Malaria is a life-threatening disease transmitted by the bite of the female (Anopheles) mosquito. It can be controlled by using a combination of preventive and curative interventions. This booklet, intended for the general public, health educators as well as students, answers some frequently asked questions.

More information on malaria and other communicable diseases is available on the Communicable Diseases Department web site:

http://www.searo.who.int/entity/malaria/topics/wmd_2013/en/
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Frequently Asked Questions on Malaria
Q 1: What is malaria?

Malaria is a disease caused by *Plasmodium* parasites that are transmitted from person to person via female (*Anopheles*) mosquitoes. Five types of *Plasmodium* parasites cause malaria in humans. Depending on the area or country, the most common are *Plasmodium falciparum* and *P.vivax*. The others, much rarer, are *P.ovale, P.malariae* and *P.knowlesi*.

Q 2: How do you get it?

Specifically, when an *Anopheles* mosquito bites an infected person, a small amount of blood is taken, which contains malaria parasites. These parasites multiply inside the mosquito and are then transmitted to another person when the mosquito bites. Once bitten, the parasites multiply in the liver, and then infect red blood cells. Since *Plasmodium* is a parasite of human blood, it can be transmitted, albeit extremely rarely, through blood transfusion, organ transplant, or the shared use of needles or syringes. Malaria may also be transmitted from a woman to her unborn baby before or during delivery (congenital malaria).

Q 3: How long does it take for a mosquito to transmit malaria from one person to another?

Depending on the local temperature and humidity, it usually takes about two weeks for the parasites to develop in an *Anopheles* mosquito before they can be transmitted to another person.

Q 4: Is it true that I can get malaria from drinking water from the river?

No. Unfortunately, there are a lot of myths regarding the causes of malaria, such as drinking water from streams that contain mosquito eggs, eating bananas
while in the forest, overwork, evil spirits, hunger, and not eating on time among others.

Q 5: What does an incubation period mean?

The incubation period is the time between the bite of an infective mosquito and the first signs and symptoms of the disease.

Q 6: How soon will I feel sick after being bitten by an infected mosquito?

Your first symptoms can begin as early as seven days after being bitten and up to four weeks afterwards. Exceptionally, symptoms may appear up to a year later, depending on the type of parasite. *P. vivax* and *P. ovale* parasites can remain dormant in the liver for up to four years after a bite from an infected mosquito. In this case, you will fall sick when the parasites come out of hibernation and begin invading red blood cells.

Q 7: Is malaria contagious? Should malaria patients be put in quarantine?

No, malaria is not contagious. It cannot be spread from person to person like a cold or the flu, or through sexual or casual contact with malaria-infected people, and therefore, quarantine or isolation are not needed.

Q 8: What are the signs and symptoms of malaria?

The most common signs and symptoms are fever, headache, chills, nausea and vomiting. Malaria may also cause anaemia and jaundice (yellow colouring of the skin and eyes) because of the loss of red blood cells. Symptoms in severe forms of the disease include very high fever, severe headache,
generalized convulsion, kidney failure, seizures, delirium, impaired consciousness and coma.

Q 9: Can you die from malaria?

Any type of malaria is dangerous if not treated, but some are more likely to cause death. For example, infection with *P. falciparum*, if not treated properly and immediately, may be fatal. Over 80% of malaria deaths occur in children, and around one in three patients with severe and complicated malaria may die, even in the best hospitals. It is, therefore, very important to seek early diagnosis and proper treatment from trained health staff if you think you have malaria, to prevent complications and death.

Q 10: How can I recognize the *Anopheles* mosquito?

It is difficult for the untrained eye to recognize *Anopheles* mosquitoes, especially as they usually bite at night.

Q 11: Who is at risk for malaria?

Around 3.4 billion people around the world are at risk. Most cases occur in children who live in countries with malaria transmission. Travellers or immigrants from malaria-free areas who do not take preventive measures against mosquito bites can become infected when they arrive in countries with malaria. Other population groups at risk include pregnant women and persons with HIV/AIDS. In South-East Asia, the most affected populations are ethnic communities, settlers in forest areas, subsistence farmers, and workers in development projects such as rubber plantations, mining, irrigation, dams, roads, and agro-forestry. However, in areas where there is malaria transmission, everyone is at risk.
Q 12: Is it safe for me four months into my pregnancy, to visit a malaria-risk area for two weeks?

Women who are pregnant or likely to become pregnant should avoid travel to areas with malaria risk. Malaria in pregnant women can be more severe than in non-pregnant women. It can increase the risk of adverse pregnancy outcomes including prematurity, miscarriage, and stillbirth. No preventive drugs are completely effective. You should consider these, and other health risks and discuss it with your health-care provider before travelling.

Q 13: How do I know if I have malaria – is there a test?

The first symptoms of the disease are fever, chills, headaches, malaise, muscle aches, and vomiting. If you live in an area with malaria or have recently travelled in a malaria-risk area and have fever, you should be examined immediately. The surest way to know whether you have malaria is to have a diagnostic test, where a drop of your blood is examined under the microscope for the presence of malaria parasites. You may ask the health staff where to go for malaria examination.

Q 14: Where can I get treatment?

Malaria treatment is usually available in government health clinics and hospitals as well as in licensed medical practices. Take malaria medicines only upon the advice of trained health-care providers.

Q 15: Is malaria curable?

Yes, malaria is curable if treated early and properly through available drugs. However, a few patients who recover from severe malaria may have residual signs or complications.
Q 16: How can I protect myself and my family from malaria?

If you live in an area where malaria is a problem, you and your family can prevent malaria by:

- keeping mosquitoes from biting you, especially by wearing insect-repellent and long-sleeved clothing if out of doors at night;
- eliminating places around your home where mosquitoes breed;
- spraying insecticides on your walls to kill adult mosquitoes that come inside;
- sleeping under bednets – especially effective if they have been treated with insecticide.

Q 17: Are there medicines to prevent malaria?

Yes there are, but the ideal prophylactic medicine will depend on factors like the type of malaria parasites active in a given area and drug resistance. You should consult a doctor or health staff to determine the recommended medicine to be used for prophylaxis.

Q 18: Isn’t there a malaria vaccine? If not, why not?

There is currently no malaria vaccine approved for human use, although scientists all over the world are working on this with the hope of making an effective vaccine for the most severe form of malaria available within the next five years. However, the malaria parasite is a complex organism with a complicated life-cycle: its antigens are constantly changing and developing a vaccine against these varying antigens is very difficult. In addition, scientists do not yet totally understand the complex immune responses that protect humans against malaria. The search for a vaccine is considered to be one of the most important research projects in public health.
Q 19: If I get malaria, will I have it for the rest of my life?

No, not necessarily. If the right drugs are used, you can be cured and all the malaria parasites can be eliminated. However, the disease can persist if it is left untreated, or if it is treated with the wrong drug. Some drugs are ineffective because the parasite is resistant to them. Some patients may be treated with the right drug, but at the wrong dose or for too short a period of time.

Two species of parasites, *Plasmodium vivax* and *P. ovale*, can remain dormant in the liver for years. Left untreated, these liver stages may reactivate and cause malaria attacks (relapses) after months or years without symptoms. Patients diagnosed with *P. vivax* or *P. ovale* are often given a second drug to help prevent these relapses. Another species, *P. malariae*, if left untreated, has been known to persist in the blood of some persons for several decades.

But in general, if you are correctly treated for malaria, the parasites are eliminated and you are no longer infected with malaria.

Q 20: If I am cured and have no more symptoms, can I transmit malaria to someone else?

Survivors of malaria, just like malaria sufferers, cannot transmit the infection *directly* to another person. However, even with no more signs and symptoms, they may still carry some parasites if they have not been treated properly and, could transfer the parasites to others through *Anopheles* mosquitoes. It is, therefore, critical to complete the treatment even though the infection appears to have gone.
**Q 21: Where does malaria occur?**

In 2013, malaria transmission was ongoing in 97 countries and territories, mainly in Africa, but also in Asia and parts of Latin America, Europe and the Middle East. It usually occurs in tropical and sub-tropical countries where the physical environment and warm temperatures favour the breeding of *Anopheles* mosquitoes.

**Q 22: Is it a common disease?**

Yes, particularly in rural areas. The World Health Organization (WHO) estimated that there were 207 million malaria cases and 627,000 malaria deaths across the globe in 2012. All countries in South-East Asia, except Maldives, are affected by malaria. Over 90% of reported malaria cases and deaths in the Region every year are from India, Indonesia and Myanmar.

**Q 23: Where do *Anopheles* mosquitoes breed?**

Most *Anopheles* mosquitoes lay their eggs in water in rice paddies, irrigation canals, ponds, wells, streams, foothills and forests. In other words, they mainly live and multiply in rural areas. However one species – *Anopheles stephensi* – lays its eggs in water tanks and other collections of unpolluted water in urban and peri-urban areas.

**Q 24: How can mosquito breeding places be controlled?**

Malaria control programmes and communities are carrying out many activities to eliminate the places where mosquitoes breed. These include:

- eliminating places where mosquitoes can lay eggs;
- reclaiming land by filling and draining;
● cleaning the shade and vegetation (where possible) along ponds, ditches, streams and canals;
● removing discarded containers that might collect water;
● covering cisterns (water tanks) with lids or mosquito nets;
● repairing leaks, preventing seepage of water and improving drainage;
● introducing special fish that eat mosquito larvae;
● putting special insecticides (abate) in the water of cisterns (water tanks) to kill mosquito larvae.

Q 25: Wasn’t malaria eradicated years ago?

Although an eradication campaign was started in the 1950s, it failed globally, mainly because of resistance of the parasites to the drugs used to treat the disease. In addition, the eradication campaign never involved most of Africa, where malaria is the most common. However, malaria has been eradicated from many developed countries with temperate climates, although it remains a major health problem in developing countries, particularly in tropical and subtropical parts of the world.

Q 26: What is WHO doing in the South-East Asia Region to help stop malaria?

The goal of malaria control is to prevent deaths and reduce suffering and social and economic losses. To achieve this, the four basic technical elements of the malaria control strategy are:

● to provide early definitive diagnosis and prompt effective treatment;
• to plan and implement selective and sustainable preventive measures, including malaria mosquito control;

• to detect early, contain or prevent malaria outbreaks;

• to strengthen progressively national and local capacities in basic and applied research to permit and promote the regular reassessment of a country’s malaria situation, in particular, the ecological, social and economic determinants of the disease.

WHO has staff in each country office and at the South-East Asia Regional Office in New Delhi, India, dedicated to support countries to control and eliminate malaria. Their key activities are:

• to generate evidence and provide technical guidance for the development of policies, strategies and guidelines;

• to document and disseminate best practices and lessons learnt;

• to promote training;

• to carry out epidemiological surveillance and determination of country-specific risks for better planning of interventions;

• to support research including evaluation of efficacy of malaria drugs and insecticides;

• to provide advice to travellers, and to carry out advocacy and resource mobilization.
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