

Victorian Infectious Diseases Bulletin

Influenza 2000—What Is Coming Our Way?

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In the winter of 1997 antigenic variants of influenza A(H3N2) virus were identified around Sydney, then scattered throughout the country. This was not particularly noteworthy because the A(H3N2) subtype has been producing new variants regularly, and the World Health Organization recommended an updated strain of this subtype in vaccines almost every year over the past decade. But the speed with which the A/Sydney/5/97 variant spread and became predominant was unusual. It represented over 80 per cent of all influenza isolates in the United States in the 1997–98 winter—before there was time to incorporate it into northern hemisphere vaccines—and resulted in epidemic levels of influenza-related deaths in that country. The virus also spread to Europe and subsequently to Asia. A/Sydney-like viruses also caused a severe outbreak in Hong Kong in early 1998.

A/Sydney-like viruses have been predominant worldwide since the winter of 1997, and caused outbreaks in some countries for three consecutive winters without evidence of significant antigenic drift. In the United States, the high rates of pneumonia and influenza-related mortality in the past three winter seasons were all associated with A/Sydney-like viruses.

In Britain, there has been considerable debate about the reason for the impact of the outbreaks this year. Consultation levels fell short of the formal epidemic level and were defined as only 'higher than expected'; however, the outbreaks' impact on the British health system cannot be denied, and neither can the large number of deaths among older adults. A relatively poor level of vaccination among older adults in the United Kingdom may have contributed.

A World Health Organization consultation in September 1999 made recommendations on the composition of influenza vaccines

for use in the southern hemisphere winter of 2000. Participants were concerned that a new A(H3N2) variant was likely to emerge from A/Sydney, so the A/Moscow/10/99 strain was recommended as a replacement for A/Sydney when antisera to A/Moscow were found to react well against the small proportion of strains that showed reduced reactivity with A/Sydney antisera. It was thought that this updating might, in part, anticipate the next round of antigenic drift, although there was no real antigenic or genetic evidence as to the possible direction of that drift.

The A/Moscow virus was subsequently found to be genetically unstable, and it could not be successfully developed into a suitable vaccine strain. The Australian Influenza Vaccine Committee decided to retain A/Sydney as the A(H3N2) vaccine component. Most of the viruses analysed from the recent northern hemisphere outbreaks continue to closely resemble A/Sydney, and substantial outbreaks due to viruses of this type may again occur in Australia this coming winter.

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**Human
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Peoplefirst

Influenza B viruses have been in the minority in the past two years, and the two-year cycle of influenza B in Australia was broken last year, perhaps as a result of increased population immunity after the high levels experienced in 1997. This would be consistent with a similar finding after the 1982 outbreak when the two-year pattern was also disturbed. While some slight antigenic drift has been detected in influenza B isolates, the majority of recently isolated viruses remain antigenically close to the B/Beijing/184/93-like strain incorporated in the Australian 2000 vaccine.

Influenza A viruses of the (H1N1) subtype have occurred only sporadically in recent years, but a new A(H1N1) variant was found to be the cause of a significant outbreak

in New Caledonia in May-June 1999. Small numbers of viruses of this type were also evident in Australia late in the 1999 winter. Subsequently A/New Caledonia-like viruses have been implicated in outbreaks in a number of Asia Pacific countries, including Taiwan, Hong Kong, the Philippines and Thailand.

The absence of A(H1N1) from Australia since 1995 and these recent outbreaks signal the possibility of A/New Caledonia outbreaks in Australia in 2000. Thus it could be an interesting year epidemiologically for influenza in Australia, with the potential for further complication by the influx of visitors for the Olympics in August-September.

Infectious Diseases News

READERSHIP SURVEY

Only 304 people replied to our readership survey, which represented less than 10 per cent of our mailing list. The people who did respond were very supportive of the bulletin and provided some useful comments. Respondents worked in a variety of areas, including clinical or laboratory settings (50 per cent), public health (24 per cent), community health (9 per cent), education or health promotion (7 per cent), environmental health (3 per cent), libraries (2 per cent), aged care (1 per cent), and unspecified (4 per cent).

To improve our response rate, we sent out a reminder and asked people whether they wished to remain on the mailing list for the *Victorian Infectious Diseases Bulletin*. Many people replied to the reminder, and the current circulation is approximately 1800 people. Respondents to this reminder will not have received a copy of volume 2, issue 4, because we printed only a limited number of that issue. If readers contact us, we can mail a hard copy. Alternatively we encourage readers to download the issue from our Internet site at <http://www.dhs.vic.gov.au/phd/vidb/vidbv2i4.pdf>

PREPARING FOR WINTER

Alan Hampson writes about influenza in the northern hemisphere and the vaccine composition for the southern hemisphere (page 1). Ross Andrews examines the value of people receiving pneumococcal vaccine as well as influenza vaccine (page 3).

POLIO: THE ENDGAME

2000 is the year that would World Health Organisation has nominated that polio should be eradicated. There have been substantial efforts and progress towards this around the globe. In this issue Margery Kennett reviews global Australian efforts so far (page 5).

IMPORTED MEASLES

Recently, the Communicable Diseases Section was alerted to cases of measles in people who had travelled to Sri Lanka. Local media reports from Sri Lanka indicate a major outbreak of measles, with over 2000 cases and two deaths. People travelling overseas (particularly those aged 18-30 years) should ensure their routine immunisations are up to date.

APPLIED EPIDEMIOLOGY SHORT COURSE

The Communicable Diseases Section intends to run a short course on applied epidemiology later in 2000. The course will teach participants about surveillance of infectious diseases, epidemiological study designs, and outbreak investigations. It will run over one week, targeting environmental health officers, infection control practitioners, doctors and people working in public health. There will be a nominal charge to cover the costs of running the course. People interested in the course should contact Martyn Kirk at the Department of Human Services (martyn.kirk@dhs.vic.gov.au).

NEW NAMES IN THE DEPARTMENT

The Department of Human Services recently reorganised, and the Disease Control Section is now known as the Communicable Diseases Section. The section has largely the same responsibilities for control of infectious diseases.

Would You Like a Pneumococcal Vaccine with that Flu Shot?

Ross Andrews, National Centre for Epidemiology and Population Health, Australian National University, and Communicable Diseases Section, Department of Human Services; and Rosemary Lester, Prevention and Child Health Section, Department of Human Services

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Approximately 400 people aged over 65 years die each year in Victoria from influenza and pneumonia.¹ Many more are hospitalised (Figure 1). Streptococcus pneumoniae (pneumococcus) is the most common cause of community-acquired pneumonia,² and is responsible for an estimated 30–50 per cent of subsequent hospitalisations.³

DOES PNEUMOCOCCAL VACCINATION WORK?

A number of case control and indirect cohort studies have shown that pneumococcal vaccine is effective against invasive pneumococcal disease in the healthy elderly (that is, in those who are not severely immunosuppressed).⁴⁻⁷

In the largest and perhaps most comprehensive of these retrospective studies, Shapiro et al.⁴ found vaccine effectiveness against invasive pneumococcal disease caused by any of the 23 types represented in the vaccine was 80 per cent (95 per cent confidence interval, 51–92) for people aged 65–74 years and 67 per cent (95 per cent confidence interval, 20–87) for people aged 75–84 years.

when those who received both vaccines were compared with those who had received neither: that is, the risk of hospitalisation for pneumonia fell by 72 per cent (95 per cent confidence interval, 42–86).

WHO SHOULD BE VACCINATED?

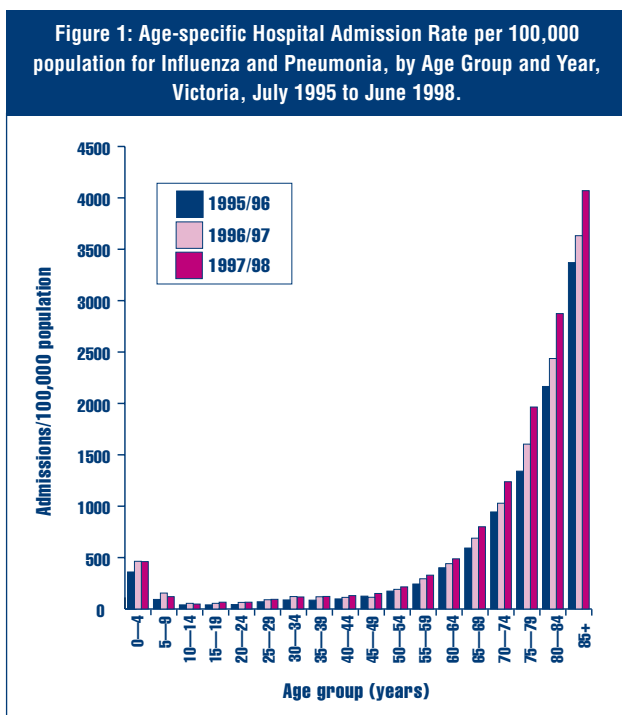
Recommendations for influenza and pneumococcal vaccination are almost identical. Both are recommended for all Aboriginal and Torres Strait Islander persons aged 50 years or more and for all individuals aged 65 years or older; influenza vaccine is recommended yearly and pneumococcal vaccine is recommended every five years.⁹ These recommendations are consistent with those of expert groups in many countries.¹⁰⁻¹²

Both vaccines can be obtained free of charge from the Department of Human Services through the normal vaccine delivery program, although stocks of pneumococcal vaccine are limited. Even though pneumococcal vaccine has been shown to be cost effective in preventing proven pneumococcal bacteraemia among individuals aged 65 years or more,¹³ Victoria is the only Australian State or Territory that provides free pneumococcal vaccine for this age group.

VACCINATION COVERAGE

Medical practitioners in Victoria manage every year to give an influenza vaccination to approximately 75 per cent of all Victorians aged 65 years or older. Pneumococcal vaccination coverage is not yet at this level but has increased dramatically since 1997 and is now among the highest in the world (at an estimated 40–50 per cent among the 65 years and older age group). The provision of free pneumococcal vaccine was probably an important factor in this improved coverage.

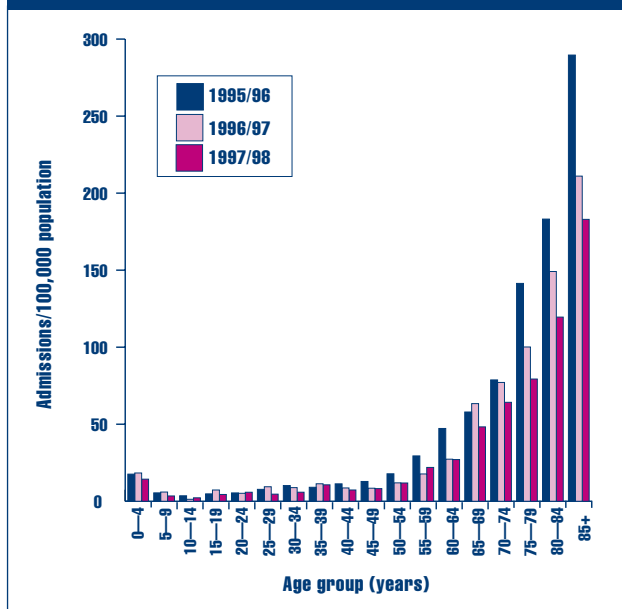
The impact of increased pneumococcal vaccine coverage has not yet been evaluated. Initial trends are encouraging, with both hospital admission data for pneumococcal pneumonia and invasive pneumococcal isolates reported to the Victorian Hospital Pathogens Surveillance Scheme suggesting the incidence of pneumococcal disease may be declining in this age group (Figures 2 and 3). However, we think it is too early to draw any firm conclusions from these data.



Source: VIMD Victorian Inpatient Minimum Dataset

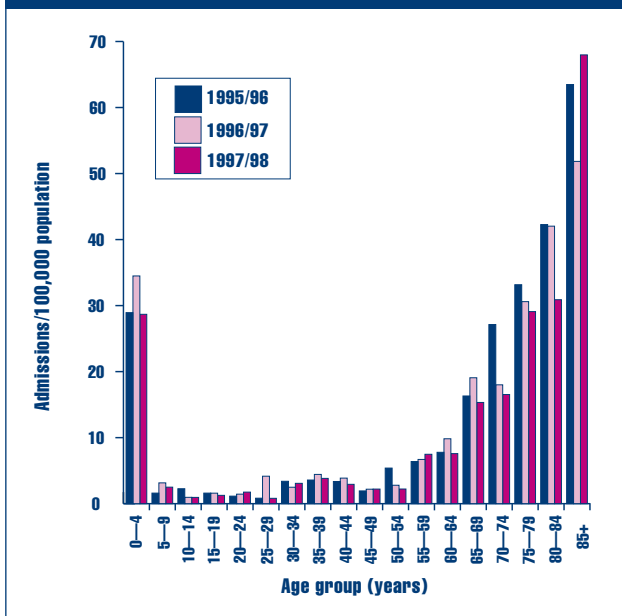
Although the evidence against pneumonia in this age group is less conclusive, a recent retrospective cohort study among 1,898 people (aged 65 years or more) with chronic lung disease in Minnesota⁸ linked pneumococcal vaccination with a 43 per cent reduction in the risk of hospitalisation for pneumonia and influenza (95 per cent confidence interval, 16–62). Influenza vaccination had an additive effect during the two influenza seasons studied

Figure 2: Age-specific Hospital Admission Rate for Pneumococcal Pneumonia, Victoria, July 1995 to June 1998



Source: VIMD Victorian Inpatient Minimum Dataset

Figure 3: Invasive Pneumococcal Isolates, by Age Group, Victoria, July 1995 to June 1998



Source: VHPSS Victorian Hospital Pathogens Surveillance Scheme

We know the vaccine is effective against invasive pneumococcal disease in the healthy elderly, so the first task is to improve coverage. If we can manage to vaccinate 75 per cent of elderly Victorians with the flu vaccine every year, we should be able to do the same for pneumococcal vaccine, which is needed only every five years. Why not ask those who need it, 'Would you like a pneumococcal vaccine with that flu shot?'

ACKNOWLEDGMENTS

We thank Janet Strachan, Microbiological Diagnostic Unit, University of Melbourne, for the data from the Victorian Hospital Pathogens Surveillance System. We also thank staff from the Epidemiology Unit at the Department of Human Services for the hospital admission data. Ross Andrews is a PhD scholar and his scholarship is provided by The National Centre for Immunisation Research and Surveillance of vaccine preventable diseases (NCIRS).

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Global Poliovirus Eradication: Report on Progress to December 1999

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*Polio*myelitis was chosen as a candidate for global eradication following progressive eradication from the Americas during the 1980s. The World Health Assembly in 1988 resolved to eradicate polio by 2000.¹ This article describes the strategies and progress of the eradication program.

POLIOVIRUS ERADICATION

Before a human pathogen can be eradicated, key criteria must be met. The pathogen must spread only from human to human; have no animal reservoirs; have an available and effective vaccine or method of containment; not cause chronic infection; and not survive long outside the human body.

Polioviruses meet the first three criteria. They spread only from human to human, and have no natural animal reservoir. There are two excellent vaccines: the inactivated injectable polio vaccine (IPV) developed by Jonas Salk and the oral polio vaccine (OPV) developed by Albert Sabin are both highly effective against all three types of poliovirus. The duration of excretion of OPV in immunocompromised people and the survival time of poliovirus in the environment, particularly in groundwater, require further investigation.

The strategies used to eradicate poliovirus from the world are routine immunisation, supplementary immunisation, surveillance and 'mopping up'.

ROUTINE IMMUNISATION

In 1974 the World Health Organization established the Expanded Programme on Immunization which aims to immunise all children of the world with epidemiologically appropriate vaccines (usually including polio, measles, diphtheria, tetanus, pertussis, hepatitis B and



'Last case of Indigenous Polio in Western Pacific; Cambodia, onset 19 March 1997 (source: World Health Organisation).'

tuberculosis). Children receive three doses of polio vaccine (either OPV or IPV) in their first twelve months of life, in conjunction with other childhood immunisations.

SUPPLEMENTARY IMMUNISATION

Mass immunisation campaigns (known as national or sub-national immunisation days) complement rather than replace routine immunisation. Supplementary immunisation aims to interrupt the circulation of poliovirus by immunising all children aged less than 5 years, irrespective of their previous vaccination history. Each year for at least three years, two doses of polio vaccine are given one month apart to every child.

The aims are to immunise children who are not immune or only partially protected, and to boost the immunity of children who are already immunised. Thus every child in the most susceptible age group is protected against polio at the same time. This immunisation strategy deprives the virus of the fertile seedbed on which its survival in human populations depends. National or sub-national immunisation days have been established in most countries in which polio is, or was recently, endemic.

More recently, simultaneous campaigns have been planned in contiguous countries. In April 1995, Operation MECACAR reached 56 million children in 18 countries in the Middle East, Caucasus and the central Asian republics. In one week in December 1996, over 250 million children in Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan, Thailand and Vietnam were immunised in a coordinated campaign. Intensified national immunisation days (two or more per year) have been planned in the major global reservoir countries in south Asia, west and central Africa and the Horn of Africa in an attempt to reach the 2000 polio eradication target.

ACUTE FLACCID PARALYSIS SURVEILLANCE

When smallpox was successfully eradicated in 1977, the virus could be traced by teams of people searching the world for people with typical vesicular rashes or scars. By comparison, the majority of persons infected by the polioviruses experience no symptoms, but they shed poliovirus in their faeces and may infect others. Five to 10 per cent may suffer from meningitis or a nonspecific febrile illness. Less than 1 per cent of infected susceptible people develop paralysis.

Surveillance for cases of acute flaccid paralysis is a sensitive indicator of wild poliovirus activity. Effective polio surveillance involves an expert team of clinicians, immunisation staff, epidemiologists and virologists. Laboratory examination for polioviruses is essential with stool samples collected from cases of acute flaccid paralysis.

Acute flaccid paralysis has many possible causes; in countries where polio is no longer endemic, Guillain-Barré syndrome is usually the most common cause. A global network of 138 national, regional and specialised polio reference laboratories perform poliovirus culture, identification, characterisation and sequencing. The Australian and Pacific Island national reference laboratories are at the Victorian Infectious Diseases Reference Laboratory (which is also one of the two western Pacific regional reference laboratories).

‘MOPPING UP’

The final stages of polio eradication involve ‘mopping up’ immunisation that targets areas where poliovirus is known or suspected to be circulating. This may involve door-to-door or even boat-to-boat immunisation. This activity is typically carried out in minority populations that have limited access to health care facilities, where overcrowding and poor sanitation occur, and in areas identified as having low routine immunisation coverage.

PROGRESS

The successes of the eradication initiative are now becoming apparent. Over 35000 cases of poliomyelitis were reported throughout the world in 1988, but only 6227 cases were reported from Turkey, south Asia and sub-Saharan Africa in 1998.²

Wild poliovirus had been eliminated from all countries of the Americas by 1991, and the last case of poliomyelitis was reported from Cambodia in the western Pacific region in March 1997. In Europe, there were several cases of wild poliovirus infections in Turkey in 1998 but none in any country in 1999 (as known by early 2000).

The only countries in the eastern Mediterranean region that have reported cases since 1996 are Egypt, Iraq, Pakistan, Afghanistan and Sudan. The reporting countries in South East Asia (where polio is endemic) are India, Bangladesh and Myanmar. India is now the world’s largest reservoir for polio.

In some African countries acute flaccid paralysis surveillance is poor, so it is difficult to state confidently that poliomyelitis has been eliminated. Most of southern Africa has been free of polio for many years. However, a large outbreak occurred in Angola in early 1999 among families who had moved (having been displaced from their homes by conflict) to the overcrowded slums of the capital, Luanda. Poliovirus remains endemic in countries of sub-Saharan Africa and the Horn of Africa.

Acute flaccid paralysis surveillance and immunisation activities have been established even in countries affected by war. The United Nations has negotiated truces in Afghanistan, Angola and the Democratic Republic of Congo so the children on both sides of conflict may receive their vaccines.

ACUTE FLACCID PARALYSIS SURVEILLANCE IN AUSTRALIA

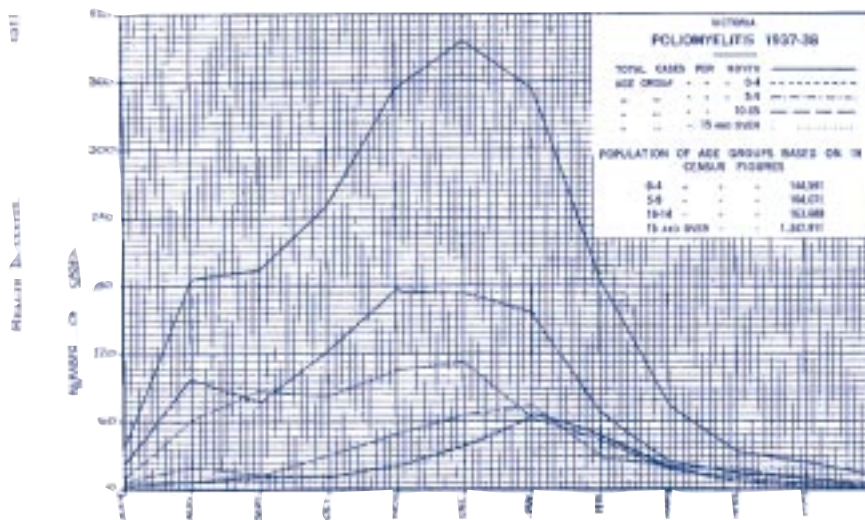
The National Centre for Disease Control (of the Commonwealth Department of Health and Aged Care), the Australian Paediatric Surveillance Unit and the Victorian Infectious Diseases Reference Laboratory (VIDRL) cooperate to conduct surveillance in Australia.⁴⁻⁶ Polio is not endemic here, and there is normally a background incidence of at least one non-polio acute flaccid paralysis case (usually Guillain-Barré syndrome) per year for every 100 000 children aged under 15 years.

Based on Australia’s population, we expect approximately 40 children with acute flaccid paralysis each year. As well as reporting such cases to the Australian Paediatric Surveillance Unit, paediatricians organise the collection of two stool samples 24 hours apart within 14 days of onset for transport to VIDRL for viral culture.

Reporting has improved recently, but the expected target of one in 100 000 has not been met in the four years of surveillance. The number of stool samples referred to VIDRL is also less than the World Health Organization target of 80 per cent of acute flaccid paralysis cases.⁷

continued page 10...

Figure: Historic graph of polio reports in Victoria, 1938



Source: Commission of Public Health, Health Bulletin 1938

Immunisation Update

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Data cited in this report are based on the Australian Childhood Immunisation Register (ACIR) Coverage Report. The ACIR report measured immunisation coverage at 31 December 1999 for children aged 12 to <15 months and 24 to <27 months at 30 September 1999. Only vaccines administered before 12 months of age were included in the coverage calculation for the former age group, and only those vaccines administered before 24 months of age were included in the coverage calculation for the latter age group.

The following table (Table 1) groups immunisation coverage by local government area for the two birth cohorts. For a copy of the ACIR report listing immunisation coverage against individual vaccines for each local government area, contact Michele Sands (03 9637 4143 or michele.sands@dhs.vic.gov.au).

Congratulations to immunisation providers in the municipalities of Central Goldfields, Hindmarsh, Pyrenees, Towong and West Wimmera for achieving coverage of 95 per cent or higher for children at 12 months of age. West Wimmera and Hindmarsh deserve special mention: the former achieved 100 per cent coverage for both age groups, and the latter achieved 100 per cent coverage for children at 12 months of age.

The proportion of local government areas with coverage below 80 per cent for children at 12 months of age remained at 8 per cent, consistent with the levels at 30 June 1999. Thirty-seven per cent of all local government areas achieved coverage of 90 per cent or higher. This again is consistent with levels at 30 June 1999.

The major improvement is evident in the coverage data for children at 24 months of age: 33 per cent of municipalities achieved a coverage of 80 per cent or greater, compared with 17 per cent at 30 June 1999.

Overall coverage in Victoria of children at 12 months of age increased from 87.9 per cent to 88.03 per cent over the six month period. Coverage of children aged 24 months increased from 74.7 per cent to 76.8 per cent.

Table 1: Childhood Immunisation Coverage, by Local Government Area, Victoria, 1999

Age Group	% Fully Immunised	Local Government Area (LGA)	Total LGAs	(% LGAs)
12–<15 months	95%+	Central Goldfields (S), Hindmarsh (S), Pyrenees (S), Towong (S), West Wimmera (S)	5	6%
	90–94%	Ararat (RC), Ballarat (C), Banyule (C), Bass Coast (S), Campaspe (S), Cardinia (S), Colac-Otway (S), Gannawarra (S), Glenelg (S), Golden Plains (S), Greater Bendigo (C), Greater Dandenong (C), Greater Geelong (C), Hepburn (S), Hobsons Bay (C), Horsham (RC), Knox (C), Moorabool (S), Mount Alexander (S), Moyne (S), Northern Grampians (S), Southern Grampians (S), Warrnambool (C), Wyndham (C)	24	31%
	85–89%	Alpine (S), Baw Baw (S), Bayside (C), Boroondara (C), Brimbank (C), Buloke (S), Casey (C), Corangamite (S), Delatite (S), East Gippsland (S), Frankston (C), Glen Eira (C), Hume (C), Kingston (C), Macedon Ranges (S), Manningham (C), Maroondah (C), Melton (S), Mildura (RC), Mitchell (S), Moira (S), Moonee Valley (C), Moreland (C), Nillumbik (S), South Gippsland (S), Stonnington (C), Strathbogie (S), Surf Coast (S), Swan Hill (RC), Wangaratta (RC), Whitehorse (C), Whittlesea (C), Wodonga (RC), Yarra Ranges (S)	34	44%
	80–84%	Darebin (C), Greater Shepparton (C), LaTrobe (S), Loddon (S), Monash (C), Mornington Peninsula (S), Port Phillip (C), Wellington (S), Yarriambiack (S)	9	11%
	<80%	Indigo (S), Maribyrnong (C), Melbourne (C), Murrindindi (S), Queenscliffe (B), Yarra (C)	6	8%
24–<27 months	95%+	West Wimmera (S)	1	1%
	90–94%	Horsham (RC), Indigo (S), Northern Grampians (S), Pyrenees (S)	4	5%
	85–89%	Buloke (S), Gannawarra (S), Glenelg (S), Golden Plains (S), Hindmarsh (S), Moorabool (S), Southern Grampians (S), Strathbogie (S), Towong (S)	9	12%
	80–84%	Boroondara (C), Delatite (S), Hobsons Bay (C), Kingston (C), Melton (S), Mildura (RC), Moira (S), Moyne (S), South Gippsland (S), Warrnambool (C), Whitehorse (C), Yarriambiack (S)	12	15%
	<80%	Alpine (S), Ararat (RC), Ballarat (C), Banyule (C), Bass Coast (S), Baw Baw (S), Bayside (C), Brimbank (C), Campaspe (S), Cardinia (S), Casey (C), Central Goldfields (S), Colac-Otway (S), Corangamite (S), Darebin (C), East Gippsland (S), Frankston (C), Glen Eira (C), Greater Bendigo (C), Greater Dandenong (C), Greater Geelong (C), Greater Shepparton (C), Hepburn (S), Hume (C), Knox (C), LaTrobe (S), Loddon (S), Macedon Ranges (S), Manningham (C), Maribyrnong (C), Maroondah (C), Melbourne (C), Mitchell (S), Monash (C), Moonee Valley (C), Moreland (C), Mornington Peninsula (S), Mount Alexander (S), Murrindindi (S), Nillumbik (S), Port Phillip (C), Queenscliffe (B), Stonnington (C), Surf Coast (S), Swan Hill (RC), Wangaratta (RC), Wellington (S), Whittlesea (C), Wodonga (RC), Wyndham (C), Yarra (C), Yarra Ranges (S)	52	67%

Surveillance Briefs

The Department of Human Services receives notifications of infectious diseases from medical practitioners and laboratories. These notifications prompt investigation and action to control infectious diseases in Victoria. For some diseases, clinical suspicion in the absence of laboratory confirmation is enough to initiate investigation. Prompt notification of infectious diseases is an integral component of prompt public health action. Please do not delay. To notify, call 1300 65 1160 or fax 1300 65 1170.

This section includes a summary of infectious disease notifications received for all of 1999 and historical comparisons with 1998 data at both the State and regional level (table 4). There have been no notifications of anthrax, Australian arbo encephalitis, botulism, diphtheria, leprosy, plague, poliomyelitis, rabies, primary amoebic meningo-encephalitis, typhus, viral haemorrhagic fevers or yellow fever. For summary data at local government level, contact Martyn Kirk, Communicable Diseases Section, Department of Human Services (03 9637 4121). Data may be subject to revision.

This section now also includes surveillance data from the Victorian Infectious Diseases Reference Laboratory (VIDRL). The VIDRL Fortnightly Surveillance Bulletin can be accessed online at <http://www.dhs.vic.gov.au/vidrl>. Surveillance data related to sexually transmissible diseases are incorporated within the Victorian STD surveillance report (see page 12). General information on the control of infectious diseases (the Blue Book) can be found online at http://www.dhs.vic.gov.au/phd/hprot/inf_dis/bluebook/index.htm

PSITTACOSIS

There were 17 cases of psittacosis during October to December 1999 and one case died. One small outbreak occurred in metropolitan Melbourne, where three people became infected after purchasing a cockatoo. Throughout 1999 there were 70 cases of psittacosis—up 43 per cent from the previous year's number. The reasons for this increase are unclear. People notified with psittacosis usually report a history of recent bird contact.

HAEMOLYTIC URAEMIC SYNDROME

Victoria had five cases of haemolytic uraemic syndrome between October and December 1999, which was more than the normal number of reports to the Department of Human Services for that time of year. Three cases were in formula-fed infants under 2 years of age. Faecal and food specimens were collected, although none were positive for shiga-toxin producing *E. coli*. No common links between cases were found.

BRUCELLOSIS

The Communicable Diseases Section was notified in November 1999 of a case of brucellosis in a 76 year old woman of Italian origin. *Brucella melitensis* biotype 3 was isolated from her knee joint fluid. The isolating laboratory was unaware that *Brucella* infection was a differential diagnosis and cultured it in the open laboratory. There have been outbreaks of *Brucella* infections among laboratory workers in other countries. The risk in laboratories is highest when procedures that potentially generate aerosols are used. Staff in this case were unlikely to have been exposed to aerosols, but they were notified about potential symptoms.

GASTROINTESTINAL ILLNESS

Table 1: Outbreaks of Gastrointestinal Illness Reported to Disease Control Section (now Communicable Diseases Section), October-December 1999

Setting	Outbreaks	Persons Affected	Pathogen/Toxin (number of outbreaks)
Restaurant/reception/ other food premises	15	215	Suspect Viral (5) Unknown (5) Suspect scombroid (1) Butterfish diarrhoea (2) Clostridium perfringens (1) Suspect Staph toxin (1)
Privately catered function	4	106	Suspect viral (2) Clostridium perfringens (1) Salmonella Typhimurium 64 (1)
Aged/disability/ health care institution	5	73	Viral (1) Suspect viral (4)
Family/social gathering	2	28	Unknown (1) Viral (1)
Children's service	1	6	Hepatitis A (1)
Caravan park	1	7	Unknown (1)
School camp	2	80	Viral (1) Suspect viral (1)
Community	1	4	Unknown (1)
Bus tour	1	16	Suspect viral (1)
Total	32	535	

Thirty-two outbreaks of gastrointestinal illness were reported to the (Communicable Diseases Section) in the last quarter of 1999 (Table 1).

Two outbreaks reported during November were in restaurant patrons who had become ill with gastrointestinal symptoms, consisting mainly of watery diarrhoea. In the first reported outbreak, 50 guests were interviewed, of whom 14 reported becoming ill within a few hours of consuming butterfish. The cohort study revealed that those who ate the butterfish were 11 times more likely to have become ill than were those who did not eat it.

Enquiries have revealed that many different species seem to be marketed under the name 'butterfish'. Two distinct types of fish, escolar (*Lepidocybium flavobrunneum* and *Ruvettus pretiosus*) and rudderfish (*Centrolophus sp*) are commonly sold as butterfish. Both have a high oil content as high as 23 per cent by weight. Humans do not easily digest the type of oil contained in these species, and the fish can cause diarrhoea, especially if eaten in large quantities.

Usually people complain of diarrhoea soon after consumption; the diarrhoea is sometimes described as oily, may be orange in colour, and can often be severe enough to cause faecal incontinence. The cause of the illness appears to be the high oil content rather than a toxin or bacterial contamination. The fish supplied in both outbreaks was believed to be rudderfish.

An outbreak of *Clostridium perfringens* food poisoning was reported in a group of people who attended a privately catered birthday party. Sixteen of the 31 people who attended the party became ill with diarrhoea and stomach cramps. Some of the food served at the party was purchased from a local Chinese takeaway. The restaurant delivered two large dishes of food to the party just before lunchtime, and it was initially thought that temperature of the food might have been conducive to bacterial growth during preparation and delivery.

However, further investigations revealed that the party was an open house arrangement whereby guests arrived at different times throughout the day and food was left at room temperature for up to eight hours. At least 13 of the 16 people who were ill had eaten at dinner time or later, suggesting that by dinnertime high levels of bacteria could have been present in the food.

A cohort study revealed that people who ate the sweet and sour pork and the chicken and vegetables were 3 and 6 times more likely to have been ill respectively. *C. perfringens* bacteria and enterotoxin were detected in three faecal specimens. All people affected ate the two suspect dishes. An investigation of the takeaway shop revealed that procedures for cooking, hot holding and delivery were satisfactory.

Outbreaks of gastroenteritis occurred among two separate school groups on camps over this period. A viral pathogen was suspected to have caused both outbreaks (one was confirmed viral), and was probably transmitted from person-to-person. However, one camp site in particular provided drinking water that was heavily contaminated with *E. coli*. This camp has subsequently closed.

An outbreak of hepatitis A occurred at a child care centre and was recognised when two child care workers were diagnosed. The Department recommended that all staff and children be given immunoglobulin, which the centre's own medical officer administered. Subsequent investigations revealed that both parents of a child at the centre had also been diagnosed with hepatitis A. Their child was tested and found to have been infected although, as typical for children aged under 5 years, had been completely asymptomatic.

Another child care worker and parent were diagnosed in following weeks. This outbreak highlights the importance of the recommendation for child care workers to be immunised against hepatitis A. Often when child care workers become infected, an outbreak may already be well established among the children. Because they are usually asymptomatic, the child will not have been absent from the centre during any of their infectious period.

Table 2: Specimens Submitted to the VIDRL Mycobacterium Reference Laboratory, July–September 1999

Primary Specimens	M. tb Isolates	New Victorian M. tb Isolates	Non M. tb isolates	Negatives	Total
July	27	5	14	389	430
August	28	8	21	449	498
September	25	3	42*	757	824
Referred Specimens	M. tb Isolates	New Victorian M. tb Isolates	Non M. tb isolates	Negatives	Total
July	18	14	62		80
August	21	18	62		83
September	14	10	67		81
Total	133	58	268	1595	1996

* 15 from Timorese refugees.

TUBERCULOSIS

The Mycobacterium Reference Laboratory at VIDRL prepared this report. Given the slow growing nature of *Mycobacterium spp*, the report is limited to the third quarter of 1999. Most specimens (both primary and referred) and isolates are from Victorian patients. The majority of non-Victorian specimens originated in the Northern Territory and the Solomon Islands.

In this quarter, 29.1 per cent (240 of 824) of specimens processed were from Timorese refugees evacuated to Darwin. Thirty-seven isolates from this group were identified as *M. tuberculosis*, and 15 were other mycobacteria. No multi-drug resistant isolates were identified among these refugees.

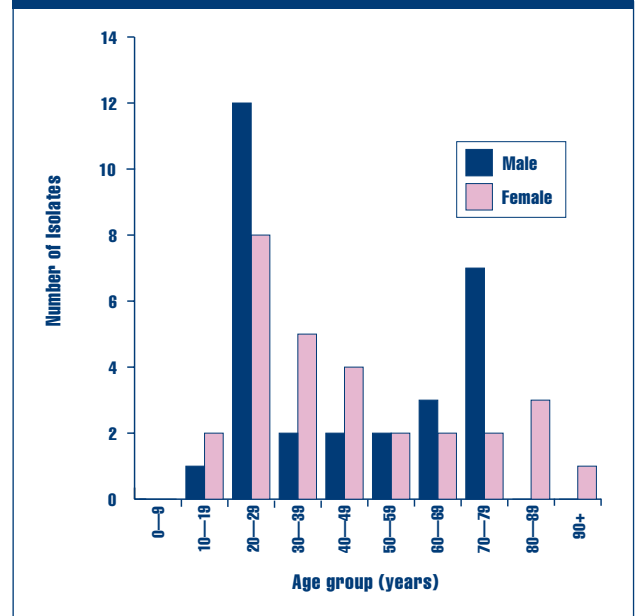
COMMENTS

- *M. ulcerans* was isolated from a buttock lesion of an 11 year old girl.
- There were eight isolates of *M. kansasii* from clinical specimens. Seven were from men aged between 29 years and 82 years, and one was from a 68 year old woman.
- *M. marinum* was isolated from a finger lesion of a 68 year old woman.

Table 3: Extrapulmonary *M. tuberculosis* Isolates and Resistant Isolates Detected by VIDRL Mycobacterium Reference Laboratory, July–September 1999

Site	July	August	September
Pulmonary	11	16	9
Extrapulmonary	8	10	4
Extrapulmonary Site Details	Lymph node (5) Brain, peritoneal fluid Urine	lymph node (6) Neck pus, (2) Groin abscess, Urine	lymph node (2) Thigh, ear
Antibiotic Resistance	resistance to Isoniazid (1)	resistance to Isoniazid and Ethambutol (1)	resistance to Rifampicin (1)

Figure 2: New *M. tuberculosis* Isolates from Victorian Residents, by Age Group and Sex, VIDRL Mycobacterium Reference Laboratory, July–September 1999



(cont) Global Poliovirus Eradication: Report on Progress to December 1999

...continued page 6

Medical or laboratory personnel responsible for a case of acute flaccid paralysis should contact Dr Heath Kelly at VIDRL. They will receive instructions on collecting and transporting to VIDRL two stool samples, a questionnaire and a 60 day follow-up questionnaire.

THE FUTURE

The World Health Organization has a timetable setting out the tasks to be completed before polio vaccination is no longer necessary. Once it is suspected that the last case of wild poliovirus has been detected, the issues to be considered are polio-free certification, the laboratory containment of polioviruses, and how and when to stop polio immunisation.

Australia has committees to address issues of certification as a wild poliovirus-free country. VIDRL will work with the National Centre for Disease Control and the World Health Organization to locate all laboratories where wild polioviruses are handled or stored, and to organise final transport to designated repositories or destruction.

STOPPING POLIO IMMUNISATION

Even if the 2000 target is not achieved, we are confident that the world will be polio free by the end of 2001 or 2002. Three years of continued high quality surveillance for acute flaccid paralysis are need to demonstrate the virus has finally disappeared. A further two to three years will then elapse before the World Health Organisation certifies the world as polio free. Vaccination will continue for two to three years after certification.

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Table 4: Notifications of Infectious Diseases, by Department of Human Services Region, Victoria, 1 January to 31 December 1999 and Historical Comparisons

Disease	Barwon-South Western						Grampians						Loddon-Mallee						Hume						Gippsland						Western Metropolitan						Northern Metropolitan						Eastern Metropolitan						Southern Metropolitan						Victoria																					
	1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998		1999		1998																									
	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999																											
Blood Borne Diseases																																																																												
Hepatitis B – Acute	1	0	1	2	3	3	4	1	4	1	5	3	3	25	17	17	15	14	11	11	22	35	4	5	96	92																																																		
Hepatitis B – Chronic/Unknown	18	25	12	12	21	25	20	25	20	25	19	657	531	494	422	422	431	494	422	422	612	539	125	129	2492	2158																																																		
Hepatitis C	305	288	127	117	221	263	249	181	244	233	803	833	897	839	897	1044	897	839	839	1422	1477	1220	1425	6502	6710																																																			
Enteric Diseases																																																																												
Amoebiasis	3	1	8	1	3	1	9	4	0	2	16	15	12	25	12	18	24	26	12	24	26	3	4	114	84																																																			
Campylobacter infection	257	232	143	132	161	177	252	215	300	252	594	523	1069	872	1167	969	132	106	4799	4111																																																								
Cholera	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	2																																																			
Food/Water/Environmental – Cryptosporidium	3	1	4	2	11	4	16	2	21	26	4	17	14	47	17	14	47	16	37	78	1	33	104	266																																																				
Food/Water/Environmental – Other	5	5	2	4	3	4	13	2	3	4	39	12	56	15	38	34	43	62	103	19	305	161																																																						
Giardiasis	72	61	34	37	50	45	63	48	40	38	91	128	133	143	206	225	237	255	18	27	944	1007																																																						
Haemolytic Uraemic Syndrome	2	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	7	2																																																			
Hepatitis A	6	3	5	3	8	30	7	5	9	15	36	22	35	21	53	35	98	31	5	8	262	173																																																						
Listeriosis	1	0	1	1	1	0	1	0	0	3	1	0	2	3	5	7	0	0	0	0	0	0	13	15																																																				
Paratyphoid	0	0	0	0	0	0	0	0	0	0	2	2	0	1	2	1	2	0	0	0	0	0	0	7																																																				
Salmonellosis	102	77	51	37	42	65	62	42	58	56	178	128	188	236	212	291	264	45	56	1270	1125																																																							
Shigellosis	3	3	1	2	6	2	4	2	4	3	15	13	20	20	32	33	42	5	1	118	120																																																							
Typhoid	0	0	0	0	0	0	0	0	0	0	5	5	3	4	2	4	0	0	0	0	0	0	16	11																																																				
Verotoxin producing E.coli	0	0	0	0	0	0	1	1	1	0	1	1	1	4	1	1	1	1	1	0	1	0	1	5	9																																																			
Yersiniosis	0	1	0	1	0	0	0	1	0	0	6	6	5	3	7	3	5	0	0	1	17	25																																																						
Other Infectious Notifiable Diseases																																																																												
Legionellosis	2	3	0	0	1	0	0	1	2	1	15	19	23	25	9	5	11	8	1	1	64	63																																																						
Leprosy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																																				
Meningococcal infection	12	3	3	2	6	4	7	8	7	4	13	5	23	7	22	11	44	14	3	3	140	61																																																						
Tuberculosis	14	7	6	4	7	2	18	5	4	4	104	81	79	53	67	45	98	64	8	0	405	265																																																						
Vaccine Preventable Diseases																																																																												
Measles	1	0	2	0	4	1	12	2	1	2	38	2	31	4	12	10	6	15	3	0	110	36																																																						
Mumps	0	1	5	2	2	3	8	2	1	6	19	11	13	10	8	6	11	13	7	0	74	54																																																						
Pertussis	66	41	80	30	64	99	66	68	110	227	147	112	121	111	193	156	123	271	52	26	1022	1141																																																						
Rubella	4	7	4	4	4	3	11	11	0	11	12	23	25	32	28	42	30	47	5	8	123	188																																																						
Vector Borne Diseases																																																																												
Arbovirus – Barmah Forest	0	1	0	0	3	2	3	2	5	10	0	0	1	0	0	1	0	0	2	2	14	18																																																						
Arbovirus – Flavivirus	0	0	0	2	0	2	0	2	0	1	0	1	1	2	0	4	0	4	0	2	1	20																																																						
Arbovirus – Not further Specified	0	0	3	0	6	6	4	7	30	8	0	0	2	0	1	2	0	1	0	3	1	48	24																																																					
Arbovirus – Ross River	6	6	17	13	45	38	42	23	69	10	7	3	16	5	20	6	24	6	19	2	265	112																																																						
Arbovirus – Sindbis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0																																																					
Malaria	5	0	3	2	3	1	5	8	3	1	5	4	13	20	13	18	24	29	7	4	81	87																																																						
Zoonoses																																																																												
Brucellosis	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	2	0	0	0	0	0	3	2																																																					
Hydatid disease	3	0	0	2	0	0	1	0	1	1	3	5	2	7	1	3	2	5	5	1	18	25																																																						
Leptospirosis	6	12	0	0	4	0	7	3	7	7	0	0	1	0	1	0	1	0	2	0	29	22																																																						
Psittacosis	4	0	4	1	3	4	6	8	1	0	6	3	8	10	21	9	16	14	1	0	70	49																																																						
Q Fever	4	5	0	3	4	5	6	6	3	7	1	2	1	1	1	1	2	1	6	3	27	34																																																						
Taeniasis	1	0	0	0	0	0	0	0	0	0	2	2	7	3	1	0	0	0	0	0	11	5																																																						
Total	906	794	516	416	687	791	900	705	953	951	2848	2527	3126	2881	3481	3066	4374	4285	1786	1868	19577	18284	201291						238729						281356						294077						571339						741434						944278						1065350						4605064					

Notes
 1 Verotoxin Producing E.Coli was made notifiable from 27 October 1998
 2 The data are preliminary figures only and may be subject to revision
 3 ABS estimated residential population data as at July 1997

Victorian STD Surveillance Report

This report is produced by the Epidemiology and Social Research Unit of the Macfarlane Burnet Centre for Medical Research, on behalf of the Communicable Diseases Section, Department of Human Services, in cooperation with the Melbourne Sexual Health Centre; the Microbiological Diagnostic Unit, University of Melbourne; the Victorian Infectious Diseases Reference Laboratory; and the Victorian Collaborative Group on HIV and AIDS Surveillance. The Victorian Department of Human Services and the Victorian Health Promotion Foundation jointly fund the Epidemiology and Social Research Unit to conduct surveillance and related research into sexually transmissible diseases and blood-borne viruses.

Reports on surveillance data for sexually transmissible diseases in Victoria are generally available approximately six weeks after the end of each quarter from the Communicable Diseases Section, Department Human Services. For comments or queries contact Cathy Keenan or Dr Penny Miller, Epidemiology and Social Research Unit, Macfarlane Burnet Centre for Medical Research (03 9282 2290) or the Communicable Diseases Section, Victorian Department of Human Services (03 9637 4184).

The data in this section summarises notifications of sexually transmitted business for the fourth quarter of 1999.

All data in this report are provisional and subject to revision.

SUMMARY

- **Human immunodeficiency virus and acquired immunodeficiency syndrome.** Both HIV and AIDS notifications continue to decline. This is consistent with recent State and national trends.
- **Chlamydia infections.** There has been a 22 per cent increase in the number of cases notified for 1999 compared with 1998.
- **Gonorrhoea.** The number of notifications of gonorrhoea in Victoria has doubled since 1997. The increase is concentrated amongst men who have sex with men. A similar increase has occurred in NSW.
- **Syphilis.** No new cases of infectious syphilis were notified this quarter.

ACQUIRED IMMUNE DEFICIENCY SYNDROME

AIDS notifications declined from 12 in the previous quarter to eight in this quarter. This is consistent with recent trends at both a State and national level. The decline is probably related to improvements in, and increased use of, combination anti-retroviral therapy.

The number of notified deaths in people with HIV increased from two in the previous quarter to seven this quarter. Despite this increase, the number of deaths notified annually continues to decrease, reflecting the positive impact of anti-retroviral therapy on survival.

Table 1: Notified Cases of AIDS and Deaths in People with AIDS, Victoria

	Oct 99–Dec 99				Jan–Dec 99				Cumulative to Dec 31 1999					
	Male		Female		Male		Female		Male		Female		Total*	
	n.	Deaths	n.	Deaths	n.	Deaths	n.	Deaths	n.	Deaths	n.	Deaths	Total Cases*	Total Deaths**
Male homosexual/bisexual	6	4	–	–	23	17	–	–	1475	1176	–	–	1479	1179
Male homosexual/ bisexual and IDU	0	0	–	–	5	1	–	–	94	70	–	–	97	73
IDU	0	0	0	0	1	0	0	0	17	12	10	5	27	17
Heterosexual	1	1	1	1	5	1	1	1	57	29	46	36	103	65
Person from specified country+	0	0	0	0	1	1	0	0	12	5	6	3	18	8
Haemophilia/ related disorder	0	0	0	0	0	1	0	0	36	27	–	1	37	28
Transfusion recipient	0	0	0	0	0	0	0	0	8	6	5	4	13	10
Other	0	1	0	0	1	0	0	0	1	0	1	0	2	0
Under investigation	0	0	0	0	0	0	0	0	11	9	0	0	11	9
Unavailable	0	0	0	0	2	0	0	0	6	3	0	2	8	5
Total	7	6	1	1	38	21	1	1	1717	1337	71	51	1795	1394

* Includes seven persons for whom gender was given as transsexual.

** Includes six persons for whom gender was given as transsexual.

+ Persons from countries with a high prevalence (greater than 1 per cent) of HIV.

HUMAN IMMUNODEFICIENCY VIRUS INFECTION

Twenty-four cases of HIV were notified during the final quarter of 1999, down seven cases from the previous quarter's total. This brings the total number of cases notified during the year to 133, continuing the declining trend observed during the past decade. Sixty-six per cent

(16 of 24) of notified cases were in people aged 20–39 years old. Twelve new cases were notified among men who have sex with men; this group remains the single largest exposure category among those with newly diagnosed HIV.

Table 2: Notified Cases of HIV, by Age Group, Victoria

Age Group	Cases Notified Oct–Dec 1999		Cases Notified 1999 Total		Cumulative Total		Total*
	Male	Female	Male	Female	Male	Female	
0–12	0	0	3	1	3	9	12
13–19	0	0	1	0	71	7	79
20–29	6	0	33	4	1394	89	1499
30–39	10	0	49	5	1422	59	1488
40–49	3	1	19	1	624	23	649
50+	4	0	16	1	308	24	332
Unavailable	0	0	0	0	101	1	117
Total	23	1	121	12	3951	212	4204

* Includes 14 cases for whom gender is reported as transsexual and 27 cases for whom no gender is reported.

Table 3: Notified Cases of HIV, by Exposure Category, Victoria

Exposure Category	Cases Notified Oct–Dec 1999		Cases Notified 1999		Cumulative Total		Total*
	Male	Female	Male	Female	Male	Female	
Male homosexual/bisexual	12	–	67	–	3226	–	3239
Male homosexual/bisexual and IDU	2	–	17	–	192	–	194
IDU	1	0	6	0	107	35	145
Heterosexual	4	0	13	5	148	128	276
Person from specified country ⁺	2	0	8	3	56	24	80
Haemophilia/related disorder	0	0	1	0	101	0	101
Transfusion recipient	0	0	1	2	20	15	35
Other	1	1	3	2	4	7	11
Under investigation	1	0	5	0	5	0	6
Unavailable	0	0	0	0	93	2	117
Total	23	1	121	12	3952	211	4204

* Includes 14 cases whose gender was transsexual and 27 cases for whom no gender was reported.

⁺ Persons from countries with a high prevalence (greater than 1 per cent) of HIV.

Table 4: Notified cases of HIV, by Time Since Last Negative Test or Seroconversion Illness, Victoria

Time between HIV Diagnosis and Negative Test and/or Seroconversion Illness	Cases Diagnosed Oct-Dec 1999			Cases Diagnosed 1999 Total		
	Male	Female	Total*	Male	Female	Total
Less than 1 year	5	0	5	31	5	36
1 year to less than 3 years	3	0	3	24	1	25
3 or more years	3	0	3	16	1	17
Previous negative test or seroconversion illness but date unknown	5	1	6	19	1	20
No previous negative test or seroconversion illness	7	0	7	31	4	35
Total	23	1	24	121	12	133

Incident, or newly acquired, cases of HIV accounted for 21 per cent (n=5) of cases notified this quarter and 27 per cent of cases notified during 1999 (n=36). Incident cases are defined as those who have had a negative test and/or symptoms of a seroconversion illness in the 12 months before being diagnosed as having HIV.

CHLAMYDIA INFECTIONS

There were 730 cases of *C. trachomatis* notified this quarter, virtually unchanged from the previous quarter's total of 733 cases. However, the annual total of 2979 cases notified during 1999 represents an increase of 22 per cent on the previous year's total of 2444 cases. The age and sex distribution of cases is unchanged, with most newly diagnosed cases occurring in young people aged 20-29 years and an overall annual female-to-male ratio of 1.5:1.

Table 5: Cases of *Chlamydia trachomatis* Notified, by Age and Sex, Victoria

Age Group	Chlamydia Notifications Oct-Dec 1999*				Chlamydia Notifications 1999 Total			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
0-12 years	0	0	0	2	0	5	0	10
13-19 years	16	67	0	83	44	296	0	340
20-29 years	169	271	1	441	639	1110	2	1751
30-39 years	92	56	0	148	341	271	0	612
40-49 years	26	10	0	36	117	74	0	191
50+ years	14	8	0	22	48	20	0	68
Unavailable	0	0	0	0	1	4	0	5
Total	317	412	1	730	1195	1780	2	2977

* Includes two cases with *C. trachomatis* eye infection.

Table 6: Isolations of *N. gonorrhoeae*, by Sexual Orientation and Gender, Victoria, 1 October–31 December 1999

Gender		Site of Isolation						Total
		Urethral	Vaginal	Cervical	Rectal	Pharyngeal	Other	
Heterosexual	Male	46	–	–	0	1	0	47
	Female	0	2	3	0	0	0	5
Homo/bisexual	Male	75	–	–	14	9	0	98
	Female	0	0	0	0	0	0	0
Unavailable	Male	33	–	–	2	1	1*	37
	Female	0	0	1	0	0	0	1
Total		154	2	4	16	11	1	188

* Isolated from joint.

GONORRHOEA INFECTIONS

Forty more notifications for gonorrhoea occurred in the final quarter of 1999 than were recorded in the third quarter. This appears to confirm the increasing trend observed in the first two quarters of this year. The urethra

continues to be the most common site of infection (n=154). Fifty-two per cent (n=98) of cases notified were among men who have sex with men. This percentage may increase when additional data on the 37 cases are obtained.

Table 7: Notifications of *N. gonorrhoeae*, by Age Group, Victoria, 1 October–31 December 1999

Age Group	Male	Female	Total	Proportion (%)
0–12 years	0	0	0	0
13–19 years	13	0	13	7
20–29 years	72	4	76	40
30–39 years	66	0	66	35
40–49 years	21	0	21	11
50+ years	9	2	11	6
Unavailable	1	0	1	1
Total	182	6	188	100

SYPHILIS INFECTIONS

Table 8: Notifications of Syphilis, by Sex and Category of Disease, Victoria, 1 October–31 December 1999

	Male	Female	Total*
Primary syphilis	0	0	0
Secondary syphilis	1	0	1
Latent syphilis – early	0	0	0
Latent syphilis – late	0	1	1
Latent syphilis – unknown	6	4	10
Other late syphilis	0	1	1
Neurosyphilis	0	0	0
Past treated	10	5	16
Unknown	21	13	37
Total	38	24	66

* Includes four persons for whom gender was unknown.

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Victorian Infectious Diseases Bulletin

The *Victorian Infectious Diseases Bulletin* is published quarterly and provides summaries of infectious diseases surveillance data, local news, outbreak investigations, infection control procedures, clinical cases of general interest and brief reports on original clinical or laboratory based research. The bulletin is distributed free of charge to persons with an interest in the control and treatment of infectious diseases in Victoria.

Contributions are invited on any topic dealing with the control of infectious diseases. These may be in the form of articles, short reports or letters. Submissions should be in Microsoft Word IBM-compatible format with Vancouver-style references. We encourage submissions in electronic format. Original data from which graphs and figures have been prepared should be included. Submissions will be edited to conform with the style of the bulletin.

The editors recognise and thank the individuals and organisations who contribute to the surveillance and management of infectious diseases. We remind authors of their responsibility to cite appropriate persons as authors, and to acknowledge separately those whose work contributed significantly but did not justify authorship.

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