



Delivering a Healthy WA



Government of **Western Australia**  
Department of Health

# Ross River virus and Barmah Forest virus in WA

## Environmental Health Guide – March 2010

### What are Ross River virus and Barmah Forest virus?

Ross River virus (RRV) and Barmah Forest virus (BFV) are two of the most important mosquito-borne viruses causing human disease in Western Australia. The diseases caused by infection with these viruses are known as RRV disease and BFV disease. The two viruses have similar life cycles and cause similar symptoms in people.

In nature, RRV and BFV are passed back and forth between animals and mosquitoes. The only way humans can catch the disease is through being bitten by a virus-carrying mosquito. RRV and BFV cannot be caught from direct contact with another person or animal. The incubation period [the time between being bitten (infected) and becoming sick] for both diseases varies from three days to three weeks, but is normally seven to fourteen days. Fewer than one in three people will develop symptoms after being bitten by an infected mosquito. It may be possible for humans to pass the virus back to mosquitoes that bite them but only during the incubation period.

RRV and BFV diseases are notifiable under the Health Act. This means a doctor who diagnoses either virus in a patient is required to inform the Department of Health, so that more can be learnt about the distribution of the viruses, and so that public health action can be taken if appropriate, such as measures to control mosquitoes and the issuing of public warnings.

### Symptoms of Ross River virus and Barmah Forest virus Diseases

People suffering from RRV disease or BFV disease may develop a wide range of symptoms that are common to both diseases. The symptoms vary from person to person but include painful and/or swollen joints, sore muscles, aching tendons, skin rashes, fever, tiredness, headaches and swollen lymph nodes. Less common symptoms include sore eyes, a sore throat, nausea, and tingling in the palms of the hands or soles of the feet. The symptoms may be similar to some rheumatic diseases or other viral diseases, so they can only be reliably diagnosed by a specific blood test ordered by a doctor.

Pain in the joints is much more common than swelling. The most commonly affected joints are the wrists, knees, ankles, fingers, elbows shoulders and jaw. Pain usually develops rapidly and may be intense and more severe in different joints at different times. When they are severe or prolonged, the symptoms can cause emotional distress or depression, and can affect family, social and work relationships. The symptoms in children tend to be milder and the disease runs a shorter course. A rash tends to be more common to BFV disease and swollen joints are not as common and may not last as long as with RRV disease.





## How long do the Symptoms Last?

Fever, nausea and skin rash usually disappear within the first two weeks of illness. Joint, muscle and tendon pain may last much longer and can be distressing. Often people experience severe tiredness (lethargy) and they may feel depressed.

Symptoms subside eventually and leave few or no after-effects. It is not possible to predict how long an individual person will take to fully recover from either disease. Some adults recover within two to six weeks after the onset of infection. However, many people will still be unwell at three months. Symptoms can persist for up to a year or more in rare cases. People with persistent symptoms are generally not sick all the time. After three months, many experience days when they are well and as time goes by these periods become more frequent. However, symptoms may recur suddenly and without warning. Research suggests that BFV disease may last for a shorter time than RRV disease. Research into the long-term effects of both diseases is still being conducted.

Most people who have been infected with RRV or BFV are immune to the same disease in the future, although in rare cases people may experience one or more symptoms after they appear to have recovered. Unfortunately, people who have been infected with RRV are not immune to BFV, and vice versa.

## Treatment

There is no vaccine to prevent either disease and there is no medical cure once infection is contracted. Medical treatment is aimed at easing joint pains and swelling, and minimising fatigue and lethargy. For some people, simple pain killers, such as aspirin or paracetamol, are sufficient. Others will require stronger medications to ease the inflammation. Gentle exercise, stress management, physiotherapy and plenty of rest (particularly in the early stages of infection) are all important. Some people find hydrotherapy or gentle swimming in a heated pool very beneficial.

Emotional stress and physical fatigue may cause symptoms to worsen or last longer. People with long-term symptoms require emotional support and understanding. They should always keep in mind that they will eventually get well.

## Where and When can you Catch the Viruses?

RRV and BFV can occur anywhere in Western Australia when conditions are warm enough for the viruses to be active and wet enough for the breeding of mosquitoes. In the northern half of WA, it is warm enough for both viruses to be active at any time of the year whenever heavy rainfall or unusually high tides occur. Generally the risk of both viruses is greater during and just after the wet season.

In the south, RRV can be active at any time between September and May if sufficient rainfall or unusually high tides occur. This potential activity period is slightly shorter in the colder areas along the south coast and slightly longer in the warmer areas around Geraldton/Kalbarri.

BFV is also active during these periods, but evidence indicates that the virus may be active in slightly cooler temperatures when there is sufficient rainfall or high tides.





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In the southern half of WA the area of greatest risk is the coastal plain between Mandurah and Busselton during spring and summer. In some years this risk will spread to other areas within the southern half of the state, including parts of the Perth metropolitan area.

People living within 3-5 kilometres of saltmarshes or brackish wetlands (i.e. estuaries and tidal rivers) and freshwater wetlands are at greater risk of contracting RRV and BFV diseases than people living in other areas. People living near such wetlands should therefore take particular precautions to avoid mosquito bites.

### How to Prevent Infection

Several mosquito species are known to carry RRV and BFV. These are primarily the major rural pest species, but some 'domesticated' mosquito species can also carry the viruses.

Local governments conduct mosquito control programs in some of the worst mosquito breeding areas with assistance from the Department of Health. However, despite this, these viruses will always be a threat because it is not possible to eliminate all mosquitoes.

Therefore, it is important for people to take personal measures to reduce the risk of contracting mosquito-borne diseases.

### Avoid Mosquitoes

Mosquitoes are usually most active for one to three hours after sunset and again around dawn, although some saltmarsh mosquitoes will also bite during the day. Reduce the risk of contracting RRV or BFV diseases by timing outdoor activities to avoid periods of greatest mosquito activity.

### Cover up, use Repellents

Cover up with long, loose-fitting and preferably light-coloured clothing to prevent mosquito bites; remember mosquitoes can bite through clothing that is tight against the skin (even denim jeans). When outdoors, carry an effective mosquito repellent. The most effective repellents contain either diethyl toluamide (DEET) at between 5 and 20 per cent (50-200g/litre) or Picaridin, and are most effective in lotion form. Mosquito repellents are an important way of avoiding exposure to mosquito-borne diseases. However, as with all chemicals they should be applied in accordance with the manufacturer's instructions, especially to infants and young children.

### When Camping

Make sure caravans, tents and swags are in good repair and are fitted with effective flyscreens. If sleeping under the stars, use a mosquito bed net over your sleeping bag or swag. Even the best repellents only last up to four hours, so they are not effective all night. When outside the tent, cover up and wear a repellent.





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## Control Backyard Mosquito Breeding

Mosquitoes can breed in a variety of domestic situations. They need only a week or so in a small amount of standing water to breed. Examples include:

- Roof gutters, pot plant drip trays, garden rubbish, animal drinking containers and bird baths. Drain or empty these containers once a week.
- Septic tanks and leach drains. These must be completely sealed to prevent mosquitoes laying eggs and breeding in the tank. The vent pipe must be fitted with a mosquito-proof cowl or screen.
- Rainwater tanks. These should be sealed and have insect proof mesh over the inlet, overflow and inspection port.

## Further Information

For further information on mosquito control and RRV and BFV prevention please contact your local government Environmental Health Officer

or

Environmental Health Directorate  
Department of Health  
PO Box 8172  
PERTH BUSINESS CENTRE WA 6849

Telephone: (08) 9388 4999  
Facsimile: (08) 9383 1819

For more information on RRV and BFV diagnoses, treatment, support groups and education programs, contact the Arthritis Foundation on:

Telephone: (08) 9388 2199  
Toll-free: 1800 011 041  
Online: [www.arthritiswa.org.au](http://www.arthritiswa.org.au)

