

influenza activity. The following countries reported influenza activity to the World Health Organization in late June or early July: South Africa, New Zealand, Paraguay, Mauritius and Uruguay. South Africa reported influenza activity at the level of 'local outbreak' for the second week of July (both influenza A and B). Uruguay reported 'widespread outbreak' for the first week of July (both influenza A & B), and New Zealand, Paraguay and Mauritius reported sporadic activity for that week.

# VACCINES DELIVERED DIRECTLY TO YOUR DOOR

The NSW Department of Health is committed to improving immunisation coverage rates and reducing the morbidity and mortality associated with vaccine-preventable diseases. Towards this aim, the Department has implemented the recommendation of the *Performance Audit Report on Immunisation in NSW*, conducted by the Audit Office of NSW, to improve the system of vaccine distribution.

From 26 July 1999, all vaccines will be delivered directly to all immunisation service providers each month from the newly established NSW Vaccine Centre.

All providers are reminded of the importance of reporting each immunisation encounter to the Australian Childhood Immunisation Register to facilitate the collection of accurate data on immunisation coverage in NSW and to initiate the Register's reminder system for parents.

For more information, please contact your local Public Health Unit.  $\mathbb{R}$ 

## THE 1998 MEASLES CONTROL CAMPAIGN IN NSW

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## INTRODUCTION

Measles is a highly infectious and often serious viral illness. Complications of measles include direct effects of the virus, such as croup, bronchiolitis, pneumonia, acute encephalitis and subacute sclerosing panencephalitis, or as a result of bacterial superinfection, such as otitis media, pneumonia, etc.<sup>1</sup> However, the mortality and morbidity of measles and its complications can be prevented by vaccination.

The indigenous transmission of measles has been interrupted in both North and South America and in the United Kingdom through tailored vaccination programs. At a 1996 meeting of the World Health Organization, the Pan American Health Organization, and the Centers for Disease Control and Prevention in the United States, it was concluded that it was technically feasible to eradicate measles globally with the available measles vaccines if they were used in more than a one-dose schedule.<sup>2</sup> While a decision was made that the initiation of a global effort to eradicate measles early in the 21st century should not interfere with the global poliomyelitis eradication program,<sup>2</sup> several countries are carrying out elimination programs.<sup>2, 3</sup>

Eliminating measles is defined as the 'interruption of the transmission of measles in a defined geographical area'. Even where elimination is achieved, vaccination programs need to continue to counteract the reintroduction of the virus from other areas. Measles eradication is defined as 'global interruption of measles transmission'.<sup>2</sup>

As part of the elimination program in Australia, the Commonwealth Minister of Health and Aged Care launched the National Measles Control Campaign on 9 July 1998. The national campaign consisted of the following four components:

- dropping the age for the second dose of the measles, mumps and rubella (MMR) vaccine from 10–16 years to 4–5 years
- organising a mass vaccination program of children in primary schools (the Measles Control Campaign)
- sending reminder letters to parents of all children aged 1-4 years for whom the Australian Childhood Immunisation Register did not have a record of their receiving MMR vaccine urging vaccination by their immunisation provider
- sending letters through the principals of high schools urging parents to have their children vaccinated with MMR vaccine if the children have not already been vaccinated.

Following is an evaluation of the second component of the Measles Control Campaign in NSW. The aim of the campaign is to reduce the incidence of measles in the community as part of a longer term strategy to eliminate the measles virus by vaccinating children in primary schools against measles, mumps and rubella.

## THE CAMPAIGN

### Consultation

The NSW Department of Health consulted with the Commonwealth Department of Health and Aged Care, the NSW Department of Education and Training, the Association of Independent Schools, Catholic Education Commission and Area Health Services to develop a plan. The NSW Department of Health requested that primary school principals inform parents of the campaign.

The Commonwealth Department of Health and Aged Care distributed Principal Kits to inform the schools and Parent Packs to be distributed to the parents/guardians of the children. Parents were asked to provide consent for their children to be vaccinated at the school clinics. The Department of Health and Aged Care also liaised with representatives of general practitioners to inform them of the campaign. The campaign was advertised through television, radio and print media, as well as through various health care publications.

### Implementation

School vaccination clinics were held from 3 August to 27 November 1998 in NSW. The NSW Department of Health contacted schools to arrange the clinics. The NSW Measles Immunisation Coordinator organised the clinics in the metropolitan, Central Coast and Hunter Area Health Services. Immunisation coordinators of the remaining rural Areas organised local clinics.

Teams of two (or more in some rural Areas) registered nurses, generally assisted by a clerk, ran the clinics. The nurses were recruited especially, or in rural Areas diverted from other duties, to hold the school vaccination clinics. All nurses were accredited to immunise in NSW. The clerks were recruited for the campaign and given special training.

The NSW Department of Health asked public hospitals to act as depots for the storage of the MMR vaccine and other equipment. At the beginning of each clinic day, the team leader collected these materials from the nearest hospital and returned the waste at the end of the clinic.

The nurses treated children who had reactions to the vaccination, referred any child who required further treatment to the local hospital, and recorded all reactions. Suspected adverse events were reported to the NSW Measles Immunisation Coordinator, who forwarded the information to the Commonwealth.

### Data collection and analysis

Data was collected for each school. The clerk recorded the number of children, the number with consent forms, the number with consent, and the number vaccinated for each class, on school statistics forms. The forms were faxed to the NSW Measles Immunisation Coordinator at the NSW Department of Health where the data was entered into the EpiInfo database.

All primary school children who were eligible to be vaccinated in the school clinics and for whom data were available were included in the analysis. Children in their last year at rural primary schools and who were vaccinated earlier in the year were not eligible for this campaign. The total number of enrolments was obtained directly from the schools. Schools for which data were not available were contacted to ensure that a clinic had been offered. The number of children attending the schools that declined to participate was not available.

The data for each Area Health Service were analysed and compared to NSW totals using 95 per cent confidence intervals.

## TABLE 5

## THE NSW MEASLES CONTROL PROGRAM 1998: NUMBER AND PERCENTAGE OF CHILDREN VACCINATED AT NSW PRIMARY SCHOOL CLINICS IN 1998, BY AREA HEALTH SERVICE

| Area Health Service  | No. of primary school children | No. of forms<br>returned | No. with consent for vaccination | No. of children<br>vaccinated<br>at school clinic | % of total<br>students<br>vaccinated |
|----------------------|--------------------------------|--------------------------|----------------------------------|---|--------------------------------------|
| Central Sydney       | 34,530                         | 32,172                   | 27,494                           | 26,177  | 75.8                                 |
| Northern Sydney      | 62,175                         | 57,997                   | 47,868                           | 45,565  | 73.3                                 |
| South Eastern Sydney | 57,621                         | 54,488                   | 44,688                           | 41,330  | 71.7                                 |
| South Western Sydney | 82,836                         | 77,149                   | 63,481                           | 59,672  | 72.0                                 |
| Wentworth            | 34,749                         | 31,505                   | 24,189                           | 23,252  | 66.9                                 |
| Western Sydney       | 67,884                         | 63,557                   | 51,732                           | 50,018  | 73.7                                 |
|                      |                                |                          |                                  |   |                                      |
| Central Coast        | 29,149                         | 26,462                   | 22,285                           | 21,005  | 72.1                                 |
| Far West             | 5,280                          | 4,883                    | 4,787                            | 4,675   | 88.5                                 |
| Greater Murray       | 28,019                         | 26,564                   | 24,584                           | 23,450  | 83.7                                 |
| Hunter               | 55,680                         | 53,515                   | 46,199                           | 43,508  | 78.1                                 |
| Illawarra            | 31,993                         | 29,620                   | 25,353                           | 23,656  | 73.9                                 |
| Macquarie            | 10,932                         | 10,414                   | 9,848                            | 9,572   | 87.6                                 |
| Mid North Coast      | 28,295                         | 26,700                   | 23,574                           | 22,085  | 78.1                                 |
| Mid Western          | 18,181                         | 17,746                   | 16,252                           | 15,172  | 83.4                                 |
| New England          | 19,856                         | 18,507                   | 17,723                           | 17,179  | 86.5                                 |
| Northern Rivers      | 26,515                         | 23,911                   | 20,590                           | 19,259  | 72.6                                 |
| Southern NSW         | 18,156                         | 16,696                   | 15,925                           | 14,994  | 82.6                                 |
| NSW TOTAL            | 611,851                        | 571,886                  | 486,572                          | 460,569   | 75.3                                 |
|                      |                                |                          |                                  |   |                                      |

### RESULTS

#### Vaccination coverage

Clinics were held for 98.2 per cent (2503 schools) of the 2550 primary schools in NSW. Of the 47 schools that did not have clinics, 24 schools declined the offer of a clinic and a clinic was inappropriate for another 22 schools (they were attached to detention centres or hospitals, or were special schools where children attended temporarily). One school was not offered a clinic during the campaign; it will be offered a clinic in 1999.

For the 2503 participating schools, MMR vaccine was offered to 611,851 eligible primary school children at school clinics. The parents of 571,886 children (93.5 per cent) returned the forms to the class teachers and gave consent for 486,572 children (79.5 per cent) to participate (Tables 5 and 6). There were 460,569 (75.3 per cent) children vaccinated at the school clinics. The remaining children were not vaccinated due to absence, illness or refusals by the child.

Vaccination coverage was higher in the rural Areas (average of 78.9 per cent) than in the metropolitan Areas (average of 72.4 per cent).

#### Adverse event following immunisation

Based on the Australian Immunisation Handbook (6th edition) criteria for adverse events following

immunisation (AEFI),<sup>4</sup> nine AEFIs were reported as being related to the school vaccination clinics—five cases of anaphylaxis, two of convulsions, an urticaria reaction and a rubella-like illness (the latter two required hospitalisation). Most events occurred in the first seven weeks of the campaign.

The AEFI rate was 2.0 per 100,000 injections for the 460,569 children vaccinated at school clinics. The rate for anaphylaxis was 1.1 per 100,000 injections and for convulsions was 0.4 per 100,000 injections.

In addition, three children were treated in accident and emergency centres for syncope and another child for a head injury sustained while fainting after the vaccination. A further five cases of rubella-like illness and one case of parotitis occurred within one to two weeks of receiving MMR vaccine. All children recovered.

### Discussion

The Measles Control Campaign in NSW succeeded in vaccinating 75.3 per cent of primary school students through school clinics. Area Health Service immunisation coordinators were actively involved, especially in the rural Areas, and assisted the NSW Measles Immunisation Coordinator to organise the campaign.

Only the percentage of primary school children vaccinated at the school clinics could be calculated during the

## TABLE 6

## THE NSW MEASLES CONTROL PROGRAM 1998: PERCENTAGE OF CHILDREN WITH RETURNED FORMS, CONSENT, AND WHO WERE VACCINATED IN NSW, BY AREA HEALTH SERVICE

| Area Health Service  | % of forms<br>returned | % total children<br>with consent | % of total<br>students<br>vaccinated | % of returned<br>forms giving<br>consent | % of children<br>with consent, who<br>were vaccinated |
|----------------------|------------------------|----------------------------------|--------------------------------------|--|---|
|                      |                        |                                  |                                      |  | at the clinics  |
| Central Sydney       | 93.2                   | 79.6                             | 75.8                                 | 85.5                                     | 95.2  |
| Northern Sydney      | 93.3                   | 77.0                             | 73.3                                 | 82.5                                     | 95.2  |
| South Eastern Sydney | 94.6                   | 77.6                             | 71.7                                 | 82.0                                     | 92.5  |
| South Western Sydney | 93.1                   | 76.6                             | 72.0                                 | 82.3                                     | 94.0  |
| Wentworth            | 90.7                   | 69.6                             | 66.9                                 | 76.8                                     | 96.1  |
| Western Sydney       | 93.6                   | 76.2                             | 73.7                                 | 81.4                                     | 96.7  |
| Central Coast        | 90.8                   | 76.5                             | 72.1                                 | 84.2                                     | 94.3  |
| Far West             | 92.5                   | 90.7                             | 88.5                                 | 98.0                                     | 97.7  |
| Greater Murray       | 94.8                   | 87.7                             | 83.7                                 | 92.5                                     | 95.4  |
| Hunter               | 96.1                   | 83.0                             | 78.1                                 | 86.3                                     | 94.2  |
| Illawarra            | 92.6                   | 79.2                             | 73.9                                 | 85.6                                     | 93.3  |
| Macquarie            | 95.3                   | 90.1                             | 87.6                                 | 94.6                                     | 97.2  |
| Mid North Coast      | 94.4                   | 83.3                             | 78.1                                 | 88.3                                     | 93.7  |
| Mid Western          | 97.6                   | 89.4                             | 83.4                                 | 91.6                                     | 93.4  |
| New England          | 93.2                   | 89.3                             | 86.5                                 | 95.8                                     | 96.9  |
| Northern Rivers      | 90.2                   | 77.7                             | 72.6                                 | 86.1                                     | 93.5  |
| Southern NSW         | 92.0                   | 87.7                             | 82.6                                 | 95.4                                     | 94.2  |
| NSW                  | 93.5                   | 79.5                             | 75.3                                 | 85.1                                     | 94.7  |

N.B. Data are approximations based on interpretation of the forms available from the school clinics. The percentages are based on Table 1.

Measles Control Campaign. The number of children vaccinated through their usual immunisation provider was not available; hence, the total vaccination coverage of all children during the campaign could not be calculated, but was undoubtedly higher. However, 94.7 per cent of children with written consent were vaccinated at the school clinics.

The rate of 1.1 per 100,000 doses for anaphylaxis after the MMR vaccine at school clinics was similar to that of one per 100,000 injections of measles–rubella vaccine reported in the measles–rubella immunisation campaign in the United Kingdom.<sup>5</sup> The other adverse events cannot be compared because the UK information was not available or because definitions differed.

In summary, the Measles Control Campaign in NSW was considered successful with 75.3 per cent primary school students vaccinated at school clinics.

### REFERENCES

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