

---

# Yellow fever

## Epidemiology in New Zealand

Yellow fever is a mosquito-transmitted viral haemorrhagic fever (VHF) with an available vaccine. A valid International Certificate of Vaccination against yellow fever may be required for travel through endemic or enzootic countries. Vaccination may also be recommended for personal protection.

There has never been an imported case of yellow fever in New Zealand, and the vector mosquitoes *Aedes aegypti* (also named *Stegomyia aegypti*) and *Haemagogus* are not established here. It is possible, however, that people in New Zealand could develop yellow fever after travelling through endemic or enzootic areas in the Americas or Africa.

## Case definition

### Clinical description

Ranges from an asymptomatic or mild, undifferentiated febrile illness to a haemorrhagic fever with 50 percent mortality. Fever, headache, myalgia, conjunctival infection, facial flushing and relative bradycardia are common. In severe cases, these symptoms remit for a few hours to days then recur with high fever, headache, lumbosacral pain, nausea, vomiting, abdominal pain, impaired level of consciousness, severe hepatitis, shock and multisite haemorrhage.

### Laboratory tests for diagnosis

Refer to World Health Organization (WHO 2010, p 470) for revised case definitions for public health surveillance of yellow fever ([www.who.int/wer/2010/wer8547.pdf](http://www.who.int/wer/2010/wer8547.pdf)).

Relevant tests include:

- yellow fever virus specific IgM serology testing
- increase in antibody levels in paired serum samples
- neutralisation testing
- detection of yellow fever virus nucleic acid test
- isolation of yellow fever virus. (Note: Field strains of yellow fever virus are listed as PC3 organisms, so isolation attempts should be undertaken with caution and in the appropriate laboratory containment.)

Yellow fever IgM suggests recent infection with yellow fever or another closely related flavivirus. Serological test results should be interpreted in the light of clinical, travel and

vaccination information. Testing against a panel of flaviviruses would be necessary to exclude cross-reaction with other flaviviruses. Confirmation by neutralisation is advisable.

### **Serodiagnosis after vaccination**

Seroconversion occurs after yellow fever vaccination but rarely produces an IgM response.

### **Case classification**

Refer to WHO (2010, p 470) for revised case definitions for public health surveillance of yellow fever ([www.who.int/wer/2010/wer8547.pdf](http://www.who.int/wer/2010/wer8547.pdf)).

- **Under investigation:** A case that has been notified but information is not yet available to classify it as probable or confirmed (must have travelled to Africa and/or South America).
- **Suspected:** Any person who has visited or travelled in a yellow fever endemic area who presents with acute onset of fever, with jaundice appearing within 14 days of onset of the first symptoms.
- **Probable:** A clinically compatible illness that meets the WHO definition of a probable case (requires laboratory testing).
- **Confirmed:** A clinically compatible illness that meets the WHO definition of a confirmed case (requires laboratory testing).
- **Not a case:** A case that has been investigated and subsequently found not to meet the case definition.

## **Spread of infection**

### **Incubation period**

3–6 days.

### **Mode of transmission**

The bite of an infective mosquito. Non-human primates are a reservoir of infection worldwide. There is no person-to-person transmission; however, to prevent an infectious human from possibly infecting susceptible local mosquitoes (if they were to feed on the case during the viraemia), the case should be quarantined until yellow fever has been excluded.

### **Period of communicability**

Blood of the case is infective for mosquitoes from shortly before onset of fever and for the first 3–5 days of illness.

## **Notification procedure**

Attending medical practitioners or laboratories must immediately notify the local medical officer of health of suspected cases. Notification should not await confirmation.

## **Management of case**

### **Investigation**

Obtain a history of travel, vaccination, mosquito bites and mosquito avoidance efforts. Ensure laboratory confirmation has been attempted.

### **Restriction**

Nil in New Zealand.

### **Treatment**

Supportive.

### **Counselling**

Advise the case and their caregivers of the nature of the infection and its mode of transmission.

## **Management of contacts**

### **Definition**

Any unimmunised person arriving in New Zealand who has travelled through a yellow fever endemic country with the case.

### **Counselling**

Advise contacts of the incubation period and common symptoms. Encourage them to seek early medical attention if symptoms develop.

## **Other control measures**

### **Identification of source**

Identify the country of origin of the infection.

### **Disinfection**

Nil for cases in New Zealand.

## **Health education**

Travellers to or from yellow fever endemic countries in Africa and the Americas may need to have valid yellow fever vaccinations. They should be encouraged to protect themselves by using mosquito repellents containing DEET, protective clothing and insecticide-impregnated mosquito nets.

## **Reporting**

Ensure complete case information is entered into EpiSurv.

On receiving a notification, medical officers of health should immediately notify the Director of Public Health at the Ministry of Health.

The International Health Regulations (IHR) National Focal Point in the Ministry must use the IHR Decision Instrument for any event involving cholera, pneumonic plague, yellow fever, viral haemorrhagic fevers, West Nile fever or any unusual or potentially serious public health event, and then notify WHO if required.

## **References and further information**

WHO. 2010. Yellow fever surveillance and outbreak response: revision of case definitions, October 2010. *Weekly Epidemiological Record* 85: 465–72. URL: [www.who.int/wer/2010/wer8547.pdf](http://www.who.int/wer/2010/wer8547.pdf)