• Ensure all insect screens are installed and mosquito proof. Use mosquito nets and mosquito-proof tents at night in all areas when camping or in unscreened areas.
• Wear protective light-coloured clothing with long sleeves, long trousers and socks between dusk and dawn.
• Use a protective repellent containing di-ethyl toluamide (DEET) or picaridin as a supplement to protective clothing when outdoors at night in areas of mosquito activity, or when mosquitoes are active in the day. The most effective and long-lasting formulations are those in lotions or gels. Most natural or organic repellents are not as effective as DEET or picaridin.
• Ensure children are adequately protected against mosquito bites.
• Ensure all artificial receptacles that collect rain water are emptied or made unsuitable for mosquito breeding.

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Personal mosquito protection while overseas
Peter Whelan, CDC, Darwin

Introduction
These brief notes are aimed at minimum self-protection measures that can be taken by intending travelers to nearby countries in Southeast Asia to reduce exposure to dengue, malaria, and Japanese encephalitis vector mosquitoes. A brief inquiry should also be made on the current status and seasonality of these diseases in the intended country of destination to determine the need and level of protection required. Websites such as smartraveller (http://www.smartraveller.gov.au/index.html) provide travel advisories including general health advisories and the World Health Organization (http://www.who.int/countries/en/) and Centers for Disease Control and Prevention (http://www.cdc.gov/travel/default.aspx) provide information about disease risk by country. The destination country should be assessed to determine the risk of various vector borne diseases in either urban or rural settings, and your specific risk of exposure to mosquitoes in your intended locations of stay. For example, malaria or Japanese encephalitis are not significant potential problems in urban areas in cities unless on the outskirts and close to rice paddies, swamps, marshes or rivers with vegetation. Further consultation with a travel medicine doctor may then be required. This service is provided by some General Practitioners and services such as Travel Doctor at the Health Services Australia Group.

Precautions
• Take the malaria prophylaxis drugs recommended by a travel medicine doctor if traveling to a potentially malarious locality. Begin the drug course a few days before you go to ensure there are no adverse drug reactions. Consider a Japanese encephalitis vaccination* if intending to stay in a rural area with possible mosquito exposure and history of outbreaks or cases during the season of intended stay.
• Use air-conditioned accommodation wherever possible or fully screened accommodation with fans. Keep any insect screens and other mosquito access routes closed night and day to prevent mosquito entry. In addition, spray aerosol residual insecticide in room behind and in cupboards, under bed, under tables, in any dark corners, on anything black in room, on insect screens around holes or gaps, and around windows and doors if not completely sealed. Any type of spray pack labeled for residual use i.e. crack and crevice treatment can be used. The best contain lambda cyhalothrin or bifenthrin, but permethrin, deltamethrin, or propoxur as active ingredients are acceptable. Take a permethrin-impregnated mosquito net if not using sealed air-conditioned accommodation, and particularly if in a rural area.
• Take insecticide impregnated long pants to protect against dengue mosquito attack if

* The availability of Japanese encephalitis vaccine has been problematic in recent months and may not be readily accessible in Australia making mosquito protection methods of utmost importance.
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 repellent 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