Overview
Malaysia has achieved a 95 percent reduction in reported malaria cases in the past two decades, and is categorized in the pre-elimination phase by the World Health Organization (WHO). In recent years, Plasmodium vivax has caused most malaria infections, but in 2013, P. knowlesi accounted for 72 percent of the 2,985 local cases. In certain areas of Sarawak State in southern Borneo, P. knowlesi is responsible for most newly diagnosed cases. P. malariae is also present in Malaysia and causes a small number of infections.

Fewer than 20 percent of total malaria cases occur in Peninsular Malaysia, and the majority of these are found in the central, southeastern and northern coastal regions. Mosquito vectors in peninsular Malaysia include Anopheles maculatus, An. sundaicus, An. letifer, An. campestris, and An. dirus. The remaining 80 percent of cases are found in Malaysian Borneo, primarily the states of Sabah and Sarawak. Primary mosquito vectors in Sabah are An. balabacensis, An. sundaicus, and An. flavirostris; in Sarawak, the vector ecology is slightly different and includes An. donaldi and An. latens.

Young working males are the most at-risk population, and about half of Malaysians diagnosed with malaria reportedly work in agriculture and other outdoor labor. Other high-risk populations include indigenous groups, jungle workers, and immigrants from endemic countries. Malaysia has a large number of imported malaria cases, primarily from Indonesian and Filipino workers seeking employment in Malaysia’s growing economy.

Current successful practices of the malaria control program in Malaysia include 100 percent confirmatory testing of all suspected malaria cases, mandatory reporting of detected cases, integrated vector management, strong community participation in control activities, and a cadre of volunteer primary health care workers selected by the community and trained in malaria diagnosis and treatment.

Malaysia is a country partner of the Asia Pacific Malaria Elimination Network (APMEN), a network composed of 17 Asia Pacific countries and other stakeholders working together to eliminate malaria in the region. Malaysia is currently working to achieve national elimination by 2020.
Eliminating malaria in MALAYSIA

Malaria Transmission Limits

Plasmodium falciparum

Plasmodium vivax

Sabah, then known as North Borneo, in the early 1940s, but was interrupted by the Japanese invasion during World War II. The project, known as the Tambunan Experiment, resumed from 1949 to 1952 and was pivotal in highlighting the importance of correct vector identification for control methods since different vectors vary in their breeding sites, biting habits, preferred habitats, and food sources.  

From 1960 to 1964, the Malaysian government carried out a successful malaria elimination pilot project in Sabah in collaboration with the WHO Global Malaria Eradication Program. Following the pilot, a malaria elimination program was formally implemented in Peninsular Malaysia in 1967, followed by implementation in East Malaysia in 1970. Over the next thirteen years, the number of malaria cases drastically decreased from 181,495 in 1967 to 44,226 in 1980. By 1980, malaria had been eliminated in many areas of Peninsular Malaysia, although cases were still high among ethnic minority groups and in Malaysian Borneo.  

Beginning in 1992, Malaysia focused on targeting high-risk populations, synchronizing prevention and control efforts across district borders, increasing surveillance, promoting community participation such as the training of health volunteers, scaling up vector control, and adopting rapid diagnostic testing and new treatment regimens for case management. After an initial increase in incidence, likely attributable to improved laboratory diagnosis and reporting,
the number of malaria cases in Malaysia steadily declined by 81 percent, from 59,208 in 1995 to 11,106 in 1999.¹

The 95 percent decline in malaria cases since 1995 has been attributed to increased access to improved diagnosis and treatment, nationwide distribution of insecticide-treated bed nets, and regular indoor residual spraying. In 2011, the national malaria program strategy was reoriented from control to elimination, and Malaysia is now working to eliminate malaria from the peninsula by 2015 and from Malaysian Borneo by 2020. The National Malaria Elimination Strategic Plan 2011–2020 outlines seven key strategies to achieve these goals: 1) strengthen malaria surveillance system; 2) intensify control activities using integrated vector management; 3) ensure early detection of cases and prompt treatment; 4) heighten preparedness and early response to outbreaks; 5) enhance community awareness and knowledge of malaria through social mobilization; 6) strengthen human resources capacity; and 7) conduct operational research.¹⁸

**Reported Malaria Cases***

*Graph shows total reported cases from 1990–1999; as of 2000, only local cases are shown.


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**Goal:**¹⁰ Elimination of malaria in Peninsular Malaysia by the end of 2015. Elimination of malaria in Malaysian Borneo (Sabah and Sarawak) by 2020.

**Eligibility for External Funding¹⁹–²¹**

<table>
<thead>
<tr>
<th>Fund</th>
<th>Eligibility</th>
</tr>
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<tbody>
<tr>
<td>The Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>U.S. Government’s President’s Malaria Initiative</td>
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<td>World Bank International Development Association</td>
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**Economic Indicators²²**

<table>
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<th>Indicator</th>
<th>Value</th>
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<tr>
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<td>Country income classification</td>
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<tr>
<td>Total health expenditure per capita (US$)</td>
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<td>Total expenditure on health as % of GDP</td>
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<tr>
<td>Private health expenditure as % of total health expenditure</td>
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</tbody>
</table>
Challenges to Eliminating Malaria

Imported cases
In 2013, imported cases in Malaysia accounted for 22 percent of all cases in the country. Many undocumented migrant workers from endemic countries come to Malaysia for employment opportunities, particularly in the states of Sabah and Sarawak where dam construction and plantation development has led to the clearance of forested areas, putting workers at great risk of exposure to malaria. Improved surveillance, collaboration with key industries and other government agencies, and cross-border cooperation with neighboring endemic countries are essential for addressing the ongoing threat of importation.

Indigenous populations and forest malaria
Malaysia is home to many isolated indigenous tribal groups that do not generally have the same level of access to health care as the rest of the population. Indigenous people frequently use traditional remedies before seeking care in a health facility, which can delay treatment. Many of these groups live within the forest or forest-fringe areas, where the vector ecology and transmission patterns of malaria present a unique challenge for vector control management.

Increasing threat of P. knowlesi
The number of malaria cases due to the simian malaria parasite P. knowlesi has rapidly increased in recent years, particularly as contact between forest-dwelling monkeys and humans has grown. However, relatively little is known about the geographical range, transmission patterns, and disease risk and severity associated with human P. knowlesi infections, which hinders the Malaysia malaria program’s ability to prevent and manage this threat. More operational research and collaboration with other countries in Southeast Asia is necessary to determine the best interventions and approach to P. knowlesi elimination.

Conclusion
Malaysia has a long history of successful malaria control and is now working toward a national goal of elimination by 2020. Effective vector control measures, a strong surveillance system, and access to early diagnosis and treatment along with the cooperation and collaboration of many stakeholders and communities are key to Malaysia’s malaria program. With intensified focus on reducing P. knowlesi transmission in endemic areas of Malaysian Borneo and continued monitoring of importation, achieving the 2020 goal is very likely.

Sources

**Transmission Limits Maps Sources**


**About This Briefing**

This Country Briefing was developed by the UCSF Global Health Group’s Malaria Elimination Initiative. Malaria transmission risk maps were provided by the Malaria Atlas Project. This document was produced by Gretchen Newby; to send comments or for additional information about this work, please email Gretchen.Newby@ucsf.edu.