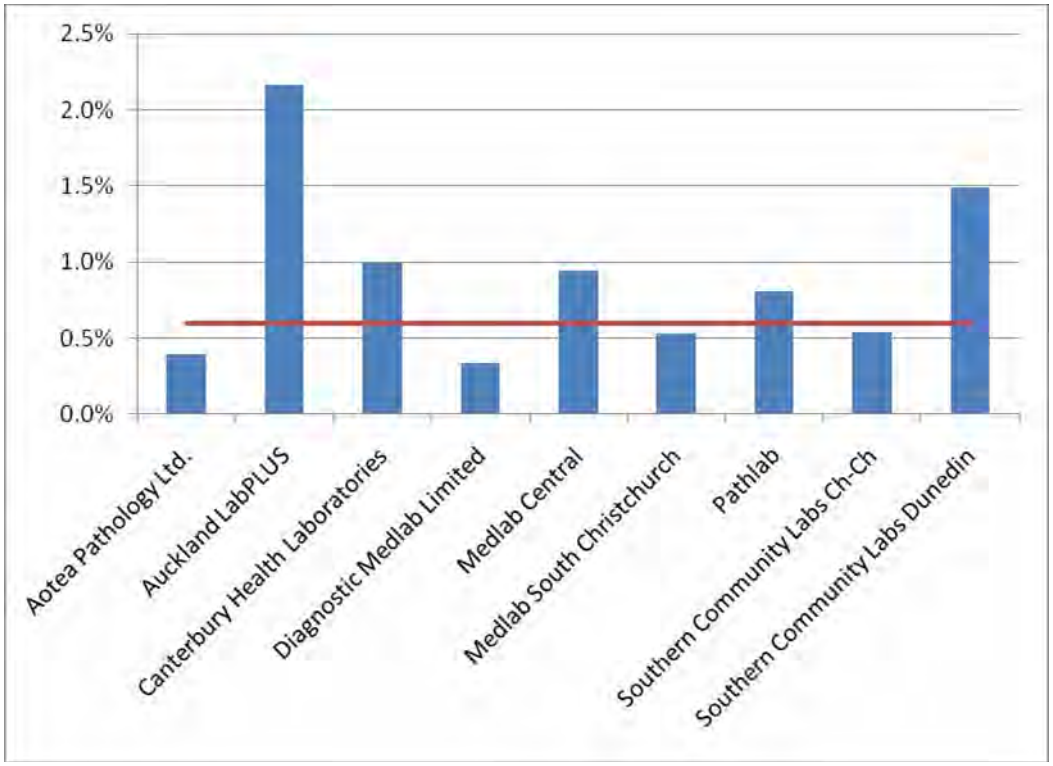
Note: Line shows negative target ≥ 96%

Figure 22 - Proportion of total satisfactory samples reported as abnormalities by laboratory, 1 January - 30 June 2009



Note: Line shows abnormal target ≤ 10%

Figure 23 - Proportion of samples reported as HSIL for each laboratory, 1 January - 30 June 2009



Note: Line shows HSIL target ≥ 0.6%

Table 6 - Laboratory cytology reporting by type of cytology sample,1 January - 30 June 2009

Laboratory	All samples	By cytology sample type					
		LBC		Conventional		Combined	
	N	N	%	N	%	N	%
Aotea Pathology Ltd	23,666	7,792	32.9	15,778	66.7	96	0.4
Auckland LabPLUS	11,761	1,720	14.6	9,756	83.0	285	2.4
Canterbury Health Laboratories	17,791	17,536	98.6	171	1.0	84	0.5
Diagnostic Medlab Ltd	74,588	30,149	40.4	43,546	58.4	893	1.2
Medlab Central Ltd	15,625	638	4.1	14,938	95.6	49	0.3
Medlab South Christchurch	13,540	9,780	72.2	3,672	27.1	88	0.6
Pathlab	18,823	10,811	57.4	7,949	42.2	63	0.3
Southern Community Labs Ch-Ch	12,528	6,948	55.5	5,500	43.9	80	0.6
Southern Community LabsDunedin	34,481	14,242	41.3	19,767	57.3	472	1.4
TOTAL	**222,803**	**99,616**	**44.7**	**121,077**	**54.3**	**2,110**	**0.9**

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

Table 7 - Satisfactory and unsatisfactory cytology reporting by laboratory, 1 January - 30 June 2009

Laboratory	All samples	Satisfactory		Unsatisfactory	
	N	N	%	N	%
Aotea Pathology Ltd	23,666	23,260	98.3	406	1.7
Auckland LabPLUS	11,761	11,434	97.2	327	2.8
Canterbury Health Laboratories	17,791	17,665	99.3	126	0.7
Diagnostic Medlab Ltd	74,588	70,549	94.6	4,039	5.4
Medlab Central Ltd	15,625	15,406	98.6	219	1.4
Medlab South Christchurch	13,540	13,107	96.8	433	3.2
Pathlab	18,823	18,515	98.4	308	1.6
Southern Community Labs Ch-Ch	12,528	12,440	99.3	88	0.7
Southern Community Labs Dunedin	34,481	33,887	98.3	594	1.7
Total	**222,803**	**216,263**	**97.1**	**6,540**	**2.9**

See also Table 9

Table 8 - Laboratory cytology reporting by general result, 1 January - 30 June 2009

Laboratory	Negative		Abnormal	
	N	%	N	%
Aotea Pathology Ltd	21,921	94.2	1,339	5.8
Auckland LabPLUS	9,624	84.2	1,810	15.8
Canterbury Health Laboratories	15,910	90.1	1,755	9.9
Diagnostic Medlab Ltd	65,614	93.0	4,935	7.0
Medlab Central Ltd	14,223	92.3	1,183	7.7
Medlab South Christchurch	12,057	92.0	1,050	8.0
Pathlab	16,633	89.8	1,882	10.2
Southern Community Labs Ch-Ch	11,920	95.8	520	4.2
Southern Community Labs Dunedin	31,469	92.9	2,418	7.1
Total	**199,371**	**92.2**	**16,892**	**7.8**

Target: total negative: ≤ 96%of satisfactory samples; total abnormal: ≤ 10% of satisfactory samples

Table 9 - Laboratory reporting of unsatisfactory results by type of cytology sample, 1 January - 30 June 2009

Laboratory	Conventional			LBC			Combined			TOTAL		
	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%	Unsat	Total	%
Aotea Pathology Ltd	312	15,778	2.0	94	7,792	1.2	-	96	0.0	406	23,666	1.7
Auckland LabPLUS	250	9,756	2.6	70	1,720	4.1	7	285	2.5	327	11,761	2.8
Canterbury Health Laboratories	10	171	5.8	115	17,536	0.7	1	84	1.2	126	17,791	0.7
Diagnostic Medlab Ltd	2,415	43,546	5.5	1,593	30,149	5.3	31	893	3.5	4,039	74,588	5.4
Medlab Central Ltd	165	14,938	1.1	54	638	8.5	-	49	0.0	219	15,625	1.4
Medlab South Christchurch	233	3,672	6.3	198	9,780	2.0	2	88	2.3	433	13,540	3.2
Pathlab	239	7,949	3.0	68	10,811	0.6	1	63	1.6	308	18,823	1.6
Southern Community Labs Ch-Ch	67	5,500	1.2	20	6,948	0.3	1	80	1.3	88	12,528	0.7
Southern Community Labs Dunedin	513	19,767	2.6	80	14,242	0.6	1	472	0.2	594	34,481	1.7
Total	**4,204**	**121,077**	**3.5**	**2,292**	**99,616**	**2.3**	**44**	**2,110**	**2.1**	**6,540**	**222,803**	**2.9**

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

Table 10 - Laboratory cytology reporting by cytological category, 1 January - 30 June 2009 – counts

Laboratory	Result									Total
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	
Aotea Pathology Ltd	21,921	490	646	97	91	2	13	-	-	23,260
Auckland LabPLUS	9,624	712	528	279	247	1	38	4	1	11,434
Canterbury Health Laboratories	15,910	536	844	175	176	-	20	3	1	17,665
Diagnostic Medlab Ltd	65,614	1,761	2,532	365	239	1	30	6	1	70,549
Medlab Central Ltd	14,223	325	535	163	145	1	12	2	-	15,406
Medlab South Christchurch	12,057	484	377	107	69	-	8	4	1	13,107
Pathlab	16,633	595	955	138	150	1	36	7	-	18,515
Southern Community Labs Ch-Ch	11,920	174	247	26	67	1	4	1	-	12,440
Southern Community Labs Dunedin	31,469	395	1,390	99	506	4	15	9	-	33,887
Total	**199,371**	**5,472**	**8,054**	**1,449**	**1,690**	**11**	**176**	**36**	**4**	**216,263**

Table 11 - Laboratory cytology reporting by cytological category, 1 January - 30 June 2009 - percentage of all satisfactory samples

Laboratory	Percentage of Laboratory's Result								
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm
Aotea Pathology Ltd	94.2	2.1	2.8	0.4	0.4	0.01	0.1	-	-
Auckland LabPLUS	84.2	6.2	4.6	2.4	2.2	0.01	0.3	0.03	0.01
Canterbury Health Laboratories	90.1	3.0	4.8	1.0	1.0	-	0.1	0.02	0.01
Diagnostic Medlab Ltd	93.0	2.5	3.6	0.5	0.3	< 0.01	0.04	0.01	< 0.01
Medlab Central Ltd	92.3	2.1	3.5	1.1	0.9	0.01	0.1	0.01	-
Medlab South Christchurch	92.0	3.7	2.9	0.8	0.5	-	0.1	0.03	0.01
Pathlab	89.8	3.2	5.2	0.7	0.8	0.01	0.2	0.04	-
Southern Community Labs Ch-Ch	95.8	1.4	2.0	0.2	0.5	0.01	0.03	0.01	-
Southern Community Labs Dunedin	92.9	1.2	4.1	0.3	1.5	0.01	0.04	0.03	-
Total	**92.2**	**2.5**	**3.7**	**0.7**	**0.8**	**0.01**	**0.1**	**0.02**	**< 0.01**

Note: Target: HSIL ≥ 0.6% reported as HSIL

Table 12 - Laboratory reporting of cytological category by five-year age group, 1 January - 30 June 2009 – counts

Age (years)	Cytology Result									
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm	Total
<20	2,612	166	506	48	51	-	-	-	-	3,383
20-24	21,392	1,176	2,687	386	412	-	10	-	-	26,063
25-29	21,158	738	1,428	297	369	-	12	-	-	24,002
30-34	22,886	593	917	202	273	-	17	2	-	24,890
35-39	26,658	639	738	145	237	2	26	-	-	28,445
40-44	25,131	623	567	106	99	2	12	-	-	26,540
45-49	24,310	615	520	101	94	2	26	-	-	25,668
50-54	19,140	385	300	54	65	-	26	4	-	19,974
55-59	14,795	245	179	36	33	-	18	2	-	15,308
60-64	11,664	175	117	40	33	3	6	10	1	12,049
65-69	7,709	93	67	23	17	-	10	2	1	7,922
70+	1,916	24	28	11	7	2	13	16	2	2,019
Total	**199,371**	**5,472**	**8,054**	**1,449**	**1,690**	**11**	**176**	**36**	**4**	**216,263**

Table 13 - Laboratory reporting of cytological category by five-year age group, 1 January - 30 June 2009 - percentage of all satisfactory samples in women that age group

Age (years)	Percentage of Age Group Total								
	Negative	ASC-US	LSIL	ASC-H	HSIL	SC	AGC/AIS	Adeno-carcinoma	Malignant Neoplasm
<20	77.2	4.9	15.0	1.4	1.5	-	-	-	-
20-24	82.1	4.5	10.3	1.5	1.6	-	0.04	-	-
25-29	88.2	3.1	5.9	1.2	1.5	-	0.05	-	-
30-34	91.9	2.4	3.7	0.8	1.1	-	0.1	0.01	-
35-39	93.7	2.2	2.6	0.5	0.8	0.01	0.1	-	-
40-44	94.7	2.3	2.1	0.4	0.4	0.01	0.05	-	-
45-49	94.7	2.4	2.0	0.4	0.4	0.01	0.1	-	-
50-54	95.8	1.9	1.5	0.3	0.3	-	0.1	0.02	-
55-59	96.6	1.6	1.2	0.2	0.2	-	0.1	0.01	-
60-64	96.8	1.5	1.0	0.3	0.3	0.02	0.05	0.1	0.01
65-69	97.3	1.2	0.8	0.3	0.2	-	0.1	0.03	0.01
70+	94.9	1.2	1.4	0.5	0.3	0.1	0.6	0.8	0.1
Total	**92.2**	**2.5**	**3.7**	**0.7**	**0.8**	**0.01**	**0.08**	**0.02**	**< 0.01**

Indicator 5.2 – Accuracy of cytology predicting HSIL (PPV)

Definition

The accuracy of cytology predicting HSIL (positive predictive value – PPV) is defined as the probability of a high grade histological report (CIN2/3) or higher, given an HSIL/invasive squamous carcinoma cytology report.

Refer to Appendix D for detailed definitions.

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 from 1 July 2008 – 31 December 2008 inclusive) were identified. Where a woman had multiple samples or a cytology report had multiple interpretation codes, the most serious result category reported was used. If there were two cytology test reports for a woman of the same grade, the earliest report 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 report. Where there were multiple histology results for a woman in the period, the most serious abnormality category was used.

HSIL+SC

1,558 women with HSIL or SC cytology reports were identified. 158 of these women (10.1%) had no histology taken in the period from five days prior to six months after the cytology sample was taken. Among the remaining 1,400 for whom there was histology, 1,151 (82.2%) had their HSIL/SC cytology confirmed by histology (refer to Appendix C for definition of histological confirmation) (Figure 24, Table 37).

All laboratories achieved the minimum target of at least 65% of cytological HSIL +SC being confirmed by histology. Four laboratories exceeded 85% of HSIL+SC being histologically confirmed, although in one case very slightly. They were Auckland LabPLUS (85.6%), Canterbury Health Laboratories (85.6%), Medlab Central Ltd (85.4%) and Medlab South Christchurch (88.0%) (Figure 24, Table 37).

Other cytological abnormalities

Similar calculations for positive predictive value were performed for ASC-H; glandular abnormalities (AG1-AG5, AIS, AC1-AC4); and the combination of ASC-H, HSIL and SC. There are no targets for these measures.

ASC-H

1,481 women with a cytology report of ASC-H were identified. 324 (21.9%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 1,157 women, 545 (47.1%) were histologically confirmed as high grade. This proportion varied by laboratory, from 40.7% (Pathlab) to 59.2% (Medlab South Christchurch) (Figure 25, Table

38).

ASC-H+HSIL+SC

Therefore, a total of 3,039 women had a cytology report of ASC-H, HSIL or SC. 482 (15.9%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 2,557 women, 1,696 (66.3%) were histologically confirmed as high grade. This proportion varied by laboratory, from 58.9% (Diagnostic Medlab Ltd) to 74.2% (Southern Community Labs – Dunedin). The combined positive predictive value across the 2,471 women with ASC-H, HSIL, and SC and histology available is shown in Figure 25 and Table 39.

Glandular abnormalities

289 women with a glandular abnormality (AG1-AG5, AIS, AC1-AC4) were identified. 95 women (32.9%) had no histology taken in the period from five days prior to six months after the cytology sample. Among the remaining 194 women, 77 (39.7%) had their high grade histologically confirmed. The proportion confirmed by histology varied by laboratory, ranging from 11.0% (Medlab Central Ltd) to100.0% (Southern Community Labs - Christchurch) (Figure 25, Table 40). The wide variation may be due to the small number of samples reported on by many laboratories, and in particular the two laboratories with the lowest and highest rates of histologically confirmed glandular abnormalities. Most laboratories had very few cases of glandular abnormalities, and fewer with histology available – four laboratories had less than 20 cases in the period (Aotea Pathlogy, Medlab Central Ltd, Medlab South Christchurch, Southern Community Labs Christchurch); three had 10 or fewer with histology available (Medlab Central Ltd, Medlab South Christchurch, Southern Community Labs Christchurch), and one other laboratory had less than 30 cases, and less than 20 with histology available (Canterbury Health Laboratories).

Trends

Positive predictive value for HSIL and SC cytology has decreased slightly since the previous monitoring report, from 83.1% to 82.2%. Most laboratories have PPVs which are consistent with results across the previous two monitoring periods, although in some cases they have increased (Aotea Pathology Ltd) or decreased (Auckland LabPLUS, Southern Community Labs Christchurch) their PPVs compared to the previous report.

Positive predictive value for ASC-H samples has slightly increased, from 46.8% to 47.1%, however there is no target for this measure. The proportion of cytology reports in each of these groups with histology available has remained very similar for HSIL or SC (90.0% in the previous report; 89.9% in the current report), and increased slightly (from 77.1% to 78.1%) for ASC-H.

There are also no targets for the positive predictive values for glandular abnormalities, and the combined group of ASC-H, HSIL and SC. The positive predictive value for the combined group ASC-H, HSIL and SC decreased slightly between the previous report (66.9%) and the current report (66.3%). The

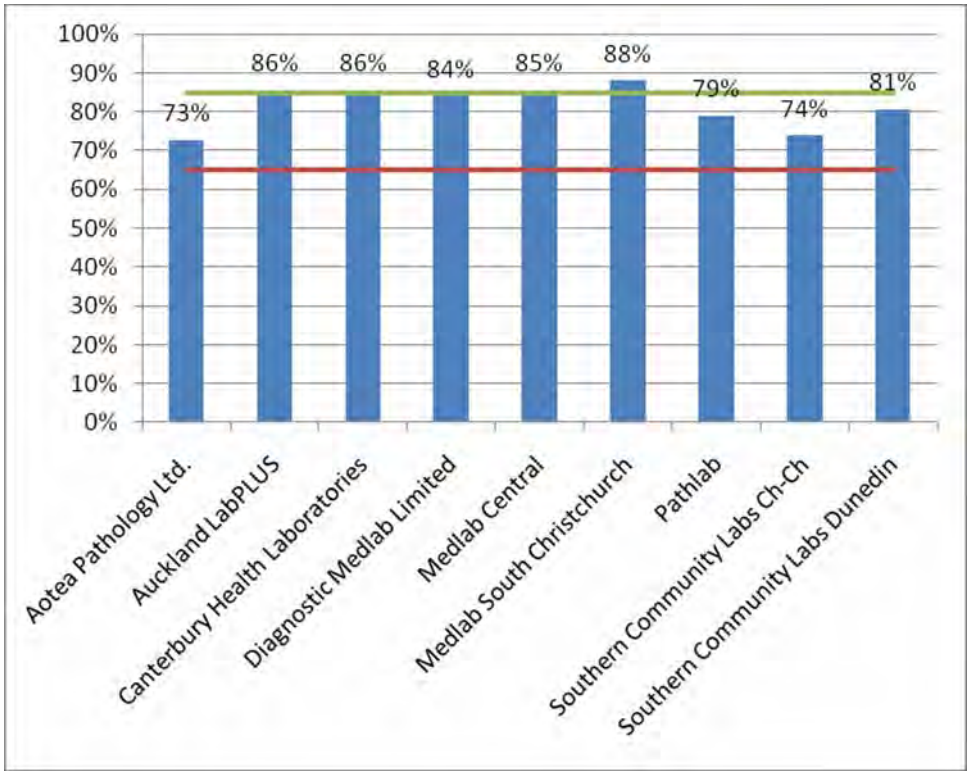
positive predictive value of glandular abnormalities also decreased (from 43.3% in the previous report to 39.7% in the current report). However, compared to both ASC-H samples, and the combined group of HSIL and SC samples, there are far fewer glandular abnormalities, an even smaller number with histology available. The proportion of glandular abnormalities with histology available is also comparatively small (67% of glandular abnormalities, compared to 78% for ASC-H and 90% for HSIL+SC), and has reduced compared to the previous period (when 73% had histology available).

Comments

This estimate does not taken 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.

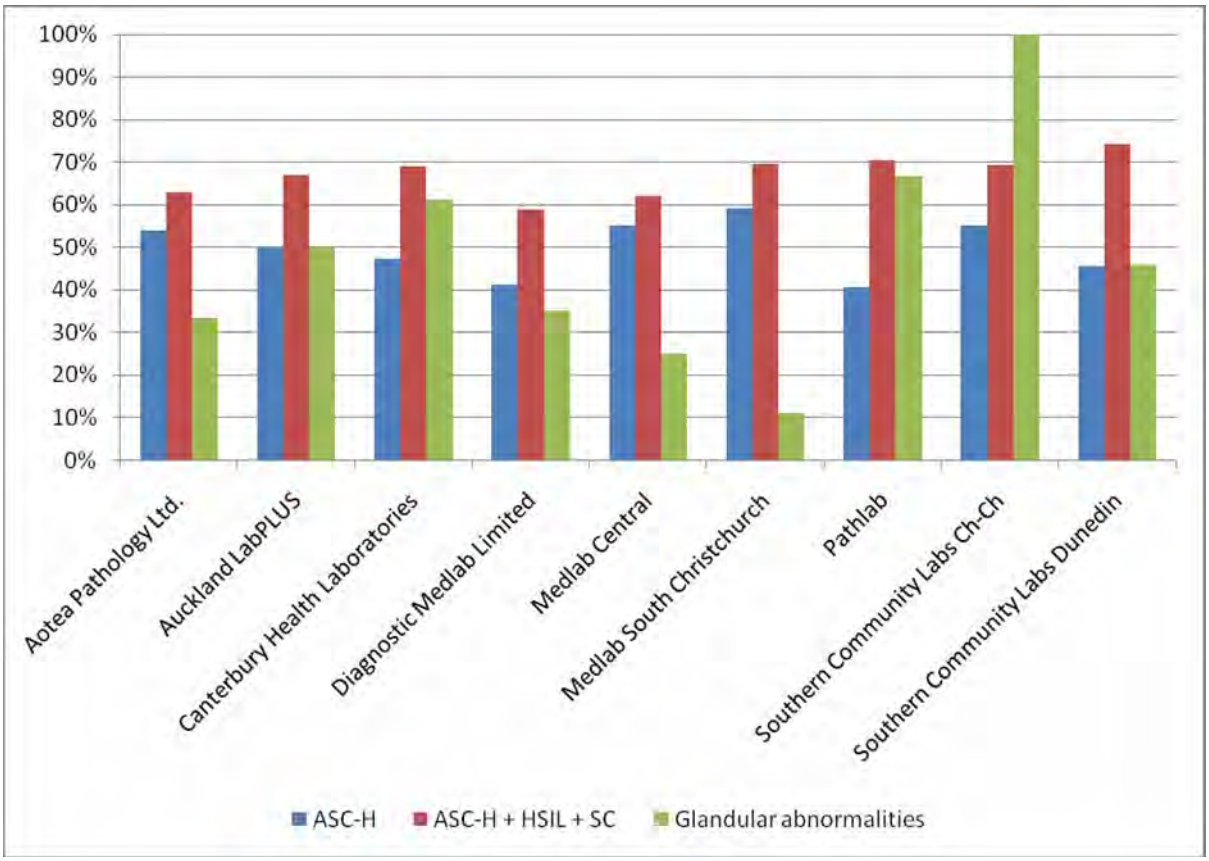
The calculations also do not discriminate between cytology taken as a screening or diagnostic test which may in part be a contributing factor for some laboratories with a PPV which is higher than the upper end of the target range, particularly where the colposcopically-directed cytology and corresponding histology are reported by the same laboratory as best management practice. Analysis separating community vs clinic-derived cytology would provide a clearer picture of PPV (and other reporting categories) in a screening setting.

Figure 24 - Positive predictive value for CIN2+ in women with HSIL or SC cytology reports by laboratory, 1 January to 30 June 2009



Target: 65% - 85%

Figure 25 - Positive predictive value for CIN2+ in women with other high grade cytology reports by laboratory, 1 January to 30 June 2009



Target: None

Indicator 5.3 – Accuracy of negative cytology reports

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

Indicator 5.4 – Histology Reporting

Definition	The NCSP Register collects histology results of samples taken from the cervix and vagina. Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. All histology samples taken during this period were retrieved. Where a histology sample had more than one SNOMED code, or a woman had more than one histology result, the most serious (highest) ranked code was used (see Appendix C). Two versions of SNOMED are used by laboratories (1986 and 1993) depending on the laboratory software. The NCSP Register accepts both versions and for statistical purposes maps the 1986 codes to the 1993 codes. The Ministry of Health holds the NZ license for SNOMED CT and the NCSP is in the early stages of investigating its use. A woman's age is defined as her age at the end of the reporting period.
Target	None
Current Situation	13,736 histology samples were taken during the current reporting period. 272 (2.4%) of these were unsatisfactory. The remaining 13,464 samples were taken from 11,882 women. Results for these women are reported on in detail in Table 14 - Table 17. 54% of women with histology tests had negative or benign histology results (Table 14, Table 15). 20.7% of women had HSIL histology results. 49 (0.4%) women had invasive squamous cell carcinoma (ISCC) histology results, 3 (<0.1%) microinvasive SCC histology results, 3 (<0.1%) had adenosquamous carcinoma histology results, 45 (0.4%) had invasive adenocarcinoma histology results, and 31 (0.3%) had adenocarcinoma in situ histology results. The age group with the largest number of women with histology samples was women aged 20-24 years (1,785 women, Table 16). This was also the age group with the lowest rate of women with results which were negative or HPV only (34.4%, Table 17).
Trends	The proportion of women with negative or benign histology (54%) is very similar to that reported for the previous period (July-December 2008; 53%). The proportions were also similar to those in the previous period for women with HSIL (20.3% in previous period), ISCC (0.5%), microinvasive SCC (%), invasive adenocarcinoma (0.5%), and adenocarcinoma in situ (0.3%). Three women had histology samples indicating adenosquamous carcinoma in the current reporting period, but there were none in the previous reporting period.

Comments	Histology samples include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens. The number and rates of invasive squamous cell carcinomas and invasive adenocarcinomas are very similar (49/0.4% and 45/0.4% respectively). The invasive adenocarcinoma rate is highest in the 55 and greater age groups (similar to the previous reporting period). Further work is underway to investigate the potential role of miscoding in the relatively high reported number of adenocarcinomas.

Table 14 - Histology results reporting by SNOMED category

SNOMED category	Women with that diagnosis	
	N	%
Negative/normal	3,032	25.5
Inflammation	831	7.0
Microglandular hyperplasia	20	0.2
Squamous metaplasia	578	4.9
Atypia	87	0.7
HPV	1,056	8.9
Condyloma acuminatum	8	0.1
Dysplasia/CIN NOS	74	0.6
CIN 1 (LSIL) or VAIN 1	1,631	13.7
CIN 2 (HSIL) or VAIN 2	633	5.3
CIN 3 (HSIL) or VAIN 3	933	7.9
HSIL NOS	893	7.5
Polyp	1,232	10.4
Other	722	6.1
Microinvasive squamous cell carcinoma	3	0.03
Invasive squamous cell carcinoma	49	0.4
Benign glandular atypia	2	0.02
Glandular dysplasia	3	0.03
Adenocarcinoma in situ	31	0.3
Invasive adenocarcinoma	45	0.4
Adenosquamous carcinoma	3	0.03
Metastatic tumour	4	0.03
Undifferentiated carcinoma	1	0.01
Sarcoma	2	0.02
Carcinosarcoma	1	0.01
Miscellaneous primary tumour	2	0.02
Other primary epithelial malignancy	5	0.04
Melanoma	1	0.01
Total	**11,882**	**100.0**

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

Table 15 - Histology results reporting by diagnostic group

Histology diagnosis category	Women with that histology result	
	N	%
Negative/benign (non neoplastic)	6,417	54.0
HPV	1,064	9.0
CIN1	1,792	15.1
CIN2	633	5.3
CIN3	933	7.9
HSIL NOS	893	7.5
Microinvasive	3	0.03
Invasive squamous cell carcinoma	49	0.4
Glandular dysplasia	3	0.03
Adenocarcinoma in situ	31	0.3
Invasive adenocarcinoma	45	0.4
Adenosquamous carcinoma	3	0.03
Other cancer	16	0.1
Total	**11,882**	**100.0**

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

Table 16 - Histology results by age – counts

Histology Category	Age group												
	<20	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70+**	**Total**
Negative/benign (non neoplastic)	39	403	414	472	741	1,001	1,167	861	505	343	226	245	6,417
HPV	30	211	194	128	131	132	100	74	31	18	11	4	1,064
CIN1	59	495	348	240	225	163	138	52	38	20	10	4	1,792
CIN2	21	195	145	95	72	47	29	12	5	4	4	4	633
CIN3	10	223	230	155	139	72	54	22	10	12	3	3	933
HSIL	18	254	223	142	106	51	43	22	10	13	7	4	893
Microinvasive	-	-	1	1	1	-	-	-	-	-	-	-	3
Invasive SCC	-	-	1	3	4	15	4	5	2	3	1	11	49
Glandular dysplasia	-	-	1	1	1	-	-	-	-	-	-	-	3
Adenocarcinoma in situ	-	3	4	6	6	4	4	2	-	1	-	1	31
Invasive adenocarcinoma	-	1	1	2	6	2	3	4	5	4	3	14	45
Adenosquamous carcinoma	-	-	-	-	-	-	1	-	1	-	-	1	3
Other cancer	-	-	-	1	-	1	2	-	2	4	-	6	16
Total	**77**	**1,785**	**1,562**	**1,246**	**1,432**	**1,488**	**1,545**	**1,054**	**609**	**422**	**265**	**297**	**11,882**

Table 17 - Histology results by age – percentages

Histology Category	Age group											
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
Negative/benign (non neoplastic)	22.0	22.6	26.5	37.9	51.8	67.3	75.5	81.7	82.9	81.3	85.3	82.5
HPV	17.0	11.8	12.4	10.3	9.2	8.9	6.5	7.0	5.1	4.3	4.2	1.4
CIN1	33.3	27.7	22.3	19.3	15.7	11.0	8.9	4.9	6.2	4.7	3.8	1.4
CIN2	11.9	10.9	9.3	7.6	5.0	3.2	1.9	1.1	0.8	1.0	1.5	1.4
CIN3	5.7	12.5	14.7	12.4	9.7	4.8	3.5	2.1	1.6	2.8	1.1	1.0
HSIL	10.2	14.2	14.3	11.4	7.4	3.4	2.8	2.1	1.6	3.1	2.6	1.4
Microinvasive	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Invasive squamous cell carcinoma	0.0	0.0	0.1	0.2	0.3	1.0	0.3	0.5	0.3	0.7	0.4	3.7
Glandular dysplasia	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adenocarcinoma in situ	0.0	0.2	0.3	0.5	0.4	0.3	0.3	0.2	0.0	0.2	0.0	0.3
Invasive adenocarcinoma	0.0	0.1	0.1	0.2	0.4	0.1	0.2	0.4	0.8	1.0	1.1	4.7
Adenosquamous carcinoma	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.3
Other cancer	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.3	1.0	0.0	2.0

Indicator 5.5 - Laboratory turnaround times

Definition

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

Target

Cytology

Laboratories are required to report 90% of final gynaecological cytology results to smear takers within seven working days of receipt of the sample and 100% within 15 working days (standard 513[5]).

Histology

Laboratories are required to report 90% of final histology results to referring colposcopists within 5 working days of receipt of the sample and 99% of final histology results within 15 working days of receiving the sample (standard 516[3])

Current Situation

Cytology

Nine laboratories received 222,553 cytology samples during the current reporting period. Overall, 87.0% of cytology samples were reported on within seven working days, and 99.7% were reported on within 15 working days. These values are slightly below the targets (Table 41).

Four laboratories met the target for 90% of cytology samples to be reported to smear takers in seven days or less (Diagnostic Medlab Ltd, Medlab Central Ltd, Medlab South Christchurch, Pathlab), and four met the target of 100% within 15 working days (Aotea Pathology Ltd, Medlab Central Ltd, Medlab South Christchurch, Pathlab) (Figure 16, Figure 17, Table 41).

Of the remaining five laboratories, three had reported on over 99% of cytology samples within 15 days (Diagnostic Medlab Ltd, Southern Community Labs – Christchurch and Southern Community Labs - Dunedin), and the remaining two had reported on over 98% within 15 working days.

Histology

20 laboratories received 13,621 histology samples in the current reporting period. Overall 84.1% of samples were reported on within five working days, and 98.5% were reported on in 15 working days or less. These values are slightly below the targets (Table 42).

10 laboratories met the target of 90% of final histology results to referring colposcopists within five working days of receipt of the sample (Diagnostic

[5] NCSP Operational Policy and Quality Standards, Section 5

Medlab Ltd, Medlab Central Ltd, Medlab South Christchurch, Medlab Timaru, Memorial Hospital Hastings Lab, Middlemore Hospital Laboratory, North Shore Hospital Laboratory, Northland Pathology Laboratory, Southern Community Labs Dunedin, Taranaki Medlab) (Figure 18, Table 42). 13 laboratories met the target of 99% of final histology results within 15 working days of receiving the sample, and of the remaining seven, five had reported on at least 95% of samples within 15 days. The remaining two laboratories had reported on 92.3% (Auckland LabPLUS), and 92.0% (Wellington Hospital Laboratory) (Figure 19, Table 42).

Trends

Cytology

The overall proportion number of cytology samples reported on within seven working days increased slightly during this period compared to the previous period, however one fewer lab met the cytology turnaround time target of 90% within seven working days. In the previous period, 86.0% of samples were reported on within seven working days (compared to 87.0% during this reporting period), and five of the nine laboratories met the seven-working day target of 90% (compared to four of the nine in this period). Performance in three of the four laboratories who did not meet the target in either period has improved quite substantially (Auckland LabPLUS, Canterbury Health Laboratories, and Southern Community Labs - Christchurch).

Performance against the 15 working day turnaround time target for cytology was similar in this report to the previous report in terms of the number of laboratories meeting the target, however substantial improvement at Canterbury Health Laboratories meant that all laboratories had reported on at least 98% of samples by 15 working days.

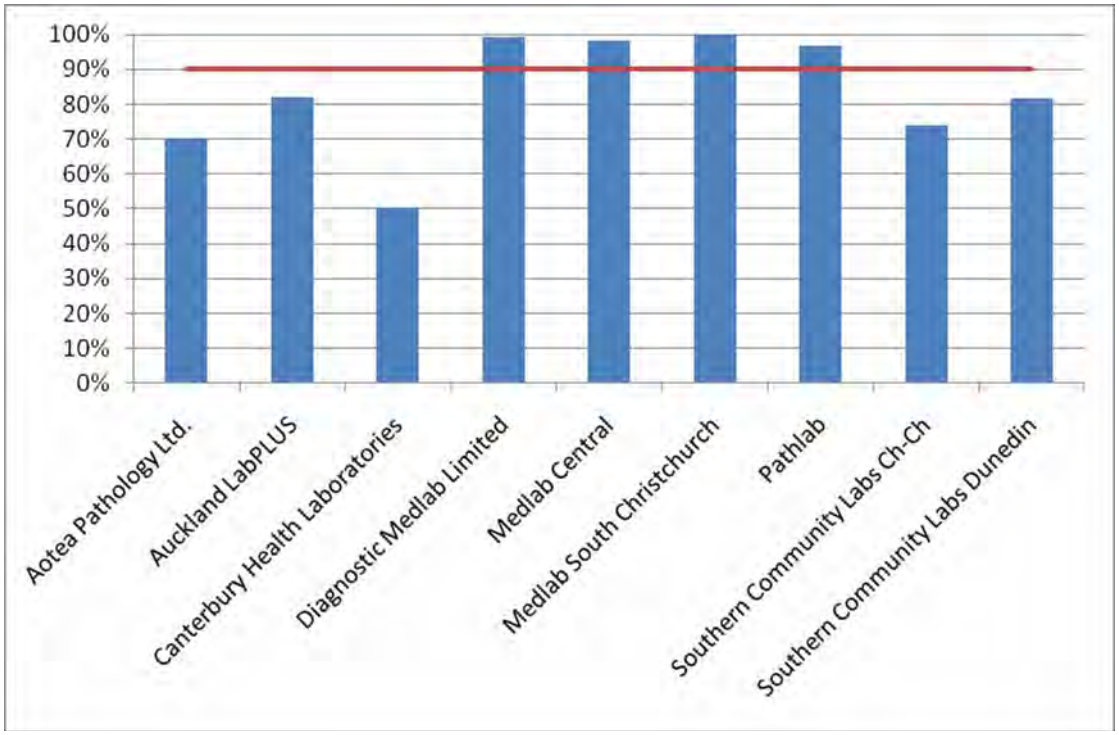
Histology

Overall, the proportion of histology samples reported on within five working days is slightly lower than it was in the previous reporting period (84.1% during this period compared to 87.9% in the previous report). Two fewer laboratories met this target than in the previous reporting period, and one fewer laboratory reported on histology, thus the proportion of laboratories meeting the target has also decreased (10/20 during this period, compared to 12/21 in the previous report).

The same number of laboratories met the target of 99% of histology samples reported on within 15 days as in the previous period. Substantial improvement at Southern Community Labs Christchurch in particular since the previous reporting period (from 80.7% to 93.8% within five days, and from 84.5% to 95.1% within 15 days) meant that no lab had reported on less than 90% of histology samples within 15 working days.

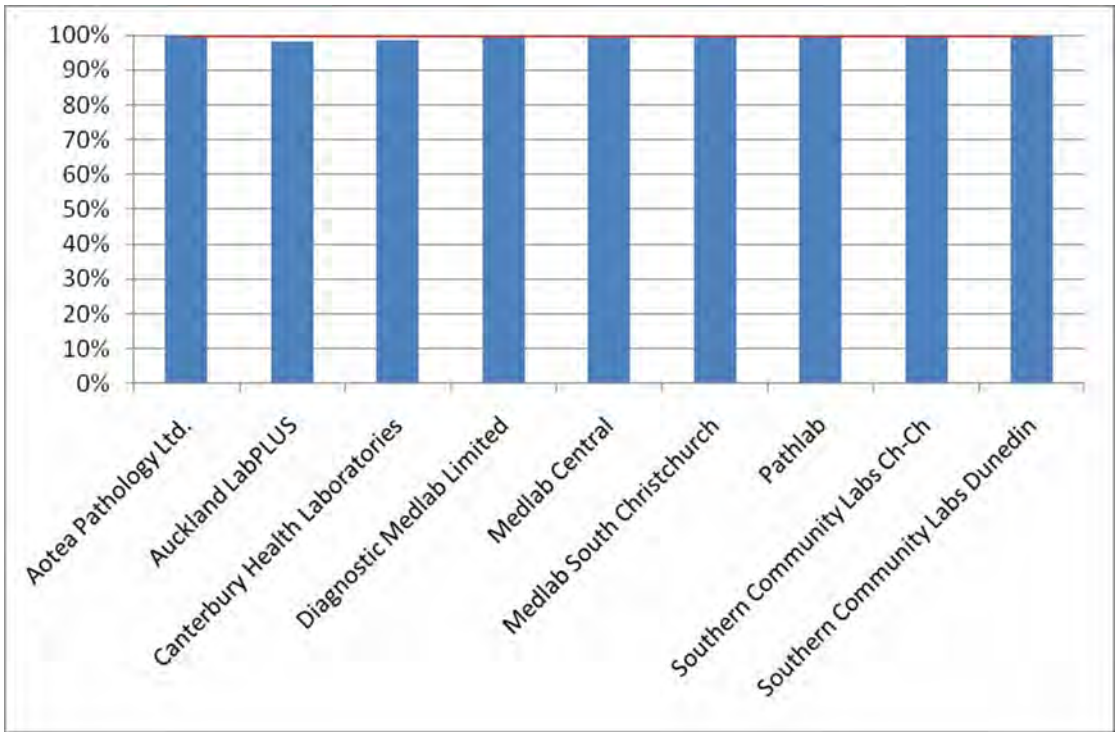
Comments	Note the total number of cytology samples reported on in this Indicator (222,553) is different from that reported in Indicator 5.1 (222,803), as the inclusion criteria for the current indicator is all cytology received by laboratories within the reporting period, rather than cytology taken during the reporting period which was the criteria for Indicator 5.1. The extended cytology turnaround times for Canterbury Health Laboratories seen in the previous monitoring reports were investigated by the NSU at the time and monitored and reported on weekly by Canterbury Health Laboratories. There has been a very substantial improvement in their performance since the previous reporting period (from 28.5% to 50.4% within seven days, and from 67.6% to 98.7% within 15 days). The definition used for turnaround time differs between laboratories. For example a turnaround time of one day can mean within 24 hours, on the same day the sample is received, or on the day after the sample is received, therefore it has not been possible to use a definition here which is consistent with what all laboratories use. The calculations currently include public holidays as working days.

Figure 26 - Proportion of cytology samples reported within seven working days by laboratory, 1 January to 30 June 2009



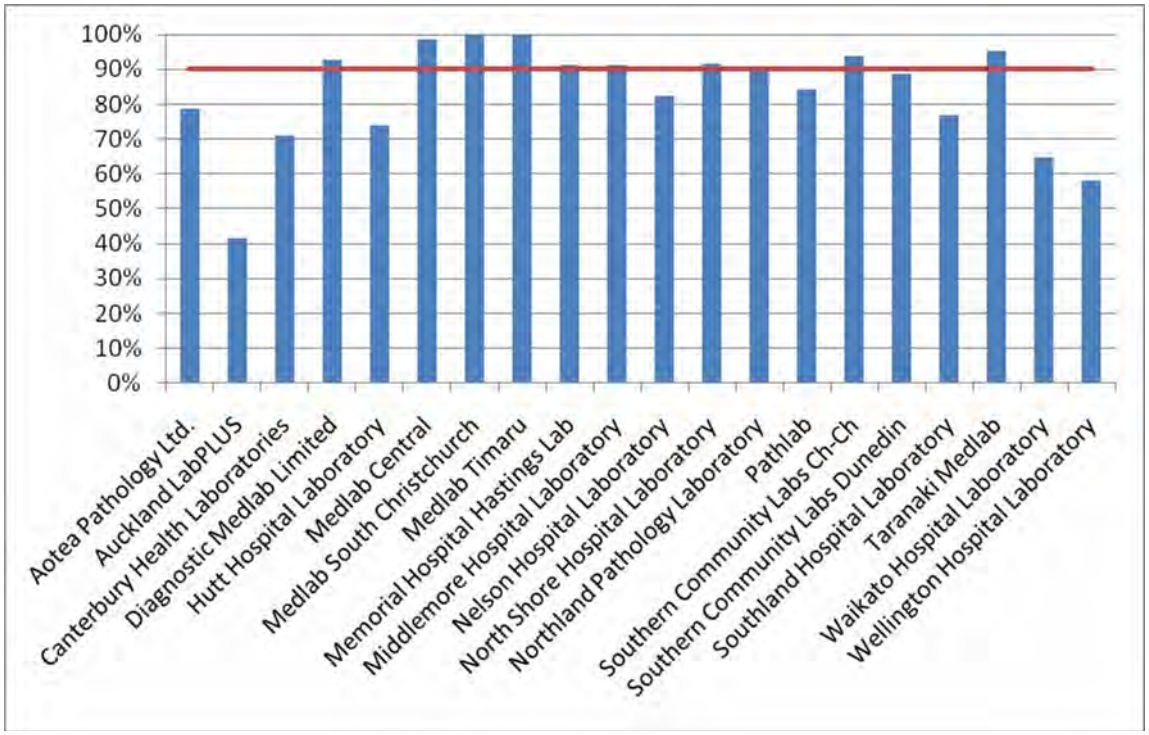
Target: 90 % within seven working days (red line)

Figure 27 - Proportion of cytology samples reported within 15 working days by Laboratory, 1 January to 30 June 2009



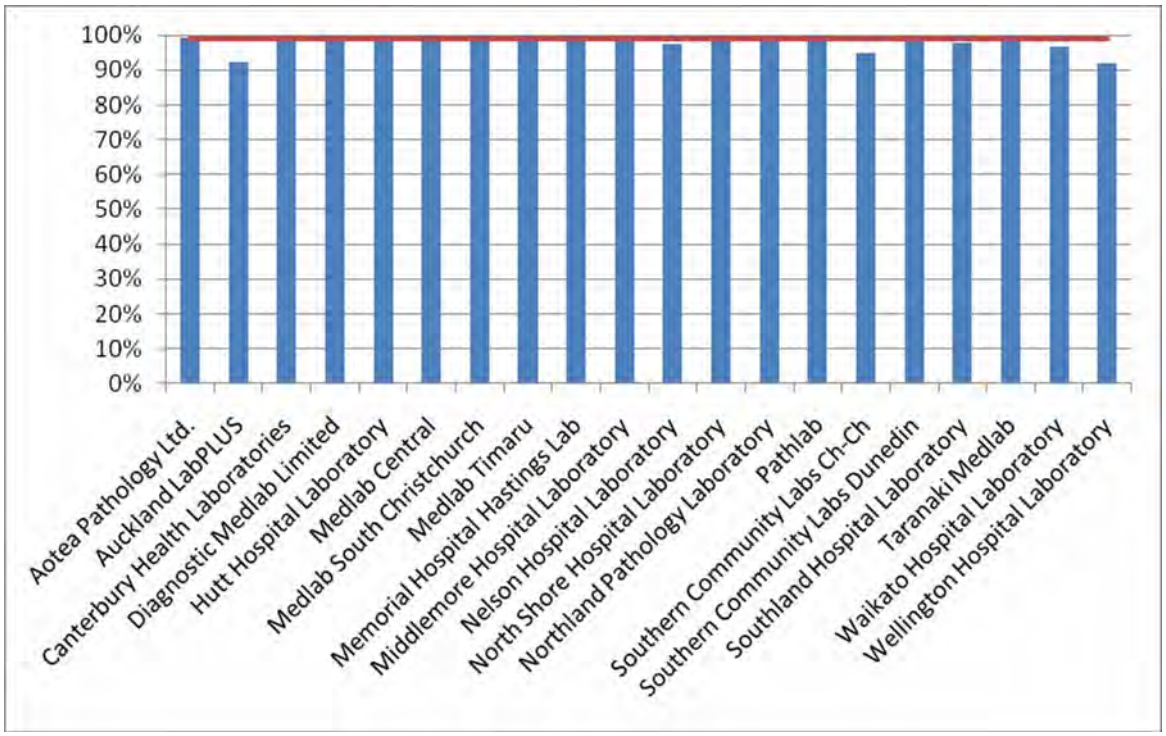
Target: 100% within 15 working days (red line)

Figure 28 - Timeliness of histology reporting by laboratory, 1 January to 30 June 2009 - proportion of histology samples reported in five working days or less



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

Figure 29 - Timeliness of histology reporting by laboratory, 1 January to 30 June 2009 - proportion of histology samples reported within 15 working days or less



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

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

Definition

The proportion of women (20-69 years) 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 1 July 2008 – 30 December 2008), is followed for any histology samples taken on or after the date of the cytology sample. The period of time between the cytology and histology reports relating to these samples is calculated. The proportion of women with a histology report up to and including 90 days after their cytology report is calculated. Histology reports which occur prior to the cytology report are included, as long as the histology sample was not taken before the cytology sample, to allow for differences in turnaround times between cytology and histology.

In this report, exploratory 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 NZ 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 (NZ modified TBS 2005 R13) are excluded. After these are excluded, follow-up of women who have more than one high grade cytology sample is based on the first cytology sample collected in the period.

Note that some women may be assessed at colposcopy but no biopsy taken. The colposcopy visit data for this group of women (Indicator 7.1) will supplement this indicator. As complete data were not available for Indicator 7.1, an exploratory analysis was performed which calculated the proportion of women with high grade cytology who had no follow-up test of any kind (including colposcopy, histology, HPV test, or subsequent smear test) within 180 days, and within 360 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 2009).

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 3,740 high grade cytology results relating to samples collected in the period 1 January 2009 – 30 June 2009; 3,607 in women aged 20-69 years at the end of the period. 1,021 of these samples 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 they were excluded from this measure. This left 2,586 cytology tests, which related to 2,452 women aged 20-69 years at the end of the reporting period. Histological follow-up for these 2,452 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, 1,838 women (75.0%) aged 20-69 years at the end of the period had a histology report taken within 90 days of their cytology report, and 2,052 (83.7%) had a histology report within 180 days. These are below the targets of 90% within 90 days, and 99% within 180 days. The proportion of women with a histology report within 90 days of their cytology report varied by DHB from 48.1% (Southland) to 86.0% (Waitemata). By 180 days this had increased to 60.5% (Southland) to 92.9% (West Coast) (Figure 30, Table 43). No DHB met either of the targets for the proportion of women with histology within 90 days or within 180 days. The proportion of women with a histology report also varies by age, from 62.5% (ages 55-59 years) to 79.9% (ages 40-44 years) within 90 days, and from to 72.7% (ages 55-59 years) to 86.9% (ages 35-39 years) within 180 days (Table 44). The targets were not met in any age group nationally. 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, it ranged from 66.1% (Māori) to 77.6% (European/ Other). By 180 days, however, the difference had narrowed, and histology reports were available for 80.0% of Māori women and 84.8% of European/Other women (Table 18, Table 19). Further breakdown by DHB and ethnicity is shown in Table 18 and Table 19, and breakdown by DHB and age is shown in Table 20 and Table 21. ***Any follow-up tests*** When follow-up tests of any kind (colposcopy, histology, an HPV test, or a

subsequent cytology test) were considered, there remained 161 women (6.6%) who had no record of any subsequent follow-up test within 180 days on the NCSP Register, and 75 women (3.1%) who had no record of a follow-up test at 360 days (Figure 31, Table 45). This varied by DHB at 180 days from 2.4% (Mid Central) to 15.2% (South Canterbury), and at 360 days from 0.0% (Mid Central, Wairarapa, West Coast, Whanganui) to 6.5% (Counties Manukau). It also varied by ethnicity, from 5.1% (European/ Other) to 13.5% (Pacific) at 180 days, and from 2.0% (European/ Other) to 9.0% (Pacific) at 360 days.

Trends

Histological follow-up

The proportion of women with histology within 90 days and within 180 days has decreased slightly, from 77.9% within 90 days in the previous reporting period to 75.0% in the current period, and from 84.4% within 180 days in the previous period to 83.7% in the current period.

The trends by DHB were more complex. For example in the previous reporting period Southland was the only DHB to meet the target for follow-up histology within 90 days, and was the closest to meeting the target for 180 days; however in this period it was the DHB where the proportion of women with histological follow-up was lowest. Whanganui improved histological follow-up compared to the previous period, from 69.6% within 180 days to more than 80% in the current period. Increases in the proportion of women with histological follow-up in this period, compared to the previous period, have been greatest in Whanganui and Taranaki. Decreases in the proportion of women with histological follow-up in this period, compared to the previous period, have been greatest in Southland, South Canterbury, and Capital & Coast.

Any follow-up tests

The proportion of women with no record of a follow-up test has decreased slightly since the previous reporting period, from 7.2% at 180 days and 4.0% at 360 days in the previous reporting period, to 6.6% and 3.1%. This decrease was seen in Māori women, Pacific women, and European/Other women, but not among Asian women. Trends by DHB were once again complex, but reductions in the proportion of women with no follow-up test recorded were greatest in Bay of Plenty, Waikato, Wairarapa and Whanganui. In some DHBs the proportion of women without a follow-up test recorded increased, for example in South Canterbury and Southland.

Comments

The proportion of women with a follow-up test of any kind provides useful additional information. While nationally 16.3% of women with high grade cytology reports had no record of histology within 180 days, the proportion without a record of a follow-up test of any kind was much lower (6.6%). This provides reassurance that the majority of women without histology have not been lost to follow-up. While the proportion of women with follow-up histology has decreased slightly since the previous reporting period, the same is not true for women with any follow-up test – in fact this has increased.

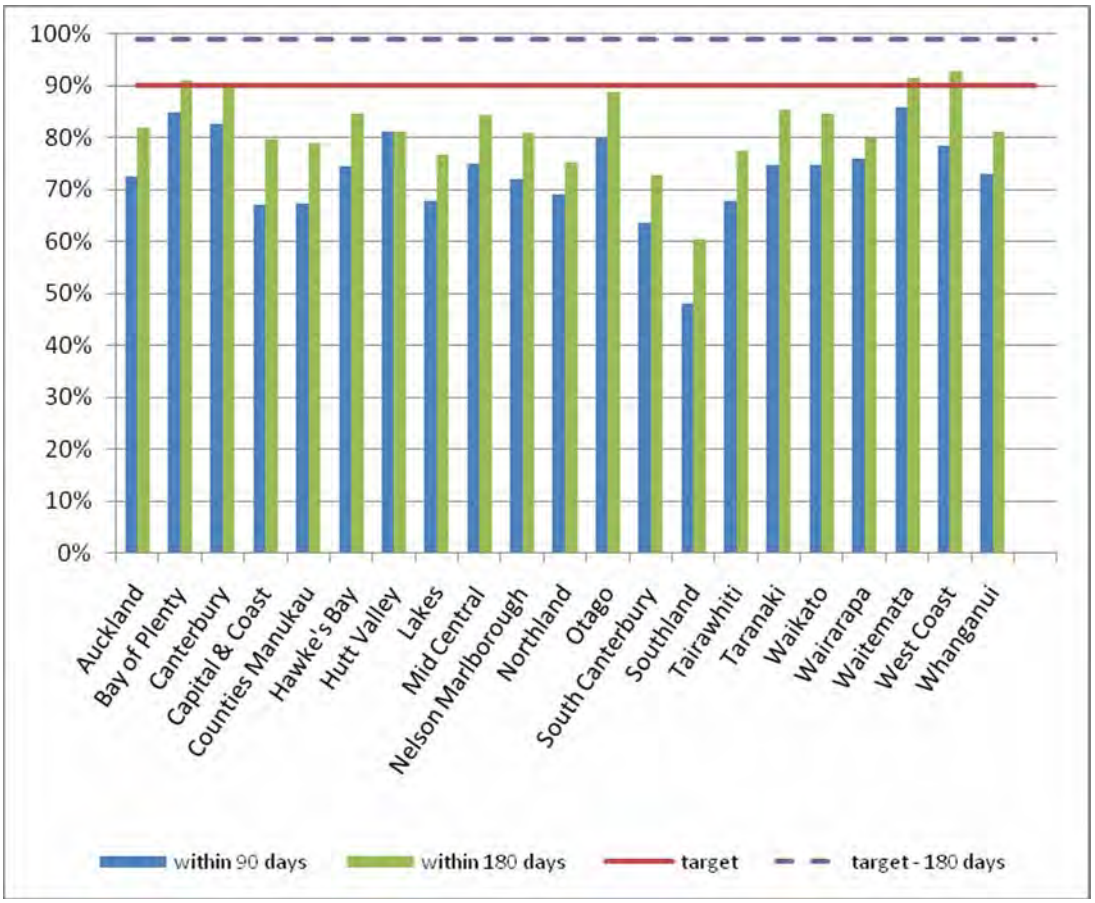
Note that while all *cytology results* which indicated that a woman was under specialist management were excluded from the measure of follow-up, not all *women* who had these cytology results were. If all cytology tests for a woman indicated that she was under specialist management, she was excluded. However, any woman with at least one high grade cytology results 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 results without this indication should have been followed up in some way, regardless of other cytology collected 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)/ refusal to attend,
iii) a wait time issue.

Women who do not/ refuse to attend are at highest risk due to not having had a colposcopic examination. Due to the significant risk for this group of women if not followed up, NCSP Performance Management Analysts ensure that priority is given to follow-up of these women through DHBs. Risk is also related to the degree of abnormality including microinvasive/invasive carcinoma.

Figure 30 - Women (ages 20-69 years) with a histology report within 90 and 180 days of a high grade cytology report, by DHB



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

Table 18 - Women (ages 20-69 years) 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	8	42.1	10	50.0	35	72.9	132	78.6
Bay of Plenty	29	76.3	3	75.0	2	40.0	107	89.9
Canterbury	20	76.9	7	87.5	9	81.8	182	83.1
Capital & Coast	8	80.0	3	60.0	4	40.0	54	69.2
Counties Manukau	21	50.0	15	62.5	19	70.4	79	74.5
Hawke's Bay	25	69.4	3	100.0	4	100.0	56	74.7
Hutt Valley	3	75.0	2	66.7	1	100.0	33	82.5
Lakes	20	66.7	1	100.0	1	50.0	39	68.4
Mid Central	13	76.5	-	-	-	-	50	75.8
Nelson Marlborough	6	100.0	1	100.0	1	100.0	49	69.0
Northland	25	69.4	-	-	-	-	42	68.9
Otago	4	57.1	2	100.0	4	100.0	106	80.3
South Canterbury	1	33.3	-	-	0	0.0	20	69.0
Southland	3	27.3	-	-	-	-	36	53.7
Tairawhiti	8	53.3	0	0.0	-	-	13	86.7
Taranaki	7	70.0	-	-	-	-	49	75.4
Waikato	44	68.8	2	100.0	9	81.8	149	76.0
Wairarapa	1	50.0	1	100.0	-	-	17	77.3
Waitemata	17	77.3	10	83.3	16	88.9	159	86.9
West Coast	1	50.0	-	-	-	-	10	83.3
Whanganui	7	70.0	-	-	-	-	20	76.9
Total	**271**	**66.1%**	**60**	**67.4%**	**105**	**71.9%**	**1,402**	**77.6%**

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

Table 19 - Women (ages 20-69 years) 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	73.7	14	70.0	40	83.3	141	83.9
Bay of Plenty	32	84.2	4	100.0	3	60.0	112	94.1
Canterbury	23	88.5	8	100.0	9	81.8	198	90.4
Capital & Coast	9	90.0	4	80.0	6	60.0	63	80.8
Counties Manukau	30	71.4	18	75.0	22	81.5	87	82.1
Hawke's Bay	32	88.9	3	100.0	4	100.0	61	81.3
Hutt Valley	3	75.0	2	66.7	1	100.0	33	82.5
Lakes	23	76.7	1	100.0	1	50.0	44	77.2
Mid Central	14	82.4	1	100.0	0	0.0	56	84.8
Nelson Marlborough	6	100.0	1	100.0	1	100.0	56	78.9
Northland	28	77.8	-	-	-	-	45	73.8
Otago	6	85.7	2	100.0	4	100.0	117	88.6
South Canterbury	1	33.3	-	-	0	0.0	23	79.3
Southland	5	45.5	-	-	1	33.3	43	64.2
Tairawhiti	11	73.3	0	0.0	-	-	13	86.7
Taranaki	8	80.0	-	-	-	-	56	86.2
Waikato	53	82.8	2	100.0	10	90.9	166	84.7
Wairarapa	1	50.0	1	100.0	0	0.0	18	81.8
Waitemata	19	86.4	11	91.7	16	88.9	169	92.4
West Coast	2	100.0	-	-	-	-	11	91.7
Whanganui	8	80.0	1	100.0	-	-	21	80.8
Total	**328**	**80.0%**	**73**	**82.0%**	**118**	**80.8%**	**1,533**	**84.8%**

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

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

	20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Auckland	25	65.8	44	78.6	32	74.4	29	76.3	14	73.7	8	50.0	19	82.6	10	76.9	0	0.0	4	66.7	185
Bay of Plenty	17	73.9	25	80.6	20	90.9	23	92.0	16	88.9	8	80.0	9	90.0	13	86.7	7	77.8	3	100.0	141
Canterbury	52	81.3	61	85.9	35	89.7	24	82.8	13	68.4	15	75.0	9	81.8	5	83.3	3	75.0	1	100.0	218
Capital & Coast	17	54.8	17	81.0	10	62.5	10	71.4	5	71.4	3	50.0	2	66.7	1	100.0	2	100.0	2	100.0	69
Counties Manukau	25	55.6	26	61.9	19	76.0	17	77.3	15	83.3	9	90.0	8	57.1	7	58.3	4	100.0	4	57.1	134
Hawke's Bay	20	66.7	15	78.9	13	76.5	11	73.3	10	83.3	7	58.3	5	100.0	2	66.7	3	100.0	2	100.0	88
Hutt Valley	8	80.0	4	66.7	5	71.4	9	90.0	5	83.3	5	100.0	3	75.0	-	-	-	-	-	-	39
Lakes	14	63.6	15	83.3	12	85.7	6	75.0	9	64.3	2	50.0	1	20.0	1	50.0	1	50.0	0	0.0	61
Mid Central	13	72.2	19	95.0	12	70.6	4	66.7	8	100.0	6	66.7	1	33.3	0	0.0	-	-	-	-	63
Nelson Marlborough	14	93.3	12	70.6	4	50.0	10	66.7	8	88.9	4	66.7	4	66.7	0	0.0	-	-	1	50.0	57
Northland	16	88.9	9	81.8	6	75.0	9	81.8	7	63.6	11	68.8	2	33.3	4	50.0	1	20.0	2	66.7	67
Otago	31	83.8	24	75.0	13	92.9	10	66.7	10	100.0	13	86.7	4	57.1	2	50.0	5	71.4	4	100.0	116
South Canterbury	3	42.9	7	87.5	4	80.0	3	75.0	1	50.0	2	100.0	0	0.0	-	-	0	0.0	1	100.0	21
Southland	9	50.0	11	73.3	5	31.3	6	75.0	1	20.0	5	62.5	2	33.3	0	0.0	0	0.0	0	0.0	39
Tairawhiti	6	85.7	4	57.1	3	75.0	1	25.0	2	100.0	1	50.0	3	75.0	1	100.0	-	-	-	-	21
Taranaki	16	84.2	14	73.7	11	91.7	3	60.0	3	60.0	2	40.0	4	80.0	1	100.0	1	50.0	1	50.0	56
Waikato	51	81.0	29	70.7	30	78.9	31	77.5	21	84.0	19	76.0	8	57.1	6	46.2	3	60.0	6	66.7	204
Wairarapa	6	75.0	4	57.1	2	100.0	2	100.0	1	50.0	2	100.0	1	100.0	-	-	1	100.0	-	-	19
Waitemata	42	85.7	31	83.8	31	83.8	33	86.8	30	96.8	18	90.0	9	75.0	2	66.7	5	100.0	1	33.3	202
West Coast	3	60.0	6	100.0	1	50.0	1	100.0	-	-	-	-	-	-	-	-	-	-	-	-	11
Whanganui	7	63.6	5	71.4	5	100.0	1	50.0	4	66.7	3	75.0	2	100.0	-	-	-	-	-	-	27
Total	**395**	**73.4**	**382**	**77.8**	**273**	**77.8**	**243**	**77.9**	**183**	**79.9**	**143**	**72.6**	**96**	**67.1**	**55**	**62.5**	**36**	**64.3**	**32**	**68.1**	**1,838**

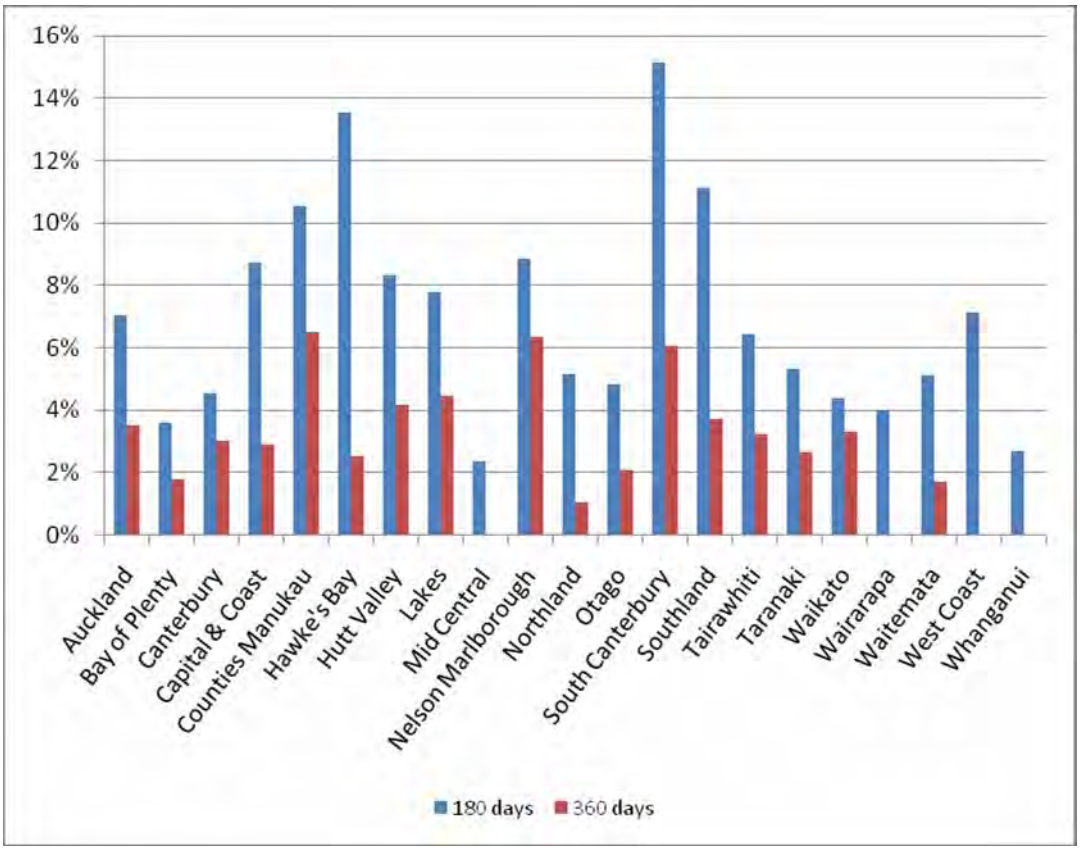
'– ' indicates there were no women in this sub-category with a high grade cytology report

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

	20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		Total
DHB	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	
Auckland	30	78.9	50	89.3	34	79.1	33	86.8	15	78.9	10	62.5	21	91.3	11	84.6	1	33.3	4	66.7	209
Bay of Plenty	17	73.9	27	87.1	22	100.0	24	96.0	17	94.4	8	80.0	10	100.0	15	100.0	8	88.9	3	100.0	151
Canterbury	60	93.8	63	88.7	36	92.3	27	93.1	14	73.7	17	85.0	10	90.9	6	100.0	4	100.0	1	100.0	238
Capital & Coast	21	67.7	21	100.0	12	75.0	11	78.6	6	85.7	4	66.7	2	66.7	1	100.0	2	100.0	2	100.0	82
Counties Manukau	30	66.7	32	76.2	21	84.0	19	86.4	16	88.9	9	90.0	12	85.7	9	75.0	4	100.0	5	71.4	157
Hawke's Bay	21	70.0	17	89.5	15	88.2	14	93.3	11	91.7	10	83.3	5	100.0	2	66.7	3	100.0	2	100.0	100
Hutt Valley	8	80.0	4	66.7	5	71.4	9	90.0	5	83.3	5	100.0	3	75.0	-	-	-	-	-	-	39
Lakes	15	68.2	16	88.9	12	85.7	7	87.5	11	78.6	2	50.0	2	40.0	2	100.0	1	50.0	1	100.0	69
Mid Central	17	94.4	20	100.0	13	76.5	4	66.7	8	100.0	6	66.7	2	66.7	1	33.3	-	-	-	-	71
Nelson Marlborough	14	93.3	14	82.4	6	75.0	11	73.3	9	100.0	5	83.3	4	66.7	0	0.0	-	-	1	50.0	64
Northland	18	100.0	9	81.8	6	75.0	9	81.8	9	81.8	11	68.8	3	50.0	4	50.0	2	40.0	2	66.7	73
Otago	34	91.9	28	87.5	14	100.0	12	80.0	10	100.0	14	93.3	5	71.4	2	50.0	6	85.7	4	100.0	129
South Canterbury	5	71.4	7	87.5	5	100.0	3	75.0	1	50.0	2	100.0	0	0.0	-	-	0	0.0	1	100.0	24
Southland	13	72.2	12	80.0	8	50.0	6	75.0	1	20.0	5	62.5	2	33.3	0	0.0	2	100.0	0	0.0	49
Tairawhiti	6	85.7	5	71.4	3	75.0	2	50.0	2	100.0	2	100.0	3	75.0	1	100.0	-	-	-	-	24
Taranaki	18	94.7	16	84.2	11	91.7	4	80.0	4	80.0	4	80.0	4	80.0	1	100.0	1	50.0	1	50.0	64
Waikato	55	87.3	35	85.4	34	89.5	36	90.0	22	88.0	22	88.0	9	64.3	7	53.8	3	60.0	8	88.9	231
Wairarapa	7	87.5	4	57.1	2	100.0	2	100.0	1	50.0	2	100.0	1	100.0	-	-	1	100.0	-	-	20
Waitemata	44	89.8	32	86.5	33	89.2	36	94.7	31	100.0	19	95.0	10	83.3	2	66.7	5	100.0	3	100.0	215
West Coast	4	80.0	6	100.0	2	100.0	1	100.0	-	-	-	-	-	-	-	-	-	-	-	-	13
Whanganui	8	72.7	6	85.7	5	100.0	1	50.0	5	83.3	3	75.0	2	100.0	-	-	-	-	-	-	30
Total	**445**	**82.7**	**424**	**86.4**	**299**	**85.2**	**271**	**86.9**	**198**	**86.5**	**160**	**81.2**	**110**	**76.9**	**64**	**72.7**	**43**	**76.8**	**38**	**80.9**	**2,052**

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

Figure 31 - Women (ages 20-69 years) without any follow-up test report within 180 days and 360 days of a high grade cytology report, by DHB



Indicator 7 – Colposcopy indicators

Definition	The calculation of these indicators is under development, and will include measures such as: 1. Waiting time for colposcopic assessment of women with abnormal cytology results 2. Adequacy of recording at colposcopy 3. Minimum colposcopy volumes 4. Correlation between colposcopy and histology 5. Adequacy of treatment Some of these measures are still being defined.
Current Situation	Colposcopy data are being collected on the NCSP Register, but data relating to the time period of this report are believed to be incomplete, therefore measures were not calculated for the current reporting period. Data completeness is improving, and it is anticipated that these colposcopy indicators will be reported upon in future.

Appendix A – Additional data

Indicator 1 - Coverage

Table 22 - Three-year coverage by age (women 20-69 years screened in three years prior to 30 June 2009, hysterectomy adjusted)

Age group	Hysterectomy-adjusted population	Women screened in last 3 years	
		N	%
20-24	138,856	81,978	59.0
25-29	126,643	95,814	75.7
30-34	143,204	101,390	70.8
35-39	156,288	120,684	77.2
40-44	154,324	118,714	76.9
45-49	137,222	117,669	85.8
50-54	109,471	95,005	86.8
55-59	94,032	75,100	79.9
60-64	70,367	60,218	85.6
65-69	60,445	41,898	69.3
TOTAL	**1,190,853**	908,470	76.3

Target: 75%

Table 23 - Three-year coverage by DHB (women 25-69 years screened in three years prior to 30 June 2009, hysterectomy adjusted)

DHB	Hysterectomy-adjusted population	Women screened in last 3 years	
		N	%
Auckland	121,197	90,399	74.6
Bay of Plenty	49,456	40,463	81.8
Canterbury	119,230	96,726	81.1
Capital & Coast	74,302	61,442	82.7
Counties Manukau	111,484	81,750	73.3
Hawke's Bay	37,275	29,339	78.7
Hutt Valley	35,428	27,934	78.8
Lakes	25,793	19,488	75.6
Mid Central	39,320	29,545	75.1
Nelson Marlborough	34,930	27,734	79.4
Northland	37,252	28,346	76.1
Otago	43,342	36,116	83.3
South Canterbury	13,112	10,562	80.6
Southland	27,498	21,481	78.1
Tairawhiti	10,808	8,464	78.3
Taranaki	25,596	22,283	87.1
Waikato	82,602	66,510	80.5
Wairarapa	9,675	7,709	79.7
Waitemata	130,773	102,727	78.6
West Coast	7,628	5,716	74.9
Whanganui	15,218	11,060	72.7
Unspecified	-	698	-
Total	**1,051,997**	826,492	78.6

Target: 75%

Table 24 - Three-year coverage by ethnicity (women 25-69 years screened in three years prior to 30 June 2009, hysterectomy adjusted)

Ethnicity	Hysterectomy adjusted population	Women screened in the the last 3 years (ages 25-69 years)	
	(ages 25-69 years)	N	%
Māori	138,653	78,361	56.5
Pacific	58,608	36,448	62.2
Asian	106,289	68,374	64.3
European/ Other	748,447	643,309	86.0
Total	**1,051,997**	826,492	78.6

Table 25 - Three-year coverage by ethnicity (women 25-69 years screened in three years prior to 30 June 2009, hysterectomy adjusted) – counts weighted using ethnicity adjustors to correct for undercounting in NCSP Register

Ethnicity	Hysterectomy adjusted population (ages 25-69 years)	Women screened in the last 3 years (ages 25-69 years; adjusted for ethnicity misclassification)	
		N	%
Māori	138,653	93,540	67.5
Pacific	58,608	40,767	69.6
Asian	106,289	89,742	84.4
European/Other	748,447	595,472	79.6

Table 26 – Three-year coverage by ethnicity (women 20-69 years screened in three years prior to 30 June 2009, hysterectomy adjusted) – counts weighted using ethnicity adjustors to correct for undercounting in NCSP Register

Ethnicity	Hysterectomy adjusted population (ages 20-69 years)	Women screened in the last 3 years (ages 20-69 years; adjusted for ethnicity misclassification)	
		N	%
Māori	163,913	109,542	66.8
Pacific	68,598	46,143	67.3
Asian	129,626	95,404	73.6
European/ Other	828,716	646,676	78.0

Table 27 - Five-year coverage by age (women 20-69 years screened in five years prior to 30 June 2009, hysterectomy adjusted)

Age (years)	Hysterectomy-adjusted population	Women screened in the last 5 years	
		N	%
20-24	138,856	89,185	64.2
25-29	126,643	115,441	91.2
30-34	143,204	120,192	83.9
35-39	156,288	140,714	90.0
40-44	154,324	137,519	89.1
45-49	137,222	135,947	99.1
50-54	109,471	109,784	100.3
55-59	94,032	86,174	91.6
60-64	70,367	69,128	98.2
65-69	60,445	48,819	80.8
TOTAL	**1,190,853**	**1,052,903**	**88.4**

Table 28 – Five-year coverage by DHB – women aged 25-69 years screened in five years prior to 30 June 2009, hysterectomy adjusted

DHB	Hysterectomy adjusted population	Women screened in the the last 5 years	
		N	%
Auckland	121,197	107,054	88.3
Bay of Plenty	49,456	46,928	94.9
Canterbury	119,230	112,856	94.7
Capital & Coast	74,302	71,376	96.1
Counties Manukau	111,484	96,413	86.5
Hawke's Bay	37,275	34,052	91.4
Hutt Valley	35,428	32,724	92.4
Lakes	25,793	22,748	88.2
Mid Central	39,320	34,434	87.6
Nelson Marlborough	34,930	32,146	92.0
Northland	37,252	33,399	89.7
Otago	43,342	41,749	96.3
South Canterbury	13,112	12,114	92.4
Southland	27,498	24,946	90.7
Tairawhiti	10,808	10,051	93.0
Taranaki	25,596	25,512	99.7
Waikato	82,602	77,193	93.5
Wairarapa	9,675	8,775	90.7
Waitemata	130,773	118,666	90.7
West Coast	7,628	6,724	88.1
Whanganui	15,218	13,008	85.5
Unspecified	-	850	-
Total	**1,051,997**	**963,718**	**91.6**

Table 29 - Five-year coverage by ethnicity – women aged 25-69 years screened in five years prior to 30 June 2009, hysterectomy adjusted

Ethnicity	Hysterectomy adjusted population	Women screened in the the last 5 years	
		N	%
Māori	138,653	95,165	68.6
Pacific	58,608	43,867	74.8
Asian	106,289	80,028	75.3
European/ Other	748,447	744,658	99.5
TOTAL	**1,051,997**	**963,718**	**91.6**

Table 30 - Women under 20 years of age, and aged 15-19 years, screened in the three years to 30 June 2009, by DHB

DHB	Number of women screened in last 3 years		% of population aged 15-19 years screened
	aged < 20 years	aged 15-19 years	
Auckland	2,105	2,096	12.9
Bay of Plenty	719	715	9.4
Canterbury	3,300	3,284	18.1
Capital & Coast	1,150	1,145	9.9
Counties Manukau	2,813	2,784	13.5
Hawke's Bay	777	769	12.6
Hutt Valley	535	530	9.0
Lakes	401	399	9.3
Mid Central	562	558	7.4
Nelson Marlborough	515	512	11.0
Northland	570	564	9.0
Otago	1,049	1,042	11.8
South Canterbury	339	333	17.6
Southland	510	509	13.3
Tairawhiti	247	244	12.0
Taranaki	499	496	11.7
Waikato	1,166	1,162	7.7
Wairarapa	177	175	11.9
Waitemata	2,791	2,777	13.8
West Coast	138	138	12.9
Whanganui	183	182	6.8
Unspecified	17	17	-
Total	**20,563**	**20,431**	**12.0**

Table 31 – Women screened under 20 years of age, as a proportion of all women screened in the three years to 30 June 2009, 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	2,105	101,745	2.1
Bay of Plenty	719	45,527	1.6
Canterbury	3,300	110,775	3.0
Capital & Coast	1,150	70,146	1.6
Counties Manukau	2,813	92,862	3.0
Hawke's Bay	777	32,992	2.4
Hutt Valley	535	31,153	1.7
Lakes	401	21,807	1.8
Mid Central	562	33,859	1.7
Nelson Marlborough	515	30,659	1.7
Northland	570	31,722	1.8
Otago	1,049	42,201	2.5
South Canterbury	339	11,864	2.9
Southland	510	24,293	2.1
Tairawhiti	247	9,604	2.6
Taranaki	499	25,083	2.0
Waikato	1,166	75,598	1.5
Wairarapa	177	8,539	2.1
Waitemata	2,791	115,122	2.4
West Coast	138	6,381	2.2
Whanganui	183	12,466	1.5
Unspecified	17	783	2.2
Total	**20,563**	**935,181**	**2.2**

Indicator 2 – First screening events

Table 32 - Age distribution of first screening events for period 1 January to 30 June 2009

Age (years)	Number of first screening events	% of first events which are in that age group
20-24	9,755	40.6
25-29	4,123	17.2
30-34	2,821	11.7
35-39	2,116	8.8
40-44	1,567	6.5
45-49	1,240	5.2
50-54	855	3.6
55-59	643	2.7
60-64	550	2.3
65-69	370	1.5
Total (20-69)	**24,040**	

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

Indicator 3 – Withdrawals

Table 33 - Withdrawal rates by DHB for the period 1 January to 30 June 2009

DHB	Enrolled at start	Women withdrawn	
		N	%*
Auckland	158,143	6	0.004
Bay of Plenty	63,306	-	0.000
Canterbury	152,852	7	0.005
Capital	98,981	6	0.006
Counties Manukau	134,674	2	0.001
Hawke's Bay	46,253	3	0.006
Hutt Valley	46,479	1	0.002
Lakes	32,036	1	0.003
Mid Central	48,258	2	0.004
Nelson Marlborough	41,341	5	0.012
Northland	45,116	2	0.004
Otago	57,434	2	0.003
South Canterbury	15,740	-	0.000
Southland	33,944	1	0.003
Tairawhiti	13,740	1	0.007
Taranaki	32,985	2	0.006
Waikato	105,259	4	0.004
Wairarapa	11,179	-	0.000
Waitemata	158,022	8	0.005
West Coast	8,987	-	0.000
Whanganui	18,270	1	0.005
Unspecified	2,162	2	0.093
Total	**1,325,161**	**56**	**0.004**

** As a percentage of women who were enrolled at the start of the reporting period*

Indicator 4 – Early re-screening

Table 34 - Early re-screening by five-year age group, 1 January to 30 June 2009 (cohort method)

Age	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
20-24	1,172	396	33.8
25-29	3,556	1,098	30.9
30-34	4,092	1,250	30.5
35-39	5,247	1,578	30.1
40-44	5,649	1,681	29.8
45-49	6,019	1,792	29.8
50-54	5,111	1,503	29.4
55-59	4,181	1,137	27.2
60-64	3,348	808	24.1
65-69	2,259	459	20.3
TOTAL	**40,634**	**11,702**	**28.8**

Table 35 - Early re-screening by DHB, 1 January to 30 June 2009 (cohort method)

DHB	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Auckland	4,270	1,675	39.2
Bay of Plenty	2,038	683	33.5
Canterbury	4,821	1,228	25.5
Capital & Coast	3,172	937	29.5
Counties Manukau	3,712	1,153	31.1
Hawke's Bay	1,370	351	25.6
Hutt Valley	1,305	317	24.3
Lakes	1,008	361	35.8
Mid Central	1,353	258	19.1
Nelson Marlborough	1,415	263	18.6
Northland	1,304	385	29.5
Otago	1,805	329	18.2
South Canterbury	556	134	24.1
Southland	1,088	195	17.9
Tairawhiti	447	91	20.4
Taranaki	1,107	159	14.4
Waikato	3,311	664	20.1
Wairarapa	425	143	33.6
Waitemata	5,297	2,202	41.6
West Coast	259	52	20.1
Whanganui	535	106	19.8
Unspecified	*36*	*16*	*44.4*
Total	**40,634**	**11,702**	**28.8**

Table 36 - Early re-screening by ethnicity, 1 January to 30 June 2009 (cohort method)

Ethnicity	Women recommended to return in 3 yrs	Women with >= 1 subsequent test	
		N	%
Māori	3,500	988	28.2
Pacific	1,298	343	26.4
Asian	3,116	1,128	36.2
European/ Other	32,720	9,243	28.2
Total	**40,634**	**11,702**	**28.8**

Indicator 5 – Laboratory indicators

Indicator 5.2 – Accuracy of cytology predicting HSIL

Table 37 - Positive predictive value of a report of HSIL+SC cytology by laboratory, 1 January to 30 June 2009

Laboratory	Histology available		HSIL confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	62	82.7	45	72.6	13	17.3	75
Auckland LabPLUS	187	90.3	160	85.6	20	9.7	207
Canterbury Health Laboratories	181	92.3	155	85.6	15	7.7	196
Diagnostic Medlab Ltd	238	90.8	200	84.0	24	9.2	262
Medlab Central Ltd	96	85.7	82	85.4	16	14.3	112
Medlab South Christchurch	50	92.6	44	88.0	4	7.4	54
Pathlab	171	94.0	135	78.9	11	6.0	182
Southern Community Labs Ch-Ch	65	94.2	48	73.8	4	5.8	69
Southern Community Labs Dunedin	350	87.3	282	80.6	51	12.7	401
Total	**1,400**	**89.9**	**1,151**	**82.2**	**158**	**10.1**	**1,558**

Target: 65% - 85%

Table 38 - Positive predictive value of a report of ASC-H cytology by laboratory, 1 January to 30 June 2009

Laboratory	Histology available		ASC-H confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	65	74.7	35	53.8	22	25.3	87
Auckland LabPLUS	204	81.3	102	50.0	47	18.7	251
Canterbury Health Laboratories	137	75.7	65	47.4	44	24.3	181
Diagnostic Medlab Ltd	338	81.1	139	41.1	79	18.9	417
Medlab Central Ltd	105	71.4	58	55.2	42	28.6	147
Medlab South Christchurch	76	87.4	45	59.2	11	12.6	87
Pathlab	135	75.0	55	40.7	45	25.0	180
Southern Community Labs Ch-Ch	20	71.4	11	55.0	8	28.6	28
Southern Community Labs Dunedin	77	74.8	35	45.5	26	25.2	103
Total	**1,157**	**78.1**	**545**	**47.1**	**324**	**21.9**	**1,481**

Table 39 - Positive predictive value of a report of ASC-H + HSIL + SC cytology by laboratory, 1 January to 30 June 2009

Laboratory	Histology available		Abnormality confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	127	78.4	80	63.0	35	21.6	162
Auckland LabPLUS	391	85.4	262	67.0	67	14.6	458
Canterbury Health Laboratories	318	84.4	220	69.2	59	15.6	377
Diagnostic Medlab Ltd	576	84.8	339	58.9	103	15.2	679
Medlab Central Ltd	201	77.6	140	69.7	58	22.4	259
Medlab South Christchurch	126	89.4	89	70.6	15	10.6	141
Pathlab	306	84.5	190	62.1	56	15.5	362
Southern Community Labs Ch-Ch	85	87.6	59	69.4	12	12.4	97
Southern Community Labs Dunedin	427	84.7	317	74.2	77	15.3	504
Total	**2,557**	**84.1**	**1,696**	**66.3**	**482**	**15.9**	**3,039**

Table 40 - Positive predictive value of a report of glandular abnormalities (AG1-AG5, AC1-AC4) by laboratory, 1 January to 30 June 2009

Laboratory	Histology available		Abnormality confirmed by histology		No histology		Total reports
	N	%	N	%	N	%	N
Aotea Pathology Ltd	12	66.7	4	33.3	6	33.3	18
Auckland LabPLUS	34	58.6	17	50.0	24	41.4	58
Canterbury Health Laboratories	18	62.1	11	61.1	11	37.9	29
Diagnostic Medlab Ltd	54	77.1	19	35.2	16	22.9	70
Pathlab	36	75.0	9	25.0	12	25.0	48
Medlab Central Ltd	9	50.0	1	11.1	9	50.0	18
Medlab South Christchurch	6	54.5	4	66.7	5	45.5	11
Southern Community Labs Ch-Ch	1	33.3	1	100.0	2	66.7	3
Southern Community Labs Dunedin	24	70.6	11	45.8	10	29.4	34
Total	**194**	**67.1**	**77**	**39.7**	**95**	**32.9**	**289**

Indicator 5.5 – Laboratory turnaround time

Table 41 - Timeliness of cytology reporting by laboratory, 1 January to 30 June 2009

Laboratory	Laboratory turnaround time - cytology								
	Within 7 days		8-15 days		Total within 15 days		More than 15 days		Total
	N	%	N	%	N	%	N	%	N
Aotea Pathology Ltd	16,614	70.2	7,047	29.8	23,661	100.0	5	0.0	23,666
Auckland LabPLUS	9,659	82.1	1,901	16.2	11,560	98.3	201	1.7	11,761
Canterbury Health Laboratories	8,944	50.4	8,575	48.3	17,519	98.7	229	1.3	17,748
Diagnostic Medlab Ltd	74,185	99.5	307	0.4	74,492	99.9	91	0.1	74,583
Medlab Central Ltd	15,258	98.1	289	1.9	15,547	100.0	-	0.0	15,547
Medlab South Christchurch	13,490	100.0	-	0.0	13,490	100.0	-	0.0	13,490
Pathlab	18,180	96.6	640	3.4	18,820	100.0	1	0.0	18,821
Southern Community Labs Ch-Ch	9,253	73.9	3,249	26.0	12,502	99.9	17	0.1	12,519
Southern Community Labs Dunedin	28,082	81.6	6,267	18.2	34,349	99.8	69	0.2	34,418
Total	**193,665**	**87.0**	**28,275**	**12.7**	**221,940**	**99.7**	**613**	**0.3**	**222,553**

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

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

Table 42 - Timeliness of histology reporting by laboratory, 1 January to 30 June 2009

Laboratory	Laboratory turnaround time - histology								
	Within 5 days		6-15 days		Total within 15 days		More than 15 days		Total
	N	%	N	%	N	%	N	%	N
Aotea Pathology Ltd	336	78.9	87	20.4	423	99.3	3	0.7	426
Auckland LabPLUS	290	41.5	355	50.8	645	92.3	54	7.7	699
Canterbury Health Laboratories	960	70.8	383	28.2	1,343	99.0	13	1.0	1,356
Diagnostic Medlab Ltd	1,875	92.5	128	6.3	2,003	98.9	23	1.1	2,026
Hutt Hospital Laboratory	197	73.8	69	25.8	266	99.6	1	0.4	267
Medlab Central Ltd	1,142	98.5	17	1.5	1,159	100.0	-	0.0	1,159
Medlab South Christchurch	84	100.0	-	0.0	84	100.0	-	0.0	84
Medlab Timaru	178	100.0	-	0.0	178	100.0	-	0.0	178
Memorial Hospital Hastings Lab	95	91.3	9	8.7	104	100.0	-	0.0	104
Middlemore Hospital Laboratory	666	91.4	62	8.5	728	99.9	1	0.1	729
Nelson Hospital Laboratory	426	82.4	77	14.9	503	97.3	14	2.7	517
North Shore Hospital Laboratory	940	91.6	82	8.0	1,022	99.6	4	0.4	1,026
Northland Pathology Laboratory	376	90.0	38	9.1	414	99.0	4	1.0	418
Pathlab	1,305	84.2	242	15.6	1,547	99.9	2	0.1	1,549
Southern Community Labs Ch-Ch	512	93.8	7	1.3	519	95.1	27	4.9	546
Southern Community Labs Dunedin	1,385	88.6	168	10.7	1,553	99.3	11	0.7	1,564
Southland Hospital Laboratory	102	76.7	28	21.1	130	97.7	3	2.3	133
Taranaki Medlab	224	95.3	11	4.7	235	100.0	-	0.0	235
Waikato Hospital Laboratory	116	64.8	57	31.8	173	96.6	6	3.4	179
Wellington Hospital Laboratory	247	58.0	145	34.0	392	92.0	34	8.0	426
Total	**11,456**	**84.1**	**1,965**	**14.4**	**13,421**	**98.5**	**200**	**1.5**	**13,621**

Target: 90% within five working days and 100% within a reasonable time period of receipt of the sample
Note: total histology samples reported on for this Indicator is different from that reported in Indicator 5.4 (Histology Reporting), as Indicator 5.5 includes all histology received by laboratories *within the reporting period, while 5.4 includes all histology* taken *within the reporting period*

Indicator 6 – Follow up of women with high grade cytology

Table 43 - Women (ages 20-69 years) 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	255	185	72.5	209	82.0
Bay of Plenty	166	141	84.9	151	91.0
Canterbury	264	218	82.6	238	90.2
Capital & Coast	103	69	67.0	82	79.6
Counties Manukau	199	134	67.3	157	78.9
Hawke's Bay	118	88	74.6	100	84.7
Hutt Valley	48	39	81.3	39	81.3
Lakes	90	61	67.8	69	76.7
Mid Central	84	63	75.0	71	84.5
Nelson Marlborough	79	57	72.2	64	81.0
Northland	97	67	69.1	73	75.3
Otago	145	116	80.0	129	89.0
South Canterbury	33	21	63.6	24	72.7
Southland	81	39	48.1	49	60.5
Tairawhiti	31	21	67.7	24	77.4
Taranaki	75	56	74.7	64	85.3
Waikato	273	204	74.7	231	84.6
Wairarapa	25	19	76.0	20	80.0
Waitemata	235	202	86.0	215	91.5
West Coast	14	11	78.6	13	92.9
Whanganui	37	27	73.0	30	81.1
Total	**2,452**	**1,838**	**75.0**	**2,052**	**83.7**

Table 44 - Women (ages 20-69 years) with a histology report within 90 and 180 days of a high grade cytology report, by age

Age (years)	Follow-up histology within 90 days		Follow-up histology within 180 days	
	N	%	N	%
20-24	395	73.4	445	82.7
25-29	382	77.8	424	86.4
30-34	273	77.8	299	85.2
35-39	243	77.9	271	86.9
40-44	183	79.9	198	86.5
45-49	143	72.6	160	81.2
50-54	96	67.1	110	76.9
55-59	55	62.5	64	72.7
60-64	36	64.3	43	76.8
65-69	32	68.1	38	80.9
Total	**1,838**	**75.0**	**2,052**	**83.7**

Table 45 - Women (ages 20-69 years) without any follow-up test report within 180 days and within 360 days of a high grade cytology report, by DHB

DHB	High-grade cytology	Without a follow-up test by 180 days		Without a follow-up test by 360 days	
	N	N	%	N	%
Auckland	255	18	7.1	9	3.5
Bay of Plenty	166	6	3.6	3	1.8
Canterbury	264	12	4.5	8	3.0
Capital & Coast	103	9	8.7	3	2.9
Counties Manukau	199	21	10.6	13	6.5
Hawke's Bay	118	16	13.6	3	2.5
Hutt Valley	48	4	8.3	2	4.2
Lakes	90	7	7.8	4	4.4
Mid Central	84	2	2.4	0	0.0
Nelson Marlborough	79	7	8.9	5	6.3
Northland	97	5	5.2	1	1.0
Otago	145	7	4.8	3	2.1
South Canterbury	33	5	15.2	2	6.1
Southland	81	9	11.1	3	3.7
Tairawhiti	31	2	6.5	1	3.2
Taranaki	75	4	5.3	2	2.7
Waikato	273	12	4.4	9	3.3
Wairarapa	25	1	4.0	0	0.0
Waitemata	235	12	5.1	4	1.7
West Coast	14	1	7.1	0	0.0
Whanganui	37	1	2.7	0	0.0
Total	**2,452**	**161**	**6.6**	**75**	**3.1**

Table 46 - Women (ages 20-69 years) without any follow-up test report within 180 days and within 360 days of a high grade cytology report , by ethnicity

Ethnicity	High-grade cytology	Without a follow-up test by 180 days		Without a follow-up test by 360 days	
	N	N	%	N	%
Māori	410	43	10.5	22	5.4
Pacific	89	12	13.5	8	9.0
Asian	146	13	8.9	8	5.5
European/ Other	1,807	93	5.1	37	2.0
Total	**2,452**	**161**	**6.6**	**75**	**3.1**

Appendix B – Bethesda 2001 New Zealand Modified (2005)

TBS code	Descriptor
Specimen type	
CPS	Conventional pap smear
LBC	Liquid based cytology
COM	Combined (conventional and liquid based)
Specimen site	
T	Vault
R	Cervical
V	Vaginal
Adequacy	
S1	The specimen is satisfactory for evaluation (optional free text)
S2	The specimen is satisfactory for evaluation (optional free text). No endocervical/transformation zone component present
UA	The specimen is unsatisfactory for evaluation because of insufficient squamous cells
UB	The specimen is unsatisfactory for evaluation because of poor fixation/preservation
UC	The specimen is unsatisfactory for evaluation because foreign material obscures the cells
UD	The specimen is unsatisfactory for evaluation because inflammation obscures the cells
UE	The specimen is unsatisfactory for evaluation because blood obscures the cells
UF	The specimen is unsatisfactory for evaluation because of cytolysis/autolysis
UG	The specimen is unsatisfactory for evaluation because … (free text)
General	
G1	Negative for intraepithelial lesion or malignancy
G2	Epithelial cell abnormality: See interpretation/result
G3	Other: See interpretation/result
Interpretation	
O1	There are organisms consistent with Trichomonas vaginalis
O2	There are fungal organisms morphologically consistent with Candida species
O3	There is a shift in microbiological flora suggestive of bacterial vaginosis
O4	There are bacteria morphologically consistent with Actinomyces species
O5	There are cellular changes consistent with Herpes simplex virus
OT1	There are reactive cellular changes present (optional free text)
OT2	There are endometrial cells present in a woman over the age of 40 years
OT3	There are atrophic cellular changes present
ASL	There are atypical squamous cells of undetermined significance (ASC-US) present
ASH	There are atypical squamous cells present. A high grade squamous intraepithelial lesion cannot be excluded (ASC-H)
LS	There are abnormal squamous cells consistent with a low grade squamous intraepithelial lesion (LSIL; CIN1/HPV)
HS1	There are abnormal squamous cells consistent with a high grade squamous intraepithelial lesion (HSIL). The features are consistent with CINII or CINIII
HS2	There are abnormal squamous cells consistent with a high grade squamous intraepithelial lesion (HSIL) with features suspicious for invasion
SC	There are abnormal squamous cells showing changes consistent with squamous cell carcinoma
AG1	There are atypical endocervical cells present

TBS code	Descriptor
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 at the usual screening interval
R2	Please repeat the smear within 3 months
R3	Please repeat the smear within 3 months of the end of pregnancy
R4	Please repeat the smear in 3 months
R5	Please repeat the smear in 6 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	Further assessment is recommended
R12	Please repeat the smear shortly after a course of oestrogen treatment
R13	Under specialist care
R14	In view of the abnormal clinical history provided, urgent referral for assessment is recommended regardless of cytological findings

Appendix C – SNOMED categories for histological samples

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

Appendix D – Indicator Definitions Targets and Reporting Details

Positive predictive value calculations

Table 47 – 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)
PPV%(glandular)=sum(b) / (sum(a)+sum(b))

Appendix E – Glossary

Term	Definition
AGC	Atypical glandular cells
AIS	Adenocarcinoma in situ. High-grade changes to the glandular (endocervical) cells of the cervix
ASC-H	Atypical squamous cells of undetermined significance, cannot exclude high grade
ASC-US	Atypical squamous cells of undetermined significance
ASR	Age standardised rate
CI	Confidence interval
CIN	Cervical intra-epithelial neoplasia; CINI: low grade; CIN2 or 3: high grade
CIS	Carcinoma in situ. An older classification of CIN3. Abnormal cells that are confined to the surface epithelium of the cervix.
CPS	Conventional Pap (Papanicolaou) Smear
DHB	District Health Board
European/ Other	European women and women from non-Māori and non-Pacific ethnic groups
HPV	Human papillomavirus
HSIL	High grade squamous intra-epithelial lesion
ISC	Invasive squamous carcinoma
LBC	Liquid based cytology
LSIL	Low grade squamous intra-epithelial lesion
NCSP	National Cervical Screening Programme
NILM	Negative for intraepithelial lesion or malignancy (a negative cytology report)
NSU	National Screening Unit of the Ministry of Health
NPV	Negative predictive value. The proportion of the screened population with negative test results who do not have the disease being tested for.
OR	Odds ratio
PCR	Polymerase chain reaction. A technique in molecular genetics used in many types of HPV testing
PPV	Positive predictive value. The proportion of the screened population with positive test results who have the disease being tested for.
RR	Relative risk
SC	Squamous cell carcinoma (TBS 2001)
SCC	Squamous cell carcinoma
SNOMED	Systematised Nomenclature of Medicine. A systematically organised collection of medical terminology including histopathological diagnoses.
TBS 2001 (New Zealand Modified)	The Bethesda System 2001 NZ Modified (2005). 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