

## Malaria Outbreak in Mali

Today I am here to inform you about the Malaria outbreak that has occurred recently in the region of Mopti.<sup>1</sup> Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes. It is preventable and curable. Did you know that in 2019 there were 229 million cases and 409,000 deaths worldwide?<sup>(1)</sup>

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Mopti is a region in Mali and the main town in this region is called Mopti as well. The town of Mopti is an urban commune in the Inner Niger Delta region of Mali. The town is the capital of the Mopti Cercle and the Mopti Region. Situated 630 km northeast of Bamako, the town lies at the confluence of the Niger and the Bani Rivers and is linked by an elevated causeway to the town of Sévaré. The urban commune, which includes both Mopti and Sévaré, had a population of 114,296 according to the 2009 census. <sup>(2)</sup>

This outbreak has occurred in the early months of 2020. We must stop this outbreak as soon as possible as the disease has spread at an exponential rate. It takes 7 days to become infected after a bite from a mosquito but the time between being infected and when symptoms start is 7 to 18 days, depending on the specific parasite you're infected with (incubation period). Malaria in a non-immune individual, symptoms usually appear 10–15 days after the infective mosquito bite. The first symptoms which are fever, headache, and chills, may be mild and difficult to recognize as malaria. If not treated within 24 hours, P. falciparum malaria can progress to severe illness, often leading to death. (information from the NHS website)

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Due to the quick spread of the disease, there have been many mosquitoes seen on vehicles leaving the Mopti region. This means that the different parasites can spread across Mali a lot quicker than they

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would have been able to on their own. At this rate, the whole of Mali could be infected within a few weeks. From here the population Burkina Faso could be completely infected with diseases from here it can spread to Ghana, Ivory Coast, Togo and Benin.

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The method of transmission is vector (mentioned earlier). Researchers have found that mosquitoes tend to thrive in tropical climates and Africa is a very tropical continent as the equator line passes through it. This is an ideal breeding ground for them and the reason why this continent is a hotspot for Malaria. It is not only people in Africa that can become infected by this disease. According to the WHO (World Health Organisation) there a colossal amount of people that can be infected. People that live in:

- South East Asia
- Eastern Mediterranean
- Western Pacific
- The Americas
- Sub Saharan Africa

This is the Majority of the Southern Hemisphere. Mainly, Africa is where the virus has infected the most people. In 2017 the continent suffered with 92% of cases worldwide and 93% of deaths worldwide(2). People that live in the Northern Hemisphere do not need to worry about being infected with the disease as the climate here is not typical for mosquitos. There are also people with underlying health conditions or young age or also situations that make them vulnerable to this virus. They could be:

- Infants
- Children under the age of 5
- Pregnant women
- People with AIDS
- People with HIV
- Non-immune migrants
- Mobile populations
- Travellers

The symptoms of Malaria are:

- A fever
- Headaches
- Vomiting
- Muscle pains

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Next steps – You can begin to talk about the treatments and preventative measures and the advantages and disadvantages of each of them, for example tablets, mosquito nets and insecticides.

Your conclusion can then suggest which method[s] you think would be most effective in preventing the spread of the disease.

- Diarrhoea
- Malaise (Generally feeling unwell)
- Chills (feeling hot and shivery)

There are also complications of Malaria. They are:

- Severe anaemia-destruction of red blood cells by the malaria parasite meaning that they are unable to carry enough oxygen around the body. This is a part of the life cycle of the plasmodium parasites
- Cerebral malaria-in rare cases malaria can cause the brain to swell which can lead to permanent brain damage, seizures or can lead to a patient going into a coma (3)

One case of Malaria was found in a 53-year-old who had recently been on a holiday to India in February 2004. He complained about muscle pains, fever, malaise and chills (all four things are symptoms of malaria). After checking the results in a lab, the doctors came to the conclusion that the most likely diagnosis was that the man was suffering from malarial infection with plasmodium falciparum. Elliot carter 'case studies on malaria' (4)

The plasmodium falciparum is one of the five plasmodium species that can cause malaria in humans. Some of the others are plasmodium falcioarum and plasmodium vivax pose. These are mainly found in Africa, South America and Asia.

Fortunately, there are treatments or interventions that can be implemented to reduce or prevent the spread of Malaria. One of the ways is to use insecticide-treated mosquito nets. Sleeping under these can reduce contact between mosquitoes and humans as it provides a physical barrier and as it is not just any normal mosquito net it is insecticide-treated as it can repel mosquitoes or even kill them. Another way is to spray the inside of buildings with residual insecticide once or twice a year.

Some treatments that are available are antimalarial drugs. These are used regularly to prevent malaria. They are mainly used when travellers are travelling to a moderate to high-risk area. They are also given to

pregnant women or infants that live in moderate to high risk areas. Another treatment is the Malaria vaccine. Although it has been increasingly difficult to design a malaria vaccine, GlaxoSmithKline (a pharmaceutical company) have a vaccine that has gotten the furthest in clinical trials.

Other methods to prevent the virus are:

- Early diagnosis and therefore treatment-reduces the number and transmission of severe disease preventing death
- Surveillance-tracking the disease and taking action
- Insect repellents
- Donating to charities that provide help to stop malaria

Advantages of preventative measures/treatments:

- they have been effective until last year
- donating to charities means that countries that have cases have support
- Early diagnosis gives doctors a chance to use treatments on people that have it

Disadvantages of preventative measures/treatments:

- vaccine doesn't give 100% protection against malaria
- there were many cases in 2019
- because of coronavirus there hasn't been a lot of attention on malaria

In conclusion, Malaria is a very challenging disease that is very challenging to stop as it doesn't spread through any type of contact. There is still a long way to go in research as pharmaceutical companies try to find a vaccine for this disease. The most effective way to stop malaria is to place mosquito nets on all the doors of buildings and to use insect repellents in buildings to stop mosquitoes from getting close to people and infecting them. In my opinion the surveillance is the best method of prevention.

## References

1. <https://www.who.int/>
2. <https://en.wikipedia.org/wiki/Mopti>
3. <https://www.nhs.uk/conditions/malaria/>

4. [https://watermark.silverchair.com/labmed35-0092.pdf?token=AQECAHi208BE49Ooan9kkhW\\_Ercy7Dm3ZL\\_9Cf3qfKAc485ysgAAq0wggKpBgkqhkiG9w0BBwagggKaMIIC](https://watermark.silverchair.com/labmed35-0092.pdf?token=AQECAHi208BE49Ooan9kkhW_Ercy7Dm3ZL_9Cf3qfKAc485ysgAAq0wggKpBgkqhkiG9w0BBwagggKaMIIC) [7th January 2021]
5. Brilliant Club Student book