Eliminating malaria in the PHILIPPINES

The Philippines has experienced a 74 percent decrease in reported malaria cases since 2000 and has a national goal to eliminate malaria by 2020.

Overview

The Philippines is a heavily populated archipelago of more than seven thousand islands in Southeast Asia. In 2010, approximately 72 percent of cases were due to Plasmodium falciparum and 25 percent were due to P. vivax. Malaria deaths have declined by 99 percent between 1999 and 2011, from 755 to only 12. Transmission occurs year-round but is typically higher during the rainy season, which runs from June to December. The primary vector is Anopheles flavirostis, which breeds in clear, slow-flowing streams near foothills and forests. Secondary vectors include An. balabacensis, An. ilitoi, An. maculatus, and An. manguin. Although 80 percent of the population is at risk for malaria transmission, only seven percent is considered at high risk.

In 2010, 58 out of the 80 provinces in the Philippines were malaria endemic, and 22 provinces had no ongoing local malaria transmission. Of these 22, nine reached this stage in 2007. By 2011, an additional six provinces reached elimination status and 25 provinces reached pre-elimination levels. Luzon, the largest and northernmost island group, which has 31 provinces, contributes nearly 58 percent of cases. Mindanao, the southernmost island group (25 provinces), contributes 42 percent of cases. Visayas, the central island group (three provinces), contributes less than one percent of the nation’s malaria cases due to its mountainous topography and moderate climate.

The Philippines is implementing a phased strategy for elimination, dividing zones by malaria endemicity levels. As of 2010, out of the 58 remaining endemic provinces, five reported more than 1,000 cases, 27 reported between 100 and 1,000 cases, and 26 reported fewer than 100 cases. The most highly endemic provinces are Apayao and Quirino in Luzon, and Sulu and Tawi-Tawi in Mindanao. The Philippines is a country partner in the Asia Pacific Malaria Elimination Network (APMEN), a network composed of 14 Asia Pacific countries and other stakeholders working to eliminate malaria in the region.

At a Glance

- Reported cases of malaria (72% P. falciparum)
- Deaths from malaria
- % of population at risk (total population: 94.9 million)
- Annual parasite incidence (cases/1,000 total population/year)
- % Slide positivity rate


Progress Toward Elimination

Malaria in the Philippines was documented prior to 1900 with mortality rates as high as 662 per 100,000 population. The Philippines Bureau of Health began controlling malaria in 1906 by providing malaria education in schools and distributing free quinine in malarious districts. Around this time, the larvicide Paris green was first used. It effectively controlled malaria, but was an expensive vector control method for rural areas. In the 1930s, the same health bureau formed a division of malaria control that began experimenting with larvivorous fish and other vector control methods as a means to reduce malaria transmission. During that decade, more than two million cases of malaria and between 10,000 and 20,000 deaths were reported annually in the Philippines; by the end of World War II, the number of cases had doubled.

The United States Public Health Service implemented the Philippine Public Health Rehabilitation Program, which ran from 1946 to 1950 and experimented with the Philippines’ first use of DDT for vector control. Through the experiences learned from the Philippine Public Health Rehabilitation Program, the Philippine-American malaria control program (1953–1958) was created and conducted indoor residual...
spraying (IRS) and mass drug administration of chloroquine in at-risk areas. This program aimed to reduce the prevalence of malaria to a low level and develop a precedence for the Philippine government to maintain control and eventually eliminate malaria with its own resources. However, due to decentralization of the Philippines Bureau of Health and in addition to financial difficulties, national financing of the malaria program was not sustained and the annual incidence of malaria increased between 1960 and 1965. In 1966, the Philippine government recentralized the malaria program and passed the Malaria Eradication Act with external assistance provided by the World Health Organization (WHO) and the United States Agency for International Development (USAID). From 1967 to 1982 IRS was the main vector control measure. However, in 1973 external funding ended and the government was again unable to sustain previous gains in malaria control.

Malaria services were decentralized for a second time in 1983, and annual malaria cases by the mid-1980s had tripled from around 70 cases per 100,000 population (API) to more than 200 cases per 100,000 population (API). Risk was defined using health management information system data and the transmission limits were further refined using temperature and aridity data. Data from the international travel and health guidelines (ITHG) were used to identify zero risk in certain cities, islands and other administrative areas.

**Malaria Transmission Limits**

*Plasmodium falciparum*

*Plasmodium vivax*

\[ P. falciparum/P. vivax \] malaria risk is classified into no risk, unstable risk of <0.1 case per 1,000 population (API) and stable risk of ≥0.1 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 aridity data. Data from the international travel and health guidelines (ITHG) were used to identify zero risk in certain cities, islands and other administrative areas.
There were 34,787 reported malaria cases and 439 malaria-related deaths in 2001, which marked the beginning of Roll Back Malaria (RBM) activities in the Philippines, and initially targeted three highly endemic municipalities in southern Mindanao by focusing on improving health worker training and procuring essential malaria supplies.\textsuperscript{1, 24} From 2002 to 2003, more than 36,000 insecticide-treated bed nets (ITNs) were distributed in targeted areas, and health centers were equipped with rapid diagnostic tests and trained microscopy staff.\textsuperscript{24} In 2003, the Philippines experienced an increase in the number of confirmed malaria cases to 48,411, most likely due to improved diagnostic capacity. Yet, malaria-related deaths fell by 65 percent in just two years.\textsuperscript{24}

Over the last decade, the Philippines, in collaboration with other malaria stakeholders, obtained a series of grants from the Global Fund for malaria control and elimination efforts. In 2002, the Tropical Disease Foundation, Inc. and the Pilipinas Shell Foundation, Inc. received Global Fund Round 2 grants totaling nearly US$40 million that accelerated progress toward malaria elimination by 2020 by providing universal access to quality diagnostic and treatment services, scaling up vector control to protect two thirds of the population living in malaria-endemic areas, and strengthening sustainable community-based malaria control efforts and malaria surveillance and information systems.\textsuperscript{17, 25}

In 2005, the Pilipinas Shell Foundation, Inc. received another grant from the Global Fund (Round 5) to strengthen local capacity for sustainable village-based malaria control, train health care workers on malaria, distribute ITNs, conduct IRS, and supply health clinics with antimalarial drugs.\textsuperscript{26} Building on its success with the Global Fund Round 2 grant, the Tropical Disease Foundation, Inc. received a Global Fund Round 6 grant the following year which targeted the most disadvantaged populations by developing malaria diagnostic capacity in hard-to-reach areas and provided testing, treatment, and protective measures against malaria such as ITNs.\textsuperscript{27}

In 2010, all existing Global Fund malaria grants were consolidated into a single grant covering 40 malaria-endemic provinces.\textsuperscript{2} In 2012, US$24 million was earmarked for phase two of the grant to sustain the Philippines’ malaria control and elimination efforts through 2014 and improve its chances of moving closer to its 2020 elimination goal.\textsuperscript{2}

The Philippines has reported consistently declining malaria cases over the last two decades.


**GOALS:**

1. Reduce 2006 malaria morbidity by 70 percent by 2014\textsuperscript{17}
2. Reduce 2006 malaria mortality by 70 percent by 2014\textsuperscript{17}
3. Declare three more provinces as malaria-free by 2014\textsuperscript{17}
4. National malaria elimination by 2020\textsuperscript{17}
The Philippines is making substantial progress toward malaria elimination. A myriad of factors such as conflict, accessing rural and indigenous populations, and being located along the Pacific Ring of Fire and facing a constant threat of natural disasters pose a continuing threat to sustained progress toward elimination. With continued support from the Global Fund for capacity building and training of health care workers, and by targeting the most hard-to-reach populations, the Philippines will be in a good position to achieve its malaria program goals.

**Eligibility for External Funding**

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<th>The Global Fund to Fight AIDS, Tuberculosis and Malaria</th>
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<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 Indicators**

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<tr>
<td>Private health expenditure as % total health expenditure</td>
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**Challenges to Eliminating Malaria**

**Armed conflict zone in Mindanao**

The conflict in Mindanao archipelago dates back five centuries. By 2008, clashes between the Moro Islamic Liberation Front and the Philippine military forces had displaced more than two million people over the previous three decades. In August 2008, clashes between these groups displaced more than half a million people. Although many of them returned to their homes in 2010, more than 60,000 are currently unwilling or unable to return home. This presents a challenge to the health system in the surveillance, diagnosis, and treatment of malaria. Additionally, Mindanao has been the poorest of the Philippines’ three island groups for the past decade, and the Autonomous Region in Muslim Mindanao ranks as one of the two poorest regions within that island group.

**Rural and indigent populations**

A majority of the impoverished population is considered indigenous and lives in rural areas. In Davao del Norte, malaria cases increased from 154 in 2006 to 593 in 2007, with 80 percent of cases having been reported in just two remote towns populated by indigenous communities. A lack of enclosed housing structures and a heavily forested topography also contribute to its high incidence of malaria.

**Natural disasters**

The Philippines is located along the Pacific Ring of Fire and the typhoon belt, and faces a constant threat of natural disasters. Typhoons, landslides, volcanic eruptions, and earthquakes affect the Philippines on an annual basis, and since 2006 the Philippines has consistently been hit by natural disasters. In fact, in 2009 the Philippines was ranked third in the world in disaster-related deaths (1,334) and second in the number of victims affected (13 million).

**Decentralized malaria program**

The implementation of all health programs, including malaria, is decentralized from the national level and falls under the jurisdiction of local governments. Due to the decentralization, potentially different data collection and reporting systems could make it more difficult to compare data across local governments and provinces. As the Philippines moves to accelerate its malaria control efforts toward elimination, the synchronization of malaria control activities and data collection is critical for effective planning and allocation of resources.

**Conclusion**

The malaria control program is one of the top five priorities for the Philippines Department of Health, however, malaria is no longer a leading cause of morbidity and mortality. Yet, the likelihood of resurgence cannot be taken lightly. The Philippines has successfully controlled malaria over the past two decades, and malaria there is currently at its lowest level in more than 40 years. However, conflict in Mindanao and difficulty in accessing rural and indigent populations pose challenges in the Philippines achieving its malaria program goals. With continued support from the Global Fund through a phased, island-by-island elimination strategy, the Philippines will be able to achieve its goal of national elimination by 2020.
Sources

9. ACTMalaria. 13th annual ACTMalaria executive board & partners meeting 2009: Vientiane, Lao PDR.

Transmission Limits Maps Sources


Dorina G Bustos (2009), Research Institute for Tropical Medicine and Malaria Control Program & Ma. Cristina Galang, Malaria Control Program, Department of Health, Manila, Philippines. (Data years 2004–2007)
About This Briefing

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The Malaria Elimination Initiative at the Global Health Group of the University of California, San Francisco (www.globalhealthsciences.ucsf.edu/global-health-group) convenes the Malaria Elimination Group (www.malariaeliminationgroup.org), and supports countries actively pursuing elimination at the endemic margins of the disease. Funding for the Malaria Elimination Initiative is provided by the Bill & Melinda Gates Foundation and Exxon Mobil Corporation.

The Malaria Atlas Project (MAP) provided the malaria transmission maps. MAP is committed to disseminating information on malaria risk, in partnership with malaria endemic countries, to guide malaria control and elimination globally. Find MAP online at: www.map.ox.ac.uk.

Additional support was provided by the Asia Pacific Malaria Elimination Network (APMEN). Find APMEN online at: www.apmen.org.