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EPIDEMIOLOGY OF SUICIDE AND ATTEMPTED SUICIDE IN THE SOUTH EASTERN REGION

Although the overall suicide rate has remained relatively stable in Australia for 100 years at about 11 per 100,000 population per year, there have been significant changes in the pattern of suicide. In recent years there has been a dramatic increase in the suicide rate in adolescent males and a gradual increase in adolescent females[1,2,3,4,5]. Waters (personal communication) has indicated we are now seeing a bimodal distribution of suicide, with young and middle-aged males having the highest rates.

In NSW between 1969 and 1987 female mortality rates for suicide fell, while those for males fluctuated. In the 15-44 age group suicide was the third leading cause of death. Of particular concern have been the trends in suicide among young males. Since 1969 the age-specific death rate for males in the 15-24 age group has been increasing by an average of 2.9 per cent a year. Since 1984 this trend has been even more dramatic[6].

Between 1964 and 1988 the suicide rate in males in the 15-19 age group reportedly doubled in rural cities and increased sixfold in rural shires[2]. There has also been an increase in the use of firearms as the suicide method among young males.

Because of concerns about an apparent increase in suicide in the South Eastern Health Region, Mental Health Services asked the Public Health Unit to make an epidemiological investigation of suicide in the Region to assist planning for preventive measures.

METHODS

Mortality

We obtained mortality data through the NSW Health Department for the 15 years 1973-1987. We looked at age, sex, date of death, local government area of residence and suicide method.

Attempted suicide

We analysed the occurrence of attempted suicide for the five years 1986-1990. Attempted suicide was defined as non-fatal, self-inflicted damage with self-destructive intention[7]. The indicator of attempted suicide used was cases transported by the Regional Ambulance Service (excluding the shire of Wingecarribee). A survey of general practitioners[8] suggested about 50 per cent of people who received medical attention after suicide attempts used the ambulance service.

Analysis

Denominator data were derived from Census information collected during 1976, 1981 and 1986. Beyond 1986 we assumed a 2 per cent per annum population increase.

Continued on page 110 ►

Contents

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► Continued from page 109

Rates were analysed separately for rural shires, rural cities and south coast shires, as well as for the total Regional population. Regression analyses were performed to test for temporal trends in mortality rates. The log-rate was entered as the dependent variable and year as the independent variable.

RESULTS

Suicide deaths

There were 263 cases of suicide (213 males, 50 females) recorded in the 15 years between 1973 and 1987. The most common suicide methods were firearms (48 per cent, N=127), gas (20 per cent, N=52), hanging (16 per cent, N=42) and poisoning (8 per cent, N=22).

Male suicide rates fluctuated between 1973 and 1978. However, from 1979 to 1987 male suicide rates rose by an average of 5.8 per cent per year (r=0.85, p=.004). For the five years 1973-1977, the average annual suicide rate was 14.4/100,000 (N=56), and this increased to 19.1/100,000 (N=90) for 1983-1987 (Figure 1).

Female suicide rates fluctuated over the 15 years with no discernible trend. The average annual female suicide rate was 5.4/100,000 (N=18) in 1973-1977 and 2.9/100,000 (N=13) in 1983-1987 (Figure 1).

In all age groups male suicide rates exceeded female rates (Figure 2). During 1983-1987 male suicides peaked in the 20-24 age group (48.1/100,000 per year, N=14) and in the 40-49 age group (45.0/100,000 per year, N=20). Female suicides peaked in the 50-59 age group (11.28/100,000 per year, N=4). The average mortality rate in the period 1983-1987 for males 15-24 years was 37.6/100,000.

There were 14 cases of male suicide in the 15-19 age group. As with males overall, suicides in this age group have increased; almost half (40 per cent, N=6) occurred in the last five years of the study. There were no female adolescent deaths.

Around half of all males (54 per cent) and females (46 per cent) who committed suicide were from rural shires, 20 per cent of males and 25 per cent of females were from coastal shires and 26 per cent and 28 per cent respectively were from rural cities. In the 15-19 age group almost three-quarters (71 per cent) were from rural shires.

Age and sex differences were found in the suicide method.

FIGURE 1

TRENDS IN SUICIDE RATES
SOUTH EASTERN REGION NSW 1973-1987

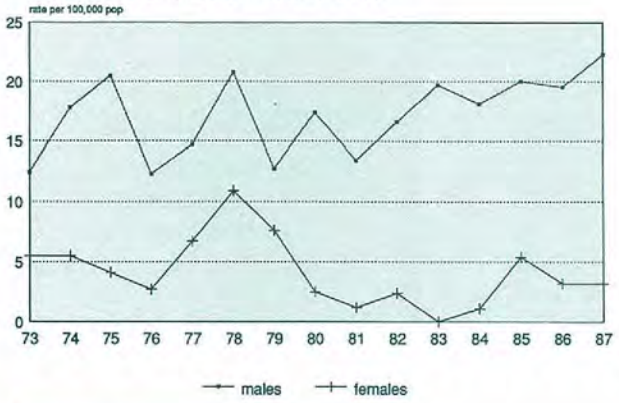


FIGURE 2

AVERAGE ANNUAL SUICIDE RATES BY AGE
SOUTH EASTERN REGION, NSW 1983-1987

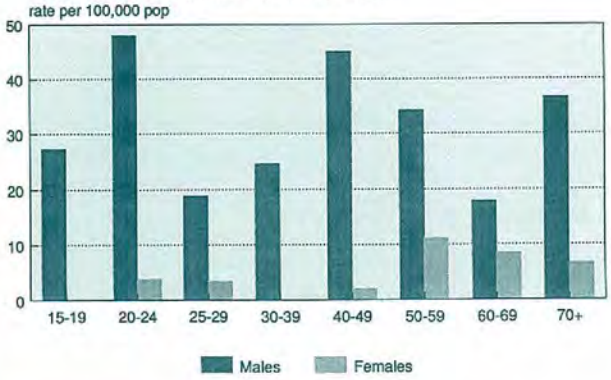


FIGURE 3

ATTEMPTED SUICIDES, S.E.R.
CASES TRANSPORTED BY AMBULANCE
1986-1990

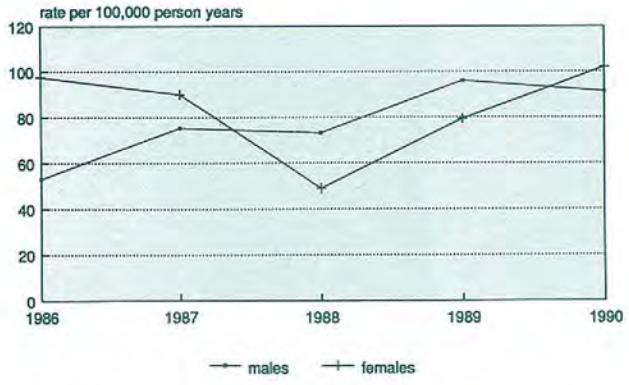
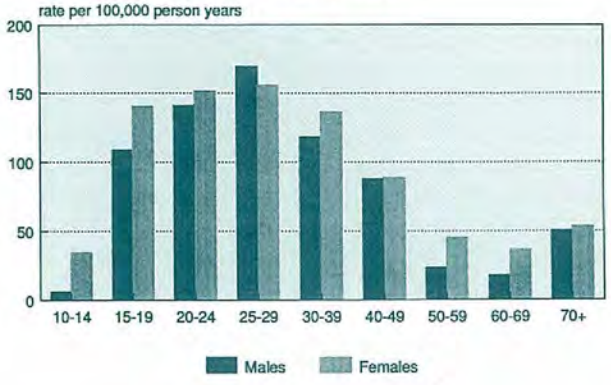


FIGURE 4

AVERAGE ANNUAL ATTEMPTED SUICIDE
SOUTH EAST REGION
TRANSPORTED BY AMBULANCE 1986-1990



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There was only one female death caused by firearms. Among males, however, firearms were used by 86 per cent (N=12) in the 15-19 age group, 61 per cent (N=21) in the 20-24 age group and 57 per cent (N=24) in the 40-49 group.

Attempted suicide

There were 603 cases of attempted suicide (289 males, 314 females) transported by ambulance between 1986 and 1990. The average male rate was 15.5/100,000 person years and the average female rate was 16.8/100,000 person years. The main methods used were poison (78 per cent, N=469) and lacerated wrists (14 per cent, N=85).

Male suicide attempts increased by an average of 13 per cent per year (r=0.90, p=.04) between 1986 and 1990 (Figure 3). Female suicide attempts fluctuated over the same period (Figure 3).

The highest attempted suicide rates were for the 20-39 age group. Males and females attempted suicide at similar rates in most age groups (Figure 4). The average annual female rate in the 10-19 age group notably exceeded the male rate (84.7/100,000 person years, N=50 and 56.1/100,000, N=34 person years respectively).

In contrast to deaths, both males and females who attempted suicide were more likely to be from rural cities (male 49 per cent, female 45 per cent) than from coastal shires (male 30 per cent, female 30 per cent) or rural shires (20 per cent, 24 per cent).

The sexes differed in the method of attempted suicide chosen. In the major category, overdose of drugs and other poisons, females accounted for 80.6 per cent (N=253) and males 70.6 per cent (N=204) of the cases. The frequency of the next major cause was similar — 15.9 per cent (N=46) of males and 12.4 per cent (N=39) of females cut their wrists.

Discussion

It has been widely acknowledged that changes in suicide rates are difficult to detect as suicide rates fluctuate. The population of the South Eastern Region is small (184,297 in 1986) and suicide data are therefore relatively sparse. Caution must be used in the interpretation of rates based on small numbers of cases. Despite these limitations, changes in the Regional patterns (i.e. increases in male suicide and attempted suicide) are consistent with changes reported elsewhere[6]. The average suicide rate for the years 1983-1987 was 11.2/100,000 — the average rate for Australia this century[1].

In the male population the highest suicide rates were found in young and middle-aged males. The suicide rate for young males in the 15-24 age group was higher than the NSW rate for this age group of 23.9/100,000[6]. This is consistent with studies by Dudley et al[2] indicating that the rate of youth suicide is higher than in urban areas.

The major cause of death in males was the use of firearms. We found that the frequency of use of firearms was highest in adolescent males[2] and their use declined with age.

The data on attempted suicides provided a more timely indicator of suicidal behaviour in the Region. The pattern found was generally in agreement with the suicide data as the upward trend in rates of attempted suicide was found only in the male population.

The rate of attempted suicide was similar for males and females but the variation in the methods chosen accounts for the much higher mortality rate in males. Females generally used less violent methods than males. Poisonings accounted for 80 per cent of cases of attempted suicide but only 8 per cent of deaths.

Fatal outcomes were more likely in rural shires while non-fatal events were more likely to occur in urban areas. This may be related to the differing availability of ambulance transport and medical care in urban and non-urban areas, or it may relate to the greater use (and, perhaps, availability) of firearms in non-urban areas.

Conclusion

This study established that there has been an increase in suicide rates in the male population of the South Eastern Region to 1987. An indication that this trend continued to 1990 was found in the data on attempted suicides. Because of the low rates of suicide, we cautiously conclude that the changing pattern of suicide in NSW is sufficiently robust to be observed in a small population.

Those most likely to attempt suicide, successful or unsuccessful, were young people and middle-aged males. Attention should not be focused only on males. Although the female suicide rate was much lower than the male rate, females attempted suicide at a similar rate to males.

Regional Mental Health Services plan to develop an education program for health workers to highlight the risk of suicide in rural populations and enhance the skills needed to identify individuals at risk and treat depression and suicidal thoughts. They also plan to establish a network of support services and will be able to use the results of this study to assist in focusing attention appropriately on major risk groups.

Further action

The Public Health Unit has surveyed general practitioners in the Region to gauge the level of support for the proposed education program. We have also assisted the Mental Health Unit to develop the education program by conducting a literature review of risk factors for suicide and the efficacy of preventive programs.

Leone M Coolahan, Research Officer, South Eastern Region Public Health Unit.

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DEATHS RECORDED AS MENTAL DISORDERS IN THE 15-24 AGE GROUP, 1979-89

In a recent *Public Health Bulletin* Supplement[1], Trends in Major Causes of Death, NSW, 1971-1987, it was noted that Mental Disorders was recorded as one of the major causes of death among those in the 15-24 age group and had increased between 1979 and 1987. In 1987, 6 per cent of male and 7 per cent of female deaths in this age group were recorded under this classification. For both sexes it was the fourth most frequent cause of death, after motor vehicle crashes, unintentional injury and suicide for males, and after motor vehicle crashes, unintentional injury and other external causes, and of the same magnitude as suicide for females. Total deaths recorded as Mental Disorders rose from 24 in 1979 to 48 in 1987.

Mental Disorders appears to be a misleading label for a cause of death since such disorders cannot cause death but can only contribute to it. In view of its importance in youthful mortality, we decided to investigate how a death comes to be classified in this way, and which individual causes most contribute to the classification.

METHOD

We used Australian Bureau of Statistics (ABS) death data as described in reference 1. Cause of death is classified according to the International Classification of Diseases 9th Revision, and coded by the ABS. Since 1979 the classification Mental Disorders has come under the ICD-9 codes 2900-3199, which encompass psychotic conditions, neurotic, personality and other non-psychotic mental disorders and mental retardation. Alcohol dependence and drug dependence are classified under the subheading neurotic disorders, personality disorders and other non-psychotic conditions: codes 3030-3039 and 3040-3049 respectively. The fourth digit refers to the specific substance in each case.

For a death to be coded under the alcohol or drug dependence rubric (and, hence, Mental Disorders), it must fulfil two criteria:

- the primary cause of death must be alcohol or drug poisoning; and
- it must be clear that such poisoning occurred as a result of a dependence on the substance.

The latter determination is necessarily subjective as it is based on what can be determined from the Coroner's notes. If there is not clearly a history of dependence, the death is coded as accidental. The relevant codes for poisoning by alcohol or drugs are 8500 (accidental poisoning by opiates and related narcotics), 8510-8519 (accidental poisoning by barbiturates), 8600 (accidental poisoning by alcoholic beverage) and 8609 (accidental poisoning by alcohol, unspecified). The latter are E-codes, which replace the injury and poisoning codes in cause of death coding.

We obtained the frequencies of each four-digit cause of death code for each of the years 1979 to 1987, and two further years for which data has become available — 1988 and 1989 — for people in the 15-24 age group.

RESULTS

In all years most deaths recorded under the Mental Disorders classification were caused by poisoning by drugs, with a history of dependence (Table 1).

TABLE 1

INDIVIDUAL CAUSES OF DEATH COMPRISING MENTAL DISORDERS CLASSIFICATION, CODES 2900-3199, 1979-1989

Cause of death	79	80	81	82	83	84	85	86	87	88	89
3040, 3047 Heroin ± other	14	16	23	23	30	39	47	38	42	49	32
3041 Barbiturates	6	7	8	3	1	2	1	1	2	0	1
3042-6, 3048-9 Other drugs	1	1	6	2	3	1	1	1	1	3	0
3030-9, 3050 Alcohol	0	1	1	1	0	0	2	0	0	1	3
All other	3	0	1	2	0	1	0	0	3	0	1
Total	24	25	39	31	34	43	51	40	48	53	37

Code 3040 — dependence on morphine-type drugs comprising heroin, methadone, opium and derivatives, synthetics with morphine-like effects — predominated. Together with code 3047 (combinations of morphine-type drug with any other), it has been almost entirely responsible for the majority of deaths and the increase since 1979 in rates of death classified under Mental Disorders. Barbiturate dependence (code 3041) has declined, reflecting changes to the Poisons Act which restricted over-the-counter access to this drug.

Over the 11-year period 385 deaths in the Mental Disorders classification were attributed to poisoning by drugs on which there was dependence. Of these 353 were morphine-type drugs and 32 barbiturates. The remainder of deaths classified under Mental Disorders totalled 19. Over the whole period nine of these deaths were attributed to alcohol dependence or abuse, four to anorexia nervosa, one coded as motor retardation and five as severe or profound mental retardation.

Examination of the accidental poisoning classifications for drugs and alcohol followed a similar pattern. Death due to accidental poisoning by morphine-type drugs has increased and by barbiturates decreased since 1979. Over the whole period accidental poisoning by morphine-type drugs accounted for a further 77 deaths, by barbiturates a further 19, and alcohol a further three deaths.

Suicide and self-inflicted poisoning by analgesics, antipyretics and antirheumatics (code 9500), in which category morphine-type drugs fall, accounted for 31 deaths over the period and has remained stable at about three a year, while suicide and self-inflicted poisoning by barbiturates (code 9501) fell from 17 in 1979 to eight in 1980, and thereafter has remained at about three a year.

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INVESTIGATION OF AN OUTBREAK OF GASTROENTERITIS

DEVELOPMENT OF A PROBLEM

On Tuesday November 26, 1991, 68 children from a public school at Singleton, accompanied by three teachers and six parents, travelled to Hawks Nest Caravan Park where they were to stay for a week on a camping excursion.

At 1pm on Thursday November 28, a local radio station informed the Public Health Unit (PHU) of the Hunter Area Health Service of an outbreak of gastroenteritis among these children. Further information from the Ambulance Service indicated about 20 of the 68 children, who had symptoms of fever, vomiting and diarrhoea, were being taken back to Singleton by ambulance bus. It soon became evident that the campers had been affected by gastroenteritis. Investigation suggested strongly that the outbreak was caused by a viral infection rather than by any water-borne or food-borne source of infection.

INITIAL PHU INVESTIGATION

A PHU staff member started gathering data which could provide information about the source of the infection. Inquiries revealed:

- groups of children and supervisors were in close proximity during the journey to the camp, daily activities and in their sleeping quarters, so it may be assumed that a considerable amount of interpersonal contact occurred;
- the school campers all drank water from the caravan park supply. No illness had been reported by other patrons of the park to the Hunter PHU or the New England PHU; and
- most of the food was transported from Singleton in insulated containers and stored in the coolroom at the caravan park. Only milk and bread were bought at Hawks Nest. The food generally consisted of salads, cooked meat and steak and sausages. Some of the meat was reheated at subsequent meals. Cooking was done on two caravan park barbecues and two barbecues provided by parents.

At this stage three possible causes of the infection were considered. It was thought that the outbreak may have been caused by contaminated food taken from Singleton, contaminated food bought at Hawks Nest or by a viral infection among the school campers.

COURSE OF THE ILLNESS

Inquiries revealed that the first case was a boy who became unwell on November 25 — the day before travelling to the camp. He returned home on November 26. His mother reported that she had had symptoms of gastroenteritis just before this, and that members of a neighbouring family had all developed similar symptoms about a fortnight before her son became ill.

Another child became ill with similar symptoms on November 27 and was sent home on November 28. That day 11 more children complained of the symptoms and a local doctor was asked to examine them. It was decided the sick children should be taken home by ambulance. By the time the ambulance bus arrived at the camp, the number of children with the illness had risen to 22. Remaining children were escorted home separately on the afternoon of November 28.

General practitioners in all Singleton surgeries were contacted for information about recent cases of gastroenteritis. They reported an unusually high rate of gastroenteritis about three weeks before the school camp, and there were also reports of cases at Singleton Army Barracks.

The 22 children evacuated from the camp by ambulance bus were examined at Singleton Hospital before being allowed home. Symptoms they reported were nausea, vomiting, abdominal pain, diarrhoea, fever and headache. No child was admitted to hospital.

EPIDEMIOLOGICAL INVESTIGATION

The aim of the exercise was first to identify if the gastroenteritis outbreak was associated with attendance at the camp and second to identify if illness was associated with the consumption of any particular food.

The study population consisted of all pupils and teachers from year 5 and year 6 at the school.

For the purpose of this investigation a person was defined as "ill" if he or she reported symptoms of nausea or vomiting or diarrhoea between November 26 and December 1. This period extends from the day the school group set out for the camp at Hawks Nest to the third day after they had returned home.

The consent of senior staff in the Department of School Education in the Hunter Region was obtained for the conduct of a survey of relevant staff members and pupils at the school. A letter to parents explained the process and sought permission for the children to fill out the questionnaire.

A list of all foods consumed at the camp was obtained from the teacher in charge, and two questionnaires were constructed. The first, for year 5 children and teachers, included demographic data and questions about symptoms. The second was for year 6 children and teachers. It included the same questions as for year 5, but added others about food intake during the camp.

The questionnaires were filled out in class on December 4. Teachers were asked to give the questionnaires to any absent children under similar conditions (i.e. in class) on their return, and then forward the responses to the PHU. The questionnaires were collated and the data analysed using the Epi Info program.

Stool samples were obtained from five of the 22 children but no viral culture tests were carried out.

RESULTS

It should first be noted that no pathogens were isolated in any of the five stool samples. The outcome of this finding must be interpreted in the light of the analyses of survey data reported below.

There were 71 children in year 5 and 75 in year 6 and three teachers in each year. Questionnaires were returned from 53 year 5 children and 74 year 6 children and their teachers. The response rate for years 5 and 6 was 83.6 per

Continued on page 114 ►

Investigation of an outbreak of gastroenteritis

► *Continued from page 113*

cent, and the response rate for the campers was 94.9 per cent. Results are described for teachers and pupils together.

The numbers of campers and non-campers who became ill or were unaffected by gastroenteritis are shown in Table 2.

TABLE 2

THE RISK OF ILLNESS FOR CAMPERS

Ill	Camp attendance Yes	No
Yes	42	9
No	24	52

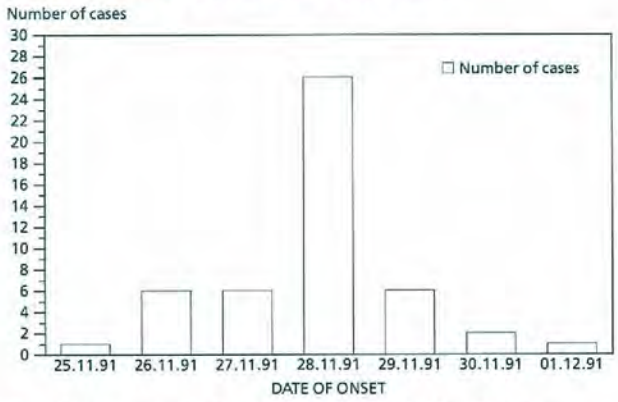
Odds ratio = 10.11
(95 per cent CI: 4.25 to 24.07)

Thus campers were 10 times more likely to develop gastroenteritis than non-campers. The Yates corrected chi square value was 29.5 ($p < 0.001$).

The course of the outbreak over time is illustrated in the histogram representation of the epicurve in Figure 5.

FIGURE 5

HISTOGRAM REPRESENTATION OF THE EPICURVE OF THE GASTROENTERITIS OUTBREAK



Attack rates were calculated for all 27 foods or drinks consumed from and including dinner on Tuesday to lunch on Thursday.

It was then necessary to examine the association between the consumption of specific foods and illness. Since no food or drink could be identified as an outlier from the attack rates, it was decided to calculate the odds ratios associating coleslaw with illness and lettuce with illness because they were the two foods with the highest attack rates. Odds ratios for all food and drink can be seen in Table 3.

DISCUSSION

The highest attack rates were associated with coleslaw and lettuce, both of which have been implicated in outbreaks of food-borne disease in the US. An outbreak of shigellosis in Texas was traced to commercially distributed shredded lettuce (Davis et al, 1988), and two outbreaks of listeriosis have been linked to coleslaw in 41 cases (Schlech et al, 1983) and salads which included celery, tomato and lettuce in 20 cases (Ho et al, 1986). Lettuce has also been identified

TABLE 3

ODDS RATIOS FOR GIVEN FOODS

Food group	Odds ratio	95% CI	P
Apple	0.69	0.24 - 2.00	0.69
Beetroot	0.80	0.26 - 2.52	0.87
Biscuits	0.55	0.07 - 3.48	0.70
Bread	0.00	0.00 - 4.23	0.30
Canned fruit	0.74	0.22 - 2.39	0.75
Cheese	1.43	0.49 - 4.61	0.68
Coleslaw	1.88	0.52 - 7.74	0.43
Cordial	0.24	0.02 - 1.29	0.11
Corn flakes	0.77	0.25 - 2.39	0.80
Devon	0.64	0.14 - 2.70	0.71
Fruit juice	0.40	0.11 - 1.36	0.17
Ice cream	0.94	0.18 - 4.20	1.00
Jam	0.41	0.09 - 1.80	0.19
Lettuce	2.71	0.81 - 9.22	0.12
Margarine	0.00	0.00 - 2.62	0.29
Milk	1.22	0.32 - 4.66	0.98
Milkmilo	0.26	0.01 - 2.41	0.41
Milo	0.73	0.16 - 3.15	0.75
Orange	1.23	0.38 - 4.07	0.90
Peanut butter	0.55	0.15 - 1.95	0.44
Rice Bubbles	0.58	0.18 - 1.80	0.41
Sausages	0.86	0.15 - 4.54	1.00
Steak	4.00	0.55 - 35.39	0.18
Toast	0.59	0.15 - 2.20	0.55
Tomato	1.80	0.57 - 5.72	0.38
Tomato sauce	0.50	0.11 - 2.04	0.43
Vegemite	1.18	0.38 - 3.68	0.94

Note:
1. The confidence interval for the odds ratio associated with apple was calculated using Woolf's procedure (1955). Confidence intervals associated with all remaining odds ratios were calculated using Cornfield's procedure (Cornfield, 1956).

2. The P values each represent the probability of obtaining a particular chi square value (not shown) associated with the contingency table for the given odds ratio. All chi square values were Yates corrected.

as the likely vehicle in the transmission of hepatitis A in a multifocal outbreak in Kentucky (Rosenblum et al, 1990) and of nonbacterial gastroenteritis among 92 college students in Alabama (Alexander et al, 1986).

The odds ratio for illness in camp attenders of 10.11 with a 95 per cent confidence interval of 4.25 to 24.07 demonstrated that the risk of being affected was at least four times higher for campers than for non-campers.

The two foods with the highest attack rates were coleslaw and lettuce, with rates of 0.72 and 0.71 respectively. The respective odds ratios of 1.88 and 2.71 suggested that the consumption of each food was associated with an increased risk of being affected by gastroenteritis. However the confidence interval in each case showed that no statistically significant association was present.

The food returning the highest odds ratio was steak, with an odds ratio of 4.00. But the Fisher exact probability value, assessing the extent to which the eating of steak was associated with illness, was not significant. In addition the data indicated that the OR estimate of 4.00 was quite unreliable with a possible "true" value less than 1.00. Steak was therefore ruled out of contention.

Two facts suggest that water-borne infection was unlikely to be the cause of the outbreak. First, there was no evidence of gastroenteritis among non-school campers using the same water supply. Second, the elimination of lettuce also tends to rule out water which was used for washing the

Continued on page 115 ►

PUBLIC HEALTH ABSTRACTS

Professor James S. Lawson, Professor and Head of the School of Health Services Management at the University of NSW, has prepared the following public health items from the literature.

SCREENING OF HEARING LOSS IN HIGH-RISK BABIES

Severe pre-speech hearing impairment has important consequences in infancy for language acquisition, communication, social and emotional development. Evidence is increasing that even moderate hearing loss in very young children can be detrimental. It is accepted that appropriate remedial measures should be implemented at the earliest possible age and, accordingly, screening for hearing loss in young children is essential.

A sound British study has demonstrated the high reliability in screening for high-risk babies (i.e. babies with familial deafness, rubella infection during pregnancy, very low birth weight, congenital malformations, respiratory difficulties, neonatal jaundice and exchange transfusion). The screening involved measuring the 'electrical' response in the brain stem to sound stimuli. The use of such techniques was found to be highly reliable and cost effective.

McClelland RJ, Watson DR, Lawless V, Houston HG et al. Reliability and effectiveness of screening for hearing loss in high-risk neonates. *Br Med J* 1992; 304:806-809.

BREAST FEEDING AND HEART DISEASE

There has been speculation that the high cholesterol and saturated fat content of milk received by infants may influence lipid metabolism throughout life. More than 5,000 men in England who were born after 1911 have been surveyed. Good data are available on whether or not they were breast- or bottle-fed during the first year of life. The follow-up, up to 80 years later, has shown there does seem to be a slightly reduced incidence of ischaemic heart disease in those men who were breast-fed compared to those who were bottle-fed during the first year of life. This broad finding is compatible with experiments in animals which have shown that different early feeding can lead to permanent changes in serum lipid concentrations and in the metabolic activity of the enzymes which control cholesterol synthesis and excretion.

Fall CHD, Barker DJP, Osmond C, Winter PD et al. Relation of infant feeding to adult serum cholesterol concentration and death from ischaemic heart disease. *Br Med J* 1992; 304:801-805.

ANTI-SMOKING CAMPAIGNS REACH LOWER SOCIO-ECONOMIC GROUPS

A major public health concern in developed countries is the increasing gap in smoking prevalence between groups with different levels of education. In the United States, Canada and Norway smoking in the least educated groups is about twice as prevalent as in the most educated groups and the rate of decline in smoking behaviour is three to nine times lower. During the 1980s mass media-led anti-smoking campaigns were conducted in Sydney and Melbourne and follow-up surveys indicated a significant decline in smoking prevalence. This decline contrasts with the relatively stable smoking levels of the previous decade and has been attributed to the campaigns. There was no evidence that the gap in smoking prevalence between the educational groups increased during the study period in three of the four study groups. The exception occurred among Melbourne women where only the higher educated showed a decline in smoking.

These results are among the first reported examples of a health promotion-motivated behavioural change that did not lead to an increase in the gap between educational levels. They suggest that in previous studies the much larger decreases in smoking prevalence, seen among better educated groups, may have been related to differences in exposure to motivational material rather than to differences in behaviour-changing skills. To continue to address the needs of smokers of all educational levels, the public health movement should conduct anti-smoking campaigns using the full powers of visual mass media.

Macaskill P, Pierce JP, Simpson JM and Lyle DM. Mass media-led anti-smoking campaign can remove the education gap in quitting behaviour. *Am J Public Health* 1992; 82:96-98.

TAXES REDUCE CIGARETTE CONSUMPTION

Many studies have observed that cigarette consumption falls when the price of cigarettes rises. A large American experience conducted over a 33-year period has shown that taxes on cigarettes are associated with a sales decline of tobacco of about 0.5 per cent for every 1 per cent of cigarette price increases. Accordingly, taxes appear to be an effective public health intervention to reduce cigarette consumption.

Peterson DE, Zeger SL, Remington PL and Anderson HA. The effect of State cigarette tax increases on cigarette sales 1955 to 1988. *Am J Public Health* 1992; 82:94-96.

Investigation of an outbreak of gastroenteritis

► *Continued from page 114*

vegetable. Viewed in the light of the questionnaire data, the absence of pathogens in the stool samples would also appear to devalue food as a source of infection.

CONCLUSION

It was concluded that there was a high probability that the outbreak was not caused by a water-borne or a food-borne infection, but by a viral infection. It was, however, important to initiate a rapid response, both as a field test of established protocol and as an essential data-collecting process which would inform the institution of prospective counter-measures.

Thais Miles, Public Health Officer
Victoria Wise, Public Health Officer
Michael Levy, Manager, Infectious Diseases Section
NSW Health Department

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Cornfield JA. Statistical property arising from retrospective studies. *Proc Third Berkeley Symp Math Stat Prob* 1956; 4:135-148.
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Ho JL, Shands KN, Friedland G, Eckind P, Fraser DW. An outbreak of type 4b *Listeria monocytogenes* infection involving patients from eight Boston hospitals. *Arch Intern Med* 1986; 146:520-524.
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INFECTIOUS DISEASES

From this issue of the *NSW Public Health Bulletin* infectious disease notifications are being presented in an improved format. Vaccine preventable diseases and diseases of rare occurrence are reported separately from other notifiable diseases. This format is consistent with that of the *Communicable Diseases Intelligence.*

In addition, Ross River virus, other alphaviruses and flavivirus are reported separately. This follows a recommendation of the Infectious Diseases Advisory Committee.

TIMELINESS AND COMPLETENESS OF REPORTING

The following table lists the number of weekly reports made to the Epidemiology and Health Services Evaluation Branch in the past two months, i.e. from Epiweek 32 to Epiweek 39.

An electronic mail service is scheduled for installation in all Public Health Units (PHUs) by March 1993. Since its installation in the New England and Illawarra PHUs, weekly transfer of notification data has occurred by E-mail.

TABLE 4

NUMBER OF WEEKLY REPORTS MADE TO EPIDEMIOLOGY BRANCH: AUGUST-SEPTEMBER 1992

Public Health Unit	Number	Status
Central/Southern Sydney	8	Complete
Eastern Sydney	8	Complete
South Western Sydney	6	Incomplete
Western Sector	8	Complete
Northern Sydney	8	Complete
Central Coast	8	Complete
Illawarra	8	Complete
Hunter	8	Complete
North Coast	6	Incomplete
New England	8	Complete
Orana and Far West	8	Complete
Central West	8	Complete
South-West	8	Complete
South-East	8	Complete

TABLE 5

PERCENTAGE OF DOCTOR NOTIFICATIONS WITH INCOMPLETE INFORMATION BY VARIABLE AND PUBLIC HEALTH UNIT, AUGUST-SEPTEMBER 1992

Public Health Unit	Age	Sex	Aboriginality
Central Sydney	complete	complete	6
Southern Sydney	complete	complete	6
Eastern Sydney	6	2	7
South Western Sydney	2	21	6
Western Sydney	complete	5	2
Wentworth	complete	complete	complete
Northern Sydney	10	1	8
Central Coast	2	complete	6
Illawarra	complete	complete	55
Hunter	4	3	28
North Coast	complete	1	4
New England	1	4	9
Orana and Far West	8	1	23
Central West	11	complete	25
South-West	complete	complete	7
South-East	complete	complete	12

REFUGEE SCREENING IN NSW

In 1991 the Infectious Diseases Section of the Epidemiology Branch completed a review of the NSW refugee medical screening program. The review examined inter alia the need for screening, the groups screened, the diseases sought by screening, screening in other States and countries, and options for the organisation of screening in NSW.

Some of the findings of the review were that:

- medical screening of refugees and similar immigrants overseas does not prevent some people with conditions of public health significance arriving in NSW in an infectious state;
- the diseases sought by screening at present (tuberculosis, syphilis, leprosy, incomplete immunisation status) are suitable but omit hepatitis B;
- the present target group of screening misses many incoming immigrants at high risk for diseases of public health significance, although inclusion of other high-risk groups in screening would depend on being able to obtain local contact details of immigrants on arrival in NSW; and
- screening programs in other Australian States make greater use of chest clinics (established to detect and treat tuberculosis) and general practitioners.

The review recommended that:

- if possible, the target group of screening should be expanded to include additional groups of immigrants at high risk of tuberculosis [according to specified rates of tuberculosis in the country of origin] as well as other diseases of public health significance;
- screening would be better located in multiple chest clinics, with the screening program seeking only diseases with substantial public health significance, i.e. tuberculosis, hepatitis B, immunisation deficiencies and syphilis;
- all patient management, as well as detection of most personal health problems, should be performed by general practitioners, with referral by the general practitioner to specialist services as appropriate;
- serology for hepatitis B surface antigen should be included in screening with vaccination provided for household contacts of those positive; and
- health education/promotion for clients of screening would best be provided by Area/Region Health Promotion Units.

It is difficult to predict the numbers of immigrants that could be screened according to the criteria provided by the review, as policy on immigration is highly labile (immigration numbers are currently well down on those of several years ago), and obtaining new immigrant arrival details may be difficult. The higher cost of screening greater numbers may be limited by changes to the organisation and scope of screening as suggested by the review. Additionally, more secondary cases of tuberculosis and other diseases would be prevented than at present, providing a saving in treatment costs. The review estimates that tuberculosis alone costs NSW $3.5 million a year, at a cost of $10,000 a case.

The Epidemiology Branch formed a working group on refugee screening to consider implementation of the report's recommendations. Improving links between the

refugee screening service, chest clinics and general practitioners, and the introduction of routine hepatitis B screening with vaccination of household contacts are matters examined by the group. In addition, relevant Areas have already been contacted about the possible use of chest clinics for immigrant screening.

Mark Bek, Public Health Officer and Michael Levy, Manager, Infectious Disease Epidemiology, NSW Health Department.

WHOOPING COUGH IMMUNISATION — CONTRAINDICATIONS MISAPPLIED

Pertussis (whooping cough) continues to be a serious health problem for young children. In the past 10 years about 400 children have been admitted to hospitals in the Hunter Area with this disease. It has been estimated that while 90 per cent of children under five years are protected against diphtheria and tetanus, only 70 per cent are protected against pertussis.

Figures on vaccine distribution are available and provide some valuable information to explain this difference in immunisation cover. Diphtheria Tetanus Pertussis (DTP) vaccine, or triple antigen (TA), is given at two, four, six and 18 months of age, and Combined Diphtheria Tetanus (CDT) at preschool age.

Theoretically the ratio of usage of CDT to DPT should be 1:4. From the State Vaccine Centre figures relating to the distribution of vaccine to hospitals and local government immunisation programs indicate that over the past two years the CDT:DTP ratio is 1:3 for NSW. For the Hunter Area it is 1:2.

From CSL, the sole manufacturers and distributor of these vaccines in Australia, the ratio for NSW as a whole — which would include the vaccine used by family doctors as well as the public immunisers — is 1:2.5.

By contrast the ratio of usage in the John Hunter Hospital paediatric immunisation clinic, where the listed contraindications are strictly applied, is CDT:DTP 1:10 up to five years of age. In 1991 in the age group up to 18 months 1,014 doses of TA were given compared to eight doses of CDT.

The figures suggest very strongly that CDT is often given instead of DTP in the routine immunisation of children. It appears likely that immunisers are unduly cautious in interpreting contraindications to the use of pertussis vaccine.

The contraindictions to DTP as listed in Immunisation Procedures 4th edition, NH&MRC 1991 are as follows. It is assumed that most reactions are against the pertussis component.

1. Immunisation should not be carried during a significant acute illness.
2. A major reaction following DTP, which includes fever above 40.5 °C, convulsions, hypotonic/hypertonic episodes, shock, anaphylaxis, thrombocytopenia and encephalopathy, severe local reactions or persistent screaming for more than three hours.
3. Infants known to have active or progressive neurological disease.

The following are NOT contraindications

1. Asthma, eczema, hay fever or mild upper respiratory symptoms.
2. Treatment with topical or inhaled steroids.
3. Treatment with antimicrobial agents.
4. Mild acute illness with low-grade fever.
5. Prematurity.
6. Child being breast-fed.
7. History of postnatal jaundice.
8. Previous history of pertussis, measles, rubella, or hepatitis.
9. Infants or children older than recommended in immunisation schedule.
10. Pregnancy of mother or other household contact.
11. Stable neurological disease, e.g. cerebral palsy, Down's syndrome or family history of convulsions.
12. Family history of Sudden Infant Death Syndrome.
13. Family history of an adverse event following immunisation which was unrelated to immunosuppression.

No child should be denied immunisation without serious thought as to the consequences, both for the individual and the community. If immunisers are concerned about a risk of severe adverse effects to immunisation, the injections can be given in a setting where support services are available such as in the Accident and Emergency departments of hospitals. Advice about immunisation is available through PHUs.

Bert Evans, Immunisation Coordinator, Hunter Area Health Service.

VACCINE PREVENTABLE DISEASES

Rubella

During September the Chief Health Officer alerted the community to the possibility of increased levels of rubella circulating in the community. Queensland, ACT, Victoria and South Australia have observed an increased number of rubella notifications in recent months.

Forty-three notifications for rubella have been received for 1992. This compares with 35 for the same period for 1991. Ten of the notifications for 1992 were in females in the 18-45 year age group.

Women of childbearing age unsure of their rubella immunisation status should be encouraged to consult their medical practitioner.

Measles

Measles incidence for 1992 (266 notifications) is similar to that observed for the same period in 1991 (261 notifications). Eighty-two per cent of notifications received for 1992 are for people over the age of 12 months; as immunisation is recommended at that age, those cases can be classified preventable.

Pertussis

The incidence of pertussis has risen markedly in 1992. Compared with the 34 notifications for all of 1991, 92 notifications have been received for the period January to September 1992. The years 1990 and 1991 were interepidemic years in the three- to four-yearly epidemic cycle observed for pertussis. It is possible that 1992 could be an epidemic year.

Haemophilus influenzae B

Forty-three per cent of notifications received for Haemophilus influenzae type b (Hib) infections were for children between the ages of 18 months and five years. The remaining 57 per cent of cases occurred in children younger than 18 months of age.

The National Health and Medical Research Council (NH&MRC) has recommended that a single Hib vaccine suitable for all Australian children should be incorporated into the schedule of childhood immunisations. As the focus of Hib disease control should be directed at the youngest possible age group, the NH&MRC therefore recommends that all children be immunised against Hib disease before the age of six months.

OTHER NOTIFIABLE DISEASES

The number of foodborne illness (NOS) notifications for 1992 (188 notifications) has decreased by 92 per cent from the 2,394 notifications received for the same period in 1991. This is due to a change in reporting requirements under the Public Health Act 1991. An increased number of notifications is being received for gastroenteritis in an institution: 45 notifications in 1991, 342 in 1992 — a rise of 660 per cent.

The number of notifications for Legionnaires' disease has increased from 24 for 1991 to 77 for 1992 — a rise of 221 per cent. This is due particularly to the April 1992 Fairfield outbreak but can also be attributed to the increased recognition of Legionnaires' disease following the outbreak.

The apparent decrease of 73 per cent in the number of notifications for meningococcal infection (NOS), from 33 for 1991 to nine for 1992, is partly due to the better specification of infection type: meningococcal meningitis has increased from 36 notifications for 1991 to 55 for 1992 (a 53 per cent increase).

ROTAVIRUS SURVEILLANCE PROGRAM

The voluntary laboratory-based infectious diseases surveillance program conducted by the Eastern Sydney PHU receives reports from a number of laboratories based in Eastern Sydney and adjacent areas. Laboratories report isolates/diagnoses of enteric bacteria, viruses and parasites, streptococci isolated from normally sterile sites, respiratory and herpes group viruses, *Chlamydia trachomatis* and *Mycoplasma pneumonia* on a weekly basis by facsimile. Participating laboratories include public hospital microbiology laboratories at Prince of Wales, Sydney and St Vincent's Hospitals, virology laboratories at Prince Henry Hospital and The Children's Hospital, and the private pathology services of Macquarie Pathology, Hanly Moir Pathology, Douglas Laboratories, Lamond Pathology, United Diagnostics, Mansfield's Pathology, Quinn Pathology and Sugerman's Pathology.

Due to the role of some of the public hospital laboratories as reference laboratories and the wide referral patterns of a number of the private pathology services, the surveillance program derives reports from patients resident in many parts of NSW. Reports are sent in the form of individual records which are unable to be identified. For the purposes of distinguishing duplicates and epidemiological analysis, patient identifiers are reduced to the first two letters of the surname and first initial, date of birth or age and postcode.

The figure below presents data on rotavirus gathered through the Eastern Sydney Laboratory Surveillance Program in 1991 and 1992. Rotavirus circulates all year but causes annual winter epidemics of gastroenteritis, predominantly affecting children under three years.

Mark Ferson, Director, Eastern Sydney Area Public Health Unit, and Syd Bell, Medical Officer of Health, Eastern Sydney Area Health Service.

FIGURE 6

ROTAVIRUS — EASTERN SYDNEY LABORATORY SURVEILLANCE PROGRAM, 1991-1992

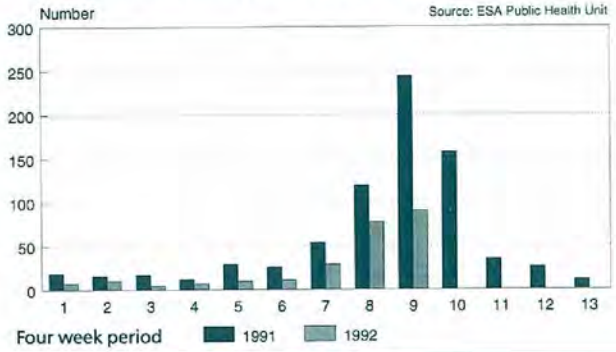

TABLE 6

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS SEPTEMBER 1992

Condition	Number of cases notified Period		Cumulative	
	Sept. 1991	Sept. 1992	Sept. 1991	Sept. 1992
Adverse event	N/A	2	N/A	31
AIDS	37	–	282	152
Arboviral infection	6	1	460	285
Brucellosis	–	–	2	1
Cholera	–	–	–	1
Diphtheria	–	–	–	–
Foodborne illness (NOS)	211	5	2394	188
Gastroenteritis (instit.)	5	1	45	342
Gonorrhoea	27	19	301	329
H influenzae epiglottitis	3	3	14	35
H influenzae B — meningitis	10	5	37	77
H influenzae B — septicaemia	–	1	8	19
H influenzae infection (NOS)	9	1	99	28
Hepatitis A	117	20	668	750
Hepatitis B	132	82	990	2241
Hepatitis C	98	88	354	2842
Hepatitis D	N/A	–	N/A	5
Hepatitis, acute viral (NOS)	2	–	236	13
HIV infection*	71	55	575	559
Hydatid disease	3	–	7	4
Legionnaires' disease	2	–	24	77
Leprosy	–	–	–	5
Leptospirosis	6	–	29	14
Listeriosis	–	1	–	10
Malaria	16	5	163	99
Measles	17	17	261	266
Meningococcal meningitis	6	7	36	55
Meningococcal septicaemia	2	3	12	11
Meningococcal infection (NOS)	6	–	33	9
Mumps	N/A	–	N/A	17
Mycobacterial tuberculosis	37	6	233	275
Mycobacterial — atypical	10	–	87	184
Mycobacterial infection (NOS)	13	3	129	41
Pertussis	2	4	34	92
Plague	–	–	–	–
Poliomyelitis	–	–	–	–
Q fever	9	5	151	134
Rubella	7	2	35	43
Salmonella infection (NOS)	68	10	1000	600
Syphilis	58	28	458	666
Tetanus	–	–	3	1
Typhoid and paratyphoid	6	1	46	22
Typhus	–	–	–	–
Viral haemorrhagic fevers	–	–	–	–
Yellow fever	–	–	–	–

*Data to August only.

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Dr Sue Morey, Chief Health Officer, Public Health Division, NSW Health Department; Professor Stephen Leeder, Director, Department of Community Medicine, Westmead Hospital; Professor Geoffrey Berry, Head, Department of Public Health, University of Sydney; Dr Christine Bennett, General Manager, Royal Hospital for Women; Dr Michael Frommer, Deputy Director, Epidemiology and Health Services Evaluation Branch, NSW Health Department; Ms Jane Hall, Director, Centre for Health Economics Research and Evaluation; and Mr Michael Ward, Manager, Health Promotion Unit.

The editor is Dr George Rubin, Director, Epidemiology and Health Services Evaluation Branch, NSW Health Department.

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 the key points to be made in the first paragraph. Please submit items in hard copy **and** on diskette, preferably using WordPerfect 5.1.

Please send to **The Editor, Public Health Bulletin, Locked Mail Bag 961, North Sydney NSW 2059**, Fax (02) 391 9232

Design — Health Public Affairs Unit, NSW Health Department.

Suggestions for improving the content and format of the Bulletin are most welcome. Please contact your local Public Health Unit to obtain copies of the NSW Public Health Bulletin.

TABLE 7

NOTIFICATIONS FOR VACCINE PREVENTABLE DISEASES BY MONTH OF ONSET CUMULATIVE 1992

CONDITION	MONTH JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Measles	48	31	34	22	41	28	21	24	17	266
Mumps	3	5	2	–	3	2	1	1	–	17
Pertussis	5	15	25	7	6	9	12	9	4	92
Rubella	6	7	7	4	1	1	5	10	2	43
Tetanus	1	–	–	–	–	–	–	–	–	1
Adverse event after immunisation	4	8	3	1	6	3	–	4	2	31

TABLE 8

NOTIFICATIONS FOR VACCINE PREVENTABLE DISEASES BY HEALTH AREA AND REGION CUMULATIVE 1992

DISEASE NAME	PUBLIC HEALTH UNIT CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	TOTAL
Measles	33	12	7	25	26	8	19	6	10	56	17	21	11	5	3	7	266
Mumps	–	–	3	2	3	–	1	–	1	3	1	–	–	–	2	1	17
Pertussis	3	9	3	9	9	7	11	4	2	6	26	2	–	–	1	–	92
Rubella	2	2	3	3	7	1	12	–	–	2	6	2	–	–	1	2	43
Tetanus	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Adverse event after immunisation	3	3	–	–	2	–	–	1	–	1	5	8	–	1	2	5	31

TABLE 9

RARELY NOTIFIED DISEASES BY HEALTH AREA AND REGION CUMULATIVE 1992

DISEASE NAME	PUBLIC HEALTH UNIT CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	TOTAL
Brucellosis	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Cholera	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Hydatid disease	–	–	–	–	–	–	–	–	–	–	1	2	–	1	–	–	4
Leprosy	–	–	–	1	1	1	–	–	–	–	–	1	–	–	1	–	5
Leptospirosis	–	1	–	–	–	1	–	–	–	–	5	2	–	5	–	–	14
Listeriosis	–	2	–	–	–	2	4	–	–	–	1	–	–	1	–	–	10

TABLE 10

NOTIFICATIONS OF NON-NOTIFIABLE SEXUALLY TRANSMITTED INFECTIONS FROM SEXUAL HEALTH CLINICS JANUARY-SEPTEMBER 1992

[1] 1/1/92-31/8/92
[2] 1/1/92-30/6/92
[3] 1/3/92-30/9/92
[4] 1/5/92-31/8/92
[5] 1/1/92-30/6/92
[6] 1/3/92-30/9/92
[7] 1/7/92-31/7/92
[8] 14/5/92-31/8/92
[9] 1/7/92-30/9/92
[10] No SHC in the Region
[11] No SHC in the Region
[12] No SHC in the Region

AHS Infection	CSA	SSA	ESA[1]	SWS	WSA[2]+WEN	NSA[3]	CCA[4]	ILL[5]	HUN[6]	NCR[7]	NER[8]	OFR[9]	CWR[10]	SWR[11]	SER[12]
Chlamydia trachomatis	–	–	157	–	29	5	3	13	40	–	6	7	–	–	
Donovanosis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
Genital herpes	–	–	406	–	27	13	3	27	50	–	6	11	–	–	
Genital warts	–	–	907	–	175	45	1	150	159	11	18	8	–	–	
Non-specific urethritis	–	–	577	–	189	21	1	53	68	–	5	3	–	–	
Lymphoma granuloma	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

TABLE 11

OTHER INFECTIOUS DISEASE NOTIFICATIONS BY HEALTH AREA AND REGION CUMULATIVE 1992

DISEASE NAME	CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	OTH	U/K	TOTAL
AIDS infection	32	3	23	4	14	5	30	5	3	2	13	5	–	2	5	3	–	3	152
Arboviral infection																			
Ross River	1	2	–	–	6	6	6	4	7	21	110	28	57	10	24	–	–	–	282
Other alphaviruses	–	–	–	–	–	–	–	–	–	–	1	–	–	–	2	–	–	–	3
Flavivirus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Foodborne illness (NOS)	7	2	31	10	43	11	–	30	3	5	5	4	33	1	1	2	–	–	188
Gastroenteritis (instit)	17	1	9	28	4	1	1	–	1	84	2	93	4	–	–	97	–	–	342
Gonorrhoea infection	61	20	118	17	21	1	18	2	3	7	18	10	10	12	6	5	–	–	329
H. Influenzae epiglottitis	–	3	1	3	6	3	2	–	2	4	3	5	–	–	1	2	–	–	35
H. Influenzae infection (NOS)	3	1	2	1	2	–	1	4	1	2	–	2	1	2	2	4	–	–	28
H. Influenzae meningitis	3	4	3	5	5	6	17	4	7	5	5	4	1	1	3	4	–	–	77
H. Influenzae septicaemia	–	1	1	4	2	–	3	–	–	4	1	–	–	2	1	–	–	–	19
Hepatitis A — acute viral	83	31	108	29	40	7	80	6	22	27	100	121	68	7	11	9	–	–	750
Hepatitis B — unspecified	318	323	18	572	328	29	244	25	15	94	49	41	27	17	13	22	2	–	2137
Hepatitis B — acute viral	4	3	30	5	5	5	3	3	6	2	8	3	20	2	3	2	–	–	104
Hepatitis C — unspecified	406	133	311	173	237	52	207	327	63	318	432	45	9	44	18	18	–	–	2793
Hepatitis C — acute viral	1	1	4	–	7	1	3	1	3	–	8	5	4	3	–	7	–	–	48
Hepatitis D — unspecified	–	–	1	–	–	–	–	1	–	1	2	–	–	–	–	–	–	–	5
Hepatitis E — unspecified	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Hepatitis, acute viral (NOS)	–	–	1	3	1	–	–	1	–	–	–	1	3	2	1	–	–	–	13
HIV infection	51	20	162	10	26	7	33	4	3	22	15	–	3	–	1	5	11	187	560
Legionnaires' disease	3	2	2	36	14	2	4	7	2	2	2	–	–	–	–	1	–	–	77
Malaria	10	7	8	4	13	–	21	2	7	3	8	7	1	1	4	3	–	–	99
Meningococcal infection (NOS)	–	–	2	–	–	–	1	–	1	–	–	2	1	2	–	–	–	–	9
Meningococcal meningitis	4	5	–	2	6	2	–	6	5	6	7	5	1	5	–	1	–	–	55
Meningococcal septicaemia	1	1	2	3	–	2	–	–	–	1	–	–	1	–	–	–	–	–	11
Mycobacterial atypical	37	18	32	14	21	3	27	–	8	18	2	2	–	–	1	1	–	–	184
Mycobacterial infection (NOS)	8	2	1	–	6	2	6	1	5	3	–	2	1	–	3	–	–	–	41
Mycobacterial tuberculosis	37	28	24	56	33	6	44	8	9	4	9	5	–	1	6	5	–	–	275
Salmonella (NOS)	19	31	32	46	38	28	68	11	7	23	42	21	19	17	12	16	–	–	430
Salmonella bovis morbificans	1	3	1	–	2	1	1	–	–	–	1	1	–	–	–	–	–	–	11
Salmonella typhimurium	8	18	2	21	29	17	20	7	7	15	2	2	6	–	5	–	–	–	159
Syphilis infection	113	37	116	48	35	8	37	1	8	7	93	34	101	15	10	2	1	–	666
Typhoid and paratyphoid	4	1	6	–	3	–	5	–	1	–	–	–	–	–	2	–	–	–	22

TABLE 12

OTHER INFECTIOUS DISEASE NOTIFICATIONS BY MONTH OF ONSET CUMULATIVE 1992

CONDITION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
AIDS infection	21	13	16	19	29	20	15	17	2	152
Arboviral infection										
Ross River virus	14	38	85	77	39	10	11	7	1	282
Other alphaviruses	–	–	2	–	–	1	–	–	–	3
Flavivirus	–	–	–	–	–	–	–	–	–	–
Foodborne illness (NOS)	55	28	27	20	15	7	13	18	5	188
Gastroenteritis (instit)	88	7	17	9	35	22	36	127	1	342
Gonorrhoea infection	31	22	49	38	47	30	54	39	19	329
H. Influenzae epiglottitis	4	1	3	2	4	10	4	4	3	35
H. Influenzae infection (NOS)	5	2	1	2	2	4	5	6	1	28
H. Influenzae meningitis	5	9	10	5	11	13	7	12	5	77
H. Influenzae septicaemia	1	1	3	3	3	2	5	–	1	19
Hepatitis A — acute viral	115	98	121	98	89	82	65	62	20	750
Hepatitis B — acute viral	10	12	17	22	18	9	5	6	5	104
Hepatitis B — unspecified	278	178	273	253	243	303	266	266	77	2137
Hepatitis C — unspecified	233	255	316	253	450	394	418	390	85	2794
Hepatitis C — acute viral	14	7	3	5	6	2	4	4	3	48
Hepatitis D — unspecified	1	–	–	1	3	–	–	–	–	5
Hepatitis E — unspecified	–	–	–	–	–	–	–	1	–	1
Hepatitis, acute viral (NOS)	1	3	1	4	2	1	1	–	–	13
HIV infection	95	74	69	71	78	56	62	54	–	559
Legionnaires' disease	1	9	2	42	8	5	8	2	–	77
Malaria	12	5	16	9	14	17	13	8	5	99
Meningococcal infection (NOS)	2	2	–	–	–	–	2	3	–	9
Meningococcal meningitis	–	3	2	8	2	6	14	13	7	55
Meningococcal septicaemia	1	–	–	–	–	2	2	3	3	11
Mycobacterial atypical	32	32	47	25	25	14	8	1	–	184
Mycobacterial infection (NOS)	5	6	6	3	7	5	–	6	3	41
Mycobacterial tuberculosis	70	32	35	37	26	35	17	17	6	275
Q fever	13	12	11	13	9	22	22	27	5	134
Salmonella (NOS)	100	62	59	52	41	33	37	40	6	430
Salmonella bovis morbificans	1	1	1	2	3	1	–	2	–	11
Salmonella typhimurium	17	17	50	23	23	7	9	9	4	159
Syphilis infection	54	85	69	81	91	94	87	77	28	666
Typhoid and paratyphoid	6	4	2	–	3	2	3	1	1	22

Abbreviations used in this Bulletin:
CSA Central Sydney Health Area, SSA Southern Sydney Health Area, ESA 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, NCR North Coast Health Region, NER New England Health Region, OFR Orana & Far West Health Region, CWR Central West Health Region, SWR South West Health Region, SER South East Health Region, 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.