



MEASLES EPIDEMIC IN WESTERN SYDNEY

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INTRODUCTION

Western Sydney experienced an epidemic of measles in the second half of 1993. From June 13 to December 31, 1993, the Western Sector Public Health Unit received 889 measles notifications. The overall attack rate for this period was 105/100,000 population. The epidemic began in June, peaked in September/October and began to decline in December. In 1994, 48 cases were reported up to May 29. Figure 1 shows the number of cases by week of onset.

NOTIFICATIONS

Notifications were received from doctors, hospitals, parents, schools and laboratories. All cases were confirmed, by telephone, with the diagnosing doctor. A clinical case definition for measles, as described in the NSW Health Department Infectious Disease Manual, was employed. Measles was defined as an illness characterised by all the following features:

- a generalised rash resembling measles;
- a fever; and
- cough or conjunctivitis or coryza or Koplik spots.

Laboratory notifications were accepted if measles-specific IgM antibody was demonstrated or measles virus was isolated from a nasopharyngeal aspirate. Fourteen per cent of notified cases were laboratory-confirmed. Data on the total number of cases tested were not available.

PROGRESS OF THE EPIDEMIC

Initially, more than 90 per cent of cases came from the Blacktown Local Government Area (LGA), but as the epidemic progressed cases were reported from the adjacent Penrith LGA and the remainder of the Western Sector. Blacktown LGA had the highest attack rate between June 13 and December 31, 1993 (255/100,000 population), followed by Penrith LGA (103/100,000 population).

At the beginning of the outbreak, most cases were from the 5-9 (primary school) age group, but then cases were reported in high school students, pre-school children, and babies under 12 months. Although the largest number of cases (263) occurred in the 0-14 year old age group, the highest attack rate (549/100,000 population) was in babies under 12 months.

HOSPITAL ADMISSIONS

There were 89 hospital admissions for measles between June 13 and December 31, 1993 (10 per cent of all notified cases). Twenty-seven per cent of cases under one year of age required hospital admission. Most admissions were for 1-3 days. Reasons for admission included dehydration, fever, otitis media, pneumonia and other respiratory complications. There was one case of encephalitis, in an unimmunised 14-year-old male.

IMMUNISATION STATUS OF CASES

Fifty-five per cent of cases were reported by their parents to have received prior measles immunisation, 10 per cent were of unknown immunisation status and 33 per cent had not been immunised against measles. Seventy-nine per cent of

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cases in the 5-9 age group were reported to have received measles immunisation. Parental recall of immunisation is believed to overestimate immunisation status by 16-20 per cent¹. The PHU is conducting a case-control study to determine measles vaccine effectiveness in children aged 5-10 years. Preliminary results show only 14 per cent of parents of cases were able to produce documented evidence of measles immunisation.

PUBLIC HEALTH ACTION

Several measures were taken to contain the outbreak:

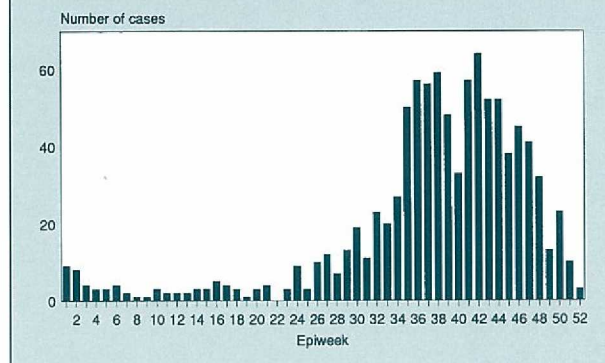
- Each case was followed up. Immunisation was advised for all unimmunised contacts. Children under nine months of age were advised immunoglobulin, if it could be given within six days of contact with a measles case.
- A general measles immunisation media campaign, throughout the Western Sector, was organised. This included media releases to local and Statewide television and radio stations.
- Letters advising of the outbreak and the need for immunisation of all unimmunised children were sent to all councils and community health centres in the Western Sector and to all GPs in the Blacktown and Penrith LGAs.
- Principals or directors of each affected school, preschool or day care centre were contacted and similar letters were sent to parents.
- The PHU, in conjunction with local councils and community health services, organised seven immunisation clinics at priority schools in the Blacktown/Mt Druitt area. A further four immunisation clinics were organised by community health services in Blacktown and Mt Druitt.
- In October, the recommended age of MMR vaccination was lowered from 12 months to 6 months for children living in the Blacktown and Penrith LGA. This advice was given until March 1, when the age for measles immunisation returned to 12 months for all children.

UNDER-ASCERTAINMENT OF CASES

A study in five primary schools in the Blacktown and Penrith LGAs suggested case numbers may have been even greater than those notified. Thirty-four classes, from kindergarten to grade 4, with at least one notified case of

FIGURE 1

MEASLES CASES BY DATE OF ONSET
WESTERN SECTOR PUBLIC HEALTH UNIT
JANUARY - DECEMBER 1993



measles, were included in the study. Parents were asked if their child had suffered a febrile illness, with a rash, between June and November 1993. Details of associated symptoms and doctor visits were also obtained. A total of 883 questionnaires was distributed and 796 (90 per cent) were returned. Histories from 91 children met the above clinical case definition for measles and 37 (41 per cent) of these had been previously notified. Of the 54 cases who had not been notified, 46 (85 per cent) had been diagnosed with measles by a doctor. These results suggest a large proportion of doctors failed to notify and that the notification system may have detected less than half the cases. A similar estimate of reporting efficiency was found in a 1991 New York study² where only 45 per cent of hospital measles presentations were finally notified.

Notification data are rarely complete. It is important to recognise under-ascertainment, as assessment of the size of an outbreak can greatly influence resource allocation and implementation of control measures. Further strategies need to be devised to increase measles notification rates in NSW.

1. Hawe P, Wilson A, Fahey P, Cunningham T, Baker M, Leeder S. The validity of parental report of vaccination as a measure of child's measles immunisation status. *Med J Aust* 1991; 155:681-686.
2. Davis et al. Reporting efficiency during a measles outbreak in New York City, 1993. *Am J Public Health* 1993; 83:1011-1015.

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