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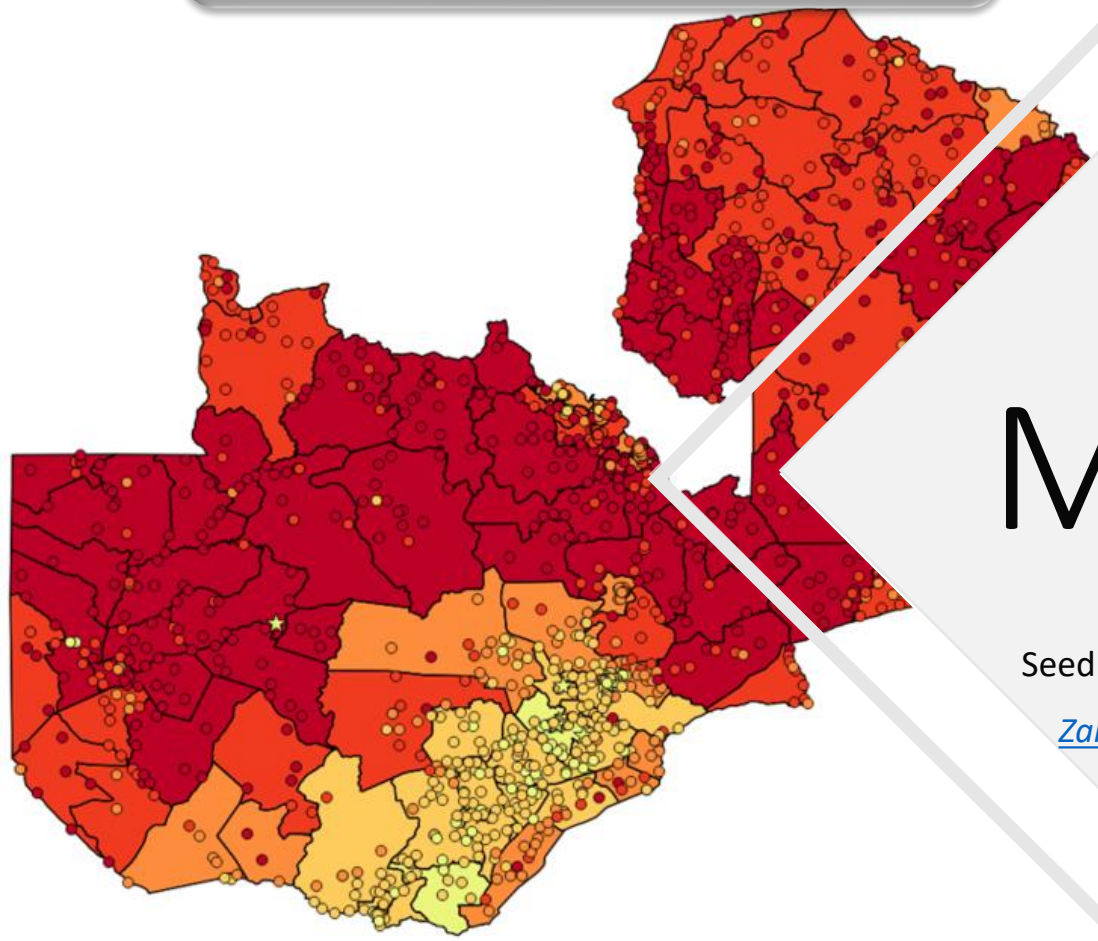


Malaria

Seed Educator Immersion Training

Zambia Guidelines for Malaria

Quick reference


Background
Diagnosis
Prevention
Uncomplicated treatment
Signs and symptoms
Severe malaria

Quick reference

- Chemoprophylaxis
- Diagnosis
- Uncomplicated treatment
- Severe treatment

Background

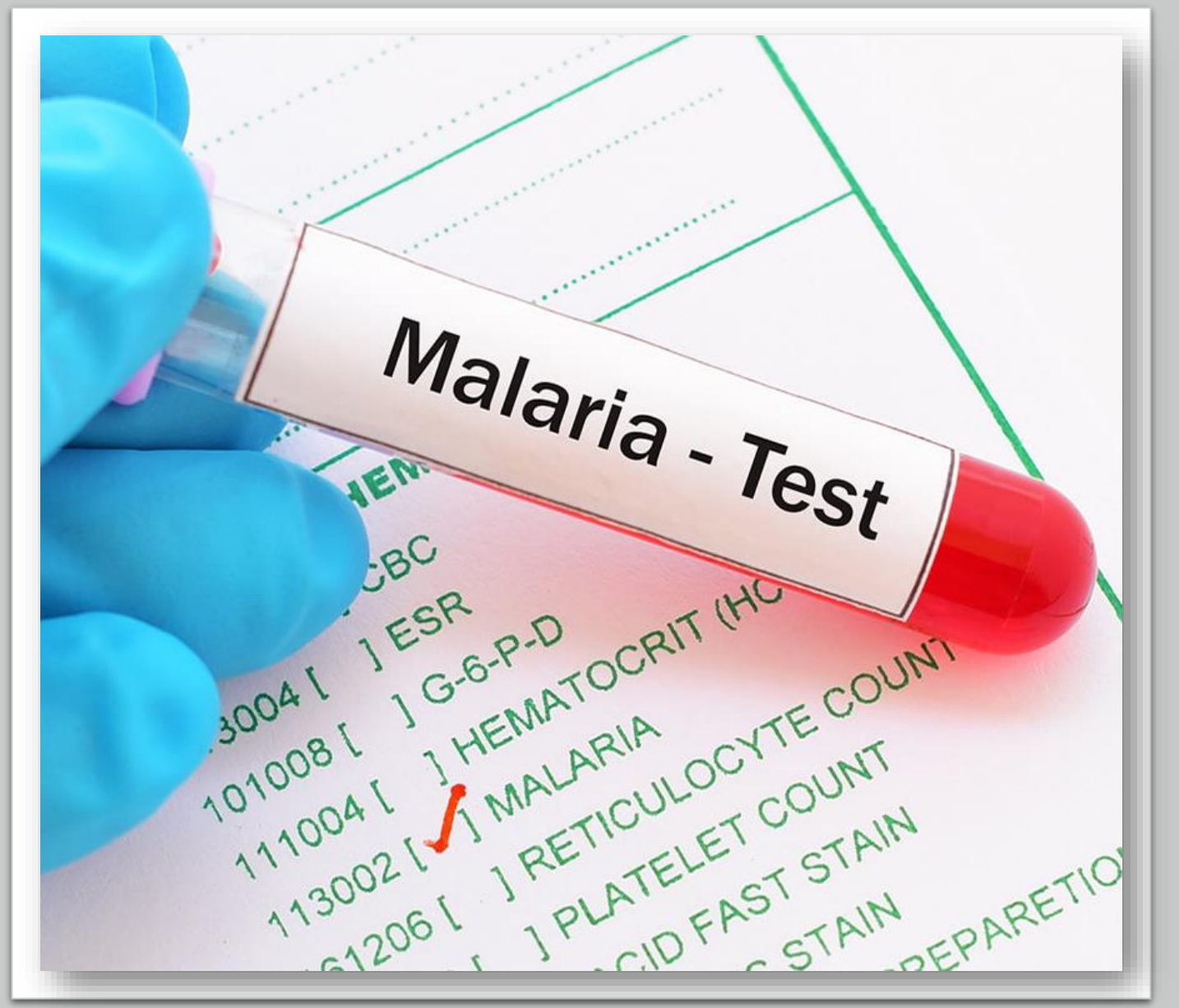
- What causes malaria?
- How does it spread?
- What is the disease burden of malaria?
- Who is at low risk of symptomatic disease?
- How accessible is malaria treatment in Zambia?

Prevention

- What are preventative measures an individual can implement?
- What are preventative measures a household can implement?
- What are preventative measures populations can implement?

Signs and symptoms

What are the signs and symptoms of malaria?



Diagnosis

- What is the preferred method for diagnosing malaria?
- What are the advantages and disadvantages of each testing method?

Uncomplicated treatment

- What is the first line treatment for uncomplicated malaria?
- How is it given?
- What do you do if the patient vomits?
- When is follow up indicated?

Severe malaria

- What is the definition of severe malaria?
- What are the minimum investigations that should be ordered?
- What is the treatment?

Background

(UTD, 1)

The parasite causing malaria causes 3 billion infections and 400,000 deaths per year

- Mostly children < 5yo
- Zambia 6 millions cases, 2,000 deaths

Vector is the anopheles spp. mosquito

P. Falciparum is most common in Africa

- 98% of cases in Zambia
- Other forms: vivax, malariae, ovale

Long term residents living in high transmission areas are typically asymptomatic

Malaria diagnosis and treatment has universal coverage in Zambia for anyone who requires it

Prevention *(UTD)*

Individual

- Chemoprophylaxis
  - Seasonal
  - High risk: sickle cell, splenectomy, immune suppressed, visitors from low endemic areas
- Intermittent preventive treatment
- Systemic insecticide
- Repellent with DEET
  - Not very effective in Africa
- Vaccines

Household

- Long longstanding insecticide treated nets (LLINs)
- Indoor residual spray (IRS) once or twice a year

Population

- Mass drug administration in low transmission areas
- Larva control

Chemoprophylaxis | *(39, 40, 55-58)*

Sickle cell:

deltaprim pyrimethamine 12.5mg and dapsone 100mg weekly for adults

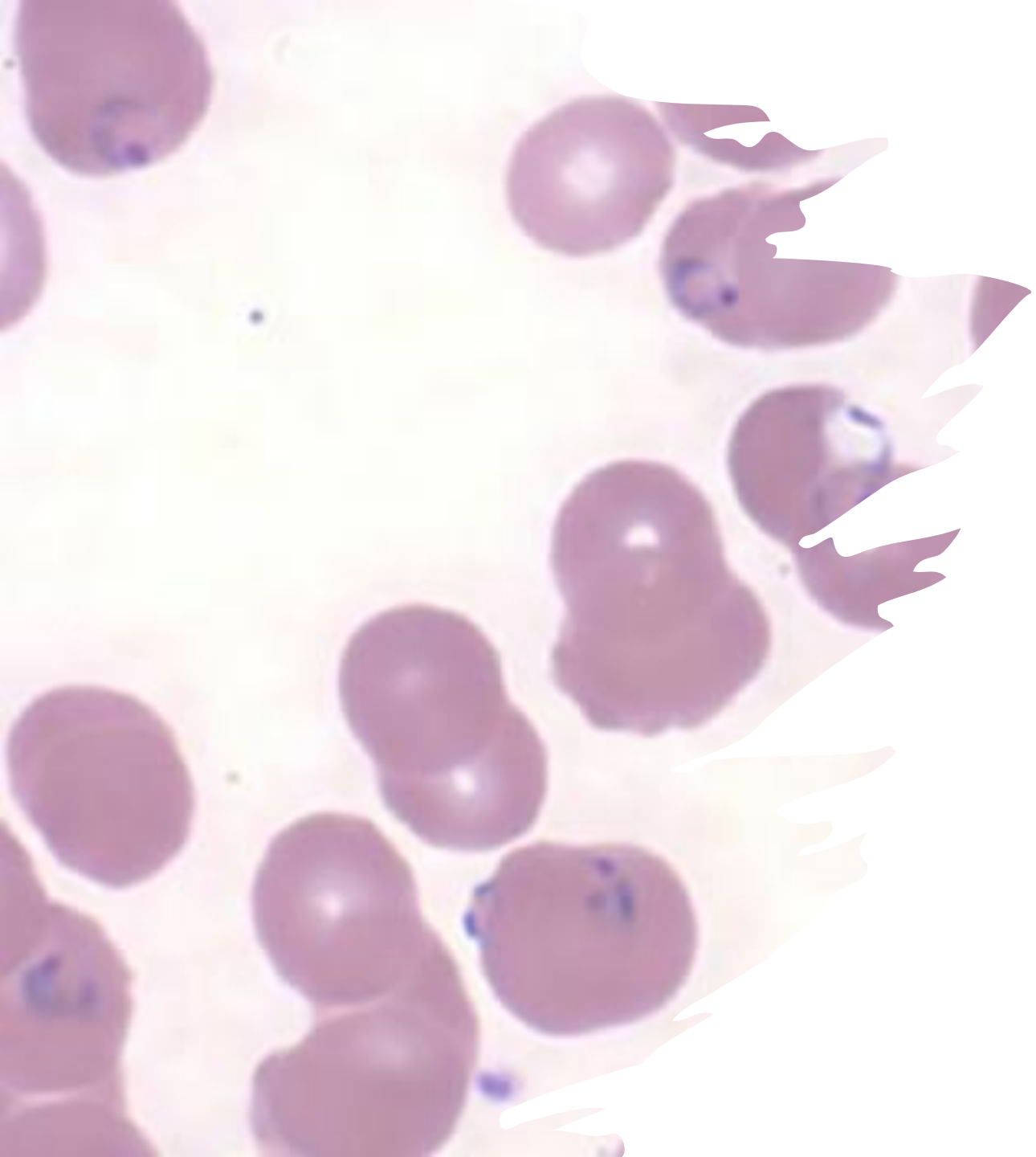
- Children 5-10yo ½ tab weekly
- Children < 5yo ¼ tab weekly

Visitors:

- **Mefloquine** 250mg: weekly, start 2 weeks prior to arrival, continue 2 weeks after departure
  - 10-19kg ¼ tab, 20-30kg ½ tab, 31-45kg ¾ tab
- **Malarone** (atovaquone 250mg, proguanil 100mg): daily, start 1-2 days prior to arrival, continue 7 days after departure
  - Pediatric (62.5/25mg) 11 - 20kg 1 tab, 21 - 20kg 2 tabs, 31 – 40kg 3 tabs
- **Doxycycline** 100mg: daily, start prior to arrival and continue 4 weeks after departure
  - ≥ 8yo, 2mg/kg (max dose 100mg)

Signs and symptoms

- Fever
- Rigors
- Chills
- Headache
- Myalgia
- Arthralgia
- Anorexia
- Nausea
- Vomiting



Diagnosis

(Pg 4,5)

Rapid diagnostic test (RDT)

- Point of care test that detects circulating parasite antigen
- Different RDTs detect different forms of plasmodium
  - Zambia government RDT detects ONLY p. falciparum
- May remain positive for 4 weeks after successful treatment and parasite clearance

Microscopy

- Thin and thick smear is gold standard
- Can quantify parasite load, distinguish different species, monitor response

Treatment

(Pg 6, 8, 10, 12)

Uncomplicated

- Treat with Artemisinin-based combination therapy (ACT)
- Alternative is Quinine based
  - 10mg/kg every 8 hours to complete a 7-day course
- First dose should be given under observation
- Repeat the dose if vomiting occurs within 30 minutes
- Follow up if situation deteriorates or these is no improvement after 48 hours
- Always investigate for concurrent illnesses

Artemisinin-based Combination Therapy

Body weight (kg)	Artemether-lumefantrine (AL) dose Twice daily for 3 days, first two doses given 8 hours apart
< 15	20 + 120
15 – 25	40 + 240
25 – 35	60 + 360
≥ 35	80 + 480

Body weight (kg)	Dihydroartemisin-Piparaquine (DHA-PQ) daily for 3 days
5 - 8	20 + 160
8 - 11	30 + 240
11 - 17	40 + 320
17 - 25	60 + 480
25 - 36	80 + 640
36 - 60	120 + 960
60 - 80	160 + 1280
>80	200 + 1600

Severe Malaria

(Pg 19 – 22)

Severe P. falciparum malaria occurs when there is symptomatic malaria plus one or more of the following manifestations

Requires management in a special observation unit or ICU

Investigations: Repeat blood slide every 24 hours until there is zero parasitemia

- glucose, hemoglobin, urea, creatinine, electrolytes

Start treatment for malaria and any complications

Manifestations			
Hyperparasitemia >5% in non-immune travelers >10% for all patients	**Prostration**	**Multiple convulsions**	**Acidosis**
Jaundice Bili >50umol/L with parasite >2.5%	**Renal impairment**	**Shock**	**Hypoglycemia**
Severe anemia Children <5 Adults <7 With >10,000 parasites/uL	**Impaired consciousness**	**Pulmonary edema**	**Significant bleeding**

Severe Malaria Treatment

(Pg 23-26)

Injectable artesunate

- **Parenteral treatment for a minimum of 24 hours**
  - Reconstitute with 1mL of sodium bicarbonate
  - Give within 1 hour of preparation
  - <20kg are given 3mg/kg
  - >20kg are given 2.4mg/kg
- **Transition to oral when able to tolerate PO**
  - Complete full course of oral ACT
- **IV route injected at a rate of 3 – 4mL per minute**
  - Dilute with 5mL of NS or 5% dextrose
- **IM route max volume at each site is 5mL**
  - Dilute with 2mL of NS or 5% dextrose
  - Preferred site is upper, outer quarter of the anterior thigh

Second line Quinine

Severe Malaria Treatment Quinine

(Pg 13, 26-28)

IV quinine

- **Loading dose of 20mg/kg (max 1200mg)**
  - Diluted in 10mL/kg of 5% - 10% dextrose IV over 4 hours
- **After 8 hours give maintenance dose at 10mg/kg (max 600mg) over 4 hours**
  - Repeat every 8 hours until the patient can swallow
- **Oral quinine at 10mg/kg every 8 hours to complete a 7-day course**

IM quinine

- **Loading dose of 10mg/kg (max 1200mg)**
  - Diluted in saline or water with a concentration of 60-100mg salt/mL)
- **Repeat after 4 hours, then every 8 hours until the patient can swallow**
  - Preferably in the anterior thigh with a max of 3mL per site
- **Oral quinine at 10mg/kg every 8 hours to complete a 7-day course**