

MALARIA, Self-Presumptive Treatment¹

Drug	Adult dosage	Pediatric dosage
Drug of Choice:	Atovaquone/ proguanil ^{3,4}	4 adult tabs once/d x 3d ² <5kg: not indicated 5-8kg: 2 peds tabs once/d x 3d 9-10kg: 3 peds tabs once/d x 3d 11-20kg: 1 adult tab once/d x 3d 21-30kg: 2 adult tabs once/d x 3d 31-40kg: 3 adult tabs once/d x 3d >40kg: 4 adult tabs once/d x 3d ² 30 mg/kg/d PO in 3 doses x 3 or 7d ⁵
OR	Quinine sulfate plus doxycycline ^{3,6,7}	650 mg PO q8h x 3 or 7d ⁵ 100 mg PO bid x 7d 4 mg/kg/d PO x 3d
OR	Artesunate ^{8*} plus see footnote 9	4 mg/kg/d PO in 2 doses x 7d 4 mg/kg/d PO x 3d

* Availability problems. See table below.

1. A traveler can be given a course of medication for presumptive self-treatment of febrile illness. The drug given for self-treatment should be different from that used for prophylaxis. This approach should be used only in very rare circumstances when a traveler would not be able to get medical care promptly.
2. Although approved for once-daily dosing, Medical Letter consultants usually divide the dose in two to decrease nausea and vomiting.
3. Not FDA-approved for this indication.
4. Atovaquone/proguanil is available as a fixed-dose combination tablet: adult tablets (*Malarone*; 250 mg atovaquone/100 mg proguanil) and pediatric tablets (*Malarone Pediatric*; 62.5 mg atovaquone/25 mg proguanil). To enhance absorption and reduce nausea and vomiting, it should be taken with food or a milky drink. Safety in pregnancy is unknown; outcomes were normal in 24 women treated with the combination in the 2nd and 3rd trimester (R McGready et al, Eur J Clin Pharmacol 2003; 59:545). The drug should not be given to patients with severe renal impairment (creatinine clearance <30mL/min). There have been isolated case reports of resistance in *P. falciparum* in Africa, but Medical Letter consultants do not believe there is a high risk for acquisition of *Malarone*-resistant disease (E Schwartz et al, Clin Infect Dis 2003; 37:450; A Farnert et al, BMJ 2003; 326:628; S Kuhn et al, Am J Trop Med Hyg 2005; 72:407; CT Happi et al, Malaria Journal 2006; 5:82).
5. Available in the US in a 324-mg capsule; 2 capsules suffice for adult dosage. In Southeast Asia, relative resistance to quinine has increased and treatment should be continued for 7d. Quinine should be taken with or after meals to decrease gastrointestinal adverse effects.
6. Use of tetracyclines is contraindicated in pregnancy and in children <8 years old. Tetracycline should be taken 1 hour before or 2 hours after meals and/or dairy products.
7. Doxycycline should be taken with adequate water to avoid esophageal irritation. It can be taken with food to minimize gastrointestinal adverse effects.
8. The artemisinin-derivatives, artemether and artesunate, are both frequently used globally in combination regimens to treat malaria. Both are available in oral, parenteral and rectal formulations, but manufacturing standards are not consistent (HA Karunajeewa et al, JAMA 2007; 297:2381; EA Ashley and NJ White, Curr Opin Infect Dis 2005; 18:531). In the US, only the IV formulation of artesunate is available; it can be obtained through the CDC under an IND for patients with severe disease who do not have timely access, cannot tolerate, or fail to respond to IV quinine (www.cdc.gov/malaria/features/artesunate_now_available.htm). To avoid development of resistance, monotherapy should be avoided (PE Duffy and CH Sibley, Lancet 2005; 366:1908). Artemisinins are contraindicated during the first trimester of pregnancy and should be used with caution during the second and third trimester. Based on the few studies available, they have been relatively safe during pregnancy (S Dellicour et al, Malaria Journal 2007; 6:15).
9. Adults treated with artesunate should also receive oral treatment doses of either atovaquone/proguanil, doxycycline, clindamycin or mefloquine; children should take either atovaquone/proguanil, clindamycin or mefloquine (F Nosten et al, Lancet 2000; 356:297; M van Vugt, Clin Infect Dis 2002; 35:1498; F Smithuis et al, Trans R Soc Trop Med Hyg 2004; 98:182). If artesunate is given IV, oral medication should be started when the patient is able to tolerate it (SEAUQAMAT group, Lancet 2005; 366:717).

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MANUFACTURERS OF DRUGS USED TO TREAT PARASITIC INFECTIONS

albendazole – <i>Albenza</i> (GlaxoSmithKline) – albendazole	† diethylcarbamazine citrate (DEC) – <i>Hetrazan</i>
<i>Alinia</i> (Romark) – nitazoxanide	• <i>Diflucan</i> (Pfizer) – fluconazole
<i>AmBisome</i> (Gilead) – amphotericin B, liposomal amphotericin B – <i>Fungizone</i> (Apothecon), others	§ diloxanide furoate – <i>Furamide</i> (Boots, United Kingdom)
amphotericin B, liposomal – <i>AmBisome</i> (Gilead)	doxycycline – <i>Vibramycin</i> (Pfizer), others
<i>Ancobon</i> (Valeant) – flucytosine	eflornithine (Difluoromethylornithine, DFMO) – <i>Ornidyl</i> (Aventis)
§ <i>Antiminth</i> (Pfizer) – pyrantel pamoate	§ <i>Egaten</i> (Novartis) – triclabendazole
• <i>Aralen</i> (Sanofi) – chloroquine HCl and chloroquine phosphate	Elimité (Allergan) – permethrin
§ artemether – <i>Artemam</i> (Arenco, Belgium)	<i>Ergamisol</i> (Janssen) – levamisole
§ artemether/lumefantrine – <i>Coartem</i> , <i>Riamet</i> (Novartis)	<i>Eurax</i> (Westwood-Squibb) – crotamiton
§ <i>Artenam</i> (Arenco, Belgium) – artemether	• <i>Flagyl</i> (Pfizer) – metronidazole
§ artesunate – (Guilin No. 1 Factory, People's Republic of China)	§ <i>Flisint</i> (Sanofi-Aventis, France) – fumagillin
atovaquone – <i>Mepron</i> (GlaxoSmithKline)	fluconazole – <i>Diflucan</i> (Pfizer), others
atovaquone/proguanil – <i>Malarone</i> (GlaxoSmithKline)	flucytosine – <i>Ancobon</i> (Valeant)
azithromycin – <i>Zithromax</i> (Pfizer), others	§ fumagillin – <i>Flisint</i> (Sanofi-Aventis, France)
• <i>Bactrim</i> (Roche) – TMP/Sulfa	• <i>Fungizone</i> (Apothecon) – amphotericin
§ benznidazole – <i>Rochagan</i> (Brazil)	§ <i>Furamide</i> (Boots, United Kingdom) – diloxanide furoate
• <i>Biaxin</i> (Abbott) – clarithromycin	§ furazolidone – <i>Furozone</i> (Roberts)
§ <i>Bitricide</i> (Bayer) – praziquantel	§ <i>Furozone</i> (Roberts) – furazolidone
† bithionol – <i>Bitin</i> (Tanabe, Japan)	† <i>Germanin</i> (Bayer, Germany) – suramin sodium
† <i>Bitin</i> (Tanabe, Japan) – bithionol	§ <i>Glucantime</i> (Aventis, France) – meglumine antimonate
§ <i>Brolene</i> (Aventis, Canada) – propamidine isethionate	† <i>Hetrazan</i> – diethylcarbamazine citrate (DEC)
chloroquine HCl and chloroquine phosphate – <i>Aralen</i> (Sanofi), others	<i>Humatin</i> (Monarch) – paromomycin
clarithromycin – <i>Biaxin</i> (Abbott), others	§ <i>Impavido</i> (Zentaris, Germany) – miltefosine
• <i>Cleocin</i> (Pfizer) – clindamycin	iodoquinol – <i>Yodoxin</i> (Glenwood), others
clindamycin – <i>Cleocin</i> (Pfizer), others	itraconazole – <i>Sporanox</i> (Janssen-Ortho), others
<i>Coartem</i> (Novartis) – artemether/lumefantrine	ivermectin – <i>Stromectol</i> (Merck)
crotamiton – <i>Eurax</i> (Westwood-Squibb)	ketoconazole – <i>Nizoral</i> (Janssen), others
dapsone – (Jacobus)	† <i>Lampit</i> (Bayer, Germany) – nifurtimox
§ <i>Daraprim</i> (GlaxoSmithKline) – pyrimethamine USP	<i>Lariam</i> (Roche) – mefloquine
	§ <i>Leshcutan</i> (Teva, Israel) – topical paromomycin
	levamisole – <i>Ergamisol</i> (Janssen)
	lumefantrine/artemether – <i>Coartem</i> , <i>Riamet</i> (Novartis)

(continued)

<i>Malarone</i> (GlaxoSmithKline) – atovaquone/proguanil	proguanil/atovaquone – <i>Malarone</i> (GlaxoSmithKline)
malathion – <i>Ovide</i> (Medicis)	
mebendazole – <i>Vermox</i> (McNeil), others	
mefloquine – <i>Lariam</i> (Roche)	
§ meglumine antimonate – <i>Glucantime</i> (Aventis, France)	§ propamidine isethionate – <i>Brolene</i> (Aventis, Canada)
† melarsoprol – <i>Mel-B</i>	§ pyrantel pamoate – <i>Antiminth</i> (Pfizer)
† <i>Mel-B</i> – melarsoprol	pyrethrins and piperonyl butoxide – <i>RID</i> (Pfizer), others
<i>Mepron</i> (GlaxoSmithKline) – atovaquone	§ pyrimethamine USP – <i>Daraprim</i> (GlaxoSmithKline)
metronidazole – <i>Flagyl</i> (Pfizer), others	<i>Qualaquin</i> – quinine sulfate (Mutual Pharmaceutical Co/AR Scientific)
§ miconazole – <i>Monistat i.v.</i>	quinacrine
§ miltefosine – <i>Impavido</i> (Zentaris, Germany)	* quinidine gluconate (Eli Lilly)
§ <i>Monistat i.v.</i> – miconazole	§ quinine dihydrochloride
<i>NebuPent</i> (Fujisawa) – pentamidine isethionate	quinine sulfate – <i>Qualaquin</i> (Mutual Pharmaceutical Co/AR Scientific)
niclosamide – <i>Yomesan</i> (Bayer, Germany)	
† nifurtimox – <i>Lampit</i> (Bayer, Germany)	• <i>Riamet</i> (Novartis) – artemether/lumefantrine
nitazoxanide – <i>Alinia</i> (Romark)	• <i>RID</i> (Pfizer) – pyrethrins and piperonyl butoxide
<i>Nix</i> (GlaxoSmithKline) – permethrin	• <i>Rifadin</i> (Aventis) – rifampin
• <i>Nizoral</i> (Janssen) – ketoconazole	rifampin – <i>Rifadin</i> (Aventis), others
§ ornidazole – <i>Tiberal</i> (Roche, France)	§ <i>Rochagan</i> (Brazil) – benznidazole
<i>Ornidyl</i> (Aventis) – eflornithine (Difluoromethylornithine, DFMO)	* <i>Rovamycin</i> (Aventis) – spiramycin
<i>Ovide</i> (Medicis) – malathion	† sodium stibogluconate – <i>Pentostam</i> (GlaxoSmithKline, United Kingdom)
§ oxamniquine – <i>Vansil</i> (Pfizer)	• <i>Sporanox</i> (Janssen-Ortho) – itraconazole
§ <i>Paludrine</i> (AstraZeneca, United Kingdom) – proguanil	<i>Stromectol</i> (Merck) – ivermectin
paromomycin – <i>Humatin</i> (Monarch); <i>Leshcutan</i> (Teva, Israel; topical formulation not available in US)	sulfadiazine – (Eon)
<i>Pentam 300</i> (Fujisawa) – pentamidine isethionate	† suramin sodium – <i>Germanin</i> (Bayer, Germany)
pentamidine isethionate – <i>Pentam 300</i> (Fujisawa), <i>NebuPent</i> (Fujisawa)	§ <i>Tiberal</i> (Roche, France) – ornidazole
† <i>Pentostam</i> (GlaxoSmithKline, United Kingdom) – sodium stibogluconate	<i>Tindamax</i> (Mission) – tinidazole
permethrin – <i>Nix</i> (GlaxoSmithKline), <i>Elimite</i> (Allergan)	tinidazole – <i>Tindamax</i> (Mission)
§ praziquantel – <i>Biltricide</i> (Bayer)	TMP/Sulfa – <i>Bactrim</i> (Roche), others
primaquine phosphate USP	§ triclabendazole – <i>Egaten</i> (Novartis)
§ proguanil – <i>Paludrine</i> (AstraZeneca, United Kingdom)	§ <i>Vansil</i> (Pfizer) – oxamniquine

* Available in the US only from the manufacturer.

§ Not available commercially. It may be obtained through compounding pharmacies such as Panorama Compounding Pharmacy, 6744 Balboa Blvd, Van Nuys, CA 91406 (800-247-9767) or Medical Center Pharmacy, New Haven, CT (203-688-6816). Other compounding pharmacies may be found through the National Association of Compounding Pharmacies (800-687-7850) or the Professional Compounding Centers of America (800-331-2498, www.pccarx.com).

† Available from the CDC Drug Service, Centers for Disease Control and Prevention, Atlanta, Georgia 30333; 404-639-3670 (evenings, weekends, or holidays: 770-488-7100).

• Also available generically.

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