Quarterly Report 3

National Cervical Screening Programme

April – June 2001

Independent Monitoring Group
of the National Cervical Screening Programme

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The Independent Monitoring Group of the National Cervical Screening Programme (IMG-NCSP)

The Independent Monitoring Group of the National Cervical Screening Programme was established by the University of Otago in 2000 as part of its contract with the Ministry of Health to provide independent monitoring of the National Cervical Screening Programme. The members of the Independent Monitoring Group are:

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Mrs Sandie Matcham, National Register Co-ordinator, NCSP

The Independent Monitoring Group received data from the National Cervical Screening Programme Register for this report on 6 August 2001. This monitoring report was sent to the Ministry of Health on 19 December 2001.

Technical terms are used throughout this report, and an understanding of these terms is likely to be necessary to interpret some parts of this report.

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TABLES

1.0 Executive Summary

The Independent Monitoring Group of the National Cervical Screening Programme (IMG-NCSP) was established in 2000 to provide independent quantitative monitoring of the National Cervical Screening Programme (NCSP). The principal purpose of this monitoring is to assist the National Screening Unit (NSU) of the Ministry of Health (MoH) to improve the quality of the NCSP. The IMG-NCSP first met in April 2001. This is a quarterly report for the period April-June 2001.

National indicators for the NCSP, established in 2000 by the NSU, provide the basis for monitoring reports produced by the IMG-NCSP. Indicators are reported quarterly, 6-monthly or annually. This report includes indicators reported quarterly and 6-monthly. To calculate the indicators for this report, anonymous data for women enrolled on the NCSP-Register provided by the NSU were used.

At 30 June 2001, 993,898 women aged 20-69 years were enrolled on the NCSP-Register, which is 9,438 more women than the number enrolled at 31 March 2001. This was 81.0% (92.1% hysterectomy-adjusted) of the estimated target 20-69 year old female population (1,227,545). The number of women aged 20-69 years who had had a smear recorded on the NCSP-Register in the previous 6 years was 938,009 (76.4% of the target population and 86.9% of the hysterectomy-adjusted target population). Population coverage, the proportion of women aged 20-69 years who had had a smear recorded on the NCSP-Register within the last 3 years, was 63.9% (72.7% hysterectomy-adjusted).

Enrolment, participation and coverage were lower amongst Maori and Pacific women when compared with 'Other' women.

Short interval re-screening, which is a measure of excessive resource utilisation amongst women with a normal smear history, was estimated to be 25.5**%** this quarter. Estimated short interval re-screening was calculated differently for this report compared to the previous two reports.

There were 24,632 women with a history of HSIL or more serious abnormality enrolled on the NCSP-Register who had completed their treatment before 1 April 2000. Of these women, 75.8% had had a smear within the 15 months to 30 June 2001.

For the 3,623 women who had a HSIL or ASCUS possible high grade cytology result reported between 1 July 1999 and 30 June 2000, 77.4% had had a histology report recorded on the NCSP-Register within 12 weeks of their HSIL cytology report. There was no histology result on the NCSP-Register for 28 of the 3,623 women.

The age-standardised cytology reporting rates per 1000 women for ASCUS, LSIL and HSIL were 38.72, 25.92 and 9.90, respectively. The age-specific cytology reporting rates for these three abnormalities were highest for women aged 20-29 years, whereas the age-specific cytology reporting rates for squamous carcinoma of the cervix were highest for women aged 55-69 years.

Laboratory indicators varied considerably amongst laboratories, particularly for laboratory smear reporting. This is likely to reflect regional differences in the prevalence of cervical abnormalities, population coverage by the programme, smear taking practice and laboratory reporting practice.

2.0 Recommendations

The Independent Monitoring Group of the National Cervical Screening Programme makes the following recommendations. The National Indicator targets were considered when developing these recommendations. The recommendations are grouped into data related issues and service related issues.

2.1 Data Issues

1. Efforts to minimise the number of enrolled women with more than one National Health Index number need to continue.

2. Efforts to minimise the number of women for whom screening is no longer recommended but who are regarded as actively participating in screening on the NCSP-Register need to continue.

3. Efforts to collect all data required to calculate the waiting time for colposcopic assessment indicators from colposcopy indicators should continue.

4. The participation rate target for the unadjusted population be lowered from 85% to 80%.

5. Histology turn around time be included as a new indicator.

6. The importance of distinguishing the nature of the specimen on histology results (particularly whether a cervical biopsy as opposed to a hysterectomy specimen) forwarded by laboratories to the NCSP-Register should be emphasised.

2.2 Service Issues

1. Efforts to increase enrolments of women in all 5-year age groups need to continue, particularly in those NCSP regions and DHB areas with lower proportions of women enrolled in the NCSP - Wairarapa, the West Coast and Whanganui.

2. Efforts to increase enrolments of women in the 50-69 year old age group in all regions need to continue.

3. Efforts to increase enrolments of Maori and Pacific women in all 5-year age groups need to continue.

4. Efforts to increase the participation of women in all 5-year age groups should continue, particularly in those NCSP regions and DHB areas with lower participation rates - Wairarapa, the West Coast and Whanganui.

5. Efforts to increase the participation of women in the 45-69 year old age group in all regions need to continue.

6. Efforts to increase the participation of Maori and Pacific women in all 5-year age groups need to continue.

7. Efforts to improve coverage in all NCSP regions and DHB areas need to continue, particularly in South Auckland, Wairarapa, West Coast and Whanganui.

8. Efforts to improve coverage in all age groups, particularly amongst the 45-69 year old age groups in all areas need to continue.

9. Efforts to improve coverage in all 5-year age groups amongst Maori and Pacific women need to continue.

10. Reasons for non-participation, particularly amongst Maori and Pacific women need to be assessed.

11. Efforts to reduce the non-participation rate in all regions need to continue.

12. Efforts to encourage re-participation need to continue in all NCSP regions, particularly for Pacific women.

13. Reasons for the relatively high level of short interval re-screening need to be examined, particularly in those areas with high levels of short interval re-screening (Auckland, Capital Coast, North West Auckland, South Auckland and Tairawhiti).

14. Efforts to reduce the high level of short interval re-screening in all 5-year age groups, particularly the 30-34 year age group, need to continue, including efforts to educate smear takers and women about the nationally recommended intervals for screening.

15. Reasons why 339 women with a history of a high grade abnormality have no follow up smear results recorded on the NCSP-Register smear need to be assessed.

16. Efforts to encourage women with a history of a high grade abnormality to have annual smears need to continue.

17. Reasons why histology reports were not received and recorded by the NCSP-Register within 12 weeks of a HSIL or ASCUS possible high grade cytology report for about one-quarter of all women need to be examined.

18. Reasons why histology reports were not received and recorded by the NCSP-Register within 12 weeks of a HSIL or more serious cytology report for about one-third of Maori and Pacific women need to be examined.

19. Reasons why histology results were not recorded by the NCSP-Register for the 28 women who had had a HSIL or ASCUS possible high grade cytology report needs to be assessed and follow-up arrangements for these women checked.
20. An investigation of the outcomes for women with ASCUS cytology should be undertaken.

21. Explanations for the relatively high level of reporting of total abnormalities should be sought from Medlab Bay of Plenty and Pathlab Waikato.

22. An assessment of why Medlab South Christchurch reported less than 0.6% of the slides it processed as HSIL should be undertaken.

23. Reasons for long smear reporting times should be sought from those laboratories that did not reach the targets, in particular Medlab Hamilton and Medlab Bay of Plenty.

24. Reasons for laboratories reporting levels of unsatisfactory smears outside the target range should be sought.

25. Reasons for the wide variation in, and the high level of reporting, of satisfactory but limited smears should be sought from outlying laboratories.

26. Reasons why women with HSIL cytology were waiting more than four weeks for a colposcopic assessment should be sought from Pacific Health Whakatane, Health Waikato, Pacific Health Tauranga and Capital Coast Health.

27. Efforts to reduce the number of women with HSIL cytology waiting more than four weeks for a colposcopic assessment should continue.

28. Reasons why high numbers of women with LSIL cytology are waiting more than 26 weeks for a colposcopic assessment should be sought from South Auckland Health, Health Waikato and Healthcare Hawkes Bay.

29. Efforts to reduce the number of women with LSIL cytology waiting more than 26 weeks for a colposcopic assessment should continue.

3.0 Methods

The National Screening Unit (NSU) of the Ministry of Health (MoH), through a committee of experts and a consultation process, established National Indicators for the National Cervical Screening Programme (NCSP) in 2000. Where it was considered appropriate and feasible, the NSU set targets for some indicators. For indicators with no target, changes over time will be assessed. In the future when more information is available, indicator targets may be changed. Also, new indicators may be developed. Some National Indicators will be reported quarterly and others will only be included in 6-monthly reports and/or annual reports.

This report includes indicators that are calculated quarterly and 6-monthly. In this report, those indicators that will be calculated annually are listed along with their reporting frequency. Each indicator and how it was calculated is described in the results section under the separate headings that identify the specific indicators.

To calculate the indicators for this report, anonymous data for women enrolled on the NCSP-Register provided by the NSU were used.

This report includes results for Maori and Pacific women. For this reporting quarter, both the National Kaitiaki Group and the Pacific Women's Data Advisory Group approved the use of data for enrolled women recorded as belonging to the Maori and Pacific ethnic groups, respectively, on the NCSP-Register. For the purposes of this report women recorded on the NCSP-Register as not being either Maori or Pacific were grouped together as 'Other'. This group included those women for whom their ethnic group was unknown[1].

For most indicators, women's ages at the end of the reporting quarter were used.

The NCSP region and the District Health Board (DHB) area for each woman are determined according to her smear taker and address details at the time her most recent routine smear was taken. The NCSP region recorded for each women is usually that where her routine smear was taken[2]. For a few women, the NCSP region where they have their smear is different from the one where they live. This situation can arise for women who live near the boundaries of NCSP regions. For some women, the DHB where they reside may be unspecified. This can occur if a woman's address is unknown and the NCSP region where she had her smear includes more than one DHB area, or if an enrolled women had her smear in a NCSP region other than the one she lives in and the NCSP region where she had her smear includes more than one DHB area.

For the calculation of many indicators, it was necessary to use the estimated number of 20-69 year old women usually resident in New Zealand. The NSU of the MoH provided these population data. The projected population for the year 2001 was used. Statistics New Zealand calculated these projections in November 1999 for the MoH. They were based on the 1996 census population data, the post census enumerator

[1] It was estimated that ethnicity was not recorded for about 10% of women enrolled on the NCSP-Register (personal communication Sandie Matcham, NCSP-Register Co-ordinator).

[2] When a woman has smear taken by a specialist in a region different from the one she lives in, she is not automatically transferred to that region

survey, and births, deaths and immigration data. While the true population in 2001 was not known, for the purposes of this report, it was decided that using the estimated 2001 population was more likely to produce results, which reflected the current situation than the 1996 census data. It is acknowledged that by using the estimated 2001 population data, some results in this report may be higher and others may be lower than the real situation. However, any such errors are likely to be small.

Because most women who have had a hysterectomy have not had cervical dysplasia or neoplasia, they no longer require smears[3]. Therefore, it is desirable to adjust the number of women in the population to allow for the prevalence of hysterectomy when calculating the estimated target population for NCSP. The MoH has previously calculated hysterectomy prevalence for 20-69 year old New Zealand women by 5-year age groups. While it is likely that there are regional and ethnic differences in hysterectomy prevalence, no allowance has been made for this, because the level of detail required was not available. In addition, no adjustment has been made for women with an abnormal smear history who have had a hysterectomy and continue to have smears as recommended[4].

The projected year 2001 population data for 20-69 year old women by 5-year age group for New Zealand overall, each NCSP region, each DHB area and for Maori, Pacific and 'Other' ethnic groups were calculated and are shown in Appendix 1. The hysterectomy-adjusted population data are also shown in Appendix 1.

[3] Cervical Screening. Guidelines for the Management of Women with Abnormal Cervical Smears. National Cervical Screening Programme. 1999.
[4] ibid

4.0 Results

This reporting quarter ended on 30 June 2001. This report includes results for the national indicators reported quarterly and 6-monthly. For each indicator, the indicator is defined, the target, if any, is stated and how the indicator was calculated is explained. The level of detail reported for each indicator varies.

For some indicators, results are presented for both NCSP regions and DHB areas. It is important to note that there are 14 NCSP regions and 21 DHB areas, and nine of these match (Hawkes Bay, Nelson/Marlborough, Northland, Otago, Tairawhiti, Taranaki, Southland, Waikato and West Coast).

4.1 Enrolment of women

Definition
Enrolled women were defined as women aged 20-69 years at the end of the quarter who had ever had a smear recorded on the NCSP-Register, were alive and not living overseas, and were not recorded as being too ill to continue being screened or had not indicated to the programme that they did not wish to have any more smears. Women with a normal smear history who were recorded on the NCSP-Register as no longer participating in routine screening because they had had a hysterectomy for a benign reason were also excluded.

Target
There is no target for enrolment, but changes over time will be monitored.

Calculation
The number of women currently enrolled on the NCSP-Register was calculated using the date of birth and current registration status of women. Enrolment was expressed as a proportion of both the estimated unadjusted and hysterectomy-adjusted populations.

Results
Overall, there was a high level of enrolment particularly when the population was adjusted for the prevalence of hysterectomy. At 30 June 2001, 993,898 women aged 20-69 years were enrolled on the NCSP-Register. This was 81.0% of the unadjusted target population. When the target population was adjusted for hysterectomy, enrolment was 92.1%. Since the end of the last reporting quarter, the number of 20-69 year old women enrolled had increased by 9,438 women, and the proportion of the target population enrolled increased by 0.8% for the unadjusted population and 0.9% for the hysterectomy-adjusted population.

Table 1 shows the proportion of 20-69 year old women enrolled by 5-year age group for each NCSP region. Overall these results are similar to the previous two reports. The proportion of all 20-69 year old women enrolled in each NCSP region ranged from 71.6% in the West Coast to 87.8% in Wellington, 82.2% to 99.3%, respectively, when adjusted for hysterectomy.

Table 2 shows the proportion of 20-69 year old women enrolled by 5-year age group for each DHB area. For 9,590 women, the DHB area where they resided was unspecified[5]. Enrolment amongst the DHB areas ranged from 71.6% for the West Coast to 89.6% for Capital Coast, 82.2% to 100.7%, respectively, when adjusted for hysterectomy.

The proportion of women enrolled in each 5-year age group continued to vary. The overall patterns were similar to those observed in the previous two reports. The 25-44 year old age groups continued to have the highest proportions of women enrolled. For this reporting quarter, enrolment was 85% or more for these age groups in most NCSP regions and DHB areas. The West Coast had lower levels of enrolment (less than 85%) amongst these age groups compared with other areas. Enrolment for all 20-24 year old women was 71.1%. Amongst the NCSP regions enrolment for this youngest age group ranged from 61.7% in the West Coast to 83.7% in Tairawhiti, and amongst the DHB areas it ranged from 61.2% in Wairarapa to 85.7% in the Lakes area. Enrolment declined with increasing age from 79.3% for all 45-49 year old women to 53.0% for the 65-69 year old age group. This pattern was also observed for each of the NCSP regions and DHB areas.

Table 3 shows the proportion of 20-69 year old women enrolled by 5-year age group for Maori, 'Other' and Pacific women. Overall, enrolment amongst the ethnic groups was similar to that reported for the previous quarter and continued to be highest for 'Other' women. The proportions of 20-69 year old Maori, 'Other' and Pacific women enrolled were 66.4%, 83.8% and 72.3%, respectively. Enrolment after adjustment for hysterectomy was 73.0%, 96.0% and 79.3%, respectively. As was observed for the NCSP regions and DHB areas, enrolment was relatively higher amongst the 25-44 year age groups and declined from the 45-49 year age group to the 65-69 year age groups for each ethnic group.

Table 4 shows the proportion of 20-69 year old women enrolled by ethnic group for each DHB for the unadjusted population. Enrolment for 'Other' women was higher than that for both Maori and Pacific women in all but one DHB area. The exception was South Canterbury where enrolment for Pacific women (94.3%) was highest. Enrolment for each of the three ethnic groups varied considerably amongst DHB areas. Enrolment for 'Other' women ranged from 73.9% in the West Coast to 94.1% in Capital Coast. For Maori women enrolment ranged from 44.6% in South Canterbury to 82.2% in Tairawhiti. For Pacific women enrolment ranged from 30.9% in the West Coast to 94.3% in South Canterbury.

Tables 1, 2 and 3 show that the estimated proportion of women enrolled for some 5-year age groups was greater than 100%. When the proportions for the 5-year age groups were adjusted for hysterectomy, estimated enrolment was much more likely to exceed 100% (data not shown). Reasons for these observations were explained in the previous two reports[6].

[5] See Methods section.

[6] It is highly unlikely that all women for whom screening is recommended in a particular 5-year age group in a particular NCSP region or DHB area are enrolled on the NCSP-Register because it is known that some women opt not to enrol on the NCSP-Register when they have their cervical smears. An estimate of opt-off rates will be reported in the annual reports. There are several possible reasons for some enrolment proportions being greater than 100% and other proportions possibly being higher than the true situation. One reason is that some individual women are enrolled on the NCSP-Register more

RECOMMENDATIONS

Data Issues

The following recommendations were previously stated in Report 1, Section 4.1 and are still applicable.

1. Efforts to minimise the number of enrolled women with more than one National Health Index number need to continue.

2. Efforts to minimise the number of women for whom screening is no longer recommended but who are regarded as actively participating in screening on the NCSP-Register need to continue.

Service Issues

1. Efforts to increase enrolments of women in all 5-year age groups need to continue, particularly in those NCSP regions and DHB areas with lower proportions of women enrolled in the NCSP - Wairarapa, the West Coast and Whanganui.

2. Efforts to increase enrolments of women in the 50-69 year old age group in all regions need to continue.

3. Efforts to increase enrolments of Maori and Pacific women in all 5-year age groups need to continue.

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than once, because they have been assigned more than one National Health Index (NHI) number. Multiple NHI numbers for individual women can arise when women change their surname, or return to New Zealand after living overseas for a period of time, or are issued a new NHI number by different health providers. Another possible reason is that some women for whom routine screening is no longer recommended may be incorrectly classified as still actively participating on the NCSP-Register. This group of women includes those who now live overseas, those who have died, and those who have had a total hysterectomy for a benign condition and have a normal smear history. A third possible reason for proportions of women enrolled being more than 100% is that the projected year 2001 population used to calculate these proportions may be lower than the true population in 2001. The significance of these factors may vary between regions, and as a result may contribute to the regional variation in enrolments.

Table 1. The proportion (%) of women aged 20-69 years enrolled by 5-year age group in each NCSP region [no targets]**.**

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	Total 20-69	
											Unadj.	Hyst adj.
Auckland	66.8	94.4	100.1	94.9	87.8	79.6	70.9	63.7	57.4	49.4	81.2	91.7
Bay of Plenty	83.0	103.4	101.0	96.6	90.5	80.9	70.5	63.5	57.9	53.7	82.9	95.3
Canterbury	73.2	93.1	97.1	93.8	85.6	76.1	67.6	60.0	53.5	47.7	78.2	89.3
Hawkes Bay	68.6	93.2	90.9	89.4	82.5	74.4	65.5	61.8	57.8	53.5	75.9	87.4
Manawatu/ Wanganui	69.7	90.5	93.6	91.3	86.5	76.4	68.5	62.2	59.8	55.8	78.0	88.9
Nelson/ Marlborough	71.9	94.4	91.8	92.1	87.1	78.0	71.4	63.5	57.1	55.1	78.8	90.8
Northland	70.2	92.3	91.9	90.7	86.4	79.2	71.5	64.2	59.6	56.4	78.2	90.4
Otago	73.5	90.7	94.3	92.3	85.9	78.8	70.8	68.0	60.7	58.7	79.5	90.4
Southland	66.3	96.7	94.4	89.8	86.8	78.6	71.5	66.0	65.4	56.6	80.0	91.1
Tairawhiti	83.7	99.7	99.2	93.9	84.3	79.2	71.8	67.0	59.0	55.2	82.3	94.1
Taranaki	75.9	103.7	97.1	94.5	88.4	83.3	75.7	72.0	70.4	64.2	84.5	96.9
Waikato	70.7	93.6	96.7	93.5	87.8	80.3	71.4	64.5	60.0	55.4	80.5	91.5
Wellington	75.3	106.3	108.6	100.8	93.1	83.6	75.8	68.9	64.1	55.5	87.8	99.3
West Coast	61.7	76.8	81.8	83.4	80.2	73.6	66.0	60.0	57.4	50.5	71.6	82.2
Total	71.1	95.9	98.7	94.5	87.8	79.3	70.8	64.1	58.9	53.0	81.0	92.1

Table 2. The proportion (%) of women aged 20-69 years by 5-year age group enrolled in each DHB area [no targets]**.**

District Health Board area	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Auckland	61.4	99.1	102.5	95.6	86.3	79.9	72.8	64.4	58.7	48.4	82.5	92.3
Bay of Plenty	78.7	101.2	99.1	95.2	89.9	80.3	68.5	63.4	57.6	53.8	80.8	93.4
Canterbury	71.5	91.2	96.1	93.4	84.9	75.5	66.7	59.2	52.6	46.9	77.5	88.2
Capital Coast	74.9	108.7	109.7	101.2	95.2	85.5	77.4	69.1	64.7	56.5	89.6	100.7
Hawkes Bay	68.6	93.2	90.9	89.4	82.5	74.4	65.5	61.8	57.8	53.5	75.9	87.4
Hutt	72.6	96.0	103.3	98.1	90.1	81.9	72.0	68.9	64.3	56.1	84.1	95.4
Lakes	85.7	102.2	100.4	95.9	89.7	79.8	71.8	62.0	57.4	52.2	83.7	95.3
Manawatu	68.0	85.9	90.9	89.6	85.5	75.1	67.9	61.6	58.8	57.1	76.4	86.9
Nelson/ Marlborough	71.9	94.4	91.8	92.1	87.1	78.0	71.4	63.5	57.1	55.1	78.8	90.8
North West Auckland	65.1	86.3	95.9	91.0	86.3	77.4	69.2	62.7	57.2	50.3	77.9	88.6
Northland	70.2	92.3	91.9	90.7	86.4	79.2	71.5	64.2	59.6	56.4	78.2	90.4
Otago	73.5	90.7	94.3	92.3	85.9	78.8	70.8	68.0	60.7	58.7	79.5	90.4
South Auckland	70.5	93.0	97.9	94.9	88.2	78.7	68.7	61.5	54.4	47.6	80.2	90.7
South Canterbury	70.8	93.8	94.1	89.3	86.2	77.3	70.7	62.6	57.6	50.9	76.8	89.3
Southland	66.3	96.7	94.4	89.8	86.8	78.6	71.5	66.0	65.4	56.6	80.0	91.1
Tairawhiti	83.7	99.7	99.2	93.9	84.3	79.2	71.8	67.0	59.0	55.2	82.3	94.1
Taranaki	75.9	103.7	97.1	94.5	88.4	83.3	75.7	72.0	70.4	64.2	84.5	96.9
Waikato	70.7	93.6	96.7	93.5	87.8	80.3	71.4	64.5	60.0	55.4	80.5	91.5
Wairarapa	61.2	91.8	93.0	90.1	78.3	69.2	69.8	59.6	54.1	45.2	72.8	84.4
West Coast	61.7	76.8	81.8	83.4	80.2	73.6	66.0	60.0	57.4	50.5	71.6	82.2
Whanganui	62.9	89.8	91.6	89.3	84.1	75.6	67.3	60.2	60.3	51.4	75.6	86.6
Total	71.1	95.9	98.7	94.5	87.8	79.3	70.8	64.1	58.9	53.0	81.0	92.1
Unspecified†	1,519	1,878	1,594	1,322	928	779	623	460	307	180	9,590	

† See Methods section.

Table 3. The proportion (%) of women aged 20-69 years by 5-year age group enrolled for each specified ethnic group [no targets]**.**

Ethnic Group	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Maori	60.2	77.7	79.8	75.4	68.4	59.8	51.4	47.7	44.5	41.4	66.4	73.0
'Other'	76.5	101.3	102.9	98.2	91.1	82.3	73.3	66.1	60.5	54.2	83.8	96.0
Pacific	48.0	81.4	93.9	88.9	80.0	67.8	58.8	52.3	50.2	40.3	72.3	79.3
Total	71.1	95.9	98.7	94.5	87.8	79.3	70.8	64.1	58.9	53.0	81.0	92.1

Table 4. The proportion (%) of women aged 20-69 years enrolled by ethnicity for each DHB area.

District Health Board area	Ethnic Group			Age group (years) Total 20-69
	Maori	Other	Pacific	
Auckland	60.3	85.9	73.7	82.5
Bay of Plenty	66.5	85.4	62.7	80.8
Canterbury	46.4	79.7	62.5	77.5
Capital Coast	68.4	94.1	63.5	89.6
Hawkes Bay	67.9	78.4	65.7	75.9
Hutt	72.3	87.5	64.9	84.1
Lakes	71.7	89.8	65.7	83.7
Manawatu	66.6	78.2	64.9	76.4
Nelson/ Marlborough	49.9	81.3	67.2	78.8
North West Auckland	56.9	80.6	66.8	77.9
Northland	74.1	80.5	42.7	78.2
Otago	49.8	81.3	71.9	79.5
South Auckland	70.6	82.4	80.6	80.2
South Canterbury	44.6	78.5	94.3	76.8
Southland	50.6	83.0	74.7	80.0
Tairawhiti	82.2	82.5	76.6	82.3
Taranaki	69.1	87.1	48.3	84.5
Waikato	67.5	83.9	66.1	80.5
Wairarapa	53.8	76.6	43.1	72.8
West Coast	49.6	73.9	30.9	71.6
Whanganui	70.7	77.1	64.7	75.6
Total	66.4	83.8	72.3	81.0
Number unspecified†	1,195	8,177	218	9,590

† See Methods section.

4.2 Participation of women

Definition
Participation refers to the proportion of 20-69 year old enrolled women, who have had a smear recorded on the NCSP-Register within the previous 6 years.

Targets
The targets for participation are 85% for the unadjusted population and 90% for the hysterectomy-adjusted population.

Calculation
The number of enrolled women aged 20-69 years at the end of the quarter with a smear recorded on the NCSP-Register in the past 6 years to 30 June 2001 was calculated. This was expressed both as a proportion of the estimated unadjusted and hysterectomy-adjusted populations.

Results
Overall, participation rates for all 20-69 year old women continued to be below the current targets for both the unadjusted and hysterectomy-adjusted populations. Participation was 76.4% for the unadjusted population and 86.9% for the hysterectomy-adjusted population. These rates were very similar to those reported for the previous two quarters.

Table 5 shows the proportion of 20-69 year old women who have had a smear result recorded on the NCSP-Register in the 6 years to 30 June 2001 by 5-year age groups for each NCSP region. Like the previous two quarters, the target for the unadjusted total 20-69 year old population was not reached in any of the NCSP regions. For this quarter, the unadjusted participation rates ranged from 68.2% in the West Coast to 83.2% in Wellington. Table 6 shows the proportion of 20-69 year old women who have had a smear result recorded on the NCSP-Register in the 6 years to 30 June 2001 by 5-year age groups for each DHB area. For 8,285 participating women, the DHB area where they resided was unspecified[7]. The target for the unadjusted total 20-69 year old population was also not reached in any of the DHB areas. Participation rates amongst the DHB areas ranged from 68.2% in the West Coast to 84.8% in Capital Coast. When the 20-69 year old population was adjusted for hysterectomy prevalence, the 90% target was reached in six NCSP regions and DHB areas - Bay of Plenty (90.2%), Tairawhiti (90.9%), Taranaki (93.1%), Wellington (94.0%), Capital Coast (95.3%) and Hutt (90.5%).

For each NCSP region and DHB area, participation rates for the unadjusted 20-69 year old population continued to be about 10% lower than those for the hysterectomy-adjusted 20-69 year old population. However, there is only a 5% difference between the unadjusted and hysterectomy-adjusted targets.

Overall, participation rates continued to be highest, more than 80%, for the 25-44 year old age groups. Participation declined from 74.6% for all 45-49 year old women to 50.1% for all 65-69 year old women. As observed in previous reports, a relatively low proportion of 20-24 year old women (70.2%) had had a smear within the previous 6 years, but there was little difference between this proportion and the proportion of

[7] See Methods section .

20-24 year old women enrolled (71.1%). These patterns were observed in each of the NCSP regions and DHB areas.

Amongst the NCSP regions, 5-year age group participation rates were lower in the West Coast for women aged 20-59 years and Canterbury for women aged 60-69 years compared with the other regions. The highest 5-year age group participation rates were observed in Tairawhiti for women aged 20-24 years, Wellington for women aged 25-44 years and Taranaki for women aged 45-69 years compared with other regions. Amongst the DHB areas, the lowest 5-year age group participation rates were observed in Wairarapa (20-24, 40-44 and 65-69 years), West Coast (25-39 and 50-54 years), Canterbury (60-64 years) and South Auckland (60-69 years), and the highest 5-year age group participation rates were observed for Lakes (20-24 years) Capital Coast (25-54 years) and Taranaki (55-69 years).

Table 7 shows the proportion of 20-69 year old women participating in the NCSP by 5-year age groups for each specified ethnic group. Overall, participation continued to be lower amongst Maori and Pacific women. For all 20-69 year old women, participation rates for Maori, 'Other' and Pacific women were 60.5%, 79.7% and 63.4%, respectively, for the unadjusted populations. When adjusted for hysterectomy prevalence, participation rates for Maori, 'Other' and Pacific women were 66.6%, 91.4% and 69.6%, respectively. These rates were almost unchanged compared with the last reporting quarter.

For each of the three ethnic groups, participation continued to be higher amongst women aged 25-44 years, compared with women aged 45 years and over. The lowest participation rates were observed amongst women aged 65-69 years in all three ethnic groups. These rates were 37.5%, 51.5% and 33.9% for Maori, 'Other' and Pacific women, respectively.

The calculated participation rates for women aged 25-34 years in the Wellington NCSP region continued to be greater than 100% (Table 5). This also occurred when the participation rates were calculated for the same age group for the Capital Coast DHB area (Table 6). When the 5-year age group populations were adjusted for hysterectomy (data not shown), rates greater than 100% were also observed for the 35-39 year age group in Wellington. Possible reasons for these rates being greater than 100% are the same as those given for higher than expected enrolments in section 4.1.

RECOMMENDATIONS

Data Issues

1. As for section 4.1.

2. That the participation rate target for the unadjusted population be lowered from 85% to 80%.

Service Issues

1. Efforts to increase the participation of women in all 5-year age groups should continue, particularly in those NCSP regions and DHB areas with lower participation rates - Wairarapa, the West Coast and Whanganui.

2. Efforts to increase the participation of women in the 45-69 year old age group in all regions need to continue.

3. Efforts to increase the participation of Maori and Pacific women in all 5-year age groups need to continue.

Table 5. The proportion (%) of 20-69 year old women participating in the NCSP by 5-year age groups for each NCSP region [targets = 85% unadjusted and 90% adjusted]**.**

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	Total 20-69	
											Unadj.	Hyst adj.
Auckland	65.8	88.5	92.4	87.7	81.4	73.9	65.9	59.1	53.2	45.6	75.8	85.6
Bay of Plenty	81.6	97.0	94.7	90.8	85.2	76.7	66.8	60.2	55.1	51.1	78.4	90.2
Canterbury	72.3	87.9	91.6	89.3	81.1	72.3	64.2	56.9	50.7	44.9	74.4	84.9
Hawkes Bay	67.4	88.2	85.9	85.4	78.9	71.5	62.7	59.8	55.8	51.5	72.7	83.7
Manawatu/ Wanganui	68.9	84.5	87.3	85.4	81.3	71.7	64.9	58.7	57.1	52.8	73.6	83.9
Nelson/ Marlborough	71.0	88.5	86.4	87.1	83.0	74.1	68.4	60.8	55.3	52.9	75.1	86.5
Northland	68.7	85.5	84.9	83.5	79.6	73.4	67.4	60.2	56.0	53.0	72.9	84.2
Otago	73.1	84.7	88.6	88.4	82.6	75.8	68.6	66.2	58.6	57.0	76.4	86.8
Southland	65.8	91.4	89.3	85.4	82.7	74.7	68.2	62.5	61.8	53.8	76.2	86.8
Tairawhiti	82.7	95.5	94.4	90.6	81.2	76.8	69.3	64.9	57.4	54.8	79.5	90.9
Taranaki	75.2	98.6	92.6	90.2	84.7	79.4	73.1	69.5	68.0	62.5	81.2	93.1
Waikato	69.6	86.8	89.7	87.4	82.4	75.5	67.4	60.9	57.1	52.8	75.8	86.2
Wellington	74.6	100.7	101.3	94.9	87.3	79.0	71.7	65.3	60.8	53.0	83.2	94.0
West Coast	61.2	73.0	78.4	80.2	75.5	69.7	62.4	56.7	54.0	47.6	68.2	78.3
Total	70.2	90.0	92.1	88.6	82.4	74.6	66.8	60.6	55.7	50.1	76.4	86.9

Table 6. The proportion (%) of women aged 20-69 years by 5-year age group participating in each DHB area [targets = 85% unadjusted and 90% adjusted]**.**

District Health Board area	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Auckland	60.5	92.8	94.2	87.9	79.6	74.1	67.7	60.0	54.1	44.6	76.8	85.9
Bay of Plenty	77.5	95.2	93.4	90.2	85.3	76.3	65.4	60.5	55.0	51.5	76.9	88.9
Canterbury	70.7	86.5	91.0	89.1	80.6	71.9	63.4	56.2	50.0	44.1	73.8	84.1
Capital Coast	74.3	103.2	102.1	95.0	89.3	80.9	73.2	65.3	60.8	53.8	84.8	95.3
Hawkes Bay	67.4	88.2	85.9	85.4	78.9	71.5	62.7	59.8	55.8	51.5	72.7	83.7
Hutt	71.8	90.8	96.8	92.9	84.8	77.3	68.0	65.4	61.5	53.6	79.7	90.5
Lakes	84.1	95.9	93.8	89.8	83.6	75.4	67.5	58.3	54.1	49.1	78.8	89.8
Manawatu	67.3	80.8	85.6	84.5	80.7	71.2	64.9	58.8	56.4	54.6	72.7	82.7
Nelson/ Marlborough	71.0	88.5	86.4	87.1	83.0	74.1	68.4	60.8	55.3	52.9	75.1	86.5
North West Auckland	64.4	80.9	89.7	85.5	80.9	72.6	64.8	58.4	53.6	47.0	73.3	83.4
Northland	68.7	85.5	84.9	83.5	79.6	73.4	67.4	60.2	56.0	53.0	72.9	84.2
Otago	73.1	84.7	88.6	88.4	82.6	75.8	68.6	66.2	58.6	57.0	76.4	86.8
South Auckland	69.3	87.3	89.8	86.9	81.2	72.5	63.5	56.7	50.0	43.4	74.4	84.2
South Canterbury	69.8	88.5	88.7	85.4	81.8	73.1	67.3	59.9	54.0	48.7	73.1	85.0
Southland	65.8	91.4	89.3	85.4	82.7	74.7	68.2	62.5	61.8	53.8	76.2	86.8
Tairawhiti	82.7	95.5	94.4	90.6	81.2	76.8	69.3	64.9	57.4	54.8	79.5	90.9
Taranaki	75.2	98.6	92.6	90.2	84.7	79.4	73.1	69.5	68.0	62.5	81.2	93.1
Waikato	69.6	86.8	89.7	87.4	82.4	75.5	67.4	60.9	57.1	52.8	75.8	86.2
Wairarapa	59.9	85.2	87.9	85.6	73.4	66.4	66.5	57.0	52.2	43.4	69.2	80.2
West Coast	61.2	73.0	78.4	80.2	75.5	69.7	62.4	56.7	54.0	47.6	68.2	78.3
Whanganui	62.0	84.0	84.4	82.9	79.0	70.2	62.9	55.9	57.1	48.0	70.8	81.2
Total	70.2	90.0	92.1	88.6	82.4	74.6	66.8	60.6	55.7	50.1	76.4	86.9
Number of unspecified†	1,482	1,641	1,316	1,073	774	649	531	410	262	147	8,285	

† See Methods section.

Table 7. The proportion (%) of women aged 20-69 years by 5-year age group participating for each specified ethnic group [targets = 85% unadjusted and 90% adjusted]**.**

Ethnic Group	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Maori	58.7	71.5	71.8	67.5	60.7	53.4	46.4	42.6	39.8	37.5	60.5	66.6
'Other'	75.7	95.7	96.9	93.1	86.5	78.2	69.6	62.8	57.5	51.5	79.7	91.4
Pacific	47.0	74.7	81.6	75.5	67.7	56.6	50.0	44.2	43.2	33.9	63.4	69.6
Total	70.2	90.0	92.1	88.6	82.4	74.6	66.8	60.6	55.7	50.1	76.4	86.9

4.3 Coverage of women

Definition
Coverage is the proportion of 20-69 year old women who have had a cervical smear recorded on the NCSP-Register in the 36 months prior to the end of the quarter. The 36-month period for this reporting quarter was 1 July 1998 to 30 June 2001. A 36-month period was used because this is the recommended cervical screening interval for women in New Zealand. Also, international comparisons will be possible.

Targets
The targets for coverage are 80% for the unadjusted population and 85% for the hysterectomy-adjusted population.

Calculation
The number of enrolled women with a smear recorded on the NCSP-Register within the 3 years prior to, and aged 20-69 years at, the end of the quarter was calculated. This was expressed both as a proportion of the estimated unadjusted and hysterectomy-adjusted populations.

Results
Overall, coverage results for this quarter were similar to those for the previous two reporting quarters. Coverage for the 20-69 year old population was 63.9% for the unadjusted population and 72.7% for the hysterectomy-adjusted population. These proportions were again both lower than the recommended targets of 80% for the unadjusted population and 85% for the hysterectomy-adjusted population.

Table 8 shows the proportion of 20-69 year old women screened in the previous 36 months by 5-year age groups for each NCSP region. The targets were not reached in any of the NCSP regions for the total 20-69 year old age group. Amongst the regions, coverage for 20-69 year old women was highest in Tairawhiti (70.7% unadjusted and 80.8% when adjusted for hysterectomy prevalence) and lowest in the West Coast (57.6% unadjusted and 66.2% when adjusted for hysterectomy prevalence).

Table 9 shows the proportion of 20-69 year old women screened in the previous 36 months by 5-year age groups for each DHB region. For the total 20-69 year old age group, the targets were also not reached in any of the DHB areas. Amongst these areas, coverage for the 20-69 year old population was highest in Capital Coast and Tairawhiti and lowest in the West Coast.

As was observed in Reports 1 and 2, for each NCSP region and for each DHB area, there was a difference in coverage of at least 8% between the unadjusted and the hysterectomy-adjusted total 20-69 year old population. However, there is only a 5% difference between the unadjusted and hysterectomy-adjusted coverage targets.

Tables 8 and 9 show that coverage amongst the 5-year age groups was similar to that observed in reports 1 and 2. While coverage amongst women aged 35-64 years is most closely associated with the effectiveness of screening in reducing cervical cancer mortality[8]., the highest levels of coverage for this quarter continued to be observed for

[8] Laara E, Day NE, Hakama M. Trends in mortality from cervical cancer in the nordic countries: association with organised screening programmes. Lancet 1987; i: 1247-49.

women aged 25-39 years. This pattern was observed in each NCSP region and DHB area. For all women aged 25-39 years, coverage was more than 70%, but this level was not always reached in each NCSP region or DHB area. This was most apparent for Northland, South Auckland, Whanganui and the West Coast. For the 20-24 year old age group coverage was 60.8% and amongst the NCSP regions it ranged from 53.3% in the West Coast to 72.3% in Tairawhiti (Table 8). Amongst the DHB areas coverage for this youngest age group ranged from 51.0% in Wairarapa to 72.3% in Tairawhiti (Table 9). For women aged 40-69 years coverage continued to decline with increasing age, from 69.0% in the 40-44 year old age group to 42.6% in the 65-69 year old age group. A similar pattern was observed for each NCSP region and DHB area. For the 65-69 year old age group, coverage was less than 50% in most NCSP regions and DHB areas. The exceptions were Otago, Tairawhiti and Taranaki, where the coverage was 50.4%, 50.2% and 54.9%, respectively. For the 65-69 year old age group particularly low coverage was observed for Auckland (36.5%), Canterbury (37.0%), South Auckland (35.5%) and Wairarapa (37.5%).

Table 10 shows the proportion of 20-69 year old women screened in the previous 36 months by 5-year age groups for each specified ethnic group. For all 20-69 year old women coverage amongst Maori and Pacific women was about 20% less than for 'Other' women. The unadjusted coverage was 46.3%, 67.8% and 45.1% for Maori, 'Other' and Pacific 20-69 year old women, respectively. When adjusted for hysterectomy prevalence, coverage for these three groups was 50.9%, 77.7% and 49.5%, respectively.

For each of the three ethnic groups, coverage was relatively higher amongst 25-44 year old women and it was the lowest amongst 65-69 year old women. For Maori and Pacific women coverage was less than 40% for women aged 50-69 years. The lowest coverage amongst the 5-year age groups was for 65-69 year old Pacific women, for whom it was 24.9%.

Table 11 shows the proportion of 20-69 year old women screened in the previous 36 months by ethnic group for each DHB for the unadjusted population. For all DHB areas, coverage for 'Other' women was higher than that for both Maori and Pacific women, except in South Canterbury where coverage for Pacific women (68.6%) was slightly higher than that for 'Other' women (63.8%). Amongst DHB areas, coverage for each of the three ethnic groups varied considerably. Coverage for 'Other' women ranged from 59.9% for the West Coast to 77.1% for the Capital Coast. For Maori women coverage ranged from 33.9% for South Canterbury to 66.3% for Tairawhiti. For Pacific women coverage ranged from 23.6% for the West Coast to 68.6% for the South Canterbury.

Women having smears less frequently than 3-yearly is the most likely reason for coverage being less than the targets. However, an overestimate of the target denominator population may have resulted in coverage being underestimated. On the other hand, if the estimated denominator population was less than the true population, coverage will have been overestimated. Also individual women having smears more frequently than 3-yearly who are enrolled on the NCSP-Register more than once because they have more than one National Health Index (NHI) number, and the inclusion of women classified as actively participating in screening on the NCSP-Register for whom routine screening is no longer recommended will have resulted in

coverage being overestimated. It is unknown how many women to whom these issues apply.

RECOMMENDATIONS

Data Issues

1. As for section 4.1.

Service Issues

1. Efforts to improve coverage in all NCSP regions and DHB areas need to continue, particularly in South Auckland, Wairarapa, West Coast and Whanganui.

2. Efforts to improve coverage in all age groups, particularly amongst the 45-69 year old age groups in all areas need to continue.

3. Efforts to improve coverage in all 5-year age groups amongst Maori and Pacific women need to continue.

Table 8. The proportion (%) of 20-69 year-old women screened in the previous 36 months by 5-year age groups for each NCSP region [targets = 80% unadjusted and 85% adjusted]**.**

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	Total 20-69	
											Unadj.	Hyst adj.
Auckland	56.3	68.9	73.1	69.8	66.2	61.0	55.1	49.5	44.4	37.5	61.5	69.4
Bay of Plenty	68.8	78.8	77.5	75.6	71.9	65.9	58.1	52.9	49.1	44.1	66.2	76.1
Canterbury	64.1	70.9	77.2	75.9	69.3	62.2	55.8	49.4	43.9	37.7	63.4	72.3
Hawkes Bay	57.4	72.5	71.8	72.2	67.0	61.6	55.1	52.8	48.9	45.2	62.0	71.4
Manawatu/ Wanganui	59.7	66.4	71.7	71.2	68.0	60.6	55.9	50.8	49.1	45.6	61.7	70.3
Nelson/ Marlborough	61.1	71.9	72.8	76.0	71.5	65.0	59.8	54.3	49.5	45.9	64.7	74.6
Northland	55.5	66.3	68.8	68.8	66.0	61.2	57.7	51.6	47.5	44.8	60.2	69.6
Otago	65.8	67.1	77.1	77.0	72.4	68.0	61.4	60.2	53.3	50.4	66.9	76.0
Southland	58.1	73.7	74.0	72.3	70.4	64.5	58.1	53.7	54.0	45.8	64.6	73.6
Tairawhiti	72.3	82.6	82.1	79.6	73.0	70.3	62.6	59.0	51.8	50.2	70.7	80.8
Taranaki	65.0	82.4	78.9	78.3	73.9	69.1	64.4	62.0	60.2	54.9	70.4	80.7
Waikato	59.7	67.6	72.6	71.9	68.2	63.7	57.6	52.5	49.6	45.2	62.9	71.6
Wellington	66.3	81.1	83.8	79.2	73.7	67.7	61.5	56.4	51.6	44.9	70.1	79.2
West Coast	53.3	60.6	64.5	66.3	64.2	59.3	53.7	48.9	46.7	40.5	57.6	66.2
Total	60.8	71.5	75.2	73.2	69.0	63.3	57.3	52.2	48.0	42.6	63.9	72.7

Table 9. The proportion (%) of women aged 20-69 years screened in the previous 36 months by 5-year age group for each DHB area [targets = 80% unadjusted and 85% adjusted]**.**

District Health Board area	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Auckland	52.4	71.9	73.8	69.4	64.5	61.1	56.4	50.2	45.4	36.5	62.0	69.4
Bay of Plenty	65.6	77.6	77.1	75.7	72.6	65.8	57.2	53.5	49.5	44.9	65.5	75.6
Canterbury	62.8	70.0	76.9	75.8	69.0	62.0	55.2	48.8	43.4	37.0	63.0	71.8
Capital Coast	66.9	83.1	84.5	80.2	76.1	70.4	63.4	56.7	52.1	45.5	71.9	80.8
Hawkes Bay	57.4	72.5	71.8	72.2	67.0	61.6	55.1	52.8	48.9	45.2	62.0	71.4
Hutt	62.7	73.5	80.0	76.2	70.7	64.6	57.6	56.0	51.7	45.6	66.6	75.6
Lakes	70.7	78.0	75.8	73.9	69.8	64.5	58.3	50.5	47.6	41.7	65.9	75.0
Manawatu	59.1	64.9	71.4	71.2	68.3	61.0	56.3	51.3	49.3	47.2	61.8	70.2
Nelson/ Marlborough	61.1	71.9	72.8	76.0	71.5	65.0	59.8	54.3	49.5	45.9	64.7	74.6
North West Auckland	55.5	64.4	72.9	70.0	67.0	61.2	54.7	49.2	45.2	39.1	60.7	69.0
Northland	55.5	66.3	68.8	68.8	66.0	61.2	57.7	51.6	47.5	44.8	60.2	69.6
Otago	65.8	67.1	77.1	77.0	72.4	68.0	61.4	60.2	53.3	50.4	66.9	76.0
South Auckland	58.6	67.6	70.3	68.3	65.3	58.7	52.7	47.4	41.2	35.5	59.8	67.7
South Canterbury	60.8	73.3	74.3	73.5	69.8	62.0	58.2	52.2	46.5	40.7	62.3	72.4
Southland	58.1	73.7	74.0	72.3	70.4	64.5	58.1	53.7	54.0	45.8	64.6	73.6
Tairawhiti	72.3	82.6	82.1	79.6	73.0	70.3	62.6	59.0	51.8	50.2	70.7	80.8
Taranaki	65.0	82.4	78.9	78.3	73.9	69.1	64.4	62.0	60.2	54.9	70.4	80.6
Waikato	59.7	67.6	72.6	71.9	68.2	63.7	57.6	52.5	49.6	45.2	62.9	71.6
Wairarapa	51.0	70.1	75.3	71.4	61.5	55.5	56.5	49.5	44.0	37.5	58.4	67.7
West Coast	53.3	60.6	64.5	66.3	64.2	59.3	53.7	48.9	46.7	40.5	57.6	66.2
Whanganui	52.2	65.2	67.8	68.2	65.2	57.9	53.1	47.9	47.7	41.6	58.3	66.8
Total	60.8	71.5	75.2	73.2	69.0	63.3	57.3	52.2	48.0	42.6	63.9	72.7

Table 10. The proportion (%) of women aged 20-69 years screened in the previous 36 months by 5-year age group for each specified ethnic group [targets = 80% unadjusted and 85% adjusted]**.**

Ethnic Group	Age group (years)											
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69	
											Unadj.	Hyst adj.
Maori	47.6	53.7	53.4	50.4	45.6	41.1	35.9	33.7	31.9	29.7	46.3	50.9
'Other'	66.9	77.3	81.1	78.6	73.7	67.2	60.3	54.7	50.0	44.1	67.8	77.7
Pacific	37.4	52.5	55.4	52.2	46.8	40.5	37.1	32.2	32.2	24.9	45.1	49.5
Total	60.8	71.5	75.2	73.2	69.0	63.3	57.3	52.2	48.0	42.6	63.9	72.7

Table 11. The proportion (%) of women aged 20-69 years screened in the previous 36 months by ethnicity for each DHB area [targets = 80% unadjusted and 85% adjusted]**.**

District Health Board area	Ethnic Group			Age group (years) Total 20-69
	Maori	Other	Pacific	
Auckland	39.4	66.8	43.5	62.0
Bay of Plenty	46.6	71.4	45.7	65.5
Canterbury	34.4	65.2	44.2	63.0
Capital Coast	49.3	77.1	38.0	71.9
Hawkes Bay	48.7	66.1	48.1	62.0
Hutt	51.8	70.9	43.0	66.6
Lakes	50.4	73.7	42.4	65.9
Manawatu	47.9	64.3	43.6	61.8
Nelson/ Marlborough	36.5	67.2	49.6	64.7
North West Auckland	39.5	63.8	42.0	60.7
Northland	50.3	64.7	28.5	60.2
Otago	37.9	68.7	53.1	66.9
South Auckland	46.8	65.0	50.3	59.8
South Canterbury	33.9	63.8	68.6	62.3
Southland	34.6	67.7	47.7	64.6
Tairawhiti	66.3	74.3	60.6	70.7
Taranaki	50.5	73.7	27.8	70.4
Waikato	45.4	67.5	44.0	62.9
Wairarapa	36.2	62.8	26.7	58.4
West Coast	35.8	59.9	23.6	57.6
Whanganui	48.4	61.3	43.3	58.3
Total	46.3	67.8	45.1	63.9
Number unspecified†	619	4,896	78	5,593

† See Methods section.

4.4 Women enrolled on the register but not currently participating

Definition
Non-participants are women enrolled on the register who are alive, not living overseas, and have not had a smear recorded on the NCSP-Register in the 6 years prior to the end of the quarter.

Target
There is no target for this indicator.

Calculation
This is calculated as the difference between the number of 25-69 year old women enrolled (section 4.1) and the number of 25-69 year old women participating (section 4.2) expressed both as a proportion of the estimated 25-69 year old unadjusted and hysterectomy-adjusted populations.

Women aged 20-24 years were excluded because many of these women would not have been enrolled for 6 years or more.

Results
Table 12 shows the proportion of 25-69 year old women not currently participating for each NCSP region. The proportion of all 25-69 year old women who had not had a smear recorded on the NCSP-Register in the previous 6 years to 30 June 2001 was 5.0% for the unadjusted population and 5.8% for the hysterectomy-adjusted population. These proportions were slightly higher than those reported for the previous two quarters. The non-participation rates for the unadjusted and hysterectomy-adjusted populations were 4.2% and 4.8%, respectively, for the October-December 2000 quarter and 4.5% and 5.2%, respectively, for the January-March 2001 quarter.

Amongst the NCSP regions, the lowest non-participation rates for 25-69 year old women were observed in Tairawhiti (3.0% for the unadjusted population and 3.4% when adjusted for hysterectomy prevalence). The highest non-participation rates were observed in Auckland (6.0% for the unadjusted population and 6.9% when adjusted for hysterectomy prevalence) and Northland (5.7% for the unadjusted population and 6.6% when adjusted for hysterectomy prevalence).

Overall, non-participation rates were highest amongst the 25-44 year age groups and they declined with increasing age from 4.7% for 45-49 year old women to 2.9% for 65-69 year old women (data not shown). This pattern was observed for all the NCSP regions.

Table 13 shows the proportion of 25-69 year old women not currently participating for the unadjusted and hysterectomy-adjusted populations for each specified ethnic group. Compared with 'Other' women, non-participation rates were slightly higher for Maori women, and almost twice as high for Pacific women. For the unadjusted 25-69 year old population, non-participation rates for Maori, 'Other' and Pacific women were 6.7%, 4.4% and 10.4%, respectively. When adjusted for hysterectomy, non-participation rates for 25-69 year old Maori, 'Other' and Pacific women were 7.5%, 5.1% and 11.6%, respectively.

Some women enrolled on the NCSP-Register for whom smears are recommended may not be having regular smears for a variety of reasons such as cost and embarrassment. Other women may have been classified as not participating, but they are no longer participating for valid reasons. These women include those who have had a hysterectomy for a benign reason and have a normal smear history, and those who are now living overseas. Also, some women may have moved within New Zealand and the NCSP-Register has not been informed of their new contact address. These women are referred to as 'gone no address' (GNA).

RECOMMENDATIONS

Data Issues

1. As for section 4.1.

Service Issues

1. Reasons for non-participation, particularly amongst Maori and Pacific women need to be assessed.

2. Efforts to reduce the non-participation rate in all regions need to continue.

Table 12. The non-participation rate (%) among women aged 25-69 years for each NCSP region [no targets]**.**

NCSP region	All 25-69 year old women (unadjusted)	All 25-69 year old women (hysterectomy-adjusted)
Auckland	6.0	6.9
Bay of Plenty	4.7	5.5
Canterbury	4.2	4.8
Hawkes Bay	3.4	4.0
Manawatu/ Wanganui	4.8	5.6
Nelson/ Marlborough	4.0	4.6
Northland	5.7	6.6
Otago	3.6	4.1
Southland	4.2	4.8
Tairawhiti	3.0	3.4
Taranaki	3.6	4.2
Waikato	5.1	5.9
Wellington	5.2	5.9
West Coast	3.7	4.3
Total	5.0	5.8

Table 13. The non-participation rate (%) among women aged 25-69 years for each specified ethnic group [no targets]**.**

Ethnic Group	All 25-69 year old women (unadjusted)	All 25-69 year old women (hysterectomy-adjusted)
Maori	6.7	7.5
'Other'	4.4	5.1
Pacific	10.4	11.6
Total	5.0	5.7

4.5 Re-participation rate

Definition
The re-participation rate is the proportion of enrolled women who have not had a smear result recorded on the NCSP-Register in the 6 years prior to the quarter and who have had a smear result recorded on the NCSP-Register during the reporting quarter. The re-participation rate is a measure of effective health promotion activities aimed at encouraging women overdue for a smear to have another.

Target
There is no target for this indicator.

Calculation
The number of enrolled 20-69 year old women with no smears recorded on the NCSP-Register in the 6 years prior to the beginning of the quarter (1 April 2001) were calculated. The number of these women who had a smear during the quarter was calculated and expressed as a proportion of enrolled 20-69 year old women who had not had a smear result recorded on the NCSP-Register in the 6 years prior to the beginning of the quarter. This was tabulated by age at the end of the quarter.

Results
Table 14 shows the re-participation rate in the quarter for 20-69 year old women by 5-year age groups for each NCSP region. For all 20-69 year old women the re-participation rate was 3.0%, which was the same as that reported for the previous two quarters. Amongst the regions, the re-participation rates for 20-69 year old women ranged from 1.9% in the West Coast to 4.2% in Canterbury.

Table 15 shows the re-participation rate for 20-69 year old women by 5-year age group for each specified ethnic group. The re-participation rate for all 20-69 year old Pacific women was lower than that for 20-69 year old Maori and 'Other' women. The re-participation rates for Maori, 'Other' and Pacific women were 2.7%, 3.2% and 2.0%, respectively.

RECOMMENDATIONS

Service Issues

1. Efforts to encourage re-participation need to continue in all NCSP regions, particularly for Pacific women.

Table 14. The re-participation rate (%) for 20-69 year old women by 5-year age groups for each NCSP region [no targets]**.**

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	Total 20-69
Auckland	3.5	3.3	2.8	2.8	3.0	3.1	2.9	2.7	1.8	1.5	2.9
Bay of Plenty	1.4	4.0	3.5	2.8	4.2	3.2	2.9	3.5	1.8	3.1	3.3
Canterbury	2.5	4.9	2.9	4.3	5.5	5.3	3.1	5.9	0.8	4.0	4.2
Hawkes Bay	0.0	2.4	2.3	3.6	3.9	3.1	5.0	3.4	1.7	6.3	3.3
Manawatu/ Wanganui	2.5	2.2	2.5	1.8	2.7	2.9	2.9	3.0	2.6	2.0	2.5
Nelson/ Marlborough	5.3	2.4	3.1	3.3	3.6	1.2	0.9	3.7	6.0	2.1	2.9
Northland	2.7	2.9	4.4	3.2	4.6	4.5	4.0	2.1	1.9	4.6	3.7
Otago	5.6	4.8	3.6	3.7	3.1	2.5	2.6	1.4	2.7	2.0	3.4
Southland	0.0	4.1	2.5	2.0	2.6	0.9	3.4	1.4	2.9	8.9	2.8
Tairawhiti†	11.1	4.2	1.6	2.1	6.4	3.2	0.0	0.0	0.0	0.0	2.9
Taranaki	6.3	2.5	5.2	6.4	2.3	1.7	2.4	3.6	6.1	3.0	3.8
Waikato	1.2	1.9	2.4	2.2	2.4	3.0	3.7	1.3	1.9	0.8	2.3
Wellington	5.3	4.1	2.0	2.4	3.6	2.2	2.0	2.0	3.1	2.0	2.7
West Coast‡	0.0	0.0	11.1	0.0	2.0	2.9	0.0	0.0	0.0	0.0	1.9
Total	3.1	3.4	2.8	2.9	3.5	3.2	2.9	2.9	2.1	2.6	3.0

† 9 women re-participated during the April-June 2001 quarter.
‡ 5 women re-participated during the April-June 2001 quarter.

Table 15. The re-participation rate (%) for 20-69 year old women by 5-year age groups for each specified ethnic group [no targets]**.**

Ethnic Group	Age group (years)										
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	Total 20-69
Maori	2.6	3.1	2.8	2.8	3.3	2.8	2.5	1.2	0.4	0.0	2.7
'Other'	3.3	3.5	3.0	3.1	3.8	3.3	3.1	3.3	2.4	3.0	3.2
Pacific	3.4	3.1	2.0	1.9	1.8	2.7	1.6	1.4	1.5	0.0	2.0
Total	3.1	3.4	2.8	2.9	3.5	3.2	2.9	2.9	2.1	2.6	3.0

4.6 Short interval re-screening

Definition
Short interval re-screening is the proportion of 20-69 year old enrolled women without a previous high grade or more serious result, who have had a smear earlier than the recommended interval of the screening programme. Excessive short interval re-screening represents an overuse of limited resources.

Target
The target for short interval re-screening is that it should be less than 10%.

Calculation
The number of enrolled women with two or more normal smears recorded on the NCSP-Register in the 33 months before the end of the quarter was calculated. This was expressed as a proportion of the number of enrolled women who had had at least one normal smear in the same 33-month period. Women whose smears were classified as unsatisfactory during the 33-month period were excluded. Women who enrolled in the 12 months before or during the 33-month period were also excluded. This was done to exclude women who had a recommended repeat smear 12 months after beginning screening or who joined the programme more than 5 years since their last smear. Women with a history of ASCUS possible high grade, HSIL or more serious abnormality, and women with a LSIL, ASCUS possible high grade, HSIL or more serious smear recorded during the 33-month period were also excluded as more frequent smears than 3-yearly are indicated in these instances. Unlike the calculation in report 1, women with ASCUS detected during the 33-month period were aso excluded. Therefore, the short interval re-screening rate presented in this report is not directly comparable with that shown in report 1.

Results
Table 16 shows the estimated level of short interval re-screening for 20-69 year old women by 5-year age groups. The overall level of short interval re-screening was 25.5%. which was considerably higher than the target of 10%. It was lower than that reported for the October-December 2000 quarter (29.4%) and January-March 2001 quarter (29.3%) because ASCUS smear results reported during the current quarter were excluded unlike the previous two quarters.

Short-interval re-screening was highest in the 30-34 year age group (28.1%), and it was only slightly lower in the 20-29 and 35-54 year age groups.

Table 17 shows that there was little difference between Maori, 'Other' and Pacific women in the estimated level of short interval re-screening for 20-69 year old women. Short interval re-screening was similar for Maori (23.9%) and Pacific (23.7%) women, and slightly higher for 'Other' women (25.7%).

Table 18 shows the estimated level of short interval re-screening for 20-69 year old women by DHB area. The level of short interval re-screening varied amongst the DHB areas and it ranged from 19.3% in both Otago and Waikato to 32.6% in Auckland. High levels of short interval re-screening were also observed for Capital Coast (29.9%), North West Auckland (31.6%), South Auckland (28.6%) and Tairawhiti (31.0%).

It is likely that some women will have had smears more frequently than 3-yearly as part of the investigation of symptoms, but this is unlikely to fully explain the high level of short interval re-screening observed. Three-yearly cervical screening is considered to reduce the incidence of cervical cancer by 91.4% compared with 93.4% if annual screening is done[9], while the costs are much higher.

RECOMMENDATIONS

Service Issues

1. Reasons for the relatively high level of short interval re-screening need to be examined, particularly in those areas with high levels of short interval re-screening (Auckland, Capital Coast, North West Auckland, South Auckland and Tairawhiti).

2. Efforts to reduce the high level of short interval re-screening in all 5-year age groups, particularly the 30-34 year age group, need to continue, including efforts to educate smear takers and women about the nationally recommended intervals for screening.

Table 16. Short-interval re-screening proportion (%) by 5-year age groups.

Age group (years)										Total
20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69
26.8	26.4	28.1	25.6	25.2	25.8	25.2	22.8	20.4	17.0	25.5

[9] IARC Working Group. Screening for squamous cervical cancer: duration of low risk after negative results of cervical cytology and its implications for screening policies. BMJ 1986; 293: 659-64.

Table 17. Short-interval re-screening proportion (%) by ethnicity.

Ethnic Group	Total 20-69 (years)
Maori	23.9
Other	25.7
Pacific	23.7
Total	25.5

Table 18. Short-interval re-screening proportion (%) for 20-69 year old women for each DHB area.

District Health Board area	Total 20-69 (years)
Auckland	32.6
Bay of Plenty	20.8
Canterbury	23.0
Capital Coast	29.9
Hawkes Bay	21.8
Hutt	24.4
Lakes	23.4
Manawatu	22.7
Nelson/Marlborough	20.9
North West Auckland	31.6
Northland	27.8
Otago	19.3
South Auckland	28.6
South Canterbury	24.2
Southland	20.3
Tairawhiti	31.0
Taranaki	22.9
Waikato	19.3
Wairarapa	24.1
West Coast	23.9
Whanganui	19.5
Unspecified DHB area	27.8
Total	25.5

4.7 Delayed re-screening for women with a high grade abnormality

Definition
Re-screening for women with a high grade cervical abnormality is the proportion of women participating in the NCSP-Register with a history of CIN-not otherwise specified, HSIL, AIS or invasive carcinoma who had completed treatment and had a smear within specified time periods.

Targets
The targets for delayed re-screening were reported in the National Cervical Screening Programme Interim Operational Policy and Quality Standards as 15% for the last smear being 15 months or more previously and 1% for the last smear being 18 months or more previously. To maintain consistency with the reporting of targets for other indicators and to assist with interpretation, the targets for re-screening for women with a high grade abnormality are 85% for a smear within the last 15 months and 99% for a smear within the last 18 months.

Calculation
The calculation of this indicator included participating women with a previous smear or biopsy result recorded as CIN-not otherwise specified, HSIL, AIS or invasive carcinoma, and who had completed treatment prior to 1 April 2000. This date was chosen because it was 15 months before the end of the reporting quarter, allowing sufficient opportunity for a follow up smear to be taken and recorded on the NCSP-Register. The numbers of these women who had had a smear within 15 months, between 15 and 18 months, and more than 18 months prior to the end of the quarter were calculated. These were expressed as proportions of all participating women, who had had a cytology or histology report of CIN-not otherwise specified, HSIL, AIS or invasive carcinoma before 1 April 2000 and who had completed treatment.

Results
Table 19 shows the number and proportion of women with a history of CIN-not otherwise specified, HSIL, AIS or invasive carcinoma, who had completed treatment and whose previous smear was less than 15 months ago, between 15 and 18 months ago and more than 18 months ago. Overall the results were similar to those reported for the previous two quarters.

There were 24,632 women with a history of a high grade or more serious abnormality who had completed treatment before 1 April 2000. Of these 24,632 women, 75.8% had had a smear within 15 months of the end of this reporting quarter. This was less than the target of 85%. For 17.1% of the 24,632 women their last smear was more than 18 months previously. This was much more than the target of 1%. For 339 women there was no record of a smear result. Some of these women may have moved to live overseas and the NCSP-Register did not have this information recorded. Sometimes there are clinical reasons for follow-up smears not being taken. These are unlikely to be the only explanations.

RECOMMENDATIONS

Service Issues

1. Reasons why 339 women with a history of a high grade abnormality have no follow up smear results recorded on the NCSP-Register smear need to be assessed.

2. Efforts to encourage women with a history of a high grade abnormality to have annual smears need to continue.

Table 19. Timeliness of the most recent smear among women with a previous high grade or more serious abnormality [targets = 85% within 15 months and 99% within 18 months]**.**

Time period	Number	Proportion (%)	Cumulative proportion (%)
Less than 15 months	18,659	75.8	75.8
15-18 months	1,433	5.8	81.6
More than 18 months	4,201	17.1	98.6
No smear recorded	339	1.4	100.0
Total	24,632		

4.8 Follow-up of women with HSIL or ASCUS possible high grade cytology

Definition
Follow-up of women with HSIL or ASCUS possible high grade cytology is defined as the proportion of women with a HSIL or ASCUS possible high grade cytology result for whom a histology report has been received by the NCSP-Register within specified time periods from the time the smear was taken. The time periods are within 12 weeks, between 13 and 26 weeks, between 26 and 52 weeks and more than 52 weeks.

Targets
The targets for the follow-up of women with HSIL or ASCUS possible high grade cytology are 90% for a histology report received by the NCSP-Register within 12 weeks of the smear being taken, and 99% for a histology report received by the NCSP-Register within 52 weeks of the smear being taken.

Calculation
The number of women who had a smear result of HSIL or ASCUS possible high grade recorded on the NCSP-Register between 1 July 1999 and 30 June 2000 was calculated. The time between the date of the smear and the date of the first subsequent biopsy was calculated. The numbers of women with the different follow-up times were expressed as proportions of the total number of women with a HSIL or ASCUS possible high grade cytology result between 1 July 1999 and 30 June 2000. This indicator was calculated for all women, and Maori women, 'Other' women and Pacific women.

Results
Table 20 shows the number and proportion of women with HSIL or ASCUS possible high grade cytology reported for the period 1 July 1999 to 30 June 2000 for whom a histology report was received by the NCSP-Register within 12 weeks, between 13 and 26 weeks, between 27 and 52 weeks and after more than 52 weeks of the smear being taken. The number of women with a HSIL or ASCUS possible high grade report for which there was no subsequent histology result recorded on the NCSP-Register is also shown. More than three-quarters (77.4%) of the 3,623 women with a HSIL or ASCUS possible high grade cytology result had a histology report recorded on the NCSP-Register within 12 weeks of having their smear. This was similar to that reported last quarter (78.0%) and less than the target of 90%. A further 515 (14.2%) women with HSIL or ASCUS possible high grade cytology had a histology report recorded on the NCSP-Register between 13 and 26 weeks of having their smear.

The 99% target for histology being reported within 52 weeks of women having an HSIL or ASCUS possible high grade cytology report was almost reached. 97.4% of women had a histology result recorded on the NCSP-Register within 52 weeks, which was very similar to that reported for the last quarter (97.6%).

Tables 21, 22 and 23 show the number and proportion of Maori, 'Other' and Pacific women with HSIL or ASCUS possible high grade cytology reported during the period 1 July 1999 to 30 June 2000 for whom a histology report was received by the NCSP-Register within 12 weeks, between 13 and 26 weeks, between 27 and 52 weeks and after more than 52 weeks of the smear being taken. For the 12 week period, about

two-thirds of Maori (66.2%) and Pacific (60.8%) women had a histology report recorded on the NCSP-Register compared with more than three-quarters (80.1%) of 'Other' women. These results were very similar to those observed for the previous quarter. For the 52 week period the proportions of Maori, 'Other' and Pacific women who had had a histology report recorded on the NCSP-Register were similar – 95.5%, 97.8% and 97.3%, respectively.

For 28 women, a histology result was not recorded on the NCSP-Register (Table 18). Of these 28 women, 6 were Maori women (Table 20) and 22 were 'Other' women (Table 21). It is possible that some of these women may have had further investigations and treatment, but their histology reports had not been received and recorded on the NCSP-Register. Some women may have moved to live in another country and had follow-up there, and some women may not have had indications for biopsy at colposcopic examination.

RECOMMENDATIONS

Data Issues

1. Histology turn around time should be included as a new indicator.

Service Issues

1. Reasons why an histology report was not received and recorded by the NCSP-Register within 12 weeks of a HSIL or ASCUS possible high grade cytology report for about one-quarter of all women need to be examined.

2. Reasons why an histology report was not received and recorded by the NCSP-Register within 12 weeks of a HSIL or ASCUS possible high grade cytology report for about one-third of Maori and Pacific women need to be examined.

3. Reasons why no histology result was recorded by the NCSP-Register for the 28 women who had had a HSIL or ASCUS possible high grade cytology report needs to be assessed and follow-up arrangements for these women checked.

Table 20. Timeliness of histology report after HSIL or ASCUS possible high grade cytology result for enrolled 20-69 year old women [targets = 90% within 12 weeks and 99% within 52 weeks]**.**

Time period	Number	Proportion (%)	Cumulative proportion (%)
Within 12 weeks	2,805	77.4	77.4
13-26 weeks	515	14.2	91.6
27-52 weeks	209	5.8	97.4
More than 52 weeks	66	1.8	99.2
Subtotal	3,595		
No histology reported	28	0.8	100.0
Total	3,623		

Table 21. Timeliness of histology report after HSIL or ASCUS possible high grade cytology result for enrolled 20-69 year old Maori women [targets = 90% within 12 weeks and 99% within 52 weeks]**.**

Time period	Number	Proportion (%)	Cumulative proportion (%)
Within 12 weeks	400	66.2	66.2
13-26 weeks	118	19.5	85.7
27-52 weeks	59	9.8	95.5
More than 52 weeks	21	3.5	99.0
Subtotal	598		
No histology reported	6	1.0	100.0
Total	604		

Table 22. Timeliness of histology report after HSIL or ASCUS possible high grade cytology result for enrolled 20-69 year old 'Other' women [targets = 90% within 12 weeks and 99% within 52 weeks]**.**

Time period	Number	Proportion (%)	Cumulative proportion (%)
Within 12 weeks	2,360	80.1	80.1
13-26 weeks	383	13.0	93.1
27-52 weeks	137	4.7	97.8
More than 52 weeks	43	1.5	99.3
Subtotal	2,923		
No histology reported	22	0.7	100.0
Total	2,945		

Table 23. Timeliness of histology report after HSIL or ASCUS possible high grade cytology result for enrolled 20-69 year old Pacific women [targets = 90% within 12 weeks and 99% within 52 weeks]**.**

Time period	Number	Proportion (%)	Cumulative proportion (%)
Within 12 weeks	45	60.8	60.8
13-26 weeks	14	18.9	79.7
27-52 weeks	13	17.6	97.3
More than 52 weeks	2	2.7	100.0
Subtotal	74		
No histology reported	0	0.0	100.0
Total	74		

4.9 Cervical cancer incidence and stage of invasive cervical cancer

Definitions
Cervical cancer incidence is the annual rate of new registrations of invasive cervical cancer (ICD9 code 180) per 100,000 women, age standardised to Segi's World population.

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

Targets
The targets for cervical cancer incidence are 8.6 or less per 100,000 women by 2005 for all women and 11.0 or less per 100,000 by 2005 for Maori women.

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

Results
This national indicator will be reported in the annual reports. However, the number of new registrations of all invasive cervical cancers and the standardisation registration ratios for different regions and for all New Zealand for the periods 1990-1993 and 1994-1997 have been included in Appendix 2. These calculations were done as part of a report prepared by the Ministry of Health and the New Zealand Health Funding Authority in 2000. It is important to note that the regional boundaries used in the analysis do not correspond to the NCSP-Register regional sites or DHB areas, and the most recent year for which the data was available was 1997.

Because there was wide variation in the regional populations and the total numbers of new registrations of invasive cervical cancer in some regions were relatively small, standardised registration ratios were used to compare the relative incidence of cervical cancer between regions with New Zealand overall.

For the latter 1994-1997 three year period, compared with New Zealand overall statistically significantly higher rates of invasive cervical cancer were observed in Northland, Eastern Bay of Plenty and Tairawhiti. Statistically significant lower rates were observed in Wellington and Otago.

4.10 Cervical cancer mortality

Definition
Cervical cancer mortality is the annual rate of death from cervical cancer (ICD9 code 180) 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 by 2005 for all women and 6.0 or less per 100,000 by 2005 for Maori women.

Results
This will be provided in the annual report.

4.11 Cytology abnormality reporting

The Bethesda System is used by the NCSP-Register to record the cytological result of each smear. Each smear can be assigned more than one diagnostic Bethesda code. Therefore, a hierarchy of the codes is used by the NCSP-Register for the purposes of clinical management. Similarly for the purposes of this report the most serious diagnostic smear code according to the hierarchy of codes is used. The hierarchy of codes by broad cytological category, with increasing severity from (a) to (k) used in this report was:

(a) negative for dysplasia or malignancy,
(b) abnormal but not otherwise specified,
(c) atypical squamous cells of undetermined significance (ASCUS), excluding ASCUS possible high grade,
(d) low grade squamous intraepithelial neoplasia (LSIL),
(e) atypical glandular cells of undetermined significance (AGUS),
(f) ASCUS possible high grade,
(g) high grade squamous intraepithelial neoplasia (HSIL),
(h) cancer, not otherwise specified,
(i) adenocarcinoma-in-situ (AIS),
(j) adenocarcinoma of the cervix,
(k) squamous carcinoma of the cervix.

The Bethesda codes assigned to each broad cytological category are shown in Appendix 3.

Definition
Cytology abnormality reporting is the rate at which specified cytological cervical abnormalities are reported. A cytological abnormality may not be confirmed at clinical examination or biopsy.

For the purposes of this monitoring report, cytology abnormality reporting is the rate at which cytological cervical abnormalities are recorded by the NCSP-Register for a specified time period.

Targets
There are no targets.

Calculation
Cytology abnormality reporting rates for this quarter were calculated for smears and for women. For each 5-year age group, the number of satisfactory or satisfactory but limited smear results in each of the specified cytological categories and the total number of satisfactory or satisfactory but limited smears processed during the quarter were used to express a rate per 1000 smears. Also, for each 5-year age group, the number of women with a smear result in each of the specified cytological categories and the total number of women who had satisfactory or satisfactory but limited smears processed during the quarter were used to express a rate per 1000 women. For both calculations, where a single smear had more than one diagnostic code, the most serious ranked code according to the hierarchy of codes was used. For the latter calculation, where a woman had more than one abnormal smear result during the quarter, only the most serious ranked smear result was used.

For each specified cytological category, the age-standardised rate for 20-69 year old women was calculated using Segi's World population (Appendix 4).

Results

Smears

Table 24 shows reported smear results by specified cytological result category per 1000 smears reported during the quarter by 5-year age group and age-standardised rates for 20-69 year old women. The age-standardised reporting rate for a negative smear was 922 per 1000 smears. Amongst the 5-year age groups, the age-specific reporting rates for a negative smear increased from 847 per 1000 smears for 20-24 year old women to 964 per 1000 for 65-69 year old women.

ASCUS and LSIL were the most frequently reported abnormal smear result. The age-standardised rates were 39 per 1000 smears and 26 per 1000 smears, respectively. For both abnormalities the highest age-specific reporting rates were recorded for women aged 20-24 years. Except for the 20-24 year old age group, the ASCUS age-specific reporting rates were higher than the LSIL age-specific reporting rates. The ASCUS age-specific reporting rates decreased from 62 per 1000 smears for the 20-24 year old age group to 22 per 1000 smears for the 65-69 year age group, and the LSIL age-specific reporting rates decreased from 70 per 1000 smears for the 20-24 year age group to 6 per 1000 smears for the 65-69 year old age group.

The age-standardised ASCUS possible high grade reporting rate was 2 per 1000 smears. The age-specific reporting rates for this abnormality were relatively similar to this rate and did not follow the age distribution of the reporting of HSIL.

The age-standardised HSIL reporting rate was 10 per 1000 smears. The age-specific HSIL reporting rates were highest for the 20-24 and 25-29 year old age groups (19 per 1000 smears), and decreased with increasing age to 3 per 1000 smears for women aged 65-69 years.

The age-standardised cervical squamous carcinoma reporting rate was 0.12 per 1000 smears. Amongst the 5-year age groups the age-specific cervical squamous carcinoma reporting rates were highest amongst women aged 55-69 years.

Women

Table 25 shows reported smear results by specified cytological result category per 1000 women screened during the reporting quarter by 5-year age group and age-standardised rates for 20-69 year old women. Overall, these results were very similar to the age-specific and age-standardised reporting rates per 1000 smears shown in Table 24.

RECOMMENDATIONS

None

Table 24. Reported smear results by specified cytological result category per 1000 smears by 5-year age group [no targets]**.**

Category of cytology result	Age groups (years)										Age-Standardised rates* (20-69 years)
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Negative for dysplasia or malignancy	847.14	892.34	922.31	931.02	938.20	938.98	949.38	958.39	963.08	964.00	921.85
ASCUS (including ASCUS possible HSIL)	61.68	45.90	36.32	35.97	36.22	39.69	32.56	29.75	23.58	22.38	39.16
LSIL	70.26	39.78	24.21	21.43	16.25	14.41	11.97	7.19	7.12	6.49	26.33
ASCUS-HG	1.61	2.40	2.63	1.45	1.90	2.40	1.27	1.67	1.33	1.95	1.90
HSIL	19.31	19.43	14.32	9.58	7.14	4.13	4.37	2.51	3.78	3.24	10.31
Squamous carcinoma cervix	0.00	0.00	0.00	0.14	0.00	0.10	0.00	0.17	0.44	0.97	0.12
Adenocarcinoma-in-situ - cervical	0.00	0.15	0.14	0.28	0.23	0.00	0.23	0.17	0.22	0.00	0.14
Adenocarcinoma – other	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.22	0.65	0.06
Abnormal smear - not otherwise specified	0.00	0.00	0.00	0.00	0.08	0.10	0.12	0.00	0.00	0.32	0.05
Cancer - not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.01
Total number of smears	11,187	12,920	14,455	14,511	13,171	10,406	8,692	5,984	4,496	3,083	98,905

* Age standardised to Segi's World population

Table 25. Reported smear results by specified cytological result category per 1000 women by 5-year age group [no targets]**.**

Category of cytology result	Age groups (years)										Age-Standardised rates* (20-69 years)
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Negative for dysplasia or malignancy	849.85	893.75	923.68	932.52	938.77	939.95	949.91	958.83	964.75	965.56	923.19
ASCUS (including ASCUS possible HSIL)	60.89	45.57	36.27	35.48	36.05	39.45	32.58	29.53	22.23	20.99	38.72
LSIL	69.02	39.15	24.00	21.22	16.00	14.28	11.71	7.09	6.96	6.23	25.92
ASCUS-HG	1.54	2.35	2.51	1.39	1.91	2.23	1.28	1.52	1.12	1.97	1.83
HSIL	18.70	19.03	13.32	8.90	6.97	3.69	4.06	2.53	3.82	3.28	9.90
Squamous carcinoma cervix	0.00	0.00	0.00	0.14	0.00	0.10	0.00	0.17	0.45	0.98	0.12
Adenocarcinoma-in-situ - cervical	0.00	0.16	0.14	0.21	0.23	0.00	0.23	0.17	0.22	0.00	0.13
Adenocarcinoma – other	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.22	0.66	0.06
Abnormal smear - not otherwise specified	0.00	0.00	0.00	0.00	0.08	0.10	0.12	0.00	0.00	0.33	0.05
Cancer - not otherwise specified	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.01
Total number of women	11,069	12,772	14,335	14,375	13,065	10,291	8,624	5,927	4,454	3,049	97,961

* Age standardised to Segi's World population

4.12 Histology abnormality reporting

The Systematised Nomenclature of Medicine (SNOMED) histology codes are used by the NCSP-Register to record the histological result of vaginal and cervical histology specimens. Histology specimens include diagnostic biopsies, treatment biopsies and the cervical tissue of total hysterectomy specimens. Each histology specimen can be assigned a maximum of four SNOMED codes. Laboratories usually code histology results and the coded results are transferred electronically to the NCSP-Register.

Definition
Histology abnormality reporting is the rate at which specified histological cervical abnormalities are reported.

For the purposes of this monitoring report, histology abnormality reporting is the rate at which histological cervical abnormalities are recorded by the NCSP-Register for a specified time period.

Targets
There are no targets.

Calculation
For each 5-year age group, the total number of histology results for satisfactory specimens in each of the specified histological categories was tabulated.

For each 5-year age group, the number of women with a histology result in each of the specified histological categories was tabulated. If a woman had more than one histology result recorded on the NCSP-Register during the quarter, only the worst result was used.

Histology reporting rates per 10,000 women screened per average quarter in the past three years were also calculated. The number of women with a particular histology report was divided by the average number of women screened in the quarter. This was expressed as a rate per 10,000 women. The average number of women screened in the quarter was calculated by dividing the number of women screened in the past three years by 12. There are 12 quarters in a three-year period.

It is important to note that while the histology results used for these calculations were those recorded on the NCSP-Register between 1 April and 30 June 2001, the time since the histology specimen was taken varied and may have been taken up to 12 months or more previously. Also, because the type of histology specimen was not always recorded, all cervical and vaginal histology specimen results recorded on the NCSP-Register during the reporting quarter were used. These included diagnostic biopsies, treatment biopsies and the cervical tissue of total hysterectomy specimens.

Result
Histology specimens
Table 26 shows the number of histology results recorded on the NCSP-Register by specified histological result category by 5-year age group. Between 1 April and 30 June 2001 there were 7,015 histology results recorded on the NCSP-Register. HSIL

was the most frequently reported histology result (1,731) followed by 'Other' (1,417) and LSIL (1,268). As defined by the SNOMED coding, 'Other' includes "morphological abnormality, not dysplastic or malignant". Five specimens were reported as microinvasive squamous cell carcinoma and 44 specimens were reported as invasive squamous cell carcinoma. There were 27 specimens reported as adenocarcinoma-in-situ and 26 specimens reported as invasive adenocarcinoma. From NCSP-Register data, the origins of the invasive adenocarcinomas were unknown.

Women

Table 27 shows the number of histology results recorded on the NCSP-Register by the most severe histological result category for women and equivalent annual reporting rates per 10,000 women screened by 5-year age groups. During the reporting quarter 5,034 women had histology results recorded on the NCSP-Register. Of these women, 1,426 women had an HSIL histology result, which was the most frequently recorded result. 1,253 women had 'Other' histology and 1,095 had LSIL histology recorded. For both HSIL and LSIL histology results, these were recorded in greater numbers amongst women in the 20-34 year age groups. Whereas for 'Other' histology, this result was recorded in greater numbers amongst women aged 35-54 years. Five women had a microinvasive squamous cell carcinoma and 31 women had an invasive squamous cell carcinoma histology result recorded.

The highest age-standardised recorded histology rates for women aged 20-69 years were observed for HSIL (24.2 per 10,000 women), 'Other' (21.3 per 10,000 women) and LSIL (18.6 per 10,000 women). For both HSIL and LSIL, the age-specific recorded histology rates decreased with increasing age. The HSIL age-specific recorded histology rate was 64.6 per 10,000 women for 20-24 year old women and declined to 5.2 per 100,000 women for 65-69 year old women. The LSIL age-specific recorded histology rate was 42.2 per 10,000 women for 20-24 year old women and declined to 2.9 per 10,000 women for 65-69 year old women. A similar pattern was observed for atypia/HPV.

For invasive squamous cervical cancer, the highest age-specific rate was observed for women aged 60-64 years (1.0 per 10,000 women). Compared with other 5-year age groups, higher age-specific invasive squamous cervical cancer recorded histology rates were also observed for 35-49 year old women (0.8 per 10,000 women).

RECOMMENDATIONS

Data Issues

1. As for section 4.8.

2. The importance of distinguishing the nature of the specimen on histology results (particularly whether a cervical biopsy as opposed to a hysterectomy specimen) forwarded by laboratories to the NCSP-Register should be emphasised.

Table 26. The number of histology reports by histological result category by 5-year age group [no targets]**.**

Category of histology result	Age groups (years)										Total 20 - 69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Normal	67	103	132	188	192	199	136	78	61	31	1,187
Other	132	137	162	185	216	206	193	82	54	50	1,417
Polyp	1	3	11	21	34	32	39	31	15	7	194
Atypia/HPV	198	199	183	159	140	107	71	36	17	11	1,121
CIN-not otherwise specified	1	3	1	3	2	1	0	1	1	0	13
LSIL	292	274	215	157	151	81	49	28	15	6	1,268
HSIL	434	442	342	204	160	59	42	16	20	12	1,731
Microinvasive squamous carcinoma	0	2	2	0	0	0	0	1	0	0	5
Invasive squamous carcinoma	0	2	9	11	7	8	3	0	3	1	44
Glandular dysplasia	0	0	1	0	1	2	1	0	0	0	5
Adenocarcinoma-in-situ	2	7	6	4	4	1	0	1	1	1	27
Invasive adenocarcinoma†	1	3	2	3	3	2	2	2	4	4	26
Adenosquamous carcinoma	0	0	0	0	0	2	0	0	0	0	2
Metastatic carcinoma‡ or other malignancy	0	0	0	0	0	1	3	1	1	0	6
Total	1,061	1,139	1,037	879	906	694	602	335	209	153	7,015

† Origins of adenocarcinoma unknown, but possible sites include cervical, endometrial and bowel. ‡ Primary site unknown.

Table 27. The number of histology reports by most severe histological category for women by 5-year age group and equivalent annual reporting rate (per 10,000) [no targets]**.**

Category of histology result		Age groups (years)										Total 20 - 69
		20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Normal	Number	50	78	106	151	164	178	121	69	53	24	994
	Rate	8.6	10.5	12.4	17.4	20.8	27.8	22.7	18.6	18.4	11.4	16.9
Other	Number	104	114	140	167	196	187	171	78	47	49	1253
	Rate	18.0	15.3	16.3	19.2	24.8	29.3	32.1	21.1	16.3	23.3	21.3
Polyp	Number	1	3	11	20	34	32	39	31	15	7	193
	Rate	0.2	0.4	1.3	2.3	4.3	5.0	7.3	8.4	5.2	3.3	3.3
Atypia/HPV	Number	170	166	152	133	123	99	66	32	15	10	966
	Rate	29.4	22.3	17.7	15.3	15.6	15.5	12.4	8.6	5.2	4.8	16.4
CIN-not otherwise specified	Number	0	3	1	3	2	0	0	1	1	0	11
	Rate	0.0	0.4	0.1	0.3	0.3	0.0	0.0	0.3	0.3	0.0	0.2
LSIL	Number	244	238	185	131	128	74	48	26	15	6	1095
	Rate	42.2	32.0	21.6	15.1	16.2	11.6	9.0	7.0	5.2	2.9	18.6
HSIL	Number	374	353	275	167	133	47	35	14	17	11	1426
	Rate	64.6	47.4	32.0	19.2	16.8	7.4	6.6	3.8	5.9	5.2	24.2
Microinvasive squamous carcinoma	Number	0	2	2	0	0	0	0	1	0	0	5
	Rate	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Invasive squamous carcinoma	Number	0	2	5	7	6	5	2	0	3	1	31
	Rate	0.0	0.3	0.6	0.8	0.8	0.8	0.4	0.0	1.0	0.5	0.5
Glandular dysplasia	Number	0	0	0	0	1	2	1	0	0	0	4
	Rate	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.1
Adenocarcinoma -in-situ	Number	2	7	4	4	4	1	0	1	1	1	25
	Rate	0.3	0.9	0.5	0.5	0.5	0.2	0.0	0.3	0.3	0.5	0.4
Invasive adenocarcinoma†	Number	1	3	1	1	1	1	2	2	3	4	19
	Rate	0.2	0.4	0.1	0.1	0.1	0.2	0.4	0.5	1.0	1.9	0.3
Adenosquamous carcinoma	Number	0	0	0	0	0	1	0	0	0	0	1
	Rate	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Metastatic carcinoma‡ or other malignancy	Number	0	0	0	0	0	1	2	1	1	0	5
	Rate	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.3	0.0	0.1
Total number		896	941	854	739	779	614	544	308	187	142	5,034

† Origin of adenocarcinoma unknown, but possible sites includes cervical, endometrial and bowel. ‡ Primary site unknown.

4.13 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.

Result
This will be provided in the annual report.

4.14 Programme sensitivity

Definition
Programme sensitivity is the proportion of all women with invasive cervical cancer (both screen detected and interval cases) whose cervical cancer was detected by screening within a defined period.

Targets
The targets for squamous cervical cancer are more than 85% at one year and more than 75% at three years.

Result
This will be provided in the annual report.

4.15 Opt-off rate

Definition
The opt-off rate is the proportion of all cervical cytology results reported by a laboratory, which are not sent to the NCSP-Register.

Target
There is no target.

Result
This will be provided in the annual report.

4.16 Laboratory smear reporting

Levels of cytology abnormalities detected by laboratories depend on numerous factors including the prevalence of abnormalities, the case mix and laboratory reporting practice[10].

Definition
Laboratory smear reporting is measured by the number and proportion of satisfactory, or satisfactory but limited smears in the specified broad cytological categories (negative for dysplasia or malignancy, ASCUS, ASCUS possible high grade, LSIL, and HSIL).

Targets
The targets for laboratory smear reporting are:
1. Negative for dysplasia or malignancy of not more than 96%,
2. HSIL not less than 0.6%,
3. Total abnormalities not more than 10%.

Calculation
The diagnostic Bethesda codes, as recorded on the NCSP-Register, of smears processed during the quarter were used to calculate the number of smears in each broad cytological category for each laboratory. These were expressed as proportions of the total number of smears processed by each laboratory. As for the calculation of cytology abnormality reporting, where a single smear had more than one diagnostic smear code, only the worst ranked code was used according to the hierarchy of codes (section 4.11). Total abnormalities included all smears with a diagnostic code of ASCUS/AGUS or more serious. Only smears for women aged 20-69 years at the end of the quarter were included. Smears recorded as being unsatisfactory for evaluation were excluded.

Results
Table 28 shows the number and proportion of satisfactory and satisfactory but limited smears in the specified cytological categories for each of the laboratories that processed smear tests during the reporting quarter. The results are grouped into laboratories reporting smears predominantly for hospital clinics and laboratories reporting smears predominantly from the community. Since the previous quarter,

[10] The prevalence of the abnormalities in the population of women whose smears are read at a laboratory is an important determinant of the pattern of reporting from the laboratory. Hence, the case mix can vary considerably among laboratories, particularly for hospital laboratories. Hospital laboratories tend to read smears from women referred to colposcopy clinics after the initial report of a cytological abnormality. Many hospital laboratories also read smears from women attending sexual health clinics. The prevalence of cytological abnormalities tends to be higher amongst this group of women. Consequently, the prevalence of abnormalities reported by hospital laboratories is much greater than those laboratories (community laboratories) for whom the great majority of smears come from women with normal smear histories. However, some community laboratories also provide cytology reporting for both hospital and private gynaecology colposcopy clinics.

Reporting practices may also differ among laboratories. In particular, there are variations in the reporting of the ASCUS (atypical squamous cells of undetermined significance) category. The interpretation and value of this ASCUS category is subject of an international debate amongst cytopathologists.

Healthlab Otago and Nelson Diagnostic Laboratory are no longer processing cervical cytology slides. 99,174 satisfactory and satisfactory but limited smears from enrolled women aged 20-69 years at the end of the quarter were processed during the April-June quarter compared with 95,835 during the January-March quarter. The number of smears processed by each laboratory during this quarter ranged from 269 at Wellington Hospital Laboratory to 31,009 at Diagnostic Medlab Auckland.

Overall, 92.2% of smears recorded on the NCSP-Register were negative for dysplasia or malignancy. This was within the target of not more than 96% of smears being negative for dysplasia or malignancy, and similar to that reported for each of the previous two quarters. All laboratories met the target.

For the proportion of smears reported as HSIL, one laboratory (Medlab South Christchurch) was below the target. The proportion of smears processed at this laboratory reported as HSIL was 0.4%. For all laboratories combined, this proportion was 1.0% of smears.

Overall, the proportion of satisfactory or satisfactory but limited smears reported with an abnormality was 7.8%. This was within the target of not more than 10% of smears reported as abnormal. As observed previously, all four laboratories that serviced predominantly hospital clinics reported many more than 10% of the slides they processed to be abnormal. The proportion of smears reported as abnormal by these four laboratories ranged from 22.7% to 38.7%. Two laboratories that reported smears predominantly from the community also reported more than 10% of slides as abnormal. They were Medlab Bay of Plenty (19.9%) and Pathlab Waikato (20.1%). These two laboratories also had relatively high proportions of ASCUS results compared with other community laboratories. Pathlab Waikato reported more than 10% of slides as abnormal for the previous reporting quarter, while Medlab Bay of Plenty reported more than 10% of slides as abnormal for the previous two reporting quarters. Medlab Hamilton, who clearly reported more than 10% of slides as abnormal for the previous two reporting quarters (15.3% for October-December 2000 and 17.7% for January-March 2001), were well within the target this reporting quarter (6.6%).

RECOMMENDATIONS

Service Issues

1. An investigation of the outcome of women with ASCUS cytology should be undertaken.

2. Explanations for the relatively high level of reporting of total abnormalities should be sought from Medlab Bay of Plenty and Pathlab Waikato.

3. An assessment of why Medlab South Christchurch reported less than 0.6% of the slides it processed as HSIL should be undertaken.

Table 28. The number and proportion of satisfactory and satisfactory but limited smears in broad cytological categories for each laboratory.

Laboratory	Negative for dysplasia or malignancy (target = not more than 96%)		Total ASCUS (including ASCUS possible HSIL)		LSIL		AGUS		ASCUS possible HSIL		HSIL (target = not less than 0.6%)		Total abnormalities† (target = not more than 10%)		Total number of smears in quarter
	No.	%	No.	%	No.	%	No	%	No.	%	No.	%	No.	%	
Predominantly hospital clinic work															
Auckland Hospital Laboratory‡	1,606	73.2	287	13.1	171	7.8	4	0.18	11	0.5	125	5.7	589	26.8	2,195
Canterbury Health Laboratories	568	77.3	83	11.3	61	8.3	0	0.00	1	0.1	23	3.1	167	22.7	735
Waikato Hospital Laboratory	455	61.3	155	20.9	103	13.9	2	0.27	4	0.5	26	3.5	287	38.7	742
Wellington Hospital Laboratory	176	65.4	58	21.6	14	5.2	1	0.37	6	2.2	20	7.4	93	34.6	269
Rest of table 28 continued on next page															

† Does not include inflammation or infection

‡ Auckland Hospital Laboratory was previously known as National Women's Hospital Laboratory.

Table 28 continued

Laboratory	Negative for dysplasia or malignancy (target = not more than 96%)		Total ASCUS (including ASCUS possible HSIL)		LSIL		AGUS		ASCUS possible HSIL		HSIL (target = not less than 0.6%)		Total abnormalities† (target = not more than 10%)		Total number of smears in quarter
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Predominantly community work															
Diagnostic Medlab Auckland	29,582	95.4	604	1.9	577	1.9	10	0.03	44	0.1	232	0.7	1427	4.6	31,009
Medical Laboratory Southland	989	95.2	19	1.8	20	1.9	1	0.10	2	0.2	8	0.8	50	4.8	1,039
Medical Laboratory Wellington	9,022	91.8	514	5.2	211	2.1	13	0.13	17	0.2	63	0.6	802	8.2	9,824
Medlab Bay of Plenty	5,050	80.1	857	13.6	238	3.8	19	0.30	31	0.5	134	2.1	1251	19.9	6,301
Medlab Central, Palmerston North	6,677	93.0	244	3.4	182	2.5	15	0.21	7	0.1	59	0.8	502	7.0	7,179
Medlab Hamilton	6,019	93.4	195	3.0	182	2.8	4	0.06	7	0.1	42	0.7	423	6.6	6,442
Medlab South Christchurch	8,630	94.3	264	2.9	212	2.3	7	0.08	11	0.1	37	0.4	521	5.7	9,151
Pathlab Waikato	2,183	79.9	381	13.9	121	4.4	8	0.29	19	0.7	38	1.4	549	20.1	2,732
SCL* – Christchurch	4,825	95.7	91	1.8	81	1.6	1	0.02	6	0.1	44	0.9	217	4.3	5,042
SCL* – Dunedin	8,182	96.0	88	1.0	151	1.8	1	0.01	12	0.1	104	1.2	345	4.0	8,527
Taranaki Medlab	3,712	91.5	181	4.5	121	3.0	1	0.02	8	0.2	43	1.1	347	8.5	4,059
Valley Diagnostic Laboratory	3,773	95.6	43	1.1	97	2.5	0	0.00	5	0.1	34	0.9	175	4.4	3,948
Total	91,449	92.2	4064	4.1	2542	2.6	87	0.09	191	0.2	1032	1.0	7725	7.8	99,174

† Does not include inflammation or infection
* SCL = Southern Community Laboratory

4.17 Laboratory turn around time

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

Target
The targets for the laboratory turn around time are 90% of smear reports issued to the smear taker within 7 working days of the smear being received by the laboratory, and 100% of smear 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, as recorded on the NCSP-Register, was used to measure the laboratory turn around time. The numbers of smears reported within 7 working days, between 8 and 14 working days and more than 14 working days were expressed as a proportion of the total number of smears processed by each laboratory during the quarter.

Results
Table 29 shows the proportion of smears received and reports issued within the specified time periods for each laboratory. Overall 87.8% smear reports were issued within 7 working days of smears being received at laboratories during the reporting quarter. This is slightly more than that reported for October-December 2000 (86.2%) and January-March 2001 (85.8%), but less than the target of 90%. Five of the 16 laboratories processing smears during this reporting quarter did not reach the target. These laboratories were Auckland Hospital Laboratory (87.3%), Medical Laboratory Wellington (82.3%), Medlab Bay of Plenty (1.1%), Medlab Hamilton (63.8%) and Valley Diagnostic Laboratory (83.3%).

Overall, 95.1% of smear reports were issued within 14 working days of smears being received by the laboratory, which was also less than the target. Nine laboratories reached the target of 100% and five laboratories almost reached the target. Medlab Bay of Plenty (40.1%) and Medlab Hamilton (84.9%) clearly did not. However, compared with the previous reporting quarter the proportion of smears processed at these two laboratories within 14 days improved dramatically. For January-March 2001 period, the 14-day turn around time was 0.7% for Medlab Bay of Plenty and 43.1% for Medlab Hamilton.

For 4.9% of smears received by all laboratories combined during this reporting quarter, reports were still to be issued after 14 working days. Most laboratories had issued reports for all smears they had received within 14 working days, but for a considerable proportion of smears received by both Medlab Bay of Plenty and Medlab Hamilton reports were yet to be issued, 59.9% and 15.1%, respectively. This has also improved since the previous reporting quarter.

RECOMMENDATIONS

Data Issues

1. As for section 4.8.

Service Issues

1. Reasons for long smear reporting times should be sought from those laboratories that did not reach the targets, in particular Medlab Hamilton and Medlab Bay of Plenty.

Table 29. Timeliness of the reporting of smears by laboratories [targets = 90% within 7 working days and 100% within 14 working days]**.**

Laboratory	Within 7 working days	From 8 to14 working days		More than 14 working days
	Proportion (%)	Proportion (%)	Cumulative proportion (%)	Proportion (%)
Predominantly hospital work				
Auckland Hospital Laboratory	87.3	12.2	99.5	0.5
Canterbury Health Laboratories	100.0	0.0	100.0	0.0
Waikato Hospital Laboratory	92.3	7.7	100.0	0.0
Wellington Hospital Laboratory	98.2	0.4	98.5	1.5
Predominantly community work				
Diagnostic Medlab Auckland	98.6	1.3	99.9	0.1
Medical Laboratory Southland	100.0	0.0	100.0	0.0
Medical Laboratory Wellington	82.3	17.5	99.8	0.2
Medlab Bay of Plenty	1.1	39.1	40.1	59.9
Medlab Central, Palmerston North	99.9	0.1	100.0	0.0
Medlab Hamilton	63.8	21.1	84.9	15.1
Medlab South Christchurch	100.0	0.0	100.0	0.0
Pathlab Waikato	99.2	0.8	100.0	0.0
Southern Community Laboratory - Christchurch	99.9	0.0	100.0	0.0
Southern Community Laboratory - Dunedin	99.9	0.1	100.0	0.1
Taranaki Medlab	92.3	7.8	100.0	0.0
Valley Diagnostic Laboratory	83.3	16.0	99.3	0.7
Total	87.8	7.3	95.1	4.9

4.18 Satisfactory but limited and unsatisfactory smears by laboratory

Definitions
Satisfactory but limited smears are those smears reported with a Bethesda adequacy code of A2 (satisfactory but limited).

Unsatisfactory smears are those smears reported with a Bethesda adequacy code of A3 (unsatisfactory).

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.

It is important to note that the adequacy coding of a smear is influenced by both the smear taking technique and laboratory reporting practice.

Calculation
All smears taken during the reporting quarter for which there was a result recorded on the NCSP-Register were used to calculate these indicators. That is, this calculation was not restricted to women aged 20-69 years.

The number of satisfactory but limited smears and the number of unsatisfactory smears reported were each expressed as a proportion of the total number of smears processed during the quarter by each laboratory.

Results
Table 30 shows the number and proportion of satisfactory but limited and unsatisfactory smears processed by the specified laboratories during this reporting quarter. Overall, of the 106,076 smears processed, 20.1% were satisfactory but limited. This was just above the target of 20%. Amongst the four hospital based laboratories, the proportion of satisfactory but limited smears ranged from 15.2% for Waikato Hospital Laboratory to 59.9% for Wellington Hospital Laboratory. Amongst the twelve community based laboratories the proportion of satisfactory but limited smears reported ranged from 6.7% at Southern Community Laboratory to 32.2% at Pathlab Waikato. Nine of all 16 laboratories who processed smears during the reporting quarter reported more than 20% of smears as satisfactory but limited.

For all laboratories combined, 0.9% of the 106,076 smears processed were reported as unsatisfactory. This was within the target range of 0.5-2.0%. Three laboratories reported more than 2.0% of the smears they processed as unsatisfactory - Auckland Hospital Laboratory (2.9%), Canterbury Health Laboratories (2.1%) and Taranaki Medlab. Three laboratories reported fewer than 0.5% of the smears they processed as unsatisfactory - Medlab Central Palmerston North (0.3%), Medlab Hamilton (0.3%), and Southern Community Laboratory - Christchurch (0.4%).

RECOMMENDATIONS

Service Issues

1. Reasons for laboratories reporting levels of unsatisfactory smears outside the target range should be sought.

2. Reasons for the wide variation in, and the high level of reporting, of satisfactory but limited smears should be sought from outlying laboratories.

Table 30. The number and proportion of satisfactory but limited and unsatisfactory smears by laboratory.

Laboratory	Total number of smears processed	Satisfactory but limited smears [target = not more than 20%]		Unsatisfactory smears (%) [target = 0.5 – 2.0%]	
		Number	Proportion (%)	Number	Proportion (%)
Predominantly hospital work					
Auckland Hospital Laboratory	2,420	681	28.1	69	2.9
Canterbury Health Laboratories	846	199	23.5	18	2.1
Waikato Hospital Laboratory	798	121	15.2	13	1.6
Wellington Hospital Laboratory	302	181	59.9	4	1.3
Predominantly community work					
Diagnostic Medlab Auckland	32,673	7,804	23.9	206	0.6
Medical Laboratory Southland	1,131	155	13.7	6	0.5
Medical Laboratory Wellington	10,544	2,306	21.9	192	1.8
Medlab Bay of Plenty	6,787	1,776	26.2	50	0.7
Medlab Central, Palmerston North	7,722	1,690	21.9	27	0.3
Medlab Hamilton	6,779	1,241	18.3	19	0.3
Medlab South Christchurch	9,824	1,354	13.8	54	0.5
Pathlab Waikato	2,879	927	32.2	25	0.9
Southern Community Laboratory - Christchurch	5,409	506	9.4	22	0.4
Southern Community Laboratory - Dunedin	9,323	623	6.7	89	1.0
Taranaki Medlab	4,421	1,064	24.1	103	2.3
Valley Diagnostic Laboratory	4,218	740	17.5	47	1.1
Total	106,076	21,368	20.1	944	0.9

4.19 Cytology reports predicting HSIL (positive predictive value)

The reporting of histology involves a degree of subjective assessment of the cellular appearances as examined under a microscope and histology reporting practices can differ among pathologists and laboratories. Histology reports may be issued by a different pathologist or laboratory from that which reported the cervical smear.

Definition
Cytology reports predicting HSIL is the probability of a histological report of HSIL or more serious abnormality given an HSIL or more serious cytology report. This is called the positive predictive value of a HSIL cytology result.

Target
The target for cytology reports predicting HSIL or more serious is between 65% and 85% of all HSIL or more serious smear results reported by a given laboratory.

Calculation
The first smear from women reported as indicating the presence of HSIL in the six month period 1 July 2000 to 31 December 2000 and subsequent histology reports for biopsies taken within 6 months of the smear from the same women during the 12 month period 1 July 2000 to 30 June 2001 were compared. When more than one histology result was present, the most severe abnormality was chosen. The number of women with histological confirmation of a HSIL or more serious lesion was expressed as a proportion of all women with a HSIL cytology report and subsequent histology. This measures the positive predictive value of a HSIL cytology report.

This indicator was calculated for each laboratory according to where the smears were processed.

Results
Table 31 shows the number of high grade or more serious cytology reports for which there was a follow up histology report on the NCSP-Register and the proportion of these cytology results which were confirmed to be HSIL or more serious on histology for each laboratory. The proportion of all HSIL cytology reports without a follow up histology report is also shown. Between 1 July and 31 December 2000, there were 1,778 HSIL or invasive carcinoma cytology reports with a subsequent histology recorded on the NCSP-Register. Of these 1,778 cytology reports, 76.2% were confirmed as having HSIL or invasive carcinoma on histology. This result was within the target range of 65-85%.

Six laboratories were outside the positive predictive value target range, of which three were above and three were below the target range. The three laboratories who were above the target range processed smears predominantly from women attending hospital based clinics. These laboratories were Canterbury Health Laboratories (85.2%), Healthlab Otago (86.1%) and Wellington Hospital Laboratory (90.0%). For Wellington Hospital Laboratory there were only 10 HSIL cytology reports. The three laboratories who were below the target were Medlab Hawkes Bay (62.2%), Nelson Diagnostic Laboratory (61.7%) and Rotorua Diagnostic Laboratory (62.5%).

For 10.8% of all HSIL cytology reported between 1 July and 31 December 2000, there was no subsequent histology result recorded on the NCSP-Register. This proportion varied for each laboratory and ranged from 0.0% for Wellington Hospital Laboratory to 28.9% for Rotorua Diagnostic Laboratory. It is important to recall that these results are presented according to where the smears were processed and that any subsequent histology specimens may have been processed at a different laboratory.

RECOMMENDATIONS

Data Issues

1. As for section 4.8.

Table 31. Cytology reports predicting HSIL (positive predictive value) by laboratory [target = between 65% and 85%]**.**

Laboratory	Number of HSIL or invasive carcinoma cytology reports with a follow up histology report	Proportion (%) of HSIL or invasive carcinoma cytology reports confirmed on histology	Proportion (%) of all HSIL cytology reports without a follow up histology report
Predominantly hospital clinic work			
Canterbury Health Laboratories	27	85.2	10.0
Healthlab Otago	36	86.1	7.7
National Women's Hospital Laboratory	137	73.7	11.6
Waikato Hospital Laboratory	53	66.0	7.0
Wellington Hospital Laboratory	10	90.0	0.0
Predominantly community work			
Diagnostic Medlab Auckland	427	78.5	8.2
Medical Laboratory Southland	21	81.0	4.5
Medical Laboratory Wellington	84	76.2	14.3
Medlab Bay of Plenty	97	70.1	26.5
Medlab Central, Palmerston North	113	77.9	8.1
Medlab Hamilton	63	84.1	14.9
Medlab Hawkes Bay	45	62.2	8.2
Medlab South Christchurch	124	68.5	6.1
Nelson Diagnostic Laboratory	47	61.7	4.1
Pathlab Waikato	39	66.7	2.5
Rotorua Diagnostic Laboratory	32	62.5	28.9
Southern Community Laboratory	299	81.6	8.8
Taranaki Medlab	71	78.9	13.4
Valley Diagnostic Laboratory	53	81.1	17.2
Total	1,778	76.2	10.8

4.20 Accuracy of negative cytology reports

Definition
The accuracy of negative cytology reports is the ability of a laboratory to correctly identify a negative smear.

Target
For women with an histological diagnosis of HSIL or more serious, not more than 20% of their cytology slides reported within the preceding 42 months as negative are, on review, consistent with HSIL or more serious abnormality.

Results
This indicator will be reported annually.

4.21 Waiting time for colposcopic assessment for HSIL or ASCUS possible high grade

Definition
The waiting time for colposcopic assessment for HSIL, or ASCUS possible high grade, 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% or more of women with a high grade cytology result to have a colposcopic assessment within 4 weeks.

Calculation
All data required to enable the calculation of the waiting time for assessment for HSIL and ASCUS, possible high grade indicator, are collected by colposcopy clinics. Some data required to calculate this indicator have not been collected previously and were not available for this report. Therefore, it was not possible to calculate and comment on the proportion of women with an HSIL or ASCUS possible high grade cytology result referred for colposcopic assessment who were waiting for longer than 4 weeks for the quarter. Nevertheless, the number of women with an HSIL or ASCUS possible high grade cytology result who were reported to be waiting longer than 4 weeks for a colposcopic assessment at the end of April, May and June for each District Health Board (DHB) colposcopy service were provided by the National Screening Unit, Ministry of Health. Also, data definitions have varied between colposcopy services. For example, not all colposcopy services classified CIN2 cytology as part of HSIL[11] and 8 colposcopy services did not report CIN2 at all.

The Independent Monitoring Group will be unable to fully monitor his indicator until all data required are available.

Results
Table 32 shows the number of women with an HSIL or ASCUS possible high grade cytology result who were reported to be waiting longer than 4 weeks for a colposcopic assessment at the end of April, May and June for each District Health Board (DHB) colposcopy service. Not all data were provided.

Where data were provided for each of the three months, Health Waikato had the greatest number of women with an HSIL or ASCUS possible high grade cytology result who were reported to be waiting longer than 4 weeks for a colposcopic assessment at the end of April, May and June. Compared with other DHB colposcpy services, higher numbers of women with a high grade cytological abnormality were waiting longer than 4 weeks at Pacific Health (Tauranga), Pacific Health (Tauranga) and Capital Coast Health. Six DHB colposcopy services did not have any women waiting more than 4 weeks at the end of each month. Three colposcopy services each

[11] Summary of Findings from Questionnaire to Clarify Definitions of CIN 1 and CIN 3 used to Report Colposcopy Waiting Times. Unpublished Report. Ministry of Health. December 2000.

only had one woman waiting more than four weeks and another colposcopy service had two women waiting.

RECOMMENDATIONS

Data Issues

The following recommendation was previously stated in Report 1, Section 4.22 and is still applicable.

1. Efforts to collect data required to calculate the waiting time for colposcopic assessment for HSIL or ASCUS possible high grade indicator from colposcopy clinics should continue.

Service Issues

1. Reasons why women with HSIL cytology were waiting more than four weeks for a colposcopic assessment should be sought from Pacific Health Whakatane, Health Waikato, Pacific Health Tauranga and Capital Coast Health.

2. Efforts to reduce the number of women with HSIL cytology waiting more than four weeks for a colposcopic assessment should continue.

Table 32. Waiting time for colposcopic assessment for HSIL or ASCUS possible high grade by District Health Board (DHB) colposcopy service.

DHB Colposcopy Service	Number of women referred for colposcopic assessment of HSIL or ASCUS-HG			Number of women referred waiting longer than 4 weeks at the end of each month.		
	April	May	June	April	May	June
Auckland Healthcare						
Canterbury Health				0	0	0
Capital Coast Health				2	4	2
Coast Health Care				0	0	2
Good Health Wanganui					1	
Health South Canterbury				0	0	0
Health Waikato				15	5	8
Healthcare Hawkes Bay				0	0	0
Healthcare Otago				0	0	
Hutt Valley Health				0	0	
Lakeland Health				0	0	1
MidCentral Health				0	0	0
Nelson/Marlborough Health Services				0	0	
Northland Health				2	2	1
Pacific Health (Tauranga)					11	
Pacific Health (Whakatane)				5	7	
South Auckland Health				0	0	0
Southern Health				0	0	0
Tairawhiti Healthcare				0	0	1
Taranaki Healthcare				0	0	1
Wairarapa Health					0	
Waitemata Health				0	0	
Total						

4.22 Waiting time for colposcopic assessment for LSIL

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 cytology result to the time of the first colposcopic assessment.

Target
The target is for 95% or more of these women to be assessed within 26 weeks.

Calculation
All data required to enable the calculation of the waiting time for assessment for LSIL indicator are collected by DHB colposcopy clinics. Some data required to calculate this indicator have not been collected previously. Therefore, it was not possible to calculate and comment on the proportion of women with an LSIL cytology result referred for colposcopic assessment who were waiting longer than 26 weeks. Nevertheless, the number of women with a LSIL cytology result who were reported to be waiting longer than 26 weeks for a colposcopic assessment at the end of April, May and June for each DHB colposcopy service was provided by the National Screening Unit, Ministry of Health.

The Independent Monitoring Group will be unable to fully monitor his indicator until all data required are available.

Results
Table 33 shows the number of women with a LSIL cytology result who were reported to be waiting longer than 26 weeks for a colposcopic assessment at the end of April, May and June for each DHB colposcopy service. Not all data were provided.

Where data were provided for each of the three months, Health Waikato, Healthcare Hawkes Bay and South Auckland Health had the greatest numbers of women with a LSIL cytology result who were reported to be waiting longer than 26 weeks for a colposcopic assessment at the end of April, May and June. Smaller numbers of women were waiting for a colposcpic assessment at Capital Coast Health, Lakeland Health, MidCentral Health, Nelson/Marlborough Health Services, Taranaki Healthcare and Waitemata Health. Three DHB colposcopy services did not have any women waiting more than 26 weeks at the end of each month.

RECOMMENDATIONS

Data Issues

1. As for section 4.21

Service Issues

1. Reasons why high numbers of women with LSIL cytology are waiting more than 26 weeks for a colposcopic assessment should be sought from South Auckland Health, Health Waikato and Healthcare Hawkes Bay.

2. Efforts to reduce the number of women with LSIL cytology waiting more than 26 weeks for a colposcopic assessment should continue.

Table 33. Waiting time for assessment for colposcopy for LSIL by District Health Board (DHB) colposcopy service.

DHB Colposcopy Service	Number referred for colposcopic assessment of LSIL			Number of those referred waiting longer than 26 weeks at the end of each month		
	April	May	June	April	May	June
Auckland Healthcare						
Canterbury Health				0	0	3
Capital Coast Health				10	3	8
Coast Health Care				0	0	0
Good Health Wanganui					0	
Health South Canterbury				0	0	0
Health Waikato				162	155	130
Healthcare Hawkes Bay				76	88	72
HealthCare Otago				0	0	
Hutt Valley Health				0	0	
Lakeland Health				25	28	36
MidCentral Health				7	3	2
Nelson/Marlborough Health Services				7	11	
Northland Health				1	1	1
Pacific Health (Tauranga)					2	
Pacific Health (Whakatane)				0	0	
South Auckland Health				113	119	127
Southern Health				0	0	0
Tairawhiti Healthcare				0	0	1
Taranaki Healthcare				9	7	3
Wairarapa Health					0	
Waitemata Health				37	0	
Total						

4.23 Residual high grade disease after treatment

Definition
Residual high grade disease after treatment is high grade squamous or glandular intraepithelial lesions (CIN2-3) present at the post treatment colposcopy (usually at 4-6 months) for all methods of treatment.

Target
The target is 15% or less with residual high grade disease.

Results
This indicator will be reported in the annual report.

4.24 Satisfactory but limited and unsatisfactory smears by smeartaker

Definitions
Satisfactory but limited smears are those smears reported with a Bethesda adequacy code of A2 (satisfactory but limited).

Unsatisfactory smears are those smears reported with a Bethesda adequacy code of A3 (unsatisfactory).

It is important to note that the adequacy coding of a smear is influenced by both the smear taking technique and the laboratory preparation of the slides received.

Target
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
All smears taken during the reporting quarter for which there was a result recorded on the NCSP-Register, irrespective of the age of the women, were used to calculate these indicators.

The number of satisfactory but limited smears was expressed as a proportion of the total number of all smears taken for each smear taker category.

The number of unsatisfactory smears was expressed as a proportion of the total number of all smears taken for each smear taker category.

Result
Table 34 shows the number and proportion of satisfactory but limited and unsatisfactory smears by smear taker category. There were a total of 106,076 smears processed during the reporting quarter. Of these smears, 79.0% were satisfactory, 20.1% were satisfactory but limited and 0.9% were unsatisfactory for reading. The proportion of all satisfactory but limited smears was almost the same as the upper limit of the target of not more than 20%, whereas the proportion of all unsatisfactory smears was within the target range of 0.5-2.0%.

For medical and specialist smear takers, the proportions of satisfactory but limited smears were slightly above the upper limit of the target of not more than 20%. For the medical group this proportion was 20.8% and for the specialist group it was 20.5%. The proportion of satisfactory but limited smears for the midwife group was higher (28.2%) than the target of not more than 20%. This latter smear taker group took considerably fewer smears than nurses and doctors. Both the nurse and lay groups were within the target, but the lay group took very few smears (24) compared to the other smear taker groups. There were only 3 practicing smear takers in the lay category.

Except for the lay smear taker group, the proportions of unsatisfactory smears for all other smear taker groups were within the target range of 0.5-2.0%. For the lay smear taker group, there were no smears in this category. As mentioned above, this group took very few smears.

RECOMMENDATIONS

Service Issues

1. Reasons for the variation in the proportion of satisfactory but limited smears between smear taker groups should be assessed further.

Table 34. The number and proportion of satisfactory but limited and unsatisfactory smears by smear taker category.

Smeartaker Group	Total number of smears taken	Satisfactory smears	Satisfactory but limited smears [target =not more than 20%]	Unsatisfactory Smears [target = 0.5% - 2.0%]
		Number(%)	Number(%)	Number(%)
Lay	24	20 (83.3%)	4 (16.7%)	0 (0.0%)
Medical	71,315	55,876 (78.4%)	14,812 (20.8%)	627 (0.9%)
Nurse	24,361	19,825 (81.4%)	4,398 (18.1%)	138 (0.6%)
Specialist	10,007	7,784 (77.8%)	2,050 (20.5%)	173 (1.7%)
Midwife	369	259 (70.2%)	104 (28.2%)	6 (1.6%)
Total	106,076	83,764 (79.0%)	21,368 (20.1%)	944 (0.9%)

APPENDICES

Appendix 1: Projected year 2001 population data

Table 35. The projected number of women aged 20-69 years by 5-year age group for each NCSP region.

NCSP region	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Auckland	41,950	47,880	52,970	53,540	48,800	42,880	38,810	29,000	22,760	17,630	396,220
Bay of Plenty	7,400	8,710	10,150	10,950	10,800	9,530	8,810	7,210	6,700	5,570	85,830
Canterbury	16,240	18,040	18,960	19,390	19,310	17,690	16,590	12,420	10,890	9,160	158,690
Hawkes Bay	4,000	4,570	5,115	5,625	5,750	5,310	5,080	3,770	3,375	2,850	45,445
Manawatu/ Wanganui	8,145	7,923	8,201	8,814	8,674	7,625	6,971	5,465	4,997	4,314	71,129
Nelson/ Marlborough	3,040	3,820	4,570	4,970	5,140	4,620	4,360	3,410	2,880	2,370	39,180
Northland	3,590	4,100	5,000	5,550	5,710	5,060	4,740	3,980	3,560	2,940	44,230
Otago	7,787	6,530	6,184	6,629	6,853	6,121	5,765	4,299	3,921	3,355	57,444
Southland	3,383	3,550	4,026	4,481	4,367	3,719	3,335	2,481	2,249	1,915	33,506
Tairawhiti	1,260	1,430	1,630	1,790	1,890	1,630	1,340	1,040	920	820	13,750
Taranaki	3,020	3,140	3,720	4,070	4,350	3,620	3,330	2,600	2,310	2,000	32,160
Waikato	11,053	11,554	12,224	12,537	12,631	11,003	10,035	7,928	6,790	5,607	101,362
Wellington	15,082	16,583	18,185	18,549	17,145	14,712	13,534	10,097	8,173	6,669	138,729
West Coast	820	970	1,170	1,310	1,300	1,080	1,080	890	700	550	9,870
Total	126,770	138,800	152,105	158,205	152,720	134,600	123,780	94,590	80,225	65,750	1,227,545

Table 36. The projected number of women aged 20-69 years by 5-year age group for each NCSP region adjusted for hysterectomy prevalence.

NCSP region	Age group (years)										Total
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69
Auckland	41,937	47,678	51,905	50,520	43,240	35,137	29,845	21,546	16,525	12,485	350,816
Bay of Plenty	7,398	8,673	9,946	10,332	9,569	7,809	6,775	5,357	4,864	3,944	74,668
Canterbury	16,235	17,964	18,579	18,296	17,110	14,496	12,758	9,227	7,907	6,487	139,058
Hawkes Bay	3,999	4,551	5,012	5,308	5,095	4,351	3,906	2,801	2,450	2,018	39,491
Manawatu/ Wanganui	8,143	7,890	8,036	8,317	7,686	6,248	5,361	4,060	3,628	3,055	62,423
Nelson/ Marlborough	3,039	3,804	4,478	4,690	4,554	3,786	3,353	2,533	2,091	1,678	34,006
Northland	3,589	4,083	4,899	5,237	5,059	4,146	3,645	2,957	2,585	2,082	38,282
Otago	7,785	6,502	6,060	6,255	6,072	5,016	4,433	3,194	2,847	2,376	50,540
Southland	3,382	3,535	3,945	4,228	3,869	3,047	2,565	1,843	1,633	1,356	29,404
Tairawhiti	1,260	1,424	1,597	1,689	1,675	1,336	1,030	773	668	581	12,032
Taranaki	3,019	3,127	3,645	3,840	3,854	2,966	2,561	1,932	1,677	1,416	28,038
Waikato	11,050	11,505	11,978	11,830	11,192	9,016	7,717	5,890	4,930	3,971	89,078
Wellington	15,077	16,513	17,819	17,503	15,191	12,056	10,408	7,502	5,934	4,723	122,725
West Coast	820	966	1,146	1,236	1,152	885	831	661	508	389	8,595
Total	126,732	138,214	149,046	149,281	135,319	110,296	95,186	70,276	58,247	46,561	1,079,157

Table 37. The projected number of women aged 20-69 years by 5-year age group for each DHB.

DHB	Age group (years)										Total
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69
Auckland	15,450	16,950	18,800	18,250	16,100	13,900	11,800	8,500	6,500	5,050	131,300
Bay of Plenty	4,520	5,230	6,190	6,880	6,860	6,170	5,810	4,790	4,650	3,850	54,950
Canterbury	14,950	16,600	17,230	17,360	17,190	15,750	14,750	10,930	9,480	7,900	142,140
Capital Coast	9,682	10,713	11,635	11,539	10,225	8,732	7,884	5,837	4,593	3,709	84,549
Hawkes Bay	4,000	4,570	5,115	5,625	5,750	5,310	5,080	3,770	3,375	2,850	45,445
Hutt	4,350	4,860	5,380	5,660	5,370	4,550	4,340	3,230	2,600	2,170	42,510
Lakes	2,880	3,480	3,960	4,070	3,940	3,360	3,000	2,420	2,050	1,720	30,880
Manawatu	6,098	5,817	5,925	6,261	6,045	5,408	4,976	3,843	3,487	2,961	50,821
Nelson/ Marlborough	3,040	3,820	4,570	4,970	5,140	4,620	4,360	3,410	2,880	2,370	39,180
North West Auckland	13,740	16,390	18,280	19,480	18,370	16,100	15,170	11,430	9,100	7,110	145,170
Northland	3,590	4,100	5,000	5,550	5,710	5,060	4,740	3,980	3,560	2,940	44,230
Otago	7,787	6,530	6,184	6,629	6,853	6,121	5,765	4,299	3,921	3,355	57,444
South Auckland	12,760	14,540	15,890	15,810	14,330	12,880	11,840	9,070	7,160	5,470	119,750
South Canterbury	1,290	1,440	1,730	2,030	2,120	1,940	1,840	1,490	1,410	1,260	16,550

Rest of table 37 continued on next page

Table 37 continued

DHB	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Southland	3,383	3,550	4,026	4,481	4,367	3,719	3,335	2,481	2,249	1,915	33,506
Tairawhiti	1,260	1,430	1,630	1,790	1,890	1,630	1,340	1,040	920	820	13,750
Taranaki	3,020	3,140	3,720	4,070	4,350	3,620	3,330	2,600	2,310	2,000	32,160
Waikato	11,053	11,554	12,224	12,537	12,631	11,003	10,035	7,928	6,790	5,607	101,362
Wairarapa	1,050	1,010	1,170	1,350	1,550	1,430	1,310	1,030	980	790	11,670
Wanganui	2,047	21,06	2,276	2,553	2,629	2,217	1,995	1,622	1,510	1,353	20,308
West Coast	8,20	970	1,170	1,310	1,300	1,080	1,080	890	700	550	9,870
Total	126,770	138,800	152,105	158,205	152,720	134,600	123,780	94,590	80,225	65,750	1,227,545

Table 38. The projected number of women aged 20-69 years by 5-year age group for each DHB adjusted for hysterectomy prevalence.

DHB	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Auckland	15,445	16,878	18,422	17,221	14,266	11,390	9,074	6,315	4,719	3,576	117,307
Bay of Plenty	4,519	5,208	6,066	6,492	6,078	5,056	4,468	3,559	3,376	2,726	47,547
Canterbury	14,946	16,530	16,884	16,381	15,231	12,906	11,343	8,120	6,883	5,594	124,817
Capital Coast	9,679	10,668	11,401	10,888	9,060	7,155	6,063	4,337	3,335	2,627	75,212
Hawkes Bay	3,999	4,551	5,012	5,308	5,095	4,351	3,906	2,801	2,450	2,018	39,491
Hutt	4,349	4,839	5,272	5,341	4,758	3,728	3,337	2,400	1,888	1,537	37,449
Lakes	2,879	3,465	3,880	3,840	3,491	2,753	2,307	1,798	1,488	1,218	27,121
Manawatu	6,096	5,792	5,806	5,908	5,356	4,432	3,827	2,855	2,532	2,097	44,700
Nelson/ Marlborough	3,039	3,804	4,478	4,690	4,554	3,786	3,353	2,533	2,091	1,678	34,006
North West Auckland	13,736	16,321	17,912	18,381	16,277	13,193	11,666	8,492	6,607	5,035	127,619
Northland	3,589	4,083	4,899	5,237	5,059	4,146	3,645	2,957	2,585	2,082	38,282
Otago	7,785	6,502	6,060	6,255	6,072	5,016	4,433	3,194	2,847	2,376	50,540
South Auckland	12,756	14,479	15,570	14,918	12,697	10,554	9,105	6,739	5,198	3,874	105,890
South Canterbury	1,290	1,434	1,695	1,915	1,878	1,590	1,415	1,107	1,024	892	14,240

Rest of table 38 continued on next page.

Table 38 continued

DHB	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Southland	3,382	3,535	3,945	4,228	3,869	3,047	2,565	1,843	1,,633	1,356	29,404
Tairawhiti	1,260	1,424	1,597	1,689	1,675	1,336	1,030	773	668	581	12,032
Taranaki	3,019	3,127	3,645	3,840	3,854	2,966	2,561	1,932	1,677	1,416	28,038
Waikato	11,050	11,505	11,978	11,830	11,192	9,016	7,717	5,890	4,930	3,971	89,078
Wairarapa	1,050	1,006	1,146	1,274	1,373	1,172	1,007	765	712	559	10,064
West Coast	820	966	1,146	1,236	1,152	885	831	661	508	389	8,595
Whanganui	2,046	2,097	2,230	2,409	2,329	1,817	1,534	1,205	1,096	958	17,722
Total	126,732	138,214	149,046	149,281	135,319	110,296	95,186	70,276	58,247	46,561	1,079,157

Table 39. The projected number of women aged 20-69 years by 5-year age group for each ethnic group.

Ethnic Group	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Maori	25,335	24,800	23,735	22,425	19,525	14,710	11,375	7,965	6,631	4,710	161,211
Other	92,090	105,365	119,330	127,465	126,605	114,590	108,345	83,715	71,379	59,460	100,8344
Pacific	9,345	8,635	9,040	8,315	6,590	5,300	4,060	2,910	2,215	1,580	57,990
Total	126,770	138,800	152,105	158,205	152,720	134,600	123,780	94,590	80,225	65,750	1,227,545

Table 40. The projected number of women aged 20-69 years by 5-year age group for each ethnic group adjusted for hysterectomy prevalence.

Ethnic Group	Age group (years)										Total 20-69
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	
Maori	25,327	24,695	23,258	21,160	17,300	12,054	8,747	5,918	4,814	3,335	146,609
Other	92,062	104,920	116,930	120,275	112,179	93,899	83,317	62,196	51,824	42,106	879,709
Pacific	9,342	8,599	8,858	7,846	5,839	4,343	3,122	2,162	1,608	1,119	52,838
Total†	126,732	138,214	149,046	149,281	135,319	110,296	95,186	70,276	58,247	46,561	1,079,157

† For the total of some 5-year age groups, there is a difference of one between the stated total and the sum of the separate ethnic groups. This is due to rounding when calculating the hysterectomy adjusted populations.

Table 41. The projected number of women aged 20-69 years by ethnicity group for each DHB area.

District Health Board	Ethnic Group			Total 20-69
	Maori	Other	Pacific	
Auckland	10,940	106,500	13,860	131,300
Bay of Plenty	12,690	41,770	490	54,950
Canterbury	8,540	131,440	2,160	142,140
Capital Coast	7,829	70,971	5,749	84,549
Hawkes Bay	9,710	34,895	840	45,445
Hutt	5,720	34,165	2,625	42,510
Lakes	9,650	20,650	580	30,880
Manawatu	6,831	43,104	886	50,821
Nelson/ Marlborough	2,990	35,940	250	39,180
North West Auckland	12,010	125,505	7,655	145,170
Northland	12,420	31,255	555	44,230
Otago	2,998	53,792	654	57,444
South Auckland	19,040	82,145	18,565	119,750
South Canterbury	825	15,655	70	16,550
Southland	3,067	30,198	241	33,506
Tairawhiti	5,820	7,755	175	13,750
Taranaki	4,190	27,740	230	32,160
Waikato	19,084	80,361	1,917	101,362
Wairarapa	1,685	9,790	195	11,670
West Coast	835	8,980	55	9,870
Whanganui	4,337	15,733	238	20,308
Total	161,211	1,008,344	57,990	1,227,545

Appendix 2: Cancer of Cervix Uteri. Regional Analysis. New Zealand 1990-1997.

Table 42. Registrations of malignant neoplasm of cervix uteri, 1990-1997 by Region (Numbers, and Standardised Registration Ratios).

Region		1990-93		1994-97		1990-97		Differences in Observed 90-93 to 94-97
		Total Observed (O)		Total Observed (O)		Total Observed (O)		
		Number	SRR	Number	SRR	Number	SRR	Number
1	Northland	44	131.2%	55	167.1%	99	146.7%	11
2	North West Auckland	79	82.5%	94	96.6%	173	86.8%	15
3	Central Auckland	84	94.7%	89	103.4%	173	98.3%	5
4	South Auckland	88	115.3%	79	102.4%	167	105.7%	-9
5	Thames Valley & Peninsula	10	89.0%	14	126.8%	24	106.0%	4
6	Central & North Waikato	18	94.6%	18	100.0%	36	97.6%	0
7	Hamilton City	31	118.3%	30	119.9%	61	119.1%	-1
8	South & Eastern Waikato	12	87.3%	11	89.9%	23	91.7%	-1
9	Western BoP	37	128.4%	33	111.0%	70	114.9%	-4
10	Lakes	35	153.5%	27	123.6%	62	138.5%	-8
11	Eastern BoP	22	187.3%	23	208.5%	45	199.0%	1
12	King Country	6	83.5%	5	77.6%	11	83.3%	-1
13	Tairawhiti	20	172.7%	24	228.0%	44	204.1%	4
14	Taranaki	42	146.0%	28	108.2%	70	132.1%	-14
15	Hawkes Bay	41	107.4%	25	70.9%	66	91.4%	-16
16	Wanganui	17	92.7%	12	73.2%	29	86.4%	-5
17	Manawatu	41	106.2%	32	90.3%	73	100.6%	-9
18	Porirua-Kapiti	24	108.5%	23	107.9%	47	107.6%	-1
19	Hutt	37	105.4%	27	85.2%	64	98.6%	-10
20	Wellington	26	63.8%	22	57.1%	48	60.9%	-4
21	Wairarapa	5	47.0%	11	114.3%	16	81.1%	6
22	Nelson-Marlborough	17	56.4%	28	95.0%	45	74.5%	11
23	West Coast	9	105.5%	7	90.4%	16	100.9%	-2
24	Canterbury	87	79.2%	99	95.3%	186	87.4%	12
25	South Canterbury	18	112.7%	9	63.4%	27	92.8%	-9
26	Otago	45	89.8%	30	65.3%	75	79.7%	-15
27	Southland	25	95.3%	23	99.0%	48	100.9%	-2
99	**Total NZ**	**920**	**100.0%**	**878**	**100.0%**	**1798**	**100.0%**	-42

Source: Cancer of Cervix Uteri. Regional Analysis. New Zealand 1990-1997. Prepared jointly by the Ministry of Health and the New Zealand Health Funding Authority. August 2000.

The methods used by the authors to calculate the Standardised Registration Ratios (SRRs) in Table 42 are described on the following page. The description was taken directly from the report, Cancer of Cervix Uteri. Regional Analysis. New Zealand 1990-1997.

METHODS

New Zealand Cancer Register

The analysis was carried out on data sourced from the New Zealand Cancer Register maintained by the New Zealand Health Information Service. The Registry believes that registration of invasive cancer of the cervix was virtually complete throughout the period reviewed.

Exclusions

Data about patients domiciled overseas have been excluded.

Age-standardisation of incidence rates

Most diseases are related to age. For example, the highest rates of cancer and cardiovascular disease generally occur at the oldest age groups. Populations with a high number of older people will therefore have a higher crude (total number of cases divided by the total population) rate of a disease such as cancer than a population of predominantly younger people. Age-standardisation is a technique of adjusting rates of disease in a population to control for the effects of age. Consequently, the disease experience in two populations can be validly compared despite them having different population structures.

There are two commonly accepted methods for age standardisation. One method, called 'direct standardisation' multiplies the disease rates in each age group of a study population (eg, a region such as Auckland) by the population in a so-called standard population (eg, NZ). The alternative method, called 'indirect standardisation', multiplies the disease rates in each age group of a standard population (eg, NZ) by the population in each region (eg, Auckland) to give an expected number of cases.

Apart from a few regions, cervical cancer numbers are very small in statistical terms and any analysis should be interpreted with caution. In many regions the addition or subtraction of a single case can make a very large difference to the analysis.

The direct method is not robust when there are small numbers of cases in any of the age groups of a study population (eg, a region). In these circumstances, as for the analysis presented in this paper, the indirect method of standardisation is preferred. Indirectly standardised rates, presented here as ratios, can only be compared with the national average; they cannot be compared with ratios for other regions

Calculation Procedure for Standardised Cervical Cancer Registration Ratios (SRRs)

For the purposes of producing indirectly age-standardised ratios, standard age-specific rates were calculated by aggregating national registration data across the whole period 1990-1997 and applying them to the New Zealand populations at the 1996 Census. The standard rates were applied to regional populations in order to calculate expected numbers of registrations. The ratio of the observed numbers of cases to expected numbers cases was then calculated and expressed as a percentage, which we have called the Standardised Registration Ratio (SRR). SRRs greater than 100% are higher than the national average and SRRs below 100% are lower than the national average.

Confidence Intervals

The 95 percent confidence interval for each SRR was computed. The 95 percent confidence interval is a range of computed values that is likely to cover the true population value. If a range of values above and below an SRR does not include 100 percent then we can say, with 95 percent confidence that the ratio is significantly different from the national average.

For example the SRR for Eastern Bay of Plenty in 1990-93 was 196.1 percent. The computed 95 percent confidence interval for the region was in a range from 126 percent to 293 percent. Because the range does not include 100 percent it is deemed to be significantly different from the national average.

Appendix 3: Bethesda codes by broad cytological abnormality category used for the IMG-NCSP reports.

(a) negative for dysplasia
(b) abnormal not otherwise specified - C6
(c) ASCUS/LG - C3A1; C3A1A; C3A1B; C3A1C; C3A1D; C3A1F; C3A1G
(d) LSIL - C3A2A; C3A2A1; C3A2A2; C3A2A3
(e) AGUS - C3B2; C3B2A; C3B2A1; C3B2B; C3B2B1; C3B2B2; C3B2C; C3B2D; C3B2E
(f) ASCUS/HG - C3A1E
(g) HSIL - C3A2B; C3A2B1; C3A2B2; C3A2B3; C3A2B4; C3A2B5; C3A2B6; C3A2B7
(h) Squamous Cancer - C3A3
(i) AIS - C3B3D; C3B3E; C3B3F
(j) Adenocarcinoma of the cervix (not otherwise specified, endocervical & other) - C3B3; C3B3A; C3B3C; C3B3B
(k) Cancer not otherwise specified - C3C; C4

Appendix 4: Segi's World population

Table 43. Segi's World Population

Age groups (years)	Population
20 - 24	8,000
25 - 29	8,000
30 - 34	6,000
35 - 39	6,000
40 - 44	6,000
45 - 49	6,000
50 - 54	5,000
55 - 59	4,000
60 – 64	4,000
65 – 69	3,000
Total	56,000