warranted. In risk countries and seasons, wear impregnated pants all day and evening at all times except in room after room treatment. Take additional insecticide for retreatment if staying longer than 1 wash of pants. Use light coloured long sleeved clothing in risk situations.

- Use personal repellant on legs and socks, day and evening in risk situations. Use DEET based or Picaridin based repellent. DEET based repellents should contain at least 10% DEET or greater. Reapply repellent every 2 to 3 hours. Avoid placing legs under dark tables especially in evenings unless protected as above.

- Check out accommodation locality, both inside the grounds and outside the boundary, especially for any water storages or containers with water where dengue mosquito can breed. Notify responsible person at premises of need to empty the containers or have them treated with an appropriate insecticide.

- Avoid accommodation within 1 km of rice field areas, rivers, creeks with slow moving water and irregular vegetated edges, and coastal swamps or lagoons.

- Basic precautions and personal protection can prevent most mosquito borne diseases.

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Zika virus disease

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The virus and vectors

Zika is a flavivirus that is similar to the dengue virus, causing similar but milder symptoms. It was first identified in 1947 in rhesus monkey serum from Zika forest in Uganda. It is a disease of monkeys and humans transmitted by mosquitoes. Aedes africanus is the vector in forest areas in Africa, while Aedes aegypti, the dengue mosquito, is the probable vector in other areas.

The illness

Traditionally, the illness caused by Zika virus was termed “Zika Fever”. It is relatively common in areas of Africa. In 1978, it caused a small outbreak of acute fever in Indonesia, with other symptoms including malaise, abdominal pain, dizziness, anorexia and rash. However fever has been an inconsistent feature of a recent Zika outbreak in Yap. From the limited cases reported in the literature, Zika is not believed to have long-term health effects in people. Information suggests that pregnant women/babies at no greater risk than others.

Medication for fever and pain includes paracetamol, with avoidance of ibuprofen and aspirin to avoid any possible haemorrhagic syndromes.

The distribution

Zika disease or antibody has occurred across west and central Africa, Pakistan, India, Vietnam, Thailand, Philippines, Malaysia, Indonesia and Micronesia.

The Yap outbreak

In 2007 an outbreak caused by the Zika virus occurred on the island of Yap and associated islands (Yap) in the Federated States of Micronesia in the western Pacific.

The Yap outbreak started in April 2007 and peaked in late May, with continuing cases to July. At June 29 2007, there were a total of 42 cases confirmed as Zika by PCR and IgM analysis by the US Centers for Disease Control (CDC) laboratory. An additional 65 probable cases occurred. Because the disease is mild, many more infections are thought to have
occurred in the community that did not seek medical attention. An initial assessment in the community indicated that a significant proportion of the population was affected. Geographically, cases occurred all over the island of Yap. No patients were admitted to the hospital and there were no deaths.

The symptoms

In the recent Yap outbreak the symptoms were mild and generally lasted for 4-7 days, consisting of:

- a maculopapular rash that is sometimes pruritic, involving the trunk and extremities.
- conjunctivitis; and
- joint pain, which can affect both large joints and the smaller joints of the hands and feet.

Other symptoms noted in the Yap outbreak included retro-orbital eye pain, myalgia, lower extremity oedema, lymphadenopathy, and diarrhoea. Some patients also had a low-grade fever.

A breakdown of symptoms in the Yap outbreak were:

- rash 80%
- subjective fever or chills* 70%
- conjunctivitis 65%
- headache 40%
- retro-orbital pain 30%
- arthralgia 35%
- arthritis 25%
- myalgia 25%
- oedema 20%
- dizziness 10%
- abdominal pain 8%

The illness appeared less severe in children. Females presented with illness more often than males in the ratio 2:1.

Differential diagnosis

Dengue and other flaviviruses, Chikungunya and other alphaviruses, rubella, measles, Reiter’s syndrome, allergic reaction, conjunctivitis, arthritis, gout.

Virus tests

Testing is by PCR and IgM analysis.

Rapid tests used in Yap for Dengue have given false positive results on patients with Zika virus (PanBio and Pentax).

Disease control

Disease control relies on environmental campaigns to reduce Aedes aegypti numbers by reducing breeding in all manner of water bearing receptacles, including water drums, wells, water-tanks, old tyres, seashells, coconut shells, bamboo stumps, or anywhere where rain can accumulate. Artificial receptacles can be removed, stored upside down or under cover, or treated with an insecticide. Transmission can be reduced by avoiding mosquito bites by wearing long clothing, staying within screened areas, and using mosquito repellents and coils, especially when ill. In order to reduce the risk of infecting other communities or other countries during outbreaks, ill individuals can be advised not to travel.

Risk to Australia

Australian traveling to affected area are at risk and should:

- Take precautions to avoid mosquito bites.
- If unwell with symptoms consistent with Zika or dengue, inform treating physician that they have been in a Zika affected area so that an accurate diagnosis can be made.

Importation of Zika to Australia.

- Competent vectors able to transmit Zika exist in Australia only in north Queensland. It is uncertain how infectious to mosquitoes an infected person is and over what time period, although this may be similar to dengue.
- Travel to and from Australia to Zika-affected areas is low. Likelihood of importation is therefore possible but low. Consequences on importation, given the apparent benign nature of the illness, is low. Overall risk to Australia of imported Zika is therefore considered to be very low.
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Standard Operating Procedure – for Environmental Health Response to Water Quality Failures

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Background

The Environmental Health Program (EHP) of the Department of Health and Community Services, has a key role in both the establishment of water quality standards and targets and monitoring compliance of drinking water supplies in the interest of public health. The EHP works closely on this issue with the Power and Water Corporation (PWC), which has the primary responsibility for providing safe water to major and minor urban centres and remote communities in the Northern Territory (NT). This collaboration has resulted in the development and implementation of a monitoring program for chemical, radiological and microbiological parameters in drinking water supplies operated by PWC.

This monitoring program is based on recommendations made in the 2004 Drinking Water Guidelines (ADWG), but also addresses the need for monitoring specific water quality characteristics that are problematic in the NT and not described in the ADWG in great detail. All sampling results from this monitoring program are reported to the EHP, via the PWC Drinking Water Triggers and Protocol. This protocol defines the agreed reporting triggers for aesthetic and health related parameters in drinking water supplies managed by PWC and outlines the reporting protocol to the Department of Health and Community Services (DHCS).1

prescribed pursuant to the requirements of Section 49 of the Water Supply and Sewerage Services Act 2000. Under the Act 2 the:

- Minister of Health and Community Services may specify the minimum standards for drinking water quality that a licensee must meet in providing water supply to customers;
- Licensee is required to meet minimum standards for drinking water quality;
- Chief Health Officer (CHO) may in an emergency give directions to a licensee to achieve minimum standards.
- CHO may approve the methodology for monitoring compliance with minimum standards.

Microbiological Water Quality Failures

Microbiological water quality failures in drinking water supplies managed by PWC are reported to the EHP via the agreed protocol. These failures require an immediate response since they may represent an immediate threat to public health.

A microbiological failure is defined as the detection of ≥1 cfu Escherichia coli in a 100ml sample. The ADWG prescribes E coli as the specific indicator of faecal contamination and states it should not be detected in a 100ml water sample and that any detection in a drinking water supply requires immediate action.3