Members of the Working Party contributed about six hours each, including time spent on the ranking exercise and in meetings. Preparatory work by a project officer and manager was time consuming and included the drafting of the framework and indicators, a discussion paper, and preparing and analysing the results of the ranking exercise. Despite efforts to minimise the time spent by the clinical experts, three of the 17 Working Party members did not participate in the ranking exercise.

Delays in developing clinical information systems to support indicators may undermine the processes of developing minimum data sets to monitor the quality and outcomes of patient care. Recently, health information initiatives have been given a fresh impetus by the recommendations of the NSW Health Council, and the NSW Government’s Action Plan for Health. Consequently, the time between the development of priority sets of indicators and availability of data should be reduced.

We think that the benefits of following this process of developing indicators, if realised, would justify the costs. The process provides an assurance from the data users about what should and could be measured. Therefore, we think that it ensures that resources spent on collecting data are spent giving the best possible information about the quality of services.

ACKNOWLEDGEMENTS
The authors wish to thank the remaining members of the NSW Melanoma Clinical Indicators Working Party: Professor Bruce Armstrong (Chair), Professor Alan Coates, Ms Sue Collins, Dr Neil Cooney, Dr Kerry Crotty, Professor Stewart Dunn, Dr Afaf Girgis, Professor Peter Hersey, Dr Robyn Jordan, Professor Bill McCarthy, Dr Scott Menzies, Dr Graham Mann, Dr Bob Sillar, Dr Graeme Stevens.

REFERENCES
TABLE 4

DATA VARIABLES COLLECTED BY THE NSW PAP TEST REGISTER

- Woman’s name and address
- Date of birth
- Date of the test
- Whether the test was for screening or diagnostic purposes
- Results of the test
- Provider number of the person who performed the test
- Name of the laboratory and the laboratory accession number allocated to the test.

TABLE 5

CERVICAL SCREENING PATHWAY

Five inter-related steps:
1. Recruitment of women at risk,
2. Competent taking of Pap tests by health practitioner,
3. Laboratory processing of tests,
4. Notification and explanation of results,
5. Management of women with screen detected abnormalities.

these women, except those who choose not to participate, are forwarded to the Register. During the last two years the rate of non-participation in the Register was 2.2 per cent of all tests. Data variables collected by the Register under the Public Health Act are listed in Table 4.

Currently, 52 laboratories in five states and territories process cervical cancer tests for NSW women. These laboratories are electronically linked to the Register. More than 13,000 Pap test results are received by the Register each week, and more than 95 per cent are received within 15 working days of being reported.

Timely, complete and accurate data are important for all the Register’s functions. Validation and quality checks are incorporated at each step of data processing to ensure that the Register’s record is complete. To help ensure that the data are accurate, feedback loops return the data to laboratories as screening histories, which assist in reporting current tests and quality assurance activities.

MEASURING THE SCREENING PROCESS

Register data are used by the NSW Cervical Screening Program to measure its progress towards the goal of reducing the effect of cervical cancer in NSW. However, as the screening process involves a number of steps and different groups of stakeholders, it is important to assess a number of different performance criteria at different stages throughout the process.

Cervical screening can be seen as a pathway of inter-related steps (Table 5). Each step is integral to the performance of the Cervical Screening Program as a whole. Register data are able to be used to measure performance at every step except that of notifying women of their results. However, performance at this step is inferred by the number of women who are lost to follow-up (Table 6). Register data is also used to assess different screening criteria, in particular to provide information in terms of both quantity and quality as illustrated in the ‘indicator’ column of Table 6.

Performance measures can be used to monitor progress towards the NSW Cervical Screening Program’s goals by using performance standards. Performance standards are preset target values that indicate an expected level of performance. These standards may be established by the Program Manager, the NSW Department of Health or existing professional guidelines such as those of the National Health and Medical Research Council.

Variation in service performance or quality can be identified by calculating measures for the different steps in the screening process and at a range of different levels. This allows the Program to identify the most appropriate areas for improvement and resource allocation. This is
Step 3: Laboratory Processing of Results
Laboratories often collect tests for women who live outside the laboratory’s geographic location, so little may be gained from analysing the variation in laboratory performance by the distribution of the woman’s area of residence. However, categorising laboratories according to the size of their cytology workload and location may be useful for monitoring laboratory performance. Variation in performance between categories potentially allows education and training activities to be targeted to the staff of laboratories most in need of improvement.

The proportion of high grade intraepithelial Pap test results that are confirmed on histology within six months is considered a measure of laboratory reporting accuracy. The proportions can be calculated for laboratory

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**TABLE 6**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Indicator</th>
<th>NSW performance 1999</th>
<th>Performance Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of women at risk aged 20 to 69 years who have been screened once during a two year period</td>
<td>Recruitment of women at risk to screening</td>
<td>62.5%</td>
<td>65% *</td>
</tr>
<tr>
<td>Percentage of women who screen more than once during a two year period</td>
<td>Non-compliance with the recommended screening interval</td>
<td>39% #</td>
<td>40% *</td>
</tr>
<tr>
<td>Percentage of technically unsatisfactory Pap tests</td>
<td>Competent test taking by health practitioner (Quality of test)</td>
<td>2%</td>
<td>2% *</td>
</tr>
<tr>
<td>Percentage of technically satisfactory Pap tests with an endocervical component</td>
<td>Competent test taking by health practitioner (Quality, sample adequacy)</td>
<td>88%</td>
<td>75% **</td>
</tr>
<tr>
<td>Proportion of high grade cytology reports confirmed as high grade on histology</td>
<td>Laboratory processing and reporting (Quality)</td>
<td>76%</td>
<td>75% *</td>
</tr>
<tr>
<td>Percentage of women with high grade cytology reports who were not known to have received follow-up care within 12 months of the index Pap test</td>
<td>Management of women with screen detected abnormalities in a manner consistent with NHMRC Guidelines</td>
<td>0.5%</td>
<td>Negligible number *</td>
</tr>
</tbody>
</table>

Source of Standards:
* NSW Cervical Screening Program, Strategic plan 2000–2004;
** NHMRC Guidelines for the management of women with screen detected abnormalities;
# Index period February 1998.

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**TABLE 7**

<table>
<thead>
<tr>
<th>Laboratory workload size (Pap tests per year)</th>
<th>0–5000</th>
<th>5001–20,000</th>
<th>Over 20,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sydney</td>
<td>69%</td>
<td>74%</td>
<td>79%</td>
</tr>
<tr>
<td>Regional NSW</td>
<td>63%</td>
<td>81%</td>
<td>No laboratories</td>
</tr>
</tbody>
</table>

Note: The proportion of high grade intraepithelial Pap Tests that are confirmed on histology is a measure of laboratory reporting accuracy. For Pap tests reporting during 1999 this proportion appears to vary between laboratories of different workload sizes and laboratories located in different areas.
INTERVAL BREAST CANCERS IN NEW SOUTH WALES

Richard Taylor, Rajah Supramaniam, Mary Rickard and Jane Estoesta
BreastScreen NSW
Westmead Hospital

This article describes a study that examined the effectiveness of mammographic screening offered to 50–69 year old women in NSW through BreastScreen NSW in 1996.

BACKGROUND

What is an interval breast cancer?

These are cancers that are diagnosed after a woman has had a mammographic screen with a normal result and before her next scheduled screen. The interval cancer rate is an indicator of the effectiveness of mammographic screening programs. It is expressed as a proportion of the number of women screened. A consistently low interval cancer rate is correlated with a significant reduction in mortality from breast cancer in the screened population.1–3

Classification of interval cancers

Interval cancers can be classified by diagnosis: after the first (‘prevalent’) or a subsequent (‘incident’) screen, in the first or second year after a previous normal mammogram and by age group and period. Some screening services also classify by a woman’s symptomatic status (at the previous mammogram) since those with symptoms, particularly the presence of breast a lump or nipple discharge, have a higher rate of interval cancers even though their previous mammogram showed no sign of cancer. It is preferable to use as few cross classifications as possible because of small numbers and the need for simplicity in data presentation. Interval cancer rates for small populations often must be calculated across a number of years to ensure adequate numbers.

Interval cancers during the first year after a normal mammographic screen are the most significant because they reflect cancers missed by screening. Second year interval cancers are more likely to be cancers which could not have been detected at the previous screen. Second year interval cancers are also more difficult to measure since they merge into cancers diagnosed from early return for biennial screening.

Proportional incidence

Since the underlying rate of breast cancer incidence varies between populations, interval cancer rates per woman screened are not necessarily directly comparable, especially internationally. For this reason the proportional incidence of interval cancers in the screened population can be used. This is the interval cancer incidence expressed as a proportion of the cancer incidence that would have been expected in the absence of screening in a similar but unscreened population. This statistic can be used to compare outcomes with those of major screening trials.1,2

REFERENCES