Surveillance of antibiotic resistance in *Neisseria gonorrhoeae* in the WHO Western Pacific Region, 1998

The WHO Western Pacific Gonococcal Antimicrobial Surveillance Programme [1]

Abstract

Effective treatment of gonorrhoea in the World Health Organization's Western Pacific Region is hampered by the emergence and spread of antibiotic resistant strains of *Neisseria gonorrhoeae*. A programme of surveillance of gonococcal susceptibility to antibiotics (GASP) continued in the region in 1998. A high proportion of isolates in many participating countries was resistant to quinolones and penicillins, continuing trends observed by this programme since 1992. Resistance to the later generation cephalosporins and to spectinomycin was absent or infrequent. Options for effective treatment of gonorrhoea in the region have been severely compromised by antibiotic resistance. *Commun Dis Intell* 2000;24:1-4

Introduction

Even if considered simply in numeric terms, gonorrhoea remains a major global disease with an estimated 60 million cases of gonococcal disease occurring annually[1]. About half of these cases occur in the World Health Organization's (WHO) Western Pacific (WP) and South East Asian (SEA) regions. Control of gonorrhoea (and other sexually transmitted diseases (STDs)), is a difficult and complex issue, but one essential component is the provision of effective antibiotic treatment. As well controlling the disease itself, appropriate therapy reduces morbidity associated with gonorrhoea such as pelvic inflammatory disease (PID) and neonatal ophthalmia. HIV transmission is also amplified in the presence of gonorrhoea, but this effect can be ameliorated if treatment is provided. In some settings this intervention substantially reduces HIV transmission.[2] There are thus a number of important reasons why gonococcal disease should be properly treated.

One factor limiting the efficacy of antibiotics in gonococcal disease is the ability of the organism

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to develop resistance to them, and historically much of this resistance has appeared first in the WP and SEA regions. There is however, a strong correlation between likely outcome of antibiotic therapy and the *in vitro* susceptibility of gonococci. This means that if the susceptibility of prevalent gonococci to antibiotics is determined systematically using an epidemiological approach, a reliable guide to the choice of suitable standard treatment regimens can be provided in a country or region. There are a number of examples of country based systems of laboratory based surveillance in existence.[3,4] The WHO WP Gonococcal Antimicrobial Surveillance Programme (WPR GASP) combines a number of these local networks and functions at a regional level. The WPR GASP has monitored the antibiotic susceptibility of gonococci isolated in the WPR since 1992.[5] Results have been published annually in *CDI* since 1992.[6-10]

Methods

A full description of the methods used by this programme has been published[5] and includes details of sample sources, isolate selection, use of standardised testing methods, a programme specific external quality assurance component and the technical support and training provided under GASP auspices. These methods did not alter in 1998.

Results and Discussion

Sixteen countries in the WPR contributed data on about 10,000 isolates in 1998.

As was expected from previous regional surveillance, resistance to the *penicillins* was widespread (Table 1). Both chromosomal (CMRNG) and plasmid mediated (PPNG) forms of resistance were common. The highest rates of penicillin resistance were reported from Korea (90%), the Philippines (82%), Vietnam (76%), Mongolia (70%), China – Hong Kong (69%), China (62%) and Singapore (59%). These percentages were the total of all forms of penicillin resistance. The proportion of PPNG has been declining in some centres, but CMRNG have become more prominent.

Resistance to the *quinolone* antibiotics (QRNG) continued to increase in a number of centres or else was maintained in a high proportion of isolates in 1998 (Table 2). Quinolone resistance in gonococci results only from different but additive chromosomal changes, and there is no plasmid-mediated transmission. Some of these alterations occur only in the presence of previous mutations. For example, *parC* changes are seen only after alterations in *gyrA* have appeared. This means that levels of resistance in QRNG (as determined by Minimal Inhibitory Concentrations – MICs) show a sequential change. Because of this incremental nature of quinolone resistance, it is relevant to monitor both low (MIC of ciprofloxacin 0.06 to 0.5 mg/L) and high level (MIC of ciprofloxacin ≥1 mg/L) resistance to quinolone antibiotics. Quinolone resistance was assessed in 13 countries in 1998 and QRNG were found in 11, the exceptions being Fiji and the Solomon Islands. In excess of 90% of isolates in China and China – Hong Kong were QRNG and about half in each setting possessed high level resistance. Both of these focal points had high proportions of QRNG in 1997 but the total QRNG percentages in 1998 were even higher and the proportion of high level QRNG also increased. The Philippines had a high proportion of high level QRNG (63%), also continuing a pattern observed for some time. Korea (62%) and Japan (52%) again reported a high percentage of QRNG, but most were in the category of lower level QRNG. Other centres such as Vietnam, Papua New Guinea and Singapore show a lower proportion of mixed low and high level QRNG. In other

Table 1. Penicillin sensitivity of strains of *Neisseria gonorrhoeae* isolated in countries in the WHO WPR in 1998

		PPNG		CMRNG		All Penicillin Resistant	
Country	Number tested	No	%	No	%	No	%
Australia	3,583	206	5.7	782	21.8	988	27.5
China	939	30	3.2	558	59.4	588	62.6
Fiji	836	33	4.0	40	4.8	73	8.8
Hong Kong (China)	2,255	59	2.6	1,497	66.4	1,556	69.0
Japan	190	1	0.5	15	7.9	16	8.4
Korea	134	99	74.0	21	15.6	120	89.6
Malaysia	na	-	-	-	-	-	-
Mongolia	27	7	26.0	12	44.0	19	70.0
New Caledonia	67	-	-	-	-	6	9.0
New Zealand	490	19	3.9	33	6.7	52	10.6
Papua New Guinea	197	50	25.0	23	12.0	62	37.0
Philippines	245	194	79.0	7	2.8	201	82.0
Singapore	768	439	57.2	12	1.6	451	58.8
Solomon Islands	34	0		0		0	
Tonga	37	3	8.0	1	2.7	4	10.8
Vanuatu	89	-	-	-	-	32	35.9
Vietnam	158	99	62.7	22	13.9	121	76.6

Table 2. Quinolone resistance in strains of *Neisseria gonorrhoeae* isolated in countries in the WHO WPR in 1998

Country	Number tested	Less susceptible		Resistant	
		Number	%	Number	%
Australia	3,583	70	2.0	116	3.2
China	912	332	36.4	509	54.2
Fiji	Not stated	0	0.0	0	0.0
Hong Kong (China)	2,255	993	44.0	1,100	48.8
Japan	190	95	50.0	5	2.6
Korea	134	69	51.5	15	11.2
Malaysia	na	na	na	na	na
New Caledonia	67	2	3.0	5	7.5
New Zealand	490	7	1.4	6	1.2
Papua New Guinea	187	1	0.5	6	3.2
Philippines	245	3	1.2	155	63.0
Singapore	768	34	4.4	55	7.2
Solomon Islands	34	0	0.0	0	0.0
Vietnam	160	15	9.4	13	8.1

countries (Australia, New Zealand), QRNG are most often represented by imported strains but with some endemic transmission also occurring. Previous observations summarised the position with regard to QRNG in the WPR as a trend showing more countries recording the presence of QRNG, a higher proportion of QRNG being recorded in these countries each year, and higher MICs in those QRNG present. These observations remain pertinent for 1998.

All isolates remained sensitive to the third generation cephalosporin *ceftriaxone*. These results would also apply to the oral equivalent cefixime, but not necessarily to earlier generation cephalosporins. Some increase in MICs to ceftriaxone was again noted in some centres. Although this decrease in susceptibility has yet to translate into clinical resistance, continued observation of this aspect of evolving gonococcal resistance is advisable.

Spectinomycin resistance is rarely encountered in the WPR and only in sporadic cases (Table 3). Only five strains from over 900 examined in China were spectinomycin resistant in 1998. This may reflect the low frequency of use of this injectable agent in the region. The aminoglycoside antibiotic gentamicin is sometimes used in the region for the treatment of gonorrhoea because of cost considerations. No data are available on patterns of resistance to this agent.

Tetracyclines are not a recommended treatment for gonorrhoea. However their ready availability and low cost means that they are often used in the informal health sector in a number of countries. A special form of high level resistance to tetracyclines exists and is disseminated by plasmid exchange. Strains with this form of resistance are known as TRNG. Trends in the spread of TRNG have been followed in the WPR as an exercise in the monitoring of emerging antibiotic resistance (Table 4). TRNG have been clustered in certain countries in the WPR, notably Singapore and Malaysia, for some time. Over 80% of isolates in Singapore were TRNG in 1998 and in the Solomon Islands 75% of strains were TRNG. The other centre with a high rate of TRNG was Vietnam (36%). Six

Table 3. Spectinomycin resistance in isolates of *Neisseria gonorrhoeae* in countries in the WHO WPR in 1998

Country	Number Tested	Number	% Resistant
Australia	3,583	0.0	0.0
China	939	5.0	0.5
Japan	190	0.0	0.0
Korea	134	0.0	0.0
New Caledonia	67	0.0	0.0
Papua New Guinea	59	0.0	0.0
Philippines	245	0.0	0.0
Singapore	768	0.0	0.0
Solomon Islands	34	0.0	0.0
Vietnam	156	0.0	0.0

Table 4. High level tetracycline resistance, TRNG, in strains of *Neisseria gonorrhoeae* isolated in countries in the WHO WPR in 1998

Country	Number Tested	Number	%TRNG
Australia	3,583	24	6.7
China	828	24	2.9
Japan	190	0	0.0
Korea	134	0	0.0
Mongolia	27	0	0.0
New Zealand	490	25	5.1
Papua New Guinea	187	9	4.8
Philippines	245	17	6.9
Singapore	768	648	84.0
Solomon Islands	34	25	74.0
Vietnam	156	56	35.9

other centres had TRNG rates of less than 10% and in Japan and Korea no TRNG were detected. The increase in TRNG rates in Singapore and the Solomon Islands was the only real change in TRNG distribution in the WPR in 1998.

Other agents are sometimes used in the WPR mainly because of cost considerations. For example, chloramphenicol/thiamphenicol continues as a recommended treatment in some jurisdictions. Again only scanty data are available on the resistance patterns to these antibiotics. These data do, however, indicate that resistance is present in a significant number of strains tested.

The changes observed in the 1998 susceptibility patterns of gonococci found in the region were incremental. However, this increase was on top of an already high and worrying level of resistance. The observations confirmed the limited options for treatment in the WPR of a disease of high incidence. Those treatment options available are often in a cost bracket that makes their use difficult even when they are a 'recommended' treatment. However, substitution of cheaper but less efficacious agents is in the longer term more expensive and counter-productive.

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Erratum

The captions for Figures 6 and 7 in the last issue of *CDI*, 23(13)345, were transposed.

CDI Instructions for authors

Communicable Diseases Intelligence (*CDI*) is a four weekly publication of the National Centre for Disease Control, Commonwealth Department of Health and Aged Care and the Communicable Diseases Network Australia. Its aim is to provide timely information about communicable diseases in Australia to those with responsibility for their control. *CDI* has a particular emphasis on public health issues.

CDI invites contributions dealing with any aspect of communicable disease incidence, risk factors, surveillance or control in Australia. Submissions can be in the form of original articles, short reports, surveillance summaries, reviews or correspondence.

CDI is published on every fourth Thursday of the year. It is finalised for printing on the Monday prior to the publication date. Very topical brief contributions (for example reports of current outbreaks) may be published in the period of receipt, by arrangement with the editorial staff.

Submission procedure

A single copy of the contribution should be submitted to The Deputy Editor, *Communicable Diseases Intelligence*, at the address below. A covering letter should identify the corresponding author, with complete contact details, and be signed by all authors agreeing to possible publication.

The contribution should be provided in hard copy and emailed (or on 3.5 inch diskette if email not available). Microsoft Word for Windows 97 (or earlier version) is preferred, or alternatively Rich Text Format (RTF) files should be used. Arial font is preferred, and if not available then Times New Roman. *Do not use automatic referencing or footnotes.*

On receipt of an article, *CDI* sends a brief acknowledgment indicating whether it will be considered for publication. If the article is to be considered for publication a copyright form will be sent for all authors to sign. The article then undergoes a review process that may include peer review by two experts in the topic area. Articles may be rejected without peer review. Occasionally reports of urgent public health importance may be published immediately, at the discretion of the Editor. Authors may be asked to revise articles as a result of the review process before the final decision about publication is made by the Editor. Revised articles are to be returned with a letter addressing the responses to the reviewers comments. Accepted manuscripts are edited and final proofs returned for checking.

Authors

Authors of articles should be identified under the title and numerically superscripted, with full name, institution and address on a separate line below in text (without using the footnote function). Each author should have participated sufficiently to take public responsibility for the article. Others contributing to the work should be recognised in the acknowledgments.

Articles and short reports

The text of articles should be structured to contain abstract, introduction, methods, results, discussion, acknowledgments and references, as far as is possible. Short contributions may need fewer subsections. There is no strict word limit for articles but manuscripts of 2,000 words or less are preferred. A word count should be included with the contribution.

Style

The style reference is the *Style Manual For Authors, Editors and Printers*, 5th Edition, Canberra: Australian Government Publishing Service; 1994. The standard reference dictionary is *The Macquarie Dictionary*, 3rd Edition, Sydney; The Macquarie Library; 1998. Please refer to previous copies of *CDI* for general style, taking particular note of standards such as the heading hierarchy, the use of lower case headings, round not square brackets, SI units of measurement, no underlining, etc.

Tables and figures

All tables and figures should be referred to within the results section and should not duplicate information in the text.

Graphs

Graphs are to be submitted in an Excel file, and printed on separate, labelled pages with the hard copy. The numerical data on which these are based should also be provided on a *separate* Excel worksheet to enable production in *CDI* style if necessary. For a complete list of graph specifications please contact the editorial staff at the address below.

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Tables are to be submitted with the text. Borders should be removed. Please do not use blank rows or columns for spacing. Spaces should not be used to separate numbers in a column; please put them in separate columns.

Illustrations

Black and white illustrations or photographs can be included if required. Graphic files other than graphs should be no larger than 50kb to comply with the Department's Internet standards. GIF and JPG formats are preferred.

References

References should be identified consecutively in the text by the use of superscript numbers without brackets. Remember not to use automatic referencing or footnotes. The Vancouver reference style is used by *CDI* (see International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals. *Ann Intern Med* 1997;1126:36-47). All unpublished material should be referred to within the text (instead of the reference list) as personal communication or unpublished observation. The only exception is material that has been accepted for publication (in press). Please note that citations referring to this journal should use the

abbreviation *Commun Dis Intell* to be consistent with that used by Medline citation.

Protection of patients' rights to privacy

Identifying details about patients should be omitted if they are not essential, but data should never be altered or falsified in an attempt to attain anonymity. Complete anonymity may be difficult to achieve, and written informed consent should be obtained if there is any doubt. Informed consent for this purpose requires that the patient be shown the manuscript to be published. When informed consent has been obtained it should be included in the article.

Contact details

Contributions and requests for further information should be sent to: The Deputy Editor, *Communicable Diseases Intelligenc*e, National Centre for Disease Control, MDP 6, GPO Box 9848, Canberra, ACT 2601.Telephone: (02) 6289 7240 Fax: (02) 6289 7791, Email: cdi.editor@health.gov.au

Surveillance data in *CDI*

The Communicable Diseases Surveillance section of *Communicable Diseases Intelligence* (*CDI*) includes reports from a number of national surveillance schemes. These schemes are conducted to monitor the occurrence of communicable diseases in Australia, to detect trends, to highlight needs for further investigation and to implement or manage control measures. This article describes the surveillance schemes that are routinely reported in *CDI*.

Surveillance has been defined by the World Health Organization as the 'continuing scrutiny of all aspects of the occurrence and spread of disease that are pertinent to effective control', it is characterised by 'methods distinguished by their practicability, uniformity, and frequently by their rapidity, rather than complete accuracy.[1] Although some surveillance schemes aim for complete case ascertainment, some include only a sample of all cases of the conditions under surveillance, and these samples are subject to systematic and other biases.

Results generated from surveillance schemes must be interpreted with caution, particularly when comparing results between schemes, between different geographical areas or jurisdictions and over time. Surveillance data may also differ from data on communicable diseases that may be gathered in other settings.

Other surveillance schemes for which *CDI* publishes *occasional* reports include the:

- National Mycobacterial Surveillance System (*CDI* 1999;23:337-348);
- Australian Mycobacterium Reference Laboratory Network *(CDI* 1999;23:349-353);
- National Neisseria Network (Gonococcal, *CDI* 1999;23:193-197 and Meningococcal, *CDI* 1999;23:317-323);
- WHO Western Pacific Gonococcal Antimicrobial Surveillance Programme (*CDI* 2000;24:1-4);
- Australian Paediatric Surveillance Unit (*CDI* 1998;24:283-287, and Acute Flaccid Paralysis *CDI* 1999;23:128-131);
- Australian National Polio Reference Laboratory (*CDI* 1999;23:124-128, and *CDI* 1999;23:324-327);
- Australian Malaria Register (*CDI* 1998;22:237-244); and
- Hib Case Surveillance Scheme (*CDI* 1997;21:173-176).

The major features of the surveillance schemes for which *CDI* publishes regular reports (either monthly or quarterly) are described below.

National Notifiable Diseases Surveillance System

National compilations of notifiable diseases have been published intermittently in a number of publications since 1917 (see *CDI* 1993;17:226-236). The National Notifiable Diseases Surveillance System (NNDSS) was established in 1990 under the auspices of the Communicable Diseases Network Australia New Zealand (CDNANZ). As of the November 1999 meeting a revised list of nationally notifiable diseases was agreed upon.

The system currently coordinates the national surveillance of more than 40 communicable diseases or disease groups endorsed by the National Health and Medical Research Council (NHMRC).[2] Under this scheme, notifications are made to the State or Territory health authority under the provisions of the public health legislation in their jurisdiction. Computerised, de-identified unit records of notifications are supplied to the network secretariat at the Department of Health and Aged Care for collation, analysis and publication in *CDI*.

Data provided for each notification include a unique record reference number, State or Territory code, disease code, date of onset, date of notification to the relevant health authority, sex, age, Aboriginality, postcode of residence, and the confirmation status of the report (as defined by each State or Territory).

Each fortnight, State and Territory health authorities submit a file of notifications received for the year to date; the data files therefore include notifications for both the current reporting period and updated notifications for all previous reporting periods in the current year.

The data are presented on the Communicable Diseases - Australia Internet site each fortnight (http://www.health.gov.au/pubhlth/cdi/cdihtml.htm). They are also published in *CDI* every four weeks. Cases reported to State and Territory health authorities for the current reporting period are listed by State or Territory, and totals for Australia are presented for the current period, the year to date, and for the corresponding periods of the previous year. HIV infection and AIDS notifications are not included in this section of *CDI*. Surveillance for these conditions is conducted separately by the National Centre for HIV Epidemiology and Clinical Research and is reported in the HIV and AIDS Surveillance reports (see below).

A commentary with occasional graphs on the highlights of the notification data is included with the tables in each issue. The interval from the end of a reporting period to the date of publication of collated data in *CDI* is currently 15 days.

The quality and completeness of data compiled in the National Notifiable Diseases Surveillance System are influenced by various factors. Tables, graphs and commentary must be interpreted with caution, particularly when comparisons are made between States and Territories and with data from previous years. Each State or Territory health authority determines which diseases will be notifiable within its jurisdiction, and which notifications are accepted as satisfying criteria. In some cases these differ from the NHMRC case definitions. In addition, the mechanism of notification varies between States and Territories. Notifications may be required from treating clinicians, diagnostic laboratories or hospitals. In some cases different diseases are notifiable by different mechanisms. The proportion of cases seen by health care providers that are the subject of notification to health authorities is not known with certainty for any disease, and may vary among diseases, between jurisdictions and over time.

HIV and AIDS Surveillance

National surveillance for HIV and AIDS is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR) within the University of New South Wales, 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, either by the diagnosing laboratory (Australian Capital Territory, New South Wales, Tasmania and Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia and 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.

Currently, two tables presenting HIV infection diagnoses, AIDS diagnoses and AIDS deaths are published in each issue of *CDI* when available.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting period, to allow for reporting delay and to incorporate newly available information. A comprehensive analysis of current knowledge pertaining to the pattern of diagnosed HIV infection and AIDS in Australia, HIV prevalence and incidence in populations at lower and higher risk, patterns of treatment for HIV infection and estimates and projections of AIDS and HIV incidence is published annually in the report *HIV/AIDS, Hepatitis C and Sexually Transmissible Infections in Australia Annual Surveillance Report*.[3] The quarterly and annual surveillance reports are also available on the Internet (http://www.med.unsw.edu.au/nchecr).

Australian Sentinel Practice Research Network

The Research and Health Promotion Unit of the Royal Australian College of General Practitioners operates the Australian Sentinel Practice Research Network (ASPREN). ASPREN is a national network of general practitioners who report on a number of conditions each week. The aim of ASPREN is to provide an indicator of the burden of disease in the primary health care setting and to detect trends in consultation rates.

There are currently about 120 general practitioners participating in the network from all States and Territories. Seventy-five per cent of these are in metropolitan areas and the remainder are rural based. Between 7,000 and 8,000 consultations are recorded each week.

The list of conditions is reviewed annually by the ASPREN management committee, and an annual report is published.

For 2000, 14 conditions are being monitored, five of which are related to communicable diseases issues.

These include first attendance for an episode of influenza, chickenpox, gastroenteritis and gastroenteritis with stool culture. ADT immunisations will also be recorded.

The other recordable conditions are: initial request for benzodiazepines, atrial fibrillation (with and without various anticoagulants), chronic fatigue syndrome, post-coital contraception and witnessed or suspected spider bite.

Data for communicable diseases are published every four weeks in *CDI.* For each of the four reporting weeks reviewed, the number of cases is presented in tabular form together with the rate of reporting per 1,000 consultations. Brief comments on the reports are included in the surveillance highlights section if appropriate. The case definitions are as follows:

Influenza

(a) Viral culture or serological evidence of influenza virus infection, or

(b) influenza epidemic, plus four of the criteria in (c), or

(c) six of the following:

- (i) sudden onset (within 12 hours)
- (ii) cough
- (iii) rigors or chills
- (iv) fever
- (v) prostration and weakness
- (vi) myalgia, widespread aches and pains
- (vii) no significant respiratory physical signs other than redness of nasal mucous membrane and throat
- (viii) influenza in close contacts.

Chickenpox

An acute, generalised viral disease with a sudden onset of slight fever, mild constitutional symptoms and a skin eruption which is maculopapular for a few hours, vesicular for 3 to 4 days, and leaves a granular scab.

Gastroenteritis

Intestinal disease, presumed or proven to be infective in origin. A stool culture is *not* carried out. Recorded once only.

Gastroenteritis with stool culture

Intestinal disease, presumed or proven to be of infective origin. A stool culture is organised. Recorded once only.

Adult Diphtheria and Tetanus

Any consultation at which an Adult Diphtheria and Tetanus (ADT) immunisation is given.

Surveillance of Serious Adverse Events Following Vaccination

The Serious Adverse Events Following Vaccination Surveillance Scheme is a national surveillance scheme initiated through the National Childhood Immunisation Program. The scheme aims to identify and report in a timely fashion all serious adverse events which follow childhood vaccination. This permits the:

(a) identification of illnesses of infrequent occurrence that may be associated with vaccination;

(b) estimation of rates of occurrence of events temporally associated with vaccination;

(c) monitoring for unusually high rates of adverse events;

(d) provision of information to inform the debate on the risks and benefits of vaccines, and

(e) identification of areas that require further research.

The list of adverse events following vaccination has been revised for the 7th edition of *The Australian Immunisation Handbook* due to be released later this year. Currently, a serious adverse event following vaccination is defined as:

(a) The occurrence of one or more of the following conditions within 48 hours of the administration of a vaccine:
   (i) persistent screaming (for more than three hours)
   (ii) a temperature of 40.5^{o}C or more, unexplained by any other cause
   (iii) anaphylaxis
   (iv) shock
   (v) hypotonic/hyporesponsive episode, or

(b) the occurrence of one or more of the following conditions within 30 days of the administration of a vaccine:
   (vi) encephalopathy
   (vii) convulsions
   (viii) aseptic meningitis
   (ix) thrombocytopaenia
   (x) acute flaccid paralysis
   (xi) death
   (xii) other serious event thought to be associated with a vaccination.

The reporting process by which reports on serious adverse events are forwarded to the Department of Health and Aged Care is being reviewed. Reports are currently collected by State and Territory health authorities and forwarded to the Department of Health and Aged Care every fortnight. Information collected on each case includes the vaccine(s) temporally associated with the event, possible risk factors in the child's medical history and details about the nature, timing and outcome of the event. Methods of collecting reports vary between States and Territories. Telephone reporting is accepted to minimise health care provider paperwork. States and Territories also report on follow up at 60 days.

Reports of the surveillance scheme are published quarterly in *CDI*. Acceptance of a report does not imply a causal relationship between the administration of the vaccine and the medical outcome, or that the report has been verified as to its accuracy.

Australian Childhood Immunisation Register

The Australian Childhood Immunisation Register (ACIR) was established in January 1996 to monitor the immunisation status of Australian children under 7 years old. It is administered by the Health Insurance Commission for the Commonwealth Department of Health and Aged Care. Immunisation providers send information to the ACIR for collation. Data for *CDI* are presented quarterly according to 3 month birth cohorts, assessed at 1 year and 2 years of age for the NHMRC recommended childhood vaccination schedule vaccinations. Data are presented in a table for each cohort, by State, vaccination type, per cent fully immunised and change in per cent since last quarter. More information on the methodology is available in a *CDI* report.[4]

Sentinel Chicken Surveillance Programme

The Sentinel Chicken Surveillance Programme is used to provide an early warning of increased flavivirus activity in Australia. The two main viruses of concern are Murray Valley encephalitis (MVE) which causes the potentially fatal disease Australian encephalitis in humans and Kunjin virus which generally causes a milder form of disease (encephalitic or non-encephalitic) known as Kunjin virus disease . These viruses are enzootic in parts of the north-east Kimberley region of Western Australia and the Northern Territory but are epizootic in other areas of the Kimberley and in north Queensland. MVE virus is also responsible for occasional severe epidemics of Australian encephalitis in eastern Australia. The most recent was in 1974 when there were 13 fatalities and cases were reported from all mainland States. Since then, 48 cases of Australian encephalitis have been reported and all but one of these were from the north of Australia.

Since 1974, a number of sentinel chicken flocks have been established in Australia to provide an early warning of increased MVE virus activity. These programs are supported by individual State health departments. Each State has a contingency plan which will be implemented if one or more chickens in a flock seroconverts to MVE virus.

Currently 27 flocks are maintained in the north of Western Australia, seven in the Northern Territory, nine in New South Wales and ten in Victoria (Figures 1, 2, 3 and 4). The flocks in Western Australia and the Northern Territory are tested all year round but those in New South Wales and Victoria are tested only in the summer months, during the main MVE risk season.

Figure 1. Sentinel chicken flock sites, Victoria

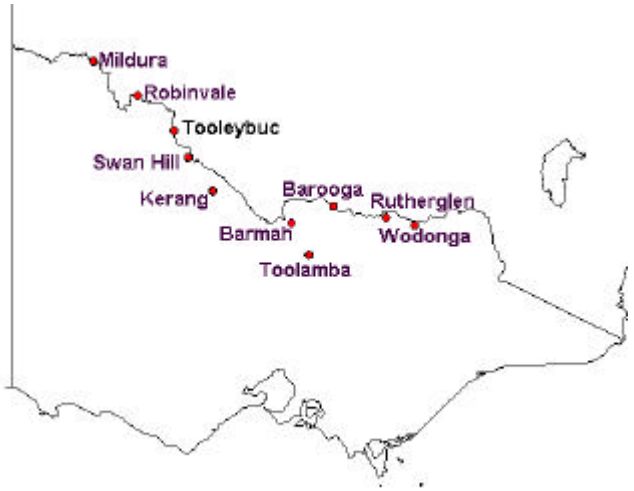
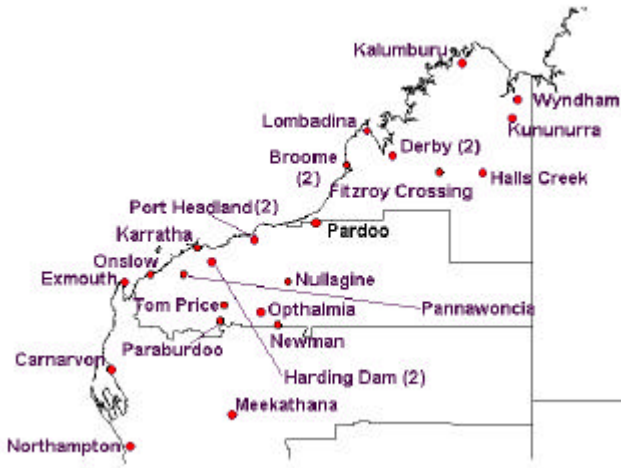


Figure 2. Sentinel chicken flock sites, Western Australia



Results are coordinated by the Arbovirus Laboratory in Perth and reported bimonthly.

Gonococcal surveillance

The Australian Gonococcal Surveillance Programme (AGSP) includes ten reference laboratories in all States and Territories and in New Zealand. These laboratories report data on sensitivity to an agreed 'core' group of antimicrobial agents quarterly. The antibiotics which are currently routinely surveyed are the penicillins, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens. When in vitro resistance to a recommended agent is demonstrated in 5% or more of isolates, it is usual to reconsider the inclusion of that agent in current treatment schedules. 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 resistance to the tetracyclines. Comparability of data is achieved by means of a standardised system of testing and a program-specific quality assurance process. Reports of the program are published quarterly and annually.

Figure 3. Sentinel chicken flock sites, New South Wales

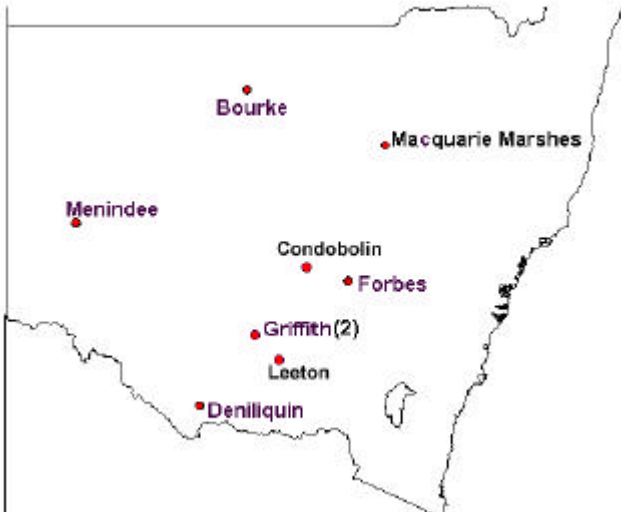
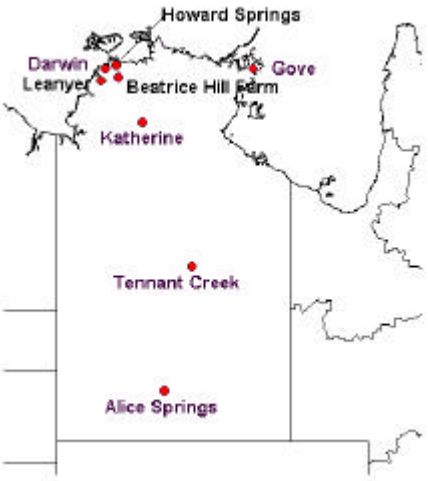


Figure 4. Sentinel chicken flock sites, Northern Territory



National Influenza Surveillance

Influenza surveillance in Australia is based on several schemes collecting a range of data that can be used to measure influenza activity. From autumn to spring, the results of each of the schemes are published together as the National Influenza Surveillance to facilitate a national view of influenza activity. An annual report is also presented.

In 1999, four sentinel general practitioner schemes contributed reports of influenza-like illness: the Australian Sentinel Practice Research Network, the Tropical Influenza Surveillance from the Northern Territory, the New South Wales Sentinel General Practice Scheme and the Victorian Sentinel General Practice Scheme. The number of cases of influenza and the total consultations for each week are reported (per 100,000 consultations), and a graph depicts the data for the season to date.

National absenteeism surveillance data are provided by Australia Post. Reports are based on the proportion of their employees (approximately 37,000) absent on sick leave for three consecutive days. This definition was changed from the previous one day absence to at least three days in 1999 to increase specificity. Absenteeism data for the reporting period is published in each issue.

The *CDI* Virology and Serology Laboratory Reporting Scheme contributes laboratory reports of influenza diagnoses, by week of specimen collection, virus type and method of diagnosis. Graphs of the data for the year to date are presented. The WHO Collaborating Centre for Influenza Reference and Research at the Commonwealth Serum Laboratories, Melbourne provides information, when available, on antigenic analysis of isolates received from Australia, New Zealand, other countries of the region and South Africa.

Virology and Serology Laboratory Reporting Scheme (LabVISE)

The Virology and Serology Laboratory Reporting Scheme began operating in 1977. Currently 15 State sentinel laboratories contribute data to the scheme. Contributors submit data on the laboratory identification of viruses and other organisms. Laboratories elect to submit data either on computer disk using LabVISE software (written in MS Access), or on paper forms in the same format. Each record includes mandatory data fields (laboratory, specimen collection date, a patient identifier code, sex, date of birth or age, post code of residence, and the agent detected), and optional fields (specimen code number and name, clinical diagnosis, method of diagnosis, risk factors and comments).

Reports are collated, analysed and published currently every four weeks. Each report includes two summary tables. The delay between date of specimen collection and date of publication ranges from two weeks to several months. A commentary on the laboratory reports is included in the surveillance highlights section when significant incidents or trends are observed. Data derived from this scheme must be interpreted with caution. The number and type of reports received is subject to a number of biases. These include the number of participating laboratories which has varied over time. The locations of participating laboratories also create bias, as some jurisdictions are better represented than others. Also changes in diagnostic practices, particularly the introduction of new testing methodologies, may affect laboratory reports. The ability of laboratory tests to distinguish acute from chronic or past infection must also be considered in interpretation of the data.

This is a sentinel scheme with no denominator data, hence changes in incidence cannot be determined. However general trends can be observed, for example with respect to seasonality and the age-sex distribution of patients.

Rotavirus Surveillance

The National Rotavirus Reference Centre was established in July 1999 to undertake surveillance and characterisation of rotavirus strains that cause annual epidemics of severe diarrhoea in young children Australia-wide. The centre collects data and specimens from 12 sentinel centres that routinely test for rotavirus. The specimens are forwarded to The Royal Children's Hospital in Melbourne, where representative specimens are assigned a serotype/genotype using serological and molecular techniques. More details are presented in a short report in *CDI*.[5]

The Centre welcomes rotavirus data and specimens from all areas experiencing rotavirus disease Australia wide. The surveillance scheme will assemble data on the prevalence of rotavirus infection in children admitted to hospital with acute gastroenteritis, as well as identify circulating rotavirus serotypes in urban and regional centres Australia-wide. Rotavirus serotype findings will be reported in *CDI* three times per year.

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2. National Health and Medical Research Council. Surveillance Case Definitions. Canberra: NHMRC, 1994.
3. National Centre in HIV Epidemiology and Clinical Research. HIV/AIDS, Hepatitis C and Sexually Transmissible Infections In Australia, Annual Surveillance Report 1999.
4. O'Brien ED, Sam G and Mead M. Methodology for measuring Australia's childhood immunisation coverage. *Commun Dis Intell* 1999;22:36-37.
5. Rotavirus surveillance. *Commun Dis Intell* 1999;23:315.

Communicable Diseases Surveillance

Highlights

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

Vaccine preventable diseases

A total of 332 notifications was received in this reporting period for vaccine preventable diseases. This is lower than the previous reporting period (516) and similar to the same period in 1998 (327). The number of measles notifications continued to decrease in this period (5) compared with the previous two periods (12 and 18). There was also a decrease in the overall notifications of measles for 1999 (235) compared with 1998 (306). The number of rubella notifications also decreased in this reporting period (14) when compared with the previous period (22). There was an overall decrease in notifications of rubella for 1999 (379) compared with 1998 (772).

The number of pertussis notifications decreased over this period (304) compared with the previous periods (469 and 432). A decrease in the number of notified cases occurred in NSW (74), Vic (82), WA (1), SA (7) and Queensland (44). The number of notified cases remained fairly constant in Tasmania (90 to 87) (Figure 1). Most cases occurred in the 10-14 years age group and older with an apparent female predominance (Figure 2). Overall the number of cases decreased in 1999 (4,403) compared with 1998 (6,432). Comparison of the monthly trend of pertussis notifications from 1991 to 1999 showed an increase from 1993 (Figure 3). Peak levels in 1999 were similar to 1998 and 1995 but lower than the peaks in the other years since 1993. The maximum peak in pertussis notifications was seen in late 1997/early 1998.

Figure 1. Notifications of pertussis, 1999, by State or Territory and month of onset

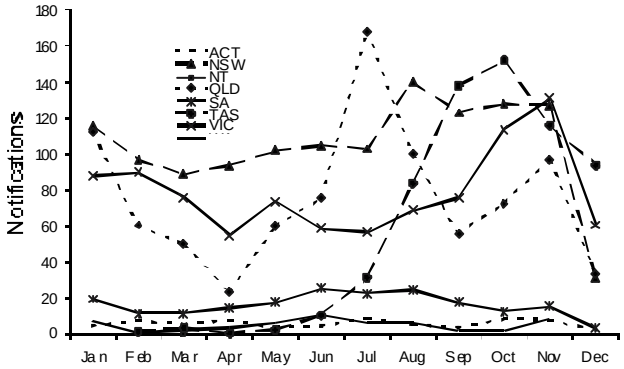


Figure 2. Notification rate of pertussis, 1999, by age group and sex

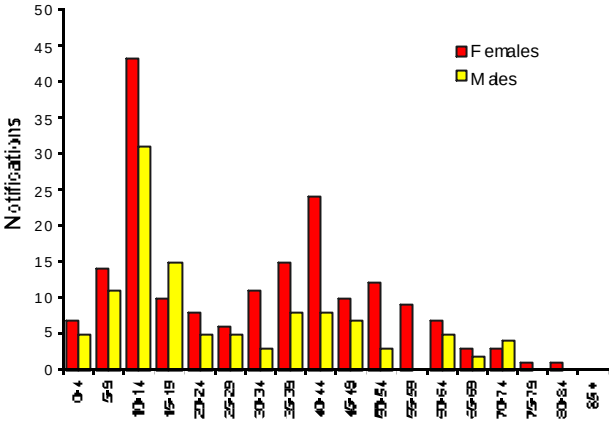
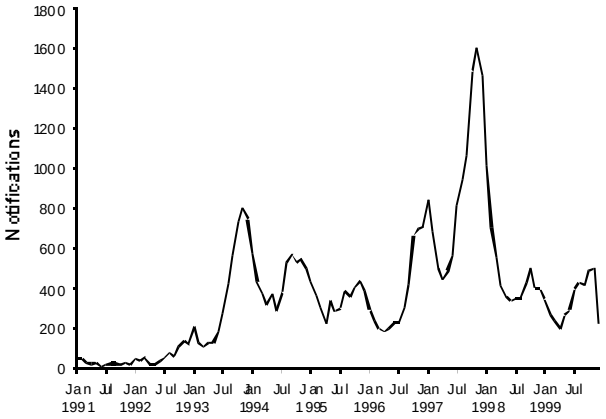


Figure 3. Notifications of pertussis, 1991-1999, by month of onset



Vectorborne diseases

There were 135 notifications of Ross River virus received this period, an increase from the previous reporting periods (91 and 72) but less than for the same period in 1998 (333). An increase in case notifications from NT (18) and WA (74) contributed to the increase in this period. Cases were a mix of males and females and across all age groups with a predominance in those aged 25 to 54 years

Figure 4. Notification rate of Ross River virus, 1999, by age group and sex

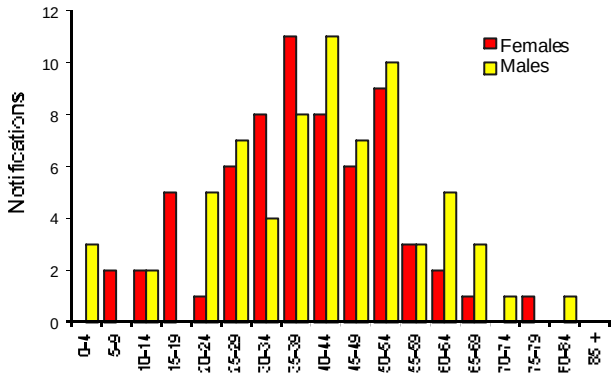
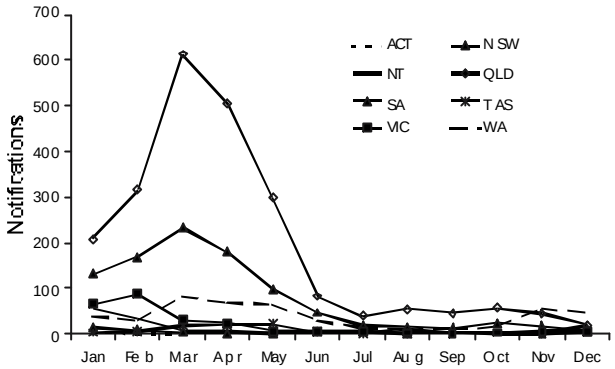


Figure 5. Notifications of Ross River virus, 1999, by State or Territory and month of onset



(Figure 4). In total 4,410 notifications were received for 1999; an increase compared with 1998 (3,094). The overall increase in 1999 was due to peaks in Qld, NSW and WA in the first half of 1999 (Figure 5). Comparison of the monthly trend of Ross River virus from 1991 to 1999 showed 1999 to have been a year of moderate activity (Figure 6).

A total of 9 dengue notifications were received in this reporting period, a slight increase from the previous reporting period (7) but less than for the same period last year (55). Overall the total number of notifications for 1999 (181) was less than for the previous year (557), which included an outbreak in the first half of 1998.

Gastrointestinal diseases

There continued to be increased numbers of notifications of hepatitis A during this period (75) with most cases being in Victoria (31 this period, 37 and 30 for the last two periods respectively) (Figure 7). The majority of these cases were in the 20-59 year age group with a male to female ratio of 1.7:1. The notifications were identified as being primarily from injecting drug users, correctional facilities and in food handlers.

There were 3 cases of infections with Shiga-like toxin (verotoxin) producing *E. coli* (SLTEC/VEC) reported in this period; a decrease from the previous reporting period (11). All these cases were reported from SA. Overall notifications were higher in 1999 (37) compared with 1998 (11).

No cases of haemolytic uraemic syndrome (HUS) were reported in this period compared to three cases in the previous reporting period.

Figure 6. Notifications of Ross River virus, 1991-1999, by month of onset

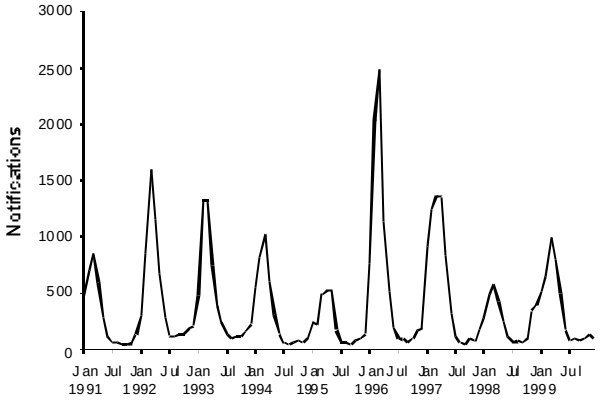
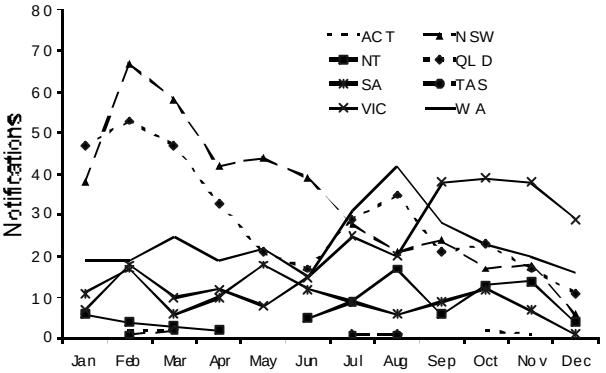


Figure 7. Notifications of hepatitis A, 1999, by State or Territory and month of onset



Other

The number of notifications of ornithosis were unchanged in this reporting period (8) compared with the last reporting period (8). Seven cases were from Victoria and one in WA.

There were no cases of botulism, plague, poliomyelitis, rabies or viral haemorrhagic fever reported in this reporting period, nor were there any in the preceding years for plague, poliomyelitis, rabies or viral haemorrhagic fever and only one case of botulism in 1998.

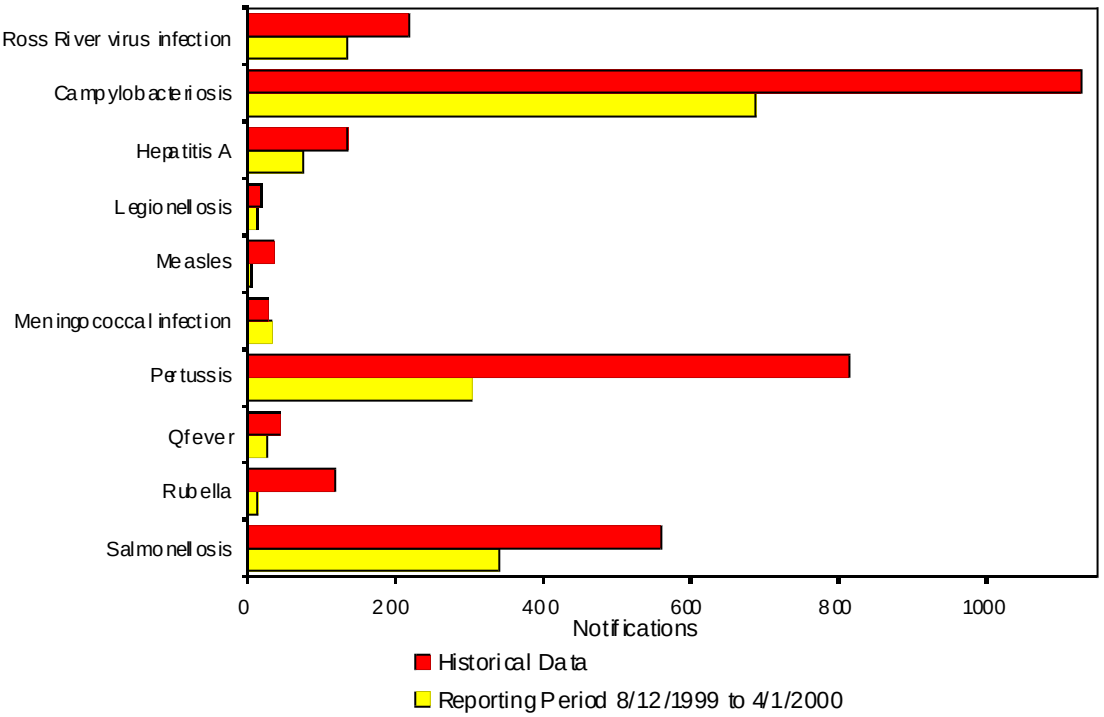
Tables

There were 3,874 notifications to the National Notifiable Diseases Surveillance System (NNDSS) in the four week period, 8 December 1999 to 4 January 2000 (Tables 1 and 2). The number of reports for selected diseases have been compared with historical data for corresponding periods in the previous three years (Figure 8).

There were 1,145 reports received by the *CDI* Virology and Serology Laboratory Reporting Scheme (LabVISE) in the four week period, 2 to 29 December 1999 (Tables 3 and 4).

The Australian Sentinel Practice Research Network (ASPREN) data for weeks 49 to 51, ending 26 December 1999, are included in this issue of *CDI* (Table 5).

Figure 8. Selected National Notifiable Diseases Surveillance System reports, and historical data[1]



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

Table 1. Notifications of diseases preventable by vaccines recommended by the NHMRC for routine childhood immunisation, received by State and Territory health authorities in the period 8 December 1999 to 4 January 2000

Disease[1]	ACT	NSW	NT	Qld	SA	Tas	Vic	WA ♦	This period 1999	This period 1998	Full year 1999[2]	Full year 1998
Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0
H. influenzae type b infection	0	0	0	1	0	0	0	0	1	0	40	35
Measles	0	0	0	0	1	0	3	1	5	9	235	306
Mumps	0	1	0	0	1	0	3	2	7	12	178	183
Pertussis	9	74	0	44	7	87	82	1	304	293	4,403	6,432
Rubella[3]	2	0	1	5	0	0	6	0	14	23	379	772
Tetanus	0	1	0	0	0	0	0	0	1	0	3	7

1. No notification of poliomyelitis has been received since 1978.
2. Totals comprise data from all States and Territories. Cumulative figures are subject to retrospective revision, so there may be discrepancies between the number of new notifications and the increment in the cumulative figure from the previous period.
3. Includes congenital rubella.

♦ Data for 2000 not available this period.

Table 2. Notifications of diseases received by State and Territory health authorities in the period 8 December 1999 to 4 January 2000

Disease[1,2,3]	ACT	NSW	NT	Qld	SA♦	Tas	Vic	WA♦	This period 1999	This period 1998	Full year 1999[4]	Full year 1998
Arbovirus infection (NEC)	0	0	0	0	0	0	0	0	0	15	71	81
Barmah Forest virus infection	0	5	0	17	0	0	2	6	30	33	629	558
Brucellosis	0	0	0	4	0	0	0	0	4	2	54	45
Campylobacteriosis[5]	16	-	6	199	129	34	218	86	688	1,087	12,723	13,449
Chancroid	0	0	0	0	0	0	0	0	0	0	0	1
Chlamydial infection (NEC)[6]	11	76	20	287	69	13	130	92	698	847	13,782	11,520
Cholera	0	1	0	0	0	0	0	0	1	0	4	4
Dengue	0	0	5	4	0	0	0	0	9	55	181	557
Donovanosis	0	0	0	0	NN	0	0	1	1	0	18	31
Gonococcal infection[7]	1	24	23	86	15	3	29	56	237	408	5,542	5,428
Haemolytic uraemic syndrome	NN	0	0	0	0	0	NN	0	0	0	16	13
Hepatitis A	0	8	4	14	1	0	31	17	75	62	1,592	2,503
Hepatitis B incident	0	4	6	4	1	0	5	3	23	10	311	261
Hepatitis B unspecified[8]	7	122	0	44	0	2	4	21	200	455	7,143	6,682
Hepatitis C incident	0	3	0	-	5	0	0	7	15	24	334	343
Hepatitis C unspecified[8]	20	274	1	190	71	22	175	79	832	1,320	20,566	19,261
Hepatitis (NEC)[9]	0	0	0	1	0	0	0	NN	1	2	23	19
Hydatid infection	0	NN	0	0	0	0	1	0	1	4	30	46
Legionellosis	0	1	0	0	6	0	2	5	14	19	250	271
Leprosy	0	0	0	0	0	0	0	1	1	1	6	3
Leptospirosis	0	4	0	2	0	0	4	0	10	17	334	197
Listeriosis	0	0	0	1	0	1	0	2	4	5	62	58
Malaria	4	3	1	13	5	0	9	2	37	42	711	705
Meningococcal infection	0	6	1	5	3	1	13	4	33	31	558	455
Ornithosis	0	NN	0	NN	0	0	7	1	8	7	86	56
Q Fever	0	7	0	15	2	0	1	1	26	31	514	571
Ross River virus infection	1	8	18	27	4	0	3	74	135	333	4,410	3,094
Salmonellosis (NEC)	6	59	9	121	30	15	80	20	340	441	7,186	7,700
Shigellosis[5]	0	-	2	5	5	0	9	4	25	35	548	615
SLTEC, VTEC[10]	NN	0	0	NN	3	0	NN	NN	3	2	37	11
Syphilis[11]	2	14	3	23	0	0	0	21	63	186	1,913	1,694
TTP[12]	0	0	0	0	0	0	0	0	0	0	0	1
Tuberculosis	1	12	0	4	0	0	0	1	18	73	837	982
Typhoid[13]	0	3	0	0	0	0	0	0	3	6	67	69
Yersiniosis (NEC)[5]	0	-	0	3	3	0	0	1	7	12	148	207

1. Diseases preventable by routine childhood immunisation are presented in Table 1.
2. For HIV and AIDS, see Tables 6 and 7.
3. No notifications have been received during 1999 for the following rare diseases: lymphogranuloma venereum, plague, rabies, yellow fever, or other viral haemorrhagic fevers.
4. 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.
5. Not reported for NSW because it is only notifiable as 'foodborne disease' or 'gastroenteritis in an institution'.
6. WA: genital only.
7. NT, Qld, SA and Vic: includes gonococcal neonatal ophthalmia.
8. Unspecified numbers should be interpreted with some caution as the magnitude may be a reflection of the numbers of testings being carried out.
9. Includes hepatitis D and E.
10. Infections with *Shiga*-like toxin (verotoxin) producing *E. Coli* (SLTEC/VTEC).
11. Includes congenital syphilis.
12. Thrombotic thrombocytopaenic purpura.
13. NSW, Qld: includes paratyphoid.

NN Not Notifiable.
NEC Not Elsewhere Classified.
- Elsewhere Classified.
♦ Data for 2000 for South Australian STDs and Western Australia is not available for this period.

Table 3. Virology and serology laboratory reports by contributing laboratories for the reporting period 2 to 29 December 1999[1]

State or Territory	Laboratory	This period 1999	Total this period 1999[2]
Australian Capital Territory	The Canberra Hospital	0	0
New South Wales	Institute of Clinical Pathology & Medical Research, Westmead	56	147
	New Children's Hospital, Westmead	20	30
	Repatriation General Hospital, Concord	0	0
	Royal Prince Alfred Hospital, Camperdown	7	35
	South West Area Pathology Service, Liverpool	0	0
Queensland	Queensland Medical Laboratory, West End	550	4,745
	Townsville General Hospital	11	13
South Australia	Institute of Medical and Veterinary Science, Adelaide	240	304
Tasmania	Northern Tasmanian Pathology Service, Launceston	0	0
	Royal Hobart Hospital, Hobart	0	0
Victoria	Monash Medical Centre, Melbourne	28	34
	Royal Children's Hospital, Melbourne	98	157
	Victorian Infectious Diseases Reference Laboratory, Fairfield	91	139
Western Australia	PathCentre Virology, Perth	0	0
	Princess Margaret Hospital, Perth	44	54
	Western Diagnostic Pathology	0	0
Total		1,145	5,658

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.

Table 4. Virology and serology laboratory reports by State or Territory[1] for the reporting period 2 to 29 December 1999, and total reports for the year[2]

	State or Territory[1]								This period 1999	This period 1998	Year to date 1999[3]	Year to date 1998
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Measles, mumps, rubella												
Measles virus	0	0	0	0	0	0	1	0	1	3	178	3
Mumps virus	0	0	0	0	1	0	1	0	2	1	55	1
Rubella virus	0	1	0	1	0	0	0	0	2	3	139	3
Hepatitis viruses												
Hepatitis A virus	0	2	1	3	2	0	0	0	8	23	356	23
Hepatitis D virus	0	0	0	1	0	0	0	0	1		7	
Arboviruses												
Ross River virus	0	0	21	26	3	0	0	0	50	52	1,332	52
Barmah Forest virus	0	0	3	13	0	0	0	0	16	7	173	7
Flavivirus (unspecified)	0	0	1	3	0	0	0	0	4	1	25	1
Adenovirus not typed/pending	0	4	0	0	30	0	11	15	60	95	1,064	95
Herpes viruses												
Cytomegalovirus	0	7	0	11	26	1	22	1	68	76	1,148	76
Varicella-zoster virus	0	7	1	40	14	1	25	3	91	110	1,589	110
Epstein-Barr virus	0	5	0	93	36	0	8	0	142	161	2,199	161
Other DNA viruses												
Parvovirus	0	0	0	0	1	1	8	0	10	26	424	26
Picorna virus family												
Echovirus type 11	0	1	0	0	0	0	0	0	1	7	157	7
Poliovirus type 2 (uncharacterised)	0	1	1	0	0	0	0	0	2	6	14	6
Rhinovirus (all types)	0	11	0	1	6	0	2	0	20	37	454	37
Enterovirus type 71 (BCR)	0	0	0	0	0	0	4	0	4	2	15	2
Enterovirus not typed/pending	0	3	0	1	0	0	8	0	12	46	691	46

Table 3. Virology and serology laboratory reports by State or Territory[1] for the reporting period 2 to 29 December 1999, and total reports for the year, [2] (continued)

	State or Territory[1]								This period 1999	This period 1998	Year to date 1999[3]	Year to date 1998
	ACT	NSW	NT	Qld	SA	Tas	Vic	WA				
Ortho/paramyxoviruses												
Influenza A virus	0	1	0	1	17	0	6	0	25	16	1,802	16
Influenza B virus	0	1	0	0	1	0	1	0	3	2	279	2
Parainfluenza virus type 1	0	0	0	0	1	0	2	0	3	3	41	3
Parainfluenza virus type 2	0	0	0	2	2	0	0	0	4	1	112	1
Parainfluenza virus type 3	0	4	0	2	5	0	6	5	22	108	759	108
Respiratory syncytial virus	0	5	0	5	5	0	15	7	37	55	3,012	55
Other RNA viruses												
HTLV-1	0	0	0	1	0	0	0	0	1		12	
Rotavirus	0	17	0	1	44	0	23	13	98	73	2,157	73
Norwalk agent	0	0	0	0	0	0	3	0	3	7	58	7
Other												
Chlamydia trachomatis not typed	0	26	17	105	40	0	7	2	197	136	3,178	136
Chlamydia psittaci	0	0	0	0	0	0	1	0	1	13	76	13
Chlamydia species	0	1	0	0	0	0	0	0	1	1	20	1
Mycoplasma pneumoniae	0	1	1	22	5	0	36	0	65	96	1,112	96
Coxiella burnetii (Q fever)	0	2	0	5	0	0	2	0	9	5	214	5
Streptococcus group A	0	1	9	28	0	0	0	0	38		353	
Bordetella pertussis	0	0	0	43	0	0	21	0	64	25	823	25
Legionella longbeachae	0	0	0	0	2	0	0	0	2	6	36	6
Leptospira species	0	0	0	1	0	0	0	0	1		52	
Treponema pallidum	0	0	53	24	0	0	0	0	77	1	750	1
Total	0	101	108	433	241	3	213	46	1,145	1,204	24,866	1,204

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.

Table 5. Australian Sentinel Practice Research Network reports, weeks 49 to 51, 1999

Week number	49		50		51	
Week ending on	12 December 1999		19 December 1999		26 December 1999	
Doctors reporting	63		53		47	
Total encounters	7,197		6,428		5,106	
Condition	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters	Reports	Rate per 1,000 encounters
Influenza	16	2.2	5	0.8	9	1.8
Rubella	2	0.3	0	0.0	0	0.0
Measles	0	0.0	1	0.2	1	0.2
Chickenpox	20	2.8	12	1.9	7	1.4
New diagnosis of asthma	11	1.5	2	0.3	1	0.2
Post operative wound sepsis	9	1.3	11	1.7	8	1.6
Gastroenteritis	77	10.7	56	8.7	62	12.1

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The system coordinates the national surveillance of more than 40 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 CDI 2000;24:6.

LabVISE is a sentinel reporting scheme. Twenty-one laboratories contribute data on the laboratory identification of viruses and other organisms. Data are collated and published in Communicable Diseases Intelligence every four weeks. These data should be interpreted with caution as the number and type of reports received is subject to a number of biases. For further information, see CDI 2000;24:10.

ASPREN currently comprises about 100 general practitioners from throughout the country. Up to 9,000 consultations are reported each week, with special attention to 12 conditions chosen for sentinel surveillance in 1999. CDI reports the consultation rates for seven of these. For further information, including case definitions, see CDI 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 on a quarterly basis. The antibiotics which are currently routinely surveyed are the penicillins, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens. When in vitro resistance to a recommended agent is demonstrated in 5% or more of isolates, it is usual to reconsider the inclusion of that agent in current treatment schedules. 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 resistance to the tetracyclines. Tetracyclines are however not a recommended therapy for gonorrhoea. Comparability of data is achieved by means of a standardised system of testing and a programme-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 1999

The AGSP laboratories examined a total of 950 isolates in this quarter. About 40% of this total was from New South Wales, 23% from Victoria, 14% from Queensland, 10% from the Northern Territory, 9% from Western Australia and 3% from South Australia. Isolates from other centres were few in number.

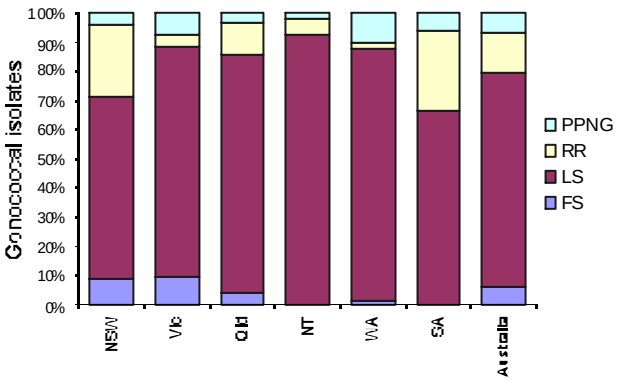
Penicillins

Figure 9 shows the proportions of gonococci fully sensitive (MIC ≤ 0.03 mg/L), less sensitive (MIC 0.06 – 1 mg/L), relatively resistant (MIC ≥1 mg/L) or else penicillinase producing (PPNG) aggregated for Australia and by State and Territory. A high proportion of PPNG and relatively resistant strains fail to respond to treatment with penicillins (penicillin, amoxycillin, ampicillin) and early generation cephalosporins.

About 20% of all isolates were penicillin resistant by one or more mechanisms. The penicillin-resistant isolates comprised about one-third of all isolates in New South Wales and South Australia. Between 10 and 15% of gonococci in Queensland, Victoria and Western Australia were penicillin resistant. In the Northern Territory, 7% of isolates were penicillin resistant.

The number of PPNG isolated across Australia (65) increased in this quarter compared to the corresponding period in 1998 (39). Three-quarters of all PPNG were found in Sydney (32) and Victoria (17). Perth had the highest proportion of PPNG (10%). Acquisition data on PPNG were available in about 90% of cases in New South Wales and Victoria. For those cases in Sydney where this data was available, nearly 75% of PPNG were acquired locally and the remainder from overseas. These proportions were reversed in Melbourne with South East Asian countries being the main source of acquisition. In Perth most PPNG were also TRNG and Indonesia was a common source of acquisition.

Figure 9. Penicillin resistance of gonococcal isolates, 1 April – 30 June 1999, by region



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

Twice as many isolates were resistant to the penicillins by separate chromosomal mechanisms, maintaining a trend noted for some time.

Ceftriaxone and spectinomycin

All isolates in Australia were again susceptible to these injectable agents.

Quinolone antibiotics

The total number (195) and proportion (20%) of all isolates with altered susceptibility to the quinolone group (QRNG) were the highest seen thus far in quarterly AGSP surveys. The QRNG isolates were also concentrated in a few locations. Sixty-nine isolates (31%) were QRNG in Victoria and 105 (27%) in New South Wales and together these accounted for 90% of all QRNG. Fourteen of the New South Wales and 9 of the Victorian QRNG exhibited high level resistance (MIC ciprofloxacin≥ 1 mg/L) and MICs ranged up to 16mg/L. Most infections with this group of QRNG were acquired overseas. However the majority QRNG were in males, locally acquired and in the MIC range 0.06 – 0.5 mg/L. QRNG were also prominent in Brisbane where 12% of strains were of this type, again mainly in males and in the lower MIC range. Three QRNG were noted in Western Australia and two in South Australia.

In the corresponding period in 1998, the 30 QRNG represented about 3% of all isolates.

High level tetracycline resistance (TRNG)

The number (58) and proportion (6%) of TRNG detected was similar to those noted for the second quarter of 1998. Most (60%) of the TRNG were found in Sydney where they represented 9% of strains. The 11 TRNG in Perth accounted for 13% of gonococci examined there. Brisbane was the only other centre where TRNG were detected in this quarter.

Reference

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

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 26 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 CDI 2000;24:8-9.

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September/October 1999

Sentinel chicken serology was carried out for 18 of the 27 flocks in Western Australia in September and October 1999. There was one confirmed seroconversion to MVE virus in September from Paraburdoo in the Pilbara. In response to the unusually late activity of MVE virus in the north of Western Australia the Health Department of Western Australia issued a media warning in mid September to warn residents and visitors to the region of the on-going risk of disease. Additional health warnings were sent via the Regional Public Health Units to Aboriginal communities in the region.

Serum samples from six of the seven Northern Territory sentinel chicken flocks were tested in our laboratory in September and October 1999. There was one new, confirmed seroconversion to Kunjin virus at Howard Springs in September 1999.

Note: The tables accompanying this report in the last issue of *CDI* were incorrectly included. The full report has been reprinted in this issue.

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 (ACT, 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. Telephone: (02) 9332 4648; Facsimile: (02) 9332 1837; http://www.med.unsw.edu.au/nchecr.

HIV and AIDS diagnoses and deaths following AIDS reported for 1 to 31 August 1999, as reported to 30 November 1999, are included in this issue of CDI (Tables 6 and 7).

Table 6. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 to 31 August 1999, by sex and State or Territory of diagnosis

										Totals for Australia			
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	This period 1999	This period 1998	Year to date 1999	Year to date 1998
HIV diagnoses	Female	1	3	0	1	2	0	0	0	7	8	50	62
	Male	2	30	0	10	4	0	16	1	63	41	397	423
	Sex not reported	0	1	0	0	0	0	0	0	1	0	2	5
	Total[1]	3	34	0	11	6	0	16	1	71	49	449	490
AIDS diagnoses	Female	0	1	0	0	1	0	0	0	2	3	7	13
	Male	0	12	0	4	1	0	3	0	20	19	77	200
	Total[1]	0	13	0	4	2	0	3	0	22	22	84	213
AIDS deaths	Female	0	0	0	0	0	0	0	0	0	1	2	6
	Male	0	4	0	0	0	0	0	0	4	11	55	94
	Total[1]	0	4	0	0	0	0	0	0	4	12	58	100

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

Table 7. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 31 August 1999, by sex and State or Territory

		State or Territory								
		ACT	NSW	NT	Qld	SA	Tas	Vic	WA	Australia
HIV diagnoses	Female	25	594	9	142	60	6	210	111	1,157
	Male	191	10,691	107	1,934	664	79	3,842	892	18,400
	Sex not reported	0	259	0	0	0	0	24	0	283
	Total [1]	216	11,563	116	2,083	724	85	4,089	1,006	19,882
AIDS diagnoses	Female	8	175	0	47	24	3	67	26	350
	Male	86	4,568	35	802	343	44	1,599	344	7,821
	Total [1]	94	4,755	35	851	367	47	1,673	372	8,194
AIDS deaths	Female	3	114	0	30	15	2	47	16	227
	Male	65	3,147	24	557	228	28	1,251	245	5,545
	Total [1]	68	3,269	24	589	243	30	1,304	262	5,789

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

Overseas briefs

Source: World Health Organization (WHO)
This material has been condensed from information on the WHO Internet site. A link to this site can be found under 'Other Australian and international communicable diseases sites' on the CDI homepage.

New variant Creuzfeldt-Jakob disease, France

On 17 December, the French collaborative study group for CJD confirmed (by cerebral biopsy) a new case of nvCJD in France. The patient, who is still alive, is a female aged 36 years old; she has never been to the United Kingdom. The total number of confirmed cases of nvCJD in France is now two.

The worldwide total is now 50 cases, of which there has been a total of 46 confirmed cases, plus 2 probable cases, in the United Kingdom.

Cholera, Comoros

An outbreak of cholera has occurred on Anjouan Island, Comoros, where a total of 103 cases with 14 deaths were reported between 11 November and 17 December 1999. The most affected district was Domoni, which accounted for 52 cases and 10 of the reported deaths. Health education and sanitary measures are being implemented.

WHO, other UN agencies and NGOs are collaborating with the Ministry of Health to organise medical supplies and other assistance, which are required to control this outbreak.

Meningococcal disease in Hungary

The Ministry of Health has informed WHO of an outbreak of meningococcal disease which began in early December 1999, in the Bàcs-Kiskun area (in Kecskemet city and Szabadszallas town). As of 5 January, 30 cases and 4 deaths had been reported (case-fatality rate, 13.3%). The National Epidemiology Centre in Budapest has confirmed *Neisseria meningitidis* groups B and C. Protection and prevention measures include chemoprophylaxis of close contacts with rifampicin, and immunization (with bivalent A/C serogroup vaccine).

Imported case of Lassa fever in Germany

The Ministry of Health of Bavaria has informed WHO that the diagnosis of Lassa fever in a 23 year old female student has been confirmed by PCR and virus culture performed at the Bernard Nocht Institute in Hamburg.

The student reportedly had spent November and December in Côte d'Ivoire and Ghana. She returned to Germany on 7 January via Lisbon, Portugal and was immediately admitted to a general hospital with fever and flu-like symptoms. Her condition deteriorated rapidly and after 4 days she was transferred to the Tropical Medicine Department of Würzburg Hospital where she is being treated in an isolation ward.

Although the risk of transmission to others is considered to be minimal (requires contact with blood or body fluids), possible contacts are being investigated. German authorities have issued notices to passengers who travelled on the same flight from Portugal to Germany asking them to contact health officials if they become ill. WHO is working with Portuguese health authorities to trace possible contacts during the student's travel to and in Portugal.

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Contributions

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

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