Editorial

Creutzfeldt-Jakob disease surveillance - Australia at the crossroads?

Creutzfeldt-Jakob disease (CJD) is one of a small number of human neurodegenerative transmissible spongiform encephalopathies (TSEs) which affect people mainly in the 50 to 75 year age range, with a peak incidence in about the mid-sixties. The annual incidence of CJD is approximately one case per million population, and is invariably fatal, usually within a year of onset of symptoms. It usually begins with memory loss, followed by rapidly progressing dementia, loss of coordination, slurred speech and myoclonus, and - in the final stages - akinetic mutism, coma and death. A definitive diagnosis can only be made by histopathological examination of brain tissue, and only in rare cases is a diagnosis confirmed ante-mortem. Other related human TSEs include variant CJD (vCJD), Gerstmann-Sträussler-Sheinker disease (GSS), fatal familial insomnia (FFI), sporadic fatal insomnia and kuru.

It is believed TSEs are caused by the accumulation of an aberrant isoform of a normal cellular protein called a prion (PrP). About 85 per cent of cases of CJD are regarded as sporadic, and are initiated by a rare stochastic change in the secondary structure of one or a few molecules of protein to form the abnormal structure. The aberrant isoform of the PrP is thought to act as a template, causing the normal conformers to switch to the abnormal shape, in a cascade effect. Almost 10 per cent of cases of CJD occur in persons with a family history of the disorder, and the pattern of disease transmission is consistent with an autosomal dominant gene mutation. In most of these families, mutations are found in the gene for the PrP gene. In a very small proportion of patients, CJD is attributable to iatrogenic transmission through neurosurgery or implantation of stereotactic EEG electrodes, or to the administration of cadaver-derived pituitary hormones, or to the use of dura mater or corneal grafts.[1-6] Case control studies have also reported a weak association between surgical treatment and the occurrence of CJD,[7,8] although there have been no confirmed reports of surgical transmission of CJD other than through neurosurgical procedures.

In 1986, bovine spongiform encephalopathy (BSE) was first identified in cattle in the United Kingdom (UK). This disease is characterised by apprehension, aggression and ataxia, with pathological brain lesions similar to those seen in human TSEs. Variant CJD (vCJD) was first reported from the UK in 1996, and to date (28 September 2000) 73 confirmed cases have been reported to the UK National CJD Surveillance Unit.[9] Patients with this condition are typically much younger than those with classical CJD (cCJD), and prominent features include neuropsychiatric and behavioural disorders, and abnormal sensory perceptions. The

ISSN 0725-3141
Volume 24
Number 9
September 2000

Contents

Cont'd next page

course of the illness is generally longer than that of cCJD, but is invariably fatal. Spongiform changes seen in the brain resemble those of kuru more closely than those seen in cCJD. There is now convincing evidence that the vCJD epidemic in the UK has been caused by the consumption of foods contaminated with the BSE agent.[10-13] BSE has never been recorded from Australia, and Commonwealth and State agricultural authorities carry out an active surveillance program.

Although iatrogenic transmission of cCJD has been documented, there is no clinical or epidemiological evidence that the disease is transmissible by blood or blood products. There is, however, concern over the possibility that vCJD may be transmissible by this route, and that circulating lymphocytes may play a role in the pathogenesis of the disease. The recent report of experimental transmission of BSE between sheep by this route[14] is thus of concern. Steps have been taken in the UK to minimise this theoretical risk by undertaking leukodepletion of the blood supply and sourcing all plasma from non-European countries. In contrast to cCJD, the vCJD PrP has been found in the lymphoreticular tissue of all cases of vCJD studied, and in the appendix of an asymptomatic person who developed symptoms of vCJD 8 months later.[15]

Surveillance of human TSEs is conducted by the Australian CJD Registry, which is funded by the Commonwealth Government and is located in the Department of Pathology at The University of Melbourne. CJD is not notifiable, and accurate case ascertainment is largely dependent on voluntary reporting by medical practitioners. Mailouts are posted to neurologists and pathologists semi-annually in an effort to prompt notification of recent or prospective cases. Other methods include searches of death certificates, and review and follow-up of teaching hospital medical records.

Given the unusual presentation of vCJD (with neuro-psychiatric and behavioural changes presenting early in the course of the disease) and the possibility that the vCJD prion may be transmissible through blood, the question arises as to whether current methods of case ascertainment are adequate to detect vCJD ante-mortem, and to protect public health. vCJD has never been recorded in Australia and, based on the UK experience and the rarity of the disease, it is possible that a patient may not be seen by a practitioner with a high index of suspicion early in the course of the illness. A symptomatic or asymptomatic blood donor could continue to donate blood for some time before the diagnosis is considered. Should vCJD be transmissible through the blood supply, there is a clear potential for iatrogenic transmission in this manner. It is for this reason that those visiting Britain for 6 months or more between 1980 and 1996 cannot donate blood in a number of countries (including Australia) and on 30 August 2000 the Canadian authorities, following the second report of vCJD in France,[16] have directed that those visiting France for 6 months or more during that period cannot do so either.[17] The time has now come for enhanced surveillance in Australia of all human TSEs.

Lance Sanders

Principal Scientist, Surveillance and Management Section, Population Health Division, Department of Health and Aged Care, Canberra, ACT.

References

1. Duffy P, Wolf J, Collins G, DeVoe AG, Streeten B, Cowen D. Letter: Possible person-to-person transmission of Creutzfeldt-Jakob disease. *N Engl J Med* 1974;290:692-693.
2. Will RG, Matthews WB. Evidence for case-to-case transmission of Creutzfeldt-Jakob disease. *J Neurol Neurosurg Psychiatry* 1982;45:235-238.
3. Thadani V, Penar PL, Partington J et al. Creutzfeldt-Jakob disease probably acquired from a cadaveric dura mater graft. Case report. *J Neurosurg* 1988;69:766-769.
4. Fradkin JE, Schonberger LB, Mills JL et al. Creutzfeldt-Jakob disease in pituitary hormone recipients in the United States. *JAMA* 1991;265:880-884.
5. Esmonde T, Lueck CJ, Symon L, Duchen LW, Will RG. Creutzfeldt-Jakob disease and lyophilised dura mater grafts: report of two cases. *J Neurol Neurosurg Psychiatry* 1993; 56:999-1000.
6. Centers for Disease Control and Prevention. Creutzfeldt-Jakob disease associated with cadaveric dura mater grafts – Japan, January 1979 - May 1996. *MMWR Morb Mortal Wkly Rep* 1997:46:1066-1069.
7. Collins S, Law MG, Fletcher A, Boyd A, Kaldor J, Masters CL. Surgical treatment and risk of sporadic Creutzfeldt-Jakob disease: a case-control study. *Lancet* 1999;353:693-697.
8. Kondo K, Kuriowa Y. A case control study of Creutzfeldt-Jakob disease: association with physical injuries. *Ann Neurol* 1982; 11:377-381.
9. United Kingdom Department of Health. www.doh.gov.uk/cjd/stats/sept00.htm.
10. Lasmézas CI, Deslys JP, Demaimay R et al. BSE transmission to macaques. *Nature* 1996;381:743-744.
11. Collinge J, Sidle KC, Meads J, Ironside J, Hill AF. Molecular analysis of prion strain variation and the aetiology of 'new variant' CJD. *Nature* 1996;383:685-690.
12. Hill AF, Desbruslais M, Joiner S et al. The same prion strain causes vCJD and BSE. *Nature* 1997;389:448-450.
13. Bruce ME, Will RG, Ironside JW et al. Transmissions to mice indicate that 'new variant' CJD is caused by the BSE agent. *Nature* 1997;389:498-501.
14. Houston F, Foster J D, Chong A et al. Transmission of BSE by blood transfusion in sheep. *Lancet* 2000;356:999.
15. Hilton DA, Fathers E, Edwards P, Ironside JW, Zajicek J. Prion immunoreactivity in appendix before clinical onset of variant Creutzfeldt-Jakob disease. *Lancet* 1998;352:703-704.
16. Oppenheim C, Brandel JP, Hauw JJ, Deslys JP, Fontaine B. MRI and the second French case of vCJD. *Lancet* 2000; 356:253-254.
17. Health Canada. Directive D2000-01. www.hc-sc.gc.ca/hpb-dgps/therapeut/zfiles/english/btox/directiv/d2000-01_0830_e.pdf.

Contents, *continued*

Deferral of blood donation from people who have been in the United Kingdom between 1980 and 1996

Australian Health Ministers have collectively agreed to defer, for an indefinite period, blood donations from Australians who have lived or travelled in the United Kingdom for a cumulative period of 6 months or more between 1980 and 1996. The announcement was made on 21 September 2000 and has attracted considerable media attention.

The period between 1980 and 1996 coincided with the epidemic of Bovine Spongiform Encephalopathy (BSE) in the United Kingdom. Consumption of meat infected with the BSE agent is thought to be the cause of variant Creutzfeldt-Jacob disease (vCJD) which was first reported in the UK in 1996.

There have been no cases of vCJD in Australia and no cases of vCJD associated with blood transfusion reported anywhere in the world. However, in light of recent evidence that BSE may be experimentally transferred by blood in sheep, the Donor Deferral Working Party recommended to Australian Health Ministers that, as a precautionary measure, action be taken to defer donors who may have been exposed to BSE when living or travelling in the UK.

This action is in line with other countries such as the USA, Canada and New Zealand. As in these other countries, the deferral policy will be phased in over a period of 3 months, to avoid jeopardising the availability of blood through the sudden loss of up to 30,000 donors.

A Fact Sheet providing answers to commonly asked questions is available on the Internet at: www.health.gov.au/issues.htm. Copies of the Fact Sheet are also available to the general public via the free-call National Blood Information Line on telephone 1800 351 000.

Blood donors who would like more information should call the Australian Red Cross Blood Donor Information Line on telephone 131 495. Anyone, who is considering withdrawing as a donor in response to the reports in the media, is asked to contact their local Australian Red Cross Blood Service to discuss the issue before taking this step. The Australian Red Cross Blood Service will be writing to all blood donors shortly to provide them with more information.

Drafts for Comment

Draft Australian/New Zealand Standard for comment.
Safety in laboratories, Part 3: Microbiology.

DR00254. Revision of AS/NZS 2243.3:1995.
Free electronic version via 'Document type = Drafts; Document number = DR00254' at:
<http://www.standards.com.au/catalogue/amendments/search.asp>
Closing date for comment: 31 October 2000.

UK Food Standards Agency Draft Report on BSE Controls review

This draft report has been available for comment since 5 September on <htpp://www.bsereview.org.uk> from which there is a link to register to receive updates, FSA BSE digests (!) etc and a link to a <your_say.htm> site enabling one to comment to FSA on the draft report.

Global Strategy for Containment of Antimicrobial Resistance - Draft WHO/CDS/CSR/DRS/2000.1-DRAFT

The text of the draft is available from <http://www.who.int/emc/globalstrategy/strategy.htm>
Executive Summary (48k)
Part A Introduction & Background (56k)
Part B Appropriate Antimicrobial Use and Emerging Resistance: Issues & Interventions (210k)
Part C Implementation of the Global Strategy (85k)
Part D References & Part E Annexes (185k)
WHO welcomes comments on this draft. Please send them directly to <amr@who.int> indicating: Section, page number and paragraph. The deadline for receipt of comments is 13 November 2000.

Letter to the Editor

Immunisation coverage estimates

Peter McIntyre, Brynley Hull
National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases, Royal Alexandra Hospital for Children, Westmead, NSW.

To the Editor: Dr Selvey's concerns[1] regarding our article demonstrating that earlier Australian Childhood Immunisation Register (ACIR) coverage estimates should be adjusted upwards based on ACIR data alone[2] highlight the importance of local knowledge in interpreting ACIR data. This has been recognised in the recent ACIR evaluation, resulting in the new recommendation that reports from each jurisdiction be made to each meeting of the ACIR management committee. Although our paper did not discuss in detail the differences among jurisdictions, it did reference an earlier paper which covered this more extensively.[3] The recent report on vaccine preventable diseases and vaccination coverage[4] discusses interpretation of ACIR estimates, with particular attention to those for the Northern Territory, in some detail.

Dr Selvey's letter mentions three apparent anomalies. The first was the finding that jurisdictions with the longest lag times from encounter date to receipt at the Health Insurance Commission (HIC) (Queensland and the Northern Territory) had the lowest increase in coverage due to late notifications, which was felt to be counter-intuitive. This observation is a tribute to Dr Selvey's careful reading of the Tables, and would have escaped many readers as it did the authors. As stated in the paper, long lag times occur in Queensland and the Northern Territory because data are entered locally before transmission to the HIC, rather than sent directly to the HIC by providers. We suspect that this means data are checked more rigorously before transmission (reducing errors) and that there is a longer period for receipt of notifications, both of which would tend to reduce late notifications.

The second and third anomalies pointed out by Dr Selvey (a small decrease in MMR coverage and differences between immunisation history forms and late notifications) relate only to the Northern Territory. We agree that the explanation for this is likely to be the high interstate migration of Northern Territory families. This effect is much more evident in the Northern Territory because of its relatively small population, making this a much higher proportion compared with other jurisdictions.

Finally, Dr Selvey's letter has provided a helpful and comprehensive update on progress in adapting and improving the ACIR to provide maximum utility in the Northern Territory. Although it is important for readers of *Commun Dis Intell* to be aware of these issues, which probably apply to comparable populations in rural and remote areas of Australia, we do not believe that they invalidate the core message of our paper. This was to emphasise again that immunisation coverage estimates from the ACIR are minimum estimates and that even based on the ACIR itself, as opposed to other data sources, should be revised upwards. In the case of the Northern Territory, this effect is dwarfed by the other initiatives and issues referred to by Dr Selvey. Our updated coverage figures were also able to demonstrate the impact of catch-up immunisation which is not captured by the regular cohort-based ACIR quarterly reports. We believe that these conclusions apply generally across Australia, and that periodic re-examination of ACIR coverage estimates in addition to routine reporting is informative, although the impact of immunisation history forms should lessen over time.

References

1. Selvey C. Immunisation coverage estimates. Letter. *Commun Dis Intell* 2000;24:260.
2. Hull BP, McIntyre PB. A re-evaluation of immunisation coverage estimates from the Australian Childhood Immunisation Register. *Commun Dis Intell* 2000;24: 161-164.
3. Hull BP, McIntyre PB, Heath TC, Sayer GP. Measuring immunisation coverage in Australia. A review of the Australian Childhood Immunisation Register. *Aust Fam Physician* 1999; 28: 55-60.
4. McIntyre PB, Amin J, Gidding H et al. Vaccine preventable diseases and vaccination coverage in Australia, 1993-98 *Commun Dis Intell* 2000;24 Suppl (June):54-57.

Correspondence

Letters to the Editor should be brief and submitted by e-mail to: cdi.editor@health.gov.au. Authors should adhere to the *CDI* instructions for authors (*Commun Dis Intell* 2000;24:5-6). Letters may be subject to editing.

References should be restricted to material published or in press and be limited in number. Names, initials, contact telephone and facsimile numbers, and affiliation of all authors should be supplied.

Surveillance of antibiotic resistance in *Neisseria gonorrhoeae* in the WHO Western Pacific Region, 1999

The WHO Western Pacific Region Gonococcal Antimicrobial Surveillance Programme[1]

Abstract

A long-term programme of surveillance of antimicrobial resistance in *Neisseria gonorrhoeae* isolated in the World Health Organization's Western Pacific Region Gonococcal Antimicrobial Surveillance Programme ((WHO WPR GASP) continued in 1999. Over 10,000 gonococci were examined in 18 focal centres. Resistance to the quinolones and penicillins was already high in many parts of the Western Pacific Region and increased further in most centres, the exceptions being a number of Pacific Island States. Although resistance to the later generation cephalosporins was absent, and that to spectinomycin infrequent, options for effective treatment of gonorrhoea in the Western Pacific Region continue to be limited. *Commun Dis Intell* 2000;24:269-271.

Keywords: surveillance, Neisseria gonorrhoeae*, antimicrobial resistance, gonorrhoea, antibiotics, quinolones, penicillins, spectinomycin, cephalosporins*

Introduction

Neisseria gonorrhoeae is, with *Haemophilus ducreyi*, one of the few aetiological bacterial agents of sexually transmitted infection (STI) where antimicrobial resistance (AMR) seriously compromises disease control. Additionally AMR in gonococci, by preventing effective treatment of individuals, increases the rate of complications and morbidity associated with gonococcal disease. One further deleterious consequence of gonorrhoea is the amplification of the rate of transmission of HIV that occurs in its presence. However, effective treatment of gonorrhoea removes this effect. It is therefore important to ensure that gonococcal disease is properly treated, and this in turn depends to a significant degree on having relevant data on AMR patterns to guide selection of treatment regimens.

AMR in gonococci may arise and spread rapidly. The World Health Organization (WHO) Western Pacific Region (WPR) includes countries with high rates of STIs and where different forms of AMR have arisen in the past. Gonococci resistant to the penicillins, spectinomycin and, more recently, the quinolone antibiotics had their origins in countries in the WPR. The potential for spread of AMR gonococci beyond regional confines is also well established so that disease acquired in one setting may present in another. There are thus multiple reasons to ascertain the prevalence and distribution of AMR in gonococci and modify treatment regimens accordingly. The WHO WPR Gonococcal Antimicrobial Surveillance Programme (GASP) has monitored AMR in gonococci in the region since 1992 and results have been published in *Communicable Diseases Intelligence*.[1,2] This communication provides an analysis of surveillance of AMR in *N. gonorrhoeae* in 18 countries in the WHO WPR in 1999.

Methods

The methods used by the WHO WPR GASP were published in 1997[3] and provide full details of the source of isolates, sample populations, laboratory test methods and quality assurance programs used to generate data. These methods were unaltered in 1999. Most isolates were collected from symptomatic STD clinic patients. As a guide to the interpretation of the following data, a WHO expert committee has recommended that treatment regimens be altered once resistance to a particular antibiotic reaches 5 per cent.[4]

Results and discussion

About 10,600 gonococcal isolates were examined in 18 participating countries (listed in the acknowledgments) in 1999.

Penicillins

Resistance to the penicillins remained widespread by both chromosomal and plasmid-mediated mechanisms. Table 1 provides details of chromosomally mediated resistance in *N. gonorrhoeae* (CMRNG), penicillinase-producing *N. gonorrhoeae* (PPNG) and/or total penicillin resistance in 18 WPR countries in 1999. Very high rates of all penicillin resistance (CMRNG + PPNG) were recorded in Korea (95%), the Philippines (94%), China (88%), Hong Kong SAR (73%), Brunei (67%), Vietnam (66%), Singapore (56%) and Mongolia (48%). Resistance to the penicillins in these countries in 1999 approximated that found in 1998. Of interest were the low rates of penicillin resistance found in some Pacific Island States. The Solomon Islands and Vanuatu had no penicillin resistant strains in 1999 and in New Caledonia (4%), Fiji (4.8%) and Tonga (5%,) rates were considerably lower than those observed in other parts of the region. The exception to this observation was Papua New Guinea where penicillin resistance was of the order of 59 per cent, equally distributable between PPNG and

1. Corresponding author: Associate Professor John W Tapsall, WHO Collaborating Centre for STD and HIV, Department of Microbiology, The Prince of Wales Hospital, Randwick, NSW, Australia 2031. Telephone: + 61 2 9382 9079. Fax + 61 2 9398 4275. E-mail: j.tapsall@unsw.edu.au

Table 1. Penicillin sensitivity of strains of *Neisseria gonorrhoeae* isolated in 18 countries in the WHO WPR[1] in 1999

Country	No. tested	PPNG[2] No.	PPNG[2] %	CMRNG[3] No.	CMRNG[3] %	All penicillin- resistant No.	All penicillin- resistant %
Australia	3,658	269	7.4	525	14.3	794	21.7
Brunei	64					43	67.0
China	571	127	21.5	338	57.1	465	88.6
Fiji	860	17	1.9	24	2.8	41	4.7
Hong Kong SAR	2,482	233	9.4	1,576	63.5	1,809	72.9
Japan	246	3	1.2	36	14.8	39	16.0
Korea	86	72	84.0	10	12.0	82	95.0
Malaysia	54	13/44	29.0	5	9.3	18	38.3
Mongolia	56	10	17.8	17	30.4	27	48.2
New Caledonia	53					2	3.8
New Zealand	638	18	2.8	34	5.3	52	8.1
Papua New Guinea	343	73/253	28.8	103	30.0		58.8
Philippines	313	294	94.0	0	0.0	294	94.0
Singapore	768	399	51.9	31	4.0	430	55.9
Solomon Islands	21	0	0.0	0	0.0	0	0.0
Tonga	39	1	2.5	1	2.5	2	5.0
Vanuatu	129	0	0.0	0	0.0	0	0.0
Vietnam	194	99	51.0	28	14.4	127	65.5

1. World Health Organization: Western Pacific Region.
2. PPNG = penicillinase-producing *N. gonorrhoeae*.
3. CMRNG = chromosomally mediated resistance in *N. gonorrhoeae*.

CMRNG. The other participants submitting data in 1999 (Australia, Japan, Malaysia and New Zealand) had rates of penicillin resistance between 8 and 38 per cent.

Quinolones

Resistance to the quinolone antibiotics has become a major problem in parts of the WPR in recent years and this situation deteriorated further in 1999. Data from 15 WPR countries are shown in Table 2 and allow division of quinolone-resistant strains (QRNG) into 'less susceptible' and 'resistant' categories on the basis of minimal inhibitory concentration (MIC) determinations.[3] Twelve of 15 WPR countries detected QRNG in 1999. High proportions of QRNG were detected in Hong Kong, China, Japan and the Philippines, maintaining a situation observed in previous reports. In Hong Kong the percentage of 'resistant' QRNG increased from about 50 per cent in 1998 to about 66 per cent in 1999. A similar shift to higher MICs in Japan saw the proportion of 'resistant' QRNG there increase from 3 per cent in 1998[2] to about 23 per cent in 1999. The proportion of QRNG also increased significantly in Vietnam in 1999 to about 50 per cent from 17 per cent in 1998. Most of the QRNG in Vietnam were in the higher MIC range. Singapore recorded an increase in resistant strains from 7 per cent in 1998 to 17 per cent in 1999. In both Korea and Australia there were increases in the percentage of QRNG in the less susceptible range. In Korea these increased from about 50 per cent to 71 per cent and in Australia from 2 per cent to 14 per cent as a result of spread of QRNG in homosexually active males. Mongolia reported QRNG data for the first time and about one third of isolates exhibited some form of quinolone resistance; 25 per cent of them had high level resistance. About 17 per cent of strains from Brunei, 3.5 per cent from New Zealand and 1.8 per cent from Papua New Guinea were QRNG. No QRNG were found in Malaysia, New Caledonia or the Solomon Islands in 1999.

Table 2. Quinolone resistance in strains of *Neisseria gonorrhoeae* isolated in 15 countries in the WHO WPR[1] in 1999

Country	No. tested	Less susceptible No.	Less susceptible %	Resistant No.	Resistant %
Australia	3658	500	13.7	128	3.5
Brunei	53	4	7.5	5	9.4
China	591	131	22.1	332	52.8
Hong Kong SAR	2482	697	28.1	1653	66.6
Japan	246	80	32.5	56	22.8
Korea	86	61	71.0	14	16.0
Malaysia	54	0	0.0	0	0.0
Mongolia	56	5	8.9	14	25.0
New Caledonia	53	0	0.0	0	0.0
New Zealand	638	8	1.3	14	2.2
Papua New Guinea	343	1	0.3	5	1.5
Philippines	313	8	2.5	191	61.0
Singapore	768	37	4.8	131	17.0
Solomon Islands	21	0	0.0	0	0.0
Vietnam	194	27	13.9	69	35.6

1. World Health Organization: Western Pacific Region.

Cephalosporins

There were no isolates resistant to the third generation cephalosporin agents reported in the WPR GASP survey that examined about 7,250 gonococci from 16 of the participating countries.

Spectinomycin

Only two isolates, one each in Malaysia and Papua New Guinea were resistant to spectinomycin amongst about 7,250 gonococci examined in 16 of the participating countries in 1999. Only very occasional strains resistant to this injectable antibiotic have been found in recent WPR surveys.

Tetracyclines

Although tetracyclines are not a recommended treatment for gonorrhoea, these agents are widely used and readily available in the WPR. One particular type of resistance is common in parts of the WPR; this is plasmid-mediated and gives rise to high-level tetracycline resistant *N. gonorrhoeae* (TRNG). About 6,900 gonococci were examined for high-level tetracycline resistance in 12 of the WPR countries in 1999 (Table 3). TRNG were again prominent in Malaysia, Singapore, Vietnam and the Solomon Islands with TRNG rates between 40 and 74 per cent. Rates below 10 per cent were seen in Australia, New Zealand and the Philippines. The TRNG rate increased in China from around 3 per cent in 1998 to nearly 15 per cent in 1999. A similar rate was observed in Papua New Guinea. TRNG were not detected in isolates from Korea, Mongolia and Tonga.

The data recorded in 1999 continue trends noted over several years. Resistance to the penicillins remains widespread, although some island States have low rates of resistance. The effectiveness of the quinolone group of antibiotics continues to decrease and their use in many countries should be discontinued because of the levels of resistance present. However, although alternative therapies are available, their cost limits their use in some settings.

Table 3. High-level tetracycline resistance in strains of *Neisseria gonorrhoeae* isolated in 12 countries in the WHO WPR[1] in 1999.

Country	No. Tested	No. TRNG[2]	% TRNG
Australia	3,658	288	7.8
China	591	86	14.5
Korea	86	0	0.0
Malaysia	54	32	59.0
Mongolia	27	0	0.0
Papua New Guinea	343	54	15.7
New Zealand	638	8	1.3
Philippines	313	16	5.1
Singapore	768	566	73.7
Solomon Islands	21	12	57.0
Tonga	39	0	0.0
Vietnam	195	79	40.5

1. World Health Organization: Western Pacific Region.
2. TRNG = tetracycline-resistant *N. gonorrhoeae.*

Acknowledgments

The following members of the WHO Western Pacific Region Gonococcal Antimicrobial Surveillance Programme supplied data in 1999 for the WPR GASP:

Members of the Australian gonococcal surveillance program throughout Australia; Nora'Alia Rahim, Brunei; Ye Shunzhang and Su Xiaohong, Nanjing, China; Sainimere Bavoro, Suva, Fiji; K M Kam, Hong Kong; Toshiro Kuroki, Yokohama and Masatoshi Tanaka, Fukuoka, Japan; K Lee and Y Chong, Seoul, Korea; Rohani Yasin Malaysia; Erdenechimeg Lkhamsuren, Ulaanbaatar, Mongolia; B Garin, Noumea, New Caledonia; M Brett, Wellington and M Brokenshire, Auckland, New Zealand; M V Hombhanje, Port Moresby, Papua New Guinea; C C Carlos, Manila, Philippines; Cecilia Ngan and A E Ling, Singapore; A Darcy, Solomon Islands; Ane Tone Ika, Nuku'alofa, Tonga; H Taleo Vanuatu; Le Thi Phuong, Hanoi, Vietnam.

References

1. WHO Western Pacific Region Gonococcal Surveillance Programme. World Health Organization Western Pacific Region Gonococcal surveillance, 1992 annual report. *Commun Dis Intell* 1994;18:61-63.
2. The WHO Western Pacific Gonococcal Antimicrobial Surveillance Programme. Surveillance of antibiotic resistance in *Neisseria gonorrhoeae* in the WHO Western Pacific Region, 1998. *Commun Dis Intell* 2000;24:1-4.
3. WHO Western Pacific Region Gonococcal Antimicrobial Surveillance Programme. Surveillance of antibiotic susceptibility of *Neisseria gonorrhoeae* in the WHO Western Pacific Region 1992-4. *Genitourin Med* 1997;73:355-361.
4. Anonymous. Management of sexually transmitted diseases. World Health Organization 1997. Document WHO/GPA/TEM94.1 Rev.1 p 37.

Subscription changes

Please note that as of September 2000 there has been a change regarding subscriptions to *Communicable Diseases Intelligence*. All new subscriptions and changes of address details should now be addressed to:

CDI Mailing
Surveillance and Management Section
Department of Health and Aged Care
GPO Box 9848 (MDP 6)
CANBERRA ACT 2601

They can also be sent by E-mail to cdi.editor@health.gov.au or facsimile to: (02) 6289 7791.

An outbreak of multi-resistant *Shigella sonnei* in a long-stay geriatric nursing centre

Brad McCall,[1] Russell Stafford,[1] Sarah Cherian,[1] Karen Heel,[1] Helen Smith,[2] Nick Corones,[3] Sharon Gilmore[3]

Abstract

An outbreak of *Shigella sonnei* infection in a long-stay nursing centre was detected during routine surveillance of notifications in July 1999. Subsequent investigations identified 13 cases of multi-resistant *S. sonnei* infection affecting nine staff, three community members associated with the centre and one resident of the centre. Each isolate of *S. sonnei* was genetically indistinguishable. The outbreak investigation identified contact with residents with vomiting and diarrhoea as a significant risk factor for infection amongst staff providing nursing care. This association, and the duration of the outbreak over several months, suggests that transmission was most likely person-to-person. This outbreak demonstrates the importance of infection control policies and hygiene measures in long-stay nursing facilities. *Commun Dis Intell* 2000;24:272-275.

Keywords: shigellosis, infection control, nursing home, multi-resistant, gastroenteritis, enteric precautions

Introduction

Shigella spp. are a leading cause of bacillary dysentery worldwide and a major cause of diarrhoeal disease in developing countries.[1] In Australia, most *Shigella boydii* and *Shigella dysenteriae* infections are acquired overseas, while *Shigella flexneri* infection occurs predominantly in indigenous populations. *Shigella sonnei* infection is usually locally acquired (John Bates, Queensland Health Scientific Services, personal communication).

In July 1999 routine surveillance of disease notifications by the Brisbane Southside Public Health Unit (BSPHU) detected a cluster of multi-resistant *Shigella sonnei* infections involving six adult females in the Brisbane South/ South Coast area. All six isolates demonstrated the same antibiotic resistance pattern. Preliminary investigations identified these cases as part of an outbreak of diarrhoeal disease associated with a long-stay nursing centre. This paper describes the epidemiological, microbiological and environmental features of the outbreak investigation.

Methods

Preliminary investigation

All six female cases were administered a standard questionnaire regarding their demographic details, occupations, symptoms, food history, travel and other potential exposures. These preliminary interviews found five of the six cases to be nursing staff from the same long-stay nursing centre. The sixth case acquired her infection whilst travelling overseas. An outbreak investigation was commenced to determine the source of infection and the vehicle of transmission, and to introduce control measures to prevent further spread of the disease.

Epidemiology

The epidemiological study involved a descriptive study of residents of the nursing centre, and an analytical study (retrospective cohort) of the staff. A retrospective review was also conducted of all cases of *S. sonnei* notified to the BSPHU in 1999.

(i) Descriptive

Epidemiological investigations were commenced on 26 July 1999. The nursing centre had two wings and the nurse managers of each provided information about nursing home residents. Demographic and clinical data for the 4-week study period (28 June to 26 July 1999) were abstracted from the medical records of each resident. Information on food history was collected from the nurse managers because of the residents' age and potential for poor recall. Faecal specimens were requested from any resident who had a history of gastrointestinal illness during the 4-week study period.

(ii) Cohort Study

To collect information from all staff members covering the study period, a retrospective cohort study was conducted using a specific self-administered questionnaire. This included demographic information, occupational duties, movements and workplace location, symptoms, pathology requested and other clinical details among ill staff. A case was defined as any staff member who had an illness characterised by diarrhoea, vomiting or abdominal pain and had laboratory confirmed *S. sonnei* in their stool since 28 June 1999.

Univariate and stratified analyses of the data were conducted using Epi Info v6.04b.[2] Relative risks with 95 per

1. Brisbane Southside Public Health Unit, Coopers Plains, Queensland.
2. Public Health Microbiology, Queensland Health Scientific Services, Coopers Plains, Queensland.
3. South Coast Public Health Unit, Southport, Queensland.

Corresponding author: Dr Brad McCall, Brisbane Southside Public Health Unit, PO Box 333, Archerfield, Queensland, Australia, 4108. Telephone: (07) 3000 9148. Fax: (07) 3000 9130. E-mail: brad_mccall@qld.health.gov.au.

cent confidence intervals were calculated. Significance of associations between exposure and illness were determined using Chi-square and Fischer's exact tests.

Microbiology

All staff were asked to provide a faecal specimen for microscopy, culture and sensitivity testing. Staff of the Public Health Microbiology Laboratory, Queensland Health Scientific Services, examined clinical isolates. *S. sonnei* strains were biochemically identified using the API 20E strip (bioMerieux Australia Pty Ltd) and biotyped using the Pasteur Institute methods.[3]

All *Shigella* isolates from this outbreak were tested for antibiotic sensitivity using the Vitek Gram-negative sensitivity card (bioMerieux Australia Pty Ltd). The isolates were compared for susceptibility to ampicillin, cephalothin, cefotaxime, ciprofloxacin, trimethoprim-sulfamethoxazole, amoxicillin-clavulanate, chloramphenicol and gentamicin. The isolates were also compared with other community-derived isolates using Pulsed Field Gel Electrophoresis (PFGE).

Environmental

Staff from the BSPHU and South Coast Public Health Unit inspected food preparation and handling, and laundry and toilet facilities at the nursing centre. Environmental swabs taken of the kitchen preparation surfaces and communal handtowels were examined for *Shigella*. Standard enteric precautions, including hand washing, disposal of contaminated materials and disinfection methods were reviewed with staff.

Results

Epidemiology

The retrospective review of notified cases identified two cases with onset in April 1999 with a similar sensitivity pattern to those cases involved in the nursing centre outbreak in July. These cases occurred in siblings aged 3 and 8 years. The mother of these two children was a staff member of the nursing centre. She had symptoms of abdominal pain and diarrhoea 1 week before her children, but no specimens were requested at the time.

During the outbreak investigation a subsequent case of *S. sonnei* was notified to the BSPHU. This case occurred in a 9 year old male who was a family member of a friend of a staff member.

Descriptive

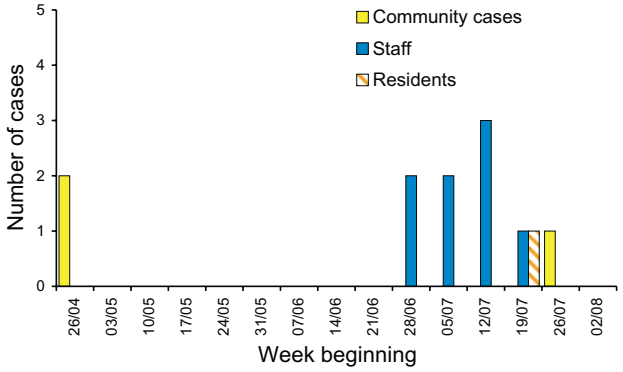
The nursing centre contained 81 residents (age range 50 to 100 years) living in two wings, 43 in Wing A and 38 in Wing B. During the study period 13 residents had developed symptoms of gastrointestinal illness, seven from wing A and six from wing B. Following the commencement of the investigation, faecal specimens were collected from these 13 residents, only one of whom was symptomatic. *S. sonnei* infection was detected in one resident from Wing B.

Cohort Study

Questionnaires were completed by 71/75 staff (95% response rate). Three non-responders were on recreational leave and one was on unrelated sick leave during the study period. Median age of staff was 45 years, with a range from 19 to 60 years. There were 68 female and three male staff - 39 Assistants In Nursing (AIN) (55%), 12 Registered Nurses (RN) (17%), nine domestic kitchen staff (13%), three cleaners (4%), two laundry staff, two diversional therapists, one physiotherapist, one cook, one handyman and one secretary. Fifty-four staff (76%) handled food in the course of their duties. Of these, 44 were involved in the feeding of residents and 10 were involved in preparation of food. One of the nine domestic kitchen staff was symptomatic towards the end of the outbreak, but stool culture was negative. Thirteen staff, including the five cases originally identified, gave a history of gastrointestinal illness during the study period. Eight of these and one asymptomatic staff member were confirmed with *S. sonnei* infection. All nine positive staff were female, eight AIN and one RN. The median age of those infected was 38.5 years (range 19 to 56 years).

Symptoms among the eight symptomatic staff with confirmed *S. sonnei* infection included diarrhoea (100%), fever (87.5%), abdominal cramps (87.5%), vomiting (75%), nausea (62.5%) and blood in stools (37.5%). Their dates of onset are shown in the Figure. The median duration of illness was 7 days (range 2 to 16 days). Seven of the eight consulted a medical practitioner and three required hospitalisation for 1 to 4 days. Four were treated with antibiotics, two with ciprofloxacin and two with norfloxacin. In the 3 days before their illness only two of the nine staff with confirmed *Shigella* infection had consumed food prepared in the nursing home kitchen.

Figure. Laboratory-confirmed *Shigella sonnei* cases of illness, 1999, by date of onset



Staff employed as AIN were almost seven times more likely to be infected with *S. sonnei* than all other staff in the nursing centre (Relative Risk 6.6, 95% Confidence Interval 0.9-49.8, P = 0.04). RN were 40 per cent less likely to be infected than other staff members but this was not significant (RR 0.61, 95% CI 0.08-4.47, P=1.0). No other staff were associated with infection. Furthermore, there was no association between occupational duties requiring food handling and *S. sonnei* infection.

Staff who worked in wing B only during the first 3 weeks of this outbreak were at a significantly higher risk of infection than other staff (RR 3.4, 95% CI 1.0-11.4, P = 0.05). During this study period, staff who had person-to-person contact (providing nursing care) with any nursing home residents who had been ill with diarrhoea and vomiting were at significantly higher risk of *S. sonnei* infection than other staff

(RR undefined, 95% CI undefined, P = 0.02). Similarly staff whose duties involved cleaning faeces and vomitus from ill residents were also at significantly higher risk (RR undefined, 95% CI undefined, P = 0.008).

Microbiology

S. sonnei was detected in nine staff members (attack rate 13%), one resident and three community members associated with the centre. All *S. sonnei* isolates associated with this outbreak had the API profile number 1104112, and were biotype 'a'. Antibiotic sensitivity testing revealed that all were uniformly resistant to ampicillin, amoxycillin-clavulanate and trimethoprim-sulfamethoxazole, and were uniformly sensitive to ciprofloxacin, cefotaxime and gentamicin. Pulsed Field Gel Electrophoresis using 11 outbreak isolates, including one of the initial community cases and the most recent community case, confirmed that the isolates were genetically indistinguishable. Comparison of two outbreak isolates with six unrelated community isolates showed that the outbreak isolates were different from other circulating strains of *S. sonnei*.

Environmental

No *Shigella* isolates were obtained from any of the environmental swabs or the communal handtowels. Advice was provided concerning several minor aspects relating to food handling and hygiene.

Discussion

Few outbreaks of shigellosis in long-stay nursing centres have been reported. In one, nine patients and three staff had positive stool cultures for *S. sonnei*.[4] The source of infection in the index case, a long-stay patient with few outside contacts, was not found. In another outbreak, six patients and one staff member had confirmed *S. sonnei* infection.[5] A factor in that outbreak was gastrointestinal illness in two staff members 5 and 8 days respectively before the first patients showed symptoms. These staff had continued to work despite their illnesses.

This is the first outbreak of multi-resistant *S. sonnei* in a long-stay nursing centre described in Australia. The index case of this outbreak could not be reliably determined. However, the detection of identical isolates several months apart in community members associated with the centre, but different from other community isolates, suggests that the outbreak was sustained over a period of months (Figure). Factors playing a role in this might include staff continuing to work despite illness and the use of communal handtowels throughout the centre. Both aspects were addressed during the outbreak investigation.

In this outbreak no source or vehicle of transmission was identified, and food did not appear to be involved. Evidence suggested that the mode of transmission was person-to-person, facilitated by lack of attention to basic infection control practices and enteric precautions while cleaning patients who were symptomatic. The significant association between *S. sonnei* infection and AIN but not other occupations supports this hypothesis because the AIN are the principal carers involved in showering and cleaning residents and clearing up vomitus and faeces. Use of gloves was part of the centre's infection control policy. Although available, their use was not evident during the first inspection of the centre. Public health advice included instruction in infection control procedures such as hand washing, disinfection, use of gloves, soap dispensers, paper towels and enteric precautions. Exclusion of ill staff (until recovered) and food handlers (for 48 hours after their first normal stool), and restriction of staff movement between wards, was recommended.[6] No further cases were reported after these interventions.

This outbreak differs from others described in the literature because of the high proportion of staff involved. However, we cannot exclude the possibility of more widespread infection in residents because only 1/13 symptomatic residents had stool specimens collected while symptomatic. The increased risk among staff (especially in Wing B) of *S. sonnei* infection through person-to-person contact with ill residents also suggests that there may have been more cases among residents than were identified during the investigation. According to the nurse managers, diarrhoea (frequent loose stools) was common among the patients because of laxative use. It is possible that the outbreak was propagated by a combination of residents with diarrhoea and inadequate hygiene measures, resulting in staff becoming infected.

Antibiotic sensitivity, plasmid profile and PFGE are useful methods to characterise and compare *S. sonnei* isolates from sporadic and outbreak situations.[7,8] One advantage of PFGE is the relative stability of the patterns over time, allowing identification of outbreak strains despite loss (or acquisition) of plasmids. Consequently, PFGE is being used more often for subtyping of *S. sonnei* from clusters or outbreaks.[1,9,10] In this investigation the biochemical profile, antibiograms, biotype and PFGE were identical for all isolates. PFGE also demonstrated that the outbreak subtype was distinct from sporadic community *S. sonnei* isolates detected elsewhere in Queensland independent of this outbreak.

Long-stay nursing centres present an environment in which outbreaks of enteric disease can have significant health consequences for staff and residents. The occurrence of this outbreak demonstrates the important role of public health interventions and regular attention to infection control policy and practice including fundamental matters such as hygiene and exclusion of ill staff. It is to be hoped that the long-stay nursing care industry heeds the messages learned from this outbreak.

Acknowledgments

Staff of Brisbane Southside and South Coast Public Health Units, Queensland Health; Lyn Caldwell, Microbiology Department, Mater Misericordiae Public Hospital, South Brisbane; Dr John Sheridan; John Bates and staff, Public Health Microbiology Laboratory, Queensland Health Scientific Services. Data from NEPSS at the Microbiological Diagnostic Unit, The University of Melbourne.

References

1. Soebel J, Cameron DN, Ismail J et al. A prolonged outbreak of *Shigella sonnei* infections in traditionally observant Jewish communities in North America caused by a molecularly distinct bacterial subtype. *J Infect Dis* 1998;177:1405-1409.
2. Dean AG, Dean JA, Coulombier D et al. Epi Info, version 6.04b: a word processing, database, and statistics system for epidemiology on microcomputers (computer program). Atlanta, Georgia: Centers for Disease Control and Prevention, 1997.

3. Marranzano M, Giammanco G, d'Hauteville H, Sansonetti P. Epidemiological markers of *Shigella sonnei* infections: R-plasmid fingerprinting, phage-typing and biotyping. *Ann Inst Pasteur Microbiol* 1985;136A:339-345.
4. Hunter PR, Hutchings PG. Outbreak of *Shigella sonnei* dysentery on a long-stay psychogeriatric ward. *J Hosp Infect* 1987;10:73-76.
5. Horan MA, Gulati RS, Fox RA, Glew E, Ganguli L, Kaeney M. Outbreak of *Shigella sonnei* dysentery on a geriatric assessment ward. *J Hosp Infect* 1984;5:210-212.
6. Working Party of the PHLS Salmonella Committee. The prevention of human transmission of gastrointestinal infections, infestations, and bacterial intoxications. A guide for public health physicians and environmental health officers in England and Wales. *Commun Dis Rep CDR Rev* 1995;5:R158-R172.
7. Maguire HC, Seng C, Chambers S et al. Shigella outbreak in a school associated with eating canteen food and person-to-person spread. *Commun Dis Public Health* 1998;1:279-280.
8. Brian MJ, Van R, Townsend I, Murray BE, Cleary TG, Pickering LK. Evaluation of the molecular epidemiology of an outbreak of multiply resistant *Shigella sonnei* in a day care center by using pulsed-field gel electrophoresis and plasmid DNA analysis. *J Clin Microbiol* 1993;31:2152-2156.
9. Centers for Disease Control. Outbreaks of *Shigella sonnei* infection associated with eating fresh parsley - United States and Canada, July-August 1998. *MMWR Morb Mortal Wkly Rep* 1999;48:285-289.
10. Adams C, Torvaldsen S, Watson T, Roberts C. Investigation of an outbreak of *Shigella sonnei* at a Perth restaurant. *WA Commun Dis Bull* 1997;7(3):9-10.

New publications

Overcoming Antimicrobial Resistance

World Health Organization Report on Infectious Diseases 2000. 67pp.
Electronic version at: www.who.int/infectious-disease-report/2000/index.html
Table of Contents
Preface: Our Window of Opportunity is Closing
Chapter 1: A World Without Antibiotics
Chapter 2: The Discovery of Antimicrobials
Chapter 3: Factors Contributing to Resistance
Chapter 4: The Big Guns of Resistance
Chapter 5: Call to Action
Epilogue

National Hepatitis C Strategy 1999-2000 to 2003-2004

Commonwealth Department of Health and Aged Care. Canberra: Commonwealth of Australia, 2000. 76pp.
<http://www.health.gov.au/pubhlth/publicat/document/metadata/hepc_strat9900_0304.htm>
<http://www.health.gov.au/pubhlth/publicat/document/hepc_strat9900_0304.pdf>

Changes and Challenges. National Hepatitis HIV/AIDS Strategy 1999-2000 to 2003-2004

Commonwealth Department of Health and Aged Care. Canberra: Commonwealth of Australia, 2000. 50pp.
<http://www.health.gov.au/pubhlth/publicat/document/metadata/hivstrat_4.htm>
<http://www.health.gov.au/pubhlth/publicat/document/hivstrat_4.pdf>

Hepatitis C: Informing Australia's National Response

Commonwealth Department of Health and Aged Care ed. Canberra: Commonwealth of Australia, 2000. 185pp.
<http://www.health.gov.au/pubhlth/publicat/document/metadata/hepc_informing.htm>
<http://www.health.gov.au/pubhlth/publicat/document/hepc_informing.pdf>

HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia Annual Surveillance Report 2000

National Centre in HIV Epidemiology and Clinical Research (ed). Sydney: National Centre in HIV Epidemiology and Clinical Research, The University of New South Wales. 2000:96pp.
Electronic version at: <http://www.med.unsw.edu.au/nchecr>

Vaccine preventable diseases and vaccination coverage in Australia, 1993-1998[1]

Peter McIntyre, Janaki Amin, Heather Gidding, Brynley Hull, Siranda Torvaldsen, Andrew Tucker, Fiona Turnbull, Margaret Burgess,
The National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS)

Introduction

Since the introduction of childhood vaccination for diphtheria in 1932 and the widespread use of vaccines to prevent tetanus, pertussis (whooping cough) and poliomyelitis in the 1950s, deaths in Australia from vaccine preventable diseases (VPDs) have declined by more than 99 per cent. It is important, however, that the downward trend in morbidity and mortality from VPDs is maintained and carefully monitored, and that changes are interpreted in relation to vaccination coverage.

This report aimed to bring together information from three national sources of routinely collected data on the morbidity and mortality from VPDs during the period 1993–1998 for the eight diseases then on the routine childhood vaccination schedule, and for four other diseases potentially preventable by childhood vaccination. It also examined vaccination coverage for the same period.

Methods

Data were sourced from the National Notifiable Diseases Surveillance System (NNDSS) (notifications), the Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (hospitalisation data), and the Australian Bureau of Statistics (ABS) Causes of Death Collection (deaths). Vaccination coverage was calculated using data from the Australian Childhood Immunisation Register (ACIR). All data sources were expected to have some limitations, the most important being under-reporting for notifications and vaccination encounters, and coding errors in the hospital morbidity data. For each disease, trends over time, measures of severe morbidity and mortality, and age, sex, and geographical distributions were reported, together with a discussion of these data.

Overview of results

Notifications for the eight diseases covered by the routine schedule declined by 42 per cent, from an average of 11,537 cases each year in 1993–1997 to 6700 in 1998. Hospitalisations fell by 12 per cent, from an average of 1745 per year to 1536 in 1997/1998, while deaths remained unchanged at 7 each year over the period of review (Table). Tetanus caused 1 or 2 of the deaths each year. Of the 7 deaths in 1997, 6 were in infants during a major outbreak of pertussis. Pertussis caused the most notifications, hospitalisations and deaths during the review period. While most of these were in children, 46 per cent of the notifications and 13 per cent of the hospitalisations for pertussis occurred in persons aged 15 years or more. There were notable declines in the numbers of notifications of invasive *Haemophilus influenzae* type b (Hib) disease in children under 5 years of age (77%), measles (87%) and rubella (75%). There were no notifications of diphtheria or poliomyelitis.

Vaccination coverage estimated using ACIR data increased during the review period. Coverage for the first three doses of diphtheria, tetanus, pertussis and Hib

Table. Notifications, hospitalisations and deaths from diseases preventable by vaccines on the current childhood vaccination schedule, Australia, 1993–1998.*

	Notifications		Hospitalisations		Deaths	
Disease	Average per year 1993-1997	1998	Average per year July 93-June 97	1997/98	Average per year 1993-1996	1997
Diphtheria	0	0	5	0	0	0
Hib (aged <5 yrs)	103†	24	129	80	3	0
Measles	2,418	313	517	156	2	0
Mumps	116‡	181	55	51	1	0
Pertussis	5,887	5,413	910	1,165	0	6
Polio	0	0	4§	2§	0	0
Rubella	3,006†	762	99	48	0	0
Tetanus	8	7	28	34	2	1
Total	11,537#	6,700	1,745#	1,536	7#	7

* Notifications where the month of onset was between January 1993 and December 1998; hospitalisations where the month of admission was between 1 July 1993 and 30 June 1998; deaths where the date of death was recorded between 1993 and 1997.

† Not all States/Territories were reporting in all years (see Appendix 2 of report for details).

‡ Only the ACT, NSW and Victoria reported mumps notifications for the entire period. For these States/Territories the average number of mumps notifications per year from 1993 through 1997 was 78 and there were 96 notifications in 1998.

§ Principal diagnosis only (see page 27 of report for comment).

Average per year for the total does not equal the sum of that for each disease, due to rounding.

1. *Commun Dis Intell* 2000;24 Suppl (June):1-83.

vaccines, assessed at 1 year of age, increased from 75 per cent to 85 per cent, while coverage for measles-mumps-rubella (MMR) vaccine, assessed at 2 years of age, increased from 83 per cent to 86 per cent. It is likely that these data underestimated coverage by 5 to 10 per cent, and that the increase in coverage partly reflected better reporting to the ACIR by providers.

Comment

This is the first comprehensive report on VPDs and vaccination coverage in Australia using multiple data sources. It provides a valuable baseline for ongoing measurement of trends and the impact of interventions. The striking features were the low rates of VPDs in 1998. Notable are the marked decline in Hib disease, following the introduction of routine Hib vaccination in 1993, and in both measles and rubella due to the introduction of the second dose of MMR vaccine in 1994 and the Measles Control Campaign in 1998. Compared with deaths prior to the introduction of routine Hib vaccination, Hib deaths in children under the age of 5 years fell by 83 per cent, suggesting that Hib vaccine prevented 62 deaths in this age group between 1993 and 1997. The ongoing morbidity and mortality from pertussis indicates the need for additional interventions aimed at controlling spread of this infection in both children and adults.

Want more information?

Data giving historical comparisons of deaths from diseases commonly vaccinated against in Australia 1926-97 are found in Table 2 of the full report. The burden of morbidity and mortality from vaccine preventable diseases in Australia are found in Table 14 of the full report.

Copies of the report can be obtained from:

The Publications Officer
Publications Unit (MDP 129)
Department of Health and Aged Care
GPO Box 9848
Canberra, ACT
Australia 2601
Or by calling the toll free telephone number: 1800 020 103 ext 8654.

This publication is also available at:
http://www.health.gov.au/pubhlth/publicat/document/cdi/vpd93_98.htm.

New Publications, *continued*

Guidelines for the control of measles outbreaks in Australia – July 2000

This revision[1] of the 1996 National Health and Medical Research Council report *Measles: Guidelines for the Control of Outbreaks in Australia* was undertaken by a working group of the Measles Elimination Advisory Committee (MEAC) which was established in 1997. Australia's move from the 'outbreak control' phase to the 'elimination' phase of measles elimination precipitated the revision. This shift in strategy involves altering the vaccination schedule, improving surveillance systems and the response to outbreaks, and reducing the susceptibility of at-risk age groups. The guidelines are intended for use primarily by public health officers in State and Territory health departments. However, selected aspects of the guidelines are recommended for use by institutions and health-care facilities that, and professionals who, might be affected by measles. These include child-care facilities, schools, technical colleges, universities, prisons, diagnostic and public health laboratories, general practitioners, paediatricians, physicians and pathologists.

Let's Work Together to Beat Measles

This publication[2] reports on Australia's Measles Control Campaign. Steps to eliminate measles in Australia commenced in 1998 with the implementation of the 'Immunise Australia: Seven Point Plan'. The Measles Control Campaign was conducted by the Commonwealth in conjunction with the States and Territories. The campaign has resulted in a significant increase in levels of protection against measles among children of preschool and primary school age. The report describes the reasons behind the campaign, progress on elimination strategies and the results to date, and future strategies for measles elimination.

Both publications depict different aspects of measles elimination and each supplements the other. Copies can be obtained from:

The Publications Officer
Publications Unit (MDP 129)
Population Health Division publications
Department of Health and Aged Care
GPO Box 9848
CANBERRA ACT 2601
AUSTRALIA

or Toll free telephone number: 1800 020 103, ext 8654 or E-mail: phd.publications@health.gov.au

1. Measles Elimination Advisory Committee. Guidelines for the control of measles outbreaks in Australia. *Commun Dis Intell* 2000;Technical Report Series No 5.
2. Commonwealth Department of Health and Aged Care. Let's work together to beat measles. Canberra: Commonwealth of Australia, 2000.

Communicable Diseases Surveillance

Presentation of NNDSS data

In the March 2000 issue an additional summary table was introduced. Table 1 presents 'date of notification' data, which is a composite of three components: (i) the true onset date from a clinician, if available, (ii) the date the laboratory test was ordered, or (iii) the date reported to the public health unit. Table 2 presents the crude incidence of diseases by State or Territory for the current reporting month. Table 3 presents data by report date for information only. In Table 3 the report date is the date the public health unit received the report.

Table 1 now includes the following summary columns: total current month 2000 data; the totals for previous month 2000 and corresponding month 1999; a 5 year mean which is calculated using previous, corresponding and following month data for the previous 5 years (*Morb Mortal Wkly Rep*, 2000:49;139-146); year to date (YTD) figures; the mean for the year to date figures for the previous 5 years; and the ratio of the current month to the mean of the last 5 years.

Highlights for August, 2000

Communicable Disease 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 who have recently formed a Data Management Network. This additional information has enabled the reporting of more informative highlights each month.*

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia New Zealand and the CDI Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme. In this report, data from the NNDSS are referred to as 'notifications' or 'cases', whereas those from ASPREN are referred to as 'consultations' or 'encounters' while data from the LabVISE scheme are referred to as 'laboratory reports'.

Three types of data are included in National Influenza Surveillance, 2000. These are sentinel general practitioner surveillance conducted by the Australian Sentinel Practice Research Network (ASPREN), the Department of Human Services (Victoria), the Department of Health (New South Wales) and the Tropical Influenza Surveillance Scheme, Territory Health Services (Northern Territory); laboratory surveillance data from the Communicable Diseases Intelligence *Virology and Serology Laboratory Reporting Scheme (LabVISE); and the World Health Organization Collaborating Centre for Influenza Reference and Research; and absenteeism surveillance conducted by Australia Post. Data from ASPREN are referred to as 'consultations' or 'encounters'. For further information about these schemes, see* Commun Dis Intell *2000;24:9-10.*

In August 2000 the number of reports of some diseases has increased compared with their 5 year mean; these include incident hepatitis B (1.6), incident hepatitis C (2.2), chlamydial infection (1.5), malaria (1.5), legionellosis (1.5) and meningococcal infection (1.3).

Typhoid

There were four notifications of typhoid in August 2000 with three cases in New South Wales (29 year-old male, 29 year old female and a 36 year old male) and one case in Victoria (15 year old male).

Vaccine preventable diseases

All vaccine preventable diseases except mumps and pertussis had fewer reports this month than for the 5 year mean. The increase in the notification rate (1.1/100,000 population) for mumps was due to an increase in Western Australia (2.6/100,000 population) and New South Wales (1.9/100,000 population). The increase in the notification rate (34.6/100,000 population) (Figure 1) for pertussis was, as last month, due to an increase in the Australian Capital Territory (130.2/100,000 population) and New South Wales (64.6/100,000 population). Measles cases continued to be at their lowest level since the national notification system began (Figure 2). Of the two cases in August 2000, one

Figure 1. Notification rate of pertussis, New South Wales, Australian Capital Territory and Australia, 1 January 1991 to 31 August 2000, by month of notification

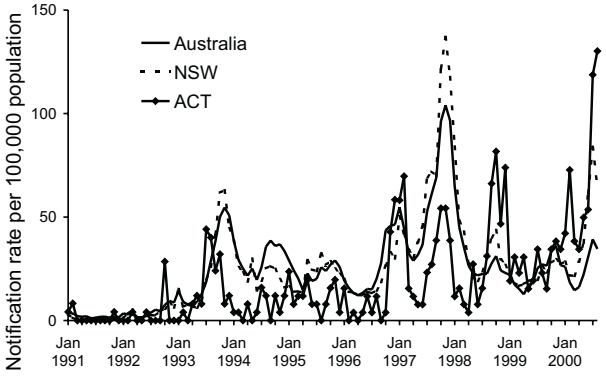


Figure 2. Notification rate of measles, Australia, 1 January 1991 to 31 August 2000, by month of notification

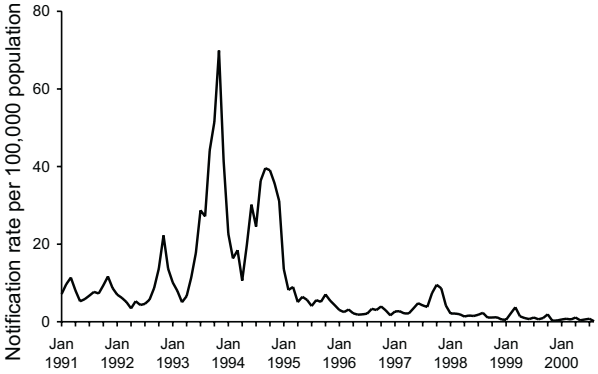
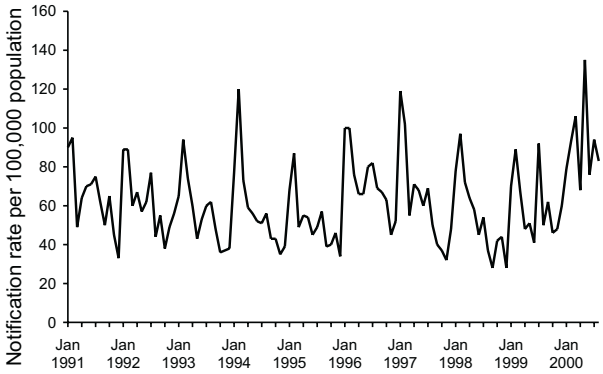


Figure 3. Notification rate of malaria, Australia, 1 January 1991 to 31 August 2000, by month of notification



each was reported in New South Wales (28 year-old male) and Western Australia (1 year-old female).

Malaria

There were 83 notifications of malaria in August 2000. The increase in the notification rate (5.3/100,000 population) (Figure 3) was due to an increase in the Northern Territory (56/100,000 population) and Queensland (14/100,000 population). Most cases were in the 15-34 age range (69%) and were mainly returning service personnel and students; all were imported.

Legionellosis

There were 18 notifications of legionellosis in August 2000. The increase in the notification rate (1.1/100,000 population) was due to an increase in South Australia (6.4/100,000 population).

Meningococcal infections

There were 74 notifications of meningococcal infection in August 2000 – a notification rate of 4.7/100,000 population (Figure 4). Of these cases, 34 per cent were under 5 years of age, 15 per cent were in the 5-14 year age range and 30 per cent were in the 15-24 age range. The serogroups were available for 40 cases; of these 53 per cent, 43 per cent and 5 per cent were serogroup B, C and Y respectively.

Influenza

There were 107 laboratory reports of influenza for August 2000, a decrease from 647 in August 1999, and a decrease from 185 in July 2000 (Figure 5). Of the laboratory reports received in August 2000 for weeks 31-35, 91 were influenza A and 29 were influenza B, with the weekly proportion of influenza B varying from 18 per cent to 38 per cent (Figure 6). The weekly percentage of influenza B has increased from the same period last year when it varied between 6 per cent and 16 per cent.

The percentages of Australia Post employees absent in August 2000 (weeks 31-35) for 3 or more consecutive days remained similar to last year and to the previous month, although there were some weekly fluctuations (Figure 7). All

Figure 4. Notification rate of meningococcal infection, Australia, 1 January 1991 to 31 August 2000, by month of notification

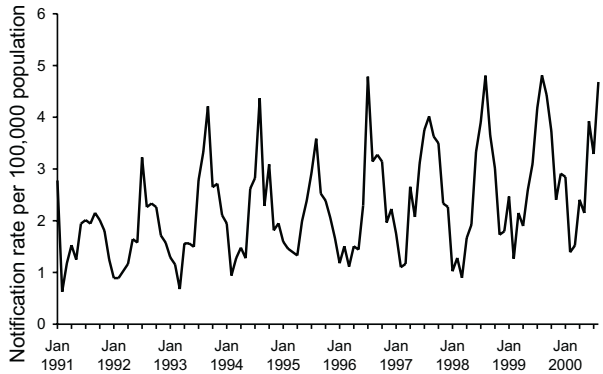
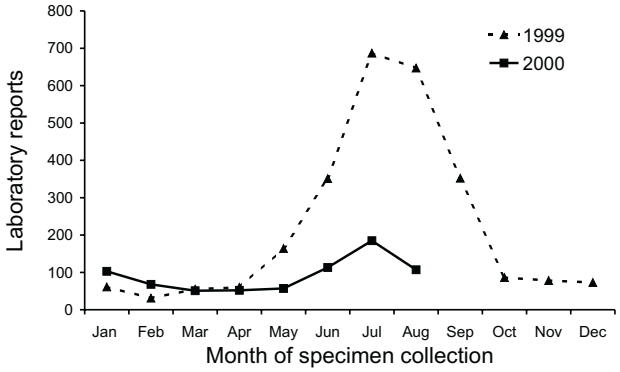


Figure 5. Laboratory reports of influenza, 1999 to 2000, by month of specimen collection



of the influenza surveillance schemes reported an increase in the rate of influenza-like illness consultations with the New South Wales Influenza Surveillance Scheme reporting the highest rate (32/1,000 consultations) in August 2000 (weeks 31-35; Figure 8).

Figure 6. Laboratory reports of influenza, Australia, week 36 1999 to week 35 2000, by week of specimen collection

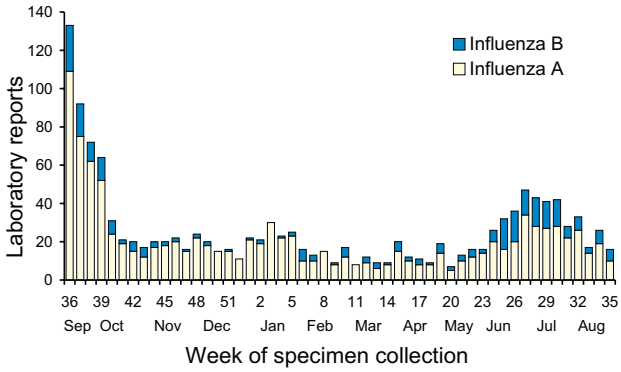


Figure 7. Absenteeism rates in Australia Post, 1999 and 2000 to 31 August

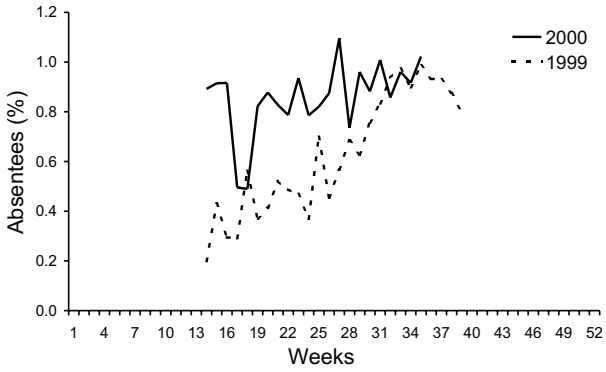
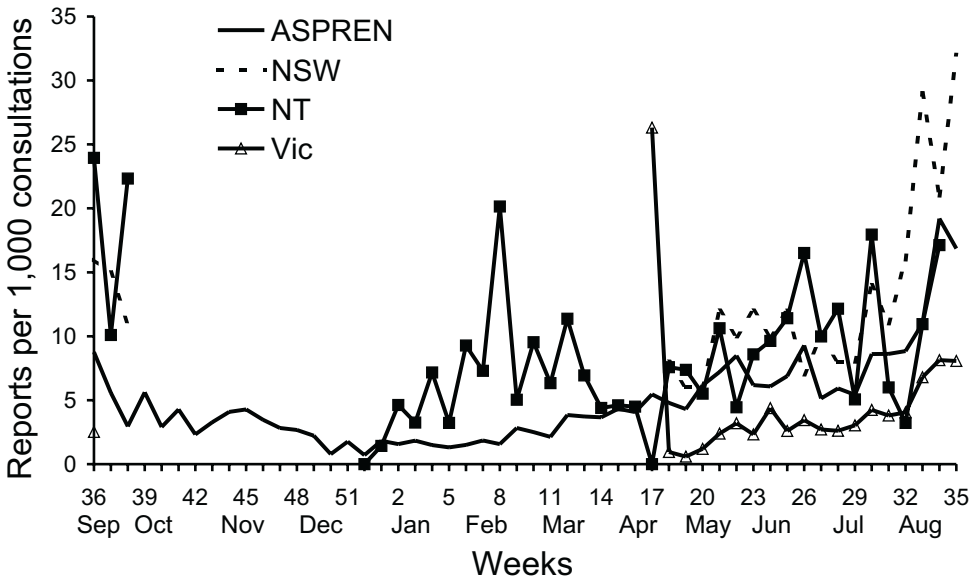


Figure 8. Sentinel general practitioner influenza consultation rates, week 36 1999 to week 35 2000, by scheme



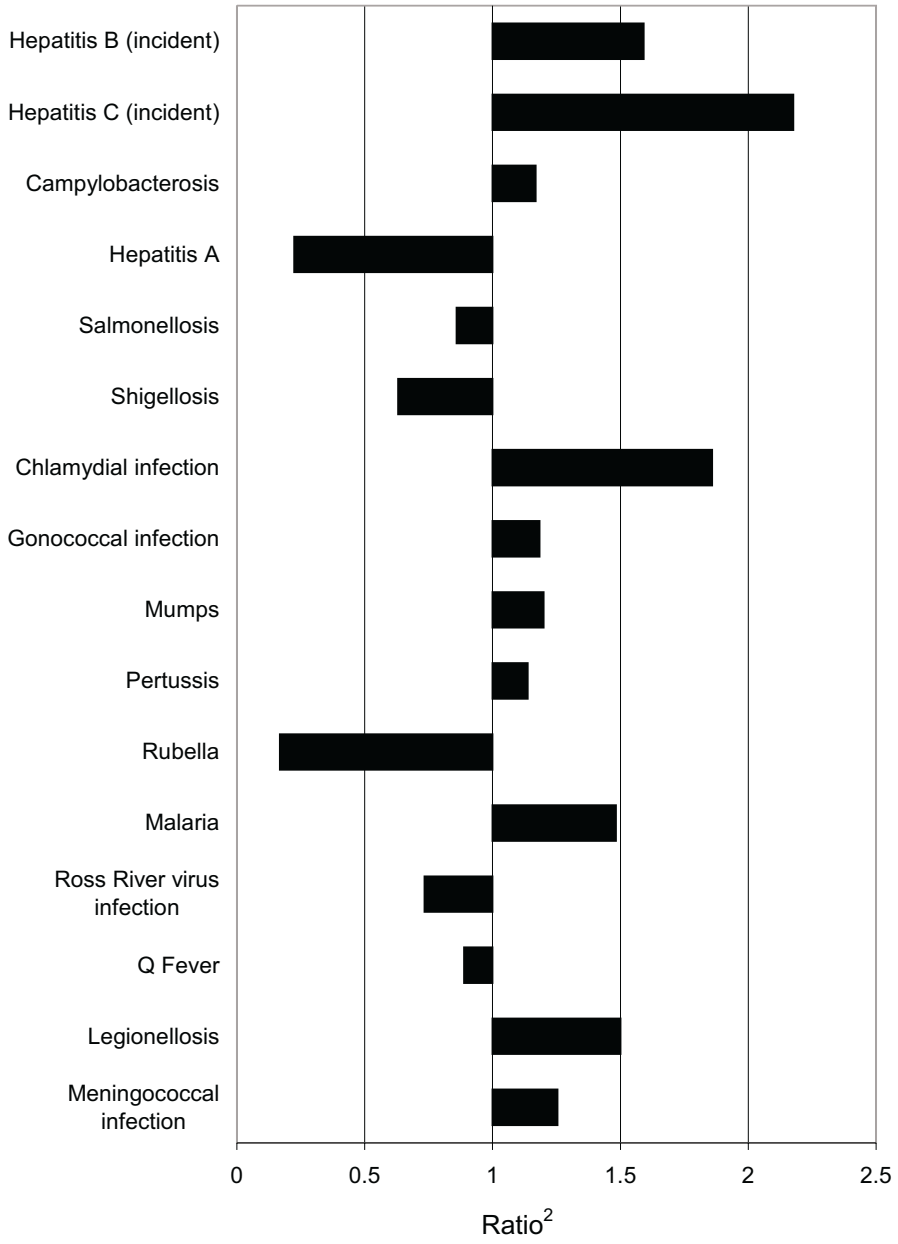
Tables

There were 6,499 notifications to the National Notifiable Diseases Surveillance System (NNDSS) with a notification date in August 2000 (Table 1). The crude incidence of diseases per 100,000 population for each State or Territory (Table 2) was included for the first time in the August issue of *Commun Dis Intell*. Data by date of report for August 2000, are included in this issue of *Commun Dis Intell* (Table 3). Figure 9 illustrates, for selected diseases, the ratio of their August 2000 totals to the mean of their July to September levels for 1995 to1999.

There were 899 reports received by the *CDI* Virology and Serology Laboratory Reporting Scheme (LabVISE) in the reporting period, 1 to 31 August 2000 (Tables 4 and 5).

The Australian Sentinel Practice Research Network (ASPREN) data for weeks 31 to 34, ending 27 August 2000, are included in this issue of *Commun Dis Intell* (Table 6).

Figure 9. Selected[1] diseases from the National Notifiable Diseases Surveillance System, comparison of provisional totals for the period 1 to 31 August 2000 with historical data[2]



1. Selected diseases are chosen each calendar month according to current activity.
2. Ratio of current month total to mean of July to September data for the previous five years.

Editorial note: Readers are reminded to use the ratios published with some caution (Figure 9, Table 1). As indicated in footnote 1 to Tables 1-3, totals comprise data from all States and Territories and are subject to retrospective revision. The July notification data shown in the last issue of *Commun Dis Intell* are those for reports received by States and Territories and sent to the NCDC by 10 August 2000. The July notification data shown for comparison with the August data in this September issue of *Commun Dis Intell* are those for all reports received and sent to NCDC as of 12 September 2000 when the August (and updated and revised July) notification data were extracted from the database. In view of the differences in the July data reported in this and the previous issue of *Commun Dis Intell* it is evident that a substantial number of July notifications have been submitted subsequent to the data extraction date for the August issue. These notifications have been included in the July comparison figures and the year-to-date figures in the September issue.

Table 1. Notifications of diseases received by State and Territory health authorities in the period 1 to 31 August 2000, by date of notification[#]

Disease	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Total August 2000[1]	Total July 2000[1]	Total August 1999[1]	Last 5 years mean	Year to date 2000	Last 5 years YTD mean	Ratio*
Bloodborne															
Hepatitis B (incident)	0	6	0	4	4	1	14	6	35	41	18	22	260	186	1.6
Hepatitis B (unspecified)[2]	0	202	0	95	22	4	203	53	579	624	701	574	5,414	4,636	1.0
Hepatitis C (incident)	0	21	0	0	8	0	3	5	37	67	35	17	350	128	2.2
Hepatitis C (unspecified)[2]	16	468	16	280	41	37	519	137	1,514	1,559	2,049	1,356	14,041	10,600	1.1
Hepatitis D	0	5	0	0	0	0	0	0	5	0	1	1	15	11	5.0
Gastrointestinal															
Botulism	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Campylobacterosis[3]	24	0	12	258	167	43	447	208	1,159	1,213	1,124	992	8,835	7,589	1.2
Haemolytic uraemic syndrome	0	0	0	NN	0	0	0	NN	0	0	0	1	6	5	0.0
Hepatitis A	0	9	2	10	6	0	4	3	34	60	144	152	619	1,564	0.2
Hepatitis E	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0.0
Listeriosis	0	1	0	1	0	0	1	0	3	3	3	5	49	41	0.6
Salmonellosis	5	54	15	91	20	2	62	49	298	319	328	347	4,352	4,718	0.9
Shigellosis[3]	0	0	5	9	1	0	7	7	29	33	29	46	330	472	0.6
SLTEC,VTEC[4]	0	0	0	0	2	0	0	0	2	2	3	1	22	9	2.0
Typhoid	0	3	0	0	0	0	1	0	4	9	4	5	52	54	0.8
Yersiniosis[3]	0	0	1	6	0	0	1	0	8	8	11	15	55	165	0.5
Quarantinable															
Cholera	0	0	0	0	0	0	0	0	0	0	1	0	1	3	-
Plague	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	-
Viral haemorrhagic fever	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	-
Sexually transmissible															
Chancroid	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-
Chlamydial infection[5]	17	310	85	457	144	36	0	196	1,245	1,123	1,237	808	9,201	6,588	1.5
Donovanosis	0	0	0	0	NN	0	0	0	0	1	3	4	11	30	0.0
Gonococcal infection[6]	0	46	89	87	30	0	80	100	432	470	481	365	4,280	3,144	1.2
Lymphogranuloma venereum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Syphilis[7]	2	62	8	71	0	0	0	5	148	185	179	143	1,252	1,154	1.0

Table 1 (continued). Notifications of diseases received by State and Territory health authorities in the period 1 to 31 August 2000, by date of notification[#]

Disease	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Total August 2000[1]	Total July 2000[1]	Total August 1999[1]	Last 5 years mean	Year to date 2000	Last 5 years YTD mean	Ratio*
Vaccine preventable															
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Haemophilus influenzae type b	0	1	0	2	1	0	0	0	4	3	3	4	16	35	1.0
Measles	0	1	0	0	0	0	0	1	2	12	10	47	76	395	0.0
Mumps	0	10	0	0	1	0	3	4	18	26	18	15	154	115	1.2
Pertussis	34	345	1	43	48	2	70	4	547	620	430	481	3,194	3,275	1.1
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Rubella[8]	0	16	0	2	0	0	9	1	28	23	49	167	148	948	0.2
Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	5	3	-
Vectorborne															
Arbovirus infection NEC	0	0	0	0	0	0	2	0	2	1	0	2	63	43	1.0
Barmah Forest virus infection	0	13	1	23	0	0	0	0	37	33	29	33	415	552	1.1
Dengue	0	0	0	1	0	0	0	0	1	3	8	7	197	116	0.1
Malaria	1	14	9	41	4	0	10	4	83	94	50	56	734	542	1.5
Ross River virus infection	0	12	4	34	0	0	3	2	55	88	94	75	3,588	4,395	0.7
Zoonoses															
Brucellosis	0	0	0	5	0	0	0	0	5	0	10	4	12	22	1.3
Hydatid infection	0	NN	0	0	0	0	2	1	3	0	3	4	17	27	0.8
Leptospirosis	0	0	0	7	0	0	0	0	7	11	8	12	160	135	0.6
Ornithosis	0	NN	0	NN	2	0	2	0	4	6	6	5	51	49	0.8
Q fever	0	14	0	20	3	0	1	2	40	39	36	45	337	351	0.9
Other															
Legionellosis	0	4	0	4	8	0	0	2	18	18	13	12	361	138	1.5
Leprosy	0	0	0	0	0	0	0	0	0	0	0	1	3	5	0.0
Meningococcal infection	1	26	0	7	6	3	21	10	74	52	76	59	351	292	1.3
Tuberculosis	1	8	1	3	0	0	20	6	39	73	87	88	576	684	0.4
Total	101	1,651	249	1,561	518	128	1,485	806	6,499	6,819	7,281	5,971	59,603	53,224	

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.
2. Unspecified numbers should be interpreted with some caution as the magnitude may be a reflection of the numbers of tests being carried out.
3. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.
4. Infections with Shiga-like toxin (verotoxin) producing *E. coli* (SLTEC/VTEC).
5. WA: genital only.
6. NT, Qld, SA , Vic and WA: includes gonococcal neonatal ophthalmia.
7. Includes congenital syphilis.
8. Includes congenital rubella

\# Date of notification = a composite of three components: (i) the true onset date from a clinician, if available, (ii) the date the laboratory test was ordered, or (iii) the date reported to the public health unit.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

* Ratio = ratio of current month total to mean of last 5 years calculated as described above.

Table 2. Crude incidence of diseases by State or Territory, 1 to 31 August 2000. (Rate per 100,000 population)

Disease[1]	State or Territory								
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Bloodborne									
Hepatitis B (incident)	0.0	1.1	0.0	1.4	3.2	2.6	3.6	3.9	2.2
Hepatitis B (unspecified)[2]	0.0	37.8	0.0	32.5	17.7	10.2	51.7	34.2	36.6
Hepatitis C (incident)	0.0	3.9	0.0	-	6.4	0.0	0.8	3.2	2.3
Hepatitis C (unspecified)[2]	61.3	87.6	99.5	95.7	33.0	94.4	132.2	88.3	95.8
Hepatitis D	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Gastrointestinal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Botulism	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Campylobacterosis[3]	91.9	-	74.7	88.1	134.2	109.7	113.8	134.1	73.3
Haemolytic uraemic syndrome	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hepatitis A	0.0	1.7	12.4	3.4	4.8	0.0	1.0	1.9	2.2
Hepatitis E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Listeriosis	0.0	0.2	0.0	0.3	0.0	0.0	0.3	0.0	0.2
Salmonellosis	19.1	10.1	93.3	31.1	16.1	5.1	15.8	31.6	18.9
Shigellosis[3]	0.0	-	31.1	3.1	0.8	0.0	1.8	4.5	1.8
SLTEC,VTEC[4]	0.0	0.0	0.0	NN	1.6	0.0	0.0	NN	0.1
Typhoid	0.0	0.6	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Yersiniosis[3]	0.0	-	6.2	2.0	0.0	0.0	0.3	0.0	0.5
Quarantinable									
Cholera	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
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									
Chancroid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chlamydial infection[5]	65.1	58.0	528.8	156.1	115.7	91.9	0.0	126.4	78.8
Donovanosis	0.0	0.0	0.0	0.0	NN	0.0	0.0	0.0	0.0
Gonococcal infection[6]	0.0	8.6	553.7	29.7	24.1	0.0	20.4	64.5	27.3
Lymphogranuloma venereum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Syphilis[7]	7.7	11.6	49.8	24.3	0.0	0.0	0.0	3.2	9.4
Vaccine preventable									
Diphtheria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haemophilus influenzae type b	0.0	0.2	0.0	0.7	0.8	0.0	0.0	0.0	0.3
Measles	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.6	0.1
Mumps	0.0	1.9	0.0	0.0	0.8	0.0	0.8	2.6	1.1
Pertussis	130.2	64.6	6.2	14.7	38.6	5.1	17.8	2.6	34.6
Poliomyelitis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rubella[8]	0.0	3.0	0.0	0.7	0.0	0.0	2.3	0.6	1.8
Tetanus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vectorborne									
Arbovirus infection NEC	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1
Barmah Forest virus infection	0.0	2.4	6.2	7.9	0.0	0.0	0.0	0.0	2.3
Dengue	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1
Malaria	3.8	2.6	56.0	14.0	3.2	0.0	2.5	2.6	5.3
Ross River virus infection	0.0	2.2	24.9	11.6	0.0	0.0	0.8	1.3	3.5

Table 2 (continued). Crude incidence of diseases by State or Territory, 1 to 31 August 2000. (Rate per 100,000 population)

Disease[1]	State or Territory								
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
Zoonoses									
Brucellosis	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.3
Hydatid infection	0.0	NN	0.0	0.0	0.0	0.0	0.5	0.6	0.2
Leptospirosis	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.4
Ornithosis	0.0	NN	0.0	NN	1.6	0.0	0.5	0.0	0.3
Q fever	0.0	2.6	0.0	6.8	2.4	0.0	0.3	1.3	2.5
Other									
Legionellosis	0.0	0.7	0.0	1.4	6.4	0.0	0.0	1.3	1.1
Leprosy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meningococcal infection	3.8	4.9	0.0	2.4	4.8	7.7	5.3	6.4	4.7
Tuberculosis	3.8	1.5	6.2	1.0	0.0	0.0	5.1	3.9	2.5
Total	386.8	309.0	1549.1	533.3	416.3	326.6	378.2	519.7	411.2

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.
2. Unspecified numbers should be interpreted with some caution as the magnitude may be a reflection of the numbers of tests being carried out.
3. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.
4. Infections with Shiga-like toxin (verotoxin) producing *E. coli* (SLTEC/VTEC).
5. WA: genital only.
6. NT, Qld, SA , Vic and WA: includes gonococcal neonatal ophthalmia.
7. Includes congenital syphilis.
8. Includes congenital rubella.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

Table 3. Notifications of diseases received by State and Territory health authorities in the period 1 to 31 August 2000, by date of report*

Disease[1]	State or Territory								Total this period	Year to date total
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA		
Bloodborne										
Hepatitis B (incident)	0	6	0	4	6	1	13	8	38	267
Hepatitis B (unspecified)[2]	5	263	0	102	25	6	203	68	672	5,568
Hepatitis C (incident)	0	37	0	-	16	1	3	7	64	366
Hepatitis C (unspecified)[2]	22	563	27	293	62	36	519	170	1,692	14,328
Hepatitis D	0	3	0	0	0	0	0	0	3	13
Gastrointestinal										
Botulism	0	0	0	0	0	0	0	0	0	0
Campylobacterosis[3]	22	-	14	337	173	43	452	220	1,261	8,925
Haemolytic uraemic syndrome	0	NN	0	0	0	0	0	NN	0	6
Hepatitis A	0	14	1	7	6	0	3	8	39	649
Hepatitis E	0	0	0	0	0	0	0	0	0	0
Listeriosis	0	1	0	0	0	0	0	0	1	48
Salmonellosis	6	59	16	89	18	2	78	57	325	4,503
Shigellosis[3]	0	-	6	9	1	0	8	8	32	337
SLTEC,VTEC[4]	0	0	0	0	1	0	0	0	1	24
Typhoid	0	3	0	0	0	0	2	0	5	56
Yersiniosis[3]	0	-	1	8	0	0	1	0	10	57
Quarantinable										
Cholera	0	0	0	0	0	0	0	0	0	1
Plague	0	0	0	0	0	0	0	0	0	0
Rabies	0	0	0	0	0	0	0	0	0	0
Viral haemorrhagic fever	0	0	0	0	0	0	0	0	0	0
Yellow fever	0	0	0	0	0	0	0	0	0	0
Sexually transmissible										
Chancroid	0	0	0	0	0	0	0	0	0	0
Chlamydial infection[5]	17	349	106	475	152	29	0	216	1,344	9,242
Donovanosis	0	0	0	0	NN	0	0	0	0	12
Gonococcal infection[6]	1	65	125	89	31	1	79	118	509	4,327
Lymphogranuloma venereum	0	0	0	0	0	0	0	0	0	0
Syphilis[7]	3	76	27	83	1	1	0	8	199	1,301
Vaccine preventable										
Diphtheria	0	0	0	0	0	0	0	0	0	0
Haemophilus influenzae type b	0	2	0	2	1	0	0	0	5	17
Measles	0	1	0	1	0	0	3	1	6	79
Mumps	0	13	0	0	1	0	4	3	21	156
Pertussis	53	596	0	45	75	3	83	8	863	3,316
Poliomyelitis	0	0	0	0	0	0	0	0	0	0
Rubella[8]	1	15	0	1	0	0	4	2	23	143
Tetanus	0	0	0	0	0	0	0	0	0	6
Vectorborne										
Arbovirus infection NEC	0	0	1	0	0	0	2	0	3	64
Barmah Forest virus infection	0	15	1	28	0	0	0	0	44	429
Dengue	0	1	2	0	1	0	0	0	4	218
Malaria	1	17	21	38	7	0	10	1	95	737
Ross River virus infection	0	18	6	28	2	1	4	10	69	3,789

Table 3 (continued). Notifications of diseases received by State and Territory health authorities in the period 1 to 31 August 2000, by date of report*

Disease[1]	State or Territory								Total this period	Year to date total
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA		
Zoonoses										
Brucellosis	0	0	0	4	0	0	0	0	4	12
Hydatid infection	0	NN	0	0	0	0	2	1	3	17
Leptospirosis	0	3	0	11	0	0	0	0	14	165
Ornithosis	0	NN	1	NN	2	0	3	1	7	60
Q fever	0	15	0	42	5	0	1	3	66	358
Other										
Legionellosis	0	5	0	3	8	0	4	2	22	363
Leprosy	0	0	0	0	0	0	0	0	0	4
Meningococcal infection	0	25	1	5	6	3	20	12	72	351
Tuberculosis	1	25	5	12	0	0	24	13	80	666
Total	132	2,190	361	1,716	600	127	1,525	945	7,596	60,980

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.
2. Unspecified numbers should be interpreted with some caution as the magnitude may be a reflection of the numbers of tests being carried out.
3. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.
4. Infections with Shiga-like toxin (verotoxin) producing *E. coli* (SLTEC/VTEC).
5. WA: genital only.
6. NT, Qld, SA , Vic and WA: includes gonococcal neonatal ophthalmia.
7. Includes congenital syphilis.
8. Includes congenital rubella.

* Date of report is the date the public health unit received the report.

NN Not Notifiable.

NEC Not Elsewhere Classified.

\- Elsewhere Classified.

Table 4. Virology and serology laboratory reports by contributing laboratories for the reporting period 1 to 31 August 2000[1]

State or Territory	Laboratory	This period	Total this period[2]
Australian Capital Territory	The Canberra Hospital	-	-
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	221	249
	New Children's Hospital, Westmead	-	-
New South Wales	Repatriation General Hospital, Concord	-	-
	Royal Prince Alfred Hospital, Camperdown	29	34
	South West Area Pathology Service, Liverpool	-	-
Queensland	Queensland Medical Laboratory, West End	138	-
	Townsville General Hospital	-	-
South Australia	Institute of Medical and Veterinary Science, Adelaide	-	-
Tasmania	Northern Tasmanian Pathology Service, Launceston	26	29
	Royal Hobart Hospital, Hobart	-	-
Victoria	Monash Medical Centre, Melbourne	-	-
	Royal Children's Hospital, Melbourne	182	167
	Victorian Infectious Diseases Reference Laboratory, Fairfield	56	87
Western Australia	PathCentre Virology, Perth	-	-
	Princess Margaret Hospital, Perth	225	154
	Western Diagnostic Pathology	22	19
Total		899	739

1. The complete list of laboratories reporting for the 12 months, January to December 2000, will appear in every report from January 2000 regardless of whether reports were received in this reporting period. Reports are not always received from all laboratories.
2. Total reports include both reports for the current period and outstanding reports to date.

\- Nil reports

Table 5. Virology and serology laboratory reports by State or Territory[1] for the reporting period 1 to 31 August 2000, and total reports for the year[2]

	State or Territory[1]								This period 2000	This period 1999	Year to date 2000[3]	Year to date 1999
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Measles, mumps, rubella												
Measles virus	-	1	-	-	-	-	3	-	4	2	33	135
Hepatitis viruses												
Hepatitis A virus	-	-	1	1	-	-	-	-	2	61	110	357
Arboviruses												
Ross River virus	-	-	-	2	-	-	-	-	2	149	1,091	1,368
Barmah Forest virus	-	-	1	6	-	-	1	-	8	13	117	164
Adenoviruses												
Adenovirus not typed/pending	-	12	-	-	-	-	10	8	30	112	655	733
Herpes viruses												
Cytomegalovirus	2	11	-	3	-	2	15	8	41	162	732	885
Varicella-zoster virus	-	5	-	9	-	1	6	3	24	292	867	1,408
Epstein-Barr virus	-	1	1	16	-	-	5	15	38	402	1,351	2,066
Other DNA viruses												
Parvovirus	-	-	-	-	-	-	5	-	5	80	207	407
Picornavirus family												
Echovirus type 7	-	2	-	-	-	-	-	-	2		30	1
Poliovirus type 3 (uncharacterised)	-	2	-	-	-	-	-	-	2	1	5	6
Rhinovirus (all types)	-	6	-	-	-	-	-	-	6	45	251	276
Enterovirus not typed/pending	-	-	-	-	1	-	3	-	4	99	581	557
Ortho/paramyxoviruses												
Influenza A virus	5	41	-	2	-	-	20	14	82	568	557	1,822
Influenza B virus	-	10	-	1	-	-	12	2	25	75	177	201
Parainfluenza virus type 1	-	-	-	-	-	-	-	3	3	4	212	34
Parainfluenza virus type 2	-	-	-	-	-	-	-	3	3	4	27	98
Parainfluenza virus type 3	1	2	-	-	-	-	2	12	17	127	146	451
Respiratory syncytial virus	1	22	-	8	-	17	44	140	232	724	2,299	2,711
Rotavirus	-	92	-	-	1	3	24	34	154	494	698	1,338
Other												
Chlamydia trachomatis not typed	2	28	4	27	-	5	3	2	71	725	2,031	3,123
Chlamydia psittaci	-	-	-	-	-	-	2	-	2	4	59	58
Chlamydia species	-	2	-	-	-	-	-	-	2	14	8	31
Mycoplasma pneumoniae	-	6	1	14	-	-	13	2	36	226	391	992
Coxiella burnetii (Q fever)	-	-	-	3	-	-	-	-	3	43	45	234
Streptococcus group A	-	1	-	1	-	-	14	-	16	132	235	413
Brucella species	-	-	-	1	-	-	-	-	1	3	5	9
Bordetella pertussis	-	8	-	2	-	-	47	-	57	209	374	914
Legionella pneumophila	-	-	-	-	-	-	3	-	3		29	15
Leptospira species	-	-	-	1	-	-	-	-	1	8	36	70
Treponema pallidum	-	1	9	13	-	-	-	-	23	305	485	814
Total	11	253	17	110	2	28	232	246	899	5,083	13,844	21,691

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.
2. From January 2000 data presented are for reports with report dates in the current period. Previously reports included all data received in that period.
3. Totals comprise data from all laboratories. 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.

\- No data received this period.

Table 6. Australian Sentinel Practice Research Network reports, weeks 31 to 34, 2000

Week number	31		32		33		34	
Week ending on	6 August 2000		13 August 2000		20 August 2000		27 August 2000	
Doctors reporting	63		62		64		60	
Total encounters	7,882		7,574		7,813		7,774	
Condition	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters
Influenza	68	8.6	67	8.8	86	11.0	144	18.5
Chickenpox	9	1.1	9	1.2	10	1.3	12	1.5
Gastroenteritis	66	8.4	65	8.6	72	9.2	68	8.7
Gastroenteritis with stool culture	17	2.2	16	2.1	8	1.0	10	1.3
ADT immunisations	34	4.3	28	3.7	31	4.0	23	3.0

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The system coordinates the national surveillance of close to 50 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 legislations. De-identified core unit data are supplied fortnightly for collation, analysis and dissemination. For further information, see Commun Dis Intell *2000;24:6-7.*

LabVISE is a sentinel reporting scheme. Currently 17 laboratories contribute data on the laboratory identification of viruses and other organisms. This number may change throughout the year. Data are collated and published in Commun Dis Intell *monthly. 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* Commun Dis Intell *2000;24:10.*

ASPREN currently comprises about 120 general practitioners from throughout the country, not all of whom report each week. Between 7,000 and 8,000 consultations are reported each week, with special attention to 14 conditions chosen for sentinel surveillance in 2000. Commun Dis Intell *reports the consultation rates for five of these. For further information, including case definitions, see* Commun Dis Intell *2000;24:7-8.*

Additional Reports

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

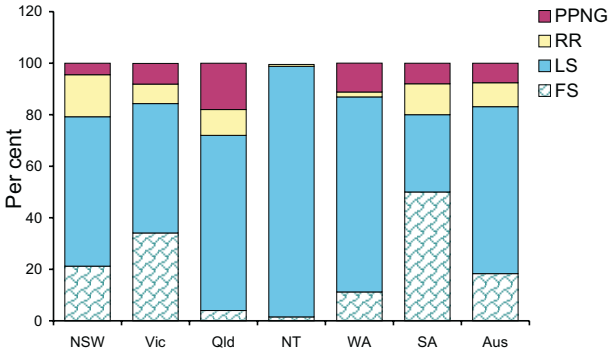
Reporting period 1 April to 30 June 2000

The AGSP laboratories examined a total of 970 isolates in this quarter, little different from the 950 available in this period in 1999. About 34 per cent of this total was from New South Wales, 22 per cent from Victoria, 16 per cent from Queensland, 14 per cent from the Northern Territory, 11 per cent from Western Australia and 2.7 per cent from South Australia. Isolates from other centres were few.

Penicillins

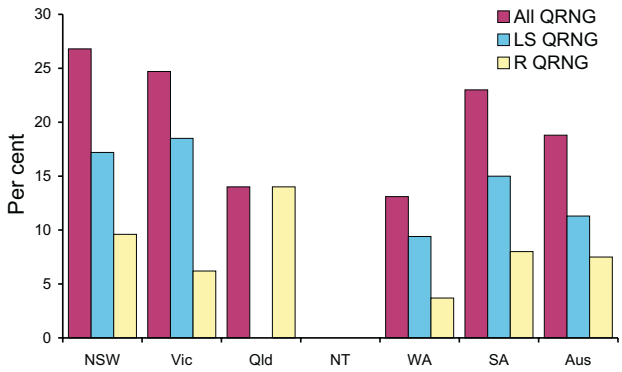
Figure 10 shows the proportions of gonococci fully sensitive (MIC 0.03 mg/L), less sensitive (MIC 0.06 to 0.5 mg/L), relatively resistant to penicillins (MIC 1 mg/L) or else penicillinase-producing *Neisseria gonorrhoeae* (PPNG) aggregated for Australia and by State or Territory. A high proportion of PPNG and relatively resistant strains fail to respond to treatment with penicillins (penicillin, amoxycillin, ampicillin) and early generation cephalosporins.

Figure 10. Gonococci isolated in Australia, 1 April to 30 June 2000, by penicillin-susceptibility and by region



FS fully sensitive to penicillin, MIC 0.03 mg/L
LS less sensitive to penicillin, MIC 0.06 to 0.5 mg/L
RR relatively resistant to penicillin, MIC = 1 mg/L
PPNG penicillinase-producing *Neisseria gonorrhoeae*
* includes Tasmania and the Australian Capital Territory

Figure 11. Quinolone-resistance of *N. Gonorrhoeae*, Australia, 1 April to 30 June 2000, by region



LS QRNG = less sensitive quinolone-resistant *N. gonorrhoeae* (Ciprofloxacin MICs 0.06 to 0.5 mg/L)
R QRNG = fully resistant quinolone-resistant *N. Gonorrhoeae (Ciprofloxacin MICs* ³ 1 mg/L)
* includes Tasmania and the Australian Capital Territory

About 17 per cent of all isolates were penicillin-resistant by one or more mechanisms – 7.6 per cent by penicillinase production and 9.3 per cent by chromosomal mechanisms (CMRNG). The penicillin-resistant isolates comprised about 28 per cent of all isolates in Queensland and about 20 per cent of all gonococci in New South Wales and South Australia, while 16 per cent of gonococci in Victoria and 13 per cent in Western Australia were penicillin-resistant. In the Northern Territory only a single isolate out of 137 examined was penicillin-resistant.

The number of PPNG isolated in Australia (74) increased slightly in this quarter compared with the corresponding period in 1999 (65). The highest proportion of PPNG was found in isolates from Queensland (18%), Western Australia (11%), Victoria (8%) and South Australia (8%), whereas the number (15) and proportion (4.5%) of PPNG in New South Wales continued to decrease. No PPNG were present in the Northern Territory. Acquisition data on PPNG indicated local infection with these strains was occurring throughout Australia. South-East Asian countries remained the main source of external acquisition.

More isolates were resistant to the penicillins by separate chromosomal mechanisms (91). These CMRNG were especially prominent in New South Wales where 54 such isolates were detected. Queensland (15) and Victoria (16) were also prominent sources of CMRNG. Only one strain of this type was isolated in the Northern Territory.

Ceftriaxone and spectinomycin

Most isolates in Australia were again susceptible to these injectable agents. A small number of strains exhibited decreased ceftriaxone susceptibility.

Quinolone antibiotics

Quinolone-resistant *N. gonorrhoeae* (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 to 0.5 mg/L) or resistant (MIC 1 mg/L) groups. The distribution of QRNG in Australia in this quarter is shown in Figure 11.

For Australia as a whole the total number (183) and proportion (18.8%) of all *N. gonorrhoeae* isolates that were QRNG were again high and very similar to numbers and proportions seen in the corresponding quarter of 1999 (194 isolates, 20%). It was in the June quarter of 1999 that the numbers of QRNG increased substantially. In the current quarter the QRNG were widely dispersed and were present in all centres except the Northern Territory. High rates were maintained in New South Wales (27%) and Victoria (25%) and together these regions accounted for three-quarters of the QRNG isolated. QRNG were prominent also in South Australia (23% of isolates there), Queensland (14%) and Western Australian (13%). A single QRNG was detected in Tasmania.

Thirty-two of the New South Wales, 13 of the Victorian and all of the 21 Queensland QRNG isolates exhibited high level resistance (MIC ciprofloxacin 1 mg/L) and higher level QRNG were also seen in South Australia, Tasmania and Western Australia. Local acquisition became increasingly prominent and MICs ranged up to 16 mg/L. However, about 60 per cent of the QRNG were in the 'less sensitive' MIC range 0.06 to 0.5 mg/L and were found almost exclusively in males. Again the bulk of this group of isolates (96 of 110) was found in New South Wales and Victoria and infections with them were mostly locally acquired. Gonococci acquired overseas were from such diverse sources as the United Kingdom, Denmark, Ireland, Indonesia, the Philippines, Papua New Guinea, Taiwan, China, Thailand and Vietnam.

High level tetracycline resistance (TRNG)

The number (79) and proportion (8.1%) of TRNG detected were higher than for the second quarter of 1999 (58; 6%). TRNG represented 22 per cent of isolates from Queensland, 13 per cent from Western Australia, and 5.5 per cent from New South Wales and Victoria. No TRNG were detected in South Australia, Tasmania or the Northern Territory.

Australian encephalitis: Sentinel Chicken Surveillance Programme

Sentinel chicken flocks are used to monitor flavivirus activity in Australia. The main viruses of concern are Murray Valley encephalitis (MVE) and Kunjin which cause the potentially fatal disease Australian encephalitis in humans. Currently 29 flocks are maintained in the north of Western Australia, seven in the Northern Territory, nine in New South Wales and ten in Victoria. The flocks in Western Australia and the Northern Territory are tested year round but those in New South Wales and Victoria are tested only from November to March, during the main risk season.

Results are coordinated by the Arbovirus Laboratory in Perth and reported bimonthly. For more information see Commun Dis Intell *2000;24:8-9.*

A K Broom,[1] J S Mackenzie,[2] L Melville,[3] D W Smith,[4] PI Whelan[5]

1. Department of Microbiology, The University of Western Australia
2. Department of Microbiology, The University of Queensland
3. Berrimah Agricultural Research Centre, Northern Territory
4. PathCentre, Western Australia
5. Department of Health and Community Services, Northern Territory

July/August 2000

Sentinel chicken serology was carried out for 27 of the 29 flocks in Western Australia in July and August 2000. Murray Valley encephalitis (MVE) activity was still detected in the Kimberley, Pilbara, Gascoyne and Midwest in these months, although the numbers of seroconversions have decreased. The extension of MVE virus activity this far into the dry season has not been observed in previous years. The number of chickens positive for flavivirus antibodies by ELISA at each site and the identity of the infecting virus(es) are shown in Table 7. A number of the later seroconversions have not yet been confirmed.

MVE virus antibodies were detected in chickens in the Murchison and Midwest regions of Western Australia for the first time this year. This is the furthest south the virus has ever been detected. A serological survey of domestic chickens located in these regions and areas further south and east, was carried out in August to determine the limit of MVE virus activity in Western Australia in 2000. The results will be published in a later edition of *Commun Dis Intell*. To date 11 cases of Australian encephalitis caused by MVE virus have been confirmed from Western Australia. In addition there have been several cases of non-encephalitic disease caused by Kunjin virus reported from Western Australia.

Serum samples from six of the seven Northern Territory sentinel chicken flocks were tested in our laboratory in July and August 2000. One new seroconversion to MVE virus was detected in July east of Darwin at Beatrice Hill Farm. Several media warnings have been issued by the Northern Territory Health Department and to date there have been four cases of Australian encephalitis caused by MVE virus and one case of Kunjin encephalitis confirmed from central Australia (Northern Territory and South Australia).

Table 7. Flavivirus seroconversions in Western Australian sentinel chicken flocks in July and August 2000

		July 2000				August 2000		
Region	Location*	MVE	MVE/ KUN	KUN	FLAVI	MVE	KUN	FLAVI
Kimberley	Kalumburu	1			1			
	Wyndham					1#		
	Kununurra	1						
	Fitzroy Crossing	1				1		
	Derby**	1				1	1	2
	Lombadina	1			1			
	Bidjadanga				1	2		
Pilbara	South Hedland	1						
	Harding Dam**	2				1	1	
	Pannawonica	5						
	Tom Price	1						
	Paraburdoo	1	1					
	Onslow	1		3				
Gascoyne	Carnarvon	3				2		
Midwest	Dongara	4						1

* The location of most chicken flocks are illustrated in *Commun Dis Intell* 2000;24:8-9.

** Two flocks of 12 chickens at these sites,

This result has not yet been confirmed,

MVE Antibodies to Murray Valley encephalitis virus detected by ELISA.

KUN Antibodies to Kunjin virus detected by ELISA.

FLAVI Antibodies to flavivirus detected by ELISA.

HIV and AIDS Surveillance

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), in collaboration with State and Territory health authorities and the Commonwealth of Australia. Cases of HIV infection are notified to the National HIV Database on the first occasion of diagnosis in Australia, by either the diagnosing laboratory (Australian Capital Territory, New South Wales, Tasmania, Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia, Western Australia). Cases of AIDS are notified through the State and Territory health authorities to the National AIDS Registry. Diagnoses of both HIV infection and AIDS are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly Australian HIV Surveillance Report, and annually in HIV/AIDS and related diseases in Australia Annual Surveillance Report. The reports are available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Internet: http://www.med.unsw.edu.au/nchecr. Telephone: (02) 9332 4648. Facsimile: (02) 9332 1837.

HIV and AIDS diagnoses and deaths following AIDS reported for 1 to 30 April 2000, as reported to 31 July 2000, are included in this issue of Commun Dis Intell *(Tables 8 and 9).*

Table 8. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 to 30 April 2000, by sex and State or Territory of diagnosis

										Totals for Australia			
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 2000	This period 1999	Year to date 2000	Year to date 1999
HIV diagnoses	Female	1	2	0	1	0	0	3	0	7	5	27	23
	Male	0	17	0	6	1	0	12	1	37	56	217	218
	Sex not reported	0	0	0	0	0	0	0	0	0	0	0	0
	Total[1]	1	19	0	7	1	0	15	1	44	61	245	241
AIDS diagnoses	Female	0	0	0	0	0	0	0	0	0	0	7	5
	Male	0	1	0	1	0	0	1	0	3	17	52	51
	Total[1]	0	1	0	1	0	0	1	0	3	17	59	56
AIDS deaths	Female	0	0	0	0	0	0	0	0	0	1	3	1
	Male	0	2	0	2	0	0	1	0	5	4	25	40
	Total[1]	0	2	0	2	0	0	1	0	5	5	28	42

1. Persons whose sex was reported as transgender are included in the totals.

Table 9. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 31 July 2000, by sex and State or Territory

		State or Territory								
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
HIV diagnoses	Female	27	609	11	156	61	5	217	118	1,204
	Male	223	11,025	110	2,009	680	78	3,919	922	18,966
	Sex not reported	0	247	0	0	0	0	24	0	271
	Total[1]	250	11,901	121	2,172	741	83	4,174	1,044	20,486
AIDS diagnoses	Female	9	188	1	48	25	3	70	26	370
	Male	86	4,651	35	828	347	44	1,630	354	7,975
	Total[1]	95	4,851	36	878	372	47	1,708	382	8,369
AIDS deaths	Female	4	113	0	32	15	2	49	16	231
	Male	66	3,175	24	569	231	29	1,275	248	5,617
	Total[1]	70	3,296	24	603	246	31	1,330	265	5,865

1. Persons whose sex was reported as transgender are included in the totals.

Bulletin Board

Australian Institute of Environmental Health
27th National Conference and Workshop
15-19 October 2000
Hotel Sofitel Reef Casino, Cairns, Queensland
Phone: 07 3000 2299
Email: aiehqld@lgaq.asn.au
Website: PacCon2000.com

VTEC 2000
4th International Symposium and Workshop on 'Shiga Toxin (Verocytotoxin) - Producing *Escherichia coli* Infections
29 October-2 November 2000
Kyoto, Japan
Phone: +81 3 3423 4180
Fax: +81 3 3423 4108
Email: vtec@mx6.mesh.ne.jp

The NSW Infection Control Association
23rd Annual Conference
2-3 November 2000
Civic Hall, Newcastle, New South Wales
Phone: 02 4921 8777
Fax: 02 4921 8778
Email: simpson@mail.newcastle.edu.au
Early bird registration 29 September 2000

Public Health Association of Australia
32nd Annual Conference
26-29 November 2000
National Convention Centre, Canberra
Phone: 02 6285 2373
Fax: 02 6282 5438
Email: conference@phaa.net.au
Website:
http://www.phaa.net.au/conf/annual/regbroch.htm

Australian Epidemiology Association
2000 Annual Scientific Meeting
The Future of Epidemiology
29 November to 1 December 2000
TBA
Canberra
Contact: Bob Douglas
Email: Bob.Douglas@anu.edu.au

Emerging Disease Conference
Challenges of Emerging Illness in Urban Environments
11-12 December 2000
The New York Academy of Medicine, NY, USA
Contact: Patricia Doyle
Fax: 212 987 4735
Email: dr_p_doyle@hotmail.com
Website: http://www.nyam.org

Master of Applied Epidemiology
3rd MAE Conference
Charting new directions: cutting-edge issues in applied epidemiology
1-2 April 2001
Hyatt Hotel, Canberra, Australian Capital Territory
Phone: 02 6249 2790
Fax: 02 6249 0740
Email MAE(DC): ros.hales@anu.edu.au
Email MAE(IH): elizabeth.lovell@anu.edu.au

The Communicable Diseases Network Australia New Zealand (CDNANZ)
Communicable Diseases Control Conference 2001
2-3 April 2001
Hyatt Hotel, Canberra, Australian Capital Territory
Phone: +61 2 6251 0675
Fax: +61 2 6251 0672
Email: diseases@consec.com.au
Website:
http://www.health.gov.au/pubhlth/cdi/cdconf.htm

Institute for Microbiology of Medical Faculty of Masaryk University & St Anna's Faculty Hospital
10th Tomasek Days
Annual conference of young microbiologists
6-8 June 2001
Brno, Czechia
Contact: Ondrej Zahradnicek
Phone: ++420 5 4318309
Fax: ++420 5 4318308
Email: ozahrad@med.muni.cz
Website: www.med.muni.cz/zahrad/strtomda.htm

Winter Symposium for Emergency Medicine/ Outpatient Parenteral Therapy
23-27 June 2001(tentative)
Peppers Fairmont Resort, Leura, New South Wales
Phone: 02 9956 8333
Fax: 02 9956 5154
Email: confact@conferenceaction.com.au

The Australian Society for Microbiology
Annual Scientific Meeting
30 September - 6 October 2001
Burswood Resort and Convention Centre
Burswood, Perth
Phone: +61 3 9867 8699
Fax: +61 3 9867 8722
Email: admin@theasm.com.au
Website: http://www.cbsm.uwa.edu.au/ASM2001/

The Communicable Diseases Intelligence *Bulletin Board is provided as a service to readers. Every effort has been made to provide accurate information, but readers are advised to contact the relevant organisation for confirmation of details. Information about the availability of resources is included when space allows. Inclusion of a resource on the Bulletin Board does not imply endorsement of the resource by either the Communicable Diseases Network Australia New Zealand or the Commonwealth Department of Health and Aged Care.*

Contributions to the Bulletin Board are invited from those organisations with forthcoming events relevant to communicable disease control.

Overseas briefs

ProMED-mail

This material has been summarised from information provided by ProMED-mail (http://www.promedmail.org). A link to this site can be found under 'Other Australian and international communicable diseases sites' on the Communicable Diseases Australia homepage.

Salmonella, birds – New Zealand

Contributed 29 September 2000 by Merren, Ihug Newsroom, Nga Mihi.

The investigation into the current outbreak of *Salmonella* has been helped by the public reporting 79 sightings of dead birds to the Ministry of Agriculture and Forestry (MAF). MAF earlier made an appeal for help in the investigation into an outbreak of *Salmonella* in sparrows which is suspected to be linked to an increase of reported cases in humans.

Last week the Canterbury Medical Officer of Health, Dr Mel Brieseman, said 37 human cases of the disease have been notified in the past 10 weeks. Most cases, including the death of a 70 year old Christchurch man, involved a strain not normally seen in humans, called type 160, the same strain killing sparrows in Canterbury, Marlborough, Manawatu and Waikato. There have since been sightings of dead birds in other areas from Northland to the West Coast, with groups of up to 400 dead birds being reported, though most sighting are still confined to Canterbury.

The MAF program coordinator, Roger Poland, said they had not yet identified one particular strain of *Salmonella* as causing all of the deaths so it was too early to determine if it was spreading throughout the country. The health authorities are currently carrying out tests to establish links to the sparrow deaths, as well as investigating a number of cases of salmonellosis in humans.

Editorial note: the *Salmonella* involved (confirmed in two cases of sparrows) is Typhimurium phage type 160. Apart from sparrows, deaths in other small birds (waxeyes and riflemen) have been reported. During August and September there have been 15 confirmed cases involving rabbits, dogs cats, ducks, quail, deer, horses, cattle and cockatoos. See: www.maf.govt.nz/MAFnet/280900sal.htm.

Update on respiratory illness among passengers on the Fair Princess cruise

Contributed 21 September 2000 by Dr Jeremy McAnulty, Manager, Communicable Diseases Surveillance and Control Unit, NSW Health Department, Sydney.

This is a summary of NSW Health's investigation of the outbreak of flu-like illness on the Fair Princess in early September 2000. Available evidence indicates that the cause of the outbreak was likely to be influenza.

On Thursday 7 September 2000, NSW Health received a report from P&O that a person from the Fair Princess cruise ship had been diagnosed with Legionnaires' disease. The ship had left Sydney for a routine cruise on 28 August 2000 bound for Noumea and other islands. Five people had been taken off the ship with illness in Noumea. One of the patients subsequently died. Two others were diagnosed by doctors in Noumea with Legionnaires' disease.

The ship was due to arrive back in Sydney on Saturday 9 September 2000.

NSW Health immediately assembled a team to investigate this problem. Doctors in Noumea were asked to send additional specimens to Sydney for further testing. In the meantime, NSW Health provided information for the ship's passengers and crew, and organised for a team of five experts in epidemiology (including two doctors) and environmental health officers to meet the ship 10 hours before it docked in Sydney. (The ship docked at 3:30 am on Sunday 10 September 2000.)

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

When the ship disembarked in Sydney, seven passengers were taken to hospital, some of whom had chest infections. All have since been discharged. Subsequently, we have had reports that eight other passengers with chest infections were admitted to hospital. One of these has died (of heart disease), six others have been discharged and one remains in hospital.

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

So far no person who was on the ship has tested positive for Legionnaires' disease from NSW Health tests. However, a significant number of passengers and some crew have tested positive for influenza virus. Further tests are being undertaken in the two persons initially thought to have Legionnaires' disease. Due to the nature of these and other tests, results are unlikely to be finalised for some weeks.

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

Pro-MED comment. ProMED-mail would like to thank Dr McAnulty for his rapid response to our RFI (Request for Information) on the above mentioned outbreak. Additional newswires had carried the title of a Legionnaires' disease outbreak as he stated in this very comprehensive report. In addition there had been extensive newswire coverage of concerns regarding influenza activity during the Olympics for the 2 weeks preceding the onset. As Dr McAnulty has pointed out in his report, August and September have been months with significant influenza activity noted in Australia. Unless there are additional findings different from those mentioned above, this thread is now closed.

BSE cases down but CJD on increase: UK

Contributed 27 September 2000 by M. Cosgriff: abstracted from The Independent (26 September)

The BSE epidemic is starting to drop off in line with scientists' predictions, a Government report stated yesterday. But the number of known cases of 'variant' CJD, (vCJD) the human form of the disease, has increased to 74.

The Ministry of Agriculture, Fisheries and Food (MAFF) study comes a day after the department played down fears up to eight more cows may have contracted BSE because of inadequate measures to eradicate it. The progress report outlined the measures taken to protect public health in the 6 months from December 1999. It stated BSE cases have already shown a dramatic decline and the situation was due to improve further in the future.

On average about 30 new cases were being found each month, compared to 1000 a month at the height of the epidemic in 1993. The number of infected cattle in 1999 was 30.5 percent lower than the same period in 1998. Almost two-thirds of herds with breeding cattle have never had a case of BSE.

However, 63 people had died of vCJD by the end of June 2000, with three provisional victims who had already died and a further seven still alive but believed to have the disease. On Sunday, the Government said there was no new outbreak of BSE. There was only one confirmed case of BSE in July, a spokesman said.

Editorial note: as of 28 September there have been 73 confirmed cases: see Editorial, this issue.

Hand, foot & mouth disease: Singapore

Contributed 3 October 2000 by Dr Muruga Vadivale: abstracted from the Straits Times (Byline: Salma Khalik)

Hand, foot and mouth disease has landed 19 children in hospital, with the total number of cases reported rising to 363 as of yesterday (2 October 2000). None of the children is seriously ill, although 2 are in intensive care, said Dr Phua Kong Boo, Head of the Paediatrics Department at KK Women's and Children's Hospital (KKH), where most of the children are located. One is the 5 year old brother of the two toddlers who died on 30 Sep 2000. He is not in danger but is being kept in intensive care as a precaution. The other is a 1 year old child whose breathing is faster than normal.

The National University Hospital (NUH) has set up an isolation ward for children suffering from this highly contagious disease. (All child-care centres have been closed, and as a further precaution play areas, wading pools and library programs for young children were closed yesterday). There have been 363 reported cases of hand, foot and mouth disease since 12 September 2000, and a total of four toddlers diagnosed with the disease died last month. Speaking at a press conference yesterday, Health Minister Lim Hng Kiang noted that between seven and 11 young children in Singapore die of viral infection of the lungs every year. But it was unusual for four to die within a month, he said. Mr Lim said that as well as trying to identify the virus locally, samples had been sent to the Centers for Disease Control and Prevention in Atlanta, USA.

Prevalence of Enterovirus 71 in Korea

Contributed by Kisoon Kim Department of Virology, NIH, Korea (edited)

This year several isolations of Enterovirus type 71 (EV71) have been made from patients diagnosed with hand, foot & mouth disease (HFMD) and/or aseptic meningitis in the mainland of Korea. Clinical samples taken from such patients have been processed and inoculated onto RD, BGM and Vero cells. RT-PCR assays were also performed (in parallel) to detect the presence of viral nucleic acid in the original samples and in cell culture supernatants, whether a cytopathic effect was observed or not.

The National Institute of Health of Korea has sponsored an investigation to establish whether EV71 infection is reaching epidemic proportions. Because there are no data available on the past prevalence of EV71 in Korea, it is difficult at this stage of the investigation to define whether there is an epidemic or not. Fortunately, so far there have been no fatal cases attributable to EV71 infection in Korea. Genomic subtyping and neutralising tests are in progress.

Rift Valley Fever in Saudi Arabia: Update

Contributed by Shamsudeen Fagbo: abstracted from Arab News

The English language daily Arab News reported today (Monday 2 October 2000) that Rift Valley fever has been reported in the Eastern region of the country with two people contracting the disease in the town of Ahsa. According to health authorities, a total of 52 fatalities have occurred with the number of recorded cases now up to 223 since the disease was first reported in the southern port town of Jizan close to the Yemeni border about 3 weeks ago. The Arab News daily also reported that the Yemeni Health Minister put the total number of Rift Valley fever related deaths in Yemen to be 31 as at Wednesday while cases were reported as 117 individuals.

World Health Organization

This material has been summarised from information on the World Health Organization Internet site. A link to this site can be found under 'Other Australian and international communicable diseases sites' on the Communicable Diseases Australia homepage.

Cholera

Federated States of Micronesia - update

As of 21 August 2000, the public health authorities of Pohnpei State reported a total of 2,689 cases and 15 deaths from the cholera outbreak they first reported on 17 April 2000. *Vibrio cholerae* biotype El Tor serotype Ogawa has been identified.

The public health authorities of the Federated States of Micronesia, with the support of WHO and the Secretariat of the Pacific Community (SPC), have decided to implement a cholera vaccination campaign in the unaffected islands, using the live oral CVD-103HgR vaccine. Several clinical studies have shown that one oral dose of this vaccine provides 70-90 per cent protective immunity after only 7 days.

Although the outbreak is still ongoing, it is limited to Pohnpei island. However, the cholera vaccination campaign is a preventive measure to contain the spread of cholera to other areas. This cholera vaccine campaign does not replace the usual recommendations for safe water, appropriate sanitation and environmental measures, but is rather a complementary tool to contain the cholera outbreak in this specific situation.

Afghanistan

An outbreak of cholera with onset in August 2000 has been reported in the southern, western and northern regions (in the provinces of Kandahar, Badghis and Jawzjan – including Saripul – respectively). To date, 1,604 cases and 19 deaths have been reported. All the samples tested are *Vibrio cholerae* O1 Ogawa, sensitive to doxycycline and tetracycline. Sensitivity to co-trimoxazole has not yet been tested. The Ministry of Health is responding to the outbreak together with WHO and Médecins sans frontières.

A plan of action has been drawn up to include the provision of essential supplies for case management of cholera and strengthening surveillance of epidemic-prone diseases. WHO is seeking to mobilise funds for its implementation.

Yellow fever: Liberia - update

As of 6 September 2000, a total of 102 suspected cases of yellow fever was reported by the Ministry of Health, Liberia. No confirmed cases had occurred outside Grand Cape Mount County, on the border with Sierra Leone nor in other parts of the country, including Monrovia.

WHO provided 180,000 doses of yellow fever vaccine and autodestruct syringes to the Liberian Ministry of Health. On 5 September 2000, WHO, working with NGOs in the area, began a campaign to vaccinate 150,000 people in the region at risk. The plan was to have vaccinated 60,000 people by 10 September 2000. WHO will provide additional doses of vaccine to conduct 'catch up' campaigns for non-immune populations outside the affected area.

Acute febrile illness: USA

The Centers for Disease Control and Prevention (CDC) have reported preliminary findings of 37 cases of acute febrile illness. Symptoms include high fever, chills, headache and myalgia. Twelve cases have been hospitalised and specimens from two of these have tested positive for leptospirosis.

The cases were in a group of 155 United States-based athletes who participated in the Eco-Challenge Sabah 2000 Expedition Race held during 20 August to 3 September in Sarawak, Malaysia. Also participating were 39 four-person teams from more than 20 other countries.

CDC has issued an advisory about the suspected leptospirosis outbreak associated with this event to alert United States-based participants and health care workers. WHO is working with the relevant national authorities to notify the other participants.

Leptospirosis

France

Four cases of leptospirosis associated with the Eco-Challenge sports event have now been reported in France. Of the four cases reported, one has been laboratory- confirmed. WHO is collaborating in case-finding activities.

Canada

As of 21 September 2000, six suspected cases of leptospirosis associated with the Eco-Challenge sports event have been reported in Canada. Two of the six suspected cases have been laboratory-confirmed. WHO is collaborating in case-finding activities.

West Nile fever: Israel

As of 19 September, the Ministry of Heath in Israel has reported 151 cases of West Nile fever with 76 cases hospitalised and 12 deaths. The Ministry of Health is implementing control measures which include air and ground spraying the affected areas with insecticides, with particular attention to animal houses, ponds and mosquito breeding areas.

Editor: Angela Merianos

Associate Editor: Jenny Thomson

Deputy Editor: Ian Griffith

Editorial and Production Staff

Alison Milton, Margo Eyeson-Annan, Ming Lin

Editorial Advisory Board

Charles Watson (Chair), Mary Beers, Margaret Burgess, Scott Cameron, John Kaldor, Margery Kennett, Cathy Mead

Website

http://www.health.gov.au/pubhlth/cdi/cdihtml.htm

Contributions

Contributions covering any aspects of communicable diseases are invited. All contributions are subject to the normal refereeing process. **Instructions to authors can be found in *Commun Dis Intell* 2000;24:5**.

Subscriptions and Contacts

Communicable Diseases Intelligence is produced every month by the National Centre for Disease Control, Department of Health and Aged Care, GPO Box 9848, Canberra, ACT, 2601;
Fax: (02) 6289 7791, Phone: (02) 6289 8245;
email: cdi.editor@health.gov.au.

This journal is indexed by *Index Medicus* and Medline.