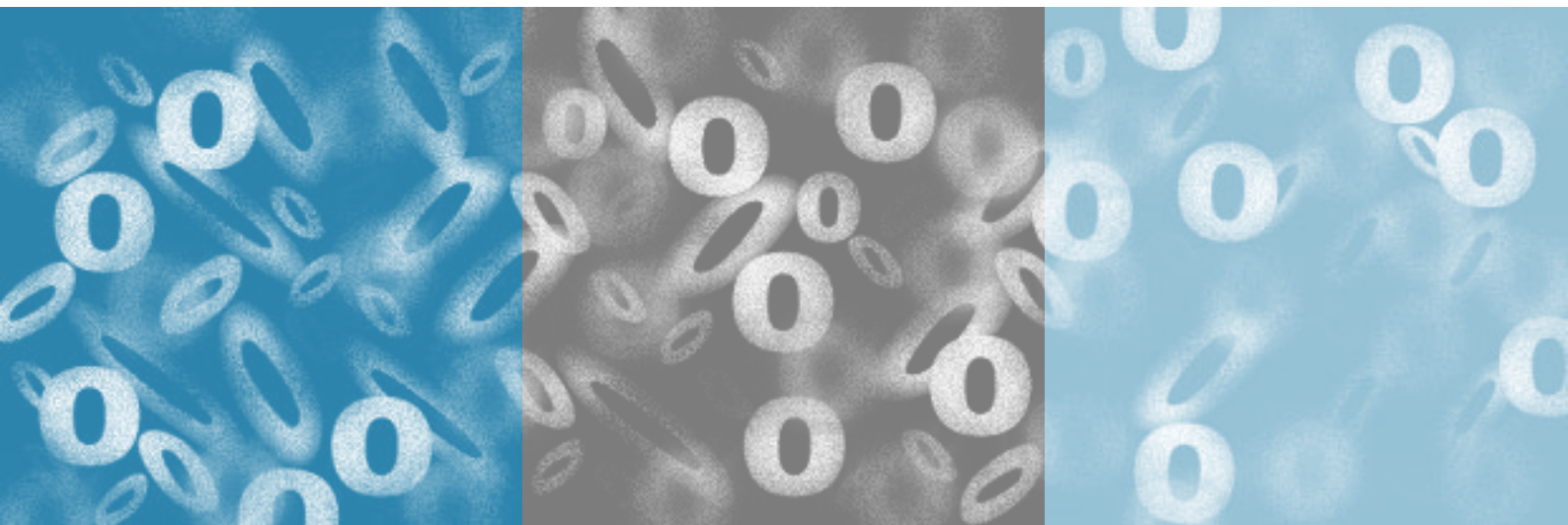


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Aeromonas bloodstream infections in Victoria: reports to the Victorian Hospital Pathogen Surveillance Scheme, 1990 to 2006

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Introduction

Aeromonads are gram negative bacilli that inhabit water, soil and many food types.^{1–4} Most of the *Aeromonas* species have been detected in faecal specimens, although only a few have been established as aetiological agents of human infections, typically gastroenteritis. Species pathogenic to humans include *A. hydrophila*, *A. caviae*, *A. veronii* bv *sobria* and bv *veronii*, *A. jandaei* and *A. schubertii*. The most common extra-intestinal infections are bacteraemia and wound infections; others include meningitis, endocarditis, peritonitis, otitis media and osteomyelitis.¹

Aeromonas bacteraemia is uncommon and often associated with immunocompromised patients, commonly those with haematological malignancy or with disease of the upper gastrointestinal tract. Bacteraemia among such patients may be associated with a mortality of 30 to 50 per cent.⁵ The pathogenesis of *Aeromonas* bacteraemia is not well understood. Most cases are assumed to occur through ingestion of contaminated water or food; disruption of the gastrointestinal mucosa (or altered local defences) then provides a portal of entry for the organism. In some instances sepsis is secondary to a wound infection.⁶

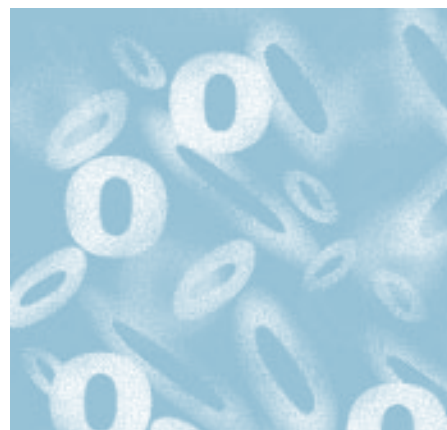
Concerns were raised in the Australian infectious disease community in early 2007 when several clinicians and microbiologists noted an apparent increase in the number of cases of *Aeromonas* bacteraemia recently diagnosed in several States and Territories. We therefore reviewed reports of *Aeromonas* species to the Victorian Hospital Pathogen Surveillance System (VHPSS) from 1 January 1990 to 31 March 2007 to describe the epidemiology of *Aeromonas* bacteraemia and assess recent local data.

Methods

The VHPSS provides voluntary, laboratory-based surveillance of bacterial and fungal agents of blood stream infections and meningitis in Victoria. The scheme encompasses infections acquired in both community and healthcare settings. Data are provided by public and private, metropolitan and regional laboratories. These data include demographic characteristics (anonymous identifier, age, sex), dates of admission to hospital and collection of the diagnostic specimen, and the identity and antimicrobial susceptibilities of the bacterium or fungus. Although not all laboratories participate in the VHPSS, the data are broadly representative and readily interpretable to provide insights into the wider population.

Results

One hundred and eighty-five isolates of *Aeromonas* species from blood cultures were reported to the VHPSS from 1990 to 2006; an average of 11 reports per year (range: 5–19). This was an average annual reporting rate of 0.23 per 100,000 population. Reports of *Aeromonas* bacteraemia comprised approximately 0.2 per cent of all reports to VHPSS during this period. There were no reports of *Aeromonas* from cerebrospinal fluid. Seven persons had recurrent episodes of *Aeromonas* bacteraemia (range of interval between episodes: 3 weeks–11 months). One hundred and thirty-six (74 per cent) reports included speciation of the *Aeromonas*. The most common species reported was *A. hydrophila* (89 reports, 65 per cent of speciated isolates). Twenty-nine *A. veronii* bv. *sobria* were reported (21 per cent of speciated isolates), eight *A. veronii*, seven *A. caviae*, and three reported as *A. hydrophila/caviae* with no further speciation. Speciation of



Aeromonas can be difficult and may change as new techniques are applied.

Demographic, hospitalisation and clinical data

Ninety-nine per cent of the cases included demographic data, 77 per cent included hospital admission dates and 92 per cent included postcode of residence. There were more cases in males (60 per cent) than females. There were few cases in persons aged less than 40 years (figure 1); 124 cases (67 per cent) were aged 60 years or more. In contrast with many invasive bacterial infections, cases among neonates and young infants were rare. Of cases with admission date data, most (80 per cent) were diagnosed from specimens collected on the first or second day of hospitalisation. Of cases with postcode data, 128 (74 per cent) were from metropolitan areas and 45 (26 per cent) were from regional Victoria. There were no apparent clusters of cases in either metropolitan or regional Victoria.

One hundred and thirty-three reports (72 per cent) included either clinical information or hospital unit data. Of these, 32 per cent were for haematology or oncology patients, and 19 per cent had clinical data consistent with upper gastrointestinal or hepatobiliary disease.

Seasonal trend

There was marked seasonality of *Aeromonas* bacteraemia, with 125 cases (68 per cent) reported in the five months December through April (figure 2).

Antimicrobial susceptibilities

Reports of the susceptibility of *Aeromonas* sp. to amoxicillin, amoxicillin/clavulanic acid, third generation cephalosporins (3GC), ciprofloxacin and gentamicin were available for 89 per cent, 57 per cent,

77 per cent, 77 per cent and 96 per cent of isolates respectively. Among *Aeromonas* isolates with susceptibility data, 98 per cent were reported as resistant to amoxicillin, 82 per cent to amoxicillin/clavulanic acid, eight per cent to 3GC and two per cent to gentamicin. No isolates were resistant to ciprofloxacin. Ten isolates were resistant to amoxicillin, amoxicillin/clavulanic acid and 3GC, one was resistant to amoxicillin, amoxicillin/clavulanic acid and gentamicin, and one was resistant to amoxicillin, 3GC and gentamicin.

Cases of *Aeromonas* bacteraemia in the first quarter of 2007

Nine isolates of *Aeromonas* bacteraemia were reported to VHPSS in the first three months of 2007, compared with an average of five for the first quarters in the period 1990 to 2006. One recent case was a neonate; the other eight were aged greater than 49 years. The seven cases with admission data had specimens collected on the first day of hospitalisation. Five isolates were *A. hydrophila*, two were *A. veronii*, one *A. caviae* and one was not speciated. Four of the seven cases with clinical or hospital unit data occurred in haematology or oncology patients.

Discussion

These data suggest that *Aeromonas* bacteraemia is relatively rare in Victoria. An average of 11 cases was reported to the VHPSS each year from 1990 through 2006, mostly in the warmer months. Based on the proportion of hospitals and laboratories that have contributed data to the VHPSS from 1990 to 2006, we estimate 50 to 60 per cent of bacteraemia cases that occur in Victoria are reported to the VHPSS. Assuming this reporting rate applies to *Aeromonas* cases, the true population rate may be around 0.4 to 0.5

Figure 1: *Aeromonas* bacteraemia cases reported to VHPSS, by age group, 1990–2006

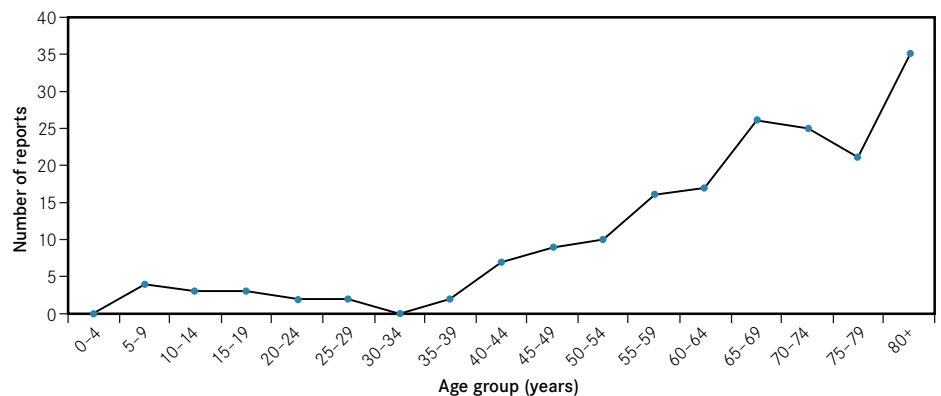
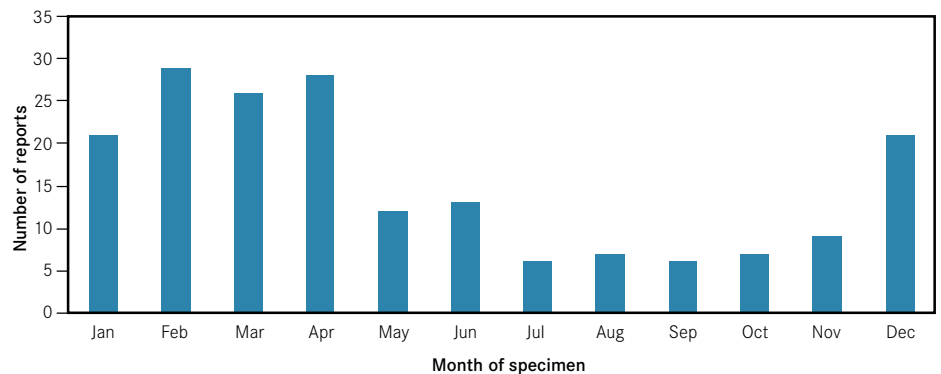


Figure 2: *Aeromonas* bloodstream isolates reported to VHPSS, by month of report, 1990–2006



per 100,000 population per year. Most cases were in the elderly, often with underlying malignancy or hepatobiliary disease. All isolates with adequate data reported to the VHPSS were susceptible to ciprofloxacin, and most were susceptible to third generation cephalosporins and gentamicin.

The timing of the diagnostic specimen relative to hospital admission date in the majority of *Aeromonas* bacteraemia suggests acquisition of the organism from a community source. In common with some ecologically similar bacterial genera (such as *Vibrio*), but in contrast with many other gram negative bacilli, relatively few *Aeromonas* cases had onsets suggestive of nosocomial

infection. The particular source of the organism causing each infection usually remains unknown. Pursuit of the source is hindered by the possibility that the organisms may have been ingested some unknown time before the onset of invasive sepsis, itself perhaps precipitated by changes in the person's immunological or clinical state.

Aeromonas cases occurred throughout Victoria, suggesting that environmental sources of potentially clinically significant organisms are also widespread. The marked seasonality of invasive infections implies that exposure to a sufficient dose of *Aeromonas* to cause disease arises through seasonal influences on the concentration of the pathogen in key

sources, or behavioural determinants of the exposure of susceptible hosts to these sources, or both.

The presence of *Aeromonas* in raw drinking water and (in lower concentration) in treated water, particularly in the warmer months, has been demonstrated in both Western Australia⁷ and South Australia⁸. A corresponding seasonal pattern was evident in notifications of predominantly diarrhoeal *Aeromonas* infection in South Australia in 1994 and 1995, with some year-to-year variation.⁸ Contaminated food has not been established as a vehicle for the transmission of *Aeromonas* infection in Australia, but may receive some attention as public health agencies increasingly focus on the potential hazards associated with various raw and minimally cooked products.

Recent Victorian cases do represent an increase, but the diversity of cases is inconsistent with a particular common source. The particular environmental distributions of *Aeromonas*, the determinants of its seasonal variation, and the important sources of human infection remain unclear. *Aeromonas* appears likely to be a ubiquitous

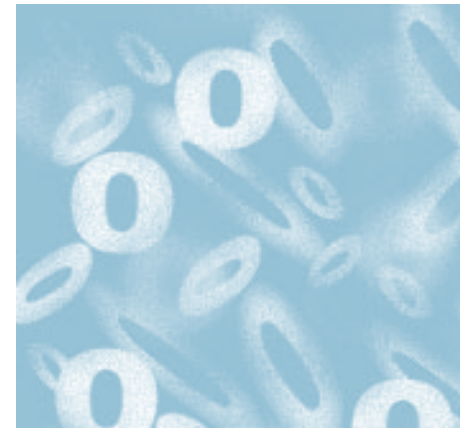
pathogen, such that exposure is common and host vulnerabilities the critical determinant of clinically significant infection.

Acknowledgements

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An outbreak of *Salmonella* Saintpaul linked to rockmelon

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Introduction

An increase in the number of notified *Salmonella* Saintpaul cases in the eastern states of Australia was observed in mid-October 2006. In Victoria, a median of two cases had been notified monthly since 2002 and notification of 13 cases in the first three weeks of October 2006 represented a substantial increase. The concurrent increase in other states led to a suspicion of a common source. Multiple non-human sources of *S. Saintpaul* have been identified in Australia (personal communication: Joan Powling, Coordinator, National Enteric Pathogens Surveillance Scheme, Microbiological Diagnostic Unit Public Health Laboratory, The University of Melbourne; 27 February 2007). Water, hypothesised to be contaminated from frogs or mice, has been identified as a cause of a previous *S. Saintpaul* outbreak in Queensland,¹ whilst bean sprouts and paprika have been identified as sources of *S. Saintpaul* outbreaks outside Australia.^{2,3}

Hypothesis generating interviews undertaken in New South Wales (NSW) early in October identified rockmelon (cantaloupe) amongst items commonly consumed by cases. Twelve of 14 (86 per cent) NSW cases and two of six (33 per cent) Victorian cases reported eating rockmelon in the week prior to illness onset. This was in contrast to control data from a national *Campylobacter* case control study that showed 30 per cent of people had consumed rockmelon or watermelon in the previous seven days (personal communication: Sally Munnoch, OzFoodNet epidemiologist, Hunter New England Area Health Service; 29 November 2006). Rockmelons have been associated with large *Salmonella* outbreaks of other serotypes in North America.^{4,5} Despite the difference in apparent consumption patterns amongst

cases between states and the similarity in rockmelon consumption between the Victorian and the control data, Victoria joined the multi-jurisdictional investigation and case control study with NSW and the Australian Capital Territory (ACT) – coordinated by OzFoodNet – to investigate the association of rockmelon and other commonly consumed food items with *S. Saintpaul* infection. The Victorian component of this investigation and case-control study is described in this article.

Methods

Epidemiological investigation

A case control study was conducted between 25 October to 3 November to test the hypothesis that *S. Saintpaul* infection was associated with consumption of the following raw fruits and vegetables: rockmelon, cucumber, pears, strawberries, grapes and broccoli; as well as chicken, beef mince and eggs. A case was defined as a resident of Victoria who had *S. Saintpaul* isolated from a faecal specimen collected between 6 October and 2 November 2006. Cases were excluded if: they were unable to recall the onset date of diarrhoea; were not interviewed within 30 days of faecal specimen collection; did not suffer diarrhoea; had another enteric pathogen detected in their stool specimen, or; if another household member had diarrhoea in the two weeks prior to the case's onset of illness.

Two age-matched controls were recruited for each case from a control bank. This bank comprised respondents to a Victorian Population Health Survey conducted in 2004 by the Department of Human Services (DHS) who had previously provided verbal consent to be contacted for involvement in future departmental studies. Controls were

matched by age groups of 0 to 4 years, 5 to 12 years and 13 to 17 years for cases aged less than 18 years, and within a ten-year age range (five years older or younger) for cases aged 18 years or older. Controls were selected sequentially from the control bank – in which the records had been randomly assorted – and were assessed for eligibility. Children were selected sequentially from households recorded in the control bank as having children. Controls were excluded if they or anyone in their household had diarrhoea or were diagnosed with *Salmonella* infection in the previous two weeks.

Up to six attempts were made to contact cases and controls. Cases and controls were interviewed by telephone using a questionnaire developed by NSW OzFoodNet epidemiologists. Information was collected about demographics, travel history and foods consumed. Cases were asked about consumption of foods in the four days preceding the onset of illness; for controls this applied to the four days prior to interview. Cases were also asked about details of their illness.

Data were entered and analysed descriptively in Microsoft Excel 2003 and analytically using Intercooled Stata Version 9.1 (StataCorp, Texas, USA). Univariate and multivariate logistic regression analyses were conducted to calculate odds ratios and confidence intervals (alpha level of 0.05) and p values were calculated using Fisher's exact method. Cases and controls were excluded from analyses if an unknown exposure was recorded. The variables of age group, sex and food exposures that were either statistically significant ($p < 0.05$) or approaching statistical significance (defined as $p > 0.05$ and < 0.06) were included in the multivariate model. Matched and unmatched analyses were conducted however the absence of a discordant pair in conditional logistic

regression analysis yielded a result that was not meaningful and the unmatched results are reported. An unmatched analysis with age group as a covariate was considered a valid alternative.

Environmental investigation

Following the collection of food exposures, if cases reported rockmelon consumption, detailed information was sought from cases about its purchase location, preparation and storage. Environmental health officers (EHOs) from local councils obtained rockmelons from retail outlets reported by cases and the DHS Food Safety Unit undertook traceback investigations to identify common rockmelon suppliers to these retailers. Rockmelons from one wholesaler were obtained for testing. An environmental investigation of an interstate rockmelon farm and its processing and packaging shed was undertaken by the local jurisdiction.

Laboratory investigation

The Microbiological Diagnostic Unit Public Health Laboratory in Victoria conducted primary testing of food, *Salmonella* serotyping and multiple-locus variable-number tandem repeat analysis (MLVA) subtyping (based on Lindstedt et al, 2004) of *S. Saintpaul* isolates from human and environmental samples associated with Victorian cases.⁶

Results

Epidemiological investigation

A total of 22 cases of *S. Saintpaul* infection with a specimen collection date between 6 October and 2 November 2006 were notified to DHS. Of these, 18 were eligible for inclusion into the case control study. A further 13 cases were notified after the conclusion of the case control study during the remainder of November, after which the rate of notified cases slowed

dramatically. Onset of illness for cases eligible for the case control study occurred between 1 October and 18 October (figure 1). Cases were equally distributed by sex. The median age of cases was 11 years (range 1 to 86 years); 61 per cent were aged less than 15 years and 39 per cent were aged less than five years. Male and female cases had a similar age distribution (figure 2). Cases were geographically spread throughout Victoria, with 66 per cent of cases residing outside metropolitan Melbourne. No case had traveled overseas or interstate in the five days prior to illness.

Cases experienced diarrhoea for a median duration of seven days (range 4 to 14 days). One case was still suffering diarrhoea at the time of interview, ten days after illness onset. Illness for the majority of cases was also characterised by fever (94 per cent), stomach cramps (82 per cent), headache (71 per cent), nausea (65 per cent), vomiting (61 per cent), and muscle aches (53 per cent). Three cases (17 per cent) were hospitalised due to their illness.

Thirty-six controls were recruited for the case control study. The sex distribution of controls was similar to cases, with a

Figure 1: Notified cases of *Salmonella* Saintpaul infection eligible for the case control study by date of onset, 1–18 October 2006

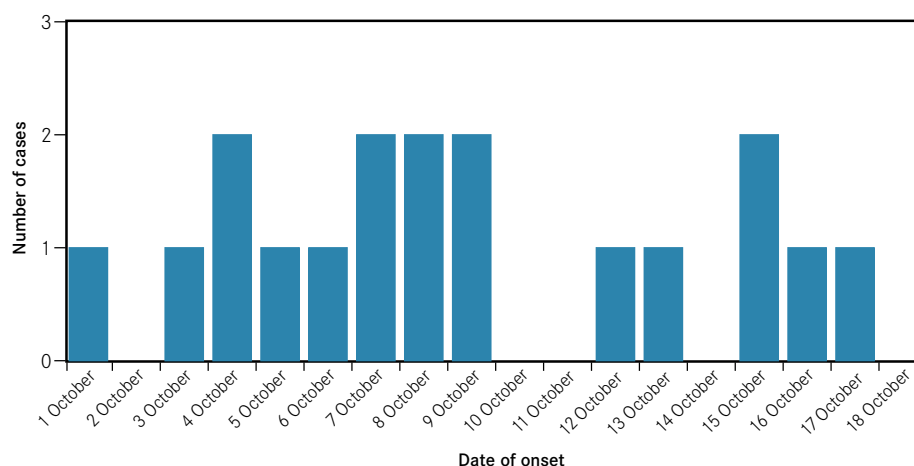


Figure 2: Notified cases of *S. Saintpaul* infection eligible for the case control study by age and sex, 1–18 October 2006

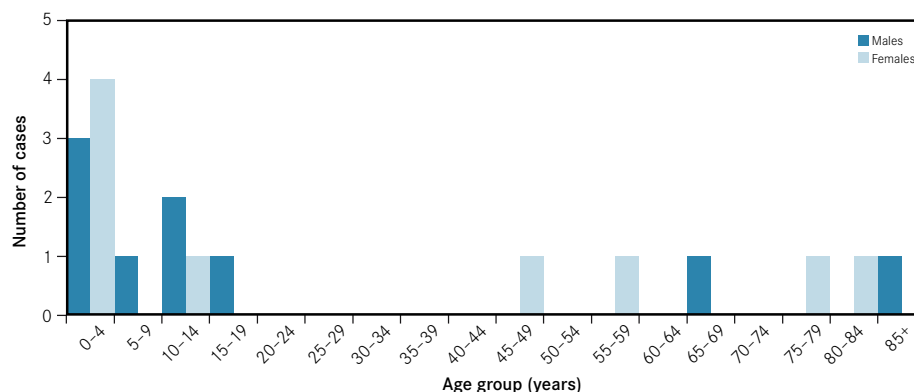


Table 1: Food exposure rates and univariate analysis and multivariate analysis[‡] for cases and controls

Exposure	Cases exposed/total (%)	Controls exposed /total (%)	Odds ratio (95% CI)	p-value*	Adjusted odds ratio (95% CI)	p-value
Rockmelon	10/17(59)	4/35 (11)	11.1 (2.2–60.3)	0.001	7.9(1.6–40.5)	0.013
Cucumber	7/18(39)	11/35 (31)	1.4 (0.4–5.3)	0.760		
Pears	5/17(29)	8/34 (24)	1.4 (0.3–5.9)	0.738		
Strawberries	9/17(53)	8/35 (23)	3.8 (0.9–15.6)	0.057	2.2(0.4–12.5)	0.378
Grapes	1/17 (6)	8/36 (22)	0.2 (0.0–1.9)	0.243		
Broccoli	0/14 (0)	0/36 (0)	–	–		
Eggs	8/16 (50)	21/35 (60)	0.7 (0.2–2.6)	0.554		
Chicken	10/15 (67)	28/36 (78)	0.6 (0.1–2.8)	0.873		
Beef mince	4/12(33)	16/34 (47)	0.6 (0.1–2.6)	0.509		

[‡] Controlling for age group, sex, strawberries and rockmelon

* Two-tailed Fisher's exact test

female to male ratio of 1:1 in cases and 1:1.1 in controls.

Univariate analysis identified a strong and statistically significant association between rockmelon consumption and illness (OR=11.1, 95% CI: 2.2, 60.3) (table 1). Strawberries also had an elevated odds ratio that approached statistical significance and was therefore included in the multivariate analysis model along with age group (0–4, 5–12, 13–17, ≥18 years) and sex. Rockmelon consumption remained statistically associated with illness in multivariate analysis (OR=7.9, 95% CI: 1.6, 40.5) although strawberry consumption did not (table 1). There were no statistically significant associations between illness and either sex or age group.

Traceback and environmental investigation

Nine cases had purchased whole or half rockmelons and one case had consumed rockmelon as part of a prepackaged fruit salad. Whole and half rockmelons were obtained from 11 of the 14 premises identified by cases and from two of the four outlets from which controls reported purchasing rockmelon. Rockmelon from fruit salad at one premises was also tested.

Rockmelons obtained from a single premises from which a case purchased rockmelon, were found to have *S. Saintpaul* (see laboratory investigation below). Traceback identified one farm as the single supplier of rockmelons to the retail store at the time the *S. Saintpaul* positive sample was purchased, and at the time the case purchased and consumed rockmelon. The same farm was also identified as one of multiple possible suppliers to retail outlets nominated by four other cases as the place of their rockmelon purchases. However, the rockmelon harvest had been completed prior to the visit and environmental investigation of this farm did not result in isolation of *S. Saintpaul*. Complete traceback data were not available for the retail outlets from which the other five cases reported purchasing rockmelon.

Laboratory investigation

All cases included in the case control study had the same MLVA profile. This supported their epidemiological relation, as the MLVA pattern was sufficiently specific to distinguish between outbreak-related and unrelated isolates collected prior to the outbreak from human and non-human sources. During the latter part

of the outbreak, after the case control study, differing MLVA patterns emerged with three cases in November 2006 each displaying distinct MLVA profiles.

S. Saintpaul was isolated from the skin of two rockmelons (one half melon and one whole), obtained from a single premises (described above). The MLVA pattern was indistinguishable from that of cases associated with the outbreak. No *S. Saintpaul* was grown from flesh (including cut-surface flesh in pre-cut rockmelons) or from flesh near the stem or from rockmelons obtained from retailers where controls reported their rockmelon purchases. Neither was *S. Saintpaul* isolated from rockmelons later obtained from the wholesaler linked to multiple cases.

Discussion

The Victorian investigation implicated rockmelons as the cause of the outbreak. This conclusion was supported by the combined epidemiological and microbiological evidence and traceback information. Epidemiological evidence demonstrated an independent, strong and significant association between rockmelon consumption and *S. Saintpaul* infection. This was supported by the isolation of *S. Saintpaul* from rockmelon obtained from a retail outlet – from which one case reported purchase of their rockmelon – which had been supplied by a single farm. Furthermore, this farm was identified as a supplier of rockmelon to outlets linked to several other cases. The indistinguishable MLVA profile shared by all case isolates and the positive rockmelon samples provide further support of the epidemiological relation.

Explanations for not finding a stronger association between rockmelon and *S. Saintpaul* infection include recall bias, particularly in cases who were

interviewed between two and four weeks after the onset of their illness. In those who did not consume rockmelon, illness may have been caused by cross-contamination from rockmelon to other ready-to-eat foods; although investigators did not routinely ask about rockmelon storage or serving if cases did not report rockmelon consumption; one case reported storing a rockmelon in a refrigerator crisper with other fruit and vegetables. Other limitations of the case control study – which may have biased the results in either direction – include not geographically matching cases and controls. Furthermore, as the control bank was assembled two years prior to its use in this case control study, households in which all children were aged less than two years would be misclassified as not having children. As a consequence these children could not be selected as controls. Thus there may be potential selection bias towards families with more than one child.

Due to the limited traceability of rockmelons, and the lack of *S. Saintpaul* found at the level of supplying farms, the ultimate source resulting in the contamination of rockmelon and the geographical extent to which this may have occurred is unknown. Traceability was complicated by limited record-keeping and a complex distribution network, with multiple farms frequently supplying a single retail outlet. Nevertheless, the evidence from the multi-jurisdictional investigation has supported discussion with industry, promoting awareness of the importance of food safety measures.

The investigation indicated how MLVA typing can be useful, where feasible and appropriate for the organism, in outbreak investigations. Although all cases eligible for this case control study did have the

same MLVA pattern – and thus inclusion of the common MLVA profile into the case definition for this study would not have altered the findings – it did distinguish between outbreak related and unrelated cases with different MLVA profiles prior, and subsequent, to the study. This assisted in identifying the rise and decline of outbreak related cases. By distinguishing between related and non-related cases, MLVA typing may be used in future investigations to increase the specificity of the case definition, and therefore potentially the power of epidemiological studies to identify the source of an outbreak, particularly in areas where there are high background levels of unrelated cases. MLVA typing also strengthens associated environmental investigations by distinguishing if environmental and case samples are related. Thus the timely use of this molecular typing technique with a known serotype in outbreak investigations can enable more accurate identification of the extent and source of an outbreak and therefore an appropriate public health response.

Acknowledgements

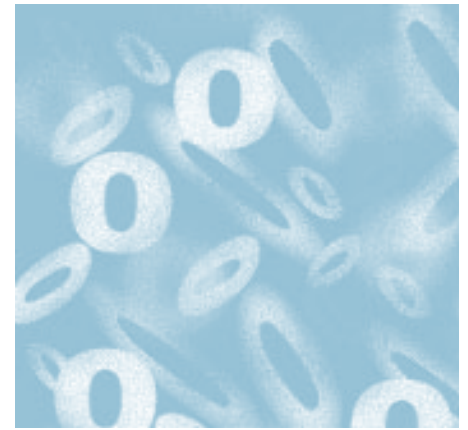
The authors wish to acknowledge primary testing clinical laboratories, collaborating PHLN laboratories, the Microbiological Diagnostic Unit Public Health Laboratory enterics section particularly Mary Valcanis and Diane Lightfoot; Victor DiPaola and the Food Safety Unit Victoria, the other members of the OzFoodNet team particularly Sally Munnoch, Kate Ward and Barry Combs; the Department of Health and Community Services Environmental Health Program and Department of Primary Industry Fisheries and Mining (Northern Territory), Local Government and environmental health officers involved in the investigation; Mark

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Victorian Primary Care Network for Sentinel Surveillance on BBVs and STIs: an update

Jane Goller, Judy Gold, Megan Lim and Rebecca Guy, Burnet Institute, on behalf of the Victorian Primary Care Network for Sentinel Surveillance on BBVs and STIs

Introduction

We report new information on trends and patterns in sexually transmissible infections (STIs) and blood borne viruses (BBVs) in Victoria. The focus is on the findings from a sentinel surveillance network that has been established in collaboration with a number of primary health services.

This new system comes at a time when there is a need to gain insight into the ongoing increases in human immunodeficiency virus (HIV) and other STI diagnoses in Victoria. The system complements other data sources such as passive surveillance and behavioural surveys, and provides for the first time ongoing information about the testing and prevalence of HIV, hepatitis C, chlamydia and syphilis.

Methods

The Victorian Primary Care Network for Sentinel Surveillance on BBVs and STIs commenced operation in March 2006. For surveillance purposes, BBVs refers to hepatitis C and STI refers to HIV, chlamydia and syphilis. Sentinel sites were selected to cover populations at risk of these diseases; men who have sex with men (MSM), youth, women, pregnant women and injecting drug users. Eighteen sentinel sites were invited and agreed to participate; five in the HIV and syphilis networks, nine in the hepatitis C network and 12 in the chlamydia network (some sites participated in more than one network).

At the clinics, doctors collected demographic and sexual risk behaviour information from all clients undergoing routine testing through brief questionnaires completed voluntarily by patients while in the doctor's room. Clinician's verbally explained the system and invited patients to participate.

Completion of the survey implied consent. Ethical approval for the sentinel surveillance program was obtained from seven Human Research Ethics Committees.

The HIV form acted as a pathology request form and behavioural survey. For the other diseases a separate behavioural survey was completed in addition to the routine pathology request form and the clinician placed a label containing the survey unique identifier onto the pathology request form.

Five laboratories that conducted BBV and STI testing for 16 sentinel sites agreed to extract the relevant sentinel surveillance pathology results. These were then linked with the questionnaire results at the Burnet Institute. This report covers data collected from April to December 2006.

Results

Between April and December 2006 a total of 4926 HIV and 7147 syphilis tests were conducted among males at the participating sentinel sites. Testing data from laboratories does not contain sexual orientation; therefore the HIV and syphilis questionnaire response rate was calculated among males only – 94 per cent and 63 per cent respectively. A total of 8809 chlamydia and 1309 hepatitis C tests were conducted among males and females at the relevant sentinel sites with a questionnaire response rate of 62 per cent and 53 per cent respectively (table 1). At clinics with a high case load of MSM, questionnaires were less frequently offered to HIV positive men (data not shown as a more detailed analysis will be conducted at a later date).

Demographic and risk behaviours

The main demographic and sexual

behaviour characteristics of the participants in the four different disease networks are presented in table 2. The median age among MSM surveyed was 33 years, higher than the median age among heterosexuals surveyed and tested for chlamydia (28 years for males, 24 years for females) and hepatitis C (30 years). Around two-thirds of heterosexuals surveyed and one third of MSM surveyed who had casual partners reported not always using condoms with these partners. About a third of participants in the hepatitis C network reported ever injecting a drug; 31 per cent at the sexual health clinic and 53 per cent at all other sites.

STI/HIV prevalence

Among the MSM who were surveyed and tested, 52 of 2763 tested positive for HIV (1.9 per cent, 95 per cent confidence interval (CI) 1.4–2.5), 45 of the 2858 tested positive for active syphilis (1.6 per cent, 95 per cent CI 1.1–2.1) and 98 of 1688 MSM tested positive for chlamydia (5.8 per cent, 95 per cent CI 4.7–7.0) (table 2).

For HIV, prevalence was higher among those tested due to a sero-conversion illness, who reported the most recent HIV test of a current regular partner was positive and/or who reported they did not always use condoms with regular anal sex partner/s.

The prevalence of chlamydia and syphilis was higher among those tested due to symptoms of a STI, those who reported six or more oral or anal sex partners in the past six months and/or those who reported not always using condoms with casual anal sex partner/s.

Among heterosexual males chlamydia prevalence was 7.4 per cent (95 per cent CI 6.1–8.8); among heterosexual females the prevalence was 3.8 per cent (95 per

Table 1: Tests conducted, questionnaires distributed and response rates in participating sentinel sites, by infection under surveillance, Victoria, April–December 2006

	HIV*	Syphilis**	Chlamydia	Hepatitis C
Total tests (n)	4926	7147	8809	1309
Questionnaires (n)	4614	4480	5479	691
Response rate (%)	93.7	62.7	62.2	52.8

* Males only

+ Active infection

cent CI 3.0–4.6). For both genders, prevalence was highest amongst those aged 16–24 years, those who reported multiple sexual partners in the past 12 months and/or those who reported not always using condoms with regular or casual partner/s.

Hepatitis C prevalence

Among individuals surveyed and tested (and were not previously known to be positive for hepatitis C), 39 of 691 tested positive for hepatitis C (5.6 per cent, 95 per cent CI 4.0–7.6), and was similar in males and females. Hepatitis C prevalence was higher among those reporting injecting drug use within the past 12 months (16 per cent), falling to

two per cent among those who had never injected drugs.

Discussion

Data collected by the Victorian Primary Care Network for Sentinel Surveillance on BBVs and STIs since the second quarter of 2006 showed the HIV prevalence of 1.9 per cent among MSM was similar to the 2005 estimate obtained in the pilot HIV sentinel surveillance study of 2.0 per cent but higher than 2004 estimate of 1.3 per cent.¹ These findings appear consistent with the pattern of new HIV diagnoses in Victoria where a nine per cent increase in notifications was observed between 2005 and 2006

compared to a 17 per cent increase between 2004 and 2005. For the first time, prevalence estimates as part of a sentinel surveillance system have also been collected for the other three diseases.

Despite Victoria having a comprehensive system for sentinel surveillance, a number of limitations should be noted: (i) there was a low questionnaire response rate at most hepatitis sites; and (ii) the STI questionnaire designed for completion by MSM when tested for STIs (without a concurrent HIV test) was infrequently completed. This was due to the system relying on the clinicians having to remember to use a separate sentinel surveillance form (the HIV form is part of the laboratory request form). This suggests that the chlamydia and syphilis network inadequately captured infection prevalence and sexual risk behaviours in HIV positive men. Finally, the sentinel system only includes individual's seeking health services and the results cannot be assumed to be representative of all people in the community.

Table 2: Core sentinel surveillance variables and outcomes

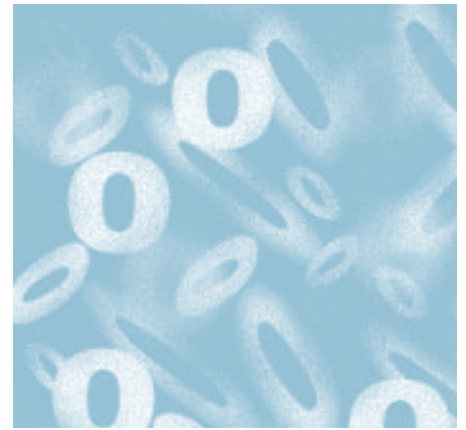
	MSM			Heterosexual males	Heterosexual females	All
	HIV	Syphilis ⁺	Chlamydia	Chlamydia	Chlamydia	Hepatitis C
Total questionnaires (n)	2763	2858	1688	1535	2210	691
Tests positive (n)	52	45	98	113	83	39
Tests positive % (95% CI)	1.9 (1.4–2.5)	1.6 (1.1–2.1)	5.8 (4.7–7.0)	7.4 (6.1–8.8)	3.8 (3.0–4.6)	5.6 (4.0–7.6)
Median age in years (range)	33 (17–81)	33 (17–81)	33 (17–81)	28 (16–78)	24 (16–81)	30 (16–68)
STI symptoms (%)	4.3	18.7	12.8	37.5	13.6	NA
Known HIV positive (%)	NA	7.2	1.0	NA	NA	NA
Casual sexual partner** (%)	74.2	74.8	77.1	68.1	54.1	NA
Did not always use condoms with casual partner/s,* (%)	34.0	32.8	33.4	65.1	61.0	NA
Regular sexual partner** (%)	63.3	62.9	64.1	88.1	92.7	NA
Did not always use condoms with regular partners* (%)	53.8	52.8	53.8	83.0	84.4	NA
New sexual partner/s, past three months (%)	NA	NA	NA	55.6	38.4	NA
History of injecting drug use (%)	NA	NA	NA	NA	NA	32.5

NA – not asked/collected

* MSM – in the last six months, Other – in the last 12 months

Not mutually exclusive, participants may have reported both regular and casual sexual partner's

+ Active infection



Immunisation update

Helen Pitcher, Department of Human Services

A number of steps have been undertaken to improve the quality and validity of the information that the system produces. Two more hepatitis C sites have agreed to participate to enhance the number of tests and surveys; forms have been further streamlined and discussions have taken place with specific clinics to explore the option of electronic data extraction for certain diseases.

This new system in Victoria has provided a unique opportunity to monitor BBV and STI testing, prevalence and sexual behaviour among individuals tested for the four diseases. A range of prevention strategies for HIV and STIs are likely to be implemented in Victoria in 2007 and the system described here will be a valuable mechanism to evaluate these strategies. More detailed results for each disease will shortly be available on the Department of Human Services' website: www.dhs.vic.gov.au.

Acknowledgements

The project collaborators (Burnet Institute, Victorian Infectious Diseases Reference Laboratory, Melbourne Sexual Health Centre, Department of Human Services) wish to thank all participating clinics, laboratories and individuals for their efforts.

Reference

1. Guy RJ, Lim M, Medland N, Roth N, Anderson J, Wang J, Hellard ME. HIV Sentinel Surveillance in Victoria – A Pilot Study. Oral Presentation. Australasian Society for HIV Medicine Conference. Hobart, Tasmania, 2005.

Data cited in this report are based on the Australian Childhood Immunisation Register (ACIR) Coverage Report. Table 1 presents immunisation coverage at 31 March 2007 for children aged 12–<15 months, 24–<27 months and 72–<75 months at 31 December 2006. Only vaccines administered before 12 months of age were included in the coverage calculation for the first age group, and only those vaccines administered before 24 and 72 months of age were included in the coverage calculation for the second and third age groups. For a copy of the ACIR report listing immunisation coverage against individual vaccines for each local government area, contact Catherine McNamara at catherine.mcnamara@dhs.vic.gov.au.

Seventy-seven per cent of local government areas (LGAs) achieved full immunisation coverage greater than or equal to 90 per cent in cohort one. Ninety-five per cent of LGAs achieved full immunisation coverage greater than or equal to 90 per cent in cohort two (an increase of four per cent from the last quarter) and 71 per cent of LGAs achieved full immunisation coverage greater than or equal to 90 per cent in cohort three (an increase of 10 per cent since the last quarter).

Complete immunisation coverage for cohort three (six-year-old milestone) increased again this quarter to 91.0 per cent from 90.1 per cent, almost three percentage points higher than the Australian coverage (88.0 per cent). A second consecutive quarter of above 90 per cent immunisation coverage for cohort three provided reassurance that high coverage levels can be sustained. Cohort three is

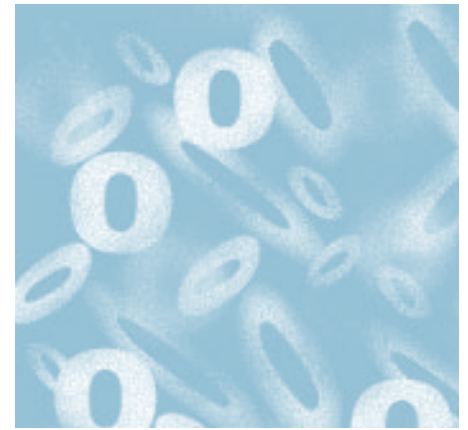
traditionally a difficult group to achieve immunisation coverage levels greater than 90 per cent.

High immunisation coverage in Victoria remained stable in age cohort one and two (one-year-old and two-year-old milestones). Victoria was similar to the Australian coverage (91 per cent) in cohort one at 91.3 per cent fully immunised. Complete immunisation coverage for cohort two remained steady at 93.4 per cent compared to the Australian coverage of 92.0 per cent. The benefits of high immunisation coverage was reflected in the markedly decreased number of notified cases of pertussis in infants aged less than 12 months in the last five years in Victoria. In 2006, only 12 cases in this age group were notified to the Department of Human Services, a decrease of almost eighty per cent on the 58 cases notified in 2002. The number of notified cases in infants steadily decreased each year as follows: 42 cases in 2003, 39 in 2004 and 26 cases in 2005.

There were also large decreases in the number of notified cases of pertussis in other childhood age groups. Compared to 2002, the number of notified cases in 2006 aged one to four years decreased by 72 per cent from 22 to six cases. Pertussis cases in those aged five to 14 years decreased by 83 per cent from 198 to 33 cases. In 2004, a pertussis-containing vaccine was introduced for Year 10 secondary school students. Since 2004, the number of notified cases aged 15 to 17 years decreased 48 per cent from 66 to 34 cases in 2006.

Table 1: Childhood immunisation coverage, by local government area, Victoria, 31 March 2007.

Age group	Per cent fully immunised	LOCAL GOVERNMENT AREA (LGA)	Total LGAs (Per cent)
12<15 months	100	Buloke, Loddon, Northern Grampians, Pyrenees, Queenscliffe, Strathbogie,	6 (8)
	95+	Ballarat, Greater Shepparton, Horsham, Indigo, Moira, Southern Grampians, Wellington, Wodonga	8 (10)
	90-<95	Alpine, Ararat, Banyule, Bass Coast, Baw Baw, Boroondara, Brimbank, Campaspe, Colac-Otway, Corangamite, Delatite, East Gippsland, Glen Eira, Golden Plains, Greater Bendigo, Greater Dandenong, Greater Geelong, Hepburn, Hindmarsh, Hume, Kingston, Knox, Latrobe Manningham, Maribyrnong, Maroondah, Melton, Mildura, Mitchell, Monash, Moonee Valley, Moorabool, Moreland, Mount Alexander, Moyne, Murrindindi, South Gippsland, Stonnington, Surf Coast, Swan Hill, Towong, Warrnambool, Whitehorse, Whittlesea, Yarra, Yarriambiack	46 (59)
	85-<90	Bayside, Cardinia, Casey, Central Goldfields, Darebin, Frankston, Gannawarra, Glenelg, Hobsons Bay, Mornington Peninsula, Nillumbik, Port Phillip, Wangaratta, West Wimmera, Wyndham, Yarra Ranges	16 (21)
	80-<85	Macedon Ranges, Melbourne	2 (2)
24<27 months	100	Moorabool, Pyrenees, Queenscliffe, Strathbogie, Towong, West Wimmera	6 (8)
	95+	Alpine, Ararat, Bass Coast, Central Goldfields, Colac-Otway, East Gippsland, Gannawarra, Golden Plains, Hindmarsh, Horsham, Kingston, Latrobe, Loddon, Melton, Moonee Valley, Northern Grampians, South Gippsland, Southern Grampians, Surf Coast, Wangaratta, Wellington, Whittlesea	22 (28)
	90-<95	Ballarat, Banyule, Baw Baw, Bayside, Boroondara, Brimbank, Buloke, Campaspe, Cardinia, Casey, Corangamite, Darebin, Delatite, Frankston, Glen Eira, Glenelg, Greater Bendigo, Greater Dandenong, Greater Geelong, Greater Shepparton, Hobsons Bay, Hume, Indigo, Knox, Macedon Ranges, Manningham, Maribyrnong, Maroondah, Mildura, Mitchell, Moira, Monash, Moreland, Mornington Peninsula, Moyne, Murrindindi, Nillumbik, Stonnington, Swan Hill, Warrnambool, Whitehorse, Wodonga, Wyndham, Yarra, Yarra Ranges, Yarriambiack	46 (59)
	85-<90	Mount Alexander, Port Phillip	2 (2)
	80-<85	Nil	0
	75-<80	Hepburn, Melbourne	2 (2)
72<75 months	100	Buloke, Hindmarsh, Queenscliffe,	3 (3)
	95+	Alpine, Campaspe, Central Goldfields, Corangamite, Moira, Northern Grampians, South Gippsland, Warrnambool, Wellington	9 (12)
	90-<95	Ararat, Ballarat, Banyule, Bass Coast, Baw Baw, Bayside, Darebin, Delatite, Frankston, Gannawarra, Glen Eira, Glenelg, Golden Plains, Greater Bendigo, Greater Geelong, Horsham, Hume, Indigo, Kingston, Knox, Latrobe, Macedon Ranges, Manningham, Maribyrnong, Melton, Mitchell, Monash, Moonee Valley, Moorabool, Moyne, Murrindindi, Nillumbik, Port Phillip, Pyrenees, Southern Grampians, Swan Hill, Towong, Wangaratta, West Wimmera, Whitehorse Whittlesea, Wodonga, Wyndham, Yarriambiack	44 (56)
	85-<90	Boroondara, Brimbank, Cardinia, Casey, Colac-Otway, East Gippsland, Greater Dandenong, Greater Shepparton, Hepburn, Hobsons Bay, Maroondah, Mildura, Moreland, Mornington Peninsula, Mount Alexander, Stonnington, Strathbogie, Surf Coast, Yarra, Yarra Ranges	20 (26)
	80-<85	Loddon	1 (1)
	75-<80	Melbourne	1 (1)



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 based on 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 651 160 or fax 1300 651 170.**

This section includes a summary of infectious disease notifications received until 31 March 2007. The Communicable Diseases Section, Department of Human Services, produced the report in cooperation with the Victorian Infectious Diseases Reference Laboratory and the Macfarlane Burnet Institute for Medical Research and Public Health. We gratefully acknowledge the contribution of the Microbiological Diagnostic Unit of the University of Melbourne and the Melbourne Sexual Health Centre.

Table 13 includes historical comparisons of selected diseases for the period 1 January–31 March 2007 at both the State and regional levels. Summary data at local government level for the diseases listed are available from the Communicable Diseases Section (telephone 1300 651 160) or on the website at <http://www.health.vic.gov.au/ideas/>. There were no notifications of Australian arboencephalitis, diphtheria, Japanese encephalitis, Kunjin virus, plague, poliomyelitis, rabies, tetanus, viral haemorrhagic fevers or yellow fever in this reporting period.

For comments or queries related to data on sexually transmissible diseases, contact the Communicable Diseases Section. For HIV/AIDS enquiries, contact Keflemariam Yohannes, Epidemiology and Social Research Unit, Macfarlane Burnet Institute for Medical Research and Public Health (telephone 61 3 9282 2290).

Fortnightly surveillance data from the Victorian Infectious Diseases Reference Laboratory are available at www.vidrl.org.au. 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/ideas>.

Enteric diseases

Joy Gregory, OzFoodNet Victoria & Department of Human Services & Leah Gullan, Department of Human Services

Outbreaks of gastrointestinal illness

There were 64 outbreaks of gastrointestinal illness reported to the department's Communicable Disease Control Unit (CDCU) in the first quarter of 2007 (table 1). Of these, nine outbreaks were considered to be foodborne or probable foodborne and two were considered to be waterborne or probable waterborne. For the remaining 53 outbreaks, person-to-person transmission was suspected in 49 outbreaks (Norovirus (35), adenovirus (1) and suspected viral gastroenteritis (13)). The mode of transmission was unknown for four outbreaks.

Norovirus activity

The number of Norovirus outbreaks in this quarter was the lowest since the fourth quarter of 2005 with 35 outbreaks

Table 1: Outbreaks of gastrointestinal illness, 1 January–31 March 2007.

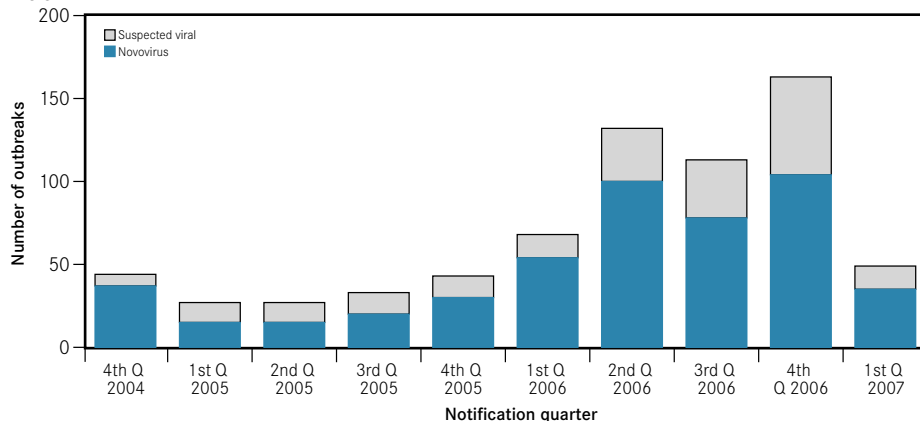
Setting	Outbreaks	Persons affected	Pathogen/toxin (number of outbreaks)
Restaurant / reception / other food premises / specific food	9	108	<i>Salmonella</i> Typhimurium 44 (1) Suspected viral (1) Scombrototoxin (1) Norovirus (1) Unknown (5)
Aged / disability/health care institution	45	885	Norovirus (34) Suspected viral (10) Unknown (1)
Recreation/holiday/camp	2	49	<i>Salmonella</i> Typhimurium 9 (1) Unknown (1)
Children's service/school	4	48	Suspected viral (3) Adenovirus (1)
Workplace	1	20	Unknown (1)
Family/social gathering	3	25	<i>Salmonella</i> Typhimurium 44 (3)
TOTAL	64	1135	Norovirus (35) Suspected viral (14) <i>Salmonella</i> Typhimurium 44 (4) <i>Salmonella</i> Typhimurium 9 (1) Scombrototoxin (1) Adenovirus (1) Unknown (8)

notified (figure 1). Ninety-seven per cent of these outbreaks were in aged care and health care settings. A further 14 outbreaks were suspected to have been caused by a viral pathogen.

Salmonella outbreaks

In December 2006, an increase in the number of notified cases of *Salmonella* Typhimurium 44 (STm 44) was detected. As a consequence, an investigation of all

Figure 1: Norovirus outbreaks in Victoria, by quarter, October 2004–March 2007



cases of this type of *Salmonella* notified since late December was commenced by the Communicable Disease Control Unit (CDCU); four distinct point source outbreaks were identified. The first outbreak was notified to CDCU in early January and involved a function held at a private residence just prior to Christmas. Fourteen people attended and 11 subsequently developed a gastrointestinal illness following the meal. Nine people were confirmed with STm 44 infection and four were hospitalised as a result of their illness. Various foods were served including an uncooked trifle for dessert, which was made with raw eggs. Information collected from the menu-based questionnaires supported the trifle as the likely source of the outbreak; 10 of the 11 cases had consumed it. In addition, an outbreak of STm 44 which occurred in December (and reported in Volume 10 issue 1 of the *Victorian Infectious Diseases Bulletin*) was also associated with the consumption of a food containing raw egg.

The second outbreak investigated this quarter was reported to CDCU in late January and involved 35 attendees who dined at a self-catered function held at a private residence. Ten people became ill with a gastrointestinal illness in the

subsequent two days. A cohort study was conducted and all of the attendees were interviewed with a menu-based questionnaire. Consumption of tiramisu for dessert, which was made using raw eggs, was associated with illness with a relative risk of 15.2 (95 per cent CI: 2.2–106.9).

The other two outbreaks of STm 44 investigated this quarter were both detected through interviews conducted as part of the wider cluster investigation. The first one involved 15 cases who had dined at the same restaurant over a one week period in January. Fourteen cases had consumed caesar salad and an investigation of the restaurant by the local council revealed that the mayonnaise-based dressing used on the salad was made at the premises and contained raw egg. The fifteenth case had eaten a chicken wrap which contained the same base mayonnaise. The other outbreak involved four teenage boys who had shared a milkshake which contained raw eggs.

These outbreaks highlight the risks involved with using raw eggs in foods that are not subsequently cooked. Raw egg foods can be made safer by using pasteurised eggs which are commercially available.

Camp outbreaks

During this quarter, there were two outbreaks associated with residential camp facilities. The first of these was notified to CDCU in March and involved a group of school children and their teachers. In the days following the camp, 30 adults and children became ill with gastrointestinal symptoms, of which 11 children were confirmed with *Salmonella* Typhimurium 9 (STm 9). Two out of four water samples taken at the camp premises were positive for STm 9.

An outbreak at a second camp involved gastrointestinal illness in three separate groups of attendees who had stayed at the camp between 20 March and 1 April. The investigation revealed that the drinking water was being sourced directly from a nearby creek with no treatment prior to consumption. Four water samples collected from various taps throughout the premises showed contamination with *E. coli*; *Salmonella* was also cultured from two samples. Ten faecal specimens were collected from ill attendees but no bacterial or viral pathogens were detected. However, one case had shigatoxin genes 1 and 2 detected by polymerase chain reaction but toxigenic *E. coli* was not able to be cultured from the specimen.

Both camps were closed to the public until the drinking water met the standards specified in the Australian Drinking Water Quality Guidelines. The Department of Human Services also sent a letter to all councils alerting them to the issues revealed in the investigation of these outbreaks. The aim was to ensure that steps are taken by proprietors of registered premises with private water supplies to ensure that the water is safe for use.

CDCU thanks staff from the Microbiological Diagnostic Unit, local

government environmental health officers and the Department of Human Services regional environmental health officers for their assistance with these outbreak investigations.

Blood borne viruses

Nasra Higgins, Department of Human Services

Hepatitis B—acute

Between January and March 2007, 526 cases of hepatitis B were notified, of which 29 (six per cent) were newly acquired infections. This total was similar to that of the previous quarter, but a 38 per cent increase compared to the same period in 2006 (n=21).

Among the 29 newly acquired hepatitis B cases, 17 (59 per cent) were in males and 12 (41 per cent) were in females. Cases were aged between seven and 66 years with a median age of 33 years for males and 30 years for females. Notified cases were highest in the 25 to 39 years age group.

Seventy-nine per cent of cases (n=23) were Australian born. Indigenous status was reported for all cases; none were reported as being of Aboriginal and/or Torres Strait Islander origin. A majority of the cases were from metropolitan Melbourne (n=20, 69 per cent).

Enhanced data were collected for all newly acquired hepatitis B infections. Of the 29 cases, 10 (34 per cent) were reported to have hepatitis C co-infection. Consistent with previous quarters, having symptomatic hepatitis and elevated liver function tests were reported as the main reason for testing (21 and eight cases respectively). Other reasons reported included: drug and alcohol screening (n=3); screened due to a medical condition (n=2); screened for sexually transmitted infections (n=1); contact tracing (n=1); antenatal

screening (n=1); and, prison screening (n=1). Multiple reasons may have been reported in each case.

Injecting drug use and unprotected sex were the main risk factors reported for 18 (62 per cent) and five cases (17 per cent) respectively. Other risk factors reported included tattooing (n=1) and a teeth-cleaning procedure in India (n=1). For the remaining four cases, a risk factor was not identified.

Hepatitis C

A total of 764 cases of hepatitis C were notified during the first quarter of 2007, of which 41 cases (five per cent) were identified as newly acquired infections.

Although surveillance practice has been consistent for the last three quarters the proportion of newly acquired cases has decreased from seven per cent in the previous two quarters to five per cent in this quarter (table 2). Between January and June 2006 all notified cases were followed up and this may account for the higher proportion of newly acquired cases identified in that period.

Of the 41 newly acquired cases, 61 per cent (n=25) were in males (age range: 17 to 47 years) and 39 per cent (n=16) were in females (age range: 18 to 42 years). The median age for both males and females was 27 years. Notified cases were most common in the 25 to 29 years age group.

Sixty-eight per cent (n=28) of cases were Australian born. Indigenous status was

reported for 83 per cent (n=34) of which one was reported as being of Aboriginal and/or Torres Strait Islander origin. Sixty-eight per cent (n=28) were from metropolitan Melbourne.

Enhanced data were collected for all newly acquired hepatitis C infections. Of the 41 cases, drug and alcohol screening and having elevated liver function tests were reported as the main reason for testing (14 and nine cases respectively). Other reasons included: screened for having symptomatic hepatitis (n=8); tested upon patient request (n=7); prison screening (n=3); screened for sexually transmissible infections (n=3); routine antenatal screening (n=1); contact tracing (n=1); refugee health assessment (n=1); and, screened as part of research (n=1). Multiple reasons may have been reported in each case.

Injecting drug use (IDU) was the main risk factor reported (n=28, 68 per cent). Other risk factors reported included having a positive hepatitis C partner (n=2), having had a tattoo (n=2), having a hepatitis C positive household contact (n=2), imprisonment (n=2), surgical procedure (n=1), having had blood products in Australia (n=1), needle injury in a non health care worker (n=1), having co-infection with HIV (n=1), having been assaulted (n=1) and having lived in a refugee camp (n=1). Risk was unknown for four cases (note: multiple risk factors are reported for non IDUs).

Table 2: Notified cases of hepatitis C virus infection by quarter, Victoria, January 2006–March 2007

	January– March 2006	April– June 2006	July– September 2006	October– December 2006	January– March 2007
Total hepatitis C cases	722	644	715	691	764
Hepatitis C – newly acquired: n (per cent)	59 (8)	56 (9)	49 (7)	45 (7)	41 (5)

Hepatitis D

Two cases of hepatitis D were notified during the first quarter of 2007 in two females aged 35 and 47 years.

Vaccine preventable diseases

James Fielding, Department of Human Services

Haemophilus influenzae type b (Hib)

One case of Hib was notified in the first quarter in a three-month-old female who presented with septicaemia. She had received one validated dose of vaccine at two months of age as indicated by the National Immunisation Program Schedule. The child was treated with ceftriaxone and recovered; six contacts were eligible for chemoprophylaxis.

Influenza

There were 26 notified cases of influenza in the first quarter, of which 25 were type A virus infections and one was type B. This total was twice that for the corresponding period in 2006. Cases ranged in age from three to 81 years (median = 38 years), although more than three-quarters were aged between 20 and 60 years. A slightly higher proportion of cases were in males (62 per cent). Fourteen cases (54 per cent) reported returning from travel to the Northern Hemisphere in the seven days prior to illness onset. No outbreaks were reported during the quarter.

Invasive pneumococcal disease (IPD)

There were 41 cases of IPD notified in the first quarter of 2007 – a slight decrease on the 48 cases notified during the same period in 2006. Sixteen cases (40 per cent) were aged 65 years or older; ten were aged 75 years or older.

Four cases were aged less than five years, although all were aged more than 12 months. A majority of cases (68 per cent) were in males. Four deaths due to the infection were reported – a case fatality rate of nearly ten per cent – and occurred in a one-year-old child and three adults aged 54, 55 and 82 years. There was one case in a person of Aboriginal and/or Torres Strait Islander origin.

Isolates from 39 cases (95 per cent) were available for serotyping. All four cases eligible for free conjugate vaccine were fully vaccinated for their age although none were infected with a serotype contained within the vaccine. Fourteen of the 16 cases aged 65 years or older were infected with a serotype contained within the polysaccharide vaccine (two serotypes were unknown). Of these 14 cases, half were fully vaccinated (and therefore represent vaccine failures), two were not vaccinated and five were of unknown vaccination status.

Measles

One case of measles was notified during the quarter in a 29-year-old male of unknown vaccination status. He had

travelled to Southeast Asia during his incubation period. Four cases of measles were notified in the same period in 2006.

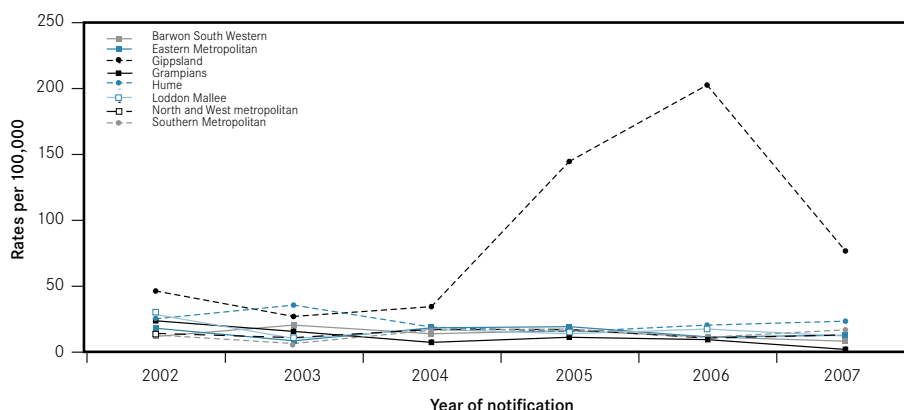
Rubella

Two cases of rubella were notified in the first quarter in females of unknown vaccination status aged 19 and 36 years. They had disease onsets two days apart and were residents of the same local government area in eastern metropolitan Melbourne. It is not known if there was a common source of infection.

Pertussis

A total of 205 cases of pertussis were notified in the first quarter, 19 per cent lower than the 252 cases in the same period in 2006 but slightly higher than the 182 cases in the previous quarter. Cases were aged from one month to 94 years (median = 47 years). There were four cases aged less than one year (one to seven months) and a further seven cases were aged from one to seven years. There were eight cases (four per cent) aged between 15 and 17 years inclusive and 89 per cent were aged 18 years or older. Two infant cases aged one and seven months were not vaccinated (the youngest was not due for vaccination

Figure 2: Average annual notification rate per 100,000 population of pertussis cases by region, Victoria, 2002–2007*



* rate has been standardised for the first quarter of 2007

until two months of age) and the cases aged three and five months were fully vaccinated for age, having received one and two doses of vaccine respectively. All cases aged one to seven years were fully vaccinated for age (three doses). No deaths were reported. Sixty-one per cent of cases were residents of metropolitan Melbourne and, consistent with previous years, the Gippsland Region accounted for a high proportion of notified cases (23 per cent) and the highest notification rate for the state (figure 2).

Other notifiable diseases

James Fielding, Department of Human Services

Legionellosis

Five cases of legionellosis were notified in the first quarter of 2007, more than 80 per cent fewer than the 27 cases notified during the same period in 2006. Of these, three were due to infection with *Legionella pneumophila* serogroup 1, one of *L. pneumophila* – indeterminate serotype and one case of *L. longbeachae*. Three cases were in females and two were in males. Cases were aged from 39 to 79 years (median = 48 years). No deaths were reported. Two of the *L. pneumophila* serogroup 1 cases and the *L. pneumophila* – indeterminate serogroup were geographically linked to inner western metropolitan Melbourne; however, the difference in their illness onset dates suggested that a point source outbreak was unlikely. Environmental sampling of cooling towers in the area was undertaken as a precaution but did not identify a potential source for the illnesses.

Invasive meningococcal disease

There were seven cases of invasive meningococcal disease notified in the

first quarter of 2007, of which six were serogroup B infections and one was unable to be serogrouped. This represented a reduction of 61 per cent on the 18 cases notified during the same period in 2006. Cases were in four females and three males aged from five months to 78 years, although six were aged less than 18 years. No deaths or links between cases were reported.

Creutzfeldt-Jakob Disease (CJD)

Genevieve Klug, Australian National CJD Registry

During the first quarter of 2007, four new suspected CJD cases in Victoria were notified to the Australian National CJD Registry (table 3). Two cases, notified to the Registry prior to 1 January 2007 were classified from suspect to not CJD after detailed follow-up and investigation. All notified suspected cases remain under investigation.

Mycobacterial infections

Lynne Brown, Department of Human Services

Tuberculosis

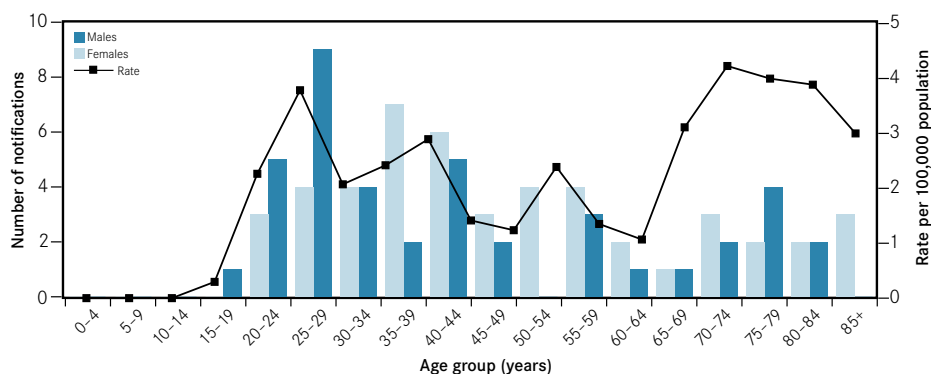
Owing to the slow growing nature of *Mycobacterium tuberculosis* (TB), data are preliminary and subject to change. This report relates to notifications for the first quarter, 1 January 2006 to 31 March 2007.

There were 89 notifications of TB to the department in the first quarter of 2007, similar to the same period in 2006 (n=83) and the same as the fourth quarter in 2006 (n=89). Forty-eight notifications were for females (54 per cent) and 41 (46 per cent) were for males (figure 3). The greatest number of notifications occurred in the 25–29 year age group (n=13); twenty persons (23 per cent of the total) aged sixty-five years and older were notified. There were no children aged less than fifteen years notified.

Table 3: Notifications of Creutzfeldt-Jakob Disease (CJD) to the Australian National CJD Registry, by reporting period, April 2004–March 2007

Reporting period	Suspected cases notified	Cases confirmed as CJD		
		Definite CJD	Probable CJD	Rejected: not CJD
April–June 2004	1	1	–	–
July–September 2004	3	–	–	–
October–December 2004	1	1	–	–
January–March 2005	5	1	–	–
April–June 2005	2	1	–	–
July–September 2005	10	4	–	–
October–December 2005	2	4	–	2
January–March 2006	2	3	–	1
April–June 2006	2	2	–	–
July–September 2006	3	–	–	–
October–December 2006	4	4	1	3
January–March 2007	4	–	–	2
Total	39	21	1	8

Figure 3: Notifications of tuberculosis, by age group, sex and per 100,000 population, Victoria, January–March 2007



* rate has been standardised for the first quarter of 2007

Information about country of birth was not known for three patients, however of the 86 notifications where country of birth was known, ninety-eight per cent were for persons born overseas. Of the Australian-born, two were aged more than seventy-five years, one was a known contact of an index case in South Australia and identified on contact tracing and one had travelled overseas to a country of high TB incidence. Two cases were diagnosed as a result of a contact investigation and three were found to have active disease as a result of their TB Health Undertaking assessment. One patient was known to have human immunodeficiency virus and TB co-infection.

Site of disease

Pulmonary disease accounted for 48 per cent of all notifications (n=43). Additional sites other than the lungs were noted in six notifications with pulmonary TB (table 4). Extra-pulmonary disease was reported in 52 per cent of notifications, the most common being lymphatic (57 per cent) and bone/joint (13 per cent). Some of the more unusual 'other' sites were bowel, breast and eye. Three patients were reported to have disseminated disease where TB was isolated in two or more sites of the body.

Laboratory confirmation of diagnosis in some form (smear, culture, antigen detection or histology) was obtained in 84

Table 4: Notifications of tuberculosis, by site of disease, Victoria, January–March 2007

Site	Number
Pulmonary only	37
Pulmonary and other sites	6
Lymph nodes	26
Bone / joint	6
Pleural	5
Meningeal	2
Genitourinary	2
Other	5
Total	89

Other sites (pulmonary)	Number
Pleural	1
Lymph nodes	5
Total	6

per cent of notifications (table 5). Seventy per cent of cases were diagnosed by culture, which was a nine per cent reduction on the fourth quarter in 2006 and still considerably less than the 90 per cent target set in the National TB Strategy performance indicators. The diagnosis was bacteriologically confirmed in 77 per cent of pulmonary notifications. There was one case of multi-drug resistant TB and two cases with mono-resistance (isoniazid).

Vector borne diseases

James Fielding, Department of Human Services

Ross River virus disease

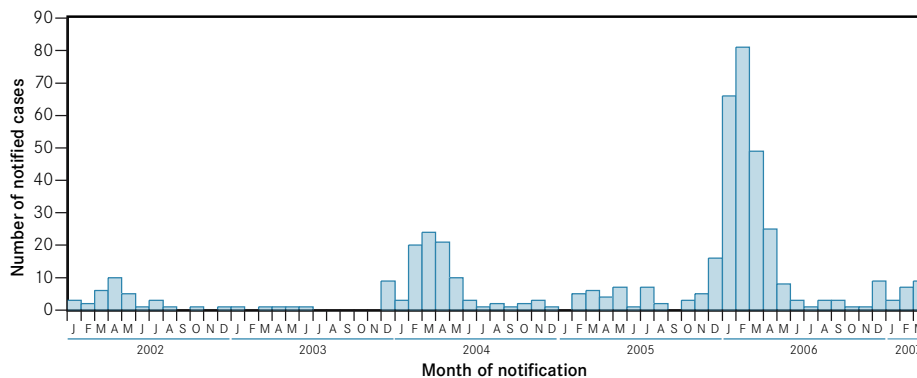
There were 19 cases of Ross River virus (RRV) disease notified in the first quarter of 2007, 90 per cent lower than the total for the same period in 2006. Notified cases of RRV generally peak in the warmer months, although this year's season was mild compared to last year's epidemic season and comparable with those of 2002 and 2005 (figure 4). Cases

Table 5: Confirmation of tuberculosis notifications, by diagnostic method, Victoria, January–March 2007

Diagnostic Method	Extra pulmonary TB only	Pulmonary TB only	Pulmonary TB plus other sites	Total
Culture	29	30	3	62
Microscopic examination	2	1	-	3
Histology	7	-	2	9
PCR/NAT*	1	-	-	1
Radiological	3	6	1	10
Clinical examination	4	-	-	4
Total	46	37	6	89

*PCR/NAT: polymerase chain reaction/nucleic acid testing

Figure 4: Notified cases of Ross River virus disease by month, Victoria, January 2002–March 2007



were aged from 17 to 78 years (median = 40 years) and were reported in 12 females (63 per cent) and seven males. Females were generally older than males (median ages of 36 and 64 years respectively). Nine cases (47 per cent) were residents of the Loddon Mallee region, two were from Gippsland and one from the Hume region; the remainder were residents of metropolitan Melbourne.

Malaria

Thirty cases of malaria were notified in the first quarter, 50 per cent higher than the 20 cases in the previous quarter but similar to the 33 cases notified in the

same period in 2006. Cases were aged from two to 61 years (median = 24 years) and were reported in 23 males and five females (two cases were of unknown sex). Half of the notified cases were *Plasmodium vivax* infections, 11 were *P. falciparum*, two were *P. ovale* and there was one each of *P. malariae* and mixed *P. falciparum* and *P. malariae* infection (table 6). Papua New Guinea was the most commonly reported country of acquisition of infection, accounting for five cases. Three infections were acquired in Uganda and two infections each were reportedly acquired in Indonesia, Pakistan and Sudan (table 6). Seven cases were reported among humanitarian arrivals.

Table 6: Notified cases of malaria, by species and reported country of acquisition, Victoria, January–March 2007

Country	<i>P. vivax</i>	<i>P. falciparum</i>	<i>P. ovale</i>	<i>P. malariae</i>	<i>P. falciparum</i> and <i>P. malariae</i>
East Africa (not further specified)	0	0	0	1	0
Ethiopia	1	0	0	0	0
Indonesia	2	0	0	0	0
Kenya	0	1	0	0	0
Pakistan	2	0	0	0	0
Papua New Guinea	3	2	0	0	0
Sudan	0	2	0	0	0
Thailand	1	0	0	0	0
Uganda	0	1	1	0	1
Not stated	6	5	1	0	0
Total	15	11	2	1	1

Zoonoses

James Fielding, Department of Human Services

Anthrax

One confirmed case of cutaneous anthrax was notified this quarter in a 35-year-old male knackery worker from northern Victoria, and was the first case notified since 1997. He was admitted to hospital febrile, with a large necrotic lesion and extensive cellulitis extending from hand to the axilla. He recovered after treatment with ciprofloxacin and penicillin. Penicillin-sensitive *B. anthracis* was cultured at the Microbiological Diagnostic Unit from a lesion swab. He had had contact with two cattle that were subsequently confirmed to have died from anthrax, and were part of an outbreak among cattle from ten farms in the area. The department distributed anthrax information to knackery workers, farmers, the veterinary officer who performed the post mortem and all general practitioners in the local division. Two knackery workers and two veterinarians who performed post mortems were advised to commence prophylactic amoxicillin treatment.

Psittacosis

There were 16 cases of psittacosis notified in the first quarter, twice the number during the same period in 2006 but seven fewer than the previous quarter. Three-quarters of the cases were in males. The age of cases ranged from 17 to 77 years (median = 51 years). Twelve cases were residents of metropolitan Melbourne and there was one case each from all rural regions except Barwon-South West. Nine cases reported exposure to domestic psittacine birds although seven of these also reported contact with wild birds. Of the remaining seven cases, three reported contact with

wild birds while the source of exposure for the other three was unknown; three were retired and one was an office worker.

Q fever

Seven cases of Q fever were notified during the quarter in five males and two females aged from 28 to 44 years (median = 35 years). Five cases were reported from the Barwon-South West, Loddon Mallee and Hume regions; two cases were residents of metropolitan Melbourne. Occupational data were available for five cases; four were involved in the direct handling or transport of meat products and one was a horse trainer.

Sexually transmissible infections

Chlamydia, gonorrhoea & infectious syphilis

Nasra Higgins, Department of Human Services

Chlamydia

Between January and March 2007, a total of 2,794 cases of chlamydia were notified. This was a 14 per cent increase on the 2,447 cases notified in the previous quarter and an eight per cent increase on the 2,585 cases notified for the same period in 2006.

Fifty-eight per cent of cases (n=1,608) were in females and 42 per cent (n=1,166) were in males. Sex was not reported for 20 cases. Cases were aged between six days to 88 years with a median age of 22 years for females and 25 years for males. Nearly 40 per cent of the total cases (n=1,079) were in the 20 to 24 year age group.

Seventy-three per cent of cases (n=2,047) were from metropolitan Melbourne. Indigenous status was reported for 50 per

cent (n=1,401), of which 14 were reported as being of Aboriginal and/or Torres Strait Islander origin.

Enhanced surveillance data were received for 708 cases (25 per cent). Among these, screening was reported as the main reason for testing for more than 50 per cent of the cases (n=373) followed by clinical presentation (n= 202, 29 per cent), contact tracing (n=100, 14 per cent) and other reasons (n=24, 4 per cent).

Males

Of the 336 male cases for whom enhanced surveillance data were available, 60 per cent (n=200) reported a female sexual partner and 32 per cent (n=106) reported a male sexual partner as the source of the infection; one case reported acquiring the infection from both a male and female sexual partner. This information was not reported or was unknown in the remaining cases.

Among the males reporting a male sexual partner, 85 per cent (n=90) reported acquiring their infection from a casual partner, eight per cent (n=9) reported acquiring it from a regular partner and one case reported a sex worker as the source of infection. For those cases reporting a female partner, 54 per cent (n=107) reported acquiring the infection from a casual partner, 38 per cent (n=75) reported acquiring it from a regular partner and one case reported a sex worker as the source of infection. Sexual partner type was not reported or unknown in the remaining cases.

Seventy-seven per cent of the male cases (n=259) reported that they acquired their infection in Victoria followed by overseas (n=22, seven per cent) and interstate (n=7, two per cent). This information was not reported/unknown for 48 cases.

Females

Of the 368 female cases for whom enhanced surveillance data were available, 89 per cent (n=327) reported acquiring their infection from a male sexual partner and one case reported a female sexual partner as the source of their infection. Sex of sexual partner was not reported/unknown for the remaining 40 cases.

Fifty per cent (n=183) reported that they acquired their infection from a regular partner and 32 per cent (n=119) reported casual partner as the source of infection. Two cases reported that the infection was acquired from a sex worker and sexual partner type was not reported/unknown for the remainder.

A majority of female cases (n=297, 81 per cent) reported that their infection was acquired in Victoria. The remaining cases reported that their infections were acquired overseas (n=15, four per cent), interstate (n=4, one per cent) and not reported/unknown (n=52, 14 per cent).

Gonorrhoea

There were 310 cases of gonorrhoea notified in the first quarter of 2007. This represented a slight increase on the 291 cases reported in the previous quarter, but a 24 per cent reduction on the 406 cases reported in the same period in 2006.

Eighty-seven per cent of cases (n=269) were male (age range: 16 to 75 years, median = 32 years) and 13 per cent (n=39) were female (age range: 16 to 53 years, median = 24 years). Cases were most commonly notified in those aged 20 to 24 years (n=60, 19 per cent).

Eighty per cent (n=249) of cases were from metropolitan Melbourne. Indigenous status was reported for 73 per cent (n=225) of which only one was

reported as being of Aboriginal and/or Torres Strait Islander origin.

Enhanced data were received for 196 cases (63 per cent). Among these, 118 cases (60 per cent) were tested due to clinical signs and symptoms of STIs, 61 cases (31 per cent) were found by screening and 10 cases (five per cent) were found by contact tracing.

Males

Among the 179 male cases for whom enhanced surveillance data were available, 114 cases (64 per cent) reported acquisition of the infection from a male sexual partner, 53 cases (30 per cent) reported a female partner and for 12 cases (seven per cent) sex of sexual partner was not reported/unknown.

Among the males reporting a male sexual partner, 85 per cent (n=97) reported acquiring their infection from a casual partner and 11 per cent (n=12) reported acquiring it from a regular partner. For those cases reporting a female partner, 55 per cent (n=29) reported acquiring the infection from a casual partner, 23 per cent (n=12) reported acquiring it from a regular partner and 11 per cent (n=6) reported a sex worker as the source of infection.

Seventy-eight per cent of the male cases (n=139) reported that they acquired their infection in Victoria, followed by overseas (n=23, 13 per cent) and interstate (n=1, one per cent). This information was not reported/unknown for 16 cases.

Females

Among the 16 female cases for whom enhanced surveillance data were available, 13 (85 per cent) reported acquisition of the infection from a male partner, one reported a female partner, and for two cases this information was not reported/unknown. Eleven cases

reported a regular partner as the likely source of their infection, four reported a casual partner and this information was not reported/unknown for the remaining case.

Fourteen of the 16 cases reported that they acquired their infection in Victoria, one reported overseas and for one case the place of infection was not reported/unknown.

Antibiotic resistance

Testing for susceptibility to ceftriaxone and ciprofloxacin was conducted on 200 and 211 isolates respectively. All of the isolates tested for ceftriaxone were sensitive. Of the isolates for ciprofloxacin, 62 per cent (n=131) were resistant, 36 per cent (n=76) were sensitive and two per cent (n=4) were 'less sensitive'.

Infectious syphilis

Between January and March 2007, a total of 199 cases of syphilis were notified of, which more than 50 per cent (n=102) were infectious syphilis. The number of infectious syphilis cases reported in the first quarter of 2007 has more than

tripled compared to the same period in 2006 (figure 6) and was more than the total number of cases notified for the whole of 2004 (n=84).

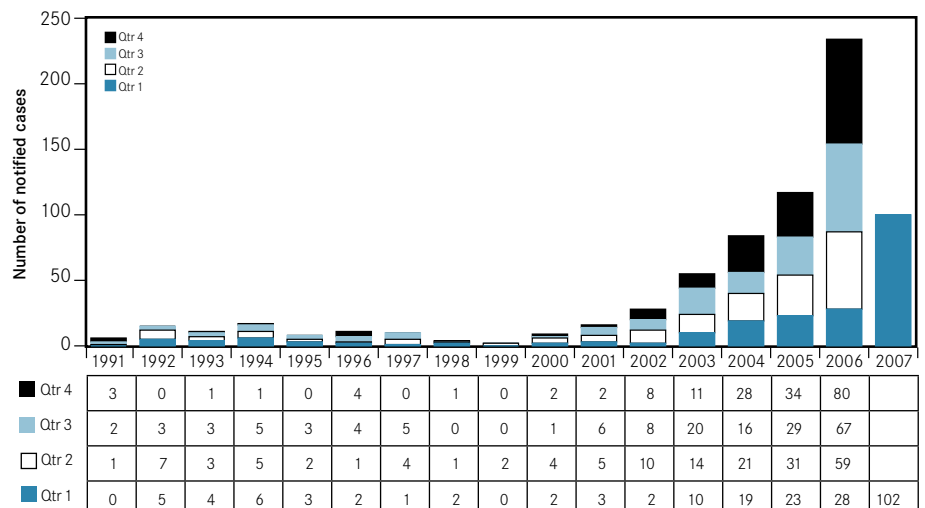
Ninety-six per cent of the cases (n=98) were in males aged from 18 to 67 years, with a median age of 38 years. A majority of the infections in males were in the 35 to 39 years age group.

There were four cases (four per cent) in females – a reduction of 14 and 11 per cent on the previous quarter and the same period in 2006 respectively.

Of the 102 cases, 42 were primary infections, 39 were secondary infections and 21 were early latent infections. A majority of the cases were from metropolitan regions (n= 71), six cases were from regional Victoria and postcode of residence was not reported/unknown for 24 cases. Indigenous status was reported for 99 cases of which only one was reported as being of Aboriginal and/or Torres Strait Islander origin.

Enhanced data were collected for all infectious syphilis cases. A majority of

Figure 5: Number of notified cases of infectious syphilis by quarter, January 1991 to March 2007



the cases were found by screening (n=60) followed by presenting with signs and symptoms of STIs (n=32), contact tracing (n=1) and other reasons (n=9).

Males

Of the 98 male cases reported, 89 (90 per cent) indicated a male sexual partner, five (five per cent) indicated a female sexual partner and one indicated both male and female sexual partners as the source of the infection. For the remaining three cases this information was not reported/unknown.

Among the males reporting a male sexual partner, 85 per cent (n=75) reported acquiring their infection from a casual partner and 10 per cent (n=9) reported acquiring it from a regular partner. For the remaining cases sexual partner type was not reported/unknown.

Seventy-eight per cent of the male cases (n=76) reported that they acquired their infection in Victoria, followed by overseas (n=7) and interstate (n=2). This information was not reported/unknown for the remaining cases.

Females

All of the four female cases reported having acquired their infection from male sexual partners. Two of the four reported casual sexual partners, one reported a regular partner and for the remaining case sexual partner type was not reported/unknown.

Three of the cases reported having acquired their infection in Victoria while the remaining case acquired the infection overseas.

Human immunodeficiency virus (HIV) and Acquired immunodeficiency syndrome (AIDS)

Keflemariam Yohannes and Danielle Horyniak, Burnet Institute

New HIV diagnoses

A new HIV diagnosis is one in which the first ever diagnosis was in Victoria. There were 57 new HIV diagnoses during the first quarter of 2007, a 14 per cent decrease on the 66 new HIV diagnoses reported in the previous quarter and a

Figure 6: New HIV diagnoses by year and quarter, Victoria, January 1999–March 2007

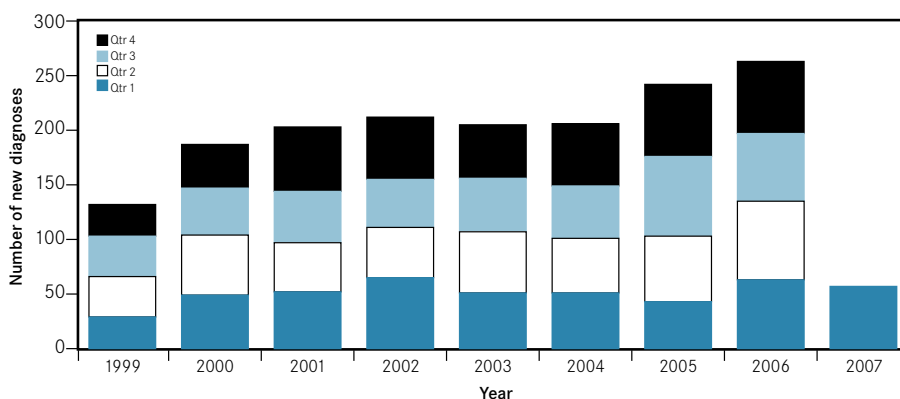


Table 7: New HIV diagnoses by age group, January–March 2007, January–December 2006 and January–December 2005

Age group (yrs)	January–March 2007						January–December 2006						January–December 2005					
	Males		Females		Total		Males		Females		Total		Males		Females		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0–12	0	0.0	0	0.0	0	0.0	0	0.0	1	4.8	1	0.4	1	0.5	0	0.0	1	0.4
13–19	0	0.0	1	20.0	1	1.8	2	0.8	2	9.5	4	1.5	1	0.5	1	4.5	2	0.8
20–29	8	16.3	1	20.0	9	16.7	50	20.7	5	23.8	55	20.9	46	20.9	5	22.7	51	21.1
30–39	21	38.8	1	20.0	22	37.0	82	33.9	7	33.3	89	33.8	81	36.8	12	54.6	93	38.5
40–49	15	30.6	2	40.0	17	31.5	63	26.0	4	19.0	67	25.5	59 ¹	26.8	3	13.7	62	25.6
50–59	4	8.2	0	0.0	4	7.4	30	12.4	1	4.8	31	11.8	23	10.4	1	4.5	24	9.9
60+	4	6.1	0	0.0	4	5.6	15 ²	6.2	1	4.8	16	6.1	9	4.1	0	0.0	9	3.7
Total	52	100	5	100	57	100	242	100	21	100	263	100	220	100	22	100	242	100

1 Includes one individual who identified as transgender
 2 Includes one individual who identified as transgender

Table 8: New HIV diagnoses by exposure category, January–March 2007, January–December 2006 and January–December 2005

Exposure Category	January–March 2007						January–December 2006						January–December 2005					
	Males		Females		Total		Males		Females		Total		Males		Females		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Male to male sex	42	80.8	0	0	42	73.7	202 ¹	83.5	0	0.0	202	76.8	178 ²	80.9	0	0.0	178	73.6
Male to male sex and IDU	0	0.0	0	0	0	0.0	5	2.1	0	0.0	5	1.9	12	5.5	0	0.0	12	5.0
IDU	1	1.9	2	40	3	5.3	7	2.9	1	4.8	8	3.0	7	3.2	2	9.1	9	3.7
Heterosexual contact	8	15.4	3	60	11	19.3	17	7.0	12	57.1	29	11.0	7	3.2	11	50.0	18	7.4
Heterosexual contact – person from a HPC ³	1	1.9	0	0	1	1.7	7	2.9	6	28.6	13	5.0	8	3.6	9	40.9	17	7.0
Other /Unknown	0	0.0	0	0	0	0.0	4	1.6	2	9.5	6	2.3	8	3.6	0	0.0	8	3.3
Total	52	100	5	100	57	100	242	100	21	100	263	100	220	100	22	100	242	100

1 Includes one individual who identified as transgender

2 Includes one individual who identified as transgender

3 Persons from countries with a high prevalence (>1%) of HIV

nine per cent reduction from the same quarter last year (figure 6).

Age, sex and exposure categories

Of the 57 new HIV diagnoses in the first quarter, 52 (91 per cent) were in males and five (9 per cent) were in females (table 7). This was compared to 57 (86 per cent) males diagnosed in the previous quarter and 59 (94 per cent) in the same quarter of 2006.

Of the 52 males diagnosed in the first quarter, 42 (81 per cent) cases were in men who have sex with men (MSM) and nine (17 per cent) were due to heterosexual contact (table 8). Thirty-nine per cent of males were aged 30–39 years.

Of the five females diagnosed in the first quarter of 2007, three infections were reported as heterosexually acquired and two were associated with injecting drug use (IDU).

Male homosexual/bisexual contact

The 42 diagnoses in MSM represented 74 per cent of cases overall, compared to 71 per cent of cases overall in the previous quarter and 78 per cent in the same quarter last year.

Table 9: New HIV diagnoses associated with male to male sexual contact by place infection acquired, January–March 2007, January–December 2006 and January–December 2005

Probable place infection acquired	January–March 2007		January–December 2006		January–December 2005	
	n	%	n	%	n	%
Victoria	28	66.7	170	84.2	148	83.1
Interstate	0	0	12	5.9	8	4.5
Overseas	4	9.5	16	7.9	11	6.2
Unknown	10	23.8	4	2.0	11	6.2
Total	42	100	202	100	178	100

Table 10: New HIV diagnoses associated with male to male sexual contact by source partner type, January–March 2007, January–December 2006 and January–December 2005

Source partner type	January–March 2007		January–December 2006		January–December 2005	
	n	%	n	%	n	%
Regular	3	7.1	39	19.3	33	18.5
Casual/anonymous	29	69.0	115	56.9	109	61.3
Regular and casual	0	0	30	14.9	20	11.2
Unknown	10	23.9	18	8.9	16	9.0
Total	42	100	202	100	178	100

Sixty-seven per cent reported acquiring their HIV infection in Victoria (table 9) and 69 per cent reported their HIV infection was acquired from a casual or anonymous partner (table 10). The median age of MSM was 39 years (range: 20 to 80 years) compared to 40 years in the previous quarter and 38 years in the same quarter last year.

Heterosexual contact

In the first quarter of 2007, there were 12 (21 per cent) cases reported as heterosexually acquired (table 11). This was similar to the 14 heterosexual cases (21 per cent) reported in the fourth quarter of 2006 and a slight increase from the 10 (16 per cent) in the same

quarter last year. Of these 12 cases, one male was born in a high prevalence country and a further six cases (five males and one female) reported heterosexual contact with a partner from a high prevalence country. The median age of heterosexually acquired cases in this quarter was 44 years (range: 20 to 80 years) compared to 41 years in the previous quarter.

Injecting drug use

Three cases (one male and two females) were associated with injecting drug use, compared to four males in the fourth quarter of 2007. All three were Australian born.

Incident infections

During the first quarter of 2007, 18 cases (17 males and one female) were classified as having newly acquired HIV infections (based on a previous negative HIV test and/or a seroconversion illness within the 12 months preceding HIV diagnosis) (table 12). These newly acquired infections constituted 32 per cent of all new diagnoses for this period. In the previous quarter, 32 cases (48 per cent) were classified as newly acquired, and for the same quarter last year 17 cases (27 per cent) were newly acquired.

Table 11: New HIV diagnoses associated with heterosexual contact, January–March 2007, January–December 2006 and January–December 2005

Exposure category	January–March 2007				January–December 2006				January–December 2005			
	Males		Females		Males		Females		Males		Females	
	n	%	n	%	n	%	n	%	n	%	n	%
Person from a HPC	1	11.1	0	0.0	7	29.2	6	33.3	8	53.3	9	45
Heterosexual contact with person from a HPC	5	55.6	1	33.3	6	25.0	2	11.1	1	6.7	1	5
Heterosexual contact with bisexual man	0	0	1	33.3	0	0.0	2	11.1	0	0.0	2	10
Heterosexual contact with IDU	0	0	0	0.0	0	0.0	1	5.6	0	0.0	3	15
Heterosexual contact with person with HIV	1	11.1	0	0.0	1	4.2	2	11.1	3	20.0	4	20
Heterosexual contact (not otherwise specified)	2	22.2	1	33.3	10	41.7	5	27.8	3	20.0	1	5
Total	9	100	3	100	24	100	18	100	15	100	20	100

Table 12: New HIV diagnoses in Victoria, by time since last negative test or seroconversion illness, January–March 2007, January–December 2006 and January–December 2005

Time between HIV diagnosis and negative test and/or seroconversion illness	January–March 2007						January–December 2006						January–December 2005					
	Males		Females		Total		Males		Females		Total		Males		Females		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Less than 1 year (incident infection)	17	32.7	1	20	18	31.6	91	37.6	9	42.9	100	38.0	77	35.0	2	9.1	79	32.6
1 year to less than 3 years	9	17.3	0	0	9	15.8	44	18.2	0	0.0	44	16.7	41	18.6	4	18.2	45	18.6
3 or more years	5	9.6	0	0	5	8.8	53	21.9	3	14.3	56	21.3	46	20.9	4	18.2	50	20.7
No previous negative test or seroconversion illness	13	25	2	40	15	26.3	42	17.4	5	23.8	47	17.9	42	19.1	9	40.9	51	21.1
History unknown	8	15.4	2	40	10	17.5	12	5.0	4	19.0	16	6.1	14	6.4	3	13.6	17	7.0
Total	52	100	5	100	57	100	242	100	21	100	263	100	220	100	22	100	242	100

Acquired immunodeficiency syndrome

There were ten AIDS notifications during the first quarter of 2007, all of whom were male. Of these, six (60 per cent) were associated with male-to-male sex, two with heterosexual contact, one with both injecting drug use and male-to-male sex and for one case the exposure category could not be determined. In the previous quarter, six (43 per cent) of the 14 AIDS notifications were associated with male-to-male sex and in the first quarter of 2006, 11 (65 per cent) of the 17 AIDS notifications were associated with male-to-male sex.

Deaths

There were five deaths following HIV or AIDS diagnosis notified during the first quarter of 2007, all of whom were male. There were ten deaths (eight males, two females) reported in the previous period, and five deaths (three males, two females) in the first quarter of 2006.

Comments

In the first quarter of 2007 there was a slight decrease in the number of diagnoses compared to other comparable time periods. The proportion of newly acquired cases has decreased by 16 per cent since the last quarter. Diagnoses associated with male-to-male sexual contact continue to be the most frequently reported source of HIV exposure.

Table 13: Notifications of notifiable infectious diseases, by Department of Human Services region, 1 January–31 March 2007

Notifiable Disease	Barwon South Western		Grampians		Loddon Mallee		Hume	
	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd
Blood Borne Diseases								
Hepatitis B – Newly acquired	1	4	3	0	1	2	2	0
Hepatitis B – Not further specified	10	5	6	2	4	5	9	7
Hepatitis C – Newly acquired	3	4	2	3	0	2	3	5
Hepatitis C – Not further specified	37	44	37	12	40	30	28	27
Hepatitis D	0	0	0	0	0	0	0	0
Enteric Diseases								
Botulism	0	0	0	0	0	0	0	0
<i>Campylobacter</i> infection	136	140	65	41	114	64	112	69
Cryptosporidiosis	8	17	12	4	7	16	11	21
Food/Water/Environmental – Other	3	29	0	5	1	5	1	3
Giardiasis	12	17	7	7	18	12	22	15
Haemolytic Uraemic Syndrome	0	0	0	0	0	0	0	0
Hepatitis A	0	1	0	0	0	1	0	1
Hepatitis E	0	0	0	0	0	0	0	0
Listeriosis	0	0	0	1	0	1	0	0
Paratyphoid	0	0	0	0	0	1	0	1
Salmonellosis	54	38	26	29	35	25	20	30
Shigellosis	0	2	0	0	0	1	1	1
Typhoid	0	0	0	0	0	0	0	0
Vero Toxin producing <i>E.coli</i>	0	0	0	0	2	0	0	0
Other Infectious Notifiable Diseases								
Creutzfeldt-Jakob Disease	0	0	0	0	0	0	0	0
Invasive meningococcal disease – Group B	1	3	0	0	0	1	1	0
Invasive meningococcal disease – Group C	0	0	0	0	0	1	0	0
Invasive meningococcal disease – Other	0	0	0	1	0	0	0	0
Legionella – Other	0	0	0	0	0	0	0	0
<i>Legionella longbeachae</i>	0	0	0	0	0	0	0	0
<i>Legionella pneumophila</i> – indeterminate serotype	0	0	0	0	0	0	0	0
<i>Legionella pneumophila</i> 1	0	0	0	0	0	0	0	1
<i>Mycobacterium</i> infection (non-TB)	1	0	0	0	0	0	0	1
<i>Mycobacterium tuberculosis</i>	3	0	0	0	2	2	0	0
<i>Mycobacterium ulcerans</i>	0	6	0	0	0	0	0	0
Sexually Transmitted Infections								
Chlamydia	211	220	96	73	88	107	122	118
Gonococcal infection	9	12	1	7	4	4	2	4
Syphilis – infectious	2	0	3	0	1	2	1	0
Syphilis – other	1	2	2	0	0	0	3	1
Vaccine Preventable Diseases								
<i>Haemophilus influenzae</i> type b	0	0	0	0	0	0	0	0
Influenza	0	0	0	0	0	0	0	0
Invasive pneumococcal disease	4	5	2	1	1	4	4	4
Measles	0	0	0	0	0	0	0	0
Mumps	0	0	0	2	0	0	0	0
Pertussis	7	12	1	5	9	16	15	22
Rubella	0	0	0	0	0	0	0	0
Tetanus	0	0	0	0	0	0	0	0
Vector Borne Diseases								
Barmah Forest	0	0	0	0	1	4	0	3
Chikungunya	0	0	0	0	0	0	0	0
Dengue	0	0	0	0	0	0	0	0
Flavivirus	0	0	0	0	0	0	0	0
Malaria	2	0	0	2	1	0	0	3
Ross River	0	6	0	16	9	64	1	52
Zoonoses								
Anthrax	0	0	0	0	0	0	1	0
Leptospirosis	0	1	0	0	0	0	0	1
Psittacosis	0	0	1	0	1	1	1	0
Q Fever	1	0	0	0	2	2	2	1
ABS Est. resident population 30/06/2004	350,801		213,316		302,043		259,947	

Note: The data are preliminary figures only and may be subject to revision (daily surveillance reports are available online at <http://www.health.vic.gov.au/ideas>)

Gippsland		North and West Metropolitan		Eastern Metropolitan		Southern Metropolitan		Unknown		Victoria		
2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2007 ytd	2006 ytd	2006 total
2	0	6	7	6	3	8	5	0	0	29	21	109
4	2	226	176	106	82	120	117	12	9	497	405	1576
3	2	16	19	4	8	8	15	3	1	42	59	208
23	28	255	232	106	89	161	164	35	37	722	663	2562
0	0	0	1	1	0	1	0	0	1	2	2	7
0	0	1	0	0	0	0	0	0	0	1	0	0
132	91	524	368	393	322	419	334	14	17	1909	1446	5729
21	34	46	114	20	121	35	121	1	16	161	464	1111
11	21	10	63	25	13	8	35	134	248	193	422	2022
7	8	120	111	66	46	115	79	3	4	370	299	1192
0	0	0	0	0	0	0	0	0	0	0	01	
0	4	6	5	1	1	3	2	0	1	10	16	46
0	0	0	1	1	0	1	1	0	0	2	2	7
0	0	1	1	1	2	2	0	0	0	4	5	13
0	0	3	2	4	1	1	0	0	0	8	5	15
28	31	177	145	88	82	107	113	11	2	546	495	1391
0	0	9	6	6	3	9	9	3	0	28	22	77
0	0	4	5	1	1	4	0	0	0	9	6	18
0	0	2	0	0	0	3	0	0	0	7	0	3
0	0	0	0	0	0	0	0	0	0	0	11	4
1	0	1	0	0	6	2	0	0	0	6	10	63
0	0	0	1	0	0	0	0	0	0	0	2	3
0	0	0	1	1	2	0	2	0	0	1	6	20
0	0	0	0	0	1	0	0	0	0	0	1	5
0	0	1	0	0	0	0	2	0	0	1	2	13
0	0	1	0	0	0	0	0	0	0	1	0	5
0	0	3	17	0	5	0	1	0	0	3	24	46
0	2	3	2	1	2	4	2	0	1	9	10	32
2	3	41	41	23	16	18	21	0	0	89	83	353
0	0	1	1	0	0	2	4	1	0	4	11	61
79	82	958	846	407	414	681	638	152	87	2794	2585	10019
2	6	98	154	45	52	106	97	43	70	310	406	1309
0	0	33	12	10	0	29	6	24	8	103	28	234
2	2	26	24	14	5	31	26	16	11	95	71	357
0	0	0	0	0	0	1	0	0	0	1	0	2
0	0	11	3	4	5	8	5	3	0	26	13	424
4	3	15	11	3	8	5	10	3	2	41	48	280
0	0	1	0	0	3	0	1	0	0	1	4	12
0	0	1	2	0	2	0	1	0	0	1	7	16
47	93	47	43	30	29	49	29	0	3	205	252	1077
0	0	0	0	2	0	0	0	0	0	2	0	6
0	0	0	0	0	0	0	0	0	0	0	0	1
2	2	0	2	0	2	0	1	0	1	3	15	31
0	0	0	1	0	0	0	0	0	0	0	1	4
1	0	1	2	1	0	0	2	0	0	3	4	7
0	0	1	3	0	0	0	3	0	1	1	7	10
0	1	10	12	5	2	8	9	4	4	30	33	117
2	6	3	26	2	15	2	12	0	1	19	198	252
0	0	0	0	0	0	0	0	0	0	1	0	0
1	0	0	0	0	0	2	0	0	0	3	2	7
1	2	4	4	3	0	5	1	0	0	16	8	62
0	2	1	5	0	1	1	0	0	0	7	11	34
245,931		1,455,283		972,904		1,172,463				4,972,779		

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