

Malaria

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Health and Education Reform Order




What is Malaria?

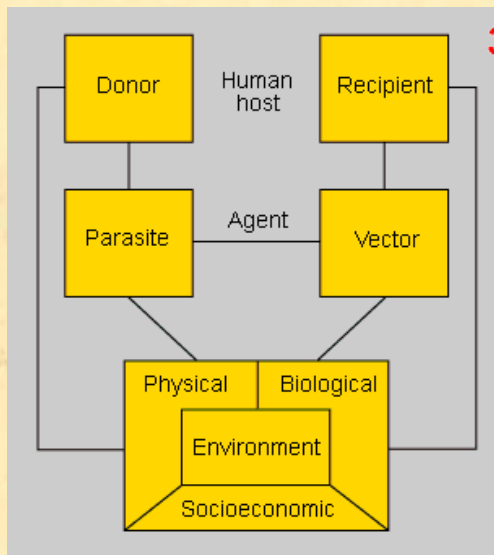
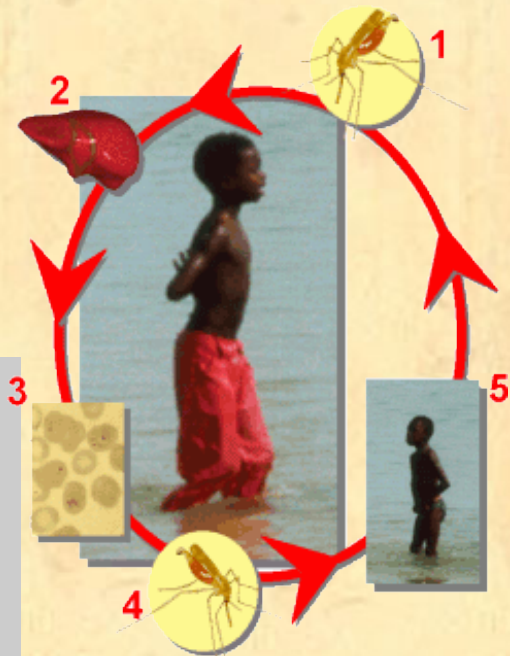
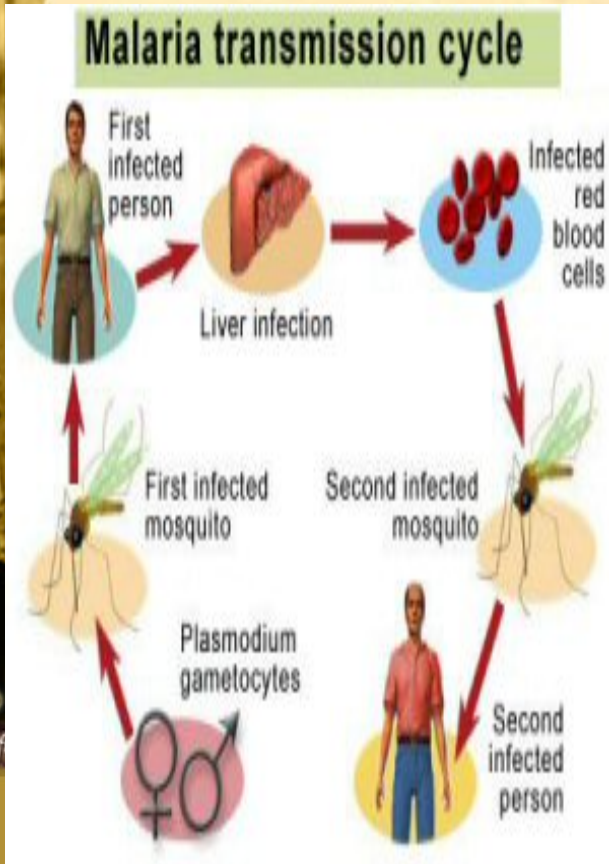
- A vector-borne infectious disease that is widespread in tropical and subtropical regions.
- One of the most common infectious diseases and an enormous public-health problem.
- Disease is caused by protozoan parasites of the genus *Plasmodium*.

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- Most serious forms of the disease are caused by *Plasmodium falciparum* and *Plasmodium vivax*
 - Malarial parasites are transmitted by female *Anopheles* mosquitoes.

What is Malaria?



Transmission of Malaria Parasites

What are the signs and symptoms of malaria?

- malaria should be suspected in the setting of fever (temperature $\geq 37.5^{\circ}\text{C}$) and relevant epidemiologic exposure (residence in or travel to an area where malaria is endemic)
- Febrile paroxysms may occur every other day for *P. vivax*, *P. ovale*, and *P. falciparum* and every third day for *P. malariae*.

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- **Uncomplicated malaria**

- initial symptoms of malaria are nonspecific and may also include tachycardia, tachypnea, chills, malaise, fatigue, diaphoresis (sweating), headache, cough, anorexia, nausea, vomiting, abdominal pain, diarrhea, arthralgias, and myalgias
- Physical findings may include manifestations of anemia and a palpable spleen.
- Mild jaundice may also develop in patients with otherwise uncomplicated falciparum malaria.
- Splenic enlargement is a frequent finding among otherwise healthy individuals in endemic areas



- **Severe malaria**

- Altered consciousness with or without seizures
- Respiratory distress or acute respiratory distress syndrome (ARDS)
- Circulatory collapse
- Metabolic acidosis
- Renal failure, hemoglobinuria ("blackwater fever")
- Hepatic failure
- Coagulopathy with or without disseminated intravascular coagulation
- Severe anemia or massive intravascular hemolysis
- Hypoglycemia



- **Cerebral malaria**

- The severity depends on a combination of factors including parasite virulence, host immune response, and time between onset of symptoms and initiation of therapy.
- impaired consciousness, delirium, and/or seizures;
- focal neurologic signs are unusual.
- The onset may be gradual or sudden following a convulsion.

How to diagnose Malaria?

- The diagnosis of malaria is established in the setting of symptoms consistent with malaria and a positive malaria diagnostic test.
- Clinical tools for parasite-based diagnosis include microscopy (visualization of parasites in stained blood smears) and rapid diagnostic tests (RDTs; which detect antigen or antibody).

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- **Microscopy**

- allows identification of the *Plasmodium* species as well as quantification of parasitemia.
- Disadvantages include it being labor intensive and requiring substantial training and expertise





- **Rapid diagnostic tests**

- increasingly important diagnostic tools in resource-limited endemic settings due to their accuracy and ease of use.
- require no electricity or laboratory infrastructure, give results within 15 to 20 minutes, and can be performed successfully even by health workers with limited training.
- provide a qualitative result but cannot provide quantitative information regarding parasite density.

What is the treatment for Malaria?

- Treatment of malaria involves supportive measures as well as specific antimalarial drugs like:
 - Quinine
 - Chloroquine
 - Cotrifazid
 - Primaquine
 - Doxycycline
 - Mefloquine
 - Hydroxychloroquine

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- In the Philippines,
 - The Artemether-Lumefantrin (AL) combination will be the first line medicine in the treatment of confirmed uncomplicated and severe *Plasmodium falciparum* malaria
 - If AL is not available, whether the patient is conscious or unconscious, and in case of treatment failure, quinine in combination with either tetracycline or doxycycline or clindamycin will be the second line treatment.

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What are the preventive measures of Malaria?

- Strategies to disrupt malaria transmission include effective deployment of antimalarial drugs, personal mosquito protection, mosquito vector control, and research (including vaccine development)

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- Methods used to prevent the spread of the disease, or to protect individuals in areas where malaria is endemic, include:
 - Prophylactic (preventive) drugs against malaria
 - Mosquito eradication
 - Prevention of mosquito bites