Communicable diseases surveillance

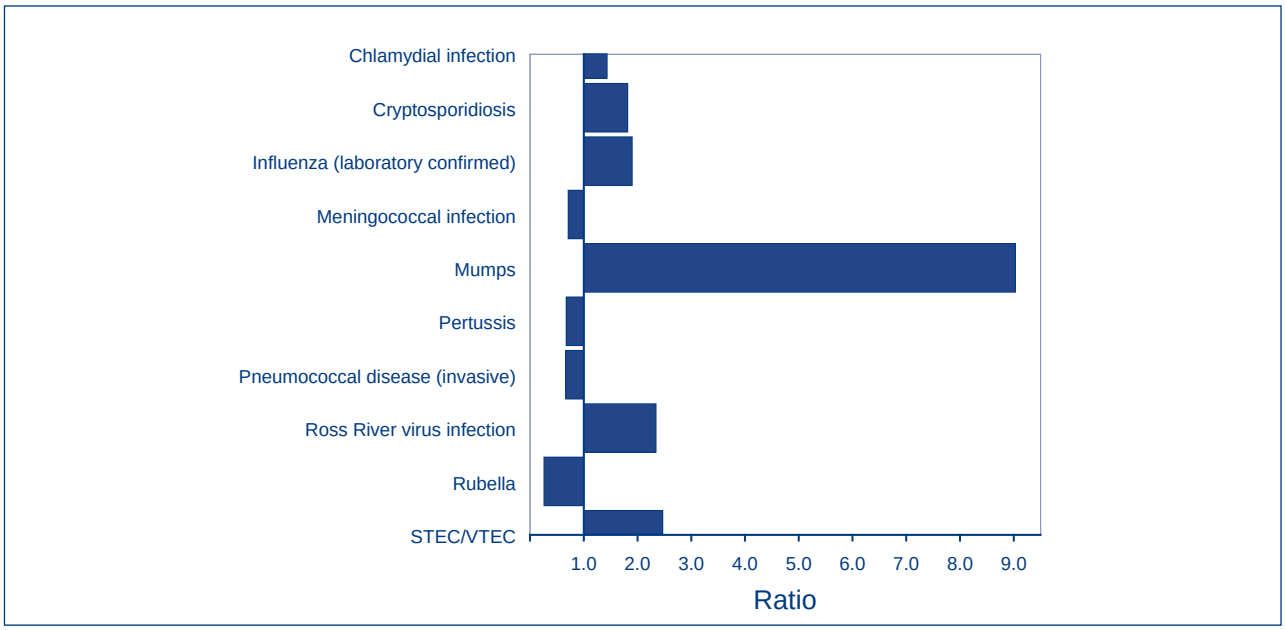
Highlights for 4th quarter, 2007

Communicable diseases 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 and 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' while data from the LabVISE scheme are referred to as 'laboratory reports'.

Figure 1 shows the changes in selected disease notifications to the National Notifiable Diseases Surveillance System (NNDSS) with an onset in the fourth quarter (October to December) 2007, in comparison with the five-year mean for the same period. Notifications were above the five-year mean for chlamydial infections, cryptosporidiosis, influenza (laboratory confirmed), mumps, Ross River virus and Shiga toxin-producing/verotoxin-producing *Escherichia coli* (STEC/VTEC). Notifications were below the five-year mean for meningococcal infection, pertussis, invasive pneumococcal disease and rubella.

Figure 1. Selected* diseases from the National Notifiable Diseases Surveillance System, comparison of provisional totals for the period 1 October to 31 December 2007 with historical data*



* Selected diseases are chosen each quarter according to current activity. Five year averages and the ratios of notifications in the reporting period in the five year mean should be interpreted with caution. Changes in surveillance practice, diagnostic techniques and reporting, may contribute to increases or decreases in the total notifications received over a five year period. Ratios are to be taken as a crude measure of current disease activity and may reflect changes in reporting rather than changes in disease activity. See Table 1 for all diseases.

† Ratio of current quarter total to mean of corresponding quarter for the previous five years.

Gastrointestinal diseases

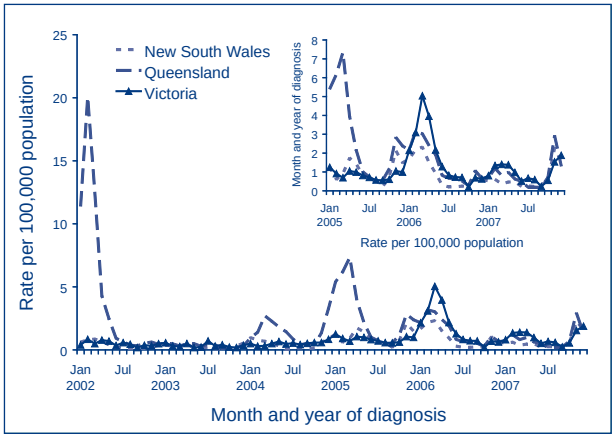
Cryptosporidiosis

There were 805 notifications of cryptosporidiosis between 1 October and 31 December 2007, which was 80% higher than the five-year mean for previous corresponding quarters. All jurisdictions reported cases during the fourth quarter, with the majority from New South Wales (300), Queensland (207) and Victoria (207) (Figure 2).

The total for the quarter represented a substantive increase from the previous quarter and the same quarter for 2006. Notifications of cryptosporidiosis peak in the summer months, with increases in notifications commencing in the fourth quarter and peaking in the first quarter of the following year.

New South Wales reported 37% (300) of the total number of cases reported nationally. Over a third of the New South Wales cases notified were in the age range of 1 to 4 years. A range of possible risk factors reported in a New South Wales media release included: contact with farm animals, consumption of untreated water and swimming; however there were no significant common source outbreaks identified.[1]

Figure 2. Notification rates of cryptosporidiosis, New South Wales, Queensland and Victoria, 2002 to 2007



Haemolytic uraemic syndrome

Haemolytic uraemic syndrome (HUS) is a rare condition characterised by progressive renal failure associated with microangiopathic haemolytic anaemia (red blood cell destruction), and thrombocytopaenia (platelet reduction and bleeding into the skin). HUS can occur following a variety of associated diseases, diarrhoeal and non-diarrhoeal. Diarrhoeal associated disease is the most common cause of HUS, specifically, infections associated with *Shigella dysenteriae* type 1 and, most commonly, STEC/VTEC.[2]

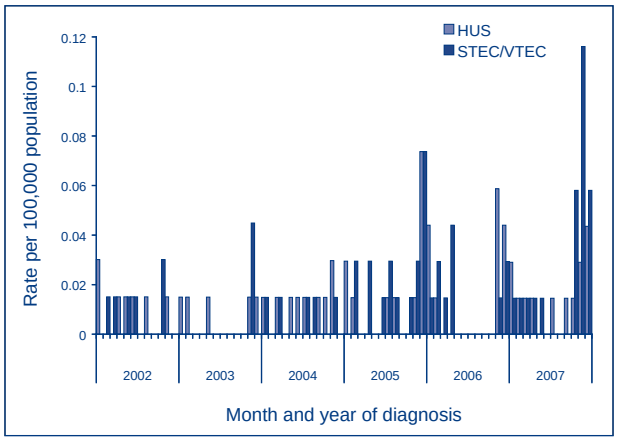
Reporting of a confirmed case of HUS on the NNDSS requires clinical evidence based on acute microangiopathic anaemia on a peripheral blood smear and either acute renal impairment or thrombocytopaenia.[3]

Approximately 10% of persons with an infection of STEC/VTEC will go on to develop this condition.[4,5] Where STEC/VTEC is isolated in the context of HUS, they are notified as both STEC/VTEC and HUS in NNDSS.

There were seven cases of HUS notified in the fourth quarter of 2007. This was 16% higher then the five-year mean for the corresponding period. Six of the cases notified were in New South Wales, however no common associations or exposures were identified between the cases.

Of these six HUS cases notified in New South Wales, one case was co-notified with a STEC infection. The number of STEC/VTEC cases notified during this period was 41, New South Wales notified 39% (16) of these cases, and nationally this was 2.5 times the five-year mean for the corresponding period. Figure 3 shows the notification rates of HUS and STEC/VTEC in New South Wales between 2002 and 2007.

Figure 3. Notification rates of haemolytic uraemic syndrome and Shiga toxin-producing/verotoxin-producing *Escherichia coli*, New South Wales, 2002 to 2007



Quarantinable diseases

Cholera

Cholera is one of eight human diseases that are currently subject to quarantine controls in Australia. The notifiable serogroups for cholera are toxigenic *Vibrio cholerae* O1 and O139.[3] Although there are over 200 *V. cholerae* serogroups, non-O1 and non-O139 groups rarely elaborate cholera enterotoxin.[4]

One case of cholera was notified in Queensland during the fourth quarter of 2007. The case was a 46-year-old female who acquired the infection whilst travelling through India as part of a tour group. The infecting organism was identified as toxigenic *Vibrio cholerae* O1 Ogawa. Investigations undertaken by Queensland Health noted that other members of the tour group also became ill during the tour, however no additional cases were discovered in Australia.

This case represented one of three cholera notifications that were reported in Australia in 2007. The average number of cases over the last five years was 3.4 cases per year.

Vaccine preventable diseases

Mumps

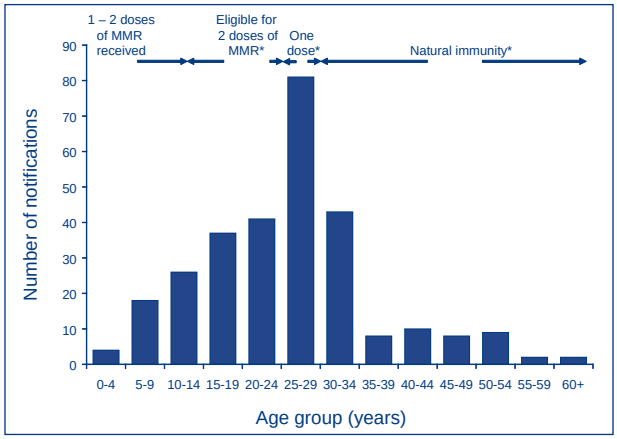
During the fourth quarter of 2007, 290 cases of mumps were reported. Over half of the cases notified to NNDSS (155) were from New South Wales. Western Australia reported 86 cases (30%) and the Northern Territory reported 32 cases (11%). In comparison to the five-year mean for the corresponding period (32.2), the fourth quarter of 2007 was nine times higher and exceeded the 95th percentile of the five-year mean by 233 cases.

In Western Australia, 86 cases of mumps were notified during the quarter. The majority of these cases (76, 88%) were from the Kimberley region, and almost all were Indigenous persons (71, 93%); and aged between 10 and 29 years (54, 71%). Some of the Indigenous cases had epidemiological links to cases in a Northern Territory outbreak. Of all cases notified in the Kimberley region of Western Australia, 38 (50%) were fully vaccinated, 10 (13%) were partially vaccinated, 9 (12%) were not vaccinated and information was unknown, not applicable or missing for 22% of cases.

Ten of the cases reported in the Northern Territory occurred in students at a boarding school. Following public health investigation, it was noted that these cases were likely to have received early immunisation with the measles-mumps-rubella (MMR) vaccine at 9–10 months of age. This was consistent with historical recommendations in the Northern Territory, which no longer apply.

The current National Immunisation Program Schedule recommends two doses of MMR at 12 months and at four years, unless there is a contraindication. The efficacy following immunisation at less than 12 months may be reduced when compared to those who are immunised at 12 months, due to the natural persistence of maternal antibodies in the child. *The Australian Immunisation Handbook* recommends that when MMR is given under 12 months of age, that the dose be repeated at or after 12 months.[6,7] Figure 4 highlights the number of notifications associated with each age group, highlighting mumps vaccine eligibility based on historical vaccination policies.[7]

Figure 4. Notifications of mumps and mumps vaccine eligibility, Australia, 1 October to 31 December 2007, by age group



* Mumps monovalent vaccine introduced in 1980 for children over 12 months. Mumps monovalent vaccine replaced by measles-mumps-rubella (MMR) in 1988. MMR second dose recommendation for the 10–16 year age group from 1993 and at four years from 1998.[7]

Other bacterial infections

Meningococcal infections

There were 79 notifications of meningococcal infection reported in the fourth quarter of 2007, 22% more than the corresponding period in 2006. Serogroup data were available on 72 (92%) of the notified cases in the quarter. Sixty-two (79%) were serogroup B, 3 (4%) were serogroup C, 2 (3%) were serogroup W135, 3 (4%) were serogroup Y, and in 8 (10%) the serogroup was either not typed or no data were provided.

Those notified were aged from one month to 79 years; nine cases (11%) were aged less then 12 months, 18 cases (23%) were aged 1–years, and there were 19 (24%) cases aged 15–20 years.

There were three deaths associated with meningococcal infection reported from New South Wales (2) and Queensland (1). One case was in a 15-year-old female with serogroup Y infection, another case in a 6-month-old male with serogroup B infection and one case in an 8-month-old male with serogroup C infection. The case with serogroup C infection was too young to be vaccinated under the current immunisation schedule.

The current National Immunisation Program Schedule recommends one dose of the meningococcal C vaccine at 12 months of age.[6]

Acknowledgements

Thanks go to staff of the Surveillance Policy and Systems Section of the Australian Government Department of Health and Ageing and all our state and territory data managers.

Special thanks to Carolien Giele, Mark Bartlett, Frances Birrell, Shelley Deeks and Peter McIntyre for their contributions.

References

1. NSW Health. *Increase in cryptosporidiosis cases*. NSW Health Media Release; 11 December 2007. Available from: http://www.health.nsw.gov.au/news/2007/20071211_01.html. Accessed on 11 January 2008.
2. Warrell DA, Cox TM, Firth JD, Benz EJ, editors. *Oxford Textbook of Medicine*. 4th edn. Oxford: Oxford University Press; 2003.
3. Communicable Diseases Network Australia. *Interim Surveillance Case Definitions for the Australian National Notifiable Diseases Surveillance System*. 2004.
4. Heymann DL, ed. *Control of Communicable Diseases Manual*. 18th edn. Washington: American Public Health Association; 2004.
5. Bartlett M, McAnulty J, Rutherford A, Gupta L, Karalis T, Maywood P, et al. Haemolytic uraemic syndrome: A cluster of cases in early 1999. *NSW Public Health Bulletin* 1999;10:9.
6. National Health and Medical Research Council. *The Australian Immunisation Handbook*. 8th edn. Canberra: Commonwealth of Australia; 2003. p.183. Available from: http://www9.health.gov.au/immhandbook/pdf/handbook.pdf Accessed on 11 January 2008
7. Aratchige P, McIntyre P, Quinn H. Recent increases in mumps in Australia—the "forgotten" age group in the 1998 Measles Control Campaign. Unpublished work. National Centre for Immunisation Research and Surveillance of Vaccine-Preventable Diseases; 2007.