CONTENTS

ARTICLES

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level aminoglycoside resistance in Enterococcal blood culture isolates</td>
<td>532</td>
</tr>
<tr>
<td>David Paterson, Janet Bodman, Mee Len Thong</td>
<td></td>
</tr>
<tr>
<td>Update on bat lyssavirus</td>
<td>535</td>
</tr>
<tr>
<td>CDI subject index, 1996</td>
<td>535</td>
</tr>
<tr>
<td>CDI author index, 1996</td>
<td>541</td>
</tr>
<tr>
<td>CDI reviewers, 1996</td>
<td>543</td>
</tr>
</tbody>
</table>

NOTICE TO READERS

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A note from the editor</td>
<td>544</td>
</tr>
</tbody>
</table>

OVERSEAS BRIEFS

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>544</td>
</tr>
</tbody>
</table>

COMMUNICABLE DISEASES SURVEILLANCE

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>544</td>
</tr>
</tbody>
</table>
HIGH LEVEL AMINOGLYCOSIDE RESISTANCE IN ENTEROCOCCAL BLOOD CULTURE ISOLATES

David Paterson¹, Janet Bodman and Mee Len Thong, Royal Brisbane Hospital, Herston Road, Herston, Queensland 4006

Abstract
Enterococci may display high level resistance to aminoglycosides, in which case synergy with cell-wall active antibiotics will be lost. All enterococcal blood culture isolates at Royal Brisbane Hospital have been screened by agar dilution for high level resistance to gentamicin and streptomycin since 1989. Of 110 isolates of Enterococcus faecalis, 16% displayed high level resistance to gentamicin and 10% showed high level resistance to streptomycin. Four isolates had high level resistance to both antibiotics. None of 23 Enterococcus faecium isolates displayed high level resistance to gentamicin and only one to streptomycin. Two Enterococcus faecium isolates were resistant to amoxyceillin but none to vancomycin. There has been no apparent increase in high level aminoglycoside resistance from 1989 to 1996. High level gentamicin resistant isolates were relatively more common in liver transplant patients. Like vancomycin-resistant enterococci, isolates that are high level resistant to aminoglycosides can be spread by the hands of staff members. Preventing the nosocomial transmission of high level aminoglycoside-resistant enterococci follows the same general principles of preventing transmission of other resistant enterococci. Comm Dis Intell 1996;20:532-535.

Introduction
Enterococci intrinsically display resistance to low levels of aminoglycosides. However when an aminoglycoside is combined with a cell-wall active antibiotic (for example, amoxyceillin or vancomycin), synergistic killing of the enterococcus results. In the last decade, high level resistance of enterococci to aminoglycosides has become an important clinical problem. If the organism exhibits high level resistance to an aminoglycoside, no synergy will be achieved when that aminoglycoside is combined with a cell-wall active antibiotic. This has most relevance in the treatment of serious infections such as endocarditis. Failure of cell-wall active agents used alone has been well described in this context.

Like vancomycin-resistant enterococci, high level aminoglycoside-resistant enterococci have been well recognised to be transmitted within hospitals¹. Like many other antibiotic-resistant organisms, transmission is often via the hands of health care workers.

We reviewed the laboratory and clinical records of more than 100 patients with enterococcal bacteraemia from 1989 to 1996 to determine whether there was any rise in high level aminoglycoside resistance over that time and whether it has had any impact on the clinical outcome.

Methods
From January 1989 to July 1996, enterococcal blood culture isolates from the Royal Brisbane Hospital complex (Royal Brisbane Hospital, Royal Childrens Hospital and Royal Womens Hospital) were recorded on a database. A commercial system was used to detect growth (BACTEC NR 660 up to mid-1992, and then BacT/Alert). The organisms were identified to the genus level as Enterococcus using standard laboratory tests based on Gram stain, catalase reaction, bile tolerance, ability to hydrolyse aesculin, tolerance to 6.5% sodium chloride and pyruvate utilisation. If the organism did not utilise pyruvate, it was speciated using the API 20 STREP, yellow pigment production and motility test.

All enterococcal isolates were tested routinely by the agar dilution method using Steer’s replicator. Enterococcal isolates were screened for high level resistance to aminoglycosides using agar plates containing gentamicin at 500 mg/L or streptomycin at 2000 mg/L.

A retrospective review of patients’ charts was performed to collect data on underlying conditions, source of infection (nosocomial or community acquired), antibiotic usage and clinical outcome. Nosocomial acquisition of bacteraemia was defined as present if positive blood cultures were drawn more than 48 hours after hospital admission. Relapse was defined as blood culture positivity greater than 72 hours after the most recent positive blood culture was taken. Differences in outcome and other variables were assessed using the software package STATA.

Results
There were 136 episodes of enterococcal bacteraemia of which 110 were with Enterococcus faecalis (E. faecalis), 23 with Enterococcus faecium, two with E. durans and one with E. casseliflavus. The resistance of these isolates to gentamicin and streptomycin is shown in detail in Table 1. Figures 1 and 2 illustrate the resistance patterns of the enterococcal blood culture isolates from 1989 to 1996. Over this period, 16% of E. faecalis isolates displayed high level resistance to

Table 1. Blood culture isolates of enterococci at the Royal Brisbane Hospital, 1989 to 1996

<table>
<thead>
<tr>
<th>Species of enterococcus</th>
<th>Number of blood culture isolates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterococcus faecalis</td>
<td>13</td>
</tr>
<tr>
<td>High level resistance to gentamicin</td>
<td>1</td>
</tr>
<tr>
<td>High level resistance to streptomycin</td>
<td>1</td>
</tr>
<tr>
<td>High level resistance to both agents</td>
<td>1</td>
</tr>
<tr>
<td>Enterococcus faecium</td>
<td>6</td>
</tr>
<tr>
<td>High level resistance to streptomycin</td>
<td></td>
</tr>
<tr>
<td>Amoxycillin resistant</td>
<td></td>
</tr>
<tr>
<td>Enterococcus durans</td>
<td>1</td>
</tr>
<tr>
<td>Enterococcus casseliflavus</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19</td>
</tr>
</tbody>
</table>

1. No E. faecium isolates displayed high level resistance to gentamicin or vancomycin resistance.

gentamicin and 10% to streptomycin. Four isolates were resistant to both antibiotics. Proportions of resistant isolates have fluctuated widely from year to year, but showed a slight decline since peaking in 1991. No E. faecium isolates displayed high level resistance to gentamicin and only one to streptomycin. Two isolates of E. faecium were amoxycillin resistant. Neither isolate was a beta-lactamase producer. No blood culture isolate was vancomycin resistant.

The medical records pertaining to 100 cases were available for review. Sixty-seven episodes occurred in 62 adult patients (three of whom were in the Royal Womens Hospital) and 33 episodes occurred in 30 paediatric patients (six of whom were in the Neonatal Intensive Care Unit). The ages of patients ranged from one day old to 93 years old. Four of the patients were Japanese children who came to Australia for liver transplantation. There have been no molecular epidemiologic studies performed to determine whether there was a common clone of resistant enterococci in patients from the liver transplant ward. Two adults (one American and one Indonesian) also came to the hospital for specialised medical care. The remaining patients were Australian residents who presumably had acquired their enterococcal species in Australia.

Twelve of the 100 patients whose charts could be reviewed had enterococcal isolates with high level resistance to gentamicin. Risk factors and outcomes associated with infection in patients with enterococcal bacteraemia with and without high level resistance to gentamicin is presented in Table 2. Patients with high level resistance to gentamicin were significantly more likely to be liver transplant recipients (p=0.04). Two patients with high level

Figure 1. Enterococcal bloodstream isolates with high level resistance to gentamicin, 1989 to 1996

Figure 2. Enterococcal bloodstream isolates with high level resistance to streptomycin, 1989 to 1996
resistance to gentamicin had clinical diagnoses of endocarditis. One patient was treated with vancomycin alone and died of unrelated causes three weeks later. One patient was treated with penicillin and gentamicin, despite the in vitro susceptibility report, and survived.

Paradoxically, patients with high level resistance to gentamicin were more likely to receive an aminoglycoside than patients without high level resistance (p=0.03). Eighty-three per cent of patients with high level resistance to gentamicin were treated with a cell-wall active antibiotic and an aminoglycoside. More than 50% of these patients received the combination therapy for more than one week. An adverse clinical outcome (death within one month or relapse of enterococcal bacteraemia) was not more common in patients with high level resistance to gentamicin, although the numbers of patients studied was small.

Discussion

High level aminoglycoside resistance in enterococci has been well established at Royal Brisbane Hospital since testing began in 1989. Since then, about 16% of E. faecalis isolates have displayed high level resistance to gentamicin and 10% have shown high level resistance to streptomycin.

The rates of high level resistance to gentamicin appear somewhat higher than the percentage of 7.3% (of 70 bacteraemic isolates) found in a recent multicentre Australia-wide survey. However, the rates of high level resistance to streptomycin are lower than those found in other parts of Australia (17.7% for E. faecalis and 38.9% for E. faecium blood culture isolates). The percentage of E. faecalis isolates exhibiting high level resistance to gentamicin is certainly less than the 70% recently described in a study on enterococcal isolates in liver transplant recipients at the Mayo Clinic

The opening of a new transplantation ward may have decreased crowding of patients and reduced environmental contamination with resident enterococci, thereby in part explaining the decrease in high level gentamicin-resistant isolates in 1995 and 1996.

It is well known that inter-hospital and even inter-country transfer of resistant organisms can occur. Screening for rectal carriage of resistant enterococci and cephalosporin-resistant Enterobacteriaceae may be prudent in patients referred for transplantation or other specialised attention such as intensive care. Preventing the transmission of high level aminoglycoside-resistant enterococci follows the same general principles as preventing transmission of other resistant enterococci. Attention to hand washing by staff members is a key intervention. Single room isolation of patients with aminoglycoside-resistant enterococci has not been practised at our hospital.

It is surprising that more than 50% of patients with high level resistance to gentamicin were treated with this drug in combination with a cell-wall active agent despite knowledge of the in vitro susceptibility result. Theoretically the use of an aminoglycoside in this situation is more likely to result in adverse effects such as nephrotoxicity and ototoxicity, without any benefit being achieved for the patient. Drug toxicity was not determined in this study.

Uptake of aminoglycosides into enterococci depends on aerobic oxidative metabolism. The anaerobic metabolism of enterococci leads to their intrinsic resistance to low concentrations of these antibiotics. There are a number of mechanisms for acquiring high level resistance to the aminoglycosides. High level resistance to gentamicin is mediated by aminoglycoside modifying enzymes (a fused 6′-acetyltransferase/2′′-phosphotransferase). These en-

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Number with high level resistance to gentamicin (%) (n=12)</th>
<th>Number without high level resistance to gentamicin (%) (n=88)</th>
<th>Level of statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>6 (50)</td>
<td>41 (47)</td>
<td>NS</td>
</tr>
<tr>
<td>Polymicrobial bacteraemia</td>
<td>5 (42)</td>
<td>30 (34)</td>
<td>NS</td>
</tr>
<tr>
<td>Nosocomial acquisition</td>
<td>11 (92)</td>
<td>63 (72)</td>
<td>NS</td>
</tr>
<tr>
<td>Organ transplant</td>
<td>3 (25)</td>
<td>4 (5)</td>
<td>p = 0.04</td>
</tr>
<tr>
<td>Primary bacteraemia</td>
<td>5 (42)</td>
<td>48 (55)</td>
<td>NS</td>
</tr>
<tr>
<td>Line-related sepsis</td>
<td>0 (0)</td>
<td>19 (22)</td>
<td>NS</td>
</tr>
<tr>
<td>Urosepsis</td>
<td>3 (25)</td>
<td>8 (9)</td>
<td>NS</td>
</tr>
<tr>
<td>Endocarditis</td>
<td>2 (17)</td>
<td>1 (1)</td>
<td>p = 0.04</td>
</tr>
<tr>
<td>Other site</td>
<td>2 (17)</td>
<td>12 (14)</td>
<td>NS</td>
</tr>
<tr>
<td>Outcome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relapse</td>
<td>1 (8)</td>
<td>8 (9)</td>
<td>NS</td>
</tr>
<tr>
<td>Death within one month</td>
<td>3 (25)</td>
<td>19 (22)</td>
<td>NS</td>
</tr>
</tbody>
</table>

NS: Not significant.
zymes alter the aminoglycoside molecule so that it binds poorly to the ribosome (the site of action of aminoglycosides). The fused enzyme that produces high level gentamicin resistance produces resistance to synergy with all other clinically used aminoglycosides except streptomycin. Thus if a patient has high level resistance to gentamicin and streptomycin, and therefore all aminoglycosides, occur. Four such isolates were found in our series. Such a finding has dire consequences for a patient with enterococcal endocarditis. The genes coding for these aminoglycoside-modifying enzymes are found on plasmids, with the exception of a 6'-acetyltransferase of \textit{E. faecium} which is chromosomally encoded. This enzyme is produced by all strains of \textit{E. faecium}, and inactivates tobramycin, netilmicin and kanamycin\textsuperscript{5}. These drugs should never be used for synergistic action against \textit{E. faecium}.

References

\section*{Update on bat lyssavirus}

The second meeting of the Lyssavirus Expert Group was held on 3 December 1996. The group reviewed new information on the virus. This included the first identification of lyssavirus in an insectivorous bat. A yellow-bellied sheath-tail bat, \textit{Saccolaimus flaviventris}, was found on the ground and unable to fly, near Toowoomba, Queensland. Following euthanasia, the animal was found to have a non-suppurative encephalitis on histopathology and was lyssavirus positive by immunofluorescence.

Research priorities for the bat lyssavirus were discussed by the group. These included both wildlife and human aspects. This research will further inform public health action required for the control of the virus.

The group noted that while current advice to medical practitioners and public health authorities stands\textsuperscript{1}, there is the possibility of inapparent exposure to lyssavirus. This has been the experience with rabies in the United States of America\textsuperscript{2,3}. The group recommended that neurologists and intensive care physicians be alerted to look for lyssavirus infection in cases of unexplained encephalopathy. The recommendations of the National Health and Medical Research Council for post-exposure vaccination of previously vaccinated persons for rabies should be applied to lyssavirus\textsuperscript{4}.

The group recommended that the National Health and Medical Research Council \textit{Australian Immunisation Procedures} \textit{Handbook} be updated to include advice on pre- and post-exposure prophylaxis for lyssavirus.

References
Antibiotics

Are we running out? 166

Antibiotic resistance

Aminoglycoside resistant enterococci; 532
Gonococci, Western Pacific Region, 1995; 425
MRSA, sodium fusidate resistance in Western Australia; 492
Network on Antimicrobial Resistance Monitoring; 259
Vancomycin-resistant enterococci; 400, 402

Arcanobacterium haemolyticum causing diphtheria-like illness; 64

ASPREN

See Australian Sentinel Practice Research Network

Australian Capital Territory

Haemophilus influenzae type b vaccination coverage; 256
Australian Childhood Immunisation Register; 14

Australian Encephalitis, Sentinel Chickens

See Sentinel Chicken Surveillance Programme

Australian Gonococcal Surveillance Program

See Gonococcal surveillance reports

Australian Sentinel Practice Research Network

Recruitment of general practitioners; 495
Surveillance data in CDI; 11
Surveillance reports; 17, 46, 98, 125, 153, 176, 204, 225, 248, 268, 290, 310, 331, 346, 360, 378, 411, 433, 471, 487, 499, 528, 548

B

Bat

Equine morbillivirus

Possible host; 262, 476
Screening of carers for; 477

Lyssavirus

Human case of encephalitis; 504
Human health aspects; 325, 535
Prevention of human infection; 505, 535

Bordetella pertussis

See Pertussis

Bovine spongiform encephalopathy

Australian response; 170
Australian task force; 198
Enquiries; 216
Possible human risks; 197

United Kingdom; 169
Buffalopox
Overseas updates; 198

C

Campylobacteriosis

Queensland, five year review; 478

CDI

Editorial Advisory Board; 13
Editorial changes; 41, 372
Electronic distribution; 42, 341
Instructions to authors; 13
Readership survey; 39
Reviewers, 1996; 543
Surveillance data in; 9

Chickens, Sentinel

See Sentinel Chicken Surveillance Programme

Child-care

Hepatitis A associated with, Queensland; 276
Hepatitis A associated with, Victoria; 116

Cholera

Epidemiology and prevention; 301
Gastroenteritis cases from Penang, Malaysia; 299
Overseas updates; 67, 93, 120, 149, 172, 198, 221, 263, 283, 305, 342, 355, 374, 390, 406, 483
Travel information; 300

Clostridium perfringens

Gastroenteritis outbreak and; 279

Clostridium tetani

See Tetanus

Corynebacterium diphtheriae

See Diphtheria

Crimean-Congo haemorrhagic fever

Overseas updates; 496

D

Dengue

Overseas updates; 305, 341, 374, 483, 495

Diphtheria

Diphtheria-like illness; 64
NHMRC recommendations on immunisation; 65
Overseas updates; 355
E

Ebola haemorrhagic fever
  Overseas updates; 12, 119, 243, 482, 496, 524
  Reston virus in monkeys; 221
Enterohaemorrhagic *Escherichia coli*
  Japan outbreak; 355, 390
  O157, Gold Coast outbreak; 236
Enterococci
  Aminoglycoside resistance; 532
  Vancomycin-resistant; 400, 402
Equine morbillivirus
  Possible fruit bat reservoir host; 262, 476
  Screening of bat carers; 477
*Escherichia coli*
  O157, Gold Coast outbreak; 236
Ethnicity
  Sexually transmissible disease surveillance and; 240

G

Gastroenteritis
  Cases from Penang, Malaysia; 299
  Outbreak, Victoria; 279
  Rotavirus outbreak, Solomon Islands; 352
  *Salmonella* Mbandaka outbreak and peanut butter; 326
Gonococcal surveillance reports; 412, 433, 499, 549
Gonococci
  Antimicrobial resistance, Western Pacific Region, 1995; 425

H

*Haemophilus influenzae* type b
  Vaccination coverage, Australian Capital Territory; 256
Haemorrhagic fevers in Africa; 260
Haemorrhagic fever with renal syndrome, Bosnia and Herzegovina; 93
Hantavirus
  Overseas updates; 244
Hepatitis A
  Associated with child-care centre, Queensland; 276
  Associated with child-care centre, Victoria; 116
Hepatitis C
  Risk factors; 384
  Surveillance data in *CDI*; 11
  Surveillance, enhanced, incident cases; 384, 388
Hib
  See *Haemophilus influenzae* type b
HIV and AIDS
  Ethnicity and sexually transmissible disease surveillance; 240
  Global picture (editorial); 62
  Global situation; 56, 59, 341
  Surveillance data in *CDI*; 11
  Surveillance reports; 46, 71, 125, 176, 225, 246, 268, 288, 358, 377, 409, 470, 486, 527, 547
  Validation of reported HIV risk exposure, New South Wales; 2
  WHO estimates of prevalence; 59
HIV
  See HIV and AIDS
Human immunodeficiency virus
  See HIV and AIDS

I

Immunisation
  Accelerated primary schedule (letters); 199, 284
  Adverse events following vaccination
    See *Adverse Events Following Vaccination Surveillance Scheme*
  Coverage, Illawarra and Shoalhaven; 217
  Coverage, measuring; 219
  *Haemophilus influenzae* type b coverage, Australian Capital Territory; 256
  NHMRC recommendations on diphtheria; 65
  NHMRC recommendations on tetanus; 220
  Pertussis, acellular vaccines; 192
  Register
    See *Australian Childhood Immunisation Register*
  Rotavirus vaccine development; 296
  School entry certificates, New South Wales; 6
  Tetanus, South Australia; 220
  See also Influenza

Influenza
  Impact and vaccines; 212
National Surveillance
Annual Report, 1995; 140
Surveillance data in CDI; 12
Surveillance reports; 247, 266, 289, 309, 330, 345, 359, 377, 394, 410, 432, 470
New Zealand updates; 327, 341
NHMRC recommendations on immunisation; 149, 215
Northern Hemisphere updates; 12, 42, 119, 146
Tropical surveillance; 282
Vaccine formula for northern winter, 1996-1997; 146
Vaccine formula for southern winter, 1996; 148, 214
Vaccine formula for Australian winter, 1997; 465
Instructions to authors, CDI; 13

J
Japanese B encephalitis virus
Overseas updates; 466
Torres Strait reappearance; 191
Vaccination against, Torres Strait; 188

K
Kangaroo meat and toxoplasmosis; 66

L
Laboratory Database of Organisms From Sterile Sites
Annual report 1994; 28
Peritoneal dialysate isolates, 1992-1994; 35
Surveillance data in CDI; 10
Surveillance reports; 18, 73, 127, 178, 227, 268, 311, 346, 379, 413
LabDOSS
See Laboratory Database of Organisms from Sterile Sites
LabVISE
See Virology and Serology Laboratory Reporting Scheme
Lassa fever
Overseas updates; 263, 283, 305, 355
Legionnaires’ Disease
See Legionellosis
Legionellosis
Two linked cases, South Australia; 372
Listeriosis
Outbreak, South Australia; 465

Lyssavirus
Human case of encephalitis, Queensland; 504
Human health aspects of bat infection; 325, 535
Prevention of human infection; 505, 535

M
Malaria
Epidemiology in Australia, 1991-1995; 84
Correction; 121
Surveillance in Australia; 304
Surveillance, role of diagnostic reference laboratory; 302
World situation, 1993; 88
Melioidosis
In tropical Australia; 63
Meningitis
Viral, overseas updates; 374, 390, 406, 428
See also Meningococcal infection
Meningococcal infection
Africa; 171
Australia; 368
Correction; 390
Invasive disease, north Queensland, 1990-1994; 320
Overseas updates; 67, 120, 149, 172, 243, 263, 283, 341, 355, 390, 406
Western Sydney, outbreak; 389
Meningococcal isolate surveillance, Australia; 422
Methicillin-resistant Staphylococcus aureus
Emerging sodium fusidate resistance in Western Australia; 492
MRSA
See Methicillin-resistant Staphylococcus aureus
Mycobacterial Surveillance System, National
see National Mycobacterial Surveillance System
Mycobacterial tuberculosis
See Tuberculosis

N
National Health and Medical Research Council
Recommendations on diphtheria immunisation; 65
Recommendations on influenza immunisation; 149, 215
Recommendations on tetanus immunisation; 220
National Influenza Surveillance

See Influenza, National Surveillance

National Mycobacterial Surveillance System
Tuberculosis notifications in Australia, 1994; 108

National Neisseria Network
See Meningococcal isolate surveillance

National Notifiable Diseases Surveillance System
Annual report, 1995; 440
Surveillance data in CDI; 9

Neisseria meningitidis
Strain differentiation; 369
See also Meningococcal infection

New South Wales
HIV, Validation of reported risk exposure; 2
Immunisation coverage, Illawarra and Shoalhaven; 217
Meningococcal infection, Western Sydney; 389
School entry immunisation certificates; 6

NHMRC
see National Health and Medical Research Council

Northern Territory
Influenza, tropical surveillance; 282
Melioidosis, in tropical Australia; 63
Scrub typhus, fatal case; 420

Notifiable Diseases
See National Notifiable Diseases Surveillance System

Peanut butter and Salmonella Mbandaka outbreak; 326
Peritoneal Dialysate Isolates, LabDOSS, 1992-1994; 35
Pertussis
Accelerated primary schedule (letters); 199, 284
Epidemiology and acellular vaccines; 192
Poliomyelitis
See also acute flaccid paralysis
Outbreak, Albania; 428
Progress towards eradication
Overseas updates; 93
Reporting cases of acute flaccid paralysis; 120

Polioviruses
Reporting isolates; 120

Q
Queensland
Aminoglycoside-resistant enterococci; 532
Campylobacteriosis, five year review; 478
Diphtheria-like illness; 64
Equine morbillivirus
Possible bat reservoir host; 262, 476
Screening of bat carers for; 477
Escherichia coli O157, Gold Coast outbreak; 236
Hepatitis A associated with child-care; 276
Japanese encephalitis reappearance, Torres Strait; 191
Japanese encephalitis vaccination, Torres Strait; 188
Lyssavirus, human case of encephalitis; 504
Meningococcal infection, north Queensland, 1990-1994; 320
Vancomycin-resistant enterococci; 400, 402

R
Readership survey, CDI; 39
Resistance, antibiotic
See Antibiotic resistance
Ross River virus
Outbreak, Western Australia; 119, 136
Rotavirus
Epidemiology and vaccine development; 296
Outbreak, Solomon Islands; 352
Rubella
Overseas updates; 172

S
Salmonella
Mbandaka outbreak and peanut butter; 326
School entry immunisation certificates; 6
Scrub typhus, fatal case in Northern Territory; 420
Sentinel Chicken Surveillance Programme
Surveillance data in CDI; 11
Surveillance reports; 71, 205, 291, 346, 360, 487, 549
Serious adverse events following vaccination

See Adverse Events Following Vaccination Surveillance Scheme

Sexually transmissible disease

Surveillance and ethnicity data; 240
Solomon Islands, rotavirus outbreak; 352
South Australia
Legionellosis, two linked cases; 372
Listeriosis outbreak; 465
Tetanus vaccination levels; 220
Staphylococcus aureus
Toxic shock syndrome in Australia and New Zealand 1990-1994; 336
Sterile Sites Surveillance
See Laboratory Database of Organisms from Sterile Sites
Streptococcus pyogenes
Toxic shock syndrome in Australia and New Zealand 1990-1994; 336
Surveillance
Data in CDI; 9
Malaria; 302, 304
Syphilis
See Treponema pallidum

Typhoid
Overseas updates; 67, 374

V
Vaccination
See Immunisation
Vancomycin-resistant enterococci; 400, 402
Venezuelan equine encephalitis
Overseas updates; 374
Victoria
Gastroenteritis outbreak; 279
Hepatitis A associated with child-care centre; 116
Vibrio cholerae O1
See Cholera
Vibrio cholerae O139
See Cholera
Virology and Serology Laboratory Reporting Scheme
Annual report, 1995; 507
Surveillance data in CDI; 10

W
Western Australia
Ross River virus outbreak; 119, 136
MRSA, sodium fusidate resistance; 492
Whooping cough
See Pertussis
World Health Organization
Gonococci, antimicrobial resistance, Western Pacific Region, 1995; 425
HIV/AIDS global situation; 56
HIV, estimates of prevalence; 59
Malaria world situation, 1993; 88
Network on Antimicrobial Resistance Monitoring; 259
Tuberculosis global situation 1994; 164

Y
Yellow fever
Overseas updates; 12, 42, 93, 466, 496, 544
CDI AUTHOR INDEX, 1996

A
Adams David; 505
Allen Amanda; 400
Allworth Anthony; 504, 505
Andrews Graham; 440
Andrews Ross; 384, 440
Antony Jayne; 403
Arklay Antony; 477

B
Barnes Graeme; 296
Barnett Dianne; 188
Bates John; 236
Beaton Sheila; 35, 326
Bishop Ruth; 296, 352
Bodman Janet; 402, 532
Boyden Andrew; 326
Brenton Colleen; 299
Bugg Helen; 352
Burgess Margaret; 192

C
Cable John; 148
Cameron Scott; 326
Capon Anthony; 389
Carman Judy; 465
Crerar Scott; 9, 28, 325, 440
Curran Margaret; 9, 140, 384, 440, 507
Currie Bart; 63, 420

D
Dalton Craig; 505
Davison Rod; 66, 276
Davos Dianne; 465
Dedman Rodney; 326
Delroy Brian; 465
Densten Kylie; 279
Doyle Kevin; 505
Dunn Kevin; 505

E
Eckert Phil; 326
El-Saadi Ossama; 66, 276
Evans David; 9, 440
Ewald Dan; 188

F
Faoagali Joan; 402
Feldheim Jenny; 326
Ferreira Catherine; 279
Field Hume; 476
Forrest Jill; 192

G
Geary Alanna; 402
Gerrard John; 477
Gifford Sandra; 240
Griffith Julia; 279
Griggs Elizabeth; 2
Gust Ian; 505

H
Hall Robert; 219, 465
Halpin Kim; 476
Hampson Alan; 212
Hanna Jeffrey; 188, 191, 320
Hargreaves Jenny; 9
Harries Bronwen; 116, 326
Harrington Susan; 136
Harrison Michael; 64
Heath Tim; 389
Heaton Selena; 279, 326
Herceg Ana; 9, 39, 372, 403, 440, 544
Hewitt Moria; 389
Heymer Malcolm; 236
Hills Susan; 236
Hogg Geoff; 326
Holland Rosalind; 326, 465
J
Jalaludin Bin; 6, 389
Jane Dick; 505
Jasinska Eva; 136
Jelfs Jane; 389
Jennings Anthony; 400
Johansen Cheryl; 136
Johnston Fay; 282

K
Kaldor John; 62
Kassulke Desley; 276
Kelly Robyn; 236
Kempe Ann; 256
Kennet Margery; 403
Kerr Marianne; 389
Kirk Martyn; 326, 372
Krause Vicki; 420

L
Lanser Jan; 372, 465
Leckie Roziani; 6
Levy Michael; 2
Lightfoot Dianne; 326
Lim Irene; 465
Lindsay Michael; 119, 136
Lloyd Glenis; 217
Lo David; 420
Locarnini Stephen; 388
Longbottom Helen; 41, 84, 325, 403
Longhurst Debbie; 276
Lum Gary; 420

M
MacKenzie John; 505
Marks Paul; 420
Masendycz Paul; 352
McAnulty Jeremy; 388, 505
McCall Brad; 236, 320, 478
McDonald Ann; 2
McLennan Lyn; 326
Mead Cathy; 505
Menzies Robert; 2
Morgan John; 504
Moser Kim; 28
Munro Rosemary; 368, 389
Murphy Denise; 236, 320
Murphy Fiona; 465
Murray Chris; 326
Murray Keith; 504, 505
Myint Htoo; 440

N
Ng Sally; 326
Nguyen Oanh; 389

O
O’Brien Eddie; 256
Oliveira Nidia; 136
Oliver Graeme; 9, 108, 304, 326, 440

P
Paterson David; 299, 400, 532
Peel Margaret; 336
Phillips Debra; 191
Price Darren; 236

R
Raman Shanti; 2
Riley Thomas; 492
Roberts Leslee A; 35
Robinson Priscilla; 336
Robson Jennifer; 64, 66, 299, 340
Rodgers Elizabeth; 352
Rooney John; 325
Rose Nick; 326
Rouch Graham; 326, 336, 505

S
Scheil Wendy; 326
Selvey Linda; 477, 505
Shah Smita; 6
Shaw David; 465
We gratefully acknowledge the assistance the following specialist reviewers have given in reviewing articles for CDI during 1996.

Jan Bell
Sydney Bell
Margaret Burgess
John Carnie
Peter Collignon
Stephen Conaty
Yvonne Cossart
Craig Dalton
Geoff Davis
Ian Denham
Mark Ferson
Gavin Frost
Suzanne Garland
Lyn Gilbert
Gary Grohmann
Dick Groot-Obbink
Robert Hall
Linda Halliday
Jeffrey Hanna
Geoff Hedge
Bernie Hudson
Bin Jalaludin
John Kaldor
Ed Kraa
Jeremy McAnulty
Brad McCall
Louise McDonnell
Peter McIntyre
John MacKenzie
Angela Merianos
Rosemary Munro
Terry Nolan
Mahomed Patel
Thomas Riley
Christine Roberts
Jenny Robson
Greg Sam
David Smith
John Spicer
Graham Tallis
John Tapsall
Susan Tiley
Leigh Trevillian
Jenny Williams
NOTICE TO READERS

A note from the Editor
Ana Herceg, Acting Editor, CDI

This is the last issue of Communicable Diseases Intelligence (CDI) for 1996. The editorial team of CDI would like to wish all our readers a very happy Christmas and best wishes for 1997. We would particularly like to thank all those readers who have contributed articles, editorials, correspondence, outbreak reports and surveillance reports to CDI.

The first issue of CDI for 1997 will be published on 9 January. You will notice that the publication day of CDI is changing from Monday to Thursday in 1997, in order to accommodate printing schedules. CDI will continue to be published every fortnight except for the fortnight of Christmas/New Year.

Finally, CDI will have a new cover and content design in 1997. As always, we would appreciate your comments on CDI in 1997.

OVERSEAS BRIEFS

Source: World Health Organization (WHO)

Yellow Fever, Ghana
A total of 27 cases of yellow fever with five deaths has been reported over a period of a few weeks in the Upper East Region of the country. Out of 15 blood samples tested, three were positive for yellow fever. Health authorities have initiated a vaccination campaign of the population considered to be at risk. Some stocks of vaccine are already available and WHO is sending further supplies.

COMMUNICABLE DISEASES SURVEILLANCE

National Notifiable Diseases Surveillance System

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia New Zealand. The system coordinates the national surveillance of 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 legislation. De-identified core unit data are supplied fortnightly for collation, analysis and dissemination. For further information, see CDI 1996;20:9-10.

Reporting period 10 to 23 November 1996

There were 2,522 notifications received for this two-week period (Tables 1, 2 and 3). The numbers of reports for selected diseases have been compared with average data for this period in the previous three years (Figure 1).

Twenty-five notifications of measles were received in this period, 11 (44%) of which were for children under the age of 5 years. The number of cases remains low for the time of year (Figure 2).

Rubella was notified for 175 persons in this period. The number of notifications has risen in recent months but is below the level reported for the same period in the past two years (Figure 3). Eighty-four cases (48%) were for adults aged 15 to 24 years. There was a predominance of males, the male:female ratio being 2:1.

There were 324 cases of pertussis reported this period of which 60% were under the age of 20 years. Included were 137 notifications from Victoria where there is currently an outbreak.
### 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 10 to 23 November 1996

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>TOTALS FOR AUSTRALIA²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This period 1996</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This period 1995</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Year to date 1996</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Year to date 1995</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Haemophilus influenzae b infection</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Measles</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>25</td>
<td>41</td>
</tr>
<tr>
<td>Mumps</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>NN</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Pertussis</td>
<td>0</td>
<td>43</td>
<td>0</td>
<td>38</td>
<td>88</td>
<td>3</td>
<td>137</td>
<td>15</td>
<td>324</td>
</tr>
<tr>
<td>Rubella</td>
<td>1</td>
<td>10</td>
<td>0</td>
<td>76</td>
<td>51</td>
<td>3</td>
<td>22</td>
<td>12</td>
<td>175</td>
</tr>
<tr>
<td>Tetanus</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**NN** Not Notifiable.

1. No notifications of poliomyelitis have been reported since 1986.

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

### Table 2. Notifications of other diseases received by State and Territory health authorities in the period 10 to 23 November 1996

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>TOTALS FOR AUSTRALIA²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This period 1996</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This period 1995</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Year to date 1996</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Year to date 1995</td>
</tr>
<tr>
<td>Arbovirus Infection (NEC³,⁴)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Barmah Forest virus infection</td>
<td>0</td>
<td>3</td>
<td>-</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Ross River virus infection</td>
<td>0</td>
<td>10</td>
<td>3</td>
<td>28</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>Dengue</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Campylobacteriosis⁵</td>
<td>14</td>
<td>-</td>
<td>15</td>
<td>193</td>
<td>89</td>
<td>29</td>
<td>108</td>
<td>82</td>
<td>530</td>
</tr>
<tr>
<td>Chlamydial infection (NEC⁶)</td>
<td>5</td>
<td>NN</td>
<td>16</td>
<td>184</td>
<td>0</td>
<td>13</td>
<td>56</td>
<td>39</td>
<td>313</td>
</tr>
<tr>
<td>Donovanosis</td>
<td>0</td>
<td>NN</td>
<td>0</td>
<td>0</td>
<td>NN</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gonococcal infection⁷</td>
<td>0</td>
<td>19</td>
<td>33</td>
<td>41</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>31</td>
<td>129</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>2</td>
<td>19</td>
<td>4</td>
<td>22</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>62</td>
</tr>
<tr>
<td>Hepatitis B incident</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Hepatitis C incident</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Hepatitis C unspecified</td>
<td>9</td>
<td>NN</td>
<td>11</td>
<td>198</td>
<td>NN</td>
<td>26</td>
<td>38</td>
<td>23</td>
<td>305</td>
</tr>
<tr>
<td>Hepatitis (NEC)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NN</td>
<td>0</td>
</tr>
<tr>
<td>Legionellosis</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Listeriosis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Malaria</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Meningococcal infection</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Ornithosis</td>
<td>0</td>
<td>NN</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Q Fever</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Salmonellosis (NEC)²</td>
<td>2</td>
<td>40</td>
<td>11</td>
<td>94</td>
<td>20</td>
<td>6</td>
<td>18</td>
<td>16</td>
<td>207</td>
</tr>
<tr>
<td>Shigellosis</td>
<td>0</td>
<td>-</td>
<td>6</td>
<td>21</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>Syphilis</td>
<td>0</td>
<td>15</td>
<td>21</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>51</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>12</td>
<td>0</td>
<td>1</td>
<td>15</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>Typhoid⁸</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Yersiniosis (NEC⁵)</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
</tbody>
</table>

1. For HIV and AIDS, see Tables 4 and 5. For rarely notified diseases, see Table 3.

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

3. Tas: includes Ross River virus and dengue.

4. NT, Vic and WA: includes Barmah Forest virus.

5. NSW: only as ‘foodborne disease’ or ‘gastroenteritis in an institution’.

6. WA: genital only.

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

8. NSW, Vic: includes paratyphoid.

NN Not Notifiable.

NEC Not Elsewhere Classified.

- Elsewhere Classified.

---

CDI 9 December 1996

Vol 20/No. 25
Table 3. Notifications of rare\(^1\) diseases received by State and Territory health authorities in the period 10 to 23 November 1996

<table>
<thead>
<tr>
<th>DISEASE (^2)</th>
<th>Total this period</th>
<th>Reporting States or Territories</th>
<th>Year to date 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brucellosis</td>
<td>3</td>
<td>Qld</td>
<td>35</td>
</tr>
<tr>
<td>Chancroid</td>
<td>0</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Cholera</td>
<td>0</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Hydatid infection</td>
<td>1</td>
<td>Qld</td>
<td>35</td>
</tr>
<tr>
<td>Leprosy</td>
<td>0</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

1. Fewer than 60 cases of each of these diseases were notified each year during the period 1988 to 1995.
2. No notifications have been received during 1996 for the following rare diseases: botulism; lymphogranuloma venereum; plague; rabies; yellow fever; or other viral haemorrhagic fevers.

Figure 1. Selected National Notifiable Diseases Surveillance System reports, and historical data\(^1\)

![Diagram showing disease notifications]

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

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

![Graph showing Measles notifications]

Figure 3. Rubella notifications, 1994 to 1996, by month of onset

![Graph showing Rubella notifications]
Forty-eight notifications of Ross River virus were received in this period. Included were several apparent clusters in the Statistical Divisions of Fitzroy, Queensland (8 cases); Brisbane, Queensland (7 cases); Wide Bay-Burnett, Queensland (4 cases); Far North Queensland (4 cases); and Northern New South Wales (3 cases). Numbers remain low which is usual for the time of year.

One hundred and twenty-nine cases of gonococcal infection were reported in this period. Sixty-four (50%) were for persons in the 15 to 24 years age group. The male:female ratio was 1.7:1. Twenty cases were reported from the Statistical Division of Far North Queensland, 33 from the Northern Territory, 14 from Sydney and 15 from Kimberley, Western Australia.

Legionellosis was notified for 10 persons in this period. All cases were in the 40 to 84 years age range. For the year to date a total of 165 notifications have been received, of which 81% were for persons over 50 years of age (Figure 4). Most reports (69%) were for males.

Fifteen cases of meningococcal disease were reported in this period, of which 9 (60%) were for children 2 years of age or under. The number of notifications has remained stable since August, after peaking in July (Figure 5).

**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, available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Telephone: (02) 332 4648 Facsimile: (02) 332 1837.

HIV and AIDS diagnoses and deaths following AIDS reported for July 1996, as reported to 31 October 1996, are included in this issue of CDI (Tables 4 and 5).
The Australian Sentinel Practice Research Network (ASPREN) comprises 99 sentinel general practitioners from throughout the country. Approximately 9,000 consultations are recorded each week for 12 conditions. Of these, CDI reports the consultation rate for influenza, rubella, measles, chickenpox, pertussis and gastroenteritis. For further information including case definitions see CDI 1996;20:98-99.

Data for weeks 46 and 47 ending 17 November and 24 November 1996 respectively are included in this issue of CDI (Table 6). There has been no significant change in the rates of notifications of gastroenteritis over recent reporting periods. Consultation rates for chickenpox rose during week 47 compared with recent weeks, while those for influenza-like illnesses have remained steady. The numbers of cases of pertussis and measles have remained low.

### Table 4. New diagnoses of HIV infection, new diagnoses of AIDS and deaths following AIDS occurring in the period 1 July to 31 July 1996, by sex and State or Territory of diagnosis

<table>
<thead>
<tr>
<th></th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>TOTALS FOR AUSTRALIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>569</td>
<td>3</td>
<td>102</td>
<td>44</td>
<td>4</td>
<td>169</td>
<td>73</td>
<td>979</td>
</tr>
<tr>
<td>Male</td>
<td>171</td>
<td>10131</td>
<td>84</td>
<td>1634</td>
<td>577</td>
<td>75</td>
<td>3423</td>
<td>761</td>
<td>16856</td>
</tr>
<tr>
<td>Sex not reported</td>
<td>0</td>
<td>2049</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42</td>
<td>0</td>
<td>2091</td>
</tr>
<tr>
<td>Total 1</td>
<td>186</td>
<td>12757</td>
<td>87</td>
<td>1741</td>
<td>621</td>
<td>79</td>
<td>3643</td>
<td>836</td>
<td>19950</td>
</tr>
<tr>
<td>AIDS diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>138</td>
<td>0</td>
<td>30</td>
<td>18</td>
<td>2</td>
<td>48</td>
<td>17</td>
<td>258</td>
</tr>
<tr>
<td>Male</td>
<td>76</td>
<td>3899</td>
<td>26</td>
<td>666</td>
<td>284</td>
<td>32</td>
<td>1372</td>
<td>293</td>
<td>6648</td>
</tr>
<tr>
<td>Total 1</td>
<td>81</td>
<td>4047</td>
<td>26</td>
<td>698</td>
<td>302</td>
<td>34</td>
<td>1427</td>
<td>312</td>
<td>6927</td>
</tr>
<tr>
<td>AIDS deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>102</td>
<td>0</td>
<td>24</td>
<td>13</td>
<td>2</td>
<td>37</td>
<td>11</td>
<td>191</td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>2728</td>
<td>20</td>
<td>469</td>
<td>195</td>
<td>21</td>
<td>1083</td>
<td>217</td>
<td>4783</td>
</tr>
<tr>
<td>Total 1</td>
<td>52</td>
<td>2836</td>
<td>20</td>
<td>495</td>
<td>208</td>
<td>23</td>
<td>1126</td>
<td>229</td>
<td>4989</td>
</tr>
</tbody>
</table>

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

### Table 5. Cumulative diagnoses of HIV infection, AIDS and deaths following AIDS since the introduction of HIV antibody testing to 31 July 1996, by sex and State or Territory

<table>
<thead>
<tr>
<th></th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>AUSTRALIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>569</td>
<td>3</td>
<td>102</td>
<td>44</td>
<td>4</td>
<td>169</td>
<td>73</td>
<td>979</td>
</tr>
<tr>
<td>Male</td>
<td>171</td>
<td>10131</td>
<td>84</td>
<td>1634</td>
<td>577</td>
<td>75</td>
<td>3423</td>
<td>761</td>
<td>16856</td>
</tr>
<tr>
<td>Sex not reported</td>
<td>0</td>
<td>2049</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42</td>
<td>0</td>
<td>2091</td>
</tr>
<tr>
<td>Total 1</td>
<td>186</td>
<td>12757</td>
<td>87</td>
<td>1741</td>
<td>621</td>
<td>79</td>
<td>3643</td>
<td>836</td>
<td>19950</td>
</tr>
<tr>
<td>AIDS diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>138</td>
<td>0</td>
<td>30</td>
<td>18</td>
<td>2</td>
<td>48</td>
<td>17</td>
<td>258</td>
</tr>
<tr>
<td>Male</td>
<td>76</td>
<td>3899</td>
<td>26</td>
<td>666</td>
<td>284</td>
<td>32</td>
<td>1372</td>
<td>293</td>
<td>6648</td>
</tr>
<tr>
<td>Total 1</td>
<td>81</td>
<td>4047</td>
<td>26</td>
<td>698</td>
<td>302</td>
<td>34</td>
<td>1427</td>
<td>312</td>
<td>6927</td>
</tr>
<tr>
<td>AIDS deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>102</td>
<td>0</td>
<td>24</td>
<td>13</td>
<td>2</td>
<td>37</td>
<td>11</td>
<td>191</td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>2728</td>
<td>20</td>
<td>469</td>
<td>195</td>
<td>21</td>
<td>1083</td>
<td>217</td>
<td>4783</td>
</tr>
<tr>
<td>Total 1</td>
<td>52</td>
<td>2836</td>
<td>20</td>
<td>495</td>
<td>208</td>
<td>23</td>
<td>1126</td>
<td>229</td>
<td>4989</td>
</tr>
</tbody>
</table>

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

### Australian Sentinel Practice Research Network

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

### Table 6. Australian Sentinel Practice Research Network reports, weeks 46 and 47, 1996

<table>
<thead>
<tr>
<th>Condition</th>
<th>Week 46, to 17 November 1996</th>
<th>Week 47, to 24 November 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reports</td>
<td>Rate per 1,000 encounters</td>
</tr>
<tr>
<td>Influenza</td>
<td>30</td>
<td>3.6</td>
</tr>
<tr>
<td>Rubella</td>
<td>4</td>
<td>0.5</td>
</tr>
<tr>
<td>Measles</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chickenpox</td>
<td>25</td>
<td>3.0</td>
</tr>
<tr>
<td>Pertussis</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>148</td>
<td>17.9</td>
</tr>
</tbody>
</table>
Sentinel Chicken Surveillance Programme

AK Broom1, JS Mackenzie2, L Melville3, DW Smith4 and PI Whelan5

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

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 23 flocks are maintained in the north of Western Australia, 8 in the Northern Territory and 10 in Victoria. The flocks in Western Australia and the Northern Territory are tested all year round but those in Victoria are tested only from November to March, during the main MVE risk season.

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

Sentinel chicken serology was carried out for 16 of the 22 flocks in Western Australia in September and October 1996. There were no seroconversions during this period. Twenty-one of the 22 flocks of sentinel chickens were replaced during September. Those at Port Hedland were not replaced. New flocks were established at Lombadine, an Aboriginal community in the West Kimberley, and at Nullagine in the Pilbara. There are now 23 flocks in the north of Western Australia.

Five flocks of sentinel chickens from the Northern Territory were also tested in September and October. During this period there were no seroconversions to flaviviruses.

Gonococcal surveillance

John Tapsall, The Prince of Wales Hospital, High Street, 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 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 not recommended therapy for gonorrhoea. Comparative 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 1996

The AGSP laboratories examined 710 isolates of Neisseria gonorrhoeae for sensitivity to the penicillins, ceftriaxone, quinolones and spectinomycin and for high level resistance to the tetracyclines in the June quarter of 1996.

Penicillins

The usefulness of this group of antibiotics (penicillin, ampicillin, amoxycillin) is progressively diminishing and is least effective in Sydney and Melbourne where about a quarter of all isolates are resistant by one or more mechanisms. Figure 6 shows the proportion of isolates fully sensitive, less sensitive or relatively resistant to the penicillins by chromosomal mechanisms and the proportion of penicillinase-producing gonococci (PPNG) in different regions and as aggregated data for Australia. PPNG and relatively resistant isolates usually fail to respond to therapy with the penicillins. Those in the fully sensitive and less sensitive categories (minimal inhibitory concentration - MIC ≤ 0.5 mg/L) usually respond to a regimen of standard treatment with the above penicillins.

There were 37 PPNG identified in this reporting period (5.2% of all isolates). These were found in all centres except Adelaide, with 14 PPNG reported from Sydney, 8 from Melbourne, 7 from Perth, 5 from the Northern Territory and lower numbers in the other centres. Infections with PPNG were acquired locally, and in Indonesia, the Philippines, Malaysia, Vietnam, China and Thailand. Fifty (7%) of all isolates were resistant to the penicillins by separate chromosomal mechanisms. These so-called CMRNG were present in all centres except Perth, but most prominent in Sydney (18 isolates, 13% of the total there) and Melbourne (23 isolates, 21%). Perhaps somewhat paradoxically, the...

Figure 6. Penicillin resistance of gonococcal isolates for Australia and by region, 1 April to 30 June 1996

FS Fully sensitive to penicillin, MIC ≤ 0.03mg/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.
proportion of isolates fully sensitive to penicillin increased in Sydney and Melbourne in this quarter.

**Ceftriaxone and spectinomycin.**

All isolates from all parts of Australia were sensitive to these injectable agents.

**Quinolone antibiotics**

Twenty-four isolates (3.4%) had altered resistance to this group of antibiotics (ciprofloxacin, norfloxacin and enoxacin), with half of these showing high level resistance (QRNG). High level resistance to the quinolones was present in strains from all centres. Nine QRNG (8.2%) were detected in Melbourne, 6 in Sydney (4.4%), 3 each in Darwin and Perth, 2 in Adelaide and one in Brisbane. Most infections with QRNG were acquired overseas, with China and the Philippines identified most often as countries of acquisition. Other sources of QRNG included Malaysia, Indonesia, Vietnam and Thailand.

**High level tetracycline resistance**

Thirty-four tetracycline-resistant *Neisseria gonorrhoea* (TRNG) were detected throughout Australia with isolates of this type again present in all centres. The highest proportion of TRNG was found in Sydney where the 11 TRNG represented 8.1% of all isolates. TRNG were also prominent in Perth (12 isolates, 6.6%) and there were 4 TRNG isolated in both Melbourne and Darwin. Overseas sources of TRNG most often identified were Vietnam and Indonesia. Local acquisition was also recorded.

### Serious Adverse Events Following Vaccination Surveillance Scheme

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

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

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

### Results for the reporting period 15 September to 23 November 1996

There were 14 reports of serious adverse events following vaccination for this reporting period. Reports were received from the Australian Capital Territory (1), the Northern Territory (3), South Australia (2), Tasmania (1), Victoria (3) and Western Australia (4).

The 14 reports included cases of persistent screaming, hypotonic/hyporesponsive episodes, convulsions and 4 ‘other’ events (Table 7). The ‘other’ events included a severe local reaction and three episodes of acute urticarial rash, one with facial swelling.

Two children were hospitalised. All cases recovered.

### LabVISE

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

There were 800 reports received in the CDI Virology and Serology Reporting Scheme in this period (Tables 8 and 9).

Laboratory reports of parvovirus for October are the highest recorded (Figure 7). The virus is presumed to be transmitted via respiratory secretions. Infection is most common in school aged children but can occur at any age. In the last fortnight, 26 reports were received, with diagnosis by IgM detection (25) and four-fold rise in titre (1).

There were 31 reports of influenza A for this reporting period. Diagnosis was by single high titre (28) and four-fold rise in titre (3).

There were 101 laboratory reports of *Bordetella pertussis* received in this fortnight, all but one were from Victoria. The increase in reports has been associated with an outbreak of pertussis in Victoria and may also reflect increased testing.

### Table 7. Adverse events following vaccination for the period 15 September to 23 November 1996

<table>
<thead>
<tr>
<th>Event</th>
<th>Vaccines</th>
<th>Reporting States or Territories</th>
<th>Total reports for this period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent screaming</td>
<td>DTP</td>
<td>DTP/Hib</td>
<td>DTP/OPV/Hib</td>
</tr>
<tr>
<td>Hypotonic/hyporesponsive episode</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Convulsions</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
In the last fortnight, 52 reports of *Mycoplasma pneumoniae* were received, with diagnosis by IgM detection (38), single high titre (13) and four-fold rise in titre (1). The highest attack rates are generally in persons aged 5 to 20 years, but *Mycoplasma pneumoniae* can occur at any age and may cause particularly severe disease in neonates. Reports appear to have peaked in September and are now expected to decline (Figure 8).

Table 8. Virology and serology laboratory reports by State or Territory\(^1\) for the reporting period 14 to 27 November 1996, historical data\(^2\), and total reports for the year

<table>
<thead>
<tr>
<th></th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>Total this fortnight</th>
<th>Historical data(^2)</th>
<th>Total reported this year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEASLES, MUMPS, RUBELLA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles virus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>18.7</td>
<td>53</td>
</tr>
<tr>
<td>Mumps virus</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2.3</td>
<td>37</td>
</tr>
<tr>
<td>Rubella virus</td>
<td>5</td>
<td>61</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>70</td>
<td>105.5</td>
<td>630</td>
</tr>
<tr>
<td><strong>HEPATITIS VIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A virus</td>
<td></td>
<td>2</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>17.7</td>
<td>376</td>
</tr>
<tr>
<td><strong>ARBOVIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ross River virus</td>
<td>6</td>
<td>22</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29</td>
<td>12.5</td>
<td>3,143</td>
</tr>
<tr>
<td>Barmah Forest virus</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>6.3</td>
<td>208</td>
</tr>
<tr>
<td>Flavivirus (unspecified)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1.2</td>
<td>23</td>
</tr>
<tr>
<td><strong>ADENOVIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenovirus type 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2.2</td>
<td>31</td>
</tr>
<tr>
<td>Adenovirus type 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1.5</td>
<td>69</td>
</tr>
<tr>
<td>Adenovirus type 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>.5</td>
<td>9</td>
</tr>
<tr>
<td>Adenovirus not typed/pending</td>
<td>1</td>
<td>13</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>55.5</td>
<td>1,287</td>
</tr>
<tr>
<td><strong>HERPES VIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cytomegalovirus</td>
<td>2</td>
<td>15</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>60.7</td>
<td>1,438</td>
</tr>
<tr>
<td>Varicella-zoster virus</td>
<td>3</td>
<td>3</td>
<td>36</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>46.5</td>
<td>1,102</td>
</tr>
<tr>
<td>Epstein-Barr virus</td>
<td>14</td>
<td>2</td>
<td>89</td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>113</td>
<td>79.0</td>
<td>1,959</td>
</tr>
<tr>
<td><strong>OTHER DNA VIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parvovirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23</td>
<td>3</td>
<td>26</td>
</tr>
</tbody>
</table>

\(^1\)Data from CDI 9 December 1996

\(^2\)Data from CDI 24 November 1996
Table 8. Virology and serology laboratory reports by State or Territory\(^1\) for the reporting period 14 to 27 December 1996, historical data\(^2\), and total reports for the year, continued

<table>
<thead>
<tr>
<th></th>
<th>ACT</th>
<th>NSW</th>
<th>NT</th>
<th>Qld</th>
<th>SA</th>
<th>Tas</th>
<th>Vic</th>
<th>WA</th>
<th>Total this fortnight</th>
<th>Historical data(^2)</th>
<th>Total reported this year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PICORNA VIRUS FAMILY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coxsackievirus A16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Coxsackievirus B2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Coxsackievirus B4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Coxsackievirus B untyped/pending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Poliovirus type 2 (uncharacterised)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Rhinovirus (all types)</td>
<td>5</td>
<td>2</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>36.8</td>
<td>659</td>
</tr>
<tr>
<td>Enterovirus not typed/pending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>39.0</td>
<td>771</td>
</tr>
<tr>
<td><strong>ORTHO/PARAMYXOVIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza A virus</td>
<td>2</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31</td>
<td>8.7</td>
<td>1,501</td>
</tr>
<tr>
<td>Influenza B virus</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>3.8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Parainfluenza virus type 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1.2</td>
<td>10.3</td>
</tr>
<tr>
<td>Parainfluenza virus type 3</td>
<td>2</td>
<td>8</td>
<td></td>
<td>6</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>45.5</td>
<td>657</td>
<td></td>
</tr>
<tr>
<td>Respiratory syncytial virus</td>
<td>2</td>
<td>7</td>
<td></td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>46.0</td>
<td>4,087</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER RNA VIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>1</td>
<td></td>
<td></td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>74.0</td>
<td>1,545</td>
</tr>
<tr>
<td>Norwalk agent</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>2.3</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlamydia trachomatis not typed</td>
<td>13</td>
<td>9</td>
<td></td>
<td>115</td>
<td>2</td>
<td>9</td>
<td></td>
<td></td>
<td>148</td>
<td>106.0</td>
<td>3,509</td>
</tr>
<tr>
<td>Chlamydia psittaci</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
<td>32</td>
<td>52</td>
<td>18.3</td>
<td>773</td>
<td></td>
</tr>
<tr>
<td>Mycoplasma pneumoniae</td>
<td>6</td>
<td>14</td>
<td></td>
<td></td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td>52</td>
<td>13.7</td>
<td>275</td>
</tr>
<tr>
<td>Coxiella burnetii (Q fever)</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>10.3</td>
<td>179</td>
<td></td>
</tr>
<tr>
<td>Rickettsia australis</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1.3</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Rickettsia tsutsugamushi</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2.1</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Bordetella pertussis</td>
<td>1</td>
<td></td>
<td>100</td>
<td>101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24.3</td>
<td>699</td>
<td></td>
</tr>
<tr>
<td>Bordetella species</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td>137</td>
<td>13.7</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td>Legionella longbeachae</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1.2</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Legionella species</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>.5</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Leptospira hardjo</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>.0</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Leptospira species</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>1.3</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Schistosoma species</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td></td>
<td>4.7</td>
<td>233</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>61</td>
<td>24</td>
<td>498</td>
<td>1</td>
<td>14</td>
<td>202</td>
<td></td>
<td>800</td>
<td>868.3</td>
<td>25,898</td>
<td></td>
</tr>
</tbody>
</table>

1. State or Territory of postcode, if reported, otherwise State or Territory of reporting laboratory.
2. The historical data are the averages of the numbers of reports in 6 previous 2 week reporting periods: the corresponding periods of the last 2 years and the periods immediately preceding and following those.
Table 9.  Virology and serology laboratory reports by contributing laboratories for the reporting period 14 to 27 November 1996

<table>
<thead>
<tr>
<th>STATE OR TERRITORY</th>
<th>LABORATORY</th>
<th>REPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>Institute of Clinical Pathology &amp; Medical Research, Westmead</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Royal Alexandra Hospital for Children, Camperdown</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Royal Prince Alfred Hospital, Camperdown</td>
<td>11</td>
</tr>
<tr>
<td>Queensland</td>
<td>Queensland Medical Laboratory, West End</td>
<td>482</td>
</tr>
<tr>
<td></td>
<td>State Health Laboratory, Brisbane</td>
<td>67</td>
</tr>
<tr>
<td>Tasmania</td>
<td>Northern Tasmanian Pathology Service, Launceston</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Royal Hobart Hospital, Hobart</td>
<td>9</td>
</tr>
<tr>
<td>Victoria</td>
<td>Microbiological Diagnostic Unit, University of Melbourne</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Royal Children’s Hospital, Melbourne</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Victorian Infectious Diseases Reference Laboratory, Fairfield Hospital</td>
<td>73</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>800</td>
</tr>
</tbody>
</table>