

Communicable diseases surveillance

Highlights for 4th quarter, 2008

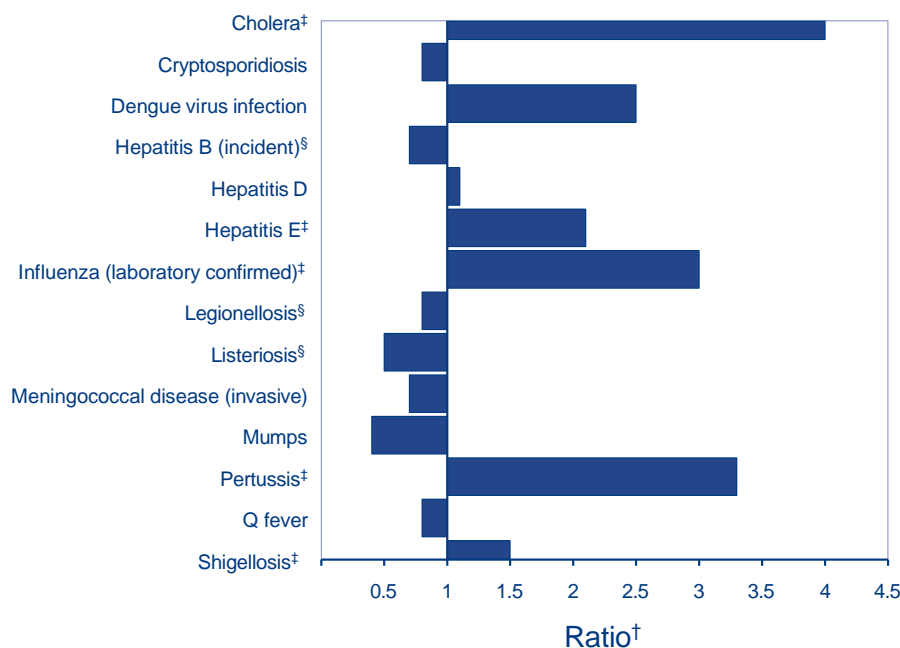
Communicable diseases surveillance highlights report on data from various sources, including the National Notifiable Diseases Surveillance System (NNDSS) and several disease specific surveillance systems that provide regular reports to Communicable Diseases Intelligence. These national data collections are complemented by intelligence provided by state and territory communicable disease epidemiologists and/or data managers. This additional information has enabled the reporting of more informative highlights each quarter.

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia. NNDSS collates data on notifiable communicable diseases from state and territory health departments. The Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme which collates information on laboratory diagnosis of communicable diseases. In this report, data from the NNDSS are referred to as 'notifications' or 'cases' while data from the LabVISE scheme are referred to as 'laboratory reports'.

Figure 1 shows the changes in selected disease notifications to the National Notifiable Diseases Surveillance System (NNDSS) with a diagnosis in the 4th quarter (October to December) 2008, in comparison with the 5-year mean for the same period. Notifications were above the 5-year mean for the same period and exceeded 2 standard deviations

for: cholera, hepatitis E, influenza (laboratory confirmed), pertussis and shigellosis. Notifications were below the 5-year mean by more than 2 standard deviations for: hepatitis B (incident), legionellosis, listeriosis and tetanus.

Figure 1. Selected diseases* from the National Notifiable Diseases Surveillance System, comparison of provisional totals for the period 1 October to 31 December 2008 with historical data†



* Selected diseases are chosen each quarter according to current activity. Five year averages and the ratios of notifications in the reporting period in the 5-year mean should be interpreted with caution. Changes in surveillance practice, diagnostic techniques and reporting, may contribute to increases or decreases in the total notifications received over a 5-year period. Ratios are to be taken as a crude measure of current disease activity and may reflect changes in reporting rather than changes in disease activity.

† Ratio of current quarter total to mean of corresponding quarter for the previous 5 years.

‡ Where the number of notifications of the current quarter exceeds the mean of the corresponding quarter for the previous 5 years by more than 2 standard deviations.

§ Where the number of notifications of the current quarter is below the mean of the corresponding quarter for the previous 5 years by more than 2 standard deviations.

Gastrointestinal diseases

Hepatitis E

Between 1 October and 31 December 2008, there were 8 notifications of hepatitis E in Australia, 2.1 times the 5-year mean of 4 notifications for the same period. Hepatitis E cases in Australia are commonly imported, and all of the 8 notifications of hepatitis E in Australia during the quarter were overseas acquired.

Shigellosis

Between 1 October and 31 December 2008, there were 206 notifications of shigellosis in Australia, a 27% increase over the number reported during the same quarter of 2007 (162 notifications), and 1.5 times the 5-year mean of 134 notifications for the same period.

The highest notification rate was in the Northern Territory, where 44 cases were notified during the quarter, for an annualised rate of 81.9 cases per 100,000 population, compared with annualised rates of less than 6.0 cases per 100,000 population in each of the other jurisdictions during the quarter. Notification rates for shigellosis in the Northern Territory are usually high compared with other Australian states and territories, with an annual rate of 80.5 cases per 100,000 population in 2007 compared with 2.8 cases per 100,000 population nationwide.¹

Continuing clusters of shigellosis during the 4th quarter of 2008 contributed to the observed increase in notifications compared with previous years. These clusters were reported from 3 states (Queensland, New South Wales and Victoria) amongst adult men who frequently report sex with other men as a risk factor.

Quarantinable diseases

Cholera

Between 1 October and 31 December 2008, there were 4 notifications of cholera, which was 4 times the 5-year mean of 1 notification for the same period. Two of these cases were reported from New South Wales and two from Western Australia. All of these cases were acquired overseas, two in India and one each in the Philippines and Singapore.

Vaccine preventable diseases

Influenza (laboratory confirmed)

Laboratory-confirmed influenza is a nationally notifiable disease in all states and territories in Australia. Data are reported from state and territory health departments to the NNDSS.

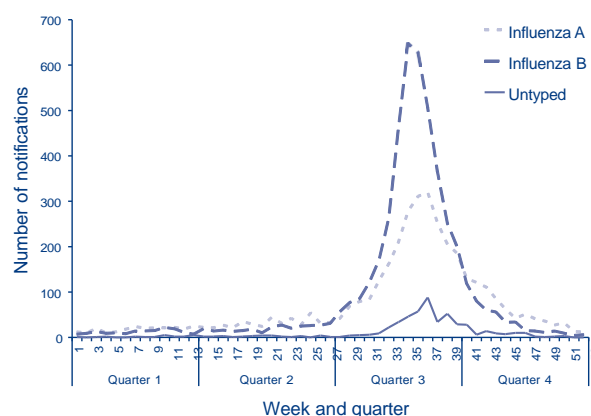
The influenza 2008 season commenced approximately 5 weeks late compared with the 2007 season. During the 4th quarter of 2008, notifications declined from the seasonal peak in week 36 and returned to baseline levels.

The total number of laboratory-confirmed influenza notifications to NNDSS for the 4th quarter was 1,545 cases (approximately 17% of year-to-date notifications). The majority of notifications during this quarter were from New South Wales with 429 cases (28%) and Queensland with 383 cases (25%).

Notifications in the 4th quarter of 2008 were 3 times the 5-year mean for the same period, this is due to the approximate 5-week delay in the start and end of the season and overall high seasonal numbers in 2008 (1.9 times the 5-year mean).

During the first 2 quarters of 2008, influenza notifications to NNDSS were predominantly type A while during the third quarter, notifications were predominantly type B. As overall notifications continued to decline during the 4th quarter (week 40 onwards), there appeared to be an increase in the predominance of type A (Figure 2) as type B notifications decreased more rapidly.

Figure 2. Typing characteristics of notifications of laboratory-confirmed influenza to the National Notifiable Diseases Surveillance System, Australia, 1 January to 31 December 2008, by week of diagnosis



Most jurisdictions experienced a slight increase in notifications between weeks 44 and 49. South Australia had a significant increase during week 44, followed by a decline, and another slight increase in week 48. The Northern Territory experienced an increase in notifications in weeks 46 and 47, Tasmania in week 46, Victoria in week 47 and Western Australia in week 49.

Pertussis

Between 1 October and 31 December 2008, 7,050 cases of pertussis were reported to the NNDSS. The majority of cases were reported in New South Wales ($n=4,424$) followed by Queensland ($n=1,017$) and Victoria ($n=571$), with South Australia ($n=560$), Western Australia ($n=177$), the Northern Territory ($n=122$), Tasmania ($n=115$) and the Australian Capital Territory ($n=64$) also reporting cases in this quarter. Case numbers in the 4th quarter (Q4) were 4.7 times more than in the same period in 2007 ($n=1,487$) and 3.3 times the 5-year mean for this period. Pertussis notifications in Q4 made up 50% of the total notifications in 2008 with numbers increasing with each quarter as follows Q1 (1,538 cases), Q2 (2,032 cases), Q3 (3,498 cases). The annualised notification rate for this quarter of 134 cases per 100,000 population was significantly higher than for the same period in 2007 (28 cases per 100,000). Fifty-six per cent of cases in Q4 were female ($n=3,928$) and 44% were male ($n=3,111$).

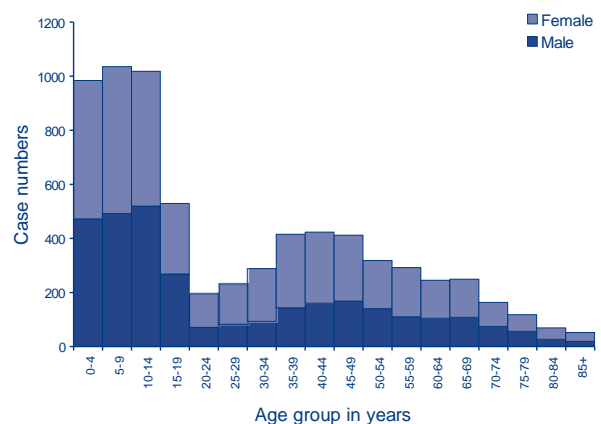
The total number of cases with a diagnosis date in 2008 was 14,118, which exceeded both the same period in 2007 ($n=5,333$) and the year-to-date 5-year mean ($n=8,274$).

A high proportion (29%) of the total case numbers in this quarter were aged between 0 and 9 years. Of these, there were 985 cases (14% of the total) in the 0–4 years age group, which can be further broken down to show 224 cases (3% of the total) in the 0–6 month age group and 219 cases (3% of the total) in the 7–23 months age group with 542 cases (or 8% of the total) in the 2–4.9 years age group. There were another 1,039 cases (15%) in the 5–9 year age group (Figure 3). Other key age groups include those aged 15–19 years (who under the National Immunisation Program are recommended to receive a booster dose of dTpa) where an additional 530 cases (18%) were reported; and the traditional child bearing 20–44 years in which 1,558 cases (22%) were reported.

Vectorborne diseases

Mosquito-borne diseases under national surveillance in Australia include alphaviruses (Barmah Forest virus and Ross River virus), flaviviruses (den-

Figure 3. Pertussis notifications, Australia, 1 October to 31 December 2008, by sex and age group



gue virus, Japanese encephalitis, Kunjin, Murray Valley encephalitis, yellow fever), arbovirus not elsewhere classified, and malaria.

Dengue virus infection

Dengue virus infection presents as an acute febrile illness of sudden onset and characterised by fever (biphasic), intense headache, myalgia, particularly backache, arthralgia, retro-orbital pain, anorexia, vomiting, diarrhoea gastrointestinal disturbance and rash. Dengue virus (DENV) has 4 serotypes: 1, 2, 3 and 4.²

On 1 December 2008 Queensland Health declared an outbreak of dengue serotype 3 in Cairns. The outbreak began after a resident who had visited Kalimantan, Indonesia returned to the city. Of the 198 cases of dengue virus infection reported during the quarter, 111 were overseas acquired cases and 87 were locally acquired in the Cairns outbreak. At the time of writing, the number of cases of locally acquired dengue in Cairns (serotype 3) since the outbreak was declared on 1 December 2008, has risen to over 300 and a further 2 outbreaks have been reported in Townsville. Of the 55 cases reported in Townsville since 1 January 2009, 40 cases were infected with serotype 1, 11 cases were infected with serotype 3 and four are unknown. More severe forms of the disease dengue haemorrhagic fever/dengue shock syndrome (DHF/DSS) occur when someone who has been infected at some time in the past becomes infected with a virus of a different serotype. DHF/DSS occurs most frequently in infants and young children. Having 2 strains of the virus circulating in Townsville increases the risk of a case of DHF/DSS.

Queensland health authorities are experienced in responding to outbreaks of the disease and have

implemented the Dengue Fever Management Plan. A major focus of the response is raising public awareness of the need for all members of the public to take responsibility for reducing mosquito breeding opportunities around their homes and for those people living in areas where dengue fever is known to occur to seek medical advice if feeling unwell.

State Emergency Service volunteers have door knocked house to house in Cairns warning residents about the dangers of dengue fever. The Queensland Government has also distributed free insect repellent to all schools in Cairns and Townsville.

Outbreaks of dengue in north Queensland are not unprecedented; in 2003 and 2004 there were over

700 cases of locally acquired dengue reported in Queensland and in 1998 over 500 cases of dengue recorded.

Acknowledgements

Thanks go to staff of the Surveillance Branch of the Australian Government Department of Health and Ageing and all our state and territory data managers.

References

1. The OzFoodNet Working Group. Monitoring the incidence and causes of diseases potentially transmitted by food in Australia: Annual report of the OzFoodNet Network, 2007. *Commun Dis Intell* 2008;32:400–424.
2. Heymann DL, ed. *Control of Communicable Diseases Manual*. 18th edn. Washington: American Public Health Association; 2004.

Tables

National Notifiable Diseases Surveillance System

A summary of diseases currently being reported by each jurisdiction is provided in Table 1. There were 42,693 notifications to the National Notifiable Diseases Surveillance System (NNDSS) with a notification received date between 1 October to 31 December 2008 (Table 2). The notification rate of diseases per 100,000 population for each state or territory is presented in Table 3.

Table 1. Reporting of notifiable diseases by jurisdiction

Disease	Data received from:
Bloodborne diseases	
Hepatitis (NEC)	All jurisdictions
Hepatitis B (incident)	All jurisdictions
Hepatitis B (unspecified)	All jurisdictions
Hepatitis C (incident)	All jurisdictions except Queensland
Hepatitis C (unspecified)	All jurisdictions
Hepatitis D	All jurisdictions
Gastrointestinal diseases	
Botulism	All jurisdictions
Campylobacteriosis	All jurisdictions except New South Wales
Cryptosporidiosis	All jurisdictions
Haemolytic uraemic syndrome	All jurisdictions
Hepatitis A	All jurisdictions
Hepatitis E	All jurisdictions
Listeriosis	All jurisdictions
Salmonellosis	All jurisdictions
Shigellosis	All jurisdictions
STEC, VTEC	All jurisdictions
Typhoid	All jurisdictions
Quarantinable diseases	
Cholera	All jurisdictions
Highly pathogenic avian influenza in humans	All jurisdictions
Plague	All jurisdictions
Rabies	All jurisdictions
Severe acute respiratory syndrome	All jurisdictions
Smallpox	All jurisdictions
Viral haemorrhagic fever	All jurisdictions
Yellow fever	All jurisdictions
Sexually transmissible infections	
Chlamydial infection	All jurisdictions
Donovanosis	All jurisdictions
Gonococcal infection	All jurisdictions
Syphilis (all)	
Syphilis <2 years duration	All jurisdictions
Syphilis >2 years or unspecified duration	All jurisdictions except South Australia
Syphilis - congenital	All jurisdictions

Table 1. Reporting of notifiable diseases by jurisdiction, continued

Disease	Data received from:
Vaccine preventable diseases	
Diphtheria	All jurisdictions
<i>Haemophilus influenzae</i> type b	All jurisdictions
Influenza (laboratory confirmed)*	All jurisdictions
Measles	All jurisdictions
Mumps	All jurisdictions
Pertussis	All jurisdictions
Pneumococcal disease (invasive)	All jurisdictions
Poliomyelitis	All jurisdictions
Rubella	All jurisdictions
Rubella - congenital	All jurisdictions
Tetanus	All jurisdictions
Varicella zoster (chickenpox)	All jurisdictions except New South Wales
Varicella zoster (shingles)	All jurisdictions except New South Wales
Varicella zoster (unspecified)	All jurisdictions except New South Wales
Vectorborne diseases	
Arbovirus infection (NEC)†	All jurisdictions
Barmah Forest virus infection	All jurisdictions
Dengue virus infection	All jurisdictions
Japanese encephalitis virus infection	All jurisdictions
Kunjin virus infection	All jurisdictions
Malaria	All jurisdictions
Murray Valley encephalitis virus infection	All jurisdictions
Ross River virus infection	All jurisdictions
Zoonoses	
Anthrax	All jurisdictions
Australian bat lyssavirus	All jurisdictions
Brucellosis	All jurisdictions
Leptospirosis	All jurisdictions
Lyssaviruses (NEC)	All jurisdictions
Ornithosis	All jurisdictions
Q fever	All jurisdictions
Tularaemia	All jurisdictions
Other bacterial infections	
Legionellosis	All jurisdictions
Leprosy	All jurisdictions
Meningococcal infection	All jurisdictions
Tuberculosis	All jurisdictions

* Notifiable in South Australia as of 1 May 2008.

† Flavivirus (NEC) replaced Arbovirus (NEC) from 1 January 2004. Arbovirus (NEC) replaced Flavivirus (NEC) from 2008.

NEC Not elsewhere classified.

Table 2. Notifications of diseases received by state and territory health authorities in the period 1 October to 31 December 2008, by date of diagnosis*

Disease	State or territory								Total 4th quarter 2008 [†]	Total 3rd quarter 2008	Total 4th quarter 2007	Last 5 years mean 4th quarter	Year to date 2008	Last 5 years YTD mean	Ratio [‡]
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA							
Bloodborne diseases															
Hepatitis (NEC)	0	0	0	0	0	0	2	0	2	0	0	0.0	2	0.2	0.0
Hepatitis B (incident)	0	11	2	8	1	2	20	2	46	75	72	67.0	245	293.8	0.7
Hepatitis B (unspecified)	11	498	59	244	89	11	447	162	1,521	1,921	1,624	1,520.0	6,812	6,205.6	1.0
Hepatitis C (incident)	0	8	1	NN	9	6	38	0	62	81	80	88.2	306	366.2	0.7
Hepatitis C (unspecified)	58	946	60	684	131	77	567	322	2,845	3,112	2,850	3,024.8	11,938	12,427.2	0.9
Hepatitis D	0	3	0	0	0	0	2	1	6	9	7	5.6	42	30.2	1.1
Gastrointestinal diseases															
Botulism	0	0	0	0	0	0	0	0	0	0	0	0.2	0	1.4	0.0
Campylobacteriosis [§]	104	NN	53	1,315	479	126	1,410	555	4,042	3,376	4,711	4,534.4	15,481	15,970.2	0.9
Cryptosporidiosis	1	71	35	178	9	6	74	42	416	315	810	544.0	1,966	2,426.0	0.8
Haemolytic uraemic syndrome	0	7	0	2	0	0	1	0	10	6	7	7.0	30	16.8	1.4
Hepatitis A	0	18	0	8	1	1	13	4	45	57	35	65.6	274	304.6	0.7
Hepatitis E	0	4	0	1	0	0	2	1	8	10	3	3.8	43	22.4	2.1
Listeriosis	0	4	0	3	0	0	0	1	8	18	16	15.8	68	60.2	0.5
Salmonellosis	50	585	147	580	141	27	361	227	2,118	1,326	2,196	2,064.8	8,291	8,209.8	1.0
Shigellosis	2	37	44	31	17	0	47	28	206	202	162	134.2	832	568.0	1.5
STEC, VTEC	0	5	0	16	13	0	3	0	37	16	42	22.2	103	72.8	1.7
Typhoid	0	13	0	0	1	0	7	2	23	19	13	14.4	103	69.4	1.6
Quarantinable diseases															
Cholera	0	2	0	0	0	0	0	2	4	0	2	1.0	4	3.2	4.0
Highly pathogenic avian influenza in humans	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Plague	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Rabies	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Severe acute respiratory syndrome	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Smallpox	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Viral haemorrhagic fever	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Yellow fever	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0

Table 2. Notifications of diseases received by state and territory health authorities in the period 1 October to 31 December 2008, by date of diagnosis,* continued

Disease	State or territory								Total 4th quarter 2008†	Total 3rd quarter 2008	Total 4th quarter 2007	Last 5 years mean 4th quarter	Year to date 2008	Last 5 years YTD mean	Ratio‡
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA							
Sexually transmissible infections															
Chlamydial infection¶	226	3,284	512	3,792	822	351	3,060	2,113	14,160	14,654	12,900	10,296.4	58,403	41,501.2	1.4
Donovanosis	0	0	0	1	0	0	0	0	1	0	0	2.2	2	9.6	0.5
Gonococcal infection	7	312	335	425	124	6	253	374	1,836	1,752	1,798	1,817.6	7,717	7,657.2	1.0
Syphilis (all)	7	306	50	85	9	4	196	51	707	826	774	649.3	3,178	2,608.0	1.1
Syphilis < 2 years duration	0	75	16	35	9	2	73	32	241	311	323	230.8	1,249	921.3	1.0
Syphilis >2 years or unspecified duration	7	231	34	50	NDP	2	123	19	466	515	451	418.5	1,929	1,686.8	1.1
Syphilis - congenital	0	0	1	2	0	0	0	0	3	2	2	2.2	7	12.4	1.4
Vaccine preventable diseases															
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
<i>Haemophilus influenzae</i> type b	0	0	1	2	0	0	2	0	5	4	6	4.6	25	18.0	1.1
Influenza (laboratory confirmed)	35	429	60	383	203	67	192	176	1,545	6,425	712	511.2	9,109	4,775.2	3.0
Measles	0	0	0	0	0	0	0	1	1	5	1	9.4	65	57.0	0.1
Mumps	0	8	13	8	2	0	1	4	36	55	298	89.2	286	256.0	0.4
Pertussis	64	4,424	122	1,017	560	115	571	177	7,050	3,498	1,487	2,151.0	14,118	8,274.0	3.3
Pneumococcal disease (invasive)	6	95	15	60	36	12	80	37	341	633	295	385.8	1,613	1,857.4	0.9
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.2	0.0
Rubella	0	7	0	1	0	0	1	2	11	14	6	6.4	39	42.0	1.7
Rubella - congenital	0	0	0	0	0	0	0	0	0	0	0	0.2	0	1.4	0.0
Tetanus	0	0	0	0	0	0	0	0	0	0	1	1.2	4	3.4	0.0
Varicella zoster (chickenpox)	1	0	39	117	217	5	214	148	741	449	519	415.0	1,738	1,612.5	1.8
Varicella zoster (shingles)	2	0	32	106	228	33	165	138	704	465	383	267.0	2,174	1,326.5	2.6
Varicella zoster (unspecified)	27	0	0	922	96	17	120	203	1,385	1,166	1,195	751.3	4,523	3,981.5	1.8
Vectorborne diseases															
Arbovirus infection (NEC)	0	1	0	8	0	0	2	0	11	6	3	7.6	27	40.4	1.4
Barmah Forest virus infection	1	97	20	240	7	0	5	53	423	376	377	297.0	2,112	1,530.0	1.4
Dengue virus infection	2	45	1	125	6	0	3	16	198	93	76	78.8	541	386.6	2.5
Japanese encephalitis virus infection	0	0	0	0	0	0	0	0	0	1	0	0.0	1	0.4	0.0
Kunjin virus infection	0	0	0	0	0	0	0	0	0	1	1	0.8	1	3.6	0.0
Malaria	3	26	8	49	5	3	13	21	128	153	137	142.0	534	657.4	0.9
Murray Valley encephalitis virus infection	0	0	0	0	0	0	0	0	0	0	0	0.0	2	0.8	0.0
Ross River virus infection	3	177	70	347	57	2	32	228	916	784	1,148	684.0	5,641	4,068.4	1.3

Table 2. Notifications of diseases received by State and Territory health authorities in the period 1 October to 31 December 2008, by date of diagnosis,* continued

Disease	State or territory								Total 4th quarter 2008†	Total 3rd quarter 2008	Total 4th quarter 2007	Last 5 years mean 4th quarter	Year to date 2008	Last 5 years YTD mean	Ratio‡
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA							
Zoonoses															
Anthrax	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.4	0.0
Australian bat lyssavirus	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Brucellosis	0	0	0	12	0	0	0	0	12	15	7	12.0	49	37.6	1.0
Leptospirosis	0	3	1	16	0	0	2	0	22	15	18	22.6	111	136.8	1.0
Lyssavirus (NEC)	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Ornithosis	0	6	0	0	0	0	7	1	14	28	27	43.6	99	172.2	0.3
Q fever	1	42	0	38	0	0	5	3	89	88	105	107.0	357	445.4	0.8
Tularaemia	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0.0	0.0
Other bacterial infections															
Legionellosis	1	26	0	7	6	0	10	20	70	59	95	89.6	266	326.2	0.8
Leprosy	0	1	0	1	0	0	1	0	3	1	3	1.2	9	8.6	2.5
Meningococcal infection**	0	15	1	24	5	1	16	6	68	115	78	95.8	289	395.6	0.7
Tuberculosis	1	124	5	57	15	2	103	27	334	296	364	323.4	1,211	1,100.4	1.0
Total	613	11,642	1,687	11,245	3,290	874	8,048	5,295	42,693	43,063	36,062	31,520.3	162,278	129,114.6	1.4

* Date of diagnosis = true onset date, or where not available, the earliest of (i) specimen date, (ii) notification date, or (iii) notification receive date. Hepatitis B and C unspecified were analysed by the notification receive date.

† Totals comprise data from all states and territories. Cumulative figures are subject to retrospective revision so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.

‡ Ratio = ratio of current quarter total to the mean of last 5 years for the same quarter. Note: Ratios for syphilis <2 years; syphilis >2 years or unspecified duration based on 2 years data

§ Not reported for New South Wales where it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.

|| Infections with Shiga-like toxin (verotoxin) producing *Escherichia coli* (STEC/VTEC).

¶ Includes *Chlamydia trachomatis* identified from cervical, rectal, urine, urethral, throat and eye samples, except for South Australia, which reports only genital tract specimens; Northern Territory and Queensland, which exclude ocular specimens; and Western Australia, which excludes ocular and perinatal infections.

** Only invasive meningococcal disease is nationally notifiable. However, New South Wales, the Australian Capital Territory and South Australia also report conjunctival cases.

NN Not notifiable.

NEC Not elsewhere classified.

NDP No data provided.

Table 3. Notification rates of diseases, 1 October to 31 December 2008, by state or territory. (Annualised rate per 100,000 population)

Disease*	State or territory								Aust
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	
Bloodborne diseases									
Hepatitis (NEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Hepatitis B (incident)	0.0	0.6	3.7	0.8	0.3	1.6	1.5	0.4	0.9
Hepatitis B (unspecified)	13.0	28.9	109.8	23.3	22.5	8.9	34.4	30.8	29.0
Hepatitis C (incident)	0.0	0.5	1.9	NN	2.3	4.9	2.9	0.0	1.5
Hepatitis C (unspecified)	68.3	54.9	111.7	65.4	33.1	62.4	43.6	61.2	54.2
Hepatitis D	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.1
Gastrointestinal diseases									
Botulism	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Campylobacteriosis [†]	122.4	NN	98.6	125.8	120.9	102.2	108.4	105.4	112.2
Cryptosporidiosis	1.2	4.1	65.1	17.0	2.3	4.9	5.7	8.0	7.9
Haemolytic uraemic syndrome	0.0	0.4	0.0	0.2	0.0	0.0	0.1	0.0	0.2
Hepatitis A	0.0	1.0	0.0	0.8	0.3	0.8	1.0	0.8	0.9
Hepatitis E	0.0	0.3	0.0	0.1	0.0	0.0	0.2	0.2	0.2
Listeriosis	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.2	0.2
Salmonellosis	58.9	34.0	273.6	55.5	35.6	21.9	27.7	43.1	40.3
Shigellosis	2.4	2.1	81.9	3.0	4.3	0.0	3.6	5.3	3.9
STEC, VTEC [‡]	0.0	0.3	0.0	1.5	3.3	0.0	0.2	0.0	0.7
Typhoid	0.0	0.8	0.0	0.0	0.3	0.0	0.5	0.4	0.4
Quarantinable diseases									
Cholera	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.1
Highly pathogenic avian influenza in humans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plague	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rabies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Severe acute respiratory syndrome	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Smallpox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Viral haemorrhagic fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sexually transmissible infections									
Chlamydial infection [§]	266.1	190.7	952.9	362.7	207.5	284.6	235.2	401.3	269.6
Donovanosis	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Gonococcal infection	8.2	18.1	623.5	40.7	31.3	4.9	19.4	71.0	35.0
Syphilis (all)	8.1	17.6	90.9	7.9	2.2	3.2	14.8	9.4	13.2
Syphilis <2 years duration	0.0	4.3	29.1	3.3	2.2	1.6	5.5	5.9	4.5
Syphilis >2 years or unspecified duration	8.1	13.3	61.8	4.7	NDP	1.6	9.3	3.5	9.4
Syphilis - congenital	0.0	0.0	1.9	0.2	0.0	0.0	0.0	0.0	0.1
Vaccine preventable diseases									
Diphtheria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Haemophilus influenzae</i> type b	0.0	0.0	1.9	0.2	0.0	0.0	0.2	0.0	0.1
Influenza (laboratory confirmed)	41.2	24.9	111.7	36.6	51.3	54.3	14.8	33.4	29.4
Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Mumps	0.0	0.5	24.2	0.8	0.5	0.0	0.1	0.8	0.7
Pertussis	75.3	256.9	227.1	97.3	141.4	93.2	43.9	33.6	134.2
Pneumococcal disease (invasive)	7.1	5.5	27.9	5.7	9.1	9.7	6.1	7.0	6.5

Table 3. Notification rates of diseases, 1 October to 31 December 2008, by state or territory. (Annualised rate per 100,000 population), continued

Disease*	State or territory								Aust
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	
Vaccine preventable diseases, continued									
Poliomyelitis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rubella	0.0	0.4	0.0	0.1	0.0	0.0	0.1	0.4	0.2
Rubella - congenital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tetanus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Varicella zoster (chickenpox)	1.2	NN	72.6	11.2	54.8	4.1	16.4	28.1	20.6
Varicella zoster (shingles)	2.4	NN	59.6	10.1	57.6	26.8	12.7	26.2	19.5
Varicella zoster (unspecified)	31.8	NN	0.0	88.2	24.2	13.8	9.2	38.6	38.5
Vectorborne diseases									
Arbovirus infection (NEC)	0.0	0.1	0.0	0.8	0.0	0.0	0.2	0.0	0.2
Barmah Forest virus infection	1.2	5.6	37.2	23.0	1.8	0.0	0.4	10.1	8.1
Dengue virus infection	2.4	2.6	1.9	12.0	1.5	0.0	0.2	3.0	3.8
Japanese encephalitis virus infection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kunjin virus infection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaria	3.5	1.5	14.9	4.7	1.3	2.4	1.0	4.0	2.4
Murray Valley encephalitis virus infection	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ross River virus infection	3.5	10.3	130.3	33.2	14.4	1.6	2.5	43.3	17.4
Zoonoses									
Anthrax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Australian bat lyssavirus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brucellosis	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.2
Leptospirosis	0.0	0.2	1.9	1.5	0.0	0.0	0.2	0.0	0.4
Lyssavirus (NEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ornithosis	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.2	0.3
Q fever	1.2	2.4	0.0	3.6	0.0	0.0	0.4	0.6	1.7
Tularaemia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other bacterial infections									
Legionellosis	1.2	1.5	0.0	0.7	1.5	0.0	0.8	3.8	1.3
Leprosy	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1
Meningococcal infection	0.0	0.9	1.9	2.3	1.3	0.8	1.2	1.1	1.3
Tuberculosis	1.2	7.2	9.3	5.5	3.8	1.6	7.9	5.1	6.4

* Rates are subject to retrospective revision.

† Not reported for New South Wales where it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.

‡ Infections with Shiga-like toxin (verotoxin) producing *Escherichia coli* (STEC/VTEC).

§ Includes *Chlamydia trachomatis* identified from cervical, rectal, urine, urethral, throat and eye samples, except for South Australia, which reports only genital tract specimens; Northern Territory and Queensland, which exclude ocular specimens; and Western Australia, which excludes ocular and perinatal infections.

|| Only invasive meningococcal disease is nationally notifiable. However, New South Wales, the Australian Capital Territory and South Australia also report conjunctival cases.

NN Not notifiable.

NEC Not elsewhere classified.

NDP No data provided.

Laboratory Serology and Virology Reporting Scheme

There were 6,952 reports received by the Virology and Serology Laboratory Reporting Scheme (LabVISE) in the reporting period, 1 October to 31 December 2008 (Tables 4 and 5).

Table 4. Virology and serology laboratory reports by state or territory* for the reporting period 1 October to 31 December 2008, and total reports for the year†

	State or territory								This period 2008	This period 2007	Year to date 2008	Year to date 2007
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Measles, mumps, rubella												
Measles virus	0	0	0	1	0	0	0	1	2	1	32	19
Mumps virus	0	0	0	1	0	0	0	1	2	12	41	53
Rubella virus	0	0	0	1	1	0	0	0	2		14	15
Hepatitis viruses												
Hepatitis A virus	0	1	0	4	0	0	0	1	6	10	50	41
Hepatitis D virus	0	0	0	1	3	0	0	0	4	2	24	22
Hepatitis E virus	0	0	0	1	0	0	0	0	1		9	1
Arboviruses												
Ross River virus	0	4	4	141	31	0	0	2	182	203	1,448	1,090
Barmah Forest virus	0	5	0	85	4	0	1	0	95	97	578	506
Flavivirus (unspecified)	0	10	0	39	0	0	0	0	49	16	104	97
Adenoviruses												
Adenovirus type 2	0	1	0	0	0	0	0	0	1		1	
Adenovirus type 3	0	1	0	0	0	0	0	0	1		1	
Adenovirus type 8	0	1	0	0	0	0	0	0	1		1	
Adenovirus not typed/pending	1	97	0	248	67	2	10	0	425	309	1,724	1,202
Herpesviruses												
Herpes virus type 6	0	0	0	0	0	0	2	0	2		3	2
Cytomegalovirus	1	48	0	147	27	2	1	0	226	253	1,196	1,198
Varicella-zoster virus	4	82	0	561	76	3	6	1	733	684	2,928	2,809
Epstein-Barr virus	0	18	19	378	96	0	2	66	579	499	2,416	2,464
Other DNA viruses												
Contagious pustular dermatitis (orf virus)	0	2	0	0	0	0	0	0	2		2	
Parvovirus	0	3	0	73	8	0	5	1	90	124	297	413
Picornavirus family												
Coxsackievirus A9	1	9	0	0	0	0	0	0	10	2	14	2
Coxsackievirus A16	0	1	0	0	0	0	0	0	1		5	
Echovirus type 6	0	1	0	0	0	0	0	0	1	5	3	16
Echovirus type 30	0	2	0	0	0	0	0	0	2	1	2	4
Poliovirus type 1 (uncharacterised)	0	2	0	0	0	0	0	0	2		2	
Poliovirus type 2 (uncharacterised)	0	1	0	0	0	0	0	0	1		1	
Rhinovirus (all types)	0	62	0	0	1	0	0	0	63	80	201	326
Enterovirus type 71 (BCR)	0	1	0	0	0	0	0	0	1		1	
Enterovirus not typed/pending	0	10	0	12	0	1	1	0	24	52	146	180
Picornavirus not typed	0	0	0	0	0	3	0	0	3	2	12	9

Table 4. Virology and serology laboratory reports by state or territory* for the reporting period 1 October to 31 December 2008, and total reports for the year,† continued

	State or territory								This period 2008	This period 2007	Year to date 2008	Year to date 2007
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Ortho/paramyxoviruses												
Influenza A virus	10	55	1	74	15	0	12	1	168	66	813	2,293
Influenza B virus	4	13	0	32	10	0	8	0	67	34	935	165
Parainfluenza virus type 1	0	0	0	0	1	0	0	0	1	11	182	50
Parainfluenza virus type 2	0	1	0	0	1	0	0	0	2	2	27	61
Parainfluenza virus type 3	2	96	0	66	14	1	13	2	194	134	392	507
Respiratory syncytial virus	0	48	0	48	19	3	7	0	125	175	1,916	2,238
Other RNA viruses												
HTLV-1	0	0	0	0	25	0	0	0	25	2	67	14
Rotavirus	0	13	0	0	12	7	3	0	35	253	310	619
Norwalk agent	1	14	0	0	1	0	0	0	16	371	90	1,138
Other												
<i>Chlamydia trachomatis</i> not typed	6	309	1	1,440	153	20	11	1	1,941	1,515	8,533	7,841
<i>Chlamydia psittaci</i>	0	2	0	0	0	0	11	0	13	27	92	66
<i>Mycoplasma pneumoniae</i>	0	15	0	152	19	6	41	10	243	167	972	1,156
<i>Coxiella burnetii</i> (Q fever)	0	1	0	21	5	0	8	0	35	96	240	279
<i>Orientia tsutsuganushi</i>	0	0	0	0	2	0	0	0	2	2	10	10
<i>Rickettsia</i> - spotted fever group	0	3	0	8	0	0	0	0	11	16	111	114
<i>Streptococcus</i> group A	0	10	0	237	0	0	0	0	247	281	1,015	1,106
<i>Brucella</i> species	0	0	0	4	0	0	0	0	4	3	32	10
<i>Bordetella pertussis</i>	0	372	1	323	186	4	0	0	886	163	1,924	829
<i>Legionella pneumophila</i>	0	2	0	0	0	0	6	0	8	2	20	30
<i>Legionella longbeachae</i>	0	0	0	0	1	0	0	0	1	2	10	8
<i>Legionella</i> species	0	0	0	1	0	0	1	0	2		3	3
<i>Cryptococcus</i> species	0	2	0	2	2	0	0	0	6	3	30	45
<i>Leptospira</i> species	0	0	0	12	1	0	0	0	13	9	83	61
<i>Treponema pallidum</i>	0	54	0	275	51	1	2	0	383	411	2,012	2,196
<i>Entamoeba histolytica</i>	0	0	0	1	0	0	0	0	1	2	9	8
<i>Toxoplasma gondii</i>	0	1	0	4	0	0	1	0	6	8	18	29
<i>Echinococcus granulosus</i>	0	0	0	0	5	0	1	0	6	8	34	24
Total	30	1,373	26	4,393	837	53	153	87	6,952	6,115	31,136	31,369

* State or territory of postcode, if reported, otherwise state or territory of reporting laboratory.

† Data presented are for reports with reports dates in the current period.

– No data received this period.

Table 5. Virology and serology reports by laboratories for the reporting period 1 October to 31 December 2008*

State or territory	Laboratory	October 2008	November 2008	December 2008	Total this period
Australian Capital Territory	The Canberra Hospital	–	–	–	–
New South Wales	Institute of Clinical Pathology and Medical Research, Westmead	190	228	241	659
	New Children's Hospital, Westmead	98	85	57	240
	Repatriation General Hospital, Concord	–	–	–	–
	Royal Prince Alfred Hospital, Camperdown	44	50	31	125
	South West Area Pathology Service, Liverpool	34	20	15	69
Queensland	Queensland Medical Laboratory, West End	1,775	1,476	1,496	4,747
	Townsville General Hospital	–	–	–	–
South Australia	Institute of Medical and Veterinary Science, Adelaide	–	67	763	830
Tasmania	Northern Tasmanian Pathology Service, Launceston	15	20	17	52
	Royal Hobart Hospital, Hobart	–	–	–	–
Victoria	Australian Rickettsial Reference Laboratory	–	–	–	–
	Monash Medical Centre, Melbourne	25	7	6	38
	Royal Children's Hospital, Melbourne	–	–	–	–
	Victorian Infectious Diseases Reference Laboratory, Fairfield	73	17	–	90
Western Australia	PathWest Virology, Perth	–	–	–	–
	Princess Margaret Hospital, Perth	–	–	–	–
	Western Diagnostic Pathology	33	44	25	102
Total		2,287	2,014	2,651	6,952

* The complete list of laboratories reporting for the 12 months, January to December 2008, will appear in every report regardless of whether reports were received in this reporting period. Reports are not always received from all laboratories.

– No data received this period.

Additional reports

Australian Sentinel Practice Research Network

The Australian Sentinel Practices Research Network (ASPREN) is a national surveillance system that is owned and operated by the Royal Australian College of General Practitioners and directed through the Discipline of General Practice at the University of Adelaide.

The network consists of general practitioners who report presentations on a number of defined medical conditions each week. ASPREN was established in 1991 to provide a rapid monitoring scheme for infectious diseases that can alert public health officials of epidemics in their early stages as well as play a role in the evaluation of public health campaigns and research of conditions commonly seen in general practice. Electronic, web-based data collection was established in 2006.

The list of conditions is reviewed annually by the ASPREN management committee. In 2009, 4 conditions are being monitored. They include influenza like illness (ILI), gastroenteritis and varicella infections (chickenpox and shingles). Definitions of these conditions are described in Surveillance systems reported in CDI, published in *Commun Dis Intell* 2009;33:83–84.

Reporting period 1 October to 31 December 2008

Sentinel practices contributing to ASPREN were located in all jurisdictions other than the Northern Territory. A total of 104 general practitioners contributed data to ASPREN in the 4th quarter of 2008. Each week an average of 75 general practitioners provided information to ASPREN at an average of 6,955 (range 3,560 to 7,870) consultations per week.

ILI rates reported from 1 October to 31 December 2008 were lower (4–11 cases per 1,000 consultations) compared with the same reporting period in 2007 (4–14 cases per 1,000 consultations). The ILI rates reported to ASPREN decreased more rapidly from the season's peak in 2008 than the decline in rates from the 2007 peak (Figure 1).

Reports of gastroenteritis from 1 October to 31 December 2008 were lower compared with the same period in 2007 (Figure 2). During this reporting period, consultation rates for gastroenteritis ranged from 1 to 8 cases per 1,000 consultations.

Figure 1. Consultation rates for influenza-like illness, ASPREN, 1 January 2007 to 31 December 2008, by week of report

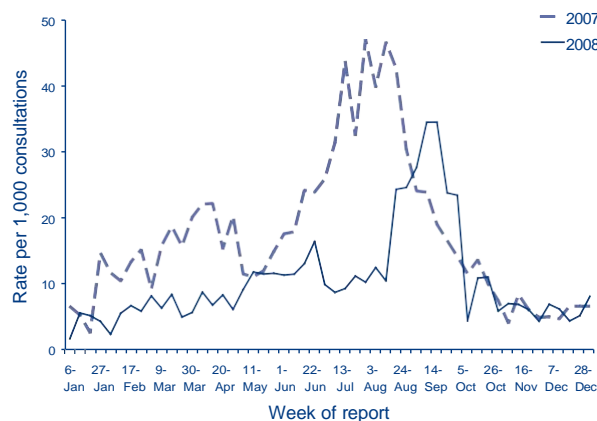
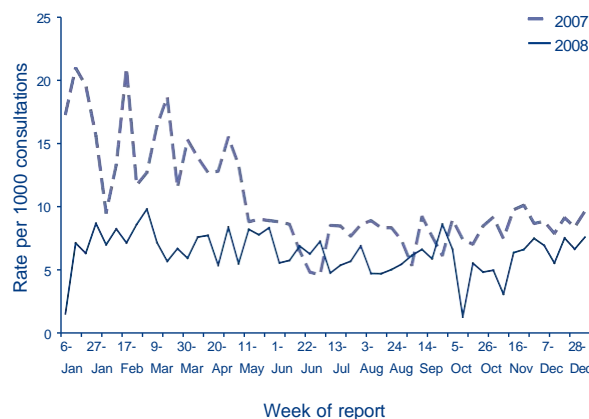


Figure 2. Consultation rates for gastroenteritis, ASPREN, 1 January 2007 to 31 December 2008, by week of report



Reports of varicella infections were reported at a similar rate for the 4th quarter of 2008 compared with the same period in 2007. From 1 October to 31 December 2008, recorded rates for chickenpox were between zero and 1 cases per 1,000 consultations (Figure 3).

In the 4th quarter of 2008, reported rates for shingles were between less than one to 1 case per 1,000 consultations (Figure 4).

Figure 3. Consultation rates for chickenpox, ASPREN, 1 January 2007 to 31 December 2008, by week of report

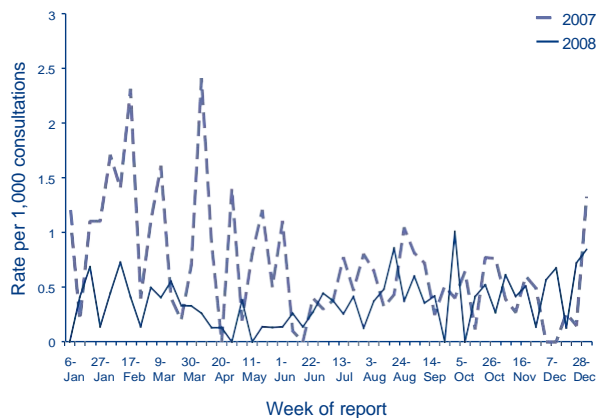
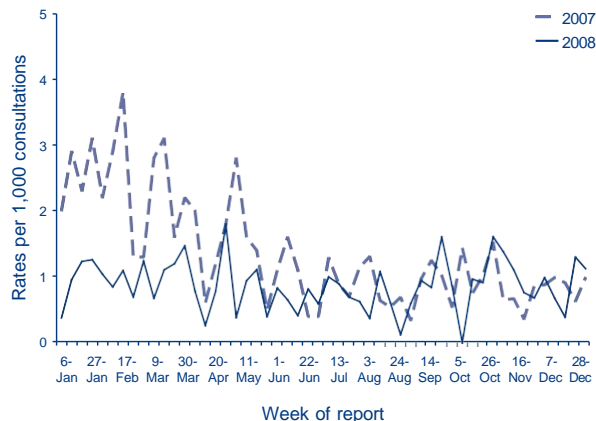


Figure 4. Consultation rates for shingles, ASPREN, 1 January 2007 to 31 December 2008, by week of report



Australian childhood immunisation coverage

Tables 1, 2 and 3 provide the latest quarterly report on childhood immunisation coverage from the Australian Childhood Immunisation Register (ACIR).

The data show the percentage of children fully immunised at 12 months of age for the cohort born between 1 July and 30 September 2007, at 24 months of age for the cohort born between 1 July and 30 September 2006, and at 5 years of age for the cohort born between 1 July and 30 September 2002 according to the National Immunisation Program Schedule. However from March 2002 to December 2007, coverage for vaccines due at 4 years of age was assessed at the 6-year milestone age.

For information about the Australian Childhood Immunisation Register see *Surveillance systems reported in CDI*, published in *Commun Dis Intell*

2008;32:134–135 and for a full description of the methodology used by the Register see *Commun Dis Intell* 1998;22:36–37.

Commentary on the trends in ACIR data is provided by the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS). For further information please contact the NCIRS at telephone: +61 2 9845 1435, Email: brynleyb@chw.edu.au

‘Fully immunised’ at 12 months of age is defined as a child having a record on the ACIR of 3 doses of a diphtheria (D), tetanus (T) and pertussis-containing (P) vaccine, 3 doses of polio vaccine, 2 or 3 doses of *Haemophilus influenzae* type b (Hib) vaccine, and 2 or 3 doses of hepatitis B vaccine. ‘Fully immunised’ at 24 months of age is defined as a child having a record on the ACIR of 3 or 4 doses of a DTP-containing vaccine, 3 doses of polio vaccine, 3 or 4 doses of Hib vaccine, 2 or 3 doses of hepatitis B vaccine and 1 dose of a measles, mumps and rubella (MMR)-containing vaccine. ‘Fully immunised’ at 5 years of age is defined as a child having a record on the ACIR of 4 or 5 doses of a DTP-containing vaccine, 4 doses of polio vaccine, and 2 doses of an MMR-containing vaccine.

Immunisation coverage for children ‘fully immunised’ at 12 months of age for Australia increased slightly by 0.1 of a percentage point to 91.3% (Table 1). There were no important changes in coverage for any individual vaccines due at 12 months of age or by jurisdiction.

Immunisation coverage for children ‘fully immunised’ at 24 months of age for Australia increased by 0.2 of a percentage point to 92.7 (Table 2). There were no important changes in coverage for any individual vaccines due at 24 months of age or by jurisdiction.

Immunisation coverage for ‘fully immunised’ at 5 years of age for Australia increased for the first time in 3 quarters, by 1.5 percentage points, to 88.3% (Table 3). This increase nationally was driven by significant increases in coverage for all individual vaccines due at 4 years of age in the Northern Territory (5.4 percentage points), Western Australia (3 percentage points) and Queensland (2.2 percentage points). There are a couple of possible explanations for the significant increases in these jurisdictions. The Health Kids Check initiative, implemented nationally in July 2008, may have had a disproportionately greater effect in these 3 jurisdictions. Further, various jurisdictional-specific strategies and local efforts including data quality improvements through data cleaning may also have had an effect.

Table 1. Percentage of children immunised at 1 year of age, preliminary results by disease and state or territory for the birth cohort 1 July to 30 September 2007; assessment date 31 December 2008

Vaccine	State or territory								Australia
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	
Total number of children	1,202	24,663	924	15,794	4,965	1,691	18,144	7,589	74,972
Diphtheria, tetanus, pertussis (%)	93.9	91.7	90.5	91.3	92.4	92.3	92.6	90.6	91.8
Poliomyelitis (%)	93.8	91.6	90.6	91.2	92.4	92.3	92.6	90.6	91.7
<i>Haemophilus influenzae</i> type b (%)	95.9	94.6	93.3	93.7	94.9	94.6	94.9	93.9	94.4
Hepatitis B (%)	95.8	94.6	93.8	93.7	94.8	94.6	94.8	93.8	94.4
Fully immunised (%)	93.7	91.4	90.3	90.8	91.8	92.0	91.8	89.9	91.3
Change in fully immunised since last quarter (%)	+0.2	-0.1	+0.5	+0.1	+0.5	+0.4	+0.2	-0.1	+0.1

Table 2. Percentage of children immunised at 2 years of age, preliminary results by disease and state or territory for the birth cohort 1 July to 30 September 2006; assessment date 31 December 2008*

Vaccine	State or territory								Australia
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	
Total number of children	1,213	24,494	856	15,064	4,865	1,721	18,171	7,691	74,075
Diphtheria, tetanus, pertussis (%)	96.1	94.9	95.6	94.3	94.8	96.2	95.7	92.9	94.8
Poliomyelitis (%)	96.2	94.8	95.4	94.3	94.8	96.2	95.7	92.9	94.8
<i>Haemophilus influenzae</i> type b (%)	96.1	95.2	93.6	93.4	93.7	95.9	94.7	92.9	94.4
Measles, mumps, rubella (%)	95.3	93.9	95.2	93.4	93.9	95.6	94.9	92.0	93.9
Hepatitis B (%)	96.5	95.7	96.6	95.0	95.5	96.9	96.4	94.0	95.6
Fully immunised (%)	94.5	92.7	93.0	92.2	92.7	94.7	93.8	89.9	92.7
Change in fully immunised since last quarter (%)	-0.4	+0.3	-0.6	+0.3	+0.3	+1.2	+0.5	-1.3	+0.2

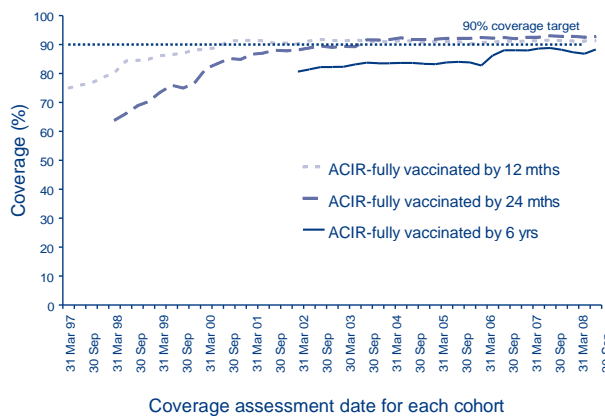
* The 12 months age data for this cohort was published in *Commun Dis Intell* 2008;32:122.

Table 3. Percentage of children immunised at 5 years of age, preliminary results by disease and state or territory for the birth cohort 1 July to 30 September 2003; assessment date 31 December 2008

Vaccine	State or territory								Australia
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	
Total number of children	1,106	23,056	815	14,277	4,807	1,494	16,903	6,706	69,164
Diphtheria, tetanus, pertussis (%)	90.4	88.0	92.5	89.4	85.9	88.0	91.7	87.3	89.0
Poliomyelitis (%)	90.6	87.9	92.4	89.3	85.9	87.9	91.6	87.2	89.0
Measles, mumps, rubella (%)	90.6	87.7	91.9	89.1	85.8	87.7	91.3	87.0	88.8
Fully immunised (%)	90.0	87.2	91.8	88.7	85.5	87.2	90.9	86.4	88.3
Change in fully immunised since last quarter (%)	-0.6	+1.5	+5.3	+2.2	-0.2	-2.0	+1.0	+3.0	+1.5

Figure 5 shows the trends in vaccination coverage from the first ACIR-derived published coverage estimates in 1997 to the current estimates. There is a clear trend of increasing vaccination coverage over time for children aged 12 months, 24 months and 5 years, although the rate of increase has slowed over the past few years for all age groups. It should also be noted that currently, coverage for the vaccines added to the National Immunisation Program since 2003 (varicella at 18 months, meningococcal C conjugate at 12 months, and rotavirus and pneumococcal conjugate at 2, 4, and 6 months) are not included in the 12 or 24 months coverage data, respectively.

Figure 5. Trends in vaccination coverage, Australia, 1997 to 30 September 2008, by age cohorts



Gonococcal surveillance

John Tapsall, The Prince of Wales Hospital, Randwick NSW 2031 for the Australian Gonococcal Surveillance Programme.

The Australian Gonococcal Surveillance Programme (AGSP) reference laboratories in the various states and territories report data on sensitivity to an agreed 'core' group of antimicrobial agents quarterly. The antibiotics currently routinely surveyed are penicillin, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens and currently used in Australia to treat gonorrhoea. When in vitro resistance to a recommended agent is demonstrated in 5 per cent or more of isolates from a general population, it is usual to remove that agent from the list of recommended treatment.¹ Additional data are also provided on other antibiotics from time to time. At present all laboratories also test isolates for the presence of high level (plasmid-mediated) resistance to the tetracyclines, known as TRNG. Tetracyclines are however, not a recommended therapy for gonorrhoea in Australia. Comparability of data is achieved by

means of a standardised system of testing and a program-specific quality assurance process. Because of the substantial geographic differences in susceptibility patterns in Australia, regional as well as aggregated data are presented. For more information see Commun Dis Intell 2008;32:134.

Reporting period 1 July to 30 September 2008

The AGSP laboratories received a total of 746 gonococcal isolates of which 727 remained viable for susceptibility testing. This was about 10% more than the 651 gonococci reported for the same period in 2007. About 29% of this total was from New South Wales, 18% from Queensland, 16% from each of Victoria and the Northern Territory, 13% from Western Australia and 8% from South Australia. There was 1 isolate from the Australian Capital Territory and no isolates from Tasmania.

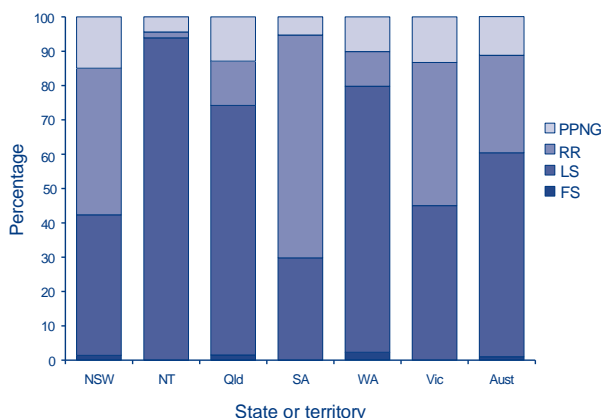
Penicillins

Two hundred and eighty-eight (39.6%) of the 727 isolates examined were penicillin resistant by one or more mechanisms. Eighty-two (11.3%) were penicillinase producing *Neisseria gonorrhoeae* (PPNG) and 206 (28%) resistant by chromosomal mechanisms, (CMRP). The proportion of all strains resistant to the penicillins by any mechanism ranged from 11.7% in the Northern Territory to 70.2% in South Australia. High rates of penicillin resistance were also found in New South Wales (58%), Victoria (55%), Queensland (25.8%) and in Western Australia (20.2%). The 1 gonococcus isolated in the Australian Capital Territory, was not penicillin resistant.

Figure 6 shows the proportions of gonococci fully sensitive (MIC \geq 0.03 mg/L), less sensitive (MIC 0.06–0.5 mg/L), relatively resistant (MIC \geq 1 mg/L) or else penicillinase producing, aggregated for Australia and by state and territory. A high proportion those strains classified as PPNG or else resistant by chromosomal mechanisms fail to respond to treatment with penicillins (penicillin, amoxycillin, ampicillin) and early generation cephalosporins.

New South Wales had the highest number of the penicillin resistance with 91 CMRP (42.7%) and 32 PPNG (15%). Victoria followed with 16 PPNG (13.3%) and 50 CMRP (42%). In Queensland CMRP and PPNG were 12.9% each. In South Australia PPNG were 5.3% and CMRP a record high at 64.9%. In Western Australia PPNG and CMRP were 10.1% each. CMRP and PPNG were also present in the Northern Territory (2 and 5 isolates, respectively), but there were no CMRP or PPNG in the Australian Capital Territory or Tasmania. All the penicillin resistant strains in the Northern Territory were from Darwin.

Figure 6. Categorisation of gonococci isolated in Australia, 1 January to 30 September 2008, by penicillin susceptibility and region



FS Fully sensitive to penicillin, MIC ≤ 0.03 mg/L.
 LS Less sensitive to penicillin, MIC 0.06–0.5 mg/L.
 RR Relatively resistant to penicillin, MIC ≥ 1 mg/L.
 PPNG Penicillinase producing *Neisseria gonorrhoeae*.

Ceftriaxone

Seven isolates with decreased susceptibility to ceftriaxone (MIC range 0.06–0.12 mg/L) were detected; four in New South Wales, two in Queensland and one in South Australia. It is emphasised that no treatment failures have been documented locally when a 250 mg IM dose of ceftriaxone has been used.

Spectinomycin

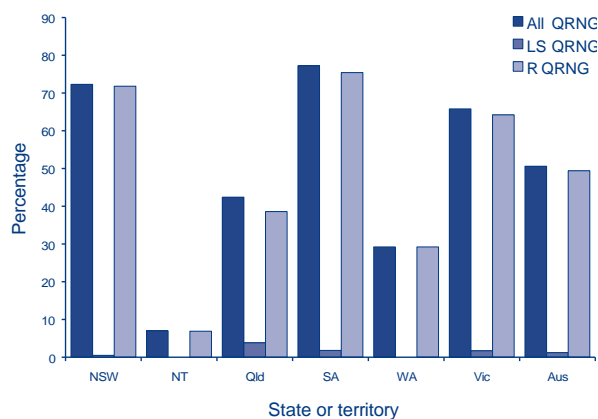
All isolates were susceptible to this injectable agent.

Quinolone antibiotics

Nationally, the 368 quinolone resistant *N. gonorrhoeae* (QRNG) detected in this quarter represented 50.6% of all isolates tested. In the 3rd quarter of 2007, the 321 QRNG also represented 50.5% of all isolates, in 2006 there were 38.0% QRNG and in the 3rd quarter of 2005 QRNG were 35.5% of all gonococci tested. The majority of QRNG (319 of 368, 86.7%) had higher level resistance to ciprofloxacin of 1 mg/L or more. QRNG are defined as those isolates with an MIC to ciprofloxacin equal to or greater than 0.06 mg/L. QRNG are further subdivided into less sensitive (ciprofloxacin MICs 0.06–0.5 mg/L) or resistant (MIC ≤ 1 mg/L) groups.

QRNG were detected in all states and territories with the exception of Tasmania where no gonococci were isolated. The highest proportion of QRNG was found in South Australia where 44 QRNG represented 77.2% of isolates tested, while in New South Wales there were 154 QRNG (72.3%) (Figure 7). In Victoria there were 79 QRNG (65.8% of isolates). In the other states and territories, Queensland had 56 (42.4%) QRNG; Western Australia had 26 (29.2%) and the Northern Territory had 8 (7%) QRNG. The single isolate tested in the Australian Capital Territory was QRNG.

Figure 7. The distribution of quinolone resistant isolates of *Neisseria gonorrhoeae* in Australia, 1 January to 30 September 2008, by jurisdiction



LS QRNG Ciprofloxacin MICs 0.06–0.5 mg/L.
 R QRNG Ciprofloxacin MICs ≥ 1 mg/L.

High level tetracycline resistance

The number (128) and proportion (17.6%) of high level tetracycline resistance (TRNG) detected was slightly lower than that recorded in this quarter in 2007 (129, 20.3%). TRNG were found in all states and territories except for Tasmania and the Australian Capital Territory and represented between 12.9% (Queensland); 13.9% (Northern Territory) and 30.3% (Western Australia) of all isolates tested.

Reference

1. Management of sexually transmitted diseases. World Health Organization 1997; Document WHO/GPA/TEM94.1 Rev.1 p 37.

National Enteric Pathogens Surveillance System

The National Enteric Pathogens Surveillance System (NEPSS) collects, analyses and disseminates data on human enteric bacterial infections diagnosed in Australia. Communicable Diseases Intelligence NEPSS quarterly reports include only Salmonella. NEPSS receives reports of Salmonella isolates that have been serotyped and phage typed by the 5 Salmonella typing laboratories in Australia. Salmonella isolates are submitted to these laboratories for typing by primary diagnostic laboratories throughout Australia.

A case is defined as the isolation of a Salmonella from an Australian resident, either acquired locally or as a result of overseas travel, including isolates detected during immigrant and refugee screening. Second and subsequent identical isolates from an individual within 6 months are excluded, as are isolates from overseas visitors to Australia. The date of the case is the date the primary diagnostic laboratory isolated Salmonella from the clinical sample.

Quarterly reports include historical quarterly mean counts. These should be interpreted cautiously as they may be affected by outbreaks and by surveillance artefacts such as newly recognised and incompletely typed Salmonella.

NEPSS may be contacted at the Microbiological Diagnostic Unit, Public Health Laboratory, Department of Microbiology and Immunology, The University of Melbourne; by telephone: +61 3 8344 5701, facsimile: +61 3 8344 7833 or email joanp@unimelb.edu.au

Scientists, diagnostic and reference laboratories contribute data to NEPSS, which is supported by state and territory health departments and the Australian Government Department of Health and Ageing.

Reports to the National Enteric Pathogens Surveillance System of Salmonella infection for the period 1 October to 31 December 2008 are included in Tables 4 and 5. Data include cases reported and entered by 4 February 2009. Counts are preliminary, and subject to adjustment after

completion of typing and reporting of further cases to NEPSS. For more information see *Commun Dis Intell* 2008;32:137.

1 October to 31 December 2008

There were 1,682 reports to NEPSS of human Salmonella infection in the 4th quarter of 2008, approximately 65% more than in the preceding quarter. Limited data from Western Australia were available at the time of preparing this report. Taking this into account and some incompleteness of data from late 2008, the overall count of cases for the remainder of Australia was similar to the recent historical mean number of reports to NEPSS for this time of each year. The incidence of human salmonellosis in Australia typically begins to increase late each year, before peaking around March.

During the 4th quarter of 2008, the 25 most common Salmonella types in Australia accounted for 1,095 cases, 65% of all reported human Salmonella infections. Eighteen of the 25 most common Salmonella infections in the 4th quarter of 2008 were also among those most commonly reported in the preceding quarter.

S. Typhimurium phage type 170 was the most commonly reported Salmonella for the quarter, with counts in New South Wales and Victoria significantly greater than the recent historical mean. Increases in the following salmonellae were also evident: *S.* Typhimurium phage type 44 (Australian Capital Territory), *S.* Typhimurium phage type 126 (in New South Wales and Victoria), *S.* Newport (mostly eastern states) and *S.* Typhimurium phage type 29 (New South Wales and South Australia). The number of reports of *S.* Enteritidis phage type 6a was markedly elevated this quarter. This particular Salmonella infection is typically associated with travel to Bali or Thailand.

Acknowledgement: We thank scientists, contributing laboratories, state and territory health departments, and the Australian Government Department of Health and Ageing for their contributions to NEPSS.

Table 4. Reports to the National Enteric Pathogens Surveillance System of Salmonella isolated from humans during the period 1 October to 31 December 2008, as reported to 4 February 2009

	State or territory								Australia
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA*	
Total all Salmonella for quarter	45	513	107	480	136	28	350	23	1,682
Total contributing Salmonella types	18	116	37	107	56	14	85	15	224

* Limited data from Western Australia were available at the time of preparing this report.

Table 5. Top 25 Salmonella types identified in Australia, 1 October to 31 December 2008, by state or territory

National rank	Salmonella type	State or territory								Total 4th quarter 2008	Last 10 years mean 4th quarter	Year to date 2008	Year to date 2007
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA*				
1	S. Typhimurium PT 170	2	126	0	18	0	0	53	0	199	79	430	290
2	S. Typhimurium PT 135	2	27	0	49	0	2	48	2	130	165	858	682
3	S. Typhimurium PT 9	4	42	0	15	20	1	29	0	111	101	479	688
4	S. Saintpaul	0	14	13	42	3	0	8	0	80	98	271	375
5	S. Typhimurium PT 44	20	18	0	9	8	0	19	0	74	61	360	481
6	S. Birkenhead	0	22	0	37	0	0	0	0	59	63	204	232
7	S. Typhimurium PT 126	1	31	0	0	1	0	9	0	42	25	134	40
8	S. Chester	0	5	5	18	5	0	3	2	38	38	151	161
9	S. Enteritidis PT 6a	0	12	0	8	2	0	15	1	38	10	89	69
10	S. Virchow PT 8	0	3	8	23	1	0	0	0	35	60	183	258
11	S. Newport	1	9	0	8	2	1	9	0	30	12	71	75
12	S. Infantis	1	4	4	1	6	0	7	0	23	33	167	200
13	S. Typhimurium PT 197	1	6	1	9	2	0	3	0	22	34	107	199
14	S. Stanley	1	6	0	4	1	2	8	0	22	20	112	136
15	S. Muenchen	0	7	2	11	0	0	1	0	21	30	97	144
16	S. Montevideo	0	7	0	5	1	0	7	0	20	14	88	113
17	S. Aberdeen	0	0	1	17	0	0	0	0	18	23	85	145
18	S. Weltevreden	0	6	0	5	1	0	6	0	18	13	90	67
19	S. Waycross	0	7	0	9	1	0	0	0	17	20	89	101
20	S. Typhimurium untypable	0	4	0	2	4	0	4	3	17	15	86	94
21	S. subsp I ser 16:l,v:-	0	1	10	3	2	0	1	0	17	13	54	56
22	S. Typhimurium PT 135a	0	0	4	0	13	0	0	0	17	10	60	70
23	S. Hvitvingfoss	0	1	0	15	0	0	0	0	16	20	74	115
24	S. Typhimurium PT 29	0	8	1	0	7	0	0	0	16	4	80	156
25	S. Anatum	1	3	0	5	0	0	5	1	15	20	78	77

* Limited data from Western Australia were available at the time of preparing this report.