

11. Vector-borne diseases

Surveillance objectives

The objectives of vector-borne disease surveillance are to:

- Monitor the epidemiology of vector-borne diseases in terms of time, person and place;
- Detect outbreaks of vector-borne disease to implement appropriate public health interventions and prevent further transmission;
- Guide mosquito surveillance and control efforts to minimise further infections;
- Communicate the patterns, risks and trends about vector-borne diseases to the public, government and other key stakeholders.

Barmah Forest virus disease Summary of notifications

There were 19 cases of Barmah Forest virus disease notified in 2005, an increase of 36 per cent on the 14 cases notified in 2004. Ten cases (53 per cent) were notified in March and April, the remainder were notified sporadically throughout the year. Thirteen cases (68 per cent) were in females and the remainder were in males. The median age of cases was 55 years (range: 13–71 years) although when stratified by sex the median ages were 53 (range: 13–65) and 64 (range: 46–71) years for females and males respectively. Eleven cases (58 per cent) were Gippsland residents and three each were from Loddon Mallee region and metropolitan Melbourne; one case each was from Hume region and from New South Wales.

Risk factors

Cases of Barmah Forest virus disease are followed up to identify risk factors including travel history and recreational activities. All three cases in metropolitan Melbourne residents reportedly acquired their infections elsewhere: two in Queensland and one in Loddon Mallee. The one case from the Hume region reported acquiring the infection in Loddon Mallee region. Risk factor data were collected for nine cases (47 per cent), for which having lived/worked/played near a mosquito breeding site was the most commonly reported risk factor (table 40). Nearly half the cases reporting risk factors took protective measures.

Table 40: Notified cases of Barmah Forest virus disease by risk factor, Victoria, 2005

Risk factor*	Cases (per cent)
Bushwalking	2 (22)
Camping	2 (22)
Fishing	1 (11)
Gardening	4 (44)
Swimming	2 (22)
Lived/worked/played near mosquito breeding site	6 (67)
Use of flyscreens on doors/windows	4 (44)
Use of repellent	4 (44)

* Multiple risk factors reported

Outbreak and other investigations

No outbreaks were identified.

Comment

Infection with Barmah Forest virus disease can be prevented by implementation of mosquito control measures in the environment, the use of personal protective measures such as wearing long sleeves and mosquito repellents and avoidance of mosquito-prone areas and biting times at dusk and dawn.

Ross River virus disease

Summary of notifications

Fifty-seven cases of Ross River virus disease were notified in 2005, a decrease of 37 per cent on the 91 cases notified in 2004. Cases were notified throughout the year although a peak of 17 (30 per cent) was notified in December, followed by seven each in July and May (figure 47).

Twenty-nine cases (51 per cent) were in females and the remainder in males. The median age of cases was 44 years (range: 10–77 years), although the number of cases and notification rate were highest in the 50–54 years age group (figure 48).

Notification rates were highest in the Loddon Mallee and Gippsland regions, although the second highest number of cases was reported in residents of the North and West Metropolitan region (figure 49).

Risk factors

The most commonly reported regions of likely acquisition of infection by cases were Loddon Mallee (17 cases, 30 per cent) and Gippsland (11 cases, 19 per cent). Eight cases (14 per cent) were reportedly acquired in Hume region and six (11 per cent) interstate. Risk factor data were collected for 24 cases (42 per cent), for which three-quarters reported having lived/worked/played near a mosquito breeding site (table 41). At least half the cases reported using protective measures.

Outbreak and other investigations

No outbreaks were identified.

Comment

Preventive measures for Ross River virus disease are the same as for other mosquito-borne diseases.

Figure 47: Notified cases of Ross River virus disease by month, Victoria, 2001–2005

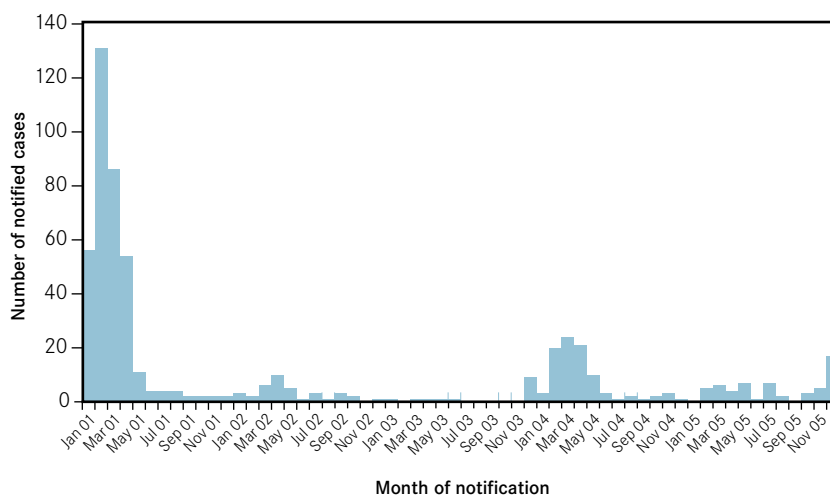


Figure 48: Notified cases and notification rate of Ross River virus disease by age group, Victoria, 2005

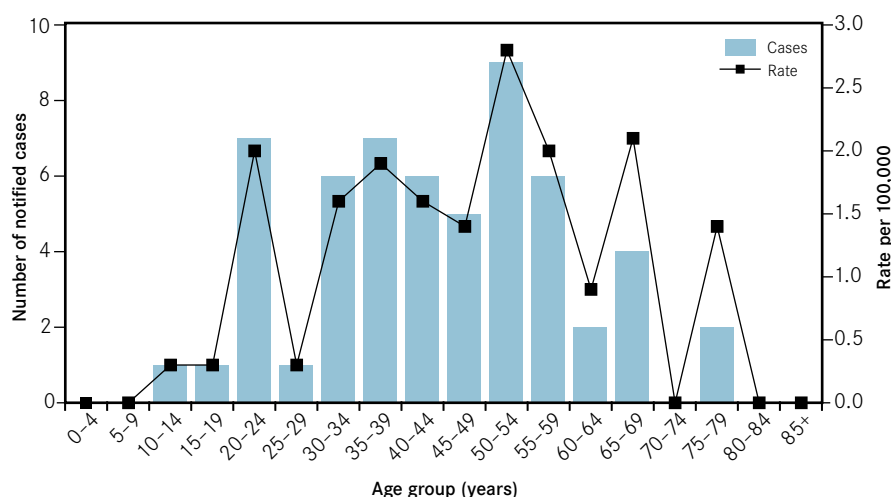
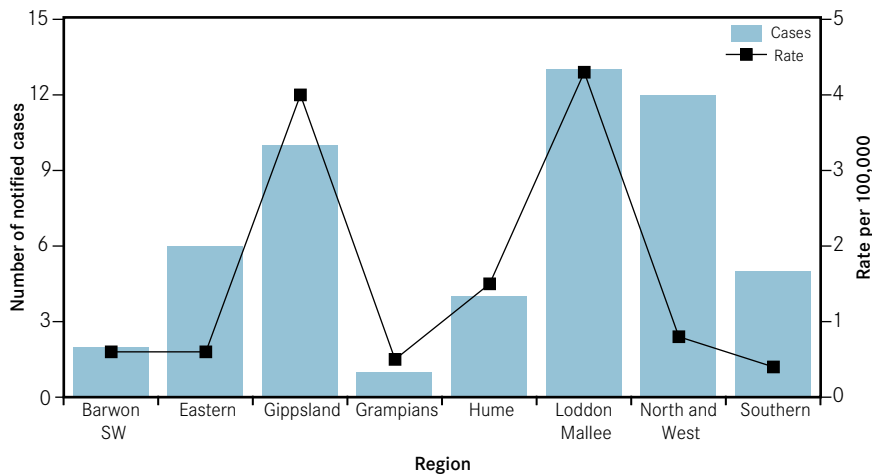


Figure 49: Notified cases and notification rate of Ross River virus disease by region, Victoria, 2005



Flavivirus infections

Summary of notifications

Sixteen cases of Flavivirus infection were notified in 2005, of which 14 were dengue virus infections. The median age of cases was 28 years (range: 18–70 years) and occurred in seven females and nine males.

Risk factors

Country of exposure data were available for 14 cases. Ten infections were acquired in Southeast Asia, three in South Asia and one in South America.

Outbreak and other investigations

No outbreaks were identified.

Comment

Dengue virus is not endemic in Australia but periodic outbreaks have occurred in northern Australia following importation of the virus among infected returned travellers and transmission through compatible local mosquito vectors. No vaccine or prophylaxis is available for dengue fever and travellers to endemic areas should take personal protective measures and avoid mosquito-prone areas.

Table 41: Notified cases of Ross River virus disease by risk factor, Victoria, 2005

Risk factor*	Cases (per cent)
Bushwalking	6 (25)
Camping	4 (17)
Fishing	3 (13)
Gardening	5 (21)
Golfing	1 (4)
Swimming	7 (29)
Waterskiing	1 (4)
Lived/worked/played near mosquito breeding site	18 (75)
Use of flyscreens on doors/windows	12 (50)
Use of repellent	8 (33)

* Multiple risk factors reported

Malaria

Summary of notifications

A total of 108 cases of malaria were notified in 2005, an increase of 71 per cent on the 63 cases in 2004. The median age of cases was 21 years (range: 10 months to 59 years), although 88 cases (81 per cent) were aged less than 35 years (figure 50). Due to the high proportion of cases in non-residents (see below) five-year age specific notification rates were not calculated. A majority of cases (71 per cent) were males. Most cases were due to infections with *Plasmodium vivax* and *P. falciparum* (52 and 37 cases respectively). Five cases were due to *P. ovale*, two were *P. malariae* and 11 were mixed *P. falciparum* and *P. ovale* infections; one was not specified.

Risk factors

Papua New Guinea was the most commonly reported country of malaria acquisition (21 cases, 19 per cent), for which nearly all cases were the result of *P. vivax* infection; 13 cases were reportedly acquired in India and five

in Vanuatu (table 42). Approximately one-third of *P. falciparum* infections were acquired in Liberia and a further 19 per cent in Tanzania. Thirty-five cases (32 per cent) were in newly arrived refugees, nearly all of which were *P. falciparum* infections. Additional risk factor data were collected for 40 cases (37 per cent). Of these, 15 cases (38 per cent) reported routine use of mosquito screens and nets, 13 (33 per cent) reported routine use of protective clothing and 14 reported routine use of mosquito repellent. Seventeen cases reported regular compliance with prophylaxis (43 per cent), five (13 per cent) reported irregular compliance and 16 cases (40 per cent) did not take malaria prophylaxis.

Outbreak and other investigations

No outbreaks were identified.

Comment

The number of notified malaria cases increased sharply in 2005, much of which could be attributed to newly arrived refugees; these cases

comprised 14 per cent of the 63 notified cases in 2004 and 32 per cent of the 108 notified cases in 2005 and highlights the specialist health care needs required for this population.

Malaria can be a fatal disease and early diagnosis with prompt treatment is essential. The disease is endemic in areas of Asia, Africa and Central and South America. In addition to the prevention measures described above, travellers to endemic areas should be aware of specialist prevention and precautionary measures including: being aware of the risk, incubation period and disease symptoms and immediately seeking diagnosis and treatment if fever develops one week or more after entering an area where there is a malaria risk; the use of chemoprophylaxis to suppress infection; avoiding perfumes and colognes and; use of repellent-impregnated mosquito nets.

Figure 50: Notified cases of malaria by age group, Victoria, 2005

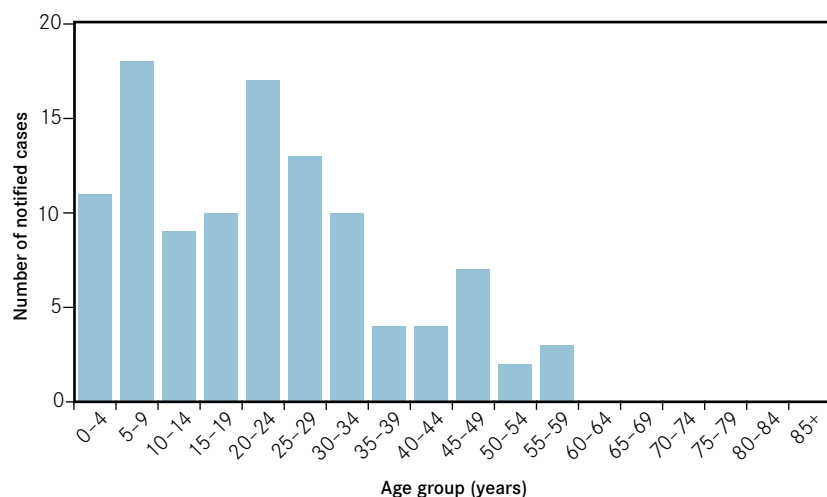


Table 42: Notified cases of malaria by species and reported country of acquisition, Victoria, 2005

Country of acquisition	Species					Not specified
	<i>P. falciparum</i>	<i>P. malariae</i>	<i>P. ovale</i>	<i>P. falciparum</i> and <i>P. ovale</i>	<i>P. vivax</i>	
Burundi	2	0	1	0	0	0
Congo	1	0	0	0	0	0
East Timor	0	0	0	0	1	0
Ghana	0	0	1	0	0	0
Guinea	2	0	0	1	0	0
India	0	0	0	0	13	0
Indonesia	1	0	0	0	2	0
Kenya	1	0	0	0	0	0
Liberia	12	0	0	4	0	0
Nigeria	2	0	0	0	1	0
Pakistan	0	0	0	0	1	0
Papua New Guinea	1	1	0	0	19	0
Solomon Islands	0	0	0	0	2	0
South Africa	1	0	0	0	0	0
South Korea	0	0	0	0	1	0
Sudan	1	0	0	3	0	0
Tanzania	7	0	1	0	0	0
Uganda	3	0	1	2	0	0
Vanuatu	0	0	0	0	5	0
Not specified	3	1	1	1	7	1
Total	37	2	5	11	52	1