INFECTIOUS DISEASES

NOTIFICATION TRENDS

Notification rates were higher than historical levels in September 1995 (Figure 3) and October 1995 (Table 9) for gastroenteritis and rubella. Notifications for foodborne illness (not otherwise specified) were also elevated in October (Table 9). There were lower notification rates in September 1995 for *Haemophilus influenzae* type b (Hib), measles, pertussis and Q fever.

Hib notifications continue a pleasing long-term downward trend. It appears the trend for pertussis notifications to increase, which has been observed since April 1995, may have peaked in August 1995. The usual spring and early summer peak in measles notifications has not been observed in 1995, and the number of measles notifications has been significantly lower than the historical average (Figures 3 and 4).

High notification rates were reported from the North Coast Public Health Unit (PHU) for arboviral infection, hepatitis C, Q fever, pertussis and rubella.

RUBELLA

Rubella notification rates continued a marked upward trend (Figure 5). The highest rates for the period January 1-October 31, 1995 were reported from the Central West PHU (65 cases per 100,000 population), followed by the North Coast (28/100,000), Western NSW (17/100,000) and Western Sydney (14/100,000). As expected, the largest proportion of cases occurred in adolescent and young adult males.

GASTROENTERITIS IN AN INSTITUTION

As described in the October 1995 issue of the *Public Health Bulletin*, the numbers of notifications for gastroenteritis in an institution have been high since July 1995. There appears to have been a peak in notifications in August, with large numbers of notifications also observed in September. At the time of writing notifications were still being received for October.

Q FEVER

Q fever was discussed in the July issue of the *Bulletin*. Seventeen notifications were received in August from the South East PHU, involving abattoir workers at Young. The highest rate for the period January 1-October 31 was observed in Western NSW (31/100,000).

EQUINE MORBILLI VIRUS

In October 1995 a horse breeder in Queensland died from equine morbilli virus (EMV). The appearance of EMV highlights the importance of innovative surveillance systems capable of detecting unusual and severe illness patterns and triggering prompt and appropriate public health responses.

Dr Jeremy McAnulty, the Acting Medical Adviser in Infectious Diseases for the NSW Health Department, has prepared an article outlining the key facts on EMV. This has been distributed to all PHUs for further communication to general practitioners and to emergency department and other hospital staff, in a proactive attempt to find any further cases. The text of the article is reprinted below.

Open letter to general practitioners, hospital emergency departments and infectious diseases departments

The recent well-publicised case of equine morbilli virus (EMV) in a Queensland horse breeder represents the third reported human case. Available evidence indicates the disease is rare and not very infectious. However, more work needs to be done before we can fully understand the epidemiology of EMV. Here we review some features of reported cases and request that doctors report suspected cases to their public health unit.

Case history

On October 21, 1995 a 35-year-old man from Mackay, Queensland, died with encephalitis. The man had been ill more than a year before — in August or September 1994 — with a mild meningo-encephalitis. In mid-September 1995 he developed personality change and encephalitis. Later he developed status epilepticus, became comatose and required ventilation. An MRI scan indicated widespread brain inflammation. He had no respiratory symptoms until he developed aspiration pneumonia. Serology indicated he had a rapidly rising antibody titre to EMV in blood and cerebrospinal fluid, indicating infection at the time of death. No other cause of his illness was identified.

Exposures

In August 1994 the horse breeder reportedly had close contact with two sick horses and assisted his wife, a veterinary surgeon, in their post-mortem examinations. The first horse had died on the man's property within 24 hours of developing a respiratory illness with renal involvement (at the time thought to be avocado poisoning). The second horse from the property died 7-10 days later after developing neurological symptoms (at the time thought to be due to snake bite). Serological testing since the man's diagnosis has indicated the second horse was infected with EMV.

Review of veterinary records from the man's property revealed no evidence of other possible EMV infections. The property has about 90 horses and has been secured voluntarily. All these horses and others in the Mackay area are being surveyed for evidence of EMV. Four horses from the Mackay property were moved to NSW in the past 15 months. All are well and have no serological evidence of past or present EMV infection.

The Hendra outbreak

In September 1994 a well-publicised outbreak of severe respiratory illness was reported among two men and 21 horses from a racing stable at Hendra, a Brisbane suburb. Illness among the horses was characterised by acute onset of high fevers and severe respiratory difficulty. Fourteen horses died. A 49-year-old trainer and 40-year-old stable hand who had contact with a dying mare developed severe influenza-like illnesses two weeks later. The trainer died after six days in intensive care and post-mortem examination revealed severe interstitial pneumonia.

As a result of the Hendra outbreak, the Queensland Department of Primary Industries tested 292 race horses from the central Queensland coast in October 1994. None had evidence of EMV infection. A large percentage of horses in the Hendra area was also tested and seven — all associated with the original outbreak — were positive and were destroyed. Until the report of the Mackay case, subsequent surveillance did not detect any other cases in horses or other animals. Investigations of suspected horses and cats and limited serosurveys of local wildlife were all negative.

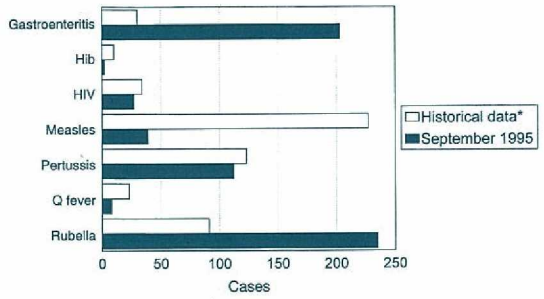
TABLE 9

INFECTIOUS DISEASE NOTIFICATIONS FOR NSW, 1995 BY SELECTED MONTH OF ONSET FOR NOTIFICATIONS RECEIVED BY OCTOBER 31, 1995

Condition	Jul	Aug	Sep	Oct	Total
Adverse event after immunisation	3	3	4	3	13
AIDS	23	23	13	15	74
Arboviral infection	13	14	9	2	38
Cholera	1	–	–	–	1
Foodborne illness (NOS)	14	8	17	37	76
Gastroenteritis (instit.)	230	430	203	42	905
Gonorrhoea infection	16	34	35	14	99
H. influenzae epiglottitis	–	1	1	–	2
H. influenzae meningitis	2	–	1	1	4
H. influenzae septicaemia	–	2	–	–	2
Hepatitis A – acute viral	17	32	36	31	116
Hepatitis B – acute viral	5	3	3	–	11
Hepatitis B – chronic/carrier	29	47	36	11	123
Hepatitis B – unspecified	302	332	344	105	1,083
Hepatitis C – acute viral	6	7	–	–	13
Hepatitis C – unspecified	525	637	544	209	1,915
Hepatitis D – unspecified	–	–	2	–	2
Hepatitis, acute viral (NOS)	1	–	–	1	2
HIV Infection	32	36	46	38	152
Hydatid disease	1	–	1	–	2
Legionnaires' disease	7	2	1	1	11
Leprosy	–	–	1	–	1
Leptospirosis	1	–	–	–	1
Listeriosis	–	–	2	–	2
Malaria	3	4	1	–	8
Measles	29	53	39	30	151
Meningococcal infection (NOS)	1	1	3	1	6
Meningococcal meningitis	12	8	6	5	31
Meningococcal septicaemia	2	5	2	–	9
Mumps	2	1	1	–	4
Mycobacterial atypical	27	12	4	2	45
Mycobacterial infection (NOS)	6	5	1	1	13
Mycobacterial tuberculosis	37	26	18	3	84
Pertussis	118	162	112	71	463
Q fever	18	31	8	3	60
Rubella	64	119	235	65	483
Salmonella (NOS)	71	75	57	41	244
Syphilis infection	72	57	55	25	209
Tuberculosis – non active	7	10	3	2	22
Typhoid and paratyphoid	1	–	2	–	3

FIGURE 3

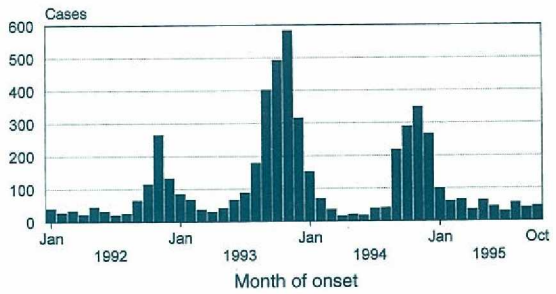
SELECTED INFECTIOUS DISEASES: NSW SEPTEMBER NOTIFICATIONS, 1995 COMPARED WITH HISTORICAL DATA



* Historical data: the average number of notifications diagnosed in the same month in the previous three years.

FIGURE 4

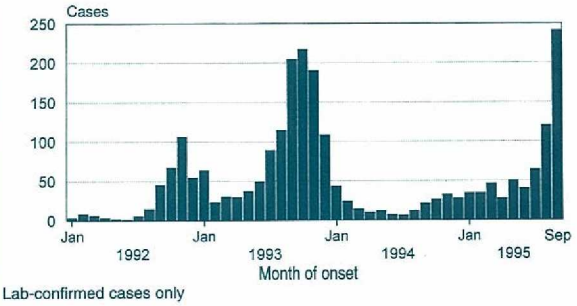
MEASLES NOTIFICATIONS NSW 1992-1995, BY DATE OF ONSET



Source: IDDS

FIGURE 5

RUBELLA NOTIFICATIONS NSW 1992-1995, BY DATE OF ONSET



Source: IDDS

No link has been found between the September 1994 outbreak and the Mackay property.

The virus

EMV was first identified in viral studies of samples taken from the Hendra outbreak. EMV is a newly recognised morbilli virus, distantly related to measles, canine distemper and rinderpest[1].

The disease in horses[2]

EMV infection in horses seems to lead to anorexia, depression, fever and increasingly severe respiratory disease, terminating in frothy nasal discharge. Post-mortem changes include very heavy, grossly oedematous and congested lungs with thick tenacious frothy exudates in the airways. Microscopically, the lung changes are consistent with interstitial pneumonia with proteinaceous alveolar oedema, haemorrhage, alveolar necrosis and necrosis of the walls of small blood vessels. Syncytial giant cells are present in the epithelium of the lung capillaries and arterioles.

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▶ Continued from page 135

The disease in humans
With only three reported cases, no typical clinical picture of EMV infection has yet emerged in humans. Clearly, two distinct syndromes are likely — one characterised by an influenza-like illness and one by encephalitis. Two of the three reported cases have died.

What is the natural host?
Little is known about the pathogenesis and epidemiology of EMV infection. In vitro, the virus is able to grow in cell cultures in a number of mammalian species, birds, reptiles, amphibians and fish. However, after inoculation of mice, guinea pigs, chickens, rabbits, cats and dogs, only cats and guinea pigs developed disease. A serosurvey of 500 cats from metropolitan Brisbane found none was positive for EMV.

How contagious is it?
All reports suggest EMV is not very contagious. It appears close contact is required for transmission to occur. Horses sharing paddocks and in adjacent stalls to infected horses in the Hendra outbreak remain free from infection. There is no evidence of person-to-person transmission.

So why are you telling me this?
All indications are that EMV infection is extremely rare and that infection in humans is very difficult to acquire. However, to evaluate the implications of EMV for human health, we need more information. We must determine the prevalence (if any) of disease and infection among people; who is at greatest risk and why; and how can any risk be minimised? Please report suspected cases!

We have reports of three people ill with EMV but with different clinical pictures. To help identify possible cases for surveillance purposes, we have developed a preliminary case definition. Suspected cases are defined as a person:

- aged >1 and <50 years critically ill with an acute respiratory illness or encephalitis;
- who has been previously healthy, with no underlying conditions; and
- in whom preliminary testing has failed to reveal the cause of illness.

All doctors are urged to report suspected cases (diagnosed in the past or present) to their Public Health Unit. The PHU will help arrange appropriate serological testing if required.

Conclusion
There is no indication that EMV poses a significant public health risk. Nevertheless, reporting suspected cases (if any), together with studies to determine the natural animal reservoir of EMV, and the prevalence (if any) of EMV in animal and human populations, will be vital for evaluating the epidemiology and public health significance of this newly recognised pathogen.

1. Murray K et al. A morbilli virus that caused fatal disease in horses and humans. *Science* 1995; 268:94-97.
2. Queensland Department of Primary Industries. Update on equine morbilli virus infection (acute equine respiratory syndrome). Animal Health Bureau, July 12, 1995.

GONOCOCCAL ISOLATE SURVEILLANCE

The following report, focusing on the three-month period from July 1 to September 30, 1995, is based on information provided by the Gonococcal Reference Laboratory in the Microbiology Department of the Prince of Wales Hospital, Randwick, Sydney.

In the nine months to September 30, 458 gonococcal isolates were referred to the laboratory. By comparison, 496 isolates were reported for the whole of 1994. An increase in the number of isolates was particularly evident in the six months to June 30, with a decline to more typical numbers in the quarter to September 30.

A total of 125 gonococci isolates was referred in the quarter to September 30. Of these, 120 remained viable for further examination. This compares with the 168 isolates in the quarter to June 30, 1995 and 132 isolates examined in the quarter to September 30, 1994.

It is widely recognised that the number of cases of gonorrhoea tends to decrease in the colder months. The decrease has been attributed to factors including the prevalence of winter colds and respiratory tract infections which are presumed to limit social activity and attract the intercurrent use of antibiotics.

Of the 125 isolates examined in the quarter to September 30, 1995, 115 were from males and nine from females. Sex and site of infection were not stated in one instance.

The sites of infection in males were as follows:

Urethra	88
Pharynx	5
Ano-rectum	20
Disseminated gonococcal infection	1
Not stated	1

The endocervix/vagina was the site of infection for all nine isolates from females.

The male-to-female ratio of infection in the quarter to September 30, 1995 was 12.8:1, compared with 6.3:1 in the quarter to June 30, 1995 and 5.6:1 in the quarter to September 30, 1994.

In the quarter to September 30, 1995, 18 per cent of isolates from men were ano-rectal in origin while 4 per cent were pharyngeal. In the equivalent period in 1994 the respective figures were 11 per cent and 6 per cent.

Antibiotic sensitivity patterns

Penicillins (including penicillin, ampicillin and amoxycillin)
For many years a high proportion of the gonococci isolated in NSW has been resistant to the penicillins. In the quarter to September 30, 1995, 38 isolates (32 per cent) were penicillin resistant, either because they were penicillinase-producing *Neisseria gonorrhoeae* (PPNG) (11 strains – 9 per cent) or through chromosomally mediated mechanisms (27 strains – 23 per cent). Details of the acquisition of PPNG infection were available in six instances and all six cases were imported.

Only a very small proportion of isolates is fully sensitive to penicillin, with low minimum inhibitory concentrations (MIC) in the range 0.004-0.03 mg/l. In 1990 these strains reappeared and came to comprise about one-third of all isolates. They represent about 6-7% of isolates now.

Penicillins should not be used for routine treatment of gonorrhoea in NSW.

Ceftriaxone
All isolates examined in this quarter were sensitive to ceftriaxone. This injectable cephalosporin remains very active against gonococci.

Spectinomycin
All strains tested were susceptible in vitro to this injectable antibiotic.

Quinolones (ciprofloxacin, norfloxacin, enoxacin)
Since October 1994 there has been an increase in the number of quinolone-resistant gonococci isolated. Furthermore, the levels of resistance, as determined by quantitative sensitivity testing, have reached unprecedented levels.

However, in the quarter to September 30, 1995 the number and proportion of quinolone resistant isolates has returned to those seen before the October-December 1994 quarter. Five isolates (4 per cent) were quinoline resistant, and all of these were in the high MIC range (4-16 mg/l).

Before these strains appeared, the recommended treatment regimen of a single 500mg dose of ciprofloxacin had been adequate to cure nearly all infections encountered. But no dose of quinolone antibiotic (however high) would eliminate infections with such high levels of resistance.

World Health Organisation sources continue to report that quinolone resistance is increasing rapidly in nearby countries visited frequently by Australians.

A recent report from Canada noted a similar increase in quinolone-resistant gonococci in British Columbia with the cases being derived from contacts in Asia.

Continued monitoring of gonococcal resistance to quinolones is essential. Strains from apparent treatment failures and those from patients entering or returning to Australia warrant particularly close examination.

Tetracycline
Recent reports from the Gonococcal Reference Laboratory have highlighted an interesting form of plasmid-mediated high-level tetracycline resistance in gonococci which has also emerged in the past decade.

While tetracyclines are not recommended for treatment of gonorrhoea in NSW, the spread of tetracycline resistant *N gonorrhoeae* (TRNG) throughout the world has been of particular concern. Strains are examined routinely for the presence of this tetracycline resistance.

In the quarter to September 30, 1995 the number and proportion of TRNG isolated in NSW fell. Nine TRNG (8 per cent) were detected, a rate more in keeping with the experience at the same time last year, but much less than the 15 per cent of TRNG seen in the quarter to June 30, 1995.

Again it should be remembered that some countries close to Australia have high numbers of TRNG. Five of the nine TRNG were also PPNG.

Comment
In general, the great majority of antibiotic-resistant isolates seen in NSW have been acquired from contacts overseas. In the quarter to September 30, 1995 the numbers and proportions of PPNG, TRNG and quinolone-resistant gonococci were all lower than in the previous quarter.

TABLE 10

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS OCTOBER 1995

Condition	Number of cases notified			
	Period		Cumulative	
	Oct 1994	Oct 1995	Oct 1994	Oct 1995
Adverse reaction	–	3	32	29
AIDS	59	15	489	264
Arboviral infection	6	2	366	497
Brucellosis	–	–	4	2
Cholera	–	–	–	1
Diphtheria	–	–	–	–
Foodborne illness (NOS)	10	37	157	353
Gastroenteritis (instit.)	13	42	267	1,004
Gonorrhoea	32	14	307	319
H influenzae epiglottitis	1	–	21	5
H influenzae B – meningitis	1	1	14	9
H influenzae B – septicaemia	–	–	11	6
H influenzae infection (NOS)	1	–	9	2
Hepatitis A	53	31	464	424
Hepatitis B	521	116	3,881	3,799
Hepatitis C	831	209	7,804	6,410
Hepatitis D	4	–	19	14
Hepatitis, acute viral (NOS)	–	1	1	2
HIV infection	35	38	372	406
Hydatid disease	3	–	15	11
Legionnaires' disease	4	1	57	60
Leprosy	–	–	3	2
Leptospirosis	–	–	13	4
Listeriosis	1	–	7	9
Malaria	10	–	166	85
Measles	288	30	892	513
Meningococcal meningitis	12	5	70	61
Meningococcal septicaemia	5	–	35	20
Meningococcal infection (NOS)	4	1	17	16
Mumps	4	–	10	9
Mycobacterial tuberculosis	33	3	358	300
Mycobacterial – atypical	38	2	435	292
Mycobacterial infection (NOS)	3	1	34	51
Pertussis	126	71	1,241	1,029
Plague	–	–	–	–
Poliomyelitis	–	–	–	–
Q fever	21	3	219	161
Rubella	26	65	175	713
Salmonella infection (NOS)	87	41	907	968
Syphilis	92	25	919	671
Tetanus	1	–	3	–
Typhoid and paratyphoid	1	–	29	31
Typhus	–	–	–	–
Viral haemorrhagic fevers	–	–	–	–
Yellow fever	–	–	–	–

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TABLE 11

INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR NSW, 1995 RECEIVED BY OCTOBER 31, 1995

	PUBLIC HEALTH UNIT																	
Condition	**CCA**	**CSA**	**CW**	**ESA**	**HUN**	**ILL**	**NC**	**ND**	**NSA**	**SE**	**SSA**	**SW**	**SWS**	**WEN**	**WN**	**WSA**	**U/K**	**Total**
AIDS	2	63	1	84	10	4	25	–	29	–	14	–	12	7	–	13	–	264
Arboviral infection	7	4	–	7	12	24	196	46	5	155	4	13	1	2	18	3	–	497
Brucellosis	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	2
Cholera	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Gonorrhoea infection	2	41	11	139	7	13	15	6	16	8	18	1	15	3	15	9	–	319
Hepatitis B – acute viral	–	3	1	13	–	–	3	2	–	1	1	–	3	–	11	5	–	43
Hepatitis B – chronic/carrier	15	–	14	222	–	–	8	10	3	–	13	–	–	9	8	99	–	401
Hepatitis B – unspecified	18	374	9	58	77	86	55	12	438	27	492	20	1,190	29	9	461	–	3,355
Hepatitis C – acute viral	1	–	1	5	–	–	–	–	–	1	–	–	–	2	41	1	–	52
Hepatitis C – unspecified	154	681	267	965	396	394	665	188	460	192	412	177	728	114	26	537	–	6,358
Hepatitis D – unspecified	–	–	–	1	–	–	5	1	1	–	1	1	3	–	–	1	–	14
Hepatitis, acute viral (NOS)	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	2
HIV infection	9	72	3	133	15	11	6	2	21	–	17	5	24	6	1	18	63	406
Hydatid disease	–	–	1	1	–	1	1	–	1	–	–	2	3	–	–	1	–	11
Legionnaires' disease	1	2	–	6	10	6	1	2	8	–	–	–	3	2	1	18	–	60
Leprosy	–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
Leptospirosis	–	–	–	–	1	–	1	2	–	–	–	–	–	–	–	–	–	4
Malaria	4	5	–	8	9	4	8	1	20	2	3	3	4	3	–	11	–	85
Meningococcal infection (NOS)	1	–	–	3	1	–	3	–	–	–	4	1	2	–	1	–	–	16
Meningococcal meningitis	7	1	5	5	8	9	4	2	7	3	2	–	5	1	–	2	–	61
Meningococcal septicaemia	–	3	–	–	5	–	1	1	2	1	1	1	3	2	–	–	–	20
Mycobacterial atypical	8	28	2	71	24	6	13	8	32	3	22	3	35	12	6	18	–	292
Mycobacterial infection (NOS)	4	5	–	1	–	–	4	1	4	–	4	–	19	2	–	7	–	51
Mycobacterial tuberculosis	4	21	1	16	8	5	4	3	33	1	33	3	92	3	4	69	–	300
Q fever	–	1	9	–	12	4	40	28	–	17	–	2	1	–	46	1	–	161
Salmonella infection	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Syphilis infection	5	53	11	141	15	13	58	40	33	6	41	3	99	14	96	43	–	671

TABLE 12

VACCINE PREVENTABLE AND RELATED CONDITIONS, CUMULATIVE NOTIFICATIONS FOR NSW, 1995 BY PUBLIC HEALTH UNIT, RECEIVED BY OCTOBER 31, 1995

	PUBLIC HEALTH UNIT																
Condition	**CCA**	**CSA**	**CW**	**ESA**	**HUN**	**ILL**	**NC**	**ND**	**NSA**	**SE**	**SSA**	**SW**	**SWS**	**WEN**	**WN**	**WSA**	**Total**
Adverse event after immunisation	–	–	–	1	1	–	6	2	–	5	3	4	–	4	–	3	29
H. influenzae epiglottitis	–	–	1	1	–	–	1	–	–	–	1	–	–	–	1	–	5
H. influenzae infection (NOS)	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	2
H. influenzae meningitis	–	1	–	–	–	–	3	–	–	–	–	–	1	1	–	3	9
H. influenzae septicaemia	–	–	–	–	1	–	1	–	1	–	1	–	1	–	–	1	6
Measles	13	26	12	54	55	66	43	46	13	6	38	10	38	37	7	49	513
Mumps	–	–	–	1	–	2	2	–	2	–	–	–	–	–	–	2	9
Pertussis	35	19	18	25	56	79	293	15	83	25	48	61	67	98	11	96	1,029
Rubella	28	43	114	24	67	39	120	20	53	5	32	4	18	29	25	92	713

TABLE 13

FOODBORNE INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR NSW, 1995 BY PUBLIC HEALTH UNIT, RECEIVED BY OCTOBER 31, 1995

	PUBLIC HEALTH UNIT																
Condition	**CCA**	**CSA**	**CW**	**ESA**	**HUN**	**ILL**	**NC**	**ND**	**NSA**	**SE**	**SSA**	**SW**	**SWS**	**WEN**	**WN**	**WSA**	**Total**
Foodborne illness (NOS)	16	9	3	3	188	–	3	3	4	–	1	8	70	–	23	22	353
Gastroenteritis (instit.)	7	155	–	–	132	–	47	–	132	1	141	–	–	206	2	181	1,004
Hepatitis A – acute viral	8	51	34	127	22	9	25	3	41	–	28	10	34	3	3	26	424
Listeriosis	–	1	1	3	–	–	–	1	1	1	–	–	–	–	–	1	9
Salmonella (NOS)	20	41	20	71	68	53	106	58	103	37	90	24	87	52	34	103	967
Typhoid and paratyphoid	–	2	–	8	–	–	3	–	4	–	5	–	4	1	–	4	31
Vibrio infection (non cholera)	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1

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, NC North Coast Public Health Unit, ND Northern District Public Health Unit, WN Western New South Wales Public Health Unit, CW Central West Public Health Unit, SW South West Public Health Unit, SE South East Public Health Unit, 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.