Annual Monitoring Report 2004

National Cervical Screening Programme

Centre for Public Health Research
Massey University
Wellington

Technical Report No. 17

Prepared in April 2007

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ISSN 1177-8989 (Print)
ISSN 1177-8997 (Online)

This document is available on the Healthy Women website:
http://www.healthywomen.org.nz

Acknowledgement

This 2004 Annual Report closely follows the 2003 Annual Report produced by Dr Kirsten Coppell, Public Health Physician, for the National Screening Unit of the Ministry of Health.

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Technical terms are used throughout this report, and an understanding of these terms may be necessary 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 2004 to 31 December 2004. The report does not include all of the national indicators. Definitions and targets for the indicators not included are listed in Appendix 2.

Cervical cancer incidence and mortality

In 2003 (the most recent year for which data were available) the age-standardised rate of cervical cancer incidence was 7.1 per 100,000 women of all ethnicities. This met the target of 8.6 or less per 100,000 women for the total population. In Māori women, the age-standardised cervical cancer incidence rate was 10.6 per 100,000 women. This met the target of 11.0 or less per 100,000 Māori women.

In 2003 (the most recent year for which data were available) the age-standardised rate of cervical cancer mortality was 1.8 per 100,000 women of all ethnicities. This met the target of 2.5 or less per 100,000 women for the total population. In Māori women, the age-standardised cervical cancer mortality rate was 3.1 per 100,000 women. This met the target of 6.0 or less per 100,000 Māori women.

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

Enrolment, participation and coverage

The overall crude enrolment rate was 90.7%. In non-Māori, non-Pacific women 94.0% were enrolled on the NCSP Register. Lower enrolment percentages were clearly evident in Māori (75.4%) and Pacific (76.7%) women.

The overall unadjusted participation rate was 78.6%. The hysterectomy-adjusted rate was 85.2%. 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 (61.8%)

and Pacific (58.0%) women having over 20% lower participation rates than non-Māori, non-Pacific women (82.5%). The unadjusted participation rate target of 85% was not met in any ethnic group. Hysterectomy-adjusted participation rates showed similar disparities; Māori women 63.5%, Pacific women 58.9%, and non-Māori, non-Pacific women 90.7%. The target of 90% for hysterectomy-adjusted participation rates was only met in non-Māori, non-Pacific women.

The overall unadjusted coverage rate was 63.5%. The hysterectomy-adjusted coverage rate was 69.4%. For the total population, neither the unadjusted nor the hysterectomy-adjusted figures met the targets of 80% unadjusted and 85% hysterectomy-adjusted. The unadjusted coverage rates demonstrated large ethnic inequalities with Māori (45.8%) and Pacific (41.7%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (67.7%). The unadjusted coverage target of 80% was not met in any ethnic group. Hysterectomy-adjusted coverage rates showed similar disparities; Māori women 47.3%, Pacific women 42.4%, and non-Māori, non-Pacific women 75.1%. The target of 85% for hysterectomy-adjusted coverage rates was not met in any ethnic group.

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 79.4%. The proportion who had a histology specimen taken within 52 weeks of their smear was 93.0%. 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 (81.8%), Māori (69.9%) and Pacific (63.5%) women were less likely to have had a histological specimen taken within 12 weeks. Māori (90.8%) and Pacific (84.8%) women were also less likely than non-Māori, non-Pacific women (93.7%) to have had a histological specimen taken within 52 weeks. Similarly, Māori (7.3%) and Pacific (12.2%) women were more likely than non-Māori, non-Pacific women (5.5%) 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 929.2 per 1,000 women screened. The most frequently reported cytological abnormalities were atypical squamous cells of undetermined significance (ASCUS) and low grade squamous intra-epithelial lesions (LSIL). The ASCUS and LSIL age-standardised rates for 20 to 69 year old women were similar, 26.4 per 1,000 women and 28.4 per 1,000 women, respectively. 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 6.0 per 1,000 women, and the age-standardised high grade squamous intra-epithelial lesions (HSIL) rate for 20 to 69 year old women was 8.8 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 ASCUS cytology reporting in non-Māori, non-Pacific women (25.9 per 1,000 women screened) compared with Māori and Pacific women (29.8 and 28.3 per 1,000 women, respectively). Pacific women had lower rates of LSIL cytology (23.8 per 1,000 women screened) than non-Māori, non-Pacific women and Māori women (27.9 and 33.6 per 1,000 women, respectively). Māori women (13.7 per 1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori, non-Pacific women and Pacific women (8.3 and 8.6 per 1,000 women, respectively). ISCC cytology reporting rates were also higher amongst Māori women (0.2 per 1,000 women) compared with non-Māori, non-Pacific women and Pacific women (0.1 and 0.1 per 1,000 women, respectively).

Histology reporting

Among all histology specimens, 50% were classified as “normal” or “other non-neoplastic”, but this proportion was lower for Māori (41.7%) and Pacific (43.6%) women. Proportions of both LSIL and HSIL were higher in Māori compared to non-Māori, non-Pacific and Pacific women.

A total of 69 women (10 Māori, six Pacific, 53 non-Māori, non-Pacific) were diagnosed with ISCC, and 60 women (seven Māori, three Pacific, 50 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix.

Age-standardised rates of LSIL and HSIL, per 1,000 women in the population, for Māori and Pacific women were lower than those for non-Māori, non-Pacific women. However, this should not be interpreted as truly lower rates of these abnormalities in Māori and Pacific women compared to non-Māori, non-Pacific women because of the lower coverage of cervical screening among Māori and Pacific women.

Laboratory smear reporting

Thirteen laboratories reported cervical cytology. Overall, 7.7% of smears were reported as abnormal, which was within the target of not more than 10%. Five laboratories reported abnormalities outside this target, with the highest reporting abnormalities in 23.6% of smears read. The overall proportion of smears reported as negative for dysplasia or malignancy was 92.3%, and all except one of the laboratories met the target of not more than 96%. The overall proportion of smears reported as HSIL was 0.9%, which was within the target of not less than 0.6%. Four laboratories reported outside this target, two reporting 0.5% and two reporting 0.4% of the smears that they read as HSIL.

Laboratory cytology turn around time

All except two of the laboratories reporting cervical cytology met the seven-day cytology turn around time target of 90%. Eight laboratories met the 14-day turn around time target of 100%. The remaining five laboratories reported over 99%. The laboratory with the lowest reported proportion of smears read within 14 days had read 99.5% of their smears in that time.

There were differences in cytology turnaround times between ethnic groups. The proportion of Māori women (96.2%) that had smears reported within seven working days was less than those of Pacific (98.7%) and non-Māori, non-Pacific women (97.3%). The proportion of women that had smears reported within 14 working days (99.9%) was the same in each ethnic group.

Laboratory histology turn around time

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

There were differences in histology turnaround times between ethnic groups. The proportion of Pacific women (87.1%) that had histology reported within five working days was less than those of Māori (91.3%) and non-Māori, non-Pacific women (93.4%). The proportion of Pacific women (2.6%) who had histology reported after 11 working days was higher than Māori women (1.9%) and non-Māori, non-Pacific women (1.3%).

Satisfactory but limited and unsatisfactory smears by laboratory

Overall, 17.1% of smears were reported as satisfactory but limited, which was within the target of not more than 20%. All but two of the reporting laboratories met the target. Of the smears processed, 1.0% were reported as unsatisfactory for evaluation. This was within the target of not less than 0.5% and not more than 2.0%. All but one of the laboratories met the target.

Satisfactory but limited and unsatisfactory smears by smear taker

Of the smears taken during the year, <1% were taken by lay smear takers, 62% by medical smear takers, 29% by nurses, 8% by specialists and <1% by midwives.

The proportion of satisfactory but limited smears was within the target of not more than 20% for each smear taker group as a whole. When smear taker groups were considered by annual volume, the proportion of satisfactory but limited smears was greater than 20% for medical smear takers who took fewer than 30 smears (20.9%), specialist smear takers who took fewer than 30 smears (22.2%), and midwife smear takers who took 30 to 100 smears in the reporting year (22.5%).

The proportion of unsatisfactory smears was within the target range of 0.5 to 2.0% for each smear taker group as a whole. When smear taker groups were considered by annual volume, the proportion of unsatisfactory smears was greater than 2.0% for lay smear takers who took 30 to 100 smears (2.3%) and specialist smear takers with annual volumes of less than 30 smears (4.2%). None of the smears taken by lay smear takers

with annual volumes of less than 30 smears and more than 100 smears were reported as unsatisfactory for assessment.

Colposcopic assessment

The colposcopic service indicators were unable to be calculated because the data required were not available. Three District Health Board colposcopy reporting units did not provide complete data for this reporting year. The highest reported number of women, in any one of the colposcopy units, with a high grade cytology abnormality waiting longer than four weeks at the end of a reporting quarter for their first colposcopic assessment was 262. The highest reported number of women with a low grade cytology abnormality waiting longer than 26 weeks at the end of a reporting quarter was 249.

Positive predictive value for women with a high grade smear

During the period 1 July 2003 to 30 June 2004, 91.1% of women who had had HSIL or ISCC cytology reports had a subsequent histology result recorded on the NCSP Register. Of these, 75.7% 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 reported a PPV below the target range and the other reported a PPV above the target range.

During the period 1 July 2003 to 30 June 2004, 81.2% of women who had had an ASC-H cytology report had a subsequent histology result recorded on the NCSP Register. Of these, 44.8% 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 11.8%, 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 (11.9%) and Māori (11.3%) women having higher proportions of short interval re-screening than Pacific (10.1%) women. The target of not more than 10% was not met in any ethnic group.

2. Background

The National Cervical Screening Programme (NCSP) was established in 1990. The aim of the NCSP is to reduce the incidence and mortality rate of cervical cancer amongst women in New Zealand.

The NCSP is co-ordinated by the National Screening Unit (NSU) of the Ministry of Health (MoH), and involves women, smear takers, cytology laboratories, histology laboratories, colposcopists 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 women enrolled 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.

The Independent Monitoring Group (IMG) of the NCSP has been responsible for providing independent quantitative monitoring of the NCSP since 2001. Part of this responsibility is to produce quarterly and annual reports of the national indicators for the NCSP.

In 2005 the Centre for Public Health Research (CPHR), Massey University was appointed through an open tender process to carry out the independent monitoring. 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 (ASCUS). The definitions and targets for these indicators are listed in Appendix 2. The number of women with HSIL, ASC-H, LSIL or ASCUS 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
ASCUS:	Atypical squamous cells of undetermined significance
CIN:	Cervical intra-epithelial neoplasia; I: low grade; II, III: high grade
CPHR:	Centre for Public Health Research, Massey University
DHB:	District Health Board
FIGO:	International Federation of Gynecology and Obstetrics
HPV:	Human papilloma virus
HSIL:	High grade squamous intra-epithelial lesion
ICD:	International Classification of Diseases
IMG:	Independent Monitoring Group
ISCC:	Invasive squamous carcinoma of the cervix
LSIL:	Low grade squamous intra-epithelial lesion
MoH:	Ministry of Health
NCSP:	National Cervical Screening Programme
NOS:	Not otherwise specified
NSU:	National Screening Unit
NZHIS:	New Zealand Health Information Service
PPV:	Positive predictive value
SCL:	Southern Community Laboratories
SNOMED:	Systematised Nomenclature of Medicine

4. Cervical cancer incidence and mortality

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

Cervical cancer incidence

Definition

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

Targets

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

Cervical cancer mortality

Definition

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

Targets

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

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

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

Results

Cervical cancer incidence rates for all women, Māori women, and Pacific women, age-standardised to Segi's world population, for the period 1996 to 2003 (2004 data were not available and 2003 data are provisional) are shown in Figure 1 and Table 1. Overall, incidence rates showed a decline from 10.0 to 7.1 per 100,000 women of all ethnicities. For Pacific women the incidence rate increased from 5.2 to 12.9 per 100,000 women between 1999 and 2003. However, it should be noted that due to the small numbers of Pacific women being diagnosed with cervical cancer these rates should be interpreted with caution.

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

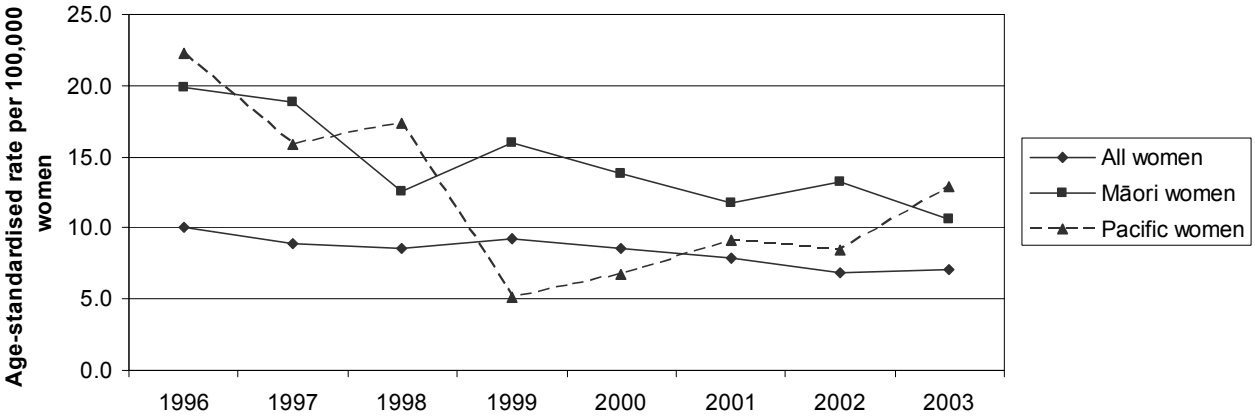
Cervical cancer mortality rates for all women, Māori women, and Pacific women, age-standardised to Segi's world population, for the period 1996 to 2003 (2004 data were not available and 2003 data are provisional) are shown in Figure 2 and Table 2. Overall, mortality rates showed a slight decline from 3.4 to 1.8 per 100,000 women of all ethnicities. As with incidence rates, the pattern of cervical cancer mortality rates in Pacific women was less clear since it fluctuated throughout the eight year period. The small number of Pacific women dying from cervical cancer means that these rates should be interpreted with caution.

The target for cervical cancer mortality rates in all women of 2.5 or less per 100,000 women was met from 2000 to 2003 (Table 2). The target for mortality rates in Māori women of 6.0 or less per 100,000 women was met from 2002 to 2003 (Table 2).

Table 3 shows the number of new cervical cancer registrations, and Table 4 the number of cervical cancer deaths, by 5-year age group for all women, Māori women and Pacific women for the period 1996 to 2003.

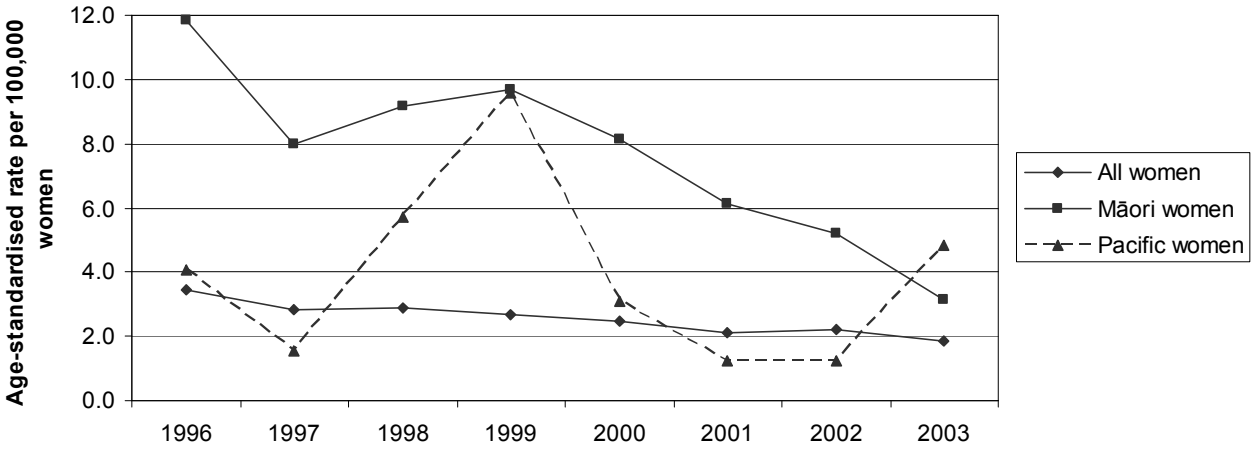
The five year average annual cervical cancer incidence and mortality rate (per 100,000 women) by 5-year age group for all women from 1999 to 2003 is shown in Figure 3, and for Māori women in Figure 4. Incidence rates increased from age 15 to 35 years, and then roughly plateaued or slightly decreased over older age groups. Māori women had higher incidence rates than all women at all ages (except for under the age of 15 where no cervical cancer registrations were recorded). Mortality rates gradually increased for all women, peaking in the oldest age group (85 or more years). Mortality rates also rose gradually in Māori women, although the peak rate occurred in women aged 75 to 79 years.

Figure 1: Age-standardised cervical cancer incidence rates, 1996–2003*



*2003 data is provisional
Rates per 100,000, age-standardised to Segi's world population
Targets are: 8.6 or less per 100,000 women for all women, and 11.0 or less per 100,000 women for Māori women by 2005
Source: New Zealand Health Information Service, 2006

Figure 2: Age-standardised cervical cancer mortality rates, 1996–2003*



*2003 data is provisional
Rates per 100,000, age-standardised to Segi's world population
Targets are: 2.5 or less per 100,000 women for all women, and 6.0 or less per 100,000 women for Māori women by 2005
Source: New Zealand Health Information Service, 2006

Table 1: Cervical cancer incidence, 1996–2003*

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
1996	219	10.0	41	19.9	15	22.3
1997	218	8.9	45	18.9	10	15.8
1998	210	8.5	31	12.6	13	17.4
1999	222	9.2	40	16.0	5	5.2
2000	205	8.5	38	13.8	6	6.8
2001	189	7.9	31	11.8	7	9.1
2002	180	6.8	34	13.2	8	8.4
2003*	178	7.1	29	10.6	12	12.9

*2003 data is provisional
Rates per 100,000 age-standardised to Segi's world population
Targets are: 8.6 or less per 100,000 women for all women, and 11.0 or less per 100,000 women for Māori women by 2005
Source: New Zealand Health Information Service, 2006

Table 2: Cervical cancer mortality, 1996–2003*

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
1996	82	3.4	22	11.8	3	4.1
1997	73	2.8	19	8.0	2	1.6
1998	77	2.9	17	9.2	4	5.7
1999	71	2.7	20	9.7	7	9.6
2000	66	2.5	17	8.1	3	3.1
2001	63	2.1	13	6.1	1	1.2
2002	65	2.2	12	5.2	2	1.2
2003*	58	1.8	8	3.1	5	4.8

*2003 data is provisional
Rates per 100,000 age-standardised to Segi's world population
Targets are: 2.5 or less per 100,000 women for all women, and 6.0 or less per 100,000 women for Māori women by 2005
Source: New Zealand Health Information Service, 2006

Table 3: Number of new cervical cancer registrations by 5-year age group, 1996–2003*

Age group (years)	All women	Māori women	Pacific women
	Number of cases, 1996–2003*	Number of cases, 1996–2003*	Number of cases, 1996–2003*
0–4	0	0	0
5–9	0	0	0
10–14	0	0	0
15–19	4	1	0
20–24	**22**	**6**	**0**
25–29	**99**	**21**	**4**
30–34	**177**	**28**	**4**
35–39	**227**	**53**	**9**
40–44	**214**	**53**	**10**
45–49	**187**	**41**	**10**
50–54	**154**	**31**	**11**
55–59	**99**	**18**	**11**
60–64	**99**	**13**	**9**
65–69	**97**	**8**	**4**
70–74	94	8	3
75–79	60	3	1
80–84	53	2	0
85+	35	3	0
Total	1,621	289	76

* 2003 data is provisional

Source: New Zealand Health Information Service, 2006

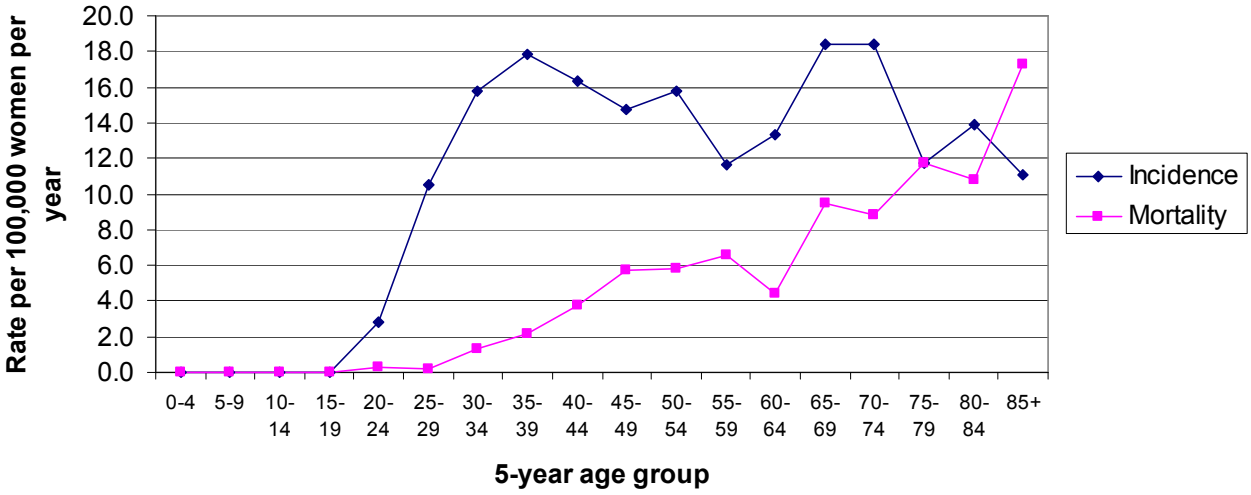
Table 4: Number of cervical cancer deaths by 5-year age group, 1996–2003*

Age group (years)	All women	Māori women	Pacific women
	Number of deaths, 1996–2003*	Number of deaths, 1996–2003*	Number of deaths, 1996–2003*
0–4	0	0	0
5–9	0	0	0
10–14	0	0	0
15–19	1	1	0
20–24	**2**	**1**	**0**
25–29	**4**	**1**	**0**
30–34	**19**	**3**	**4**
35–39	**35**	**14**	**6**
40–44	**47**	**18**	**3**
45–49	**67**	**24**	**4**
50–54	**61**	**18**	**2**
55–59	**48**	**16**	**3**
60–64	**39**	**5**	**2**
65–69	**46**	**11**	**2**
70–74	54	7	1
75–79	54	5	0
80–84	37	2	0
85+	41	2	0
Total	555	128	27

* 2003 data is provisional

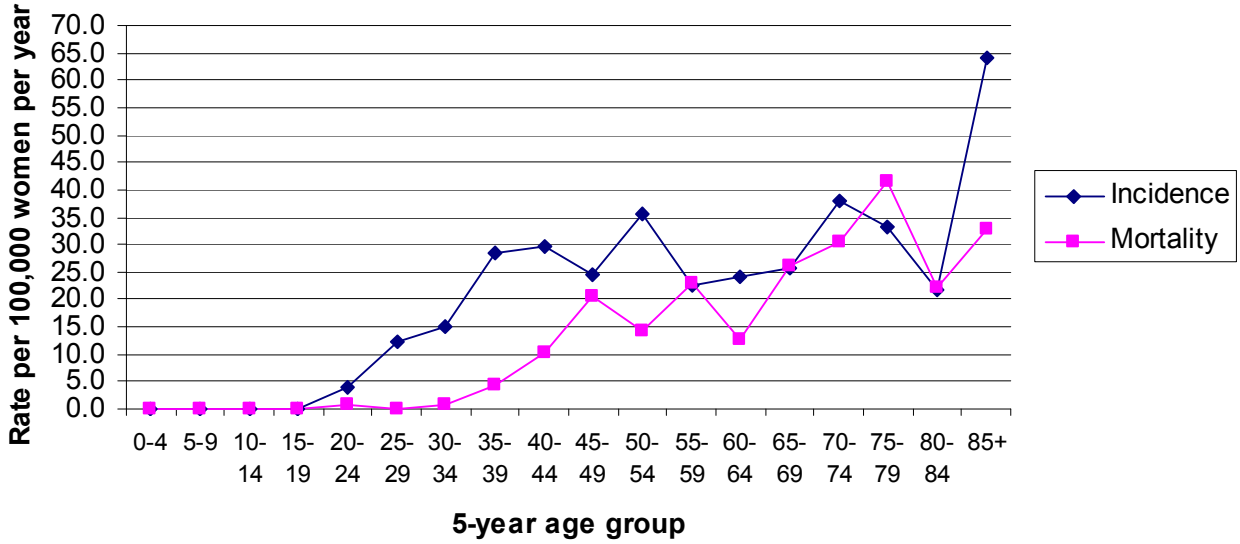
Source: New Zealand Health Information Service, 2006

Figure 3: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for all women, 1999–2003*



*2003 data is provisional
Target for incidence rates is: 8.6 or less per 100,000 women for all women by 2005. Target for mortality rates is: 2.5 or less per 100,000 women for all women by 2005.
Source: New Zealand Health Information Service, 2006

Figure 4: Five year average annual cervical cancer incidence and mortality rate (per 100,000) by 5-year age group for Māori women, 1999–2003*



*2003 data is provisional
Target for incidence rates is: 11.0 or less per 100,000 women for Māori women by 2005. Target for mortality rates is: 6.0 or less per 100,000 women for Māori women by 2005.
Source: New Zealand Health Information Service, 2006

5. Enrolment, participation and coverage

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 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and who had a smear or histology result recorded on the NCSP Register before 31 December 2004 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 2004, according to population projections from Statistics New Zealand based on the 2001 Census.

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

Results

The proportions of enrolled women are shown in Table 5 to Table 9. On 31 December 2004 1,166,396 women aged 20 to 69 years were enrolled on the NCSP Register. Dividing this number by the projected population estimate of 20 to 69 year old women (1,285,575) gave an overall crude enrolment figure of 90.7%.

The results in Table 5 demonstrate large ethnic inequalities in enrolment across all NCSP Regions, with Māori and Pacific women having almost 20% lower enrolment figures than non-Māori, non-Pacific women. From a total population perspective, there were differences in enrolment rates across NCSP Regions, with the lowest enrolment rates in Nelson/Marlborough (85.4%) and West Coast (87.3%), and the highest enrolment rates in Tairawhiti (96.2%), Taranaki (94.7%) and Wellington (96.5%). Importantly, Māori and Pacific women in some Regions had particularly low enrolment figures. Those below 65% were Māori women in Canterbury (60.2%), Nelson/Marlborough (60.2%) and Otago/Southland (64.2%), and Pacific women in Northland (62.6%) and West Coast (60.0%).

A similar pattern was seen when the data were analysed by DHB, as shown in Table 6. All DHBs had enrolments over 85% for the total population, but there were some DHBs in which enrolment of Māori and Pacific women was particularly low. For Māori women these were Canterbury (59.2%) and South Canterbury (53.0%), and for Pacific women Wairarapa (58.3%).

Enrolment percentages by age and ethnic group are shown in Table 7. Overall in the total population the enrolment percentages were highest in 30 to 34 year old women (calculated as over 100%) and lowest in 65 to 69 year old women (63.4%). The pattern of enrolment by age within each ethnic group was similar, although the overall lower enrolment percentages in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low enrolment (under 60%) was evident in Māori and Pacific women aged 20 to 24 years (58.6% Māori, 44.5% Pacific) and 65 to 69 years (52.2% Māori, 49.3% Pacific).

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

Table 5: The proportion of enrolled women aged 20–69 years by NCSP Region, 2004

NCSP Region	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	89.6	73.3	78.7	93.2
Bay of Plenty	91.8	78.7	71.6	96.6
Canterbury	89.7	60.2	80.3	91.6
Hawke's Bay	89.2	76.9	70.0	93.5
Manawatu/Whanganui	89.4	78.1	73.6	92.0
Nelson/Marlborough	85.4	60.2	79.6	87.4
Northland	86.5	78.2	62.6	90.3
Otago/Southland	92.7	64.2	81.8	94.8
Tairawhiti	96.2	90.1	77.6	102.1
Taranaki	94.7	80.3	80.6	97.0
Waikato	90.1	78.1	71.9	93.4
Wellington	96.5	77.5	68.9	101.1
West Coast	87.3	68.4	60.0	89.0
Total	**90.7**	**75.4**	**76.7**	**94.0**

Table 6: The proportion of enrolled women aged 20–69 years by District Health Board, 2004

DHB	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	91.2	68.9	80.3	94.6
Bay of Plenty	90.5	75.6	71.9	95.0
Canterbury	88.8	59.2	79.0	90.8
Capital Coast	96.6	73.4	67.9	101.4
Counties Manukau	87.6	79.2	81.1	91.3
Hawke's Bay	89.2	76.9	70.0	93.5
Hutt Valley	94.7	80.7	70.7	99.1
Lakes	92.2	81.8	70.3	97.8
MidCentral	86.7	73.3	72.7	89.3
Nelson/Marlborough	85.4	60.2	79.6	87.4
Northland	86.5	78.2	62.6	90.3
Otago	93.6	64.8	81.3	95.3
South Canterbury	87.0	53.0	77.9	88.8
Southland	91.2	63.5	83.3	94.0
Tairawhiti	96.2	90.1	77.6	102.1
Taranaki	94.7	80.3	80.6	97.0
Waikato	90.1	78.1	71.9	93.4
Wairarapa	85.2	72.5	58.3	87.5
Waitemata	87.7	64.4	69.5	91.2
West Coast	87.3	68.4	60.0	89.0
Whanganui	89.6	79.6	68.6	92.9
Total	**90.0**	**74.7**	**76.5**	**93.3**

This table excludes 9,101 women with unknown DHB, which explains the difference in total enrolment figures between Table 5 and Table 6.

Table 7: The proportion of enrolled women aged 20–69 years by 5-year age group, 2004

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20–24	70.4	58.6	44.5	75.8
25–29	102.8	86.3	79.7	109.1
30–34	108.9	88.4	93.1	114.2
35–39	104.7	86.5	96.1	108.6
40–44	99.7	81.4	91.0	103.2
45–49	94.3	75.5	81.9	97.5
50–54	87.2	67.1	72.0	90.3
55–59	78.4	60.7	62.4	80.6
60–64	69.1	54.2	57.5	70.8
65–69	63.4	52.2	49.3	64.8
Total	**90.7**	**75.4**	**76.7**	**94.0**

Table 8: The proportion of enrolled women aged 20–69 years by 5-year age group and Region, 2004

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	84.2	81.3	86.0	102.2	96.6	110.4	108.6	95.4	87.0	81.9
Bay of Plenty	72.1	85.0	84.9	106.7	98.3	108.3	103.5	95.7	98.0	77.5
Canterbury	76.5	72.6	86.2	102.5	86.0	108.1	98.8	93.6	95.5	82.0
Hawke's Bay	73.8	92.1	87.8	101.1	90.5	108.4	106.5	94.0	89.0	80.6
Manawatu/Whanganui	75.0	71.1	80.0	88.1	88.0	99.5	102.1	86.9	88.1	82.0
Northland	67.9	62.2	71.8	90.3	84.9	104.4	102.3	89.3	95.6	88.2
Nelson/Marlborough	73.6	108.2	97.8	107.4	93.3	109.7	110.5	96.7	100.0	85.6
Otago/Southland	83.0	86.1	91.2	103.2	96.4	112.6	110.6	115.2	104.6	90.1
Tairawhiti	92.5	87.5	87.3	104.0	89.9	108.2	109.9	97.8	100.3	90.2
Taranaki	78.2	63.9	73.2	90.9	84.5	106.8	98.4	89.7	95.4	92.7
Waikato	76.4	77.2	91.6	118.2	108.3	126.4	115.7	101.9	109.1	95.7
Wellington	61.9	60.9	84.3	106.3	108.3	118.2	109.1	102.1	104.0	91.0
West Coast	71.0	87.3	89.0	103.4	95.7	106.5	107.4	96.2	95.0	85.7

Table 9: The proportion of enrolled women aged 20–69 years by 5-year age group and District Health Board, 2004

DHB	Age group (years)									
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69
	%	%	%	%	%	%	%	%	%	%
Auckland	58.5	89.7	110.3	110.4	105.2	97.9	91.1	80.7	70.9	61.8
Bay of Plenty	82.7	106.4	107.3	103.5	98.9	94.5	85.7	76.5	67.6	64.5
Canterbury	69.7	107.8	106.0	103.4	98.5	92.6	85.5	75.8	64.1	57.3
Capital Coast	73.2	102.8	115.7	112.3	106.1	102.4	91.4	83.7	74.9	65.6
Counties Manukau	64.0	95.3	106.3	103.5	97.5	91.0	84.5	74.7	65.5	58.6
Hawke's Bay	76.5	109.9	108.2	99.8	96.4	91.2	84.1	75.9	67.8	63.8
Hutt Valley	77.9	103.4	111.3	106.8	101.9	97.7	92.4	81.3	73.5	68.4
Lakes	84.5	110.5	112.8	104.6	99.7	93.7	83.6	75.8	65.3	60.1
MidCentral	69.7	105.6	103.9	98.4	94.8	90.4	82.9	74.4	66.6	65.3
Nelson/Marlborough	67.9	93.5	97.8	96.3	94.4	92.5	83.6	75.3	65.8	64.4
Northland	75.0	104.2	105.5	97.5	94.6	88.9	83.5	74.1	66.6	63.2
Otago	71.6	126.2	117.4	107.1	100.8	97.7	90.1	82.6	73.4	67.1
South Canterbury	78.6	110.6	102.7	95.2	98.0	91.4	83.3	76.6	64.1	63.6
Southland	78.8	105.0	107.8	103.2	97.3	93.5	86.5	78.2	69.2	67.2
Tairawhiti	83.0	113.5	113.2	105.8	99.5	98.4	91.7	85.1	74.9	74.2
Taranaki	92.5	113.6	112.0	102.7	100.8	92.6	90.1	83.2	75.4	71.1
Waikato	71.0	113.7	107.1	102.5	97.6	92.7	86.2	76.0	69.1	63.6
Wairarapa	84.6	102.3	104.8	96.9	91.1	86.5	77.4	75.1	68.1	60.8
Waitemata	62.2	92.0	102.8	102.1	97.3	92.2	86.5	78.8	69.5	62.6
West Coast	78.2	95.9	105.9	97.6	96.9	86.8	82.4	79.5	71.9	59.7
Whanganui	76.0	104.7	107.7	102.3	99.3	93.3	84.7	77.0	69.6	65.5

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.

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 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and who had a smear or histology result recorded on the NCSP Register between 1 January 1999 and 31 December 2004 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 2004, 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 corrected method (see ‘Difficulties with calculations’ section, pp. 49–50) preferred by the current IMG.

For adjusted participation (previous method), the number of women aged 20 to 69 years at 30 June 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and who had a smear or histology result recorded on the NCSP Register between 1 January 1999 and 31 December 2004 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 2004, 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 (corrected method), the number of women aged 20 to 69 years at 30 June 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and **had not had a hysterectomy (partial or total)** on 30 June 2004, and who had a smear or histology result recorded on the NCSP Register between 1 January 1999 and 31 December 2004 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 2004, 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 2004 1,010,027 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2004, and having had a smear or histology result recorded on the NCSP Register between 1 January 1999 and 31 December 2004. Dividing this number by the projected population estimate of 20 to 69 year old women (1,285,575) gives an overall crude participation figure of 78.6%. Taking into account the prevalence of hysterectomy in the population, participation is likely to range between 85.2% (according to the IMG's preferred method) and 86.9% (according to the previously used method), as shown in Table 11. 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 (61.8%) and Pacific (58.0%) women having over 20% lower participation rates than non-Māori, non-Pacific women (82.5%). From a total population perspective, there were some differences in participation across

NCSP Regions, with the lowest participation rates in Auckland (75.9%), Northland (74.7%), and West Coast (75.4%), and the highest participation rates in Tairawhiti (86.2%), Taranaki (85.3%) and Wellington (83.7%). Importantly, Māori and Pacific women in some Regions had particularly low participation rates. Those below 55% were Māori women in Canterbury (51.9%), Nelson/Marlborough (51.5%) and Otago/Southland (53.6%), and Pacific women in Northland (49.2%), Wellington (51.3%) and West Coast (50.0%).

The target of 85% for unadjusted participation rates was not met in any population group as a whole, although Tairawhiti (86.2%) and Taranaki (85.3%) met the target in the total population, and Bay of Plenty (86.2%), Tairawhiti (93.6%), Taranaki (87.9%) and Wellington (88.6%) met the target in the non-Māori, non-Pacific population.

Hysterectomy-adjusted participation rates by ethnicity and Region are shown in Table 11. Similar disparities were evident, with the participation rate in the total population being 85.2%, the Māori population 63.5%, the Pacific population 58.9%, and the non-Māori, non-Pacific population 90.7% (according to the IMG preferred method). The target of 90% for hysterectomy-adjusted participation rates was not met in the total population, Māori women or Pacific women, but was met in non-Māori, non-Pacific women. In the total population three Regions met the target, Tairawhiti (91.4%), Taranaki (94.0%) and Wellington (90.7%). No Regions met the target in Māori or Pacific women, but eight Regions met the target in non-Māori, non-Pacific women: Bay of Plenty (96.1%), Hawke's Bay (93.5%), Northland (90.6%), Otago/Southland (90.7%), Tairawhiti (103.1%), Taranaki (98.0%), Waikato (90.2%), and Wellington (97.3%).

A similar pattern was seen when the data were analysed by DHB, see Table 12 (unadjusted) and Table 13 (hysterectomy-adjusted). The only DHBs to meet the 85% unadjusted participation target (Table 12) in the total population were Tairawhiti (86.2%) and Taranaki (85.3%), and no DHB met this target in Māori or Pacific women. Six DHBs met the target in non-Māori, non-Pacific women: Bay of Plenty (85.3%), Capital and Coast (88.9%), Hutt Valley (86.2%), Lakes (86.2%), Tairawhiti (93.6%), and Taranaki (87.9%). DHBs in which participation rates for Māori and Pacific women were particularly low (under 55%) were Auckland (53.7%), Canterbury (51.4%),

Nelson/Marlborough (51.5%), South Canterbury (46.1%), Southland (52.2%), and Waitemata (52.8%) for Māori women, and Capital and Coast (49.6%), Hutt Valley (54.6%), Northland (49.2%), Wairarapa (44.6%), Waitemata (53.8%), and West Coast (50.0%) for Pacific women.

The same patterns were seen for the hysterectomy-adjusted participation rates (Table 13). Three DHBs met the target of 90% in the total population, Capital and Coast (90.3%), Tairawhiti (91.4%), and Taranaki (94.0%). Ten DHBs met the target in the non-Māori, non-Pacific population, Bay of Plenty (95.2%), Capital and Coast (96.9%), Hawke's Bay (93.5%), Hutt Valley (95.2%), Lakes (95.8%), Northland (90.6%), Otago (91.6%), Tairawhiti (103.1%), Taranaki (98.0%), and Waikato (90.2%). No DHBs met the target in Māori or Pacific women.

Participation rates by age and ethnic group are shown in Table 14 (unadjusted) and Table 15 (hysterectomy-adjusted). For unadjusted participation rates (Table 14) in the total population, participation was highest in 30 to 34 year old women (92.2%) and lowest in 65 to 69 year old women (54.3%). Overall in the total population, younger women (aged 20 to 54 years) had higher rates of participation than older women (55 to 69 years). The pattern of participation by age within each ethnic group was similar, although the overall lower participation rates in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low participation (under 50%) was evident in Māori women aged 55 to 69 years, and in Pacific women aged 20 to 24 and 55 to 69 years.

Similar patterns were found with the hysterectomy-adjusted participation rates (Table 15), although in the total population the lowest rate was recorded in women aged 20 to 24 years (68.9%). Another difference was that in non-Māori, non-Pacific women the lowest unadjusted participation rate (Table 14) was in 65 to 69 year old women (55.9%) whereas the lowest hysterectomy-adjusted participation rate (Table 15) was in 20 to 24 year old women (74.6%).

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 20–69 years by NCSP Region, 2004

NCSP Region	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	75.9	58.7	59.0	80.5
Bay of Plenty	80.3	64.5	58.1	86.2
Canterbury	79.4	51.9	65.4	81.3
Hawke's Bay	78.5	63.5	58.4	83.5
Manawatu/Whanganui	76.9	64.2	57.4	79.9
Nelson/Marlborough	76.1	51.5	66.0	78.1
Northland	74.7	63.2	49.2	79.8
Otago/Southland	81.5	53.6	64.9	83.7
Tairawhiti	86.2	78.5	66.8	93.6
Taranaki	85.3	68.9	61.8	87.9
Waikato	78.1	62.4	55.6	82.5
Wellington	83.7	64.8	51.3	88.6
West Coast	75.4	56.9	50.0	77.0
Total	**78.6**	**61.8**	**58.0**	**82.5**

Target: 85% for unadjusted participation

Table 11: Hysterectomy-adjusted participation rates for women aged 20–69 years by NCSP Region, 2004

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	82.9	61.1	60.2	89.3	82.3	60.9	60.1	88.6
Bay of Plenty	89.5	67.5	59.3	98.4	87.5	66.2	58.4	96.1
Canterbury	88.6	53.9	66.6	91.3	85.6	52.6	65.1	88.1
Hawke's Bay	87.8	66.4	59.7	95.6	85.9	65.3	58.9	93.5
Manawatu/Whanganui	85.9	66.9	58.6	90.6	83.2	65.5	57.3	87.7
Nelson/Marlborough	85.7	53.8	67.3	88.6	83.4	52.0	64.6	86.2
Northland	83.8	66.5	50.4	92.3	82.4	65.6	50.0	90.6
Otago/Southland	91.0	55.7	65.9	94.0	87.9	54.3	64.7	90.7
Tairawhiti	94.5	82.4	68.5	106.9	91.4	80.0	66.5	103.1
Taranaki	95.8	72.0	62.5	100.0	94.0	71.1	61.3	98.0
Waikato	86.6	65.1	56.7	93.1	84.1	63.6	55.2	90.2
Wellington	91.8	67.4	52.4	98.5	90.7	66.6	51.9	97.3
West Coast	85.3	59.6	50.0	87.7	81.0	56.3	45.0	83.4
Total	**86.9**	**64.5**	**59.2**	**92.6**	**85.2**	**63.5**	**58.9**	**90.7**

Target: 90% for hysterectomy-adjusted participation

Table 12: Unadjusted participation rates for women aged 20–69 years by District Health Board, 2004

DHB	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	75.9	53.7	57.3	80.2
Bay of Plenty	79.8	62.0	59.4	85.3
Canterbury	78.7	51.4	64.7	80.6
Capital Coast	83.7	61.2	49.6	88.9
Counties Manukau	73.7	63.4	62.0	79.1
Hawke's Bay	78.5	63.5	58.4	83.5
Hutt Valley	81.5	67.5	54.6	86.2
Lakes	79.6	67.1	56.3	86.2
MidCentral	75.4	61.3	56.7	78.2
Nelson/Marlborough	76.1	51.5	66.0	78.1
Northland	74.7	63.2	49.2	79.8
Otago	82.7	55.1	65.3	84.4
South Canterbury	77.8	46.1	66.3	79.5
Southland	79.6	52.2	64.0	82.4
Tairawhiti	86.2	78.5	66.8	93.6
Taranaki	85.3	68.9	61.8	87.9
Waikato	78.1	62.4	55.6	82.5
Wairarapa	76.8	61.2	44.6	79.6
Waitemata	76.0	52.8	53.8	79.7
West Coast	75.4	56.9	50.0	77.0
Whanganui	76.2	65.3	56.1	79.8

Target: 85% for unadjusted participation

Table 13: Hysterectomy-adjusted participation rates for women aged 20–69 years by District Health Board, 2004

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	82.1	56.0	58.5	87.7	81.7	55.8	58.4	87.2
Bay of Plenty	89.5	65.0	60.8	97.6	87.3	63.5	59.7	95.2
Canterbury	87.7	53.4	66.0	90.3	84.5	52.0	64.4	87.0
Capital Coast	91.2	63.6	50.7	97.9	90.3	63.0	50.3	96.9
Counties Manukau	80.2	66.0	63.3	88.6	79.7	65.8	63.2	87.9
Hawke's Bay	87.8	66.4	59.7	95.6	85.9	65.3	58.9	93.5
Hutt Valley	89.9	70.2	55.7	96.8	88.5	69.2	55.0	95.2
Lakes	87.8	70.2	57.4	97.8	86.1	69.0	56.7	95.8
MidCentral	84.0	63.8	57.9	88.4	81.6	62.7	56.6	85.7
Nelson/Marlborough	85.7	53.8	67.3	88.6	83.4	52.0	64.6	86.2
Northland	83.8	66.5	50.4	92.3	82.4	65.6	50.0	90.6
Otago	92.4	57.1	66.2	94.8	89.3	55.6	64.8	91.6
South Canterbury	88.7	48.2	67.7	91.3	86.7	47.3	66.7	89.1
Southland	88.7	54.4	64.9	92.5	85.6	52.9	64.6	89.2
Tairawhiti	94.5	82.4	68.5	106.9	91.4	80.0	66.5	103.1
Taranaki	95.8	72.0	62.5	100.0	94.0	71.1	61.3	98.0
Waikato	86.6	65.1	56.7	93.1	84.1	63.6	55.2	90.2
Wairarapa	87.2	64.1	45.3	91.7	85.5	63.0	44.2	89.9
Waitemata	83.9	54.9	54.9	89.1	83.2	54.6	54.8	88.3
West Coast	85.3	59.6	50.0	87.7	81.0	56.3	45.0	83.4
Whanganui	85.4	68.3	57.2	91.5	82.3	66.3	56.0	88.0

Target: 90% for hysterectomy-adjusted participation

Table 14: Unadjusted participation rates for women aged 20–69 years by 5-year age group, 2004

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20–24	68.9	56.2	42.8	74.6
25–29	91.4	73.4	66.6	98.2
30–34	92.2	70.8	68.7	98.3
35–39	89.3	68.4	66.9	94.7
40–44	85.6	64.3	63.5	90.3
45–49	80.7	59.1	57.3	84.9
50–54	73.6	52.5	53.0	77.0
55–59	65.9	47.3	46.6	68.4
60–64	58.9	43.4	43.4	60.9
65–69	54.3	41.8	37.4	55.9
Total	**78.6**	**61.8**	**58.0**	**82.5**

Target: 85% for unadjusted participation

Table 15: Hysterectomy-adjusted participation rates for women aged 20–69 years by 5-year age group, 2004

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	68.9	56.2	42.8	74.6	68.9	56.2	42.8	74.6
25–29	91.4	73.4	66.6	98.2	91.4	73.4	66.6	98.1
30–34	92.4	71.1	68.7	98.5	92.1	70.9	68.7	98.2
35–39	90.4	69.2	67.3	95.9	89.5	68.5	67.1	94.9
40–44	89.7	66.7	64.5	95.0	87.8	65.3	64.0	92.9
45–49	90.2	64.3	59.6	95.5	86.7	61.5	58.5	91.9
50–54	90.0	60.1	56.8	95.5	86.0	57.3	55.6	91.3
55–59	88.1	55.4	50.3	93.5	84.6	53.4	49.7	89.7
60–64	82.9	49.5	46.6	88.4	79.9	48.1	46.0	85.1
65–69	75.7	46.6	39.9	80.5	73.0	45.1	39.4	77.5
Total	**86.9**	**64.5**	**59.2**	**92.6**	**85.2**	**63.5**	**58.9**	**90.7**

Target: 90% for hysterectomy-adjusted participation

Table 16: Hysterectomy-adjusted participation rates for women aged 20–69 years by 5-year age group and Region, 2004

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	60.6	59.6	74.8	89.5	93.2	108.5	109.7	109.8	116.1	101.6
Bay of Plenty	81.6	78.8	76.7	88.7	86.6	104.1	108.6	103.3	100.4	95.3
Canterbury	70.9	83.7	76.2	93.2	89.3	103.8	104.4	103.2	111.9	90.8
Hawke's Bay	74.6	70.8	76.0	89.1	78.4	104.8	100.3	101.9	111.5	94.7
Manawatu/Whanganui	72.0	89.9	77.0	85.5	79.0	100.1	103.8	99.3	98.4	91.0
Nelson/Marlborough	66.7	61.1	65.4	80.5	78.4	102.2	107.2	99.4	112.0	104.8
Northland	72.0	68.4	70.3	75.4	78.5	92.7	103.7	95.3	100.0	93.1
Otago/Southland	72.7	107.0	86.3	91.1	84.4	105.7	111.7	104.2	112.2	98.4
Tairawhiti	80.6	83.7	82.1	90.6	87.1	109.7	111.5	124.7	111.9	99.1
Taranaki	90.1	85.2	78.6	92.7	84.6	107.0	118.0	111.3	120.8	111.0
Waikato	69.4	85.4	78.3	87.9	84.6	98.0	104.9	102.3	108.5	98.0
Wellington	75.2	75.9	83.0	100.4	96.1	118.6	117.2	110.7	126.0	111.7
West Coast	76.5	62.6	64.7	79.1	76.2	98.1	95.8	88.8	102.7	102.1

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 IMG preferred method).
Target: 90% for hysterectomy-adjusted participation

Table 17: Hysterectomy-adjusted participation rates for women aged 20–69 years by 5-year age group and District Health Board, 2004

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	57.3	79.2	89.4	87.5	84.7	79.5	73.2	64.1	56.3	48.7
Bay of Plenty	80.4	94.1	92.9	89.8	84.2	78.2	70.5	64.1	57.6	54.8
Canterbury	68.6	96.8	91.7	89.5	83.9	75.6	67.5	60.0	52.5	47.0
Capital Coast	72.2	93.5	96.4	94.5	88.9	85.2	74.6	68.9	62.3	54.6
Counties Manukau	62.4	83.7	88.3	84.4	79.0	74.5	67.7	59.7	53.0	47.4
Hawke's Bay	74.6	96.7	92.9	86.7	83.7	75.9	68.7	63.3	56.7	55.1
Hutt Valley	76.3	92.1	94.1	90.3	85.3	80.0	73.6	64.8	60.9	57.3
Lakes	81.6	99.1	95.5	87.4	83.3	75.8	66.9	61.7	54.1	49.0
MidCentral	68.3	93.1	88.4	82.8	79.6	73.1	66.3	59.1	54.2	53.3
Nelson/Marlborough	66.7	85.0	86.0	84.7	82.3	78.6	68.5	61.6	54.9	54.6
Northland	72.0	91.3	89.2	83.0	79.0	74.2	69.1	61.1	55.6	52.4
Otago	71.1	110.0	98.1	93.1	86.6	80.5	71.7	65.7	59.9	54.5
South Canterbury	77.0	101.3	90.2	84.3	87.0	76.6	69.6	63.3	54.5	55.2
Southland	77.3	94.1	90.5	87.4	83.3	75.8	68.2	58.8	54.7	54.7
Tairawhiti	80.6	101.7	98.2	91.5	87.4	82.6	77.3	68.1	63.0	63.7
Taranaki	90.1	101.9	98.5	92.0	88.9	80.9	76.0	70.6	65.8	61.7
Waikato	69.4	99.8	90.0	86.3	80.4	74.1	68.6	61.8	56.7	52.7
Wairarapa	82.4	92.0	93.7	87.8	79.3	73.2	65.5	65.6	59.3	54.3
Waitemata	61.0	82.3	88.3	87.7	83.1	78.1	71.6	64.1	57.2	51.2
West Coast	76.5	84.6	91.0	83.8	79.4	68.5	60.1	59.8	55.5	46.8
Whanganui	73.6	92.4	88.7	84.7	80.2	72.2	65.6	58.8	55.4	53.2

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 IMG preferred method).
Target: 90% for hysterectomy-adjusted participation

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.

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 unadjusted coverage is 80%, and for hysterectomy-adjusted coverage the target is 85%.

Calculations

For unadjusted coverage rates the number of women aged 20 to 69 years at 30 June 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2004 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 2004, 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 corrected method (see 'Difficulties with calculations' section, pp. 49–50) preferred by the current IMG.

For adjusted coverage (previous method), the number of women aged 20 to 69 years at 30 June 2004 who were recorded on the NCSP Register as being alive on 30 June 2004 and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2004 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 2004, 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 (corrected method), the number of women aged 20 to 69 years at 30 June 2004 who were recorded on the NCSP Register as being alive on 30 June 2004, and **had not had a hysterectomy (partial or total)** on 31 December 2004, and who had a smear or histology result recorded on the NCSP Register between 1 January 2002 and 31 December 2004 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 2004, 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 2004 816,812 women aged 20 to 69 years were recorded on the NCSP Register as being alive on 30 June 2004, and having had a smear or histology reported on the NCSP Register between 1 January 2002 and 31 December 2004. Dividing this number by the projected population estimate (1,285,575) gives an overall unadjusted coverage rate of 63.5% (Table 18). Taking into account the prevalence of hysterectomy in the population (the hysterectomy adjustment), coverage is likely to range between 69.4% (according to the IMG preferred method) and 70.3% (according to the previously used method), as shown in Table 19. For the total population, neither the unadjusted nor hysterectomy-adjusted figures met the targets of 80% and 85%, respectively.

The results in Table 18 demonstrate large ethnic inequalities in coverage, with Māori (45.8%) and Pacific (41.7%) women having approximately 20% lower coverage than non-Māori, non-Pacific women (67.7%). From a total population perspective, there were some differences in coverage across NCSP Regions, with the lowest coverage rates in Auckland (59.8%), Northland (60.3%) and West Coast (61.9%), and the highest

coverage rates in Tairawhiti (69.3%), Taranaki (73.5%) and Wellington (68.0%). Importantly, Māori and Pacific women in some Regions had particularly low coverage figures. Those below 40% were Māori women in Canterbury (39.6%), and Pacific women in Northland (38.1%), Waikato (39.5%), Wellington (38.2%) and West Coast (37.5%).

The target of 80% for unadjusted coverage rates was not met in any population subgroup as a whole, or in any Region.

Hysterectomy-adjusted coverage rates by ethnicity and Region are shown in Table 19. Ethnic disparities were evident, with the coverage rate in the total population being 69.4%, the Māori population 47.3%, the Pacific population 42.4%, and the non-Māori, non-Pacific population 75.1% (according to the IMG preferred method). The target of 85% for hysterectomy-adjusted coverage rates was not met in any population subgroup as a whole, or in any Regions except for Tairawhiti (88.8%) and Taranaki (86.0%) in non-Māori, non-Pacific women.

A similar pattern was seen when the data were analysed by DHB, see Table 20 (unadjusted) and Table 21 (hysterectomy-adjusted). No DHBs met the 80% unadjusted coverage target (Table 20) in any population subgroup. DHBs in which coverage rates for Māori and Pacific women were particularly low (under 40%) were Auckland (39.1%), Canterbury (39.5%) and Waitemata (38.3%) for Māori women and Auckland (39.7%), Capital and Coast (37.6%), Hutt Valley (39.5%), Northland (38.1%), South Canterbury (34.9%), Waikato (39.5%), Wairarapa (29.7%), Waitemata (39.7%) and West Coast (37.5%) for Pacific women.

The same patterns were seen for the hysterectomy-adjusted coverage rates (Table 21). Two DHBs met the 85% target in non-Māori, non-Pacific women, Tairawhiti (88.8%) and Taranaki (86.0%). No DHBs met the target in Māori or Pacific women.

Coverage rates by age and ethnic group are shown in Table 22 (unadjusted) and Table 23 (hysterectomy-adjusted). For unadjusted coverage rates (Table 22) in the total population, coverage was highest in 30 to 34 year old women (72.7%) and lowest in 65 to 69 year old women (43.8%). Overall in the total population, younger women (20 to 54 years) had higher rates of coverage than older women (55 to 69 years). The pattern

of coverage by age within each ethnic group was similar, although the overall lower coverage rates in Māori and Pacific women were evident in all age groups compared to non-Māori, non-Pacific women. Particularly low coverage (under 40%) was evident in Māori women aged 50 to 69 years, and in Pacific women aged 20 to 24 and 50 to 69 years.

Similar patterns were found with the hysterectomy-adjusted coverage rates (Table 23), although in the total population the lowest rate was recorded in women aged 20 to 24 years (59.6%).

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 20–69 years by NCSP Region, 2004

NCSP Region	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	59.8	42.2	41.9	64.5
Bay of Plenty	66.1	48.3	43.3	72.7
Canterbury	64.6	39.6	48.8	66.3
Hawke's Bay	63.5	46.7	41.5	69.1
Manawatu/Whanganui	62.5	48.0	42.0	65.8
Nelson/Marlborough	64.5	40.1	53.6	66.5
Northland	60.3	46.9	38.1	66.3
Otago/Southland	67.9	42.2	50.5	69.9
Tairawhiti	69.3	58.4	48.8	79.3
Taranaki	73.5	54.4	48.8	76.5
Waikato	63.3	44.8	39.5	68.4
Wellington	68.0	49.1	38.2	72.7
West Coast	61.9	44.3	37.5	63.4
Total	**63.5**	**45.8**	**41.7**	**67.7**

Target: 80% for unadjusted coverage

Table 19: Hysterectomy-adjusted coverage rates for women aged 20–69 years by NCSP Region, 2004

NCSP Region	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	65.3	43.9	42.8	71.6	65.1	43.8	42.7	71.3
Bay of Plenty	73.7	50.5	44.2	83.1	72.6	49.8	43.6	81.7
Canterbury	72.1	41.1	49.7	74.4	70.5	40.5	48.7	72.8
Hawke's Bay	71.0	48.8	42.5	79.1	70.3	48.4	42.2	78.4
Manawatu/Whanganui	69.7	50.1	42.9	74.6	68.6	49.5	42.4	73.4
Nelson/Marlborough	72.6	41.8	54.6	75.4	71.5	41.3	52.7	74.3
Northland	67.7	49.2	39.0	76.7	67.3	48.9	38.8	76.2
Otago/Southland	75.8	43.9	51.2	78.5	74.2	43.0	50.5	76.8
Tairawhiti	75.9	61.3	50.0	90.6	74.3	60.1	48.5	88.8
Taranaki	82.5	56.8	49.4	87.0	81.6	56.3	48.2	86.0
Waikato	70.2	46.8	40.3	77.2	68.7	45.9	39.5	75.6
Wellington	74.6	51.0	39.0	80.8	74.2	50.8	38.8	80.4
West Coast	70.0	46.4	37.5	72.3	67.9	44.8	37.5	70.1
Total	**70.3**	**47.8**	**42.6**	**76.0**	**69.4**	**47.3**	**42.4**	**75.1**

Target: 85% for hysterectomy-adjusted coverage

Table 20: Unadjusted coverage rates for women aged 20–69 years by District Health Board, 2004

DHB	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	59.5	39.1	39.7	63.8
Bay of Plenty	66.2	46.2	46.0	72.2
Canterbury	64.2	39.5	48.3	66.0
Capital Coast	68.2	46.5	37.6	73.0
Counties Manukau	57.2	45.3	44.1	63.4
Hawke's Bay	63.5	46.7	41.5	69.1
Hutt Valley	65.9	50.9	39.5	70.7
Lakes	64.9	50.6	40.6	72.4
MidCentral	61.8	46.2	41.2	64.8
Nelson/Marlborough	64.5	40.1	53.6	66.5
Northland	60.3	46.9	38.1	66.3
Otago	69.1	44.2	51.1	70.7
South Canterbury	63.0	34.9	52.6	64.5
Southland	65.8	40.2	48.7	68.5
Tairawhiti	69.3	58.4	48.8	79.3
Taranaki	73.5	54.4	48.8	76.5
Waikato	63.3	44.8	39.5	68.4
Wairarapa	63.4	48.4	29.7	66.1
Waitemata	60.9	38.3	39.7	64.6
West Coast	61.9	44.3	37.5	63.4
Whanganui	61.2	49.1	43.5	65.1

Target: 80% for unadjusted coverage

Table 21: Hysterectomy-adjusted coverage rates for women aged 20–69 years by District Health Board, 2004

DHB	Hysterectomy-adjusted (denominator only)				Hysterectomy-adjusted (numerator and denominator)			
	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
Auckland	64.4	40.7	40.6	69.8	64.2	40.7	40.5	69.6
Bay of Plenty	74.2	48.4	47.1	82.7	72.9	47.6	46.3	81.3
Canterbury	71.5	41.0	49.2	73.9	69.9	40.3	48.3	72.2
Capital Coast	74.3	48.2	38.4	80.4	74.0	48.1	38.2	80.1
Counties Manukau	62.3	47.1	45.0	71.0	62.1	47.0	45.0	70.7
Hawke's Bay	71.0	48.8	42.5	79.1	70.3	48.4	42.2	78.4
Hutt Valley	72.7	52.9	40.3	79.4	72.3	52.6	40.1	79.0
Lakes	71.6	52.9	41.4	82.2	70.7	52.3	41.0	81.0
MidCentral	68.8	48.1	42.0	73.2	67.7	47.7	41.5	72.1
Nelson/Marlborough	72.6	41.8	54.6	75.4	71.5	41.3	52.7	74.3
Northland	67.7	49.2	39.0	76.7	67.3	48.9	38.8	76.2
Otago	77.3	45.8	51.9	79.5	75.7	45.1	51.0	77.9
South Canterbury	71.9	36.5	53.8	74.1	70.8	36.1	52.7	72.9
Southland	73.3	41.9	49.4	76.8	71.5	41.0	49.1	75.0
Tairawhiti	75.9	61.3	50.0	90.6	74.3	60.1	48.5	88.8
Taranaki	82.5	56.8	49.4	87.0	81.6	56.3	48.2	86.0
Waikato	70.2	46.8	40.3	77.2	68.7	45.9	39.5	75.6
Wairarapa	72.0	50.7	30.2	76.2	71.2	50.1	29.7	75.4
Waitemata	67.3	39.8	40.5	72.2	67.0	39.6	40.4	71.8
West Coast	70.0	46.4	37.5	72.3	67.9	44.8	37.5	70.1
Whanganui	68.6	51.4	44.4	74.6	67.3	50.5	44.0	73.2

Target: 85% for hysterectomy-adjusted coverage

Table 22: Unadjusted coverage rates for women aged 20–69 years by 5-year age group, 2004

Age group (years)	All women %	Māori women %	Pacific women %	Non-Māori, non-Pacific women %
20–24	59.6	46.1	35.7	65.2
25–29	70.4	53.3	47.8	76.7
30–34	72.7	51.1	47.5	79.0
35–39	71.5	49.1	46.0	77.4
40–44	69.4	46.9	43.9	74.5
45–49	65.3	42.9	40.5	69.7
50–54	59.9	38.3	38.3	63.3
55–59	54.3	35.4	35.1	56.8
60–64	49.0	34.0	32.7	50.9
65–69	43.8	30.4	26.8	45.5
Total	**63.5**	**45.8**	**41.7**	**67.7**

Target: 80% for unadjusted coverage

Table 23: Hysterectomy-adjusted coverage rates for women aged 20–69 years by 5-year age group, 2004

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	59.6	46.1	35.7	65.2	59.6	46.1	35.7	65.2
25–29	70.4	53.3	47.8	76.7	70.4	53.3	47.8	76.7
30–34	72.9	51.3	47.5	79.2	72.7	51.2	47.5	79.0
35–39	72.4	49.7	46.3	78.4	71.9	49.3	46.1	77.8
40–44	72.8	48.7	44.6	78.4	71.7	47.8	44.3	77.2
45–49	73.0	46.7	42.1	78.5	71.4	45.3	41.6	76.7
50–54	73.1	43.9	41.1	78.5	71.5	42.9	40.5	76.7
55–59	72.7	41.5	37.9	77.7	71.2	40.6	37.6	76.1
60–64	68.9	38.8	35.1	73.9	67.5	38.2	34.7	72.3
65–69	61.1	33.8	28.6	65.4	59.8	33.2	28.4	64.0
Total	**70.3**	**47.8**	**42.6**	**76.0**	**69.4**	**47.3**	**42.4**	**75.1**

Target: 85% for hysterectomy-adjusted coverage

Table 24: Hysterectomy-adjusted coverage rates for women aged 20–69 years by 5-year age group and Region, 2004

NCSP Region	Age group (years)									
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69
	%	%	%	%	%	%	%	%	%	%
Auckland	52.2	51.3	57.1	69.4	72.5	85.5	86.4	87.5	93.6	81.1
Bay of Plenty	69.0	66.7	60.3	71.0	71.2	86.3	92.0	87.7	86.5	82.8
Canterbury	61.6	72.7	59.0	74.2	73.1	86.2	86.7	86.1	95.1	76.9
Hawke's Bay	63.4	60.2	57.5	70.0	63.6	85.4	82.7	86.2	95.5	81.4
Manawatu/Wanganui	61.8	77.2	59.0	67.1	63.5	82.2	87.4	84.1	85.2	79.8
Nelson/Marlborough	59.1	54.1	53.0	66.8	66.6	88.3	93.4	86.3	98.0	93.1
Northland	61.1	58.0	54.9	59.8	62.8	75.2	86.4	79.2	84.6	77.6
Otago/Southland	63.8	93.9	66.3	74.2	70.8	89.9	95.7	90.6	98.2	86.2
Tairawhiti	66.3	68.8	64.1	69.8	69.4	90.2	90.7	105.5	93.2	87.2
Taranaki	78.4	74.1	63.7	79.0	72.2	93.0	103.4	99.9	107.4	102.0
Waikato	60.3	74.2	60.0	69.0	68.2	79.4	86.4	85.8	92.5	83.5
Wellington	65.8	66.4	63.8	79.1	77.1	98.0	97.5	92.5	105.8	95.6
West Coast	65.0	53.1	51.5	62.8	62.3	84.3	80.9	78.1	88.6	88.7

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: 85% for hysterectomy-adjusted coverage

Table 25: Hysterectomy-adjusted coverage rates for women aged 20–69 years by 5-year age group and District Health Board, 2004

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	49.7	60.1	68.4	66.9	66.3	63.5	58.4	51.4	44.6	36.9
Bay of Plenty	67.7	74.4	74.8	74.5	70.6	66.3	60.2	55.4	50.5	46.1
Canterbury	60.0	75.3	73.4	73.5	69.8	63.0	56.5	51.1	44.7	38.9
Capital Coast	63.8	71.9	76.1	75.8	74.2	70.8	62.3	57.9	53.2	44.9
Counties Manukau	52.8	63.5	67.3	64.8	61.1	57.3	53.4	47.5	42.2	36.6
Hawke's Bay	63.4	73.2	73.0	70.4	68.2	62.6	58.1	54.2	48.7	46.3
Hutt Valley	65.6	71.0	74.2	72.7	69.6	66.8	61.5	54.1	52.4	47.0
Lakes	69.6	77.7	75.7	71.0	67.8	64.0	56.4	52.8	46.2	38.2
MidCentral	59.5	72.0	69.5	67.4	65.8	61.9	56.0	51.5	47.7	44.9
Nelson/Marlborough	59.1	68.9	71.5	71.9	71.1	68.5	59.5	53.9	48.7	47.0
Northland	61.1	71.3	70.7	66.4	64.1	61.8	57.4	51.7	46.4	42.8
Otago	63.1	82.2	80.5	78.9	73.8	69.1	62.8	58.4	52.9	46.5
South Canterbury	63.9	81.0	70.5	69.5	72.0	62.3	57.6	53.5	44.3	44.0
Southland	65.7	75.5	72.7	72.1	70.6	64.9	58.6	50.0	47.2	46.5
Tairawhiti	66.3	79.5	75.6	72.8	71.9	67.2	65.4	56.7	55.4	53.5
Taranaki	78.4	82.7	83.9	78.6	77.3	70.9	68.3	62.8	60.4	54.4
Waikato	60.3	76.5	70.6	69.6	65.1	61.0	57.5	52.7	48.3	44.4
Wairarapa	68.9	74.0	76.9	72.0	64.6	61.6	55.2	57.1	50.9	45.2
Waitemata	53.3	63.9	70.8	70.2	66.9	62.1	57.6	52.4	46.0	40.1
West Coast	65.0	67.4	72.3	68.5	68.2	57.9	52.8	51.6	48.3	39.7
Whanganui	60.8	70.8	70.3	66.4	65.5	59.8	56.2	49.9	48.3	45.5

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

Target: 85% for hysterectomy-adjusted coverage

Difficulties with 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 of 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.

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. It is the opinion of the CPHR and the current IMG that this is an incorrect calculation, and that 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 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 not contain data on 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 (Hazel Lewis, personal communication, September 2006). 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 this 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 2004). For other calculations, age was often calculated at the end of the reporting period (*i.e.* 31 December 2004). 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.

6. 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) (Appendix 3). The timeliness of the follow-up of women with a high grade cytology result is estimated using the time elapsed before a histology specimen is taken following the high grade cytology result.

Targets

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

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

and

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

Calculation

The timeliness of the follow-up of women with a high grade cytology result was estimated for each reporting quarter in 2004. The number of enrolled women aged 20 to 69 years at 31 March 2004, 30 June 2004, 30 September 2004, and 31 December 2004 who had a high grade cytology result recorded on the NCSP Register between 1 April 2002 and 31 March 2003, 1 July 2002 and 30 June 2003, 1 October 2002 and 30 September 2003, and 1 January 2003 and 31 December 2003 was calculated. For each of these women the time between the date that the smear was taken and the date that the subsequent histology specimen was taken (including specimens taken up to five days before the smear) was calculated. The numbers of women with a histology specimen taken within 12 weeks, between 13 and 26 weeks, between 27 and 52 weeks and more than 52 weeks after their ASC-H, HSIL or more serious cytology result were expressed as proportions of the total number of women with a high grade cytology taken in the year prior to the reporting quarter. The number and proportion of women with no histology result recorded on the NCSP Register (by the time that the data extract was taken) 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.

It should be noted that this indicator has been recalculated to allow for the change in definition of ASC-H/HSIL (*i.e.* the move of Bethesda code C3A2B7 to ASC-H) adopted by the IMG in 2006, so the results given here are not the same as those in Quarterly Monitoring Reports 14 to 17.

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 79.4% for the 2004 reporting period (Table 32). The proportion who had a histology specimen taken within 52 weeks of their smear was 93.0%. There was little change in the results for the follow-up of women with high grade cytology during 2004, and the two targets were rarely reached by any laboratory.

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 5 and Figure 6. Compared to non-Māori, non-Pacific women, Māori and Pacific women were less likely to have a histological specimen taken within the recommended time periods. The differences by ethnicity persisted for all reporting quarters and for all time periods following a high grade smear.

Figure 5 (and Table 26) shows the proportion of women in each ethnic group who had a histology specimen taken within 12 weeks of their high grade or more serious smear for each reporting quarter. For each reporting quarter the proportion of non-Māori, non-Pacific women who had a histology specimen taken within 12 weeks of their high grade or more serious smear was greater than those for Māori and Pacific women. While the proportion of Māori women who had a histology specimen taken within 12 weeks increased slightly in each reporting quarter (67.9% to 72.1%), the proportion of Pacific women fluctuated and decreased slightly over the reporting year (61.6% to 61.0%).

Figure 6 (and Table 29) shows the proportion of women in each ethnic group who had a histology specimen taken within 52 weeks of their high grade or more serious smear for

each reporting quarter. For each reporting quarter the proportion of Pacific women who had a histology specimen taken within 52 weeks of their high grade or more serious smear was less than those for Māori and non-Māori, non-Pacific women.

The proportion of women with no histology report following a high grade smear is shown by ethnicity for each reporting quarter in Table 31. Pacific and Māori women were more likely to have no histological specimen taken following a high grade smear than non-Māori, non-Pacific women, and the differences by ethnicity persisted across all the reporting quarters.

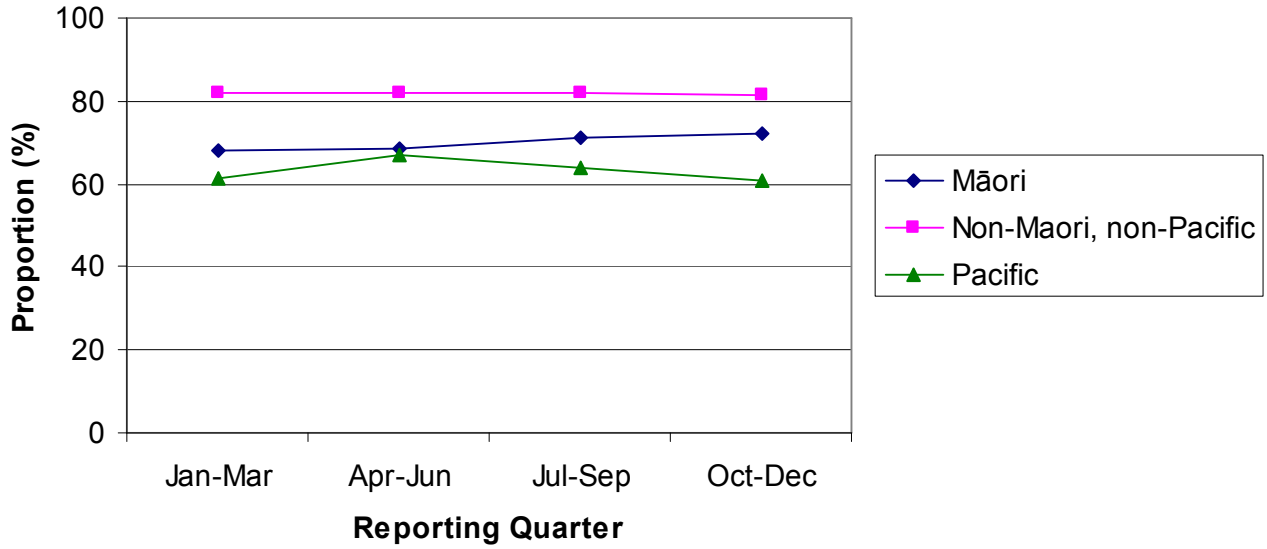
The follow-up of women with high grade cytology results by NCSP Region is shown in Table 32. The proportion of women in each Region who had a high grade smear result with a subsequent histology specimen taken within 12 weeks varied amongst the Regions. Tairawhiti consistently reported relatively high proportions (above 84%) for each quarter. The greatest decline over the reporting year in the proportion of women who had a histology specimen taken within 12 weeks of a high grade smear was reported in the Bay of Plenty Region (from 77.5% to 73.1%). The greatest improvement over the reporting year was reported in the West Coast Region (from 78.3% to 89.7%). The target of 90% was met once: the West Coast Region in the July to September 2004 reporting quarter.

For all NCSP Regions, the proportion of women in each Region who had a high grade smear result with a subsequent histology specimen taken within 52 weeks was 90% or more (Table 32). The target of 99% was met once: the West Coast Region in the July to September 2004 reporting quarter.

Overall, the proportion of women who did not have a histology result recorded on the NCSP Register following their high grade smear changed little over the four reporting periods, from 6.1% in the January to March reporting quarter to 5.9% in the October to December reporting quarter (Table 32). The greatest change over the 2004 period was reported by the Waikato Region, where the proportion of women with no histology result recorded following a high grade smear increased from 4.3% to 7.3%. 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

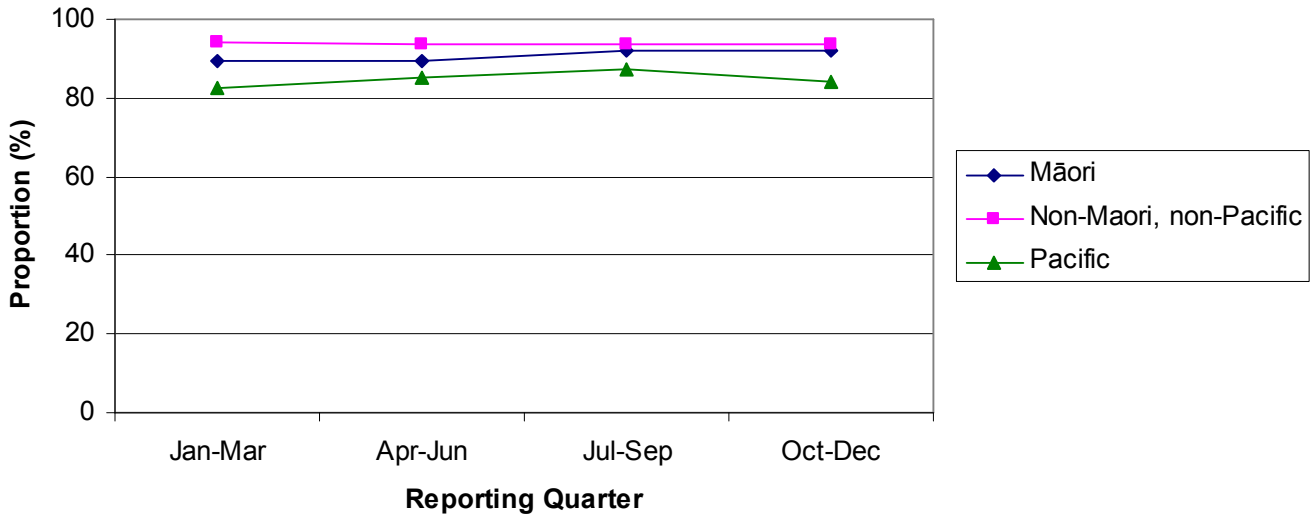
Auckland (8.4%, 8.4%, 8.0% and 8.4% per reporting quarter), and least common in Northland (3.8%, 4.2%, 1.7%, 2.2% per reporting quarter, Table 32).

Figure 5: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting quarter, 2004



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

Figure 6: The proportion of women with a histology report within 52 weeks of a high grade cytology result by ethnicity and reporting quarter, 2004



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

Table 26: The proportion of women with a histology report within 12 weeks of a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	67.9	68.4	71.2	72.1
Pacific	61.6	67.1	64.1	61.0
Non-Māori, non-Pacific	81.8	81.9	81.8	81.5
Total	**79.1**	**79.4**	**79.7**	**79.4**

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

Table 27: The proportion of women with a histology report in 13–26 weeks after a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	15.0	14.1	14.5	13.9
Pacific	15.2	12.8	15.5	14.4
Non-Māori, non-Pacific	8.5	8.5	8.4	8.7
Total	**9.7**	**9.5**	**9.6**	**9.6**

Table 28: The proportion of women with a histology report in 27–52 weeks after a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	6.7	7.1	6.2	6.1
Pacific	5.8	5.4	7.8	8.9
Non-Māori, non-Pacific	3.7	3.1	3.4	3.3
Total	**4.2**	**3.8**	**3.9**	**3.9**

Table 29: The proportion of women with a histology report within 52 weeks of a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	89.6	89.7	92.0	92.0
Pacific	82.6	85.2	87.3	84.2
Non-Māori, non-Pacific	94.0	93.5	93.6	93.5
Total	**93.0**	**92.6**	**93.2**	**93.0**

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

Table 30: The proportion of women with a histology report later than 52 weeks after a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	1.8	2.3	1.8	1.9
Pacific	3.6	2.0	3.5	2.7
Non-Māori, non-Pacific	0.6	1.0	1.0	1.0
Total	**0.9**	**1.2**	**1.2**	**1.2**

Table 31: The proportion of women with no histology report following a high grade cytology result by ethnicity and reporting quarter, 2004

Ethnic group	Time period			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%
Māori	8.6	8.1	6.2	6.1
Pacific	13.8	12.8	9.2	13.0
Non-Māori, non-Pacific	5.3	5.6	5.4	5.6
Total	**6.1**	**6.2**	**5.7**	**5.9**

Table 32: The proportion of women with a histology report within 12 weeks and within 52 weeks of a high grade cytology result by NCSP Region and reporting quarter, 2004

NCSP Region	Time periods											
	Within 12 weeks[1]				Within 52 weeks[2]				No Histology			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
	%	%	%	%	%	%	%	%	%	%	%	%
Auckland	76.2	76.9	76.2	74.9	90.3	90.1	90.7	90.1	8.4	8.4	8.0	8.4
Bay of Plenty	77.5	75.7	74.5	73.1	95.1	95.0	94.0	94.3	4.1	4.1	4.1	4.5
Canterbury	81.7	82.1	84.9	83.8	91.4	91.1	92.6	92.6	8.1	7.8	6.1	6.5
Hawke's Bay	82.0	81.2	82.8	83.7	96.8	96.9	97.2	95.1	3.2	3.1	2.8	3.5
Manawatu/Whanganui	83.2	85.1	83.1	84.3	94.8	94.6	93.4	93.8	4.9	4.6	5.8	5.4
Nelson/Marlborough	73.7	76.7	78.5	80.9	96.4	95.2	94.0	96.1	2.9	3.4	4.0	3.3
Northland	78.8	78.4	80.4	82.3	94.4	92.8	94.2	94.6	3.8	4.2	1.7	2.2
Otago/Southland	84.4	83.3	83.2	85.3	94.6	94.7	95.2	96.1	4.7	4.7	4.1	3.2
Tairawhiti	84.2	85.4	89.1	86.2	92.1	92.7	93.5	93.1	5.3	4.9	4.4	5.2
Taranaki	79.8	82.9	83.2	80.2	91.9	94.9	96.2	93.1	7.3	4.3	3.8	6.0
Waikato	79.3	79.3	78.4	77.2	94.6	91.6	92.4	91.5	4.3	6.9	6.1	7.3
Wellington	78.3	78.7	79.2	80.5	94.7	94.7	95.5	96.0	4.7	4.3	4.2	3.8
West Coast	78.3	81.0	95.8	89.7	95.7	95.2	100.0	96.6	4.4	4.8	0.0	3.5
Total	**79.1**	**79.4**	**79.7**	**79.4**	**93.0**	**92.6**	**93.2**	**93.0**	**6.1**	**6.2**	**5.7**	**5.9**

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

7. Cytology reporting

Definition

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

The Bethesda 1998 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 3). For the purposes of this report the most serious diagnosis code for each smear was used and then assigned to a broad cytological category. Where the results are presented per woman, 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 are:

(a) Negative for dysplasia or malignancy

(b) Abnormal not otherwise specified

(c) Atypical squamous cells of undetermined significance (ASCUS), excluding ASCUS, cannot exclude high grade (ASC-H)

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

(e) Atypical glandular cells of undetermined significance (AGUS) favouring a reactive process

(f) Atypical glandular cells of undetermined significance (AGUS) favouring a dysplastic or neoplastic process

(g) ASCUS, cannot exclude high grade (ASC-H)

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

(i) Adenocarcinoma-in-situ (AIS)

(j) Adenocarcinoma

(k) Cancer not otherwise specified

(l) 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 and satisfactory but limited smears taken during the reporting period (1 January 2004 to 31 December 2004) 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 3). Similarly where a woman had more than one satisfactory or satisfactory but limited 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 2004) 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.

These smears in each cytological category were expressed in a variety of ways, each for the number of smears taken during the reporting period, and for the number of women that were screened during the reporting period.

Results

Between 1 January 2004 and 31 December 2004, 380,826 women of all ages had a satisfactory or satisfactory but limited smear result recorded on the NCSP Register (Table 33). Of these women, 367,269 were aged between 20 and 69 years (Table 34). For women of all ages there were results for 403,859 satisfactory or satisfactory but limited smears recorded on the NCSP Register (Table 35). For 20 to 69 year old women there were results for 389,153 satisfactory or satisfactory but limited smears (Table 36). The number of women with smears in each cytological result category are shown by five-year age group in Table 33.

Age-specific and age-standardised (to Segi's world population) smear reporting rates for cytological result categories are shown in Table 34. In this table each woman is included only once, whether or not she had more than one satisfactory or satisfactory

but limited smear. The age-standardised reporting rate for 20 to 69 year old women with a smear reported as negative for dysplasia or malignancy was 929.2 per 1,000 women screened. The most frequently reported cytological abnormalities were ASCUS and LSIL. The ASCUS and LSIL age-standardised rates for 20 to 69 year old women were similar, 26.4 per 1,000 women and 28.4 per 1,000 women, respectively. The age-standardised ASC-H cytology rate for 20 to 69 year old women was 6.0 per 1,000 women, and the age-standardised HSIL rate for 20 to 69 year old women was 8.8 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.

Table 35 shows the number of smears in each cytological category by five-year age group. In this table women with more than one satisfactory or satisfactory but limited smear are counted more than once. Table 36 shows age-specific and age-standardised (to Segi's world population) smear reporting rates for each cytological category, calculated from the number of smears taken.

The age-standardised reported smear results per 1,000 women aged 20 to 69 years by NCSP Region are shown in Table 37. The age-standardised rates varied amongst the Regions for the different cytological categories, particularly for ASCUS. The age-standardised ASCUS cytology rate ranged from 6.7 per 1,000 women in Northland to 63.7 per 1,000 women in the Bay of Plenty. The age-standardised HSIL cytology rate ranged from 5.9 per 1,000 women in Nelson/Marlborough to 15.3 per 1,000 women in Tairawhiti. Tairawhiti had the highest age-standardised ISCC cytology rate (1.0 per 1,000 women). No cases of ISCC were reported in Bay of Plenty, Hawke's Bay, Nelson/Marlborough, Northland, Taranaki or Waikato. Similar patterns were seen in the age-standardised reported smear results per 1,000 smears in women aged 20 to 69 years by NCSP Region (Table 38).

The number of women with satisfactory or satisfactory but limited 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 39 and Table 40. There were lower rates of ASCUS cytology reporting in non-Māori, non-Pacific women (25.9 per 1,000 women screened) compared with Māori and Pacific women (29.8 and 28.3 per 1,000 women, respectively). Pacific women had lower rates of LSIL cytology (23.8 per 1,000 women

screened) than non-Māori, non-Pacific women and Māori women (27.9 and 33.6 per 1,000 women, respectively). Māori women (13.7 per 1,000 women) had the highest HSIL cytology reporting rates compared with non-Māori, non-Pacific women and Pacific women (8.3 and 8.6 per 1,000 women, respectively). ISCC cytology reporting rates were also higher amongst Māori women (0.2 per 1,000 women) compared with non-Māori, non-Pacific women and Pacific women (0.1 and 0.1 per 1,000 women, respectively).

Table 41 shows the number of smears reported in each cytological category for women aged 20 to 69 years by ethnicity. In this table women with more than one satisfactory or satisfactory but limited smear are counted more than once. Table 42 shows the age-standardised smear results per 1,000 smears for women aged 20 to 69 years for each ethnic group.

Table 33: Number of women with reported smear results by cytological category and 5-year age group, 2004

Category of cytology result	Age group (years)														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	7,047	33,705	36,103	46,215	47,467	48,450	40,638	32,481	26,584	18,074	12,881	3,347	841	345	100	354,278
Abnormal, NOS	0	0	0	0	0	1	0	0	1	0	3	1	1	1	0	8
ASCUS	433	1,863	1,394	1,394	1,228	1,211	1,003	651	401	199	147	40	17	6	5	9,992
LSIL	1,027	3,327	1,874	1,347	970	799	531	347	169	90	69	25	10	3	0	10,588
AGUS - favour reactive	2	12	16	37	45	48	48	39	16	12	2	5	1	2	0	285
AGUS - favour dysplasia	0	1	4	6	8	6	6	9	7	3	2	0	2	3	0	57
ASC-H	94	446	384	357	257	217	157	123	77	63	29	10	6	0	2	2,222
HSIL	131	727	714	587	406	283	178	79	38	33	28	15	3	2	2	3,226
AIS	0	6	8	15	15	12	4	8	2	0	1	0	0	0	0	71
Adenocarcinoma, NOS	0	1	0	3	0	2	1	9	6	8	7	3	10	1	1	52
Cancer, NOS	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	3
ISCC	0	1	0	4	1	3	4	7	2	8	1	4	3	3	3	44
Total number of women	8,734	40,089	40,497	49,965	50,398	51,032	42,571	33,753	27,303	18,490	13,171	3,450	894	366	113	380,826

NOS: not otherwise specified

Table 34: Proportion of women (per 1,000) with reported smear results by cytological category and 5-year age group, 2004

ategory of cytology result	Age group (years)														Total crude rate (<20–85+ years)	Total crude rate (20–69 years)	Total age standard·ised 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			
egative for dysplasia r malignancy	806.8	840.8	891.5	924.9	941.8	949.4	954.6	962.3	973.7	977.5	978.0	970.1	940.7	942.6	0	930.3	932.8	929.2
bnormal, NOS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.1	2.7	0.0	0.0	0.0	0.0
SCUS	49.6	46.5	34.4	27.9	24.4	23.7	23.6	19.3	14.7	10.8	11.2	11.6	19.0	16.4	44.2	26.2	25.8	26.4
SIL	117.6	83.0	46.3	27.0	19.2	15.7	12.5	10.3	6.2	4.9	5.2	7.2	11.2	8.2	0.0	27.8	25.9	28.4
GUS - favour eactive	0.2	0.3	0.4	0.7	0.9	0.9	1.1	1.2	0.6	0.6	0.2	1.4	1.1	5.5	0.0	0.7	0.7	0.7
GUS - favour ysplasia	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.0	2.2	8.2	0.0	0.1	0.1	0.1
SC-H	10.8	11.1	9.5	7.1	5.1	4.3	3.7	3.6	2.8	3.4	2.2	2.9	6.7	0.0	17.7	5.8	5.7	6.0
SIL	15.0	18.1	17.6	11.7	8.1	5.5	4.2	2.3	1.4	1.8	2.1	4.3	3.4	5.5	17.7	8.5	8.4	8.8
IS	0.0	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2
denocarcinoma, OS	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.2	0.4	0.5	0.9	11.2	2.7	8.8	0.1	0.1	0.1
ancer, NOS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCC	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.4	0.1	1.2	3.4	8.2	26.5	0.1	0.1	0.1
otal number of omen	8,734	40,089	40,497	49,965	50,398	51,032	42,571	33,753	27,303	18,490	13,171	3,450	894	366	113	380,826	367,269	

Table 35: Number of reported smear results by cytological category and 5-year age group (calculated by smear), 2004

Category of cytology result	Age group (years)														
	<20	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	≥85	Total
Negative for dysplasia or malignancy	7,571	36,334	38,631	48,944	49,849	50,602	42,416	33,749	27,549	18,684	13,310	3,523	944	402	114	372,622
Abnormal, NOS	0	0	0	1	3	1	0	0	1	1	3	1	1	1	0	13
ASCUS	523	2,297	1,700	1,646	1,443	1,415	1,155	765	464	243	175	47	22	6	5	11,906
LSIL	1,153	3,903	2,196	1,601	1,156	952	612	407	214	111	81	28	12	3	0	12,429
AGUS - favour reactive	2	13	20	40	47	52	52	45	18	14	4	5	1	2	0	315
AGUS - favour dysplasia	0	2	4	6	11	7	6	9	8	3	3	1	3	3	0	66
ASC-H	114	548	464	421	315	262	186	141	87	73	34	12	6	0	3	2,666
HSIL	141	799	803	687	463	316	204	93	44	40	37	19	3	3	3	3,655
AIS	0	6	9	16	16	15	5	9	2	0	1	0	0	0	0	79
Adenocarcinoma	0	1	0	4	0	2	1	12	6	8	8	3	10	1	1	57
Cancer, NOS	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	3
ISCC	0	1	0	4	2	3	5	7	2	9	1	4	3	3	4	48
Total number of smears	9,504	43,904	43,827	53,370	53,306	53,627	44,643	35,237	28,395	19,186	13,658	3,643	1,005	424	130	403,859

Note: this is the total number of smears and therefore each woman may have more than one smear recorded here

Table 36: Proportion of smears (per 1,000) reported in each cytological category and 5-year age group, 2004

Category of cytology result	Age group (years)															Total crude rate (<20–85+ years)	**Total crude rate (20–69 years)**	**Total age standard-ised 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	796.6	**827.6**	**881.4**	**917.1**	**935.1**	**943.6**	**950.1**	**957.8**	**970.2**	**973.8**	**974.5**	967.1	939.3	948.1	876.9	922.7	**925.3**	**922.1**
Abnormal, NOS	0.0	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.2**	0.3	1.0	2.4	0.0	0.0	**0.0**	**0.0**
ASCUS	55.0	**52.3**	**38.8**	**30.8**	**27.1**	**26.4**	**25.9**	**21.7**	**16.3**	**12.7**	**12.8**	12.9	21.9	14.2	38.5	29.5	**29.0**	**29.5**
LSIL	121.3	**88.9**	**50.1**	**30.0**	**21.7**	**17.8**	**13.7**	**11.6**	**7.5**	**5.8**	**5.9**	7.7	11.9	7.1	0.0	30.8	**28.9**	**31.1**
AGUS - favour reactive	0.2	**0.3**	**0.5**	**0.7**	**0.9**	**1.0**	**1.2**	**1.3**	**0.6**	**0.7**	**0.3**	1.4	1.0	4.7	0.0	0.8	**0.8**	**0.7**
AGUS - favour dysplasia	0.0	**0.0**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.3**	**0.3**	**0.2**	**0.2**	0.3	3.0	7.1	0.0	0.2	**0.2**	**0.1**
ASC-H	12.0	**12.5**	**10.6**	**7.9**	**5.9**	**4.9**	**4.2**	**4.0**	**3.1**	**3.8**	**2.5**	3.3	6.0	0.0	23.1	6.6	**6.5**	**6.7**
HSIL	14.8	**18.2**	**18.3**	**12.9**	**8.7**	**5.9**	**4.6**	**2.6**	**1.5**	**2.1**	**2.7**	5.2	3.0	7.1	23.1	9.1	**9.0**	**9.3**
AIS	0.0	**0.1**	**0.2**	**0.3**	**0.3**	**0.3**	**0.1**	**0.3**	**0.1**	**0.0**	**0.1**	0.0	0.0	0.0	0.0	0.2	**0.2**	**0.2**
Adenocarcinoma	0.0	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.3**	**0.2**	**0.4**	**0.6**	0.8	10.0	2.4	7.7	0.1	**0.1**	**0.1**
Cancer,NOS	0.0	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**
ISCC	0.0	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**	**0.1**	**0.2**	**0.1**	**0.5**	**0.1**	1.1	3.0	7.1	30.8	0.1	**0.1**	**0.1**
Total number of smears	9,504	**43,904**	**43,827**	**53,370**	**53,306**	**53,627**	**44,643**	**35,237**	**28,395**	**19,186**	**13,658**	3,643	1,005	424	130	403,859	**389,153**	

Note: this is the total number of smears and therefore each woman may have more than one smear recorded here

Table 37: Age-standardised reported smear results per 1,000 screened women aged 20–69 years by cytological category and NCSP Region, 2004

Category of cytology result	Age-standardised rates													Total crude rate	Total age standard-ised rate
	NCSP Region														
	Auckland	Bay of Plenty	Canter-bury	Hawke's Bay	Manawatu/ Whanganui	Nelson/ Marl-borough	North-land	Otago/ South-land	Taira-whiti	Taranaki	Waikato	Wellington	West Coast		
Negative for dysplasia or malignancy	936.3	877.2	937.8	925.8	905.7	921.9	944.1	945.4	931.9	937.3	924.1	931.4	932.3	932.8	929.2
Abnormal, NOS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCUS	25.5	63.7	24.4	14.3	23.9	36.5	6.7	7.8	10.6	15.8	26.9	29.7	29.0	25.8	26.4
LSIL	22.7	40.9	23.9	38.6	49.2	26.8	29.1	27.0	33.3	29.1	32.2	28.2	22.5	25.9	28.4
AGUS - favour reactive	0.5	1.9	0.8	0.8	0.9	0.6	0.6	0.2	1.1	0.5	0.8	0.7	0.9	0.7	0.7
AGUS - favour dysplasia	0.0	0.3	0.1	0.3	0.4	0.3	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1
ASC-H	6.6	7.7	6.2	6.4	7.2	7.6	4.2	5.3	6.8	3.4	6.5	3.2	8.4	5.7	6.0
HSIL	8.0	7.9	6.4	13.0	12.3	5.9	14.8	13.7	15.3	13.5	9.0	6.3	6.4	8.4	8.8
AIS	0.1	0.2	0.2	0.8	0.1	0.1	0.1	0.1	0.0	0.5	0.1	0.2	0.0	0.2	0.2
Adenocarcinoma, NOS	0.1	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1
Cancer, NOS	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ISCC	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.1	1.0	0.0	0.0	0.1	0.5	0.1	0.1
Total number of women	120,108	27,668	47,537	12,567	18,989	11,853	12,139	26,692	3,881	10,709	27,782	44,678	2,666	367,269	

Table 38: Age-standardised reported smear results per 1,000 smears from women aged 20–69 years by cytological category and NCSP Region, 2004

Category of cytology result	Age-standardised rates													Total crude rate	Total age standard-ised rate
	NCSP Region														
	Auckland	Bay of Plenty	Canterbury	Hawke's Bay	Manawatu/ Whanganui	Nelson/Marl-borough	Northland	Otago/ Southland	Tairawhiti	Taranaki	Waikato	Wellington	West Coast		
Negative for dysplasia or malignancy	928.4	872.5	930.9	916.0	895.6	917.3	936.5	941.7	915.7	933.6	913.1	927.3	919.7	925.3	922.1
Abnormal, NOS	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCUS	29.2	67.1	28.0	15.7	26.6	39.2	8.7	8.6	15.1	17.7	31.5	32.4	34.2	29.0	29.5
LSIL	25.2	42.3	26.2	43.4	54.5	28.7	32.1	29.4	37.6	30.9	36.8	29.4	27.7	28.9	31.1
AGUS - favour reactive	0.5	1.9	0.8	1.0	0.9	0.6	0.7	0.2	1.0	0.5	0.9	0.7	0.8	0.8	0.7
AGUS - favour dysplasia	0.1	0.3	0.1	0.3	0.4	0.3	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.2	0.1
ASC-H	7.7	7.8	6.7	7.4	8.4	7.7	5.4	5.6	10.8	3.3	7.4	3.2	9.6	6.5	6.7
HSIL	8.6	7.7	6.8	15.2	12.9	5.6	16.1	13.8	18.2	13.4	9.6	6.4	7.5	9.0	9.3
AIS	0.1	0.2	0.2	0.8	0.1	0.1	0.1	0.1	0.0	0.4	0.1	0.2	0.0	0.2	0.2
Adeno-carcinoma, NOS	0.1	0.2	0.1	0.1	0.2	0.4	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1
Cancer, NOS	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ISCC	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.1	1.5	0.0	0.0	0.1	0.4	0.1	0.1
Total number of smears	127,977	29,403	50,588	13,235	20,096	12,389	12,762	28,037	4,219	11,250	29,523	46,855	2,819	389,153	

Note: this table includes the total number of smears and therefore each woman may have more than one smear recorded here

Table 39: Number of women aged 20–69 years with reported smear results by cytological category and ethnicity, 2004

Category of cytology result	Ethnic group			Total
	Māori	Pacific	Non-Māori, non-Pacific	
Negative for dysplasia or malignancy	29,850	10,881	301,867	342,598
Abnormal, NOS	1	0	4	5
ASCUS	1,072	346	8,073	9,491
LSIL	1,257	292	7,974	9,523
AGUS - favour reactive	36	6	233	275
AGUS - favour dysplasia	7	3	42	52
ASC-H	273	54	1,783	2,110
HSIL	501	104	2,468	3,073
AIS	4	1	66	71
Adenocarcinoma, NOS	7	3	27	37
Cancer, NOS	1	0	2	3
ISCC	6	1	24	31
Total number of women	33,015	11,691	322,563	367,269

Table 40: Age-standardised reported smear results per 1,000 screened women aged 20–69 years by ethnicity, 2004

Category of cytology result	Ethnic group			Total age-standardised rate (20–69 years)
	Māori	Pacific	Non-Māori, non-Pacific	
Negative for dysplasia or malignancy	913.0	933.3	930.8	929.2
Abnormal, NOS	0.0	0.0	0.0	0.0
ASCUS	29.8	28.3	25.9	26.4
LSIL	33.6	23.8	27.9	28.4
AGUS - favour reactive	1.1	0.7	0.7	0.7
AGUS - favour dysplasia	0.2	0.4	0.1	0.1
ASC-H	7.8	4.3	5.9	6.0
HSIL	13.7	8.6	8.3	8.8
AIS	0.1	0.1	0.2	0.2
Adenocarcinoma, endocervical NOS	0.4	0.5	0.1	0.1
Cancer, NOS	0.0	0.0	0.0	0.0
ISCC	0.2	0.1	0.1	0.1
Total number of women	33,015	11,691	322,563	367,269

Table 41: Number of reported smear results from women aged 20–69 years by cytological category and ethnicity, 2004

Category of cytology result	Ethnic group			Total
	Māori	Pacific	Non-Māori, non-Pacific	
Negative for dysplasia or malignancy	31,459	11,384	317,225	360,068
Abnormal, NOS	2	0	8	10
ASCUS	1,244	385	9,674	11,303
LSIL	1,464	326	9,443	11,233
AGUS - favour reactive	41	6	258	305
AGUS - favour dysplasia	8	4	47	59
ASC-H	341	71	2,119	2,531
HSIL	575	117	2,794	3,486
AIS	4	1	74	79
Adenocarcinoma, NOS	9	4	29	42
Cancer, NOS	1	0	2	3
ISCC	8	1	25	34
Total number of smears	35,156	12,299	341,698	389,153

Note: this table includes the total number of smears and therefore each woman may have more than one smear recorded here

Table 42: Age-standardised reported smear results per 1,000 smears from women aged 20–69 years by ethnicity, 2004

Category of cytology result	Age-standardised rates			Total crude rate	Total age-standardised rate
	Ethnic group				
	Māori	Pacific	Non-Māori, non-Pacific		
Negative for dysplasia or malignancy	905.1	928.3	923.7	925.3	922.1
Abnormal, NOS	0.1	0.0	0.0	0.0	0.0
ASCUS	32.4	30.1	29.2	29.0	29.5
LSIL	36.3	25.0	30.7	28.9	31.1
AGUS - favour reactive	1.2	0.7	0.7	0.8	0.7
AGUS - favour dysplasia	0.2	0.6	0.1	0.2	0.1
ASC-H	9.2	5.4	6.5	6.5	6.7
HSIL	14.7	9.1	8.7	9.0	9.3
AIS	0.1	0.1	0.2	0.2	0.2
Adenocarcinoma, endocervical, NOS	0.4	0.7	0.1	0.1	0.1
Cancer, NOS	0.0	0.0	0.0	0.0	0.0
ISCC	0.3	0.1	0.1	0.1	0.1
Total number of smears	35,156	12,299	341,698	389,153	

Note: this table includes the total number of smears and therefore each woman may have more than one smear recorded here

8. 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 4). 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 are:

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 2004 to 31 December 2004) 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 4). Each woman's age was calculated at the end of the reporting period (31 December 2004). 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 2004) 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 for 20 to 69 year old women.

Results

Between 1 January 2004 and 31 December 2004, 28,367 histology samples were recorded on the NCSP Register. Of these, 615 were recorded as unsatisfactory, and were not included in subsequent analyses. The remaining 27,752 specimens were taken from 22,232 women. Ten women died prior to 30 June 2004, and were therefore excluded from subsequent analyses.

The number and proportion of women in each histology result category by ethnicity are shown in Table 43. A total of 69 women (10 Māori, six Pacific, 53 non-Māori, non-Pacific) were diagnosed with ISCC, and 60 women (seven Māori, three Pacific, 50 non-Māori, non-Pacific) were diagnosed with invasive adenocarcinoma of the cervix. In the

total population, 50% of the histology specimens were classified as “normal” or “other non-neoplastic” (see Table 43), but this proportion was lower for Māori (41.7%) and Pacific (43.6%) women, reflecting the higher proportion of abnormalities for these groups of women. Proportions of both LSIL and HSIL were higher in Māori compared to non-Māori, non-Pacific women.

The number and proportion of women in each histology result category by 5-year age group are shown in Table 44. Nineteen of the cases of ISCC and 16 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 45. These results show particularly high rates of LSIL, HSIL and atypia/HPV in younger women, with peaks in women aged 20 to 29 years, and lower rates in older women, see Figure 7. Conversely, rates of invasive adenocarcinoma of the cervix and ISCC rose steadily with age.

Age-specific atypia/HPV, LSIL and HSIL population rates by ethnic group are shown in Figure 8 to Figure 10. In all 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. The results should not be interpreted as truly lower rates of these abnormalities in Māori and Pacific women compared to non-Māori, non-Pacific women.

Age-standardised histology reporting rates by ethnic group are shown in Table 46. 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 above, this should not be interpreted as truly lower rates of these abnormalities in Māori and Pacific women compared to non-Māori, non-Pacific women, 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 34 years in Wellington to 42 years in Hawke's Bay. Therefore, Regional histology rates were standardised to the Segi world population, as shown in Table 47. Regional differences in histology reporting rates were evident. These are shown in graphical form in Figure 11 to Figure 13 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.

Table 43: Number and proportion of women (of all ages) with histology specimens taken during 2004, by ethnicity

Histology result category	Māori women		Pacific women		Non-Māori, non-Pacific women		All women	
	n	%	n	%	n	%	n	%
Normal	508	21.2	119	24.0	5,249	27.2	5,876	26.4
Other non-neoplastic	490	20.5	97	19.6	4,666	24.1	5,253	23.6
Polyp	115	4.8	35	7.1	1,577	8.2	1,727	7.8
Atypia/HPV	405	16.9	87	17.5	2,732	14.1	3,224	14.5
CIN not otherwise specified	11	0.5	8	1.6	100	0.5	119	0.5
LSIL	401	16.8	69	13.9	2,477	12.8	2,947	13.3
HSIL	436	18.2	70	14.1	2,346	12.1	2,852	12.8
AIS	2	0.1	0	0.0	50	0.3	52	0.2
Other primary cervical cancer	0	0.0	1	0.2	12	0.1	13	0.1
Metastatic (non-cervical) tumour	5	0.2	1	0.2	16	0.1	22	0.1
Invasive adenocarcinoma	7	0.3	3	0.6	50	0.3	60	0.3
Adenosquamous carcinoma	2	0.1	0	0.0	1	0.0	3	0.0
Microinvasive squamous carcinoma	0	0.0	0	0.0	5	0.0	5	0.0
ISCC	10	0.4	6	1.2	53	0.3	69	0.3
Total	**2,392**	**100**	**496**	**100**	**19,334**	**100**	**22,222**	**100**

Table 44: Number and proportion of women with histology specimens taken during 2004 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	55	12.6	400	13.3	444	15.4	571	20.6	676	26.0	1,088	35.0	1,056	37.3	621	33.7	333	30.8	226	35.2	179	40.0	227	40.1
Other non-neoplastic	56	12.8	419	13.9	480	16.7	564	20.3	657	25.3	827	26.6	808	28.6	565	30.7	339	31.3	200	31.1	136	30.4	202	35.7
Polyp	2	0.5	15	0.5	31	1.1	76	2.7	135	5.2	301	9.7	372	13.2	349	19.0	229	21.1	111	17.3	59	13.2	47	8.3
Atypia/HPV	90	20.6	655	21.7	604	21.0	491	17.7	419	16.1	401	12.9	261	9.2	149	8.1	87	8.0	35	5.4	22	4.9	10	1.8
CIN, NOS	6	1.4	28	0.9	22	0.8	22	0.8	10	0.4	6	0.2	11	0.4	5	0.3	2	0.2	5	0.8	2	0.5	0	0.0
LSIL	127	29.1	817	27.1	599	20.8	464	16.7	344	13.3	246	7.9	182	6.4	76	4.1	47	4.3	17	2.6	16	3.6	12	2.1
HSIL	98	22.5	673	22.3	686	23.8	570	20.5	340	13.1	224	7.2	126	4.5	57	3.1	22	2.0	22	3.4	17	3.8	17	3.0
AIS	2	0.5	3	0.1	8	0.3	9	0.3	10	0.4	7	0.2	3	0.1	3	0.2	3	0.3	0	0.0	2	0.5	2	0.4
Other primary cervical cancer	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.1	3	0.5	2	0.5	5	0.9
Metastatic (non-cervical) tumour	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	2	0.1	1	0.1	1	0.1	7	1.1	2	0.5	8	1.4
Invasive adenocarcinoma	0	0.0	1	0.0	1	0.0	5	0.2	1	0.0	3	0.1	1	0.0	8	0.4	8	0.7	8	1.2	8	1.8	16	2.8
Adenosquamous cancer	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.2	0	0.0	0	0.0
Microinvasive squamous cancer	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
ISCC	0	0.0	0	0.0	2	0.1	2	0.1	3	0.1	8	0.3	6	0.2	7	0.4	11	1.0	8	1.2	3	0.7	19	3.4
Total	436	100	3,013	100	2,877	100	2,776	100	2,597	100	3,112	100	2,829	100	1,842	100	1,083	100	643	100	448	100	566	100

Table 45: Age-specific histology reporting rates per 10,000 women aged 20–69 years in 2004

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	29.4	34.7	37.4	43.0	66.1	72.7	48.9	29.4	25.2	25.0
Other non-neoplastic	30.7	37.5	37.0	41.8	50.2	55.6	44.5	30.0	22.3	19.0
Polyp	1.1	2.4	5.0	8.6	18.3	25.6	27.5	20.2	12.4	8.3
Atypia/HPV	48.1	47.2	32.2	26.7	24.4	18.0	11.7	7.7	3.9	3.1
CIN, NOS	2.1	1.7	1.4	0.6	0.4	0.8	0.4	0.2	0.6	0.3
LSIL	60.0	46.8	30.4	21.9	14.9	12.5	6.0	4.2	1.9	2.3
HSIL	49.4	53.6	37.4	21.6	13.6	8.7	4.5	1.9	2.5	2.4
AIS	0.2	0.6	0.6	0.6	0.4	0.2	0.2	0.3	0.0	0.3
Other primary cervical cancer	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.3
Metastatic (non-cervical) tumour	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.8	0.3
Invasive adenocarcinoma	0.1	0.9	0.3	0.1	0.2	0.1	0.6	0.7	0.9	1.1
Adenosquamous cancer	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Microinvasive squamous cancer	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
ISCC	0.0	0.2	0.1	0.2	0.5	0.4	0.6	1.0	0.9	0.4

Figure 7: Age-specific histology reporting rates per 10,000 women aged 20–69 years by abnormality, 2004

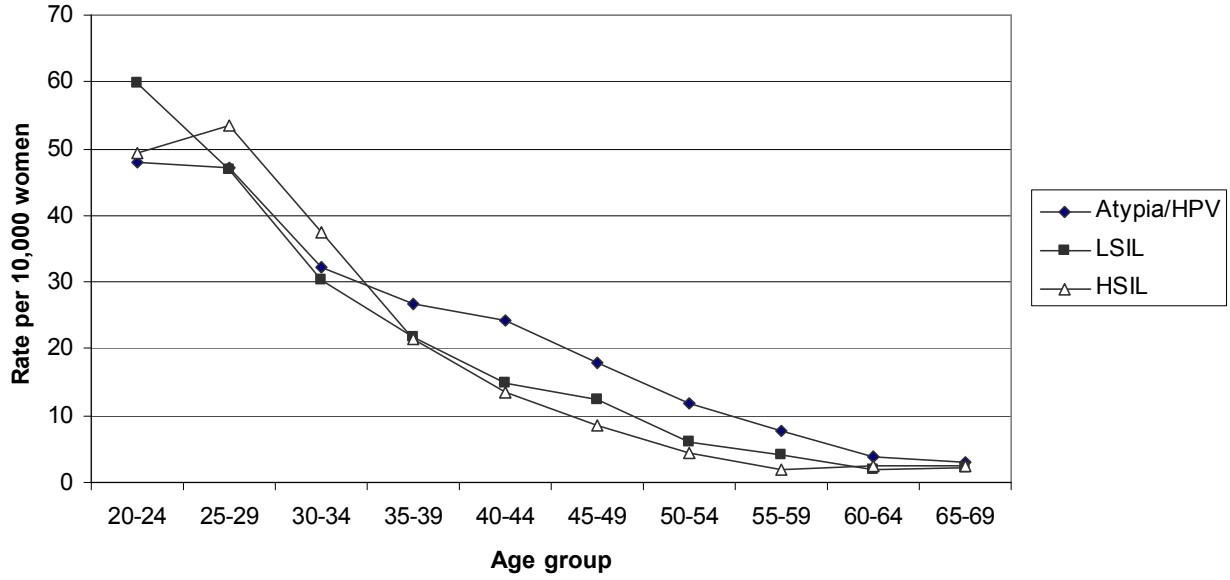


Figure 8: Age-specific Atypia/HPV histology reporting rates per 10,000 women aged 20–69 years by ethnicity, 2004

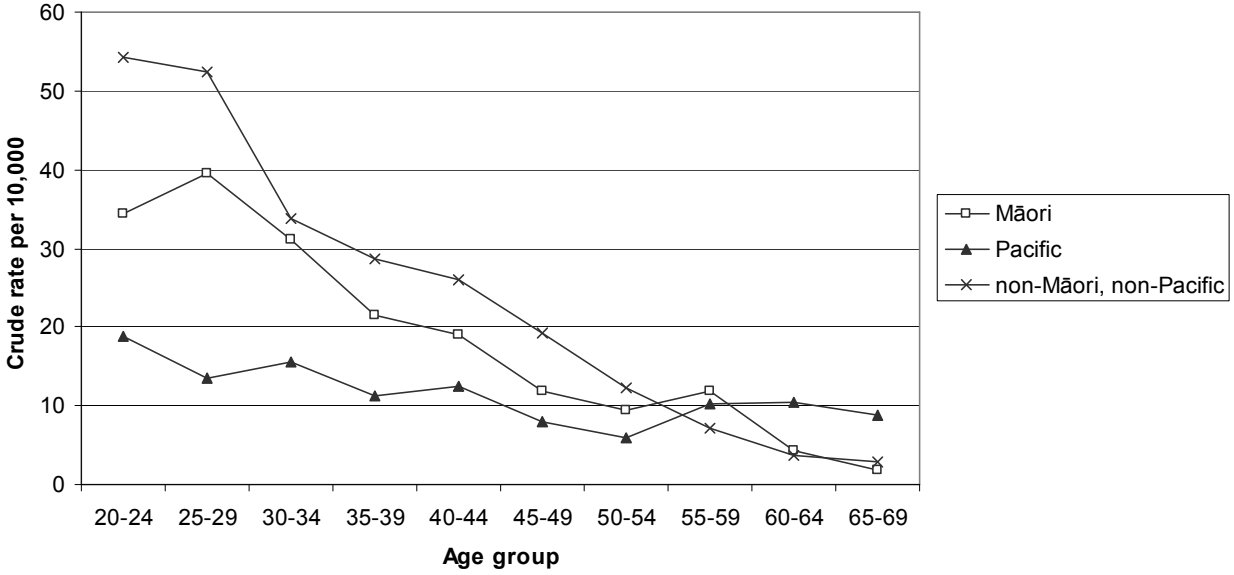


Figure 9: Age-specific LSIL histology reporting rates per 10,000 women aged 20–69 years by ethnicity, 2004

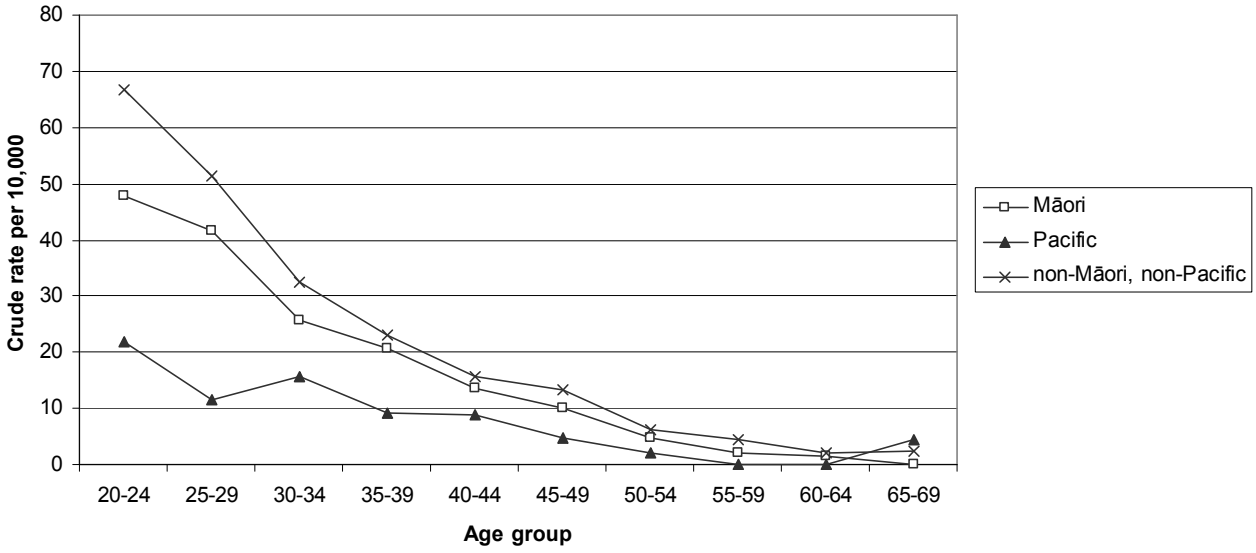


Figure 10: Age-specific HSIL histology reporting rates per 10,000 women aged 20–69 years by ethnicity, 2004

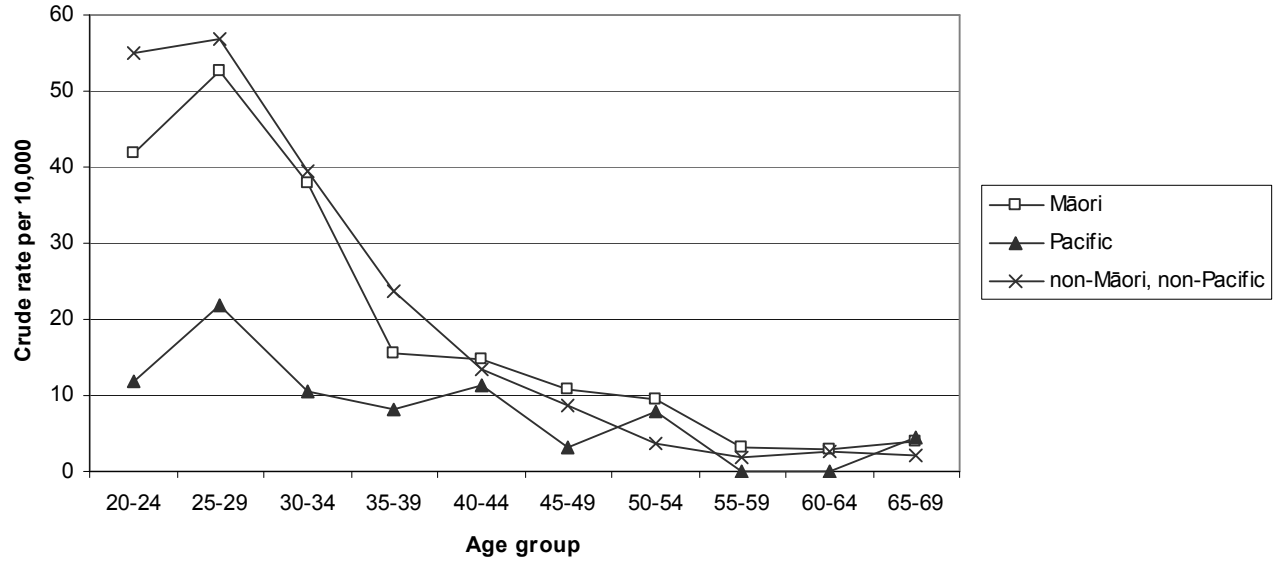


Table 46: Age-standardised histology rates per 10,000 women aged 20–69 years by ethnicity, 2004

Histology result category	Ethnic group			
	Māori women	Pacific women	Non-Māori, non-Pacific women	All women
Normal	28.4	17.4	46.2	42.2
Other non-neoplastic	28.0	13.6	41.8	38.3
Polyp	7.4	5.4	12.9	11.9
Atypia/HPV	21.6	12.2	28.8	26.5
CIN, NOS	0.7	1.1	1.0	1.0
LSIL	21.0	9.3	27.1	24.9
HSIL	23.5	9.3	25.9	24.3
Adenocarcinoma-in-situ	0.2	0.0	0.5	0.4
Other primary cervical cancer	0.0	0.0	0.1	0.1
Metastatic (non-cervical) tumour	0.3	0.0	0.1	0.1
Invasive adenocarcinoma	0.6	0.4	0.3	0.3
Adenosquamous cancer	0.2	0.4	0.0	0.0
Microinvasive squamous cancer	0.0	0.0	0.0	0.0
ISCC	0.5	1.0	0.3	0.4

Table 47: Age-standardised histology rates per 10,000 women aged 20–69 years by NCSP Region, 2004

Histology result category	NCSP Region												
	Auckland	Bay of Plenty	Canterbury	Hawke's Bay	Manawatu/ Whanganui	Nelson/ Marlborough	Northland	Otago/ Southland	Tairawhiti	Taranaki	Waikato	Wellington	West Coast
Normal	33.0	40.0	64.1	46.7	47.2	39.4	15.9	48.8	74.4	46.0	51.8	37.4	61.2
Other non-neoplastic	31.2	67.8	25.5	39.3	26.7	33.9	55.9	38.3	31.6	37.4	67.6	38.6	25.0
Polyp	12.2	13.1	14.2	7.0	13.1	19.0	14.0	11.1	11.2	14.4	4.9	10.2	14.3
Atypia/HPV	25.7	42.2	19.0	8.9	53.2	38.5	28.8	26.1	66.3	32.8	28.4	13.3	27.1
CIN NOS	1.0	1.2	1.6	*	0.3	*	1.5	0.4	*	4.8	0.3	1.3	*
LSIL	20.4	46.1	27.2	10.1	13.8	42.3	11.1	16.8	16.3	45.2	30.2	30.9	*
HSIL	18.3	35.4	25.7	38.0	31.4	29.4	31.6	40.0	36.1	26.8	16.2	20.1	34.5
AIS	0.3	0.1	0.6	1.4	0.1	0.8	0.5	0.2	*	0.9	0.1	0.5	28.3
Other primary cervical cancer	0.1	0.4	*	0.4	*	*	*	*	*	*	*	*	*
Metastatic (non-cervical) tumour	0.0	*	0.3	0.2	*	0.6	0.3	0.1	*	*	0.1	*	*
Invasive adenocarcinoma	0.3	0.5	0.2	0.7	0.6	0.2	0.5	*	*	0.5	0.1	0.6	*
Adenosquamous cancer	0.1	*	*	*	*	*	*	*	*	*	*	0.1	*
Microinvasive squamous cancer	0.0	*	*	0.2	*	*	0.2	*	*	*	*	*	*
ISCC	0.4	0.1	0.2	*	0.4	0.2	0.2	0.5	1.5	1.1	0.3	0.4	*

* Zero cases recorded

Figure 11: Age-standardised Atypia/HPV histology rates per 10,000 women aged 20–69 years by NCSP Region, 2004

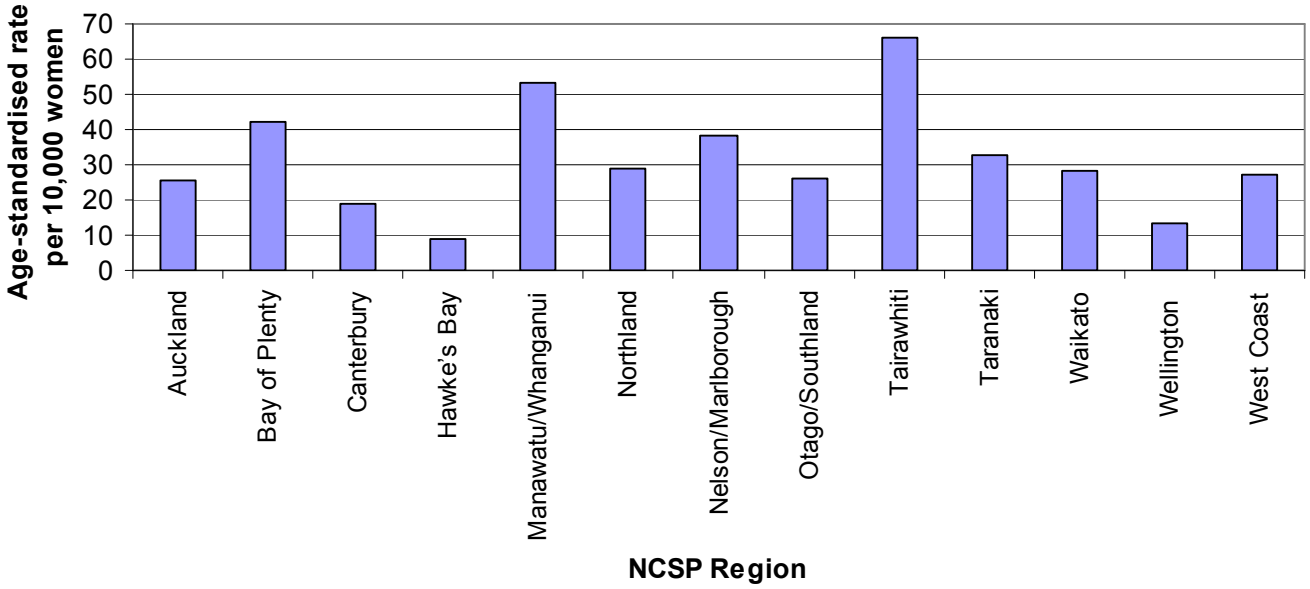


Figure 12: Age-standardised LSIL histology rates per 10,000 women aged 20–69 years by NCSP Region, 2004

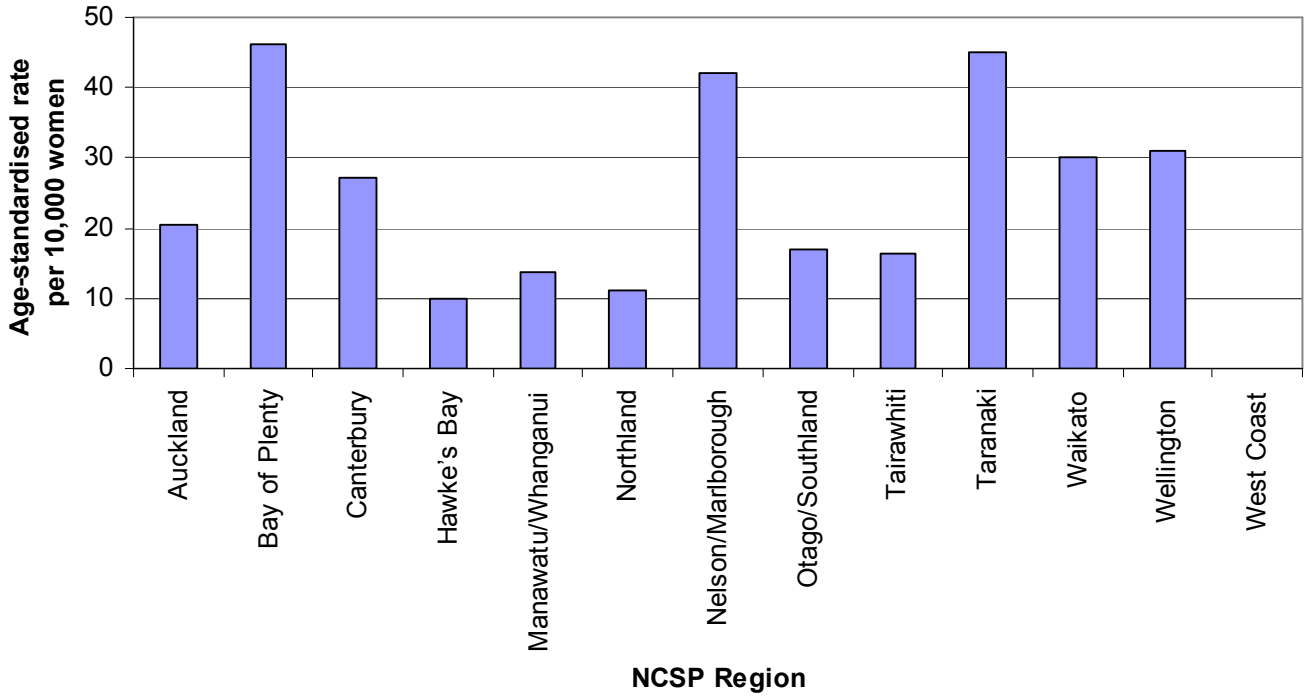
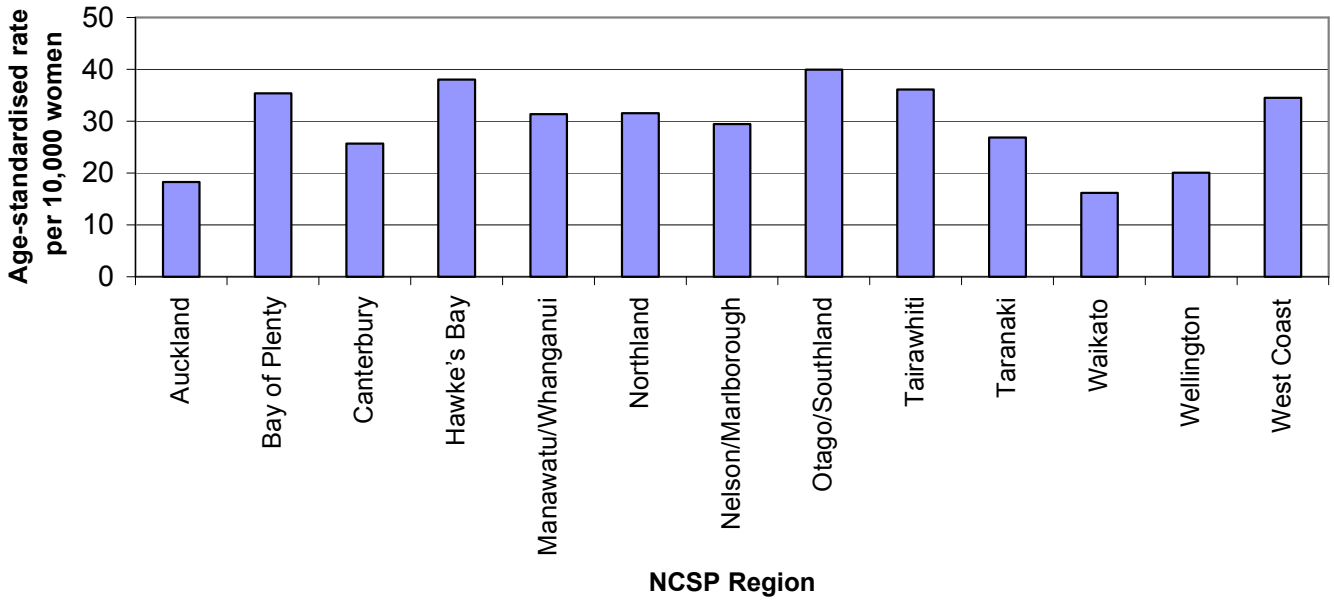


Figure 13: Age-standardised HSIL histology rates per 10,000 women aged 20–69 years by NCSP Region, 2004



9. Laboratory smear reporting

Definition

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

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

Targets

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

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

Calculation

Laboratory smear reporting was estimated for each reporting quarter in 2004. The Bethesda diagnosis codes, as recorded on the NCSP Register of satisfactory or satisfactory but limited smears taken during each reporting quarter (1 January to 31 March, 1 April to 30 June, 1 July to 30 September, and 1 October to 31 December 2004) 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 or satisfactory but limited 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 3). Total abnormalities included all smears with a diagnosis code of ASCUS or more serious abnormality (including glandular abnormalities) according to the hierarchy of broad

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

It should be noted that this indicator has been recalculated to allow for the change in definition of ASC-H/HSIL (*i.e.* the move of Bethesda code C3A2B7 to ASC-H) adopted by the IMG in 2006, so the results given here are not the same as those in Quarterly Monitoring Reports 14 to 17.

Results

The proportions of satisfactory and satisfactory but limited smears in broad cytological categories are shown by laboratory in Table 48. Table 49 shows these proportions by laboratory for each reporting quarter of 2004. Thirteen laboratories reported smears in the 2004 reporting period, however MedLab Taranaki ceased reporting in the April to June quarter, MedLab Hamilton ceased reporting in the July to September quarter, and PathLab Waikato ceased reporting at the end of 2004.

Overall, the results of 395,804 satisfactory or satisfactory but limited smears reported by laboratories were recorded on the NCSP Register during 2004. The two hospital-based laboratories, Auckland Hospital and Canterbury Health Laboratories, read fewer smears than the community-based laboratories, not including MedLab Taranaki and PathLab Waikato both of which ceased reporting during the year. Diagnostic MedLab Auckland read the greatest number of smears (123,244).

Of the 395,804 smears, 92.3% were reported as negative for dysplasia or malignancy (Table 48). This was within the target of not more than 96%. Each laboratory met the target except Valley Diagnostic Laboratory (96.9%). The proportion of smears reported as negative for dysplasia or malignancy was less for the hospital-based laboratories than the community-based laboratories.

For all laboratories combined, the proportion of smears reported as HSIL was 0.9%, which met the target of not less than 0.6%. Each laboratory met the target except MedLab Hamilton (0.5%), PathLab Waikato (0.4%), Southern Community Laboratories (SCL) Christchurch (0.5%), and Valley Diagnostic Laboratory (0.4%). Auckland Hospital Laboratory reported the highest proportion of smears as HSIL (4.0%).

Overall, the proportion of smears reported as abnormal was 7.7%, which did not exceed the target of 10%. Amongst the laboratories, both hospital-based laboratories reported more than 10% of smears as abnormal, however this includes hospital-based smears and Auckland Hospital Laboratory's non-hospital based smears were analysed during this reporting year (at the request of the IMG) and were found to be meeting the total abnormalities target. Three community-based laboratories reported more than 10% of smears as abnormal: MedLab Bay of Plenty (12.7%), MedLab Central (10.3%), and MedLab Taranaki (12.2%).

Table 48: The proportion of satisfactory and satisfactory but limited smears in broad cytological categories by laboratory, 2004

Laboratory	Negative for dysplasia or malignancy[1]	ASCUS	ASC-H	LSIL	HSIL[2]	Total abnormalities[3]	Total number of smears
Auckland Hospital Lab.	76.4	7.9	2.1	9.3	4.0	23.6	12,075
Canterbury Health Lab.	87.0	4.9	1.1	5.3	1.4	13.0	9,590
Diagnostic MedLab Auckland	93.7	2.8	0.7	2.0	0.6	6.3	123,244
MedLab Bay of Plenty	87.3	7.2	0.7	3.9	0.6	12.7	30,482
MedLab Central	89.7	2.4	0.8	5.8	1.1	10.3	26,435
MedLab Christchurch	92.7	3.2	0.9	2.5	0.6	7.3	33,551
MedLab Hamilton	93.5	2.8	0.6	2.5	0.5	6.5	16,208
MedLab Taranaki	87.8	5.9	0.2	4.0	1.9	12.2	1,854
MedLab Wellington	91.3	4.5	0.4	3.0	0.6	8.7	38,996
PathLab Waikato	90.5	5.3	0.8	2.7	0.4	9.5	754
SCL Christchurch	96.0	1.5	0.2	1.8	0.5	4.0	22,156
SCL Dunedin	94.7	0.1	0.5	3.0	1.5	5.3	66,692
Valley Diagnostic Lab.	96.9	0.7	0.1	1.7	0.4	3.1	13,767
Total	**92.3**	**3.0**	**0.7**	**3.0**	**0.9**	**7.7**	**395,804**

Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%

Table 49: The proportion of satisfactory or satisfactory but limited smears in broad cytological categories by laboratory and reporting quarter, 2004

Laboratory	Negative for dysplasia or malignancy[1]				HSIL[2]				Total abnormalities[3]			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
Auckland Hospital Lab.	77.2	75.5	74.4	78.6	3.4	3.8	4.5	4.1	22.8	24.5	25.6	21.4
Canterbury Health Lab.	87.7	83.2	87.7	88.6	1.4	2.1	1.6	0.8	12.3	16.8	12.3	11.4
Diagnostic MedLab Auckland	94.0	93.4	93.5	93.8	0.6	0.7	0.6	0.5	6.0	6.6	6.5	6.2
MedLab Bay of Plenty	84.7	87.0	89.3	87.5	0.7	0.4	0.7	0.6	15.3	13.0	10.7	12.5
MedLab Central	92.2	88.7	88.6	89.3	0.6	1.0	1.5	1.3	7.8	11.3	11.4	10.7
MedLab Christchurch	93.5	92.3	92.1	92.7	0.6	0.6	0.8	0.4	6.5	7.7	7.9	7.3
MedLab Hamilton	93.3	93.6	94.0	-	0.7	0.4	0.5	-	6.7	6.4	6.0	-
MedLab Taranaki	87.5	89.2	-	-	2.0	1.8	-	-	12.5	10.8	-	-
MedLab Wellington	91.1	92.0	92.7	89.4	0.6	0.5	0.4	0.8	8.9	8.0	7.3	10.6
PathLab Waikato	-	-	-	90.5	-	-	-	0.4	-	-	-	9.5
SCL Christchurch	95.5	95.2	96.2	96.7	0.5	0.4	0.3	0.5	4.5	4.8	3.8	3.3
SCL Dunedin	95.4	94.8	94.6	94.4	1.6	1.6	1.4	1.5	4.6	5.2	5.4	5.6
Valley Diagnostic Lab.	97.5	95.8	96.1	98.5	0.3	0.6	0.6	0.2	2.5	4.2	3.9	1.5
Total	**92.5**	**92.1**	**92.3**	**92.2**	**0.8**	**0.9**	**1.0**	**0.9**	**7.5**	**7.9**	**7.7**	**7.8**

Targets are: [1] not more than 96%, [2] not less than 0.6%, [3] not more than 10%

10. 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 2004 to 31 December 2004). 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 2004 to 31 December 2004 for each laboratory processing cervical cytology are shown in Table 50. Thirteen laboratories reported smears in the 2004 reporting period, however MedLab Taranaki ceased reporting in the April to June quarter, MedLab Hamilton ceased reporting in the July to September quarter, and PathLab Waikato ceased reporting at the end of 2004.

Overall, 97.3% of the 404,185 smears received by laboratories were reported within seven working days (Table 50). This met the target of 90%. All reporting laboratories achieved the seven-day target of 90%, except MedLab Central (72.7%), and MedLab Taranaki (81.5%).

Overall, the 14-day target of 100% was not quite achieved (99.9%). Eight of the thirteen reporting laboratories achieved the 100% target: MedLab Bay of Plenty, MedLab Christchurch, MedLab Hamilton, MedLab Taranaki, MedLab Wellington, PathLab Waikato, SCL Dunedin and Valley Diagnostic Laboratories. MedLab Central reported 122 smears (0.5%) outside 14 working days. The other laboratories to report smears outside this target were Auckland Hospital Laboratory (22, 0.2%), Canterbury Health Laboratories (9, 0.1%), Diagnostic MedLab Auckland (145, 0.1%), MedLab Bay of Plenty (2, 0.0%), MedLab Hamilton (5, 0.0%), MedLab Wellington (1, 0.0%), SCL Christchurch (60, 0.3%), SCL Dunedin (32, 0.1%), and Valley Diagnostic Laboratories (2, 0.0%). The reporting time for the 400 smears that were outside the 14-day target ranged from 15 to 361 days, with the median time being 23 days.

The proportion of smears received and reports issued within specified time periods during the period 1 January 2004 to 31 December 2004 by ethnicity are shown in Table 51. There were disparities evident for Māori women compared to non-Māori, non-Pacific women. The proportion of Māori women (96.2%) who had a smear reported within seven working days was less than those of Pacific (98.7%) and non-Māori, non-Pacific women (97.3%). These differences were highly statistically significant, $P<0.001$. There were no differences between ethnic groups in the proportion of women who had a smear reported outside 14 working days (Māori 0.1%, n=44; Pacific 0.1%, n=10; and non-Māori, non-Pacific women 0.1%, n=346), $P=0.364$.

Table 50: Timeliness of reporting smears by laboratory, 2004

Laboratory	Number of smears processed	Within 7 working days[1]		From 8 to 14 working days		Within 14 working days[2] (cumulative %)		More than 14 working days	
	n	n	%	n	%	n	%	n	%
Auckland Hospital Lab.	12,472	12,449	99.8	1	0.0	12,450	99.8	22	0.2
Canterbury Health Lab.	9,833	9,818	99.9	6	0.1	9,824	99.9	9	0.1
Diagnostic MedLab Auckland	123,814	123,424	99.7	245	0.2	123,669	99.9	145	0.1
MedLab Bay of Plenty	30,632	29,128	95.1	1,502	4.9	30,630	100.0	2	0.0
MedLab Central	26,475	19,257	72.7	7,096	26.8	26,353	99.5	122	0.5
MedLab Christchurch	34,323	34,323	100.0	0	0.0	34,323	100.0	0	0.0
MedLab Hamilton	16,913	16,421	97.1	487	2.9	16,908	100.0	5	0.0
MedLab Taranaki	1,863	1,518	81.5	345	18.5	1,863	100.0	0	0.0
MedLab Wellington	39,597	38,927	98.3	669	1.7	39,596	100.0	1	0.0
PathLab Waikato	716	715	99.9	1	0.1	716	100.0	0	0.0
SCL Christchurch	22,167	22,073	99.6	34	0.2	22,107	99.7	60	0.3
SCL Dunedin	70,676	70,581	99.9	63	0.1	70,644	100.0	32	0.1
Valley Diagnostic Lab.	14,704	14,585	99.2	117	0.8	14,702	100.0	2	0.0
Total	**404,185**	**393,219**	**97.3**	**10,566**	**2.6**	**403,785**	**99.9**	**400**	**0.1**

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

Table 51: Timeliness of reporting smears by ethnicity, 2004

Ethnic group	Number of smears processed	Within 7 working days[1]		From 8 to 14 working days		Within 14 working days[2] (cumulative %)		More than 14 working days	
	n	n	%	n	%	n	%	n	%
Māori	37,216	35,820	96.2	1,352	3.6	37,172	99.9	44	0.1
Pacific	12,817	12,653	98.7	154	1.2	12,807	99.9	10	0.1
Non-Māori, non-Pacific	354,152	344,746	97.3	9,060	2.6	353,806	99.9	346	0.1
Total	**404,185**	**393,219**	**97.3**	**10,566**	**2.6**	**403,785**	**99.9**	**400**	**0.1**

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

11. 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 2004 to 31 December 2004) 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 2004 to 31 December 2004 for each laboratory processing histology specimens is shown in Table 52. Twenty-eight laboratories provided results to the NCSP Register in 2004, MedLab Hamilton

ceased reporting in the July to September quarter, and PathLab Waikato ceased reporting at the end of 2004.

There were a total of 26,243 histology specimens recorded on the NCSP Register during this period (Table 52). The number of specimens reported by each laboratory varied considerably, ranging from 108 in SCL Hawke's Bay to 3,693 in Diagnostic MedLab Auckland. For all laboratories combined, the proportion of histological specimens reported on within five working days was 93.0%, which was above the target of 90%.

Five laboratories did not meet the five-day 90% target. These were Auckland Hospital Laboratory (68.8%), Hutt Hospital (73.5%), North Shore Hospital (88.3%), Rotorua Hospital (83.4%), and Wellington Hospital (67.2%).

Auckland Hospital Laboratory (25.9%), Hutt Hospital (25.5%), and Wellington Hospital (29.9%) reported the greatest proportion of histology results six to 10 working days from the specimens being received. Auckland Hospital Laboratory (5.3%), North Shore Hospital (7.2%), and Rotorua Hospital (6.3%) reported the greatest proportion of histology results more than 10 working days after the time that they were received by the laboratory. Overall, 356 (1.4%) specimens were reported after 10 working days, and the reporting time for these specimens ranged from 11 to 233 days, with the median time being 14 days.

The timeliness of histology reporting by ethnicity is shown in Table 53. The data showed ethnic disparities, with the lowest turnaround times for Pacific women. The proportion of Pacific women (87.1%) who had histology reported within five working days was less than that of Māori (91.3%) and non-Māori, non-Pacific women (93.4%). These differences were highly statistically significant, $P<0.001$. The proportion of Pacific women (2.6%, 16) with histology reported outside 10 working days was more than those of Māori (1.9%, 57) and non-Māori, non-Pacific women (1.3%, 283). These differences were also highly statistically significant, $P=0.001$.

Table 52: Timeliness of the reporting of histology by laboratory, 2004

Laboratory	Number of specimens processed	Within 5 working days[1]		6 to 10 working days		11 or more working days	
	n	n	%	n	%	n	%
Auckland Hospital Lab.	1,230	846	68.8	319	25.9	65	5.3
Canterbury Health Lab.	2,138	2,083	97.4	52	2.4	3	0.1
Diagnostic MedLab Auckland	3,693	3,615	97.9	68	1.8	10	0.3
Hutt Hospital	529	389	73.5	135	25.5	5	1.0
MedLab Bay of Plenty	1,918	1,883	98.2	31	1.6	4	0.2
MedLab Central	1,777	1,726	97.1	47	2.6	4	0.2
MedLab Christchurch	183	183	100.0	0	0.0	0	0.0
MedLab Hamilton	146	136	93.2	10	6.9	0	0.0
MedLab Southland	161	161	100.0	0	0.0	0	0.0
MedLab Taranaki	677	665	98.2	11	1.6	1	0.2
MedLab Timaru	357	355	99.4	2	0.6	0	0.0
MedLab Wellington	734	684	93.2	41	5.6	9	1.2
Memorial Hospital Hastings	357	351	98.3	6	1.7	0	0.0
Middlemore Hospital	1,049	1,028	98.0	6	0.6	15	1.4
Nelson Diagnostic Lab.	220	202	91.8	15	6.8	3	1.4
Nelson Hospital	727	667	91.8	45	6.2	15	2.1
Northland Pathology	828	800	96.6	20	2.4	8	1.0
North Shore Hospital	1,731	1,529	88.3	77	4.5	125	7.2
Pathlab Waikato	558	548	98.2	10	1.8	0	0.0
Rotorua Hospital	536	447	83.4	55	10.3	34	6.3
SCL Christchurch	748	747	99.9	1	0.1	0	0.0
SCL Dunedin	1,661	1,649	99.3	11	0.7	1	0.1
SCL Hawke's Bay	108	107	99.1	1	0.9	0	0.0
Southland Hospital	600	575	95.8	22	3.7	3	0.5
Valley Diagnostic Lab.	274	267	97.5	7	2.6	0	0.0
Waikato Hospital	1,779	1,673	94.0	94	5.3	12	0.7
Wanganui Hospital	235	228	97.0	6	2.6	1	0.4
Wellington Hospital	1,289	866	67.2	385	29.9	38	3.0
Total	**26,243**	**24,410**	**93.0**	**1,477**	**5.6**	**356**	**1.4**

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

Table 53: Timeliness of the reporting of histology by ethnicity, 2004

Ethnic group	Number of specimens processed	Within 5 working days[1]		6 to 10 working days		11 or more working days	
	n	n	%	n	%	n	%
Māori	3,031	2,766	91.3	208	6.9	57	1.9
Pacific	622	542	87.1	64	10.3	16	2.6
Non-Māori, non-Pacific	22,590	21,102	93.4	1,205	5.3	283	1.3
Total	**26,243**	**24,410**	**93.0**	**1,477**	**5.6**	**356**	**1.4**

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

12. Satisfactory but limited and unsatisfactory smears by laboratory

Definition

Satisfactory but limited smears are those smears reported with a Bethesda adequacy code of A2. Unsatisfactory smears are those smears reported with a Bethesda adequacy of A3 (Revised Bethesda Coding System, 1998). It is important to note that the adequacy coding of a smear is influenced by both smear taking technique and laboratory reporting practice. The revised Bethesda System 2001 no longer includes a satisfactory but limited category. When the NCSP adopts the revised Bethesda System 2001 (from July 2005), consideration will be given to changing the current target for unsatisfactory smears.

Targets

The target for satisfactory but limited smears is not more than 20% of all smears reported for a given laboratory. The target for unsatisfactory smears is not less than 0.5% and not more than 2.0% of all smears reported for a given laboratory.

Calculation

All smears taken between 1 January 2004 and 31 December 2004 for which there was a result recorded on the NCSP Register were used to calculate these indicators. The number of satisfactory but limited smears and the number of unsatisfactory smears reported were both 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 satisfactory but limited and unsatisfactory smears taken between 1 January 2004 and 31 December 2004 and reported by each cytology laboratory is shown in Table 54. Thirteen laboratories reported smears in the 2004 reporting period, however MedLab Taranaki ceased reporting in the April to June quarter, MedLab Hamilton ceased reporting in the July to September quarter, and PathLab Waikato ceased reporting at the end of 2004.

Overall, 404,185 smears were processed, of which 17.1% were reported as satisfactory but limited, within the target of not more than 20%. Among the laboratories, the proportion of satisfactory but limited smears varied considerably. This proportion ranged from 7.5% for SCL Dunedin to 23.2% for Diagnostic MedLab Auckland, which along with MedLab Taranaki (22.6%) exceeded the target of not more than 20% of smears reported as satisfactory but limited.

Overall, 4,131 (1.0%) of the 404,185 smears processed were reported as unsatisfactory for evaluation, which was within the target range of 0.5 to 2.0%. Each laboratory reported unsatisfactory smears in this target range with the exception of MedLab Taranaki (2.4%), and PathLab Waikato (0.4%), however MedLab Taranaki ceased reporting in the April to June quarter, and PathLab Waikato ceased reporting smears at the end of 2004.

Table 54: The number and proportion of satisfactory but limited or unsatisfactory smears reported by laboratory, 2004

Laboratory	Total number of smears processed	Satisfactory but limited smears[1]		Unsatisfactory smears[2]	
	n	n	%	n	%
Auckland Hospital Lab.	12,472	1,939	15.6	134	1.1
Canterbury Health Lab.	9,833	1,064	10.8	62	0.6
Diagnostic MedLab Auckland	123,814	28,722	23.2	825	0.7
MedLab Bay of Plenty	30,632	5,466	17.8	215	0.7
MedLab Central	26,475	4,320	16.3	142	0.5
MedLab Christchurch	34,323	5,955	17.4	660	1.9
MedLab Hamilton	16,913	2,833	16.8	148	0.9
MedLab Taranaki	1,863	421	22.6	44	2.4
MedLab Wellington	39,597	7,575	19.1	726	1.8
PathLab Waikato	716	128	17.9	3	0.4
SCL Christchurch	22,167	2,788	12.6	131	0.6
SCL Dunedin	70,676	5,311	7.5	851	1.2
Valley Diagnostic Lab.	14,704	2,731	18.6	190	1.3
Total	**404,185**	**69,253**	**17.1**	**4,131**	**1.0**

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

13. Satisfactory but limited and unsatisfactory smears by smear taker

Definition

Satisfactory but limited smears are those smears reported with a Bethesda adequacy code of A2. Unsatisfactory smears are those smears reported with a Bethesda adequacy of A3 (Revised Bethesda Coding System, 1998). It is important to note that the adequacy coding of a smear is influenced by both smear taking technique and laboratory reporting practice. The revised Bethesda System 2001 no longer includes a satisfactory but limited category. When the NCSP adopts the revised Bethesda System 2001 (from July 2005), consideration will be given to changing the current target for unsatisfactory smears.

Targets

The target for satisfactory but limited smears is not more than 20% of all smears reported for each smear taker category. The target for unsatisfactory smears is not less than 0.5% and not more than 2.0% of all smears reported for each smear taker category.

Calculation

Smears taken from enrolled women of all ages between 1 January 2004 and 31 December 2004 for which there was a result recorded on the NCSP Register were used to calculate these indicators. The total number of smears recorded by each smear taker group for the 12 months of 2004 was used to calculate the annual volume of smears taken by each smear taker group. For each group, the number of satisfactory but limited and unsatisfactory smears was expressed as a proportion of the total number of smears taken by that group.

Results

The numbers and proportions of satisfactory, satisfactory but limited and unsatisfactory smears taken between 1 January 2004 and 31 December 2004 by annual volume of smears taken by each smear taker group is shown in Table 55. Overall, 404,185 smears were taken during the year, of which 71 (<1%) were taken by lay smear takers, 251,149

(62%) by medical smear takers, 117,006 (29%) by nurses, 34,492 (8%) by specialists and 1,467 (<1%) by midwives.

The proportion of satisfactory but limited smears was within the target of not more than 20% for each smear taker group as a whole (Table 55). When smear taker groups were considered by annual volume, the proportion of satisfactory but limited smears was greater than 20% for medical smear takers who took fewer than 30 smears (20.9%), specialist smear takers who took fewer than 30 smears (22.2%), and midwife smear takers who took 30 to 100 smears in the reporting year (22.5%).

The proportion of unsatisfactory smears was within the target range of 0.5 to 2.0% for each smear taker group as a whole. When smear taker groups were considered by annual volume, the proportion of unsatisfactory smears was greater than 2.0% for lay smear takers who took 30 to 100 smears (2.3%) and specialist smear takers with annual volumes of less than 30 smears (4.2%). None of the smears taken by lay smear takers with annual volumes of less than 30 smears and more than 100 smears were reported as unsatisfactory for assessment.

The numbers and proportions of satisfactory, satisfactory but limited and unsatisfactory smears taken by each smear taker group by DHB is shown in Table 56. The proportions of smears taken by each group varied considerably (with the exception of lay smear takers). Medical smear takers ranged from taking 77.9% of the smears in Auckland to taking 28.1% of smears in Taranaki. Similarly, nurse smear takers ranged from taking 64.6% of the smears in Taranaki to 11.6% of smears in Waitemata. Specialist smear takers ranged from taking 15.6% of the smears in South Canterbury to 3.9% of smears in Lakes.

Table 55: Adequacy of smears reported by different smear taker groups, 2004

	Annual volume of smears	Total number of smears	Satisfactory smears		Satisfactory but limited smears[1]		Unsatisfactory smears[2]	
	n	n	n	%	n	%	n	%
Lay	<30	27	26	96.3	1	3.7	0	0.0
	30-100	44	40	90.9	3	6.8	1	2.3
	>100	0	0	0.0	0	0.0	0	0.0
	Total	71	66	93.0	4	5.6	1	1.4
Medical	<30	15,778	12,244	77.6	3,304	20.9	230	1.5
	30-100	72,501	58,057	80.1	13,547	18.7	897	1.2
	>100	162,870	131,594	80.8	29,673	18.2	1,603	1.0
	Total	251,149	201,895	80.4	46,524	18.5	2,730	1.1
Nurse	<30	6,261	5,033	80.4	1,177	18.8	51	0.8
	30-100	45,540	38,375	84.3	6,808	15.0	357	0.8
	>100	65,205	55,872	85.7	8,907	13.7	426	0.7
	Total	117,006	99,280	84.9	16,892	14.4	834	0.7
Specialist	<30	568	418	73.6	126	22.2	24	4.2
	30-100	2,838	2,218	78.2	566	19.9	54	1.9
	>100	31,086	25,693	82.7	4,920	15.8	473	1.5
	Total	34,492	28,329	82.1	5,612	16.3	551	1.6
Midwife	<30	360	294	81.7	62	17.2	4	1.1
	30-100	405	311	76.8	91	22.5	3	0.7
	>100	702	626	89.2	68	9.7	8	1.1
	Total	1,467	1,231	83.9	221	15.1	15	1.0
	Total	**404,185**	**330,801**	**81.8**	**69,253**	**17.1**	**4,131**	**1.0**

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

Table 56: The proportion of smears taken by each smear taker group by District Health Board, 2004

DHB	Smear Taker Group										Total number of smears
	Lay		Medical		Nurse		Specialist		Midwife		
	n	%	n	%	n	%	n	%	n	%	n
Auckland	0	0.0	34,781	77.9	5,520	12.4	4,333	9.7	36	0.1	44,670
Bay of Plenty	0	0.0	9,283	45.3	9,989	48.8	1,149	5.6	55	0.3	20,476
Canterbury	20	0.0	32,272	68.5	9,322	19.8	5,510	11.7	3	0.0	47,127
Capital Coast	0	0.0	23,318	74.2	6,139	19.5	1,952	6.2	4	0.0	31,413
Counties Manakau	0	0.0	27,932	74.2	7,407	19.7	2,285	6.1	47	0.1	37,671
Hawke's Bay	0	0.0	7,065	51.5	5,591	40.7	948	6.9	125	0.9	13,729
Hutt	0	0.0	9,290	70.7	2,818	21.5	979	7.5	48	0.4	13,135
Lakes	0	0.0	5,431	55.3	3,995	40.7	383	3.9	7	0.1	9,816
MidCentral	0	0.0	4,857	32.1	8,165	53.9	1,826	12.1	302	2.0	15,150
Nelson/Marlborough	0	0.0	7,765	59.8	4,443	34.2	775	6.0	0	0.0	12,983
Northland	0	0.0	6,729	50.5	5,632	42.3	957	7.2	1	0.0	13,319
Otago	0	0.0	11,750	61.0	5,702	29.6	1,705	8.9	105	0.6	19,262
South Canterbury	3	0.1	2,622	50.4	1,769	34.0	810	15.6	1	0.0	5,205
Southland	0	0.0	5,822	56.8	3,758	36.7	631	6.2	38	0.4	10,249
Tairawhiti	0	0.0	2,006	45.4	1,703	38.5	524	11.9	187	4.2	4,420
Taranaki	0	0.0	3,314	28.1	7,617	64.6	849	7.2	5	0.0	11,785
Waikato	44	0.2	11,692	38.8	15,844	52.5	2,412	8.0	179	0.6	30,171
Wairarapa	0	0.0	2,132	60.7	1,185	33.7	198	5.6	0	0.0	3,515
Waitemata	0	0.0	38,118	77.1	5,744	11.6	5,364	10.9	192	0.4	49,418
West Coast	0	0.0	923	31.8	1,747	60.2	233	8.0	0	0.0	2,903
Whanganui	0	0.0	2,560	48.4	2,317	43.8	294	5.6	118	2.2	5,289
Unspecified	4	0.2	1,487	60.0	599	24.2	375	15.1	14	0.6	2,479
Total	**71**	**0.0**	**251,149**	**62.1**	**117,006**	**29.0**	**34,492**	**8.5**	**1,467**	**0.4**	**404,185**

14. 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 2004, 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.

Results

The reported number of women with a HSIL or ASC-H cytology result referred each month in 2004 for colposcopic assessment to each DHB colposcopy service, and the reported number of women referred for colposcopic assessment of a HSIL or ASC-H cytology result waiting longer than four weeks at the end of each month is shown by quarter in Table 57. Three colposcopy clinics, Nelson/Marlborough, Northland, and Waitemata, did not report complete data for this reporting year.

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 Hawke's Bay colposcopy unit (91 women for the January to March quarter, 63 women for the April to June quarter, 117 women for the July to September quarter, and 262 women for the October to December quarter). Four colposcopy units, Bay of Plenty, Canterbury, MidCentral and Otago, reported that no women waited longer than four weeks from referral for their assessment.

Table 57: Waiting time for colposcopic assessment of HSIL or ASC-H between 1 January 2004 and 31 December 2004 by District Health Board colposcopy service

DHB colposcopy reporting unit	Number of women referred for assessment of HSIL or ASC-H				Number of women referred waiting longer than 4 weeks at the end of each month			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
Auckland	98	54	101	119	1	0	0	0
Bay of Plenty	104	108	101	76	0	0	0	0
Canterbury	87	137	106	94	0	0	0	0
Capital Coast	32	10	23	43	1	0	5	13
Counties Manukau	71	58	64	84	76	72	57	28
Hawke's Bay	53	25	40	74	91	63	117	262
Hutt Valley	24	36	37	48	11	7	10	10
Lakes	21	22	22	8	6	8	4	35
MidCentral	64	54	60	15	0	0	0	0
Nelson/Marlborough	NR	NR	NR	NR	NR	NR	NR	NR
Northland	43	38	NR	NR	15	13	NR	NR
Otago	77	76	82	82	0	0	0	0
South Canterbury	6	9	2	6	3	1	0	0
Southland	15	27	0	0	5	7	5	12
Tairawhiti	3	5	21	15	1	5	8	8
Taranaki	45	47	47	33	2	8	10	5
Waikato	65	54	82	94	0	1	4	5
Wairarapa	11	7	8	9	0	0	0	3
Waitemata	NR	NR	0	0	NR	NR	0	53
West Coast	3	4	6	3	5	3	0	2
Whanganui	9	14	7	17	2	1	0	0
Total	**831**	**785**	**809**	**820**	**219**	**189**	**220**	**436**

NR: not reported

15. Waiting time for colposcopic assessment for LSIL or ASCUS

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 ASCUS) 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 ASCUS 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 2004, 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.

Results

The reported number of women with low grade cytology results referred each month in 2004 for colposcopic assessment to each DHB colposcopy service, and the reported number of women referred for colposcopic assessment of a low grade cytology result waiting longer than 26 weeks at the end of each month is shown by quarter in Table 58. Three colposcopy clinics, Nelson/Marlborough, Northland, and Waitemata, did not report complete data for this reporting year.

The reported number of women referred for an assessment of a LSIL or ASCUS cytology abnormality waiting longer than 26 weeks at the end of each month was highest for Hawke's Bay colposcopy unit (131 women for the January to March quarter,

118 women for the April to June quarter, 167 women for the July to September quarter, and 249 women for the October to December quarter). Four colposcopy units, Bay of Plenty, Captial Coast, Otago and Whanganui, reported that no women waited longer than 26 weeks from referral for their assessment.

Table 58: Waiting time for colposcopic assessment of LSIL or ASCUS between 1 January 2004 and 31 December 2004 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–Sep	Oct–Dec	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
Auckland	102	51	135	93	157	124	3	0
Bay of Plenty	169	150	191	140	0	0	0	0
Canterbury	163	216	121	168	3	3	3	4
Capital Coast	141	34	104	171	0	0	0	0
Counties Manukau	133	77	133	138	66	88	36	50
Hawke's Bay	24	13	13	23	131	118	167	249
Hutt Valley	37	50	39	18	1	3	0	3
Lakes	123	88	106	55	105	114	109	22
MidCentral	46	60	78	79	0	1	0	12
Nelson/Marlborough	NR	NR	NR	NR	NR	NR	NR	NR
Northland	17	23	NR	NR	6	8	NR	NR
Otago	46	63	59	66	0	0	0	0
South Canterbury	2	7	5	2	34	23	8	6
Southland	20	40	36	39	3	4	22	15
Tairawhiti	3	15	10	49	1	5	4	5
Taranaki	41	36	47	33	1	2	2	1
Waikato	132	136	127	140	239	107	64	87
Wairarapa	38	30	35	48	0	5	0	2
Waitemata	NR	NR	0	0	NR	NR	0	44
West Coast	8	16	9	7	3	1	0	0
Whanganui	43	60	51	55	0	0	0	0
Total	**1,288**	**1,165**	**1,299**	**1,324**	**750**	**606**	**418**	**500**

NR: not reported

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

Definition

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

Targets

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

Calculation

All satisfactory smears that were reported as HSIL or ISCC in the period from 1 July 2003 to 30 June 2004 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 4). 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 ISC 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 59. 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 59. 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 60. 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 2003 to 30 June 2004, there were 2,947 women with HSIL or ISCC cytology reports, of whom 2,686 (91.1%) had a subsequent histology result recorded on the NCSP Register (Table 59). Of these, 2,032 (75.7%) were confirmed as having HSIL or more serious abnormality on histology. This PPV is within the target range of 65 to 85%.

Two laboratories reported a PPV outside the target range of 65 to 85%. MedLab Taranaki reported a PPV below the target range (58.8%) and Canterbury Health Laboratories reported a PPV above the target range (88.0%).

During the period 1 July 2003 to 30 June 2004, there were 1,830 women with an ASC-H cytology report (Table 60), of whom 1,486 (81.2%) had a subsequent histology result recorded on the NCSP Register. Of these, 666 (44.8%) had a HSIL or more serious abnormality on histology.

The proportion of women that had a HSIL or more serious histology result after an ASC-H smear varied between the laboratories. PathLab Waikato had the lowest proportion (30.0%), but only 12 women were reported as having an ASC-H smear from PathLab Waikato, and it

ceased reporting at the end of 2004. MedLab Taranaki had the highest (83.3%), although only seven women were reported as having an ASC-H smear from MedLab Taranaki, and it ceased reporting cytology in the April to June quarter of 2004.

Table 59: Positive predictive value for women with a high grade smear by laboratory, 1 July 2003 to 30 June 2004

Laboratory	HSIL reports with a histology report		HSIL confirmed by histology		HSIL reports without a histology report		Total
	n	%	n	%*	n	%	n
Auckland Hospital Lab.	247	89.5	198	80.2	29	10.5	276
Canterbury Health Lab.	100	96.2	88	88.0	4	3.8	104
Diagnostic MedLab Auckland	578	88.4	444	76.8	76	11.6	654
MedLab Bay of Plenty	129	92.8	96	74.4	10	7.2	139
MedLab Central	161	87.5	129	80.1	23	12.5	184
MedLab Christchurch	183	92.0	146	79.8	16	8.0	199
MedLab Hamilton	151	89.3	106	70.2	18	10.7	169
MedLab Taranaki	80	87.9	47	58.8	11	12.1	91
MedLab Wellington	194	93.3	128	66.0	14	6.7	208
PathLab Waikato	18	94.7	13	72.2	1	5.3	19
SCL Christchurch	97	95.1	77	79.4	5	4.9	102
SCL Dunedin	678	93.3	508	74.9	49	6.7	727
Valley Diagnostic Lab.	70	93.3	52	74.3	5	6.7	75
Total	**2,686**	**91.1**	**2,032**	**75.7**	**261**	**8.9**	**2,947**

*Positive predictive value: proportion of HSIL cytology reports confirmed on histology.
Target: 65 to 85%

Table 60: Positive predictive value for women with an ASC-H smear by laboratory, 1 July 2003 to 30 June 2004

Laboratory	ASC-H reports with a histology report		ASC-H confirmed by histology		ASC-H reports without a histology report		Total
	n	%	n	%*	n	%	n
Auckland Hospital Lab.	135	73.0	65	48.1	50	27.0	185
Canterbury Health Lab.	48	88.9	30	62.5	6	11.1	54
Diagnostic MedLab Auckland	449	75.8	193	43.0	143	24.2	592
MedLab Bay of Plenty	141	86.5	56	39.7	22	13.5	163
MedLab Central	82	80.4	43	52.4	20	19.6	102
MedLab Christchurch	211	86.1	84	39.8	34	13.9	245
MedLab Hamilton	115	83.9	58	50.4	22	16.1	137
MedLab Taranaki	6	85.7	5	83.3	1	14.3	7
MedLab Wellington	77	85.6	38	49.4	13	14.4	90
PathLab Waikato	10	83.3	3	30.0	2	16.7	12
SCL Christchurch	40	85.1	23	57.5	7	14.9	47
SCL Dunedin	150	88.2	58	38.7	20	11.8	170
Valley Diagnostic Lab.	22	84.6	10	45.5	4	15.4	26
Total	**1,486**	**81.2**	**666**	**44.8**	**344**	**18.8**	**1,830**

* Positive predictive value: proportion of ASC-H cytology reports confirmed on histology.

17. 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 2004 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 2002 were recorded as negative for dysplasia or malignancy; they had at least one satisfactory smear taken between 1 April 2002 and 31 December 2004; their first smear taken between 1 April 2002 and 31 December 2004 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.

The reason that the women must have had a normal cytology and histology history, not have had their first smear in the period 1 April 2002 to 31 December 2004 and not have had their first smear in more than five years during that period, is that for women for whom this is not the case they will 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 2002 and 31 December 2004. 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.

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 61. The overall level of short interval re-screening for 20 to 69 year old women was 11.8%. This level is above the target of less than 10%. The proportion of women who were re-screened within a short interval varied slightly by age. Women who were aged 20 to 24 years were most likely to be re-screened with a short interval (14.4%), 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.

Table 62 shows the variation in short interval re-screening for 20 to 69 year old women by 5-year age group across the reporting quarters for 2004. All age groups show a decline in the proportion of women who were re-screened with a short interval.

Table 63 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% for non-Māori, non-Pacific (11.9%) and Māori (11.3%) women. The proportion of Pacific women re-screened with a short interval was close to the target (10.1%).

Figure 14 shows the proportions of short interval re-screening for 20 to 69 year old women by DHB for the four quarters of 2004. Short interval re-screening varied considerably among the DHBs, with Nelson/Marlborough, Taranaki, Waikato and West Coast showing consistently low levels. Auckland and Waitemata showed the highest levels of short interval re-screening among the DHBs.

Table 61: Proportion of women aged 20–69 years unnecessarily re-screened within the 33 months to 31 December 2004 by 5-year age group

Age group (years)	Total number of women	Women with abnormal smear in previous 33 months	Women with only normal smears in previous 33 months		Proportion with short interval re-screening (%)
			At least one smear	More than one smear	
20–24	18,079	2,947	15,132	2,185	14.4
25–29	29,447	2,883	26,564	3,056	11.5
30–34	38,055	2,424	35,631	4,357	12.2
35–39	44,547	2,147	42,400	5,116	12.1
40–44	49,707	2,032	47,675	5,809	12.2
45–49	43,118	1,566	41,552	5,149	12.4
50–54	35,695	963	34,732	4,344	12.5
55–59	31,212	511	30,701	3,425	11.2
60–64	23,175	306	22,869	2,222	9.7
65–69	17,711	206	17,505	1,455	8.3
Total	**330,746**	**15,985**	**314,761**	**37,118**	**11.8**

Target: less than 10%

Table 62: Proportion of women aged 20–69 years unnecessarily re-screened within the 33 months to the end of each reporting quarter in 2004 by 5-year age group

Age group (years)	Proportion with short interval re-screening (%)			
	Jan–Mar	Apr–Jun	Jul–Sep	Oct–Dec
20–24	16.1	15.7	14.9	14.4
25–29	12.6	12.5	11.9	11.5
30–34	13.2	12.8	12.7	12.2
35–39	12.7	12.6	12.1	12.1
40–44	12.8	12.7	12.4	12.2
45–49	12.9	13.0	12.4	12.4
50–54	13.4	12.9	12.7	12.5
55–59	11.6	11.5	11.2	11.2
60–64	10.0	9.8	9.8	9.7
65–69	8.6	8.8	8.4	8.3
Total	**12.5**	**12.4**	**12.0**	**11.8**

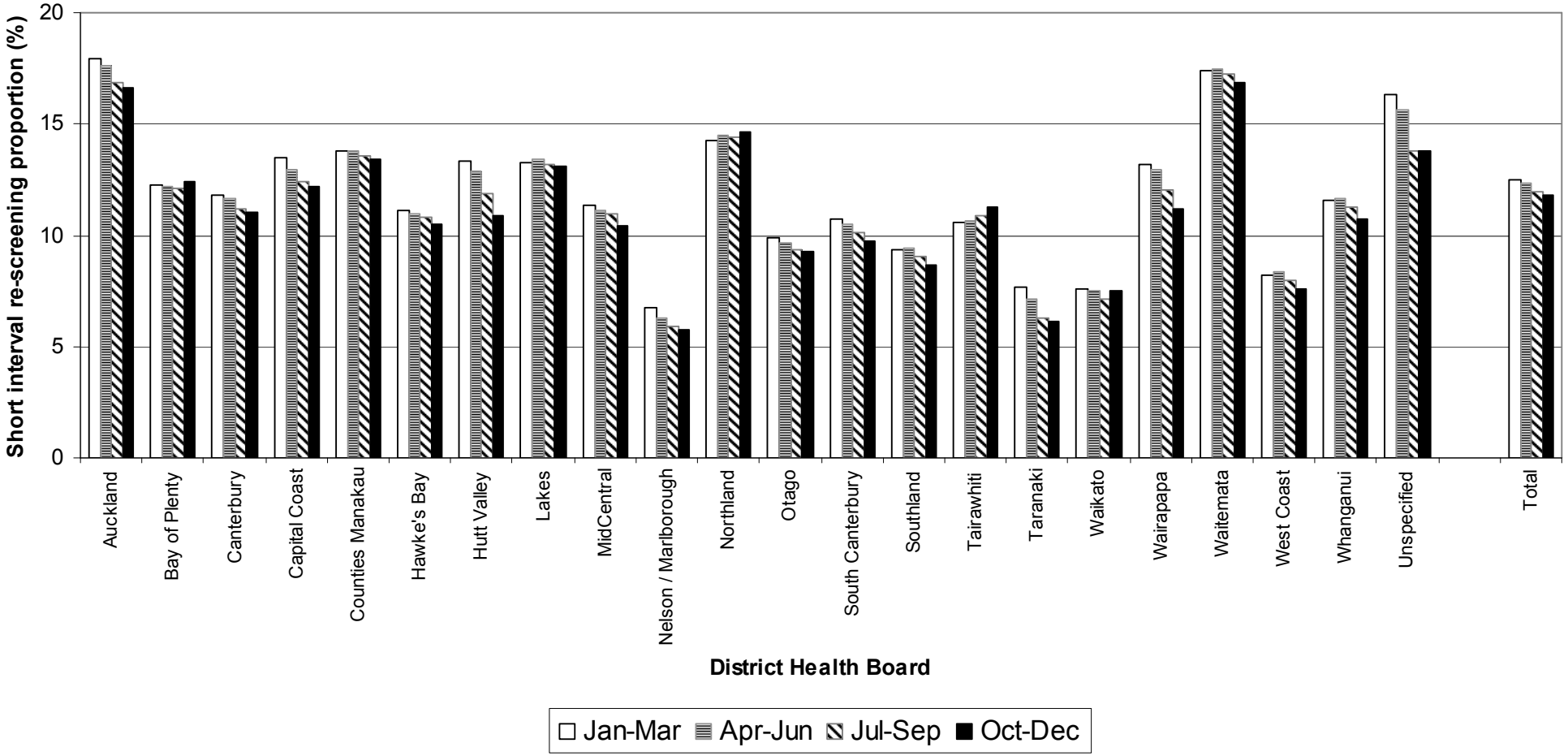
Target: less than 10%

Table 63: Proportion of women aged 20–69 years unnecessarily re-screened within the 33 months to 31 December 2004 by ethnicity

Ethnic group	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	24,546	1,850	22,696	2,564	11.3
Pacific	7,905	398	7,507	760	10.1
Non-Māori, non-Pacific	298,295	13,737	284,558	33,794	11.9
Total	**330,746**	**15,985**	**314,761**	**37,118**	**11.8**

Target: less than 10%

Figure 14: Proportion of women aged 20–69 years unnecessarily re-screened within the 33 months to 31 December 2004 by District Health Board



Appendix 1: Methods

The NSU of the MoH, 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 each indicator are discussed in relation to the set targets, where appropriate.

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 and Pacific 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, values of fewer than 10 women will not be published when data is broken down by age group or Region for Māori or Pacific women's data in IMG 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 Regions 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.

The hysterectomy-adjustment used in this report uses the hysterectomy prevalence (both total and partial) in the New Zealand population modelled by the Public Health Intelligence unit of the MoH. The hysterectomy-adjusted population was based on the population in the 2001 Census and projected to 2004. 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 2004 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 2004 were obtained. These population estimates were then used as the denominator in the hysterectomy-adjusted calculations.

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

Appendix 2: National indicators not included in the 2004 Annual Report

Women enrolled on the NCSP Register but not currently participating

Definition

Women enrolled on the NCSP Register but not currently participating is 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) and who have had a smear within:

1. Less than 15 months
2. 15–18 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.

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 ASCUS

Definition

The waiting time for colposcopic assessment for LSIL or ASCUS is the time from the receipt of a referral to a DHB colposcopy service for women with a low grade (LSIL or ASCUS) 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 3: Revised Bethesda coding system (1998) by the broad cytological categories used for NCSP IMG Reports

The revised Bethesda coding system 1998 was used for this annual monitoring period.

Cytological Category	Diagnosis C 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
Abnormal not otherwise specified	C6
Atypical squamous cells of undetermined significance – excluding high-grade (ASCUS)	C3A1; C3A1A; C3A1B; C3A1C; C3A1D; C3A1F; C3A1G
Low-grade squamous intra-epithelial lesion (LSIL)	C3A2A; C3A2A1; C3A2A2; C3A2A3
Atypical glandular cells of undetermined significance favouring a reactive process (AGUS – favour reactive)	C3B2; C3B2A; C3B2B; C3B2B1; C3B2C; C3B2E
Atypical glandular cells of undetermined significance favouring a dysplastic or neoplastic process (AGUS – favour dysplasia)	C3B2A1; C3B2B2; C3B2D
Atypical squamous cells of undetermined significance, cannot exclude high-grade (ASC-H)	C3A1E; C3A2B7
High-grade squamous intra-epithelial lesion (HSIL)	C3A2B; C3A2B1; C3A2B2; C3A2B3; C3A2B4; C3A2B5; C3A2B6
Adenocarcinoma-in-situ (AIS)	C3B3D; C3B3E; C3B3F
Adenocarcinoma	C3B3; C3B3A; C3B3B; C3B3C
Cancer not otherwise specified	C3C; C4
Invasive squamous carcinoma of the cervix	C3A3

Appendix 4: SNOMED codes by the broad histological categories used for NCSP IMG 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
Metastatic (non-cervical) tumour	M80006; M80003
Invasive adenocarcinoma	M81403
Adenosquamous carcinoma	M85603
Microinvasive squamous carcinoma	M80763
Invasive squamous carcinoma	M80703