Overview

Malaria at a Glance

- Reported cases of malaria: 6,426 (53% P. vivax)
- Deaths from malaria: N/A
- Population at risk (%): 4 (Total population: 27.9 million)
- Annual parasite index: 0.2 (cases/1,000 total population/year)
- Slide positivity rate (%): 0.4

Health and Economic Indicators

- GNI per capita (US$): 7,900
- Country income level: Upper middle
- Annual per capita health expenditure (US$): 336
- Total health expenditure as % of GDP: 5
- Private health expenditure as % of total health expenditure: 55
- Life expectancy (years): 75

Source: WHO, World Malaria Report 2010
N/A: Data not available

Human Population Density

Strategic Program Goals for Elimination

- Elimination of malaria in Peninsular Malaysia by 2015
- Elimination of malaria in Malaysian Borneo by 2020
Malaria Transmission Limits

Plasmodium falciparum

Plasmodium vivax

P. falciparum and P. vivax malaria risk is classified into no risk, unstable risk of <0.1 case per 1,000 population (API), low stable risk of 0.1 to <1.0 case per 1,000 population (API), and stable risk of ≥1.0 case per 1,000 population (API). Risk was defined using health management information system data and the transmission limits were further refined using temperature and humidity data. Data from the International travel and health guidelines (ITHG) were used to identify zero risk in certain cities, islands and other administrative areas.

Reported Malaria Cases

Source: WHO, World Malaria Report 2010
Occurrence of Malaria Vector Species

1. Anopheles balabacensis
2. Maculatus Group
3. Sundaicus Complex

These maps show the predicted probability of occurrence of each vector species.

Probability of occurrence scale:

<table>
<thead>
<tr>
<th>0</th>
<th>0.5</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bionomics Vector Species Table

<table>
<thead>
<tr>
<th>Species</th>
<th>Vector status across species range</th>
<th>Primary environment</th>
<th>Zoophilic/anthropophilic</th>
<th>Endo/exophagic</th>
<th>Endo/exophilic</th>
<th>Biting time</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Anopheles (Celata) balabacensis</em> Baisas, 1936</td>
<td>Variable depending on location</td>
<td>Forested areas, shaded temporary pools</td>
<td>Anthropophilic</td>
<td>Both</td>
<td>Both</td>
<td>Dusk/night</td>
</tr>
<tr>
<td><em>Anopheles (Celata) maculatus</em> Group</td>
<td>Variable depending on location and species</td>
<td>Hilly and mountainous areas, permanent or semi-permanent clean water bodies of sunlit water</td>
<td>Zoophilic/both</td>
<td>Both</td>
<td>Exophilic</td>
<td>Dusk/night</td>
</tr>
<tr>
<td><em>Anopheles (Celata) sundaticus</em> species complex</td>
<td>Variable depending on location</td>
<td>Open mangrove and coastal shrimp or fish ponds, inland seawater canals</td>
<td>Anthropophilic/both</td>
<td>Both</td>
<td>Both</td>
<td>Night</td>
</tr>
<tr>
<td><em>Anopheles (Celata) acrocius</em> Dönitz, 1902</td>
<td>Variable depending on location and abundance</td>
<td>From coastal plains to upland rice fields</td>
<td>Zoophilic</td>
<td>Both</td>
<td>Exophilic/both</td>
<td>Dusk/night</td>
</tr>
<tr>
<td><em>Anopheles (Celata) flavirostris</em> (Lucas, 1914)</td>
<td>Variable depending on location</td>
<td>Foothills, streams, from coastal plains to 600-1500 m</td>
<td>Both</td>
<td>Both</td>
<td>Exophilic/both</td>
<td>Night</td>
</tr>
<tr>
<td><em>Anopheles (Anopheles) sinensis</em> species complex</td>
<td>Variable depending on location and abundance</td>
<td>Lowland freshwater habitats with vegetation in open areas</td>
<td>Zoophilic</td>
<td>Exophagic</td>
<td>Exophilic</td>
<td>Dusk/night</td>
</tr>
<tr>
<td><em>Anopheles (Celata) subpictus</em> species complex</td>
<td>Variable depending on species and location</td>
<td>Coastal brackish water, riverine pools and rice fields</td>
<td>Zoophilic</td>
<td>Both</td>
<td>Endophilic</td>
<td>Dusk/night</td>
</tr>
<tr>
<td><em>Anopheles (Anopheles) barbirostis</em> species complex; <em>Anopheles (Celata) Macropuspusinus and Anopheles (Celata) latens</em></td>
<td>Present but non or minor vector in Malaysia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sources

SOURCES FOR THE MAPS IN THE ATLAS OF THE ASIA PACIFIC MALARIA ELIMINATION NETWORK, 2011


SOURCES FOR MALAYSIA
Strategic Program Goals for Elimination
Kheong CC. Country Updates Malaysia. Executive Board Meeting presentation, Asian Collaborative Training Network for Malaria (ACTMalaria); March 15–17, 2010, Lao PDR.

Christina Rundi (2009), Disease Control Division, Ministry of Health, Malaysia; World Health Organization/Regional Office for the Western Pacific, Manila, Republic of the Philippines, URL: www.wpro.who.int/sites/mvp/epidemiology/malaria.

The Sources listed above are extracted from the following pages in the Atlas of the Asia Pacific Malaria Elimination Network, 2011
Methods and Sources (12)
Appendix A: Sources and Citations for the Strategic Program Goals for Elimination (59–60)
Appendix B: Annual Parasite Incidence Data Used for the Transmission Limits Maps (61)