Quarterly Report 1

National Cervical Screening Programme

October – December 2000

Independent Monitoring Group
of the National Cervical Screening Programme

Technical Report No. 31
Hugh Adam Cancer Epidemiology Unit
Department of Preventive and Social Medicine
University of Otago

JULY 2001

Independent Monitoring Group of the National Cervical Screening Programme
University of Otago
PO Box 913
Dunedin

July 2001

ISBN 0–9582308–0–3

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 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:

Dr Brian Cox, Public Health Physician

Dr Gary Fentiman, Gynaecologist

Dr Margaret Sage, Cytopathologist

Dr Fred Mayall, Pathologist

Mrs Linda Thompson, Maori Representative

Mrs Christine Rimene, Maori Health Researcher

Dr Coleen Lewis, General Practitioner

Ms Maureen Anderson, Consumer Representative

Mr Harold Neal, Scientific Officer, Cytotechnology

Dr Mary Jane Sneyd, Epidemiologist

Dr Kirsten Coppell, Public Health Physician

National Screening Unit, Ministry of Health ex-officio representatives are:

Dr Julia Peters, Clinical Director

Ms Ruth Bijl, Senior Analyst

Mrs Sandie Matcham, National Register Co-ordinator, NCSP

The Independent Monitoring Group received data for this report from the National Cervical Screening Programme Register on 27 February 2001. This first quarterly report was sent to the Ministry of Health on 20 July 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.

CONTENTS

TABLES

1.0 Executive Summary

The purpose of this report is to principally assist the National Cervical Screening Unit (NSU) of the Ministry of Health (MoH) and providers of services to improve the quality of the National Cervical Screening Programme (NCSP). The NSU of the MoH, under contract with the University of Otago, established an Independent Monitoring Group (IMG) to provide independent quantitative monitoring of the NCSP. This is the first time that the NCSP will be regularly monitored and this is the first report of the Independent Monitoring Group of the National Cervical Screening Programme (IMG-NCSP).

National Indicators for the NCSP were established by the NSU in 2000. These provide the basis for the monitoring reports produced by the IMG-NCSP. Some National Indicators will be reported quarterly and others will only be included in 6-monthly reports and annual reports. As this is a quarterly report, not all National Indicators are reported. To calculate the indicators, data for women aged 20-69 years enrolled on the NCSP-Register were provided by the NSU.

At 31 December 2000, 979,819 women aged 20-69 years were enrolled on the NCSP-Register. This was 80.6% (91.5% hysterectomy adjusted) of the estimated target 20-69 year old female population (1,215,885). The number of women aged 20-69 years who had had a smear recorded on the NCSP-Register in the previous 6 years was 931,951 (76.6% of the target population and 87% 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 64.4% (73.1% hysterectomy adjusted).

Short interval re-screening, which is a measure of excessive resource utilisation amongst women with a normal smear history was estimated to be 29.4%.

There were 23,490 women with a history of HSIL or invasive carcinoma enrolled on the NCSP-Register who had completed their treatment before 1 October 1999. Of these 23,249 women, 77% had had a smear within the 15 months to 31 December 2000. For 367 of these women there was no smear result recorded on the NCSP-Register.

For the 3,202 women who had high grade or more serious cytology reported during 1999, 78% had had an 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 25 of the 3202 women.

The indicators for laboratory reporting varied considerably. This is likely to reflect regional differences in the prevalence of cervical abnormalities, population coverage by the programme, smear taking practices as well as laboratory reporting practice.

Overall 91.9% of smears reported were negative for ASCUS, AGUS, intraepitheilial neoplasia or malignancy.

2.0 Recommendations

The Independent Monitoring Group 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

It is recommended that:

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. The new recruitment rate is no longer included as a national indicator.

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

2.2 Service Issues

It is recommended that:

1. Efforts to increase enrolments of women in all 5-year age groups in those regions with lower proportions of women enrolled on the NCSP-Register, in particular the West Coast and Hawkes Bay, need to continue.

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 the participation of women in all 5-year age groups in those regions where lower proportions of women were participating on the NCSP-Register, in particular the West Coast and Hawkes Bay, need to continue.

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

5. Efforts to improve coverage in all age groups, but particularly in the 45-69 year old age groups in all regions need to continue.

6. Reasons for non-participation need to be assessed.

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

8. Efforts to encourage re-participation need to continue in all regions.

9. Reasons for the high level of short interval re-screening need to be examined.

10. Efforts to reduce the high level of short interval re-screening in all 5-year age groups, particularly the 20-39 year age groups needs to continue.

11. An emphasis on educating smear takers and women about the recommended intervals for screening should continue.

12. Efforts to encourage women with a history of a high grade or more serious abnormality to have annual smears need to continue.

13. Reasons why women with a history of a high grade or more serious abnormality that are not having recommended annual smears should be assessed.

14. Reasons for no histology result being recorded by the NCSP-Register for women who have had a cytology report of high-grade or more serious abnormality needs to be assessed and follow-up arrangements for these women checked.

15. Further assessment of the variation in laboratory reporting such as the correlation of cytology and histology for HSIL or more serious smear results is needed.

16. An investigation of the outcome for women with ASCUS cytology results is needed.

17. An explanation for the high level of total abnormalities should be sought from Medlab Bay of Plenty, Medlab Hamilton and Rotorua Diagnostic Laboratory.

18. Reasons for long smear reporting times should be sought from those laboratories who did not reach the targets, in particular Medlab Bay of Plenty and Rotorua Diagnostic, and identified problems rectified.

3.0 Methods

The National Screening Unit (NSU) of the Ministry of Health (MoH) has, through a committee of experts and a consultation process, established National Indicators for the National Cervical Screening Programme (NCSP). 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 annual reports.

This is a quarterly report and not all National Indicators are reported. Those indicators that will be calculated 6-monthly or annually are listed along with their reporting frequency in this report. Each indicator and how it was calculated are described under the separate headings that identify the specific indicators in the results section.

To calculate the indicators for this report, anonymous data for women aged 20 - 69 years enrolled on the NCSP - Register were provided by the NSU. At a late stage of preparing this report an error was discovered by the Ministry of Health in the extraction of smears results from the NCSP-Register for the monitoring group for women in the Northland region. As a consequence, some abnormal smear results were not classified as abnormal for this region in this report. This affects the results for four tables and this is signified by a footnote for these tables. The results were correctly recorded on the NCSP-Register but were misclassified during the extraction process. The impact of this error is likely to be minor and have little effect on the recommendations of this report. It may make some results more conservative than they would otherwise have been. The error occurred during the inaugural data transfer to the Independent Monitoring Group and has been corrected for future data extraction and reports.

For this first report, no Maori or Pacific women's data are presented. Ethnic data were not available for this report because there was a delay in applying to the National Kaitiaki Group and the Pacific Women's Data Management Group to tabulate Maori and Pacific women's data from the NCSP-Register. The results in this report are for all 20-69 year old women enrolled on the NCSP-Register.

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 provided these population data. The projected population for the year 2000 was used. Statistics New Zealand calculated these projections in November 1999 for the Ministry of Health and they were based on the 1996 census population data, the post census enumerator survey, and births, deaths and immigration data. While the true population in 2000 was not known, for the purposes of this report it was decided that using the estimated 2000 population was more likely to produce results which more reasonably reflected the current picture than if the 1996 census data had been used. It is acknowledged that by using the estimated 2000 population data, some results in this report may be higher and others may be lower than the real situation. However, any such errors are unlikely to be significantly large. The projected year 2000 population data for 20-69

year old women by 5-year age group for each NCSP region and for New Zealand overall is shown in Table 1.

Because most women who have had a hysterectomy have not had cervical dysplasia or neoplasia, they no longer require smears[1]. 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 Ministry of Health has previously calculated hysterectomy prevalence for all 20-69 year old New Zealand women by 5-year age groups. Table 2 shows the projected year 2000 population data for 20-69 year old women by 5-year age group adjusted for hysterectomy prevalence for each NCSP region and for New Zealand overall. While it is likely that there are regional differences in hysterectomy prevalence, no allowance has been made for this, because this level of detail 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[2].

[1] Cervical Screening. Guidelines for the Management of Women with abnormal Cervical Smears. National Cervical Screening Programme. 1999.
[2] ibid

Table 1. The projected number of women aged 20-69 years by 5-year age group for each NCSP region.

NCSP region	Age group (years)										Total
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69
Auckland	41,990	48,980	52,270	53,060	47,000	41,800	37,400	28,070	21,370	17,570	389,510
Bay of Plenty	7,330	9,100	10,120	11,020	10,560	9,170	8,490	7,180	6,290	5,510	84,770
Canterbury	16,450	18,540	18,690	19,690	18,900	17,220	16,200	12,120	10,420	9,300	157,530
Hawkes Bay	4,040	4,850	5,080	5,795	5,640	5,260	4,835	3,770	3,200	2,875	45,345
Manawatu/ Wanganui	8,283	8,042	8,125	9,120	8,504	7,437	6,670	5,467	4,846	4,353	70,847
Nelson/ Marlborough	3,030	4,000	4,490	5,070	4,990	4,500	4,200	3,330	2,710	2,370	38,690
Northland	3,620	4,240	4,980	5,710	5,590	4,870	4,640	3,870	3,440	2,890	43,850
Otago	7,859	6,525	6,175	6,907	6,671	5,973	5,593	4,356	3,739	3,429	57,227
Southland	3,281	3,805	4,065	4,613	4,279	3,627	3,237	2,514	2,151	1,941	33,513
Tairawhiti	1,240	1,520	1,630	1,890	1,840	1,590	1,270	1,040	890	850	13,760
Taranaki	2,950	3,320	3,750	4,250	4,230	3,530	3,290	2,550	2,230	2,020	32,120
Waikato	11,209	11,795	12,174	12,701	12,304	10,827	9,718	7,840	6,410	5,730	100,708
Wellington	15,108	17,433	18,041	18,719	16,742	14,246	13,292	9,933	7,854	6,787	138,155
West Coast	780	1,050	1,160	1,390	1,240	1,080	1,050	860	670	580	9,860
Total	127,170	143,200	150,750	159,935	148,490	131,130	119,885	92,900	76,220	66,205	1,215,885

Table 2. 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	41,977	48,773	51,219	50,067	41,645	34,252	28,760	20,855	15,516	12,442	345,506
Bay of Plenty	7,328	9,062	9,916	10,398	9,357	7,514	6,529	5,334	4,567	3,902	73,907
Canterbury	16,445	18,462	18,314	18,579	16,746	14,111	12,458	9,005	7,565	6,586	138,271
Hawkes Bay	4,039	4,830	4,978	5,468	4,997	4,310	3,718	2,801	2,323	2,036	39,500
Manawatu/ Wanganui	8,281	8,008	7,962	8,606	7,535	6,094	5,129	4,062	3,518	3,083	62,277
Nelson/ Marlborough	3,029	3,983	4,400	4,784	4,421	3,687	3,230	2,474	1,968	1,678	33,654
Northland	3,619	4,222	4,880	5,388	4,953	3,991	3,568	2,875	2,498	2,047	38,040
Otago	7,857	6,497	6,051	6,517	5,911	4,894	4,301	3,236	2,715	2,428	50,408
Southland	3,280	3,789	3,983	4,353	3,791	2,972	2,489	1,868	1,562	1,375	29,462
Tairawhiti	1,240	1,514	1,597	1,783	1,630	1,303	977	773	646	602	12,064
Taranaki	2,949	3,306	3,675	4,010	3,748	2,893	2,530	1,895	1,619	1,430	28,055
Waikato	11,206	11,745	11,929	11,985	10,902	8,872	7,473	5,825	4,654	4,058	88,648
Wellington	15,103	17,359	17,678	17,663	14,834	11,674	10,221	7,380	5,702	4,806	122,422
West Coast	780	1,046	1,137	1,312	1,099	885	807	639	486	411	8,601
Total	127,132	142,595	147,719	150,913	131,571	107,453	92,191	69,020	55,339	46,883	1,070,815

4.0 Results

The NCSP-Register was established in 1990 and the current reporting quarter ended on 31 December 2000. The results for the October-December 2000 quarter are given below under separate headings that identify the different indicators. For each indicator, the indicator is defined, the target, if any, is stated and how the indicator was calculated is explained.

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 they did not wish to have any more smears. Women with a normal smear history who were recorded on the NCSP-Register as having had a hysterectomy for a benign reason and were no longer participating in routine screening 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 the estimated unadjusted and hysterectomy-adjusted populations.

Results
Table 3 shows the proportion of 20-69 year old women enrolled by 5-year age group for each NCSP region.

Overall, there was a high level of enrolment particularly when the population was adjusted for the prevalence of hysterectomy. The proportion of all 20-69 year old women enrolled was 80.6% and enrolment after adjustment for hysterectomy was 91.5%.

The proportion of all 20-69 year old women enrolled in each region varied. These proportions ranged from 71.5% in the West Coast to 86.7% in Wellington, and from 82.0% to 97.9%, respectively, when adjusted for hysterectomy.

The proportion of women enrolled in each 5-year age group also varied. The 25-44 year old age groups had the highest proportions of women enrolled and for these age groups, enrolment was 85% or more. Compared with other regions enrolment for this age group was lower for Hawkes Bay and West Coast women. The proportion of all 20-24 year old women enrolled was 70.6%, and amongst the regions enrolment for this age group ranged from 64.1% in the West Coast to 86.8% in Tairawhiti. For all women, there was a decline in the proportion of women enrolled from 79.3% in the 45-49 year old age group to 51.6% in the 65-69 year old age group. This pattern was also seen in each of the regions. For the 45-69 year age groups, the lowest enrolments were observed in Hawkes Bay and Canterbury and the highest enrolments were observed in Taranaki.

The estimated proportion of women enrolled for some 5-year age groups was greater than 100%. Table 3 shows that this was observed for the 25-29 year-old and 30-34 year-old age groups in Bay of Plenty and Wellington. When the proportions of women enrolled were adjusted for hysterectomy, estimated enrolment was much more likely to exceed 100% (data not shown). It is highly unlikely that all women for whom screening is recommended in a particular 5-year age group in a particular region are enrolled on the NCSP-Register because it is known that some women opt not to enroll on the NCSP-Register when they have their cervical smears. Also opt-off rates are likely to vary throughout New Zealand. An estimate of opt-off rates will be reported in the annual reports of the Independent Monitoring Group.

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 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 2000 population used to calculate these proportions may be lower than the true population in 2000. The significance of these factors may vary between regions, and as a result may contribute to the regional variation in enrolments.

RECOMMENDATIONS

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.

Service Issues

1. Efforts to increase enrolments of women in all 5-year age groups in those regions with lower proportions of women enrolled on the NCSP-Register, in particular the West Coast and Hawkes Bay need to continue.

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

Table 3. The proportion of women aged 20-69 years enrolled by 5-year age group for each NCSP region.

NCSP region	Age group (years)										Total	Total (hysterectomy-adjusted)
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69	
Auckland	65.9	92.2	99.3	93.6	87.6	78.9	71.0	63.2	58.5	47.9	80.5%	90.8%
Bay of Plenty	83.8	100.2	100.3	95.9	91.2	81.9	72.6	62.4	60.4	53.0	83.1%	95.4%
Canterbury	72.0	92.0	97.3	92.0	86.3	76.8	68.3	60.6	54.8	46.5	78.2%	89.1%
Hawkes Bay	68.5	89.3	89.4	86.8	82.0	73.8	67.0	60.6	58.8	52.2	75.2%	86.3%
Manawatu/ Wanganui	70.0	90.3	93.9	89.7	86.2	76.8	70.0	62.2	61.1	54.4	78.1%	88.8%
Nelson/ Marlborough	72.1	92.5	93.3	89.9	88.5	78.4	73.2	64.2	58.8	55.2	79.3%	91.2%
Northland	71.5	89.7	92.7	89.1	87.3	80.6	71.4	65.0	61.5	56.6	78.6%	90.6%
Otago	72.8	91.3	93.6	89.6	86.8	79.5	71.7	66.5	62.4	57.2	79.3%	90.0%
Southland	67.2	91.0	92.3	86.8	87.7	78.3	73.7	64.2	67.2	55.1	79.2%	90.1%
Tairawhiti	86.8	96.9	99.3	92.3	83.4	79.2	74.0	66.3	60.8	52.7	82.3%	93.9%
Taranaki	78.5	98.4	96.2	91.6	88.3	84.7	76.8	71.1	71.8	62.5	84.1%	96.3%
Waikato	70.0	92.9	95.5	91.8	88.8	80.1	71.9	63.9	61.7	54.0	80.2%	91.1%
Wellington	73.6	102.7	107.3	99.1	92.6	84.2	75.3	68.1	64.4	53.1	86.7%	97.9%
West Coast	64.1	73.6	84.1	78.2	82.3	73.1	67.3	61.5	59.0	47.4	71.5%	82.0%
Total	70.6	93.7	98.1	92.7	88.0	79.3	71.4	63.7	60.2	51.6	80.6%	91.5%

4.2 Participation of women

Definition
Participation refers to the proportion of 20-69 year old women alive, not living overseas, and who have ever had a smear recorded on the NCSP-Register within the previous 6 years. For this reporting quarter, the 6-year period was 1 January 1995 to 31 December 2000.

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 with a smear recorded on the NCSP-Register in the past 6 years was calculated. This was expressed as a proportion of the estimated unadjusted and hysterectomy-adjusted populations.

Results
Table 4 shows the proportion of 20-69 year old women participating in the NCSP by 5-year age groups for each NCSP region. Overall, the participation rates were below the current targets for both the unadjusted and adjusted populations, but the participation rate for the hysterectomy-adjusted population nearly reached the target of 90%.

The target for the unadjusted population was not reached in any of the regions. The regional participation rates for the unadjusted 20-69 year old population ranged from 68.7% in the West Coast to 82.8% in Wellington. When the regional populations were adjusted for the estimated prevalence of hysterectomy, four regions reached the target. These regions were the Bay of Plenty (90.8%), Tairawhiti (91.1%), Taranaki (92.7%), and Wellington (93.4%).

For each region participation rates for the unadjusted 20-69 year old population were at least 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 were highest, 83% or more, for the 25-44 year old age groups. As was observed for enrolment, the proportion of women participating in the NCSP-Register declined from 75.3% for the 45-49 year age group to 49.2% for the 65-69 year age group. While a relatively low proportion of 20-24 year olds (69.7%) had had a smear within the previous 6 years, there was little difference between this proportion and the proportion of 20-24 year old women enrolled (70.6%). These overall patterns were observed in each of the regions.

Amongst the 5-year age groups, the lowest regional participation rates were observed in the West Coast for women aged 20-54 years and Canterbury for women aged 55-69 years. The highest 5-year age group regional 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.

The calculated participation rate for those aged 30-34 years in the Wellington region was greater than 100%. Possible reasons for this rate being greater than 100% are the same as those given previously for higher than expected enrolments.

RECOMMENDATIONS

Data Issues

1. As for section 4.1

Service Issues

1. Efforts to increase the participation of women in all 5-year age groups in those regions where lower proportions of women were participating on the NCSP-Register, in particular the West Coast and Hawkes Bay, need to continue.

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

Table 4. The proportion of 20-69 year old women screened in the previous 6 years by 5-year age groups for each NCSP region.

NCSP region	Age group (years)										Total	Total (hysterectomy-adjusted)
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69	
Auckland	65.0	87.2	92.9	87.6	82.3	74.3	66.8	59.4	54.7	44.8	76.0%	85.7%
Bay of Plenty	82.1	94.6	95.1	90.8	86.4	78.0	69.2	59.5	57.6	50.6	79.1%	90.8%
Canterbury	71.3	87.4	92.5	88.0	82.0	73.2	65.0	57.7	52.2	44.3	74.7%	85.1%
Hawkes Bay	67.2	85.3	85.2	83.7	78.8	71.2	64.5	58.9	57.0	50.5	72.4%	83.1%
Manawatu/ Wanganui	69.3	85.2	88.3	84.8	81.6	72.6	66.7	58.8	58.8	52.1	74.3%	84.5%
Nelson/ Marlborough	71.1	87.2	88.0	85.7	84.6	74.8	70.5	61.6	56.7	53.0	75.8%	87.1%
Northland	69.7	83.6	86.3	82.7	81.1	75.0	67.4	61.0	58.1	53.0	73.6%	84.9%
Otago	72.4	85.7	88.7	86.4	83.6	77.1	69.6	64.7	60.5	55.8	76.5%	86.9%
Southland	66.5	86.9	87.7	83.5	84.1	75.1	70.8	61.3	64.0	52.4	76.0%	86.4%
Tairawhiti	85.5	93.2	95.5	89.4	80.9	77.3	71.7	64.4	59.4	52.2	79.9%	91.1%
Taranaki	77.4	94.0	91.7	88.0	85.1	81.2	74.2	68.8	69.5	60.6	81.0%	92.7%
Waikato	68.8	87.4	89.9	86.8	84.0	75.9	68.5	61.0	59.2	51.8	76.2%	86.6%
Wellington	72.9	97.9	101.0	94.2	87.7	80.3	71.8	64.9	61.5	50.9	82.8%	93.4%
West Coast	63.1	70.3	81.6	75.4	78.4	69.7	64.4	59.3	55.8	45.0	68.7%	78.7%
Total	69.7	88.8	92.4	87.8	83.3	75.3	67.9	60.6	57.3	49.2	76.6%	87.0%

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 January 1998 to 31 December 2000. 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 at, the end of the quarter was calculated. This was expressed as a proportion of the estimated unadjusted and hysterectomy-adjusted populations.

Results
Table 5 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 overall coverage was 64.4% for the unadjusted population and 73.1% for the hysterectomy-adjusted population. These proportions were lower than the recommended targets. Also the targets were not reached in any of the regions for all 20-69 year old age women. Amongst the regions coverage for the 20-69 year old population was highest in Tairawhiti (71.8% unadjusted and 81.9% when adjusted for hysterectomy prevalence) and lowest in the West Coast (58.7% unadjusted and 67.3% when adjusted for hysterectomy prevalence). For each region there was a difference in coverage of at least 8% between the unadjusted and the hysterectomy-adjusted 20-69 year old populations. However, there is only a 5% difference between the unadjusted and hysterectomy-adjusted targets.

Higher levels of coverage were observed amongst the 25-44 year old age groups. For the total 25-44 year old age groups, coverage was at least 70%, but this level was not always reached in the regions. This was most apparent for Northland and the West Coast.

When compared to the 25-44 year old age groups, coverage for the 20-24 year old age group was lower. For this youngest age group coverage was 60.6% for the total population, and in the regions it ranged from 54.2% in the West Coast to 75.7% in Tairawhiti.

Coverage declined with increasing age from the 45-49 year old age group to the 65-69 year old age group. This was observed for the total population and in each of the regions. A similar pattern was also observed for enrolments and participation. For 65-69 year old women, coverage was less than 50% for the total population and in the regions, except for Otago and Taranaki. Coverage in these two regions was 50.5% and 54.3%, respectively.

A possible reason for coverage being less than the targets is that the estimated denominator population used to calculate coverage may be greater than the true population at that time. On the other hand, the estimated denominator population may have been less than the true

population and resulted in an overestimate of coverage. Some individual women are enrolled on the NCSP-Register more than once because they have more than one National Health Index (NHI) number, and some women for whom routine screening is no longer recommended may be classified as actively participating in screening on the NCSP-Register. It is unknown how many women to whom these issues apply, but their inclusion would also have resulted in coverage being over estimated.

RECOMMENDATIONS

Data Issues

1. As for section 4.1

Service Issues

1. Efforts to improve coverage in all age groups, but particularly in the 45-69 year old age groups, in all regions need to continue.

Table 5. The proportion of 20-69 year-old women screened in the previous 36 months by 5-year age groups for each NCSP region.

NCSP region	Age group (years)										Total	Total (hysterectomy-adjusted)
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	20-69	
Auckland	55.8	68.4	73.8	70.7	67.2	61.8	55.6	49.9	46.0	36.9	62.0%	69.9%
Bay of Plenty	69.9	77.9	78.5	76.3	73.7	67.6	60.6	52.2	51.6	44.3	67.4%	77.3%
Canterbury	62.9	71.4	78.3	75.6	70.4	63.0	56.8	49.8	45.5	37.4	63.9%	72.8%
Hawkes Bay	58.0	69.8	71.5	71.1	66.8	62.2	56.8	52.2	50.2	45.3	62.1%	71.3%
Manawatu/ Wanganui	60.6	68.2	73.3	70.8	69.0	62.7	57.5	51.5	51.2	44.8	62.8%	71.5%
Nelson/ Marlborough	60.5	71.7	73.7	73.9	73.7	66.2	61.7	54.7	50.7	47.1	65.5%	75.3%
Northland	56.4	65.3	69.6	66.9	66.1	61.9	58.3	52.0	48.7	43.7	60.3%	69.6%
Otago	65.5	68.7	77.1	75.9	74.2	68.7	63.4	58.9	55.1	50.5	67.4%	76.5%
Southland	59.0	70.7	72.5	71.0	71.7	64.5	60.5	53.1	55.2	44.9	64.5%	73.3%
Tairawhiti	75.7	81.3	83.1	79.5	74.0	71.0	64.6	60.5	55.8	47.6	71.8%	81.9%
Taranaki	67.2	78.4	78.3	76.8	74.3	71.0	66.1	61.2	62.2	54.3	70.5%	80.8%
Waikato	59.4	68.7	73.1	72.1	69.9	64.1	58.9	52.6	51.5	44.9	63.6%	72.3%
Wellington	65.2	79.6	83.8	78.8	74.1	68.9	61.8	56.1	53.1	43.7	70.0%	79.0%
West Coast	54.2	57.3	67.3	64.6	67.8	59.8	56.3	52.2	48.8	39.1	58.7%	67.3%
Total	60.6	71.2	75.8	73.2	70.1	64.3	58.4	52.4	49.7	42.1	64.4%	73.1%

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 who 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 women enrolled (section 4.1) and the number of women participating (section 4.2) expressed as a proportion of the estimated unadjusted and the 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 6 shows the proportion of 25-69 year old women not currently participating for the unadjusted and hysterectomy-adjusted populations 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 was 4.2% for the unadjusted population and 4.8% for the hysterectomy-adjusted population. Amongst the regions, the lowest non-participation rates for all 25-69 year old women were observed in Tairawhiti (2.5% for the unadjusted population and 2.8% when adjusted for hysterectomy prevalence) and the highest non-participation rates were observed in Northland (5.1% for the unadjusted population and 6.0% when adjusted for hysterectomy prevalence).

Generally, the non-participation rates for the 25-44 year age groups were relatively similar and these rates were slightly higher than those for the older 45-69 year age groups (data not shown). This pattern was observed for most of the regions and the total population.

Some women enrolled on the NCSP-Register for whom smears are recommended may be overdue for a smear for a variety of reasons such as cost and embarrassment. Other women may have been classified as not participating, but in actual fact they are no longer participating because they have had a hysterectomy for a benign reason and their smear history was normal, or they are now living overseas. For other women the NCSP-Register may not have their current address and any recall letters sent to them would not have been received.

RECOMMENDATIONS

Data Issues

1. As for section 4.1, data issue 2.

Service Issues

1. Reasons for non-participation need to be assessed.

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

Table 6. The non-participation rate among women aged 25-69 years for each NCSP region.

NCSP region	All 25-69 year old women	All 25-69 year old women (hysterectomy-adjusted)
Auckland	4.9%	5.6%
Bay of Plenty	4.1%	4.8%
Canterbury	3.6%	4.2%
Hawkes Bay	2.8%	3.3%
Manawatu/ Wanganui	4.1%	4.8%
Nelson/ Marlborough	3.6%	4.2%
Northland	5.1%	6.0%
Otago	3.1%	3.5%
Southland	3.4%	3.9%
Tairawhiti	2.5%	2.8%
Taranaki	3.2%	3.7%
Waikato	4.2%	4.9%
Wellington	4.3%	4.9%
West Coast	2.9%	3.4%
Total	4.2%	4.8%

4.5 Re-participation rate

Definition
The re-participation rate is the proportion of women recorded on the NCSP-Register who have not had a smear in the 6 years prior to the quarter and who have had a smear recorded on the NCSP-Register during this reporting quarter. It 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 without a smear in the 6 years before the beginning of the quarter who had a smear during the quarter is expressed as a proportion of enrolled 20-69 year old women who had not had a smear in the previous 6 years. This is tabulated by age at the end of the quarter.

Results
In total 1398 women aged 20-69 years re-participated in screening during this reporting quarter. Table 7 shows the re-participation rate for 20-69 year old women by 5-year age group for each NCSP region. Overall the re-participation rate for all 20-69 year old women was 3.4%. Amongst the regions, the re-participation rate ranged from 1.1% in Tairawhiti to 6.4% in the West Coast.

Amongst the regions, the re-participation rates for the 5-year age groups were generally lowest for Tairawhiti, and indeed it was zero for several 5-year age groups. Because there was a relatively low level of non-participation in Tairawhiti, (section 4.4), this result was not unexpected. High re-participation rates were observed for the 20-34 and 65-69 year age groups in the West Coast.

RECOMMENDATIONS

Service Issues

1. Efforts to encourage re-participation need to continue in all regions.

Table 7. The re-participation rate for 20-69 year old women by 5-year age groups for each NCSP region.

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	4.1	3.5	3.6	3.1	3.4	3.3	2.8	3.1	2.7	2.8	3.3%
Bay of Plenty	3.9	2.1	2.6	2.7	3.3	4.4	4.0	4.9	3.1	3.6	3.2%
Canterbury	1.3	3.8	4.3	3.6	3.7	4.2	4.4	4.4	3.0	2.2	3.8%
Hawkes Bay	6.5	4.6	2.2	5.3	1.9	1.7	2.0	3.8	3.7	4.9	3.3%
Manawatu/ Wanganui	4.3	2.8	2.9	2.4	1.7	2.5	1.5	3.6	4.5	1.1	2.6%
Nelson/ Marlborough	0.0	5.2	3.4	5.2	7.0	0.0	1.0	2.7	3.7	6.7	3.9%
Northland	4.3	6.7	2.9	4.0	4.5	4.1	4.8	3.8	6.3	1.2	4.3%
Otago	8.3	2.9	2.5	3.2	3.2	3.1	2.8	2.9	1.7	2.3	3.0%
Southland	5.9	3.0	7.1	3.6	2.2	1.9	3.5	2.9	1.6	2.0	3.5%
Tairawhiti†	0.0	0.0	1.8	0.0	2.4	0.0	0.0	5.9	0.0	0.0	1.1%
Taranaki	5.0	4.6	4.7	3.7	7.3	6.7	3.8	6.3	4.2	0.0	5.0%
Waikato	2.3	3.5	2.9	2.9	3.7	2.3	2.1	2.6	2.2	0.0	2.8%
Wellington	3.8	5.5	4.6	3.0	2.7	1.5	3.3	0.8	3.0	2.4	3.4%
West Coast‡	20.0	17.2	11.5	6.3	2.3	0.0	6.5	0.0	0.0	13.3	6.4%
Total	3.9	3.9	3.6	3.2	3.4	3.1	3.1	3.2	3.1	2.5	3.4%

† In total there were only 3 women who re-participated in screening during the October-December 2000 quarter.
‡ In total there were only 16 women who re-participated in screening during the October-December 2000 quarter.

4.6 New recruitment rate

Definition
The new recruitment rate is the proportion of women aged 20-69 years not previously recorded on the NCSP-Register who have had a smear recorded on the register during this reporting quarter.

Target
There is no target for this indicator.

Calculation
The difference between the estimated 20-69 year old unadjusted population and the number of women enrolled in that age group before the beginning of the quarter was used to estimate the number of women who have not been screened in the programme. The new recruitment rate was calculated by identifying enrolled women as in Section 3.1 and determining whether their date of enrolment occurred in the quarter. This was expressed as a proportion of those 20-69 year old women who have not been screened in the programme.

Results
The new recruitment rate was calculated, but the target population and the number of women enrolled could not be determined precisely enough for this measure of health promotion activity to be accurately determined.

RECOMMENDATIONS

Data Issues

1. The new recruitment rate is no longer included as a national indicator.

4.7 Short interval re-screening

Definition
Short interval re-screening is the proportion of 20-69 year-old women screened 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 women with two or more 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 women who had had at least one smear in the same 33-month period. Women who enrolled in the 12 months before or during the 33-month period were excluded. This was done to exclude women who had a recommended repeat smear 12 months after beginning screening or whom joined the programme more than 5 years since their last smear. Women with a history of ASCUS possible high grade, HSIL or more serious result, and women with a LSIL, ASCUS possible high grade, HSIL or more serious smear result recorded during the 33-month period were also excluded as more frequent smears than 3-yearly are indicated in this instance. Also, unsatisfactory smears during the 33-month period were excluded from the analysis.

Results
Table 8 shows the estimated level of short interval re-screening for 20-69 year old women by 5-year age groups. Short-interval re-screening was higher than expected. The overall level of short interval re-screening was 29.4%, which was considerably higher than the target of 10%.

Short-interval re-screening was highest in the 20-24 year age group (34.7%), and it was only slightly lower in the 25-54 year age groups.

It is likely that some women will have had smears as part of the investigation of symptoms, but this is unlikely to fully explain the high level of short interval re-screening observed.

RECOMMENDATIONS

Service Issues

1. Reasons for the relatively high level of short interval re-screening need to be examined.

2. Efforts to reduce the high level of short interval re-screening in all 5-year age groups, particularly the 20-39 year age groups need to continue.

3. An emphasis on educating smear takers and women about the recommended intervals for screening should continue.

Table 8. 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
34.7	32.4	31.7	29.6	28.9	29.5	29.2	25.8	22.2	19.2	29.4

* some abnormal results for Northland women not included (see Methods)

4.8 Re-screening for women with HSIL or invasive carcinoma

Definition
Re-screening for women with HSIL or invasive carcinoma is the proportion of women participating in the NCSP-Register with a history of HSIL or invasive carcinoma who have 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, targets for re-screening for women with HSIL or invasive carcinoma 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 only participating women with a previous smear or biopsy result recorded as CIN-not otherwise specified, or HSIL or more serious, prior to 1 October 1999, and had completed treatment. 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 women participating on the NCSP-Register who had had a diagnosis of HSIL or worse before 1 October 1999 and completed treatment.

Results
Table 9 shows the number and proportion of women with a history of HSIL or more serious abnormality, 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. There were 23,490 women with a history of HSIL or invasive carcinoma who had completed treatment before 1 October 1999.

Of these 23,490 women, 77% had had a smear within 15 months of the end of the reporting quarter. This was less than the target of 85%. For 16% of the 23,490 women, their last smear was more than 18 months previously. This is much more than the target of 1%. There was no record of a smear result for 367 women with a history of HSIL or more serious abnormality. Some of these women may have moved overseas and the NCSP-Register did not have this information recorded, but this is unlikely to be the only explanation.

RECOMMENDATIONS

Service Issues

1. Efforts to encourage women with a history of a high grade or more serious abnormality to have annual smears should continue.

2. Reasons why women with a history of a high grade or more serious abnormality that have not had recommended annual smears should be assessed.

Table 9. Timeliness of the most recent smear among women with a previous significant abnormality*.

Time period	Number (proportion)	Cumulative proportion
Less than 15 months	18,117 (77.1%)	77.1%
15-18 months	1,259 (5.4%)	82.5%
More than 18 months	3,747 (16.0%)	98.4%
No smear	367 (1.6%)	100.0%
Total	23,490	

* some abnormal results for Northland women not included (see Methods)

4.9 Follow-up of women with HSIL cytology

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

Targets
The targets for the follow-up of women with HSIL 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 more serious abnormality recorded on the NCSP-Register during 1999 was calculated. The time between the date of the smear and the date of the biopsy was calculated. This was expressed as a proportion of the total number of women with a HSIL or more serious cytology result during 1999.

Results
Table 10 shows the number and proportion of women with HSIL cytology reported during 1999 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. The number of women with a HSIL report for which there was no subsequent histology result recorded on the NCSP-Register is also shown. Almost 80% of women with HSIL cytology had had a histology report received by the NCSP-Register within 12 weeks of having their smear. This was less than the target of 90%.

The 99% target for histology being reported within 52 weeks of a woman having an HSIL cytology report was almost reached (97.8%).

For a very small number of women (25) a histology result was not recorded on the NCSP-Register. 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

Service Issues

1. Reasons for no histology result being recorded by the NCSP-Register for women who have had a cytology report of high-grade or more serious abnormality needs to be assessed and follow-up arrangements for these women checked.

Table 10. Timeliness of histology report after HSIL cytology result*.

Time period	Number (proportion)	Cumulative proportion
Within 12 weeks	2,498 (78.0%)	78.0%
Within 26 weeks	450 (14.1)	92.1%
Within 52 weeks	182 (5.7%)	97.8%
More than 52 weeks	47 (1.5%)	99.3%
Subtotal	3,177	
No histology reported	25 (0.8%)	100.0%
Total	3,202	

* some abnormal results for Northland women not included (see Methods)

4.10 Cervical cancer incidence and stage of invasive cervical cancer

Definitions
The 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 standardised registration ratios for different regions and for all New Zealand for the periods 1990-1993 and 1994-1997 have been included in Appendix 1. 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 breakdown used in this analysis did not correspond to the NCSP-Register regional sites or DHB areas, and the most recent year for which the data were 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 was 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.

4.11 Cervical cancer mortality

Definition
The 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.

4.12 Cytology abnormality reporting

Definition
Cytology abnormality reporting is the rate at which specified cytological cervical abnormalities are recorded on the NCSP-Register.

Targets
There are no targets.

Result
This will be provided in the annual report.

4.13 Histology abnormality reporting

Definition
Histology abnormality reporting is the rate at which specified histological cervical abnormalities are recorded on the NCSP-Register.

Targets
There are no targets.

Result
This will be provided in the annual report.

4.14 Interval cancer

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

Target
There is no target.

Result
This will be provided in the annual report.

4.15 Programme sensitivity

Definition
Programme sensitivity is the proportion of all women with invasive cervical cancer whose cervical cancer has been detected by screening.

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

Result
This will be provided in the annual report.

4.16 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.

4.17 Laboratory smear reporting

Levels of abnormalities detected by laboratories depend on numerous factors. The prevalence of the different 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 between 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. If laboratories receive specimens predominantly from colposcopy clinics and sexual health clinics, it is likely that the overall prevalence of abnormalities detected will be higher than would otherwise occur.

Reporting practices may also differ between laboratories. In particular, there are variations in the reporting of the ASCUS (atypical squamous cells of uncertain significance) category. The interpretation and value of this ASCUS category is the subject of international debate amongst cytopathologists. Since this is the first monitoring report, trends in laboratory reporting are not provided.

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 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 worst 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 (f) is:

(a) negative for dysplasia or malignancy,
(b) abnormal not otherwise specified,
(c) atypical squamous cells of uncertain significance (ASCUS), excluding ASCUS possible high grade
(d) low grade squamous intraepithelial neoplasia (LSIL),

(e) high grade squamous intraepithelial neoplasia (HSIL), including ASCUS possible high grade,
(f) cervical cancers including squamous carcinoma and adenocarcinoma,

Using the diagnostic Bethesda codes, as recorded on the NCSP-Register, for smears processed during the quarter, the numbers of smears in broad cytological categories were calculated and expressed as proportions of the total number of smears processed by each laboratory. Total abnormalities included ASCUS/AGUS or more serious abnormality. Only smears for women aged 20-69 years were included.

Results

Table 11 shows the number and proportion of satisfactory or satisfactory but limited smears in broad cytological categories for each laboratory that processed smear tests during the quarter. The results are grouped into laboratories reporting smears predominantly for hospital clinics and laboratories reporting smears predominantly from the community. A total of 95,337 satisfactory or satisfactory but limited smears from women aged 20-69 years were recorded during the quarter, and the number of smears processed by each laboratory ranged from 249 at Wellington Hospital Laboratory to 29,594 at Diagnostic Medlab Auckland.

Overall 91.9% of smears were negative for dysplasia or malignancy. This was within the target of not more than 96% of smears being negative for dysplasia or malignancy. All laboratories met this target.

For the proportion of smears reported as HSIL, no laboratories were below the target of 0.6%. For all laboratories together, this proportion was 1.2% of smears.

Overall the proportion of satisfactory and satisfactory but limited smears reported with an abnormality was 8.1%. This was within the target of not more than 10% of smears reported as abnormal. All five laboratories who serviced predominantly hospital clinics reported more than 10% of the slides they processed to be abnormal. Three laboratories who reported smears predominantly from the community also reported more than 10% of the slides as abnormal. They were Medlab Bay of Plenty (16.1%), Medlab Hamilton (15.3%) and Rotorua Diagnostic Laboratory (16.4%). These three laboratories also had relatively high proportions of ASCUS results compared with other community laboratories.

RECOMMENDATIONS

Service Issues

1. Further assessment of the variation in laboratory reporting such as the correlation of cytology and histology for HSIL or more serious smear results is needed.

2. An investigation of the outcome for women with ASCUS cytology results is needed.

3. An explanation for the high level of total abnormalities should be sought from Medlab Bay of Plenty, Medlab Hamilton and Rotorua Diagnostic Laboratory.

Table 11. The number and proportion of satisfactory or satisfactory but limited smears for women aged 20-69 years in broad cytological categories for each laboratory*.

Laboratory	Negative for dysplasia or malignancy		Total ASCUS (includes ASCUS possible HSIL)		LSIL		ASCUS possible HSIL		HSIL		Total abnormalities †		Total number of smears in quarter
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Predominantly hospital clinic work													
Canterbury Health Laboratories	689	77.6	103	11.6	71	8.0	1	0.1	25	2.8	199	22.4	888
Healthlab Otago	302	62.8	64	13.3	64	13.3	5	1.0	51	10.6	179	37.2	481
National Women's Hospital Laboratory	1885	84.3	150	6.7	117	5.2	9	0.4	84	3.8	351	15.7	2236
Waikato Hospital Laboratory	466	60.4	153	19.8	117	15.2	1	0.1	35	4.5	305	39.6	771
Wellington Hospital Laboratory	157	63.1	63	25.3	21	8.4	3	1.2	8	3.2	92	36.9	249

Rest of table 11 continued on next page

* some abnormal results for Northland women not included (see Methods)

† does not include inflammation or infection

Table 11 continued

Laboratory	Negative for dysplasia or malignancy		Total ASCUS (includes ASCUS possible HSIL)		LSIL		ASCUS possible HSIL		HSIL		Total abnormalities †		Total number of smears in quarter
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Predominantly community work													
Diagnostic Medlab Auckland	28036	94.7	661	2.2	627	2.1	42	0.1	270	0.9	1558	5.3	29594
Medical Laboratory Southland	1030	93.7	32	2.9	28	2.5	4	0.4	9	0.8	69	6.3	1099
Medical Laboratory Wellington	6703	91.3	401	5.5	172	2.3	10	0.1	67	0.9	640	8.7	7343
Medlab Bay of Plenty	3255	83.9	437	11.3	111	2.9	38	1.0	76	2.0	624	16.1	3879
Medlab Central, Palmerston North	4868	92.4	203	3.9	131	2.5	18	0.3	65	1.2	399	7.6	5267
Medlab Hamilton	5124	84.7	660	10.9	223	3.7	0	0.0	41	0.7	924	15.3	6048
Medlab Hawkes Bay	1652	92.2	75	4.2	38	2.1	3	0.2	26	1.5	139	7.8	1791
Medlab South Christchurch	7143	92.6	271	3.5	227	2.9	18	0.2	76	1.0	574	7.4	7717
Nelson Diagnostic Laboratory	2533	93.2	119	4.4	47	1.7	11	0.4	18	0.7	184	6.8	2717
Pathlab Waikato	2477	92.3	141	5.3	41	1.5	15	0.6	26	1.0	208	7.7	2685
Rotorua Diagnostic Laboratory	1481	83.6	205	11.6	57	3.2	18	1.0	29	1.6	291	16.4	1772
Southern Community Laboratory	12885	95.6	223	1.7	236	1.8	11	0.1	141	1.0	600	4.4	13485
Taranaki Medlab	3626	93.6	113	2.9	100	2.6	1	0.0	33	0.9	246	6.4	3872
Valley Diagnostic Laboratory	3283	95.4	41	1.2	82	2.4	4	0.1	37	1.1	160	4.6	3443
Total	87595	91.9	4115	4.3	2510	2.6	212	0.2	1117	1.2	7742	8.1	95337

* some abnormal results for Northland women not included (see Methods)

† does not include inflammation or infection

4.18 Laboratory turn around time

Definition
Laboratory turn around time is the period of time between the specimen 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 number 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 12 shows the proportion of smears received and reports issued within the specified time periods for each laboratory. Overall 86.2% smear reports were issued within 7 working days of smears being received at laboratories during the reporting quarter. This was slightly less than the target. While most laboratories achieved the 90% target, six did not, of which two were clearly outside the target, Medlab Bay of Plenty and Rotorua Diagnostic Laboratory.

Overall 96.8% of smear reports were issued within 14 working days of smears being received by the laboratory. While this was less than the target of 100%, the majority of laboratories achieved the target. As observed for the 7-day target, Medlab Bay of Plenty and Rotorua Diagnostic were again clearly outside the 14-day target.

RECOMMENDATIONS

Service Issues

1. Reasons for long smear reporting times should be sought from those laboratories who did not reach the targets, in particular Medlab Bay of Plenty and Rotorua Diagnostic, and identified problems rectified.

Table 12. Timeliness of smear reporting by laboratories.

Laboratory	Within 7 working days (%)	From 8 to 14 working days (%)		More than 14 working days (%)
	Proportion	Proportion	Cumulative proportion	Proportion
Canterbury Health Laboratories	99.8	0.2	100.0	0.0
Diagnostic Medlab Auckland	96.7	3.3	100.0	0.0
Healthlab Otago	91.1	7.2	98.3	1.7
Medical Laboratory Southland	100.0	0.0	100.0	0.0
Medical Laboratory Wellington	94.7	5.3	100.0	0.0
Medlab Bay of Plenty	0.1	52.3	52.4	47.6
Medlab Central, Palmerston North	99.0	0.9	99.9	0.1
Medlab Hamilton	36.9	60.2	97.1	2.9
Medlab Hawkes Bay	100.0	0.0	100.0	0.0
Medlab South Christchurch	100.0	0.0	100.0	0.0
National Womens Hospital Laboratory	69.7	25.9	95.6	4.4
Nelson Diagnostic Laboratory	95.4	4.6	100.0	0.0
Pathlab Waikato	100.0	0.0	100.0	0.0
Rotorua Diagnostic Laboratory	0.8	49.9	50.7	49.3
Southern Community Laboratory	99.4	0.5	99.9	0.1
Taranaki Medlab	93.2	6.8	100.0	0.0
Valley Diagnostic Laboratory	71.1	27.8	98.9	1.1
Waikato Hospital Laboratory	83.5	14.4	97.9	2.1
Wellington Hospital Laboratory	99.6	0.4	100.0	0.0
Overall	86.2	10.6	96.8	3.2

4.19 Satisfactory but limited and unsatisfactory smears

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.

Results
Both these indicators will be assessed in future quarterly reports.

4.20 Cytology reports predicting HSIL

Definition
Cytology reports predicting HSIL is estimated by the probability of a histological report of HSIL or more serious given an HSIL or more serious cytology report.

Target
The target for cytology reports predicting HSIL or more serious is not less than 65% and not more than 85% of all HSIL or more serious smears reported for a given laboratory.

Results
This indicator will be reported 6-monthly and annually.

4.21 Accuracy of negative cytology reports

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

Targets
The target is not more than 20% of slides originally reported within the preceding 42 months as negative, for women with a histological diagnosis of HSIL or more serious, are consistent with HSIL or ASCUS possible high grade, on review of their slides.

Results
This indicator will be reported annually.

4.22 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.

Results
It was not possible to calculate the waiting time for colposcopic assessment for HSIL or ASCUS possible high grade for this quarter. All data required to calculate this indicator are collected by colposcopy clinics. Some data required have not been collected previously and for the data that have been collected, definitions varied between the different colposcopy clinics.

RECOMMENDATIONS

Data Issues

1. Efforts to collect all data required to calculate this indicator from colposcopy clinics should continue.

Table 13. Waiting time for colposcopic assessment for HSIL or ASCUS possible high grade by District Health Board (DHB) colposcopy service.

DHB Colposcopy Service	Number and proportion receiving assessment within 4 weeks
Northland Health	
Waitemata Health	
Auckland Healthcare	
South Auckland Health	
Pacific Health (Tauranga)	
Lakeland Health	
Pacific Health (Whakatane)	
Health Waikato	
Taranaki Health	
Capital Coast Health	
Good Health Wanganui	
Healthcare Hawkes Bay	
Hutt Valley Health	
MidCentral Health	
Wairarapa Health	
Tairawhiti Healthcare	
Nelson/Marlborough Health Services	
Coast Health Care	
Canterbury Health	
HealthCare Otago	
Health South Canterbury	
Southern Health	

4.23 Waiting time for colposcopic assessment for LSIL

Definition
The waiting time for colposcopic assessment for LSIL is defined as the time from the date of the smear to receipt of a referral to the first colposcopic assessment.

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

Results
It was not possible to calculate the waiting time for colposcopic assessment for LSIL for this quarter. All data required to calculate this indicator are collected by colposcopy clinics. Some data required have not been collected previously and for the data that have been collected, definitions varied between the different colposcopy clinics.

RECOMMENDATIONS

Data Issues

As for section 4.11

Table 14. Waiting time for assessment for colposcopy for LSIL by District Health Board (DHB) colposcopy service.

DHB Colposcopy Service	Number and proportion receiving assessment within 26 weeks
Northland Health	
Waitemata Health	
Auckland Healthcare	
South Auckland Health	
Pacific Health (Tauranga)	
Lakeland Health	
Pacific Health (Whakatane)	
Health Waikato	
Taranaki Health	
Capital Coast Health	
Good Health Wanganui	
Healthcare Hawkes Bay	
Hutt Valley Health	
MidCentral Health	
Wairarapa Health	
Tairawhiti Healthcare	
Nelson/Marlborough Health Services	
Coast Health Care	
Canterbury Health	
HealthCare Otago	
Health South Canterbury	
Southern Health	

4.24 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.

4.25 Satisfactory but limited smears by smear taker

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

Target
The target for satisfactory but limited smears is not more than 20% of all smears reported for a given laboratory.

Result
This indicator will be assessed in future quarterly reports.

4.26 Unsatisfactory smears by smear taker

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

Target
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.

Results
This indicator will be assessed in future quarterly reports.

APPENDIX 1

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

Region		1990-93 Total Observed (O)		1994-97 Total Observed (O)		1990-97 Total Observed (O)		Differences in Observed 90-93 to 94-97
		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 these Standardised Registration Ratios (SRRs) are described on the following page. The description is 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.

ISBN 0–9582308–0–3