

# Victorian Infectious Diseases Bulletin

## Vaccination of Adults and Health Care Workers

*Increasing attention is being paid to the importance of the vaccination status of adults, particularly health care workers, to the control of infectious diseases. Here, we highlight the rationale behind national initiatives to improve immunisation coverage in young adults, particularly against measles. We also reproduce some recently published letters to the Medical Journal of Australia which address vaccination issues in young adults, including the use of measles-mumps-rubella vaccine, varicella vaccine and a newly licensed acellular pertussis vaccine.*

### HEALTH CARE WORKERS SHOULD BE VACCINATED

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The focus of the National Immunisation Program has changed in recent years, from the immunisation of young children to a whole-of-life approach to immunisation. This change is in recognition that morbidity and mortality from the vaccine-preventable diseases, although most important to prevent in young children, remain significant in older age groups. In addition, adults can provide a reservoir of transmission to others who are most vulnerable.

This is particularly the case for health care workers. By definition, these workers come into contact with those who are immunosuppressed and most susceptible to transmission of infectious diseases. The lack of effective management systems for identifying and tracking the immunisation status of health care workers against the vaccine-preventable diseases was highlighted in Victoria in 1999. A measles outbreak of 75 cases occurred that year among young adults, with five health care workers in Victoria and one in South Australia being infected.<sup>1</sup> A further outbreak of 51 cases occurred in 2001 (see *VIDB*, vol. 4, no. 2).

The success of the Enhanced Measles Control Campaign in Victoria, along with the high measles-mumps-rubella (MMR) vaccine coverage being maintained in children aged 12 months (93 per cent, according to the Australian Childhood

Immunisation Register, June 2001) and 4 years, has led to high levels of immunity to measles in pre-school and school-aged children. This has left the young adult group as the most susceptible group for the transmission of measles. This group, aged approximately 18–30 years, was born in the post-vaccine era, so many are not immune from natural infection, but have missed immunisation with a measles-containing vaccine.

This has two implications. The first is the higher rate of hospitalisation resulting from measles infections in young adults, which was demonstrated in both the 1999 and 2001 outbreaks. Rates of hospitalisation in these outbreaks were 37 per cent and 43 per cent respectively. The second implication is that many health care workers are in this young adult age group, so they are the people who are most susceptible to infection, which can then be transmitted to their immunosuppressed contacts.

The Federal Health Minister has committed \$21 million to a campaign to vaccinate persons in this age group to improve their levels of immunity to measles. The MMR vaccine is now available free of charge to 18–30 year olds. Vaccination should be encouraged in all susceptible young adults, particularly health care workers, adults in contact with young children, and those intending to travel to endemic areas.

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## HEALTH CARE WORKERS CONTINUE TO BE AT RISK OF MEASLES

Susan A. Skull, Ross M. Andrews, Glenda J. Gorrie, Michaela A. Riddell, Alan C. Street. *Med J Aust* 2001;174:662-663. © Copyright 2001. *The Medical Journal of Australia*—reproduced with permission.

A recent outbreak of measles in Melbourne again highlights the importance of health care worker vaccination. Following the importation of measles in January by a health care student who visited India, 50 laboratory-confirmed secondary cases and two cases linked to a laboratory confirmed case were identified as at 19 March 2001. The morbidity and resources associated with the presentation of one patient to a Melbourne adult tertiary hospital are outlined. Owing to the unusual clinical features of the illness in this 29-year old woman, two visits to the emergency department and subsequent admission to a ward occurred without respiratory isolation measures in place.

Contact tracing revealed 70 health care workers aged between 18 and 34 years who had contact with the patient during the incubation period. Vaccination status was incomplete or unknown for 50 (71 per cent), who were advised to have serological testing. One non-immune health care worker was employed through an external agency and was advised to have vaccination. Another had a low positive IgG level and was excluded for two shifts until another IgG result confirmed immunity. One further health care worker contacted on sick leave for a coryzal illness had the suggested serological testing conducted by her general practitioner. She subsequently developed measles and was admitted to another hospital, where contact tracing for exposed health care workers was also conducted. It was later discovered that she had confirmed negative measles serology in 1999.

Measles vaccination is recommended for people of all ages, with those born since 1970 requiring two documented doses of measles-mumps-rubella vaccine because of a greater risk of having both incomplete vaccination and lack of exposure to wild-type virus. Measles vaccination is particularly important for health care workers and students in training, who may spread the disease to patients at potentially greater risk of severe disease, as well as to other staff.<sup>1</sup> During a previous measles outbreak in Victoria, 75 cases occurred among mostly healthy young adults, including six health care workers.<sup>2</sup> Just two years later, another outbreak has occurred among a similar age group, and only 29 per cent of exposed health care workers aged 18–34 years at this institution had a certain history of vaccination against measles. Considerable costs attributable to laboratory testing, staff exclusion and infection control personnel time might have been avoided if the vaccination status of health care workers had been complete or at least known. Several other Melbourne hospitals have conducted similar investigations related to this outbreak.

Health care workers, including students, must take greater responsibility for their own vaccination status and for keeping up-to-date records. This must be supported at an administrative level. In particular, measles vaccination status should be confirmed or updated at the time of employment.

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## RUBELLA VACCINATION IN PRENATAL AND POSTNATAL WOMEN: WHY NOT USE MMR?

Bernie M Ward, Stephen B Lambert, Rosemary A Lester. *Med J Aust* 2001;174:311-312. © Copyright 2001. *The Medical Journal of Australia*—reproduced with permission.

The epidemiology of measles is changing as Australia moves towards elimination of the disease. The 1999 Victorian measles outbreak showed that young adults aged 18–30 years are at higher risk of contracting measles.<sup>1</sup>

In August, the Federal Minister for Health and Aged Care announced that States and Territories would be given an additional \$20 million to provide free measles-mumps-rubella (MMR) vaccine young adults.<sup>2,3</sup> An easy method of reaching some of this group may be to substitute MMR for the monovalent rubella vaccine used to vaccinate rubella-susceptible women detected at perinatal screening.

In a recent review of rubella surveillance in Victoria, we examined the distribution of monovalent rubella and MMR vaccines. Between July 1998 and January 1999, 8610 doses of monovalent rubella vaccine and 90 430 doses of MMR vaccine were ordered. Of the monovalent rubella orders, 19 per cent came from general hospitals and 82 per cent came from general practices (10 general practice clinics had each ordered 100 or more doses). We conducted a simple telephone survey of the larger maternity hospitals and general practices in Melbourne ordering monovalent rubella vaccine to identify reasons for its use rather than MMR vaccine. Providers reported that they had no specific written policy for choosing to use monovalent rubella vaccine, and that current patterns of use reflected historical practice.

Compared with monovalent rubella vaccine, the combined MMR vaccine is equally safe, well tolerated and effective. Women with no or low immunity to rubella having prenatal or postnatal vaccination with MMR do not require serological testing for measles before vaccination. Although both vaccines are given to providers free of charge for publicly funded vaccination programs, MMR vaccine costs the Victorian Department of Human Services almost twice as much as monovalent rubella vaccine. However, we believe that providing women in this hard-to-reach age group at higher risk of measles infection with protection against three diseases, without the need for new or additional infrastructure or program costs, is an efficient use of public health resources.

There is no obvious reason for the continued use of monovalent rubella vaccine for young adult women. We suggest that health care providers review their use of monovalent rubella vaccine and consider using MMR vaccines instead. In addition, State health departments should review the current policy of making monovalent rubella vaccine routinely available.

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**PREDICTIVE VALUE OF PERSONAL RECALL OF CHICKEN POX INFECTION: IMPLICATIONS FOR THE USE OF VARICELLA VACCINE.**

Harin A Karunajeewa, Heath A Kelly. *Med J Aust* 2001; 174:153. © Copyright 2001. *The Medical Journal of Australia*—reproduced with permission.

Although rarely fatal, varicella-zoster virus (VZV) causes substantial morbidity, particularly in adults.<sup>1</sup> Furthermore, infection during pregnancy carries a risk of congenital malformations. National Health and Medical Research Council (NHMRC) guidelines recommend vaccination of adolescents and adults not immune to the virus, particularly in women before pregnancy.<sup>2</sup> The newly licensed varicella vaccine is safe and effective.<sup>2</sup>

The presence of VZV IgG has been correlated with immunity and its absence with susceptibility.<sup>3</sup> Previous serological studies have reported that a self-reported history of chicken pox predicts the presence of VZV IgG in 97 per cent to 99 per cent of people tested.<sup>4</sup> Between 60 per cent and 93 per cent of those without a recalled history also have VZV IgG.<sup>2, 5</sup> The NHMRC guidelines<sup>2</sup> suggest that those with a reliable history of varicella should be considered immune, and that serological testing before vaccination is likely to be cost-effective in those with a negative or uncertain history. A common approach is therefore to perform serological tests only on these two groups and then to vaccinate the seronegative subgroup.

To validate this approach, we questioned 308 women attending an antenatal clinic in Melbourne about their history of chickenpox and performed serological tests for VZV IgG on all the women. We used a standard commercial enzyme immunoassay (Dade Behring, Marburg, Germany) which the manufacturer claims is 99 per cent sensitive and 100 per cent specific. Both Australian and US authorities base vaccination recommendations on the presence or absence of VZV IgG.<sup>2, 4</sup> Enzyme immunoassays are among the more sensitive and specific assays commercially available.

The age and ethnic distribution of our sample was representative of the Australian population of pregnant women<sup>6</sup> and there was no significant increase in immunity with age. The results are presented in the Box. Our study showed that the NHMRC vaccination strategy would have

missed as many individuals as it identified. A vaccination strategy that misses 5 per cent of non-immune people who believe that they have been previously infected may be acceptable and cost-effective for some population groups. However, in those in whom it is crucial to establish VZV immunity—health care workers, pregnant women, and household contacts of immunocompromised people—we recommend serological testing regardless of self-reported history of chicken pox infection.

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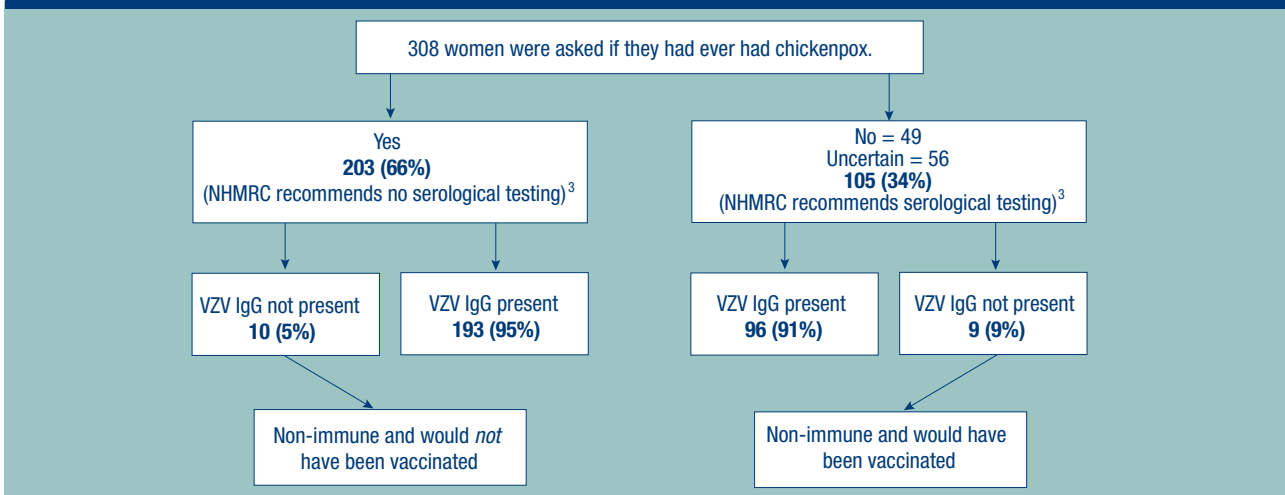
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**A DIPHtheria–TETANUS–ACellular PERTUSSIS VACCINE FOR ADULTS: THE WRONG BOOSTER VACCINE FOR AUSTRALIA?**

Heath A Kelly, Ross M Andrews. *Med J Aust*. 2001;175: 173. © Copyright 2001. *The Medical Journal of Australia*—reproduced with permission.

Given Australia’s recognised problem with pertussis infections among adults and adolescents,<sup>1</sup> interest has focused on the feasibility of a pertussis vaccine effective as an adult booster. Such a vaccine was recently licensed in Australia (Boostrix, GlaxoSmithKline). However, Boostrix includes not only an acellular pertussis vaccine, but also antigens for both diphtheria and tetanus toxoids (DTPa). It was licensed in Australia after immunogenicity and reactogenicity studies alone,<sup>2</sup> without published vaccine efficacy studies. Pertussis may present in more varied ways in adults and adolescents than in children,<sup>3</sup> and

**Box 1. Correlation of History of Chickenpox Infection with Serologically Confirmed Immune Status in 308 Women Attending an Antenatal Clinic.**



VZV IgG = Varicella-zoster virus IgG

efficacy studies in older age groups would seem appropriate to assess the vaccine's ability to prevent or modify various clinical endpoints.

Pertussis vaccine administered in childhood provides immunity for a limited period<sup>3</sup> and a pertussis booster may therefore be beneficial in extending the period of individual immunity. However, it is not clear that a booster dose will have any longer lasting effects in adulthood than in childhood. Moreover, if frequent booster doses are needed, new difficulties may arise related to the diphtheria and tetanus components of the vaccine. Unlike pertussis, tetanus and diphtheria present no particular problem in Australian adolescents and young adults. Indeed, National Health and Medical Research Council recommendations for boosting with adult diphtheria and tetanus vaccine (ADT) after completion of the standard childhood schedule comprise a booster dose at age 15–19 years followed by another at age 50.<sup>4</sup> Increasing the frequency of ADT boosters may increase the frequency of adverse reactions;<sup>5</sup> the same may occur with boosters of an adult acellular pertussis vaccine that includes diphtheria and tetanus components.

We believe Australia should be cautious about the use of the adult DTPa vaccine. It has been licensed in Australia without adequate vaccine efficacy studies in adults and adolescents, and any increase in frequency of boosting for pertussis that might be recommended in these age groups would be inappropriate for the tetanus and diphtheria components of the vaccine. A more appropriate vaccine for Australia may be a monovalent acellular pertussis vaccine with demonstrated vaccine effectiveness in adolescents and adults for defined clinical outcomes.

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## Infectious Diseases News

### ACUTE HEPATITIS B INITIATIVES

The number of cases of acute hepatitis B infections notified to the Department of Human Services rose in the first half of 2001. To ensure public health interventions are directed appropriately, the Public Health Division commenced enhanced surveillance for acute hepatitis B from 1 July by obtaining detailed information on risk factors from cases. A public health alert was also released through the Needle and Syringe Program, notifying intravenous drug users of risk minimisation for hepatitis B and other blood-borne viruses, and the need for primary prevention through vaccination.

### ENHANCED MUMPS AND RUBELLA SURVEILLANCE

With the increasing success of measles elimination in the western hemisphere, the detection and control of rubella and mumps have increased in importance. In populations with high vaccine coverage, the clinical diagnosis of mumps and rubella is difficult. Without laboratory confirmation, clinical notifications do not provide a reliable measure of disease incidence. To improve the quality of surveillance data, an enhanced surveillance system that involves laboratory confirmation of all suspected cases was implemented in Victoria in July 2001. For further information, contact the Communicable Diseases Section on (03) 9637 4126.

### UPCOMING CONFERENCES

The Department of Human Services is hosting a National Privacy Conference at the Hotel Sofitel in Melbourne on 26–27 November 2001. Further information and registration details can be obtained at <http://www.icms.com.au/privacy>.

### PERTUSSIS IN SOUTH AUSTRALIA

An upward trend in the number of laboratory and medical notifications has been observed in South Australia since June 2000. In 2001, 616 cases have been notified to date, compared with annual totals of 587, 227, 549 for 2000, 1999, 1998 respectively. Of cases notified in 2001, 85 per cent were aged 10 years and over. The cases are geographically dispersed throughout metropolitan and rural areas of South Australia.

### Q FEVER VACCINATION

The Federal Government has made \$10.6 million available to the States and Territories over the next three years for a National Q Fever Management Program. The program aims to test high-risk workers (abattoir workers, those closely associated with the meat processing industry, such as livestock transporters, and shearers) and immunise those found to be susceptible. The program commenced in Victoria on 1 July 2001, with the additional aim of training general practitioners with an interest in screening and vaccinating target groups in their areas.

### OZFOODNET UPDATE

The major activities for OzFoodNet–Victoria over the second three months of the project have been:

- The commencement of enhanced gastrointestinal outbreak surveillance in the Hume and the Western Metropolitan regions, with the employment of local government Environmental Health Officers.
- Presentations to Divisions of General Practice on food-borne disease and gastroenteritis.
- Preparation for the commencement (due September) of various case control studies to examine risk factors for sporadic salmonellosis, campylobacteriosis and listeriosis.
- Continuing evaluation of surveillance of food-borne diseases in Victoria.

You can obtain further information about the project by contacting Joy Gregory (03 9637 5897, [joy.gregory@dhs.vic.gov.au](mailto:joy.gregory@dhs.vic.gov.au)) or Nittita Prasopa-Plaizier (03 9637 4839, [nittita.prasopa-plaizier@dhs.vic.gov.au](mailto:nittita.prasopa-plaizier@dhs.vic.gov.au)).

### THANKS TO THE MJA

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# Capnocytophaga canimorsus: A Serious Infection Masquerading as a Serious Infection

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## INTRODUCTION

*Neisseria meningitidis* bacteraemia is an infectious disease emergency that may follow a fulminant and rapidly fatal course. Its characteristic presentation is fever, purpuric rash and septic shock. A less well-known organism, *Capnocytophaga*, may cause an identical clinical picture. A recent notification of meningococcaemia was subsequently found to be due to *Capnocytophaga canimorsus* infection. We present a case of *C. canimorsus* bacteraemia and discuss the clinical, microbiological and therapeutic aspects of this infection.

## CASE REPORT

An 81-year-old woman presented to an emergency department with septic shock and a purpuric rash. The patient had a past history of severe rheumatoid arthritis requiring immunosuppressive therapy (prednisolone 15 mg daily and methotrexate 7.5 mg weekly). On the three days preceding admission, she developed flu-like symptoms, including myalgia, lethargy, headache and mild fever. On the morning of admission, she became confused and disorientated. Purpuric lesions had begun to appear on her extremities approximately one hour before presentation.

On admission to the emergency department, the patient was in septic shock. She had a fever of 39.5 degrees Celsius, blood pressure of 80/60 mmHg and a pulse rate of 120 beats per minute, and was hypoxic. She had a purpuric rash involving the distal fingers and toes and the tip of the nose. Blood cultures were taken and she was commenced on a third-generation cephalosporin antibiotic for presumed meningococcaemia. She required intubation and mechanical ventilation, and inotropic support to maintain blood pressure. Serum biochemistry showed acute renal failure, and blood film and coagulation studies revealed disseminated intravascular coagulation and profound thrombocytopenia.

The patient's condition continued to deteriorate. The purpuric rash spread to the abdomen, chest and back, and became palpable and haemorrhagic. A petechial rash was developing on her lower legs. Necrotic areas developed on the tips of a number of fingers and toes. Haemodialysis was commenced and broad-spectrum antibiotic therapy was added to her regimen. Seventy-two hours after admission, the anaerobic bottles of both sets of blood cultures became positive. A long, thin, curved gram-negative rod was seen on gram stain. Basic biochemical tests enabled *Capnocytophaga* species to be provisionally identified. A reference laboratory confirmed the isolate as *C. canimorsus*.

High-dose penicillin was commenced and the patient gradually improved. She remained in intensive care for four weeks, requiring haemodialysis for most of that time. Complications of her illness included severe peripheral gangrene, requiring amputation of two fingers. She was

discharged home after a number of months in hospital. We believe the source of her infection was her pet cat.

## THE ORGANISM

*Capnocytophaga* was first identified at the Pasteur Institute in 1956 and has a complex taxonomic history.<sup>1</sup> It was initially classified as a member of the genus *Fusobacterium* and was given the name *Fusobacterium nucleatum* var. *ochraceus*. In 1962 a second isolate was identified and classified as a *Ristella* species, while at the same time in the United States an isolate was ascribed to the genus *Bacteroides*. In the 1960s an isolate was designated Centre for Disease Control Dysgonic Fermentor-1 (CDC group DF-1). Finally, in the late 1970s all isolates were found to be the same and were assigned to the genus *Capnocytophaga*, whose name reflects the organism's requirement for carbon dioxide.

*Capnocytophaga* are gram-negative fusiform bacilli that require carbon dioxide for both aerobic and anaerobic growth. They have a characteristic gliding motility. They are slow-growing organisms that produce moist yellow, tan or pinkish colonies. On rare occasions, the infection may be diagnosed by a gram stain of the buffy coat.<sup>2</sup>

There are five human species of *Capnocytophaga*, all of which are part of the normal oral flora. The most important human pathogens are *C. ochracea*, *C. gingivalis* and *C. sputigena*. In addition, two canine species may cause disease in humans: *C. canimorsus* and *C. cynodegmi* (Latin and Greek for dog bite). They are commensal organisms of dog and cat saliva.

## CLINICAL SPECTRUM OF DISEASE

Infection with *Capnocytophaga* species may cause a broad spectrum of disease. This ranges from periodontitis and infections of clenched fist injuries and dog and cat bites and scratches, to more serious infections, including cellulitis, osteomyelitis, septic arthritis, pneumonia and endocarditis.<sup>1, 3-6</sup> Infections due to the canine species of *Capnocytophaga* are characteristically associated with close contact with dogs or dog bites. There have been, however, reports of infections following cat bites/scratches and even following a history of only trivial animal contact.<sup>1, 3</sup>

Both human and canine species of *Capnocytophaga* can cause bacteraemia. Bacteraemia due to the human species occurs most often in patients with moderate-to-severe mucositis and neutropaenia due to chemotherapy for an underlying malignancy. It is usually uncomplicated.<sup>7</sup>

Bacteraemia due to *C. canimorsus* also occurs in patients with immune compromise. Of reported cases of *C. canimorsus* infections, 30-40 per cent occurred in asplenic patients and 25-30 per cent occurred in patients with a history of alcohol abuse.<sup>8, 9</sup> The largest reported case series reviewed 39 cases of bacteraemia.<sup>10</sup> While 13 patients had been previously well, the remaining patients had had underlying illness, particularly asplenia and alcoholism.

Fever, rash and gastrointestinal symptoms were the most common presenting features. Disseminated intravascular coagulation (DIC) developed in 14 patients, meningitis developed in five and endocarditis developed in one case. The case fatality rate was 30 per cent. Overwhelming sepsis leading to DIC, purpura fulminans and symmetrical peripheral gangrene results in a syndrome indistinguishable from fulminant meningococcaemia.<sup>11, 12</sup>

## MANAGEMENT

*C. canimorsus* and the human species of *Capnocytophaga* are susceptible to a broad range of antibiotics, including antibiotics that are usually active only against gram-positive organisms. These include penicillin, second- and third-generation cephalosporin antibiotics, trimethoprim-sulfamethoxazole, ciprofloxacin, clindamycin, vancomycin and rifampicin.<sup>9</sup> Strains of *C. gingivalis* and *C. sputigena* that produce beta-lactamases<sup>13</sup> and fluoroquinolone-resistant strains<sup>3</sup> have recently been reported.

*C. canimorsus* bacteraemia is a rare infection, which may be clinically indistinguishable from fulminate meningococcaemia. The infection should be considered in an asplenic patient with purpura fulminans, particularly if there is a history of animal contact.

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# The Mycobacterium Reference Laboratory: Activities during 2000

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The Mycobacterium Reference Laboratory at the Victorian Infectious Diseases Reference Laboratory (VIDRL) is one of five such laboratories in Australia. It provides a facility for the referral of primary specimens and mycobacterial isolates, including those from veterinary and environmental origins. The laboratory receives specimens from Victoria, the Northern Territory and the Solomon Islands. In addition, it receives *Mycobacterium tuberculosis* isolates for DNA fingerprinting from other Australian States and is in the process of generating an Australia-wide database of RFLP profiles to aid in epidemiological studies.

Mycobacterial isolates are identified using a combination of biochemical and molecular techniques, including polymerase chain reaction (PCR)-based assays and DNA sequence analysis. Susceptibility testing is performed when indicated for isolates identified as *M. tuberculosis*.

Of the 6058 specimens that the laboratory received in 2000, *M. tuberculosis* was recovered for the first time from 223 Victorian patients, of whom four were HIV positive (three males and one female). Approximately two-thirds of these isolates were from pulmonary specimens. The most common extrapulmonary sites were lymph nodes. Some of the more unusual sites included cerebrospinal fluid (CSF), hip and leg biopsies, ear tissue, knee fluid and a

bowel biopsy. Six patients had multi-system involvement and two had local dissemination.

*M. bovis* was isolated from the sputum and urine from a 45-year-old male residing in the Northern Territory. *M. bovis* BCG was recovered from three patients: two isolates were from vaccination sites and one was from an elderly male treated with BCG for transitional cell carcinoma. Resistance to one or more of the first line drugs was detected in 18 newly diagnosed patients. One isolate from an African HIV-positive female was multi-drug resistant.

The most commonly isolated mycobacterium species other than *M. tuberculosis* is the *M. avium* complex (MAC). First-time isolates were recovered from 169 individuals. Confirmed concurrent infection with HIV was a likely predisposing factor in 12 of these patients. MAC is commonly isolated from lymph nodes in young children, and there were 13 such isolates from children aged under 3 years. MAC was also isolated from a variety of veterinary specimens, including those from cattle, pigs, a dog and a red kangaroo. The following were among other interesting or unusual isolates.

- *M. fortuitum* was isolated from the corneal scrapings of a 22-year-old male.
- *M. abscessus* was isolated from the axilla of a long-footed potoroo.

- *M. marinum* was isolated from the extremities of two males. This organism is usually isolated from lesions acquired during leisure activities involving water.
- *M. kansasii* was identified as a first-time isolate from pulmonary specimens of nine patients, of whom the majority were elderly males. One isolate was from a 35-year-old HIV-positive male.
- *M. heckeshornense* was cultured from four different patients. One patient was a 49-year-old HIV-positive male from whom the organism was recovered from his blood and ascitic fluid. Identification of this recently defined species—isolates of which are similar to *M. xenopi* on the basis of biochemical testing—was facilitated by molecular techniques, including DNA sequence analysis of the 16S rRNA gene.
- Molecular analysis was also used for the successful identification of three isolates of *M. haemophilum* and one of the recently described *M. lentiflavum*. *M. haemophilum* is a rare cause of disease and usually is isolated from skin lesions of immunosuppressed patients. Of the three cases involving this organism, one was a 9-month-old infant with a shoulder lesion. An elderly female had the organism isolated from a leg biopsy and blood. The third patient was a 27-year-old HIV-positive male with a knee infection.
- *M. ulcerans* was recovered from two young males, both suffering from chronic ulcers on their legs. The organism was also isolated from two ringtail possums found on Phillip Island.

## 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 30 June 2001 for children aged 12–<15 months and 24–<27 months at 31 March 2001. 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 ([michele.sands@dhs.vic.gov.au](mailto:michele.sands@dhs.vic.gov.au)).

Congratulations to all immunisation providers in the municipalities where coverage of 95 per cent or higher for children at 12 months of age was achieved. Mention must be made of the municipalities of Strathbogie, Towong and Yarriambiack, where 100 per cent of children aged 12–15 months were immunised. Buloke, West Wimmera and Yarriambiack achieved coverage of 100 per cent for

children aged 24 months. Overall coverage in Victoria of children aged 12 months was 92 per cent over the three-month period. Coverage of children aged 24 months rose to the highest recorded level of 87 per cent. Measles–mumps–rubella (MMR) coverage for the State was 93 per cent.

A major program recently commenced in Victoria, involving cooperation between general practice divisions and local government authorities. This program involves identifying children through ACIR who either have not commenced immunisation or have fallen behind on routine immunisation. This allows providers to target their resources to increase immunisation coverage levels.

**Table 1: Childhood Immunisation Coverage, by Local Government Area, Victoria, 2001**

Age Group	% Fully Immunised	Local Government Area (LGA)	Total LGAs (% LGAs)
12–<15 months	95%+	Ararat (RC), Bass Coast (S), Buloke (S), Campaspe (S), Hindmarsh (S), Kingston (C), Loddon (S), Melton (S), Moyné (S), Murrindindi (S), Southern Grampians (S), Strathbogie (S), Towong (S), Wangaratta (RC), Warrnambool (C), Whittlesea (C), Wodonga (RC), Yarriambiack (S)	18 (23%)
	90–94%	Alpine (S), Ballarat (C), Banyule (C), Baw Baw (S), Boroondara (C), Brimbank (C), Cardinia (S), Casey (C), Darebin (C), Delatite (S), Frankston (C), Gannawarra (S), Glen Eira (C), Glenelg (S), Golden Plains (S), Greater Geelong (C), Hobsons Bay (C), Horsham (RC), Hume (C), Knox (C), La Trobe (C), Macedon Ranges (S), Manningham (C), Maribyrnong (C), Maroondah (C), Mildura (RC), Mitchell (S), Monash (C), Moonee Valley (C), Moorabool (S), Moreland (C), Mornington Peninsula (S), Nillumbik (S), Northern Grampians (S), Pyrenees (S), Stonnington (C), Surf Coast (S), Swan Hill (RC), Wellington (S), Whitehorse (C), Wyndham (C), Yarra (C), Yarra Ranges (S)	43 (55%)
	85–89%	Bayside (C), Central Goldfields (S), Colac–Otway (S), Corangamite (S), East Gippsland (S), Bendigo (C), Greater Dandenong (C), Greater Shepparton (C), Indigo (S), Melbourne (C), Moira (S), Mount Alexander (S), Port Phillip (C), South Gippsland (S)	14 (18%)
	80–84%	West Wimmera (S)	1 (1%)
	<80%	Hepburn (S), Queenscliffe (B)	2 (3%)

Table continued overleaf >

**Table 1: Childhood Immunisation Coverage, by Local Government Area, Victoria, 2001 (continued)**

Age Group	% Fully Immunised	Local Government Area (LGA)	Total LGAs (% LGAs)
24–<27 months	95%+	Buloke (S), Corangamite (S), Moyne (S), Northern Grampians (S), Towong (S), West Wimmera (S), Yarriambiack (S)	7 (9%)
	90–94%	Ararat (RC), Ballarat (C), Baw Baw (S), Campaspe (S), Delatite (S), Gannawarra (S), Glenelg (S), Golden Plains (S), Greater Geelong (C), Greater Shepparton (C), Hindmarsh (S), Horsham (RC), Knox (C), Melton (S), Mitchell (S), Moreland (C), South Gippsland (S), Southern Grampians (S), Swan Hill (RC), Wangaratta (RC), Wellington (S), Whitehorse (C)	22 (28%)
	85–89%	Alpine (S), Banyule (C), Bass Coast (S), Bayside (C), Boroondara (C), Brimbank (C), Cardinia (S), Casey (C), Darebin (C), East Gippsland (S), Frankston (C), Glen Eira (C), Greater Bendigo (C), Hepburn (S), Hobsons Bay (C), Hume (C), Indigo (S), Kingston (C), La Trobe (C), Macedon Ranges (S), Manningham (C), Maroondah (C), Mildura (RC), Moira (S), Moorabool (S), Mornington Peninsula (S), Pyrenees (S), Stonnington (C), Surf Coast (S), Warrnambool (C), Whittlesea (C), Wodonga (RC), Wyndham (C), Yarra Ranges (S)	34 (44%)
	80–84%	Colac-Otway (S), Greater Dandenong (C), Loddon (S), Melbourne (C), Monash (C), Moonee Valley (C), Mount Alexander (S), Murrindindi (S), Nillumbik (S), Strathbogie (S), Yarra (C)	11 (14%)
	<80%	Central Goldfields (S), Maribyrnong (C), Port Phillip (C), Queenscliffe (B)	4 (5%)
<b>State/Territory/National (% Fully Immunised)</b>			
12–<15 months		Tasmania (94%); Victoria, Queensland, Australia (92%); South Australia (93%); Australian Capital Territory, New South Wales (91%); Western Australia (90%); Northern Territory (89%)	
24–<27 months		Tasmania, South Australia, Australian Capital Territory (90%); Queensland (89%); Victoria, Australia (87%); Northern Territory (86%); Western Australia (85%); New South Wales (84%)	

## Surveillance Report

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, investigation is initiated on the basis of clinical suspicion in the absence of laboratory confirmation. 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 until 31 June 2001. The report has been produced by the Communicable Diseases Section, Department of Human Services, in cooperation with the Victorian Infectious Diseases Reference Laboratory and the Epidemiology and Social Research Unit of the Macfarlane Burnet Centre for Medical Research. We gratefully acknowledge the contribution of the Microbiological Diagnostic Unit, University of Melbourne; the Melbourne Sexual Health Centre; and the Victorian Collaborative Group on HIV and AIDS Surveillance.

Table 13 includes historical comparisons of selected diseases with 2000 data at both the State and regional level. Summary data at local government level for the diseases listed are available from Greg Mathews, Communicable Diseases Section, Department of Human Services (03 9637 4108). There have been no notifications of anthrax, diphtheria, leprosy, plague, poliomyelitis, rabies, primary amoebic meningo-encephalitis, viral haemorrhagic fevers or yellow fever. Cryptosporidiosis, hepatitis D and E, influenza, invasive pneumococcal disease, Japanese encephalitis and lyssavirus (Australian bat lyssavirus and other lyssaviruses) were added to the list of notifiable diseases on 16 May 2001. Amoebiasis, chancroid, hydatid disease, Lymphogranuloma venereum, primary amoebic meningo-encephalitis, taeniasis, typhus and yersiniosis ceased to be notifiable on 16 May 2001.

For comments or queries related to data for sexually transmissible diseases, contact Cathy Keenan or Dr Nick Crofts, Epidemiology and Social Research Unit, Macfarlane Burnet Centre for Medical Research (03 9282 2290), or the Communicable Diseases Section, Department of Human Services (03 9637 4126).

Fortnightly surveillance data from the Victorian Infectious Diseases Reference Laboratory are available at <http://www.dhs.vic.gov.au/vidri/>. All data in this report are provisional and subject to revision as further information becomes available. You can find general information related to the control of infectious diseases (The Blue Book) on line at [http://www.dhs.vic.gov.au/phd/hprot/inf\\_dis/bluebook/index.htm](http://www.dhs.vic.gov.au/phd/hprot/inf_dis/bluebook/index.htm).

### OUTBREAKS OF GASTROINTESTINAL ILLNESS

For the second quarter of 2001, 17 outbreaks of gastrointestinal illness were reported to the Communicable Diseases Section of the Department of Human Services (Table 1). Three were in children's indoor play centres. These centres have become popular in Melbourne, particularly over the winter months of the year. They specialise in catering for children's birthday parties and they provide an indoor area with play

equipment. Individual children not attending a party can also attend the centres.

Norwalk-like virus was confirmed to be the cause of the three outbreaks. The virus is suspected to have been transmitted either directly, person to person, or indirectly via food or contaminated equipment. These outbreaks highlight the necessity for play equipment to be regularly cleaned and sanitised, particularly after any child has vomited or faecally contaminated any of the surfaces. Procedures for cleaning

these areas should be similar to those in a child care centre. If vomiting has occurred on a carpeted area, then it is important to ensure the carpet is steam cleaned as soon as possible. Norwalk-like virus is capable of surviving on surfaces for three to four weeks at room temperature.

**Table 1: Outbreaks of Gastrointestinal Illness, 1 April – 31 June 2001**

Setting	Outbreaks	Persons Affected	Pathogen/Toxin (Number of Outbreaks)
Restaurant/ reception/ other food premises/ specific food	3	11	Unknown (2) Suspected viral (1)
Aged/disability/health care institution	6	73	Norwalk-like virus (1) Suspected viral (4) Giardia (1)
Recreation/holiday/camp	4	77	Norwalk-like virus (3) <i>Salmonella</i> Typhimurium 9 (1)
Children's service/school	4	55	Norwalk-like virus (1) Rotavirus (2) Suspected viral (1)
TOTAL	17	216	Norwalk-like virus (5) Suspected viral (6) Rotavirus (2) Giardia (1) <i>Salmonella</i> (1) Unknown (2)

### SALMONELLA TYPHIMURIUM 104 LINKED TO A TURKISH SWEET

From 12 June 2001 the Communicable Diseases Section investigated a cluster of 14 cases of *Salmonella* Typhimurium DT 104 (STM 104) in metropolitan Melbourne. All cases were aged 3–40 years and all were of Middle Eastern backgrounds. This is a rare serovar in Australia and usually associated with overseas travel. None of the cases had a history of travel overseas.

Initial investigations, including a case-control study and environmental sampling, failed to determine the source, although a clear association with shopping in continental delicatessens was established. On 23 July 2001 the Department became aware of an outbreak of STM 104 in Sweden which had been linked to helva (otherwise known as halva or halwa)—a type of sweet made from sesame seeds, sugar and flavouring—which had been imported from Turkey.

Further investigations in Victoria, including a second case control study, established a clear epidemiological association with the consumption of helva. Subsequent sampling of helva products resulted in the isolation of STM 104 from two brands of helva, both imported from Turkey and produced by the same manufacturer. The STM 104 isolates from both brands had the same antibiotic resistance patterns as those of the cases.

The Australia New Zealand Food Authority coordinated a national recall of the two brands of helva. Three cases were reported interstate, two of whom were known to have consumed the implicated helva. The investigations in Australia and Sweden prompted a European alert, and investigations are now underway in Norway, the United Kingdom and Germany. The Australia New Zealand Food Authority has been officially advised by the Australian Embassy in Turkey that the two brands imported to Australia and the product implicated in the Swedish cases were produced by the same company in Turkey during the same period in October 2000. Information provided by the company suggests the source of contamination is not known.

### SALMONELLA TYPHIMURIUM 99 LINKED TO LAMBS FRY

Early in 2001 a *Salmonella* Typhimurium 99 (STM 99) infection was notified in a person who had been handling sheep that had died due to an illness caused by STM 99 infection. More cases were notified in the south west of Victoria in June, so a cluster investigation was initiated. One case reported having eaten from the buffet of a local hotel two days before illness onset. That case was aware of other patrons who had been ill with gastrointestinal symptoms around the same time. A second confirmed case of STM 99 in the cluster investigation also reported having eaten at the same hotel on the same evening. Epidemiologic investigations implicated lambs fry as the probable cause of the outbreak at the hotel. None of the food samples collected during the investigation was positive for STM 99. A full report of the outbreak is being prepared.

### KUNJIN ENCEPHALITIS

There was one notification in June of a case of Kunjin encephalitis: a 66-year-old Victorian male who had been on a three-week camping and fishing trip to the Northern Territory. During his incubation period, he had travelled through outback Victoria, New South Wales, South Australia and the Northern Territory. Seroconversion of sentinel chicken flocks to flaviviruses had been reported in the preceding months in northern Victoria, far west New South Wales and the Northern Territory. Detection of Kunjin virus in sentinel flocks in Victoria is unusual.

The case highlights the need for travellers to endemic areas to be aware of the risks of mosquito-borne disease and ensure adequate protection against mosquito bites, particularly at dawn and dusk. Similarly, clinicians in southern States should consider arboencephalitis as a differential diagnosis in patients with clinical syndromes consistent with viral encephalitis, particularly where there is a history of travel to endemic areas.

### INVASIVE PNEUMOCOCCAL DISEASE

Surveillance for invasive pneumococcal disease (IPD) in Victoria commenced under a voluntary laboratory-based scheme in December 2000. The disease was subsequently included as a notifiable disease in the Health (Infectious Diseases) Regulations 2001 in May 2001.

From January–June 2001, 89 notifications were received for 50 males (56 per cent) and 39 females. There were no notifications for Aboriginal or Torres Strait Islander persons. The associated clinical syndromes were pneumonia (47 cases), bacteremia (32 cases) and meningitis (eight cases). Clinical data were not available for two cases.

Twenty-three cases were aged less than 2 years (37 cases per 100 000 population per year), yet only one of these cases had a known risk factor (being immunocompromised). There were 43 cases aged 2–64 years (three cases per 100 000 population per year): 10 (23 per cent) who were immunocompromised; 11 (26 per cent) who were immunocompetent persons at increased risk as a result of a chronic medical condition; four (9 per cent) who were cigarette smokers with no other identified risk factor; and 17 (40 per cent) who had no identified risk factor. Risk factor information was not obtained for one case. None of these cases had been vaccinated against pneumococcal disease.

Twenty-three cases were aged 65 years or more (8 cases per 100 000 population per year). This group comprised seven (30 per cent) who were immunocompromised, 10 (43 per cent) who had a chronic medical condition, five (22 per cent) who had no identified risk factor other than age and one whose condition was unknown. Although pneumococcal vaccine is recommended for all persons in this age group, only five (22 per cent) had been vaccinated. Three of the five cases were clearly vaccine failures because they were caused by serotypes contained in the vaccine (serotypes 6B, 14 and 19F). One case was not typeable and the remaining case's isolate was not forwarded for serotyping. Two of the vaccinated cases were immunocompromised and the remaining three cases had chronic medical conditions.

Seventy isolates were serotyped. Of the 18 isolates from children under the age of 2 years, 17 belonged to serotypes included in the new 7-valent conjugate vaccine. The other was serotype 19A. Among the 52 isolates from cases aged 2 years and over, 50 belonged to serotypes included in the 23-valent-polysaccharide vaccine. The remainder were serotypes 9A and 9L.

The Federal Government has pledged \$19 million over the next three years to introduce the new 7-valent conjugate vaccine (Prevenar™) to protect high-risk infants and children from IPD. These children include Aboriginal and Torres Strait Islander children (who have the highest reported rates of disease) and other children with certain pre-existing medical conditions. In Victoria, indigenous children to the age of 2 years are eligible for free vaccine through general practices, local government clinics and Aboriginal Medical Services. Three doses of vaccine are given at ages 2, 4 and 6 months of age. No booster dose is necessary.

Children to the age of 5 years with some specific medical conditions leading to impaired immunity (for example, congenital immune deficiencies, HIV infection, haemoglobinopathies, asplenia, relapsing or persistent nephrotic syndrome) and some specific anatomical abnormalities

(for example, cyanotic congenital heart disease or CSF leak) are eligible for free vaccine through the Royal Children's Hospital and the Monash Medical Centre.

## MENINGOCOCCAL DISEASE

The department received 67 notifications of invasive meningococcal disease in Victoria to 30 June 2001, compared with 57 cases for the same period in 2000. The total for the 12 months to June 2001 was 172 cases, compared with 155 cases in the 12 months to June 2000.

In the past two years, attack rates were highest for infants aged less than 1 year (Table 2). In children aged under 10 years, serogroup B has caused twice as much meningococcal disease (24 of 51 cases in 1999–2000 and 25 of 60 cases in 2000–01) as that caused by serogroup C (12 cases in each of the same two years). This pattern is reversed in older cases, particularly in teenagers and young adults, among whom serogroup C is the predominant cause of disease.

The high case fatality rate from serogroup C in 1999–2000 was due to the advent of a particularly aggressive novel serogroup C clone (known as C:2a:P1.7,4), which has become Victoria's most common serogroup C strain.

Of interest is the unusual rise in cases confirmed as being serogroup W135 and serogroup Y. In the 12 months to June 2001, four cases of serogroup W135 and five cases of serogroup Y were notified, compared with one case of serogroup W135 only for the preceding 12-month period. No epidemiological links between them have been identified. Further, the W135 cases have no known links with the Hadj pilgrimage in the Middle East, which was associated with this serogroup during the past two years.

Late winter/early spring is the peak time for meningococcal disease in Victoria, so the department is urging clinicians to be alert for signs of the disease, treat early with appropriate antibiotics and notify the Communicable Diseases Section on clinical suspicion.

**Table 2: Age Groups and Serogroups of Cases of Meningococcal Disease, 1999–2000 and 2000–01**

Age Group	July 1999 – June 2000				July 2000 – June 2001			
	Sg B	Sg C	Other and Clinical	Total (Rate/100 000)	Sg B	Sg C	Other and Clinical	Total (Rate/100 000)
<12 months	9	2	5	16 (26.0)	6	4	6	16 (26.0)
1–4 years	11	6	7	24 (9.8)	13	7	12	32 (13.1)
5–9 years	4	4	3	11 (3.4)	6	1	5	12 (3.7)
10–14 years	2	4	1	7 (2.2)	2	7	3	12 (3.8)
15–19 years	8	15	7	30 (9.3)	8	13	6	27 (8.4)
20–24 years	7	10	6	23 (6.7)	5	12	3	20 (5.8)
25–29 years	3	5	3	11 (2.9)	2	11	4	17 (4.6)
30–39 years	2	3	5	10 (1.4)	2	4	4	10 (1.4)
40–49 years	1	7	2	10 (1.5)	4	2	3	9 (1.3)
50–59 years	1	4	1	6 (1.2)	2	2	2	6 (1.2)
>60 years	2	5	0	7 (0.9)	2	6	3	11 (1.4)
Total cases	50	65	40*	155 (3.3)	52	69	51#	172 (3.7)
Deaths (case fatality rate)	3 (6.0)	9 (13.8)		12 (7.7)	5 (9.6)	7 (10.1)	1	13 (7.6)

\* Includes one serogroup W135.

# Includes four serogroup W135 and 5 serogroup Y.

## LEPTOSPIROSIS

Leptospirosis is a zoonotic disease caused by organisms of the genus *Leptospira*. The bacteria infect animals such as cattle, pigs, rodents (particularly rats) and dogs. Human infection occurs through contact with an infected animal, particularly contact with their tissue or urine, or with water contaminated with the urine of an infected animal.

To the end of June 2001, 22 cases had been notified, compared with 13 for the same period in 2000. Eighteen (82 per cent) were due to *L. hardjo* and all but one of these were linked to dairy or beef farms as a source. One case was a transport driver who collected animal skins from abattoirs. All presented to their doctors complaining of aching muscles and limbs, fever and headache, and were provisionally diagnosed with influenza or a viral infection. Two cases complained of joint pains and one had signs consistent with aseptic meningitis. Illness lasted several days and eight cases (36 per cent) required hospitalisation. Continuing lethargy post discharge was common.

A severe case of *L. copenhagenii* occurred in a 60-year-old male who worked on a vineyard. He had flu-like symptoms for several days, then developed jaundice. He was admitted to an intensive care unit with hepatic and renal failure, encephalopathy and pneumonia. He required intubation and was treated with antibiotics, inotropes and dialysis. The source of his infection was initially a mystery until a co-owner of the vineyard confirmed that the case had fallen into a water-filled pit shortly before becoming ill. A dog carrying a rat had been sighted in the vicinity. *L. copenhagenii* has previously been isolated from dogs, so urine from the witnessed dog might have contaminated the pit water. Infection due to this serovar is known to cause more severe disease that may be fatal. This case was eventually discharged but has prolonged sequelae.

Of the three remaining cases, one was due to *L. zannoni* acquired in the Philippines, one was due to *L. grippityphosa* acquired in a rural location in the Gippsland region, and one was due to *L. pomona* acquired from contact with cows at a saleyard.

The diagnosis of leptospirosis is confirmed by the demonstration of rising titres in paired sera from the acute and convalescent phases of illness (14–21 days later for the latter). Occasionally, a third specimen is required. Serology

is performed at the Department of Microbiology at Monash University. Early treatment with doxycycline, tetracycline or penicillin on clinical suspicion can be beneficial.

High-risk groups for infection are those exposed to animal urine, particularly workers in dairies and abattoirs, veterinary officers, zoo and animal laboratory workers, swimmers, rafters, cane growers and sewer workers. Vaccines for dairy cows are available for farmers. Calves older than 3 months of age or adult cattle beginning a vaccination program should receive two doses four to six weeks apart, then receive an annual booster dose. The vaccine can also be used for sheep, goats and deer. A vaccine that provides protection against *L. pomona* and *L. tarrosvi* is available for pigs.

## SEXUALLY TRANSMISSIBLE INFECTIONS

### ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)

Twenty-five cases of AIDS were notified during the second quarter of 2001: 22 males, two females and one transgender individual. Sixty-four per cent of cases were men who reported male-to-male sexual contact. Only six of the individuals had been diagnosed with AIDS during this second quarter; six had been diagnosed before 2000 and the remaining 13 individuals had been diagnosed in 2000 or early 2001.

Although the notification of AIDS is a statutory requirement in Victoria, there is often a time delay between diagnosis and subsequent notification. While the notification of AIDS in Victoria occurs predominantly through passive surveillance (that is, through doctors), we have begun more recently to follow up doctors, seeking AIDS notifications.

Only 44 (48 per cent) of the 92 individuals (85 males, six females and one transgender individual) notified with AIDS during the 12 months to June 2001 had been diagnosed with AIDS within this timeframe. The other 48 individuals had been diagnosed before July 2000.

From 1983 to the end of June 2001, 1914 people notified with AIDS: 1827 males, 78 females and nine transgender individuals (Table 3). Over 85 per cent of all males notified reported male-to-male sexual contact.

**Table 3: Notifications of AIDS in Victoria, April–June 2001, July 2000 – June 2001 and Cumulative Total (1983–June 2001)**

Exposure Category	April–June 2001		July 2000 – June 2001		Cumulative Total		
	Males	Females	Males	Females	Males	Females	Total*
Male homosexual/bisexual	16	–	63	–	1555	–	1560
Male homosexual/bisexual and injecting drug user	0	–	3	–	98	–	102
Injecting drug user	0	0	2	1	22	12	34
Heterosexual	2	1	3	3	62	49	111
Person from specified country#	1	0	3	1	16	7	23
Haemophilia/related disorder	0	0	3	0	39	1	40
Transfusion recipient	0	0	0	0	8	5	13
Other	0	0	0	0	1	1	2
Unavailable	3	1	8	1	26	3	29
<b>Total</b>	<b>22</b>	<b>2</b>	<b>85</b>	<b>6</b>	<b>1827</b>	<b>78</b>	<b>1914</b>

\* Includes nine persons for whom sex is reported as transgender.

# Persons from countries with a high prevalence (>1 per cent) of HIV.

There were seven deaths following either a HIV or AIDS diagnosis notified during the second quarter of 2001: six males and one female (Table 4). Over the previous 12 months, 37 deaths were notified. The cumulative

recorded total since 1983 is 1590 deaths. Of the cases who died, 1447 (91 per cent) had been diagnosed with AIDS and 143 had not been notified as having progressed to AIDS.

**Table 4: Notifications of Deaths Following HIV/AIDS Diagnosis in Victoria, April–June 2001, July 2000–June 2001 and Cumulative Total (1983–March 2001)**

Exposure Category	April–June 2001		July 2000 – June 2001		Cumulative Total		
	Males	Females	Males	Females	Males	Females	Total*
Male homosexual/bisexual	6	–	26	–	1292	–	1297
Male homosexual/bisexual and injecting drug user	0	–	1	–	86	–	89
Injecting drug user	0	0	2	1	22	9	31
Heterosexual	0	1	1	1	35	40	75
Person from specified country <sup>#</sup>	0	0	0	0	7	3	10
Haemophilia/related disorder	0	0	1	0	39	1	40
Transfusion recipient	0	0	0	0	7	5	12
Other	0	0	0	0	0	1	1
Unavailable	0	0	4	0	29	2	35
Total	6	1	35	2	1517	61	1590

\* Includes eight persons for whom sex is reported as transgender and four persons for whom gender is not specified.

# Persons from countries with a high prevalence (>1 per cent) of HIV.

### HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION

Fifty new HIV diagnoses in Victoria were notified during the second quarter of 2001 (42 males, two females and six people for whom we are awaiting further notification information), compared with 57 notifications during the same quarter in 2000 (Table 5). The average age of those notified was 36 years (range: 19–54 years), with males being younger on average than females (36 years

compared with 41 years). Sixty-seven per cent of males notified during this quarter reported male-to-male sexual contact (Table 6).

The Department received 192 HIV notifications in Victoria during the 12 months to June 2001—175 (91 per cent) males, 16 (8 per cent) females and one transgender individual. (This total excludes those six people for whom we are awaiting further information.) The number is consistent with the 198 notifications reported for 2000.

**Table 5: Notifications of HIV in Victoria, by Age Group, April–June 2001, July 2000 – June 2001 and Cumulative Total (1983–June 2001)**

Age Group	April–June 2001			July 2000 – June 2001		Cumulative Total		
	Male	Female	Unspecified*	Male	Female	Male	Female	Total <sup>#</sup>
0–12 years	0	0	0	0	0	33	10	43
13–19 years	1	0	0	4	0	107	11	119
20–29 years	9	0	0	42	9	1516	103	1634
30–39 years	21	1	0	68	3	1503	64	1575
40–49 years	8	1	0	43	3	649	28	679
50+ years	3	0	0	18	1	321	24	346
Unavailable	0	0	6	0	0	102	1	118
Total	42	2	6	175	16	4231	241	4514

\* Demographic information waiting confirmation.

# Includes 16 persons for whom sex is reported as transgender and 26 persons for whom sex is not specified.

**Table 6: Notifications of HIV in Victoria, by Exposure Category, April–June 2001, July 2000 – June 2001 and Cumulative Total (1983–June 2001)**

Exposure Category	April–June 2001			July 2000 – June 2001		Cumulative Total		
	Male	Female	Unspecified*	Male	Female	Male	Female	Total <sup>#</sup>
Male homosexual/bisexual	28	–	0	125	–	3432	–	3446
Male homosexual/bisexual and injecting drug user	3	–	0	11	–	204	–	207
Injecting drug user	3	0	0	6	0	119	36	158
Heterosexual	4	0	0	14	9	172	139	311
Person from specified country <sup>ψ</sup>	0	2	0	8	7	70	39	109
Haemophilia/related disorder	0	0	0	0	0	100	1	101
Transfusion recipient	0	0	0	0	0	20	15	35
Other	0	0	0	0	0	4	9	13
Unavailable	4	0	6	11	0	110	2	134
Total	42	2	6	175	16	4231	241	4514

\* Demographic information waiting confirmation

# Includes 16 persons for whom sex is reported as transgender and 26 persons for whom sex is not specified.

ψ Persons from countries with a high prevalence (>1 per cent) of HIV.

Those with newly acquired HIV or incident infection provide a picture of who is presently affected by the HIV epidemic. Such individuals are identified on the basis of a previous negative HIV test and/or a seroconversion illness within the 12 months preceding HIV diagnosis. There were 14

individuals (all males) notified with incident HIV infection during the first quarter of 2001 (Table 7). During the previous 12 months, 61 individuals fulfilled the criteria of incident infection. These numbers are consistent with the 62 individuals reported with incident HIV infection during 2000.

**Table 7: Notifications of HIV in Victoria, by Time since Last Negative Test or Seroconversion Illness, April–June 2001 and July 2000–June 2001**

Time between HIV Diagnosis and Negative Test and/or Seroconversion Illness	Cases Diagnosed April–June 2001				Cases Diagnosed July 2000 – June 2001		
	Male	Female	Unspecified*	Total#	Male	Female	Total#
Less than 1 year	14	0	0	14	58	3	61
1 year to less than 3 years	5	0	0	5	20	3	23
3 or more years	4	0	0	4	29	2	32
No previous negative test or seroconversion illness	19	2	0	21	68	8	76
Unavailable	0	0	6	6	0	0	0
Total	42	2	6	50	175	16	192

\* Demographic information waiting confirmation.

# Includes one person for whom sex is reported as transgender.

### CHLAMYDIA INFECTIONS

The chlamydia database underwent review during the second quarter of 2001, so there may be discrepancies between the data reported for the first quarter and this report. The data for this quarter also include 97 notifications that were a result of a laboratory reporting delay.

The Department of Human Services received 941 notifications of *Chlamydia trachomatis* in the second quarter of 2001, which was a 4 per cent decrease from the previous quarter's total of 979. This number was, however, a 15 per cent increase on that for the same period in 2000. The age and sex distribution of cases remains unchanged, with most cases occurring in young people aged 20–29 years (Table 8).

**Table 8: Notifications of *C. trachomatis* in Victoria, by Age and Sex, April–June 2001 and July 2000 – June 2001**

Age Group	April–June 2001				July 2000 – June 2001			
	Male	Female	Unknown	Total	Male	Female	Unknown	Total
0–12 years	1	7	2	10	11	26	2	39
13–19 years	27	127	8	162	78	410	9	497
20–29 years	160	269	67	496	707	1178	74	1959
30–39 years	85	62	37	184	424	290	40	754
40–49 years	44	18	4	66	154	73	4	231
50+ years	14	6	2	22	60	21	2	83
Unknown	1	0	0	1	2	4	0	6
Total	332	489	120	941	1436	2002	131	3569

### GONORRHOEA INFECTIONS

During the second quarter of 2001, 157 cases of gonorrhoea were diagnosed by 173 culture and 25 polymerase chain reaction (PCR)-based detections of *N. gonorrhoea* (Table 9). Cases that were diagnosed from positive samples from more than one site or by more than

one method within one month were counted once only. During the second quarter of 2001 there was a modest decrease in cases (from 189 in the first quarter to 157), although the incidence of gonorrhoea remains high. Casual sexual partners remain the most commonly reported supposed source of infection.

**Table 9: Notifications of Gonorrhoea, by Sexual Orientation, Sex and Site of Infection, Victoria, April–June 2001**

		Site of infection							Total
		Urethral	Vaginal	Cervical	Rectal	Pharyngeal	Urine (PCR)	Other	
Heterosexual	Male	43	0	0	0	0	0	0	43
	Female	0	3	3	0	5	0	0	11
Homosexual/bisexual	Male	59	0	0	16	5	2	0	82
	Female	0	0	0	0	0	0	0	0
Not known	Male	14	0	0	0	1	2	0	19
	Female	0	1	1	0	0	0	0	2
Total		116	4	4	18	11	2	0	157

For cases with *N. gonorrhoea* isolated or detected from more than one site, priority for inclusion in Table 9 was given to detections or isolations from the rectum or vagina/cervix (over those from the urethra or pharynx) and to culture-based diagnoses (over PCR-based diagnoses).

**Table 10: Notifications of Gonorrhoea, by Age Group, Victoria, April–June 2001**

Age Group	Male	Female	Total
0–12 years	0	0	0
13–19 years	7	2	9
20–29 years	67	8	75
30–39 years	46	2	48
40–49 years	17	1	18
50+ years	6	0	6
Unknown	1	0	1
Total	144	13	157

## SYPHILIS INFECTIONS

There were 73 notifications of syphilis in the second quarter of 2001, four of which were reported as infectious syphilis. All infectious cases were aged 17–33 years and three were female. All cases were reported as heterosexual.

## TUBERCULOSIS

The Mycobacterium Reference Laboratory at the Victorian Infectious Diseases Reference Laboratory prepared this report. Given the slow-growing nature of *Mycobacterium* spp, the report is limited to the first quarter of 2001. Most specimens (both primary and referred) and isolates are from Victorian patients.

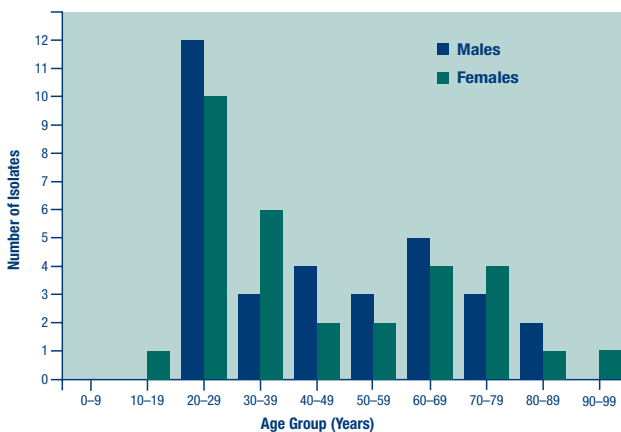
## COMMENTS

- *M. marinum* was isolated from the forearm of a 27-year-old female who reported having a fish tank.
- *M. xenopi* was isolated from respiratory specimens of elderly males.

**Table 11: Specimens Submitted to the Mycobacterium Reference Laboratory, by Month, January–March 2001**

Primary Specimens	<i>M. tb</i> Isolates	New Victorian <i>M. tb</i> Isolates	Non <i>M. tb</i> isolates	Negatives	Total
January	31	9	7	288	335
February	12	1	9	287	309
March	5	2	15	346	368
Referred Specimens	<i>M. tb</i> Isolates	New Victorian <i>M. tb</i> Isolates	Non <i>M. tb</i> isolates	Total	
January	39	18	38	77	
February	27	15	29	56	
March	27	18	48	75	
<b>Total</b>	<b>141</b>	<b>63</b>	<b>146</b>	<b>921</b>	<b>1220</b>

**Figure 1: New *M. tuberculosis* Isolates from Victorian Residents, by Age and Gender, January–March 2001**



**Table 12: Extrapulmonary *M. tuberculosis* Isolates and Resistant Isolates, by Month**

Site	January	February	March
Pulmonary	12	11	11
Extrapulmonary	15	5	9
Extrapulmonary site details	Lymph node (x9) Neck pus (x1) Ascitic fluid (x1) Neck tissue (x1) Supraclav. asp. (x1) Pre-stern. asp. (x1) Urine (x1)	Lymph node (x4) Pleural bx. (x1)	Lymph node (x6) Pleural fluid (x1) Tonsil pus (x1) Pericard. fluid (x1)
Resistance	1x resistance to Isoniazid	1x resistance to Isoniazid	1x resistance to Isoniazid 1x resistance to Ethambutol

Table 13: Notifications of Infectious Diseases, by Department of Human Services Region, Victoria, 1 January–30 June 2001 and Historical Comparisons

Disease	Barwon South Western		Gramplains		Loddon-Mallee		Hume		Gippsland		Western Metropolitan		Northern Metropolitan		Eastern Metropolitan		Southern Metropolitan		Unknown		Victoria		
	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	2001ytd	2000ytd	
<b>Blood-borne diseases</b>																							
Hepatitis B—acute	1	3	0	1	3	5	1	0	7	0	18	5	8	9	14	5	31	17	2	2	85	47	114
Hepatitis B—chronic/unknown	5	6	3	7	13	5	8	11	6	271	235	165	199	199	208	222	257	86	63	980	994	2057	
Hepatitis C—incident	1	3	0	0	1	2	1	1	2	4	7	9	9	5	6	10	9	6	3	2	39	42	78
Hepatitis C—unspecified	134	122	70	80	108	120	111	73	109	97	407	712	389	531	310	396	567	736	374	308	2 561	3 213	5 749
Hepatitis D	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	12
<b>Enteric diseases</b>																							
Botulism	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
Campylobacter infection	132	137	72	54	97	89	150	103	157	145	321	276	363	333	571	555	668	565	91	73	2 612	2 330	5 012
Cryptosporidiosis	5	0	2	1	3	5	15	8	10	5	52	9	42	9	82	16	54	10	8	1	273	64	118
Food/water/environmental—other	9	0	0	0	4	4	0	0	1	0	5	21	10	3	25	14	39	1	51	15	143	59	222
Giardiasis	45	40	14	23	22	15	23	25	23	18	73	57	83	59	103	124	109	127	8	14	503	502	866
Haemolytic uraemic syndrome	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	2
Hepatitis A	3	8	0	4	2	4	2	1	1	11	8	20	11	20	7	22	20	55	2	4	96	149	199
Hepatitis E	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
Listeriosis	2	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	3	1	0	6	4	11
Paratyphoid	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	1	2	1	0	0	5	3	4
Salmonellosis	55	59	30	24	46	39	41	31	33	22	53	72	93	94	109	86	132	137	28	21	620	565	1 009
Shigellosis	1	2	1	1	3	0	1	1	1	0	7	9	16	7	6	12	13	8	3	4	52	44	115
Typhoid	1	0	0	1	0	0	1	0	0	0	0	0	2	4	3	1	0	1	2	0	9	7	12
Verotoxin-producing <i>E. coli</i>	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	4	0	0
<b>Other infectious notifiable diseases</b>																							
Invasive meningococcal disease	9	5	2	2	0	0	2	1	3	4	8	6	10	11	15	9	18	16	0	1	67	55	162
Legionellosis	0	8	1	3	1	7	2	10	1	5	15	26	16	51	13	41	25	48	1	1	75	200	246
Tuberculosis	2	5	0	3	3	4	1	1	2	0	41	34	21	22	30	20	45	38	1	1	146	128	291
<b>Vaccine-preventable diseases</b>																							
Clinical diagnosis (epiglottitis)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<i>Haemophilus influenzae</i> type b	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	1	3
Invasive pneumococcal disease	3	0	3	0	10	0	0	0	4	0	1	0	2	0	12	0	5	0	49	0	89	0	14
Measles	0	2	2	0	1	0	1	0	0	0	7	3	8	2	17	3	18	3	0	0	54	13	21
Mumps	3	1	2	0	0	0	0	0	0	0	6	3	5	6	7	3	11	2	0	1	34	17	43
Pertussis	11	23	8	28	23	26	20	20	24	26	21	49	38	58	62	52	72	3	9	267	363	733	
Rubella	0	0	0	3	2	0	6	1	1	1	1	8	7	5	4	8	13	7	0	1	34	34	66
Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Vector-borne diseases</b>																							
Arbovirus—Barmah Forest	0	1	0	0	1	3	2	1	8	4	0	0	0	0	1	0	1	0	0	2	13	11	18
Arbovirus—febrile	0	0	0	0	1	1	0	1	0	2	2	1	1	2	1	2	5	2	0	1	10	12	13
Arbovirus—not further specified	1	1	0	1	2	7	2	4	0	0	0	0	0	0	0	0	0	0	0	3	5	16	16
Arbovirus—Pepp River	8	13	16	28	126	111	62	21	41	8	10	4	15	10	18	13	26	9	18	61	340	278	316
Australian arboencephalitis—Kunjin	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
Malaria	0	1	2	4	1	0	1	3	2	2	7	11	2	10	12	15	25	15	5	6	57	67	119
<b>Zoonoses</b>																							
Brucellosis	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Leptospirosis	6	3	0	0	3	3	1	4	8	1	1	0	0	0	0	0	0	0	1	0	19	13	36
Psittacosis	1	0	4	0	4	0	2	1	2	0	7	7	10	7	8	13	6	8	3	0	47	36	86
Q fever	3	1	1	0	3	2	20	0	5	3	1	0	1	1	1	0	1	0	3	0	39	7	23
<b>Total</b>	442	445	234	268	484	452	437	358	456	365	1 354	1 578	1 332	1 459	1 630	1 638	2 134	2 147	742	595	9 253	9 297	17 790
<b>Population</b>	333 003	203 546	285 977	243 493	233 094	610 252	764 712	973 689	1 118 090	4 765 856													

Notes  
 1. The data are preliminary figures only and may be subject to revision.  
 2. ABS estimated resident population data—June 2000 (preliminary).  
 3. Reporting of invasive pneumococcal disease commenced in December 2000 under a voluntary laboratory-based scheme.

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## *Victorian Infectious Diseases Bulletin*

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