**MALARIA**

**What is malaria?**

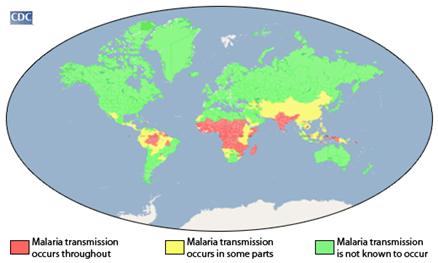
Malaria is a potentially fatal blood disease caused by a parasite that is transmitted to human and animal hosts by the Anopheles mosquito. Malaria can also be transmitted occasionally by transfusions of blood from infected individuals, sharing of needles to inject intravenous drugs, or from an infected pregnant woman to her unborn child.

Symptoms include: anaemia and tiredness. Many early symptoms of malaria resemble severe flu, including chills, aches, sweating, headaches, muscle pain, vomiting and fever, but it can even lead to seizures, yellow skin or even a coma.

New and improved diagnostics are essential for the effective control of malaria. Currently, the most reliable technique for diagnosing malaria is using microscopes to analyze blood smears.

Delayed treatment of malaria can be fatal. In case of getting this disease people must go directly to the hospital where medications will be administrated. With early treatment, malaria can be cured and the serious effects of malaria can be prevented.

**Malaria worldwide:**

Malaria is what geographers call a perfect example of determinism (disease whose geographical distribution is strongly determined by environmental conditions) however, its geographical distribution now is increasingly the result of human intervention.

Environmental factors are still a very important factor when talking about areas of the world highly infected with malaria; Climate affects both parasites and mosquitoes. Mosquitoes cannot survive in low humidity. Rainfall expands breeding grounds, and in many tropical areas, malaria cases increase during the rainy season. Mosquitoes must live long enough for the parasite to complete its development within them. Therefore, environmental factors that affect mosquito survival can influence malaria incidence.

All types of malaria parasites are affected by temperature; their development slows or stops as the temperature drops. This explains why parasites can be found in various parts of temperate areas. Effect of Human Intervention People have worked for centuries to control malaria and were successful in eradicating it from most of the New World early in the 20th century. Certain human activities, however, have inadvertently worsened the spread of malaria.

City conditions can create new places for mosquito larvae to develop. Agricultural practices also can affect mosquito-breeding areas. Although draining and drying of swamps gets rid of larval breeding sites, water-filled irrigation ditches may give mosquitoes another area to breed. In addition, because farmers use the same pesticides on their crops as those used against malaria vector mosquitoes, the problem of insecticide-resistant mosquitoes is growing. Modern transportation also contributes to the spread of the disease, moving travellers between malaria-endemic and non-endemic regions.

This is why malaria transmission occurs mainly in large areas of Central and South America, sub-Saharan Africa, the Indian Subcontinent, Southeast Asia, the Middle East, and Oceania; places that allow for the perfect environmental factors for breeding malaria.

Nearly all the people who live in endemic areas are exposed to infection repeatedly. Those who survive malaria in childhood gradually build up some immunity. They may carry the infection, serving as reservoirs for transmission by mosquitoes without developing severe disease. In other areas, where the infection rate is low people do not develop immunity because they rarely are exposed to the disease. This makes them more susceptible to the ravages of an epidemic. An epidemic can occur when conditions, such as those discussed below, allow the mosquito population to suddenly increase.

But apart form environmental factors and the people living within endemic areas, there is also danger of disease spreading through travelling; the estimated risk of a traveller’ acquiring malaria varies markedly from area to area. This variability is a function of the intensity of transmission within the various regions and of the itinerary and time and type of travel. To prevent the disease from spreading within non-endemic areas, there are hospital policies that don’t allow blood donors to donate within a month after travelling.

**Malaria and poverty:**

Even though we know how to prevent the disease (with strategies such as keeping the areas in which we live clean so that mosquitoes wont breed, using repellent, taking certain drugs, and sleeping under a mosquito net) there are around 400-900 million cases of acute malaria occur only within African children, and there are around 2.7 million deaths because of Malaria each year (most of them African children), the reason for this is “poverty”, people living in poor areas with low infrastructure will tend to live closer to stagnant water, which is the perfect spot for mosquitoes to breed. The drugs for malaria are not easy to find everywhere within Africa (once again because of poor infrastructure and political problems) and even when they are available not everyone can afford them, or can afford to buy a mosquito net.

Most efforts at dealing with malaria have focused on the human side, such as attempts to develop a vaccine, efforts to control environmental factors (such as working to eliminate the low spots where pools of water collect during the rainy season, or applying locally grown plant materials to limit the growth of mosquitoes ) can have a dramatic effect on controlling malaria's spread. That approach can rely on local effort, but also on international organizations such as WHO Global Malaria Programme (GMP) promote the use of mosquito netting, and create policies to prevent the spread of the disease, and keep on investigating new ways to prevent malaria.

As with all diseases of worldwide importance, a critical aspect of our future ability to control malaria will depend on the skills and expertise of scientists, health care providers, and public health specialists working in endemic regions. Therefore, strengthening the research capability of scientists in these areas is another major focus of these efforts. NIAID works closely with national and international organizations involved in malaria research and control. The Institute was also a founding member of the Multilateral Initiative on Malaria, which emphasizes strengthening research capacity in Africa.

Early diagnosis and treatment reduces disease and prevents deaths. It also contributes to reducing malaria transmisión. Access to diagnostic testing and treatment should be seen not only as a component of malaria control but as a fundamental right of all populations at risk.

**Geographic impact of malaria at a local, national and international scale:**

Eventhough malaria mortality rates are falling, approximately half of the world's population is at risk of malaria. Most malaria cases and deaths occur in sub-Saharan Africa. However, Asia, Latin America, and to a lesser extent the Middle East and parts of Europe are also affected. In 2010, 99 countries and territories had ongoing malaria transmission.