

Prevention of vector-borne diseases when outing or hiking

Vector-borne diseases in rural areas

Some arthropods and rodents inhabiting the rural areas may carry pathogens capable of causing vector-borne disease such as dengue fever, Japanese encephalitis, malaria, scrub typhus, murine typhus, tick-borne spotted fever, leptospirosis and hantavirus infection. Contracting vector-borne diseases in local rural areas is uncommon but does occur. Therefore, preventive measures should be taken when visiting rural areas to avoid contracting these diseases.

Mosquito-borne diseases

Dengue fever

Dengue fever is an illness transmitted by the bites of dengue virus infected *Aedes albopictus*, which has a white stripe on the dorsal surface of its thorax and bands on the legs.

Aedes albopictus breeds in small water bodies such as tree holes, bamboo stumps, small containers and leaf axils of various plant species. *Aedes albopictus* usually rests in places with dense vegetation and bites actively within two hours after dawn and two hours before dusk.

Japanese encephalitis

Japanese encephalitis (JE) is a mosquito-borne disease in humans and animals. Mosquitoes may transmit the disease to humans after feeding on infected animals, mostly domestic pigs and wild birds.

The vectors responsible for the transmission of JE are mainly *Culex* mosquitoes including *Culex tritaeniorhynchus*, *Culex gelidus* and *Culex fuscocephala*. The principal vector, *Culex tritaeniorhynchus*, usually feeds outdoors from dusk until dawn of the next day. Larvae are mostly found in flooded rice fields, water-logged abandoned fields, marshes and small stable collections of water around cultivated fields. Larvae of *Culex gelidus* are mostly found in weedy grounds with moderate degree of pollution, while larvae of *Culex fuscocephala* are mostly found in water storage pits, irrigation ditches and rice fields.

Malaria

Malaria is a mosquito-borne disease caused by a group of parasites. Local vectors for the transmission of malaria are *Anopheles minimus* and *Anopheles jeyporiensis*. *Anopheles minimus* breeds in unpolluted hilly streams where water flows are impeded by marginal vegetations, while *Anopheles jeyporiensis* is found in flooded grass fields, particularly abundant in rice fields and irrigation ditches. Both vectors bite actively at midnight (11 pm to 2 am) and their flight range can reach 2

kilometres.

Rodent-borne diseases

Scrub typhus

Scrub typhus is transmitted by the bites of infective larva of trombiculid mite. Trombiculid mites are small, only 1-2mm in length, and red in colour. Some wild rodents may carry the larvae of the mites on their bodies. On humans, the larvae congregate at areas where clothing is tight against the skin such as those around the waist or the ankles.

Tick-borne spotted fever

Tick-borne spotted fever is transmitted by the bites of infective ticks belonging to the families *Ixodidae* and *Argasidae*. The disease could also be transmitted by the contact between human abrasions or eyes and the crushed bodies or faeces of infective ticks.

Mammals such as dogs and rodents may carry ticks on their bodies. Most larval ticks cluster at the tips of grasses or leaves and seek for their preferred animals or humans. The larval ticks may transmit the disease to humans or animals after feeding on them by penetrating the mouthparts into their skins.

Murine typhus

Murine typhus is transmitted by the bites of infective fleas, usually *Xenopsylla cheopis*. The disease could also be transmitted by the contact between the faeces of infective fleas and human abrasions. Contraction through the inhalation of dried infective flea faeces, though rare, has also been reported.

Mammals such as dogs, cats and rodents may carry fleas on their bodies.

Leptospirosis

Leptospirosis is transmitted by the contact between abraded skins or mucous membranes and the moist soil, vegetations or water contaminated by the urine of infected animals. Wild mammals such as rodents, insectivores and canines could be a possible reservoir of the antigen that causes leptospirosis.

Hantavirus infection

Hantavirus infection is transmitted by the inhalation of dried aerosols of virus from the excreta of infected rodents.

Advice to visitors and hikers

Personal protection

- Wear light-coloured long-sleeved clothes and long trousers;
- Tuck pants legs into socks or boot tops;

- Apply insect repellent containing 10% - 30% concentration of DEET (N, N-diethyl-meta-toluamide) to the clothes or skin according to label instructions. Pay close attention to the product labels, especially when applying on children; and
- Avoid applying odour-producing cosmetics such as perfume and body lotion during outdoor activities.

Points to note during activities

- Avoid outing or hiking at dawn or dusk;
- Walk on footpaths instead of passing through the woods or scrubby areas;
- Avoid brushing the long grasses beside the paths;
- Wrap up properly refuses such as soft drink cans, empty bottles and empty boxes before placing them in litter containers to prevent accumulation stagnant water;
- Do not dump any article into hilly streams;
- Avoid resting inside humid and dark scrubby areas or under trees;
- Do not hang any clothes on scrub or trees;
- Do not feed or approach stray dogs and cats;
- Avoid contact with the excreta of wild animals;
- Avoid contact with the excreta of rodents;
- Avoid contact with potentially contaminated water or soil;
- Disinfest pets and their bedding regularly;
- Clean and examine the bodies of accompanying pets after walking;
- Avoid entering badly ventilated premises infested with rodents;
- Stay in places with air conditioners or mosquito screens; and if such facilities are not available, use mosquito nets and mosquito coils for repelling mosquitoes when sleeping.

Enquiry

For further information on the prevention of diseases transmitted in rural areas, please contact the Food and Environmental Hygiene Department on 2868 0000. To report any mosquito or rodent problem, please contact the department's district environmental hygiene offices. Their addresses and telephone numbers are listed on the back page.

ENQUIRIES

Food and Environmental Hygiene Department Hotline: 2868 0000	
<p>Central/Western 10th Floor, Sheung Wan Municipal Services Building, 345 Queen's Road Central, Hong Kong Tel: 2545 0506</p>	<p>Islands 6th & 25th Floors, Harbour Building, 38 Pier Road, Central, Hong Kong Tel: 2852 3215</p>
<p>Wan Chai 7th Floor, Lockhart Road Municipal Services Building, 225 Hennessy Road, Wan Chai, Hong Kong Tel: 2507 3364</p>	<p>Kwai Tsing 9th Floor, Kwai Hing Government Offices Building, 166-174 Hing Fong Road, Kwai Chung, N.T. Tel: 2420 9204</p>
<p>Eastern 3rd Floor, Quarry Bay Municipal Services Building, 38 Quarry Bay Street, Hong Kong Tel: 2563 4340</p>	<p>Tsuen Wan 3rd Floor, Yeung Uk Road Municipal Services Building, 45 Yeung Uk Road, Tsuen Wan, N.T. Tel: 2212 9701</p>
<p>Southern 4th Floor, Aberdeen Municipal Services Building, 203 Aberdeen Main Road, Hong Kong Tel: 2552 8406</p>	<p>Tuen Mun 1st & 3rd Floors, Tuen Mun Government Offices Building, 1 Tuen Hi Road, Tuen Mun, N.T. Tel: 2146 8642</p>
<p>Kwun Tong Level 7, Shui Wo Street Municipal Services Building, 9 Shui Wo Street, Kwun Tong, Kowloon Tel: 3102 7388</p>	<p>Yuen Long 2nd – 5th Floors, Yuen Long Government Offices, 2 Kiu Lok Square, Yuen Long, N.T. Tel: 2475 3433</p>
<p>Wong Tai Sin 3rd Floor, Tai Shing Street Market Building, 121 Choi Hung Road, Wong Tai Sin, Kowloon Tel: 2328 6531</p>	<p>North 4th Floor, Shek Wu Hui Municipal Services Building, 13 Chi Cheong Road, Sheung Shui, N.T. Tel: 2679 2812</p>
<p>Kowloon City 3rd & 4th Floors, To Kwa Wan Market & Government Offices, 165 Ma Tau Wai Road, Kowloon Tel: 2711 2493</p>	<p>Tai Po 3rd Floor, Tai Po Complex, 8 Heung Sze Wui Street, Tai Po, N.T. Tel: 3183 9119</p>

<p>Yau Tsim 3rd & 4th Floors, Kwun Chung Municipal Services Building, 17 Bowring Street, Yau Ma Tei, Kowloon Tel: 2302 1299</p>	<p>Sai Kung 8/F, Sai Kung Tseung Kwan O Government Complex, 38 Pui Shing Road, Tseung Kwan O, Sai Kung, N.T. Tel: 3740 5100</p>
<p>Mong Kok 6th & 7th Floors, Fa Yuen Street Municipal Services Building, 123A Fa Yuen Street, Mong Kok, Kowloon Tel: 2395 2727</p>	<p>Sha Tin Level 12, Tower 1, Grand Central Plaza, 138 Sha Tin Rural Committee Road, Sha Tin, N.T. Tel: 2634 0136</p>
<p>Sham Shui Po 8th – 10th Floors, Un Chau Street Municipal Services Building, 59-63 Un Chau Street, Sham Shui Po, Kowloon Tel: 2748 6959</p>	<p>Pest Control Advisory Section 6/F, Yung Fung Shee Memorial Centre, 79 Cha Kwo Ling Road, Lam Tin, Kowloon Tel: 3188 2064</p>

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