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MASSEY UNIVERSITY TE KUNENGA KI PŪREHUROA UNIVERSITY OF NEW ZEALAND

Vector-borne Diseases Notifications

HIGHLIGHTS:

- **In 2014, 320 cases of vector-borne diseases were notified in New Zealand**
- **Twice the number of vector-borne diseases notifications were made in 2014 compared to 2013**
- **Year 2014 had the highest number of vector-borne diseases notifications since 1997**
- **In the last 5 years, 97% of vector-borne diseases cases had an overseas travel history.**
- **Continued monitoring of vector-borne diseases is important in New Zealand**

Source : Vector-Borne and Zoonotic Disease, January 2014, Vol. 14, No. 1

Vector-borne diseases

Vector-borne diseases occur when a virus, protozoan (single-cell organism) or bacterium, carried by mosquitos, sand flies or ticks, is transmitted to humans. Mosquitos, sand flies and ticks are examples of 'vectors', while malaria and dengue fever are examples of vector-borne diseases.

Twice the number of vector-borne diseases notifications were made in 2014 compared to 2013

The 320 vector-borne disease notifications in 2014 were almost double the number notified in 2013 (Table 1).

Notifications of dengue fever increased by 68% in 2014 (178) compared to 2013 (106). Dengue fever accounted for more than half (56%) of the total number of vector-borne diseases notifications in 2014.

Fifty seven cases of Zika fever were notified in 2014. Prior to this, only one case of Zika fever was notified in 2002 (ESR, 2015b). Zika fever is most likely to be transmitted overseas as the mosquitoes that are able to transmit Zika virus are not normally found in New Zealand (Ministry of Health, 2014). In 2014, all cases of Zika fever had travelled overseas during the incubation period of the diseases. Cook Islands was the country commonly visited or lived in (ESR, 2015b).

Table 1 : Number of vector-borne diseases notifications in New Zealand, 2013-2014

Disease	2013	2014	Change%
Malaria	47	33	-30 ↓
Dengue fever	106	178	68 ↑
Rickettsial disease	9	6	-33 ↓
Ross River fever	3	1	-67 ↓
Cysticercosis	1	1	0
Chikungunya fever	1	44	4300 ↑
Zika fever	0	57	-
Total	167	320	92 ↑

Source: ESR (2015b)

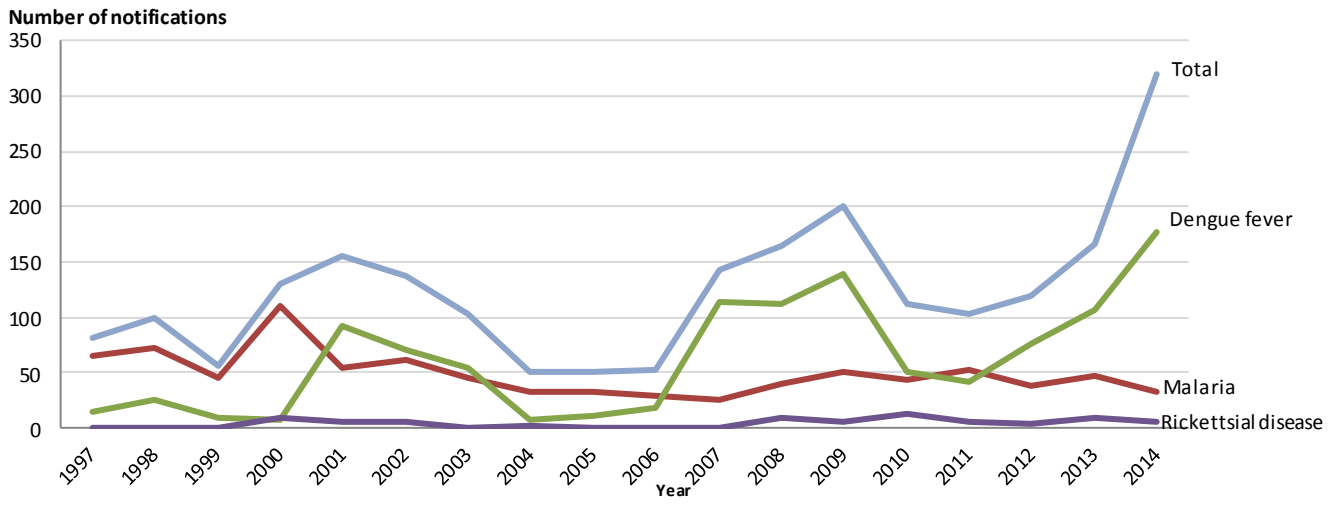
Vector-borne Diseases Notifications

In 2014, 44 cases of Chikungunya fever were notified (Table 1). Before 2014, only five cases were notified since 1997. All Chikungunya fever cases in 2014 had travelled overseas during the incubation period for the disease. Somoa and Tonga were the countries commonly visited or lived in (ESR, 2015b).

Year 2014 had the highest number of vector-borne diseases notifications since 1997

In 2014, the highest number of dengue fever and all vector-borne diseases notifications were recorded since 1997. (Figure 1)

Figure 1 : Number of vector-borne diseases notifications in New Zealand, 1997-2014



Source: ESR (2015a)

Note: "Total" included the total notifications of dengue fever, malaria, rickettsial disease, Ross River virus, cysticercosis, Barmah Forest virus infection, Chikungunya fever, Janpanese encephalitis and Zika fever cases.

In the last 5 years, almost all vector-borne diseases cases had an overseas travel history

From 2010 to 2014, almost all cases of malaria, dengue fever, Ross River fever, Chikungunya fever and Zika fever had a history of overseas travelling. Almost all of the overseas travelling happened during the incubation period of the diseases.

Only a small proportion of rickettsial disease notifications had a overseas travel history. This suggests that most cases of rickettsial disease were likely to be infected in New Zealand (Table 2).

Vector-borne Diseases Notifications

Table 2 : Number of vector-borne diseases notifications in New Zealand, 2010-2014

Disease	Number of Notifications in 2010-2014					Proportion travelled overseas, either during incubation or prior to illness (%)
	Overseas travel during incubation period	Prior Travel overseas, but not during incubation period	No overseas travel, no prior travel	No overseas travel, prior travel unknown	All notifications 2010-2014	
Malaria	176	37	0	1	214	100
Dengue fever	450	1	0	1	452	100
Rickettsial disease	11	1	18	7	37	32
Ross River fever	13	0	0	0	13	100
Cysticercosis	1	0	1	0	2	50
Chikungunya fever	46	0	0	0	46	100
Zika fever	57	0	0	0	57	100

Source: ESR (2015a)

Note: Data has been pooled over 5 years due to small numbers.

Monitoring vector-borne diseases is important in New Zealand

The risk of vector-borne diseases in New Zealand is low. However, it is important to monitor vector-borne diseases, due to several factors that could increase our risk, such as:

- an increase in movement of people and goods worldwide
- climate change potentially creating more suitable habitats for vectors in New Zealand
- the close proximity of, and close relations with, a number of countries in the Western Pacific and South East Asia, where vector-borne diseases are endemic

It is also important to monitor the travel-related factors of vector-borne diseases to determine whether the diseases are transmitted outside or within New Zealand.

For more information, please contact Fei Xu on f.xu@massey.ac.nz

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