

Communicable diseases surveillance

Highlights for 2nd quarter, 2003

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 quarter.

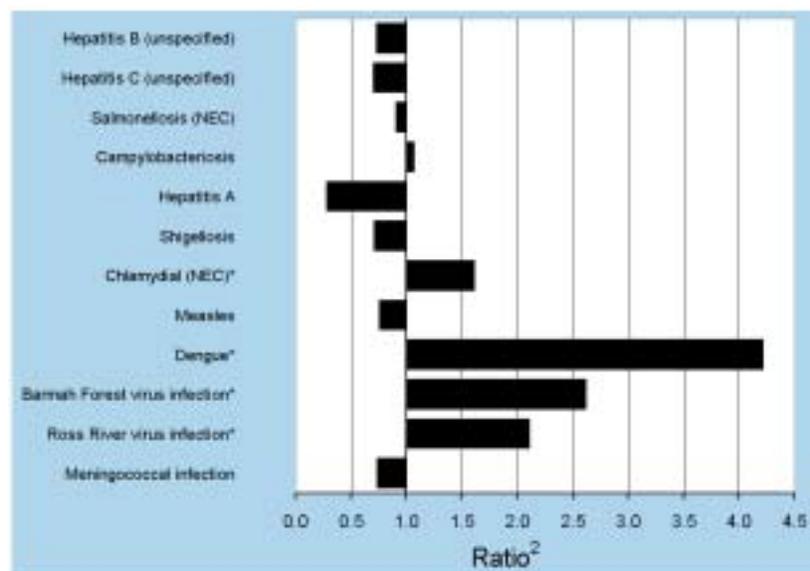
The NNDSS is conducted under the auspices of the Communicable Diseases Network Australia. NNDSS collates data on notifiable communicable diseases from State or Territory health departments. The Virology and Serology Laboratory Reporting Scheme (LabVISE) is a sentinel surveillance scheme which collates 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 second quarter of 2003, compared with the 5-year second 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 quarter in the last five years were dengue, Ross River virus infection, Barmah Forest virus infection and Chlamydial (NEC) infections. The rest of notifiable diseases were within the expected range (2 standard deviations) of the five year second quarter mean (Figure 1).

Foodborne disease outbreaks

This quarter's highlights incorporates the OzFoodNet quarterly report for the second quarter of 2003. Data were received from all OzFoodNet sites. During the second quarter of 2003, OzFoodNet sites reported 61 outbreaks of gastrointestinal infections of which 11 were either confirmed or suspected to be foodborne (Table 1). These 11 outbreaks affected 174 identified persons but the number of persons not identified may be considerably higher. The agent responsible for three outbreaks was unknown.

Figure 1. Selected¹ diseases from the National Notifiable Diseases Surveillance System, comparison of provisional totals for the period 1 April to 30 June 2003 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.

Disease outbreaks associated with the consumption of fish

Three of the outbreaks, which occurred in home settings, were associated with the consumption of fish: escolar, cod head and giant trevally. The Australian Capital Territory OzFoodNet site reported an outbreak of a diarrhoea following the consumption of escolar fish by three members of one family. Escolar is an ocean fish which is caught as a by-catch from tuna longlines. Consumption of escolar causes oily diarrhoea in 45 to 67 per cent of people due to a high per cent of indigestible wax-ester oil content.¹⁻⁵

Two outbreaks of ciguatera poisoning following the consumption of cod head and giant trevally were reported from Queensland. Ciguatera poisoning causes neurological symptoms and is mainly reported in Queensland and the Northern Territory. The disease is associated with the consumption of fish contaminated by algal dinoflagellate associated with coral reefs. Ciguatoxin is concentrated in the liver, roe, head and other viscera of the fish and is thermostable, that is; it can not be destroyed by cooking or freezing. In 2002 OzFoodNet reported four outbreaks of ciguatera poisoning in home settings following the consumption of coral trout, Spanish mackerel, spotted mackerel and barracuda. These outbreaks resulted in 11 hospitalisations and one death.⁶ A large outbreak of ciguatera poisoning in a restaurant setting was reported in Victoria in 1997.⁷

Clostridium perfringens

The Victorian OzFoodNet site reported two diarrhoea outbreaks in nursing homes, affecting 14 residents in one and 12 in another. Stool samples (four and three from each outbreak) tested positive for *C. perfringens*. Whilst no enterotoxin was detected in the faecal specimens, the symptoms, duration of illness and isolation of the organism in the faeces, were consistent with *C. perfringens* as the cause of illness. Heather O'Donnell, Communicable Diseases Section, Victorian Department of Human Services, said that site investigations conducted by local Council and Regional Environmental Health Officers could not identify specific food sources, but identified poor food handling and storage (cooling) practices in one of the outbreak sites and deficiencies in food safety plan in the other.

In Mackay, Queensland an investigation of an outbreak of gastrointestinal illness in a cohort of 30 guests at a catered function, identified *C. perfringens* as a suspected agent of illness. Sixty-three per cent of guests (n=19) reported diarrhoea and abdominal cramps. Russell Stafford, OzFoodNet Epidemiologist in Queensland said that a retrospective cohort study identified curried prawns as the likely food vehicle. Whilst the *C. perfringens* spore-count from stool

samples was not diagnostic, the median incubation period (13 hours), symptomatology and isolation of the bacteria from stool samples, were suggestive of *C. perfringens*.

C. perfringens is a spore-forming bacillus, ubiquitous in the environment and a frequent contaminant of meat. It can survive high temperatures by sporulating during initial cooking; its spores germinate during cooling of the food, and vegetative forms of the organism multiply if the food is subsequently held at temperatures of 16° C – 52° C.⁸ If served without adequate reheating, live vegetative forms of *C. perfringens* may be ingested causing the characteristic symptoms. Gastrointestinal illness outbreaks associated with *C. perfringens* occur in institutions where food is prepared in bulk increasing the likelihood of poor holding or reheating.

Salmonella

There were 1,568 reports of salmonellosis received by the National Notifiable Diseases Surveillance System (NNDSS) during the second quarter of 2003, representing a 43 per cent reduction in notifications from the previous quarter and a 22 per cent reduction from the same quarter last year. Queensland and New South Wales OzFoodNet sites each reported one outbreak of *Salmonella* infection (Table 1).

In Queensland, an outbreak of *S. Typhimurium* U307 infection, associated with eating at two Sunshine Coast surf clubs was investigated. There were 15 laboratory-confirmed and six probable cases identified during the investigation. Microbiological testing of food and condiment samples, environmental swabs and faecal specimens from 36 food handlers were negative for *Salmonella*. A case control study, identified roast pork (OR 12.0, 95%CI 1.6-91.1, p=0.03) as the likely source of infection. In 2002, *S. Typhimurium* U307 was among the top 10 *Salmonella* infections reported in the Hunter, New South Wales.⁹

In New South Wales, the South Western Sydney Public Health Unit investigated an outbreak of gastrointestinal illness among 112 persons attending a birthday party held at a restaurant on 25 May 2003. Fifty-one per cent (n=57) of attendees reported illness, including diarrhoea, vomiting, abdominal pain, nausea, headache, fever and chills with onset on 26 May. Among persons who reported ill, 86 per cent (n=49) consulted medical practitioners and 9 per cent (n=5) were hospitalised. Microbiological testing isolated *S. Typhimurium* 99 from all stool samples tested (n=26) and from samples of pigeon meat consumed at the party. Leonie Neville, OzFoodNet Epidemiologist in New South Wales said that steps had been taken to educate the food handlers at the venue. In the past *S. Typhimurium* 99 has been linked to the consumption of lamb's fry at a local hotel buffet in southern Victoria.¹⁰

Table 1. Outbreaks reported by OzFoodNet sites, Australia, April to June 2003

State	Setting	Agent responsible	Number exposed	Number affected	Evidence	Responsible vehicle
ACT	Home	Escolar fish	3	3	D	Escolar fish
NSW (Hunter)	Restaurant	Unknown	Unknown	24	D	Unknown
NSW	Restaurant	<i>Salmonella</i> Typhimurium 99	112	57	M	Pigeon meat
NT	–	–	–	–	–	–
Qld	Catered function	<i>Clostridium perfringens</i>	Unknown	19	C	Curried prawns
	Restaurant	<i>Salmonella</i> Typhimurium U307	Unknown	21	D & CC	Unknown
	Home	Ciguatera		2	D	Cod fish heads
	Home	Ciguatera		5	D	Giant Trevally
SA	–	–	–	–	–	–
Tas	–	–	–	–	–	–
Vic	Nursing Home	<i>Clostridium perfringens</i>	110	14	D	Unknown
	Nursing Home	<i>Clostridium perfringens</i>	unknown	12	D	Unknown
	Restaurant	Unknown	40	7	D	Unknown
WA	Catered function	Unknown	Unknown	10	D	Meat suspected

* D= Descriptive Study; M=Microbiological evidence; C=Cohort study; CC=Case control study

Campylobacter

There were 3,307 reports of campylobacteriosis infection received by the NNDSS in the second quarter of the year; a decrease of 26 per cent from the last quarter but an increase of 3 per cent from the same quarter last year. No disease outbreaks were associated with campylobacteriosis in this quarter of 2003.

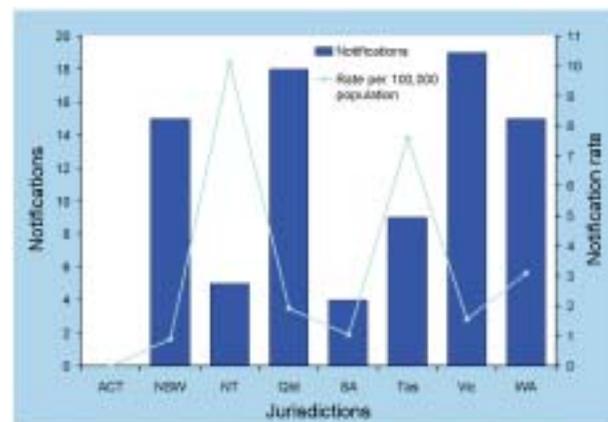
Hepatitis A

There were 85 hepatitis A cases reported with an onset in the second quarter of 2003; 72 per cent lower than the mean number of notifications of the same quarter for the last five years (Figure 1), and 26 per cent lower than the number of notifications received during the first quarter of 2003. The national notification rate in this quarter was 1.7 cases per 100,000 population. The Northern Territory had the highest notification rate at 10 cases per 100,000 population (Figure 2); representing a 73 per cent reduction from the number of notifications reported in the Northern Territory during the first quarter.

Multi-jurisdiction hepatitis A outbreak investigation

Twenty-five per cent of cases notified during the second quarter were linked to a hepatitis A outbreak that occurred at an interstate gathering in the Northern Territory.

Figure 2. Number of notifications and notification rate per 100,000 population of hepatitis A, Australia, April to June 2003, by jurisdiction



On 29 May 2003 OzFoodNet and the Communicable Diseases Network Australia (CDNA) initiated a multi-state/territory outbreak investigation of the disease. The investigation was triggered by the identification by Tasmanian health authorities of six cases of hepatitis A infection in people who had attended a public gathering of 300 persons in the Northern Territory between 24 and 27 April 2003. Persons from Queensland, Tasmania, Victoria, New South

Wales and Western Australia attended the gathering. Public health authorities contacted all exposed persons in their jurisdiction in order to identify cases and to offer prophylaxis to prevent secondary cases among their contacts. The CDNA had also issued a health alert to the public. Rosie Ashbolt, OzFoodNet Epidemiologist in Tasmania said that 21 cases were identified: 8 of 111 persons who attended the Northern Territory gathering from Tasmania, 8 of 75 persons from Queensland, 4 of 47 persons from Victoria and 1 of 45 persons from New South Wales. Two cases were hospitalised. No new cases have been reported since 13 June.

Hepatitis A is commonly spread from person to person via close contact or from food or water that had been inadvertently contaminated by infected persons. Rosie Ashbolt said that the investigation, which included serological testing of food handlers, testing of water samples, food samples and a site investigation by a Northern Territory environmental health officer, did not reveal any likely sources of contamination. Health authorities conducted a national cohort study to determine the likely source for the outbreak and data are currently being analysed. In 2002, overseas travel and household contact with a confirmed case were the main risk factors hepatitis A infection.¹¹

Vaccine preventable diseases

Measles

Twenty-six measles cases, 18 in Victoria, five in New South Wales, two in South Australia and one in Queensland were reported in the second quarter. No cases of measles with onset in this period were reported from Tasmania, the Northern Territory, the Australian Capital Territory or Western Australia.

In New South Wales, two unrelated cases of measles in young adults were reported in April and a cluster of three cases was reported in June. The index case in the cluster was a 29-year-old male whose exposure was suspected to have occurred during recent travel in Nepal. The two secondary cases were a six-week-old male and his 27-year-old father. Mark Bartlett, Communicable Diseases Branch NSW Health Department, said that the outbreak is ongoing with further transmission past the two secondary cases noted for the period of this report.

The two cases in South Australia were linked to each other with the index case having a history of travel to South Africa.

Three cases in Victoria were linked to a measles (Genotype H1) outbreak geographically clustered around two towns in central northern Victoria that started in the first quarter of the year, bringing the

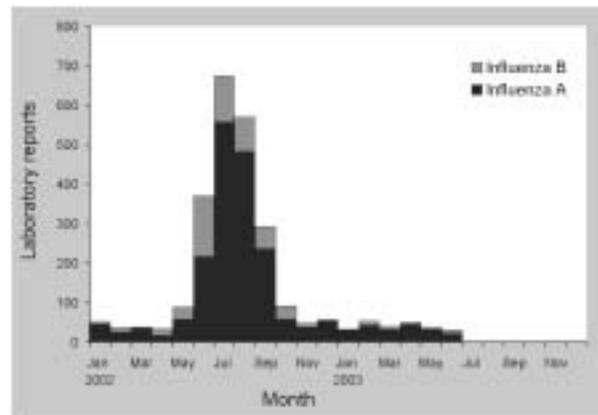
number of cases in the outbreak to 20 cases, including three unvaccinated children. The disease mostly affected adults and resulted in three generations of infections. No new cases linked to the outbreak had been reported since April 2003. However, in the same state, in April, 11 cases of measles including a vaccinated two-year-old and a nine-month-old, were linked to a cluster of measles (Genotype D8) in Western metropolitan Melbourne. The index case in this cluster was a student who travelled to Australia from Germany via Singapore.

The exposure history of the measles cases in Queensland was not known.

Influenza

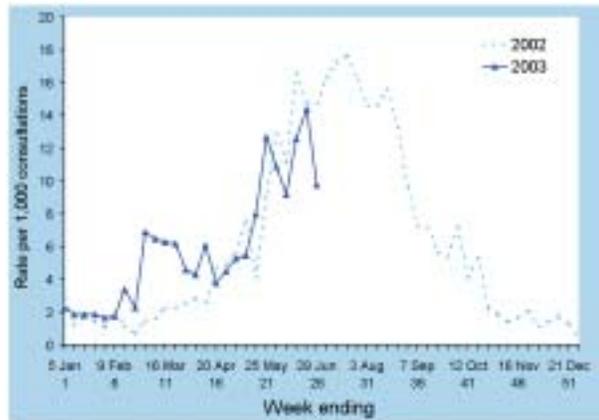
There were 121 notifications of laboratory-confirmed influenza reported to the NNDSS in the quarter, a 31 per cent rise from the previous quarter but an 84 per cent decrease from the second quarter of 2002. Reports to LabVISE this quarter show that the ratio of influenza A to B remained stable at 4:1 (Figure 3).

Figure 3. Laboratory reports of influenza A and B to LabVISE, Australia, 2002 to 2003, by month of specimen collection



The low level of influenza activity this quarter was reflected in the reports from the Australian Sentinel Practice Research Network (ASPREN). Presentations of 'influenza-like illness' (ILI) during the week ending on 29 June (week 26) were 9.8 cases per 1,000 consultations. The highest rate per 1,000 consultations this year to date was 14.4, reported in the week ending on 15 June 2003 (Figure 4). ASPREN is a network of general practices, that collects data on clinical presentations of ILI from between 35 and 70 practices per week, located mostly on the east coast of Australia.

Figure 4. Comparison of consultation rates of influenza-like illness reported to the Australian Sentinel Practice Research Network, in 2002 to 2003, by week



Influenza activity in the tropical north of Australia was reported to be at base line level during the quarter. The Northern Territory Tropical Influenza Surveillance reported a decrease in ILI rates since the peak rate of ILI consultations (21 cases per 1,000 consultations) during week 14 (7 April). No ILI was reported in the period between 9 May and mid-June.

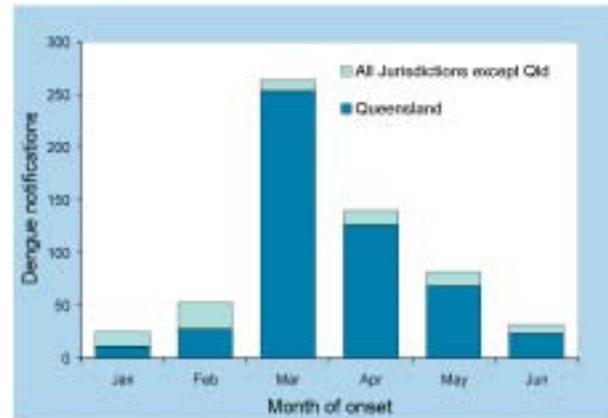
Vectorborne diseases

Dengue

The number of dengue notifications continued to exceed the mean number of notifications for the second quarter in the last five years (Figure 1). There were 247 cases reported to NNDSS in the second quarter of 2003. Of these 211 (85%) notifications were in Queensland (Figure 5) and 17 (7%) in New South Wales. In Queensland, this number of notifications represents a 27 per cent reduction from the previous quarter, when a number of dengue outbreaks were reported in the state. The first outbreak of dengue type 2 occurred in Cairns, two other dengue type 2 outbreaks were identified in Townsville and Mareeba and a fourth, a dengue type 1 outbreak, occurred in Cairns. Despite different serotypes of dengue viruses circulating in the area (the 1997-1999 Cairns dengue outbreak was of dengue type 3), there has been no dengue haemorrhagic fever cases or deaths to date.

The Cairns Public Health Unit continued public health activities during the second quarter of the year to curtail the dengue outbreak. This has significantly contributed to the decline in the number of cases in the second quarter of the year. The Dengue Action Response Team undertook inspections of premises for mosquito breeding sites, and interviewed potential cases. Local general practitioners were alerted to look for symptoms, and numerous media alerts were

Figure 5. Cairns dengue fever outbreak, Australia, 1 January to 14 July 2003, by onset date



issued to raise public awareness. Craig Davis, Epidemiologist, Queensland Health, said that although the extent to which increased serological testing for dengue may have resulted in increased number of notifications in Queensland is not known, it is likely to have had some impact.

Barmah Forest virus infection and Ross River virus infection

The number of notifications for Barmah Forest virus infection and Ross River virus infection during the second quarter of 2003 was 715 (15 cases per 100,000 population) notifications and 2,267 (46 cases per 100,000 population) notifications, respectively. These numbers surpassed the mean plus two standard deviation of the number of notifications for the second quarter in the last five years (Figure 1).

Sixty-nine per cent of Barmah Forest virus infection notifications and 84 per cent of Ross River virus infection notifications were received from Queensland, where the notification rates for Barmah Forest virus infection and Ross River virus infection were 52 cases per 100,000 population and 203 cases per 100,000 population, respectively. While a late autumn increase in notifications was expected in this state, the size of the increase was higher than expected. Increases on previous years were widespread, although the highest rates (more than one third of all notifications) were recorded in the Statistical Divisions of Fitzroy and West Moreton (Figures 6a and 6b). Information obtained from Queensland public health units suggests that media releases in early April 2003 regarding the increases of Barmah Forest and Ross River virus infections and vector control activity in the Sunshine Coast area (Moreton Statistical Division) may have contributed to increased testing and notifications compared with previous years.

New South Wales contributed 30 per cent of Barmah Forest virus infection and 12 per cent of Ross River virus infection to the notifications received by the NNDSS in the second quarter of 2003. Mark Bartlett, Communicable Diseases Branch, NSW Health Department, said, that 85 per cent of Barmah Forest virus infection and 79 per cent of Ross River virus infection notifications occurred on the far north coast of New South Wales. This area is adjacent to the affected south east corner of Queensland where these two vectorborne diseases are endemic (Figures 6a and 6b).

In response to the rise in the number of cases throughout April and May, the Public Health Unit in the north coast region of New South Wales intensified media messages about arboviruses and personal protective measures against mosquito bites. Currently, it is organising a forum involving health agencies, medical entomologists and Councils, to look at human activity and environmental management in relation to vectorborne diseases.

Meningococcal infections

There were 101 notifications of meningococcal disease in the quarter, an increase of 15 per cent from the last quarter but a decrease of 41 per cent from the same quarter last year, and 30 per cent less than the mean of the same quarter for the last five years (Figure 7). For the year to date (30 June 2003) 189 cases of meningococcal disease resulting in eight deaths, were reported to the Communicable Disease Network Australia. Of the eight deaths, three were due to serotype B infection and five due to serotype C infection. As at June 2003, 32 per cent of all isolates were typed. The serotype B to C ratio for the year to date nationally was 1.5:1; however Victoria reported a higher proportion of cases of serotype C than serotype B.

Figure 7. Meningococcal notifications, Australia, 1992 to 2003, by year and month of onset

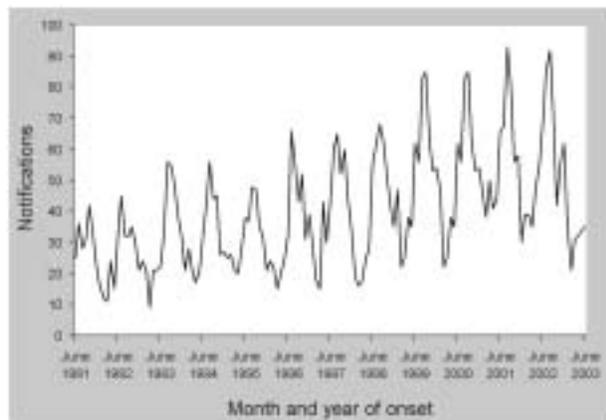


Figure 6a. Geographic distribution of notified cases of Barmah Forest virus infection in Queensland, Australia, April to June 2003

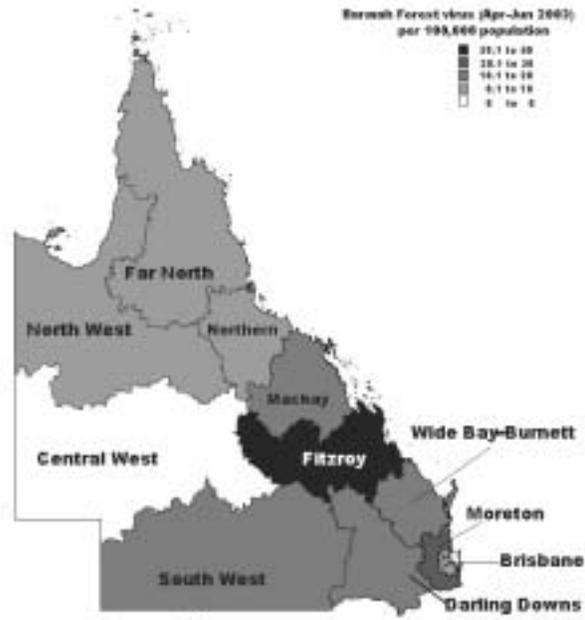
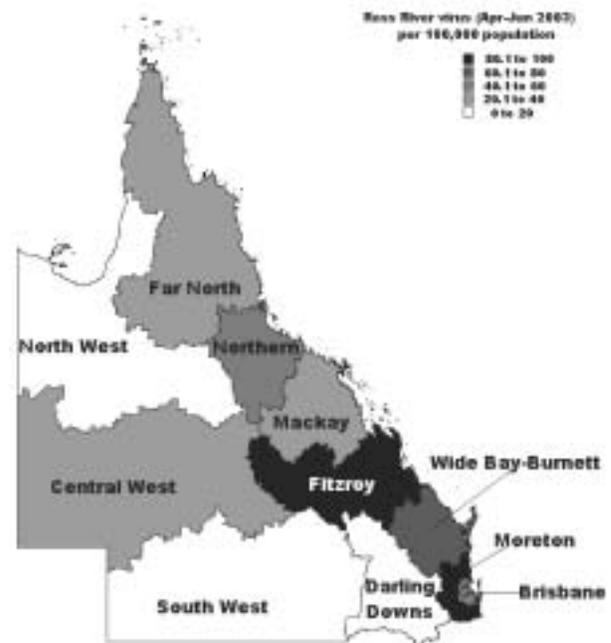


Figure 6b. Geographic distribution of notified cases of Ross River virus infection in Queensland, Australia, April to June 2003



With thanks to:

Craig Davies, Queensland Health,

Megan Counahan and Heather O'Donnell, Department of Human Services, Victoria

David Coleman, Department of Health and Human Services, Tasmania

Mark Bartlett, New South Wales Health Department

Rosie Ashbolt, OzFoodNet, Tasmania

Russell Stafford, OzFoodNet, Queensland

Joy Gregory, OzFoodNet, Victoria

Leonie Neville, OzFoodNet, New South Wales

Geoff Millard, OzFoodNet, Australian Capital Territory

References

1. Nichols P, Mooney B, Elliot N. Unusually high levels of non-saponifiable lipids in the fishes escolar and rudderfish identification by gas an thin-layer chromatography. *J Chromatographer A* 2001;936: 183-191.
2. Shadbolt C, M K, Roche P. Diarrhoea associated with consumption of escolar (rudderfish). *Commun Dis Intell* 2002;26:436-438.
3. Gregory JE. Outbreaks of diarrhoea associated with butterfish in Victoria. *Commun Dis Intell* 2002;26: 439-440.
4. Givney C. Illness associated with rudderfish/escolar in South Australia. *Commun Dis Intell* 2002;26: 440-441.
5. Yohannes K, Dalton CB, Halliday L, Unicomb LE, Kirk M. An outbreak of gastrointestinal illness associated with the consumption of escolar fish. *Commun Dis Intell* 2002;26:441-445.
6. Ashbolt R, Givney R, Gregory JE, Hall G, Hundy R, Kirk M, *et al.* Enhancing foodborne disease surveillance across Australia in 2001: the OzFoodNet Working Group. *Commun Dis Intell* 2001;26:375-406.
7. NG S, Gregory J. An outbreak of ciguatera fish poisoning in Victoria. *Commun Dis Intell* 2000;24: 344-346.
8. Hall H, Angelott R. *Clostridium perfringens* in meat and meat products. *Appl Microbiol* 1965;13:352-357.
9. OzFoodNet Working Group. Foodborne disease in Australia: incidence, notifications and outbreaks. Annual report of OzFoodNet Working Group, 2002. *Commun Dis Intell* 2003;27:209-243.
10. Greig J, Lalor K, Ferreira C, McCormick E. An outbreak of *Salmonella* Typhimurium phage type 99 linked to a hotel buffet. *Commun Dis Intell* 2001;25: 277-278.
11. Blumer C, Roche P, Spencer J, Lin M, Milton A, Bunn C, *et al.* Australia's notifiable diseases status, 2001. *Commun Dis Intell* 2003;27:1-78.