

MALARIA & MOSQUITO FACTS

MALARIA

Malaria is a life-threatening parasitic disease transmitted by mosquitoes. It was once thought that the disease came from fetid marshes, hence the name *mal aria*, (an Italian word meaning “bad air”). In 1880, scientists discovered that the real cause of malaria was a one-cell parasite called plasmodium.

Today approximately 40% of the world's population, mostly those living in the world's poorest countries, is at risk for malaria. (See attached list of countries and CDC Map for specifics) Today malaria is found throughout the tropical and sub-tropical regions of the world and causes more than 300 million acute illnesses and at least one million deaths annually. In many developing countries and in Africa especially, malaria exacts an enormous toll in lives, in medical costs, and in days of labor lost.

TRANSMISSION

The malaria parasite (plasmodium) infects and kills red blood cells, which carry oxygen from the lungs throughout the body. As a female anopheles mosquito with the parasite (needing protein to nurture her eggs) takes a blood meal it transmits many threadlike structures (called sporozoites) into the host (humans). These sporozoites travel to the liver, where they multiply and form another kind of spore, called a merozoite. The merozoites enter the bloodstream and penetrate red blood cells, where they devour hemoglobin, the chemical that transports oxygen. When the blood cell disintegrates, the merozoites which have now multiplied many times, escape and infect other blood cells. A few specialized merozoites can be sucked up by another mosquito taking a blood meal. Two of these specialized merozoites join in the new mosquito's gut and produce a new generation of parasites. This mosquito can transmit the infection only if she sucks more blood from an uninfected person before she dies.

SYMPTOMS

Fever and anemia along with shivering, pain in the joints and headache are common symptoms. In cerebral malaria, the infected red cells obstruct the blood vessels in the brain. Other vital organs can also be damaged often leading to the death of the patient. Many children who survive an episode of severe malaria may suffer from learning impairments or brain damage. Pregnant women and their unborn children are also particularly vulnerable to malaria, which is a major cause of miscarriage, still birth, low birth weight babies and anemia in new mothers.

INCIDENCE AND DISTRIBUTION

More than 120 million clinical cases and over 1.5 million deaths occur in the world each year from malaria. More than ninety per cent of deaths due to malaria occur in Africa in

areas south of the Sahara, mostly among young children. According to statistics, malaria kills an African child every 30 seconds.

TREATMENT

It can normally be cured by antimalarial drugs. The symptoms, fever, shivering, pain in the joints and headache, quickly disappear once the parasite is killed. In certain regions, however, the parasites have developed resistance to certain antimalarial drugs, particularly chloroquine. Patients in these areas require treatment with other more expensive drugs. Cases of severe disease including cerebral malaria require hospital care.

PREVENTION

Most of the people who contract the disease in Sub-Saharan Africa cannot afford either treatment or hospital care. Many international agencies no longer regularly fund malaria control. The situation has become even more complex over the last few years with the increase in resistance to the drugs normally used to combat the parasite that causes the disease.

Effective, low-cost strategies are available for its treatment, prevention and control. One such strategy is the use of mosquito nets treated with insecticide. Prevention of malaria in pregnant women, through preventive treatments and the use of insecticide-treated nets, results in improvement in maternal health, infant health and survival. Prompt access to treatment with effective up-to-date medicines also saves lives. If countries and organizations can apply these and other measures on a wide scale and monitor them, then the burden of malaria will be significantly reduced.

How the insecticide-treated nets work

The nets are hung over the sleeping area (which in many cases is the entire house). Mosquitoes are generally more active at dusk. During the evening the infected mosquitoes are looking for either a meal or a place to rest to digest their meal. If they come into contact at that time with an insecticide-treated net, they will die. Malaria can only spread if a mosquito feeds on an infected person and then on a healthy person. If they die before this can happen, the chain of infection is broken.

Use of the nets is also cost effective. The nets cost approximately \$6.00. They can last up to four years and must only have insecticide reapplied after washing forty (40) times. The cost of insecticide is also very minimal.

Studies in communities where the nets were donated and used consistently show a 40%-50% decrease in the incidence of malaria.

MOSQUITOES

- There are about 2,700 species of mosquitoes.
- Mosquitoes can live up to 5 months depending on the species.
- A mosquito weighs about 7-hundred thousandths of an ounce.
- Some mosquitoes can fly (migrate) 75 to 100 miles.
- A mosquito can fly an estimated one to 1.5 miles per hour.
- A mosquito bite itch is an allergic reaction to mosquito saliva.
- Mosquito eggs, larva, and pupa live in water. They may survive with just the amount of water in a bottle cap.
- The larva of a mosquito is called a wiggler because it wiggles to the bottom of the water when danger is present.
- Mosquitoes feed at all times of day and night. Certain species prefer different times of day or night.
- Mosquitoes mostly feed on plants.
- A few species of females use human blood to feed on as a source of protein which is needed to produce her eggs.
- Males never suck blood and females only do it as often as necessary, since it exposes them to the dangers associated with hosts (cows swatting them with tails or people swatting them or spraying, etc.)
- A female mosquito drinks about 2-thousandths of an ounce of blood per serving.
- If you brush a mosquito away too soon, it may come back for more.
- Mosquitoes find new hosts by observing movement, by detecting infrared radiation emitted by warm bodies and by chemical signals
- Chemicals which mosquitoes are attracted to include carbon dioxide, lactic acid as well as others.
- A mosquito can “smell” a host from about 22 to 38 yards.