Annual Monitoring Report 2006

National Cervical Screening Programme

Centre for Public Health Research
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Wellington

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Technical terms are used throughout this report, and an understanding of these terms may be necessary in order to interpret some parts of the report.

Contents

List of tables

List of figures

1. Executive summary

This report provides data on performance indicators of the National Cervical Screening Programme (NCSP) for the period 1 January 2006 to 31 December 2006. The definitions and target(s) for the indicators are included in the section relating to that indicator. The report does not include all of the national indicators. The definitions and targets for the indicators that are not included are listed in Appendix 1.

Cervical cancer incidence and mortality

In 2005 (the most recent year for which data were available) the age-standardised rate of cervical cancer incidence was 7.4 per 100,000 women of all ethnicities. This met the target of 8.6 or less per 100,000 women for the total population. In Māori women, the age-standardised cervical cancer incidence rate was 8.1 per 100,000 women. This met the target of 11.0 or less per 100,000 Māori women.

In 2005 (the most recent year for which data were available) the age-standardised rate of cervical cancer mortality was 2.6 per 100,000 women of all ethnicities. This did not meet the target of 2.5 or less per 100,000 women for the total population. In Māori women, the age-standardised cervical cancer mortality rate was 5.8 per 100,000 women. This met the target of 6.0 or less per 100,000 Māori women.

It is not acceptable to have separate targets for Māori women since this serves to maintain rather than to reduce the current disparities in cervical cancer. The new targets set by the National Screening Unit (NSU) of the Ministry of Health (for 2006 to 2010) have the same targets for all ethnic groups.

Enrolment

The overall crude enrolment rate was 94.2%. In non-Māori, non-Pacific women 97.7% were enrolled on the NCSP Register. Lower enrolment percentages were clearly evident in Māori (77.7%) and Pacific (81.9%) women.

Participation

The overall unadjusted participation rate was 78.4%. The hysterectomy-adjusted rate was 85.6%. For the total population, neither the unadjusted nor the hysterectomy-

adjusted rates met the targets of 85% unadjusted and 90% hysterectomy-adjusted.

There were large ethnic inequalities in the unadjusted participation rates, with Māori (60.5%) and Pacific (59.3%) women having approximately 20% lower participation rates than non-Māori, non-Pacific women (82.6%). The unadjusted participation rate target of 85% was only met in all women in two NCSP Regions, and in non-Māori, non-Pacific women in four Regions.

Hysterectomy-adjusted participation rates showed similar disparities; Māori women 62.4%, Pacific women 60.4%, and non-Māori, non-Pacific women 91.4%. The target of 90% for hysterectomy-adjusted participation rates was met in non-Māori, non-Pacific women as a whole and in eight NCSP Regions, in three Regions for all women, and in no Regions for Māori and Pacific women.

Coverage

The overall unadjusted coverage rate was 63.5%. The hysterectomy-adjusted (numerator and denominator) coverage rate was 69.8%. For the total population, the new hysterectomy-adjusted target of 75% was not met.

The unadjusted coverage rates demonstrated large ethnic inequalities with Māori (45.0%) and Pacific (43.1%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (67.8%).

Hysterectomy-adjusted (numerator and denominator) coverage rates showed similar disparities; Māori women 46.6%, Pacific women 43.9%, and non-Māori, non-Pacific women 75.7%. The target of 75% for hysterectomy-adjusted coverage rates was met in the non-Māori, non-Pacific women subgroup as a whole and in non-Māori, non-Pacific women in eight NCSP Regions. The target was also met for the total population in one Region.

Follow-up of women with high grade cytology

The overall proportion of 20 to 69 year old women with a high grade cytology result who had a histology specimen taken within 12 weeks of their smear was 75.1%. The proportion who had a histology specimen taken within 52 weeks of their smear was

90.7%. The targets of 90% of women with a histology report within 12 weeks of a high grade cytology result, and 99% within 52 weeks of a high grade smear were not met.

The timeliness of having a histological specimen taken following a high grade smear differed by ethnicity. Compared to non-Māori, non-Pacific women (77.6%), Māori (65.2%) and Pacific (57.5%) women were less likely to have had a histological specimen taken within 12 weeks. Māori (86.8%) and Pacific (86.1%) women were also less likely than non-Māori, non-Pacific women (91.5%) to have had a histological specimen taken within 52 weeks. Similarly, Māori (10.3%) and Pacific (8.8%) women were more likely than non-Māori, non-Pacific women (7.1%) to not have had a histology report following a high grade cytology result.

Cytology reporting

The age-standardised reporting rate for 20 to 69 year old women with a smear reported as negative for dysplasia or malignancy was 928.9 per 1,000 women screened. The most frequently reported cytological abnormalities were atypical squamous cells of undetermined significance (ASC-US; 22.3 per 1,000 women) and low grade squamous intra-epithelial lesions (LSIL; 32.3 per 1,000 women). The age-standardised atypical squamous cells of undetermined significance, cannot exclude high grade (ASC-H) cytology rate for 20 to 69 year old women was 7.1 per 1,000 women, and the age-standardised high grade squamous intra-epithelial lesion (HSIL) rate for 20 to 69 year old women was 7.8 per 1,000 women. The age-standardised reporting rate for invasive squamous carcinoma of the cervix (ISCC), for 20 to 69 year old women, was 0.1 per 1,000 women.

There were lower rates of ASC-US cytology reporting in non-Māori, non-Pacific women (21.8 per 1,000 women screened) compared with Māori and Pacific women (24.0 and 29.3 per 1,000 women, respectively). Pacific women had lower rates of LSIL cytology (31.2 per 1,000 women screened) than non-Māori, non-Pacific women and Māori women (31.8 and 37.0 per 1,000 women, respectively). Māori women (12.3 per 1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori, non-Pacific women and Pacific women (7.3 and 6.1 per 1,000 women, respectively). ISCC cytology reporting rates were highest amongst Pacific women (0.3 per 1,000

women) compared with non-Māori, non-Pacific women and Māori women (0.1 and 0.2 per 1,000 women, respectively).

Histology reporting

In the total population, 43.6% of the histology specimens were classified as "normal" or "other non-neoplastic", but this proportion was lower for Māori (35.5%) and Pacific (38.8%) women. Proportions of both LSIL and HSIL were higher in Māori (16.9% and 24.9%, respectively) compared to Pacific women (16.4% and 17.6%, respectively) and non-Māori, non-Pacific women (14.5% and 17.3%, respectively).

A total of 94 women (20 Māori, 7 Pacific, 67 non-Māori, non-Pacific) were diagnosed with ISCC, and 89 women (11 Māori, 4 Pacific, 74 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix.

Age-standardised rates of LSIL and HSIL for Māori (19.7 and 28.7 per 10,000 women, respectively) and Pacific women (13.0 and 13.4 per 10,000 women, respectively) were lower than those for non-Māori, non-Pacific women (29.3 and 35.6 per 10,000 women, respectively). However, the rates of these abnormalities in Māori and Pacific women compared to non-Māori, non-Pacific women should be interpreted with caution because of the lower coverage of cervical screening among Māori and Pacific women.

Laboratory smear reporting

Ten laboratories reported cervical cytology in 2006. Overall, 7.6% of smears were reported as abnormal, which was within the target of not more than 10%. Two laboratories reported abnormalities outside this target, with the highest reporting abnormalities in 19.7% of smears read. The overall proportion of smears reported as negative for dysplasia or malignancy was 92.4%, and all of the laboratories met the target of not more than 96%. The overall proportion of smears reported as HSIL was 0.8%, which met the target of not less than 0.6%. Three laboratories reported outside this target, two reporting 0.5% and one reporting 0.4% of the smears that they read as HSIL.

Laboratory cytology turn around time

Five of the 10 laboratories reporting cervical cytology met the seven-day cytology turn

around time target of 90%. Only two laboratories met the 14-day turn around time target of 100%. Three of the remaining eight laboratories reported over 99% of the smears that they read within 14 days. The laboratory with the lowest reported proportion of smears read within 14 days had read only 80.3% of their smears in that time.

There were differences in cytology turn around times between ethnic groups. The proportion of Māori women (86.3%) that had smears reported within seven working days was less than those of Pacific (92.3%) and non-Māori, non-Pacific women (88.2%). The large number of women meant that these differences were statistically significant ($P<0.001$) and that they were therefore unlikely to have occurred by chance. The proportion of women that had smears reported within 14 working days was also lower in Māori women (98.2%) than in Pacific (98.8%) and non-Māori, non-Pacific women (98.7%). The large number of women involved meant that these differences were also statistically significant ($P<0.001$) and that they were therefore unlikely to have occurred by chance.

Laboratory histology turn around time

Twenty-seven laboratories reported cervical histology. Seven laboratories did not meet the five-day histology turn around time target of 90%. Eight laboratories reported 100% of histology results within 10 working days.

There were differences in histology turn around times between ethnic groups. The proportion of Pacific women (88.4%) that had histology reported within five working days was less than that of Māori (89.2%) and non-Māori, non-Pacific women (91.6%). The large number of women meant that these differences were statistically significant ($P<0.001$) and that they were therefore unlikely to have occurred by chance. The proportions of Pacific (2.9%) and Māori women (2.9%) who had histology reported after 11 working days were higher than that of non-Māori, non-Pacific women (2.0%). The large number of women meant that these differences were also statistically significant ($P<0.001$) and that they were therefore unlikely to have occurred by chance.

Unsatisfactory smears by laboratory

Overall, 4.6% of smears were reported as unsatisfactory for evaluation. This exceeded the previous target of not less than 0.5% and not more than 2.0%. Only three of the

laboratories met the target. However, it should be noted that the NCSP adopted the 2001 revision of the Bethesda Coding System in July 2005, and as a result of this the numbers of smears that were categorised as satisfactory or unsatisfactory for evaluation were different to previous years. The targets for this indicator are currently under review because of these changes.

Unsatisfactory smears by smear taker

Of the smears taken during the year, less than 1% were taken by lay smear takers, 58% by medical smear takers, 34% by nurses, 8% by specialists and less than 1% by midwives.

The proportion of unsatisfactory smears exceeded the previous target range of 0.5 to 2.0% for each smear taker group as a whole except for lay smear takers (1.0%). It should be noted, however, that as a result of the adoption (in July 2005) of the 2001 revision of the Bethesda Coding System, the targets for this indicator are currently under review. When smear taker groups were considered by annual volume, the proportion of unsatisfactory smears was less than 2.0% for lay smear takers who took less than 30 smears (0.0%) and those who took 30 to 100 smears (1.1%), and for midwives with an annual volume of more than 100 smears (1.4%).

Colposcopic assessment

The colposcopic service indicators were unable to be calculated because the data required were not available. Nevertheless, the number of women with HSIL or ASC-H cytology results who were referred to District Health Board (DHB) colposcopy clinics, and the number of women with HSIL or ASC-H cytology results who were waiting longer than four weeks for colposcopic assessment at the end of each month, reported by DHB colposcopy services were provided by the NSU. Similarly the number of women with low grade cytology results who were referred to DHB colposcopy clinics, and the number of women who were waiting longer than 26 weeks for colposcopic assessment at the end of each month, reported by DHB colposcopy services were provided by the NSU.

One DHB colposcopy reporting unit did not provide data for all of this reporting year. For any colposcopy reporting unit, the highest reported number of women with a high

grade cytology abnormality waiting longer than four weeks at the end of a reporting quarter for their first colposcopic assessment was 125. For any colposcopy reporting unit, the highest reported number of women with a low grade cytology abnormality waiting longer than 26 weeks at the end of a reporting quarter was 349.

Positive predictive value for women with a high grade smear

During the period 1 July 2005 to 30 June 2006, 91.2% of women who had had HSIL or ISCC cytology reports had a subsequent histology result recorded on the NCSP Register. Of these, 78.1% were confirmed as having a HSIL or more serious abnormality on histology (the positive predictive value (PPV)). This PPV is within the target range of 65 to 85%. Two laboratories reported a PPV outside the target range of 65 to 85%. Both of these laboratories reported a PPV above the target range (90.4% and 88.3%).

During the period 1 July 2005 to 30 June 2006, 79.2% of women who had had an ASC-H cytology report had a subsequent histology result recorded on the NCSP Register. Of these, 46.3% were confirmed as having a HSIL or more serious abnormality on histology.

Short interval re-screening

The overall proportion of short interval re-screening was 11.0%, which is outside the target of not more than 10%. Women aged 60 to 69 years were least likely to be re-screened with a short interval. There was variation by ethnic group, with non-Māori, non-Pacific (11.1%) and Māori (10.7%) women having higher proportions of short interval re-screening than Pacific (10.4%) women. The target of not more than 10% was not met in any ethnic group.

2. Background

The National Cervical Screening Programme (NCSP) was established in 1990. The aim of the NCSP is to reduce the incidence and mortality rates of cervical cancer amongst women in New Zealand by the detection and treatment of precancerous squamous cell changes.

The NCSP is co-ordinated by the National Screening Unit (NSU) of the Ministry of Health, and involves women, smear takers, cytology laboratories, histology laboratories, colposcopists, health promoters and regional NCSP offices. The NCSP Register records the cervical cytology and histology results for women who have ever been enrolled in the Programme, unless they have formally withdrawn from the Programme. Information on the Register is used to help to ensure that the enrolled women receive smears at the recommended intervals and that they are referred for assessment and treatment when necessary. Aggregate information is also used to monitor the performance of the overall NCSP against national indicators and targets.

The NSU, through a committee of experts and a consultation process, established national indicators for the NCSP in 2000. Where it was considered appropriate and feasible, the NSU set targets for some indicators. For other indicators, changes over time are assessed. Some indicators, targets, and reporting frequencies have been updated due to further information obtained through the monitoring process.

In 2005 the Centre for Public Health Research (CPHR), Massey University was appointed through an open tender process to carry out independent quantitative monitoring of the NCSP. The raw data from which the indicators (with the exception of the colposcopy indicators) included in these reports are calculated were provided to the CPHR by the NSU, in the form of an anonymised extract from the NCSP Register. The data extract was taken six weeks after the end of the period to which this report relates. The colposcopy data were provided by the NSU and reformatted by the CPHR.

This report does not include all of the national indicators. Those not included are: delayed re-screening, stage of invasive cancer, interval cancer, programme sensitivity, opt-off rate, accuracy of negative cytology reports, residual high grade disease after

treatment, waiting time for colposcopic assessment for high grade squamous intra-epithelial lesions (HSIL) or atypical squamous cells of undetermined significance, cannot exclude high grade (ASC-H), and waiting time for colposcopic assessment for low grade squamous intra-epithelial lesions (LSIL) or atypical squamous cells of undetermined significance (ASC-US). The definitions and targets for these indicators are listed in Appendix 1. The number of women with HSIL, ASC-H, LSIL or ASC-US cytology results who were referred to District Health Board (DHB) colposcopy clinics and those that waited more than the recommended time are recorded in this report.

3. Abbreviations

The following abbreviations are used in this report:

AIS:	Adenocarcinoma-in-situ
AGUS:	Atypical glandular cells of undetermined significance
ASC-H:	Atypical squamous cells of undetermined significance, cannot exclude high grade
ASC-US:	Atypical squamous cells of undetermined significance
CIN:	Cervical intra-epithelial neoplasia; I: low grade; II, III: high grade
CPHR:	Centre for Public Health Research, Massey University
DHB:	District Health Board
FIGO:	International Federation of Gynecology and Obstetrics
HPV:	Human papilloma virus
HSIL:	High grade squamous intra-epithelial lesion
ICD:	International Classification of Diseases
LSIL:	Low grade squamous intra-epithelial lesion
NCSP:	National Cervical Screening Programme
NOS:	Not otherwise specified
NSU:	National Screening Unit
NZHIS:	New Zealand Health Information Service
PPV:	Positive predictive value
ISCC:	Invasive squamous carcinoma of the cervix
SCL:	Southern Community Laboratories
SNOMED:	Systematised Nomenclature of Medicine

4. Methods

The NSU of the Ministry of Health, through a committee of experts and a consultation process, established national indicators for the NCSP in 2000. Where it was considered appropriate and feasible, the NSU set targets for the indicators. The results for these indicators are discussed in relation to the targets.

To calculate the indicators for this report anonymised data, provided by the NSU, of women enrolled on the NCSP Register were used. This report includes results for Māori, Pacific, Asian, and non-Māori, non-Pacific, non-Asian women. Both the National Kaitiaki Group and the Pacific Women's Data Advisory Group approved the use of data for enrolled women recorded as identifying with Māori and Pacific ethnicity, respectively, on the NCSP Register. For the purposes of the monitoring reports, women recorded on the NCSP Register as not being Māori or Pacific were grouped together as the non-Māori, non-Pacific group. This group includes women whose ethnic group was unknown, estimated as 7% of the total number of women on the NCSP Register. Therefore, Māori disparities shown in these monitoring reports are likely to be underestimated due to the underestimation of the number of Māori women on the NCSP Register.

Following consultation with the National Kaitiaki Group and the Pacific Women's Data Advisory Group, findings involving fewer than 10 women, when data is broken down by age group or Region for Māori or Pacific women's data, will not be published in independent monitoring Reports to avoid the possibility of these women being identifiable.

Unless otherwise stated, a woman's age at the end of the reporting period was used when calculating the indicators. The registration status and demographic details of each woman at the time of the data download were used for all calculations. Women were assigned to both a NCSP Region and a DHB area by the NCSP Register. Each woman was allocated to the NCSP Region and DHB area in which they lived, with two exceptions. Women whose address was unknown were allocated to the NCSP Region according to their last known smear taker, or according to the NCSP regional service office if the smear taker has indicated that the woman is no longer a patient there.

Women who usually had their smears in a NCSP Region other than the one where they lived were allocated to the NCSP Region where they usually had their smears. For women in either of these situations, if the NCSP Region to which they were allocated had boundaries identical to a DHB area, then they were allocated to that DHB, otherwise the DHB area in which they lived was recorded as unspecified.

Age-specific rates in this report were age-standardised to Segi's world population. Segi's population is based on the average age distribution of the world's population and is therefore not a New Zealand specific population. It is used to enable comparisons between countries that may have different age structures, such as Australia and New Zealand.

Difficulties with enrolment, participation and coverage calculations

There were several problems encountered when estimating the enrolment, participation and coverage indicators. These are summarised below. It is important to note that because of these problems the results are estimations only and exact calculations are not possible because of the limitations in the data available.

Hysterectomy adjustment

For each indicator, consideration needs to be given to the inclusion or exclusion of women who have had a hysterectomy, from the numerator (the number of women taken from the NCSP Register) and the denominator (the number of women taken from the whole population) of the calculation. Their inclusion or exclusion is complicated by the fact that these women may or may not have required further cervical smears, depending on the type of hysterectomy that they received, and that there is insufficient data recorded on the NCSP Register regarding this requirement for ongoing screening. Similarly, population adjustments based on hospital records of the proportion of women who have had a hysterectomy exclude all women who have had a total or a partial hysterectomy.

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-adjusted

population was based on the population in the 2001 Census and projected to 2006. The hysterectomy prevalence was estimated by extracting information about hysterectomy procedures from hospital discharge data. Central estimates of survival and hysterectomy incidence in 5-year age groups and 5-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 (*i.e.* the appropriate proportions were 'removed' from the estimates) 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 2006 were obtained. These population estimates were then used as the denominator in the hysterectomy-adjusted calculations.

It appears that in previous reports, hysterectomy adjustment involved the removal of all women from the denominator (women taken from the whole population) who had had a full or partial hysterectomy, but the numerator (women taken from the NCSP Register) remained unadjusted (no women were removed) for the proportion of women who had had a full or partial hysterectomy. This calculation methodology is not ideal because women should either be excluded from both the numerator and the denominator, or from neither. However, to allow for comparison with previous reports, the calculations of hysterectomy-adjusted participation and coverage rates have been performed using both the old and new methods, and the results have been provided as a range between which the true value is likely to lie. It is important to note that the targets relate to the old method of calculating these indicators. These are always the higher figure in the range.

Hysterectomy prevalence figures for the whole population (the denominator) were not available by Region or DHB, so age- and ethnicity-specific hysterectomy adjustment was applied to the population equally across each Region and DHB.

Overseas women

The NCSP Register contains some information on whether a woman is overseas or not, but does record exactly when a woman went overseas, or when she returned. The NSU are concerned that the "overseas" status of women on the NCSP Register is not reliable. Therefore, a decision was made to include all of the women who have an "overseas" status on the NCSP Register in these calculations (in the numerator), *i.e.* to assume that they are in New Zealand. Since a proportion of these women will actually be overseas, and the denominator (women taken from the whole population) is based on the population actually resident in New Zealand, all estimations here will be over-estimations, but the overestimation is likely to be around 2% or less.

Population estimates

Each of the indicators estimated in this section is a fraction, where the numerator was taken from the NCSP Register and the denominator from a population projection based on the 2001 Census population. Since this denominator was an estimate, there were instances, particularly where data were broken down by Region or age, where the estimate was inaccurate. This can lead to percentages over 100%. The extent to which such errors occurred cannot be estimated.

Other considerations

To fit with the population data provided to the CPHR, the time at which a woman's age was calculated was the midpoint of the current reporting period (*i.e.* 30 June 2006). For other calculations, age was often calculated at the end of the reporting period (*i.e.* 31 December 2006). As long as the numerator and denominator are consistent in any one calculation, this will not make an important difference to the numbers calculated.

The NSU is (at the time of writing) undertaking an international review to reconsider the calculation methods of these indicators. This review will inform decisions regarding possible amendments to the currently used indicator targets.

5. Cervical cancer incidence and mortality

All of the data in this section were provided by the New Zealand Health Information Service (NZHIS).

Cervical cancer incidence

Definition

Cervical cancer incidence is the annual rate of new registrations of invasive cervical cancer (International Classification of Diseases (ICD) 10 code C53) per 100,000 women, age-standardised to Segi's world population.

Targets

The targets for cervical cancer incidence are 8.6 or less per 100,000 women for all women and 11.0 or less per 100,000 women for Māori women by 2005. These targets were set in 2001 by the NSU and the Independent Monitoring Group of that time. It is not acceptable to have separate targets for Māori women since this serves to maintain rather than to reduce the current disparities in cervical cancer. The new targets set by the NSU (for 2006 to 2010) have the same targets for all ethnic groups.

Cervical cancer mortality

Definition

Cervical cancer mortality is the annual rate of deaths due to invasive cervical cancer (ICD10 code C53) per 100,000 women, age-standardised to Segi's world population.

Targets

The targets for cervical cancer mortality are 2.5 or less per 100,000 women for all women and 6.0 or less per 100,000 women for Māori women by 2005.

There are no separate targets for cervical cancer incidence and mortality for Pacific women, as the relatively small size of the Pacific population in New Zealand results in

few cases of invasive cervical cancer in Pacific women each year. However, the new targets set by the NSU for 2006 to 2010 apply to Pacific women as well.

Results

Cervical cancer incidence rates for all women, Māori women, and Pacific women, age-standardised to Segi's world population, for the period 1996 to 2005 (2006 data were not available and 2005 data are provisional) are shown in Figure 1 and Table 1. Cervical cancer incidence rates for Asian women and 'Other' (non-Māori, non-Pacific, non-Asian) women, age-standardised to Segi's world population, for the period 2001 to 2004 (data prior to 2001 were not available and 2005 data are not yet available) are also shown in Table 1.

Overall, between 1996 and 2005 incidence rates showed a decline from 10.0 to 7.4 per 100,000 women of all ethnicities. For Māori women the incidence rate decreased from 19.9 to 8.1 per 100,000 women between 1996 and 2005. For Pacific women the incidence rate decreased from 22.3 to 14.0 per 100,000 women. It should be noted that due to the relatively small numbers of women being diagnosed with cervical cancer in New Zealand these rates are all subject to variation and should be interpreted with caution.

The target for cervical cancer incidence rates in all women of 8.6 or less per 100,000 women was met in 1998 and from 2000 to 2005 (Table 1). The target for incidence rates in Māori women of 11.0 or less per 100,000 women was met from 2003 to 2005 (Table 1).

Cervical cancer mortality rates for all women, Māori women, and Pacific women, age-standardised to Segi's world population, for the period 1996 to 2005 (2006 data were not available and 2005 data are provisional) are shown in Figure 2 and Table 2. Cervical cancer mortality rates for Asian women and 'Other' (non-Māori, non-Pacific, non-Asian) women, age-standardised to Segi's world population, for the period 2001 to 2004 (data prior to 2001 were not available and 2005 data are not yet available) are also shown in Table 2.

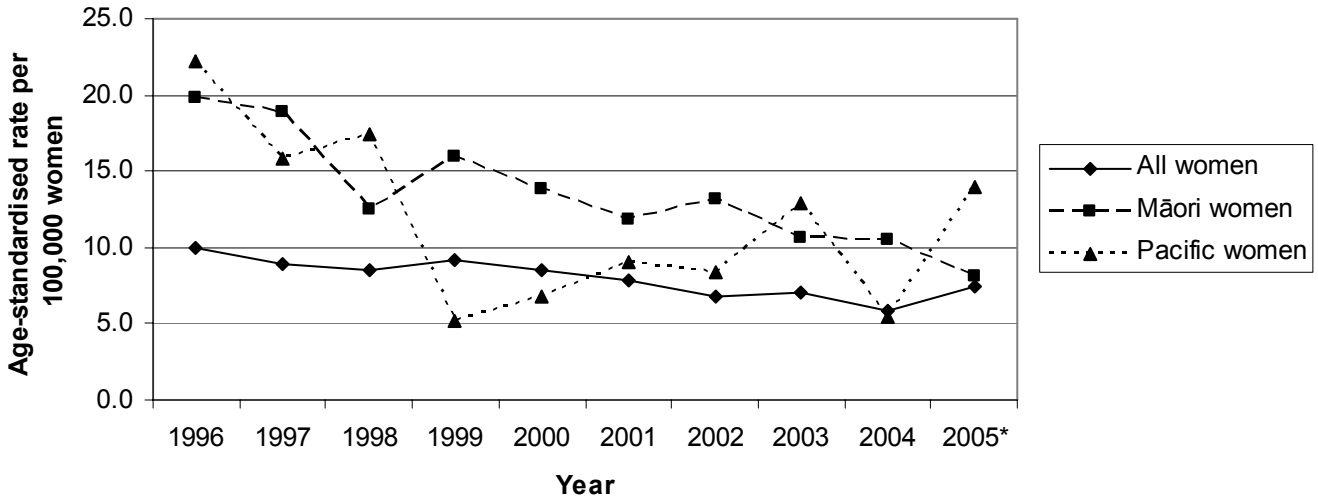
Overall, between 1996 and 2005 mortality rates showed a slight decline from 3.4 to 2.6 per 100,000 women of all ethnicities. For Māori women the mortality rate decreased from 11.8 to 5.8 per 100,000 women between 1996 and 2005. The pattern of cervical cancer mortality rates in Pacific women was less clear since it fluctuated throughout the 10 year period. The mortality rate was 4.1 per 100,000 Pacific women in 1996 and 4.9 per 100,000 Pacific women in 2005. As with incidence rates, it should be noted that due to the relatively small numbers of women dying due to cervical cancer in New Zealand these rates are all subject to variation and should be interpreted with caution.

The target for cervical cancer mortality rates in all women of 2.5 or less per 100,000 women was met from 2000 to 2004 (Table 2). The target for mortality rates in Māori women of 6.0 or less per 100,000 women was met from 2002 to 2005 (Table 2).

Table 3 shows the number of new cervical cancer registrations, and Table 4 the number of cervical cancer deaths, by 5-year age group for all women, Māori women and Pacific women for the period 1996 to 2005.

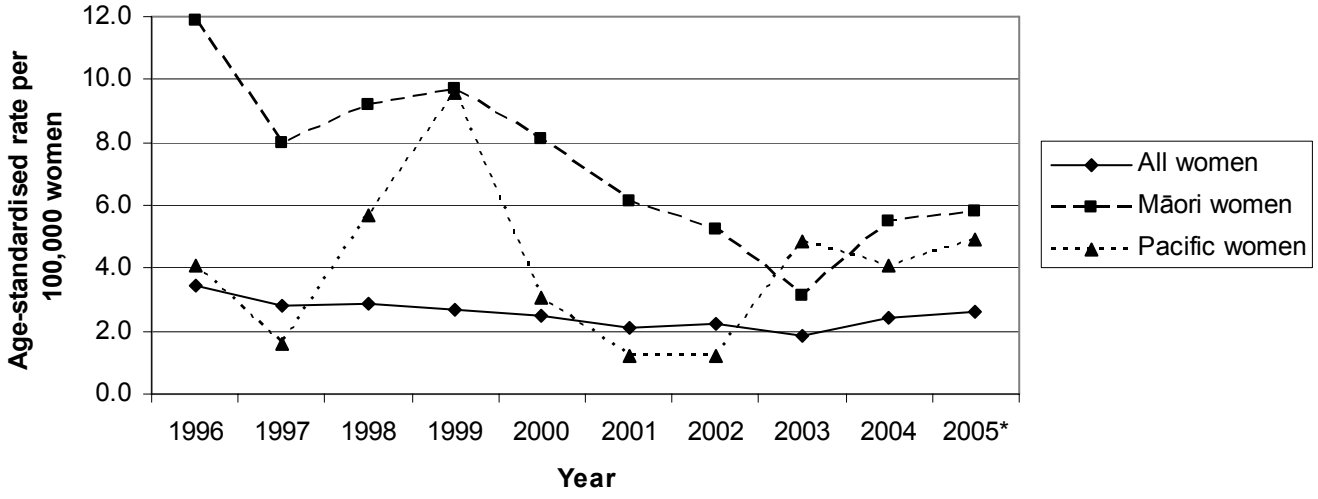
The five year average annual cervical cancer incidence and mortality rates (per 100,000 women) by 5-year age group for all women from 2001 to 2005 is shown in Figure 3, and for Māori women in Figure 4. For all women, incidence rates increased from age 15 to 39 years, and then roughly plateaued over older age groups. Māori women had lower incidence rates than women of all ethnicities up to the age of 35 years, and had higher incidence rates at older ages. Mortality rates gradually increased for all women, peaking in the oldest age group (85 or more years). Mortality rates also rose gradually in Māori women, although the peak rate occurred in women aged 70 to 74 years.

Figure 1: Age-standardised cervical cancer incidence rates, 1996 to 2005*



*2005 data is provisional.
Rates per 100,000, age-standardised to Segi's world population.
Targets are: 8.6 or less per 100,000 women for all women, and 11.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2007.

Figure 2: Age-standardised cervical cancer mortality rates, 1996 to 2005*



*2005 data is provisional.
Rates per 100,000, age-standardised to Segi's world population.
Targets are: 2.5 or less per 100,000 women for all women, and 6.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2007.

Table 1: Cervical cancer incidence, 1996 to 2005*

Year	All women		Māori women		Pacific women		Asian women		'Other' women	
	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000
1996	219	10.0	41	19.9	15	22.3				
1997	218	8.9	45	18.9	10	15.8				
1998	210	8.5	31	12.6	13	17.4				
1999	222	9.2	40	16.0	5	5.2				
2000	205	8.5	38	13.8	6	6.8				
2001	189	7.9	31	11.8	7	9.1	9	6.9	142	7.7
2002	180	6.8	34	13.2	8	8.4	12	8.5	126	6.3
2003	177	7.0	29	10.6	12	12.9	19	12.8	117	6.1
2004	154	5.9	27	10.5	6	5.4	18	10.5	103	5.3
2005*	154	7.4	22	8.1	16	14.0	NCA	NCA	NCA	NCA

*2005 data is provisional. NCA: not currently available.
Rates per 100,000 age-standardised to Segi's world population.
Targets are: 8.6 or less per 100,000 women for all women, and 11.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2007.

Table 2: Cervical cancer mortality, 1996 to 2005*

Year	All women		Māori women		Pacific women		Asian women		'Other' women	
	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000
1996	82	3.4	22	11.8	3	4.1				
1997	73	2.8	19	8.0	2	1.6				
1998	77	2.9	17	9.2	4	5.7				
1999	71	2.7	20	9.7	7	9.6				
2000	66	2.5	17	8.1	3	3.1				
2001	63	2.1	13	6.1	1	1.2	5	5.6	44	1.9
2002	65	2.2	12	5.2	2	1.2	1	1.1	50	2.0
2003	58	1.8	8	3.1	5	4.8	2	2.0	43	1.7
2004	71	2.4	15	5.5	4	4.1	5	3.4	47	2.0
2005*	54	2.6	13	5.8	6	4.9	NCA	NCA	NCA	NCA

*2005 data is provisional. NCA: not currently available.
Rates per 100,000 age-standardised to Segi's world population.
Targets are: 2.5 or less per 100,000 women for all women, and 6.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2007.

Table 3: Number of new cervical cancer registrations by 5-year age group, 1996 to 2005*

Age group (years)	All women	Māori women	Pacific women
	Number of cases, 1996-2005*	Number of cases, 1996-2005*	Number of cases, 1996-2005*
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	5	1	0
20-24	**26**	**8**	**0**
25-29	**116**	**23**	**4**
30-34	**213**	**33**	**5**
35-39	**259**	**56**	**14**
40-44	**247**	**58**	**13**
45-49	**221**	**47**	**13**
50-54	**182**	**39**	**12**
55-59	**127**	**25**	**14**
60-64	**119**	**17**	**10**
65-69	**114**	**11**	**5**
70-74	109	10	4
75-79	81	3	4
80-84	59	4	0
85+	50	3	0
Total	1,928	338	98

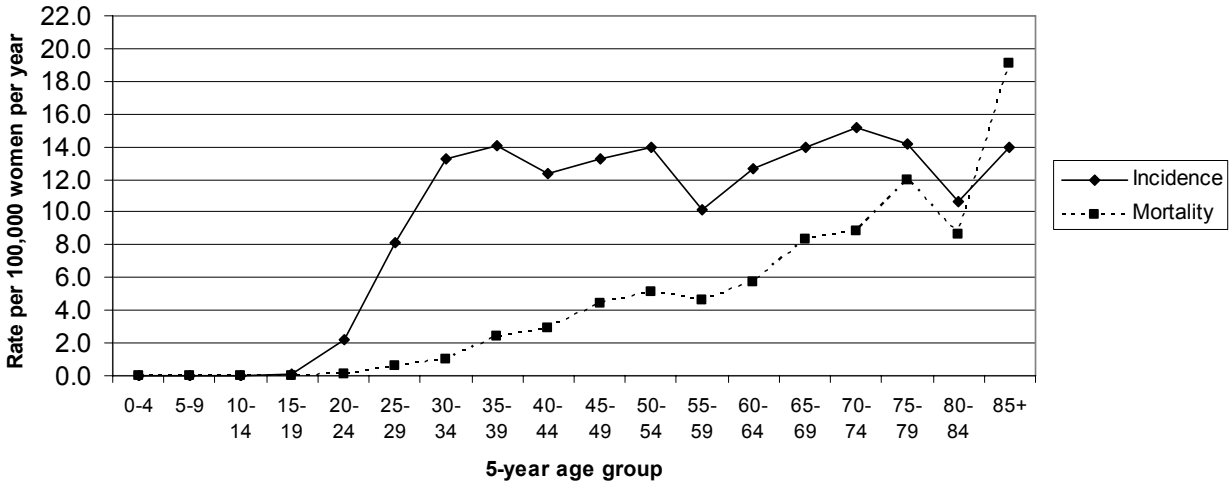
* 2005 data is provisional.
Source: New Zealand Health Information Service, 2007.

Table 4: Number of cervical cancer deaths by 5-year age group, 1996 to 2005*

Age group (years)	All women	Māori women	Pacific women
	Number of cases, 1996-2005*	Number of cases, 1996-2005*	Number of cases, 1996-2005*
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	1	1	0
20-24	**3**	**1**	**0**
25-29	**7**	**2**	**0**
30-34	**20**	**4**	**4**
35-39	**45**	**14**	**7**
40-44	**56**	**24**	**3**
45-49	**76**	**28**	**4**
50-54	**75**	**21**	**4**
55-59	**63**	**19**	**6**
60-64	**51**	**9**	**4**
65-69	**57**	**13**	**2**
70-74	62	9	2
75-79	66	6	1
80-84	43	3	0
85+	55	2	0
Total	680	156	37

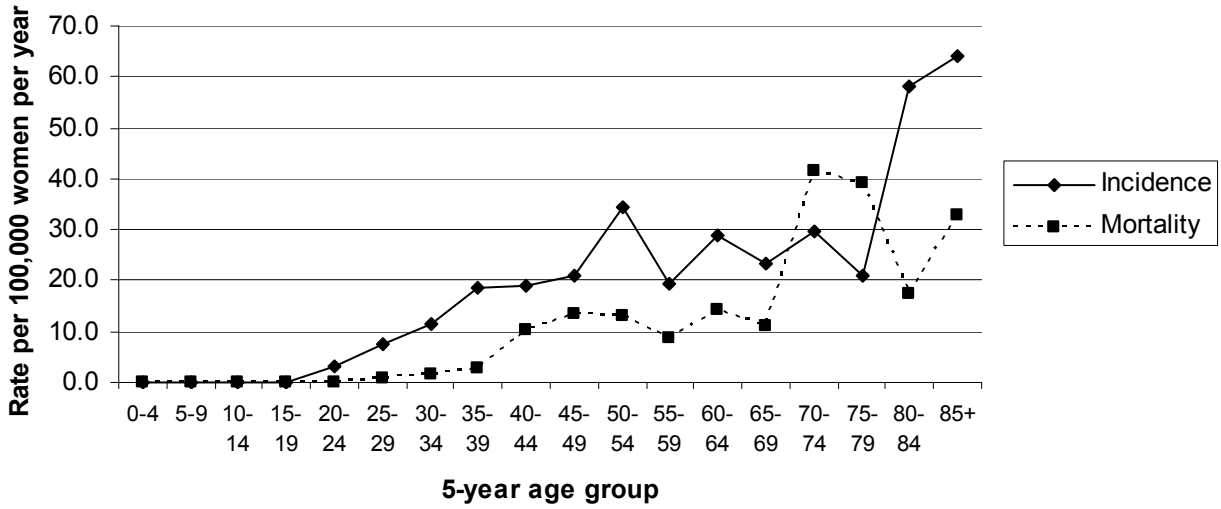
* 2005 data is provisional.
Source: New Zealand Health Information Service, 2007.

Figure 3: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for all women, 2001 to 2005*



*2005 data is provisional.
Target for incidence rates is: 8.6 or less per 100,000 women for all women by 2005. Target for mortality rates is: 2.5 or less per 100,000 women for all women by 2005.
Source: New Zealand Health Information Service, 2007.

Figure 4: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for Māori women, 2001 to 2005*



*2005 data is provisional.
Target for incidence rates is: 11.0 or less per 100,000 women for Māori women by 2005. Target for mortality rates is: 6.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2007.

6. Enrolment

Definition

Enrolment is defined as the proportion of women who have had a smear or histology result recorded on the NCSP Register.

Note that enrolment is not adjusted for the prevalence of hysterectomy in the population.

Target

There are no targets for enrolment.

Calculation

The number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006 and who had a smear or histology result recorded on the NCSP Register before 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, according to population projections from Statistics New Zealand based on the 2001 Census.

The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

There were several problems encountered when estimating this indicator. Please see the 'Difficulties with enrolment, participation and coverage calculations' paragraphs (page 12) in Section 4 Methods.

Results

The proportions of enrolled women are shown in Table 5 to Table 9. On 31 December 2006 the number of 20 to 69 year old women that were enrolled on the NCSP Register was 1,235,423. Dividing this number by the projected population estimate of 20 to 69 year old women (1,311,070) gave an overall crude enrolment figure of 94.2%. This shows a slightly higher enrolment than that in 2005 (92.3%).

The results in Table 5 demonstrate large ethnic inequalities in enrolment across all NCSP Regions, with Māori and Pacific women having approximately 20% lower enrolment figures than non-Māori, non-Pacific women. From a total population perspective, there were differences in enrolment rates across NCSP Regions, with the lowest enrolment rates in Nelson/Marlborough (87.7%) and Northland (90.1%), and the highest enrolment rates in Tairawhiti (100.6%) and Wellington (99.8%). Importantly, Māori and Pacific women in some Regions had particularly low enrolment figures. Those below 70% were Māori women in Canterbury (64.2%), Nelson/Marlborough (61.6%) and Otago/Southland (65.8%), and Pacific women in Northland (66.0%) and West Coast (66.0%).

A similar pattern was seen when the data were analysed by DHB, as shown in Table 6. All DHBs had enrolments over 85% for the total population, but there were some DHBs in which enrolment of Māori and Pacific women was particularly low. Those below 70% were Māori women in Canterbury (63.1%), Nelson/Marlborough (61.6%), Otago (67.8%), South Canterbury (55.3%), Southland (64.0%) and Waitemata (65.9%), and for Pacific women Northland (66.0%), Wairarapa (67.6%) and West Coast (66.0%).

Enrolment percentages by age and ethnic group are shown in Table 7. Overall in the total population the enrolment percentages rose to a peak in 30 to 34 year old women (112.9%) and then gradually declined to the lowest value for 65 to 69 year old women (67.6%). The pattern of enrolment by age within each ethnic group was similar, although the overall lower enrolment percentages in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low enrolment (under 60%) was evident in Māori and Pacific women aged 20 to 24 years (55.2% Māori, 44.1% Pacific) and Māori and Pacific women aged 65 to 69 years (54.2% Māori, 59.9% Pacific).

A more detailed breakdown of enrolment figures by age and Region is shown in Table 8, and by age and DHB in Table 9.

Table 5: The proportion of enrolled women aged 20 to 69 years by NCSP Region, 2006

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	93.9	75.7	84.0	97.6
Bay of Plenty	94.3	80.8	73.4	99.4
Canterbury	93.4	64.2	87.2	95.3
Hawke's Bay	92.8	77.8	71.3	98.0
Manawatu/Wanganui	91.6	79.5	75.5	94.4
Nelson/Marlborough	87.7	61.6	91.2	89.8
Northland	90.1	79.4	66.0	95.1
Otago/Southland	95.2	65.8	87.4	97.4
Tairawhiti	100.6	93.4	76.7	107.8
Taranaki	97.6	82.1	84.4	100.2
Waikato	93.7	80.2	77.1	97.5
Wellington	99.8	81.1	74.1	104.2
West Coast	90.5	73.2	66.0	92.0
Total	**94.2**	**77.7**	**81.9**	**97.7**

The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

Table 6: The proportion of enrolled women aged 20 to 69 years by District Health Board, 2006

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	94.9	70.4	86.1	98.1
Bay of Plenty	93.6	78.5	72.8	98.4
Canterbury	92.6	63.1	86.1	94.5
Capital Coast	97.8	83.6	76.8	102.1
Counties Manukau	92.2	82.5	86.8	95.9
Hawke's Bay	92.8	77.8	71.3	98.0
Hutt Valley	99.8	77.8	72.6	104.4
Lakes	94.1	83.2	72.6	100.0
MidCentral	92.7	81.7	77.6	96.3
Nelson/Marlborough	87.7	61.6	91.2	89.8
Northland	90.1	79.4	66.0	95.1
Otago	96.4	67.8	88.0	98.0
South Canterbury	89.7	55.3	85.3	91.6
Southland	93.2	64.0	85.9	96.2
Tairawhiti	100.6	93.4	76.7	107.8
Taranaki	97.6	82.1	84.4	100.2
Waikato	93.7	80.2	77.1	97.5
Wairarapa	90.7	76.1	67.6	93.3
Waitemata	92.1	65.9	73.2	96.0
West Coast	90.5	73.2	66.0	92.0
Whanganui	88.9	75.6	73.5	91.6
Total	**93.5**	**77.0**	**81.7**	**97.0**

This table excludes 8,988 women with unknown DHB, which explains the difference in total enrolment figures between Table 5 and Table 6.
The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

Table 7: The proportion of enrolled women aged 20 to 69 years by 5-year age group, 2006

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20-24	68.6	55.2	44.1	74.2
25-29	103.2	84.4	79.7	110.2
30-34	112.9	91.3	95.4	118.9
35-39	109.7	90.0	103.0	113.7
40-44	104.7	85.9	99.2	108.1
45-49	99.2	81.4	90.7	102.2
50-54	93.2	73.9	82.1	96.2
55-59	84.3	66.5	72.1	86.5
60-64	74.9	60.4	64.4	76.6
65-69	67.6	54.2	59.9	68.9
Total	**94.2**	**77.7**	**81.9**	**97.7**

The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

Table 8: The proportion of enrolled women aged 20 to 69 years by 5-year age group and Region, 2006

NCSP Region	Age group (years)									
	20-24 %	25-29 %	30-34 %	35-39 %	40-44 %	45-49 %	50-54 %	55-59 %	60-64 %	65-69 %
Auckland	62.8	91.3	110.4	111.0	106.7	100.8	95.4	86.5	76.6	68.0
Bay of Plenty	78.6	110.7	113.8	109.9	102.8	97.4	91.8	81.4	72.5	65.9
Canterbury	70.1	114.2	113.5	107.8	104.5	97.2	91.1	82.4	70.7	62.8
Hawke's Bay	74.1	113.4	114.1	105.0	101.1	95.5	89.0	80.9	73.2	66.9
Manawatu/Wanganui	68.7	113.7	111.1	106.2	100.4	96.6	88.8	81.1	71.3	68.8
Nelson/Marlborough	65.5	92.5	97.8	99.0	97.2	96.0	90.0	82.0	71.0	65.2
Northland	75.1	106.3	109.3	103.3	100.6	93.5	88.4	78.9	72.0	64.6
Otago/Southland	71.6	115.0	121.3	111.1	103.2	98.9	93.4	85.3	75.5	69.1
Tairawhiti	81.1	119.4	123.1	113.8	101.8	103.0	97.9	91.4	78.5	77.4
Taranaki	83.9	121.2	118.5	109.4	104.6	97.4	93.4	85.3	80.3	73.0
Waikato	68.4	114.4	115.2	107.5	103.6	97.5	91.1	81.9	74.4	67.2
Wellington	72.1	107.7	117.5	115.9	109.1	105.6	98.8	88.5	81.1	72.6
West Coast	69.1	104.1	109.4	102.2	99.1	93.9	88.3	83.6	76.0	63.6

The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

Table 9: The proportion of enrolled women aged 20 to 69 years by 5-year age group and District Health Board, 2006

DHB	Age group (years)									
	20-24 %	25-29 %	30-34 %	35-39 %	40-44 %	45-49 %	50-54 %	55-59 %	60-64 %	65-69 %
Auckland	59.1	87.4	112.4	113.4	110.7	104.4	98.0	88.9	78.7	69.3
Bay of Plenty	80.2	107.1	110.5	108.4	102.8	97.6	92.8	81.0	73.7	67.4
Canterbury	68.3	111.6	112.0	107.2	103.8	96.7	90.6	81.9	70.2	61.9
Capital Coast	69.1	106.8	116.4	116.6	111.0	106.9	99.2	89.0	81.3	72.4
Counties Manukau	64.5	94.7	109.3	109.6	104.1	98.0	92.2	82.7	72.5	63.9
Hawke's Bay	74.1	113.4	114.1	105.0	101.1	95.5	89.0	80.9	73.2	66.9
Hutt Valley	75.3	103.5	115.1	111.7	104.6	102.4	97.5	86.5	80.1	72.8
Lakes	74.6	114.6	117.8	110.9	101.8	95.6	88.4	80.8	68.9	62.0
MidCentral	66.0	111.8	106.6	102.9	97.0	94.0	86.8	79.4	68.9	67.5
Nelson/Marlborough	65.5	92.5	97.8	99.0	97.2	96.0	90.0	82.0	71.0	65.2
Northland	75.1	106.3	109.3	103.3	100.6	93.5	88.4	78.9	72.0	64.6
Otago	71.6	118.4	127.0	113.9	104.4	101.7	95.6	86.2	77.2	70.1
South Canterbury	72.6	115.6	107.9	100.1	100.8	94.2	87.5	81.0	71.1	65.9
Southland	71.7	109.7	113.1	107.1	101.3	94.6	89.7	83.7	72.5	67.4
Tairawhiti	81.1	119.4	123.1	113.8	101.8	103.0	97.9	91.4	78.5	77.4
Taranaki	83.9	121.2	118.5	109.4	104.6	97.4	93.4	85.3	80.3	73.0
Waikato	68.4	114.4	115.2	107.5	103.6	97.5	91.1	81.9	74.4	67.2
Wairarapa	75.8	107.9	110.4	106.5	96.2	96.2	88.5	80.9	72.9	67.3
Waitemata	63.9	90.2	106.0	107.4	103.3	98.4	93.6	85.5	76.2	68.8
West Coast	69.1	104.1	109.4	102.2	99.1	93.9	88.3	83.6	76.0	63.6
Whanganui	70.2	107.2	113.7	108.3	103.4	98.0	90.2	81.9	74.2	69.1

The different sources of data and population estimates lead to estimated enrolment rates of over 100% in some age groups/Regions.

7. Participation

Definitions

Unadjusted participation is defined as the number of women who have had a smear or histology result recorded on the NCSP Register in the six years prior to the end of the reporting period, as a proportion of all women.

Hysterectomy-adjusted participation is defined as the number of women who have not had a hysterectomy and have had a smear or histology result recorded on the NCSP Register in the six years prior to the end of the reporting period, as a proportion of all women who have not had a hysterectomy.

Targets

The target for unadjusted participation is 85%, and for hysterectomy-adjusted participation the target is 90%.

Calculations

For unadjusted participation rates the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006 and who had a smear or histology result recorded on the NCSP Register between 1 January 2001 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, according to population projections from Statistics New Zealand based on the 2001 Census.

Adjusted participation was calculated in two ways. The first method was that assumed to have been used in previous annual reports, the second was a revised method (see the 'Difficulties with enrolment, participation and coverage calculations' paragraphs (page 12) in Section 4 Methods) preferred by the CPHR.

For adjusted participation (previous method), the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30

June 2006 and who had a smear or histology result recorded on the NCSP Register between 1 January 2001 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, and **who had not had a hysterectomy (partial or total)** according to hysterectomy-adjusted population projections from Statistics New Zealand based on the 2001 Census. This method is described in the 'Results' section as 'hysterectomy-adjusted (denominator only)'.

For adjusted participation (preferred method), the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006 and **had not had a hysterectomy (partial or total)** on 30 June 2006, and who had a smear or histology result recorded on the NCSP Register between 1 January 2001 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, and who **had not had a hysterectomy (partial or total)** according to hysterectomy-adjusted population projections from Statistics New Zealand based on the 2001 Census. This method is described in the 'Results' section as 'hysterectomy-adjusted (numerator and denominator)'.

Results

The estimated participation rates of 20 to 69 year old women are shown in Table 10 to Table 17. At 31 December 2006 1,028,496 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2006, and having had a smear or histology result recorded on the NCSP Register between 1 January 2001 and 31 December 2006. Dividing this number by the projected population estimate of 20 to 69 year old women (1,311,070) gives an overall crude participation figure of 78.4%. This is almost identical to the overall crude participation figure of 78.2% in 2005 (see Figure 5). Taking into account the prevalence of hysterectomy in the population, participation is likely to range between 85.6% (according to the CPHR's preferred method) and 87.2% (according to the previously used method), as shown in Table 11. These are almost identical to the overall hysterectomy-adjusted participation figures of 2005; 85.0% (according to the CPHR's preferred method) and 86.7% (according to the previously used method), (see Figure 6). For the total population, neither the

unadjusted nor hysterectomy-adjusted rates met the targets of 85% and 90%, respectively.

The unadjusted participation rates by ethnicity and NCSP Region shown in Table 10 demonstrate large ethnic inequalities, with Māori (60.5%) and Pacific (59.3%) women having 20% lower participation rates than non-Māori, non-Pacific women (82.6%). From a total population perspective, there were some differences in participation across NCSP Regions, with the lowest participation rates in Manawatu/Wanganui (75.7%), Northland (75.1%), and West Coast (75.7%), and the highest participation rates in Tairawhiti (85.1%), Taranaki (85.9%) and Wellington (82.8%). Importantly, Māori and Pacific women in some Regions had particularly low participation rates. Those below 55% were Māori women in Canterbury (53.0%), Nelson/Marlborough (51.2%) and Otago/Southland (53.7%), and Pacific women in Hawke's Bay (53.9%), Northland (52.0%) and Wellington (53.5%).

The target of 85% for unadjusted participation rates was not met in any population group as a whole, although Tairawhiti (85.1%) and Taranaki (85.9%) met the target in the total population, and Bay of Plenty (85.8%), Tairawhiti (95.0%), Taranaki (88.9%) and Wellington (87.5%) met the target in the non-Māori, non-Pacific population.

Hysterectomy-adjusted participation rates by ethnicity and Region are shown in Table 11. Similar disparities were evident, with the participation rate in the total population being 85.6%, the Māori population 62.4%, the Pacific population 60.4%, and the non-Māori, non-Pacific population 91.4% (according to the CPHR's preferred method). The target of 90% for hysterectomy-adjusted participation rates was not met in the total population, Māori women or Pacific women, but was met in non-Māori, non-Pacific women. In the total population three Regions met the target, Tairawhiti (91.0%), Taranaki (95.3%) and Wellington (90.3%). No Region met the target in Māori or Pacific women, but eight Regions met the target in non-Māori, non-Pacific women: Bay of Plenty (96.1%), Hawke's Bay (95.6%), Northland (94.1%), Otago/Southland (91.1%), Tairawhiti (106.1%), Taranaki (99.8%), Waikato (91.6%), and Wellington (96.6%).

A similar pattern was seen when the data were analysed by DHB, see Table 12 (unadjusted) and Table 13 (hysterectomy-adjusted). Two DHBs met the 85% unadjusted participation target (Table 12) in the total population; Tairawhiti (85.1%) and Taranaki (85.9%). No DHB met this target in Māori or Pacific women. Six DHBs met the target in non-Māori, non-Pacific women: Bay of Plenty (85.5%), Capital and Coast (87.4%), Hutt Valley (85.2%), Lakes (85.1%), Tairawhiti (95.0%), and Taranaki (88.9%). DHBs in which participation rates for Māori and Pacific women were particularly low (under 55%) were: Auckland (52.1%), Canterbury (52.6%), Nelson/Marlborough (51.2%), South Canterbury (45.2%), Southland (51.1%) and Waitemata (51.0%) for Māori women; and Capital and Coast (52.1%), Hawke's Bay (53.9%), Lakes (53.9%), MidCentral (54.5%), Northland (52.0%), Wairarapa (48.2%) and Waitemata (54.4%) for Pacific women.

The same patterns were seen for the hysterectomy-adjusted participation rates (Table 13). Two DHBs met the target of 90% in the total population, Tairawhiti (91.0%), and Taranaki (95.3%). No DHBs met the target in Māori or Pacific women. Thirteen DHBs met the target in the non-Māori, non-Pacific population, Bay of Plenty (95.9%), Capital and Coast (95.8%), Hawke's Bay (95.6%), Hutt Valley (94.9%), Lakes (95.2%), Northland (94.1%), Otago (92.2%), South Canterbury (90.1%), Tairawhiti (106.1%), Taranaki (99.8%), Waikato (91.6%), Wairarapa (94.0%) and Waitemata (90.2%).

Participation rates by age and ethnic group are shown in Table 14 (unadjusted) and Table 15 (hysterectomy-adjusted). For unadjusted participation rates (Table 14) in the total population, participation was highest in 30 to 34 year old women (91.7%) and lowest in 65 to 69 year old women (55.1%). Overall in the total population, younger women (aged 20 to 54 years) had higher rates of participation than older women (55 to 69 years). The pattern of participation by age within each ethnic group was similar, although the overall lower participation rates in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low participation (under 50%) was evident in Māori women aged 55 to 69 years, and in Pacific women aged 20 to 24 and 60 to 69 years.

Similar patterns were found with the hysterectomy-adjusted participation rates (Table 15), although in the total population the lowest rate was recorded in women aged 20 to 24 years (67.4%). Another difference was that in Pacific women and non-Māori, non-Pacific women the lowest unadjusted participation rate (Table 14) was in 65 to 69 year old women (42.9% and 56.7%, respectively) whereas the lowest hysterectomy-adjusted participation rate (Table 15) was in 20 to 24 year old women (43.1% and 73.1%, respectively).

A more detailed breakdown of participation rates by age and Region is shown in Table 16 and by age and DHB in Table 17.

Table 10: Unadjusted participation rates for women aged 20 to 69 years by NCSP Region, 2006

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	76.0	57.3	60.1	80.6
Bay of Plenty	79.6	63.1	55.8	85.8
Canterbury	79.9	53.0	69.4	81.7
Hawke's Bay	78.3	59.9	53.9	84.6
Manawatu/Wanganui	75.7	62.4	56.4	78.9
Nelson/Marlborough	76.7	51.2	74.4	78.8
Northland	75.1	61.3	52.0	81.4
Otago/Southland	81.1	53.7	68.2	83.3
Tairawhiti	85.1	75.1	60.5	95.0
Taranaki	85.9	68.4	65.6	88.9
Waikato	78.3	60.7	56.8	83.3
Wellington	82.8	64.9	53.5	87.5
West Coast	75.7	59.9	58.0	77.1
Total	**78.4**	**60.5**	**59.3**	**82.6**

Target: 85% for unadjusted participation.

Table 11: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by NCSP Region, 2006

NCSP Region	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
Auckland	83.3	59.9	61.5	89.8	82.8	59.7	61.4	89.2
Bay of Plenty	89.2	66.4	57.1	98.7	86.9	64.8	56.1	96.1
Canterbury	89.6	55.2	70.9	92.3	86.9	54.1	69.3	89.4
Hawke's Bay	88.2	62.9	55.3	97.8	86.2	61.8	54.7	95.6
Manawatu/Wanganui	85.1	65.3	57.7	90.2	82.8	64.2	56.8	87.7
Nelson/Marlborough	86.9	53.7	76.0	90.0	84.6	52.3	73.8	87.6
Northland	85.0	64.6	53.4	95.4	84.0	64.0	53.2	94.1
Otago/Southland	91.0	56.0	69.3	94.0	88.2	54.6	68.0	91.1
Tairawhiti	93.9	79.2	62.0	109.7	91.0	76.9	60.0	106.1
Taranaki	97.2	71.7	66.7	101.9	95.3	70.7	65.5	99.8
Waikato	87.4	63.5	58.1	94.7	84.6	62.1	56.4	91.6
Wellington	91.3	67.7	54.7	97.7	90.3	67.2	54.4	96.6
West Coast	86.3	62.9	58.0	88.6	82.9	60.2	56.0	85.1
Total	**87.2**	**63.4**	**60.7**	**93.2**	**85.6**	**62.4**	**60.4**	**91.4**

Target: 90% for hysterectomy-adjusted participation.
The different sources of data and population estimates lead to estimated participation rates of over 100% in some age groups/Regions.

Figure 5: Unadjusted participation rates for women aged 20 to 69 years by ethnicity

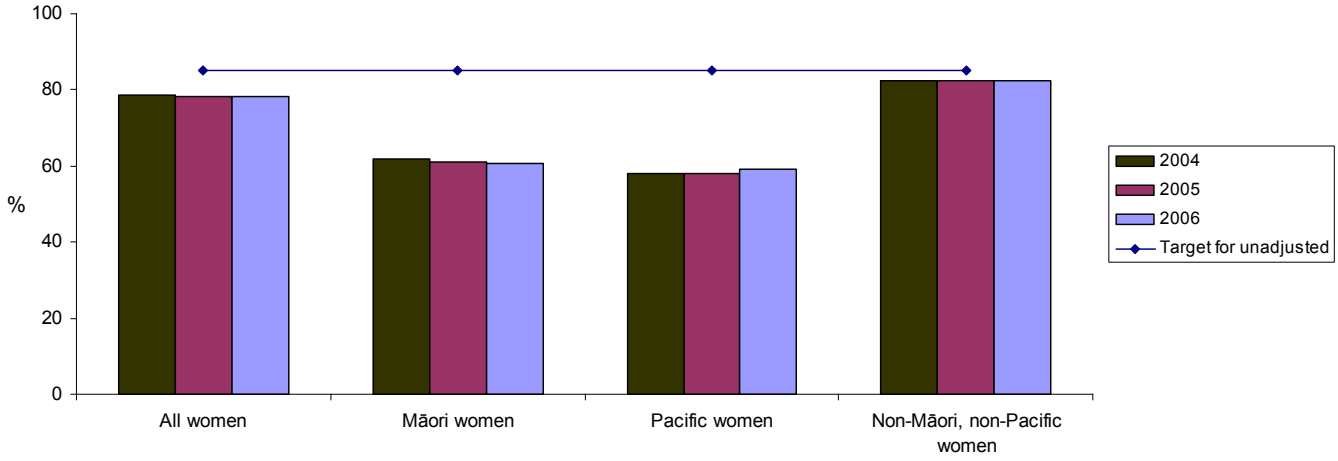


Figure 6: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by ethnicity

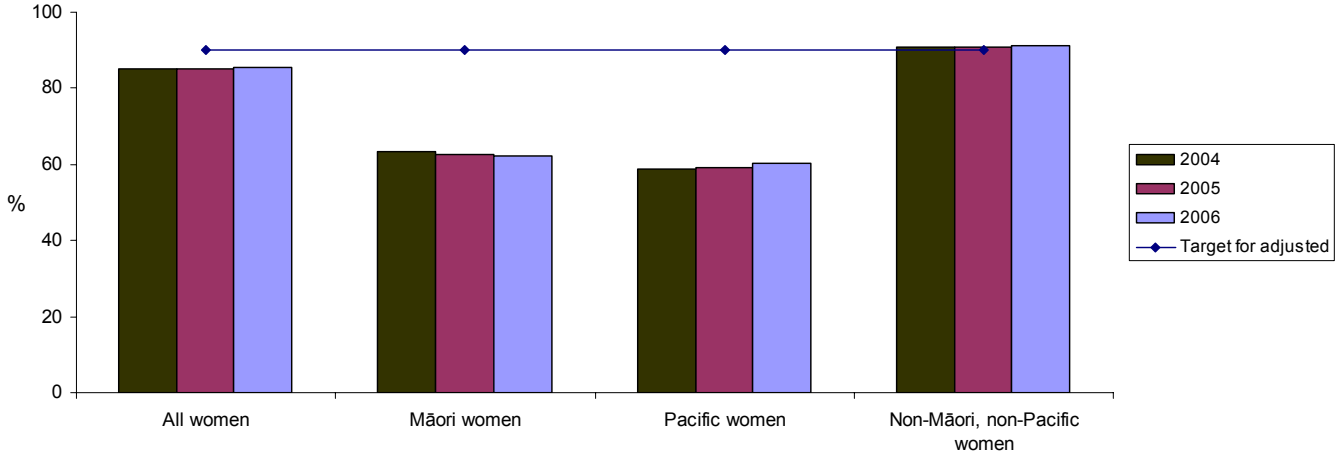


Table 12: Unadjusted participation rates for women aged 20 to 69 years by District Health Board, 2006

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	75.0	52.1	58.6	79.0
Bay of Plenty	79.8	61.4	57.4	85.5
Canterbury	79.3	52.6	68.6	81.2
Capital Coast	82.7	62.4	52.1	87.4
Counties Manukau	74.0	62.4	63.2	79.6
Hawke's Bay	78.3	59.9	53.9	84.6
Hutt Valley	80.6	66.7	56.2	85.2
Lakes	78.1	65.0	53.9	85.1
MidCentral	74.3	60.2	54.5	77.2
Nelson/Marlborough	76.7	51.2	74.4	78.8
Northland	75.1	61.3	52.0	81.4
Otago	82.4	56.5	69.0	84.0
South Canterbury	77.7	45.2	75.8	79.5
Southland	79.0	51.1	66.2	81.9
Tairawhiti	85.1	75.1	60.5	95.0
Taranaki	85.9	68.4	65.6	88.9
Waikato	78.3	60.7	56.8	83.3
Wairarapa	79.1	61.6	48.2	82.3
Waitemata	76.8	51.0	54.4	80.9
West Coast	75.7	59.9	58.0	77.1
Whanganui	76.0	64.1	62.0	79.8

Target: 85% for unadjusted participation.

Table 13: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by District Health Board, 2006

DHB	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
Auckland	81.3	54.5	60.0	86.6	80.9	54.3	59.8	86.2
Bay of Plenty	90.0	64.6	58.8	98.7	87.5	62.9	57.4	95.9
Canterbury	88.8	54.8	70.1	91.4	86.0	53.7	68.6	88.5
Capital Coast	90.4	65.0	53.3	96.6	89.6	64.6	53.1	95.8
Counties Manukau	80.9	65.2	64.7	89.6	80.5	65.0	64.6	89.0
Hawke's Bay	88.2	62.9	55.3	97.8	86.2	61.8	54.7	95.6
Hutt Valley	89.4	69.6	57.5	96.3	88.2	69.0	57.0	94.9
Lakes	86.7	68.2	55.0	97.4	84.8	66.9	54.5	95.2
MidCentral	83.2	62.9	55.7	87.8	81.1	61.9	54.8	85.5
Nelson/Marlborough	86.9	53.7	76.0	90.0	84.6	52.3	73.8	87.6
Northland	85.0	64.6	53.4	95.4	84.0	64.0	53.2	94.1
Otago	92.5	58.7	70.1	94.9	89.9	57.7	68.9	92.2
South Canterbury	89.4	47.2	77.4	92.0	87.5	46.6	76.3	90.1
Southland	88.4	53.4	67.4	92.5	85.3	51.7	65.6	89.3
Tairawhiti	93.9	79.2	62.0	109.7	91.0	76.9	60.0	106.1
Taranaki	97.2	71.7	66.7	101.9	95.3	70.7	65.5	99.8
Waikato	87.4	63.5	58.1	94.7	84.6	62.1	56.4	91.6
Wairarapa	90.7	64.7	49.1	95.8	89.0	63.9	47.3	94.0
Waitemata	85.1	53.2	55.7	90.8	84.6	53.0	55.6	90.2
West Coast	86.3	62.9	58.0	88.6	82.9	60.2	56.0	85.1
Whanganui	85.8	67.3	63.5	92.4	83.3	65.8	63.1	89.6

Target: 90% for hysterectomy-adjusted participation.
The different sources of data and population estimates lead to estimated participation rates of over 100% in some age groups/Regions.

Table 14: Unadjusted participation rates for women aged 20 to 69 years by 5-year age group, 2006

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20-24	67.4	53.3	43.1	73.1
25-29	91.3	70.4	66.6	98.9
30-34	91.7	69.2	68.3	98.4
35-39	89.2	66.5	68.0	94.9
40-44	85.6	63.9	64.4	90.6
45-49	81.1	60.2	60.1	85.3
50-54	75.1	53.9	56.5	78.6
55-59	67.1	47.8	51.2	69.7
60-64	60.5	45.6	46.6	62.4
65-69	55.1	40.7	42.9	56.7
Total	**78.4**	**60.5**	**59.3**	**82.6**

Target: 85% for unadjusted participation.

Table 15: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by 5-year age group, 2006

Age group (years)	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
20-24	67.4	53.3	43.1	73.1	67.4	53.3	43.1	73.1
25-29	91.3	70.4	66.6	98.9	91.3	70.4	66.6	98.8
30-34	91.9	69.5	68.3	98.5	91.6	69.3	68.3	98.2
35-39	89.9	67.3	68.4	95.5	89.1	66.8	68.3	94.6
40-44	89.0	66.2	65.5	94.3	87.2	64.7	65.0	92.4
45-49	89.8	65.5	62.5	94.9	86.8	63.1	61.6	91.8
50-54	91.5	62.2	60.7	97.1	88.0	59.5	59.8	93.4
55-59	91.0	56.6	55.6	96.8	87.8	54.7	55.0	93.3
60-64	87.9	52.7	50.5	94.0	84.8	50.9	49.9	90.5
65-69	79.9	45.7	46.0	85.4	77.1	44.3	45.1	82.3
Total	**87.2**	**63.4**	**60.7**	**93.2**	**85.6**	**62.4**	**60.4**	**91.4**

Target: 90% for hysterectomy-adjusted participation.

Table 16: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by 5-year age group and Region, 2006

NCSP Region	Age group (years)									
	20-24 %	25-29 %	30-34 %	35-39 %	40-44 %	45-49 %	50-54 %	55-59 %	60-64 %	65-69 %
Auckland	61.7	80.5	88.3	87.4	86.2	87.0	89.2	87.7	83.7	73.6
Bay of Plenty	76.2	97.4	94.0	91.1	86.4	85.3	86.0	86.3	83.1	75.5
Canterbury	69.1	102.3	93.9	90.7	89.9	86.1	86.5	86.9	81.8	74.4
Hawke's Bay	72.2	99.2	93.4	87.1	86.4	84.3	85.5	86.6	85.1	78.3
Manawatu/Wanganui	67.2	98.7	88.4	85.5	82.6	83.6	81.3	83.8	79.9	78.7
Nelson/Marlborough	64.9	84.7	84.6	85.6	86.4	88.9	90.5	89.4	85.3	79.4
Northland	72.9	91.6	90.4	85.5	84.8	84.0	85.6	84.4	80.3	73.9
Otago/Southland	70.8	101.8	97.3	92.5	89.5	88.0	88.6	89.6	86.8	79.3
Tairawhiti	78.0	104.8	100.2	93.0	86.8	90.1	93.3	90.4	83.1	84.1
Taranaki	82.0	108.5	101.9	95.7	93.4	91.6	95.8	95.7	99.3	91.5
Waikato	67.5	100.1	93.1	87.6	84.9	82.2	83.1	85.2	84.4	77.3
Wellington	70.8	96.3	94.7	93.1	90.8	92.5	94.0	92.8	93.2	85.3
West Coast	66.8	91.7	90.7	87.1	85.3	81.4	80.9	82.2	83.1	70.5

Note: because of the large number of figures in this table, the calculations for hysterectomy adjustment have only been performed once, using the adjustment for the numerator and the denominator (the CPHR's preferred method).
Target: 90% for hysterectomy-adjusted participation.
The different sources of data and population estimates lead to estimated participation rates of over 100% in some age groups/Regions.

Table 17: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by 5-year age group and District Health Board, 2006

DHB	Age group (years)									
	20-24 %	25-29 %	30-34 %	35-39 %	40-44 %	45-49 %	50-54 %	55-59 %	60-64 %	65-69 %
Auckland	58.1	77.3	87.1	84.8	85.5	87.7	89.9	88.6	83.3	71.9
Bay of Plenty	77.7	94.0	91.9	91.2	87.4	86.7	88.0	87.3	86.2	79.4
Canterbury	67.5	100.4	93.2	90.4	89.1	85.5	85.8	86.0	80.5	73.2
Capital Coast	68.1	95.9	93.2	92.7	91.7	93.3	94.9	93.4	92.6	84.8
Counties Manukau	63.0	82.1	87.1	85.8	83.0	82.9	84.1	82.1	77.5	67.2
Hawke's Bay	72.2	99.2	93.4	87.1	86.4	84.3	85.5	86.6	85.1	78.3
Hutt Valley	73.4	91.7	94.2	90.0	87.3	89.1	90.2	88.5	90.6	83.8
Lakes	72.6	101.5	96.6	90.0	83.9	81.8	80.9	83.4	75.4	66.1
MidCentral	64.8	97.8	85.8	83.7	80.7	82.2	80.3	83.3	78.1	77.4
Nelson/Marlborough	64.9	84.7	84.6	85.6	86.4	88.9	90.5	89.4	85.3	79.4
Northland	72.9	91.6	90.4	85.5	84.8	84.0	85.6	84.4	80.3	73.9
Otago	70.9	103.7	101.2	95.5	91.2	90.8	91.2	92.2	90.8	80.6
South Canterbury	70.8	104.1	91.1	87.0	91.0	87.1	86.4	89.9	87.0	79.9
Southland	70.6	98.7	91.7	88.2	86.9	83.6	84.1	84.9	79.7	77.0
Tairawhiti	78.0	104.8	100.2	93.0	86.8	90.1	93.3	90.4	83.1	84.1
Taranaki	82.0	108.5	101.9	95.7	93.4	91.6	95.8	95.7	99.3	91.5
Waikato	67.5	100.1	93.1	87.6	84.9	82.2	83.1	85.2	84.4	77.3
Wairarapa	73.3	96.8	94.5	94.7	84.5	88.6	88.4	91.7	91.7	84.1
Waitemata	62.9	80.5	88.2	89.3	87.9	88.2	90.8	89.6	86.8	78.3
West Coast	66.8	91.7	90.7	87.1	85.3	81.4	80.9	82.2	83.1	70.5
Whanganui	67.8	92.7	91.3	86.5	84.5	83.7	81.3	81.9	81.7	79.5

Note: because of the large number of figures in this table, the calculations for hysterectomy adjustment have only been performed once, using the adjustment for the numerator and the denominator (the CPHR's preferred method).
Target: 90% for hysterectomy-adjusted participation.
The different sources of data and population estimates lead to estimated participation rates of over 100% in some age groups/Regions.

8. Coverage

Definitions

Unadjusted coverage is defined as the number of women who have had a smear or histology result recorded on the NCSP Register in the three years prior to the end of the reporting period, as a proportion of all women.

Hysterectomy-adjusted coverage is defined as the number of women who have not had a hysterectomy and have had a smear or histology result recorded on the NCSP Register in the three years prior to the end of the reporting period, as a proportion of all women who have not had a hysterectomy.

Targets

A new target of 75% for hysterectomy-adjusted coverage has been adopted for 2006 to 2011 (see 'National Cervical Screening Programme: Targets for 2006 and 2011' by H. Lewis and J. McEntee, available at http://www.nsu.govt.nz/Health-Professionals/1069.asp for further details). There is no new target for unadjusted coverage.

The previous target for unadjusted coverage was 80%, and for hysterectomy-adjusted coverage the target was 85%.

Calculations

For unadjusted coverage rates the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006 and who had a smear or histology result recorded on the NCSP Register between 1 January 2004 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, according to population projections from Statistics New Zealand based on the 2001 Census.

Adjusted coverage was calculated in two ways. The first method was that assumed to have been used in previous annual reports, the second was a revised method (see the 'Difficulties with enrolment, participation and coverage calculations' paragraphs (page 12) in Section 4 Methods) preferred by the CPHR. It is important to note that the target relates to the old method of calculating this indicator. This is usually the higher figure in the range.

For adjusted coverage (previous method), the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006 and who had a smear or histology result recorded on the NCSP Register between 1 January 2004 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, and **who had not had a hysterectomy (partial or total)** according to hysterectomy-adjusted population projections from Statistics New Zealand based on the 2001 Census. This method is described in the 'Results' section as 'hysterectomy-adjusted (denominator only)'.

For adjusted coverage (preferred method), the number of women aged 20 to 69 years at 30 June 2006 who were recorded on the NCSP Register as being alive on 30 June 2006, and **had not had a hysterectomy (partial or total)** on 31 December 2006, and who had a smear or histology result recorded on the NCSP Register between 1 January 2004 and 31 December 2006 was calculated. This number of women was then divided by the number of women aged 20 to 69 years who were alive and resident in New Zealand on 30 June 2006, and who **had not had a hysterectomy (partial or total)** according to hysterectomy-adjusted population projections from Statistics New Zealand based on the 2001 Census. This method is described in the 'Results' section as 'hysterectomy-adjusted (numerator and denominator)'.

Results

The estimated coverage rates are shown in Table 18 to Table 25. At 31 December 2006 832,998 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2006, and having had a smear or histology reported on the NCSP Register between 1 January 2004 and 31 December 2006. Dividing this number

by the projected population estimate (1,311,070) gives an overall unadjusted coverage rate of 63.5% (Table 18). Taking into account the prevalence of hysterectomy in the population (the hysterectomy adjustment), coverage is likely to range between 69.8% (according to the CPHR's preferred method) and 70.6% (according to the previously used method), as shown in Table 19. For the total population, the hysterectomy-adjusted figure did not meet the target of 75%. Neither of the targets were met in 2005 either, when the overall unadjusted coverage rate was 63.2% (see Figure 7; previous target was 80%) and hysterectomy-adjusted coverage ranged between 69.2% (according to the CPHR preferred method) and 70.0% (according to the previously used method; see Figure 8; previous target was 85%).

The results in Table 18 demonstrate large ethnic inequalities in coverage, with Māori (45.0%) and Pacific (43.1%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (67.8%). From a total population perspective, there were some differences in coverage across NCSP Regions, with the lowest coverage rates in Auckland (60.2%) and Northland (60.6%), and the highest coverage rates in Tairawhiti (69.1%) and Taranaki (73.7%). Auckland (59.4%) and Northland (60.4%) also had the lowest coverage rates in 2005, while Tairawhiti (68.1%) and Taranaki (73.0%) also had the highest. Importantly, Māori and Pacific women in some Regions had particularly low coverage figures. Those below 40% were Pacific women in Bay of Plenty (39.9%), Hawke's Bay (38.7%) and Wellington (39.8%).

Hysterectomy-adjusted coverage rates by ethnicity and Region are shown in Table 19. Similar disparities were evident, with the coverage rate in the total population being 69.8%/70.6%, the Māori population 46.6%/47.1%, the Pacific population 43.9%/44.1%, and the non-Māori, non-Pacific population 75.7%/76.6% (according to the CPHR's preferred method, and the previously used method respectively). In 2005 the same disparities were evident with almost identical rates. The new target of 75% for hysterectomy-adjusted coverage rates was met in the non-Māori, non-Pacific population subgroup as a whole (75.7%), and also in eight Regions (according to the CPHR's preferred method); Bay of Plenty (81.8%), Hawke's Bay (79.4%), Northland (78.7%), Otago/Southland (76.7%), Tairawhiti (91.1%), Taranaki (87.0%), Waikato (77.0%) and Wellington (79.7%). According to the previously used method, the new target was met in the non-Māori, non-Pacific population subgroup as a whole

(76.6%), and also in ten Regions; Bay of Plenty (83.3%), Canterbury (75.8%), Hawke's Bay (80.3%), Nelson/Marlborough (75.8%), Northland (79.1%), Otago/Southland (78.2%), Tairawhiti (93.4%), Taranaki (88.0%), Waikato (78.6%) and Wellington (80.0%). The target was also met in Taranaki for all women (82.4%), according to the CPHR's preferred method, and for all women in Otago/Southland (75.4%), Tairawhiti (76.2%) and Taranaki (83.4%) according to the previously used method. In 2005 Tairawhiti (88.6%) and Taranaki (85.9%) in non-Māori, non-Pacific women were the only NCSP Regions to meet the previous target of 85% for hysterectomy-adjusted coverage rates, according to the CPHR's preferred method.

A similar pattern was seen when the data were analysed by DHB, see Table 20 (unadjusted) and Table 21 (hysterectomy-adjusted). DHBs in which unadjusted coverage rates for Māori and Pacific women were particularly low (under 40%) were Auckland (38.0%), South Canterbury (33.1%), Southland (39.2%) and Waitemata (37.3%) for Māori women, and Capital and Coast (39.1%), Hawke's Bay (38.7%), Lakes (36.6%), Wairarapa (32.9%) and Waitemata (39.5%) for Pacific women.

The same patterns were seen for the hysterectomy-adjusted coverage rates (Table 21). According to the CPHR's preferred method, eleven DHBs met the 75% target in non-Māori, non-Pacific women; Bay of Plenty (82.2%), Capital and Coast (79.4%), Hawke's Bay (79.4%), Hutt Valley (77.8%), Lakes (80.1%), Northland (78.7%), Otago (78.1%), Tairawhiti (91.1%), Taranaki (87.0%), Waikato (77.0%) and Wairarapa (76.8%). Otago (75.9%) and Taranaki (82.4%) also met the target in all women. No DHBs met the target in Māori or Pacific women. According to the previously used method, 16 DHBs met the target in non-Māori, non-Pacific women; Bay of Plenty (83.8%), Canterbury (75.3%), Capital and Coast (79.6%), Hawke's Bay (80.3%), Hutt Valley (78.2%), Lakes (81.4%), Nelson/Marlborough (75.8%), Northland (79.1%), Otago (79.4%), South Canterbury (75.3%), Southland (76.0%),Tairawhiti (93.4%), Taranaki (88.0%), Waikato (78.6%), Wairarapa (77.5%) and Whanganui (75.1%). Otago (77.2%), Tairawhiti (76.2%) and Taranaki (83.4%) also met the target in all women. No DHBs met the target in Māori or Pacific women.

Coverage rates by age and ethnic group are shown in Table 22 (unadjusted) and Table 23 (hysterectomy-adjusted). For unadjusted coverage rates (Table 22) in the total

population, coverage was highest in 30 to 34 year old women (72.1%) and lowest in 65 to 69 year old women (45.1%). Overall in the total population, younger women (20 to 54 years) had higher rates of coverage than older women (55 to 69 years). The pattern of coverage by age within each ethnic group was similar, although the overall lower coverage rates in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low coverage (under 40%) was evident in Māori women aged 55 to 69 years, and in Pacific women aged 20 to 24 and 55 to 69 years.

Similar patterns were found with the hysterectomy-adjusted coverage rates (Table 23), although in the total population, and in non-Māori, non-Pacific women the lowest rate was recorded in women aged 20 to 24 years (58.0% and 63.8%, respectively).

A more detailed breakdown of coverage rates by age and Region is shown in Table 24 and by age and DHB in Table 25.

Table 18: Unadjusted coverage rates for women aged 20 to 69 years by NCSP Region, 2006

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	60.2	41.2	43.3	65.0
Bay of Plenty	65.3	46.6	39.9	72.3
Canterbury	65.4	40.7	50.6	67.1
Hawke's Bay	62.7	43.1	38.7	69.4
Manawatu/Wanganui	61.4	46.9	41.4	64.8
Nelson/Marlborough	64.4	40.2	62.5	66.3
Northland	60.6	45.3	42.1	67.5
Otago/Southland	67.2	41.8	54.0	69.2
Tairawhiti	69.1	57.0	44.3	80.9
Taranaki	73.7	55.3	50.0	76.8
Waikato	63.8	44.7	42.0	69.1
Wellington	67.3	50.1	39.8	71.7
West Coast	62.7	46.5	52.0	64.1
Total	**63.5**	**45.0**	**43.1**	**67.8**

No target.

Table 19: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by NCSP Region, 2006

NCSP Region	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
Auckland	65.9	43.0	44.3	72.4	65.7	42.9	44.2	72.1
Bay of Plenty	73.3	49.0	40.8	83.3	72.0	48.1	40.3	81.8
Canterbury	73.4	42.4	51.7	75.8	72.0	41.9	51.0	74.4
Hawke's Bay	70.7	45.3	39.6	80.3	69.9	44.8	39.4	79.4
Manawatu/Wanganui	69.0	49.1	42.3	74.1	68.1	48.7	41.8	73.2
Nelson/Marlborough	73.0	42.2	63.8	75.8	72.0	41.7	62.7	74.8
Northland	68.6	47.7	43.2	79.1	68.3	47.6	43.0	78.7
Otago/Southland	75.4	43.6	54.9	78.2	74.0	42.8	54.1	76.7
Tairawhiti	76.2	60.1	45.4	93.4	74.3	58.6	44.4	91.1
Taranaki	83.4	58.0	50.8	88.0	82.4	57.3	50.8	87.0
Waikato	71.2	46.8	42.9	78.6	69.7	46.0	42.0	77.0
Wellington	74.1	52.3	40.7	80.0	73.8	52.1	40.6	79.7
West Coast	71.5	48.8	52.0	73.7	70.3	47.9	52.0	72.4
Total	**70.6**	**47.1**	**44.1**	**76.6**	**69.8**	**46.6**	**43.9**	**75.7**

Target: 75% for hysterectomy-adjusted coverage.

Figure 7: Unadjusted coverage rates for women aged 20 to 69 years by ethnicity

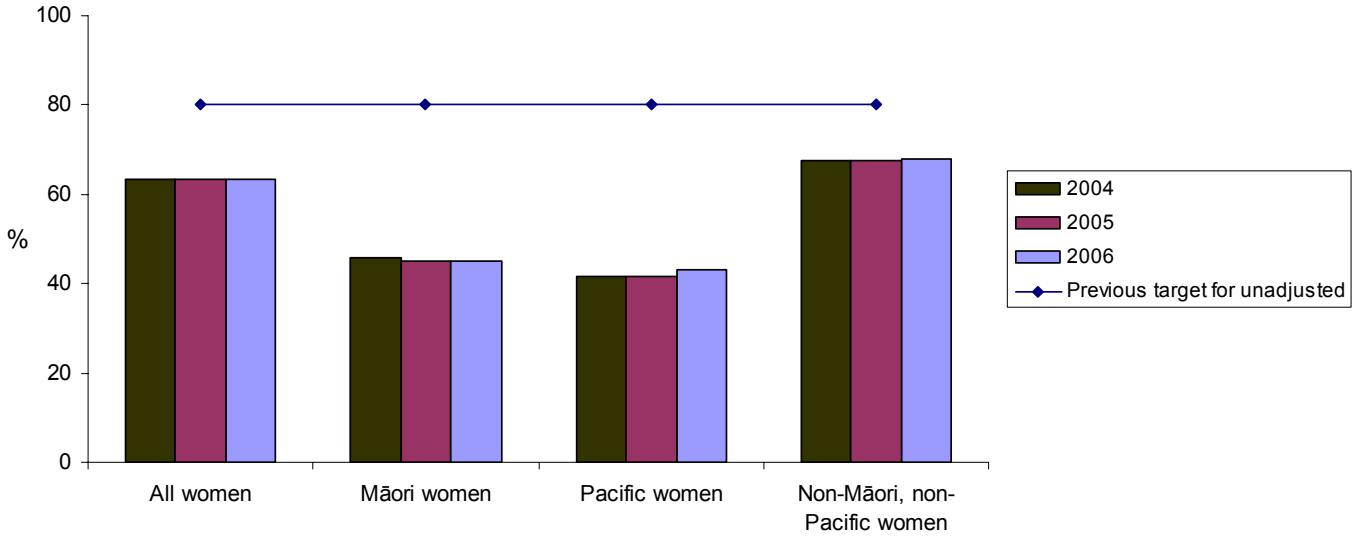


Figure 8: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by ethnicity

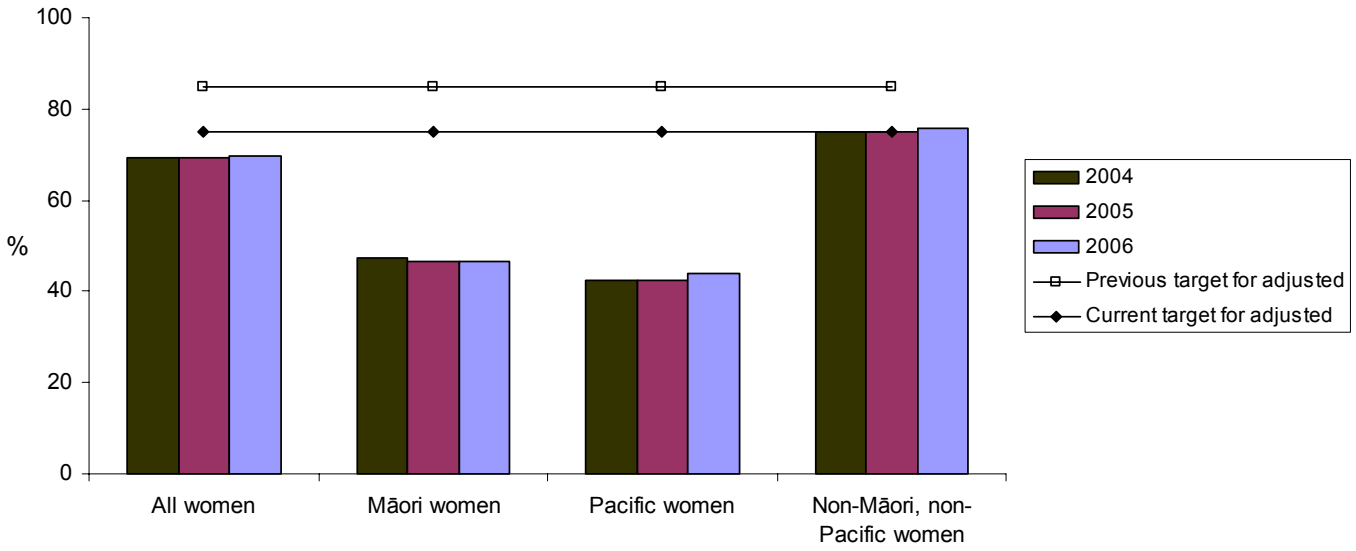


Table 20: Unadjusted coverage rates for women aged 20 to 69 years by District Health Board, 2006

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	59.0	38.0	42.0	63.0
Bay of Plenty	66.3	46.0	43.3	72.6
Capital Coast	67.7	49.6	39.1	72.0
Canterbury	65.1	40.9	50.3	66.9
Counties Manukau	57.7	44.2	45.4	64.1
Hawke's Bay	62.7	43.1	38.7	69.4
Hutt Valley	64.6	50.2	41.5	69.2
Lakes	62.8	47.3	36.6	71.1
MidCentral	60.6	45.4	40.1	63.7
Nelson/Marlborough	64.4	40.2	62.5	66.3
Northland	60.6	45.3	42.1	67.5
Otago	68.8	44.5	55.0	70.3
South Canterbury	63.3	33.1	52.6	65.0
Southland	64.6	39.2	51.7	67.4
Tairawhiti	69.1	57.0	44.3	80.9
Taranaki	73.7	55.3	50.0	76.8
Waikato	63.8	44.7	42.0	69.1
Wairarapa	63.5	47.1	32.9	66.5
Waitemata	62.0	37.3	39.5	66.0
West Coast	62.7	46.5	52.0	64.1
Whanganui	60.6	47.8	45.9	64.8

No target.

Table 21: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by District Health Board, 2006

DHB	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
Auckland	64.0	39.7	43.0	69.0	63.8	39.6	42.9	68.8
Bay of Plenty	74.8	48.4	44.4	83.8	73.4	47.4	43.5	82.2
Canterbury	72.9	42.6	51.4	75.3	71.4	42.0	50.6	73.8
Capital Coast	74.1	51.7	40.0	79.6	73.8	51.5	39.9	79.4
Counties Manukau	63.1	46.2	46.5	72.3	62.9	46.1	46.4	72.0
Hawke's Bay	70.7	45.3	39.6	80.3	69.9	44.8	39.4	79.4
Hutt Valley	71.7	52.4	42.5	78.2	71.3	52.3	42.3	77.8
Lakes	69.8	49.6	37.4	81.4	68.7	48.8	37.2	80.1
MidCentral	67.9	47.5	41.0	72.5	67.1	47.1	40.4	71.6
Nelson/Marlborough	73.0	42.2	63.8	75.8	72.0	41.7	62.7	74.8
Northland	68.6	47.7	43.2	79.1	68.3	47.6	43.0	78.7
Otago	77.2	46.3	55.9	79.4	75.9	45.7	55.2	78.1
South Canterbury	72.8	34.5	53.8	75.3	72.0	34.4	53.8	74.5
Southland	72.4	41.0	52.6	76.0	70.8	40.0	51.6	74.4
Tairawhiti	76.2	60.1	45.4	93.4	74.3	58.6	44.4	91.1
Taranaki	83.4	58.0	50.8	88.0	82.4	57.3	50.8	87.0
Waikato	71.2	46.8	42.9	78.6	69.7	46.0	42.0	77.0
Wairarapa	72.8	49.4	33.5	77.5	72.2	49.1	33.5	76.8
Waitemata	68.8	38.9	40.5	74.1	68.5	38.7	40.4	73.8
West Coast	71.5	48.8	52.0	73.7	70.3	47.9	52.0	72.4
Whanganui	68.5	50.1	47.0	75.1	67.6	49.8	47.0	74.0

Target: 75% for hysterectomy-adjusted coverage.

Table 22: Unadjusted coverage rates for women aged 20 to 69 years by 5-year age group, 2006

Age group (years)	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
20-24	58.0	43.0	35.6	63.8
25-29	69.6	50.9	46.9	76.4
30-34	72.1	50.0	47.7	78.7
35-39	71.5	48.1	46.7	77.5
40-44	69.5	46.8	45.8	74.7
45-49	66.3	44.7	44.0	70.6
50-54	61.4	40.2	42.7	65.0
55-59	55.6	36.0	39.5	58.2
60-64	50.5	35.5	34.8	52.4
65-69	45.1	31.0	31.4	46.7
Total	**63.5**	**45.0**	**43.1**	**67.8**

No target.

Table 23: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by 5-year age group, 2006

Age group (years)	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
20-24	58.0	43.0	35.6	63.8	58.0	43.0	35.6	63.8
25-29	69.6	50.9	46.9	76.4	69.6	50.9	46.9	76.4
30-34	72.2	50.2	47.7	78.8	72.0	50.1	47.7	78.6
35-39	72.0	48.7	46.9	78.1	71.6	48.4	46.9	77.6
40-44	72.2	48.5	46.5	77.8	71.3	47.7	46.3	76.8
45-49	73.4	48.6	45.8	78.6	71.9	47.4	45.4	77.1
50-54	74.9	46.4	45.9	80.3	73.4	45.2	45.4	78.7
55-59	75.5	42.7	42.9	80.9	74.1	41.8	42.6	79.4
60-64	73.4	41.0	37.7	79.0	71.9	40.0	37.3	77.4
65-69	65.4	34.8	33.6	70.4	64.1	34.1	33.2	68.9
Total	**70.6**	**47.1**	**44.1**	**76.6**	**69.8**	**46.6**	**43.9**	**75.7**

Target: 75% for hysterectomy-adjusted coverage.

Table 24: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by 5-year age group and Region, 2006

NCSP Region	Age group (years)									
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
	%	%	%	%	%	%	%	%	%	%
Auckland	52.7	60.6	67.9	68.3	68.5	70.0	71.7	71.6	67.9	58.0
Bay of Plenty	64.0	76.2	75.1	74.2	71.2	71.7	73.4	74.0	72.0	63.9
Canterbury	60.7	78.3	75.4	74.7	74.9	72.3	72.4	74.1	69.8	62.0
Hawke's Bay	59.3	75.2	72.6	69.4	70.4	68.9	70.8	73.1	73.1	64.8
Manawatu/Wanganui	56.3	75.0	69.3	67.9	68.4	70.3	68.7	72.2	70.0	67.2
Nelson/Marlborough	58.3	68.1	69.5	72.4	73.7	75.9	77.7	76.8	75.2	69.0
Northland	60.8	69.6	71.8	68.2	69.1	68.4	70.9	70.3	68.8	61.2
Otago/Southland	62.1	78.2	77.9	76.7	74.9	75.2	76.6	78.1	75.5	68.5
Tairawhiti	64.7	81.5	79.0	75.0	70.2	74.5	78.9	77.7	68.9	71.1
Taranaki	71.7	88.0	85.4	82.1	79.3	80.3	85.4	86.1	90.3	80.2
Waikato	58.6	75.8	73.0	71.3	69.6	68.9	70.3	73.4	72.9	66.1
Wellington	61.3	73.0	74.4	74.6	74.9	77.1	79.4	78.2	79.2	71.3
West Coast	59.2	74.6	73.5	72.5	69.8	69.5	72.5	70.7	74.4	61.4

Note: because of the large number of figures in this table, the calculations for hysterectomy adjustment have only been performed once, using the adjustment for the numerator and the denominator.
Target: 75% for hysterectomy-adjusted coverage.

Table 25: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by 5-year age group and District Health Board, 2006

DHB	Age group (years)									
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
	%	%	%	%	%	%	%	%	%	%
Auckland	50.1	57.7	66.5	65.8	67.8	70.9	72.0	71.4	66.8	55.0
Bay of Plenty	65.7	75.1	74.3	75.5	73.1	73.7	75.5	75.1	75.2	68.6
Canterbury	59.5	77.0	75.0	74.6	74.5	71.9	72.2	73.7	68.8	61.4
Capital Coast	59.6	72.6	73.8	75.0	76.7	78.4	81.2	79.1	79.6	71.3
Counties Manukau	52.7	61.9	66.3	65.5	64.4	65.2	66.4	66.7	62.2	52.8
Hawke's Bay	59.3	75.2	72.6	69.4	70.4	68.9	70.8	73.1	73.1	64.8
Hutt Valley	62.0	69.8	73.1	70.9	70.8	73.4	74.5	74.4	75.9	71.1
Lakes	60.6	77.1	76.0	71.3	67.2	67.5	68.4	71.0	64.9	52.9
MidCentral	54.8	74.9	67.3	66.6	67.4	69.5	68.0	72.6	68.7	67.4
Nelson/Marlborough	58.3	68.1	69.5	72.4	73.7	75.9	77.7	76.8	75.2	69.0
Northland	60.8	69.6	71.8	68.2	69.1	68.4	70.9	70.3	68.8	61.2
Otago	62.8	78.6	81.6	79.6	76.8	78.2	79.4	80.7	80.1	69.8
South Canterbury	60.4	83.1	73.5	71.2	75.0	73.1	70.5	74.3	73.9	64.3
Southland	60.4	77.6	72.6	72.4	72.0	70.6	71.8	73.3	67.5	66.4
Tairawhiti	64.7	81.5	79.0	75.0	70.2	74.5	78.9	77.7	68.9	71.1
Taranaki	71.7	88.0	85.4	82.1	79.3	80.3	85.4	86.1	90.3	80.2
Waikato	58.6	75.8	73.0	71.3	69.6	68.9	70.3	73.4	72.9	66.1
Wairarapa	54.5	61.6	69.3	71.8	71.4	71.9	74.2	74.1	71.6	63.4
Waitemata	62.3	75.2	74.2	75.4	67.9	72.7	75.0	74.6	77.0	66.3
West Coast	59.2	74.6	73.5	72.5	69.8	69.5	72.5	70.7	74.4	61.4
Whanganui	55.2	69.7	71.7	68.2	68.8	69.4	68.2	69.0	70.8	64.9

Note: because of the large number of figures in this table, the calculations for hysterectomy adjustment have only been performed once, using the adjustment for the numerator and the denominator.
Target: 75% for hysterectomy-adjusted coverage.

9. Follow-up of women with high grade cytology

Definition

High grade cytology is defined as a cytology result of ASC-H, HSIL, or more serious abnormality according to the hierarchy of the Revised Bethesda Coding System (1998 & 2001) (Appendix 2). The timeliness of the follow-up of women with a high grade cytology result is estimated using the time elapsed before a histology specimen is taken following the high grade cytology result.

Targets

The targets for the follow-up of women with high grade cytology are as follows:

- 90% of women should have a histology specimen taken within 12 weeks of the smear being taken

and

- 99% of women should have a histology specimen taken within 52 weeks of the smear being taken.

Calculation

The timeliness of the follow-up of women with a high grade cytology result was estimated for each reporting quarter in 2006. The number of enrolled women aged 20 to 69 years at 31 March 2006, 30 June 2006, 30 September 2006, and 31 December 2006 who had a high grade cytology result recorded on the NCSP Register between 1 April 2004 and 31 March 2005, 1 July 2004 and 30 June 2005, 1 October 2004 and 30 September 2005, and 1 January 2004 and 31 December 2005 was calculated. For each of these women the time between the date that the smear was taken and the date that the subsequent histology specimen was taken (including specimens taken up to five days before the smear) was calculated. The numbers of women with a histology specimen taken within 12 weeks, between 13 and 26 weeks, between 27 and 52 weeks and more than 52 weeks after their ASC-H, HSIL or more serious cytology result were expressed as proportions of the total number of women with a high grade cytology taken in the year prior to the reporting quarter. The number and proportion of women with no histology result recorded on the NCSP Register following their

high grade cytology were also calculated. This indicator was calculated for women of all ethnic groups, and separately for Māori, Pacific and non-Māori, non-Pacific women. It was also calculated for each NCSP Region and DHB.

It should be noted that this indicator has been recalculated to allow for the change in definition of ASC-H/HSIL (*i.e.* the move of Bethesda code C3A2B7 to ASC-H) adopted by the Independent Monitoring Group of the NCSP in 2006, and the data used was from the annual data extract of the NCSP Register (taken six weeks after the end of the reporting period) so the results given here are not the same as those in Quarterly Monitoring Reports 22 to 25.

Results

The overall proportion of 20 to 69 year old women with a high grade cytology result who had a histology specimen taken within 12 weeks of their smear was 75.1% for the 2006 reporting period (Table 32), compared to 77.2% in 2005 (see Figure 9). The proportion who had a histology specimen taken within 52 weeks of their smear was 90.7%, compared to 91.8% in 2005 (see Figure 9). There was little change in the results for the follow-up of women with high grade cytology during 2006, and the two targets were not reached for any ethnic group or in any NCSP Region or DHB.

The timeliness of having a histological specimen taken following a high grade smear differed by ethnicity, as shown in Table 26 to Table 31 and Figure 10 and Figure 11. Compared to non-Māori, non-Pacific women, Māori and Pacific women were less likely to have a histological specimen taken within the recommended time periods. The differences by ethnicity persisted for all reporting quarters and for all time periods following a high grade smear. Māori and Pacific women were also less likely than non-Māori, non-Pacific women to have a histological specimen taken within the recommended time periods in 2005 (see Figure 12 and Figure 13).

Figure 10 (and Table 26) shows the proportion of women in each ethnic group who had a histology specimen taken within 12 weeks of their high grade or more serious smear for each reporting quarter. For each reporting quarter the proportion of non-Māori, non-Pacific women who had a histology specimen taken within 12 weeks of

their high grade or more serious smear was greater than those for Māori and Pacific women. The proportions of non-Māori, non-Pacific women and Māori women who had a histology specimen taken within 12 weeks fluctuated slightly over the reporting quarters, while the proportion of Pacific women decreased over the reporting year (62.0% to 53.0%).

Figure 11 (and Table 29) shows the proportion of women in each ethnic group who had a histology specimen taken within 52 weeks of their high grade or more serious smear for each reporting quarter. For each reporting quarter the proportion of non-Māori, non-Pacific women (91.3% to 91.9%) who had a histology specimen taken within 52 weeks of their high grade or more serious smear was more than those for Māori (88.1% to 86.0%) and Pacific women (89.5% to 84.7%).

The proportion of women with no histology report following a high grade smear is shown by ethnicity for each reporting quarter in Table 31. Māori (8.4% to 11.6%) and Pacific (4.7% to 12.0%) women were more likely to have no histological specimen taken following a high grade smear than non-Māori, non-Pacific women (6.8% to 7.3%), and the differences by ethnicity persisted across all of the reporting quarters, except for the January to March quarter when Pacific women (4.7%) were less likely to have no histological specimen taken following a high grade smear than non-Māori, non-Pacific women (6.8%) and Māori women (8.4%).

The follow-up of women with high grade cytology results by NCSP Region is shown in Table 32. The proportion of women in each Region who had a high grade smear result with a subsequent histology specimen taken within 12 weeks varied amongst the Regions. In most of the Regions the proportion decreased over the reporting year. The greatest decline over the reporting year in the proportion of women who had a histology specimen taken within 12 weeks of a high grade smear was reported in the Bay of Plenty Region (from 77.2% to 72.0%). The greatest improvement over the reporting year was reported in the Hawke's Bay Region (from 63.5% to 78.3%). The target of 90% was not met by any NCSP Region.

For all NCSP Regions combined, the proportion of women in each reporting quarter who had a high grade smear result with a subsequent histology specimen taken within

52 weeks was 90% or more (Table 32). Within each Region, there was little variation across the reporting quarters in the proportion of women who had a high grade smear result with a subsequent histology specimen taken within 52 weeks. The target of 99% was not met by any NCSP Region in any of the reporting quarters.

Overall, the proportion of women who did not have a histology result recorded on the NCSP Register following their high grade smear changed little over the four reporting periods, increasing from 6.9% in the January to March reporting quarter to 8.0% in the October to December reporting quarter (Table 32). The greatest change over the 2006 period was reported by the West Coast Region, where the proportion of women with no histology result recorded following a high grade smear decreased from 9.4% to 4.2%. There were differences by Region in the proportion of women who did not have a histological report following a high grade smear, with such an absence being most common in Manawatu/Wanganui (8.8%, 10.8%, 12.5% and 13.1% per reporting quarter), and least common in Nelson/Marlborough (1.9%, 2.6%, 2.4% and 2.6% per reporting quarter, Table 32).

The follow-up of women with high grade cytology results by DHB is shown in Table 33. The pattern was very similar to that across NCSP Regions. The proportion of women in each DHB who had a high grade smear result with a subsequent histology specimen taken within 12 weeks varied amongst the DHBs, and the target of 90% was not met by any DHB in any of the reporting quarters. The proportion of women in each DHB who had a high grade smear result with a subsequent histology specimen taken within 52 weeks also varied. The target of 99% was not met by any DHB in any of the reporting quarters. There were differences by DHB in the proportion of women who did not have a histological report following a high grade smear, with such an absence being most common in South Canterbury (12.7%, 11.7%, 13.2% and 18.0% per reporting quarter), and least common in Nelson/Marlborough (1.9%, 2.6%, 2.4% and 2.6% per reporting quarter, Table 33).

Figure 9: Timeliness of a histology report after a high grade cytology result for enrolled 20 to 69 year old women

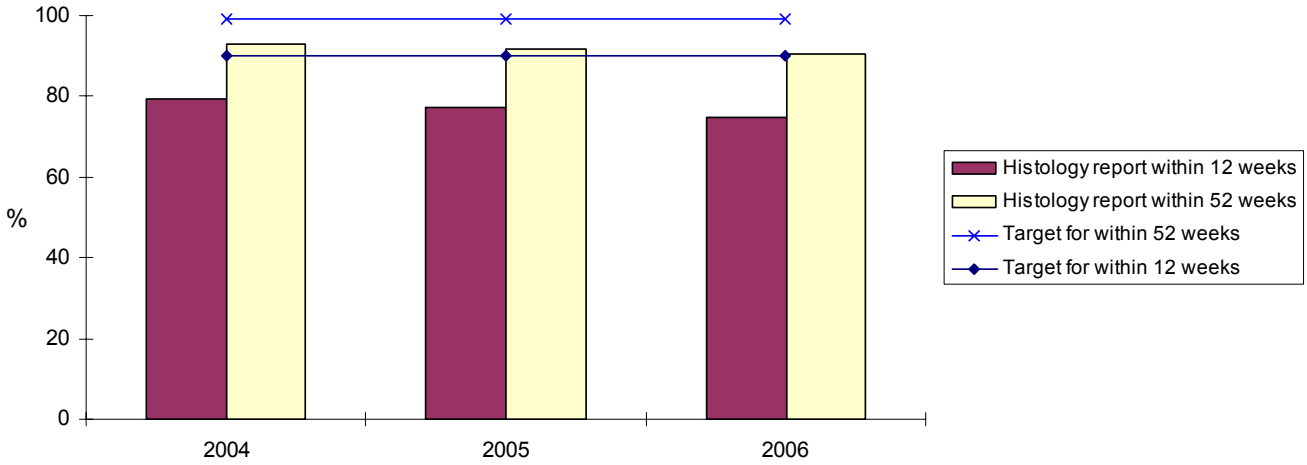
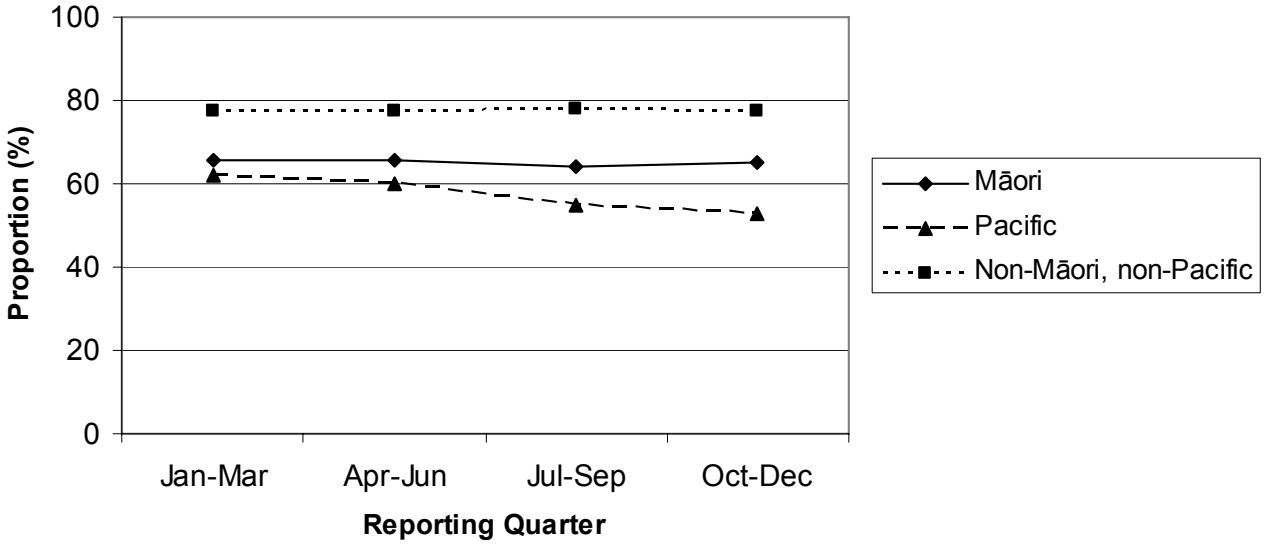
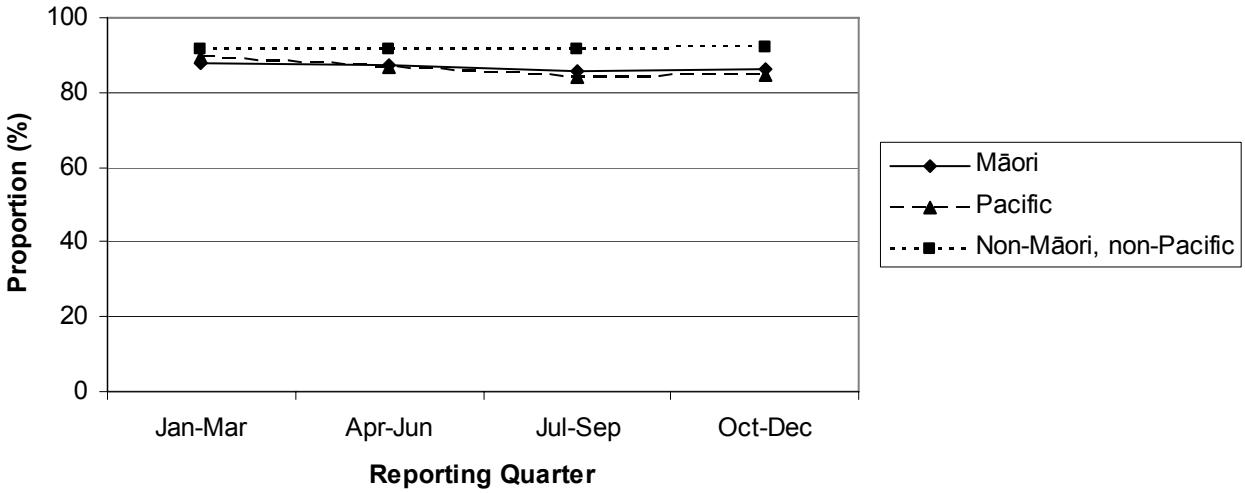


Figure 10: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting quarter, 2006



Target: 90% within 12 weeks of a high grade smear.

Figure 11: The proportion of women with a histology report within 52 weeks of a high grade cytology result by ethnicity and reporting quarter, 2006



Target: 99% within 52 weeks of a high grade smear.

Figure 12: Timeliness of a histology report within 12 weeks of a high grade cytology report for enrolled 20 to 69 year old women by ethnicity

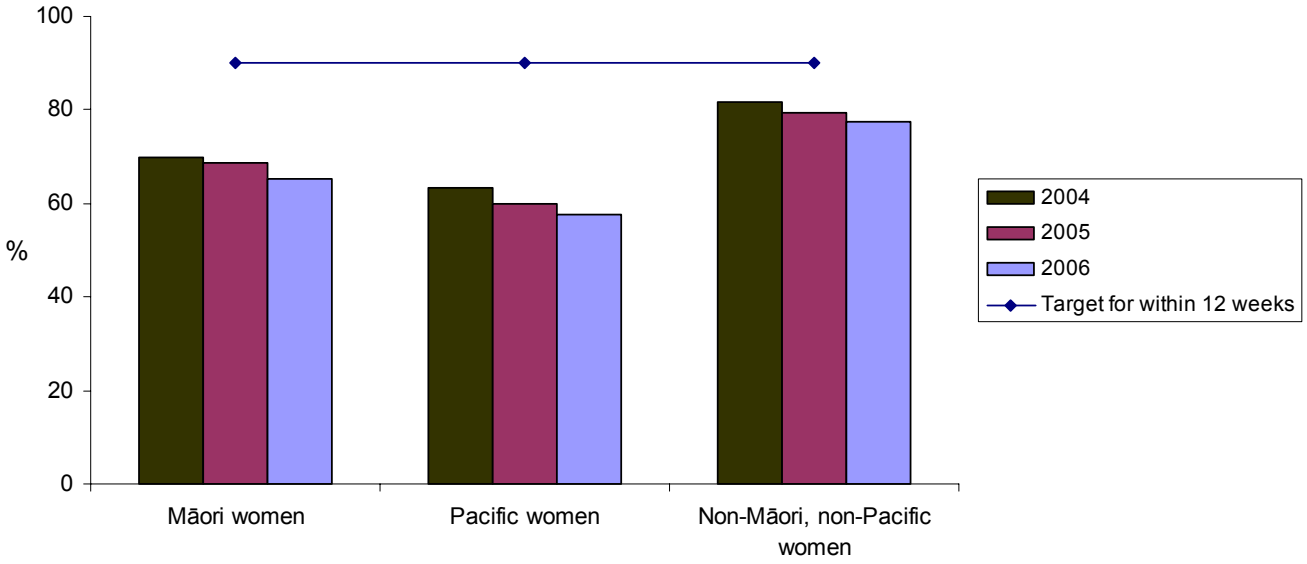


Figure 13: Timeliness of a histology report within 52 weeks of a high grade cytology result for enrolled 20 to 69 year old women by ethnicity

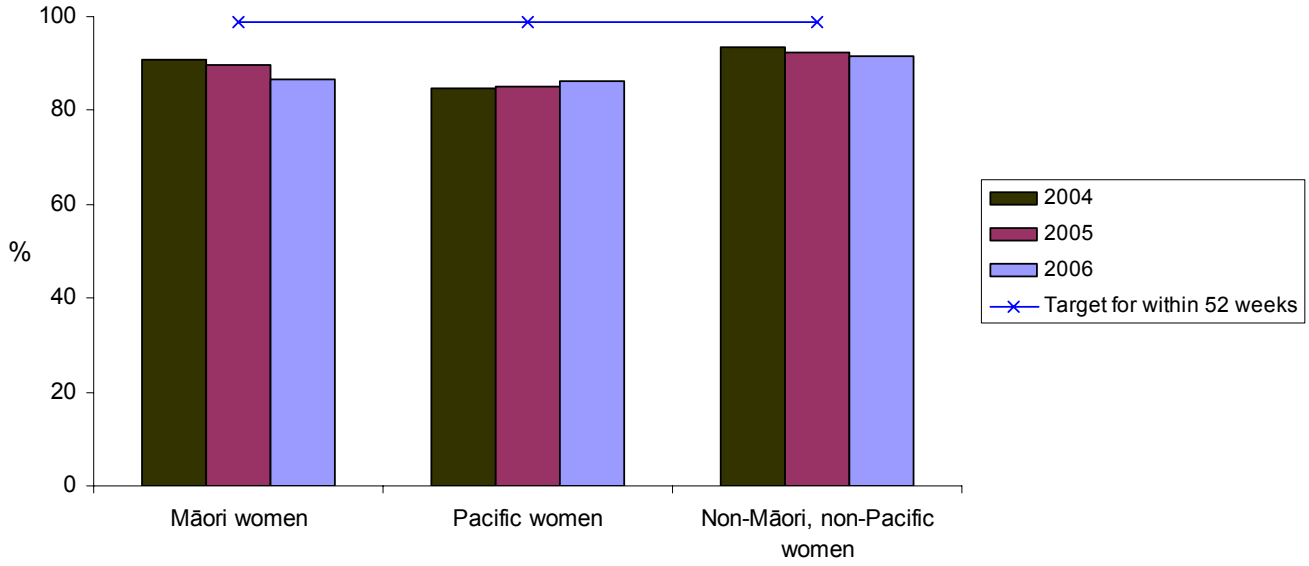


Table 26: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	65.7	65.6	64.3	65.3
Pacific	62.0	60.2	54.8	53.0
Non-Māori, non-Pacific	77.5	77.4	77.8	77.7
Total	**75.2**	**75.0**	**75.0**	**75.0**

Target: 90% within 12 weeks of a high grade smear.

Table 27: The proportion of women with a histology report in 13 to 26 weeks after a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	15.1	15.0	15.3	14.6
Pacific	22.2	21.6	18.8	18.0
Non-Māori, non-Pacific	9.5	9.8	10.0	10.2
Total	**10.7**	**11.0**	**11.1**	**11.2**

Table 28: The proportion of women with a histology report in 27 to 52 weeks after a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	7.4	6.5	6.3	6.1
Pacific	5.3	4.7	10.2	13.7
Non-Māori, non-Pacific	4.4	4.2	3.8	3.9
Total	**4.9**	**4.6**	**4.4**	**4.6**

Table 29: The proportion of women with a histology report within 52 weeks of a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	88.1	87.1	85.9	86.0
Pacific	89.5	86.5	83.9	84.7
Non-Māori, non-Pacific	91.3	91.4	91.6	91.9
Total	**90.8**	**90.6**	**90.5**	**90.8**

Target: 99% within 52 weeks of a high grade smear.

Table 30: The proportion of women with a histology report later than 52 weeks after a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	3.6	2.8	3.0	2.4
Pacific	5.9	5.3	5.9	3.3
Non-Māori, non-Pacific	1.9	1.5	1.1	0.9
Total	**2.3**	**1.8**	**1.6**	**1.2**

Table 31: The proportion of women with no histology report following a high grade cytology result by ethnicity and reporting quarter, 2006

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%
Māori	8.4	10.1	11.1	11.6
Pacific	4.7	8.2	10.2	12.0
Non-Māori, non-Pacific	6.8	7.1	7.3	7.2
Total	**6.9**	**7.6**	**7.9**	**8.0**

Table 32: The proportion of women with a histology report within 12 weeks and within 52 weeks of a high grade cytology result by NCSP Region and reporting quarter, 2006

NCSP Region	Time periods											
	Within 12 weeks[1]				Within 52 weeks[2]				No Histology			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%	%	%	%	%	%	%	%	%
Auckland	69.5	68.9	68.3	68.7	88.4	87.7	87.9	88.6	8.9	10.0	10.1	9.7
Bay of Plenty	77.2	74.6	72.2	72.0	92.3	90.9	90.9	91.2	5.1	6.4	6.5	7.1
Canterbury	78.7	79.4	81.1	81.3	89.5	89.8	91.0	92.2	8.0	7.9	7.1	6.8
Hawke's Bay	63.5	69.3	70.6	78.3	87.4	89.4	90.0	92.5	9.2	7.8	7.8	5.2
Manawatu/Wanganui	77.8	75.7	72.2	72.7	88.9	87.7	84.9	84.6	8.8	10.8	12.5	13.1
Nelson/Marlborough	76.3	80.1	79.9	74.4	96.2	96.2	97.0	96.8	1.9	2.6	2.4	2.6
Northland	84.3	82.1	82.1	79.8	94.6	93.8	93.5	92.6	4.4	6.2	6.0	6.9
Otago/Southland	85.2	82.6	83.8	85.4	96.1	95.6	95.0	95.7	2.7	3.2	3.6	3.5
Tairawhiti	81.2	85.9	84.5	78.2	95.3	94.9	92.9	91.0	3.5	5.1	6.0	7.7
Taranaki	78.1	78.4	75.6	77.4	95.1	94.8	93.9	92.5	4.3	5.2	6.1	7.5
Waikato	78.7	82.9	83.9	82.8	91.4	93.9	94.7	94.4	6.0	5.0	5.3	5.6
Wellington	73.0	71.7	73.8	72.2	90.4	90.8	89.4	88.5	7.4	8.4	10.0	11.3
West Coast	71.9	73.3	70.4	70.8	87.5	90.0	92.6	91.7	9.4	6.7	3.7	4.2
Total	**75.2**	**75.0**	**75.0**	**75.0**	**90.8**	**90.6**	**90.5**	**90.8**	**6.9**	**7.6**	**7.9**	**8.0**

Targets are: [1]90% with histology report within 12 weeks, [2]99% within 52 weeks of a high grade smear.

Table 33: The proportion of women with a histology report within 12 weeks and within 52 weeks of a high grade cytology result by District Health Board and reporting quarter, 2006

DHB	Time periods											
	Within 12 weeks[1]				Within 52 weeks[2]				No Histology			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
	%	%	%	%	%	%	%	%	%	%	%	%
Auckland	75.5	76.2	76.1	76.7	88.7	89.3	88.7	89.3	8.7	9.1	10.0	9.5
Bay of Plenty	78.1	79.0	77.5	78.7	94.8	95.0	94.4	94.9	2.4	2.5	3.4	4.3
Canterbury	82.3	81.9	83.2	83.6	90.9	90.2	91.7	93.5	7.4	7.6	6.6	5.8
Capital Coast	70.9	70.5	73.8	72.4	89.7	90.3	89.8	88.9	7.6	8.8	9.3	10.9
Counties Manakau	63.4	60.3	54.0	48.2	84.3	83.1	83.9	83.2	11.9	13.3	13.1	14.1
Hawke's Bay	63.5	69.3	70.6	78.3	87.4	89.4	90.0	92.5	9.2	7.8	7.8	5.2
Hutt	77.7	74.7	75.8	71.6	93.2	92.6	88.9	86.3	4.9	6.3	11.1	13.7
Lakes	75.5	67.9	62.9	60.4	88.3	84.9	84.9	85.1	9.2	12.1	12.0	11.7
MidCentral	79.1	75.0	70.5	71.4	89.6	86.7	82.9	82.9	8.0	11.3	13.7	14.3
Nelson/Marlborough	76.3	80.1	79.9	74.4	96.2	96.2	97.0	96.8	1.9	2.6	2.4	2.6
Northland	84.3	82.1	82.1	79.8	94.6	93.8	93.5	92.6	4.4	6.2	6.0	6.9
Otago	84.2	81.3	81.8	84.0	96.7	95.9	94.8	95.8	2.4	3.2	3.6	2.8
South Canterbury	54.9	61.7	60.4	58.0	78.9	85.0	83.0	78.0	12.7	11.7	13.2	18.0
Southland	86.9	84.8	87.1	87.4	95.1	95.1	95.3	95.5	3.3	3.3	3.6	4.6
Tairawhiti	81.2	85.9	84.5	78.2	95.3	94.9	92.9	91.0	3.5	5.1	6.0	7.7
Taranaki	78.1	78.4	75.6	77.4	95.1	94.8	93.9	92.5	4.3	5.2	6.1	7.5
Waikato	78.7	82.9	83.9	82.8	91.4	93.9	94.7	94.4	6.0	5.0	5.3	5.6
Wairarapa	75.0	72.7	69.2	69.1	88.9	90.9	87.2	88.1	11.1	9.1	12.8	11.9
Waitemata	69.2	69.2	71.7	76.7	92.0	90.0	90.4	92.0	6.4	7.8	7.8	6.7
West Coast	71.9	73.3	70.4	70.8	87.5	90.0	92.6	91.7	9.4	6.7	3.7	4.2
Whanganui	77.1	80.2	76.5	75.3	89.2	91.2	88.8	87.6	9.6	8.8	10.2	11.2
Unspecified	56.1	55.0	71.4	77.5	78.1	82.5	88.1	95.0	17.1	15.0	9.5	2.5
Total	**75.2**	**75.0**	**75.0**	**75.0**	**90.8**	**90.6**	**90.5**	**90.8**	**6.9**	**7.6**	**7.9**	**8.0**

Targets are: [1]90% with histology report within 12 weeks, [2]99% within 52 weeks of a high grade smear.

10. Cytology reporting

Definition

Cytology reporting is measured by the number and proportion of satisfactory smears recorded on the NCSP Register in broad cytological categories.

The 2001 revision of the Bethesda Coding System was used by the NCSP to record the cytological result of each smear during the reporting period. Laboratories can assign more than one Bethesda diagnosis code to each smear. Therefore, a hierarchy of codes is used by the NCSP for the recommended follow-up of women and for the tabulation of results (Appendix 2). For the purposes of this report the most serious diagnosis code for each smear was used and then assigned to a broad cytological category. The results are presented per woman and the most serious of her smears (according to the hierarchy of cytological categories) was used. The hierarchy of broad cytological categories used for this report is:

(a) Negative for dysplasia or malignancy

(b) Atypical squamous cells (ASC) of undetermined significance (ASC-US), excluding ASC cannot exclude high grade

(c) Low grade squamous intra-epithelial lesion (LSIL)

(d) Atypical glandular/endocervical/endometrial cells (AGC)

(e) Atypical glandular/endocervical cells (AGC) favouring a neoplastic process

(f) ASC, cannot exclude high grade (ASC-H)

(g) High grade squamous intra-epithelial lesion (HSIL)

(h) Adenocarcinoma-in-situ (AIS)

(i) Adenocarcinoma

(j) Cancer not otherwise specified

(k) Invasive squamous carcinoma of the cervix (ISCC)

Targets

There are no targets.

Calculation

The Bethesda diagnosis codes, as recorded on the NCSP Register, of satisfactory smears taken during the reporting period (1 January 2006 to 31 December 2006) were used to calculate the number of smears in each broad cytological category. Where a single smear had more than one diagnosis code, the most serious ranked code was used according to the hierarchy of codes (see Appendix 2). Similarly where a woman had more than one satisfactory smear recorded during the reporting period the smear with the most serious ranked code was used. Each woman's age was calculated at the end of the reporting period (31 December 2006) with smear results for women of all ages included in some tables and only those of women aged 20 to 69 years in other tables (as noted in each table). Smears recorded as being unsatisfactory for evaluation were excluded.

Please note that in July 2005 the NCSP adopted the 2001 revision of the Bethesda Coding System in which the satisfactory but limited category ceased to be used. As a result, the numbers of smears that were categorised as satisfactory or unsatisfactory for evaluation were different after July 2005, and therefore the results presented in this report are not fully comparable with those from previous years.

Results

Between 1 January 2006 and 31 December 2006, 375,663 women of all ages had a satisfactory smear result recorded on the NCSP Register (Table 34). Of these women, 364,332 were aged between 20 and 69 years (Table 35).

The number of women with smears in each cytological result category are shown by five-year age group in Table 34. Age-specific and age-standardised (to Segi's world population) smear reporting rates for cytological result categories are shown in Table 35. The age-standardised reporting rate for 20 to 69 year old women with a smear reported as negative for dysplasia or malignancy was 928.9 per 1,000 women screened, compared to 932.3 per 1,000 women screened in 2005. The most frequently reported cytological abnormalities were ASC-US and LSIL. The ASC-US and LSIL age-standardised rates for 20 to 69 year old women were 22.3 per 1,000 women and 32.3 per 1,000 women, respectively. The age-standardised ASC-H cytology rate for

20 to 69 year old women was 7.1 per 1,000 women. The age-standardised HSIL rate for 20 to 69 year old women was 7.8 per 1,000 women, and 0.2 per 1,000 women for HSIL - suspicious for invasion (introduced in the 2001 revision of the Bethesda Coding System). The age-standardised reporting rate for invasive squamous carcinoma of the cervix (ISCC), for 20 to 69 year old women, was 0.1 per 1,000 women, which is the same rate as in 2005.

The age-standardised reported smear results per 1,000 women aged 20 to 69 years by NCSP Region are shown in Table 36. The age-standardised rates varied amongst the Regions for the different cytological categories, particularly for ASC-US and LSIL.

The age-standardised reported smear results per 1,000 women aged 20 to 69 years by DHB are shown in Table 37. The age-standardised rates varied amongst the DHBs for the different cytological categories, particularly for ASC-US and LSIL. The age-standardised ASC-US cytology rate ranged from 1.3 per 1,000 women in Otago to 40.3 per 1,000 women in the Bay of Plenty. The age-standardised LSIL cytology rate ranged from 25.4 per 1,000 women in Taranaki to 69.2 per 1,000 women in MidCentral. The age-standardised HSIL cytology rate ranged from 4.0 per 1,000 women in Capital and Coast to 13.3 per 1,000 women in Tairawhiti. West Coast had the highest age-standardised ISCC cytology rate (0.4 per 1,000 women). No cases of ISCC were reported in Capital and Coast, Hawke's Bay, Hutt Valley, MidCentral, Nelson/Marlborough, Otago, South Canterbury, Southland, Tairawhiti, Wairarapa, or the 'Unspecified' DHB.

The number of women with satisfactory smears from each ethnic group, and age-standardised smear results per 1,000 women aged 20 to 69 years for each ethnic group are shown in Table 38 and Table 39. There were lower rates of negative for dysplasia or malignancy cytology reporting in Māori (915.8 per 1,000 women) and Pacific women (923.3 per 1,000 women) than in non-Māori, non-Pacific women (930.6 per 1,000 women). The ASC-US cytology reporting rates were lower in non-Māori, non-Pacific women (21.8 per 1,000 women) compared with Māori and Pacific women (24.0 and 29.3 per 1,000 women, respectively). Pacific and non-Māori, non-Pacific women had lower rates of LSIL cytology (31.2 and 31.8 per 1,000 women screened, respectively) than Māori women (37.0 per 1,000 women). Māori women (12.3 per

1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori, non-Pacific women and Pacific women (7.3 and 6.1 per 1,000 women, respectively). Māori women (0.7 per 1,000 women) had higher rates of HSIL - suspicious for invasion (introduced in the 2001 revision of the Bethesda Coding System) compared to non-Māori, non-Pacific and Pacific women (0.2 and 0.1 per 1,000 women, respectively). ISCC cytology reporting rates were higher amongst Pacific women (0.3 per 1,000 women) than Māori and non-Māori, non-Pacific women (0.2 and 0.1 per 1,000 women, respectively).

Table 34: Number of women with reported smear results by cytological category and 5-year age group, 2006

Category of cytology result	5-year age groups														Total
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥85	
Negative for dysplasia or malignancy	5,387	33,478	34,279	41,131	46,666	46,622	42,889	33,992	27,735	19,326	14,124	3,170	799	332	137	350,067
ASC-US	298	1,547	1,138	994	1,030	1,002	903	560	350	208	130	29	8	0	1	8,198
LSIL	847	3,674	2,098	1,344	1,078	862	662	416	222	131	82	27	12	4	0	11,459
AGC- low grade	3	13	22	33	47	47	54	37	15	7	5	3	1	0	0	287
AGC- high grade	0	4	3	6	14	8	18	36	20	9	13	9	4	2	4	150
ASC-H	96	561	496	365	277	210	165	119	100	68	42	13	2	7	3	2,524
HSIL	90	632	548	488	412	229	164	85	55	31	22	5	1	1	0	2,763
HSIL - suspicious for invasion	0	2	9	11	10	13	9	5	6	13	1	2	3	3	3	90
AIS	0	1	4	10	9	5	7	3	0	1	1	0	0	0	0	41
Adenocarcinoma	0	1	1	3	1	1	2	2	4	8	10	7	4	4	3	51
Cancer, NOS	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	3
ISCC	0	0	0	3	0	5	0	4	4	4	4	1	3	1	1	30
Total number of women	6,721	39,913	38,598	44,388	49,544	49,004	44,873	35,259	28,511	19,807	14,435	3,266	838	354	152	375,663

NOS: not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

Table 35: Proportion of women (per 1,000) with reported smear results by cytological category and 5-year age group, 2006

Category of cytology result	Age group (years)														Total crude rate (<20-85+ years)	Total crude rate (20-69 years)	Total age standardised rate (20-69 years)
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	≥85		
Negative for dysplasia or malignancy	801.5	**838.8**	**888.1**	**926.6**	**941.9**	**951.4**	**955.8**	**964.1**	**972.8**	**975.7**	**978.5**	970.6	953.5	937.9	901.3	931.9	**933.9**	**928.9**
ASC-US	44.3	**38.8**	**29.5**	**22.4**	**20.8**	**20.4**	**20.1**	**15.9**	**12.3**	**10.5**	**9.0**	8.9	9.5	0.0	6.6	21.8	**21.6**	**22.3**
LSIL	126.0	**92.1**	**54.4**	**30.3**	**21.8**	**17.6**	**14.8**	**11.8**	**7.8**	**6.6**	**5.7**	8.3	14.3	11.3	0.0	30.5	**29.0**	**32.3**
AGC - low grade	0.4	**0.3**	**0.6**	**0.7**	**0.9**	**1.0**	**1.2**	**1.0**	**0.5**	**0.4**	**0.3**	0.9	1.2	0.0	0.0	0.8	**0.8**	**0.7**
AGC - high grade	0.0	**0.1**	**0.1**	**0.1**	**0.3**	**0.2**	**0.4**	**1.0**	**0.7**	**0.5**	**0.9**	2.8	4.8	5.6	26.3	0.4	**0.4**	**0.4**
ASC-H	14.3	**14.1**	**12.9**	**8.2**	**5.6**	**4.3**	**3.7**	**3.4**	**3.5**	**3.4**	**2.9**	4.0	2.4	19.8	19.7	6.7	**6.6**	**7.1**
HSIL	13.4	**15.8**	**14.2**	**11.0**	**8.3**	**4.7**	**3.7**	**2.4**	**1.9**	**1.6**	**1.5**	1.5	1.2	2.8	0.0	7.4	**7.3**	**7.8**
HSIL - suspicious for invasion	0.0	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.2**	**0.1**	**0.2**	**0.7**	**0.1**	0.6	3.6	8.5	19.7	0.2	**0.2**	**0.2**
AIS	0.0	**<0.1**	**0.1**	**0.2**	**0.2**	**0.1**	**0.2**	**0.1**	**0.0**	**0.1**	**0.1**	0.0	0.0	0.0	0.0	0.1	**0.1**	**0.1**
Adenocarcinoma	0.0	**<0.1**	**<0.1**	**0.1**	**<0.1**	**<0.1**	**<0.1**	**0.1**	**0.1**	**0.4**	**0.7**	2.1	4.8	11.3	19.7	0.1	**0.1**	**0.1**
Cancer, NOS	0.0	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	0.0	1.2	0.0	0.0	<0.1	**<0.1**	**<0.1**
ISCC	0.0	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.1**	**0.1**	**0.2**	**0.3**	0.3	3.6	2.8	6.6	0.1	**0.1**	**0.1**
Total number of women	6,721	**39,913**	**38,598**	**44,388**	**49,544**	**49,004**	**44,873**	**35,259**	**28,511**	**19,807**	**14,435**	3,266	838	354	152	375,663	**364,332**	

NOS: not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

Table 36: Age-standardised reported smear results per 1,000 screened women aged 20 to 69 years by cytological category and NCSP Region, 2006

Category of cytology result	Age-standardised rates													Total crude rate	Total age standardised rate (20-69 years)
	NCSP Region														
	Auckland	Bay of Plenty	Canter-bury	Hawke's Bay	Manawatu/ Wanganui	Nelson/ Marl-borough	North-land	Otago/ South-land	Taira-whiti	Taranaki	Waikato	Wellington	West Coast		
Negative for dysplasia or malignancy	928.7	900.8	935.7	926.6	891.4	923.1	948.8	955.4	942.2	951.0	935.0	924.5	925.2	933.9	928.9
ASC-US	25.1	37.2	19.4	11.9	21.0	30.0	9.6	3.3	6.7	8.0	20.6	31.9	14.9	21.6	22.3
LSIL	28.9	40.3	28.9	45.3	66.5	30.8	26.9	27.4	33.3	25.4	28.8	30.9	36.8	29.0	32.3
AGC - low grade	0.6	1.7	0.5	0.6	1.1	0.6	0.4	0.4	0.0	0.7	1.0	0.6	0.3	0.8	0.7
AGC - high grade	0.3	0.4	0.3	0.6	0.5	0.4	0.3	0.3	0.7	0.3	0.6	0.2	0.0	0.4	0.4
ASC-H	9.7	9.6	5.9	4.7	6.4	7.9	5.4	2.2	3.7	3.4	5.8	6.8	8.9	6.6	7.1
HSIL	6.1	9.4	8.9	9.9	12.7	6.6	8.1	10.6	13.3	11.0	7.7	4.8	12.5	7.3	7.8
HSIL - suspicious for invasion	0.3	0.2	0.1	0.2	0.2	0.3	0.4	0.1	0.0	0.1	0.2	0.2	0.3	0.2	0.2
AIS	0.1	0.1	0.1	0.2	<0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.7	0.1	0.1
Adenocarcinoma	0.1	0.1	0.1	0.0	0.1	0.3	0.0	0.2	0.0	0.0	0.2	0.1	0.0	0.1	0.1
Cancer, NOS	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
ISCC	0.1	0.1	<0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	<0.1	0.0	0.4	0.1	0.1
Total number of women	**117,272**	**27,027**	**48,710**	**12,507**	**19,357**	**12,083**	**11,853**	**26,901**	**3,993**	**9,965**	**28,620**	**43,449**	**2,595**	**364,332**	

NOS: not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

Table 37: Age-standardised reported smear results per 1,000 screened women aged 20 to 69 years by cytological category and District Health Board, 2006

DHB	Category of cytology result												Total number of women
	Negative for dysplasia or malignancy	ASC-US	LSIL	AGC - low grade	AGC - high grade	ASC-H	HSIL	HSIL - suspicious for invasion	AIS	Adeno-carcinoma	Cancer, NOS	ISCC	
Auckland	926.6	24.6	31.1	0.8	0.2	9.9	6.1	0.4	0.1	0.1	<0.1	0.1	38,779
Bay of Plenty	895.4	40.3	43.3	2.0	0.3	9.8	8.2	0.3	0.1	0.1	0.0	0.1	18,137
Canterbury	937.0	19.0	28.4	0.5	0.2	5.8	8.7	0.1	0.1	0.1	<0.1	0.1	43,894
Capital Coast	921.3	35.9	30.8	0.7	0.3	6.7	4.0	0.2	0.1	0.1	0.0	0.0	27,911
Counties Manakau	930.9	26.2	26.9	0.5	0.4	8.6	6.1	0.1	0.1	<0.1	0.0	0.1	32,970
Hawke's Bay	926.6	11.9	45.3	0.6	0.6	4.7	9.9	0.2	0.2	0.0	0.0	0.0	12,507
Hutt Valley	934.9	23.2	27.6	0.3	0.1	7.3	6.3	0.2	0.0	0.1	0.0	0.0	11,694
Lakes	911.6	30.9	34.8	1.0	0.5	9.3	11.4	0.1	0.3	0.0	0.0	0.1	8,825
MidCentral	890.4	19.8	69.2	1.5	0.5	5.8	12.5	0.2	0.1	0.1	0.0	0.0	13,944
Nelson/Marlborough	923.1	30.0	30.8	0.6	0.4	7.9	6.6	0.3	0.0	0.3	0.0	0.0	12,083
Northland	948.8	9.6	26.9	0.4	0.3	5.4	8.1	0.4	0.1	0.0	0.0	0.1	11,853
Otago	959.2	1.3	26.6	0.4	0.4	1.3	10.3	0.2	0.2	0.1	0.0	0.0	17,229
South Canterbury	924.3	22.8	33.1	0.4	0.6	7.0	11.1	0.6	0.0	0.0	0.0	0.0	4,522
Southland	948.1	6.8	28.9	0.4	0.1	3.9	11.5	0.0	0.0	0.3	0.0	0.0	9,672
Tairawhiti	942.2	6.7	33.3	0.0	0.7	3.7	13.3	0.0	0.2	0.0	0.0	0.0	3,993
Taranaki	951.0	8.0	25.4	0.7	0.3	3.4	11.0	0.1	0.1	0.0	0.0	0.1	9,965
Waikato	935.0	20.6	28.8	1.0	0.6	5.8	7.7	0.2	0.1	0.2	0.0	<0.1	28,620
Wairarapa	916.2	24.8	44.2	0.9	0.2	5.1	8.6	0.0	0.0	0.0	0.0	0.0	3,378
Waitemata	929.1	24.7	28.1	0.6	0.4	10.3	6.0	0.3	0.1	0.2	0.0	0.2	44,603
West Coast	925.2	14.9	36.8	0.3	0.0	8.9	12.5	0.3	0.7	0.0	0.0	0.4	2,595
Whanganui	893.8	24.4	60.0	0.3	0.7	7.3	13.1	0.2	0.0	0.0	0.0	0.2	5,153
Unspecified	904.8	31.9	42.7	0.5	0.0	9.5	10.7	0.0	0.0	0.0	0.0	0.0	2,005
Total crude rate	933.9	21.6	29.0	0.8	0.4	6.6	7.3	0.2	0.1	0.1	<0.1	0.1	364,332
Total age standardised rate	928.9	22.3	32.3	0.7	0.4	7.1	7.8	0.2	0.1	0.1	<0.1	0.1	

NOS: not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

Table 38: Number of women aged 20 to 69 years with reported smear results by cytological category and ethnicity, 2006

Category of cytology result	Ethnic group			Total
	Māori	Pacific	Non-Māori, non-Pacific	
Negative for dysplasia or malignancy	30,116	11,638	298,488	340,242
ASC-US	838	364	6,660	7,862
LSIL	1,326	410	8,833	10,569
AGC - low grade	29	9	242	280
AGC - high grade	16	9	106	131
ASC-H	285	99	2,019	2,403
HSIL	441	84	2,141	2,666
HSIL - suspicious for invasion	16	1	62	79
AIS	5	0	36	41
Adenocarcinoma	5	2	26	33
Cancer, NOS	0	0	2	2
ISCC	5	3	16	24
Total number of women	**33,082**	**12,619**	**318,631**	**364,332**

NOS: not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

Table 39: Age-standardised reported smear results per 1,000 screened women aged 20 to 69 years by ethnicity, 2006

Category of cytology result	Ethnic group			Total crude rate	Total age-standardised rate (20-69 years)
	Māori	Pacific	Non-Māori, non-Pacific		
Negative for dysplasia or malignancy	915.8	923.3	930.6	933.9	928.9
ASC-US	24.0	29.3	21.8	21.6	22.3
LSIL	37.0	31.2	31.8	29.0	32.3
AGC - low grade	0.8	0.8	0.7	0.8	0.7
AGC - high grade	0.6	0.7	0.3	0.4	0.4
ASC-H	8.2	7.9	7.0	6.6	7.1
HSIL	12.3	6.1	7.3	7.3	7.8
HSIL - suspicious for invasion	0.7	0.1	0.2	0.2	0.2
AIS	0.1	0.0	0.1	0.1	0.1
Adenocarcinoma	0.3	0.3	0.1	0.1	0.1
Cancer, NOS	0.0	0.0	<0.1	<0.1	<0.1
ISCC	0.2	0.3	0.1	0.1	0.1
Total number of women	**33,082**	**12,619**	**318,631**	**364,332**	

NOS: Not otherwise specified; ASC-US: Atypical squamous cells of undetermined significance; LSIL: Low grade squamous intra-epithelial lesion; AGC: Atypical glandular cells of undetermined significance; ASC-H: Atypical squamous cells of undetermined significance, cannot exclude high grade; HSIL: High grade squamous intra-epithelial lesion; AIS: Adenocarcinoma-in-situ; ISCC: Invasive squamous carcinoma of the cervix.

11. Histology reporting

Definition

Histology reporting is measured by the number and proportion of histological specimens recorded on the NCSP Register in broad histological categories. The Systematised Nomenclature of Medicine (SNOMED) histology codes are used by the NCSP Register to record the histological results of vaginal and cervical histology specimens. Histology specimens include diagnostic biopsies, treatment biopsies, cervical polyps and the cervical tissue of total hysterectomy specimens.

Laboratories can assign more than one SNOMED code to each histology specimen. Therefore, a hierarchy of histology codes is used by the NCSP for the recommended follow-up of women and for the tabulation of results (Appendix 3). For the purposes of this report the most serious diagnosis code for each histology specimen was used and each SNOMED code was assigned to a broad histological category. The hierarchy of histological categories used for this report is:

a) Normal
b) Other non-neoplastic
c) Polyp
d) Atypia/human papilloma virus (HPV)
e) Cervical intra-epithelial neoplasia (CIN), not otherwise specified (NOS)
f) LSIL
g) HSIL
h) Glandular dysplasia
i) Adenocarcinoma-in-situ (AIS)
j) Other non-epithelial primary cervical cancer
k) Metastatic cancer (non-cervical)
l) Invasive adenocarcinoma
m) Adenosquamous carcinoma
n) Microinvasive squamous carcinoma
o) Invasive squamous carcinoma of the cervix (ISCC)

Targets

There are no targets.

Calculation

The SNOMED histology codes, as recorded on the NCSP Register of all satisfactory histological specimens taken during the reporting period (1 January 2006 to 31 December 2006) were used to calculate the number of histologies in each broad histological category. Where a histology specimen had more than one SNOMED code, the most serious ranked code was used according to the hierarchy of codes (Appendix 3). Each woman's age was calculated at the end of the reporting period (31 December 2006). Histology results for women of all ages are included in some tables and only those of women aged 20 to 69 years in other tables (as noted in each table). Women who died after the mid-point of the reporting period (30 June 2006) were excluded to allow comparisons of the information in the NCSP Register and the whole population.

These histologies in each broad category were expressed as the number and proportion of histologies by ethnicity, the number and proportion of histologies by 5-year age group for women of all ages, the rate per 10,000 women (in the New Zealand population) by 5-year age group, age-standardised rates per 10,000 women by ethnicity for 20 to 69 year old women, and the age-standardised rates per 10,000 women by NCSP Region and DHB for 20 to 69 year old women.

Results

Between 1 January 2006 and 31 December 2006, 26,773 histology samples were recorded on the NCSP Register. Of these, 428 were recorded as unsatisfactory, and were not included in subsequent analyses. The remaining 26,345 specimens were taken from 21,332 women. Seven women died prior to 30 June 2006, and were therefore excluded from subsequent analyses.

The number and proportion of women in each histology result category by ethnicity are shown in Table 40. A total of 94 women (20 Māori, 7 Pacific and 67 non-Māori,

non-Pacific) were diagnosed with ISCC, compared with 94 women (17 Māori, 6 Pacific and 71 non-Māori, non-Pacific) in 2005. Eighty-nine women (11 Māori, 4 Pacific and 74 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix, compared with 78 women (6 Māori, 9 Pacific and 63 non-Māori, non-Pacific) in 2005. In the total population, 43.6% of the histology specimens were classified as "normal" or "other non-neoplastic" (see Table 40), but this proportion was lower for Māori (35.5%) and Pacific (38.8%) women, reflecting the higher proportion of abnormalities for these groups of women. This pattern was also seen in 2005; total population 44.8%, Māori women 37.2% and Pacific women 38.0%. Proportions of both LSIL and HSIL were higher in Māori (16.9% and 24.9%, respectively) compared to Pacific women (16.4% and 17.6%, respectively) and non-Māori, non-Pacific women (14.5% and 17.3%, respectively). In 2005, the proportion of LSIL was higher in Māori (16.5%) and Pacific (16.5%) than in non-Māori, non-Pacific women (14.4%), and the proportion of HSIL was higher in Māori (24.4%) compared to Pacific (18.5%) and non-Māori, non-Pacific women (18.1%).

The number and proportion of women in each histology result category by 5-year age group are shown in Table 41. Twenty (21.3%) of the cases of ISCC, compared to 18 (19.1%) in 2005, and 21 (23.6%), compared to 16 (20.5%) in 2005, of the cases of invasive adenocarcinoma of the cervix occurred in women aged 70 years or over.

All subsequent rates were calculated per 10,000 women in the whole New Zealand population (rather than as a proportion of women on the NCSP Register). Age-specific (by 5-year age group) histology reporting rates are shown in Table 42. These results show a similar pattern to that in 2005, with particularly high rates of atypia/HPV, LSIL, and HSIL in younger women, with peaks in women aged 20 to 29 years, and lower rates in older women, see Figure 14. Conversely, rates of invasive adenocarcinoma of the cervix and ISCC fluctuated but generally rose with age.

Age-specific atypia/HPV, LSIL and HSIL population rates by ethnic group are shown in Figure 15 to Figure 17. In most age groups, the abnormality rates were highest for non-Māori, non-Pacific women, intermediate for Māori and lowest for Pacific women. These results were affected by the lower proportion of Māori and Pacific women attending screening, since with fewer women being screened a lower rate of cases will

be found. Therefore, the results should not be interpreted as truly lower rates of these abnormalities in Māori and Pacific women compared to non-Māori, non-Pacific women.

Age-standardised histology reporting rates by ethnic group are shown in Table 43. It can be seen from this table that the age-standardised population rates of LSIL and HSIL for Māori and Pacific women were lower than those for non-Māori, non-Pacific women. However, as noted above, this should be interpreted with caution because of the lower coverage of cervical screening among Māori and Pacific women.

The median age of women who had had a histology specimen taken varied across Regions, from 36 years in Wellington to 42 years in Hawke's Bay and Northland. Therefore, Regional histology rates were standardised to the Segi world population, as shown in Table 44. Regional differences in histology reporting rates were evident. These are shown in graphical form in Figure 18 to Figure 20 for atypia/HPV, LSIL and HSIL. When interpreting these numbers it is important to note that the rates were affected by Regional differences in coverage as well as by actual differences in histological abnormality detection rates.

The median age of women who had had a histology specimen taken also varied across DHBs, from 34 years in Capital and Coast to 43.5 years in Whanganui. Therefore, as for Regional histology rates, DHB histology rates were standardised to the Segi world population, as shown in Table 45. Differences in histology reporting rates were evident across the DHBs. These are shown in graphical form in Figure 21 to Figure 23 for atypia/HPV, LSIL and HSIL. When interpreting these numbers it is important to note that the rates were affected by differences in coverage as well as by actual differences in histological abnormality detection rates.

Table 40: Number and proportion of women (of all ages) with histology specimens taken during 2006, by ethnicity

Histology result category	Ethnic group						All women	
	Māori women		Pacific women		Non-Māori, non-Pacific women			
	n	%	n	%	n	%	n	%
Normal	384	17.9	129	21.6	4,381	23.6	4,894	23.0
Other non-neoplastic	378	17.6	103	17.2	3,903	21.0	4,384	20.6
Polyp	177	8.2	62	10.4	1,887	10.2	2,126	10.0
Atypia/HPV	250	11.6	80	13.4	2,131	11.5	2,461	11.5
CIN, NOS	17	0.8	5	0.8	106	0.6	128	0.6
LSIL	364	16.9	98	16.4	2,692	14.5	3,154	14.8
HSIL	536	24.9	105	17.6	3,206	17.3	3,847	18.0
Glandular dysplasia	0	0.0	0	0.0	4	<0.1	4	<0.1
Adenocarcinoma-in-situ	7	0.3	2	0.3	77	0.4	86	0.4
Other primary cervical cancer	2	0.1	2	0.3	20	0.1	24	0.1
Metastatic (non-cervical) tumour	4	0.2	0	0.0	14	0.1	18	0.1
Invasive adenocarcinoma	11	0.5	4	0.7	74	0.4	89	0.4
Adenosquamous carcinoma	0	0.0	0	0.0	1	<0.1	1	<0.1
Microinvasive squamous carcinoma	0	0.0	1	0.2	14	0.1	15	0.1
ISCC	20	0.9	7	1.2	67	0.4	94	0.4
Total	**2,150**	**100**	**598**	**100**	**18,577**	**100**	**21,325**	**100**

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Table 41: Number and proportion of women with histology specimens taken during 2006 by 5-year age group

Histology result category	Age group (years)																					
	<20		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70+	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Normal	25	7.6	257	9.0	275	10.3	387	15.3	604	24.0	822	29.6	940	33.5	600	30.7	335	30.0	221	33.2	169	34.6	259	42.0
Other non-neoplastic	46	13.9	336	11.7	374	14.1	442	17.5	489	19.4	679	24.4	680	24.2	536	27.4	308	27.5	171	25.7	136	27.8	187	30.4
Polyp	4	1.2	14	0.5	37	1.4	100	4.0	159	6.3	329	11.8	461	16.4	457	23.4	261	23.3	133	20.0	89	18.2	82	13.3
Atypia/HPV	50	15.2	479	16.7	428	16.1	354	14.0	327	13.0	284	10.2	252	9.0	143	7.3	73	6.5	33	5.0	26	5.3	12	1.9
CIN, NOS	6	1.8	23	0.8	21	0.8	17	0.7	17	0.7	11	0.4	12	0.4	4	0.2	8	0.7	6	0.9	3	0.6	0	0.0
LSIL	85	25.8	822	28.7	610	22.9	464	18.4	386	15.3	310	11.2	236	8.4	113	5.8	70	6.3	34	5.1	20	4.1	4	0.6
HSIL	113	34.2	912	31.9	896	33.7	716	28.4	497	19.7	309	11.1	198	7.0	82	4.2	41	3.7	46	6.9	23	4.7	14	2.3
Glandular dysplasia	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Adenocarcinoma-in-situ	0	0.0	14	0.5	14	0.5	19	0.8	20	0.8	7	0.3	5	0.2	2	0.1	1	0.1	2	0.3	1	0.2	1	0.2
Other primary cervical cancer	0	0.0	1	<0.1	2	0.1	1	<0.1	2	0.1	0	0.0	2	0.1	2	0.1	0	0.0	2	0.3	3	0.6	9	1.5
Metastatic (non-cervical) tumour	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.1	1	<0.1	1	0.1	2	0.2	2	0.3	2	0.4	7	1.1
Invasive adenocarcinoma	0	0.0	1	<0.1	0	0.0	9	0.4	4	0.2	4	0.1	12	0.4	8	0.4	12	1.1	7	1.1	11	2.2	21	3.4
Adenosquamous carcinoma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0
Microinvasive squamous carcinoma	0	0.0	1	<0.1	2	0.1	3	0.1	4	0.2	2	0.1	0	0.0	2	0.1	0	0.0	0	0.0	1	0.2	0	0.0
ISCC	0	0.0	2	0.1	2	0.1	10	0.4	8	0.3	19	0.7	8	0.3	6	0.3	7	0.6	7	1.1	5	1.0	20	3.2
Total	330	100	2,862	100	2,661	100	2,522	100	2,517	100	2,779	100	2,810	100	1,956	100	1,118	100	665	100	489	100	616	100

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Table 42: Age-specific histology reporting rates per 10,000 women aged 20 to 69 years in 2006

Histology result category	Age group (years)									
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Normal	18.5	21.7	26.9	37.8	50.3	61.1	45.5	27.7	23.8	21.5
Other non-neoplastic	24.2	29.5	30.7	30.6	41.6	44.2	40.6	25.5	18.4	17.3
Polyp	1.0	2.9	6.9	10.0	20.1	30.0	34.7	21.6	14.3	11.3
Atypia/HPV	34.5	33.7	24.6	20.5	17.4	16.4	10.8	6.0	3.6	3.3
CIN, NOS	1.7	1.7	1.2	1.1	0.7	0.8	0.3	0.7	0.6	0.4
LSIL	59.1	48.1	32.2	24.2	19.0	15.3	8.6	5.8	3.7	2.5
HSIL	65.6	70.6	49.7	31.1	18.9	12.9	6.2	3.4	4.9	2.9
Glandular dysplasia	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Adenocarcinoma-in-situ	1.0	1.1	1.3	1.3	0.4	0.3	0.2	0.1	0.2	0.1
Other primary cervical cancer	0.1	0.2	0.1	0.1	0.0	0.1	0.2	0.0	0.2	0.4
Metastatic (non-cervical) tumour	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.3
Invasive adenocarcinoma	0.1	0.0	0.6	0.3	0.2	0.8	0.6	1.0	0.8	1.4
Adenosquamous carcinoma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Microinvasive squamous carcinoma	0.1	0.2	0.2	0.3	0.1	0.0	0.2	0.0	0.0	0.1
ISCC	0.1	0.2	0.7	0.5	1.2	0.5	0.5	0.6	0.8	0.6

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Figure 14: Age-specific histology reporting rates per 10,000 women aged 20 to 69 years by abnormality, 2006

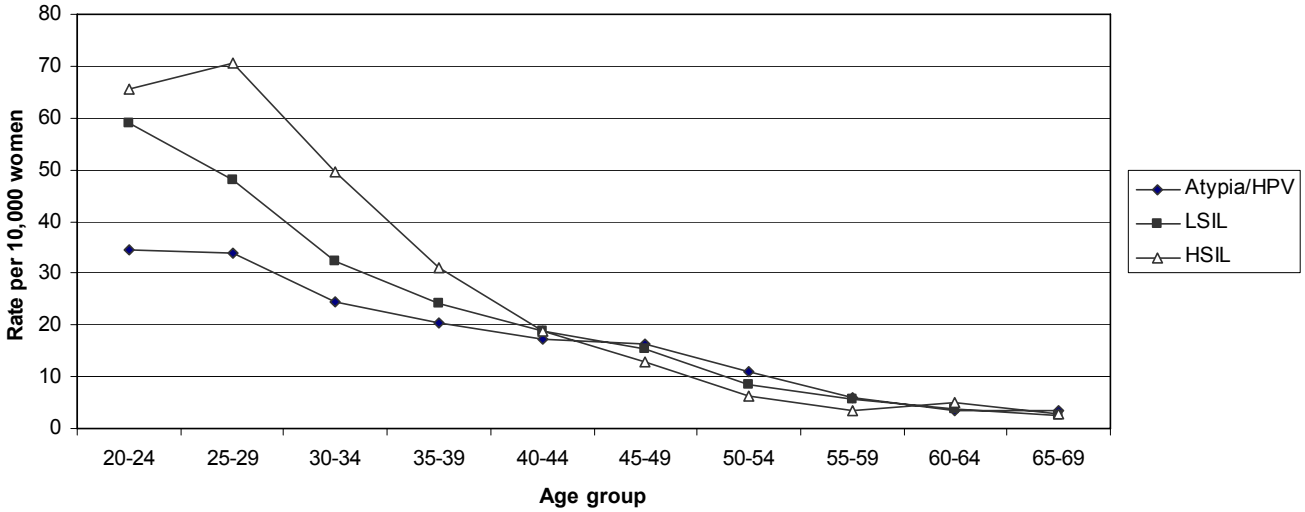


Figure 15: Age-specific Atypia/HPV histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2006

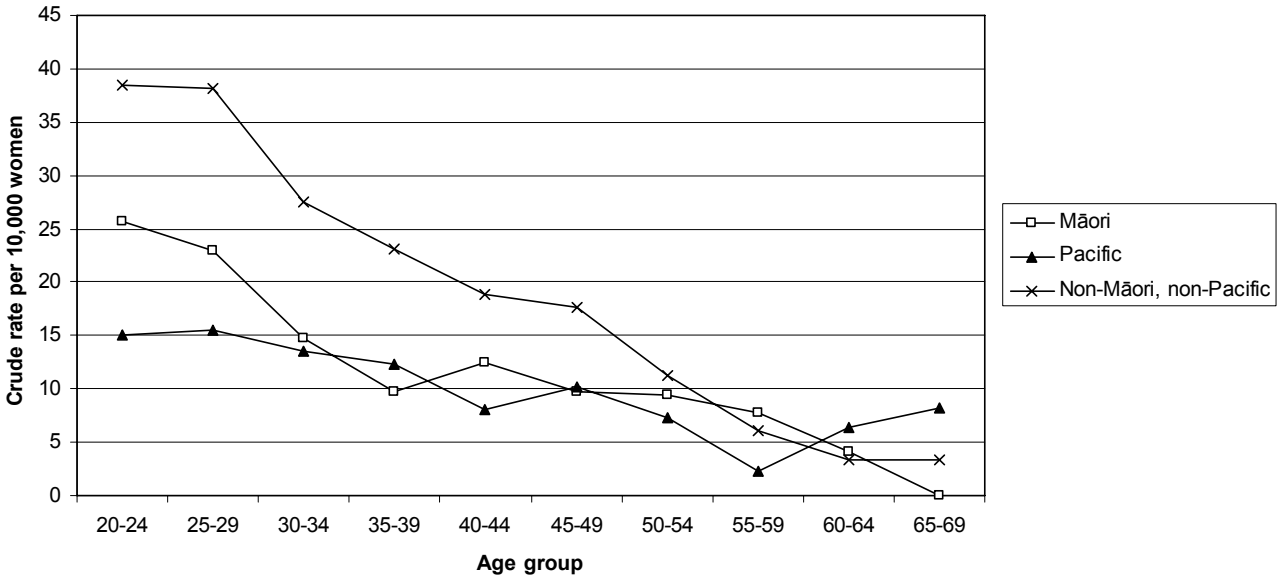


Figure 16: Age-specific LSIL histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2006

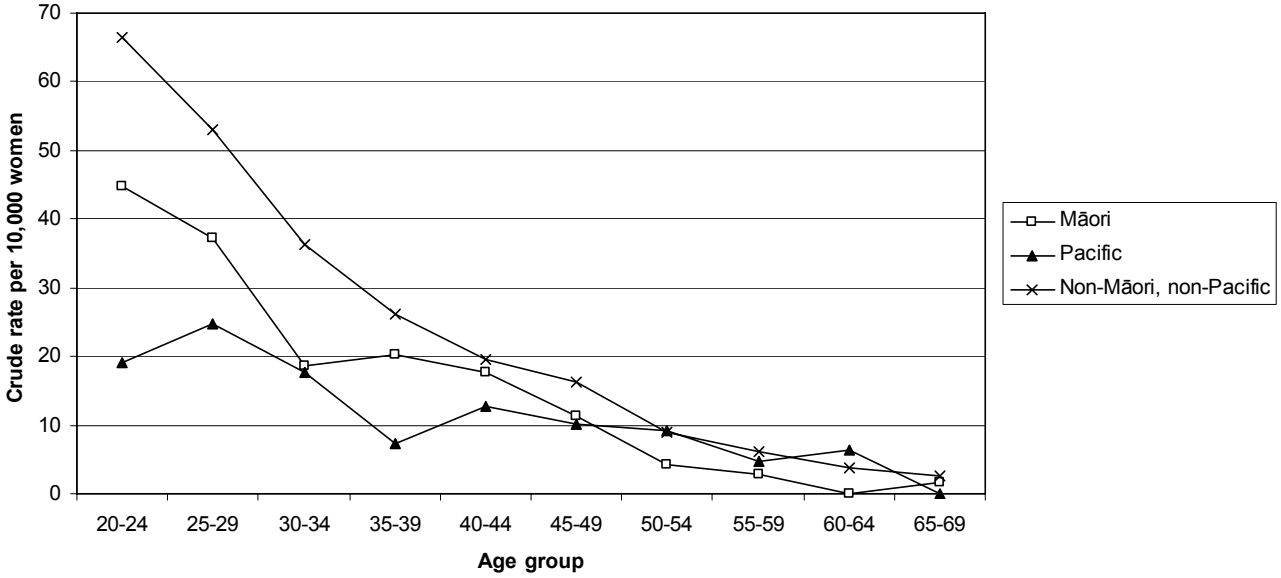


Figure 17: Age-specific HSIL histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2006

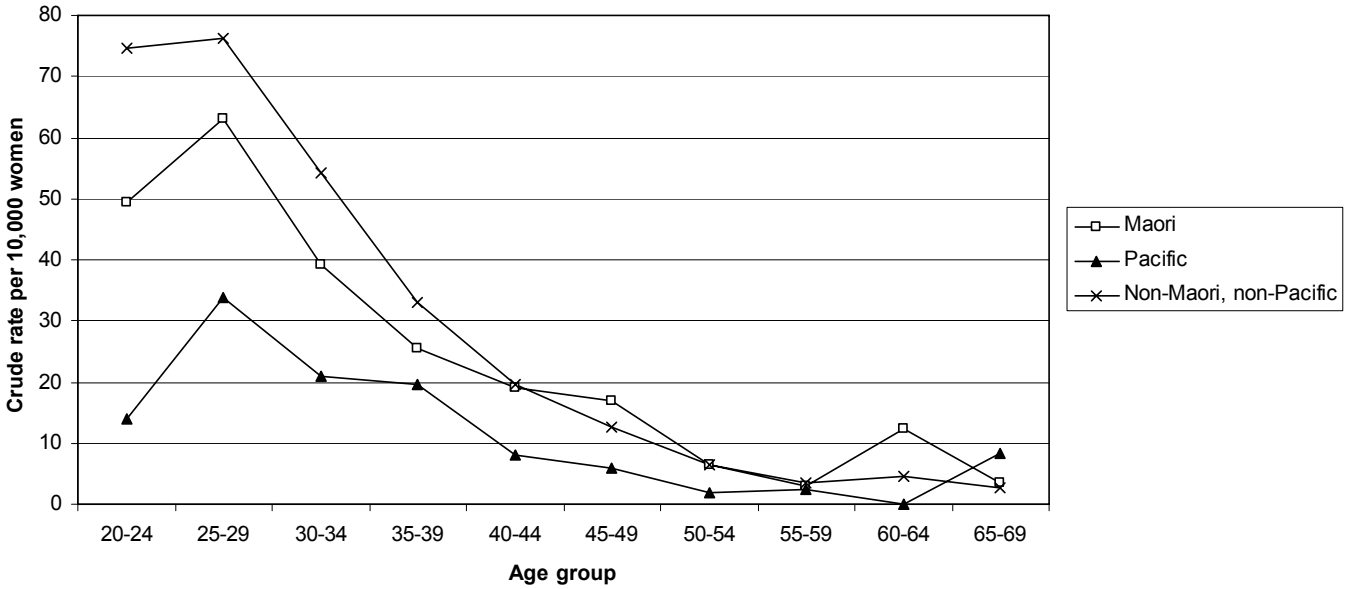


Table 43: Age-standardised histology rates per 10,000 women aged 20 to 69 years by ethnicity, 2006

Histology result category	Ethnic group			All women
	Māori women	Pacific women	Non-Māori, non-Pacific women	
Normal	21.0	18.6	36.6	33.5
Other non-neoplastic	21.0	14.6	34.1	31.1
Polyp	10.7	9.9	14.8	14.0
Atypia/HPV	13.7	10.8	22.1	20.0
CIN, NOS	1.0	0.8	1.1	1.0
LSIL	19.7	13.0	29.3	26.6
HSIL	28.7	13.4	35.6	32.8
Glandular dysplasia	0.0	0.0	<0.1	<0.1
Adenocarcinoma-in-situ	0.4	0.3	0.8	0.7
Other primary cervical cancer	0.1	0.3	0.1	0.1
Metastatic (non-cervical) tumour	0.2	0.0	0.1	0.1
Invasive adenocarcinoma	0.5	0.5	0.5	0.5
Adenosquamous carcinoma	0.0	0.0	<0.1	<0.1
Microinvasive squamous carcinoma	0.0	0.1	0.1	0.1
ISCC	1.1	1.1	0.4	0.5

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Table 44: Age-standardised histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2006

Histology result category	NCSP Region												
	Auckland	Bay of Plenty	Canterbury	Hawke's Bay	Manawatu/ Whanganui	Nelson/ Marlborough	Northland	Otago/ Southland	Tairawhiti	Taranaki	Waikato	Wellington	West Coast
Normal	25.7	26.3	52.8	47.5	45.6	45.3	8.1	42.7	36.4	34.0	34.1	27.0	50.2
Other non-neoplastic	24.5	61.1	21.1	46.6	18.2	29.1	41.2	28.5	7.9	20.7	41.9	42.1	20.7
Polyp	14.6	16.6	13.9	7.4	14.6	18.4	16.6	12.6	10.4	16.3	9.2	15.3	4.3
Atypia/HPV	20.8	26.4	15.9	12.8	53.1	41.2	21.8	8.7	44.1	14.0	14.2	12.1	19.9
CIN, NOS	1.7	0.8	0.9	0.0	0.0	0.0	2.3	0.0	0.0	2.7	0.1	0.9	0.0
LSIL	22.0	43.3	30.5	20.3	22.9	36.5	8.1	13.7	8.9	23.0	37.0	36.9	32.1
HSIL	24.6	46.1	43.4	41.9	47.9	40.8	28.6	37.9	42.3	41.5	31.1	26.8	50.3
Glandular dysplasia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
Adenocarcinoma-in-situ	0.6	0.3	1.1	0.6	0.3	1.9	0.6	1.1	0.6	0.6	0.9	0.5	2.2
Other primary cervical cancer	0.1	0.3	0.1	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.1	0.1	0.0
Metastatic (non-cervical) tumour	0.0	0.1	0.3	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.9
Invasive adenocarcinoma	0.5	0.7	0.2	0.1	0.5	0.8	0.2	0.3	0.0	0.8	0.5	0.6	0.0
Adenosquamous carcinoma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Microinvasive squamous carcinoma	0.1	0.1	0.2	0.0	0.3	0.7	0.2	0.0	0.0	0.0	0.0	0.1	0.0
ISCC	0.8	0.6	0.3	0.0	0.1	0.4	0.9	0.3	0.0	0.5	0.4	0.3	1.6

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Table 45: Age-standardised histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2006

Histology result category	District Health Board																				
	Auck-land	Bay of Plenty	Canter-bury	Capital Coast	Coun-ties Manu-kau	Hawke's Bay	Hutt Valley	Lakes	Mid-Cen-tral	Nelson/ Marl-borough	North-land	Otago	South Canter-bury	South-land	Taira-whiti	Tara-naki	Wai-kato	Waira-rapa	Waite-mata	West Coast	Whan-ganui
Normal	19.4	32.4	55.5	26.9	17.8	47.5	18.9	14.9	49.2	45.3	8.1	51.0	25.9	28.6	36.4	34.0	34.1	50.7	38.0	50.2	35.1
Other non-neoplastic	29.0	79.8	17.0	37.9	15.8	46.6	48.5	26.1	12.4	29.1	41.2	13.8	62.9	52.8	7.9	20.7	41.9	46.3	27.0	20.7	32.4
Polyp	12.2	19.2	12.6	15.2	13.7	7.4	16.7	11.0	14.8	18.4	16.6	16.9	25.4	5.5	10.4	16.3	9.2	11.1	17.0	4.3	13.6
Atypia/HPV	19.0	35.8	14.6	11.6	16.9	12.8	10.8	9.5	59.4	41.2	21.8	1.1	27.9	21.8	44.1	14.0	14.2	23.4	25.7	19.9	32.5
CIN, NOS	1.4	0.6	0.3	0.7	2.0	0.0	1.9	1.1	0.0	0.0	2.3	0.0	8.1	0.0	0.0	2.7	0.1	0.0	1.7	0.0	0.0
LSIL	17.2	46.8	30.2	40.6	26.4	20.3	22.6	37.2	22.0	36.5	8.1	8.1	27.5	23.6	8.9	23.0	37.0	56.0	22.7	32.1	21.5
HSIL	21.8	46.8	42.8	27.4	24.0	41.9	23.8	43.5	48.7	40.8	28.6	35.3	45.7	43.3	42.3	41.5	31.1	34.2	27.6	50.3	41.2
Glandular dysplasia	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Adenocarcinoma-in-situ	0.5	0.4	1.2	0.5	0.6	0.6	0.7	0.0	0.4	1.9	0.6	1.5	0.0	0.4	0.6	0.6	0.9	0.0	0.5	2.2	0.0
Other primary cervical cancer	0.0	0.3	0.1	0.1	0.3	0.0	0.3	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.1	0.0	0.0
Metastatic (non-cervical) tumour	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
Invasive adeno-carcinoma	0.9	0.8	0.2	0.6	0.3	0.1	0.5	0.6	0.5	0.8	0.2	0.2	0.0	0.6	0.0	0.8	0.5	0.7	0.5	0.0	0.6
Adenosquamous carcinoma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
Microinvasive squamous carcinoma	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.3	0.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0
ISCC	0.8	1.0	0.4	0.1	0.7	0.0	0.5	0.0	0.2	0.4	0.9	0.0	0.0	0.7	0.0	0.5	0.4	0.0	0.9	1.6	0.0

HPV: Human papillomavirus; CIN: cervical intra-epithelial neoplasia; NOS: Not otherwise specified: LSIL: Low grade squamous intra-epithelial lesion; HSIL: High grade squamous intra-epithelial lesion; ISCC: Invasive squamous carcinoma of the cervix.

Figure 18: Age-standardised Atypia/HPV histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2006

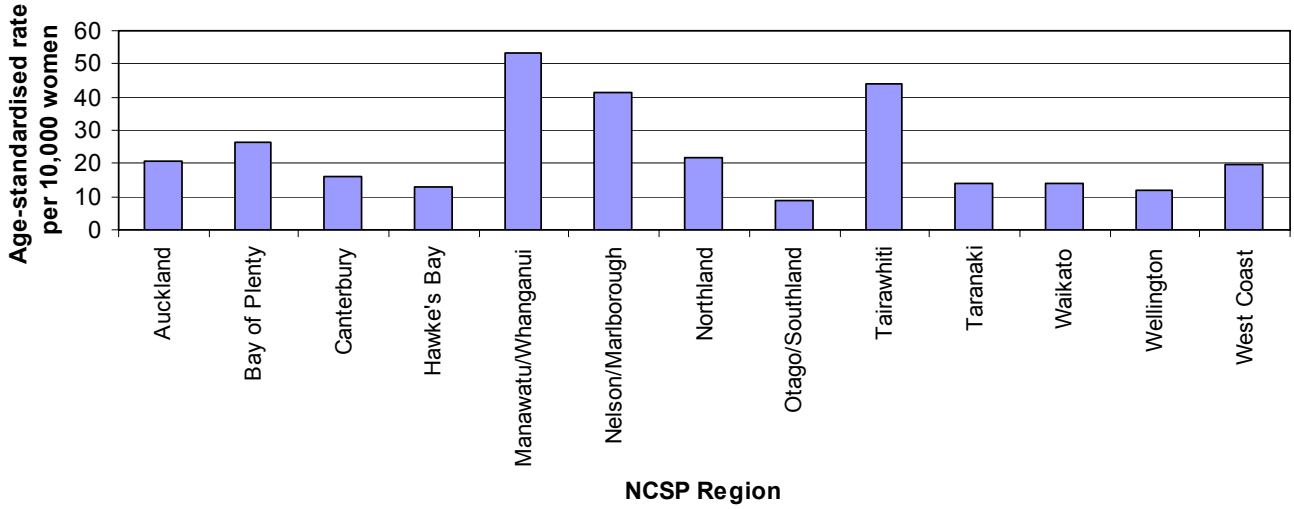


Figure 19: Age-standardised LSIL histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2006

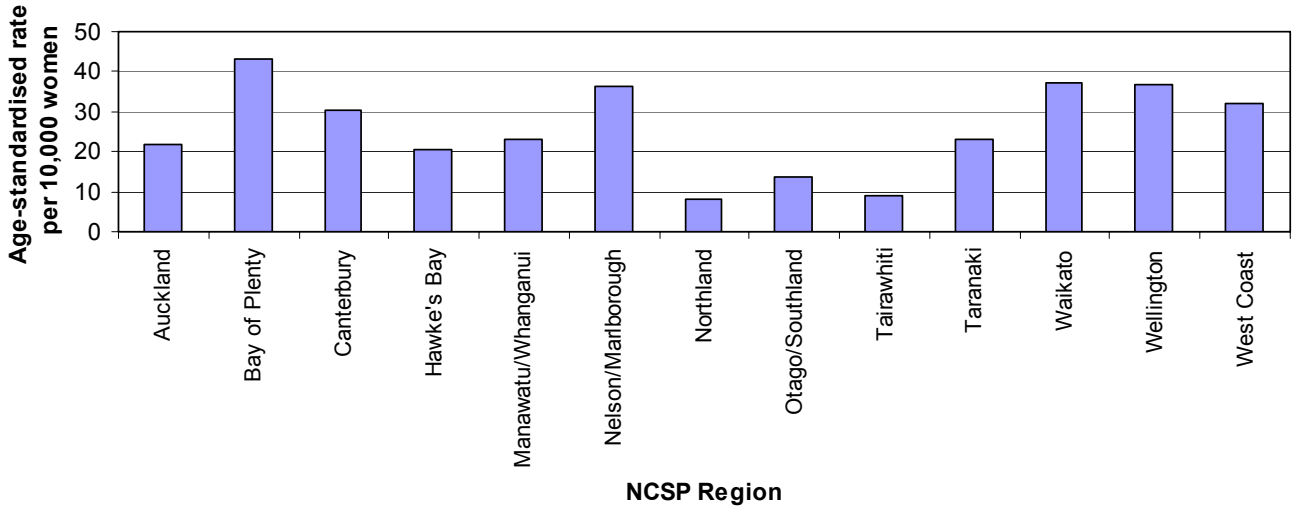


Figure 20: Age-standardised HSIL histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2006

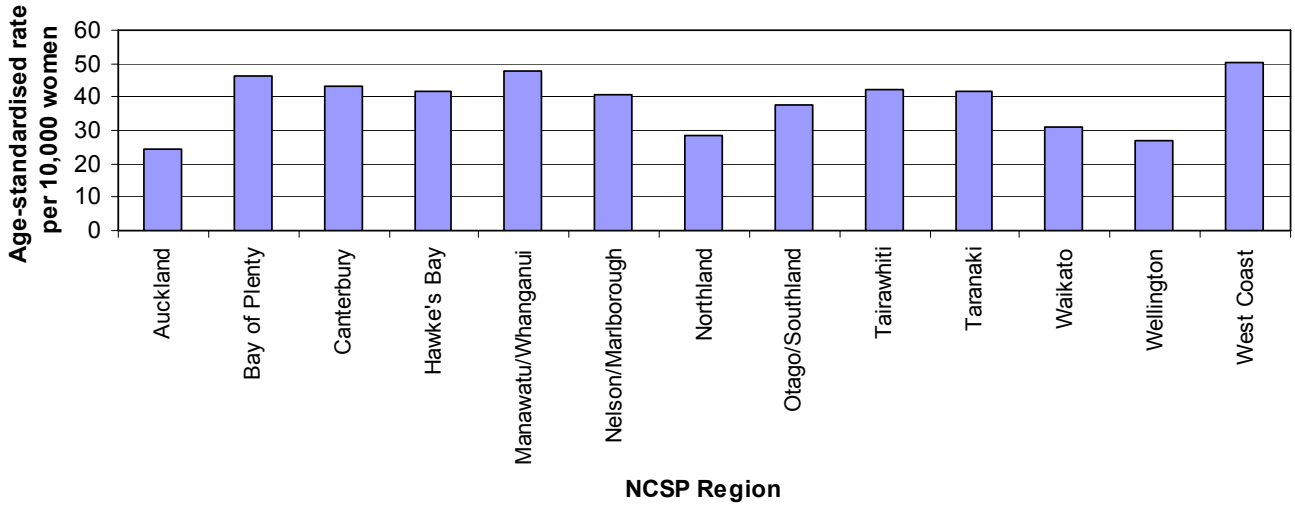


Figure 21: Age-standardised Atypia/HPV histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2006

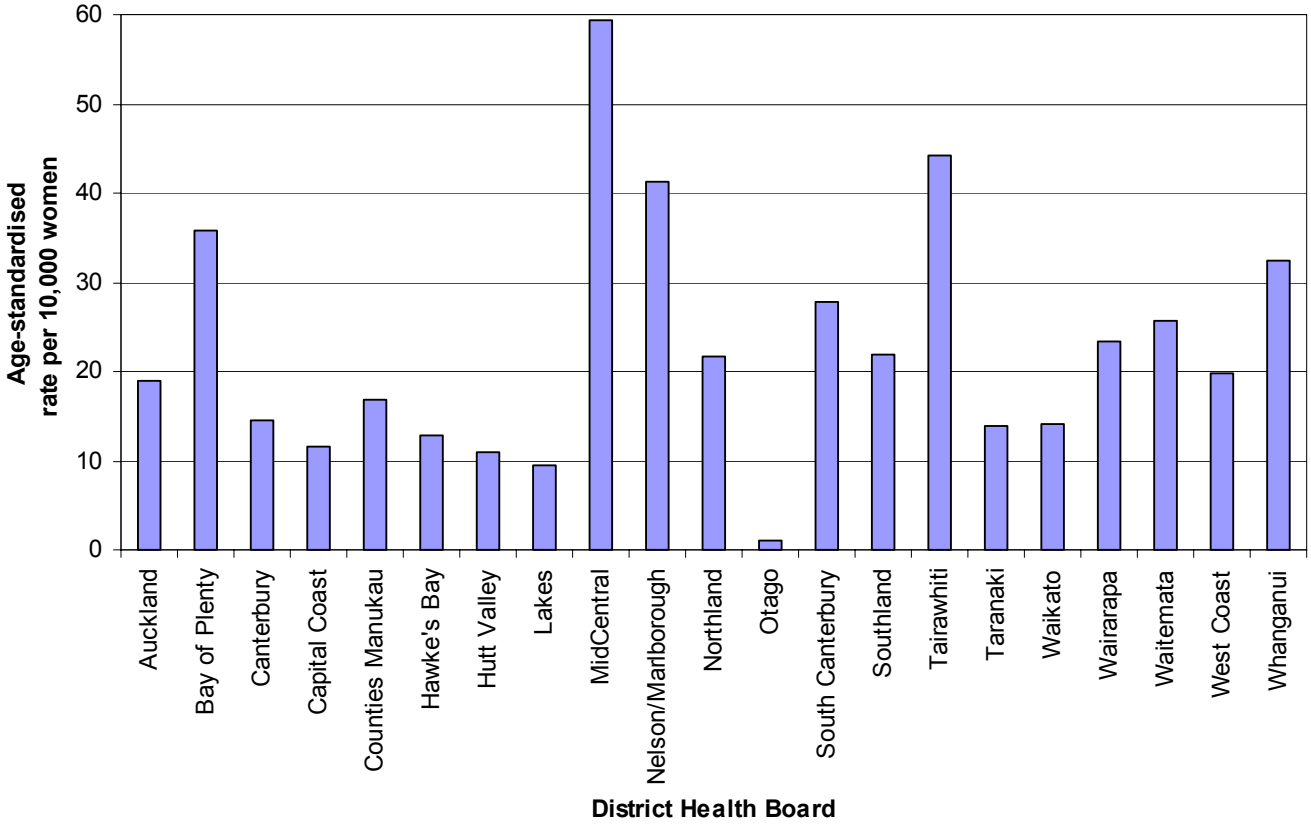


Figure 22: Age-standardised LSIL histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2006

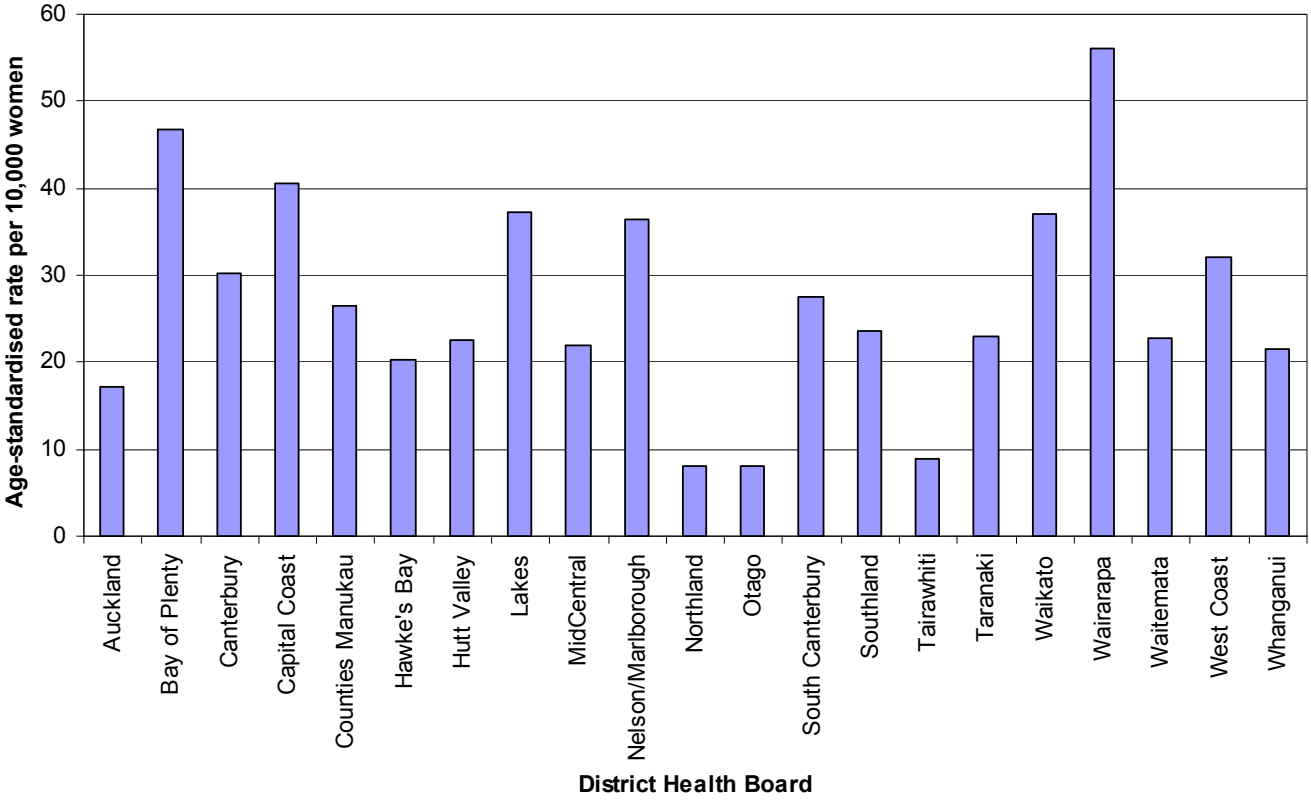
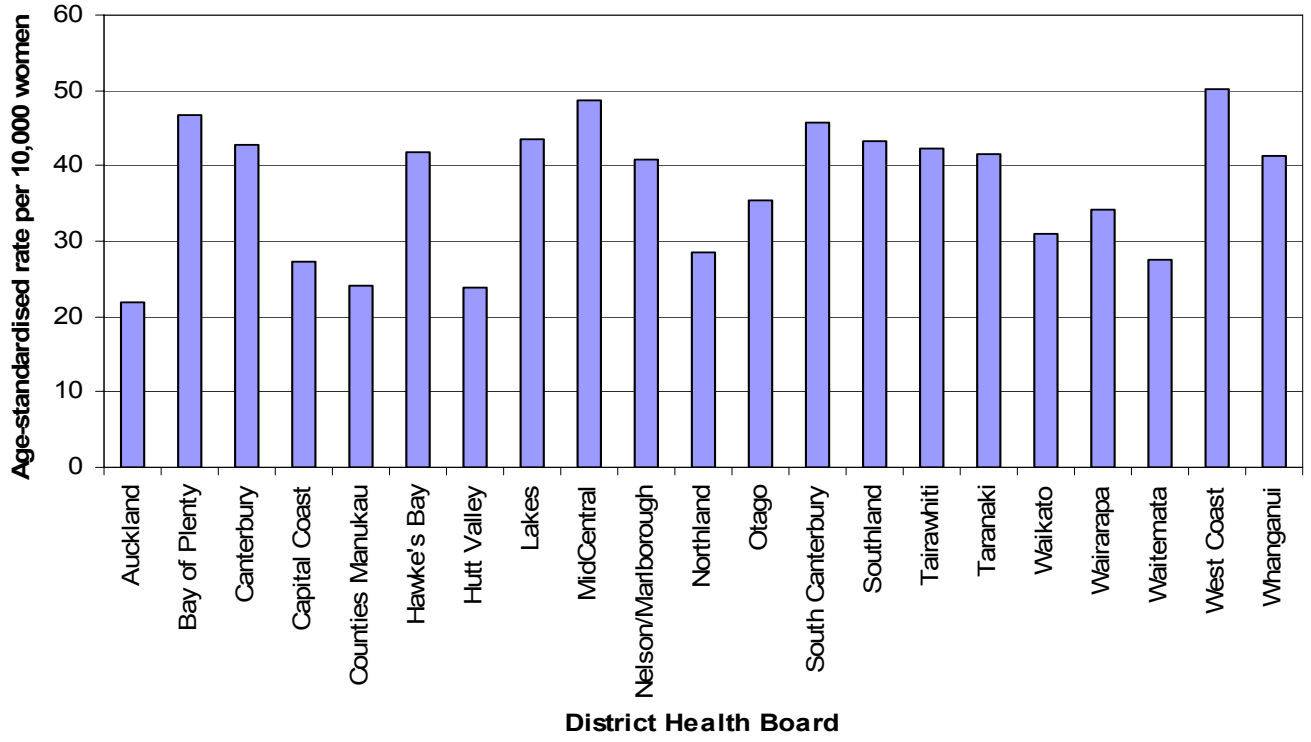


Figure 23: Age-standardised HSIL histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2006



12. Laboratory smear reporting

Definition

Laboratory smear reporting is measured by the number and proportion of satisfactory smears in the following broad cytological categories:

1. Negative for dysplasia or malignancy
2. ASC-US
3. ASC-H
4. LSIL (CIN 1 and/or HPV)
5. HSIL
6. Total abnormalities (smears reported as ASC-US or more serious, including glandular abnormalities).

Targets

There are targets for laboratory smear reporting for three of the broad categories:

1. Negative for dysplasia or malignancy: not more than 96%
2. HSIL: not less than 0.6%
3. Total abnormalities: not more than 10%

Calculation

Laboratory smear reporting was estimated for each reporting quarter in 2006. The Bethesda diagnosis codes, as recorded on the NCSP Register of satisfactory smears taken during each reporting quarter (1 January to 31 March, 1 April to 30 June, 1 July to 30 September, and 1 October to 31 December 2006) were used to calculate the number of smears in each broad cytological category for each laboratory. These smears in each cytological category were expressed as proportions of the total number of satisfactory smears reported by each laboratory. Where a single smear had more than one diagnosis code, the most serious ranked code was used according to the hierarchy of codes (see Appendix 2). Total abnormalities included all smears with a diagnosis code of ASC-US or more serious abnormality (including glandular abnormalities) according to the hierarchy of broad cytological categories. Smear

results for women of all ages were included. Smears recorded as being unsatisfactory for evaluation were excluded.

It should be noted that this indicator has been recalculated to allow for the change in definition of ASC-H/HSIL (*i.e.* the move of Bethesda code C3A2B7 to ASC-H) adopted by the Independent Monitoring Group of the NCSP in 2006, and the data used was from the annual data extract of the NCSP Register (taken six weeks after the end of the reporting period) so the results given here are not the same as those in Quarterly Monitoring Reports 22 to 25.

Please note that in July 2005 the NCSP adopted the 2001 revision of the Bethesda Coding System in which the satisfactory but limited category ceased to be used. As a result, the numbers of smears that were categorised as satisfactory or unsatisfactory for evaluation were different after July 2005 and therefore the results presented in this report are not fully comparable with those from previous years. The targets for this indicator are currently under review because of these changes.

Results

The proportion of satisfactory smears in each of the broad cytological categories is shown by laboratory in Table 46. Table 47 shows these proportions by laboratory for each reporting quarter of 2006. Ten laboratories reported smears in the 2006 reporting period.

Overall, the results of 394,439 satisfactory smears reported by laboratories were recorded on the NCSP Register during 2006. Valley Diagnostic Laboratories read the lowest number of smears (11,135) although they merged with MedLab Wellington in November 2006. Diagnostic MedLab Auckland read the greatest number of smears (121,163).

Of the 394,439 smears, 92.4% were reported as negative for dysplasia or malignancy (Table 46), compared to 92.7% in 2005. This was within the target of not more than 96%. Each laboratory met the target (see Figure 24). In 2005, each laboratory met the target except Southern Community Laboratories (SCL) Christchurch (96.3%). The

proportion of smears reported as negative for dysplasia or malignancy was lowest for Auckland Hospital Laboratory (80.3%) and greatest for SCL Dunedin (95.9%).

For all laboratories combined, the proportion of smears reported as HSIL was 0.8% (compared to 1.0% in 2005, see Figure 25), which met the target of not less than 0.6%. Each laboratory met the target except for Diagnostic MedLab Auckland (0.5%), MedLab Christchurch (0.5%) and MedLab Wellington (0.4%). MedLab Wellington (0.5%) also failed to meet the target in 2005. Auckland Hospital Laboratory reported the highest proportion of smears as HSIL (2.7%), as it did in 2005 (4.1%).

Overall, the proportion of smears reported as abnormal was 7.6%, compared to 7.3% in 2005 (see Figure 26), which did not exceed the target of 10%. Amongst the laboratories, Auckland Hospital Laboratory and MedLab Central reported more than 10% of smears as abnormal, however each of these laboratories process hospital-based smears which are expected to have a higher rate of abnormalities. None of the community-based laboratories reported more than 10% of smears as abnormal.

Table 46: The proportion of satisfactory smears in broad cytological categories by laboratory, 2006

Laboratory	Negative for dysplasia or malignancy[1]	ASC-US	ASC-H	LSIL	HSIL[2]	Total abnormalities[3]	Total number of smears
Auckland Hospital Lab.	80.3	7.4	3.2	6.0	2.7	19.7	15,009
Canterbury Health Lab.	90.8	2.5	0.8	4.4	1.4	9.2	30,862
Diagnostic MedLab Auckland	93.2	2.5	0.9	2.8	0.5	6.8	121,163
MedLab Bay of Plenty	90.1	4.2	0.9	3.7	0.8	9.9	36,368
MedLab Central	89.4	2.1	0.6	6.6	1.1	10.6	27,588
MedLab Christchurch	93.2	2.8	0.7	2.6	0.5	6.8	23,916
MedLab Wellington	91.4	4.0	0.7	3.3	0.4	8.6	36,770
SCL Christchurch	95.3	1.3	0.4	2.1	0.8	4.7	23,268
SCL Dunedin	95.9	<0.1	0.2	2.8	1.0	4.1	68,360
Valley Diagnostic Lab.	94.4	2.3	0.5	2.1	0.7	5.6	11,135
Total	**92.4**	**2.5**	**0.8**	**3.4**	**0.8**	**7.6**	**394,439**

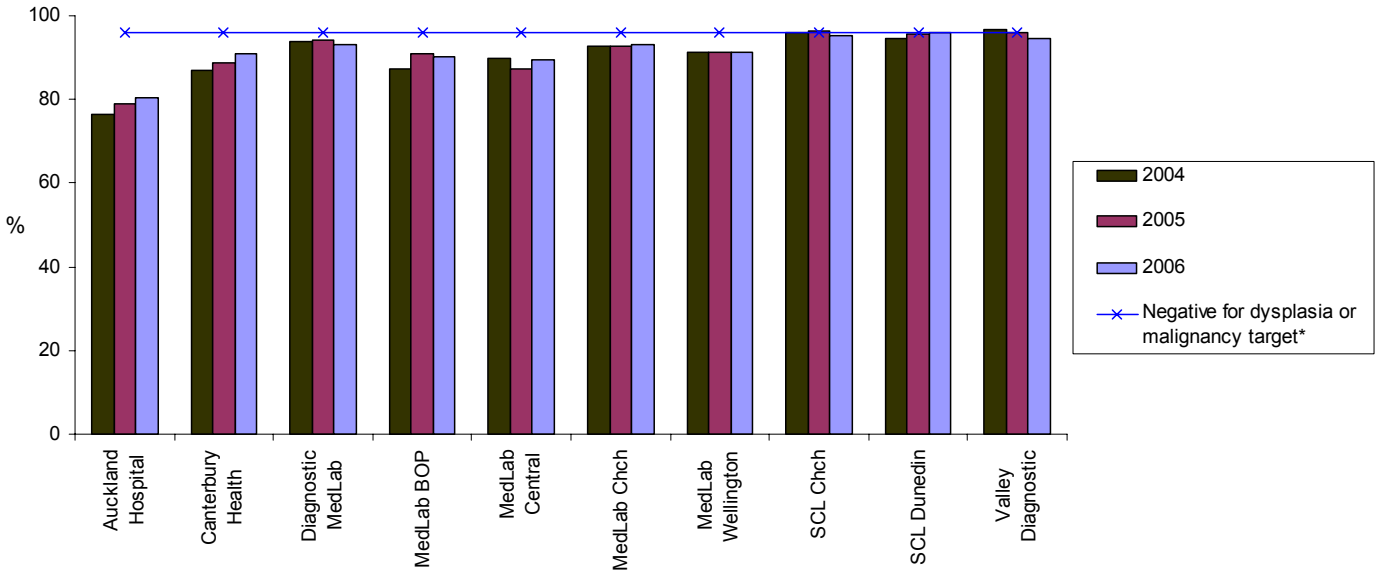
SCL: Southern Community Laboratories.
Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Table 47: The proportion of satisfactory smears in broad cytological categories by laboratory and reporting quarter, 2006

Laboratory	Negative for dysplasia or malignancy[1]				HSIL[2]				Total abnormalities[3]			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Auckland Hospital Lab.	81.1	80.5	79.0	80.7	2.4	2.7	2.9	2.6	18.9	19.5	21.0	19.3
Canterbury Health Lab.	89.6	89.1	91.0	92.7	1.5	1.6	1.6	1.0	10.4	10.9	9.0	7.3
Diagnostic MedLab Auckland	94.0	92.7	92.6	93.4	0.5	0.6	0.6	0.4	6.0	7.3	7.4	6.6
MedLab Bay of Plenty	89.4	90.6	91.3	89.0	0.8	0.8	0.6	0.9	10.6	9.4	8.7	11.0
MedLab Central	89.7	88.6	87.9	91.2	0.7	1.1	1.3	1.3	10.3	11.4	12.1	8.8
MedLab Christchurch	94.2	92.9	92.7	92.7	0.5	0.6	0.5	0.5	5.8	7.1	7.3	7.3
MedLab Wellington	90.5	90.5	92.3	92.4	0.4	0.5	0.3	0.4	9.5	9.5	7.7	7.6
SCL Christchurch	95.7	96.1	94.6	94.9	0.7	0.8	0.9	0.9	4.3	3.9	5.4	5.1
SCL Dunedin	96.3	95.8	95.9	95.8	0.9	1.2	0.9	1.0	3.7	4.2	4.1	4.2
Valley Diagnostic Lab.	94.0	94.0	95.5	93.8	1.0	0.6	0.4	0.2	6.0	6.0	4.5	6.2
Total	**92.7**	**92.1**	**92.3**	**92.6**	**0.7**	**0.9**	**0.9**	**0.8**	**7.3**	**7.9**	**7.7**	**7.4**

SCL: Southern Community Laboratories.
Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Figure 24: The proportion of satisfactory smears reported as negative for dysplasia or malignancy for each laboratory



* Negative for dysplasia or malignancy target is not more than 96% so laboratories should be under the target line.

Figure 25: The proportion of satisfactory smears reported as HSIL for each laboratory

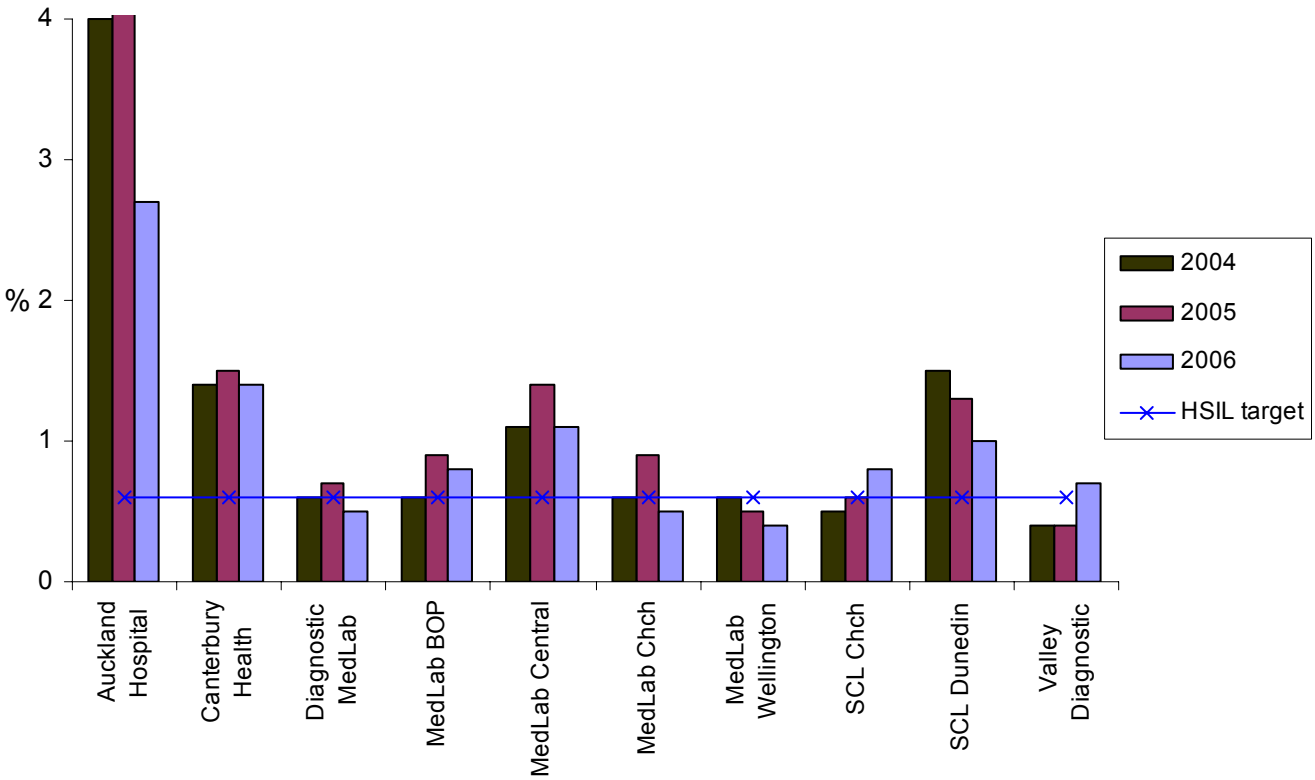
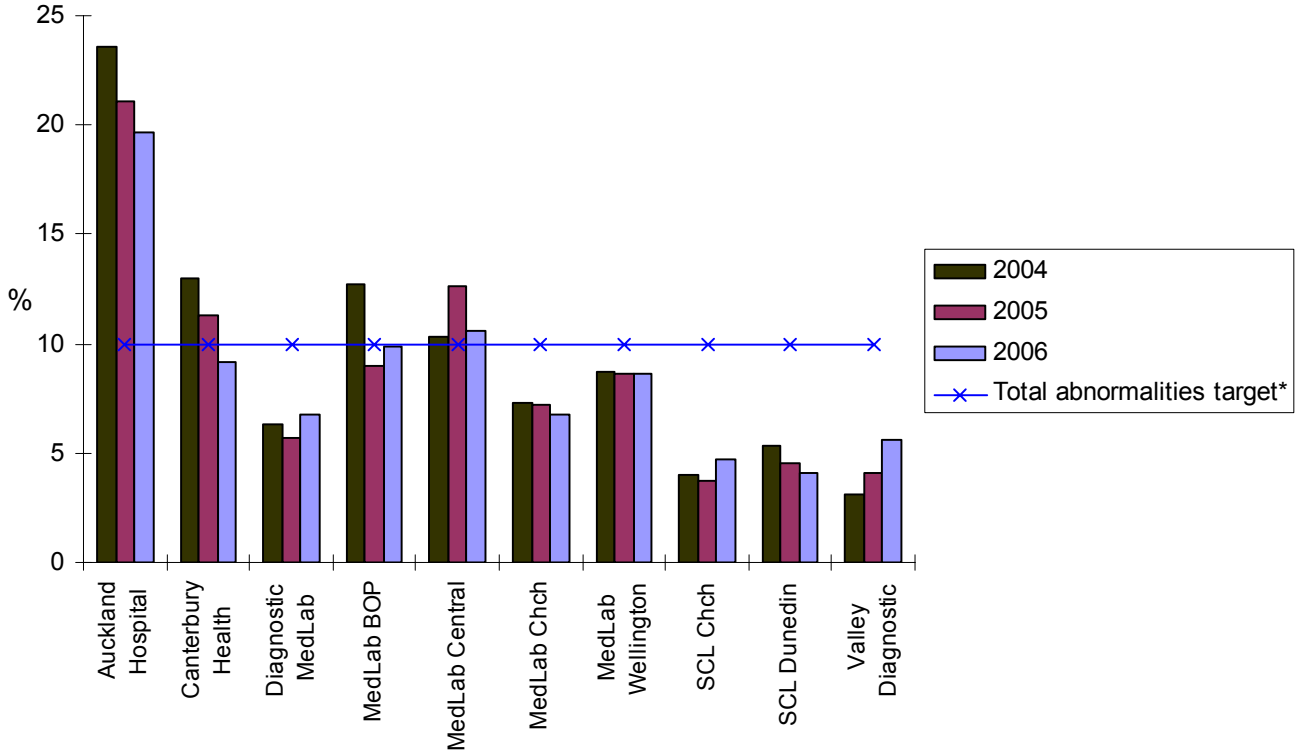


Figure 26: The proportion of satisfactory smears reported as total abnormalities for each laboratory



* Total abnormalities target is not more than 10% so laboratories should be under the target line.

13. Laboratory cytology turn around time

Definition

Laboratory cytology turn around time is the period of time between a smear being received by the laboratory and the report being issued by the laboratory to the smear taker.

Targets

The targets for the laboratory cytology turn around time are:

- 90% of cytology reports issued to the smear taker within seven working days of the smear being received by the laboratory

and

- 100% of cytology reports issued to the smear taker within 14 working days of the smear being received by the laboratory.

Calculation

The difference between the date that the smear was received and the date that the smear was reported by the laboratory to the smear taker, as recorded by the NCSP Register, was used to measure the laboratory turn around time. The numbers of smears reported within seven working days (Monday to Friday), between eight and 14 working days and more than 14 working days were expressed as a proportion of the total number of smears processed by the laboratory during the reporting period (1 January 2006 to 31 December 2006). Smears taken from enrolled women of all ages during the reporting period as recorded on the NCSP Register were included.

Results

The proportion of smears received and reports issued within specified time periods during the period 1 January 2006 to 31 December 2006 for each laboratory processing cervical cytology are shown in Table 48. Ten laboratories reported smears in the 2006 reporting period.

Overall, 88.2% of the 413,293 smears received by laboratories were reported within seven working days (Table 48). This did not meet the target of 90%. Five of the reporting laboratories achieved the seven-day target of 90%; Diagnostic MedLab Auckland (99.5%), MedLab Central (97.6%), MedLab Christchurch (100.0), SCL Christchurch (95.0%) and SCL Dunedin (97.1%). In 2005, 97.9% of the 406,063 smears received by laboratories were reported within seven working days, and all of the reporting laboratories achieved the seven-day target (see Figure 27).

Overall, the 14-day target of 100% was almost achieved (98.6%). Only two of the 10 reporting laboratories achieved the 100% target: MedLab Central and MedLab Christchurch. MedLab Central and MedLab Christchurch also met the 14-day target in 2005 (see Figure 29). Valley Diagnostic Laboratories reported 2,273 smears (19.7%) outside 14 working days. The other laboratories to report smears outside this target were: Auckland Hospital Laboratory (3.1%, n=472), Canterbury Health Laboratories (1.6%, n=511), Diagnostic MedLab Auckland (0.3%, n=334), MedLab Bay of Plenty (0.5%, n=197), MedLab Central (<0.1%, n=11), MedLab Wellington (0.2%, n=78), SCL Christchurch (3.6%, n=847) and SCL Dunedin (1.2%, n=873).

The reporting time for the 5,596 smears that were outside the 14-day target, ranged from 15 to 289 days, with the median time being 20 days. In 2005 there were 2,937 smears that were reported outside the 14-day target. The reporting time for these smears ranged from 15 to 304 days, with the median time being 46 days. The increase in the number of smears reported outside the 14-day target is most likely to be due to the changes in smear reporting that are associated with the NCSP's adoption of the 2001 revision of the Bethesda Coding System.

The proportion of smears received and reports issued within specified time periods during the period 1 January 2006 to 31 December 2006 by ethnicity are shown in Table 49. The proportion of Māori women (86.3%) who had a smear reported within seven working days was less than those of Pacific (92.3%) and non-Māori, non-Pacific women (88.2%). Because of the large number of women, these differences were highly statistically significant, P<0.001. The proportion of Māori women (1.8%, n=683) who had a smear reported outside 14 working days was greater than those of Pacific (1.2%, n=187) and non-Māori, non-Pacific women (1.3%, n=4,726). These

differences were also highly statistically significant and are therefore unlikely to have occurred by chance ($P<0.001$). The proportion of smears received and reports issued within specified time periods in 2004 to 2006 by ethnicity are shown in Figure 28 and Figure 30.

Table 48: Timeliness of reporting smears by laboratory, 2006

Laboratory	Number of smears processed	Within 7 working days[1]		From 8 to 14 working days		Within 14 working days[2] (cumulative %)		More than 14 working days	
	n	n	%	n	%	n	%	n	%
Auckland Hospital Lab.	15,422	13,426	87.1	1,524	9.9	14,950	96.9	472	3.1
Canterbury Health Lab.	31,407	12,654	40.3	18,242	58.1	30,896	98.4	511	1.6
Diagnostic MedLab Auckland	131,032	130,381	99.5	317	0.2	130,698	99.7	334	0.3
MedLab Bay of Plenty	38,356	30,692	80.0	7,467	19.5	38,159	99.5	197	0.5
MedLab Central	27,936	27,259	97.6	666	2.4	27,925	100.0	11	<0.1
MedLab Christchurch	24,656	24,656	100.0	0	0.0	24,656	100.0	0	0.0
MedLab Wellington	39,476	31,719	80.4	7,679	19.5	39,398	99.8	78	0.2
SCL Christchurch	23,510	22,336	95.0	327	1.4	22,663	96.4	847	3.6
SCL Dunedin	69,983	67,965	97.1	1,145	1.6	69,110	98.8	873	1.2
Valley Diagnostic Lab.	11,515	3,379	29.3	5,863	50.9	9,242	80.3	2,273	19.7
Total	**413,293**	**364,467**	**88.2**	**43,230**	**10.5**	**407,697**	**98.6**	**5,596**	**1.4**

SCL: Southern Community Laboratories.
Targets are: [1] 90% within seven working days, [2] 100% within 14 working days.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Table 49: Timeliness of reporting smears by ethnicity, 2006

Ethnicity	Number of smears processed	Within 7 working days[1]		From 8 to 14 working days		Within 14 working days[2] (cumulative %)		More than 14 working days	
	n	n	%	n	%	n	%	n	%
Māori	37,969	32,764	86.3	4,522	11.9	37,286	98.2	683	1.8
Pacific	15,134	13,963	92.3	984	6.5	14,947	98.8	187	1.2
Non-Māori, non-Pacific	360,190	317,740	88.2	37,724	10.5	355,464	98.7	4,726	1.3
Total	**413,293**	**364,467**	**88.2**	**43,230**	**10.5**	**407,697**	**98.6**	**5,596**	**1.4**

Targets are: [1] 90% within seven working days, [2] 100% within 14 working days.

Figure 27: The proportion of smears reported on within seven working days for each laboratory

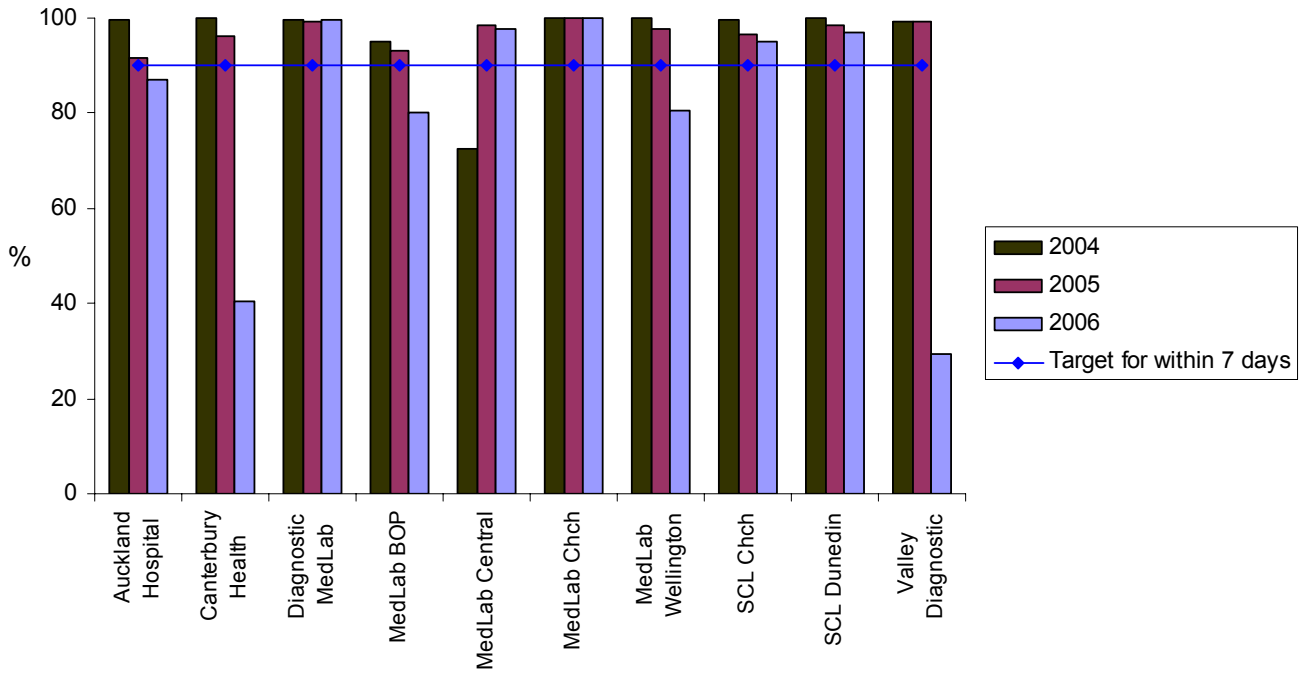


Figure 28: The proportion of smears reported on within seven working days by ethnicity

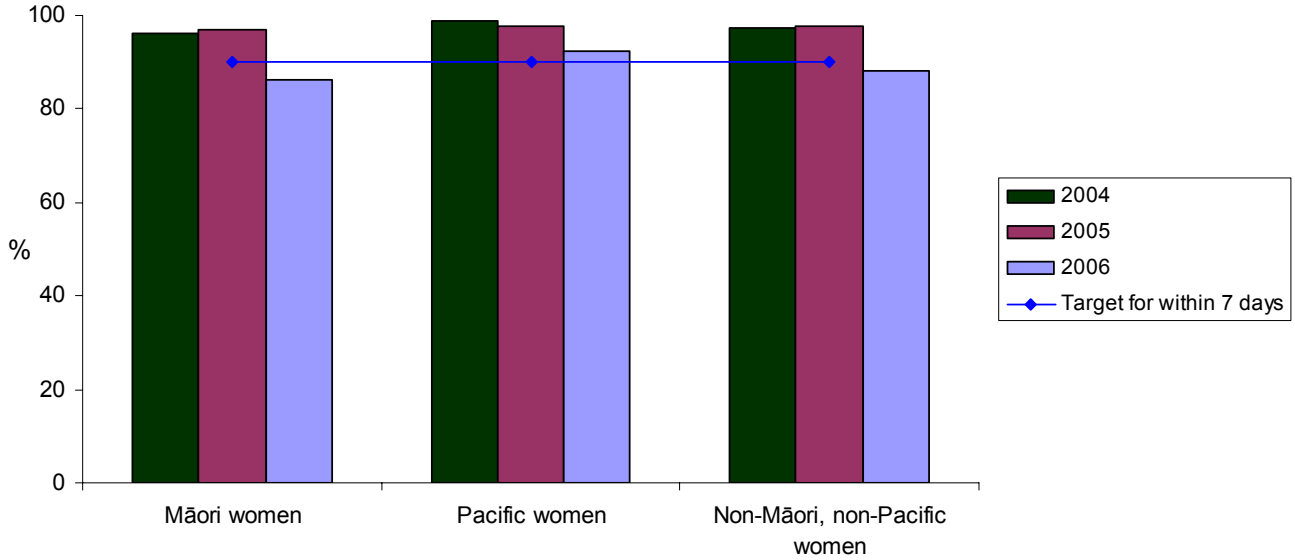


Figure 29: The proportion of smears reported on within 14 working days for each laboratory

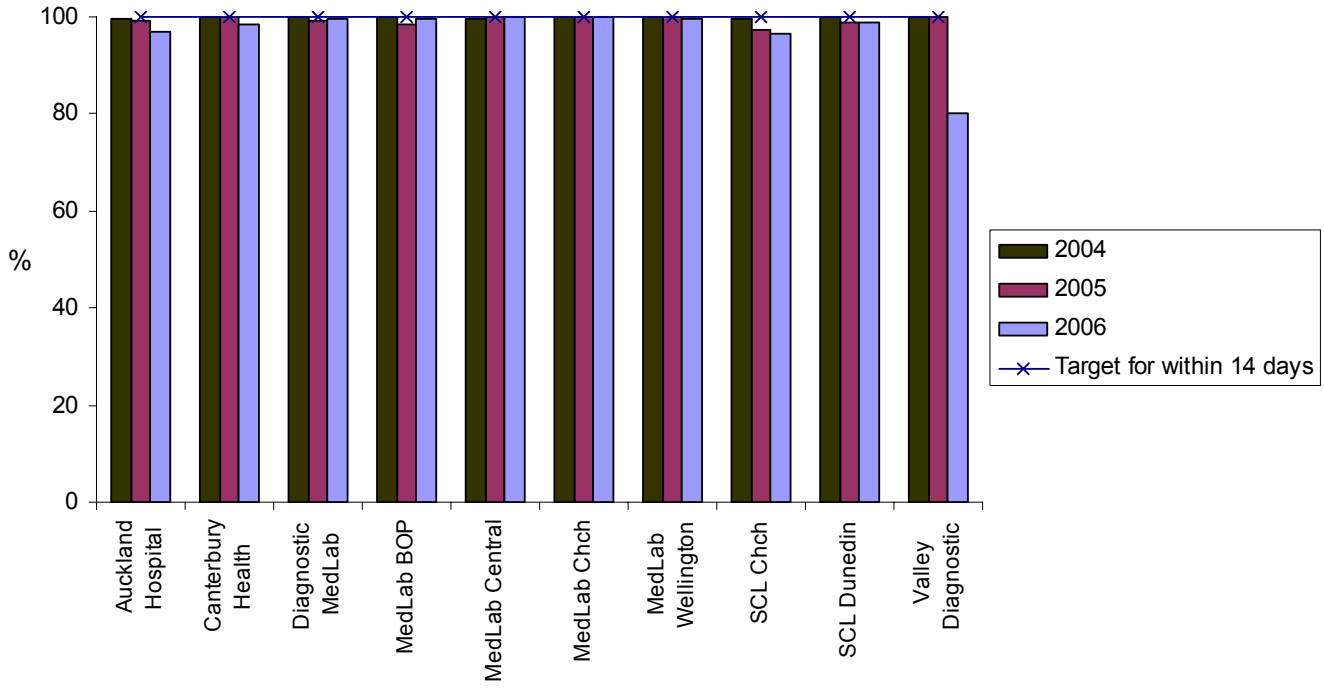
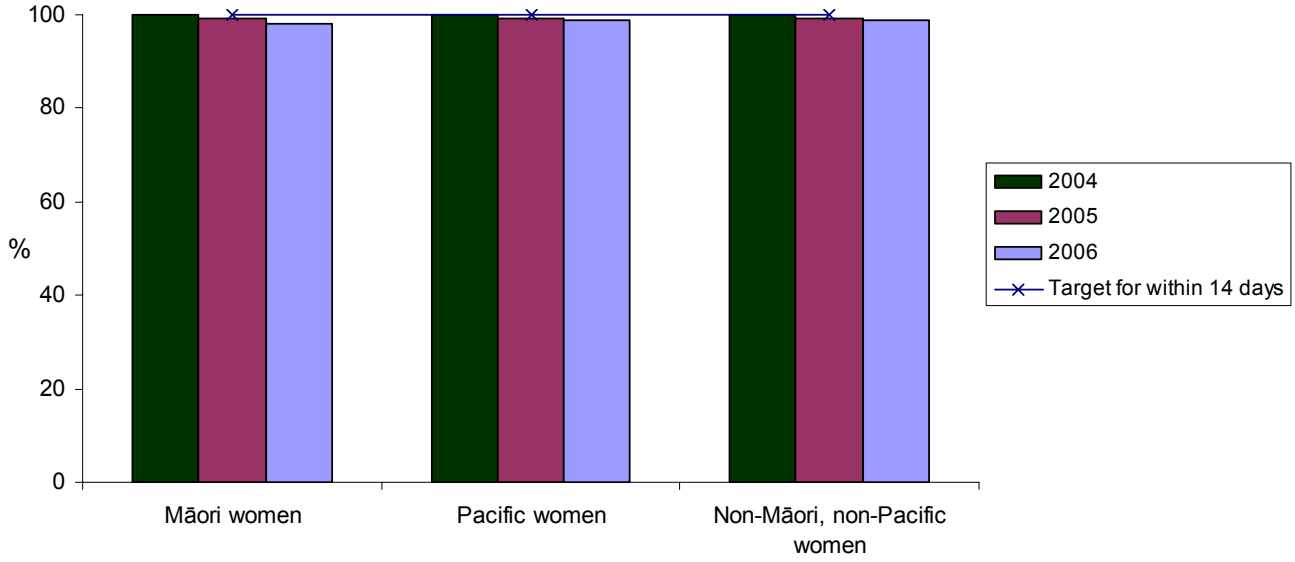


Figure 30: The proportion of smears reported on within 14 working days by ethnicity



14. Laboratory histology turn around time

Definition

Laboratory histology turn around time is the period of time between a cervical or vaginal histology specimen being received in the laboratory and the report being issued by the laboratory to the clinician. Histology specimens include diagnostic biopsies, treatment biopsies, cervical polyps and cervical tissue of total hysterectomy specimens.

Targets

The targets for the laboratory histology turn around time are 90% of final histology reports issued within five working days of the specimen being received by the laboratory, and 100% of final histology reports issued within "a reasonable time period" of the specimen being received by the laboratory. A reasonable time period is not defined, but the NCSP Operational Policy and Quality Standards (2000) states that "If it is likely to take more than 10 days for the result to be reported, the colposcopist should be informed".

Calculation

The difference between the date that the cervical histology specimen was received and the date that the histology result was reported by the laboratory to the clinician, as recorded on the NCSP Register, was calculated for each laboratory that processed cervical histology. For each laboratory, the numbers of cervical histology specimens received during the reporting period (1 January 2006 to 31 December 2006) and reported within five working days (Monday to Friday), six to 10 working days, or more than 10 working days were expressed as proportions of the total number of cervical histology specimens received by each laboratory during the reporting period. Cervical histology specimens taken from enrolled women of all ages during the reporting period as recorded on the NCSP Register were included.

Results

The timeliness of histology reporting during the reporting period 1 January 2006 to 31 December 2006 for each laboratory processing histology specimens is shown in Table 50. Twenty-seven laboratories provided results to the NCSP Register in 2006.

There were a total of 25,003 histology specimens recorded on the NCSP Register during this period (Table 50). The number of specimens reported by each laboratory varied considerably, ranging from 57 in MedLab Southland to 3,485 in Diagnostic MedLab Auckland. For all laboratories combined, the proportion of histological specimens reported on within five working days was 91.2%, which met the target of 90%. In 2005, the proportion of histological specimens reported on within five working days was 88.1%, which was below the target of 90% (see Figure 31).

Seven laboratories did not meet the five-day 90% target. These were Auckland Hospital Laboratory (64.0%), Hutt Hospital (83.2%), MedLab Wellington (77.9%), Nelson Diagnostic Laboratory (75.1%), Nelson Hospital (89.8%), Waikato Hospital (81.0%), and Wellington Hospital (62.5%). Five of these laboratories also did not meet the target in 2005; Auckland Hospital Laboratory (70.5%), Hutt Hospital (74.6%), MedLab Wellington (88.4%), Nelson Diagnostic Laboratory (87.2%) and Wellington Hospital (64.2%).

Auckland Hospital Laboratory (26.2%), Nelson Diagnostic Laboratory (22.7%), and Wellington Hospital (28.4%) reported the greatest proportion of histology results six to 10 working days from the specimens being received. Auckland Hospital Laboratory (25.1%) and Wellington Hospital (29.0%) also reported the greatest proportion of histology results six to 10 working days from the specimens being received in 2005. Auckland Hospital Laboratory (9.9%), Waikato Hospital (7.8%), and Wellington Hospital (9.1%) reported the greatest proportion of histology results more than 10 working days after the time that they were received by the laboratory. In 2005, Wellington Hospital (6.8%) also reported amongst the highest proportion of histology results more than 10 working days after the time that they were received by the laboratory. Overall, 523 (2.1%) specimens were reported after 10 working days, compared to 1,386 (5.2%) specimens in 2005, and the reporting time for these

specimens ranged from 11 to 131 days, with the median time being 14 days, compared to 11 to 255 days, with the median time being 19 days, in 2005.

The timeliness of histology reporting by ethnicity is shown in Table 51. The data showed ethnic disparities, with the slowest turn around times for Pacific women. The proportion of Pacific women (88.4%) who had histology reported within five working days was less than that of Māori (89.2%) and non-Māori, non-Pacific women (91.6%). These differences were highly statistically significant (P<0.001) and are therefore unlikely to have occurred by chance. The proportion of Pacific (2.9%, n=22) and Māori women (2.9%, n=78) with histology reported outside 10 working days was more than that of non-Māori, non-Pacific women (2.0%, n=423). These differences were also highly statistically significant, P=0.002. These ethnic disparities were also evident in 2005, when Pacific women had the slowest turn around times (see Figure 32). The proportion of Pacific women in 2005 (77.8%) who had histology reported within five working days was less than that of Māori (85.7%) and non-Māori, non-Pacific women (88.7%). These differences were highly statistically significant, P<0.001. The proportion of Pacific women in 2005 (9.8%, n=74) with histology reported outside 10 working days was more than those of Māori (5.8%, n=169) and non-Māori, non-Pacific women (5.0%, n=1,143). These differences were also highly statistically significant, P<0.001.

Table 50: Timeliness of the reporting of histology by laboratory, 2006

Laboratory	Number of specimens processed	Within 5 working days[1]		6 to 10 working days		11 or more working days	
	n	n	%	n	%	n	%
Auckland Hospital Lab.	1,116	714	64.0	292	26.2	110	9.9
Canterbury Health Lab.	2,161	2,059	95.3	93	4.3	9	0.4
Diagnostic MedLab Auckland	3,485	3,445	98.9	38	1.1	2	0.1
Hutt Hospital	493	410	83.2	61	12.4	22	4.5
MedLab Bay of Plenty	1,822	1,770	97.1	51	2.8	1	0.1
MedLab Central	1,578	1,440	91.3	108	6.8	30	1.9
MedLab Christchurch	193	193	100.0	0	0.0	0	0.0
MedLab Southland	57	57	100.0	0	0.0	0	0.0
MedLab Taranaki	490	483	98.6	7	1.4	0	0.0
MedLab Timaru	392	392	100.0	0	0.0	0	0.0
MedLab Wellington	709	552	77.9	138	19.5	19	2.7
Memorial Hospital Hastings	586	577	98.5	9	1.5	0	0.0
Middlemore Hospital	1,524	1,481	97.2	41	2.7	2	0.1
Nelson Diagnostic Lab.	185	139	75.1	42	22.7	4	2.2
Nelson Hospital	788	708	89.8	56	7.1	24	3.0
Northland Pathology	655	652	99.5	2	0.3	1	0.2
North Shore Hospital	1,767	1,685	95.4	54	3.1	28	1.6
Pathlab Waikato	543	537	98.9	6	1.1	0	0.0
Rotorua Hospital	327	317	96.9	8	2.4	2	0.6
SCL Christchurch	813	808	99.4	5	0.6	0	0.0
SCL Dunedin	1,160	1,138	98.1	18	1.6	4	0.3
SCL Hawke's Bay	119	119	100.0	0	0.0	0	0.0
Southland Hospital	511	494	96.7	12	2.3	5	1.0
Valley Diagnostic Lab.	269	252	93.7	15	5.6	2	0.7
Waikato Hospital	1,485	1,203	81.0	166	11.2	116	7.8
Wanganui Hospital	238	225	94.5	11	4.6	2	0.8
Wellington Hospital	1,537	961	62.5	436	28.4	140	9.1
Total	**25,003**	**22,811**	**91.2**	**1,669**	**6.7**	**523**	**2.1**

SCL: Southern Community Laboratories.
Targets are: [1] 90% within five working days, and 100% within a reasonable period of time.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Table 51: Timeliness of the reporting of histology by ethnicity, 2006

Ethnicity	Number of specimens processed	Within 5 working days[1]		6 to 10 working days		11 or more working days	
	n	n	%	n	%	n	%
Māori	2,688	2,399	89.2	211	7.8	78	2.9
Pacific	758	670	88.4	66	8.7	22	2.9
Non-Māori, non-Pacific	21,557	19,742	91.6	1,392	6.5	423	2.0
Total	**25,003**	**22,811**	**91.2**	**1,669**	**6.7**	**523**	**2.1**

Targets are: [1] 90% within five working days, and 100% within a reasonable period of time.

Figure 31: Laboratory histology five-day turn around time

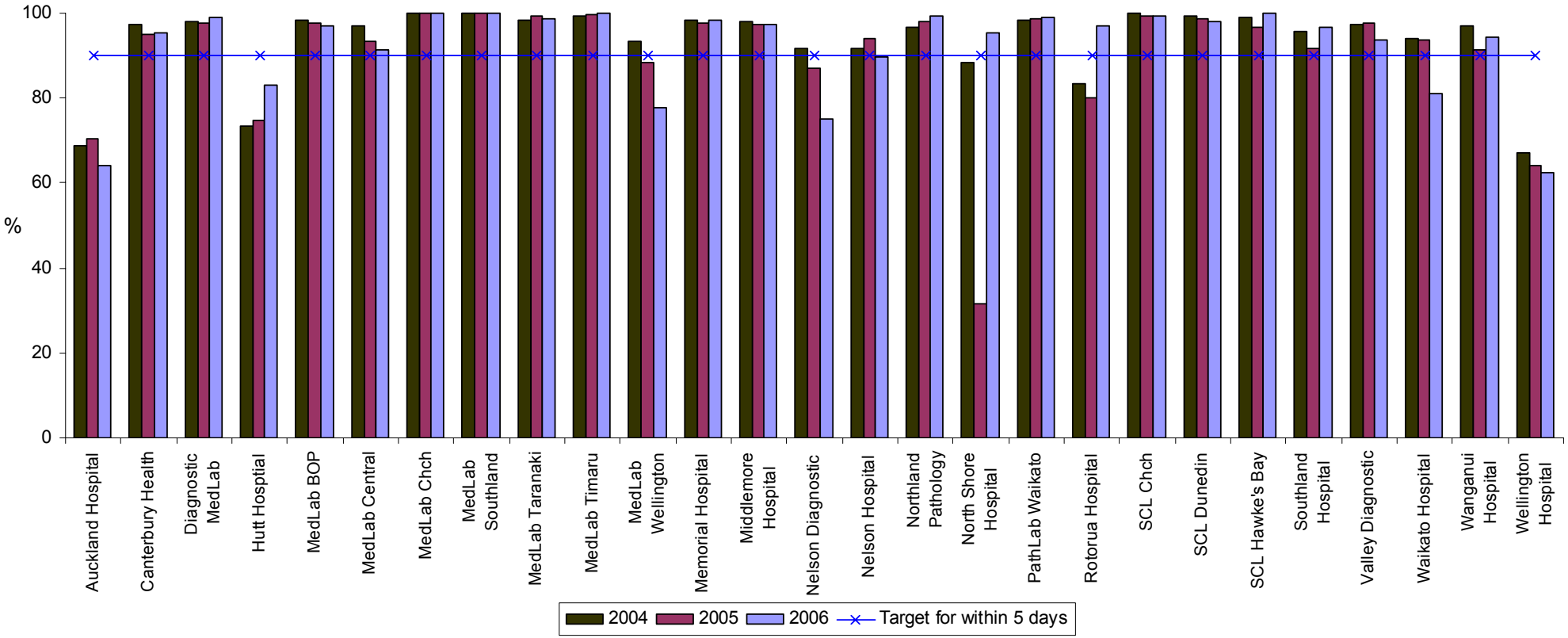
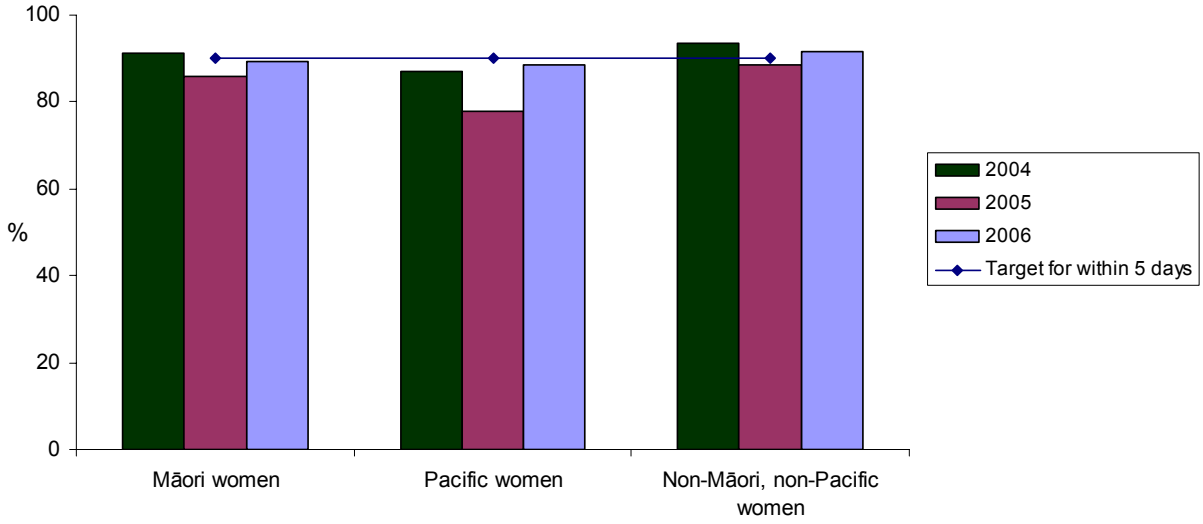


Figure 32: Histology five-day turn around time by ethnicity



15. Unsatisfactory smears by laboratory

Definition

Unsatisfactory smears are those smears reported with a Bethesda adequacy of UA, UB, UC, UD, UE, UF, or UG (Revised Bethesda Coding System, 2001). It is important to note that the adequacy coding of a smear is influenced by both smear taking technique and laboratory reporting practice. The NCSP has adopted the revised Bethesda Coding System 2001 (from July 2005), and this no longer includes a satisfactory but limited category. It is expected that unsatisfactory and satisfactory rates will increase, and therefore these are not directly comparable with those from reporting periods prior to July 2005.

Targets

The target for unsatisfactory smears was previously not less than 0.5% and not more than 2.0% of all smears reported for a given laboratory but this is now under review due to the introduction of the 2001 revision of the Bethesda Coding System.

Calculation

All smears taken between 1 January 2006 and 31 December 2006 for which there was a result recorded on the NCSP Register were used to calculate this indicator. The number of unsatisfactory smears reported was expressed as a proportion of the total number of smears processed during the reporting period by each cytology reporting laboratory.

Results

The number and proportion of unsatisfactory smears taken between 1 January 2006 and 31 December 2006 and reported by each cytology laboratory is shown in Table 52. Ten laboratories reported smears in the 2006 reporting period.

Overall, 413,293 smears were processed, of which 18,854 (4.6%) were reported as unsatisfactory for evaluation, which exceeded the previous target range of 0.5 to

2.0%. Seven laboratories reported unsatisfactory smears above the previous target range; Auckland Hospital Laboratory (2.7%), Diagnostic MedLab Auckland (7.5%), MedLab Bay of Plenty (5.2%), MedLab Christchurch (3.0%), MedLab Wellington (6.9%), SCL Dunedin (2.3) and Valley Diagnostic Laboratories (3.3%).

Table 52: The number and proportion of unsatisfactory smears reported by laboratory, 2006

Laboratory	Smears processed	Unsatisfactory smears[1]		Unsatisfactory smears					
				Combination (conventional & liquid based)		Conventional pap smear		Liquid based cytology	
	n	n	%	n	%	n	%	n	%
Auckland Hospital Lab.	15,422	413	2.7	0	0.0	335	2.6	78	3.4
Canterbury Health Lab.	31,407	545	1.7	3	0.9	99	6.1	443	1.5
Diagnostic MedLab Auckland	131,032	9,869	7.5	78	4.4	6,920	8.5	2,871	6.0
MedLab Bay of Plenty	38,356	1,988	5.2	11	5.2	1,745	6.4	232	2.1
MedLab Central	27,936	348	1.2	1	1.8	335	1.2	12	2.8
MedLab Christchurch	24,656	740	3.0	1	0.7	698	3.0	41	2.8
MedLab Wellington	39,476	2,706	6.9	10	2.2	2,487	7.8	209	2.8
SCL Christchurch	23,510	242	1.0	0	0.0	242	1.0	0	0.0
SCL Dunedin	69,983	1,623	2.3	6	0.7	1,507	2.3	110	2.3
Valley Diagnostic Laboratory	11,515	380	3.3	0	0.0	336	3.2	44	5.6
Total	**413,293**	**18,854**	**4.6**	**110**	**2.7**	**14,704**	**4.8**	**4,040**	**3.8**

SCL: Southern Community Laboratories.
Targets are under review, but were previously: [1] 0.5 to 2.0%.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

16. Unsatisfactory smears by smear taker

Definition

Unsatisfactory smears are those smears reported with a Bethesda adequacy of UA, UB, UC, UD, UE, UF, or UG (Revised Bethesda Coding System, 2001). It is important to note that the adequacy coding of a smear is influenced by both smear taking technique and laboratory reporting practice. The NCSP has adopted the revised Bethesda Coding System 2001 (from July 2005), and this no longer includes a satisfactory but limited category. As a result, it is expected that unsatisfactory and satisfactory rates will increase, and therefore these are not directly comparable with those from reporting periods prior to July 2005.

Targets

The target for unsatisfactory smears was previously not less than 0.5% and not more than 2.0% of all smears reported for each smear taker category but this is now under review due to the introduction of the 2001 revision of the Bethesda Coding System.

Please note that this indicator previously included smears that were satisfactory, satisfactory but limited or unsatisfactory for evaluation. Since the adoption of the 2001 revision of the Bethesda Coding Standard the category of satisfactory but limited has ceased to be used. The targets for this indicator are therefore currently under evaluation.

Calculation

Smears taken from enrolled women of all ages between 1 January 2006 and 31 December 2006 for which there was a result recorded on the NCSP Register were used to calculate this indicator. The total number of smears recorded by each smear taker group for the 12 months of 2006 was used to calculate the annual volume of smears taken by each smear taker group. For each group, the number of unsatisfactory smears was expressed as a proportion of the total number of smears taken by that group.

Results

The numbers and proportions of satisfactory and unsatisfactory smears taken between 1 January 2006 and 31 December 2006 by annual volume of smears taken by each smear taker group is shown in Table 53. Overall, 413,293 smears were taken during the year, of which 96 (<1%) were taken by lay smear takers, 240,382 (58%) by medical smear takers, 138,737 (34%) by nurses, 32,783 (8%) by specialists and 1,295 (<1%) by midwives. These proportions are similar to those reported in 2005.

The proportion of unsatisfactory smears exceeded the previous target range of 0.5 to 2.0% for each smear taker group as a whole except for lay smear takers (1.0%). When smear taker groups were considered by annual volume, the proportion of unsatisfactory smears was less than 2.0% for lay smear takers who took less than 30 smears (0.0%) and those who took 30 to 100 smears (1.1%), and midwives with an annual volume of more than 100 smears (1.4%).

The numbers and proportions of smears taken by each smear taker group by DHB are shown in Table 54. The proportions of smears taken by each group varied considerably (with the exception of lay and midwife smear takers). Medical smear takers ranged from taking 76.3% of the smears in Waitemata to taking 22.1% of smears in Taranaki. Similarly, nurse smear takers ranged from taking 72.5% of the smears in Taranaki to 13.5% of smears in Waitemata. Specialist smear takers ranged from taking 14.9% of the smears in the Unspecified DHB to 3.7% of smears in Wairarapa.

Table 53: Quality of smears reported by different smear taker groups, 2006

	Annual volume of smears n	Total number of smears n	Satisfactory smears n	%	Unsatisfactory smears[1] n	%
Lay	<30	7	7	100.0	0	0.0
	30-100	89	88	98.9	1	1.1
	>100	0	0	0.0	0	0.0
	Total	96	95	99.0	1	1.0
Medical	<30	18,035	16,990	94.2	1,045	5.8
	30-100	68,290	64,693	94.7	3,597	5.3
	>100	154,057	145,669	94.6	8,388	5.4
	Total	240,382	227,352	94.6	13,030	5.4
Nurse	<30	7,117	6,887	96.8	230	3.2
	30-100	53,159	51,563	97.0	1,596	3.0
	>100	78,461	76,102	97.0	2,359	3.0
	Total	138,737	134,552	97.0	4,185	3.0
Specialist	<30	552	508	92.0	44	8.0
	30-100	3,194	3,031	94.9	163	5.1
	>100	29,037	27,638	95.2	1,399	4.8
	Total	32,783	31,177	95.1	1,606	4.9
Midwife	<30	259	250	96.5	9	3.5
	30-100	453	438	96.7	15	3.3
	>100	583	575	98.6	8	1.4
	Total	1,295	1,263	97.5	32	2.5
	Total	**413,293**	**394,439**	**95.4**	**18,854**	**4.6**

Targets are: [1] not more than 20%, [2] 0.5 to 2.0%.

Table 54: The proportion of smears taken by each smear taker group by District Health Board, 2006

DHB	Smear Taker Group										Total number of smears
	Lay		Medical		Nurse		Specialist		Midwife		
	n	%	n	%	n	%	n	%	n	%	n
Auckland	0	0.0	34,489	75.1	7,109	15.5	4,289	9.3	28	0.1	45,915
Bay of Plenty	0	0.0	8,447	41.4	10,643	52.2	1,282	6.3	10	0.1	20,382
Canterbury	42	0.1	31,752	65.2	11,734	24.1	5,169	10.6	1	<0.1	48,698
Capital Coast	0	0.0	22,028	69.3	7,887	24.8	1,859	5.9	5	<0.1	31,779
Counties Manakau	0	0.0	27,250	69.0	9,648	24.4	2,572	6.5	9	<0.1	39,479
Hawke's Bay	0	0.0	6,446	46.7	6,181	44.8	1136	8.2	48	0.4	13,811
Hutt	0	0.0	8,267	63.5	3,884	29.8	832	6.4	35	0.3	13,018
Lakes	0	0.0	5,127	51.3	4,276	42.8	576	5.8	7	0.1	9,986
MidCentral	0	0.0	4,427	29.1	8,742	57.4	1,731	11.4	334	2.2	15,234
Nelson/Marlborough	0	0.0	7,353	54.6	5,260	39.1	844	6.3	1	<0.1	13,458
Northland	0	0.0	5,194	40.3	6,905	53.5	795	6.2	6	0.1	12,900
Otago	0	0.0	10,047	53.2	7,192	38.1	1,514	8.0	140	0.7	18,893
South Canterbury	11	0.2	2,581	50.7	1,925	37.8	577	11.3	0	0.0	5,094
Southland	0	0.0	5,483	51.7	4,578	43.1	544	5.1	6	0.1	10,611
Tairawhiti	0	0.0	1,686	38.6	2,201	50.4	375	8.6	102	2.3	4,364
Taranaki	0	0.0	2,353	22.1	7,731	72.5	576	5.4	2	<0.1	10,662
Waikato	43	0.1	10,687	34.0	18,653	59.3	1,904	6.1	154	0.5	31,441
Wairarapa	0	0.0	2,164	57.9	1,434	38.4	138	3.7	1	<0.1	3,737
Waitemata	0	0.0	40,568	76.3	7,164	13.5	5,291	9.9	182	0.3	53,205
West Coast	0	0.0	728	26.2	1,875	67.4	181	6.5	0	0.0	2,784
Whanganui	0	0.0	2,043	36.8	3,035	54.7	255	4.6	212	3.8	5,545
Unspecified	0	0.0	1,262	54.9	680	29.6	343	14.9	12	0.5	2,297
Total	**96**	**<0.1**	**240,382**	**58.2**	**138,737**	**33.6**	**32,783**	**7.9**	**1,295**	**0.3**	**413,293**

17. Waiting time for colposcopic assessment for HSIL or ASC-H

Definition

The waiting time for colposcopic assessment for HSIL or ASC-H is the time from the receipt of a referral to a DHB colposcopy service for women with a high grade cytology result to the time of the first colposcopic assessment.

Target

The target for colposcopic assessment of women with a high grade cytology result is 95% of women having assessment within four weeks of referral.

Calculation

The data required for the calculation of the waiting time for colposcopic assessment of HSIL or ASC-H indicator are supposed to be collected by DHB colposcopy clinics and reported to the NSU. The indicator was unable to be calculated with the available data. Nevertheless, the number of women with HSIL or ASC-H cytology results who were referred to DHB colposcopy clinics each month in 2006, and the number of women with HSIL or ASC-H cytology results who were waiting longer than four weeks for colposcopic assessment at the end of each month, reported by DHB colposcopy services were provided by the NSU.

Please note that the data reported here was from the annual data held by the NCSP, rather than quarterly data, so the results given here are not the same as those in Quarterly Monitoring Reports 22 to 25.

Results

The reported number of women with a HSIL or ASC-H cytology result referred each month in 2006 for colposcopic assessment to each DHB colposcopy service, and the reported number of women referred for colposcopic assessment of a HSIL or ASC-H cytology result waiting longer than four weeks at the end of each month is shown by

quarter in Table 55. One colposcopy clinic, West Coast, did not report complete data for this reporting year, compared with one (Nelson/Marlborough) in 2005.

The reported number of women referred for an assessment of a HSIL or ASC-H cytology abnormality waiting longer than four weeks at the end of each month was highest for Counties Manukau colposcopy unit (107 women for the January to March quarter, 96 women for the April to June quarter, 41 women for the July to September quarter, and 16 women for the October to December quarter). One colposcopy unit, Whanganui, reported that no women waited longer than four weeks from referral for their assessment. In 2005, two colposcopy units, Otago, and Whanganui, reported that no women waited longer than four weeks from referral for their assessment.

Table 55: Waiting time for colposcopic assessment of HSIL or ASC-H between 1 January 2006 and 31 December 2006 by District Health Board colposcopy service

DHB Colposcopy Reporting Unit	Number of women referred for assessment of HSIL or ASC-H				Number of women referred waiting longer than 4 weeks at the end of each month			
	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec
Auckland	95	115	0	0	12	0	0	58
Bay of Plenty	62	65	73	85	22	30	35	22
Canterbury	88	115	79	58	26	0	0	4
Capital Coast	45	44	24	37	3	5	6	2
Counties Manukau	126	145	124	151	107	96	41	16
Hawke's Bay	46	37	41	35	53	13	17	17
Hutt Valley	27	23	17	17	3	0	3	6
Lakes	45	12	27	25	26	8	14	10
MidCentral	33	56	47	47	17	18	10	26
Nelson Marlborough	24	16	15	11	31	15	3	3
Northland	16	31	33	28	0	1	7	7
Otago	33	57	35	45	0	0	0	14
South Canterbury	3	8	5	7	0	0	2	0
Southland	10	1	6	18	19	44	3	3
Tairawhiti	6	0	0	0	4	0	0	2
Taranaki	37	32	37	40	5	9	8	12
Waikato	61	69	75	60	18	36	48	47
Wairarapa	1	9	7	13	0	1	0	0
Waitemata	151	199	123	138	0	0	125	64
West Coast	0	4	NR	NR	1	1	NR	NR
Whanganui	11	16	24	27	0	0	0	0
Total	**920**	**1,054**	**792**	**842**	**347**	**277**	**322**	**313**

DHB: district health board; HSIL: high grade squamous intra-epithelial lesion; ASC-H: atypical squamous cells of undetermined significance, cannot exclude high grade; NR: not reported.

18. Waiting time for colposcopic assessment for LSIL or ASC-US

Definition

The waiting time for colposcopic assessment for LSIL is the time from the receipt of a referral to a DHB colposcopy service for women with a low grade (LSIL or ASC-US) cytology result to the time of the first colposcopic assessment.

Target

The target for colposcopic assessment of women with a low grade cytology result is 95% of women having assessment within 26 weeks of referral.

Calculation

The data required for the calculation of the waiting time for the assessment of the LSIL or ASC-US indicator are supposed to be collected by DHB colposcopy clinics and reported to the NSU. The indicator was unable to be calculated with the available data. Nevertheless, the number of women with low grade cytology results who were referred to DHB colposcopy clinics each month in 2006, and the number of women with low grade cytology results who were waiting longer than 26 weeks for colposcopic assessment at the end of each month, reported by DHB colposcopy services were provided by the NSU.

Please note that the data reported here was from the annual data held by the NCSP, rather than quarterly data, so the results given here are not the same as those in Quarterly Monitoring Reports 22 to 25.

Results

The reported number of women with low grade cytology results referred each month in 2006 for colposcopic assessment to each DHB colposcopy service, and the reported number of women referred for colposcopic assessment of a low grade cytology result waiting longer than 26 weeks at the end of each month is shown by quarter in Table 56.

One colposcopy clinic, West Coast, did not report complete data for this reporting year, compared with one (Nelson/Marlborough) in 2005.

The reported number of women referred for an assessment of a LSIL or ASC-US cytology abnormality waiting longer than 26 weeks at the end of each month was highest for Waikato colposcopy unit (40 women for the January to March quarter, 22 women for the April to June quarter, 332 women for the July to September quarter, and 349 women for the October to December quarter). One colposcopy unit, Whanganui, reported that no women waited longer than 26 weeks from referral for their assessment. In 2005, three colposcopy units, Northland, Taranaki, and Whanganui, reported that no women waited longer than 26 weeks from referral for their assessment.

Table 56: Waiting time for colposcopic assessment of LSIL or ASC-US between 1 January 2006 and 31 December 2006 by District Health Board colposcopy service

DHB Colposcopy Reporting Unit	Number of women referred for assessment of LSIL or ASC-US				Number of women referred waiting longer than 26 weeks at the end of each month			
	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sep	Oct - Dec
Auckland	98	97	0	0	6	0	9	167
Bay of Plenty	146	138	117	137	205	87	16	3
Canterbury	137	131	93	100	10	0	0	0
Capital Coast	106	101	115	155	0	0	1	0
Counties Manukau	85	89	117	93	184	263	23	0
Hawke's Bay	14	32	51	30	156	105	44	27
Hutt Valley	91	40	62	45	2	2	2	3
Lakes	74	49	92	72	23	4	3	11
MidCentral	104	65	89	69	105	275	158	153
Nelson/Marlborough	12	1	6	3	17	4	6	6
Northland	37	35	33	37	0	4	0	2
Otago	45	49	79	67	51	47	7	0
South Canterbury	1	2	3	13	0	0	2	0
Southland	39	31	37	32	44	173	8	51
Tairawhiti	14	0	0	0	4	0	0	5
Taranaki	27	25	28	23	0	13	0	0
Waikato	120	113	119	102	40	22	332	349
Wairarapa	12	21	20	40	0	1	0	0
Waitemata	49	109	75	76	0	0	25	20
West Coast	6	2	NR	NR	0	0	NR	NR
Whanganui	67	51	60	34	0	0	0	0
Total	**1,284**	**1,181**	**1,196**	**1,128**	**847**	**1,000**	**636**	**797**

DHB: district health board; LSIL: low grade squamous intra-epithelial lesion; ASC-US: atypical squamous cells of undetermined significance; NR: not reported.

19. Positive predictive value for women with a high grade smear

Definition

The positive predictive value (PPV) for women with a high grade smear is one measure of the accuracy of high grade cytology reports. It is defined as the probability of a histological report of HSIL or higher following a HSIL or ISCC cytology report. The PPV for women with an ASC-H cytology report is defined as the probability of a histological report of HSIL or higher following the ASC-H cytology report.

Targets

The target for PPV is not less than 65% and not more than 85% of all HSIL or ISCC cytology results reported by a given laboratory. There is no target for the PPV of ASC-H cytology results.

Calculation

All satisfactory smears that were reported as HSIL or ISCC in the period from 1 July 2005 to 30 June 2006 were identified. Where a woman had more than one HSIL or ISCC smear in this period, the first one was used. For each woman, all histology results taken in the period from five days before the HSIL or ISCC smear to 182 days (six months) after that smear were identified. When more than one histology result was present, the first histology which was classified as high grade or cancer on the SNOMED classification was identified (see Appendix 3). Those women whose high grade smear was classified as high grade or worse on histology are termed as having "histological confirmation of the HSIL or ISCC smear".

The number of women with histological confirmation of a HSIL or ISCC smear was expressed as a proportion of all women with a HSIL or ISCC cytology report and a subsequent histology. This measures the PPV for women with a HSIL or ISCC cytology report. This indicator was calculated for each laboratory according to where the smears were read.

The proportion of HSIL or ISCC cytology reports without a follow-up histology report was also calculated for each laboratory.

The PPV for women with an ASC-H cytology report was also calculated. The methodology used for this calculation was the same as that described above. Therefore, those women with an ASC-H smear, whose follow-up histology was classified as high grade or worse, are termed as having "histological confirmation of the ASC-H smear".

Results

The number of women with high grade or ISCC cytology reports and subsequent histology reports on the NCSP Register is shown in Table 57. This table also shows the proportion of women for whom these cytology reports were confirmed on histology as HSIL or more serious abnormality (which is the PPV). The proportion of women with a HSIL or ISCC smear without histological follow-up is also shown in Table 57. Note that in this calculation ASC-H cytology reports are not included as HSIL or ISCC. The number of women with a ASC-H cytology report and subsequent histology report on the NCSP Register is shown in Table 58. This table also shows the proportion of women for whom these cytology reports were confirmed on histology as HSIL or more serious abnormality (the PPV), and the proportion of women with a ASC-H smear without histological follow-up.

During the period 1 July 2005 to 30 June 2006, there were 2,889 women with HSIL or ISCC cytology reports, of whom 2,636 (91.2%) had a subsequent histology result recorded on the NCSP Register (Table 57). Of these, 2,060 (78.1%) were confirmed as having HSIL or more serious abnormality on histology. This PPV is within the target range of 65 to 85%. This proportion is slightly higher than that reported in 2005; 75.2%.

Two laboratories reported a PPV outside the target range of 65 to 85%. Auckland Hospital Laboratory (90.4%) and Canterbury Health Laboratories (88.3%) both reported a PPV above the target range. Canterbury Health Laboratories also reported a PPV above the target range in 2005 (87.4%), see Figure 33.

During the period 1 July 2005 to 30 June 2006, there were 2,788 women with an ASC-H cytology report (Table 58), of whom 2,208 (79.2%) had a subsequent histology result recorded on the NCSP Register. Of these, 1,022 (46.3%) had a HSIL or more serious abnormality on histology. This proportion is slightly higher than that reported in 2005; 44.6%.

The proportion of women that had a HSIL or more serious histology result after an ASC-H smear varied between the laboratories. Valley Diagnostic Laboratories had the lowest proportion (12.2%), but only 62 women were reported as having an ASC-H smear from Valley Diagnostic Laboratories. Canterbury Health Laboratories had the highest proportion (63.3%).

Table 57: Positive predictive value for women with a high grade smear by laboratory, 1 July 2005 to 30 June 2006

Laboratory	HSIL reports with a histology report		HSIL confirmed by histology		HSIL reports without a histology report		Total HSIL cytology reports
	n	%	n	%*	n	%	n
Auckland Hospital Lab.	229	90.9	207	90.4	23	9.1	252
Canterbury Health Lab.	239	93.4	211	88.3	17	6.6	256
Diagnostic MedLab Auckland	523	90.0	405	77.4	58	10.0	581
MedLab Bay of Plenty	230	92.7	166	72.2	18	7.3	248
MedLab Central	245	90.7	176	71.8	25	9.3	270
MedLab Christchurch	155	93.4	113	72.9	11	6.6	166
MedLab Wellington	156	95.7	111	71.2	7	4.3	163
SCL Christchurch	121	92.4	95	78.5	10	7.6	131
SCL Dunedin	665	90.0	524	78.8	74	10.0	739
Valley Diagnostic Lab.	73	88.0	52	71.2	10	12.0	83
Total	**2,636**	**91.2**	**2,060**	**78.1**	**253**	**8.8**	**2,889**

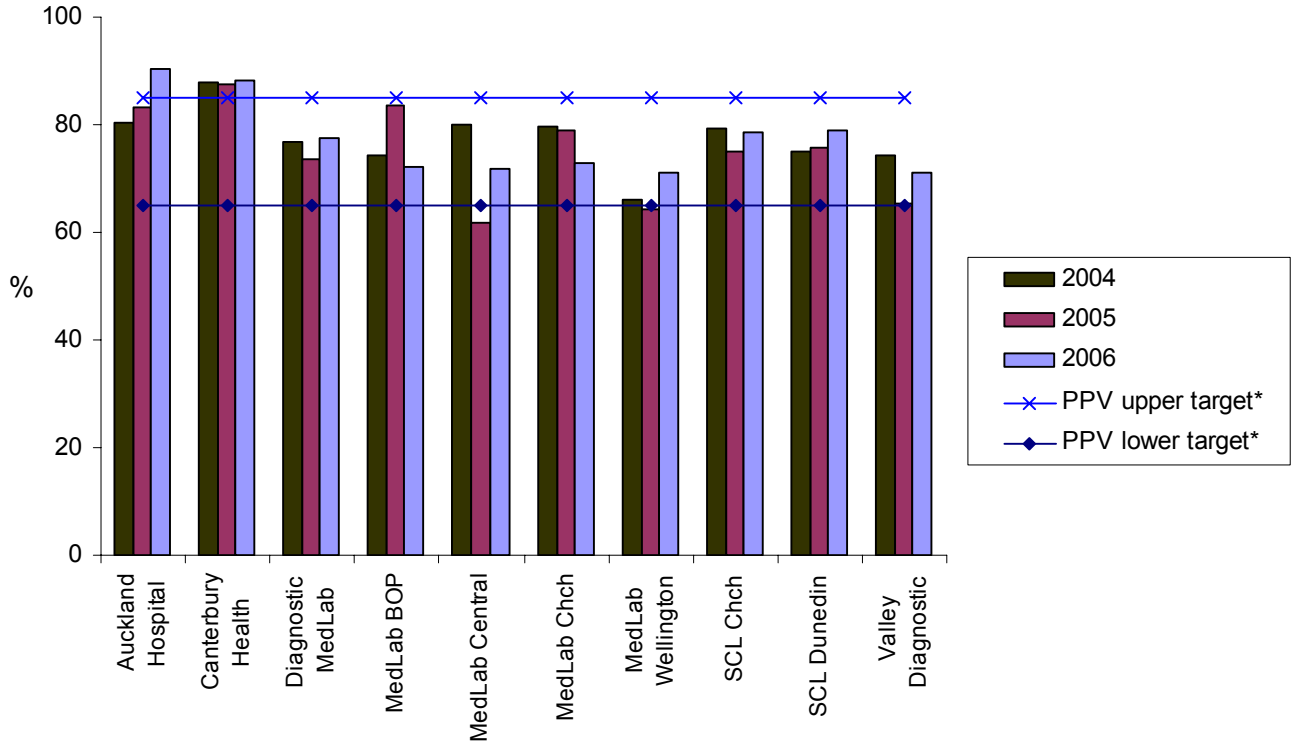
HSIL: high grade squamous intra-epithelial lesion; SCL: Southern Community Laboratories.
*Positive predictive value: proportion of HSIL cytology reports confirmed on histology.
Target: 65 to 85%.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Table 58: Positive predictive value for women with an ASC-H smear by laboratory, 1 July 2005 to 30 June 2006

Laboratory	ASC-H reports with a histology report		ASC-H confirmed by histology		ASC-H reports without a histology report		Total ASC-H cytology reports
	n	%	n	%*	n	%	n
Auckland Hospital Lab.	285	83.1	164	57.5	58	16.9	343
Canterbury Health Lab.	177	83.1	112	63.3	36	16.9	213
Diagnostic MedLab Auckland	661	74.4	272	41.1	228	25.6	889
MedLab Bay of Plenty	210	83.3	86	41.0	42	16.7	252
MedLab Central	135	65.9	58	43.0	70	34.1	205
MedLab Christchurch	198	84.6	102	51.5	36	15.4	234
MedLab Wellington	231	83.1	99	42.9	47	16.9	278
SCL Christchurch	70	89.7	33	47.1	8	10.3	78
SCL Dunedin	200	85.5	91	45.5	34	14.5	234
Valley Diagnostic Lab.	41	66.1	5	12.2	21	33.9	62
Total	**2,208**	**79.2**	**1,022**	**46.3**	**580**	**20.8**	**2,788**

ASC-H: atypical squamous cells of undetermined significance, cannot exclude high grade; SCL: Southern Community Laboratories.
* Positive predictive value: proportion of ASC-H cytology reports confirmed on histology.
No target.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington.

Figure 33: Positive predictive value for women with a high grade smear by laboratory



20. Short interval re-screening

Definition

Short interval re-screening is the proportion of enrolled women with a normal smear history who have had a further smear earlier than the recommended 3-year interval.

Target

The target for short interval re-screening is less than 10%.

Calculation

To estimate the proportion of women that were re-screened earlier than recommended (short interval re-screening), women who were aged 20 to 69 years at 31 December 2006 were identified. These women were further included in the calculation if: they had a normal smear history when they enrolled on the NCSP Register; all of their cytological and histological results prior to 1 April 2004 were recorded as negative for dysplasia or malignancy; they had at least one satisfactory smear taken between 1 April 2004 and 31 December 2006; and their first smear taken between 1 April 2004 and 31 December 2006 was not the woman's first ever smear and it was not the first smear that the woman had had in more than five years. Women who did not meet these criteria were not included because they would have been recommended to have a further smear in less than three years.

The calculation of the proportion of women who were re-screened before the recommended three years excluded women who had had an abnormal smear between 1 April 2004 and 31 December 2006. The number of women who had had two or more smears in the time period was expressed as a proportion of the number of women who had had at least one smear.

It should be noted that short interval re-screening is calculated over 33 months (1 April 2004 to 31 December 2006) rather than 36 months. This is to allow three months of flexibility around the recommended screening interval.

Results

The estimated level of short interval re-screening for 20 to 69 year old women by 5-year age group is shown in Table 59. The overall level of short interval re-screening for 20 to 69 year old women was 11.0%. This level is above the target of less than 10%, and is very similar to the level reported in 2005 (11.7%). The proportion of women who were re-screened within a short interval varied slightly by age. Women who were aged 20 to 24 years were most likely to be re-screened with a short interval (14.2%), while women who were aged 65 to 69 years were least likely to be re-screened with a short interval (8.1%). The target of less than 10% was only met for women that were aged between 60 and 69 years. This pattern is the same as that reported in 2005.

Table 60 shows the variation in short interval re-screening for 20 to 69 year old women by 5-year age group across the reporting quarters for 2006. There was little change over the year in the proportion of women who were re-screened with a short interval, although there was a slight trend towards a decrease (11.6% to 11.0% overall).

Table 61 shows the estimated level of short interval re-screening by ethnicity. The level of short interval re-screening was above the target of less than 10% (and therefore the target was not met) for women of all ethnicities, non-Māori, non-Pacific women (11.1%), Māori women (10.7%), and Pacific women (10.4%). These proportions are similar to those reported in 2005 (see Figure 36); non-Māori, non-Pacific women (11.8%), Māori women (11.0%), and Pacific women (10.9%).

Table 62 shows the proportion of short interval re-screening for 20 to 69 year old women by DHB. Figure 34 shows the proportion of short interval re-screening for 20 to 69 year old women by DHB for the four quarters of 2006. Short interval re-screening varied considerably among the DHBs, ranging from 16.4% in Waitemata to 5.7% in Taranaki. Nelson/Marlborough and Taranaki showed consistently low levels, while Auckland and Waitemata consistently showed the highest levels of short interval re-screening among the DHBs. In 2005 (see Figure 35), Nelson/Marlborough and Taranaki also showed consistently low levels, and Auckland and Waitemata also consistently showed the highest levels of short interval re-screening among the DHBs.

Table 59: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2006 by 5-year age group

Age group (years)	Total number of women	Women with abnormal smear in previous 33 months	Women with only normal smears in previous 33 months		Proportion with short interval re-screening (%)
			At least one smear	More than one smear	
20-24	18,312	2,900	15,412	2,193	14.2
25-29	31,226	3,064	28,162	3,134	11.1
30-34	36,693	2,212	34,481	3,811	11.1
35-39	46,204	2,065	44,139	4,859	11.0
40-44	50,552	1,935	48,617	5,603	11.5
45-49	48,497	1,619	46,878	5,528	11.8
50-54	40,289	1,086	39,203	4,604	11.7
55-59	35,186	640	34,546	3,618	10.5
60-64	26,547	366	26,181	2,325	8.9
65-69	21,252	218	21,034	1,704	8.1
Total	**354,758**	**16,105**	**338,653**	**37,379**	**11.0**

Target: less than 10%.

Table 60: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to the end of each reporting quarter in 2006 by 5-year age group

Age group (years)	Proportion with short interval re-screening (%)			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
20-24	14.7	14.5	14.6	14.2
25-29	11.8	11.3	11.2	11.1
30-34	12.0	11.8	11.4	11.1
35-39	11.7	11.4	11.3	11.0
40-44	12.0	11.8	11.7	11.5
45-49	12.1	11.9	11.9	11.8
50-54	12.7	12.4	11.9	11.7
55-59	10.8	10.6	10.5	10.5
60-64	9.5	9.5	9.1	8.9
65-69	8.1	8.3	8.1	8.1
Total	**11.6**	**11.4**	**11.2**	**11.0**

Target: less than 10%.

Table 61: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2006 by ethnicity

Ethnicity	Total number of women	Women with abnormal smear in previous 33 months	Women with only normal smears in previous 33 months		Proportion with short interval re-screening (%)
			At least one smear	More than one smear	
Māori	25,993	1,711	24,282	2,590	10.7
Pacific	9,521	460	9,061	941	10.4
Non-Māori, non-Pacific	319,244	13,934	305,310	33,848	11.1
Total	**354,758**	**16,105**	**338,653**	**37,379**	**11.0**

Target: less than 10%.

Table 62: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2006 by District Health Board

DHB	Total number of women	Women with abnormal smear in previous 33 months	Women with only normal smears in previous 33 months		Proportion with short interval re-screening (%)
			At least one smear	More than one smear	
Auckland	34,219	1,703	32,516	5,169	15.9
Bay of Plenty	16,060	1,089	14,971	1,819	12.2
Canterbury	44,759	1,826	42,933	4,431	10.3
Capital Coast	27,468	1,439	26,029	2,709	10.4
Counties Manakau	29,707	1,282	28,425	3,589	12.6
Hawke's Bay	12,855	654	12,201	1,257	10.3
Hutt Valley	12,215	469	11,746	1,081	9.2
Lakes	8,767	493	8,274	1,041	12.6
MidCentral	12,516	905	11,611	992	8.5
Nelson/Marlborough	13,189	603	12,586	738	5.9
Northland	13,145	393	12,752	1,670	13.1
Otago	19,849	562	19,287	1,552	8.0
South Canterbury	4,886	204	4,682	429	9.2
Southland	10,146	375	9,771	747	7.6
Tairawhiti	3,514	133	3,381	316	9.3
Taranaki	10,474	267	10,207	577	5.7
Waikato	28,028	1,140	26,888	1,810	6.7
Wairarapa	3,248	183	3,065	293	9.6
Waitemata	40,211	1,787	38,424	6,313	16.4
West Coast	2,879	113	2,766	205	7.4
Whanganui	4,915	369	4,546	438	9.6
Unspecified	1,708	116	1,592	203	12.8
Total	**354,758**	**16,105**	**338,653**	**37,379**	**11.0**

Target: less than 10%.

Figure 34: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2006 by District Health Board

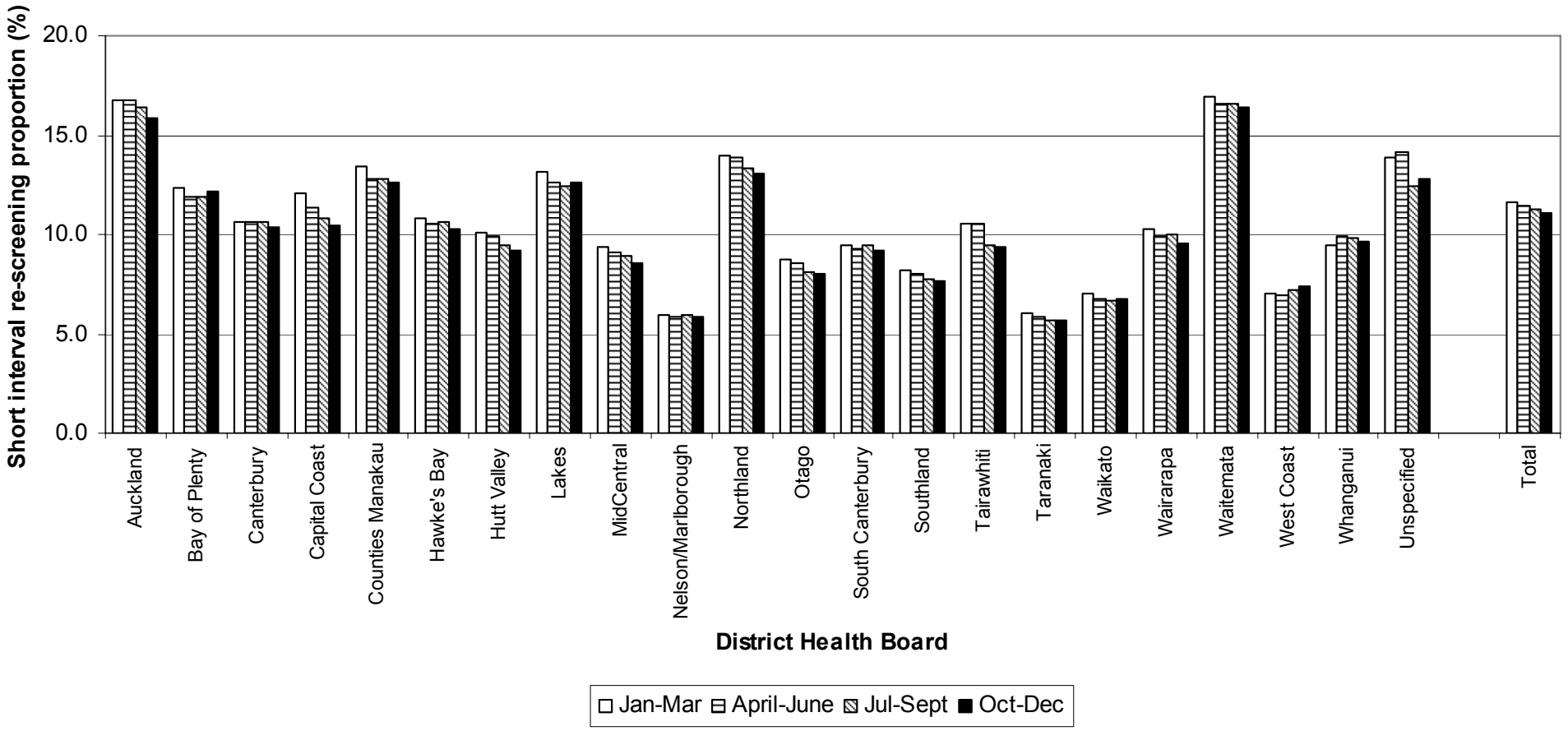


Figure 35: Proportion of women aged 20 to 69 years unnecessarily re-screened by District Health Board

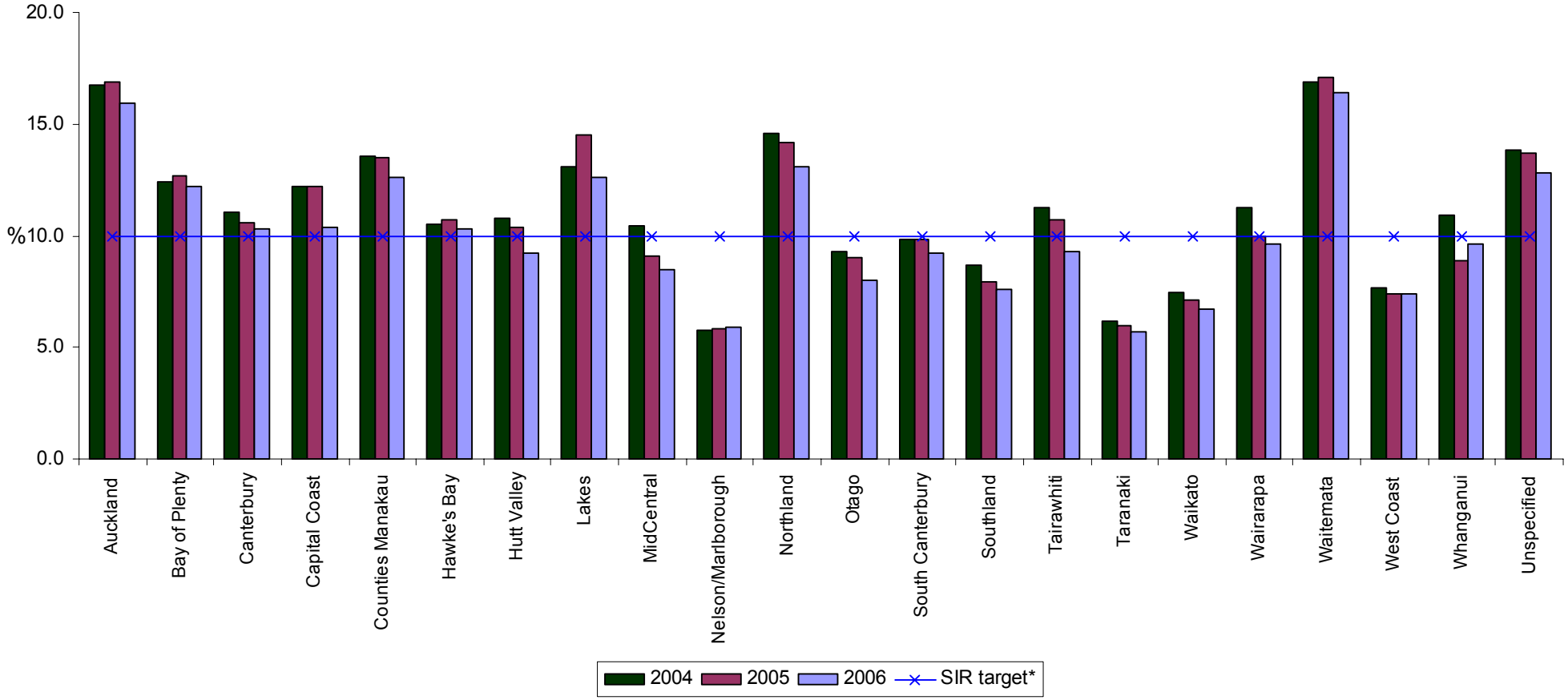
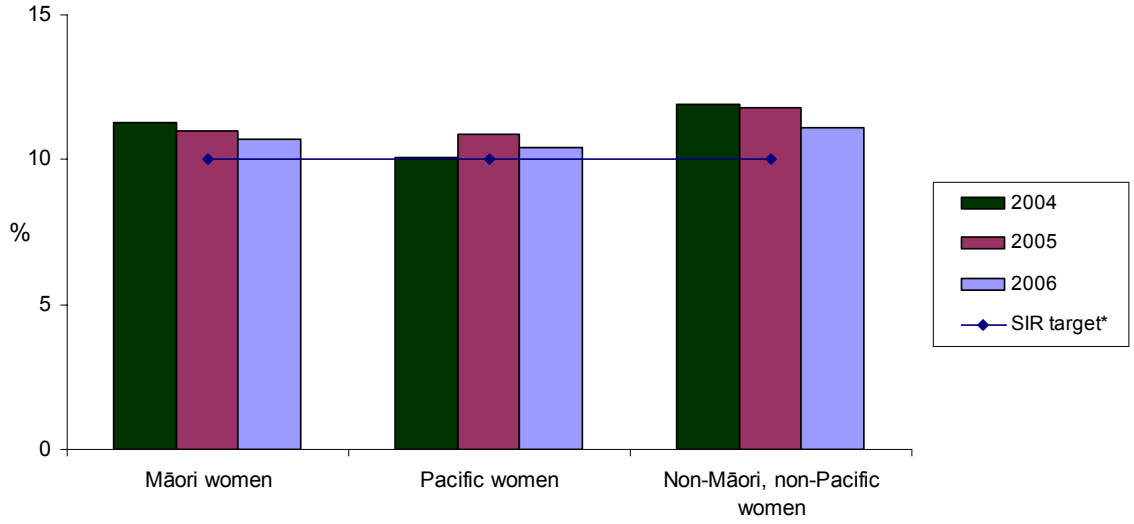


Figure 36: Proportion of women aged 20 to 69 years unnecessarily re-screened by ethnicity



Appendix 1: National indicators not included in the 2006 Annual Report

Women enrolled on the NCSP Register but not currently participating

Definition

The women who are enrolled on the NCSP Register but who are not currently participating are defined as the proportion of 25 to 69 year old women enrolled on the NCSP Register, who are alive and who have not had a smear recorded on the NCSP Register in the previous six years, as a proportion of all 25 to 69 year old women.

Target

There is no target.

Delayed re-screening of women with a high grade or worse abnormality

Definition

Delayed re-screening of women with a high grade or worse abnormality is defined as the proportion of participating women with a history of CIN NOS, HSIL, or more serious who have completed treatment ('signed in' status) who have had a smear within:

1. Less than 15 months
2. 15 to 18 months
3. More than 18 months
4. 18 months to six years
5. No smear recorded

as a proportion of all participating women with a history of HSIL or more serious who have completed treatment.

Targets

The targets for delayed re-screening for women with a high grade or worse abnormality are:

1. More than or equal to 85%
2. More than 99%
3. No target
4. No target.

Stage of invasive cervical cancer

Definition

The stage of invasive cervical cancer is the classification of the extent of invasive cervical cancer cases at diagnosis by International Federation of Gynecology and Obstetrics (FIGO) staging (I-V).

Target

The target for stage of cervical cancer is 70% of new cervical cancers classified as FIGO stage I at diagnosis.

Interval cancer

Definition

Interval cancers are those invasive cervical cancers diagnosed between screening examinations in women whose cytology results were negative for dysplasia or malignancy at their last smear.

Target

There is no target.

Programme sensitivity

Definition

Programme sensitivity is the proportion of women with screen detected ISCC whose cervical cancer was detected at one year and at three years.

Target

The targets for ISCC are 85% at one year and 75% at three years.

Opt-off rate

Definition

The opt-off rate is the proportion of all cervical cytology results for women aged 20 to 69 years reported by the laboratory that have not been sent to the NCSP Register because the women chose not to have the result recorded on the NCSP Register.

Target

There is no target.

Please note that after the changes to the Health (National Cervical Screening Programme) Amendment Act 2004, which came into effect in March 2005, women are no longer able to opt-off individual smear results (they now only have the option of withdrawing from the Programme). Therefore this indicator is no longer applicable.

Accuracy of negative cytology reports

Definition

The accuracy of negative cytology reports is the ability of a laboratory to correctly identify a negative smear. The proportion of women with a HSIL or more serious histological diagnosis who had a negative smear result reported in the previous 42 months which on review of the cervical cytology was consistent with ASC-H or more serious.

Target

For women with a histological diagnosis of HSIL or more serious, not more than 20% of their cytology slides reported as negative within the preceding 42 months are, on review, consistent with ASC-H or worse.

Waiting time for colposcopic assessment for HSIL or ASC-H

Definition

The waiting time for colposcopic assessment for HSIL or ASC-H is the time from the receipt of a referral to a DHB colposcopy service for women with a high grade cytology result to the time of the first colposcopic assessment.

Target

The target is 95% of women with a high grade cytology result to have a colposcopic assessment within four weeks.

Waiting time for colposcopic assessment for LSIL or ASC-US

Definition

The waiting time for colposcopic assessment for LSIL or ASC-US is the time from the receipt of a referral to a DHB colposcopy service for women with a low grade (LSIL or ASC-US) cytology result to the time of the first colposcopic assessment.

Target

The target is 95% of women with a low-grade cytology result to have a colposcopic assessment within 26 weeks.

Residual High-Grade Disease after Treatment

Definition

Residual high-grade disease after treatment is high-grade squamous (CIN II-III) or glandular intra-epithelial lesions present at the post-treatment colposcopy (usually four to six months) for all methods of treatment.

Target

The target is not more than 15% with residual high-grade disease.

Appendix 2: Revised Bethesda coding system (1998 & 2001) by the broad cytological categories used for NCSP Independent Monitoring Reports

The Bethesda coding system revisions of 1998 and 2001 were used for this annual monitoring period since the 2001 revision was adopted in New Zealand in July 2005. The 2001 codes are given in bold type.

Cytological Category	Diagnosis codes
Negative for dysplasia or malignancy	C1A1; C1B1; C1B2; C1C1; C1D2; C1E; C2A1; C2A1A; C2A4; C2A4A; C2B1A; C2B1B; C2B2; C2B2A; C2B4; C3B1; C3B1A; C3B1B; C3B1C **O1; O2; O3; O4; O5; OT1; OT2; OT3**
Atypical squamous cells of undetermined significance - excluding high-grade (ASC-US)	C3A1; C3A1A; C3A1B; C3A1C; C3A1D; C3A1F; C3A1G **ASL**
Low-grade squamous intra-epithelial lesion (LSIL)	C3A2A; C3A2A1; C3A2A2; C3A2A3 **LS**
Atypical glandular/endocervical/endometrial cells (AGC)	C3B2; C3B2B; C3B2B1; C3B2C; C3B2E **AG1; AG3**
Atypical glandular/endocervical/endometrial cells (AGC) favouring a neoplastic process	C3B2A; C3B2A1; C3B2B2; C3B2D **AG2; AG4; AG5**
Atypical squamous cells of undetermined significance, cannot exclude high-grade (ASC-H)	C3A1E; **ASH**
High-grade squamous intra-epithelial lesion (HSIL)	C3A2B; C3A2B1; C3A2B2; C3A2B3; C3A2B4; C3A2B5;

	C3A2B6; C3A2B7
	HS1; HS2
Adenocarcinoma-in-situ (AIS)	C3B3D; C3B3E; C3B3F
	AIS
Adenocarcinoma	C3B3; C3B3A; C3B3B; C3B3C
	AC1; AC2; AC3; AC4
Cancer not otherwise specified	C3C; C4
	AC5
Invasive squamous carcinoma of the cervix	C3A3
	SC

Appendix 3: SNOMED codes by the broad histological categories used for NCSP Independent Monitoring Reports

Histological Category	SNOMED codes
Normal	M60000
Other non-neoplastic	M40000; M72480; M73000; M01000
Polyp	M76800
Atypia/HPV	M67000; M76700; M76720; M67030
CIN not otherwise specified	M67015
LSIL	M67016
HSIL	M67017
Glandular dysplasia	M67031
Adenocarcinoma-in-situ (AIS)	M81402
Other primary cervical cancer	M80203; M88003; M80003
Metastatic (non-cervical) tumour	M80006
Invasive adenocarcinoma	M81403
Adenosquamous carcinoma	M85603
Microinvasive squamous carcinoma	M80763
Invasive squamous carcinoma	M80703