Malaria FAQ

1. What is Malaria?

Malaria is a life threatening disease caused by a parasite called *Plasmodium*. The parasites are spread to people through the bites of infected *Anopheles* mosquitoes, which act as 'malaria vectors'[1].

There are four different types of parasites that infect humans: *P.falciparum*, *P.vivax*, *P. ovale*, *P. malariae*. Of these, *P. falciparum* and *P.vivax* are the most common. *P. falciparum* is the most deadly, with the highest rates of complications and mortality. This deadly form of malaria is a serious public health concern in most countries in sub-Saharan Africa.[2]

2. How is Malaria Transmitted?

Usually, people get malaria by being bitten by an infective female *Anopheles* mosquito. Only *Anopheles* mosquitoes can transmit malaria and they must have been infected through a previous blood meal taken from an infected person. When a mosquito bites an infected person, a small amount of blood is taken in which contains microscopic malaria parasites. About 1 week later, when the mosquito takes its next blood meal, these parasites mix with the mosquito's saliva and are injected into the person being bitten[3].

Transmission is more intense in places where the mosquito lifespan is longer (so that the parasite has time to complete its development inside the mosquito) and where it prefers to bite humans rather than other animals. For example, the long lifespan and strong human-biting habit of the African vector species is the main reason why about 90% of the world's malaria deaths are in Africa[4].

3. What are the symptoms of Malaria?

Symptoms of malaria include fever and flu-like illness, including shaking chills, headache, muscle aches, and tiredness and usually appear between 10 and 15 days after the mosquito bite. Nausea, vomiting, and diarrhea may also occur. The first symptoms – fever, headache, chills and vomiting – may be mild and difficult to recognize as malaria[5].

Malaria may cause anemia and jaundice (yellow coloring of the skin and eyes) because of the loss of red blood cells. Malaria can quickly become life-threatening by disrupting the blood supply to vital organs[6]. If not promptly treated, the infection can become severe and may cause kidney failure, seizures, mental confusion, coma, and death[7].

4. Malaria Diagnosis and Treatment

Diagnosis of malaria depends on the demonstration of parasites in the blood. Parasitological diagnostic tests (RDT) - confirm infection in suspected cases of malaria, indicating which

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[1] Malaria Key Facts (December 2014) http://www.who.int/mediacentre/factsheets/fs094/en/
[2] Malaria Information for travellers (6 March 2014) http://www.who.int/malaria/travellers/en/
[3] Malaria FAQ (10 December 2012) http://www.cdc.gov/malaria/about/faqs.html
[4] Malaria Key Facts (December 2014) http://www.who.int/mediacentre/factsheets/fs094/en/
[5] Malaria Key Facts (December 2014) http://www.who.int/mediacentre/factsheets/fs094/en/
[6] Health Topics Malaria http://www.who.int/topics/malaria/en/
[7] Malaria FAQ (10 December 2012) http://www.cdc.gov/malaria/about/faqs.html

patients should be treated for malaria and for which patients another cause of fever should be sought[8]. Additional laboratory findings may include mild anemia, mild decrease in blood platelets (thrombocytopenia), elevation of bilirubin, and elevation of aminotransferases[9].

WHO recommends that all cases of suspected malaria be confirmed using parasite-based diagnostic testing (either microscopy or rapid diagnostic test) before administering treatment. Results of parasitological confirmation can be available in 15 minutes or less. Treatment solely on the basis of symptoms should only be considered when a parasitological diagnosis is not possible[10].

WHO recommends that uncomplicated *P. falciparum* malaria should be treated with artemisinin-based combination therapy (ACT). In areas where chloroquine is still effective, *P.vivax* malaria should be treated with this drug. Where resistance to chloroquine has been documented*, P.vivax* malaria should be treated with appropriate ACT. To prevent relapse, both chloroqunie and ACT should be combined with a 14 day course of primaquine, subject to consideration of the risk of haemolysis in patients with glucose -6-phosphate dehydrogenase (G6DP) deficiency[11].

5. Recurrence & long term health

In *P. vivax* and *P. ovale* infections, patients having recovered from the first episode of illness may suffer several additional attacks after months or even years without symptoms.

Relapses occur because *P.vivax* and *P.ovale* has a dormant liver stage (known as hypnozoite) that enables it to survive long periods as a potential reservoir of infection. The hypozoites can activate months later to cause a relapse.[12] Treatment to reduce the chance of such relapses is available and should follow treatment of the first attack[13].

6. Practical prevention advice

Vector control is the main way to reduce malaria transmission at the community level. It is the only intervention that can reduce malaria transmission from very high levels to close to zero. Two forms of vector control are effective in a wide range of circumstances.

Long-lasting insecticidal nets (LLINs) are the preferred form of insecticide-treated mosquito nets (ITNs) for public health distribution programmes. WHO recommends coverage for all at-risk persons; and in most settings. The most cost effective way to achieve this is through provision of free LLINs, so that everyone sleeps under a LLIN every night.

Indoor residual spraying (IRS) with insecticides is a powerful way to rapidly reduce malaria transmission. Its full potential is realized when at least 80% of houses in targeted areas are sprayed. Indoor spraying is effective for 3–6 months, depending on the insecticide used and the type of surface on which it is sprayed. DDT can be effective for 9–12 months in some

[8] WHO World Malaria Report 2014 (9 December 2014) http://www.who.int/malaria/publications/world_malaria_report_2014/en/
[9] About Malaria Disease (8 February 2010) http://www.cdc.gov/malaria/about/disease.html
[10] Malaria Key Facts (December 2014) http://www.who.int/mediacentre/factsheets/fs094/en/
[11] WHO World Malaria Report 2014 (9 December 2014)
[12] WHO World Malaria Report 2014 (9 December 2014) http://www.who.int/malaria/publications/world_malaria_report_2014/en/
[13] About Malaria Disease (8 February 2010) http://www.cdc.gov/malaria/about/disease.html

cases. Longer-lasting forms of existing IRS insecticides, as well as new classes of insecticides for use in IRS programmes, are under development.

Antimalarial medicines can also be used to prevent malaria. For travellers, malaria can be prevented through chemoprophylaxis, which suppresses the blood stage of malaria infections, thereby preventing malaria disease[14].

For individuals, personal protection against mosquito bites represents the first line of defence for malaria prevention. Prevention of mosquito bites between dusk and dawn is the first line of defence against malaria. Measures to prevent mosquito bites include sleeping under long-lasting insecticidal nets, and using protective clothing and insect repellents. Depending on the malaria risk in the area to be visited, international travellers may also need to take preventive medication (chemoprophylaxis) prior to, during, and upon return from their travel[15].

7. High Risk Areas

In 2013, there were an estimated 198 million malaria cases worldwide (range 124-283 million). The burden is heaviest in the WHO African region where an estimated 90% of all malaria deaths occur, and in children aged under 5 years, who account for 78% of all deaths.

During 2013, 37 million infections (29%) arose in Nigeria and 14 million (11%) in the Democratic Republic of the Congo, the two countries with the highest number of infections[16].

8. Is it Ebola or Malaria?

The detection and management of Ebola and malaria has been challenging for clinicians as the initial clinical presentation of the two diseases are similar (fever, headache, weakness and joint pains). Only blood tests can distinguish between them[17].

As a result, most people turn up at Ebola treatment centres thinking that they have Ebola, when actually they have malaria. It's a huge load on the system, as well as being a huge stress on patients and their families. In addition, the widespread fear of Ebola has kept many fever patients away from health facilities, complicating the management of both diseases.

WHO has issued new guidance on temporary measures to control the disease during the Ebola outbreak: to provide ACTs to all fever patients, even when they have not been tested for malaria, and to carry out mass anti-malaria drug administration with ACTs in areas that are heavily affected by the Ebola virus and where malaria transmission is high. In addition, international donor financing is being stepped up to meet the further recommendation that bednets be distributed to all affected areas.[18]

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[14] Malaria Key Facts (December 2014) http://www.who.int/mediacentre/factsheets/fs094/en/
[15] Malaria Information for travellers (6 March 2014) http://www.who.int/malaria/travellers/en/
[16] WHO World Malaria Report 2014 (9 December 2014) http://www.who.int/malaria/publications/world_malaria_report_2014/en/
[17] Ebola Sabotages Guinea's Anit-Malaria Fight (14 November 2014) http://www.voanews.com/content/ebola-sabotages-guinea-anti-malaria-efforts/2520188.html
[18] Scale-up in effective malaria control dramatically reduces deaths (9 December 2014) http://www.who.int/mediacentre/news/releases/2014/malaria-control/en/