Annual Monitoring Report 2007

National Cervical Screening Programme

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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.

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1. Executive summary

This report provides data on performance indicators of the National Cervical Screening Programme (NCSP) for the period 1 January 2007 to 31 December 2007. 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 2006 (the most recent year for which data were available) the age-standardised rate of cervical cancer incidence was 5.9 per 100,000 women of all ethnicities. This met the target of 8.0 or less per 100,000 women for the total population. For Māori women, the age-standardised cervical cancer incidence rate was 10.0 per 100,000 women and for Pacific women the age-standardised cervical cancer incidence rate was 9.0 per 100,000 women. These did not meet the target of 8.0 or less per 100,000 women.

In 2006 (the most recent year for which data were available) the age-standardised rate of cervical cancer mortality was 1.5 per 100,000 women of all ethnicities. This met the target of 2.5 or less per 100,000 women for the total population. For Māori women, the age-standardised cervical cancer mortality rate was 4.4 per 100,000 women and for Pacific women the age-standardised cervical cancer mortality rate was 6.2 per 100,000 women. These did not meet the target of 2.5 or less per 100,000 women.

Enrolment

The overall crude enrolment rate was 96.2%. For non-Māori, non-Pacific women 99.7% were enrolled on the NCSP Register. Lower enrolment percentages were clearly evident for Māori (79.0%) and Pacific (85.5%) women.

Participation

The overall unadjusted participation rate was 79.2%. The hysterectomy-adjusted rate was 86.7%. 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 (61.1%) and Pacific (61.9%) women having approximately 20% lower participation rates than non-Māori, non-Pacific women (83.3%). The unadjusted participation rate target of 85% was only met for all women in two NCSP Regions, and for non-Māori, non-Pacific women in five Regions.

Hysterectomy-adjusted participation rates showed similar disparities; Māori women 63.1%, Pacific women 63.0%, and non-Māori, non-Pacific women 92.6%. The target of 90% for hysterectomy-adjusted participation rates was met for non-Māori, non-Pacific women as a whole and in 10 NCSP Regions, in three Regions for all women, and in no Regions for Māori and Pacific women.

Coverage

The overall unadjusted coverage rate was 64.8%. The hysterectomy-adjusted (numerator and denominator) coverage rate was 71.5%. For the total population, the hysterectomy-adjusted target of 75% was not met.

The unadjusted coverage rates demonstrated large ethnic inequalities with Māori (46.2%) and Pacific (46.5%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (69.0%).

Hysterectomy-adjusted (numerator and denominator) coverage rates showed similar disparities; Māori women 48.0%, Pacific women 47.5%, and non-Māori, non-Pacific women 77.4%. The target of 75% for hysterectomy-adjusted coverage rates was met for the non-Māori, non-Pacific women subgroup as a whole and for non-Māori, non-Pacific women in 10 NCSP Regions. The target was also met for the total population in three Regions.

The enrolment, participation and coverage rates all increased between 2006 and 2007. Small but consistent increases for these indicators were observed between the 2006 and 2007 reports. These increases were across all ethnicities, DHBs, NCSP Regions and age groups.

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 75.2%. 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 (66.1%) and Pacific (56.7%) women were less likely to have had a histological specimen taken within 12 weeks. Māori (87.0%) and Pacific (85.5%) women were also less likely than non-Māori, non-Pacific women (91.6%) to have had a histological specimen taken within 52 weeks. Similarly, Māori (8.1%) and Pacific (11.3%) women were more likely than non-Māori, non-Pacific women (6.7%) 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 926.0 per 1,000 women screened. The most frequently reported cytological abnormalities were atypical squamous cells of undetermined significance (ASC-US; 24.9 per 1,000 women) and low grade squamous intra-epithelial lesions (LSIL; 32.4 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 7.3 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 for non-Māori, non-Pacific women (23.9 per 1,000 women screened) compared with Māori and Pacific women (28.8 and 36.5 per 1,000 women, respectively). Non-Māori, non-Pacific women had lower rates of LSIL cytology (32.2 per 1,000 women screened) than Pacific women and Māori women (32.5 and 34.7 per 1,000 women, respectively). Māori women (11.4 per 1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori,

non-Pacific women and Pacific women (7.5 and 5.8 per 1,000 women, respectively). ISCC cytology reporting rates were highest amongst Māori women (0.2 per 1,000 women) compared with Pacific women and non-Māori, non-Pacific women (0.1 and <0.1 per 1,000 women, respectively).

Histology reporting

For the total population, 43.2% of the histology specimens were classified as "normal" or "other non-neoplastic", but this proportion was lower for Māori (36.0%) and Pacific (42.1%) women. The proportion of LSIL was higher for Pacific (15.2%) women compared to Māori (14.6%) and non-Māori, non-Pacific women (14.3%). However, the proportion of HSIL was lower for Pacific women (16.4%) compared to non-Māori, non-Pacific (18.0%) and Māori women (27.8%).

A total of 87 women (16 Māori, 5 Pacific, 66 non-Māori, non-Pacific) were diagnosed with ISCC, and 83 women (11 Māori, 3 Pacific, 69 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix.

Age-standardised rates of LSIL and HSIL for Māori (15.9 and 32.6 per 10,000 women, respectively) and Pacific women (13.2 and 13.0 per 10,000 women, respectively) were lower than those for non-Māori, non-Pacific women (29.1 and 37.4 per 10,000 women, respectively). However, the rates of these abnormalities for 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

Nine laboratories reported cervical cytology in 2007. Overall, 7.9% of smears were reported as abnormal, which was within the target of not more than 10%. One laboratory reported abnormalities outside this target, reporting abnormalities in 18.0% of smears read. The overall proportion of smears reported as negative for dysplasia or malignancy was 92.1%, 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%. Two laboratories reported outside this target, one reporting 0.4% and one reporting 0.3% of the smears that they read as HSIL.

Laboratory cytology turn around time

Three of the nine laboratories reporting cervical cytology met the seven-day cytology turn around time target of 90%. Three laboratories met the 14-day turn around time target of 100%. Two of the remaining six 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 83.9% of their smears in that time.

There were differences in cytology turn around times between ethnic groups. The proportion of Māori women (80.1%) that had smears reported within seven working days was less than those of Pacific (90.0%) and non-Māori, non-Pacific women (80.8%). 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 for Māori women (95.9%) than for Pacific (97.5%) and non-Māori, non-Pacific women (96.0%). 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-two laboratories reported cervical histology. Seven laboratories did not meet the five-day histology turn around time target of 90%. Six 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 (88.1%) that had histology reported within five working days was less than that of Māori (88.8%) and non-Māori, non-Pacific women (91.2%). 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 proportions of Pacific (2.6%) and Māori women (2.2%) who had histology reported after 11 working days were higher than that of non-Māori, non-Pacific women (1.6%). The large number of women meant that these differences were also statistically significant ($P=0.006$) and that they were therefore unlikely to have occurred by chance.

Unsatisfactory smears by laboratory

Overall, 3.7% 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 two 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 target range for this indicator has been reviewed because of these changes and new targets are being introduced for all smears taken from 1 January 2008.

Unsatisfactory smears by smear taker

Of the smears taken during the year, less than 1% were taken by lay smear takers, 56% by medical smear takers, 36% 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 (1.4%). 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 target range has been reviewed and new targets are being introduced for all smears taken from 1 January 2008. 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 (0.0%), and for midwives with an annual volume of more than 100 smears (1.9%).

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.

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 period for their first colposcopic assessment was 271. 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 period was 409.

Positive predictive value for women with a high grade smear

During the period 1 July 2006 to 30 June 2007, 91.1% of women who had had HSIL or ISCC cytology reports had a subsequent histology result recorded on the NCSP Register. Of these, 79.1% 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%. One of these laboratories reported a PPV above the target range (86.1%) and the other one of these laboratories reported a PPV below the target range (61.5%).

During the period 1 July 2006 to 30 June 2007, 78.9% of women who had had an ASC-H cytology report had a subsequent histology result recorded on the NCSP Register. Of these, 44.0% 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 11.3%, 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 (11.3%) and Māori (10.9%) women having slightly higher proportions of short interval re-screening than Pacific (10.8%) women. The target of not more than 10% was not met for 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 papillomavirus
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 2007. 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 2007 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 2007 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 2007). For other calculations, age was often calculated at the end of the reporting period (*i.e.* 31 December 2007). 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 Ministry of Health's Information Directorate.

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 target for cervical cancer incidence is 8.0 or less per 100,000 women age-standardised to Segi's world population. This target was set in 2004 by the NSU.

The previous targets for cervical cancer incidence were 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, and therefore 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 target for cervical cancer mortality is 2.5 or less per 100,000 women age-standardised to Segi's world population. This target was set in 2004 by the NSU.

The previous targets for cervical cancer mortality were 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. 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, and therefore the new targets set by the NSU (for 2006 to 2010) have the same targets for all ethnic groups.

Results

Cervical cancer incidence rates for all women, Māori women, and Pacific women, age-standardised to Segi's world population, for the period 1997 to 2006 (2006 data are provisional) are shown in Figure 1 and Table 1. Overall, between 1997 and 2006 incidence rates showed a decline from 8.9 to 5.9 per 100,000 women of all ethnicities. For Māori women the incidence rate decreased from 18.9 to 10.0 per 100,000 women between 1997 and 2006. For Pacific women the incidence rate decreased from 15.8 to 9.0 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 current target for cervical cancer incidence rates in women of all ethnicities of 8.0 or less per 100,000 women age-standardised to Segi's world population was met in 2006 for the total population but it was not met for Māori or Pacific women (Table 1). The previous targets for cervical cancer incidence were 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 met for all women in 1998 and from 2000 to 2005, and for Māori women 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 1997 to 2006 (2006 data are provisional) are shown in Figure 2 and Table 2. Overall, between 1997 and 2006 mortality rates showed a decline from 2.8 to 1.5 per 100,000 women of all ethnicities. For Māori women the mortality rate decreased from 8.0 to 4.4 per 100,000 women between 1997 and 2006. The pattern of cervical cancer mortality rates for Pacific women was less clear since it fluctuated throughout the 10 year period. The mortality

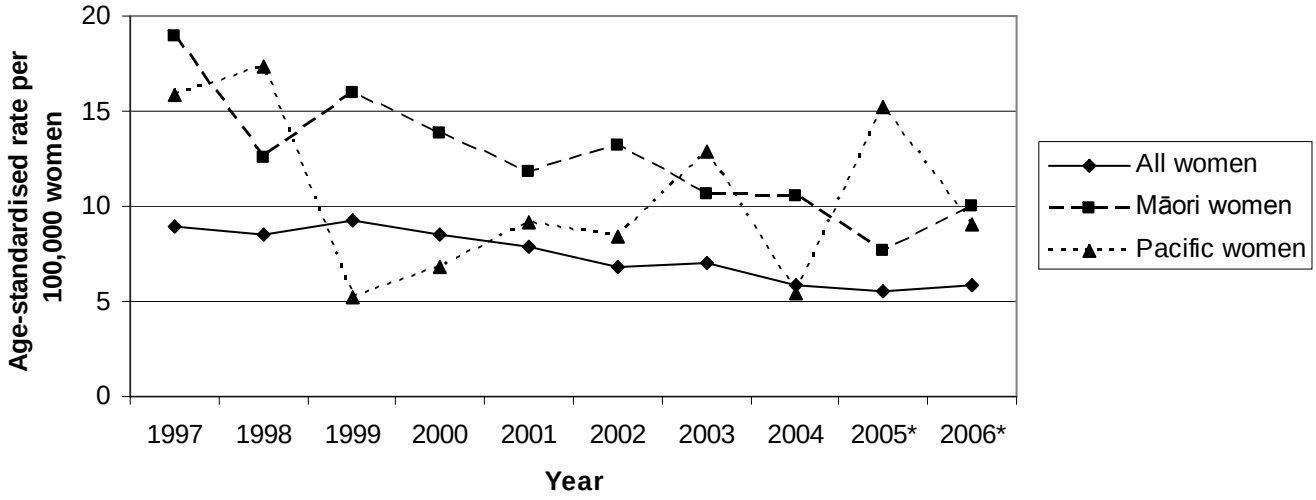
rate was 1.6 per 100,000 Pacific women in 1997 and 6.2 per 100,000 Pacific women in 2006. As with incidence rates, it should be noted that due to the relatively small numbers of women dying due to cervical cancer in New Zealand these rates are all subject to variation and should be interpreted with caution.

The current target for cervical cancer mortality rates for women of all ethnicities of 2.5 or less per 100,000 women age-standardised to Segi's world population was met in 2006 for the total population but it was not met for Māori or Pacific women (Table 2). The previous targets for cervical cancer mortality were 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. These targets were met for all women in 2000 to 2005, and for Māori women 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 1997 to 2006.

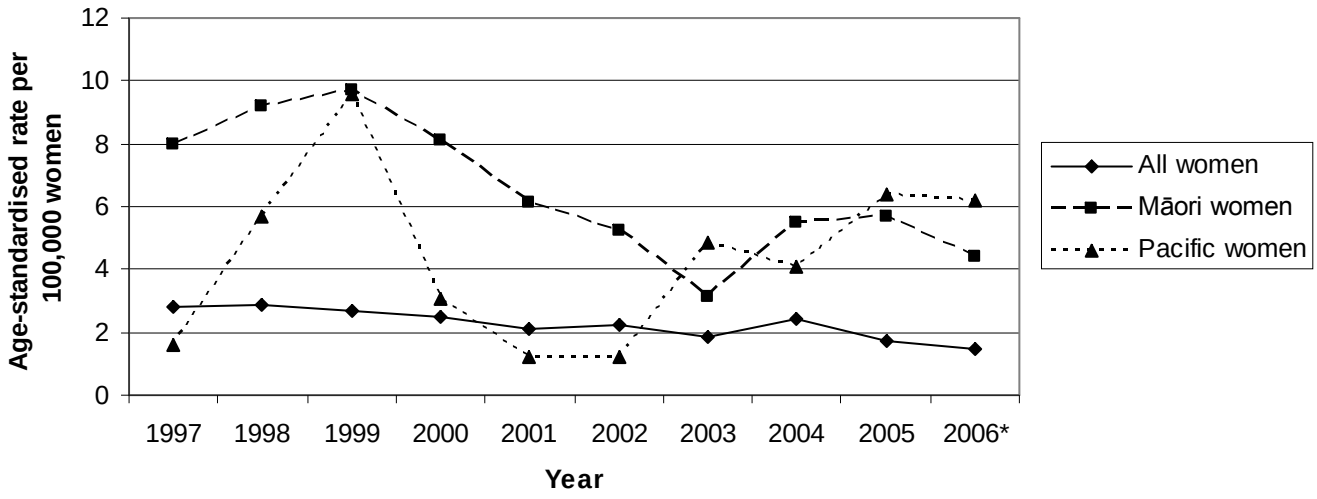
The five year average annual cervical cancer incidence and mortality rates (per 100,000 women) by 5-year age group for all women from 2002 to 2006 is shown in Figure 3, and for Māori women in Figure 4. For all women, incidence rates increased from age 15 to 34 years, and then roughly plateaued over older age groups. Māori women had lower incidence rates than women of all ethnicities up to the age of 24 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 for Māori women, although the peak rate occurred in women aged 80 to 84 years.

Figure 1: Age-standardised cervical cancer incidence rates, 1997 to 2006*



*2006 data are provisional.
Rates per 100,000 women, age-standardised to Segi's world population.
Target is: 8.0 or less per 100,000 women age-standardised to Segi's world population.
Previously the targets were: 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: Ministry of Health, 2008.

Figure 2: Age-standardised cervical cancer mortality rates, 1997 to 2006*



*2006 data are provisional.
Rates per 100,000 women, age-standardised to Segi's world population.
Target is: 2.5 or less per 100,000 women age-standardised to Segi's world population.
Previously the targets were: 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: Ministry of Health, 2008.

Table 1: Cervical cancer incidence, 1997 to 2006*

Year	All women		Māori women		Pacific women	
	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000
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
2002	180	6.8	34	13.2	8	8.4
2003	177	7.0	29	10.6	12	12.9
2004	154	5.9	27	10.5	6	5.4
2005	154	5.5	21	7.7	17	15.2
2006*	158	5.9	27	10.0	11	9.0

*2006 data are provisional.
Rates per 100,000 women, age-standardised to Segi's world population.
Target is: 8.0 or less per 100,000 women age-standardised to Segi's world population.
Previously the targets were: 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: Ministry of Health, 2008.

Table 2: Cervical cancer mortality, 1997 to 2006*

Year	All women		Māori women		Pacific women	
	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000	Number	Age-standardised rate per 100,000
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
2002	65	2.2	12	5.2	2	1.2
2003	58	1.8	8	3.1	5	4.8
2004	71	2.4	15	5.5	4	4.1
2005	54	1.7	13	5.7	6	6.4
2006*	52	1.5	10	4.4	7	6.2

*2006 data are provisional.
Rates per 100,000 women, age-standardised to Segi's world population.
Target is: 2.5 or less per 100,000 women age-standardised to Segi's world population.
Previously the targets were: 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: Ministry of Health, 2008.

Table 3: Number of new cervical cancer registrations by 5-year age group, 1997 to 2006*

Age group (years)	All women	Māori women	Pacific women
	Number of cases, 1997-2006*	Number of cases, 1997-2006*	Number of cases, 1997-2006*
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	3	0	0
20-24	**31**	**9**	**0**
25-29	**115**	**22**	**3**
30-34	**214**	**31**	**7**
35-39	**242**	**50**	**13**
40-44	**240**	**57**	**13**
45-49	**201**	**45**	**12**
50-54	**174**	**35**	**11**
55-59	**123**	**25**	**13**
60-64	**114**	**17**	**9**
65-69	**113**	**12**	**5**
70-74	101	9	5
75-79	83	4	4
80-84	59	4	0
85+	54	3	0
Total	1,867	323	95

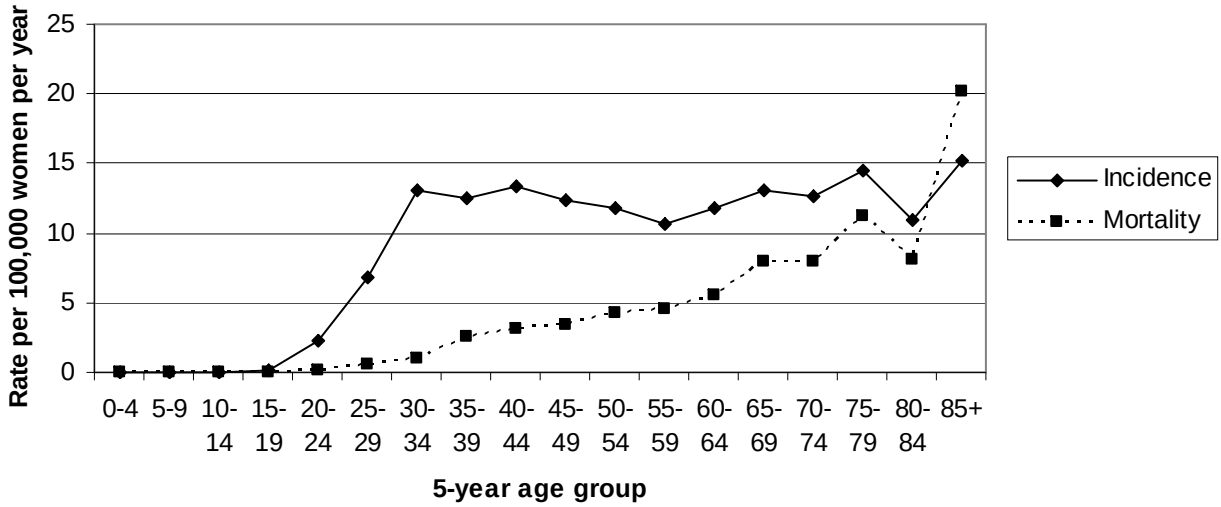
*2006 data are provisional.
Source: Ministry of Health, 2008.

Table 4: Number of cervical cancer deaths by 5-year age group, 1997 to 2006*

Age group (years)	All women	Māori women	Pacific women
	Number of cases, 1997-2006*	Number of cases, 1997-2006*	Number of cases, 1997-2006*
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	0	0	0
20-24	**3**	**1**	**0**
25-29	**4**	**1**	**0**
30-34	**16**	**4**	**4**
35-39	**38**	**11**	**6**
40-44	**58**	**22**	**5**
45-49	**69**	**25**	**4**
50-54	**70**	**18**	**5**
55-59	**63**	**20**	**6**
60-64	**46**	**12**	**4**
65-69	**57**	**12**	**2**
70-74	58	7	3
75-79	69	5	2
80-84	39	4	0
85+	60	2	0
Total	650	144	41

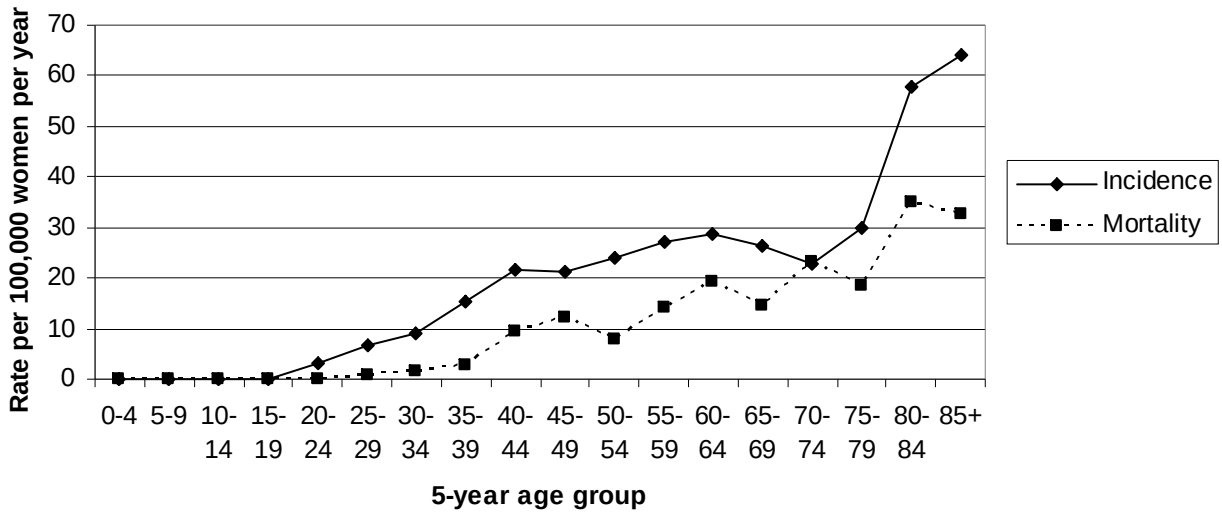
*2006 data are provisional.
Source: Ministry of Health, 2008.

Figure 3: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for all women, 2002 to 2006*



*2006 data are provisional.
Please note that the rates shown here are per 100,000 women per year and therefore it is not appropriate to compare this figure to the target which is based on rates age-standardised to Segi's world population.
Source: Ministry of Health, 2008.

Figure 4: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for Māori women, 2002 to 2006*



*2006 data are provisional.
Please note that the rates shown here are per 100,000 women per year and therefore it is not appropriate to compare this figure to the target which is based on rates age-standardised to Segi's world population.
Source: Ministry of Health, 2008.

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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007 and who had a smear or histology result recorded on the NCSP Register before 31 December 2007 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 2007, 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 2007 the number of 20 to 69 year old women that were enrolled on the NCSP Register was 1,273,220. Dividing this number by the projected population estimate of 20 to 69 year old women (1,323,840) gave an overall crude enrolment figure of 96.2%. This shows a slightly higher enrolment than that in 2006 (94.2%) and 2005 (92.3%).

The results in Table 5 demonstrate large ethnic inequalities in enrolment across all NCSP Regions, with Māori women having approximately 20% and Pacific women approximately 15% lower enrolment figures than non-Māori, non-Pacific women. In 2006 and 2005 Māori and Pacific women had 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 rate in Nelson/Marlborough (89.3%), and the highest enrolment rates in Tairawhiti (102.5%) and Wellington (101.2%). In 2006 and 2005 Nelson/Marlborough (87.7% and 86.4%, respectively) also had the lowest enrolment rate, and Tairawhiti (100.6% and 98.5%, respectively) and Wellington (99.8% and 98.1%) had the highest enrolment rates.

Importantly, Māori and Pacific women in some Regions had particularly low enrolment figures. Those below 70% were Māori women in Canterbury (65.8%), Nelson/Marlborough (64.7%) and Otago/Southland (67.1%), and Pacific women in Northland (69.8%). In 2006 and 2005, enrolment figures were also low for Māori women in Canterbury (64.2% and 62.1%, respectively) and Nelson/Marlborough (61.6% and 60.9%, respectively), and for Pacific women in Northland (66.0% and 64.6%, respectively).

A similar pattern was seen when the data were analysed by DHB, as shown in Table 6. All DHBs had enrolments over 89% 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 (64.9%), Nelson/Marlborough (64.7%), South Canterbury (57.6%), Southland (64.3%) and Waitemata (66.9%), and Pacific women in Northland (69.8%). In 2006 and 2005, enrolment figures were also low for Māori women in Canterbury (63.1% and 61.0%, respectively), Nelson/Marlborough (61.6% and 60.9%, respectively), South Canterbury (55.3% and 53.4%, respectively), Southland (64.0% and 64.1%, respectively) and Waitemata (65.9% and 64.8%, respectively), and for Pacific women in Northland (66.0% and 64.6%, respectively).

Enrolment percentages by age and ethnic group are shown in Table 7. Overall in the total population the enrolment percentages rose from the lowest value in 20 to 24 year

old women (69.0%) to a peak in 30 to 34 year old women (114.2%) and then gradually declined to 69.6% for 65 to 69 year old women. This mirrored the pattern that was seen in 2006 and 2005. The pattern of enrolment by age within each ethnic group was similar, although Māori and Pacific women had the lowest proportion of enrolled women in the youngest age group (20 to 24 year old women), and Pacific women had the highest proportion of enrolled women in the 35 to 39 year age group. The overall lower enrolment percentages for Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low enrolment (under 60%) was evident for Māori and Pacific women aged 20 to 24 years (54.7% Māori, 47.5% Pacific) and for Māori women aged 65 to 69 years (56.5%). In 2006 and 2005, enrolment figures were also particularly low (under 60%) for Māori and Pacific women aged 20 to 24 years (55.2% and 56.4%, respectively for Māori, 44.1% and 43.5%, respectively for Pacific) and for Māori women aged 65 to 69 years (54.2% and 53.6%, respectively).

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, 2007

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	96.4	77.4	87.9	100.0
Bay of Plenty	96.2	82.5	76.0	101.5
Canterbury	95.5	65.8	90.3	97.5
Hawke's Bay	94.9	78.0	72.7	100.9
Manawatu/Wanganui	92.8	80.2	77.8	95.7
Nelson/Marlborough	89.3	64.7	92.3	91.3
Northland	92.1	80.0	69.8	97.8
Otago/Southland	96.4	67.1	87.4	98.7
Tairawhiti	102.5	94.8	79.5	110.4
Taranaki	99.5	86.1	97.8	101.7
Waikato	95.0	81.0	78.4	99.0
Wellington	101.2	82.5	77.4	105.5
West Coast	92.0	74.6	75.6	93.6
Total	**96.2**	**79.0**	**85.5**	**99.7**

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, 2007

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	97.1	71.9	89.7	100.2
Bay of Plenty	95.7	80.3	77.1	100.5
Canterbury	94.8	64.9	89.5	96.8
Capital Coast	101.2	79.2	75.4	105.7
Counties Manukau	94.7	84.1	91.5	98.0
Hawke's Bay	94.9	78.0	72.7	100.9
Hutt Valley	99.1	85.5	81.2	103.1
Lakes	95.7	84.6	73.5	101.7
MidCentral	90.1	76.7	77.1	92.8
Nelson/Marlborough	89.3	64.7	92.3	91.3
Northland	92.1	80.0	69.8	97.8
Otago	97.7	70.0	86.6	99.4
South Canterbury	91.9	57.6	80.0	93.9
Southland	94.3	64.3	89.3	97.4
Tairawhiti	102.5	94.8	79.5	110.4
Taranaki	99.5	86.1	97.8	101.7
Waikato	95.0	81.0	78.4	99.0
Wairarapa	93.0	76.4	70.6	95.9
Waitemata	94.5	66.9	75.5	98.6
West Coast	92.0	74.6	75.6	93.6
Whanganui	94.0	82.0	74.2	98.1
Total	**95.5**	**78.3**	**85.2**	**98.9**

This table excludes 9,408 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, 2007

Age group (years)	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
20-24	69.0	54.7	47.5	74.7
25-29	104.2	83.4	80.1	111.6
30-34	114.2	93.3	98.7	119.9
35-39	112.6	91.9	105.8	116.8
40-44	107.2	88.3	102.6	110.6
45-49	101.6	84.6	95.6	104.5
50-54	96.2	77.3	87.7	99.0
55-59	87.2	69.2	78.0	89.4
60-64	78.2	63.0	69.9	79.8
65-69	69.6	56.5	66.3	70.7
Total	**96.2**	**79.0**	**85.5**	**99.7**

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, 2007

NSCP 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	64.7	92.6	110.0	114.2	109.8	103.9	99.2	90.1	80.6	71.2
Bay of Plenty	77.4	112.7	117.0	112.3	105.3	100.1	94.4	84.0	75.3	67.8
Canterbury	70.6	115.7	116.9	110.7	106.7	100.1	94.2	85.1	74.4	64.6
Hawke's Bay	74.6	113.1	118.4	108.3	103.3	98.3	92.3	83.2	76.7	68.8
Manawatu/Whanganui	65.8	117.7	112.3	109.0	102.4	97.5	91.5	83.7	73.7	69.6
Nelson/Marlborough	66.7	93.9	97.8	101.0	99.1	97.3	92.1	84.6	74.4	66.8
Northland	74.5	105.8	111.8	106.7	103.1	96.7	91.0	81.8	75.1	66.0
Otago/Southland	70.2	112.9	126.6	113.2	105.8	100.5	95.7	86.8	78.8	70.5
Tairawhiti	83.0	122.3	127.1	114.4	105.3	103.0	100.6	95.5	83.7	74.9
Taranaki	82.1	126.5	122.6	114.3	105.6	100.6	94.9	86.8	82.6	74.0
Waikato	68.8	111.7	117.9	110.3	104.9	99.8	93.6	84.8	76.0	68.5
Wellington	71.8	108.7	116.4	118.4	111.3	106.8	101.4	91.6	83.7	74.7
West Coast	65.3	110.9	111.9	109.1	101.9	93.5	88.9	84.3	78.2	67.3

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, 2007

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	60.3	89.6	111.4	114.9	113.4	108.0	101.7	92.9	82.9	71.7
Bay of Plenty	81.6	107.1	114.4	110.9	105.0	100.0	94.9	83.9	75.9	69.7
Canterbury	69.3	113.3	115.1	110.3	105.9	99.6	93.7	84.7	73.8	64.0
Capital Coast	70.0	107.5	114.7	118.9	112.9	108.2	102.2	92.4	83.9	74.7
Counties Manukau	67.1	95.3	109.5	113.3	106.9	100.6	95.8	86.4	76.4	67.3
Hawke's Bay	74.6	113.1	118.4	108.3	103.3	98.3	92.3	83.2	76.7	68.8
Hutt Valley	73.3	104.9	115.5	114.3	107.5	103.2	99.7	89.7	81.8	74.0
Lakes	69.8	120.2	119.5	113.1	104.6	98.8	91.7	82.4	72.9	62.8
MidCentral	63.3	117.9	107.5	106.2	98.6	94.8	89.5	81.6	71.5	67.9
Nelson/Marlborough	66.7	93.9	97.8	101.0	99.1	97.3	92.1	84.6	74.4	66.8
Northland	74.5	105.8	111.8	106.7	103.1	96.7	91.0	81.8	75.1	66.0
Otago	69.9	114.8	133.6	116.3	108.1	103.1	98.4	87.7	80.9	72.3
South Canterbury	72.7	118.4	113.7	100.9	103.7	96.9	90.9	82.9	74.4	66.2
Southland	71.1	109.9	116.8	108.5	102.5	96.5	91.3	85.1	75.2	67.4
Tairawhiti	83.0	122.3	127.1	114.4	105.3	103.0	100.6	95.5	83.7	74.9
Taranaki	82.1	126.5	122.6	114.3	105.6	100.6	94.9	86.8	82.6	74.0
Waikato	68.8	111.7	117.9	110.3	104.9	99.8	93.6	84.8	76.0	68.5
Wairarapa	70.3	115.8	113.2	111.2	98.9	98.2	90.8	82.9	76.8	69.8
Waitemata	65.3	90.8	105.4	111.2	106.9	101.2	97.5	88.4	80.1	72.1
West Coast	65.3	110.9	111.9	109.1	101.9	93.5	88.9	84.3	78.2	67.3
Whanganui	67.3	106.5	116.2	109.8	106.3	99.6	92.4	85.7	76.2	70.9

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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007 and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2007 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 2007, 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 2007 who were recorded on the NCSP Register as being alive on 30

June 2007 and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2007 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 2007, 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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007 and **had not had a hysterectomy (partial or total)** on 30 June 2007, and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2007 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 2007, 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 2007 1,048,669 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2007, and having had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2007. Dividing this number by the projected population estimate of 20 to 69 year old women (1,323,840) gives an overall crude participation figure of 79.2%. This is slightly higher than the overall crude participation figure of 78.4% in 2006, which was almost identical to the 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 86.7% (according to the CPHR's preferred method) and 88.3% (according to the previously used method), as shown in Table 11. These are slightly higher than the overall hysterectomy-adjusted participation figures of 2006;

85.6% (according to the CPHR's preferred method) and 87.2% (according to the previously used method), which were almost identical to the 2005 figures; 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 (61.1%) and Pacific (61.9%) women having 20% lower participation rates than non-Māori, non-Pacific women (83.3%). The same pattern was seen in 2006 and 2005 when the unadjusted participation rates for Māori women were 60.5% and 60.9% (respectively), for Pacific women the rates were 59.3% and 58.0% (respectively), and for non-Māori, non-Pacific women the rates were 82.6% and 82.3% (respectively).

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 (76.3%), and West Coast (76.3%), and the highest participation rates in Tairawhiti (85.9%), Taranaki (86.9%) and Wellington (83.1%). In 2006 and 2005, Northland (75.1% and 74.7%, respectively) and West Coast (75.7% and 75.4%, respectively) also had the lowest participation rates, and Tairawhiti (85.1% and 84.6%, respectively), Taranaki (85.9% and 85.7%, respectively) and Wellington (82.8% and 83.1%, respectively) also had the highest rates.

Importantly, Māori and Pacific women in some Regions had particularly low participation rates. Those below 55% were Māori women in Canterbury (54.0%), Nelson/Marlborough (52.6%) and Otago/Southland (54.0%), and Pacific women in Hawke's Bay (53.5%). Canterbury (53.0% and 52.3%, respectively), Nelson/Marlborough (51.2% and 51.7%, respectively) and Otago/Southland (53.7% and 53.7%, respectively) also had particularly low participation rates for Māori women in 2006 and 2005, and Hawke's Bay (53.9%) also had a particularly low participation rate for Pacific women in 2006.

The target of 85% for unadjusted participation rates was not met in any population group as a whole, although Tairawhiti (85.9%) and Taranaki (86.9%) met the target in

the total population, and Bay of Plenty (86.6%), Hawke's Bay (85.9%), Tairawhiti (96.1%), Taranaki (89.4%) and Wellington (87.5%) met the target for the non-Māori, non-Pacific population. The target for unadjusted participation rates was not met in 2006 or 2005 for any population subgroup as a whole.

Hysterectomy-adjusted participation rates by ethnicity and Region are shown in Table 11. Similar disparities were evident, with the participation rate for the total population being 86.7%, the Māori population 63.1%, the Pacific population 63.0%, and the non-Māori, non-Pacific population 92.6% (according to the CPHR's preferred method). These rates are similar to those in 2006 and 2005; total population being 85.6% and 85.0% (respectively), the Māori population 62.4% and 62.7% (respectively), the Pacific population 60.4% and 59.0% (respectively), and the non-Māori, non-Pacific population 91.4% and 90.7% (respectively). The target of 90% for hysterectomy-adjusted participation rates was not met for the total population, Māori women or Pacific women, but was met for non-Māori, non-Pacific women. In 2006 and 2005, the target of 90% for hysterectomy-adjusted participation rates was also only met for the non-Māori, non-Pacific population subgroup as a whole (according to the CPHR's preferred method).

For the total population three Regions met the target, Tairawhiti (92.0%), Taranaki (96.9%) and Wellington (90.6%). These three Regions also met the target for the total population in 2006 and 2005. No Region met the target for Māori or Pacific women, but 10 Regions met the target for non-Māori, non-Pacific women: Auckland (90.7%), Bay of Plenty (97.5%), Canterbury (90.8%), Hawke's Bay (97.0%), Northland (96.9%), Otago/Southland (91.7%), Tairawhiti (107.8%), Taranaki (101.1%), Waikato (92.9%), and Wellington (96.6%). In 2006 and 2005, the target was also not met by any of the Regions for Māori or Pacific women, but eight Regions met the target for non-Māori, non-Pacific women.

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) for the total population; Tairawhiti (85.9%) and Taranaki (86.9%). These two DHBs met the target in 2006 (Tairawhiti 85.1% and Taranaki 85.9%) and Taranki also met the target in 2005 (85.7%). No DHB met this

target for Māori or Pacific women, which was also the case in 2006 and 2005. Six DHBs met the target for non-Māori, non-Pacific women: Bay of Plenty (86.5%), Capital and Coast (87.4%), Hawke's Bay (85.9%), Lakes (85.5%), Tairawhiti (96.1%), and Taranaki (89.4%). Five of these DHBs met the target for non-Māori, non-Pacific women in 2006 and 2005: Bay of Plenty (85.5% and 85.3%, respectively), Capital and Coast (87.4% and 88.0%, respectively), Lakes (85.1% and 85.2%, respectively), Tairawhiti (95.0% and 93.1%, respectively), and Taranaki (88.9% and 88.6%, respectively). DHBs in which participation rates for Māori and Pacific women were particularly low (under 55%) were: Auckland (53.3%), Canterbury (53.9%), Nelson/Marlborough (52.6%), South Canterbury (46.4%), Southland (50.5%) and Waitemata (51.5%) for Māori women; and Capital and Coast (54.6%), Hawke's Bay (53.5%), Lakes (52.4%) and Wairarapa (47.6%) for Pacific women. Each of these DHBs had participation rates below 55% for Māori and Pacific women in 2006 and 2005, except for Hawke's Bay (56.5%) in 2005.

The same patterns were seen for the hysterectomy-adjusted participation rates (Table 13). Four DHBs met the target of 90% for the total population; Otago (90.6%), Tairawhiti (92.0%), Taranaki (96.9%) and Wairarapa (90.2%). In 2006 and 2005 only two DHBs met the target for the total population; Tairawhiti (91.0% and 90.0%, respectively) and Taranaki (95.3% and 94.7%, respectively). No DHBs met the target for Māori or Pacific women, which was also the case in 2006 and 2005. Fifteen DHBs met the target for the non-Māori, non-Pacific population, Bay of Plenty (97.4%), Capital and Coast (95.8%), Counties Manukau (90.3%), Hawke's Bay (97.0%), Hutt Valley (94.7%), Lakes (96.1%), Northland (96.9%), Otago (92.9%), South Canterbury (91.8%), Tairawhiti (107.8%), Taranaki (101.1%), Waikato (92.9%), Wairarapa (95.6%), Waitemata (92.3%) and Whanganui (90.5%). Eleven of these DHBs also met the target in 2006 and 2005, Bay of Plenty (95.9% and 95.5%, respectively), Capital and Coast (95.8% and 96.2%, respectively), Hawke's Bay (95.6% and 94.3%, respectively), Hutt Valley (94.9% and 94.9%, respectively), Lakes (95.2% and 95.0%, respectively), Northland (94.1% and 91.9%, respectively), Otago (92.2% and 91.5%, respectively), Tairawhiti (106.1% and 103.2%, respectively), Taranaki (99.8% and 99.0%, respectively), Waikato (91.6% and 90.3%, respectively), and Wairarapa (94.0% and 92.5%, respectively).

Participation rates by age and ethnic group are shown in Table 14 (unadjusted) and Table 15 (hysterectomy-adjusted). For unadjusted participation rates (Table 14) for the total population, participation was highest in 25 to 29 year old women (92.7%) and lowest in 65 to 69 year old women (55.5%). Overall for the total population, younger women (aged 20 to 59 years) had higher rates of participation than older women (60 to 69 years). The pattern of participation by age within each ethnic group was similar, although for Māori and Pacific women the highest rates of participation were in women aged 30 to 34, and for Pacific women the lowest rates were in 20 to 24 year olds. The overall lower participation rates for Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low participation (under 50%) was evident for Māori women aged 55 to 69 years, and for Pacific women aged 20 to 24 and 65 to 69 years. Very similar patterns were seen in 2006 and 2005.

Similar patterns were found with the hysterectomy-adjusted participation rates (Table 15), although for the total population and for non-Māori, non-Pacific women the lowest rate was recorded in women aged 20 to 24 years (67.8% and 73.7%, respectively). Very similar patterns were seen in 2006 and 2005.

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, 2007

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	77.2	58.1	63.0	81.7
Bay of Plenty	80.2	63.3	56.0	86.6
Canterbury	80.7	54.0	70.9	82.5
Hawke's Bay	78.9	58.9	53.5	85.9
Manawatu/Wanganui	75.7	62.2	56.0	79.0
Nelson/Marlborough	77.1	52.6	74.3	79.2
Northland	76.3	61.4	56.0	83.2
Otago/Southland	81.1	54.0	66.8	83.3
Tairawhiti	85.9	75.9	58.5	96.1
Taranaki	86.9	71.4	77.8	89.4
Waikato	79.0	61.4	57.4	84.1
Wellington	83.1	66.1	56.3	87.5
West Coast	76.3	60.8	62.2	77.7
Total	**79.2**	**61.1**	**61.9**	**83.3**

Target: 85% for unadjusted participation.

Table 11: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by NCSP Region, 2007

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	84.8	60.8	64.6	91.2	84.4	60.6	64.5	90.7
Bay of Plenty	90.2	66.7	57.4	100.0	88.0	65.2	56.3	97.5
Canterbury	90.8	56.3	72.5	93.5	88.2	55.2	70.9	90.8
Hawke's Bay	89.2	61.9	54.8	99.9	86.8	60.4	53.8	97.0
Manawatu/Wanganui	85.3	65.3	57.4	90.7	83.2	64.3	56.6	88.3
Nelson/Marlborough	87.8	55.2	75.9	90.8	85.8	54.3	73.8	88.7
Northland	86.8	64.9	57.5	98.1	85.8	64.4	57.1	96.9
Otago/Southland	91.3	56.4	67.8	94.4	88.7	55.1	66.6	91.7
Tairawhiti	95.1	80.2	60.0	111.6	92.0	77.8	58.0	107.8
Taranaki	98.7	75.0	79.1	103.0	96.9	74.0	77.5	101.1
Waikato	88.4	64.4	58.8	96.0	85.8	62.9	57.4	92.9
Wellington	91.8	69.1	57.7	98.0	90.6	68.4	57.3	96.6
West Coast	87.5	63.9	62.2	89.8	84.5	61.9	62.2	86.7
Total	**88.3**	**64.1**	**63.4**	**94.3**	**86.7**	**63.1**	**63.0**	**92.6**

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.

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

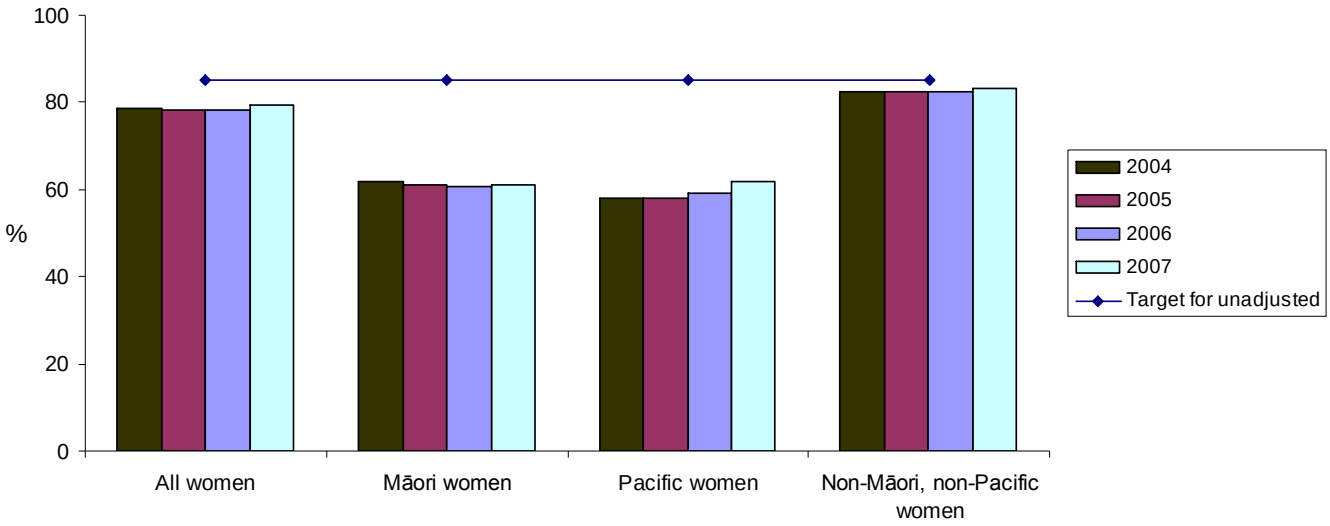


Figure 6: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by ethnicity

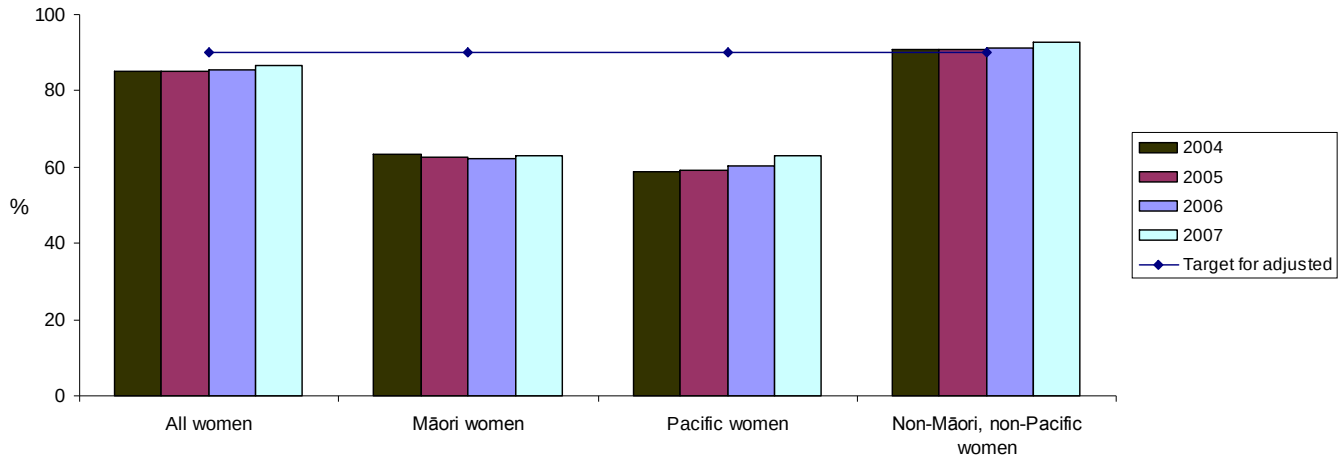


Table 12: Unadjusted participation rates for women aged 20 to 69 years by District Health Board, 2007

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	75.8	53.3	61.2	79.6
Bay of Plenty	80.7	62.0	59.5	86.5
Canterbury	80.2	53.9	70.5	82.0
Capital Coast	83.0	63.8	54.6	87.4
Counties Manukau	75.3	62.9	66.9	80.4
Hawke's Bay	78.9	58.9	53.5	85.9
Hutt Valley	80.8	68.2	60.1	84.9
Lakes	78.2	64.7	52.4	85.5
MidCentral	74.3	60.1	55.2	77.2
Nelson/Marlborough	77.1	52.6	74.3	79.2
Northland	76.3	61.4	56.0	83.2
Otago	82.5	57.8	66.0	84.1
South Canterbury	78.8	46.4	71.0	80.7
Southland	78.7	50.5	68.6	81.7
Tairawhiti	85.9	75.9	58.5	96.1
Taranaki	86.9	71.4	77.8	89.4
Waikato	79.0	61.4	57.4	84.1
Wairarapa	80.2	62.1	47.6	83.6
Waitemata	78.3	51.5	55.8	82.6
West Coast	76.3	60.8	62.2	77.7
Whanganui	75.8	63.7	56.4	80.0

Target: 85% for unadjusted participation.

Table 13: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by District Health Board, 2007

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	82.4	55.8	62.7	87.3	82.0	55.6	62.5	86.9
Bay of Plenty	91.3	65.4	61.0	100.1	88.8	63.8	59.1	97.4
Canterbury	90.0	56.2	72.0	92.7	87.4	55.1	70.4	89.9
Capital Coast	90.9	66.6	55.9	96.8	89.9	66.1	55.5	95.8
Counties Manukau	82.5	65.9	68.5	90.9	82.1	65.7	68.4	90.3
Hawke's Bay	89.2	61.9	54.8	99.9	86.8	60.4	53.8	97.0
Hutt Valley	89.9	71.3	61.6	96.3	88.5	70.5	61.1	94.7
Lakes	87.2	68.0	53.7	98.3	85.3	66.7	53.3	96.1
MidCentral	83.5	62.9	56.5	88.2	81.5	62.0	55.6	85.9
Nelson/Marlborough	87.8	55.2	75.9	90.8	85.8	54.3	73.8	88.7
Northland	86.8	64.9	57.5	98.1	85.8	64.4	57.1	96.9
Otago	93.0	60.1	67.1	95.4	90.6	59.0	66.3	92.9
South Canterbury	91.0	48.6	72.4	93.8	89.1	48.0	71.4	91.8
Southland	88.4	52.8	69.6	92.6	85.6	51.3	67.5	89.7
Tairawhiti	95.1	80.2	60.0	111.6	92.0	77.8	58.0	107.8
Taranaki	98.7	75.0	79.1	103.0	96.9	74.0	77.5	101.1
Waikato	88.4	64.4	58.8	96.0	85.8	62.9	57.4	92.9
Wairarapa	92.4	65.3	48.5	97.9	90.2	64.2	47.3	95.6
Waitemata	87.0	53.8	57.2	92.9	86.5	53.6	57.1	92.3
West Coast	87.5	63.9	62.2	89.8	84.5	61.9	62.2	86.7
Whanganui	85.9	67.1	57.6	93.0	83.7	65.8	57.2	90.5

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, 2007

Age group (years)	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
20-24	67.8	52.8	46.6	73.7
25-29	92.7	70.0	67.9	100.7
30-34	92.1	70.2	71.4	98.5
35-39	90.4	67.3	69.5	96.1
40-44	86.5	64.7	65.1	91.6
45-49	82.2	62.0	63.1	86.2
50-54	76.4	55.7	60.4	79.8
55-59	68.1	49.1	55.3	70.6
60-64	62.0	46.9	51.4	63.7
65-69	55.5	41.9	47.4	56.8
Total	**79.2**	**61.1**	**61.9**	**83.3**

Target: 85% for unadjusted participation.

Table 15: Hysterectomy-adjusted participation rates for women aged 20 to 69 years by 5-year age group, 2007

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	Maori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
20-24	67.8	52.8	46.6	73.7	67.8	52.8	46.6	73.7
25-29	92.7	70.0	67.9	100.7	92.7	70.0	67.9	100.6
30-34	92.2	70.5	71.4	98.5	92.0	70.3	71.4	98.2
35-39	90.8	68.1	69.9	96.5	90.1	67.6	69.8	95.7
40-44	89.5	67.0	66.1	94.8	87.9	65.6	65.7	93.0
45-49	90.5	67.5	65.6	95.4	87.7	65.2	64.8	92.4
50-54	93.0	64.4	65.0	98.4	89.6	61.6	63.9	94.8
55-59	93.0	58.6	60.3	98.9	89.8	56.6	59.4	95.5
60-64	91.6	54.5	55.7	97.9	88.5	52.5	55.0	94.5
65-69	82.3	47.2	50.9	87.8	79.5	45.8	50.2	84.6
Total	**88.3**	**64.1**	**63.4**	**94.3**	**86.7**	**63.1**	**63.0**	**92.6**

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, 2007

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	63.6	82.4	87.5	88.8	86.7	88.3	91.5	90.4	88.4	77.2
Bay of Plenty	75.2	99.5	95.9	91.3	87.5	86.2	87.0	87.1	86.3	77.7
Canterbury	69.6	103.8	95.8	91.6	90.3	87.8	87.5	88.8	85.8	77.1
Hawke's Bay	72.2	100.2	94.4	88.2	85.5	84.8	85.7	86.5	89.3	79.2
Manawatu/Wanganui	64.3	102.4	88.1	86.0	83.2	82.9	82.5	86.1	82.7	79.7
Nelson/Marlborough	66.1	86.1	84.4	86.0	87.3	89.4	91.7	91.9	89.7	81.8
Northland	72.6	92.1	92.6	87.7	87.2	85.5	87.3	87.3	84.7	75.4
Otago/Southland	69.3	99.7	100.5	92.4	90.2	89.1	89.8	90.3	90.1	81.6
Tairawhiti	80.0	107.3	103.0	92.3	87.3	90.2	93.9	95.1	85.8	81.6
Taranaki	80.5	113.9	104.5	98.4	92.8	93.3	97.0	97.1	103.4	93.5
Waikato	67.9	99.0	95.3	89.0	85.9	83.5	84.8	87.5	86.0	78.9
Wellington	70.7	97.6	93.3	93.3	91.1	91.3	95.2	94.4	95.9	86.4
West Coast	63.9	99.7	90.7	91.8	86.6	80.1	82.6	84.1	85.5	76.8

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, 2007

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	59.4	79.9	86.1	84.3	84.8	89.2	91.8	91.5	87.2	74.6
Bay of Plenty	79.2	94.8	94.4	91.7	88.5	87.5	88.9	88.6	89.0	81.7
Canterbury	68.4	102.1	94.9	91.5	89.7	87.1	86.7	87.9	84.6	76.0
Capital Coast	69.2	96.8	91.2	92.7	91.8	92.2	96.1	95.1	95.6	85.9
Counties Manukau	65.7	83.7	86.6	88.0	83.4	83.6	86.0	84.5	82.0	70.9
Hawke's Bay	72.2	100.2	94.4	88.2	85.5	84.8	85.7	86.5	89.3	79.2
Hutt Valley	71.6	93.5	93.9	90.6	87.8	87.6	91.5	90.7	91.3	84.9
Lakes	68.0	106.0	97.3	89.6	84.9	83.0	82.2	82.8	79.6	68.5
MidCentral	62.2	103.3	84.7	84.6	80.7	81.4	81.6	85.1	80.9	78.4
Nelson/Marlborough	66.1	86.1	84.4	86.0	87.3	89.4	91.7	91.9	89.7	81.8
Northland	72.6	92.1	92.6	87.7	87.2	85.5	87.3	87.3	84.7	75.4
Otago	69.1	100.6	104.4	95.8	93.4	91.4	93.2	92.7	94.9	84.5
South Canterbury	70.4	106.2	96.0	85.8	91.5	89.4	88.5	91.7	90.6	82.4
Southland	69.7	98.2	95.0	87.5	85.4	85.3	84.2	85.9	81.9	76.7
Tairawhiti	80.0	107.3	103.0	92.3	87.3	90.2	93.9	95.1	85.8	81.6
Taranaki	80.5	113.9	104.5	98.4	92.8	93.3	97.0	97.1	103.4	93.5
Waikato	67.9	99.0	95.3	89.0	85.9	83.5	84.8	87.5	86.0	78.9
Wairarapa	68.2	104.6	96.2	96.0	87.0	87.4	90.5	91.5	96.2	84.9
Waitemata	64.3	81.7	87.5	91.9	89.6	89.7	93.7	92.1	92.3	82.4
West Coast	63.9	99.7	90.7	91.8	86.6	80.1	82.6	84.1	85.5	76.8
Whanganui	64.7	92.1	92.9	86.5	86.0	83.4	81.7	85.3	84.2	80.4

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 (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

The target for hysterectomy-adjusted coverage is 75%. There is no 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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007 and who had a smear or histology result recorded on the NCSP Register between 1 January 2005 and 31 December 2007 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 2007, 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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007 and who had a smear or histology result recorded on the NCSP Register between 1 January 2005 and 31 December 2007 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 2007, 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 2007 who were recorded on the NCSP Register as being alive on 30 June 2007, and **had not had a hysterectomy (partial or total)** on 31 December 2007, and who had a smear or histology result recorded on the NCSP Register between 1 January 2005 and 31 December 2007 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 2007, 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 2007 858,339 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2007, and having had a smear or histology reported on the NCSP Register between 1 January 2005 and 31 December 2007. Dividing this number by the projected population estimate (1,323,840) gives an overall unadjusted coverage rate of 64.8% (Table 18), this is slightly higher than the rate in 2006 (63.5%; Figure 7). Taking into account the prevalence of hysterectomy in the population (the hysterectomy adjustment), coverage is likely to range between 71.5% (according to

the CPHR's preferred method) and 72.3% (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%. The target was also not met in 2006 (hysterectomy-adjusted coverage range 69.8% to 70.6% (CPHR preferred method and previously used method, respectively)) or 2005 (69.2% and 70.0%, respectively; Figure 8).

The results in Table 18 demonstrate large ethnic inequalities in coverage, with Māori (46.2%) and Pacific (46.5%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (69.0%). From a total population perspective, there were some differences in coverage across NCSP Regions, with the lowest coverage rates in Manawatu/Wanganui (62.0%) and Northland (61.8%), and the highest coverage rates in Tairawhiti (68.6%) and Taranaki (73.7%). Northland (60.6%) also had the lowest coverage rates in 2006, while Tairawhiti (69.1%) and Taranaki (73.7%) also had the highest. Importantly, Māori and Pacific women in some Regions had particularly low coverage figures. Those below 40% were Pacific women in Hawke's Bay (39.2%). In 2006 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 for the total population being 71.5%/72.3%, the Māori population 48.0%/48.5%, the Pacific population 47.5%/47.6%, and the non-Māori, non-Pacific population 77.4%/78.2% (according to the CPHR's preferred method and the previously used method, respectively). These rates are slightly higher than those in 2006 when the same disparities were evident, with the coverage rate for 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). The target of 75% for hysterectomy-adjusted coverage rates was met for the non-Māori, non-Pacific population subgroup as a whole (77.4%), and also in 10 Regions (according to the CPHR's preferred method); Bay of Plenty (83.3%), Canterbury (75.7%), Hawke's Bay (81.9%), Nelson/Marlborough (76.2%), Northland (81.2%), Otago/Southland (77.7%), Tairawhiti (91.6%), Taranaki (87.2%), Waikato (79.4%) and Wellington (80.8%). The target was also met (according to the CPHR's preferred method) in three Regions for

all women: Otago/Southland (75.0%), Taranaki (82.7%) and Wellington (75.1%). According to the previously used method, the target was met for the non-Māori, non-Pacific population subgroup as a whole (78.2%), and also in 11 Regions; Bay of Plenty (84.7%), Canterbury (77.1%), Hawke's Bay (83.2%), Manawatu/Whanganui (75.3%), Nelson/Marlborough (77.0%), Northland (81.7%), Otago/Southland (78.9%), Tairawhiti (93.5%), Taranaki (88.2%), Waikato (80.8%) and Wellington (81.3%). The target was also met (according to the previously used method) in four Regions for all women: Otago/Southland (76.1%), Tairawhiti (75.9%), Taranaki (83.7%) and Wellington (75.6%).

In 2006, the target of 75% for hysterectomy-adjusted coverage rates was met for the non-Māori, non-Pacific population subgroup as a whole (75.7%) according to the CPHR's preferred method and also according to the previously used method (76.6%). The target was not met for any other population subgroups as a whole.

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 were particularly low (under 40%) were Auckland (39.9%), South Canterbury (35.9%), Southland (39.6%) and Waitemata (38.9%) for Māori women, and Hawke's Bay (39.2%), Lakes (38.3%) and Wairarapa (31.2%) for Pacific women. In 2006 all of these DHBs also had unadjusted coverage rates below 40%, but the coverage rates are higher in 2007 than they were in 2006.

According to the CPHR's preferred method of hysterectomy-adjustment (Table 21), 17 DHBs met the 75% target for non-Māori, non-Pacific women; Bay of Plenty (83.5%), Canterbury (75.1%), Capital and Coast (80.5%), Hawke's Bay (81.9%), Hutt Valley (78.0%), Lakes (81.8%), Nelson/Marlborough (76.2%), Northland (81.2%), Otago (78.8%), South Canterbury (76.6%), Southland (75.9%), Tairawhiti (91.6%), Taranaki (87.2%), Waikato (79.4%), Wairarapa (80.9%), Waitemata (76.6%) and Whanganui (76.5%). Capital and Coast (75.2%), Otago (76.6%), Taranaki (82.7%) and Wairarapa (75.6%) also met the target for all women. No DHBs met the target for Māori or Pacific women. The same 17 DHBs met the target for non-Māori, non-Pacific women according to the previously used method; Bay of Plenty (85.0%), Canterbury (76.5%), Capital and Coast (80.9%), Hawke's Bay (83.2%), Hutt Valley

(78.7%), Lakes (83.1%), Nelson/Marlborough (77.0%), Northland (81.7%), Otago (80.0%), South Canterbury (77.4%), Southland (77.2%), Tairawhiti (93.5%), Taranaki (88.2%), Waikato (80.8%), Wairarapa (81.8%), Waitemata (76.9%) and Whanganui (77.5%). Bay of Plenty (75.8%), Capital and Coast (75.5%), Otago (77.8%), South Canterbury (75.0%), Tairawhiti (75.9%), Taranaki (83.7%) and Wairarapa (76.4%) also met the target for all women. No DHBs met the target for Māori or Pacific women.

In 2006, 11 DHBs met the 75% target for 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 for all women. No DHBs met the target for Māori or Pacific women. According to the previously used method, 16 DHBs met the target for 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 for all women. No DHBs met the target for 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) for the total population, coverage was highest in 35 to 39 year old women (73.0%) and lowest in 65 to 69 year old women (45.9%). Overall for 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 for Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low coverage (under 40%) was evident for Māori women aged 55 to 69 years, and for Pacific women aged 20 to 24 and 60 to 69 years. These patterns are virtually identical to those in 2006 but the coverage rates are slightly higher in all age groups and ethnicities.

Similar patterns were found with the hysterectomy-adjusted coverage rates (Table 23), although for the total population and for non-Māori, non-Pacific women the lowest rate was recorded in women aged 20 to 24 years (59.2% and 65.0%, respectively) and the highest rate was recorded in women aged 55 to 59 years (76.5% and 81.9%, 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, 2007

NCSP Region	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	62.1	42.7	47.0	66.7
Bay of Plenty	66.2	47.4	42.0	73.3
Canterbury	66.3	41.8	55.2	68.0
Hawke's Bay	64.3	43.4	39.2	71.6
Manawatu/Wanganui	62.0	47.4	42.3	65.6
Nelson/Marlborough	65.2	41.1	58.7	67.2
Northland	61.8	45.6	44.4	69.3
Otago/Southland	67.7	42.8	52.7	69.7
Tairawhiti	68.6	56.7	42.0	80.5
Taranaki	73.7	55.8	65.9	76.6
Waikato	65.7	47.5	45.0	70.8
Wellington	68.4	52.3	42.8	72.6
West Coast	63.6	49.9	53.3	64.8
Total	**64.8**	**46.2**	**46.5**	**69.0**

No target.

Table 19: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by NCSP Region, 2007

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	68.2	44.7	48.2	74.5	68.0	44.6	48.1	74.2
Bay of Plenty	74.5	50.0	43.0	84.7	73.2	49.1	42.3	83.3
Canterbury	74.6	43.6	56.5	77.1	73.4	43.1	55.5	75.7
Hawke's Bay	72.7	45.6	40.2	83.2	71.5	44.7	39.6	81.9
Manawatu/Wanganui	69.9	49.8	43.3	75.3	69.1	49.3	43.0	74.4
Nelson/Marlborough	74.2	43.2	59.9	77.0	73.4	42.8	59.5	76.2
Northland	70.3	48.1	45.6	81.7	70.0	47.9	45.2	81.2
Otago/Southland	76.1	44.6	53.6	78.9	75.0	44.0	53.0	77.7
Tairawhiti	75.9	59.9	43.0	93.5	74.4	58.7	43.0	91.6
Taranaki	83.7	58.7	67.0	88.2	82.7	58.1	66.5	87.2
Waikato	73.5	49.8	46.1	80.8	72.2	49.0	45.3	79.4
Wellington	75.6	54.6	43.8	81.3	75.1	54.3	43.7	80.8
West Coast	72.9	52.4	53.3	74.9	71.6	51.7	53.3	73.5
Total	**72.3**	**48.5**	**47.6**	**78.2**	**71.5**	**48.0**	**47.5**	**77.4**

Target: 75% for hysterectomy-adjusted coverage.

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

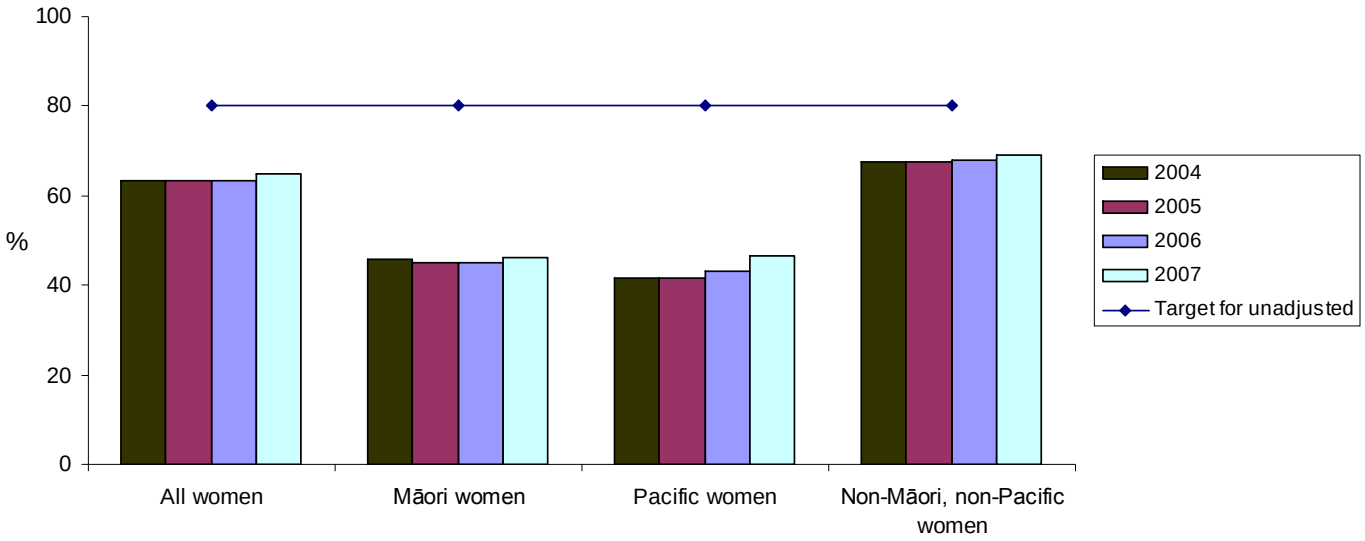


Figure 8: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by ethnicity

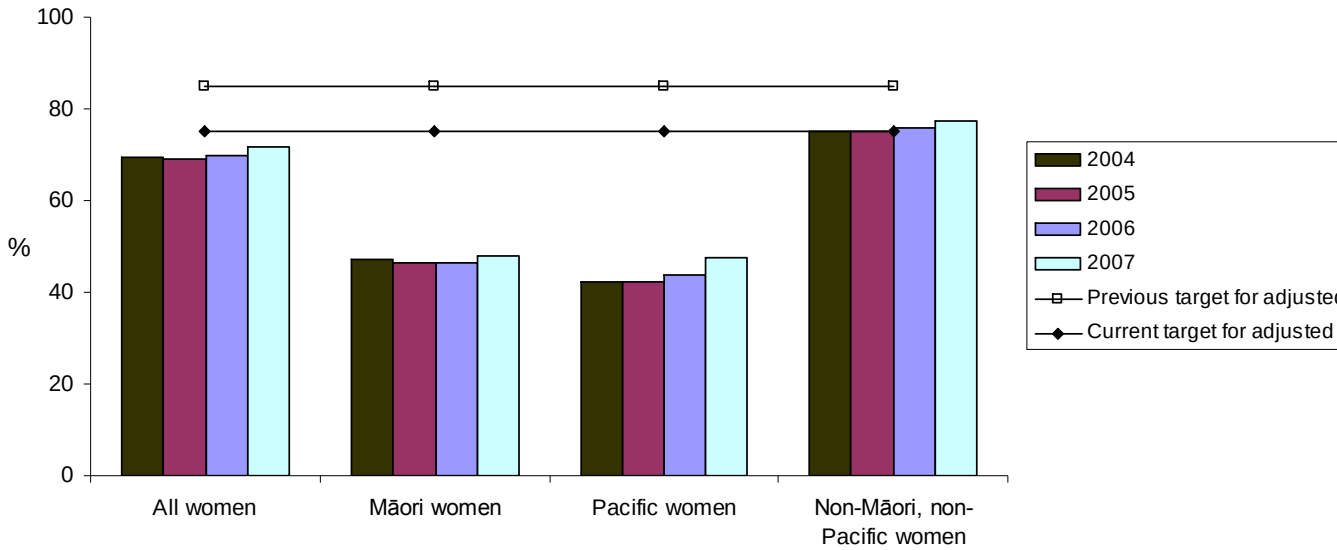


Table 20: Unadjusted coverage rates for women aged 20 to 69 years by District Health Board, 2007

DHB	All women	Māori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%
Auckland	60.5	39.9	45.8	64.1
Bay of Plenty	67.0	46.6	45.8	73.4
Canterbury	66.0	41.9	54.9	67.7
Capital Coast	68.9	51.8	41.7	73.0
Counties Manukau	59.8	45.6	49.9	65.7
Hawke's Bay	64.3	43.4	39.2	71.6
Hutt Valley	65.3	52.6	45.6	69.4
Lakes	64.0	48.4	38.3	72.2
MidCentral	61.0	46.1	41.2	64.1
Nelson/Marlborough	65.2	41.1	58.7	67.2
Northland	61.8	45.6	44.4	69.3
Otago	69.0	46.1	52.3	70.5
South Canterbury	64.9	35.9	60.0	66.6
Southland	65.3	39.6	53.8	68.1
Tairawhiti	68.6	56.7	42.0	80.5
Taranaki	73.7	55.8	65.9	76.6
Waikato	65.7	47.5	45.0	70.8
Wairarapa	66.4	47.9	31.2	69.9
Waitemata	64.2	38.9	41.4	68.3
West Coast	63.6	49.9	53.3	64.8
Whanganui	62.0	48.2	44.4	66.6
Total	**64.5**	**45.9**	**46.5**	**68.6**

No target.

Table 21: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by District Health Board, 2007

DHB	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women	Māori women	Pacific women	Non-Māori, non-Pacific women	All women	Maori women	Pacific women	Non-Māori, non-Pacific women
	%	%	%	%	%	%	%	%
Auckland	65.7	41.7	47.0	70.3	65.5	41.6	46.9	70.1
Bay of Plenty	75.8	49.1	47.0	85.0	74.5	48.2	45.6	83.5
Canterbury	74.1	43.7	56.1	76.5	72.8	43.1	55.1	75.1
Capital Coast	75.5	54.1	42.7	80.9	75.2	53.8	42.6	80.5
Counties Manukau	65.6	47.7	51.1	74.3	65.4	47.6	51.1	74.0
Hawke's Bay	72.7	45.6	40.2	83.2	71.5	44.7	39.6	81.9
Hutt Valley	72.6	55.0	46.7	78.7	72.1	54.6	46.6	78.0
Lakes	71.3	50.9	39.2	83.1	70.2	50.1	39.0	81.8
MidCentral	68.6	48.2	42.2	73.2	67.8	47.8	41.8	72.4
Nelson/Marlborough	74.2	43.2	59.9	77.0	73.4	42.8	59.5	76.2
Northland	70.3	48.1	45.6	81.7	70.0	47.9	45.2	81.2
Otago	77.8	48.0	53.2	80.0	76.6	47.5	52.9	78.8
South Canterbury	75.0	37.6	61.2	77.4	74.2	37.4	61.2	76.6
Southland	73.4	41.4	54.5	77.2	72.1	40.6	53.1	75.9
Tairawhiti	75.9	59.9	43.0	93.5	74.4	58.7	43.0	91.6
Taranaki	83.7	58.7	67.0	88.2	82.7	58.1	66.5	87.2
Waikato	73.5	49.8	46.1	80.8	72.2	49.0	45.3	79.4
Wairarapa	76.4	50.4	31.7	81.8	75.6	49.9	31.7	80.9
Waitemata	71.3	40.6	42.4	76.9	71.1	40.5	42.4	76.6
West Coast	72.9	52.4	53.3	74.9	71.6	51.7	53.3	73.5
Whanganui	70.2	50.7	45.4	77.5	69.4	50.3	45.4	76.5
Total	**71.8**	**48.2**	**47.6**	**77.7**	**71.1**	**47.7**	**47.4**	**76.9**

Target: 75% for hysterectomy-adjusted coverage.

Table 22: Unadjusted coverage rates for women aged 20 to 69 years by 5-year age group, 2007

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20-24	59.2	43.5	39.6	65.0
25-29	71.5	51.1	49.4	78.7
30-34	72.8	51.5	50.9	79.1
35-39	73.0	49.4	49.9	79.0
40-44	71.0	48.1	48.2	76.3
45-49	67.9	47.2	47.6	72.0
50-54	63.1	42.5	47.3	66.5
55-59	57.1	38.7	43.3	59.5
60-64	52.3	36.7	39.9	54.1
65-69	45.9	32.6	36.4	47.3
Total	**64.8**	**46.2**	**46.5**	**69.0**

No target.

Table 23: Hysterectomy-adjusted coverage rates for women aged 20 to 69 years by 5-year age group, 2007

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	59.2	43.5	39.6	65.0	59.2	43.5	39.6	65.0
25-29	71.5	51.1	49.4	78.7	71.5	51.1	49.4	78.6
30-34	72.9	51.7	50.9	79.2	72.7	51.6	50.9	79.0
35-39	73.3	50.0	50.2	79.3	73.0	49.7	50.1	78.9
40-44	73.4	49.8	49.0	79.0	72.6	49.1	48.7	78.1
45-49	74.7	51.3	49.5	79.7	73.4	50.2	49.1	78.3
50-54	76.8	49.1	50.9	82.0	75.4	47.9	50.4	80.5
55-59	77.9	46.1	47.2	83.4	76.5	45.1	46.9	81.9
60-64	77.3	42.6	43.3	83.2	75.8	41.4	42.9	81.6
65-69	68.2	36.8	39.2	73.1	66.9	35.9	38.9	71.6
Total	**72.3**	**48.5**	**47.6**	**78.2**	**71.5**	**48.0**	**47.5**	**77.4**

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, 2007

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	55.0	63.1	67.9	70.2	70.1	72.3	74.8	74.5	73.4	62.8
Bay of Plenty	64.3	77.7	77.5	74.1	72.3	72.9	74.5	75.9	74.5	66.5
Canterbury	61.4	80.4	76.3	75.6	75.5	73.7	73.8	76.0	73.7	64.5
Hawke's Bay	60.9	76.4	75.4	71.2	70.6	71.0	72.5	73.5	77.2	66.6
Manawatu/Wanganui	55.5	78.9	69.4	70.0	69.3	70.1	70.2	74.2	71.9	67.9
Nelson/Marlborough	58.8	69.4	69.2	73.0	74.3	77.0	80.7	81.5	77.2	70.4
Northland	61.4	70.1	71.9	69.8	70.9	70.7	72.2	73.8	72.5	62.6
Otago/Southland	60.9	76.8	81.1	76.7	76.5	76.5	77.4	79.4	79.9	71.7
Tairawhiti	67.3	81.4	77.8	73.7	70.9	74.7	77.2	79.9	72.3	66.9
Taranaki	70.3	91.2	85.5	82.6	79.7	80.7	83.8	85.9	91.9	81.8
Waikato	60.7	76.5	77.1	73.9	71.8	71.2	73.1	76.5	75.7	68.2
Wellington	62.5	75.3	73.5	76.0	76.0	77.2	81.5	80.9	82.9	73.2
West Coast	57.3	80.0	76.3	76.9	72.8	67.2	69.2	73.6	75.5	66.3

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, 2007

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	51.6	60.6	65.9	65.7	68.8	73.0	74.9	74.9	71.3	58.7
Bay of Plenty	68.2	74.7	76.9	74.7	73.9	74.3	76.2	77.7	76.9	70.6
Canterbury	60.6	79.0	75.6	75.7	75.0	73.1	73.4	75.4	72.9	64.2
Capital Coast	62.1	74.3	72.3	76.3	77.6	79.2	82.9	82.2	83.4	73.1
Counties Manukau	55.9	64.0	66.4	68.1	65.6	67.7	69.3	69.0	68.6	57.7
Hawke's Bay	60.9	76.4	75.4	71.2	70.6	71.0	72.5	73.5	77.2	66.6
Hutt Valley	61.0	73.1	72.8	72.3	71.6	71.6	76.5	76.4	76.9	72.5
Lakes	57.5	81.8	77.9	72.7	68.7	69.7	70.3	71.4	68.6	57.3
MidCentral	54.2	79.6	66.2	68.4	67.3	68.8	69.9	73.9	71.1	67.3
Nelson/Marlborough	58.8	69.4	69.2	73.0	74.3	77.0	80.7	81.5	77.2	70.4
Northland	61.4	70.1	71.9	69.8	70.9	70.7	72.2	73.8	72.5	62.6
Otago	61.1	76.0	84.3	80.1	79.2	78.5	80.9	81.6	83.8	74.4
South Canterbury	61.4	87.5	79.0	70.0	76.9	75.8	72.6	78.3	76.1	64.9
Southland	60.5	78.2	76.7	71.8	72.5	73.3	71.7	75.5	73.3	67.1
Tairawhiti	67.3	81.4	77.8	73.7	70.9	74.7	77.2	79.9	72.3	66.9
Taranaki	70.3	91.2	85.5	82.6	79.7	80.7	83.8	85.9	91.9	81.8
Waikato	60.7	76.5	77.1	73.9	71.8	71.2	73.1	76.5	75.7	68.2
Wairarapa	58.5	82.1	77.9	78.3	72.1	75.0	79.0	78.1	85.1	69.6
Waitemata	56.5	63.5	70.1	74.8	73.8	74.2	77.6	76.8	77.3	68.4
West Coast	57.3	80.0	76.3	76.9	72.8	67.2	69.2	73.6	75.5	66.3
Whanganui	54.1	72.0	74.8	71.3	71.6	70.6	68.5	72.4	71.6	67.3

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 period in 2007. The reporting periods changed in 2007 from quarterly to six-monthly and therefore the reporting pattern in the current annual report is slightly different to that in previous annual reports. The number of enrolled women aged 20 to 69 years at 31 March 2007, 30 June 2007, and 31 December 2007 who had a high grade cytology result recorded on the NCSP Register between 1 April 2005 and 31 March 2006, 1 July 2005 and 30 June 2006, and 1 January 2005 and 31 December 2006 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

period. 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.

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 75.2% for the 2007 reporting period (Table 32), compared to 77.1% in 2006 (see Figure 9). The proportion who had a histology specimen taken within 52 weeks of their smear was 90.7%, the same as in 2006 (see Figure 9). Overall there was little change in the results for the follow-up of women with high grade cytology during 2007, although the proportion of women who did not have a histology specimen taken after their smear increased by a small amount over the year. The target of 90% of women having a histology specimen taken within 12 weeks of their smear being taken was not reached for any ethnic group or in any NCSP Region or DHB. The target of 99% of women having a histology specimen taken within 52 weeks of their smear being taken was not reached for any ethnic group and was only reached by one NCSP Region (West Coast) and DHB (West Coast). In 2006 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 periods 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 2006 (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 period. For each reporting period 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 very slightly over the reporting periods, while the proportion of Pacific women increased over the reporting year (53.5% to 61.5%).

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 period. For each reporting period the proportion of non-Māori, non-Pacific women (91.9% to 91.3%) who had a histology specimen taken within 52 weeks of their high grade or more serious smear was more than those for Māori (85.4% to 88.7%) and Pacific women (84.5% to 85.9%).

The proportion of women with no histology report following a high grade smear is shown by ethnicity for each reporting period in Table 31. Māori (8.6% to 8.1%) and Pacific (10.7% to 13.0%) women were more likely to have no histological specimen taken following a high grade smear than non-Māori, non-Pacific women (6.1% to 7.4%).

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 fluctuated slightly but stayed the same 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 Waikato Region (from 83.8% to 76.7%). The greatest improvement over the reporting year was reported in the Auckland Region (from 69.5% to 73.2%). The proportion of women in each reporting period who had a high grade smear result with a subsequent histology specimen taken within 52 weeks also varied slightly between Regions. The greatest decline over the reporting year was reported in the West Coast Region (from 100% to 93.8%) and the greatest improvement was reported in the Tairawhiti Region (from 87.1% to 92.5%).

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 three reporting periods, increasing from 6.7% in the January to March reporting quarter to 7.7% in the July to December reporting period (Table 32). The greatest change over the year was reported by the Nelson/Marlborough Region, where the proportion of women with no histology result recorded following a high grade smear increased from 1.3% to 4.1%. 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 (12.8%, 11.9% and 13.9% per reporting period), and least common in West Coast (0.0%, 2.8% and 2.1% per reporting period, Table 32).

The follow-up of women with high grade cytology results by DHB is shown in Table 33. The pattern was 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 periods. 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 met by one DHB (West Coast) in one of the reporting periods. 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 Whanganui (12.0%, 14.1% and 20.2% per reporting period), and least common in West Coast (0.0%, 2.8% and 2.1% per reporting period, Table 33).

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

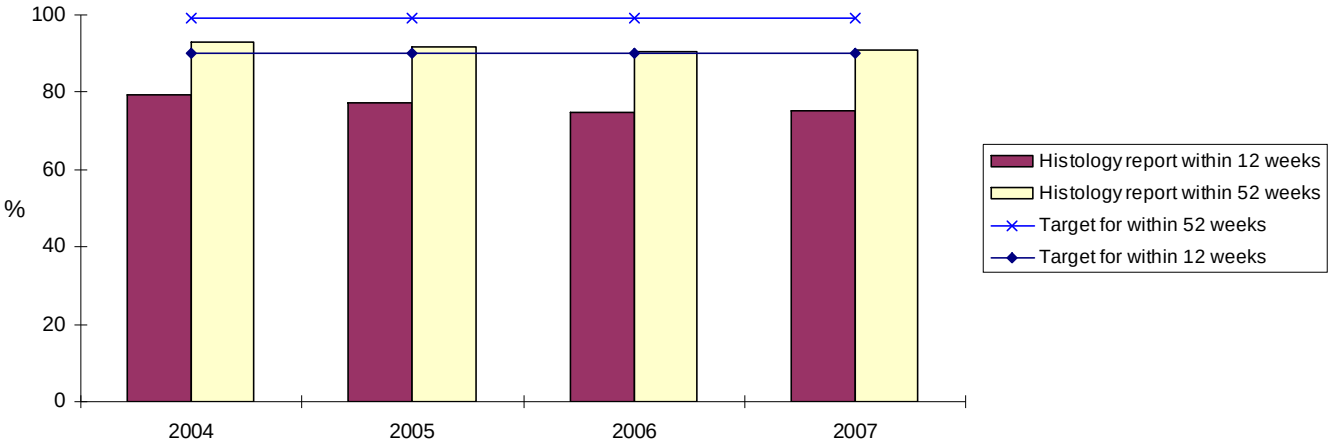
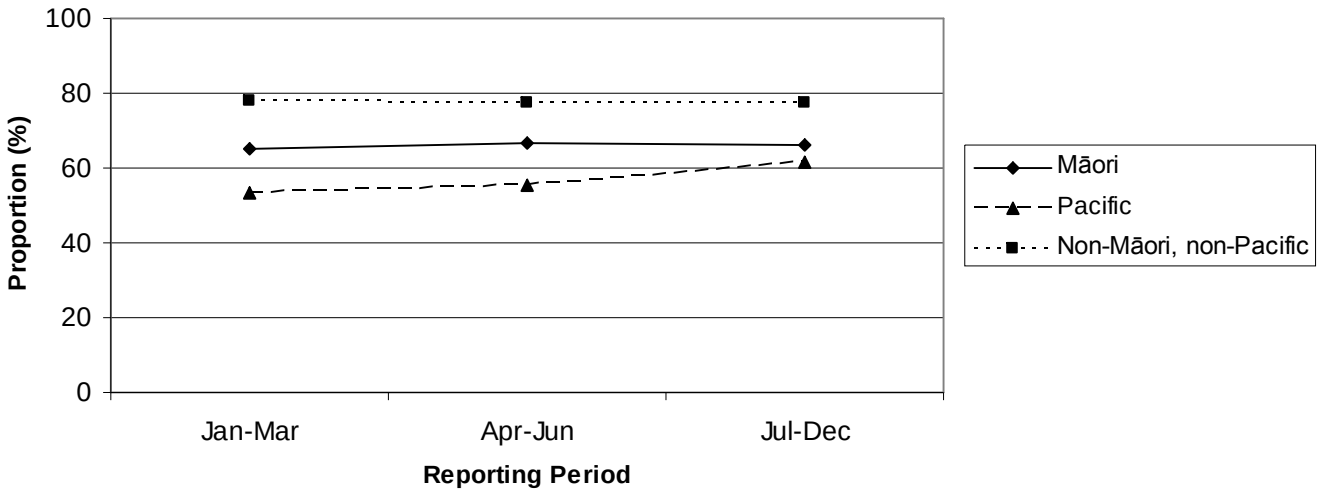
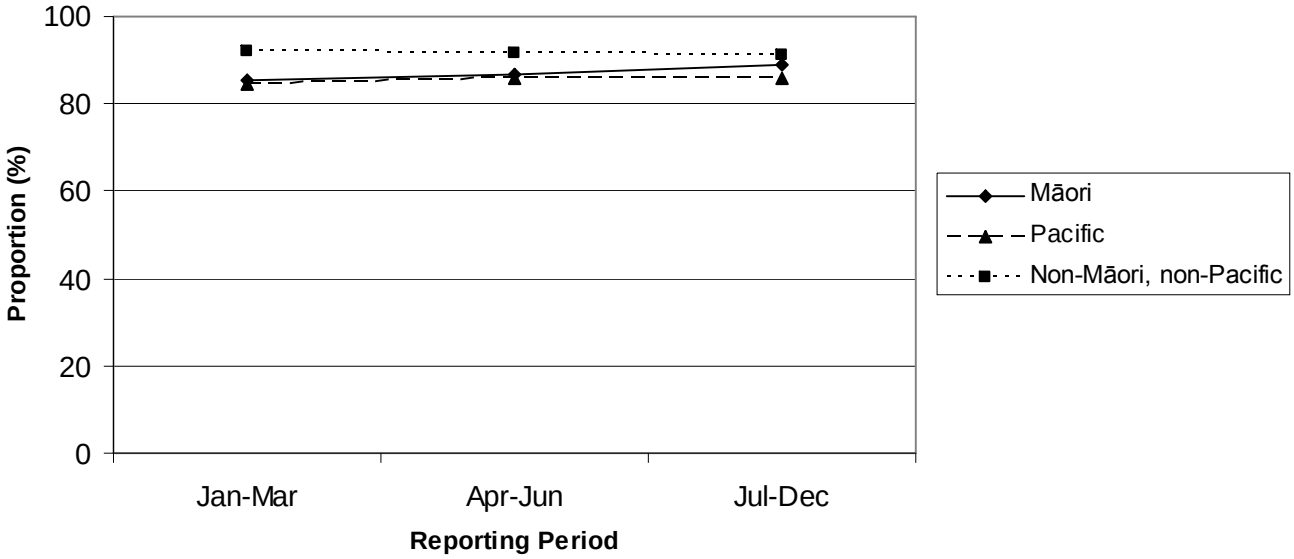


Figure 10: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting period, 2007



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 period, 2007



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

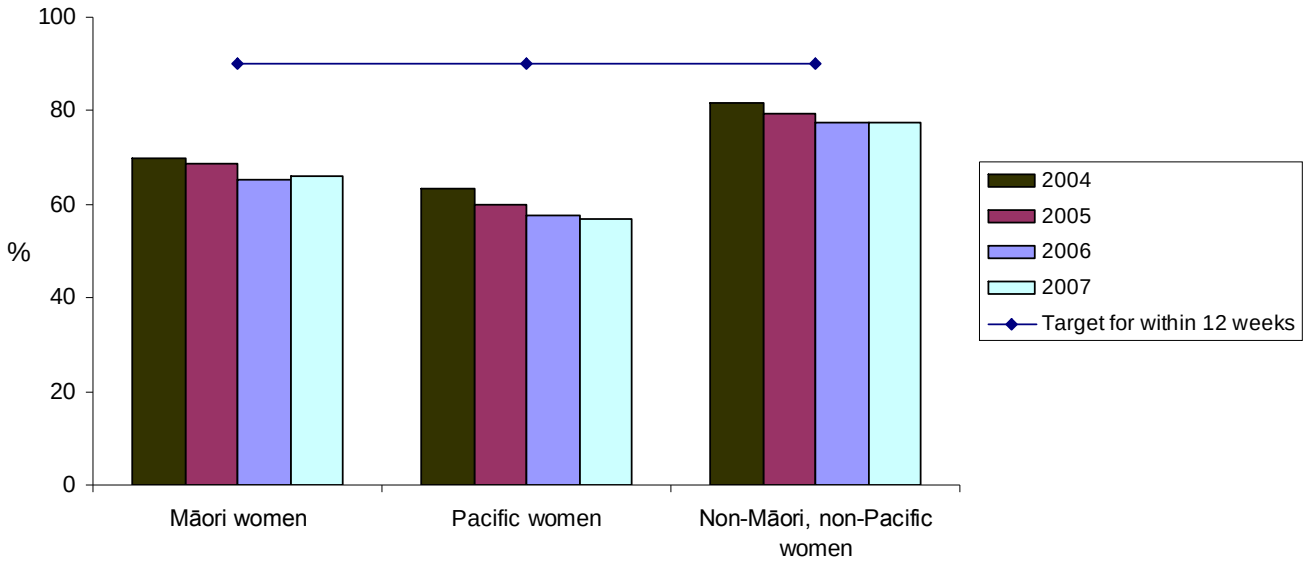


Figure 13: Timeliness of a histology report within 52 weeks of a high grade cytology result for enrolled 20 to 69 year old women by ethnicity

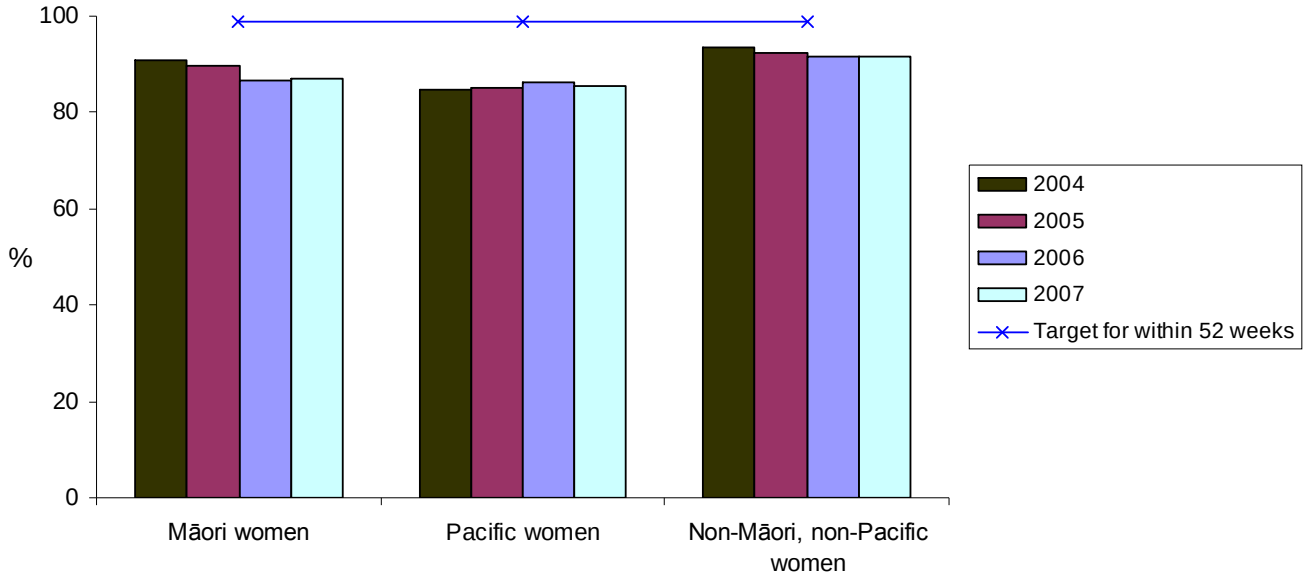


Table 26: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	65.2	66.8	66.3	66.1
Pacific	53.5	55.1	61.5	56.7
Non-Māori, non-Pacific	78.0	77.3	77.7	77.6
Total	**75.2**	**75.0**	**75.4**	**75.2**

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 period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	14.2	13.4	14.8	14.1
Pacific	17.7	18.4	17.2	17.7
Non-Māori, non-Pacific	10.1	10.2	9.8	10.0
Total	**11.0**	**11.0**	**10.8**	**10.9**

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 period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	6.1	6.7	7.6	6.8
Pacific	13.4	12.4	7.3	11.0
Non-Māori, non-Pacific	3.9	4.0	3.9	3.9
Total	**4.5**	**4.7**	**4.6**	**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 period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	85.4	86.8	88.7	87.0
Pacific	84.5	85.9	85.9	85.5
Non-Māori, non-Pacific	91.9	91.6	91.3	91.6
Total	**90.7**	**90.7**	**90.8**	**90.7**

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 period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	6.0	5.5	3.2	4.9
Pacific	4.8	3.8	1.0	3.2
Non-Māori, non-Pacific	2.0	1.8	1.3	1.7
Total	**2.6**	**2.4**	**1.5**	**2.2**

Table 31: The proportion of women with no histology report following a high grade cytology result by ethnicity and reporting period, 2007

Ethnic group	Time period			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%
Māori	8.6	7.7	8.1	8.1
Pacific	10.7	10.3	13.0	11.3
Non-Māori, non-Pacific	6.1	6.7	7.4	6.7
Total	**6.7**	**7.0**	**7.7**	**7.1**

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 period, 2007

NCSP Region	Time periods											
	Within 12 weeks[1]				Within 52 weeks[2]				No Histology			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%	%	%	%	%	%	%	%	%
Auckland	69.5	70.5	73.2	71.1	89.0	89.0	88.7	88.9	7.4	8.1	9.6	8.4
Bay of Plenty	71.9	71.9	72.0	71.9	89.7	89.9	90.7	90.1	7.8	8.3	8.4	8.2
Canterbury	82.5	81.0	82.1	81.9	93.7	94.3	94.9	94.3	4.5	4.6	4.4	4.5
Hawke's Bay	77.8	77.1	79.8	78.2	90.4	88.5	90.2	89.7	6.1	8.7	6.1	7.0
Manawatu/Wanganui	72.9	72.3	68.7	71.3	84.2	85.4	84.0	84.6	12.8	11.9	13.9	12.9
Nelson/Marlborough	76.8	76.1	76.0	76.3	98.0	97.5	94.5	96.7	1.3	1.9	4.1	2.4
Northland	76.9	81.7	79.4	79.3	91.0	91.6	91.6	91.4	5.8	4.9	6.9	5.9
Otago/Southland	82.9	84.1	82.7	83.2	94.2	94.7	94.0	94.3	3.9	3.9	5.1	4.3
Tairawhiti	72.9	68.6	69.8	70.4	87.1	88.6	92.5	89.4	7.1	5.7	7.6	6.8
Taranaki	78.3	74.2	76.4	76.3	91.7	90.8	93.5	92.0	5.0	6.7	4.9	5.5
Waikato	83.8	79.1	76.7	79.9	94.1	91.8	91.1	92.3	4.7	6.3	6.9	6.0
Wellington	73.1	74.1	73.0	73.4	89.5	90.2	92.0	90.6	8.3	6.9	6.2	7.1
West Coast	76.0	69.4	77.1	74.2	100.0	91.7	93.8	95.1	0.0	2.8	2.1	1.6
Total	**75.2**	**75.0**	**75.4**	**75.2**	**90.7**	**90.7**	**90.8**	**90.7**	**6.7**	**7.0**	**7.7**	**7.1**

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 period, 2007

DHB	Time periods											
	Within 12 weeks[1]				Within 52 weeks[2]				No Histology			
	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)	Jan-Mar	Apr-Jun	Jul-Dec	Year average (mean)
	%	%	%	%	%	%	%	%	%	%	%	%
Auckland	75.9	75.5	73.3	74.9	89.4	88.5	87.1	88.3	7.7	8.7	11.4	9.2
Bay of Plenty	77.5	77.1	74.5	76.3	93.7	93.5	94.2	93.8	4.8	4.8	4.4	4.7
Canterbury	84.6	84.4	85.0	84.6	94.6	95.5	95.3	95.1	3.8	3.6	4.1	3.8
Capital Coast	75.1	76.7	77.1	76.3	90.1	91.6	93.5	91.7	7.5	5.5	5.1	6.1
Counties Manakau	45.4	50.0	65.0	53.5	82.8	83.6	84.0	83.4	11.2	11.3	13.3	11.9
Hawke's Bay	77.8	77.1	79.8	78.2	90.4	88.5	90.2	89.7	6.1	8.7	6.1	7.0
Hutt	68.6	68.9	65.8	67.8	87.6	87.4	88.6	87.9	10.2	8.6	8.1	9.0
Lakes	62.6	62.7	67.9	64.4	83.4	83.9	84.5	83.9	12.3	14.3	15.5	14.0
MidCentral	71.7	71.3	67.9	70.3	83.1	85.3	86.1	84.8	13.4	11.6	11.8	12.3
Nelson/Marlborough	76.8	76.1	76.0	76.3	98.0	97.5	94.5	96.7	1.3	1.9	4.1	2.4
Northland	76.9	81.7	79.4	79.3	91.0	91.6	91.6	91.4	5.8	4.9	6.9	5.9
Otago	80.0	82.2	78.7	80.3	93.7	93.8	92.9	93.5	3.9	4.7	5.6	4.7
South Canterbury	63.9	50.8	53.0	55.9	85.2	83.1	90.9	86.4	11.5	13.9	7.6	11.0
Southland	87.1	86.9	88.4	87.5	95.0	96.0	95.7	95.5	3.9	2.9	4.4	3.7
Tairawhiti	72.9	68.6	69.8	70.4	87.1	88.6	92.5	89.4	7.1	5.7	7.6	6.8
Taranaki	78.3	74.2	76.4	76.3	91.7	90.8	93.5	92.0	5.0	6.7	4.9	5.5
Waikato	83.8	79.1	76.7	79.9	94.1	91.8	91.1	92.3	4.7	6.3	6.9	6.0
Wairarapa	70.3	70.7	71.1	70.7	89.2	87.8	92.1	89.7	10.8	12.2	7.9	10.3
Waitemata	80.3	79.7	78.4	79.5	93.1	93.0	93.5	93.2	4.8	5.4	5.6	5.3
West Coast	76.0	69.4	77.1	74.2	100.0	91.7	93.8	95.1	0.0	2.8	2.1	1.6
Whanganui	78.7	75.6	70.8	75.0	86.7	84.6	78.7	83.3	12.0	14.1	20.2	15.4
Unspecified	71.4	82.2	80.0	77.9	90.5	93.3	93.3	92.4	4.8	4.4	2.2	3.8
Total	**75.2**	**75.0**	**75.4**	**75.2**	**90.7**	**90.7**	**90.8**	**90.7**	**6.7**	**7.0**	**7.7**	**7.1**

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 2007 to 31 December 2007) 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 2007) 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 2007 and 31 December 2007, 387,572 women of all ages had a satisfactory smear result recorded on the NCSP Register (Table 34). Of these women, 377,096 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 926.0 per 1,000 women screened, compared to 928.9 per 1,000 women screened in 2006. 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 24.9 per 1,000 women and 32.4 per 1,000 women, respectively. The age-standardised ASC-H cytology rate for

20 to 69 year old women was 7.3 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 2006.

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 5.9 per 1,000 women in Southland to 43.7 per 1,000 women in Northland. The age-standardised LSIL cytology rate ranged from 23.8 per 1,000 women in Hutt Valley to 51.3 per 1,000 women in MidCentral. The age-standardised HSIL cytology rate ranged from 3.5 per 1,000 women in Capital and Coast to 15.0 per 1,000 women in Tairawhiti. South Canterbury and Whanganui had the highest age-standardised ISCC cytology rate (0.2 per 1,000 women). No cases of ISCC were reported in Bay of Plenty, Counties Manukau, Hutt Valley, Lakes, Nelson/Marlborough, Northland, Otago, Southland, Tairawhiti, Taranaki, Wairarapa, West Coast or for women whose DHB was unspecified.

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 for Māori (913.2 per 1,000 women) and Pacific women (915.5 per 1,000 women) than for non-Māori, non-Pacific women (927.9 per 1,000 women). The ASC-US cytology reporting rates were lower for non-Māori, non-Pacific women (23.9 per 1,000 women) compared with Māori and Pacific women (28.8 and 36.5 per 1,000 women, respectively). Pacific and non-Māori, non-Pacific women had lower rates of LSIL cytology (32.5 and 32.2 per 1,000 women screened, respectively) than Māori women (34.7 per 1,000 women). Māori women (11.4 per

1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori, non-Pacific women and Pacific women (7.5 and 5.8 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 Māori women (0.2 per 1,000 women) than Pacific and non-Māori, non-Pacific women (0.1 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, 2007

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	4,392	34,905	35,740	41,145	48,549	47,067	44,630	35,415	28,123	20,890	14,612	3,341	799	344	159	360,111
ASC-US	298	1,737	1,329	1,011	1,160	1,146	1,126	765	437	251	160	54	15	2	1	9,492
LSIL	784	3,844	2,212	1,349	1,086	901	757	388	240	138	85	29	13	3	0	11,829
AGC - low grade	0	19	19	31	36	41	42	36	18	10	9	3	1	1	0	266
AGC - high grade	0	2	4	5	12	14	19	29	19	12	21	9	4	4	0	154
ASC-H	79	628	480	332	309	251	199	139	102	77	43	14	4	3	1	2,661
HSIL	59	653	612	484	384	247	152	82	60	42	27	7	3	4	3	2,819
HSIL - suspicious for invasion	0	0	5	7	10	14	7	10	4	7	5	2	2	2	1	76
AIS	0	1	4	12	13	11	7	3	1	2	2	0	0	0	0	56
Adenocarcinoma	0	0	0	0	1	1	2	8	12	12	14	7	2	6	6	71
Cancer, NOS	0	0	0	0	0	0	1	1	1	0	1	1	1	2	0	8
ISCC	0	0	0	1	2	0	0	2	5	5	3	2	4	3	2	29
Total number of women	5,612	**41,789**	**40,405**	**44,377**	**51,562**	**49,693**	**46,942**	**36,878**	**29,022**	**21,446**	**14,982**	3,469	848	374	173	387,572

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, 2007

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	782.6	835.3	884.5	927.2	941.6	947.2	950.7	960.3	969.0	974.1	975.3	963.1	942.2	919.8	919.1	929.1	931.0	926.0
ASC-US	53.1	41.6	32.9	22.8	22.5	23.1	24.0	20.7	15.1	11.7	10.7	15.6	17.7	5.3	5.8	24.5	24.2	24.9
LSIL	139.7	92.0	54.7	30.4	21.1	18.1	16.1	10.5	8.3	6.4	5.7	8.4	15.3	8.0	0.0	30.5	29.2	32.4
AGC - low grade	0.0	0.5	0.5	0.7	0.7	0.8	0.9	1.0	0.6	0.5	0.6	0.9	1.2	2.7	0.0	0.7	0.7	0.7
AGC - high grade	0.0	<0.1	0.1	0.1	0.2	0.3	0.4	0.8	0.7	0.6	1.4	2.6	4.7	10.7	0.0	0.4	0.4	0.4
ASC-H	14.1	15.0	11.9	7.5	6.0	5.1	4.2	3.8	3.5	3.6	2.9	4.0	4.7	8.0	5.8	6.9	6.8	7.3
HSIL	10.5	15.6	15.1	10.9	7.4	5.0	3.2	2.2	2.1	2.0	1.8	2.0	3.5	10.7	17.3	7.3	7.3	7.8
HSIL - suspicious for invasion	0.0	0.0	0.1	0.2	0.2	0.3	0.1	0.3	0.1	0.3	0.3	0.6	2.4	5.3	5.8	0.2	0.2	0.2
AIS	0.0	<0.1	0.1	0.3	0.3	0.2	0.1	0.1	<0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Adenocarcinoma	0.0	0.0	0.0	0.0	<0.1	<0.1	<0.1	0.2	0.4	0.6	0.9	2.0	2.4	16.0	34.7	0.2	0.1	0.1
Cancer, NOS	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	<0.1	0.0	0.1	0.3	1.2	5.3	0.0	<0.1	<0.1	<0.1
ISCC	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.6	4.7	8.0	11.6	0.1	<0.1	0.1
Total number of women	5,612	41,789	40,405	44,377	51,562	49,693	46,942	36,878	29,022	21,446	14,982	3,469	848	374	173	387,572	377,096	

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, 2007

Category of cytology result	Age standardised rates													Total crude rate	Total age standardised rate (20-69 years)
	NSCP 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	919.2	904.9	930.7	934.7	899.2	925.9	906.4	949.8	924.8	946.0	932.1	942.7	930.3	931.0	926.0
ASC-US	31.1	35.0	21.0	15.2	27.2	23.8	43.7	6.2	17.4	11.6	21.7	20.7	14.2	24.2	24.9
LSIL	33.5	41.3	31.7	32.3	50.4	36.0	26.3	25.7	35.5	24.7	27.5	27.0	39.3	29.2	32.4
AGC - low grade	0.9	1.2	0.3	0.3	0.9	0.2	1.4	0.5	0.0	0.1	0.9	0.3	0.0	0.7	0.7
AGC - high grade	0.4	0.7	0.3	0.2	0.3	0.4	0.5	0.5	0.8	0.2	0.3	0.1	0.9	0.4	0.4
ASC-H	8.7	7.7	6.7	6.3	9.7	5.9	12.4	4.2	5.4	4.8	7.3	4.8	4.4	6.8	7.3
HSIL	5.6	8.6	9.0	10.3	11.8	7.2	8.9	12.6	15.0	12.3	9.6	4.1	10.4	7.3	7.8
HSIL - suspicious for invasion	0.2	0.4	0.1	0.4	0.2	0.2	0.3	0.1	0.0	0.1	0.2	0.0	0.0	0.2	0.2
AIS	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1
Adenocarcinoma	0.2	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.9	0.1	0.3	0.1	0.0	0.1	0.1
Cancer, NOS	<0.1	0.0	<0.1	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	<0.1	<0.1
ISCC	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	<0.1	0.1	0.0	<0.1	0.1
Total number of women	**126,491**	**27,467**	**48,709**	**13,230**	**19,089**	**12,017**	**12,503**	**27,201**	**3,550**	**9,894**	**29,673**	**44,657**	**2,615**	**377,096**	

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, 2007

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	915.1	30.8	37.1	0.9	0.2	9.5	5.8	0.1	0.1	0.2	0.0	0.1	41,392
Bay of Plenty	897.3	40.1	45.6	1.1	0.6	7.7	7.1	0.2	0.1	0.1	0.0	0.0	18,334
Canterbury	931.6	21.0	31.2	0.3	0.3	6.6	8.7	0.1	0.1	0.0	<0.1	0.1	43,695
Capital Coast	943.7	20.7	26.9	0.3	0.1	4.4	3.5	0.0	0.1	0.2	0.0	0.1	28,620
Counties Manukau	921.7	31.8	30.8	0.8	0.5	8.4	5.3	0.3	0.3	0.2	<0.1	0.0	36,155
Hawke's Bay	934.7	15.2	32.3	0.3	0.2	6.3	10.3	0.4	0.1	0.1	0.0	0.1	13,230
Hutt Valley	946.7	19.3	23.8	0.3	0.1	5.4	4.3	0.0	0.1	0.0	0.0	0.0	11,979
Lakes	919.4	25.5	32.7	1.3	0.9	7.7	11.5	0.7	0.3	0.0	0.0	0.0	9,040
MidCentral	897.6	27.9	51.3	1.1	0.1	8.8	12.7	0.2	0.2	0.1	0.0	0.1	13,682
Nelson/Marlborough	925.9	23.8	36.0	0.2	0.4	5.9	7.2	0.2	0.1	0.2	0.0	0.0	12,017
Northland	906.4	43.7	26.3	1.4	0.5	12.4	8.9	0.3	0.0	0.2	0.0	0.0	12,503
Otago	952.2	6.3	24.5	0.4	0.6	3.5	11.9	0.1	0.2	0.4	0.0	0.0	17,604
South Canterbury	922.7	20.7	35.3	0.3	0.2	7.8	12.0	0.4	0.4	0.0	0.0	0.2	4,715
Southland	945.6	5.9	27.7	0.7	0.3	5.6	14.0	0.1	0.0	0.2	0.0	0.0	9,597
Tairawhiti	924.8	17.4	35.5	0.0	0.8	5.4	15.0	0.0	0.2	0.9	0.0	0.0	3,550
Taranaki	946.0	11.6	24.7	0.1	0.2	4.8	12.3	0.1	0.2	0.1	0.0	0.0	9,894
Waikato	932.1	21.7	27.5	0.9	0.3	7.3	9.6	0.2	0.1	0.3	0.0	<0.1	29,673
Wairarapa	920.1	21.3	38.2	0.5	0.2	7.5	11.8	0.0	0.5	0.0	0.0	0.0	3,566
Waitemata	922.3	30.6	31.5	0.9	0.4	8.4	5.4	0.2	0.1	0.1	0.0	0.1	48,005
West Coast	930.3	14.2	39.3	0.0	0.9	4.4	10.4	0.0	0.0	0.0	0.5	0.0	2,615
Whanganui	903.8	25.4	46.5	0.3	0.7	12.2	10.2	0.2	0.2	0.3	0.2	0.2	5,135
Unspecified	893.5	37.7	51.1	0.4	1.2	6.6	8.9	0.0	0.5	0.0	0.0	0.0	2,095
Total crude rate	931.0	24.2	29.2	0.7	0.4	6.8	7.3	<0.1	0.2	0.1	0.1	<0.1	377,096
Total age standardised rate	926.0	24.9	32.4	0.7	0.4	7.3	7.8	0.1	0.2	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, 2007

Category of cytology result	Ethnic group			Total
	Māori	Pacific	Non-Māori, non-Pacific	
Negative for dysplasia or malignancy	32,394	13,079	305,603	351,076
ASC-US	1,073	516	7,533	9,122
LSIL	1,342	475	9,183	11,000
AGC - low grade	36	9	216	261
AGC - high grade	19	13	105	137
ASC-H	346	102	2,112	2,560
HSIL	442	85	2,216	2,743
HSIL - suspicious for invasion	23	2	44	69
AIS	6	0	50	56
Adenocarcinoma	0	6	44	50
Cancer, NOS	1	0	3	4
ISCC	5	1	12	18
Total number of women	**35,687**	**14,288**	**327,121**	**377,096**

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, 2007

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	913.2	915.5	927.9	931.0	926.0
ASC-US	28.8	36.5	23.9	24.2	24.9
LSIL	34.7	32.5	32.2	29.2	32.4
AGC - low grade	1.1	0.7	0.6	0.7	0.7
AGC - high grade	0.7	1.1	0.3	0.4	0.4
ASC-H	9.3	6.9	7.1	6.8	7.3
HSIL	11.4	5.8	7.5	7.3	7.8
HSIL - suspicious for invasion	0.7	0.2	0.1	0.2	0.2
AIS	0.1	0.0	0.1	0.1	0.1
Adenocarcinoma	0.0	0.7	0.1	0.1	0.1
Cancer, NOS	0.1	0.0	<0.1	<0.1	<0.1
ISCC	0.2	0.1	<0.1	<0.1	0.1
Total number of women	**35,687**	**14,288**	**327,121**	**377,096**	

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 2007 to 31 December 2007) 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 mid-point of the reporting period (30 June 2007), in order to allow comparisons of the information in the NCSP Register and the whole population. 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 2007) 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 2007 and 31 December 2007, 26,617 histology samples were recorded on the NCSP Register. Of these, 542 were recorded as unsatisfactory, and were not included in subsequent analyses. The remaining 26,075 specimens were taken from 21,435 women. Nine women died prior to 30 June 2007, 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 87 women (16 Māori, 5 Pacific and 66 non-Māori, non-Pacific) were diagnosed with ISCC, compared with 94 women (20 Māori, 7 Pacific and 67 non-Māori, non-Pacific) in 2006. Eighty-three women (11 Māori, 3 Pacific and 69 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix, compared with 89 women (11 Māori, 4 Pacific and 74 non-Māori, non-Pacific) in 2006. In the total population, 43.2% of the histology specimens were classified as "normal" or "other non-neoplastic" (see Table 40), but this proportion was lower for Māori (36.0%) and Pacific (42.1%) women, reflecting the higher proportion of abnormalities for these groups of women. This pattern was also seen in 2006; total population 43.6%, Māori women 35.5% and Pacific women 38.8%. The proportion of LSIL was higher for Pacific (15.2%) women compared to Māori (14.6%) and non-Māori, non-Pacific women (14.3%). However, the proportion of HSIL was lower for Pacific women (16.4%) compared to non-Māori, non-Pacific (18.0%) and Māori women (27.8%). In 2006, the proportions of both LSIL and HSIL were higher for 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).

The number and proportion of women in each histology result category by 5-year age group are shown in Table 41. Ten (11.5%) of the cases of ISCC, compared to 20 (21.3%) in 2006, and 16 (19.3%), compared to 21 (23.6%) in 2006, 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 2006, 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 for 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 35 years in Otago/Southland and Tairawhiti to 42 years in 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 32 years in Southland to 42 years in Northland. 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 2007, by ethnicity

Histology result category	Ethnic group						All women	
	Māori women		Pacific women		Non-Māori, non-Pacific women			
	n	%	n	%	n	%	n	%
Normal	365	16.4	130	20.5	4,359	23.5	4,854	22.7
Other non-neoplastic	435	19.6	137	21.6	3,809	20.5	4,381	20.5
Polyp	156	7.0	60	9.5	1,985	10.7	2,201	10.3
Atypia/HPV	257	11.6	84	13.3	2,017	10.9	2,358	11.0
CIN, NOS	18	0.8	8	1.3	118	0.6	144	0.7
LSIL	324	14.6	96	15.2	2,655	14.3	3,075	14.4
HSIL	619	27.8	104	16.4	3,350	18.0	4,073	19.0
Glandular dysplasia	2	0.1	0	0.0	5	<0.1	7	<0.1
Adenocarcinoma-in-situ	15	0.7	3	0.5	86	0.5	104	0.5
Other primary cervical cancer	2	0.1	1	0.2	22	0.1	25	0.1
Metastatic (non-cervical) tumour	1	<0.1	1	0.2	12	0.1	14	0.1
Invasive adenocarcinoma	11	0.5	3	0.5	69	0.4	83	0.4
Adenosquamous carcinoma	1	<0.1	0	0.0	7	<0.1	8	<0.1
Microinvasive squamous carcinoma	3	0.1	1	0.2	8	<0.1	12	0.1
ISCC	16	0.7	5	0.8	66	0.4	87	0.4
Total	**2,225**	**100**	**633**	**100**	**18,568**	**100**	**21,426**	**99.95**

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 2007 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	38	8.3	287	8.9	291	11.2	369	16.5	596	23.1	856	30.1	900	32.6	576	30.9	336	29.8	234	32.6	174	34.5	197	38.8
Other non-neoplastic	51	11.1	388	12.1	362	13.9	383	17.1	547	21.2	646	22.7	696	25.2	493	26.4	280	24.8	197	27.5	150	29.7	188	37.0
Polyp	3	0.7	17	0.5	31	1.2	79	3.5	182	7.0	394	13.9	490	17.8	433	23.2	293	26.0	144	20.1	83	16.4	52	10.2
Atypia/HPV	80	17.5	510	15.9	414	15.9	288	12.9	305	11.8	261	9.2	224	8.1	135	7.2	70	6.2	44	6.1	19	3.8	8	1.6
CIN, NOS	6	1.3	35	1.1	26	1.0	17	0.8	16	0.6	15	0.5	11	0.4	7	0.4	6	0.5	3	0.4	2	0.4	0	0.0
LSIL	132	28.8	856	26.6	580	22.2	401	17.9	375	14.5	300	10.6	218	7.9	107	5.7	50	4.4	31	4.3	21	4.2	4	0.8
HSIL	146	31.9	1,102	34.3	878	33.7	666	29.8	521	20.2	328	11.5	194	7.0	90	4.8	64	5.7	32	4.5	37	7.3	15	3.0
Glandular dysplasia	0	0.0	1	<0.1	1	<0.1	2	0.1	0	0.0	1	<0.1	1	<0.1	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Adenocarcinoma-in-situ	2	0.4	16	0.5	12	0.5	22	1.0	20	0.8	11	0.4	6	0.2	6	0.3	3	0.3	1	0.1	3	0.6	2	0.4
Other primary cervical cancer	0	0.0	1	<0.1	0	0.0	0	0.0	2	0.1	4	0.1	2	0.1	1	0.1	2	0.2	1	0.1	1	0.2	11	2.2
Metastatic (non-cervical) tumour	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	<0.1	1	<0.1	3	0.2	3	0.3	2	0.3	0	0.0	4	0.8
Invasive adenocarcinoma	0	0.0	1	<0.1	3	0.1	2	0.1	11	0.4	11	0.4	6	0.2	5	0.3	11	1.0	9	1.3	8	1.6	16	3.1
Adenosquamous carcinoma	0	0.0	0	0.0	0	0.0	1	<0.1	0	0.0	0	0.0	1	<0.1	2	0.1	0	0.0	2	0.3	1	0.2	1	0.2
Microinvasive squamous carcinoma	0	0.0	0	0.0	4	0.2	0	0.0	3	0.1	0	0.0	3	0.1	0	0.0	0	0.0	1	0.1	1	0.2	0	0.0
ISCC	0	0.0	2	0.1	6	0.2	6	0.3	7	0.3	15	0.5	4	0.1	8	0.4	9	0.8	15	2.1	5	1.0	10	2.0
Total	458	100	**3,216**	**100**	**2,608**	**100**	**2,236**	**100**	**2,585**	**100**	**2,843**	**100**	**2,757**	**100**	**1,866**	**100**	**1,127**	**100**	**717**	**100**	**505**	**100**	508	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 2007

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	20.6	23.0	26.3	37.2	52.9	56.6	42.7	27.7	23.9	21.1
Other non-neoplastic	27.8	28.6	27.3	34.1	39.9	43.8	36.5	23.1	20.1	18.2
Polyp	1.2	2.4	5.6	11.3	24.3	30.8	32.1	24.2	14.7	10.1
Atypia/HPV	36.5	32.7	20.6	19.0	16.1	14.1	10.0	5.8	4.5	2.3
CIN, NOS	2.5	2.1	1.2	1.0	0.9	0.7	0.5	0.5	0.3	0.2
LSIL	61.3	45.8	28.6	23.4	18.5	13.7	7.9	4.1	3.2	2.6
HSIL	79.0	69.3	47.5	32.5	20.3	12.2	6.7	5.3	3.3	4.5
Glandular dysplasia	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
Adenocarcinoma-in-situ	1.1	0.9	1.6	1.2	0.7	0.4	0.4	0.2	0.1	0.4
Other primary cervical cancer	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.1
Metastatic (non-cervical) tumour	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.0
Invasive adenocarcinoma	0.1	0.2	0.1	0.7	0.7	0.4	0.4	0.9	0.9	1.0
Adenosquamous carcinoma	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.1
Microinvasive squamous carcinoma	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.0	0.1	0.1
ISCC	0.1	0.5	0.4	0.4	0.9	0.3	0.6	0.7	1.5	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, 2007

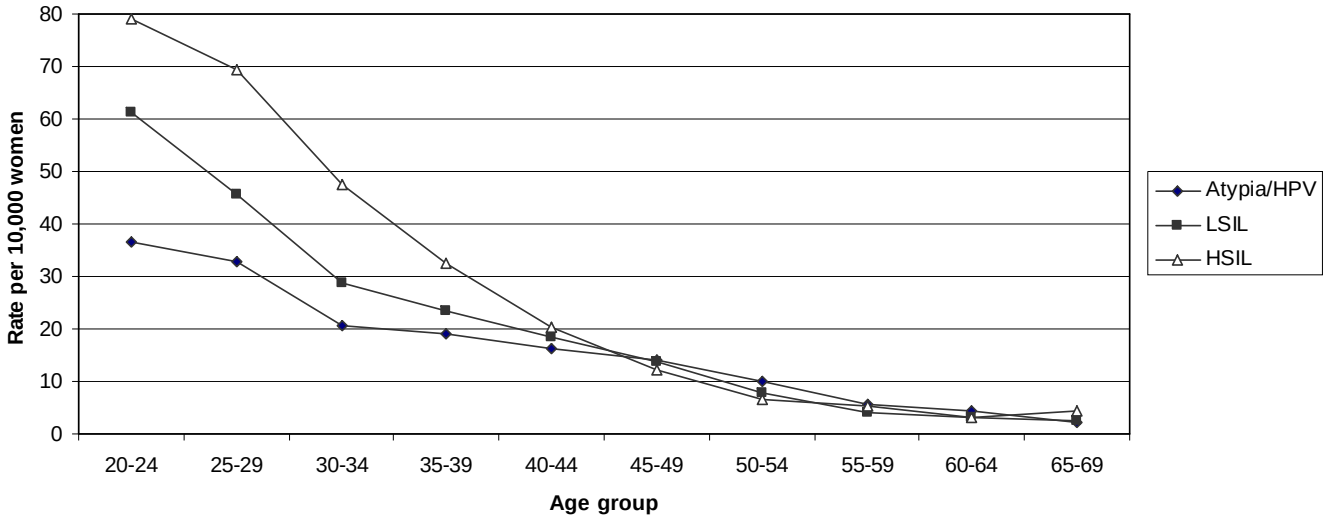


Figure 15: Age-specific Atypia/HPV histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2007

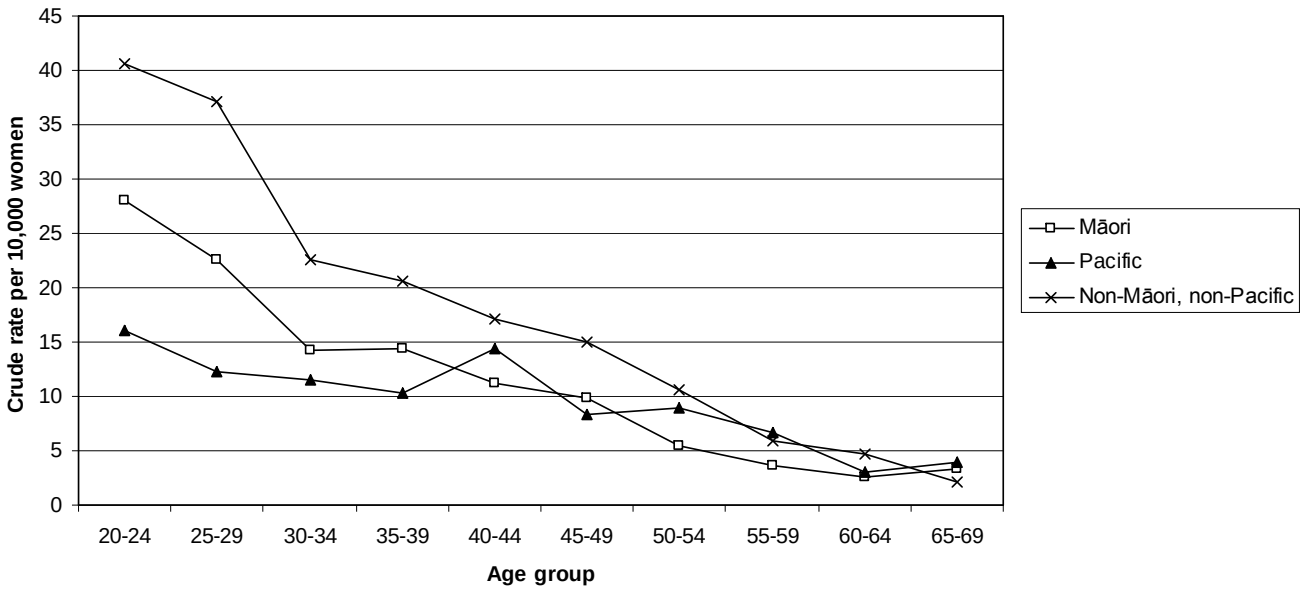


Figure 16: Age-specific LSIL histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2007

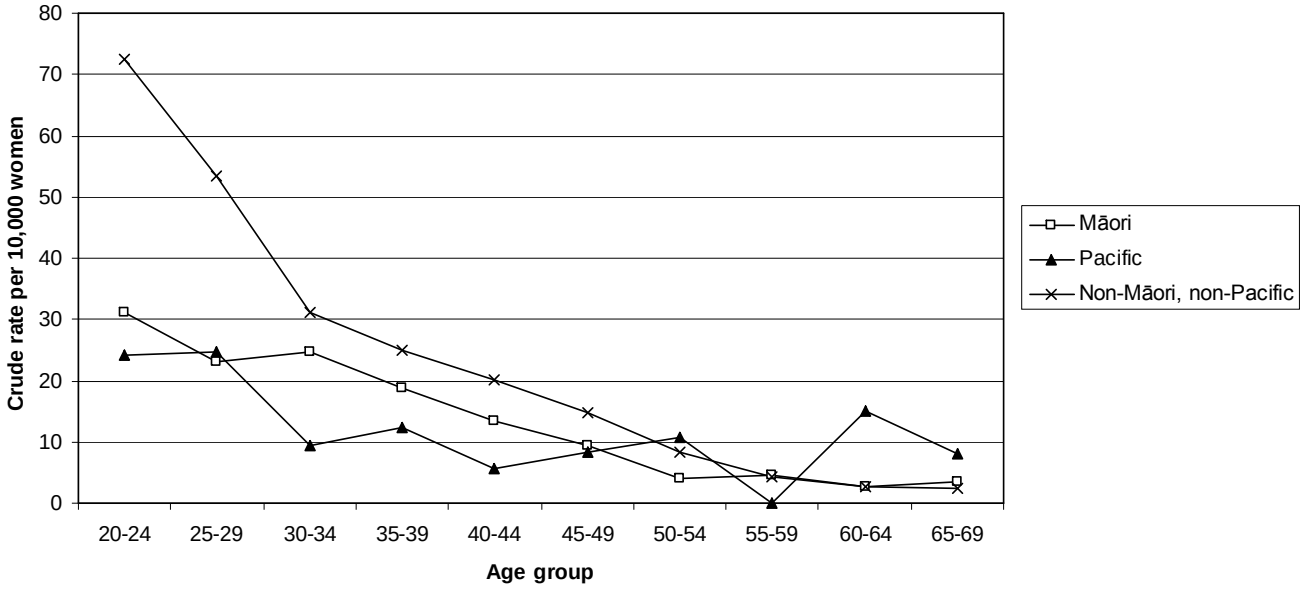


Figure 17: Age-specific HSIL histology reporting rates per 10,000 women aged 20 to 69 years by ethnicity, 2007

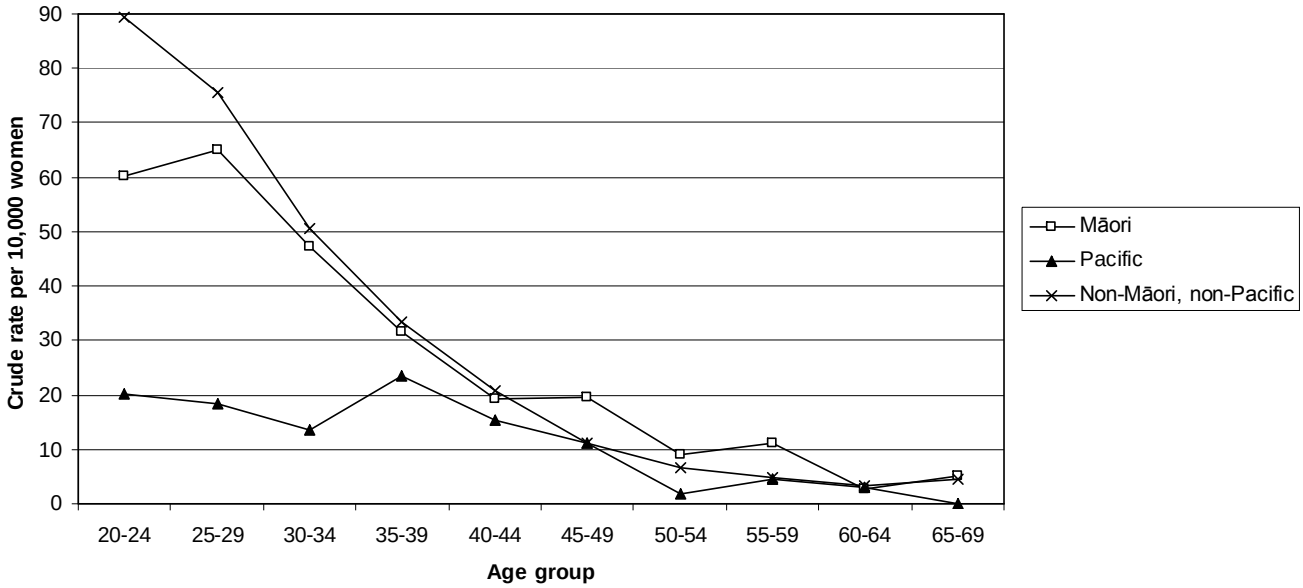


Table 43: Age-standardised histology rates per 10,000 women aged 20 to 69 years by ethnicity, 2007

Histology result category	Ethnic group			All women
	Māori women	Pacific women	Non-Māori, non-Pacific women	
Normal	19.8	18.5	36.7	33.4
Other non-neoplastic	24.0	18.8	33.2	30.9
Polyp	9.0	9.1	15.6	14.4
Atypia/HPV	13.7	10.5	21.0	19.1
CIN, NOS	1.0	1.1	1.3	1.2
LSIL	15.9	13.2	29.1	25.7
HSIL	32.6	13.0	37.4	34.7
Glandular dysplasia	0.1	0.0	<0.1	0.1
Adenocarcinoma-in-situ	0.8	0.5	0.9	0.8
Other primary cervical cancer	0.1	0.1	0.1	0.1
Metastatic (non-cervical) tumour	0.1	0.1	0.1	0.1
Invasive adenocarcinoma	0.7	0.4	0.4	0.5
Adenosquamous carcinoma	0.1	0.0	<0.1	<0.1
Microinvasive squamous carcinoma	0.2	0.1	0.1	0.1
ISCC	1.0	1.0	0.5	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.

Table 44: Age-standardised histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2007

Histology result category	NCSP Region												
	Auckland	Bay of Plenty	Canterbury	Hawke's Bay	Manawatu/ Wanganui	Nelson/ Marlborough	Northland	Otago/ Southland	Tairawhiti	Taranaki	Waikato	Wellington	West Coast
Normal	28.6	25.6	58.0	36.3	41.3	31.6	9.7	36.8	37.8	27.5	29.2	29.9	50.8
Other non-neoplastic	29.2	64.5	15.0	44.8	15.7	29.2	47.2	11.6	8.1	16.4	51.3	36.7	21.5
Polyp	14.8	17.3	15.5	6.9	12.0	16.3	18.4	10.5	10.0	21.7	12.6	14.8	6.7
Atypia/HPV	20.9	21.9	16.2	12.4	59.8	26.6	16.4	1.4	43.8	12.9	20.5	9.0	9.6
CIN, NOS	1.9	0.2	0.6	0.0	0.3	0.0	0.5	0.0	0.0	4.3	2.6	0.7	0.0
LSIL	24.0	38.3	29.9	15.8	25.7	32.1	5.8	15.5	15.5	29.4	20.9	35.0	42.0
HSIL	26.8	47.4	44.6	39.7	49.1	36.2	44.4	45.1	57.8	43.4	33.5	23.1	59.2
Glandular dysplasia	<0.1	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Adenocarcinoma-in-situ	0.8	0.7	1.2	0.2	1.1	0.0	0.2	1.0	0.7	0.2	0.9	1.0	0.0
Other primary cervical cancer	0.2	0.2	0.1	0.2	0.0	0.0	0.2	0.0	0.6	0.0	0.0	0.0	0.0
Metastatic (non-cervical) tumour	0.0	0.0	0.3	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Invasive adenocarcinoma	0.5	0.8	0.1	0.8	0.0	0.8	0.4	0.5	3.0	0.0	0.8	0.3	0.0
Adenosquamous carcinoma	<0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Microinvasive squamous carcinoma	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	2.3
ISCC	0.7	0.9	0.8	0.4	0.5	0.5	0.6	0.1	0.0	0.2	0.4	0.4	0.9

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, 2007

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	23.6	32.9	60.1	29.6	18.0	36.3	24.5	11.8	44.8	31.6	9.7	42.0	32.5	28.6	37.8	27.5	29.2	48.4	42.2	50.8	32.5
Other non-neoplastic	36.0	81.3	12.0	28.6	16.6	44.8	48.1	32.5	15.5	29.2	47.2	9.3	45.6	15.5	8.1	16.4	51.3	55.2	32.2	21.5	14.0
Polyp	13.0	19.1	15.0	14.0	14.3	6.9	15.0	13.6	11.9	16.3	18.4	12.2	19.4	7.8	10.0	21.7	12.6	16.5	16.2	6.7	11.9
Atypia/HPV	21.3	30.0	15.6	7.7	17.0	12.4	9.4	6.4	66.2	26.6	16.4	0.9	22.9	2.4	43.8	12.9	20.5	18.9	23.9	9.6	36.6
CIN, NOS	1.9	0.3	0.1	0.1	1.6	0.0	2.2	0.0	0.2	0.0	0.5	0.0	6.1	0.0	0.0	4.3	2.6	0.0	2.1	0.0	0.4
LSIL	20.7	37.4	29.3	40.4	28.7	15.8	20.3	39.2	24.7	32.1	5.8	13.9	31.0	18.1	15.5	29.4	20.9	23.9	22.3	42.0	27.7
HSIL	26.3	50.3	42.8	23.8	22.3	39.7	18.4	42.6	50.7	36.2	44.4	40.8	61.2	55.0	57.8	43.4	33.5	28.9	30.9	59.2	44.2
Glandular dysplasia	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.8	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
Adenocarcinoma-in-situ	0.6	0.6	1.2	1.2	0.9	0.2	0.4	0.8	1.0	0.0	0.2	1.1	0.0	1.0	0.7	0.2	0.9	2.5	0.8	0.0	1.5
Other primary cervical cancer	0.1	0.1	0.1	0.0	0.3	0.2	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.0
Metastatic (non-cervical) tumour	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Invasive adeno-carcinoma	0.3	1.1	0.1	0.4	0.5	0.8	0.0	0.3	0.0	0.8	0.4	0.6	0.0	0.2	3.0	0.0	0.8	0.5	0.5	0.0	0.0
Adeno-squamous carcinoma	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Microinvasive squamous carcinoma	0.1	0.0	0.3	0.0	0.1	0.2	0.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	2.3	0.0
ISCC	0.6	1.0	0.8	0.5	0.5	0.4	0.6	0.7	0.7	0.5	0.6	0.1	0.8	0.0	0.0	0.2	0.4	0.0	0.8	0.9	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, 2007

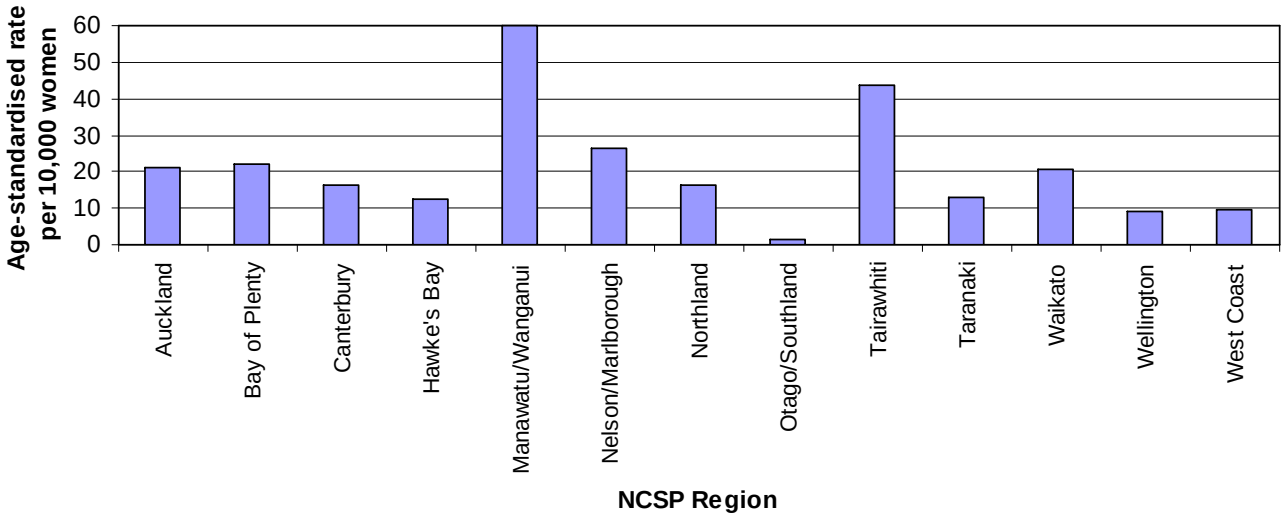


Figure 19: Age-standardised LSIL histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2007

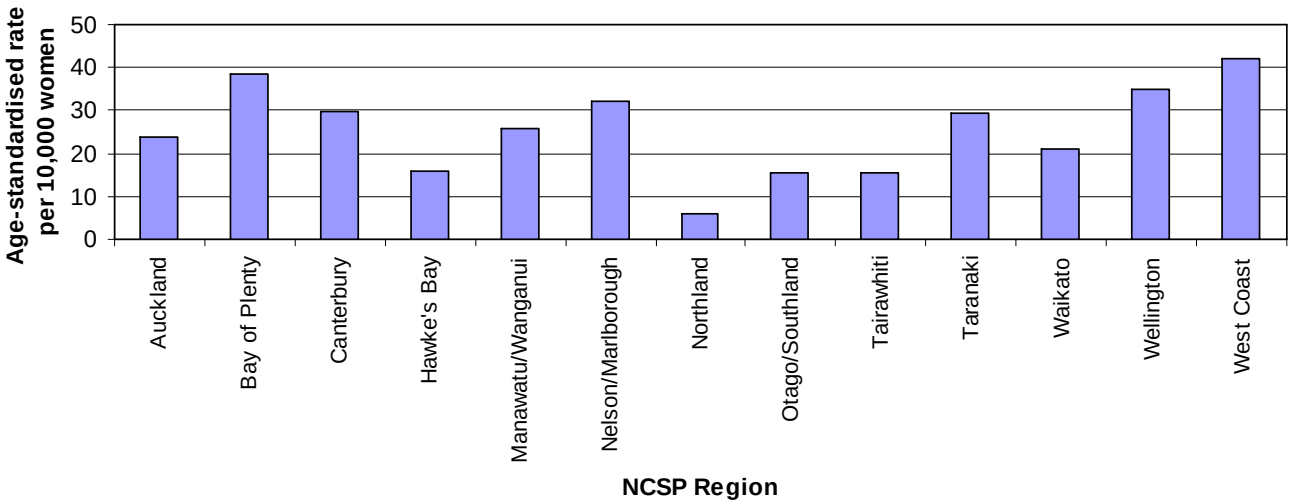


Figure 20: Age-standardised HSIL histology rates per 10,000 women aged 20 to 69 years by NCSP Region, 2007

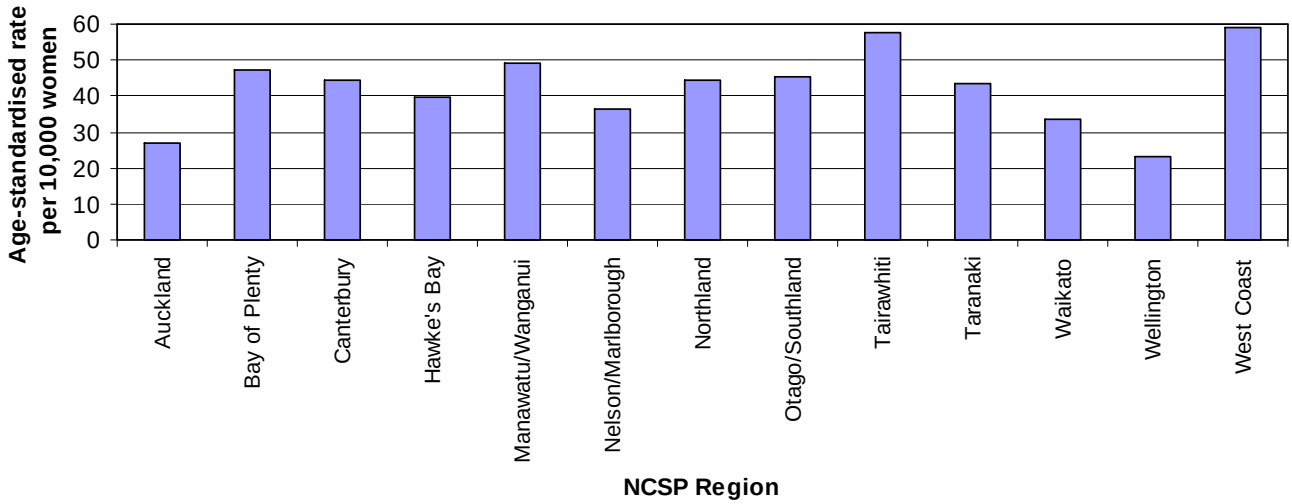


Figure 21: Age-standardised Atypia/HPV histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2007

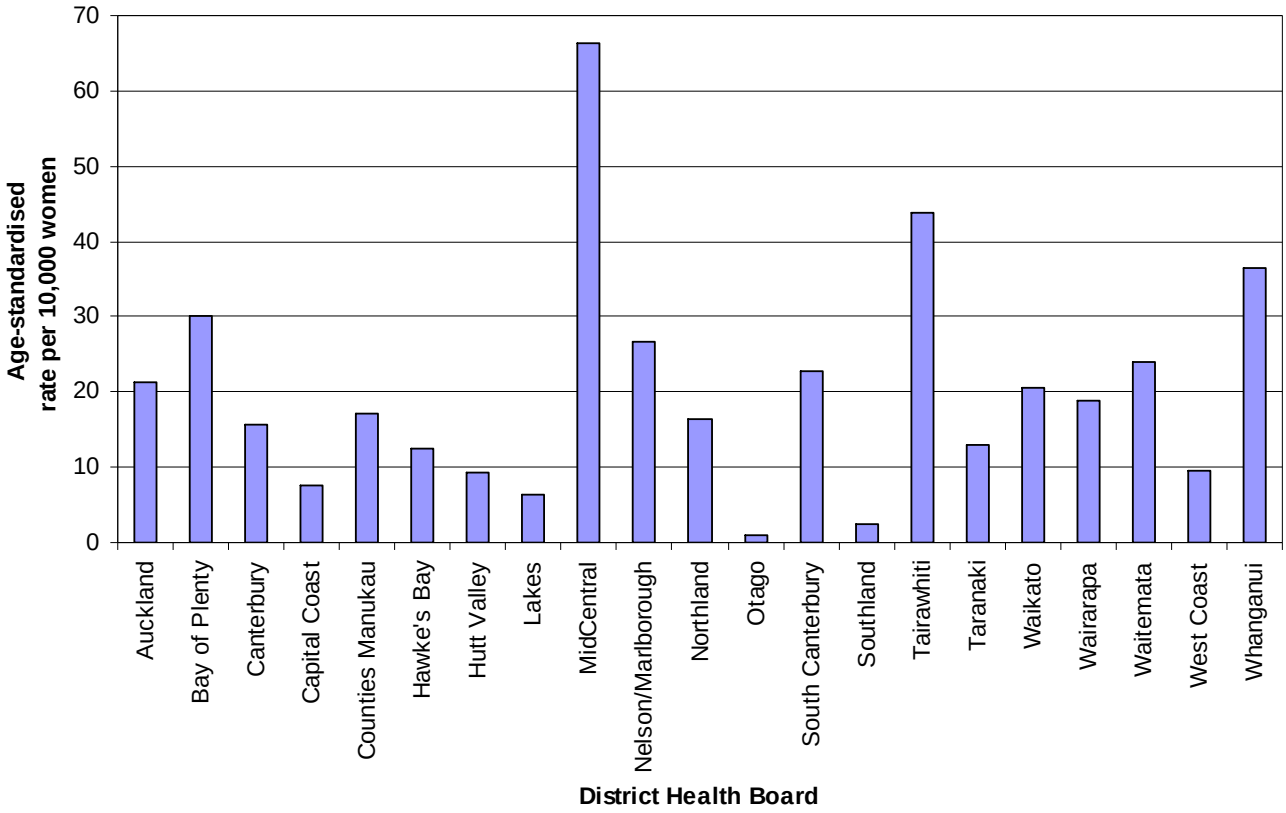


Figure 22: Age-standardised LSIL histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2007

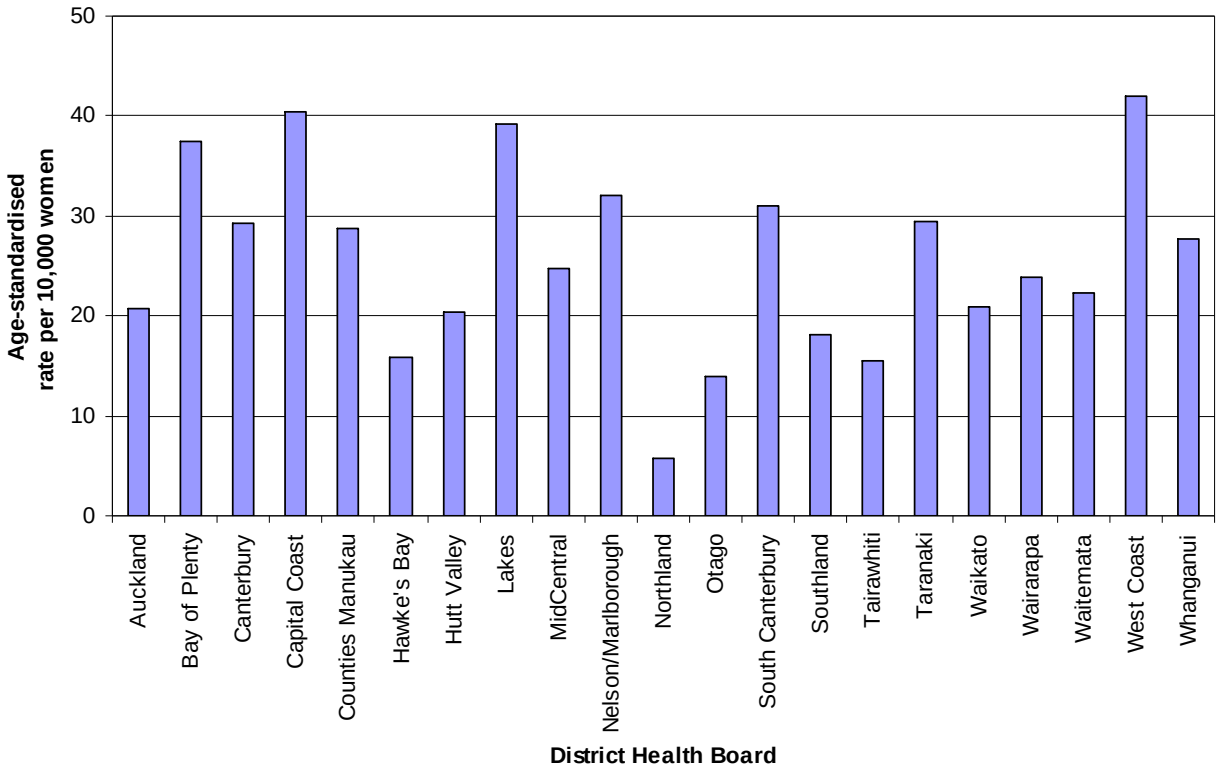
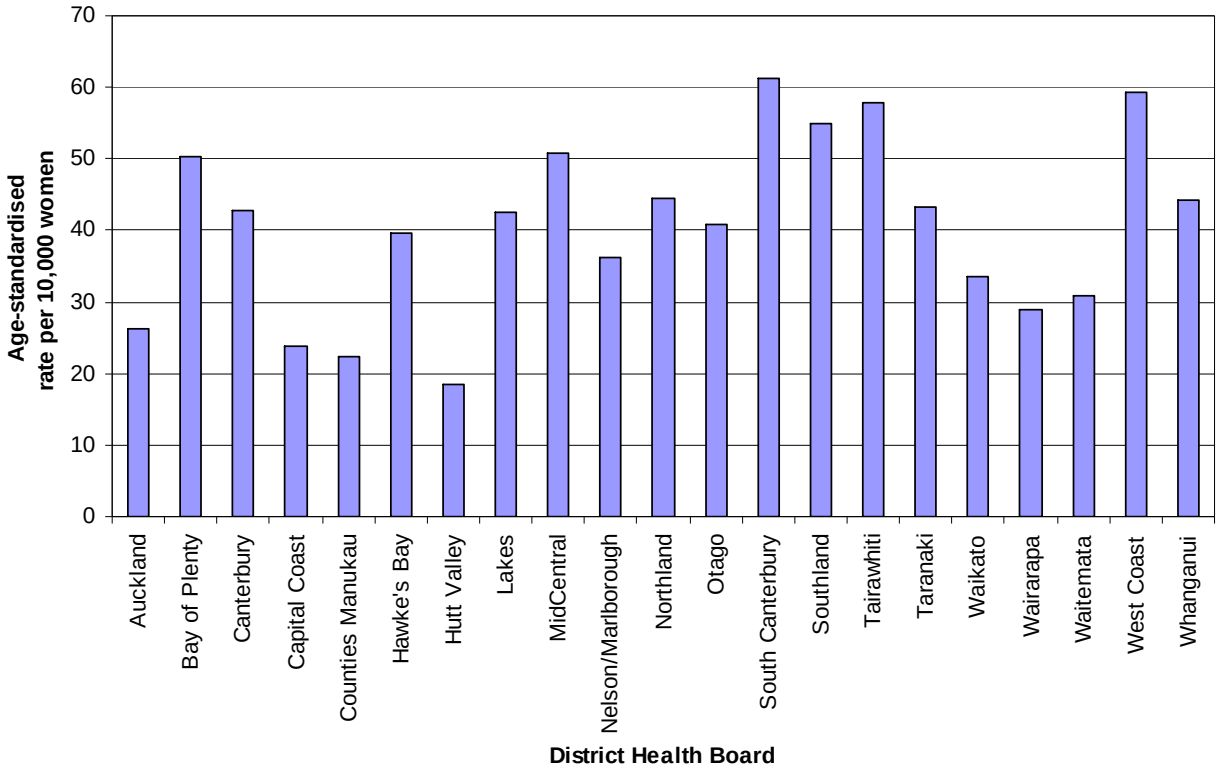


Figure 23: Age-standardised HSIL histology rates per 10,000 women aged 20 to 69 years by District Health Board, 2007



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 period in 2007. The reporting periods changed in 2007 from quarterly to six-monthly and therefore the reporting pattern in the current annual report is slightly different to that in previous annual reports. The Bethesda diagnosis codes, as recorded on the NCSP Register of satisfactory smears taken during each reporting period (1 January to 31 March, 1 April to 30 June, and 1 July to 31 December 2007) 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.

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 period of 2007. Nine laboratories reported smears in the 2007 reporting period (Valley Diagnostic Laboratories merged with MedLab Wellington in 2006 and became Aotea Pathology).

Overall, the results of 406,697 satisfactory smears reported by laboratories were recorded on the NCSP Register during 2007. Southern Community Laboratories (SCL) Christchurch read the lowest number of smears (17,368) and Diagnostic MedLab Auckland read the greatest number of smears (131,856).

Of the 406,697 smears, 92.1% were reported as negative for dysplasia or malignancy (Table 46), compared to 92.4% in 2006. This was within the target of not more than 96%. Each laboratory met the target, as they did in 2006 (see Figure 24). The proportion of smears reported as negative for dysplasia or malignancy was lowest for Auckland Hospital Laboratory (82.0%) and greatest for SCL Dunedin (95.2%).

For all laboratories combined, the proportion of smears reported as HSIL was 0.8% (the same as in 2006, see Figure 25), which met the target of not less than 0.6%. Each laboratory met the target except for Aotea Pathology (0.3%) and Diagnostic MedLab

Auckland (0.4%). Aotea Pathology (then known as MedLab Wellington; 0.4%) also failed to meet the target in 2006. Auckland Hospital Laboratory reported the highest proportion of smears as HSIL (2.3%), as it did in 2006 (2.7%).

Overall, the proportion of smears reported as abnormal was 7.9%, compared to 7.6% in 2006 (see Figure 26), which did not exceed the target of 10%. Amongst the laboratories, Auckland Hospital Laboratory reported more than 10% of smears as abnormal, however this laboratory processes hospital-based smears which are expected to have a higher rate of abnormalities. None of the other laboratories reported more than 10% of smears as abnormal.

Table 46: The proportion of satisfactory smears in broad cytological categories by laboratory, 2007

Laboratory	Negative for dysplasia or malignancy[1]	ASC-US	ASC-H	LSIL	HSIL[2]	Total abnormalities[3]	Total number of smears
Aotea Pathology	94.3	2.2	0.4	2.7	0.3	5.7	43,648
Auckland Hospital Lab.	82.0	7.7	2.8	4.9	2.3	18.0	24,094
Canterbury Health Lab.	92.1	2.0	0.6	4.1	1.0	7.9	41,147
Diagnostic MedLab Auckland	92.4	3.1	0.7	3.2	0.4	7.6	131,856
MedLab Bay of Plenty	90.5	3.7	0.8	3.9	0.7	9.5	37,583
MedLab Central	90.3	2.8	0.9	4.8	1.0	9.7	28,777
MedLab Christchurch	91.2	3.7	1.2	3.1	0.7	8.8	18,070
SCL Christchurch	94.3	2.0	0.4	2.4	0.8	5.7	17,368
SCL Dunedin	95.2	0.6	0.4	2.5	1.2	4.8	64,154
Total	**92.1**	**2.8**	**0.8**	**3.4**	**0.8**	**7.9**	**406,697**

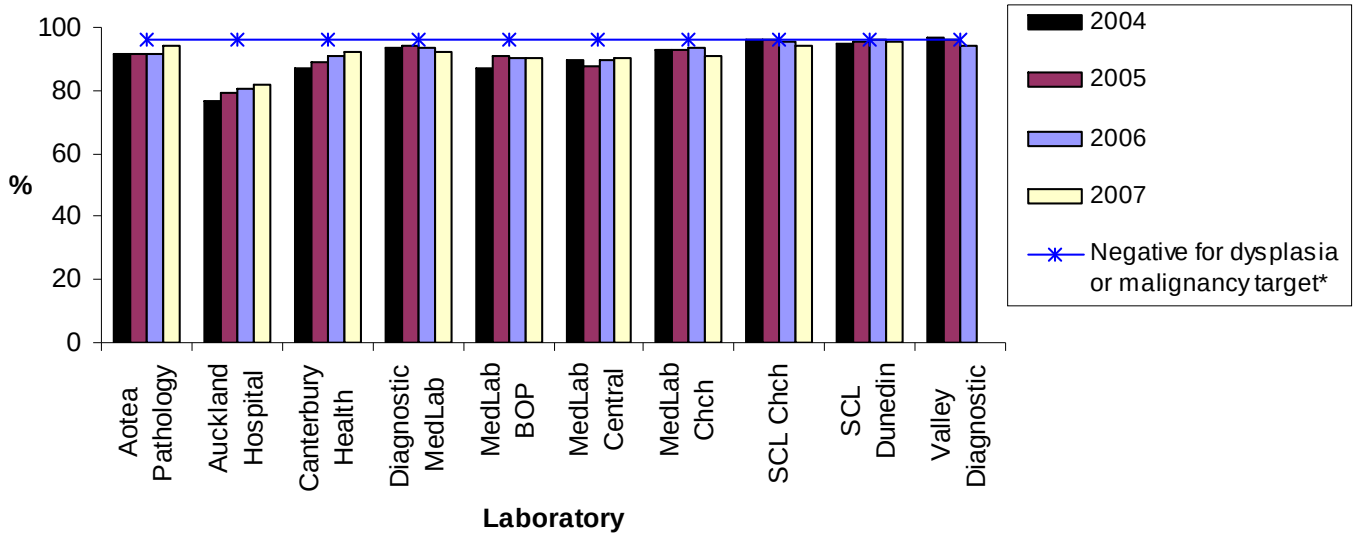
SCL: Southern Community Laboratories.
Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology.

Table 47: The proportion of satisfactory smears in broad cytological categories by laboratory and reporting period, 2007

Laboratory	Negative for dysplasia or malignancy[1]			HSIL[2]			Total abnormalities[3]		
	Jan-Mar	Apr-Jun	Jul-Dec	Jan-Mar	Apr-Jun	Jul-Dec	Jan-Mar	Apr-Jun	Jul-Dec
Aotea Pathology	93.1	93.3	95.3	0.3	0.4	0.3	6.9	6.7	4.7
Auckland Hospital Lab.	81.2	77.5	84.5	2.4	2.6	2.1	18.8	22.5	15.5
Canterbury Health Lab.	92.0	91.8	92.3	1.2	1.1	0.8	8.0	8.2	7.7
Diagnostic MedLab Auckland	93.1	92.1	92.3	0.4	0.5	0.4	6.9	7.9	7.7
MedLab Bay of Plenty	89.1	89.5	91.7	0.8	0.6	0.7	10.9	10.5	8.3
MedLab Central	89.5	89.9	90.8	1.0	0.9	1.1	10.5	10.1	9.2
MedLab Christchurch	91.9	90.9	90.9	0.6	0.8	0.8	8.1	9.1	9.1
SCL Christchurch	95.0	95.3	93.4	0.6	0.6	1.0	5.0	4.7	6.6
SCL Dunedin	95.6	95.1	95.0	1.0	1.3	1.4	4.4	4.9	5.0
Total	**92.1**	**91.5**	**92.4**	**0.8**	**0.8**	**0.8**	**7.9**	**8.5**	**7.6**

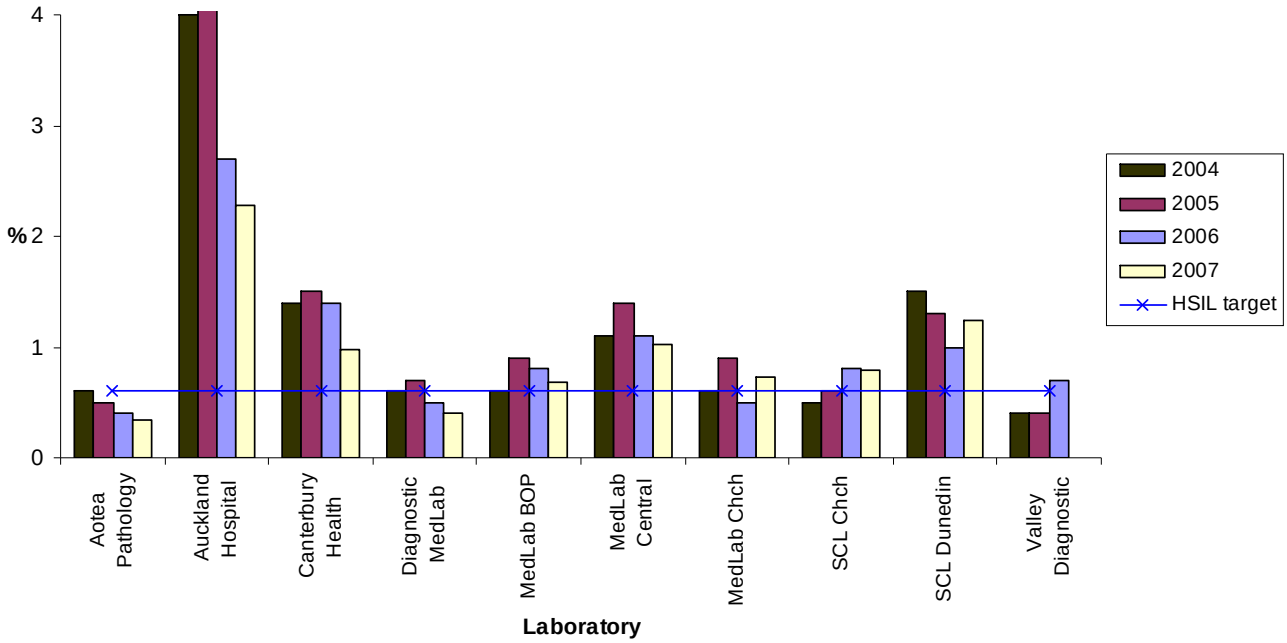
SCL: Southern Community Laboratories.
Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology.

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



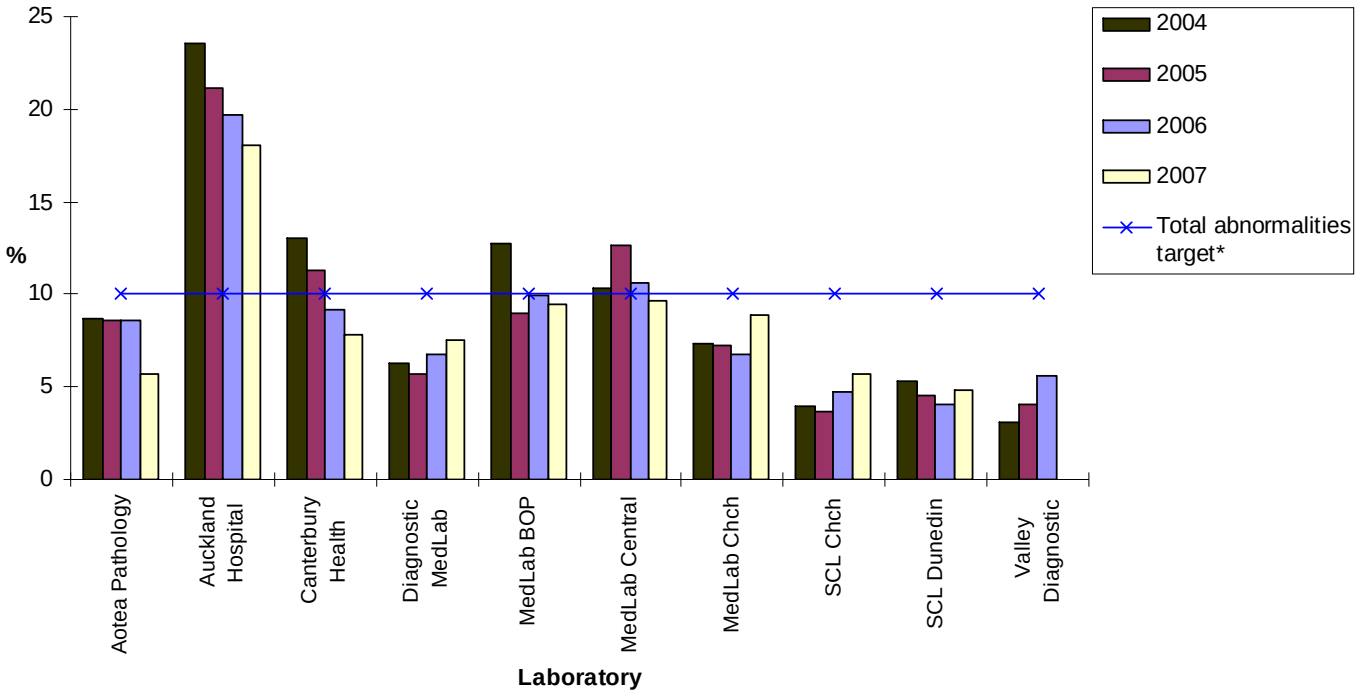
* Negative for dysplasia or malignancy target is not more than 96% so laboratories should be under the target line.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology.

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



NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology.

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.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology.

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 2007 to 31 December 2007). 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 2007 to 31 December 2007 for each laboratory processing cervical cytology are shown in Table 48. Nine laboratories reported smears in the 2007 reporting period (Valley Diagnostic Laboratories merged with MedLab Wellington in 2006 and became Aotea Pathology).

Overall, 81.1% of the 422,478 smears received by laboratories were reported within seven working days (Table 48). This did not meet the target of 90%. Three of the reporting laboratories achieved the seven-day target of 90%; Diagnostic MedLab Auckland (99.2%), MedLab Bay of Plenty (98.0%) and MedLab Christchurch (100.0). In 2006, 88.2% of the 413,293 smears received by laboratories were reported within seven working days, and 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%). (see Figure 27).

Overall, the 14-day target of 100% was almost achieved (96.0%). MedLab Christchurch was the only laboratory, of the nine reporting laboratories, that achieved the 100% target, although MedLab Bay of Plenty (>99.9%) and MedLab Central (>99.9%) almost achieved the target. MedLab Christchurch also met the 14-day target in 2006 (see Figure 29). Canterbury Health Laboratories reported 5,287 smears (12.6%) outside 14 working days. The other laboratories to report smears outside this target were: Aotea Pathology (0.1%, n=55), Auckland Hospital Laboratory (16.1%, n=4,024), Diagnostic MedLab Auckland (0.5%, n=642), MedLab Bay of Plenty (<0.1%, n=12), MedLab Central (<0.1%, n=3), SCL Christchurch (13.9%, n=2,437) and SCL Dunedin (6.5%, n=4,235).

The reporting time for the 16,695 smears that were outside the 14-day target, ranged from 15 to 264 days, with the median time being 18 days. In 2006 there were 5,596 smears that were reported outside the 14-day target. The reporting time for these smears ranged from 15 to 289 days, with the median time being 20 days.

The proportion of smears received and reports issued within specified time periods during the year 1 January 2007 to 31 December 2007 by ethnicity are shown in Table 49. The proportion of Māori women (80.1%) who had a smear reported within seven working days was less than those of Pacific women (90.0%) and slightly less than those of non-Māori, non-Pacific women (80.8%). Because of the large number of women, these differences were highly statistically significant, $P<0.001$. The proportion of Māori women (4.1%, n=1,652) who had a smear reported outside 14 working days was greater than those of Pacific women (2.5%, n=414) and slightly

more than non-Māori, non-Pacific women (4.0%, n=14,629). 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 2007 by ethnicity are shown in Figure 28 and Figure 30.

Table 48: Timeliness of reporting smears by laboratory, 2007

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	%
Aotea Pathology	45,050	39,267	87.2	5,728	12.7	44,995	99.9	55	0.1
Auckland Hospital Lab.	25,007	12,456	49.8	8,527	34.1	20,983	83.9	4,024	16.1
Canterbury Health Lab.	42,065	15,433	36.7	21,345	50.7	36,778	87.4	5,287	12.6
Diagnostic MedLab Auckland	139,593	138,428	99.2	523	0.4	138,951	99.5	642	0.5
MedLab Bay of Plenty	39,556	38,773	98.0	771	1.9	39,544	>99.9	12	<0.1
MedLab Central	29,232	22,548	77.1	6681	22.9	29,229	>99.9	3	<0.1
MedLab Christchurch	18,765	18,765	100.0	0	0.0	18,765	100.0	0	0.0
SCL* Christchurch	17,554	9,804	55.9	5313	30.3	15,117	86.1	2,437	13.9
SCL* Dunedin	65,656	47,075	71.7	14,346	21.9	61,421	93.5	4,235	6.5
Total	**422,478**	**342,549**	**81.1**	**63,234**	**15.0**	**405,783**	**96.0**	**16,695**	**4.0**

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 and became Aotea Pathology.

Table 49: Timeliness of reporting smears by ethnicity, 2007

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	40,617	32,528	80.1	6,437	15.8	38,965	95.9	1,652	4.1
Pacific	16,653	14,986	90.0	1,253	7.5	16,239	97.5	414	2.5
Non-Māori, non-Pacific	365,208	295,035	80.8	55,544	15.2	350,579	96.0	14,629	4.0
Total	**422,478**	**342,549**	**81.1**	**63,234**	**15.0**	**405,783**	**96.0**	**16,695**	**4.0**

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

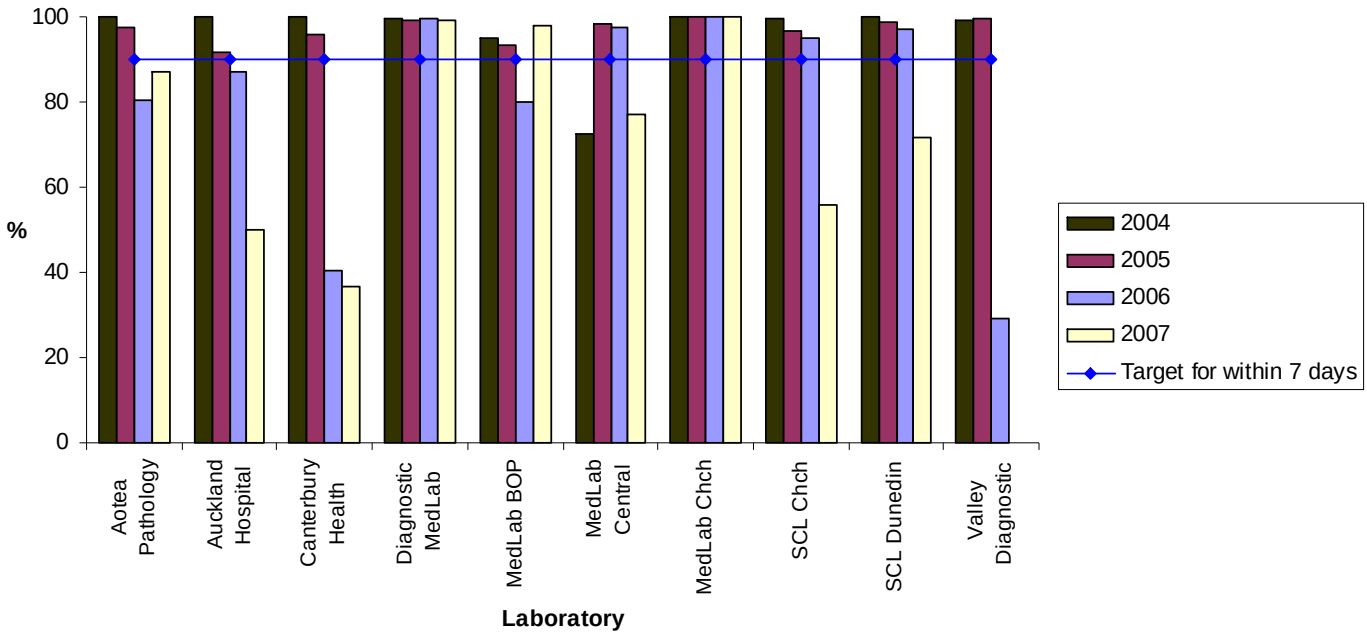


Figure 28: The proportion of smears reported on within seven working days by ethnicity

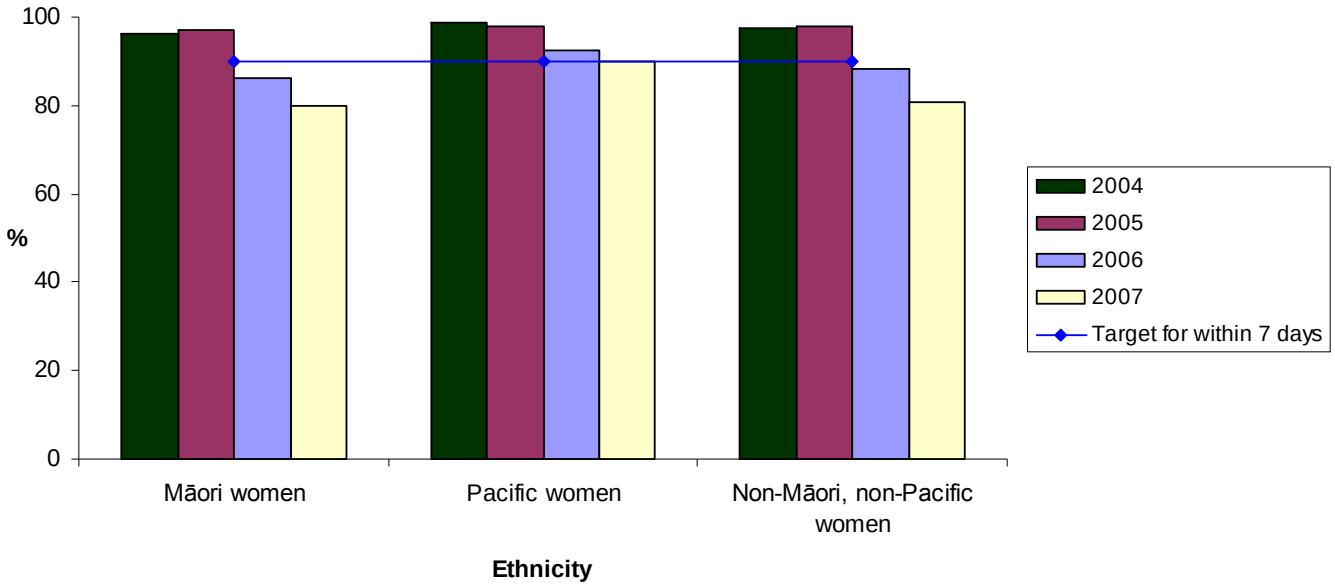


Figure 29: The proportion of smears reported on within 14 working days for each laboratory

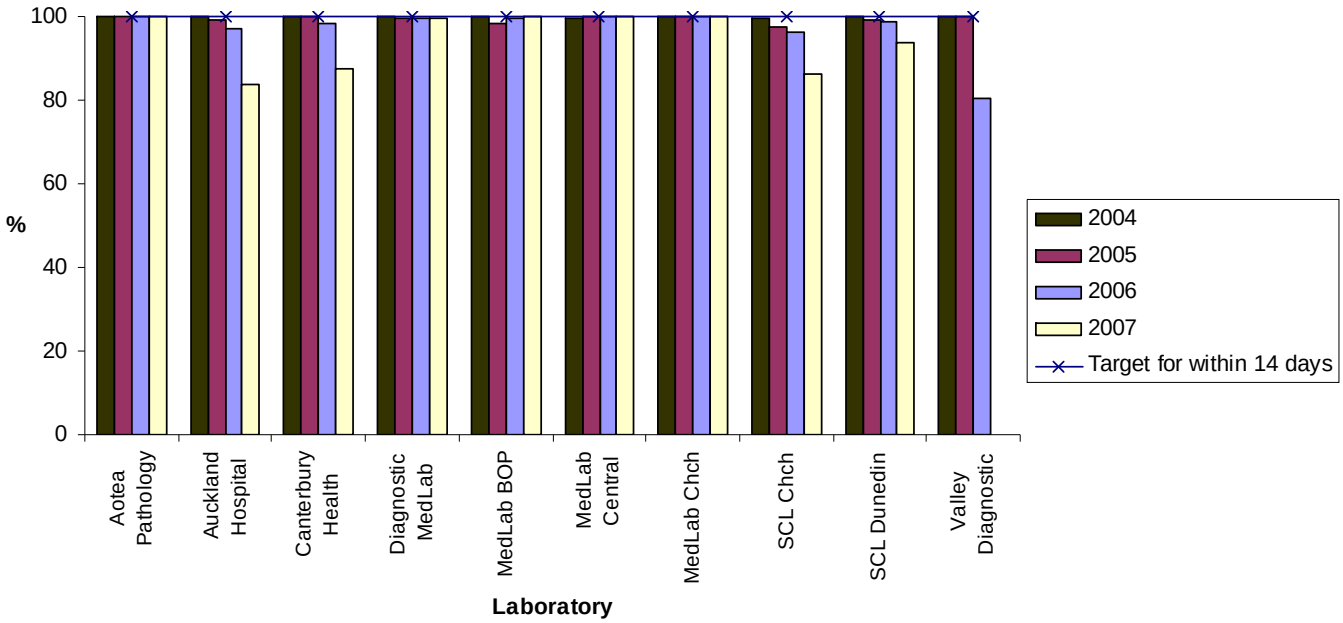
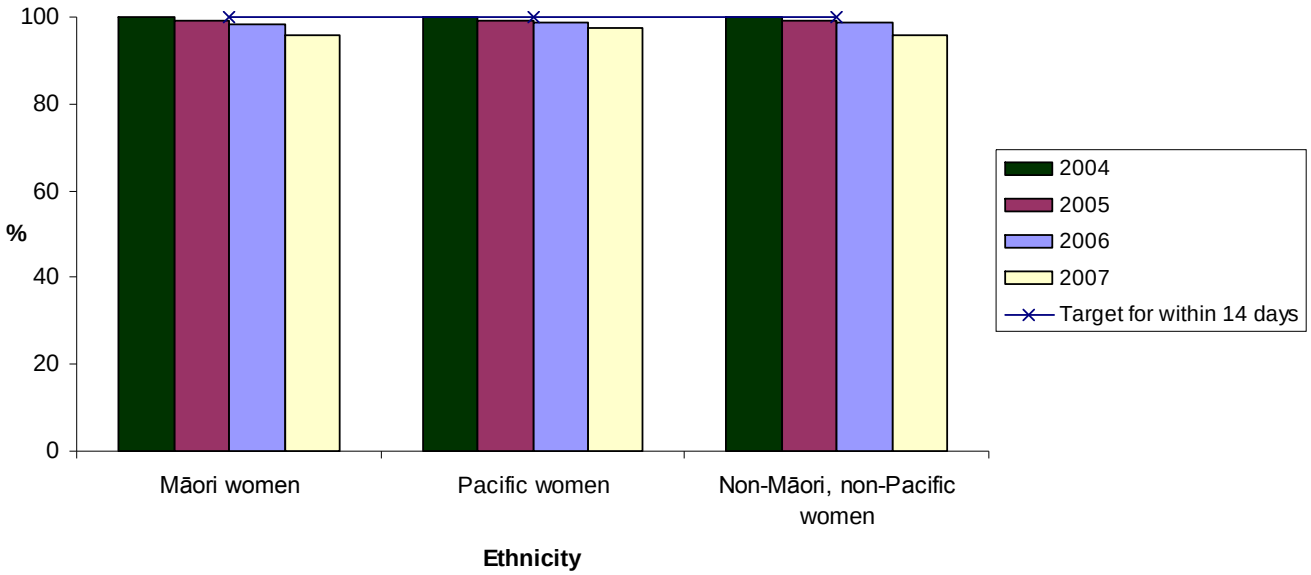


Figure 30: The proportion of smears reported on within 14 working days by ethnicity



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 2007 to 31 December 2007) 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 2007 to 31 December 2007 for each laboratory processing histology specimens is shown in Table 50. Twenty-two laboratories provided results to the NCSP Register in 2007.

There were a total of 25,028 histology specimens recorded on the NCSP Register during this period (Table 50). The number of specimens reported by each laboratory varied considerably, ranging from 34 in Southland Hospital to 3,909 in Diagnostic MedLab Auckland. For all laboratories combined, the proportion of histological specimens reported on within five working days was 90.9%, which just met the target of 90%. In 2006, the proportion of histological specimens reported on within five working days was 91.2%, which also met the target of 90% (see Figure 31).

Seven laboratories did not meet the five-day 90% target. These were Aotea Pathology (87.9%), Auckland Hospital Laboratory (71.3%), Hutt Hospital (79.6%), Nelson Hospital (80.3%), SCL Dunedin (85.0%), Waikato Hospital (66.8%) and Wellington Hospital (63.5%). Six of these laboratories also did not meet the target in 2006; Aotea Pathology (then known as MedLab Wellington; 77.9%), Auckland Hospital Laboratory (64.0%), Hutt Hospital (83.2%), Nelson Hospital (89.8%), Waikato Hospital (81.0%) and Wellington Hospital (62.5%).

Auckland Hospital Laboratory (22.7%), Waikato Hospital (23.9%) and Wellington Hospital (28.8%) reported the greatest proportion of histology results six to 10 working days from the specimens being received. Auckland Hospital Laboratory (26.2%) and Wellington Hospital (28.4%) also reported the greatest proportion of histology results six to 10 working days from the specimens being received in 2006. Auckland Hospital Laboratory (6.0%), Hutt Hospital (6.0%), Waikato Hospital (9.2%), and Wellington Hospital (7.7%) reported the greatest proportion of histology results more than 10 working days after the time that they were received by the laboratory. In 2006, Auckland Hospital Laboratory (9.9%), Waikato Hospital (7.8%), and Wellington Hospital (9.1%) also reported the highest proportion of histology results more than 10 working days after the time that they were received by the laboratory. Overall, 416 (1.7%) specimens were reported after 10 working days,

compared to 523 (2.1%) specimens in 2006, and the reporting time for these specimens ranged from 11 to 123 days, with the median time being 13 days, compared to 11 to 131 days, with the median time being 14 days, in 2006.

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 (88.1%) who had histology reported within five working days was less than that of Māori (88.8%) and non-Māori, non-Pacific women (91.2%). These differences were highly statistically significant (P<0.001) and are therefore unlikely to have occurred by chance. The proportion of Pacific (2.6%, n=20) and Māori women (2.2%, n=60) with histology reported outside 10 working days was more than that of non-Māori, non-Pacific women (1.6%, n=336). These differences were also statistically significant, P=0.006. These ethnic disparities were also evident in 2006, when Pacific women had the slowest turn around times (see Figure 32). The proportion of Pacific women in 2006 (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. The proportion of Pacific (2.9%, n=22) and Māori women (2.9%, n=78) in 2006 with histology reported outside 10 working days was more than that of and non-Māori, non-Pacific women (2.0%, n=423). These differences were also highly statistically significant, P=0.002.

Table 50: Timeliness of the reporting of histology by laboratory, 2007

Laboratory	Number of specimens processed	Within 5 working days[1]		6 to 10 working days		11 or more working days	
	n	n	%	n	%	n	%
Aotea Pathology	824	724	87.9	86	10.4	14	1.7
Auckland Hospital Lab.	2,318	1653	71.3	527	22.7	138	6.0
Canterbury Health Lab.	2,274	2,162	95.1	102	4.5	10	0.4
Diagnostic MedLab Auckland	3,909	3,874	99.1	34	0.9	1	<0.1
Hutt Hospital	465	370	79.6	67	14.4	28	6.0
MedLab Bay of Plenty	2,444	2,378	97.3	60	2.5	6	0.2
MedLab Central	1,783	1,751	98.2	25	1.4	7	0.4
MedLab Christchurch	162	162	100.0	0	0.0	0	0.0
MedLab Taranaki	486	479	98.6	7	1.4	0	0.0
MedLab Timaru	367	367	100.0	0	0.0	0	0.0
Memorial Hospital Hastings	699	653	93.4	38	5.4	8	1.1
Middlemore Hospital	1,582	1,528	96.6	53	3.4	1	0.1
Nelson Hospital	766	615	80.3	124	16.2	27	3.5
Northland Pathology	755	727	96.3	25	3.3	3	0.4
North Shore Hospital	1,836	1,765	96.1	51	2.8	20	1.1
Rotorua Hospital	385	362	94.0	12	3.1	11	2.9
SCL Christchurch	785	778	99.1	7	0.9	0	0.0
SCL Dunedin	1,447	1,230	85.0	202	14.0	15	1.0
Southland Hospital	34	34	100.0	0	0.0	0	0.0
Waikato Hospital	238	159	66.8	57	23.9	22	9.2
Wanganui Hospital	105	101	96.2	4	3.8	0	0.0
Wellington Hospital	1,364	866	63.5	393	28.8	105	7.7
Total	**25,028**	**22,738**	**90.9**	**1,874**	**7.5**	**416**	**1.7**

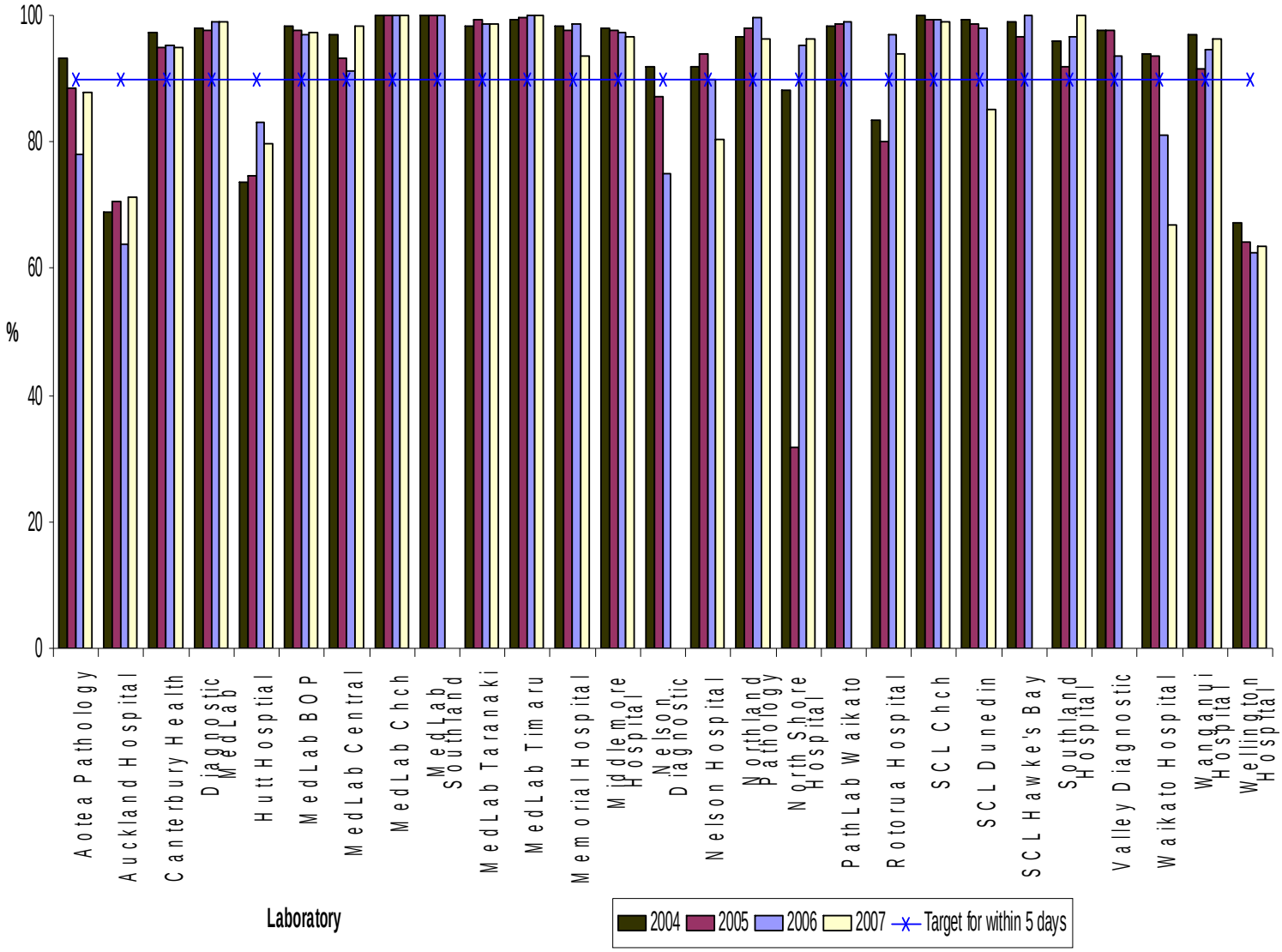
SCL: Southern Community Laboratories.
Targets are: [1] 90% within five working days, and 100% within a reasonable period of time.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology. MedLab Southland ceased reporting in May 2006, Nelson Diagnostic Laboratories ceased reporting in November 2006, PathLab Waikato ceased reporting in 2006, and SCL Hawke's Bay did not report any histology specimens in 2007 that were included in the calculations for laboratory histology turn around time.

Table 51: Timeliness of the reporting of histology by ethnicity, 2007

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	2,716	2,411	88.8	245	9.0	60	2.2
Pacific	780	687	88.1	73	9.4	20	2.6
Non-Māori, non-Pacific	21,532	19,640	91.2	1,556	7.2	336	1.6
Total	**25,028**	**22,738**	**90.9**	**1,874**	**7.5**	**416**	**1.7**

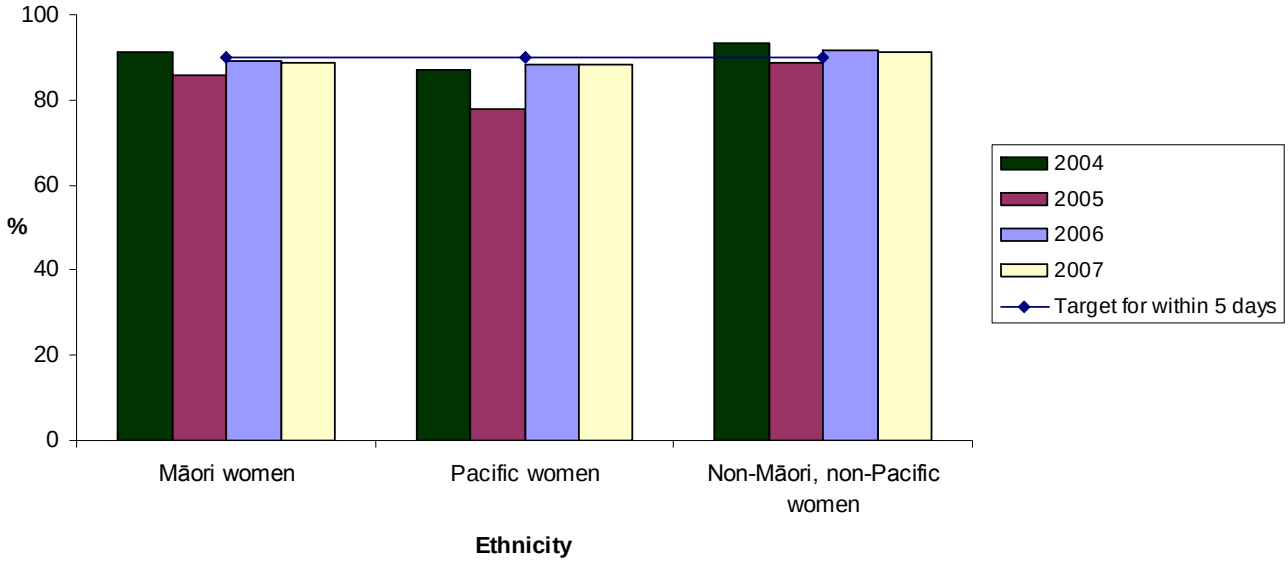
Targets are: [1] 90% within five working days, and 100% within a reasonable period of time.

Figure 31: Laboratory histology five-day turn around time



NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington and became Aotea Pathology. MedLab Southland ceased reporting in May 2006, Nelson Diagnostic Laboratories ceased reporting in November 2006, PathLab Waikato ceased reporting in 2006, and SCL Hawke's Bay did not report any histology specimens in 2007 that were included in the calculations for laboratory histology 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. Due to the introduction of the 2001 revision of the Bethesda Coding System this target has been reviewed and a new target of not less than 1.0% and not more than 8.0% of conventional smears, and not less than 1.0% and not more than 5.0% of liquid based cytology will be introduced for smears taken from 1 January 2008.

Calculation

All smears taken between 1 January 2007 and 31 December 2007 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 2007 and 31 December 2007 and reported by each cytology laboratory is shown in Table 52. Nine laboratories reported smears in the 2007 reporting period.

Overall, 422,478 smears were processed, of which 15,781 (3.7%) 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; Aotea Pathology (3.1%), Auckland Hospital Laboratory (3.7%), Canterbury Health Laboratories (2.2%), Diagnostic MedLab Auckland (5.5%), MedLab Bay of Plenty (5.0%), MedLab Christchurch (3.7%) and SCL Dunedin (2.3%).

Table 52: The number and proportion of unsatisfactory smears reported by laboratory, 2007

Laboratory	Smears processed	Unsatisfactory smears[1]		Unsatisfactory smears					
				Combination (conventional & liquid based)		Conventional pap smear		Liquid based cytology	
	n	n	%	n	%	n	%	n	%
Aotea Pathology	45,050	1,402	3.1	6	1.2	1,271	3.4	125	1.7
Auckland Hospital Lab.	25,007	913	3.7	15	2.1	704	3.5	194	4.7
Canterbury Health Lab.	42,065	918	2.2	11	2.0	94	7.3	813	2.0
Diagnostic MedLab Auckland	139,593	7,737	5.5	40	3.0	5,611	6.7	2,086	3.9
MedLab Bay of Plenty	39,556	1,973	5.0	9	4.0	1,751	6.3	213	1.8
MedLab Central	29,232	455	1.6	1	1.6	429	1.5	25	3.3
MedLab Christchurch	18,765	695	3.7	2	2.9	644	3.8	49	2.6
SCL Christchurch	17,554	186	1.1	0	-	186	1.1	0	-
SCL Dunedin	65,656	1,502	2.3	2	0.4	1,422	2.3	78	2.1
Total	**422,478**	**15,781**	**3.7**	**86**	**2.2**	**12,112**	**4.1**	**3,583**	**2.9**

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 and became Aotea Pathology.

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. Due to the introduction of the 2001 revision of the Bethesda Coding System this target has been reviewed and a new target of not less than 1.0% and not more than 8.0% of conventional smears, and not less than 1.0% and not more than 5.0% of liquid based cytology will be introduced for smears taken from 1 January 2008.

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 2007 and 31 December 2007 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 2007 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 2007 and 31 December 2007 by annual volume of smears taken by each smear taker group is shown in Table 53. Overall, 422,478 smears were taken during the year, of which 71 (<1%) were taken by lay smear takers, 236,836 (56%) by medical smear takers, 151,768 (36%) by nurses, 31,829 (8%) by specialists and 1,974 (<1%) by midwives. These proportions are similar to those reported in 2006.

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 (1.4%). 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 midwives with an annual volume of more than 100 smears (1.9%).

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 75.8% of the smears in Waitemata to taking 20.9% of smears in Taranaki. Similarly, nurse smear takers ranged from taking 73.6% of the smears in Taranaki to 15.4% of smears in Waitemata. Specialist smear takers ranged from taking 13.9% of the smears in the Unspecified DHB to 4.8% of smears in Hutt and Southland.

Table 53: Quality of smears reported by different smear taker groups, 2007

	Annual volume of smears	Total number of smears	Satisfactory smears		Unsatisfactory smears[1]	
	n	n	n	%	n	%
Lay	<30	33	33	100.0	0	0.0
	30-100	38	37	97.4	1	2.6
	>100	0	0	0.0	0	0.0
	Total	71	70	98.6	1	1.4
Medical	<30	18,931	17,936	94.7	995	5.3
	30-100	68,831	65,751	95.5	3,080	4.5
	>100	149,074	142,730	95.7	6,344	4.3
	Total	236,836	226,417	95.6	10,419	4.4
Nurse	<30	7,752	7,516	97.0	236	3.0
	30-100	53,730	52,247	97.2	1,483	2.8
	>100	90,286	87,968	97.4	2,318	2.6
	Total	151,768	147,731	97.3	4,037	2.7
Specialist	<30	600	561	93.5	39	6.5
	30-100	2,721	2,585	95.0	136	5.0
	>100	28,508	27,404	96.1	1,104	3.9
	Total	31,829	30,550	96.0	1,279	4.0
Midwife	<30	208	201	96.6	7	3.4
	30-100	393	381	96.9	12	3.1
	>100	1373	1347	98.1	26	1.9
	Total	1,974	1,929	97.7	45	2.3
	Total	**422,478**	**406,697**	**96.3**	**15,781**	**3.7**

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, 2007

DHB	Smear Taker Group										Total number of smears
	Lay		Medical		Nurse		Specialist		Midwife		
	n	%	n	%	n	%	n	%	n	%	n
Auckland	0	0.0	35,932	74.5	7,816	16.2	4,441	9.2	20	<0.1	48,209
Bay of Plenty	0	0.0	8,045	39.2	11,282	55.0	1,184	5.8	21	0.1	20,532
Canterbury	27	0.1	30,716	63.2	12,956	26.7	4,906	10.1	2	<0.1	48,607
Capital Coast	0	0.0	20,272	65.4	8,952	28.9	1,790	5.8	4	<0.1	31,018
Counties Manukau	0	0.0	28,917	68.8	10,734	25.5	2,391	5.7	7	<0.1	42,049
Hawke's Bay	0	0.0	6,218	42.9	7,175	49.5	949	6.5	167	1.2	14,509
Hutt	0	0.0	7,963	61.6	4,279	33.1	614	4.8	71	0.6	12,927
Lakes	0	0.0	4,801	47.2	4,789	47.1	580	5.7	5	0.1	10,175
MidCentral	0	0.0	3,218	21.6	9,011	60.5	2,022	13.6	637	4.3	14,888
Nelson/Marlborough	0	0.0	6,311	48.8	5,824	45.0	808	6.2	2	<0.1	12,945
Northland	0	0.0	5,107	36.4	8,122	57.9	787	5.6	7	0.1	14,023
Otago	0	0.0	9,741	50.6	7,823	40.6	1,375	7.1	325	1.7	19,264
South Canterbury	4	0.1	2,670	50.4	2,035	38.5	584	11.0	0	0.0	5,293
Southland	0	0.0	5,427	52.0	4,497	43.1	503	4.8	14	0.1	10,441
Tairawhiti	0	0.0	1,350	33.9	2,092	52.5	407	10.2	135	3.4	3,984
Taranaki	0	0.0	2,196	20.9	7,748	73.6	583	5.5	1	<0.1	10,528
Waikato	38	0.1	9,689	29.7	20,680	63.5	1,995	6.1	177	0.5	32,579
Wairarapa	0	0.0	1,974	50.8	1,616	41.6	293	7.6	0	0.0	3,883
Waitemata	0	0.0	42,367	75.8	8,591	15.4	4,804	8.6	133	0.2	55,895
West Coast	0	0.0	755	26.7	1,902	67.2	172	6.1	0	0.0	2,829
Whanganui	0	0.0	1,846	33.6	3,104	56.6	305	5.6	234	4.3	5,489
Unspecified	2	0.1	1,321	54.8	740	30.7	336	13.9	12	0.5	2,411
Total	**71**	**<0.1**	**236,836**	**56.1**	**151,768**	**35.9**	**31,829**	**7.5**	**1,974**	**0.5**	**422,478**

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 2007, 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/six-monthly data, so the results given here are not the same as those in Monitoring Reports 26 to 28.

Results

The reported number of women with a HSIL or ASC-H cytology result referred each month in 2007 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 reporting period in Table 55. All of the colposcopy clinics reported complete data for

this reporting year, compared with one (West Coast) clinic not reporting complete data in 2006.

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 Waitemata colposcopy unit (113 women for the January to March quarter, 95 women for the April to June quarter and 271 women for the six months July to December). No colposcopy units reported that no women waited longer than four weeks from referral for their assessment. In 2006, one colposcopy unit, 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 2007 and 31 December 2007 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 - Dec	Average per month	Year total	Jan - Mar	Apr - Jun	Jul - Dec	Average per month	Year total
Auckland	44	134	292	39	470	48	32	184	22	264
Bay of Plenty	95	71	159	27	325	46	18	39	9	103
Canterbury	69	108	180	30	357	49	29	59	11	137
Capital Coast	27	28	63	10	118	1	2	10	1	13
Counties Manukau	152	177	313	54	642	19	17	52	7	88
Hawke's Bay	45	51	121	18	217	5	3	15	2	23
Hutt Valley	6	8	36	4	50	1	1	0	0	2
Lakes	32	53	84	14	169	4	6	6	1	16
MidCentral	49	55	114	18	218	12	12	55	7	79
Nelson Marlborough	7	17	20	4	44	3	4	7	1	14
Northland	37	70	107	18	214	17	10	60	7	87
Otago	64	50	137	21	251	0	22	45	6	67
South Canterbury	2	16	20	3	38	0	6	5	1	11
Southland	22	16	40	7	78	13	4	9	2	26
Tairawhiti	0	8	31	3	39	1	1	1	0	3
Taranaki	24	28	89	12	141	0	1	4	0	5
Waikato	72	0	116	16	188	12	0	58	6	70
Wairarapa	6	18	17	3	41	0	1	0	0	1
Waitemata	129	225	299	54	653	113	95	271	40	479
West Coast	0	0	2	0	2	1	0	1	0	2
Whanganui	21	14	40	6	75	0	11	15	2	26
Total	**903**	**1,147**	**2,280**	**361**	**4,330**	**345**	**275**	**896**	**126**	**1,516**

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

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 2007, 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/six-monthly data, so the results given here are not the same as those in Monitoring Reports 26 to 28.

Results

The reported number of women with low grade cytology results referred each month in 2007 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 reporting period in

Table 56. All of the colposcopy clinics reported complete data for this reporting year, compared with one (West Coast) clinic not reporting complete data in 2006.

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 Auckland colposcopy unit (326 women for the January to March quarter, 316 women for the April to June quarter and 409 women for the six months July to December). Two colposcopy units, Capital and Coast, and West Coast, reported that no women waited longer than 26 weeks from referral for their assessment. In 2006, one colposcopy unit, 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 2007 and 31 December 2007 by District Health Board colposcopy service

DHB Colposcopy Reporting Unit	Number of women referred for assessment of LSIL or ASCUS					Number of women referred waiting longer than 26 weeks at the end of each month				
	Jan - Mar	Apr - Jun	Jul - Dec	Average per month	Year total	Jan - Mar	Apr - Jun	Jul - Dec	Average per month	Year total
Auckland	63	153	390	51	606	326	316	409	88	1,051
Bay of Plenty	135	128	280	45	543	31	4	1	3	36
Canterbury	129	140	150	35	419	2	3	16	2	21
Capital Coast	103	134	213	38	450	0	0	0	0	0
Counties Manukau	119	121	272	43	512	1	0	18	2	19
Hawke's Bay	32	43	86	13	161	10	0	3	1	13
Hutt Valley	90	37	110	20	237	3	0	2	0	5
Lakes	68	64	78	18	210	8	21	16	4	45
MidCentral	83	96	156	28	335	59	66	176	25	301
Nelson/Marlborough	3	3	4	1	10	6	7	13	2	26
Northland	37	57	121	18	215	18	23	54	8	95
Otago	51	59	98	17	208	0	6	31	3	37
South Canterbury	0	0	13	1	13	2	5	4	1	11
Southland	14	26	27	6	67	144	201	73	35	418
Tairawhiti	0	11	48	5	59	0	3	1	0	4
Taranaki	27	27	48	9	102	0	1	0	0	1
Waikato	66	0	190	21	256	203	0	183	32	386
Wairarapa	19	26	33	7	78	2	2	2	1	6
Waitemata	98	152	292	45	542	28	46	220	25	294
West Coast	0	0	1	0	1	0	0	0	0	0
Whanganui	52	47	76	15	175	0	26	19	4	45
Total	**1,189**	**1,324**	**2,686**	**433**	**5,199**	**843**	**730**	**1,241**	**235**	**2,814**

DHB: district health board; LSIL: low grade squamous intra-epithelial lesion; ASC-US: atypical squamous cells of undetermined significance.

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 (including HSIL with features suspicious for invasion) 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 2006 to 30 June 2007 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 2006 to 30 June 2007, there were 2,847 women with HSIL or ISCC cytology reports, of whom 2,594 (91.1%) had a subsequent histology result recorded on the NCSP Register (Table 57). Of these, 2,051 (79.1%) 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 almost identical to that reported in 2006; 78.1%.

Two laboratories reported a PPV outside the target range of 65 to 85%. Auckland Hospital Laboratory (86.1%) reported a PPV above the target range, and Valley Diagnostic Laboratories (61.5%) reported a PPV below the target range. Auckland Hospital Laboratory (90.4%) also reported a PPV above the target range in 2006, see Figure 33.

During the period 1 July 2006 to 30 June 2007, there were 2,900 women with an ASC-H cytology report (Table 58), of whom 2,288 (78.9%) had a subsequent histology result recorded on the NCSP Register. Of these, 1,006 (44.0%) had a HSIL or more serious abnormality on histology. This proportion is slightly lower than that reported in 2006; 46.3%.

The proportion of women that had a HSIL or more serious histology result after an ASC-H smear varied between the laboratories. Aotea Pathology had the lowest proportion (35.9%), while Canterbury Health Laboratories had the highest proportion (60.7%).

Table 57: Positive predictive value for women with a high grade smear by laboratory, 1 July 2006 to 30 June 2007

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
Aotea Pathology	115	91.3	85	73.9	11	8.7	126
Auckland Hospital Lab.	294	90.2	253	86.1	32	9.8	326
Canterbury Health Lab.	366	93.1	308	84.2	27	6.9	393
Diagnostic MedLab Auckland	511	91.3	405	79.3	49	8.8	560
MedLab Bay of Plenty	218	90.1	157	72.0	24	9.9	242
MedLab Central	254	86.7	195	76.8	39	13.3	293
MedLab Christchurch	111	99.1	85	76.6	1	0.9	112
SCL Christchurch	137	91.9	102	74.5	12	8.1	149
SCL Dunedin	575	91.1	453	78.8	56	8.9	631
Valley Diagnostic Lab.	13	86.7	8	61.5	2	13.3	15
Total	**2,594**	**91.1**	**2,051**	**79.1**	**253**	**8.9**	**2,847**

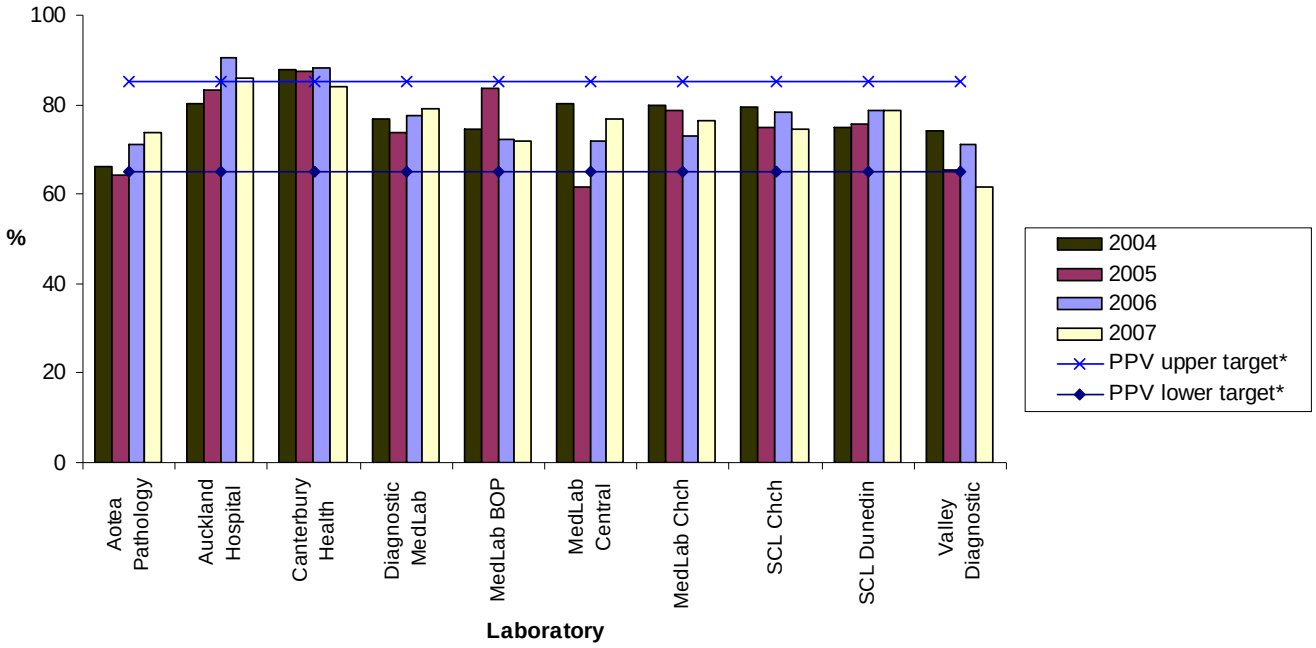
HSIL: high grade squamous intra-epithelial lesion; SCL: Southern Community Laboratories.
*Positive predictive value: proportion of HSIL cytology reports confirmed on histology.
Target: 65 to 85%.
NB: Valley Diagnostic Laboratories ceased reporting in November 2006 when they merged with MedLab Wellington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

Table 58: Positive predictive value for women with an ASC-H smear by laboratory, 1 July 2006 to 30 June 2007

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
Aotea Pathology	156	78.0	56	35.9	44	22.0	200
Auckland Hospital Lab.	395	75.2	193	48.9	130	24.8	525
Canterbury Health Lab.	173	87.4	105	60.7	25	12.6	198
Diagnostic MedLab Auckland	762	78.2	305	40.0	212	21.8	974
MedLab Bay of Plenty	273	83.2	103	37.7	55	16.8	328
MedLab Central	120	65.6	48	40.0	63	34.4	183
MedLab Christchurch	173	84.8	73	42.2	31	15.2	204
SCL Christchurch	66	80.5	37	56.1	16	19.5	82
SCL Dunedin	154	82.8	80	51.9	32	17.2	186
Valley Diagnostic Lab.	16	80.0	6	37.5	4	20.0	20
Total	**2,288**	**78.9**	**1,006**	**44.0**	**612**	**21.1**	**2,900**

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 and became Aotea Pathology.

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



*The target range for the positive predictive value is not less than 65% and not more than 85% so the laboratories should be between the two target lines

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 2007 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 2005 were recorded as negative for dysplasia or malignancy; they had at least one satisfactory smear taken between 1 April 2005 and 31 December 2007; and their first smear taken between 1 April 2005 and 31 December 2007 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 2005 and 31 December 2007. 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 2005 to 31 December 2007) 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 11.3%. This level is above the target of less than 10%, and is very similar to the level reported in 2006 (11.0%). 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 (15.7%), while women who were aged 65 to 69 years were least likely to be re-screened with a short interval (8.3%). 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 2006.

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 periods for 2007. There was little change over the year in the proportion of women who were re-screened with a short interval (11.1%, 11.2% and 11.3% overall, in each reporting period respectively).

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 (11.3%), Māori women (10.9%), and Pacific women (10.8%). These proportions are similar to those reported in 2006 (see Figure 36); non-Māori, non-Pacific women (11.1%), Māori women (10.7%), and Pacific women (10.4%).

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 three reporting periods in 2007. Short interval re-screening varied considerably among the DHBs, ranging from 17.9% in Waitemata to 5.3% 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 2006 (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 2007 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	17,835	2,630	15,205	2,389	15.7
25-29	33,039	3,159	29,880	3,420	11.4
30-34	36,786	2,088	34,698	4,005	11.5
35-39	47,652	2,106	45,546	5,165	11.3
40-44	51,398	1,912	49,486	5,669	11.5
45-49	51,829	1,737	50,092	5,987	12.0
50-54	43,062	1,140	41,922	4,978	11.9
55-59	36,672	723	35,949	3,826	10.6
60-64	29,228	411	28,817	2,701	9.4
65-69	22,556	253	22,303	1,851	8.3
Total	**370,057**	**16,159**	**353,898**	**39,991**	**11.3**

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 period in 2007 by 5-year age group

Age group (years)	Proportion with short interval re-screening (%)		
	Jan-Mar	Apr-Jun	Jul-Dec
20-24	14.8	14.8	15.7
25-29	11.3	11.7	11.4
30-34	11.4	11.6	11.5
35-39	11.0	11.2	11.3
40-44	11.4	11.5	11.5
45-49	11.7	11.8	12.0
50-54	11.9	11.9	11.9
55-59	10.4	10.3	10.6
60-64	9.0	9.2	9.4
65-69	8.0	8.1	8.3
Total	**11.1**	**11.2**	**11.3**

Target: less than 10%.

Table 61: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2007 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	27,764	1,726	26,038	2,845	10.9
Pacific	10,553	524	10,029	1,084	10.8
Non-Māori, non-Pacific	331,740	13,909	317,831	36,062	11.3
Total	**370,057**	**16,159**	**353,898**	**39,991**	**11.3**

Target: less than 10%.

Table 62: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2007 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	35,908	1,851	34,057	5,659	16.6
Bay of Plenty	16,437	939	15,498	1,942	12.5
Canterbury	46,009	1,892	44,117	4,744	10.8
Capital Coast	28,767	1,248	27,519	2,868	10.4
Counties Manakau	31,992	1,436	30,556	3,934	12.9
Hawke's Bay	13,199	579	12,620	1,223	9.7
Hutt Valley	12,821	477	12,344	1,038	8.4
Lakes	9,057	442	8,615	1,125	13.1
MidCentral	12,740	818	11,922	914	7.7
Nelson/Marlborough	13,717	582	13,135	757	5.8
Northland	13,745	584	13,161	1,643	12.5
Otago	20,121	518	19,603	1,501	7.7
South Canterbury	4,926	189	4,737	460	9.7
Southland	10,333	336	9,997	740	7.4
Tairawhiti	3,638	122	3,516	309	8.8
Taranaki	10,987	305	10,682	570	5.3
Waikato	29,631	1,114	28,517	2,041	7.2
Wairarapa	3,500	166	3,334	303	9.1
Waitemata	42,748	1,963	40,785	7,317	17.9
West Coast	2,940	115	2,825	222	7.9
Whanganui	5,046	357	4,689	423	9.0
Unspecified	1,795	126	1,669	258	15.5
Total	**370,057**	**16,159**	**353,898**	**39,991**	**11.3**

Target: less than 10%.

Figure 34: Proportion of women aged 20 to 69 years unnecessarily re-screened within the 33 months to 31 December 2007 by District Health Board

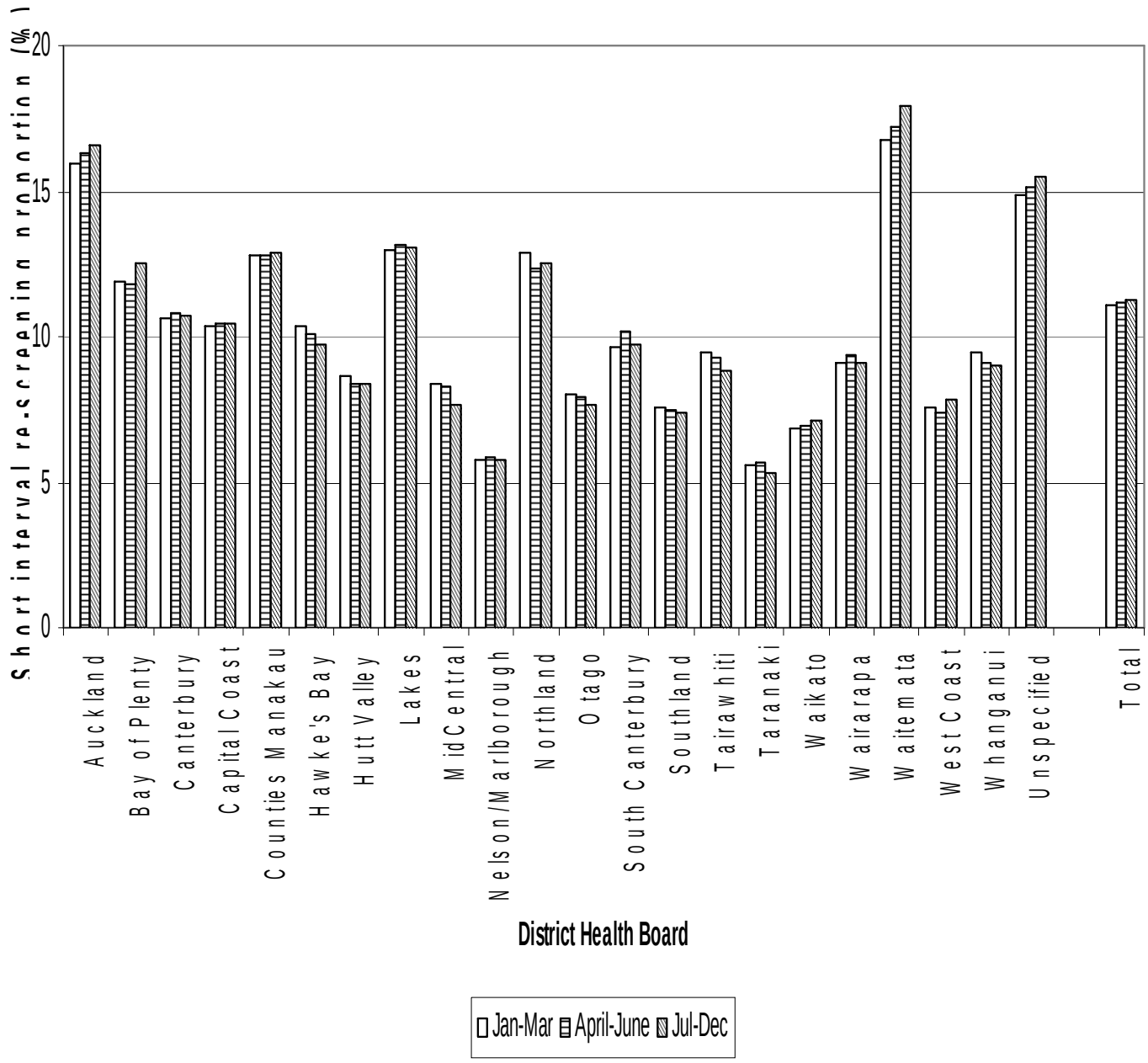


Figure 35: Proportion of women aged 20 to 69 years unnecessarily re-screened by District Health Board

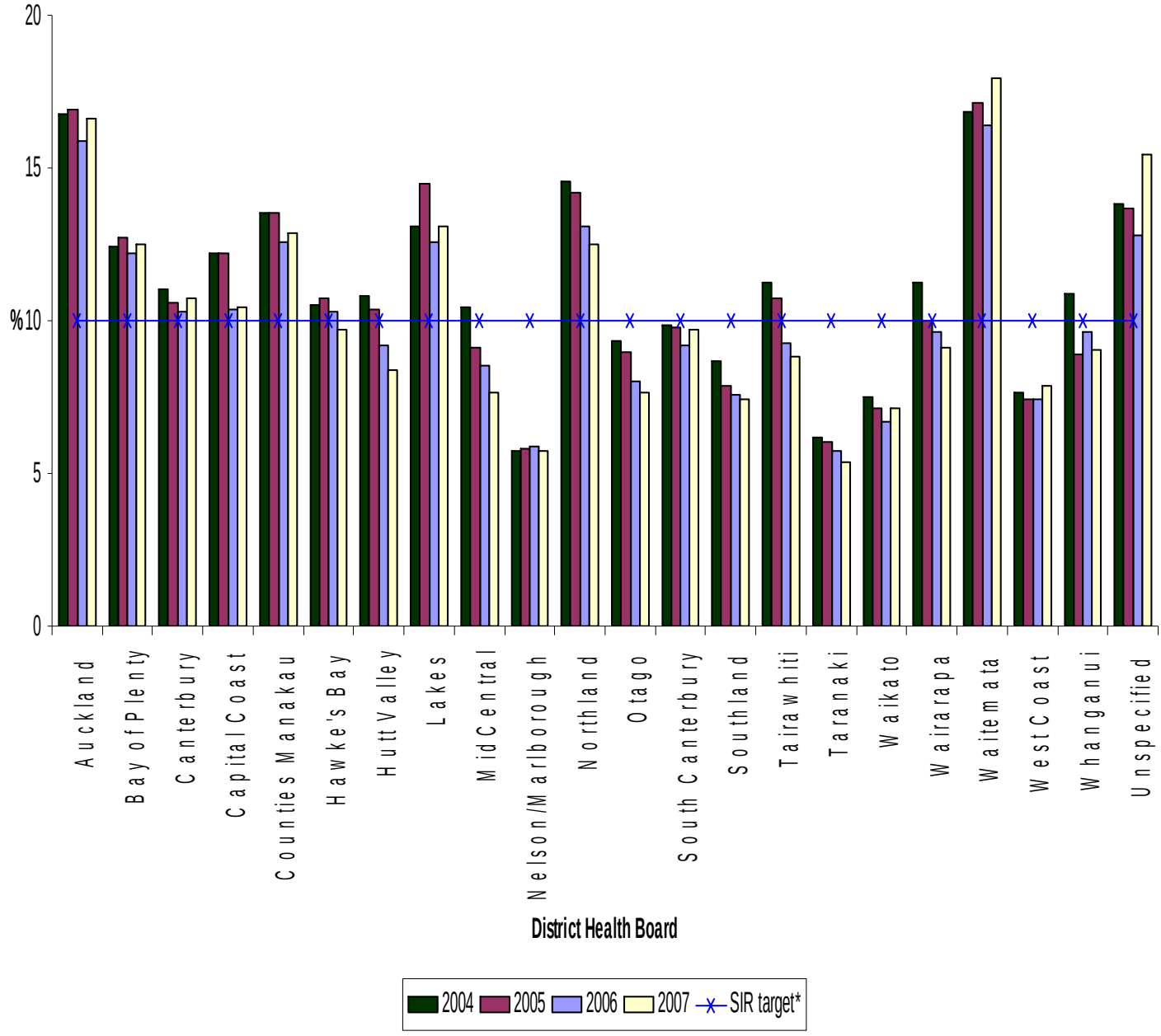
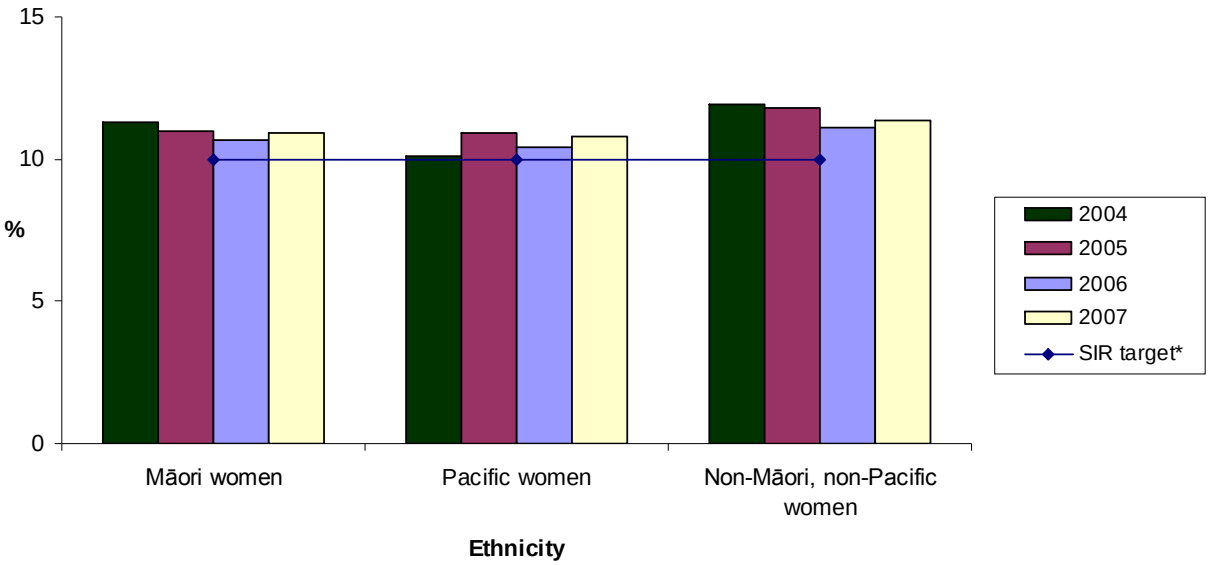


Figure 36: Proportion of women aged 20 to 69 years unnecessarily re-screened by ethnicity



Appendix 1: National indicators not included in the 2007 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