



## INCREASING PHYSICAL ACTIVITY PARTICIPATION: FUTURE DIRECTIONS

### GUEST EDITORIAL

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**T**his issue and the previous two issues of the *NSW Public Health Bulletin* have examined the promotion of physical activity in NSW. Recent epidemiological evidence indicates that inactivity confers a substantial health risk. The US Surgeon General's report on physical activity<sup>1</sup> focused our attention on this risk factor in 1996, but the evidence had already been compelling for a decade<sup>2</sup>.

Our knowledge on the health effects of physical activity is expected to develop in two areas:

- the role of physical activity in cancer prevention, which is continually being elucidated<sup>3,4</sup>; and
- the connections between physical activity and mental health, where evidence from cross-sectional population studies will be replaced by evidence from cohort studies and controlled trials.

The benefits of physical activity will fall primarily into the national health priority areas of cardiovascular disease, diabetes, cancer, injury (in the elderly) and mental health.

#### OVERSEAS INITIATIVES

The recent acceptance of the evidence in favour of the health benefits of moderate physical activity has led to international interest in activating the sedentary members of our communities. Some countries have traditionally had good facilities for specific activities. For example, the Netherlands has an intricate network of cycleways, and cycling is part of everyday life for people of all ages. The fact that the relative weight (body mass index) of the Dutch population has not increased to the same extent as that of the Australian or US populations is an interesting ecological association.

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## Future directions

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In the USA, the promotion of physical activity is being taken seriously by public health groups, which are developing coalitions to provide frameworks for action. For example, the Physical Activity and Nutrition Branch of the Centers for Disease Control and Prevention (CDC) is developing better ways to measure physical activity in large-scale surveys as part of a program of fostering outcomes-based research into physical activity. The CDC is working closely with an expert committee on physical activity measurement at the Australian Institute of Health and Welfare, and aspires to establishing international standardisation of physical activity measurement within 12 months.

The United Kingdom and Canada are using social marketing approaches to inform the public, and health professionals, about the new evidence of the benefits of moderate physical activity. The Health Education Authority of England and Wales has recently completed two years of physical activity public education campaigns, with promising results. These campaigns have included:

- the "30-minute Olympics" including the "walk to the bus challenge", the "gardening events" and a cycling event called the "tour de shops"; and
- advocacy of the need for everyone to have a "personal trainer" in canine form to encourage daily walking.

In New Zealand, the Hilary Commission (Sport and Recreation), North Island regional health services and general practitioner organisations have combined to design and distribute a "green prescription pad" on which GPs can recommend physical activity.

### PROGRESS IN NSW

In the light of these overseas initiatives, how well is NSW doing with the promotion of physical activity? A parochial view that we are at the forefront of many innovative approaches is supported by the interest others have shown in our work. The centrepiece of recent NSW initiatives is the Premier's Physical Activity Taskforce, formed in 1996 to develop an integrated intersectoral strategic plan for physical activity promotion. This plan is available for public comment, and will be finalised before the end of 1997.

The draft plan identifies agencies which are to take the lead in promoting physical activity, including some health sector groups and many in other sectors: the Department of Sport and Recreation, the Department of School Education, the Australian Council for Health, Physical Education and Recreation, local government and groups concerned with the way in which the physical environment can

promote personal physical activity. The structural changes required include modifications to the urban landscape to make public spaces easier to use, safer and more accessible on foot and by cycle.

The NSW Health Department has a leading role in health sector change, health professional education and the development of public education campaigns. Planned campaigns include a GP awareness campaign late in 1997; and a mass media campaign for the general population early in 1998, involving the national initiative (Active Australia) and supported by a variety of local programs. The synergism of the national program, the NSW Taskforce and the forthcoming Olympic Games should provide a boost to this campaign. The mass media component of the campaign will be reinforced by programs at local level, supported by many of the groups represented in the Taskforce.

### FUTURE CHALLENGES

There has been substantial national and international interest in the NSW approach to physical activity. The challenge is to expand the strategic framework developed by the Premier's Taskforce into effective concrete programs, and to document the net effect of these efforts on the health of our population. Part of the evidence for effectiveness will accrue from the Physical Activity Demonstration Projects. These projects, which are funded by the NSW Health Department, have three main targets:

- the physical environment;
- promoting activity through general practice; and
- better links between the public health sector and the fitness industry.

The NSW Schools Fitness Survey has set a benchmark for school-aged children<sup>5</sup> against which a range of curriculum changes and teacher-training strategies can be assessed. The greatest challenge for the Taskforce will be to put intersectoral functioning ahead of traditional differences between the sectors, so common goals can be achieved. In the demonstration of effective intersectoral action, NSW can make a central contribution to health promotion and to public health.

1. US Surgeon General's Report: Physical Activity and Health. Atlanta: Department of Health and Human Services, Centers for Disease Control, 1996.

2. Powell K, Thompson P, Casperson C. Physical activity and the incidence of coronary heart disease. *Annu Rev Public Health* 1987; 8:254-287.

3. Thune I, Brenn T, Lund E, Gaard M. Physical activity and the risk of breast cancer. *New Engl J Med* 1997; 336:1269-1275.

4. Thune I, Lund E. The influence of physical activity on lung-cancer risk - a prospective study of 81,516 men and women. *Int J Cancer* 1997; 70:57-62.

5. Booth M. The 1997 NSW Schools Fitness And Physical Activity Survey. *NSW Public Health Bulletin* 1997; 8(5): 35-36.



# THE NSW SCHOOLS FITNESS AND PHYSICAL ACTIVITY SURVEY, 1997

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**T**his article describes the background to, and methods used in, the NSW Schools Fitness and Physical Activity Survey, 1997. The survey, instigated by the NSW Department of School Education, is an example of comprehensive intersectoral research and training, and it illustrates some lessons in developing productive collaborations.

An innovative Personal Development/Health/Physical Education (PDHPE) syllabus was introduced into high schools in 1991 and in primary schools in 1992. Subsequently, the announcement that Sydney would host the Olympic Games contributed to an increasing interest in exercise and fitness, and the new State Government gave a commitment to address the fitness of NSW school students. These circumstances led to the allocation of substantial time in the school curriculum to physical education.

When the PDHPE syllabus was being developed, it was thought that vigorous exercise was necessary to promote greater health. In 1995 Dr Steve Blair, a leading North American researcher on the relationship between physical activity and health, was invited to Australia to describe the new epidemiological evidence that regular, brisk walking would provide substantial health benefits. Dr Blair's evidence was compelling. It led to intersectoral developments, including the Premier's Task Force on Physical Activity, which engaged non-health sectors and organisations, including the NSW Department of School Education, to contribute to the promotion of physical activity.

Regular contact between staff from the education and health sectors on the Premier's Task Force, and a clear willingness to understand each other's needs and interests, contributed greatly to the development and implementation of the NSW Schools Fitness and Physical Activity Survey. This Statewide survey was funded by the NSW Health Department, the Department of School Education and the National Professional Development Program. Its investigation team was drawn from the universities of Sydney, NSW and Wollongong and the Australian Catholic University, and included academics from education, epidemiology, health promotion, exercise science and paediatrics.

## **METHODS**

The survey used stratified random sampling to select 45 primary schools and 45 high schools proportionally from the three NSW education sectors (independent, Catholic and Department of School Education). Schools from the most remote regions in the

north-west of the State were excluded because of prohibitive travel costs.

In primary schools one class was selected at random from each of Years 2, 4 and 6; in high schools, one class was selected at random from each of Years 8 and 10. Fourteen physical education teachers, representing all three education systems, were seconded for the project. These teachers were involved in the field work and were supported by several research officers with public health and education backgrounds.

There were good reasons for seconding physical education teachers to the project. They had valuable experience and skills, including an understanding of how schools function and of the needs of the teachers who would have to suffer demanding intrusions into their work. They were experienced in managing the students and in achieving their cooperation. In addition, the experience they gained from the survey was considered to be useful to them in their home schools.

A team of four field researchers visited each school to administer the tests. Students in Years 4, 6, 8 and 10 were assessed for height, weight, waist and hip girths, skinfold thicknesses, aerobic capacity, strength, muscular endurance, flexibility and six fundamental motor skills (catch, overhand throw, kick, run, vertical jump and forehand strike). Only height and weight were assessed in Year 2 students. Socioeconomic data were collected for all students, permitting stratification of survey data by age, sex, cultural background, socioeconomic background and location of residence (urban or rural).

Students in Years 8 and 10 were asked to complete a questionnaire on their physical activity habits, physical education classes, time spent in sedentary activities, attitudes to physical activity participation, behavioural modelling, support and encouragement to be active, barriers to activity participation, preferred activities and self-efficacy (confidence relating to difficult new behaviours). In addition, the school staff were asked to complete a questionnaire on physical activity facilities, equipment and school policies and practices. A 30-minute professional development session was offered to the schools, and teachers were asked to provide their reflections on the testing procedures.

It is our intention not only to present prevalence data on fitness and physical activity but also to identify the population groups most in need of support, and to try to identify personal, environmental and policy factors associated with fitness and physical activity.

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# OUTBREAK OF GASTROENTERITIS IN A RESIDENTIAL COLLEGE

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This article describes the investigation of an outbreak of 40 cases of gastroenteritis at a residential college.

The Central Sydney Area Public Health Unit was contacted on June 17, 1996 with a report that several students from the college had presented to the same medical practice over the weekend (June 15-16) with gastroenteritis. Anecdotal evidence suggested it was usual for some students to report gastrointestinal symptoms at this time of year, when end-of-term examinations are held.

## METHODS

As a matter of urgency, hygiene and infection control practices were reviewed with the college staff. Advice on how to minimise the spread of infection was given verbally both to staff and students. Information sheets describing the prevention and management of gastroenteritis were circulated to staff and displayed on student notice boards.

The kitchen area was inspected and found to be clean and well maintained. Methods of food preparation were reviewed with the chef and other kitchen staff, but no major problems were identified. Appropriate practices in food handling, storage and cooking, and general hygiene measures, were verbally reinforced. Samples of food prepared in the kitchens over the two weeks before the initial notification were not available for testing.

## Case definition

The notifying doctor and the college's administrators were asked to compile a list of students who had

complained of gastrointestinal symptoms over the weekend.

A convenience sample of cases was interviewed so a broad case definition could be developed. An initial questionnaire was distributed, both to refine the case definition and to identify further cases. The questionnaire covered demographic details (age, sex, occupation at the college, whether resident at the college), symptoms (onset, duration, severity, use of health services), contacts, and meals eaten outside the college. The questionnaire was circulated to all college staff and residents.

Stool specimens from some of the cases and from five of the kitchen staff were collected for examination and culture.

## Potential sources of infection

Results from the first questionnaire implied a food origin for the disease. A second questionnaire, based on the menus from June 10-15, was therefore given to a random sample of 40 students (20 cases and 20 controls) in an effort to determine the source of infection.

To discover whether food contamination was continuing, food samples were taken from the kitchens a week after the initial notification.

## RESULTS

Fifteen suspected cases were identified by the notifying doctor and the college administration.

## Case definition

All 20 staff completed the questionnaire, and 74 of 215 questionnaires were returned (a response rate of 34 per cent). After scrutiny of the responses, cases were defined as students or staff of the college presenting with diarrhoea (two or more runny stools

## The 1997 schools survey

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### PUTTING THE DATA TO WORK

A professional development package will be prepared and disseminated by the end of 1997, drawing substantially on the survey's findings. It will use the health-promoting school concept<sup>1</sup> as its framework and will address issues including support training for teachers, potential changes to school policy and practice, potential changes to the school environment, approaches to ensuring gender, socioeconomic and geographical equity, and approaches to engaging the support of parents, community organisations and other government sectors.

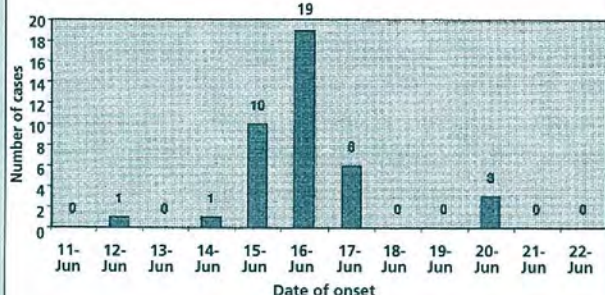
Looking further ahead, funding will be sought for controlled research to compare different approaches to promoting physical activity, physical skills and

fitness among young people; and there is a possibility of developing the survey process as a monitoring tool, repeating it every three to five years.

Many lessons in developing collaborative research links were gleaned from the survey process, including the need to be responsive to shifts in administrative priorities and community sentiment about specific issues, and the need to be prepared to seize opportunities as they arise. We concluded that public health professionals should not underestimate the power of congenial personal relationships in these collaborations, and that researchers should take time to listen to, and understand, the goals and interests of potential partners and the expertise offered to help them meet those goals as well as their own.

1. NHMRC Health Advancement Standing Committee. Effective school health promotion: Towards health promoting schools. Canberra: Australian Government Publishing Service, 1996.



**FIGURE 1****DISTRIBUTION OF CASES**

in 24 hours), or stomach ache and fever/chills, since June 10, 1996. Forty cases were identified from the questionnaire – 37 students and 3 staff. Cases ranged in age from 17 to 45 years, with a median age of 19 years. Staff and students not affected were older (age range from 18 to 67 years, with a median age of 36 years). Symptoms lasted for up to nine days, with a median duration of three days. Many of the students (29) sought medical advice because they became ill at the time of their end-of-term examinations. No cases required hospital admission.

An epidemic curve (Figure 1) shows the distribution of cases. The narrow peak suggests a point source of foodborne disease, rather than one transmitted from person to person.

#### The hypothesised cause – *Campylobacter jejuni*

*Campylobacter jejuni* was identified in stool specimens from three of the cases. This is a bacterium found in domestic animals, livestock and poultry. Infection usually occurs when food is inadequately cooked or is contaminated by other uncooked food. The incubation period is usually 2-10 days.

The stool specimens from the kitchen staff were negative for *Campylobacter jejuni* and for other possible causes of the epidemic. This indicated the

important fact that staff in the public kitchens were not shedding the infective organism.

Twenty-one students replied to the second questionnaire (13 cases and 8 controls, giving an overall response rate of 53 per cent). No food or other specific source of *Campylobacter jejuni* was implicated in the results.

No *Campylobacter* species were identified in food samples taken after the initial notification, but faecal coliforms were identified in a sample of peanut butter. The peanut butter was in the self-service area, suggesting contamination by the students using the area.

#### Follow-up

The self-service area of the kitchen was closed on June 20. It was reopened after the holiday break with increased staff supervision.

After the investigation, the investigation team had a meeting with senior staff of the college to explain and discuss the results of the investigation and the control and prevention measures required. The Public Health Unit maintained contact with the college in the weeks after the last case to ensure prompt detection of any further cases.

The issue of hygiene, especially among students using the kitchen area, was highlighted when students returned from the holiday break. Additional notices emphasising hygiene (especially hand washing) were circulated to students and staff.

#### Sequelae of the investigation

This investigation strengthened relations between the PHU and the college and provided a basis for future work in preventing disease among the resident student population.

The PHU plans to review and update its questionnaires for investigating outbreaks of gastroenteritis and foodborne illnesses.

### PUBLIC HEALTH EDITORIAL STAFF

The editor of the *NSW Public Health Bulletin* is Dr Michael Frommer, Director, Centre for Research and Development, NSW Health Department. Dr Lynne Madden is production manager.

The *Bulletin* aims to provide its readers with population health data and information to motivate effective public health action. Articles, news and comments should be 1,000 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out using the Vancouver style, the full text of which can be found in *British Medical Journal* 1988; 296:401-5.

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# INFECTIOUS DISEASES

## TRENDS

The final days of autumn produced some unseasonable patterns of infectious diseases in NSW. Reports of **Legionnaires' disease**, **Q fever** and vaccine-preventable diseases such as **measles** and **Haemophilus influenzae type b infection** are all down on historical levels. **Pertussis** case reports, which remained above expected levels for four consecutive months, are falling, and **hepatitis A** case reports are back to background levels following the large oyster-borne outbreak in January and February (Figure 2).

In contrast, **arbovirus infections** have remained high in 1997, and in April more than 300 cases were reported (Table 1). More than one-quarter of the State's cases were concentrated in the Hunter Area. These reports have led to renewed warnings to avoid mosquitoes, particularly in rural areas around dusk. **Salmonellosis** reports are also unseasonably high (see below).

### SALMONELLOSIS CLUSTER

Between 1990 and 1996, one case of salmonellosis due to *Salmonella paratyphi B* by java (PT dundee) was reported in NSW. However, since February 1997, 19 cases of disease due to this organism have been reported in NSW. Cases are mainly from the Hunter (5), Northern Sydney (4), Western Sydney (3), South Western Sydney (3), South Eastern Sydney (2) and Central Sydney (2). By month the cases were reported in February (5), March (7), April (4) and May (3).

Preliminary investigations have been carried out by the Public Health Units in these areas, but no common links have been identified so far. The Centre for Disease Prevention and Health Promotion, with the help of the Public Health Officer Training Program, is further investigating this cluster in order to identify any common links among patients.

### MENINGOCOCCAL DISEASE CLUSTER

Fifteen cases of meningococcal disease have been reported in Western Sydney and Wentworth Areas in 1997, more than twice the expected number of cases for this time of year.

Meningococcal disease is caused by a bacterial infection. Symptoms include sudden onset of fever, headache, stiff neck, nausea, vomiting, weakness, drowsiness and rash. The disease is spread directly from person to person by droplets or discharges from the nose or throat of a person carrying the bacteria. The illness is effectively treated with antibiotics in hospital.

In this cluster, most cases are small children or young adults, ranging in age from 3 months to 22 years. Forty-seven per cent are aged under 5 years and 10 are females.

The Western Sector Public Health Unit (WS PHU) has thoroughly investigated each case, and contacts at risk have been identified and treated with rifampicin. No links between any of the cases have been identified. An expert panel is advising NSW Health and WS PHU on management of this cluster. General practitioners have been alerted and a press release was issued on May 9 to alert citizens of the early symptoms of this disease, and urging those with symptoms to seek early treatment.

In 1996 a cluster of the same strain that predominates in the 1997 cluster (meningococcus C P2a1.5) was linked to attendance at a nightclub (see *NSW Public Health Bulletin* 1996; 7:105-106).

### MEASLES IN NEW ZEALAND

Health authorities across the Tasman report that New Zealand is experiencing a measles epidemic, with more than 300 cases reported this year. An estimated 40,000 to 50,000 cases could occur as a result of this outbreak.

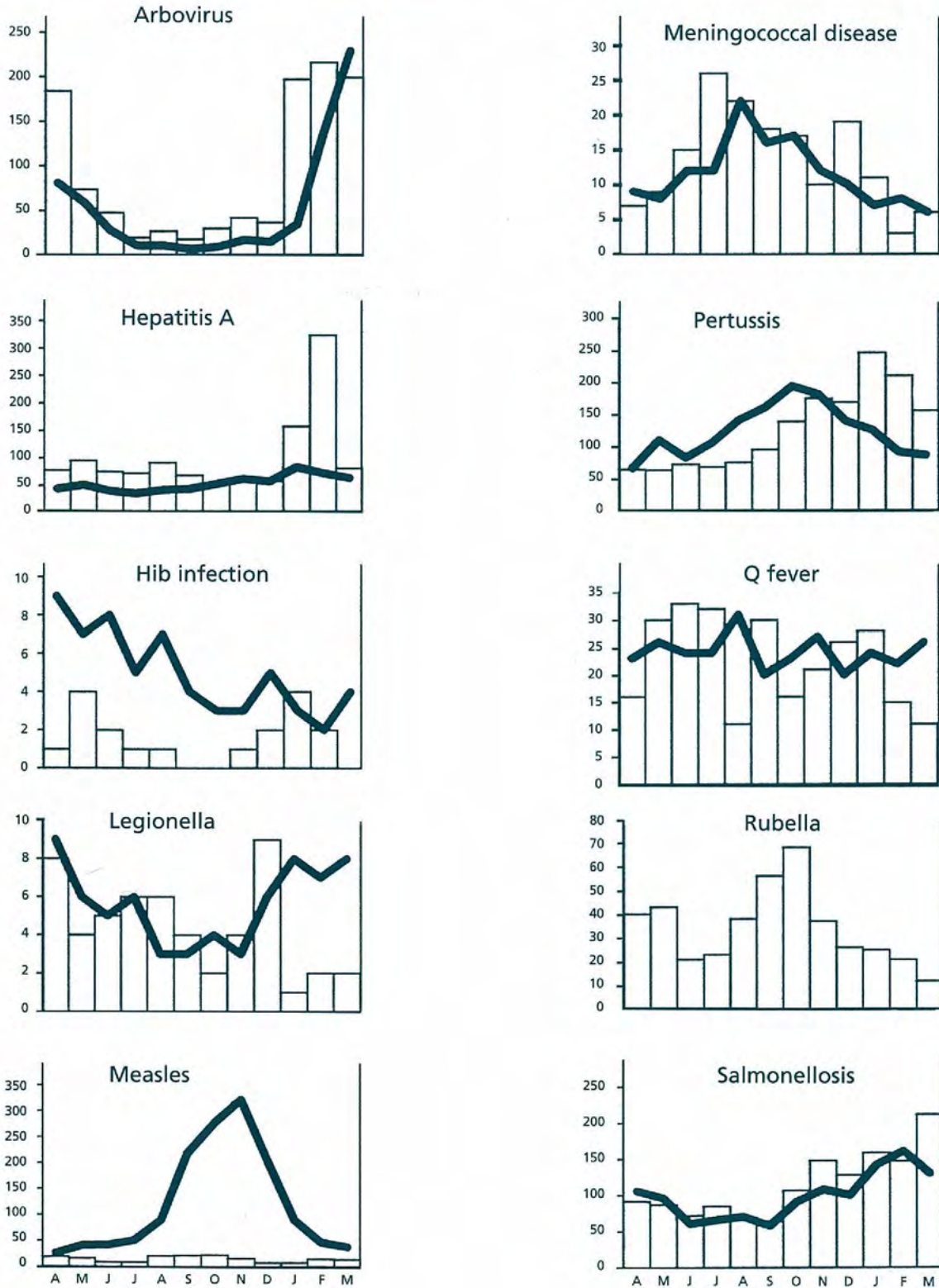
The last big outbreak of measles in NSW was in 1993. Immunisation rates among children are estimated to be less than 90 per cent, suggesting that a significant pool of susceptible children exists.

A press release warning the public and urging parents to check their children's vaccination status was issued by the Federal Minister for Health, Dr Michael Wooldridge, on May 20. NSW Health is also providing public warnings, and urging parents to ensure their children have had one measles vaccination at 12 months of age, and a second vaccination by 16 years of age.



**FIGURE 2**

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, 12 MONTHS TO MARCH 1997, BY MONTH OF ONSET (WITH HISTORICAL COMPARISON)



Because of data collation problems, historical rubella figures are unavailable.

■ Apr 96 - Mar 97    Mean Apr 93 - Mar 96



TABLE 1

## INFECTIOUS DISEASE NOTIFICATIONS FOR NSW RECEIVED IN APRIL 1997, BY AREA HEALTH SERVICES

Condition	Area Health Service																	Period	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	Total for Apr**	Total to date**
	<b>Blood-borne and sexually transmitted</b>																		
AIDS	1	-	-	-	3	2	-	-	4	-	-	-	-	-	-	-	-	10	126
HIV infection*							HIV figures reported every second month												
Hepatitis B - acute viral*	-	-	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	3	17
Hepatitis B - other*	70	35	62	4	102	5	6	11	46	1	2	7	-	5	2	1	-	359	1,318
Hepatitis C - acute viral*	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3
Hepatitis C - other*	82	40	97	32	124	24	40	27	134	40	23	18	6	24	3	10	11	735	2,973
Hepatitis D - unspecified*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	4
Hepatitis E	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5
Hepatitis, acute viral (NOS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonorrhoea*	6	5	5	-	3	1	2	-	27	-	-	-	1	-	1	-	1	52	177
Syphilis	21	2	4	-	6	2	-	-	9	-	1	3	4	3	2	-	-	57	206
<b>Vector-borne</b>																			
Arboviral infection*	-	12	5	11	3	23	85	30	7	25	38	12	8	10	20	25	5	319	859
Malaria*	2	9	1	-	-	-	1	1	1	-	-	1	1	-	-	1	-	18	58
<b>Zoonoses</b>																			
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leptospirosis*	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	3	8
Q fever*	-	-	1	-	-	-	1	-	-	2	1	4	1	2	1	1	-	14	80
<b>Respiratory/other</b>																			
Legionnaires' disease	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	3	14
Meningococcal (invasive) infection	2	-	5	2	1	1	3	1	1	-	-	-	1	1	-	-	-	18	38
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Mycobacterial tuberculosis	3	5	5	1	8	-	-	-	6	1	2	-	-	-	-	-	-	31	109
Mycobacteria other than TB	12	1	5	-	4	1	2	4	3	-	-	1	-	-	-	1	-	34	131
<b>Vaccine-preventable</b>																			
Adverse event after immunisation	-	-	1	-	1	-	1	-	-	-	-	-	1	-	1	-	-	5	16
<i>H. influenzae</i> B (invasive) infection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Measles	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	3	40
Mumps*	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	-	3	17
Pertussis	12	15	23	16	23	6	20	2	13	1	4	8	2	2	7	4	6	164	815
Rubella*	-	4	4	-	1	1	-	-	2	3	-	-	-	-	-	1	-	16	72
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<b>Faecal-oral</b>																			
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Foodborne illness (NOS)	-	-	-	-	-	-	-	-	-	-	-	-	3	-	4	-	-	7	41
Gastroenteritis (instit)	-	7	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	11	184
Hepatitis A	3	6	7	7	5	1	5	-	3	12	10	5	3	4	6	-	2	79	654
Listeriosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Salmonellosis (NOS)*	9	25	17	5	31	8	21	5	22	19	7	7	4	2	4	4	4	194	692
Typhoid and paratyphoid*	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	13

\* lab-confirmed cases only

\*\* includes cases with unknown postcode

*Abbreviations used in this Bulletin:*

CSA Central Sydney Health Area, SES South Eastern Sydney Health Area, SWS South Western Sydney Health Area, WSA Western Sydney Health Area, WEN Wentworth Health Area, NSA Northern Sydney Health Area, CCA Central Coast Health Area, ILL Illawarra Health Area, HUN Hunter Health Area, NRA Northern Rivers Health Area, MNC Mid North Coast Health Area, NEA New England Health Area, MAC Macquarie Health Area, MWA Mid West Health Area, FWA Far West Health Area, GMA Greater Murray Health Area, SA Southern Health Area, OTH Interstate/Overseas, U/K Unknown, NOS Not Otherwise Stated.

Please note that the data contained in this Bulletin are provisional and subject to change because of late reports or changes in case classification. Data are tabulated where possible by area of residence and by the disease onset date and not simply the date of notification or receipt of such notification.