

Malaria

Diagnosis Calculation

Parasitology Dept.

FK USU

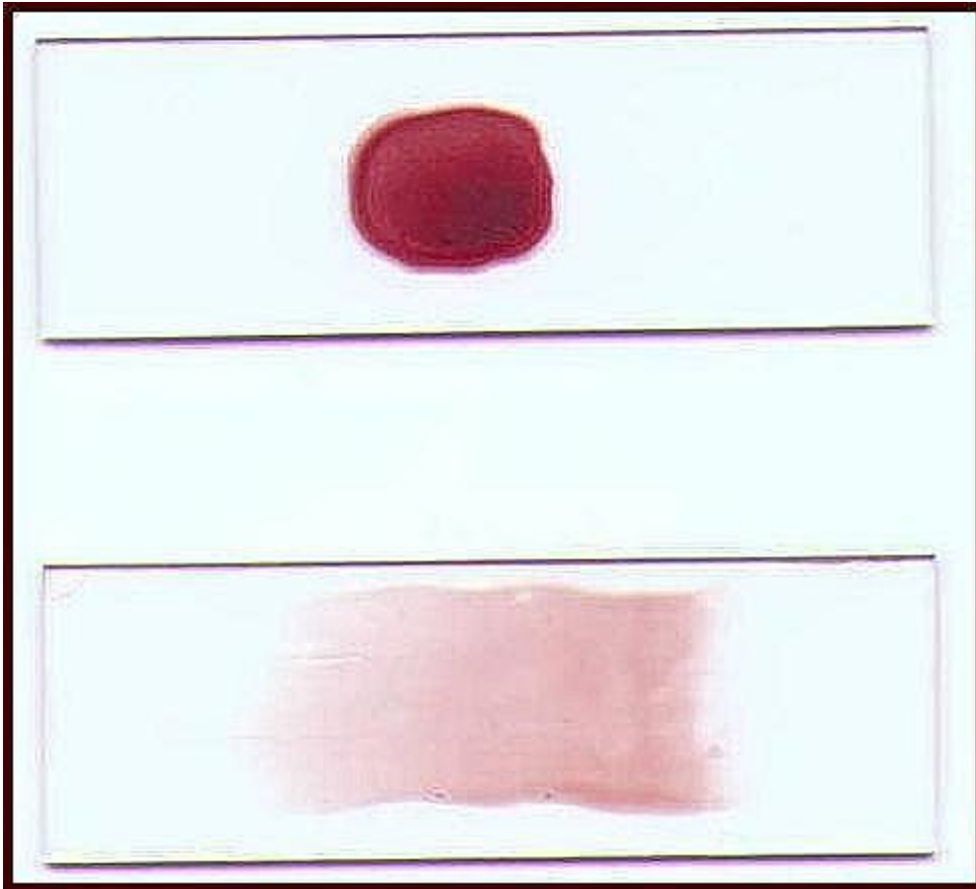
MALARIA DIAGNOSIS

Laboratory Dx

- | | |
|---|---|
| <ul style="list-style-type: none">• Blood film (microscopic)<ul style="list-style-type: none">– Gold standard– Sensitivity 40 parasites/μl• PCR<ul style="list-style-type: none">– Sensitivity up to 4 parasites/μl | <ul style="list-style-type: none">• RDT (Rapid Diagnostic Test)<ul style="list-style-type: none">– Dipstick– Antigen detection:<ul style="list-style-type: none">• HRP-2 detection• pLDH Ag• Pan-malaria Ag– Sensitivity \pm100 parasites/μl |
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MALARIA DIAGNOSIS

Microscopic



Thick blood film:

10 μ l blood (3 drops)

Blood smear:

2 μ l blood (1 drop)

MALARIA DIAGNOSIS

Calculation

1. Semi quantitative:

- (-) no parasites in 100 fields
- (+) 1-10 parasites in 100 fields
- (++) 11-100 parasites in 100 fields
- (+++)
(++++)
- (++++) >10 parasites in 1 field

MALARIA DIAGNOSIS

Calculation

2. Based on Leucocytes Count

- Thick blood film
- Number of parasites in ≥ 200 leucocytes
- $(n/200) \times 8,000$ parasites per μl blood
- Hyperparasitemia:
parasites $\geq 250,000$ parasites per μl blood

MALARIA DIAGNOSIS

Calculation

3. Based on Erythrocytes Count

- Thin blood smear
- Number of parasites in ≥ 1000 leucocytes
- $(n/1,000) \times 450,000$ parasites per μl blood
- Hyperparasitemia: p

parasites $\geq 5\%$ or 50 parasites in 1,000 erythrocytes.

MALARIA DIAGNOSIS

Calculation

- Calculation and identification can both be derived from thick and thin blood film
- Asexual stages (rings, trophozoites, and schizonts) counted together
- Sexual stage (gametocytes) counted separately

MALARIA DIAGNOSIS

Report

Example:

P. falciparum found in thick film with parasite count as following:

- Number of asexual stages: 120
- Number of sexual stage: 4

Therefore:

Asexual stages density: $(120/200) 8,000 = 4,800$

Sexual stage density: $(4/200) 8,000 = 160$

How to report:

P. falciparum 4,800 / 160 per μl blood

MALARIA THERAPY

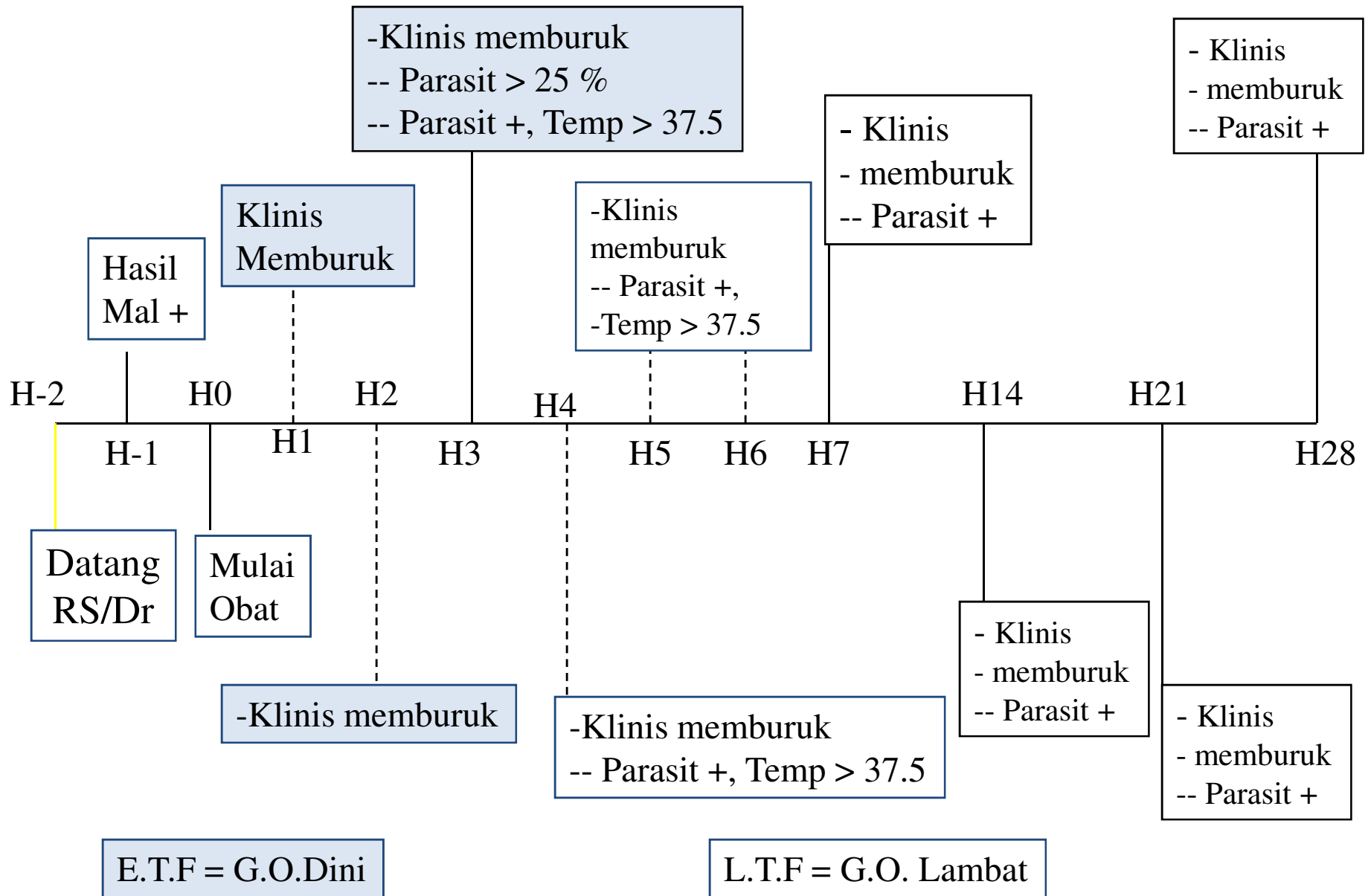
Efficacy

Efficacy Monitoring:

- Monitoring schedule: D0, D1, D2, D3, D7, D14, D21, and D28
- Low-moderate endemic areas: follow up to 7 days
- High endemic areas: follow up to 28 days

Classification (WHO 2003):

- [Adequate clinical response](#) (ACPR/RPKM)
- [Early treatment failure](#) (ETF/KPD)
- [Late treatment failure](#) (LTF/KPK)
- [Drop Out](#) (DO)



MONITORING RESPONS DI POLI/ DOKTER PRAKTEK