

Communicable Diseases Surveillance

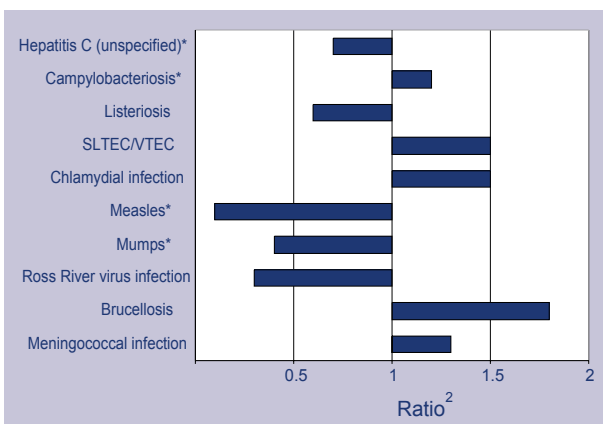
Highlights for 1st quarter, 2002

Communicable Disease Surveillance Highlights report on data from various sources, including the National Notifiable Diseases Surveillance System (NNDSS) and several disease specific surveillance systems that provide regular reports to Communicable Diseases Intelligence. These national data collections are complemented by intelligence provided by State and Territory communicable disease epidemiologists and/or data managers. This additional information has enabled the reporting of more informative highlights each month.

The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia. NNDSS collates data on notifiable communicable diseases from State or Territory health departments. The Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme which collates information on laboratory diagnosis of communicable diseases. In this report, data from the NNDSS are referred to as 'notifications' or 'cases', and those from ASPREN are referred to as 'consultations' or 'encounters' while data from the LabVISE scheme are referred to as 'laboratory reports'.

Figure 1 shows the changes in disease notifications with an onset in the first quarter of 2002, compared with the 5-year first quarter mean. Disease notifications above or below the 5-year mean, plus- or minus- two standard deviations are marked with an asterisk. Diseases where the number of cases reported was two standard deviations above the mean of the same reporting period in the last 5 years in this quarter were campylobacteriosis and brucellosis. Diseases where the number of reports were two standard deviations below the 5 year mean in this quarter were unspecified hepatitis C, measles and mumps. These and other disease trends are discussed below with additional commentary provided by State and Territory health authorities.

Figure 1. Selected¹ diseases from the National Notifiable Diseases Surveillance System, comparison of provisional totals for the period 1 January to 31 March 2002 with historical data²



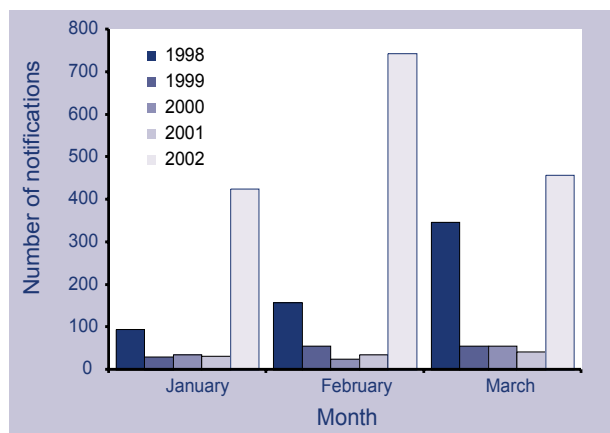
1. Selected diseases are chosen each quarter according to current activity.
 2. Ratio of current quarter total to mean of corresponding quarter for the previous five years.
- * Notifications above or below the 5-year mean for the same period plus- or minus- two standard deviations

Gastrointestinal disease

Cryptosporidiosis

Reports of cryptosporidiosis to NNDSS commenced in January 2001, although reporting in some jurisdictions was for only part of 2001. Cryptosporidiosis reports from Queensland, where the disease has been notifiable at a State level for some years is at a historic high (Figure 2). Year to date cases of cryptosporidiosis reported from the Australian Capital Territory, New South Wales, the Northern Territory and South Australia suggest that disease activity in these jurisdictions have also been increased above 2001 levels in this quarter.

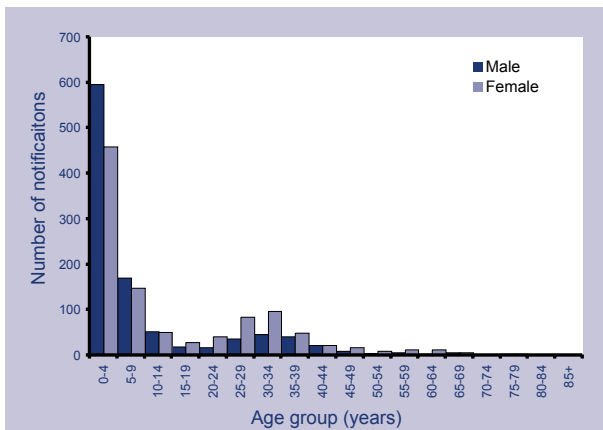
Figure 2. Notifications of cryptosporidiosis, Queensland, 1998 to 2002, by month of report



Of the 2,094 cases of cryptosporidiosis reported in this quarter, 1,377 (66%) were in children less than 10 years of age and 1,058 (50%) were aged under 5 years (Figure 3). The number of male and female cases was relatively equal. The notification rates varied widely between jurisdictions with the highest rates in the Northern Territory (218 cases per 100,000 population) and Queensland (179 cases

per 100,000 population) and lower rates in Victoria (7 cases per 100,000 population) and Tasmania (6 cases per 100,000 population) (Table 3). This reporting period covers the summer months, which is the most popular vacation period in Australia and when cryptosporidiosis infections are most commonly reported.

Figure 3. Notifications of cryptosporidiosis, Australia, 1 January to 31 March 2002, by age and sex



In Queensland, cases were reported from across the State and the number of reports show a broad peak from late January to mid-March. The majority of cases seem to be linked to recreational water exposure or person to person contact.

An outbreak of cryptosporidiosis in a caravan park in a rural area Victoria was reported on 5 February 2002. Probable cases were defined as a person who attended the caravan park between 26 and 29 January 2002 and had onset of a gastrointestinal illness consisting of two or more symptoms of diarrhoea, abdominal pain and nausea. Cases were confirmed if *C. parvum* was isolated from a faecal specimen. Eleven confirmed and eight probable cases were identified amongst a group of 21 persons attending the park over the weekend. The suspected source was the park's swimming pool where all cases had been swimming. The two people who were not ill had not been swimming. Environmental investigations suggested there were ongoing problems with ducks swimming in the pool. Water and duck faecal samples were negative for *C. parvum*. The pool was closed until results of water samples were obtained and superchlorination and other pool hygiene procedures were undertaken by the pool owners.

Since point source outbreaks of cryptosporidiosis account for a minority of cases, researchers have attempted to identify risk factors for sporadic cases. A recent study of cryptosporidiosis in

Australia¹ identified person to person contact, specifically, contact with young children with diarrhoea as the strongest risk factor for acquiring cryptosporidiosis infection. Other risk factors identified included the use of public swimming pools and drinking untreated water from a rural river, lake or dam. While this suggests drinking water may be a hazard, another recent study² has provided evidence to discount the contribution of drinking water to gastroenteritis in Melbourne. Melbourne drinking water is drawn from a protected catchment area and undergoes minimal treatment (chlorination only). A randomised-controlled trial over 68 weeks using real or sham water treatment units in 600 Melbourne households showed no difference in the rates of gastroenteritis between the two groups. Of the 795 faecal samples from 2,669 cases of gastroenteritis which occurred during the study period, *Cryptosporidium* was only isolated in 13 (1.6%) samples. There was no significant difference in the rates of cryptosporidiosis between those drinking treated and untreated tap water.

Salmonellosis

In February, an increase in *Salmonella* Typhimurium phage type 9 was identified in New South Wales. As of late March, 82 cases were reported with onset in 2002, compared with 126 for all of 2001. Fifty five cases with onset in February 2002 were reported, compared with only 16 reported in February 2001. Compared with other types of salmonellosis in 2001 and 2002, a higher proportion of the 82 cases identified in 2002 were female and a lower proportion were less than 5 years old. In both years, cases of *S. Typhimurium* 9 occurred more frequently in the Sydney area.

Two clusters of *S. Typhimurium* 9 cases were reported in February 2002. The first cluster of seven cases were students of a boarding school identified in an outbreak of gastrointestinal disease that involved 105 students. A case-control study suggested an association between illness and eating chilli con carne and baked beans, although the mechanism of contamination remains unclear. The second cluster of cases was among people who ate at a restaurant in late February. In interviews with 19 people who were at the restaurant on 20 and 21 February, 8 reported illness within 48 hours of eating there and in 2 of these *S. Typhimurium* 9 infection was confirmed on stool testing. In a retrospective cohort study, an association between illness and eating deep fried ice cream was found. The ice cream had been battered using a tray that had earlier been used to prepare raw pork and chicken. This practice has since ceased. NSW Health staff interviewed

another 37 people infected with *S. Typhimurium* 9 cases and seven of these reported eating deep fried ice-cream at the restaurant implicated in the outbreak. The investigation continues.

Nine cases of *Salmonella* Aberdeen were notified in Victoria in the first quarter with onset of illness between 2 December 2001 and 5 January 2002. A case series investigation failed to identify a source.

Other *Salmonella* reported in the quarter include reports from around the country of infections with *Salmonella* Typhimurium phage type 170. Since late 2001 there have been an increase in the numbers of reports of this serovar, which was previously rarely isolated in Australia. Despite investigations, no disease clusters have been identified or food vehicles implicated. Some clustering of kanamycin resistant STM 170 in Victoria has been noted but without any associations with food.

Hepatitis A

On 9 January 2002, the Communicable Diseases Section was notified of a case of hepatitis A in a teacher at a child care centre in southern Victoria. Between 9 January and 11 February, 11 confirmed cases were identified amongst teachers, siblings and parents of children who attended the centre, with onsets of illness between 28 December 2001 and 9 February 2002. Control measures including providing information to families, primary schools and teachers in the area about the outbreak and prevention measures. Environmental investigations and clean-up procedures were undertaken at the centre. Recommendations for testing of potentially exposed persons for hepatitis A IgM and the receipt of immunoglobulin were based on the last possible day of exposure, incubation period of hepatitis A, and the onset dates of the confirmed cases. While immunoglobulin was recommended for the families of six cases, it was not given as parents refused or because treating doctors had given them hepatitis A vaccine instead. The NHMRC Immunisation Handbook³ recommends the administration of hepatitis A immunoglobulin in an outbreak in such a setting to all at risk. Hepatitis A vaccine may be considered as an alternative in settings where recurrent outbreaks of hepatitis A are anticipated.

Other foodborne disease

A large outbreak of food poisoning was reported in Melbourne in late March. More than 272 people sought medical care and although 15 were admitted to hospital overnight, symptoms were short-lived. The onset of gastroenteritis was within one and four hours after consumption of a meal of

rice, lamb and potatoes served at a New Year Islamic festival. *Bacillus cereus* and *Staphylococcus aureus* were confirmed as the cause of the outbreak. Inadequate storage and handling of leftover food was thought to be cause of the outbreak.⁴

A single case of a non-O1, non-139 *Vibrio cholerae* peritonitis was reported in a 48-year-old man from South Australia.

Clostridium perfringens is the suspected cause of a series of foodborne disease outbreaks in several jurisdictions linked to spit-roast meals served at functions. Investigations are continuing.

Vaccine preventable diseases

Measles

No cases of measles were reported from the Australian Capital Territory, the Northern Territory, Queensland, South Australia Western Australia or Tasmania. Prior to a single case of imported measles reported in this quarter, New South Wales had not had a case of measles for 5 months.

Pertussis

Reports of pertussis were increased overall in the first quarter compared to historical data (Table 2). Totals for January and February were the highest since 1998. Pertussis notifications in 2001 were the highest on record for New South Wales, the highest since 1995 for the Northern Territory, since 1997 for Queensland and South Australia and since 1998 for Western Australia. Pertussis activity was lower in 2001 than 2000 in the Australian Capital Territory and Tasmania and only moderately increased in Victoria.

Influenza

Two outbreaks of influenza A in aged care facilities in Victoria were reported in this quarter.⁵ The first outbreak in January occurred in a hostel with 25 cases identified (23 lab confirmed and 6 suspected). Of 42 residents, 38 (90%) had been vaccinated but only 2 of 29 (7%) of staff had received influenza vaccination. The second outbreak in March occurred in a nursing home, where 28 cases were identified (16 laboratory-confirmed and 12 suspected). Of 20 patients on whom vaccination history had been collected 18 (90%) had been vaccinated against influenza, while only 3 of 31 (10%) of staff had been vaccinated. Both outbreaks were due to influenza A (H3N2) strains related to A/Moscow/10/99, which have been components of the 2001 and 2002 Australian influenza vaccine.

In the elderly residents, influenza vaccine efficacy was calculated to be 61 per cent in preventing disease and 84 per cent in preventing hospitalisation. These figures are consistent with estimates of vaccine efficacy in the elderly. According to the NHMRC Immunisation Handbook,³ when the match between the vaccine and the circulating viral strains is close, influenza vaccination has a 70–90 per cent efficacy against illness in healthy adults aged less than 65 years. Among the over 65-year-olds, efficacy of the vaccine is 30–70 per cent in the non-institutionalised in preventing hospitalisation. In elderly people residing in nursing homes, influenza vaccine efficacy can be 50–60 per cent effective in preventing hospitalisation and up to 80 per cent effective in preventing death. Vaccine efficacy in preventing disease in institutionalised elderly, however, may be much lower.

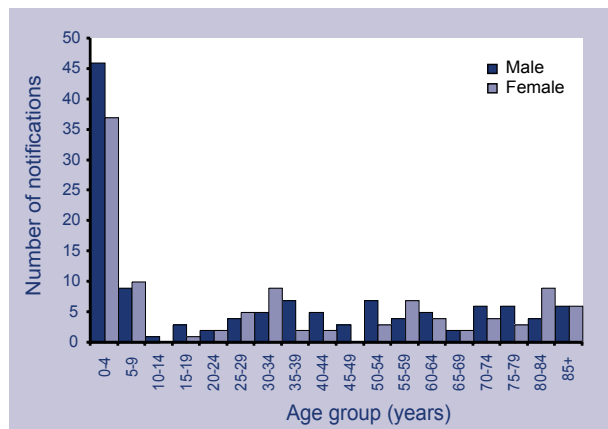
These outbreaks highlight the importance not only of maintaining high levels of vaccination in the elderly but also in their carers and contacts. A recent telephone survey of vaccination rates in health-care workers in Victoria showed that only 48 per cent overall were vaccinated with the current influenza vaccine.⁶

Invasive pneumococcal disease

Since 2001, invasive pneumococcal disease (IPD) has been a nationally notifiable disease in all jurisdictions in Australia. In total 1,663 cases were reported in 2001, although since data collection started later in some jurisdictions, figures from some States and Territories do not represent a full years total. Two hundred and forty two cases were reported in this quarter with reports from all jurisdictions except the Australian Capital Territory (Table 2). The notification rate was highest in the Northern Territory (22.2 cases per 100,000 population). The age and sex distribution is shown in Figure 4. The male to female ratio was 1.2:1. Eighty-five (35%) of cases were in children aged less than 5 years and 52 (21%) were in people aged more than 65 years.

Invasive pneumococcal disease (defined as the isolation of *Streptococcus pneumoniae* from a sterile site), most commonly presenting as meningitis or bacteraemia is a significant disease of children and the elderly in Australia.⁷ In non-Indigenous urban settings the rates of IPD are estimated at 50–100 cases per 100,000 population in the under 2 year olds and 8 to 15 cases per 100,000 population in the over 65 year olds. Indigenous communities, have higher rates of IPD disease than other settings for all age groups. Indigenous children in Central Australia have some of the highest rates of IPD disease in the world (>1,500 cases per 100,000 population).

Figure 4. Notifications of invasive pneumococcal diseases, Australia, 1 January to 31 March 2002, by age and sex



The possibility of control of pneumococcal disease by vaccination has been greatly improved by the licensing in December 2000 of a seven-valent pneumococcal conjugate vaccine (7vPCV) for use in Australia. The 7vPCV vaccine has shown an efficacy of approximately 95 per cent in preventing IPD disease due to the vaccine serotypes in children in the USA.⁸ Earlier polysaccharide pneumococcal vaccines were poorly protective in young children. A vaccination schedule has been implemented from July 2001 providing free vaccine to children identified to be at high-risk of IPD. Australian States and Territories have agreed to implement enhanced surveillance of pneumococcal disease to assess the impact of the conjugate vaccine on the rates and clinical types of invasive pneumococcal disease and the prevalence of circulating pneumococcal serotypes and levels of antibiotic resistance.

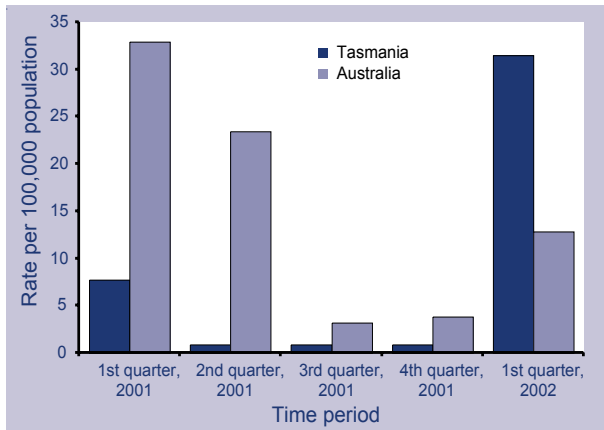
Vectorborne disease

There was an outbreak of Barmah Forest virus (BFV) disease in the Gippsland region of Victoria. Victoria received 36 notifications of BFV with onset dates between 1 January and 31 March, of which the majority came from the Gippsland region. This compares to 10 notifications with onset dates in the same period in 2001.

Reports of Ross River virus (RRV) infection were markedly reduced compared with the five-year average (Figure 1). Despite this national trend, 37 cases including 25 reports in a single week of RRV infection were recorded in Tasmania.⁹ In 2002, the year to date total for RRV in Tasmania exceeds the full year totals for each of the past two years. The notification rates for RRV in Tasmania compared with rates for Australia are shown in Figure 5. The increase is believed to be partly due to heavy spring rains last year which increased mosquito breeding.

Municipalities in southeast coastal areas of Tasmania have reported the largest proportion of cases.¹⁰

Figure 5. Rate of notification for Ross River virus, Australia and Tasmania, 2001 to 2002, by quarter of report



Three suspected cases of Murray Valley encephalitis virus (MVE) infection reported from Western Australia await confirmation. Sentinel chicken seroconversions to MVE were reported in Western Australia and the Northern Territory in February and health authorities warned residents in tropical areas to take precautions to avoid being bitten by mosquitoes.¹¹

A cluster of 18 confirmed cases of dengue occurred in March in North Queensland. All the cases were dengue serotype 2 and transmission was localised to an area with high numbers of *Aedes aegypti*, the vector for the disease. The index case was infected overseas as dengue is not endemic in Australia. Because the mosquito vector is present in North Queensland, imported cases have previously caused local outbreaks as occurred in Townsville and Charters Towers in 1992/1993 (dengue type 2) and in Cairns in 1997/998 (dengue type 2 and 3).¹² Mosquito control activities in response to the present outbreak were instituted and there were no more cases after the end of March. During the first quarter of 2002, dengue has been reported at record numbers in Brazil, Indonesia and the South Pacific.¹³

Zoonoses

In this quarter, the Northern Territory reported the first ever case of Q fever since NNDSS began in 1991. The case appears to be locally acquired and although no risk factors were identified, the patient was a delivery driver who handled frozen and packaged meat and who travels regularly near stockyards.

Other bacterial infections

Meningococcal disease

On Friday 25 January 2002, South Western Sydney Public Health Unit (SWSPHU) notified the Communicable Diseases Unit of the death of a 21-year-old South Western Sydney man from suspected invasive meningococcal disease. The man was taken by ambulance to the hospital on 24 January after collapsing at his home. He had a 3-day history of sore throat but had been otherwise well. A rash was noted and a diagnosis of meningococcal disease was made. Despite aggressive intervention, the man died. In the 7 days prior to the onset of his illness, the man had been on a cruise to the South Pacific. The cruise ship carried over a thousand passengers from all over Australia.

SWSPHU identified over 50 close contacts of the man who may have been at increased risk of disease, and provided them with information about the disease and with antibiotics to help prevent its further spread. The Communicable Diseases Unit informed other local Public Health Units (PHUs) and other States and Territories about the case. Shortly after, the South Australian Health Department reported that a South Australian man on the same cruise had been diagnosed with meningococcal disease on 22 January 2002. The man's close contacts had been contacted and given antibiotics.

No direct personal link between the cases was established. The cruise operator agreed to contact all passengers and crew from the ship to tell them about these events and about meningococcal disease. NSW Health set up a hotline providing general information to the public, issued media releases, and conducted regular media interviews to update the public on events. Passengers were alerted to seek medical attention if they develop symptoms of the disease. As a result of the public warnings, several other passengers were investigated for possible meningococcal infection, but in none of these was the diagnosis confirmed.

LabVISE

Chlamydia trachomatis

In this quarter, there were reports of an infectious conjunctivitis in remote communities in the Northern Territory that was subsequently confirmed as *Chlamydia trachomatis*. Thirty-three cases were recorded in LabVISE. Although trachoma has been eradicated from many communities in Australia, the disease persists in areas where living standards are inadequate and where personal and community hygiene is poor. The implementation of the 'SAFE' strategy (Surgery, Antibiotics, Facial cleanliness and Environmental improvement) in communities where trachoma persists is an urgent priority.¹⁴

Other communicable diseases

Melioidosis

Melioidosis, a disease caused by infection with *Burkholderia pseudomallei*, is endemic in tropical northern Australia. The disease is notifiable in Queensland, Western Australia and the Northern Territory but is not notifiable to NNDSS. The prevalence of the disease is increased in areas of high rainfall and underlying conditions such as diabetes are important risk factors. The article by Faa *et al* (*CDI* this issue) shows that the incidence of melioidosis in the Torres Strait is among the highest in the world. In the first quarter 2002, there were 12 cases reported in Queensland, including 2 deaths. This compares with 8 cases in all of 2001 and 38 cases in 2000.¹⁵ By contrast, 9 cases were reported from the Northern Territory, a lower rate than usual. These differences would seem to be reflective of high rainfall in Queensland and late and reduced rainfall in the Northern Territory during this period. Three cases were reported in WA including a death in a 22-year-old male who had been backpacking in the Northern Territory.

With thanks to:

Dr Linda Selvey and Dr Robyn Pugh, Queensland Health.

Dr. Jeremy McAnulty, NSW Health.

Joy Gregory and Kerry-Ann O'Grady, Department of Human Services, Victoria.

Dr. Peter Markey and Dr. Vicki Krause, Centre for Disease Control, Northern Territory.

Dr. Rod Givney, Communicable Disease Control Branch, South Australia.

Dr Heather Gidding, National Centre for Immunisation Research and Surveillance.

Carolien Giele of the Communicable Disease Control Branch, Health Department of Western Australia.

Avner Misrachi of the Department of Health & Human Services, Tasmania

References

1. Robertson B, Sinclair M, Willis J, et al. Case-control studies of sporadic cryptosporidiosis in Melbourne and Adelaide. *Victorian Infectious Diseases Bulletin* 2001;4:49-51.
2. Hellard ME, Sinclair MI, Forbes AB, Fairley CK. A randomized, blinded, controlled trial investigating the gastrointestinal health effects of drinking water quality. *Environmental Health Perspectives* 2001;109:773-778.
3. National Health and Medical Research Council. The Australian immunisation handbook. 7th ed. Canberra: Australian Government Publishing Services, 2000.
4. Food Poisoning – Australia (Victoria). ProMed Mail (www.promedmail.org), 26 March 2002, Archive Number: 20020326.3823.
5. Influenza, aged-care facilities – Australia. ProMed Mail (www.promedmail.org), 9 April 2002, Archive Number: 20020409.3920.
6. Murray SB, Skull SA. Poor health care worker vaccination coverage and knowledge of vaccination recommendations in a tertiary Australian hospital. *Aust N Z J Public Health* 2002;26:65-68.
7. Gilbert GL. Retreat of the pneumococcus? *Med J Aust* 2000;173:S20-S21.
8. Black S, Shinefield H, Fireman B. Efficacy, safety and immunogenicity of heptavalent pneumococcal conjugate vaccine in children. *Pediatr Infect Dis J* 2000;19:187-195.
9. Ross River Virus – Australia (Tasmania). ProMed Mail (www.promedmail.org), 11 April 2002, Archive Number: 20020410.3927.
10. Ross River Virus – Australia (Tasmania) (02). ProMed Mail (www.promedmail.org), 25 April 2002, Archive Number: 20020427.4042.
11. Murray Valley encephalitis – Australia (Queensland). ProMed Mail (www.promedmail.org), 14 March 2002, Archive Number: 20020313.3738.
12. Mackenzie JS, Broom AK, Hall RA, et al. Arboviruses in the Australian region, 1990 to 1998. *Commun Dis Intell* 1998;22:93-100.
13. Dengue/DHF updates (14). ProMed Mail (www.promedmail.org), 12 April 2002, Archive Number: 2002.0412.3945.
14. Taylor HR. Trachoma in Australia. *Med J Aust* 2001;175:371-372.
15. Melioidosis – Australia (Queensland). ProMed Mail (www.promedmail.org), 14 March 2002, Archive Number: 20020313.3732.