TREATMENT OF UNCOMPLICATED MALARIA AMONG WOMEN OF REPRODUCTIVE AGE

MALARIA CONFIRMED BY DIAGNOSTIC TEST

ASSESS FOR PREGNANCY

Ask if woman is or may be pregnant (if uncertain or confirmation not available treat as though pregnant)

IF NOT PREGNANT

Assess for any allergies to antimalarials, provide 1st line ACT recommended by national guidelines

IF PREGNANT

Ask about date of last menstrual period, presence of fetal movement, ANC visits to date

Reproductive age woman presenting with fever, testing negative for malaria: **Do NOT treat for malaria** Assess for other causes of fever and treat accordingly

If patient is a woman of reproductive age, assess for pregnancy

If pregnant, refer to ANC; provide and counsel about iron/folic acid, LLIN, IPTp-SP if appropriate; counsel on nutrition and danger signs*

Give **first-line treatment** per national guidelines, **according to trimester**, and paracetamol if fever ≥38°C axillary; assess and treat for labor; counsel on danger signs*, follow-up visit, LLINs, iron/folic acid, nutrition

NOTE: Treatment is the same regardless of HIV status except for women on zidovudine or efavirenz who should not take artesunate and amodiaquine-containing ACT regimens (WHO, 2015: Guidelines for treatment of malaria, 3rd edition page 48)

CONDITION IMPROVES:

Counsel on danger signs*, return to ANC, IPTp-SP, LLINs, iron/folic acid, nutrition

NO IMPROVEMENT OR CONDITION WORSENS:

- Rule out noncompliance, re-treat and counsel about need to take drug as instructed
- Rule out vomiting of drug; if drug not tolerated refer to higher level of care
- Refer for confirmation of diagnosis by microscopy and treatment
- If symptoms of severe malaria are present, give pre-referral treatment and refer

For detailed information go to: http://whqlibdoc.who.int/publications/2011/9789241502092_eng.pdf, page 28

*Impaired consciousness, prostration, multiple convulsions, jaundice, respiratory distress, shock

Refer to page 2 of job aid for drug treatment regimens.

ABBREVIATIONS

ACT	artemisinin-based combination therapy
ANC	antenatal care
IPTp-SP	intermittent preventive treatment of malaria in pregnancy using sulfadoxine-pyrimethamine
LLIN	long-lasting insecticide-treated net
RDT	rapid diagnostic test

This job aid is made possible by the President's Malaria Initiative through the Maternal and Child Health Integrated Program and the Maternal and Child Survival Program and does not reflect the views of USAID or the United States government.

SIGNS AND SYMPTOMS OF MALARIA

<table>
<tr><th rowspan="2">UNCOMPLICATED MALARIA

One or more of the following clinical features in the presence of malaria parasitaemia or positive RDT:

Axillary temperature ≥37.5°C, and/or history of recent fever, and/or presence of anemia</th><th colspan="2">SEVERE MALARIA: One or more of the following clinical features or laboratory findings in the presence of malaria parasitemia or positive RDT:</th></tr>
<tr><td>Clinical Features:
• Impaired consciousness/coma
• Prostration/generalized weakness
• Multiple convulsions (>2 within 24 hours)
• Deep breathing/respiratory distress
• Acute pulmonary edema
• Circulatory collapse/shock (systolic BP <80 mm Hg)
• Acute kidney injury
• Clinical jaundice + evidence of other vital organ dysfunction
• Significant bleeding</td><td>Laboratory Findings:
• Hypoglycaemia (blood glucose <2.2 mmol/l or <40 mg/dl)
• Metabolic acidosis (plasma bicarbonate <15 mmol/l); hyperlactatemia (lactate >5 mmol/l)
• Severe normocytic anemia (Hb < 7 g/dl, packed cell volume <20%)
• Hemoglobinuria
• Hyperparasitemia*
• Renal impairment (serum creatinine >265 μmol/l)
• Pulmonary edema (radiologic)
• Plasma or serum bilirubin >50 μmol/L (3 mg/dL) with a parasite count >100,000/μL)</td></tr>
</table>

Please note: uterine cramping or contractions can occur in pregnant women with both severe and uncomplicated malaria, and should be managed per RH guidelines.

*Hyperparasitemia is defined as parasite densities >100,000/microliter (or >2.5% of RBC parasitized) in low transmission areas or 250,000/ microliter (or >5% of RBC parasitized) in areas of high stable malaria transmission. (Management of severe malaria: a practical handbook, 3rd edition. WHO 2012)

TREATMENT FOR UNCOMPLICATED MALARIA[a]

<table>
<tr><th></th><th>1ST TRIMESTER</th><th>2ND AND 3RD TRIMESTERS / NON-PREGNANT ADULTS[a,c]</th></tr>
<tr><td>FIRST-LINE DRUGS[a]</td><td>Oral quinine salt 10 mg/kg every 8 hours for 7 days, PLUS, if available, + clindamycin 10 mg/kg orally twice daily for 7 days

ACT is indicated only if this is the only treatment immediately available, or if treatment with 7-day quinine plus clindamycin fails</td><td rowspan="2">• Artemether + lumefantrine, OR
• Artesunate + amodiaquine[d], OR
• Artesunate + mefloquine, OR
• Dihydroartemisinin + piperaquine, OR
• Artesunate + sulfadoxine-pyrimethamine (SP)[e]

Doses of most commonly used ACTs in pregnancy:
Artemether/lumefantrine (Coartem): 20 mg/120 mg, 4 tablets orally every 12 hours for 3 days (to be taken after a fat-containing meal or drink); the first 2 doses should, ideally, be given 8 hours apart OR

Artesunate/amodiaquine (AS/AQ): 100 mg/270 mg, 2 tablets orally daily for 3 days[d]</td></tr>
<tr><td>SECOND-LINE DRUGS[a]</td><td>Artesunate + clindamycin[b] for 7 days OR

ACTs recommended as first-line drugs for 2nd and 3rd trimesters if oral quinine is not available or treatment fails</td></tr>
</table>

Abbreviation: ACT, artemisinin-based combination therapy.

a. Refer to country guidelines for first- and second-line drugs.

b. No blister co-packaged forms of artesunate + clindamycin are available. To ensure high adherence to treatment, artesunate and clindamycin should be administered under observation to pregnant women who have failed other ACTs.

c. WHO, 2015:.Guidelines for the treatment of malaria, 3rd edition, pp. 33-34.

d. Avoid prescribing amodiaquine-containing ACT regimens, if possible, to HIV-infected patients on zidovudine or efavirenz. (WHO, 2015: Guidelines for treatment of malaria, 3rd edition p. 48.)

e. Artesunate + SP is an approved drug but is not a fixed-dose formulation, and likelier to be ineffective in areas of high SP resistance. Avoid prescribing artesunate + SP to HIV-infected patients receiving co-trimoxazle. (WHO, 2015: Guidelines for treatment of malaria, 3rd edition p. 48, p. 54.)

STABILIZATION[a] AND PREREFERRAL TREATMENT FOR SEVERE MALARIA[b]

	ALL TRIMESTERS / NON-PREGNANT ADULTS
FIRST-LINE DRUG	Parenteral artesunate 2.4 mg/kg IV bolus ('push') injection or IM injection as loading dose
SECOND-LINE DRUG	If artesunate is unavailable, intramuscular artemether should be given, and if this is unavailable then parenteral quinine should be started immediately until artesunate is obtained[c]

a. Treat shock: ensure airway; position on side with legs elevated; ensure warmth; start IV infusion; perform relevant laboratory tests; treat convulsions and fever (refer to WHO IMPAC manual Managing Complications in Pregnancy and Childbirth: a guide for midwives and doctors).

b. WHO recommends artesunate as first-line drug to treat severe malaria in all trimesters). A job aid on administering IV artesunate is available at http://www.mmv.org/access/injectable-artesunate-tool-kit.

c. WHO, 2015: Guidelines for treatment of malaria, 3rd edition p. 87.

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