COMMUNICABLE DISEASES, NSW: NOVEMBER 2000

TRENDS

Notifications of cases of **pertussis (whooping cough)** have continued to increase with the onset of spring (see below), prompting the Chief Health Officer to write to doctors in NSW urging diagnostic vigilance, early treatment, and notification of cases to public health units. Reports of **meningococcal disease** also increased through winter and early spring in line with seasonal expectations. New **fact sheets** on both these diseases are now available on the internet at www.health. nsw.gov.au/health-public-affairs/factsheets, and this issue of the Bulletin also contains a fact sheet on pertussis.

Reports of **influenza** declined in the later half of September, following a peak in both influenza isolates reported from major laboratories in NSW (Figure 7) and in reports of influenza-like illness from sentinel general practitioners in the first half of September. Influenza A has been the most common influenza virus isolated this season, although influenza B has been persistently reported in low numbers. Of the influenza A viruses, the A/Sydney-like (H3N2) strain still predominates.

NEW RECOMMENDATIONS FOR TREATING PERTUSSIS

The soon-to-be-released 11th Edition of the *Therapeutic Guidelines: Antibiotics*, published by Therapeutic Guidelines Limited, Melbourne has new recommendations for treating pertussis. These include the administration of erythromycin to patients for seven days, rather than 10 to 14 days as previously recommended. These recommendations are based on data from a Canadian study that indicated treatment for seven days was as effective as 14 days for the eradication of *Bordetella pertussis*, the bacteria that causes whooping cough.[1]

The NSW Department of Health convened an expert group that endorsed these guidelines in light of the growing pertussis epidemic in this State (see *NSW Public Health Bulletin* 2000; 11: 174). Anecdotal evidence suggests that poor compliance with a such a long course of antibiotics is likely to be a barrier in the effective control of pertussis, and that a shorter course of therapy, if effective, may improve compliance rates.

The new recommendation for the treatment of pertussis cases and their contacts is erythromycin (40–50mg/kg per day orally in four divided doses, up to a maximum of 1g per day) given for seven days. If erythromycin cannot be tolerated, trimethoprim-sulfamethoxazole or roxithromycin given for seven days are possible, although unproven, alternatives.

OUTBREAK OF INFUENZA-LIKE ILLNESS ON BOARD A CRUISE SHIP

On Thursday 7 September 2000, the South Eastern Sydney Area Health Service received a report from a cruise ship company that a person travelling on one of their cruise ships had been diagnosed with Legionnaires disease. The ship had left Sydney for a routine cruise in August 2000 bound for Noumea and other islands. Five people had been taken off the ship with illness in Noumea. One of these people subsequently died. Two others were diagnosed with Legionnaires disease by doctors in Noumea. The ship was due to arrive back in Sydney on Saturday 9 September.

The NSW Department of Health immediately assembled a team to investigate this problem. The doctors in Noumea were asked to send additional specimens from the people in hospital to Sydney for further testing. In the meantime, the NSW Department of Health provided information for the ship's passengers and crew, and organised for a team of five experts in epidemiology (including two doctors) and environmental health to meet the ship 10 hours before it docked in Sydney.

The team undertook an investigation on board the ship that included a review of medical records, and a study of some 50 passengers who had attended the ship's clinic because of flu-like illness. Fifty other passengers and 50 crew members were also studied as comparison groups. Throat, urine and blood samples were collected from most of these passengers and crew. The team also evaluated any environmental risks on board. Interviews with passengers and crew indicated that there was a peak in the onset of illness which occurred about 2–3 days into the cruise.

When the ship disembarked in Sydney, seven passengers were taken to hospital, some of whom had chest infections. All were subsequently discharged. As of 21 September the Department has received reports that eight other passengers with chest infections were admitted to hospital. One of these had died of heart disease, six others had been discharged and one remained in hospital.

The investigation by the NSW Department of Health is continuing. The environmental evaluation of the ship found no likely source of Legionnaires disease. All water samples taken on board the ship have been negative for the bacteria that causes Legionnaires disease. As an added precaution, the ship's water supply was disinfected.

So far no person who was on the ship has tested positive for Legionnaires disease from the tests conducted in Sydney. However, a significant number of passengers and

some crew have tested positive for the influenza virus. Further tests are being undertaken in the two people initially thought to have Legionnaires disease. Further serological tests are being done on the approximately 100 passengers involved in the initial health study on board the ship, and a follow-up questionnaire has been sent to all the passengers to determine the extent of illness associated with the cruise. Due to the nature of these and other tests, results are unlikely to be finalised for some weeks.

The evidence indicates that Legionnaires disease is not the cause of the outbreak of illness among the passengers. The most likely explanation is influenza (the flu) brought onto the ship by people boarding in Sydney. Influenza is caused by a virus that is easily passed from person-to-person (rather than from the environment) by coughing and sneezing. Older persons, and people with other underlying medical conditions (especially of the chest, heart or immune system) are at increased risk of severe complications, such as pneumonia or heart failure, if they catch influenza. There was a high proportion of people with underlying medical conditions on the ship. Further, influenza was common in many parts of Australia in August and September.

MENINGOCOCCAL DISEASE

Meningococcal disease is an uncommon but serious illness. In NSW approximately 200 cases are diagnosed each year. While it can affect any age group, the highest rates of disease are seen in young children and young adults. Cases are more common in winter and early spring.

The early treatment of suspected cases is the key to the prevention of serious complications.

Diagnosis can be difficult, but should be considered in patients presenting with a combination of symptoms. Early signs and symptoms may include fever, headache, vomiting and neck stiffness. Other features may include: a skin rash, photophobia, drowsiness, confusion, joint pain, fitting and coma.

Clinical features may vary over time, and may be altered by medications. Even where the diagnosis is considered unlikely, it is prudent to inform the patient and their family or friends of clinical changes that should necessitate a medical review.

Suspected cases should be treated with benzyl-penicillin (100 000U [60 mg]/kg up to 4 grams, IVI stat) or ceftriaxone (50 mg/kg IVI stat for adults or 100 mg/kg IVI stat for children) before they are transported to hospital. Only where it is not possible to administer treatment intravenously should intramuscular therapy be used. Specimens for blood, cerebro-spinal fluid and throat cultures are important to assist with diagnosis, but their collection should not delay treatment.

All suspected cases should be notified by telephone to the local public health unit. Public health unit staff will help identify and arrange for the education and administration of prophylaxis for close contacts of cases who may be at increased risk for infection.

AN OUTBREAK OF LEPTOSPIROSIS FOLLOWING AN INTERNATIONAL SPORTS RACE

Melanie Boomer
NSW Public Health Officer Training Program

In early September, the United States Centers for Disease Control and Prevention (CDC) alerted the Commonwealth Department of Health and Aged Care to a cluster of febrile illness among participants of the Eco Challenge Race that was held in Sabah, Malaysia from 20 August to 3 September 2000. This event attracted participants from around the world, including three teams from Australia, which comprised 12 people from NSW, Victoria, Queensland and Tasmania. The event involved jungle trekking, open water swimming, river and ocean paddling, mountain biking, canyoneering, scuba diving, and caving. Serum and urine specimens were obtained from two hospitalised athletes in Los Angeles which showed leptospirosis infection.

Leptospirosis is a bacterial disease characterised by acute onset of high fever, chills, headache and severe muscle aches, particularly in the calves and thighs, which affects humans and animals.[2] Infection in humans occurs primarily through contact of the skin (especially if abraded) or mucous membranes with water, soil or vegetation contaminated with the urine of infected animals. Infection can also occur through direct contact with the urine or tissues of infected animals, and occasionally through ingestion of food contaminated with the urine of infected rats.[3] Outbreaks of leptospirosis can occur among people exposed to fresh water in lakes, rivers, streams and canals contaminated by the urine of infected animals.[3] The incubation period is usually 10 days, with a range of four to 19 days.[2] Clinical illness can last from three days to three weeks or longer. Severe cases can result in haemolytic anaemia, hepato-renal failure, jaundice, mental confusion and depression, myocarditis and pulmonary involvement.[2] Transmission from person to person is rare, but infection in pregnancy can result in the infection of and damage to the foetus and spontaneous abortion.[3]

Leptospirosis infection can be treated with a number of antibiotics.[3] While spontaneous remission in mild cases occurs, the case-fatality can be as high as 20 per cent in

patients who develop jaundice or kidney damage and who are not treated. Death is due to damage to vital organs caused by the leptospires.[2,3] Prophylactic treatment with doxycycline has been shown to be effective in people at risk of exposure to leptospirosis,[3] such as the Eco Challenge participants.

Leptospirosis is a notifiable disease in Australia. In NSW in 1999, 55 cases of leptospirosis were notified, predominantly reported from the Northern Rivers and Mid North Coast Areas. Occupational infection is the primary mode of infection in Australia, with workers from rice fields, sugar cane fields and abattoirs being most affected.

In response to a request for assistance from CDC, via the Commonwealth Department of Health and Aged Care, four NSW Eco Challenge race participants were contacted. Each participant was advised of the outbreak of illness among race participants, interviewed regarding their symptoms and exposure, and given information relating to the symptomatology and treatment for the illness. All NSW race participants were asymptomatic at the time of interview, which occurred three weeks after the race concluded. All reported that they had taken doxycycline as prophylaxis for malaria while participating in the race, at doses higher than required for prevention of leptospirosis infection.

The public health significance of this outbreak of leptospirosis is twofold. First, the risk of leptospirosis infection for the Eco Challenge race participants was high, due to the likelihood of coming into contact with contaminated water sources with poor skin integrity (skin abrasions were common due to the activities undertaken). Second, leptospirosis infection is commonly misdiagnosed due to the non-specificity of the symptoms. While the illness can be self-limiting, prompt treatment with antibiotics is recommended, as severe cases can lead to irreversible damage to vital organs due to infiltration of the leptospires. The risk to the foetus from leptospirosis infection during pregnancy is a further reason to encourage prevention and early treatment where possible.

The investigation initiated by the CDC was primarily to advise race participants of their risk and identify cases of leptospirosis infection to increase early treatment seeking and to avoid the complications of severe untreated disease. The CDC study is aimed at furthering the knowledge of leptospirosis infection. Control and prevention of leptospirosis is complicated by the possible transmission of the disease through wild animal hosts, such as rats. Preventive measures for people exposed to occupational risk, such as farmers and abbatoir workers, include protective clothing and eyewear and ensuring any skin abrasions are covered.[3] Adventure travellers may be exposed to contaminated water sources through sporting activities such as rafting. In these cases prophylactic treatment is advised.[3]

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The *Bulletin* aims to provide its readers with population health data and information to support effective public health action.

Submission of articles

Articles, news and comments should be 1000 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 in the Vancouver style, described in the *New England Journal of Medicine*, 1997; 336: 309–315. Send submitted articles on paper and in electronic form, either on disc (Word for Windows is preferred), or by email. The article must be accompanied by a letter signed by all authors. Full instructions for authors are available on request from the managing editor.

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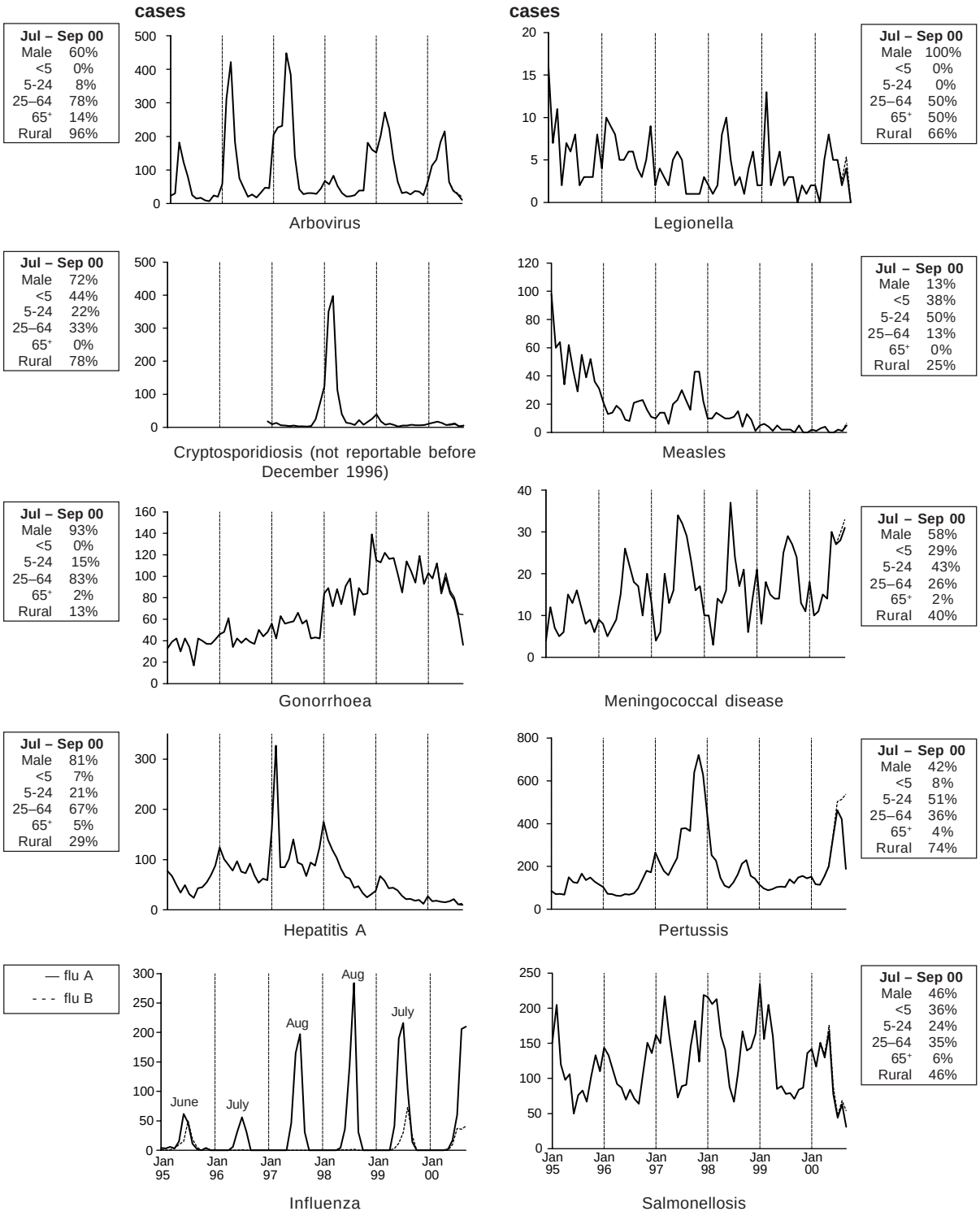
FIGURE 7

REPORTS OF SELECTED COMMUNICABLE DISEASES, NSW, JANUARY 1995 TO SEPTEMBER 2000, BY MONTH OF ONSET

These are preliminary data: case counts for recent months may increase because of reporting delays. Laboratory-confirmed cases, except for measles, meningococcal disease and pertussis — actual — predicted after adjusting for likely reporting delays

NSW population	
Male	50%
<5	7%
5–24	28%
25–64	52%
65+	13%
Rural*	42%



* For definition, see *NSW Public Health Bulletin*, April 2000

TABLE 10 REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN AUGUST 2000 BY AREA HEALTH SERVICES

Condition	Area Health Service (2000)																		Total	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	CHS	for Aug†	To date†
Blood-borne and sexually transmitted																				
AIDS	2	-	2	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	7	80
HIV infection*	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	205
Hepatitis B - acute viral*	-	-	-	6	1	-	-	-	-	1	1	1	-	-	-	-	-	-	10	58
Hepatitis B - other*	28	23	55	-	75	3	5	8	34	-	1	7	-	1	5	2	1	8	257	2,705
Hepatitis C - acute viral*	-	1	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	1	5	70
Hepatitis C - other*	45	28	55	37	60	21	28	21	76	29	24	10	12	11	7	8	18	69	569	5,607
Hepatitis D - unspecified*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5
Hepatitis, acute viral (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chancroid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlamydia (genital)*	45	29	27	6	16	5	24	11	58	14	26	20	6	12	7	12	13	-	332	2,043
Gonorrhoea*	19	2	5	1	1	2	-	-	33	1	2	2	-	1	-	-	-	-	69	755
Syphilis	11	-	10	3	7	-	-	1	17	2	-	2	1	2	1	1	-	1	59	371
Vector-borne																				
Arboviral infection (BFV)*	-	-	1	-	-	-	3	1	-	2	11	-	-	-	-	-	-	-	18	147
Arboviral infection (RRV)*	-	-	-	-	1	1	6	1	-	4	2	1	1	2	2	1	-	-	22	643
Arboviral infection (Other)*	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	26
Malaria*	2	2	2	2	11	-	1	-	1	-	-	-	-	-	-	1	1	-	23	173
Zoonoses																				
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Leptospirosis*	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	3	35
Q fever*	-	-	1	-	-	-	1	-	-	4	1	-	3	1	1	-	-	-	12	73
Respiratory and other																				
Blood lead level*	3	-	-	1	15	-	4	-	2	1	-	-	1	-	29	-	1	-	57	730
Legionnaires' Longbeachae*	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2	7
Legionnaires' Pneumophila*	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	21
Legionnaires' (Other)*	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	4
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Meningococcal infection (invasive)	3	-	3	1	4	-	1	5	4	1	-	-	3	-	-	1	-	-	26	153
Mycobacterial tuberculosis	3	2	9	-	3	-	-	-	12	-	-	-	-	-	-	-	-	-	29	266
Mycobacteria other than TB	8	3	-	-	2	-	-	3	4	1	2	-	-	1	-	2	-	-	26	248
Vaccine-preventable																				
Adverse event after immunisation	2	-	2	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	7	13
H.influenzae b infection (invasive)*	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2	5
Measles	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	13
Mumps*	2	3	3	-	1	1	-	-	1	-	1	-	-	-	-	1	-	-	13	71
Pertussis	14	22	23	21	32	24	225	9	29	25	4	20	28	49	-	36	31	-	592	1,871
Rubella*	1	2	2	-	-	-	-	1	4	-	-	-	-	1	-	-	2	-	14	50
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Faecal-oral																				
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cryptosporidiosis*	-	-	-	2	-	-	-	-	1	1	-	-	-	-	-	-	-	-	4	83
Giardiasis*	5	4	6	4	5	-	3	-	15	11	3	3	4	1	-	3	-	-	67	682
Food borne illness (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111
Gastroenteritis (in an institution)	57	-	16	-	-	-	34	-	-	-	-	-	-	-	-	-	-	-	107	305
Haemolytic uraemic syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Hepatitis A*	2	2	6	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	14	145
Hepatitis E*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Listeriosis*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8
Salmonellosis (not otherwise specified)*	1	8	-	1	7	5	2	1	6	7	-	2	2	2	-	4	1	-	49	926
Typhoid and paratyphoid*	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	33
Verotoxin producing Ecoli*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* lab-confirmed cases only † includes cases with unknown postcode

CSA = Central Sydney Area
NSA = Northern Sydney Area
WSA = Western Sydney Area
WEN = Wentworth Area
SWS = South Western Sydney Area
CCA = Central Coast Area
HUN = Hunter Area
ILL = Illawarra Area
SES = South Eastern Sydney Area
NRA = Northern Rivers Area
MNC = Mid North Coast Area
NEA = New England Area
MAC = Macquarie Area
MWA = Mid Western Area
FWA = Far West Area
GMA = Greater Murray Area
SA = Southern Area
CHS = Corrections Health Service

TABLE 11 REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN SEPTEMBER 2000 BY AREA HEALTH SERVICES

Condition	Area Health Service (2000)																		Total	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	CHS	for Sept†	To date†
Blood-borne and sexually transmitted																				
AIDS	-	-	-	-	-	-	-	-	15	2	-	-	-	-	-	-	-	-	18	96
HIV infection*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	226
Hepatitis B - acute viral*	-	2	1	-	-	-	2	-	3	-	-	1	-	-	-	2	-	-	11	69
Hepatitis B - other*	66	53	66	13	50	5	5	9	57	-	-	3	-	1	2	1	5	9	352	3,081
Hepatitis C - acute viral*	-	3	-	-	-	-	-	-	1	1	-	-	-	1	-	-	-	1	7	88
Hepatitis C - other*	78	39	102	32	31	44	59	31	103	28	27	13	4	15	7	13	9	67	709	6,356
Hepatitis D - unspecified*	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2	9
Hepatitis, acute viral (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Chancroid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlamydia (genital)*	30	35	31	12	6	11	32	12	69	16	14	5	4	11	6	5	7	-	308	2,365
Gonorrhoea*	15	3	1	1	2	3	2	1	37	2	-	-	-	2	1	-	-	-	70	825
Syphilis	5	2	8	1	8	2	1	-	3	1	1	-	1	1	3	-	-	2	39	403
Vector-borne																				
Arboviral infection (BFV)*	-	-	-	-	-	-	-	2	-	2	4	-	-	-	-	-	1	-	9	156
Arboviral infection (RRV)*	-	-	-	-	-	-	2	-	1	-	1	-	-	1	2	-	-	-	7	686
Arboviral infection (Other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26
Malaria*	-	4	-	2	3	-	4	-	2	3	-	-	-	1	-	-	-	-	20	194
Zoonoses																				
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Leptospirosis*	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	37
Q fever*	-	-	-	-	-	-	-	-	-	2	3	-	2	2	2	-	1	-	12	85
Respiratory and other																				
Blood lead level*	-	4	-	-	9	1	5	3	1	-	1	1	-	-	3	-	-	-	28	766
Legionnaires' Longbeachae*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8
Legionnaires' Pneumophila*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Legionnaires' (Other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Meningococcal infection (invasive)	3	3	2	2	4	3	-	2	3	1	-	-	1	3	1	1	3	-	33	184
Mycobacterial tuberculosis	1	7	1	1	3	-	1	-	11	-	-	-	-	1	-	-	-	-	26	297
Mycobacteria other than TB	10	5	-	1	-	-	7	-	1	2	2	-	-	-	-	-	2	-	30	279
Vaccine-preventable																				
Adverse event after immunisation	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	3	15
H.influenzae b infection (invasive)*	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	2	7
Measles	-	1	-	-	1	-	-	-	1	-	-	-	-	-	1	1	-	-	5	18
Mumps*	-	1	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	4	75
Pertussis	8	13	21	10	28	15	139	5	23	8	21	8	15	61	-	18	7	-	400	2,282
Rubella*	-	-	2	-	1	-	6	-	10	1	-	-	-	-	-	-	-	-	20	71
Tetanus-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Faecal-oral																				
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cryptosporidiosis*	-	-	-	-	-	-	-	1	-	2	-	2	-	-	-	-	-	-	5	88
Giardiasis*	2	5	7	4	4	6	3	3	6	7	5	4	4	-	-	3	1	-	64	749
Food borne illness (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145
Gastroenteritis (in an institution)	50	-	6	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	58	383
Haemolytic uraemic syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Hepatitis A*	-	-	1	1	2	1	3	-	2	-	-	1	-	1	-	-	1	1	15	160
Hepatitis E*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Listeriosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Salmonellosis (not otherwise specified)*	4	7	15	3	2	2	3	3	8	5	3	2	-	1	2	2	-	-	64	991
Typhoid and paratyphoid*	2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	4	39
Verotoxin producing Ecoli*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1

* lab-confirmed cases only † includes cases with unknown postcode

CSA = Central Sydney Area
NSA = Northern Sydney Area
WSA = Western Sydney Area
WEN = Wentworth Area
SWS = South Western Sydney Area
CCA = Central Coast Area
HUN = Hunter Area
ILL = Illawarra Area
SES = South Eastern Sydney Area
NRA = Northern Rivers Area
MNC = Mid North Coast Area
NEA = New England Area
MAC = Macquarie Area
MWA = Mid Western Area
FWA = Far West Area
GMA = Greater Murray Area
SA = Southern Area
CHS = Corrections Health Service