COMMUNICABLE DISEASES INTELLIGENCE

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CONTENTS

Contributions covering any aspect of communicable diseases are invited. Instructions to authors can be found in CDI 1995; 20: 13.

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TOXIC SHOCK SYNDROMES IN AUSTRALIA AND NEW ZEALAND 1990-1994

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Abstract

Following a request for information from the Victorian Minister for Health, two surveys were undertaken to identify cases of 'toxic shock syndrome'. Case definitions of toxic shock syndrome (TSS) and streptococcal toxic shock syndrome (STSS) are presented, and the problems inherent in the identification of these syndromes are discussed. A telephone survey identified 12 Victorian cases for 1994. A mailout questionnaire requesting minimal line data for cases that occurred in 1990 to 1994 (with a response rate of 34%) identified 20 cases for this period in Australia and New Zealand. These cases occurred in 11 males and nine females, with an age range of 12 to 82 years. Of these, nine were apparently due to *Staphylococcus aureus* (and thus were classified as TSS) and nine were due to *Streptococcus pyogenes* (and were classified as STSS). Of the nine cases of TSS, six were female, five of whom were menstruating at the time of admission to hospital. Support is provided for the addition of TSS and STSS to appropriate registers to improve the identification of cases and thus the local and national epidemiology of these rare illnesses.

Background

Toxic shock syndrome (TSS) is an uncommon, severe, systemic disease of acute onset, caused by bacterial exotoxins produced by *Staphylococcus aureus*. Both menstrual and nonmenstrual TSS occur, with the majority of menstrual cases being associated with the wearing of tampons. Strains of *S. aureus*, producing toxic shock syndrome toxin-1 (TSST-1), cause almost all of the cases of menstrual TSS, whereas strains producing either TSST-1 or enterotoxin B or C may cause nonmenstrual TSS. Only about 20 per cent of strains of *S. aureus* are capable of producing TSST-1. Nevertheless, most adults have developed protective antibodies to TSST-1. Nonmenstrual TSS occurs in males and females of all age groups, usually in association with localised infections such as surgical wound infections and abscesses. The Centers for Disease Control and Prevention (CDC) case definition for TSS requires the presence of five clinical criteria:

1) temperature equal to or greater than 38.9^{o}C;

2) hypotension (including syncope or orthostatic dizziness);

3) rash;

4) desquamation of the rash one to two weeks later (except in fatal cases); and

5) abnormalities in three or more organ systems, such as gastrointestinal, muscular, hepatic, renal, haematological, and the central nervous system.

A definite case fulfills all five criteria and a probable case fulfills four of the five criteria[1,2]. Bacteraemia is usually absent but its presence does not exclude a diagnosis of TSS.

In Britain, the Public Health Laboratory Service (PHLS) Staphylococcus Reference Unit conducts local surveys of TSS cases. For these surveys, cases that fulfill the CDC case definition are classified in the United Kingdom as confirmed, those missing one criterion as probable, those missing two criteria as possible and those lacking more than two criteria are classified as unconfirmed. The majority of confirmed and probable cases have been associated with menstruation, whereas the majority of possible and unconfirmed cases are nonmenstrual[3].

Streptococcus pyogenes (group A streptococcus) may also cause a toxic shock syndrome, sometimes referred to as toxic shock-like syndrome but usually as streptococcal toxic shock syndrome (STSS). STSS due to *S. pyogenes* was first described in 1987[4]. Like nonmenstrual TSS, STSS occurs in males and females of all age groups and is associated with localised or systemic infection.

The CDC case definition for STSS requires the isolation of group A streptococci and hypotension with two or more of the following:

1) renal impairment;

2) coagulopathy;

3) liver involvement;

4) adult respiratory distress syndrome;

5) rash that may desquamate;

6) soft-tissue necrosis including necrotising fasciitis, myositis and gangrene.

If the group A streptococci are isolated from a normally sterile site, then the illness is considered a definite case of STSS. If isolated from a nonsterile site, the case is classed

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as probable, provided that no other aetiology for the illness is identified[5].

Epidemiological studies on menstrual TSS in the early 1980s in the United States of America, when 95% of all TSS cases were seen in young women, showed that tampon use during menstruation was a significant risk factor. Data analyses also demonstrated that cases were more likely than control subjects to use tampons of high absorbency[1]. One particular brand of tampon used had a unique composition consisting of highly absorbent polyester foam chips and carboxymethyl cellulose. Its removal from the American market resulted in a significant decrease in notifications of menstrual TSS in American women[6]. It was never marketed in the United Kingdom or in Australia. Since then, the absorbency of all brands of tampons has been reduced. Information on the absorbency levels is now provided on the consumer packs of tampons, and users are advised to use tampons of lowest absorbency consistent with their requirements and to handle tampons hygienically[7].

The epidemiological data indicate that the risk of menstrual TSS depends on tampon absorbency rather than tampon composition. In particular, the findings of two independent, recently published studies confirm that tampons made solely of cotton support production of the same or more TSST-1 from *S. aureus* in vitro, when compared with those made of cotton / rayon blends or rayon alone[8,9]. These findings indicated that cotton tampons offer no advantage over cotton / rayon or rayon tampons in preventing menstrual TSS.

Towards the end of 1994 and the beginning of 1995, menstrual TSS was the subject of media attention in Australia, with the death of a teenage girl in Queensland. Investigations into her death are continuing. One case of menstrual TSS in Victoria came to the attention of the then Victorian Minister for Health, Marie Tehan, who requested further information on the incidence of cases in Victoria for 1994.

As well as describing the Victorian cases for 1994, it was decided that a wider survey which reviewed the Australian experience of toxic shock syndrome from 1990 to 1994 would be timely. However, there are several problems with determining the incidence of toxic shock syndrome in Victoria and in the rest of Australia. Firstly, there is no ICD9 (International Classification of Diseases) or Victorian Inpatient Minimum Dataset (VIMD) code as they are syndromes rather than specific diseases. Furthermore, because the causative strains are rarely cultured from blood, they are not reported to the Victorian Hospital Pathogen Surveillance System (VHPSS) at the Microbiological Diagnostic Unit. A comprehensive search produced only one possible case of TSS in which *S. aureus* was isolated from blood in half a million submissions to VHPSS. In addition, no codes presently exist on the independent intensive care unit (ICU) database. It is therefore impossible to find cases through any of the current computerised databases.

Methods

Health and Community Services (now the Department of Human Services) Victoria decided to investigate the incidence of toxic shock syndrome in two ways: (a) by actively undertaking case-finding retrospectively for the immediately preceding year of 1994 by means of a telephone survey; and (b) by contacting all intensive care physicians through their own society, the Australian and New Zealand Intensive Care Society (ANZICS), and requesting minimal information on cases from 1990 to 1994 by a mailout survey.

For the telephone survey, all hospitals with an ICU in Victoria (private as well as public) were included, and all ICU and infectious disease physicians whom we contacted responded. In this survey, we did not request details of the causative agent.

After a small pilot study, the 350 members on the national ANZICS mailing list were contacted. Line information only, which included gender, approximate month of onset of illness, organism if known, and if the disease was related to tampon use, was sought to encourage the reporting of cases, thus details such as the onset of menstruation, onset of symptoms, brand and type of tampon and length of time since surgery, were not requested in this survey. About one-third of the 350 members are not currently practising in ICUs so were excluded from the survey, leaving a survey sample of 220 ICU physicians.

Because of the difficulty of identifying less severe cases of toxic shock, a decision was made to restrict the survey to cases known to ANZICS members for two reasons: firstly, the diagnosis was likely to be clearly established, and secondly, the severity of the syndrome was likely to make it more memorable. The CDC case definition was included on the data collection form.

Results

(a) Telephone survey

The results of the telephone survey, which identified 12 cases of toxic shock syndrome in Victoria for 1994, are summarised in Table 1.

Table 1. Results of a telephone survey of hospital intensive care units on the incidence of TSS in Victoria in 1994

Number of cases	12
Gender distribution	8 female; 4 male
Age	10 adults; 2 children
Number tampon associated	4
Main sequelae	Loss of digits in one woman

Table 2. Responses and results of a mailout survey of intensive care unit physicians on TSS and STSS in Australia and New Zealand, 1990 - 31 March 1995

Responses and results of ICU survey	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	NZ	Unknown	Totals
No. of surveys mailed	3	72	3	34	25	2	55	25	1		220
No. responded with zero cases	1	12	3	8	7	2	16	4	0	6	59
No. responded with cases reported	0	5	0	2	2	0	4*	0	1	1	15
Response rate (per cent)	33.3	23.6	100	29.4	36	100	36.4	16	100		34
No. of cases reported	0	8	0	6	2	0	3*	0	3	1	23

* One case was notified by two ANZICS members.

(b) ANZICS mailout survey

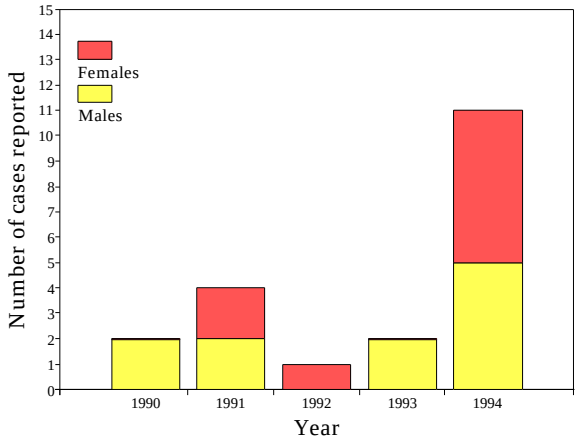
From this survey, 59 ICU physicians replied that they had not seen a case of TSS during the past five years, while 15 sent details on 23 cases, a response rate of 34% (range 16% to 100%). All the reported cases occurred in the eastern States.

Table 2 shows the responses and results of the mailout survey. The ICU physicians also supplied the date of onset for most of the reported cases. An additional three cases were reported for the period 1 January to 31 March 1995 (one from New South Wales and two from Queensland). These are included in the data presented in Table 2 but were excluded from the analyses, as details of 1995 cases had not been sought in the questionnaire. Two other cases were not included in the final data set as they did not fulfill the case definition. One of these was an 18-year-old man with meningococcal disease, and the other was a 30-year-old woman with pneumococcal infection. No deaths were reported among the cases over the period of the survey. One case was notified twice.

The mean age of the cases was 31 years and nine months for females (n = 9) and 31 years and three months for males (n = 10); the age of one male patient was not provided. This difference is not significant (p = 0.96). The age range was 12 to 74 years for females and 7 to 82 years for males.

Cases of TSS and STSS were reported in both males and females in New South Wales, Queensland and Victoria; in females only in South Australia and in males only in New Zealand over the period of the survey. Nine of the 20 cases occurred in females. Figure 1 shows the occurrence of cases in males and females over the years 1990 to 1994 and that most cases in both sexes were reported in 1994. As shown in Table 3, the bacterial species implicated as the source of toxin was *S. aureus* in nine cases (TSS), *S. pyogenes* in nine cases (STSS) and was unspecified in two cases. Of these,

Figure 1. Sex distribution of TSS and STSS cases for Australia and New Zealand, 1990-1994, by year



14 cases were classified as definite (seven TSS, six STSS and one unspecified) and six cases were classified as probable (two TSS, three STSS and one unspecified) by the participating ICU physicians. Five of the six females with TSS were menstruating and all of these were using tampons at the time of admission.

Table 3. Sex distribution of TSS and STSS cases for Australia and New Zealand, 1990-1994, by causative agent

	Females (menstruating)	Females (non-menstruating)	Males
Staphylococcus aureus	5	1	3
Streptococcus pyogenes	0	3	6
Unknown	0	0	2
Total	5	4	11

Discussion

A comparison of the results of the telephone survey of hospital ICUs for cases of toxic shock syndrome in Victoria for 1994 (12 cases) with those resulting from the ANZICS mailout survey of ICU physicians for the same State and year (three cases) indicates that the number of notifications obtained through the mailout survey is significantly lower than the actual number of cases. Furthermore, only one-third of the ANZICS members who are currently practising as ICU physicians responded to the postal survey. While it is possible that the Victorian ICU physicians did not give details of cases by postal questionnaire that had already been notified by telephone, this would mean that Victoria had more cases than any other State, approaching half of all Australian cases. It seems much more likely that the postal survey greatly underestimated the number of TSS and STSS cases for all States. Indeed, extrapolation from the Victorian figures suggests that only about a quarter of the total number of cases were notified by the postal survey. Nonetheless, the apparent increase in cases in 1994 is intriguing, although it is possible that recent recall bias may have resulted in more of the cases being reported for that year and media interest in TSS during 1994 may have made cases more memorable.

Several respondents did not use the CDC case definition for TSS which was supplied in the mailout. Instead, they applied more stringent criteria for their case definition. Some commented that our definition was too inclusive. We also received one comment that clearly indicated that the respondent thought we had targetted our questionnaire wrongly - 'This is a paediatric ICU!'

Conclusions

The apparent quandary regarding the TSS case definition was unexpected, as the CDC definition has been generally widely accepted for many years. It would be timely for intensive care and infectious disease physicians in Australia to collaborate to agree to the case definitions for TSS and STSS and on the classification of those cases that do not fulfill all the criteria of the CDC case definition, such as that used in the United Kingdom for TSS[3]. In Victoria, this has already been attempted with the development of a strategy for TSS case management, under the guidance of the Public Health Branch of the Department of Human Services.

A decision has been made by ANZICS to add toxic shock syndrome to its own computerised register. There is also a need for these toxic shock syndromes to be assigned an ICD9 code and, in Victoria, a VIMD code, so that all cases, whether admitted to an ICU or not, can be identified. A standardised data collection method for TSS and STSS would provide a valuable epidemiological tool.

The advent of absorbency labelling of tampons and the provision of more details about TSS in tampon package inserts go part of the way towards disseminating information about TSS to the group at risk of menstrual TSS[7]. Men, children and post-menopausal women do not use menstrual tampons, however menstruating women accounted for just over half of the cases of TSS and only a quarter of the cases of TSS and STSS in Australia and New Zealand from 1990 to 1994. Information about the age and gender breakdown of cases of TSS and STSS needs to be circulated regularly to health care professionals and to the general public to remind both groups that the toxic shock syndromes are not confined to menstruating women.

Notwithstanding their relative rarity and a degree of confusion about the case definitions and risk groups, TSS and STSS are still with us and need to be borne in mind in the differential diagnosis of severe, multisystem diseases of acute onset in males and females of all age groups.

Acknowledgments

We thank the staff at ANZICS who helped with the mailout of this survey and the intensive care physicians who responded to the survey, Dr Sue Garland for her helpful comments, and Kellie Vizard for assistance with preparation of the manuscript.

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Toxic Shock Syndrome Information Service

An independent body, the Toxic Shock Syndrome Information Service, which is comprised of expert medical and pharmaceutical personnel, acts as an educational resource and information service on TSS for both the medical and lay community. The phone number of the service is 1800 634 250.

TESTING FOR TOXIC SHOCK SYNDROME

Jenny Robson, Drs JJ Sullivan, NJ Nicolaides and Partners, 134 Whitmore Street, Taringa, Queensland, 4068

Toxic shock syndrome (TSS), characterised by fever, desquamative skin rash, hypotension and multisystem involvement, occurs in patients who harbour *Staphylococcus aureus* strains that elaborate either toxic shock syndrome toxin 1 (TSST-1) or other related enterotoxins (SEs).

About half of all isolated strains of *S. aureus* produce enterotoxins, of which there are presently five (A-E) serologically distinct types (enterotoxin F is identical to TSST-1). They all exert their action by stimulating a subset of T lymphocytes and are therefore called bacterial superantigens. Superantigens are defined as molecules that bind with high affinity to T cell receptors at sites distinct from the classic antigen binding groove. This interaction causes prolific activation - or under certain circumstances inhibition - of T cell functions, including liberation of IL-1, tumour necrosis factor (TNF) and interferon-γ, with consequent activation of macrophages.

TSST-1 has been identified as being highly associated with TSS; approximately 75% of patients' isolates are positive for TSST-1, whereas 25% are positive for other staphylococcal toxins, including enterotoxin B (23%) and enterotoxin C (2%). It is thought that many factors prevailing in the vagina in the presence of hyperabsorbable tampons will favour the production of TSST-1.

The prevalence of antibodies against TSST-1 is above 90% in the normal population. Practically all patients with menstrual-associated TSS had undetectable antibodies against TSST-1 at the onset of the disease and usually fail to develop these antibodies on a convalescent specimen of serum.

Staphylococcal toxin and antitoxin testing is available through

Toxin Technology, Inc.
7165 Curtiss Avenue
Sarasota, Florida, 34231
United States of America

Telephone 0011 1941 925 2032
Facsimile 0011 1941 925 2130.

Staphylococcus aureus isolates are tested for the ability to produce TSST-I, staphylococcal enterotoxins A-E, or exfoliative toxin. Serology testing is undertaken for antibodies to TSST or other requested toxin(s). The cost is US$50.00 and the turnaround time is approximately one week.

Invasive Group A streptococci can be referred for M, T and OF typing to

Dr Diana Martin
New Zealand Communicable Diseases Centre
PO Box 50348
Kenepuri Drive
Porirua
Wellington New Zealand

Telephone 0011 64 4 237 0149
Facsimile 0011 64 4 237 2370.

The charge is $NZ 50.00 ($A 42.50) per organism.

It is important to note that none of the tests confirm, but only support, the diagnosis. In addition to the two reference laboratories quoted above, there may be other laboratories that can perform the testing. Knowledge of their whereabouts would be a useful resource.

NOTICES TO READERS

Australasian Epidemiological Association Annual Scientific Meeting

Radisson Observation City Hotel, Perth
Sunday, 29 September 1996

The meeting will provide an opportunity for

- epidemiologists to gather at a scientific forum
- presentation of current research
- debate and discussion of epidemiological issues
- new epidemiologists and students to meet others involved in epidemiology.

Further information about the Australasian Epidemiological Association (AEA) conference can be obtained from the AEA Conference Convenor, Dr Ian Jacobs, School of Public Health, GPO Box U1987, Perth WA 6001, telephone (09) 351 2816, facsimile (09) 351 3438.

Australasian Epidemiological Association members wishing to stay for the Public Health Association (PHA) Conference are invited to attend at the PHA member rate, and should register through the PHA secretariat prior to the conference.

28th Annual Conference of the Public Health Association of Australia Inc.

'Threats to Public Health - Challenges and Strategies'

Radisson Observation City Hotel, Perth
29 September - 2 October 1996

The aims of this conference are to provide opportunities for critical examination and debate of the many threats that public health now faces.

Information about the PHA Conference can be obtained from PHA Secretariat, GPO Box 2204, Canberra ACT 2601, telephone (06) 285 2373, facsimile (06) 285 5438.

Change to Internet address for *CDI*

Because of the change in name to Department of Health and Family Services (HFS), the former 'hsh' part of the www site's address is now 'hfs'. Therefore direct access to *CDI* on the HFS world wide web site is http://www.health.gov.au/hfs/pubs/cdi/cdihtml.htm

Global situation of the HIV/AIDS pandemic

As at 30 June 1996, there were 1,393,649 cases of AIDS reported to the World Health Organization (WHO). The distribution by region is

Africa 499,037 cases
Americas 690,042 cases
Asia 29,707 cases
Europe 167,578 cases
Oceania 7,285 cases.

The breakdown by country and area is published in *Weekly Epidemiological Record* (WER) No. 27 of 5 July 1996.

The electronic edition of WER is free of charge and can be obtained through:

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ftp.who.ch, directory/pub/wer, user name anonymous, password should be your email address.

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Fax: (+4122) 791 48 57

OVERSEAS BRIEFS

Source: World Health Organization

Influenza update, New Zealand

Weekly consultation rates for influenza-like illness and laboratory isolations of influenza virus increased sharply at the beginning of June and were continuing to increase at the end of June. Both consultation rates and numbers of virus isolations are considerably higher than at the peak of the 1995 season and are reported to be the highest for some years. Consultation rates appear to have peaked at week 26. Influenza A (H1N1) has been isolated from three cases and Influenza A (H3N2) has been isolated from 74 cases. Five isolates of Influenza B have been received. Of the H3N2 characterised to date, one is closest to A/Johannesburg/33/94 and 64 are closest to A/Wuhan/35/95.

Cerebrospinal meningitis

Mozambique: An epidemic of cerebrospinal meningitis has been reported in Cabo Delgado province in the Northern Region. The outbreak spread from Namuno to Montepues and Balama districts. The Ministry of Health has been notified of 18 cases and 4 deaths but information from the most recently affected districts is not yet available. Provincial and district health services have started control measures. In view of the risk of a major outbreak the Ministry of Health has appealed for external support for drugs and vaccine.

Dengue/Dengue haemorrhagic fever

Malaysia: The number of cases of dengue has continued to increase during June and had reached 4,813 cases with 13 deaths by July. This is an increase of 55% over the number reported in the corresponding period in 1995. Dengue haemorrhagic fever was diagnosed in 252 cases. Nearly 66% of all cases were reported in the Federal Territory and Selangor. Other cases occurred in the states of Perak, Johor and Pahang; the epidemic is expected to continue until the end of August.

Cholera update

Chad: As at 14 July a total of 1,317 cases with 94 deaths had been reported in the outbreak which began in June in N'Djamena and surroundings. All the cases occurred in Chari Baguirmi Province. The WHO Regional Office for Africa and WHO / HQ are collaborating with the national health authorities to obtain the supplies and aid necessary to control this outbreak.

Nigeria: A total of 11,139 cases with 1,165 deaths have been reported since the beginning of the outbreak. The largest numbers of cases are reported from Kano, Kebbi, Borno, Oyo, and Niger States. WHO is organising supplies and aid which are urgently needed to assist in the control of this epidemic.

COMMUNICABLE DISEASES SURVEILLANCE

National Notifiable Diseases Surveillance System

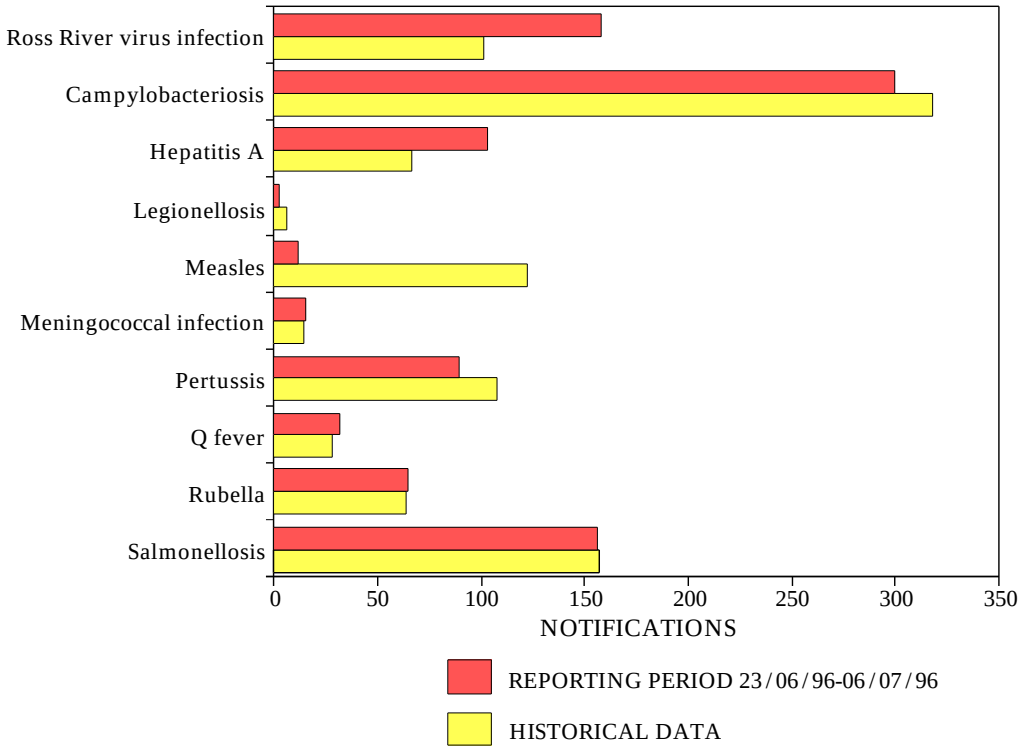
The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia-New Zealand. The system coordinates the national surveillance of 41 communicable diseases or disease groups endorsed by the National Health and Medical Research Council (NHMRC). Notifications of these diseases are made to State and Territory health authorities under the provisions of their respective public health legislation. De-identified core unit data are supplied fortnightly for collation, analysis and dissemination. For further information, see CDI 1996;20:9-10.

Reporting period 23 June to 6 July 1996

There were 1,855 notifications received for this two-week period (Tables 1, 2 and 3). The numbers of reports for selected diseases have been compared with averaged data for this time of year in the previous three years (Figure 1).

A further 158 notifications of **Ross River virus infection** were received during the current period bringing the total number of cases reported in 1996 to more than 7,000. However, the epidemic has now declined. There is still some activity in northern and south-eastern Queensland.

Figure 1. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



1. The historical data are the averages of the number of notifications in 9 previous 2-week reporting periods: the corresponding periods of the last 3 years and the periods immediately preceding and following those.

Figure 2. Hepatitis A notifications 1991 to 1996, by month of onset

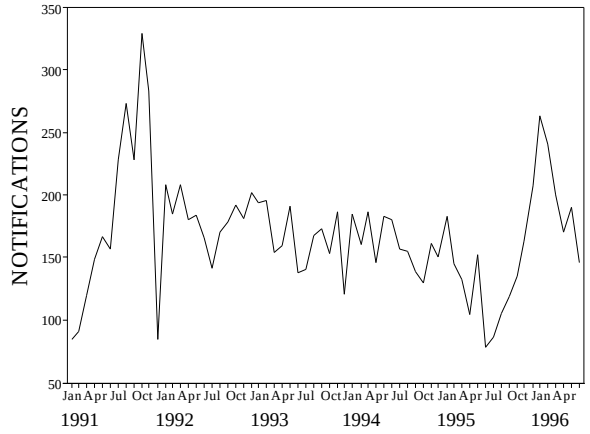
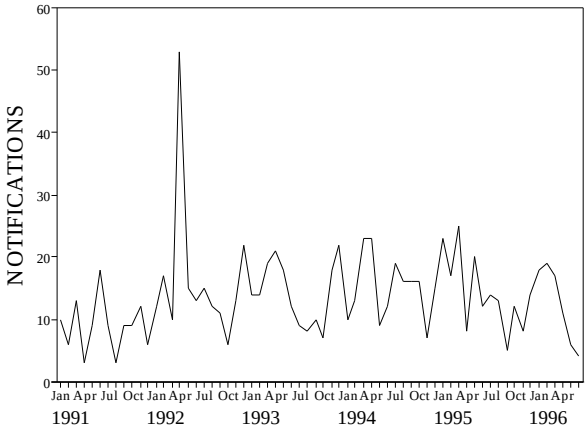


Figure 3. Legionellosis notifications 1991 to 1996, by month of onset



There were 103 reports of **hepatitis A** for the period. The epidemic experienced earlier this year, mainly in the Metropolitan Statistical Divisions of Brisbane, Melbourne and Sydney, has declined towards average levels (Figure 2). Current reports include 22 notifications from the Victorian central northern Statistical Division of Goulburn, bringing to 66 the number of cases notified from this area since mid-April. This is approximately 10 times the average national rate of reporting. Of early cases reported in this outbreak, more than 60% were children; recent cases are mostly young adult males.

Sporadic cases of **legionellosis** continue to be reported, three being notified for the current period. Legionellosis has been notifiable in some States and Territories since the early 1980s. National data first became available in 1991. A seasonal distribution of cases is apparent, with higher numbers in summer and autumn months (Figure 3), in common with experience in other countries. *Legionella* species data are not currently available. Most reports are from metropolitan statistical divisions, with average annual rates between 0.6 and 1.7 per 100,000 population (for Brisbane and Adelaide respectively). However, many regions outside capital cities experience similar rates. In 913 cases notified since January 1991, the male:female ratio was 2.3:1; the ratio has been fairly constant throughout the period. More than 70% of cases were in persons over 50 years of age (Figure 4).

Figure 4. Legionellosis notifications 1991 to 1996, by sex and age group

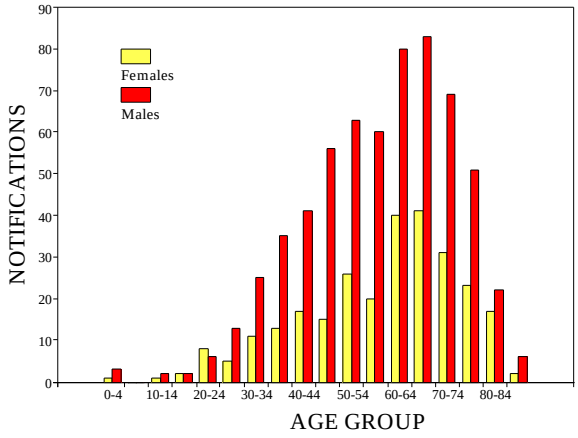


Table 1. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 23 June to 6 July 1996

DISEASE	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[1] This period 1996	This period 1995	Year to date 1996	Year to date 1995
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0
Haemophilus influenzae B infection	0	0	1	0	0	0	0	0	1	1	35	44
Measles	0	3	0	1	0	2	6	0	12	40	243	880
Mumps	0	1	0	NN	0	0	0	0	1	5	57	74
Pertussis	2	21	0	17	24	2	21	3	90	128	1570	2221
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0
Rubella	4	7	0	33	2	0	18	1	65	54	1410	1235
Tetanus	0	0	0	0	0	0	0	0	0	1	1	3

1. 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.

NN Not Notifiable.

Table 2. Notifications of other diseases[1] received by State and Territory health authorities in the period 23 June to 6 July 1996

DISEASE	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	TOTALS FOR AUSTRALIA[2]			
									This period 1996	This period 1995	Year to date 1996	Year to date 1995
Arbovirus Infection (NEC)[3,4]	0	1	2	0	0	0	1	0	4	7	123	355
Barmah Forest virus infection	0	7	-	13	1	0	-	-	21	13	573	284
Ross River virus infection	0	14	3	134	1	-	2	4	158	91	7153	2121
Dengue	0	0	0	0	0	-	0	0	0	0	22	14
Campylobacteriosis[5]	11	-	18	89	109	7	6	60	300	345	5619	5322
Chlamydial infection (NEC)[6]	5	NN	51	140	0	16	0	47	259	224	3731	3347
Donovanosis	0	NN	0	0	NN	0	0	0	0	2	26	48
Gonococcal infection[7]	0	20	51	40	0	0	0	15	126	142	1937	1624
Hepatitis A	1	34	5	17	2	0	40	4	103	42	1340	875
Hepatitis B incident	0	0	1	0	0	0	1	0	2	28	119	202
Hepatitis B unspecified	4	0	0	59	0	1	0	12	76	45	786	898
Hepatitis C incident	0	0	0	-	0	-	-	-	0	7	14	55
Hepatitis C unspecified	3	NN	3	182	NN	2	2	29	221	641	3983	4582
Hepatitis (NEC)	0	0	0	0	0	0	0	NN	0	2	11	16
Legionellosis	0	1	0	0	1	0	1	0	3	5	93	114
Leptospirosis	0	0	0	2	0	0	1	0	3	3	130	60
Listeriosis	0	0	0	1	0	0	0	0	1	0	31	38
Malaria	0	15	0	47	0	3	7	4	76	14	464	355
Meningococcal infection	0	4	0	5	0	0	5	1	15	13	149	176
Ornithosis	0	NN	0	4	0	0	0	0	4	4	55	72
Q fever	0	21	0	9	0	0	2	0	32	21	280	232
Salmonellosis (NEC)	4	30	13	50	17	1	27	14	156	141	3514	3864
Shigellosis[5]	0	-	7	6	2	0	1	5	21	32	360	456
Syphilis	0	24	17	15	0	0	0	0	56	83	762	1050
Tuberculosis	0	12	1	5	1	0	15	1	35	40	592	582
Typhoid[8]	0	0	0	0	0	0	0	0	0	0	46	38
Yersiniosis (NEC)[5]	0	-	1	4	2	0	1	1	9	8	140	201

1. For HIV and AIDS, see *CDI* 1996;20:289. For rarely notified diseases, see Table 3 .
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. Tas: includes Ross River virus and dengue.
4. NT, Vic and WA: includes Barmah Forest virus.
5. NSW: only as 'foodborne disease' or 'gastroenteritis in an institution'.
6. WA: genital only.
7. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
8. NSW, Vic: includes paratyphoid.

NN Not Notifiable.
NEC Not Elsewhere Classified.
- Elsewhere Classified.

Table 3. Notifications of rare[1] diseases received by State and Territory health authorities in the period 23 June to 6 July 1996

DISEASES	Total this period	Reporting States or Territories	Year to date 1996
Botulism	0		0
Brucellosis	4	Qld	19
Chancroid	0		1
Cholera	0	Qld	4
Hydatid infection	1	Qld	23
Leprosy	0		7
Lymphogranuloma venereum	0		0
Plague	0		0
Rabies	0		0
Yellow fever	0		0
Other viral haemorrhagic fevers	0		0

1. Fewer than 60 cases of each of these diseases were notified each year during the period 1988 to 1995.

National Influenza Surveillance

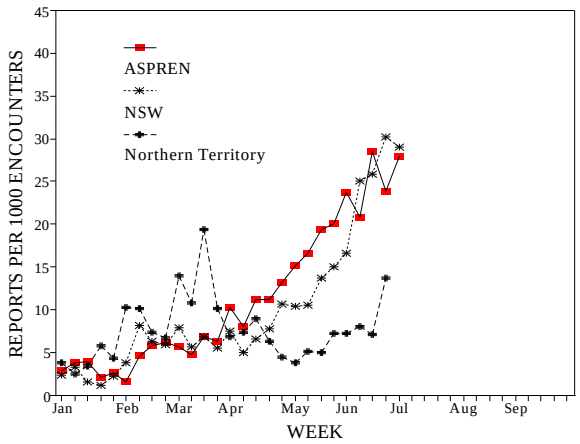
Australian Sentinel Practice Research Network; Communicable Diseases Intelligence Virology and Serology Reporting Scheme Contributing Laboratories, New South Wales Department of Health; Victorian Department of Health; World Health Organisation Collaborating Centre for Influenza Reference and Research.

National Influenza Surveillance is conducted from May to September each year. Data are combined from a number of sources to provide an indication of influenza activity. Included are sentinel general practitioner surveillance, absenteeism data from a national employer, and laboratory data from LabVISE and the World Health Organization Collaborating Centre for Influenza Reference and Research. For further information, see CDI 1996;20:9-12.

National influenza surveillance 1996

The consultation rate for influenza-like illness recorded by ASPREN has fluctuated this fortnight and dropped slightly in New South Wales after a rapid increase over the preceding weeks (Figure 5). The absenteeism rate for Australia Post has dropped marginally (Figure 6).

Figure 5. Sentinel general practitioner influenza consultation rates per 1,000 encounters, 1996, by week



A total of 189 laboratory reports of influenza A have been received so far this year. The number of reports has continued to increase markedly but remains below the number reported last year (Figure 7). One hundred and seventeen reports of influenza A were received this fortnight, diagnosed by antigen detection (53), virus isolation (48), single high titre (11), four fold rise in titre (4) and IgM detection (1). Of these 63% (74/117) were for children under five years of age and 8% (9/117) were for adults over 65 years of age. A further seven reports of influenza A (H3N2) were received. Four reports were for children under five years of age.

One report of influenza B has been received this fortnight, diagnosed by single high titre (Figure 8).

The World Health Organization (WHO) Collaborating Centre for Influenza Reference Research, Melbourne has received 30 isolates of Influenza H3N2. Six of these are closest autogenically to A/Johannesburg/33/94, 17 are closest to A/Wuhan/359/95. Two isolates of Influenza B have been received, one strain has been characterised as B/Beijing/184/93. Total reports of laboratory-confirmed influenza are, as yet, not high.

Figure 6. Australia Post absenteeism, 1996, by week

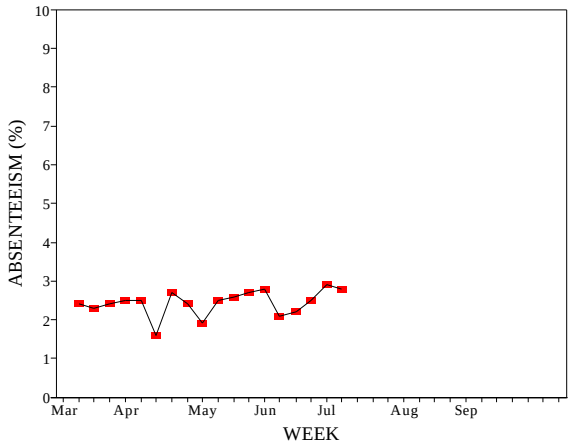


Figure 7. Influenza A laboratory reports, 1995 and 1996, by week of specimen collection

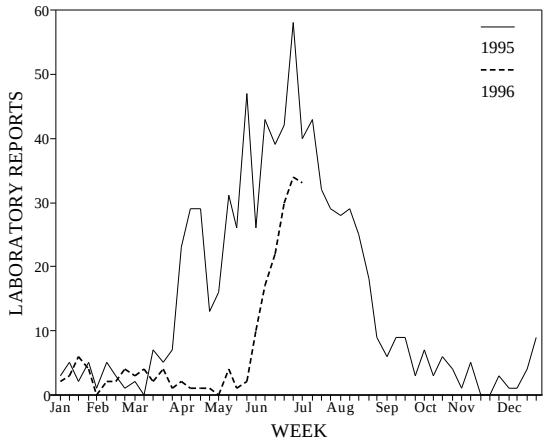
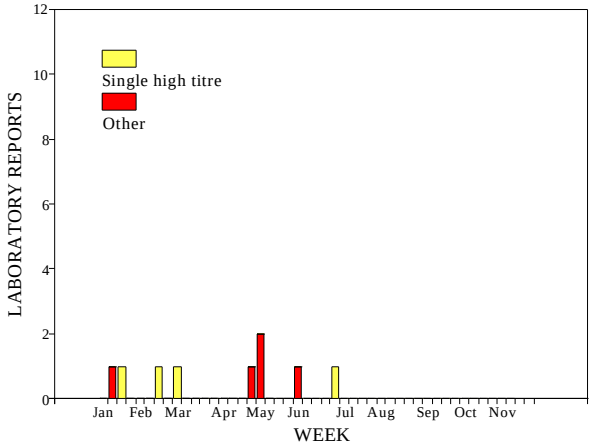


Figure 8. Influenza B laboratory reports, 1996, by method of diagnosis and week of specimen collection



Australian Sentinel Practice Research Network

The Australian Sentinel Practice Research Network (ASPREN) comprises 99 sentinel general practitioners from throughout the country. A total of approximately 9,000 consultations are recorded each week for 12 conditions. Of these, CDI reports the consultation rate for influenza, rubella, measles, pertussis and gastroenteritis. For further information including case definitions see CDI 1996;20:98-99.

Data for weeks 26 and 27 ending 30 June and 7 July respectively are included in this issue of *CDI* (Table 4). The rate of reporting of influenza-like illness remains at the levels seen in the previous 3 reporting weeks, and is similar to the rates seen during June, July and August 1995. Slight increases in rates of chickenpox and gastroenteritis have been reported for the current reporting weeks, compared with previous weeks. The rates of reporting of rubella, measles and pertussis continue to be at low levels.

Table 4. Australian Sentinel Practice Research Network reports, weeks 26 and 27, 1996

Condition	Week 26, to 30 June 1996		Week 27, to 7 July 1996	
	Reports	Rate per 1000 encounters	Reports	Rate per 1000 encounters
Influenza	198	23.9	241	27.9
Rubella	4	0.5	7	0.8
Measles	0	0.0	1	0.1
Chickenpox	13	1.6	15	1.7
Pertussis	3	0.4	2	0.2
Gastroenteritis	93	11.2	115	13.3

Serious Adverse Events Following Vaccination Surveillance Scheme

The Serious Adverse Events Following Vaccination Surveillance Scheme is a national surveillance scheme which monitors the serious adverse events that occur rarely following vaccination. More details of the scheme were published in CDI 1995:19; 273-274.

Acceptance of a report does not imply a causal relationship between administration of the vaccine and the medical outcome, or that the report has been verified as to the accuracy of its contents.

It is estimated that 250,000 doses of vaccines are administered every month to Australian children under the age of six years.

Surveillance reports for the Serious Adverse Events Following Vaccination Surveillance Scheme, which have been previously published every month in *CDI*, will in future be published quarterly. This will allow more meaningful presentation of the data. This decision has been supported by the *CDI* Editorial Advisory Board and the National Childhood Immunisation Committee.

Results for the reporting period 9 June to 6 July 1996

There were 14 reports of serious adverse events following vaccination for this reporting period. Reports were received from New South Wales (7), The Northern Territory (1) Queensland (1), South Australia (3) and Western Australia (2).

Of the 14 reports 4 were cases of persistent screaming, 5 of hypotonic / hyporesponsive episodes, 4 of convulsions, and one was of fever and rash following DTP vaccination (Table 5).

Four children were hospitalised. All children had recovered at the time the initial report was submitted.

LabDOSS

LabDOSS is a passive surveillance scheme that reports on significant bacterial and fungal isolates from normally sterile sites. Twenty laboratories currently forward reports of sterile site isolates to the Department of Health and Family Services. LabDOSS is published in alternate issues of CDI. Data from the LabDOSS scheme should be interpreted with caution. There is a potential for geographical, testing and referral pattern biases. In addition, risk factors and clinical information are not consistently provided by laboratories. For further information, see CDI 1996;20:9-10.

Data for this four weekly period have been provided by 7 laboratories. There were 467 reports of significant sepsis:

New South Wales: Prince of Wales Hospital 67; Royal North Shore Hospital 39; Hunter Area Pathology Service 173.
Tasmania: Royal Hobart Hospital 32.

Table 5. Adverse events following vaccination for the period 9 June to 6 July 1996

Event	Vaccines			Reporting States or Territories	Total reports for this period
	DTP	DTP / OPV / Hib	MMR		
Persistent screaming	3	1		NSW, WA	4
Hypotonic / hyporesponsive episode	1	2	2	NSW, SA	5
Convulsions	2	2		NT, SA, WA	4
Other	1			Qld	1
Total	7	5	2		14

Table 6. LabDOSS reports of blood isolates, by organism and clinical information

Organism	Clinical information						Risk factors					Total[1]
	Bone / Joint	Lower respiratory	Endocarditis	Gastrointestinal	Urinary tract	Skin	Surgery	Immunosuppressed	IV line	Hospital acquired	Neonatal	
Enterobacter cloacae				1	1		2	1		3		5
Enterobacter species				1	1	1	1	2		3		5
Enterococcus faecalis				3			3	1	1	5		8
Enterococcus species				4			1	2	1	3		6
Escherichia coli		2		26	31	1	8	20	1	23		98
Klebsiella pneumoniae				4	1		1	8		7		17
Proteus mirabilis				2	2	2	1	1	1	5		8
Pseudomonas aeruginosa		3		2	6	1	4	6		9		23
Serratia marcescens				1			2			4		5
Staphylococcus aureus	8	5	1	1		18	12	29	9	37	2	88[2]
Staphylococcus coagulase negative		5	2	1	1	2	3	12	6	14	5	50[3]
Streptococcus pneumoniae	1	20		1	1		2	2		3		36
Streptococcus viridans				1		1		1		0		5
Streptococcus species		2	1				2	2		1		8

1. Only organisms with 5 or more reports are included in this table.
2. MRSA 12.
3. Includes Staphylococcus epidermidis.

Table 7. LabDOSS reports of meningitis and/or CSF isolates, by organism and age group

	1-11 months	1-4 years	5-14 years	15-24 years	45-54 years	55-64 years	TOTAL
Cryptococcus neoformans					1		1
Enterococcus faecalis				1			1
Neisseria meningitidis		1		2			3
Staphylococcus aureus			1				1
Straphylococcus coagulase negative	1				1		2
Streptococcus Group B	1						1
Streptococcus pneumoniae	1	1				1	3
Streptococcus species						1	1

Queensland: Sullivan and Nicholaides and Partners 50.
Western Australia: Sir Charles Gairdner Hospital 33.
South Australia: Institute of Medical and Veterinary Science 73.

Blood isolates

Organisms reported 5 or more times from blood are detailed in Table 6. Other blood isolates not included in Table 6 were:

Gram-positive: 1 *Bacillus* species, 2 *Corynebacterium* species, 3 *Enterococcus faecium*, 1 *Enterococcus* species, 2 *Listeria monocytogenes*, 1 *Staphylococcus lugdenensis*, 1 *Staphylococcus simulans*, 4 *Streptococcus* Group A, 4 *Streptococcus* Group B, 1 *Streptococcus* Group F, 2 *Streptococcus* 'milleri', 1 *Streptococcus salivarius* and 1 *Streptococcus sanguis.*

Gram-negative: 1 *Acinetobacter* species, 1 *Aeromonas hydrophila*, 1 *Aeromonas sobria*, 1 *Aeromonas* species, 1 *Chromobacterium violoaceum*, 1 *Citribacter diversus*, 1 *Citrobacter freundii*, 2 *Citrobacter* species, 3 *Enterobacter aerogenes*, 1 *Escherichia vulneris*, 4 *Haemophilus influenzae*, 4 *Klebsiella oxytoca*, 1 *Pasteurella* species, *1 Pseudomonas cepacia*, 1 *Pseudomonas* species, 1 *Salmonella paratyphi*, 1 *Salmonella* species, 3 *Serratia liquefaciens*, 1 *Xanthomonas maltophilia and* 1 *Yersinia enterocolitica.*

Anaerobes: 2 *Bacteroides fragilis*, 1 *Bacteroides* species, 2 *Clostridium perfringens*, 1 *Clostridium* species, 1 *Fusobacterium* species and 4 *Propionibacterium acnes.*

Fungi: 3 *Candida albicans*, 3 *Candida* species and 1 *Cryptococcus neoformans.*

There were 276 (63% of total) blood isolates reported for patients over the age of 54 years (Figure 9).

Isolates from sites other than blood

Organisms reported to cause meningitis or isolated from CSF are detailed in Table 7.

Joint fluid: Two reports were received this period involving *Serratia marcescens* and *Streptococcus pneumoniae.*

Peritoneal dialysate: Four reports were received this period. Included was 1 *Candida albicans* and 3 *Staphylococcus* coagulase negative.

Pleural fluid: Four reports were received this period. Included was 1 *Pseudomonas* species, 2 *Streptococcus* species and 1 *Staphylococcus lugdenensis.*

Other: A total of 7 reports was received. Included was 2 *Escherichia coli,* 1 *Nocardia* species, 1 *Pseudomonas* species, 1 *Staphylococcus aureus* and 2 *Streptococcus* 'milleri'.

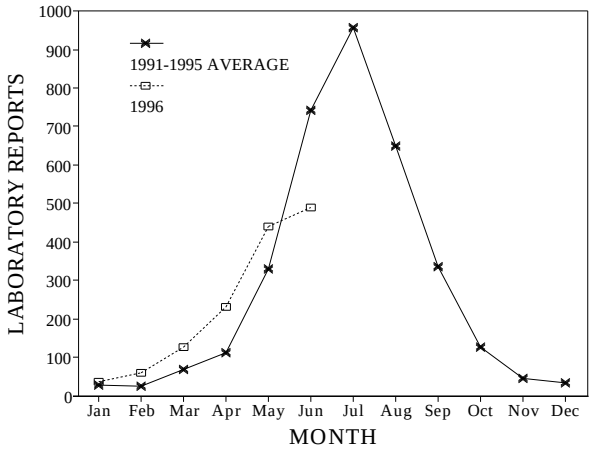
LabVISE

The Virology and Serology Reporting Scheme, LabVISE, is a sentinel reporting scheme. Twenty-one laboratories contribute data on the laboratory identification of viruses and other organisms. Data are collated and published in Communicable Diseases Intelligence each fortnight. These data should be interpreted with caution as the number and type of reports received is subject to a number of biases. For further information, see CDI 1996;20:9-12.

There were 1,411 reports received in the *CDI* Virology and Serology Reporting Scheme this period (Tables 8 and 9).

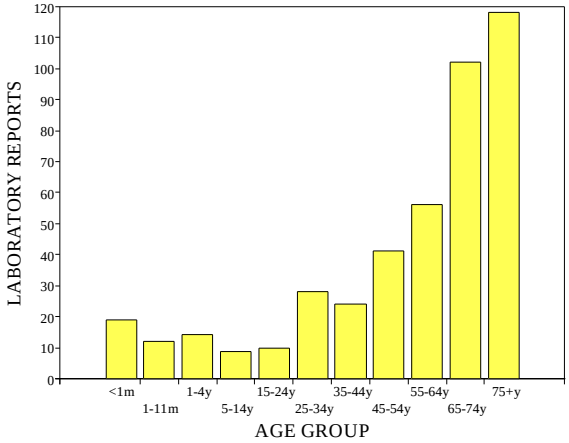
Over the last two reporting periods, 87% of reports for **rubella** (45 / 52) have been from Queensland. Twenty-nine reports were received this fortnight. Diagnosis was by IgM detection (27) and single high titre (2). Eighteen reports were for males (nine aged 15 to 30 years) and 11 were for females (six aged 15 to 44 years).

Figure 10. Respiratory syncytial virus laboratory reports, 1991 to 1995 average and 1996, by month of specimen collection[1]



1. Data for June may be incomplete.

Figure 9. LabDOSS reports of blood isolates, by age group



Reports of **respiratory syncytial virus** are increasing as expected but appear to have dropped below average for this time of year (Figure 10). A total of 465 reports were received in the last fortnight. Diagnosis was by antigen detection (303), virus isolation (160) and nucleic acid detection (2). Ninety-six per cent of reports (446 / 465) were for children under five years of age and of these 65% (288 / 446) were under one year of age.

Although reports of **Ross River virus** in 1996 remain above average, reports have continued to decline since the peak in February (Figure11). Forty-three reports were received this period. Diagnosis was by IgM detection (34), single high titre (8) and four fold rise in titre (1).

Figure 11. Ross River virus laboratory reports, 1990 to 1995 average and 1996, by month of specimen collection

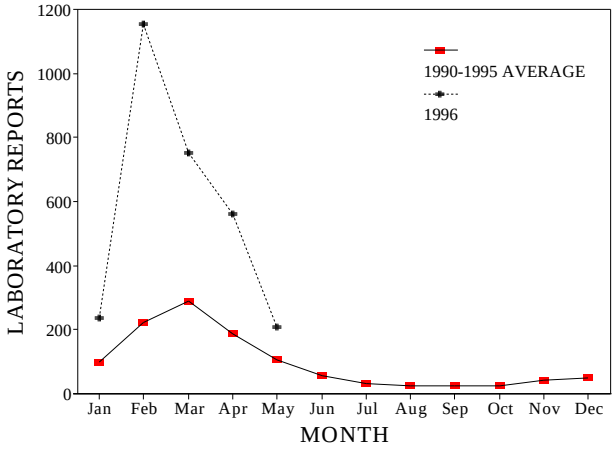


Table 8. Virology and serology laboratory reports by State or Territory[1] for the reporting period 27 June to 10 July 1996, historical data[2], and total reports for the year

	State or Territory[1]							Total this fortnight	Historical data[2]	Total reported this year
	NSW	NT	Qld	SA	Tas	Vic	WA			
MEASLES, MUMPS, RUBELLA										
Measles virus						1	1	2	14.5	30
Mumps virus						2		2	2.8	27
Rubella virus	1		27				1	29	10.3	319
HEPATITIS VIRUSES										
Hepatitis A virus	1	5	10				5	21	18.8	286
Hepatitis D virus							1	1	.8	9
ARBOVIRUSES										
Ross River virus	2	2	23		1	1	14	43	37.5	2,994
Barmah Forest virus			8					8	10.8	152
ADENOVIRUSES										
Adenovirus type 7						1		1	.3	18
Adenovirus type 35						1		1	.2	2
Adenovirus type 40		1				2		3	.0	20
Adenovirus type 41						1		1	.0	4
Adenovirus not typed / pending	7		21			1	18	47	35.8	781
HERPES VIRUSES										
Cytomegalovirus	10	2	29	1		5	17	64	63.8	966
Varicella-zoster virus	4	2	21			6	11	44	40.2	703
Epstein-Barr virus	10	2	57			7	11	87	57.7	1,184
OTHER DNA VIRUSES										
Parvovirus	1		5			3	3	12	5.0	88
PICORNA VIRUS FAMILY										
Coxsackievirus A9					1			1	.3	11
Coxsackievirus A16						1		1	1.7	4
Coxsackievirus B4						1		1	.2	1
Rhinovirus (all types)	1		31			3	1	36	27.0	390
Enterovirus not typed / pending			29				12	41	44.8	511
ORTHO / PARAMYXOVIRUSES										
Influenza A virus	17		25			30	45	117	70.7	228
Influenza A virus H3N2			7					7	2.5	8
Influenza B virus							1	1	10.5	29
Parainfluenza virus type 1			3			3	4	10	24.7	194
Parainfluenza virus type 2	1		1					2	9.5	46
Parainfluenza virus type 3	1		1			2	2	6	24.5	302
Respiratory syncytial virus	95		178		2	93	99	467	458.5	1,678
OTHER RNA VIRUSES										
Rotavirus	10				1	16	25	52	78.8	600
Norwalk agent						2		2	.8	31
OTHER										
Chlamydia trachomatis not typed	6	32	77		4	11	68	198	108.3	2,225
Mycoplasma pneumoniae	4		22			1	4	31	23.7	341
Coxiella burnetii (Q fever)	3		3			4		10	9.3	104
Rickettsia tsutsugamushi			1					1	.0	4
GRAM NEGATIVE BACTERIA										
Neisseria gonorrhoeae							15	15	.0	15
Bordetella pertussis						7	4	11	22.7	283
Bordetella species	1		19					20	3.2	169
Legionella species							2	2	.0	3
Leptospira species			5					5	.7	34
Schistosoma species		1				3	4	8	4.2	184
TOTAL	175	47	603	1	9	208	368	1,411	1,225.2	14,978

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.
2. The historical data are the averages of the numbers of reports in 6 previous 2 week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.

Table 9. Virology and serology laboratory reports by contributing laboratories for the reporting period 27 June to 10 July 1996

STATE OR TERRITORY	LABORATORY	REPORTS
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	50
	Royal Prince Alfred Hospital, Camperdown	17
	South West Area Pathology Service, Liverpool	91
Queensland	Queensland Medical Laboratory, West End	386
	State Health Laboratory, Brisbane	250
Tasmania	Northern Tasmanian Pathology Service, Launceston	2
	Royal Hobart Hospital, Hobart	6
Victoria	Microbiological Diagnostic Unit, University of Melbourne	2
	Monash Medical Centre, Melbourne	141
	Unipath Laboratories	9
	Victorian Infectious Diseases Reference Laboratory, Fairfiel	58
Western Australia	PathCentre Virology, Perth	150
	Princess Margaret Hospital, Perth	167
	Royal Perth Hospital	10
	Western Diagnostic Pathology	72
TOTAL		1411

Contributions covering any aspects of communicable disease are invited. Instructions to authors can be found in *CDI* 1996;20:13.

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