Iron supplementation in malaria endemic areas

Key messages for developing training materials for health workers implementing micronutrient powders (MNP) in malaria endemic areas

Acknowledgements

This presentation was developed by Julie Gutman, medical epidemiologist, Malaria Branch, Center for Global Health, Centers for Disease Control and Prevention (CDC) with input from Katie Tripp, Nutrition Branch, CDC; Stanley Zlotkin and Claudia Schauer, The Hospital for Sick Children, Toronto; and Aashima Garg, UNICEF. The presentation was finalized March, 2018.

It is intended for countries to use as a source of information in developing local training materials for community health workers who are implementing MNP programs in malaria endemic areas.

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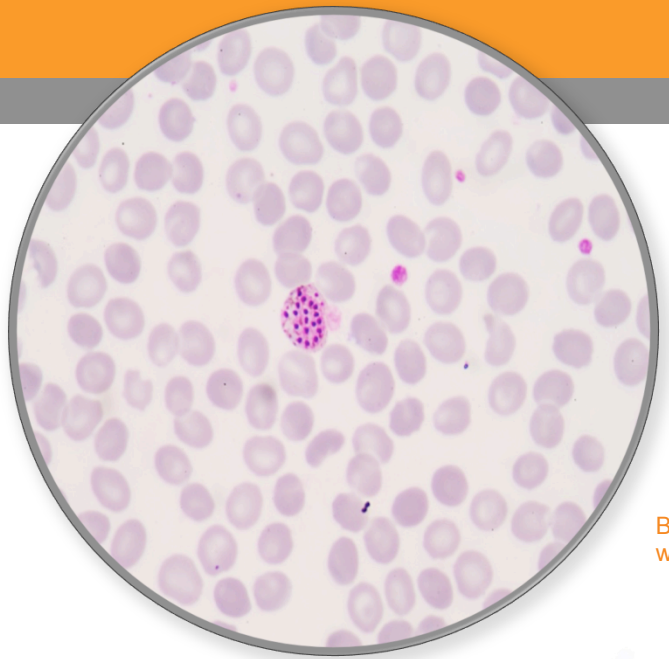
Malaria

- Malaria is a preventable and treatable infection
- It is caused by the Plasmodium parasite which infects the red blood cells
- Humans are infected by the bite of the Anopheles mosquito
- Malaria presents with fever, headaches, general weakness
- More serious symptoms like convulsions can also occur



Blood film with Malaria

Mosquito

Anemia

- Childhood anemia is a major public health problem in malaria endemic regions
- Anemia has many causes—malaria and iron deficiency are both major contributing factors
- Malaria can cause anemia both through destruction of red blood cells as well as a result of inflammation
- Children whose diets do not provide enough iron risk development of iron-deficiency anemia
- Iron deficiency anemia increases the risk of mortality, morbidity, and adversely affects cognitive development
- Micronutrient powders (MNP) can be added to complementary food to ensure an adequate iron intake

Control of Malaria

Malaria control is achieved through:

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- Reducing the risk of mosquito bites
  - Insecticide treated nets
  - Indoor residual spraying of insecticide onto house walls

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- Promptly identifying and treating sick people
  - Malaria case management (diagnosis and treatment)

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- Chemoprophylaxis in certain high risk groups
  - Intermittent preventive treatment in infants
  - Seasonal malaria chemoprophylaxis
  - Intermittent preventive treatment in pregnancy

Prevention of Malaria

- The mosquitos which transmit malaria bite mostly in the evening and night hours
- Sleeping under an insecticide treated bed net provides protection against mosquito bites
- Insecticide applied to the walls of the house (indoor residual spraying, or IRS) also reduces the risk of being bitten
- Wearing clothes with long sleeves and long pants also helps prevent mosquito bites
- There is limited evidence on the benefits of coils and personal sprays; these probably offer some protection but due to the need for repeated application are insufficient

Diagnosis of Malaria

- Malaria can be diagnosed by doing a rapid diagnostic test or looking at the person's blood under a microscope
- Ideally, a test should always be performed before giving treatment
- If testing is not available, treatment should not be withheld, but should be given on the basis of clinical diagnosis

Treatment of Malaria

Malaria can be treated with a number of different medicines, including:

- Artemether-Lumefantrine (Coartem)
- Artesunate-Amodiaquine
- Dihydroaremisinin-piperaquine (Artekin, Eurartesim)
- Artesunate-Sulfadoxine-Pyrimethamine

Severe disease is treated with an injection of artesunate

- If injectable artesunate is not available, treatment intravenous quinine should be given

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Iron Supplementation in Malaria Endemic Areas

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- Taking iron does not make a child more likely to be infected with malaria
- However, children taking iron may get sicker than children not taking iron:
  - IF they become infected and;
  - IF they do not receive treatment promptly
- Iron supplementation is important in treating anemia
  - Providing iron in the context of malaria control will have a greater impact on anemia than malaria control alone
- Therefore, iron-containing MNP must always be provided in the context of an active malaria control program

Key Health Messages

MNP program beneficiaries should be told:

- Malaria is a preventable and treatable illness which people can get from a mosquito bite
- Malaria causes fever
- All children, including those receiving MNP, should sleep under a bed net every night
- Children with a fever should be tested for malaria without delay
- Children who test positive should be treated with the first line antimalarial

Coordination of efforts between malaria control and nutrition programs providing MNP can help to ensure improved health outcomes for children