

# National reporting of *Shiga*-like toxin (verotoxin) producing *Escherichia coli* infections and associated syndromes

Infection with *Shiga*-like toxin (verotoxin) producing strains of *Escherichia coli* (SLTEC or VTEC)\* has the potential to cause severe and life threatening illness, including haemorrhagic colitis (HC), haemolytic uraemic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP). Such strains are found in some animals, and are transmitted to humans through ingestion of undercooked meat (especially minced beef), or other food or water contaminated with animal faeces. Swimming in faecally contaminated lakes has also resulted in cases. Secondary transmission from person to person can occur. While cases are usually sporadic in Australia, two outbreaks, resulting in one death, have been documented. Large outbreaks have occurred overseas and reports of food borne illness resulting from SLTEC strains are increasing world wide.

To improve the understanding of the epidemiology of these infections and facilitate the public health response to cases, a number of States (Queensland, New South

Wales, South Australia, Western Australia and Tasmania) have already made SLTEC/VTEC infections and/or HUS/TTP notifiable conditions, and the other States and the Territories are in the process of, or considering, doing so.

On 22 July 1998, members of the Communicable Diseases Network Australia New Zealand (CDNANZ) endorsed case definitions for national reporting of SLTEC (VTEC) infections, HUS and TTP in Australia.\*\* The Network agreed to report cases to the National Notifiable Diseases Surveillance System (NNDSS) for publication in *CDI*. Cases are reported for the first time in this issue (page 224). The case definitions and explanatory notes are provided in the box below.

National surveillance of HUS is also being undertaken by the Australian Paediatric Surveillance Unit, who are conducting an active surveillance study of HUS in children under the age of 16 years.

\* also known as enterohaemorrhagic *E. coli* (EHEC)

\*\* VTEC is already nationally reported in New Zealand.

## CDNANZ case definitions for the national surveillance of SLTEC (VTEC), HUS and TTP

### ***Shiga*-like toxin (verotoxin) producing *E. coli* (SLTEC, VTEC)**

In a clinical specimen from a person with bloody diarrhoea, haemolytic uraemic syndrome (HUS) or thrombotic thrombocytopenic purpura (TTP):

- isolation of *Shiga*-like toxin (verotoxin) producing *E. coli*;

OR

- identification of *Shiga* toxin (verotoxin) in *E. coli* OR the gene associated with the production of *Shiga* toxin (verotoxin) in *E. coli*.

**Note:** The SLTEC/VTEC case definition is for the reporting of confirmed cases to the National Notifiable Diseases Surveillance System. States and Territories may use more sensitive case definitions to identify possible cases for public health follow up. The case definition is not intended to prescribe the laboratory tests that should be done to screen for SLTEC/VTEC infections.

### **Haemolytic uraemic syndrome (HUS)**

A case diagnosed as haemolytic uraemic syndrome (HUS) by a specialist physician, paediatrician, or paediatric nephrologist.

**Note:** The diagnosis of HUS will generally require the following:

- microangiopathic haemolytic anaemia (Hgb/dl and microscopic evidence of fragmented red cells);

AND

- acute renal impairment (oliguria or anuria, and elevated serum urea, and elevated serum creatinine);

AND

- thrombocytopenia (platelets  $d,000/mm^3$ )

However, the platelet counts may be normal or even high, particularly later in the disease.

### **Thrombotic thrombocytopenic purpura (TTP)**

A case diagnosed as thrombotic thrombocytopenic purpura (TTP) by a specialist physician, paediatrician, or paediatric nephrologist.

**Note:** The diagnosis of TTP will generally require the following:

- microangiopathic haemolytic anaemia (Hgb/dl) and microscopic evidence of fragmented red cells);

AND

- acute renal impairment (oliguria or anuria, and elevated serum urea, and elevated serum creatinine);

AND

- thrombocytopenia (platelets  $d,000/mm^3$ )

# Communicable Diseases Surveillance

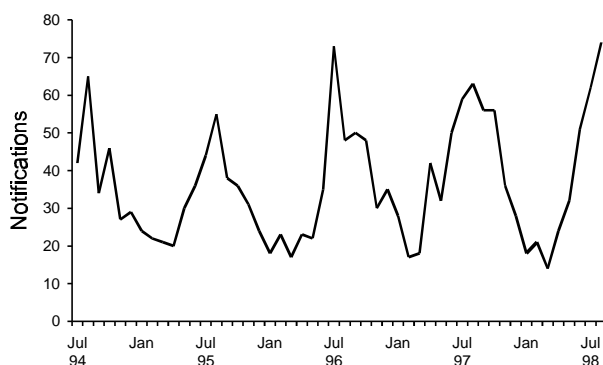
## Highlights

Communicable Diseases Surveillance consists of data from various sources. The National Notifiable Diseases Surveillance System (NNDSS) is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The CDI Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme. The Australian Sentinel Practice Research Network (ASPEN) is a general practitioner-based sentinel surveillance scheme. In this report, data from the NNDSS are referred to as 'notifications' or 'cases', whereas those from ASPEN are referred to as 'consultations' or 'encounters' while data from the LabVISE scheme are referred to as 'laboratory reports'.

### Meningococcal disease

There were 59 reports of meningococcal disease in this period, slightly less than the 64 cases reported for the same period in 1997. Of the 316 cases reported to date in 1998, 311 had onset dates between 1 January 1998 and 16 September 1998, compared with 337 cases and 270 cases in the same periods in 1993 and 1994 respectively. The number of cases in August (74) was higher than in July (62), following the usual seasonal trend (Figure 1). The male:female ratio of 1998 cases to date is 1.17:1 and the age groups with the highest numbers of cases continue to be 0-4 years, 15-19 years and 20-24 years. The State and Territory distribution of cases with onset in 1998 is similar to that seen in the same period in 1997.

**Figure 1. Notifications of meningococcal disease, Australia, July 1994 to August 1998, by month of onset**



### Vaccine preventable diseases

The number of notifications of pertussis infection continues to fall. Although there is a slight increase in the number of reports during this period, examination by date of onset shows that the numbers have fallen in each successive month since December 1997. Most notifications with onset in 1998 are in children aged 5 to 9 (17%), 10 to 14 (15%) and 0 to 4 (11%). The decrease is reflected in the reports from the LabVISE system (Table 3).

A small increase in the number of rubella notifications may represent the start of the seasonal variation expected in the spring.

### SLTEC infections, HUS and TTP

With this issue we commence the reporting of *Shiga*-like toxin (verotoxin) producing *Escherichia coli* (SLTEC, VTEC) infections, and the associated syndromes, haemolytic uraemic syndrome (HUS) and thrombotic thrombocytopenic purpura (TTP). The case definitions for national reporting of these conditions are provided on page 223.

While these conditions are not yet notifiable in all States and Territories, the rarity, severity and public health importance of HUS ensures that most cases are voluntarily reported to State and Territory health authorities. The level of voluntary reporting of SLTEC infections is not known. South Australia is currently the only State in which TTP is notifiable as a separate condition.

Although national reporting only commenced in this reporting period, most States and Territories have provided information about all cases in their records for the 1998 year to date.

In this reporting period, 3 sporadic cases of HUS have been recorded by New South Wales and 1 case of SLTEC infection by South Australia. To date in 1998, the total number of HUS cases reported has been 10 (NSW 5, South Australia 3 and Western Australia 2) and the total number of SLTEC infections has been 14 (South Australia 13 and New South Wales 1).

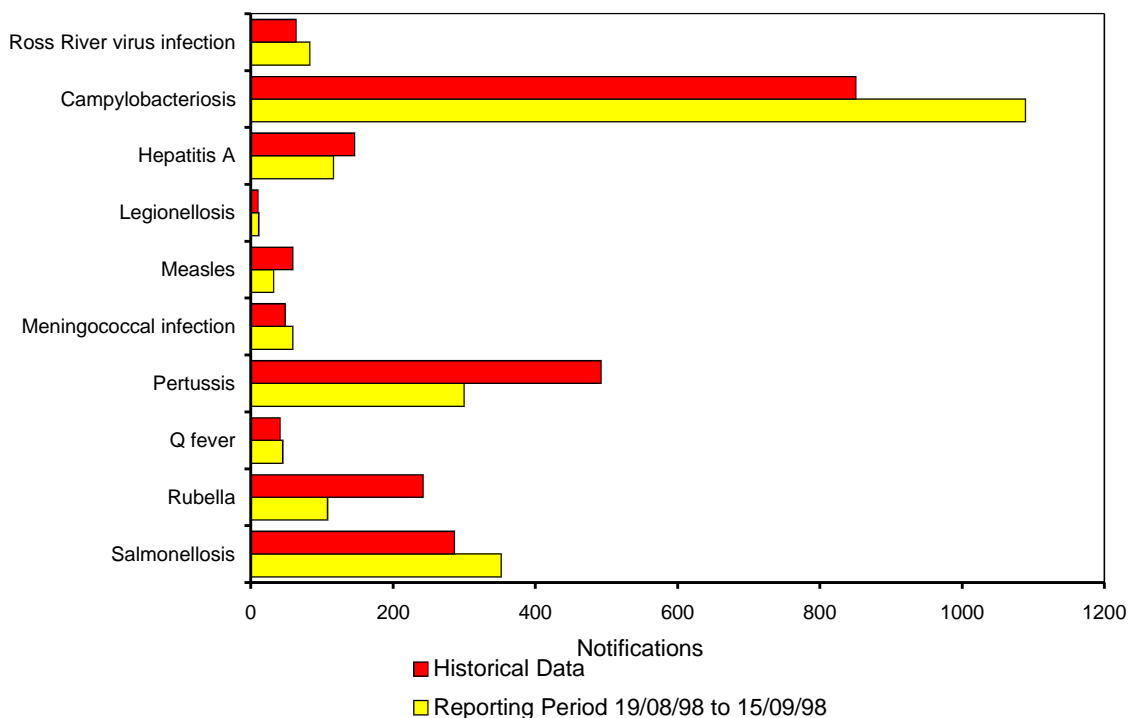
## Tables

There were 4,339 notifications to the National Notifiable Diseases Surveillance System (NNDSS) in the four week period, 18 August to 16 September 1998 (Tables 1 and 2). The numbers of reports for selected diseases have been compared with historical data for corresponding periods in the previous three years (Figure 2).

There were 2,868 reports received by the *CDI* Virology and Serology Laboratory Reporting Scheme (LabVISE) in the four week period, 13 August to 9 September 1998 (Tables 3 and 4).

The Australian Sentinel Practice Research Network (ASPREN) data for weeks 32 to 35, ending 6 September 1998, are included in this issue of *CDI* (Table 5).

**Figure 2. Selected National Notifiable Diseases Surveillance System reports, and historical data<sup>1</sup>**



1. The historical data are the averages of the number of notifications in the corresponding 4 week periods of the last 3 years and the 2 week periods immediately preceding and following those.

**Table 1. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 18 August to 16 September 1998**

Disease <sup>1,2</sup>									This period 1998	This period 1997	Year to date 1998	Year to date 1997
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0
<i>H. influenzae</i> type b infection	0	0	0	0	0	1	0	0	1	3	22	36
Measles <sup>3</sup>	1	8	0	0	0	7	9	7	32	49	270	420
Mumps	0	4	1	10	2	0	2	10	29	19	140	144
Pertussis	5	111	1	69	32	6	70	6	300	827	4,955	5,688
Rubella <sup>4</sup>	4	4	0	66	1	0	29	4	108	116	598	984
Tetanus	0	0	0	0	0	0	0	1	1	0	4	7

NN. Not Notifiable

1. No notification of poliomyelitis has been received since 1986.

2. 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.

3. The total number of measles notifications for 1998 has been revised downwards because of a reclassification of 79 cases previously notified as measles by Victoria. These cases have been reclassified as not measles following results of serology.

4. Includes congenital rubella.

**Table 2. Notifications of diseases received by State and Territory health authorities in the period 18 August to 16 September 1998**

Disease <sup>1,2,3,4</sup>	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1998	This period 1997	Year to date 1998 <sup>5</sup>	Year to date 1997
Arbovirus infection (NEC) <sup>6</sup>	0	0	0	1	0	0	1	0	2	4	60	108
Barmah Forest virus infection	1	5	1	21	0	0	1	1	30	23	442	538
Brucellosis	0	0	0	2	0	0	0	0	2	8	30	27
Campylobacteriosis <sup>7</sup>	31	-	14	358	223	37	276	150	1,089	798	7,838	7,986
Chlamydial infection (NEC) <sup>8</sup>	15	NN	57	406	88	12	184	147	909	715	7,669	6,615
Cholera	0	0	0	1	0	0	0	0	1	0	4	2
Dengue	1	4	2	14	0	0	1	2	24	2	380	195
Donovanosis	0	NN	2	0	NN	0	0	0	2	0	27	23
Gonococcal infection <sup>9</sup>	1	60	105	79	12	2	75	73	407	300	3,873	3,192
Hepatitis A	0	31	1	68	7	1	3	5	116	168	2,099	2,331
Hepatitis B incident <sup>5</sup>	0	2	2	4	1	1	5	0	15	27	164	185
Hepatitis C incident <sup>10</sup>	0	9	0	-	4	0	-	-	13	2	124	51
Hepatitis C unspecified <sup>5</sup>	29	NN	34	295	NN	18	5	80	461	746	5,878	6,832
Hepatitis (NEC)	0	0	0	0	0	0	0	NN	0	0	4	14
Haemolytic uraemic syndrome <sup>11</sup>	NN	3	NN	0	0	0	NN	0	3	NA	10	NA
Hydatid infection	0	0	0	4	0	0	3	0	7	11	33	39
Legionellosis	0	2	0	1	3	1	2	2	11	6	174	110
Leprosy	0	0	0	0	0	0	0	0	0	2	2	10
Leptospirosis	0	1	0	3	0	0	2	0	6	9	115	89
Listeriosis	0	1	0	0	0	0	1	1	3	2	41	58
Malaria	1	5	0	12	3	0	4	0	25	76	568	612
Meningococcal infection	0	20	0	11	5	3	8	12	59	64	316	337
Ornithosis	0	NN	0	0	0	0	1	0	1	2	28	39
Q Fever	0	7	0	36	2	0	0	0	45	35	397	430
Ross River virus infection	1	8	4	64	1	1	0	4	83	66	2,436	6,362
Salmonellosis (NEC)	2	72	25	123	26	4	69	31	352	310	5,751	5,149
Shigellosis <sup>7</sup>	0	-	8	5	6	0	9	6	34	37	448	590
SLTEC infections <sup>12</sup>	NN	0	NN	NN	1	0	NN	NN	1	NA	14	NA
Syphilis <sup>13</sup>	1	36	37	91	1	0	0	5	171	108	1,071	929
Tuberculosis	3	25	2	13	8	2	23	5	81	75	725	725
Typhoid <sup>14</sup>	0	1	0	0	0	0	1	1	3	2	56	57
Yersiniosis (NEC) <sup>7</sup>	1	-	0	3	3	0	3	0	10	11	169	190

1. For diseases preventable by routine childhood immunisation, see Table 1

2. For HIV and AIDS, see Tables 6 and 7.

3. 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.

4. No notifications have been received during 1998 for the following rare diseases: botulism (foodborne), lymphogranuloma venereum, plague, rabies, yellow fever, or other viral haemorrhagic fevers. There have also been no cases of thrombotic thrombocytopenic purpura (TTP), which became nationally reportable in August 1998.

5. Data from Victoria for 1998 are incomplete.

6. NT: includes Barmah Forest virus.

7. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.

8. WA: genital only

9. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.

10. Qld, Vic and WA incident cases of Hepatitis C are not separately reported.

11. Nationally reportable from August 1998

12. Infections with *Shiga*-like toxin (verotoxin) producing *E. Coli* (SLTEC/VTEC) became nationally reportable in August 1998.

13. Includes congenital syphilis

14. NSW, Qld, Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified

- Elsewhere Classified.

NA Not applicable, as reporting for this condition did not commence until 1998.

**Table 3. Virology and serology laboratory reports by State or Territory<sup>1</sup> for the reporting period 13 August to 9 September 1998, and total reports for the year**

	State or Territory <sup>1</sup>								Total this period	Total reported in <i>CDI</i> in 1998
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA		
<b>Measles, mumps, rubella</b>										
Measles virus		1						4	5	51
Mumps virus								4	4	31
Rubella virus				11	1		2	1	15	90
<b>Hepatitis viruses</b>										
Hepatitis A virus	4	4	1	9	3			2	23	311
Hepatitis D virus				1					1	4
<b>Arboviruses</b>										
Ross River virus		1	1	20	1			4	27	581
Barmah Forest virus							2		2	26
Dengue not typed								3	3	28
Flavivirus (unspecified)				3			4		7	56
<b>Adenoviruses</b>										
Adenovirus type 2							3		3	18
Adenovirus type 3					1		3		4	30
Adenovirus type 8							1		1	4
Adenovirus type 37							1		1	2
Adenovirus type 40								4	4	9
Adenovirus not typed/pending	4	36		4	15		17	13	89	560
<b>Herpes viruses</b>										
Cytomegalovirus		10		10	5		31	11	67	559
Varicella-zoster virus	3	18	1	32	5		22	20	101	919
Epstein-Barr virus		43		48	21		16	8	136	1,245
<b>Other DNA viruses</b>										
Parvovirus				3	2		20	12	37	166
<b>Picornavirus family</b>										
Echovirus type 2							1		1	1
Echovirus type 4	1								1	3
Echovirus type 11		1					1		2	26
Echovirus type 22		1							1	6
Echovirus not typed/pending							1		1	1
Poliovirus type 1 (uncharacterised)		2							2	5
Poliovirus type 2 (uncharacterised)		3					3		6	11
Poliovirus type 3 (uncharacterised)		2							2	3
Rhinovirus (all types)	3	28			2		5	6	44	353
Enterovirus type 71 (BCR)							1		1	1
Enterovirus not typed/pending	2	20		4		1	5	28	60	368
<b>Ortho/paramyxoviruses</b>										
Influenza A virus	1	409	2	42	88	4	134	34	714	2,259
Influenza B virus		1			7		4	3	15	140
Parainfluenza virus type 1	1				16		2	2	21	265
Parainfluenza virus type 2								1	1	30
Parainfluenza virus type 3		4			4		5	8	21	244
Respiratory syncytial virus	107	142	1	25	79	13	489	142	998	3,079
<b>Other RNA viruses</b>										
HTLV-1								1	1	14
Rotavirus	1	49			21	9	52	21	153	686