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# Malaria: Sub-Saharan Africa

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## Sub-Saharan Africa: Malaria

### Overview:

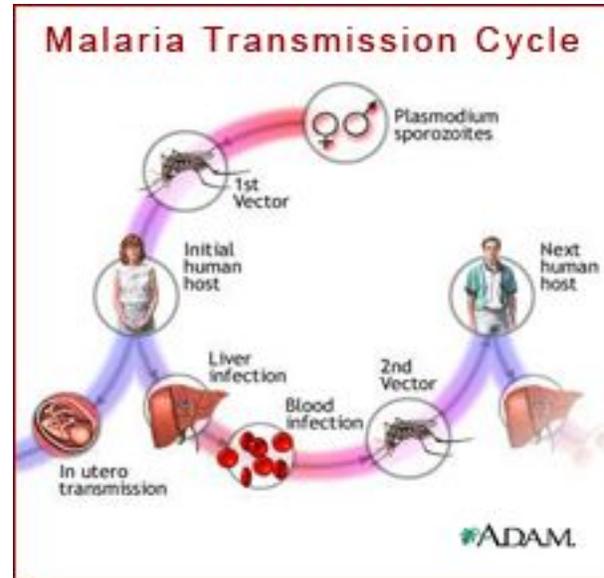
Sub-Saharan Africa geographically is the large part of the continent that lies south of the Sahara Desert. It is home to many different ethnic and language groups including Afroasiatic, Khoisan, Niger-Congo and Nilo-Saharan. The population of Sub-Saharan Africa is 1.033 billion (Sub-Saharan Africa, 2015). It is home to many different biomes including tropical rainforests, savannas, grasslands, and deserts. Sub-Saharan Africa encounters many challenges because it is considered the poorest region in the world. Many major public health problems are seen in sub-Saharan Africa. These include poor sanitation, limited access to healthcare, HIV/AIDS, and malaria (Sub-Saharan Africa, 2015).

### Malaria:

A major issue that sub-Saharan Africa has suffered from is malaria. It is a communicable disease that is spread by the female *Anopheles* mosquito. The pathogen that causes malaria belongs to the genus *Plasmodium*; the species that cause malaria are: *P. falciparum*, *P. vivax*, *P. ovale*, *P. malariae* and *P. knowlesi*. Environmental causes are linked to high populations of mosquitoes. They include high temperature, high rainfall, and tropical environments. Living near a water source can increase the risk of contracting malaria as it is a breeding ground for the mosquitoes. These environmental factors greatly impact sub-Saharan Africa's issue with malaria and increase the incidence. Lifestyle choices that affect risk are non-screened houses. Rural areas without proper water and sanitation systems are

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also at a higher risk. Although it most heavily affects sub-Saharan Africa, malaria is also an issue in South Asia, the Caribbean, Middle East and Oceania (CDC, 2018).



<http://www.encoderesearch.com/Arginine-Malaria.htm>

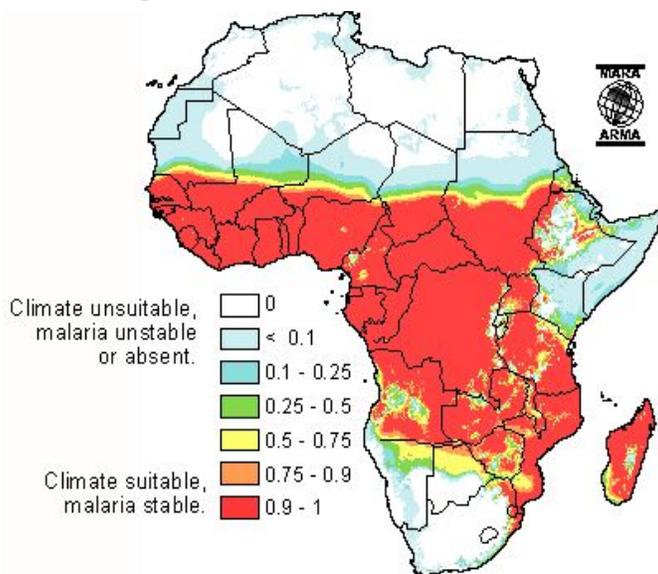
### Epidemiology of Malaria:

The first signs and symptoms of malaria happen 10-14 days after transmission. They include fever, headache, chills, vomiting, and body aches. Due to the generic nature of the symptoms, malaria can be difficult to diagnose; however, early diagnosis can prevent death and reduce the disease. Parasite-based diagnostic testing is used to diagnose malaria. It is transmitted by the female *Anopheles* mosquito. The intensity of transmission depends on the host, parasite, vector (mosquito), and the environment (WHO, 2018).

### Risk Factors and Outcomes:

Half of the world's population is at risk for contracting malaria. Children under 5 years of age, pregnant women, nonimmune immigrants, and travelers are all at a higher risk. There are protective factors, including

acquired immunity due to long term exposure to malaria. People who have sickle cell anemia also are immune to malaria. In 2016, there were 216 million malaria cases and 445,000 deaths. Most of the deaths occurred in children under the age of 5. Sub-Saharan Africa took the heaviest burden and accounted for 90% of the cases and 91% of the deaths (WHO, 2107). Environmental factors heavily influence the reason sub-Saharan Africa has the highest incidence rates in the world.



<https://www.africahunting.com/hunting/big-game-hunting/>  
 The most influential social determinants of health include place, access to healthcare and education. The place, or built environment, greatly affects the population due to lack of infrastructure and proper water systems. There is little access to healthcare in sub-Saharan Africa, which can be seen in the lack of treatment of malaria when contracted. The education of the population impacts the population because it determines how they respond to health issues; many people do not have an understanding of the importance of eradicating malaria.

**Possible Solutions:**

Many interventions have already been attempted due to the long history of Malaria. An newer intervention is indoor residual spraying (IRS). It involves spraying inside walls of homes with residual insecticide. It has been proven to reduce malaria transmission (Coleman et al., 2017). Other interventions include insecticide-treated bed nets, ongoing research on a successful vaccination (CDC 2018), and increased access to in-patient care to reduce incidence (Camponovo, Bever, Galactionova, Smith, Penny, 2017). A strength of IRS is that it affects the entire population, whereas the bed net protects only the few that sleep under it. I think the ongoing interventions are performing well, but the efforts need to be expanded on in order to stop malaria. This could be through broader research on a vaccination for everyone and stronger healthcare and public systems in sub-Saharan Africa to educate the population on the risks of malaria.

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