|  |
| --- |
| **Malaria Facts** |

**Malaria in the United States**

* On average, 1500 cases of malaria are reported every year in the United States, even though malaria has been eradicated in this country since the early 1950’s.
* First- and second-generation immigrants from malaria-endemic countries returning to their “home” countries to visit friends and relatives tend not to use appropriate malaria prevention measures and thus are more likely to become infected with malaria.
* Between 1957 and 2009, in the United States, 63 outbreaks of locally transmitted mosquito-borne malaria have occurred; in such outbreaks, local mosquitoes become infected by biting persons carrying malaria parasites (acquired in endemic areas) and then transmit malaria to local residents.
* Of the species of *Anopheles* mosquitoes found in the United States, the three species that were responsible for malaria transmission prior to elimination (*Anopheles quadrimaculatus* in the east, *An. Freeborni* in the west, *An. Albimanus* in the Caribbean) are still widely prevalent; thus there is a constant risk that malaria could be reintroduced in the United States.
* During 1963-2009, 96 cases of transfusion-transmitted malaria were reported in the United States; approximately two thirds of these cases could have been prevented if the implicated donors had been deferred according to the established guidelines.

**Malaria Worldwide**

* 3.3 billion people (half the world’s population) live in areas at risk of malaria transmission in 109 countries and territories.
* 35 countries (30 in sub-Saharan Africa and 5 in Asia) account for 98 % of global malaria deaths.
* WHO estimates that in 2008 malaria caused 190-311 million clinical episodes, and 708,000 – 1,003,000 deaths.
* 89% of the malaria deaths worldwide occur in Africa.
* Malaria is the 5th cause of death from infectious diseases worldwide (after respiratory infections, HIV/AIDS, diarrheal diseases, and tuberculosis.
* Malaria is the 2nd leading cause of death from infectious diseases in Africa, after HIV/AIDS.

**Biology, Pathology, Epidemiology**

* Among the malaria species that affect humans, *Plasmodium vivax* and *P. ovale* can develop dormant liver stages that reactivate after symptomless intervals of up to 2 (*P. vivax*) to 4 years (*P. ovale).*
* Pregnant women have increased susceptibility to *Plasmodium falciparum* malaria; in malaria-endemic countries, *P. falciparum* contributes to 8-14% of low birth weight, which in turn decreases the chance of a baby’s survival.
* After a single sporozoite (the parasite form inoculated by the female mosquito) of *Plasmodium falciparum* invades a liver cell, the parasite grows in 6 days and producs 30,000-40,000 daughter cells (merozoites), which are released into the blood when the liver cell ruptures. In the blood, after a single merozoite invades a red blood cell, the parasite grows in 48 hours and produces 8-24 daughter cells, which are released into the blood when the red blood cell ruptures.
* Under the microscope, *Plasmodium knowlsei* can resemble either *P. falciparum* or *P.malariae*. Thus, PCR is often required to confirm infection

**Other Facts**

* Four Nobel prizes have been awarded for work associated with malaria: to Sir Ronald Ross (1902), Charles Louis Alphonse Laveran (1907), Julius Wagner Jauregg (1927), and Paul Hermann Muller (1948).
* Two important currently used antimalarial drugs are derived from plants whose medicinal values had been noted got centuries: artemisinin from the Qinghao plant (*Artemesia annua*, China 4th century) and quinine from the cinchona tree (South America, 17th century).