Antimalarial Therapy

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Related Coverage Resources

INSTRUCTIONS FOR USE

The following Coverage Policy applies to health benefit plans administered by Cigna Companies. Certain Cigna Companies and/or lines of business only provide utilization review services to clients and do not make coverage determinations. References to standard benefit plan language and coverage determinations do not apply to those clients. Coverage Policies are intended to provide guidance in interpreting certain standard benefit plans administered by Cigna Companies. Please note, the terms of a customer’s particular benefit plan document [Group Service Agreement, Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer’s benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer’s benefit plan document always supersedes the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. In certain markets, delegated vendor guidelines may be used to support medical necessity and other coverage determinations.

Medical Necessity Criteria

Antimalarial Therapy includes the following products:

- **Arakoda™** (tafenoquine)
- **Coartem®** (quinine sulfate)
- **Krintafel™** (tafenoquine)
- **Malarone™** (atovaquone/proguanil)
- **Plaquenil®** (hydroxychloroquine sulfate)
- **Qualaquin®** (quinine sulfate)

For Employer Group Standard, Performance, Value, Advantage, and Legacy Drug List Plans: Coverage for Antimalarial Therapy varies across plans. Refer to the customer’s benefit plan document for coverage details. Where coverage requires the use of generic products, the following conditions of coverage apply.

1. **Arakoda (tafenoquine) is considered medically necessary when the following criterion is met:**
   - Documented contraindication per FDA label, not a candidate, or intolerance to FIVE of the following: atovaquone/proguanil, doxycycline, hydroxychloroquine sulfate, mefloquine, quinine sulfate, and sulfadoxine/pyrimethamine
II. Coartem (quinine sulfate) is considered medically necessary when the following criterion is met:
   - Documented contraindication per FDA label, not a candidate, or intolerance to FIVE of the following:
     atovaquone/proguanil, doxycycline, hydroxychloroquine sulfate, mefloquine, quinine sulfate, and sulfadoxine/pyrimethamine

III. Krintafel (tafenoquine) is considered medically necessary when the following criterion is met:
   - Documented contraindication per FDA label or intolerance to primaquine

   *Treatment authorization is one time for a single course of therapy (2 tablets)*

IV. Malarone (atovaquone/proguanil) is considered medically necessary when the following criterion is met:
   - Documented intolerance to one generic formulation of Malarone tablet

V. Plaquenil (hydroxychloroquine sulfate) is considered medically necessary when the following criterion is met:
   - Documented intolerance to one generic formulation of Plaquenil tablet

VI. Qualaquin (quinine sulfate) is considered medically necessary when the following criterion is met:
   - Documented intolerance to one generic formulation of Qualaquin

Initial and reauthorization is up to 12 months unless otherwise stated.

When coverage is available and medically necessary, the dosage, frequency, duration of therapy, and site of care should be reasonable, clinically appropriate, and supported by evidence-based literature and adjusted based upon severity, alternative available treatments, and previous response to therapy.

Note: Receipt of sample product does not satisfy any criteria requirements for coverage.

*If you're a Cigna provider, please log in to the Cigna for Health Care Professionals website and search for specific patients to view their covered medications.

<table>
<thead>
<tr>
<th>FDA Approved Indication</th>
<th>FDA Approved Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arakoda (tafenoquine)</td>
<td>Arakoda is indicated for the prophylaxis of malaria in patients aged 18 years and older.</td>
</tr>
</tbody>
</table>
| Coartem (quinine sulfate) | Coartem Tablets are indicated for treatment of acute, uncomplicated malaria infections due to Plasmodium falciparum in patients 2 months of age and older with a bodyweight of 5 kg and above. Coartem Tablets have been shown to be effective in geographical regions where resistance to chloroquine has been reported.  
  **Limitations of Use:**  
  - Coartem Tablets are not approved for patients with severe or complicated P. falciparum malaria.  
  - Coartem Tablets are not approved for the prevention of malaria. |
| Krintafel (tafenoquine) | Krintafel is indicated for the radical cure (prevention of relapse) of Plasmodium vivax malaria in patients aged 16 years and older who are receiving appropriate antimalarial therapy for acute P. vivax infection.  
  **Limitations of Use:**  
  Krintafel is not indicated for the treatment of acute P. vivax malaria. |
### Effective 01/01/2020

<table>
<thead>
<tr>
<th>Product</th>
<th><strong>Prevention of Malaria</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Malarone</strong> (atovaquone/proguanil)</td>
<td>Malarone is indicated for the prophylaxis of <em>Plasmodium falciparum</em> malaria, including in areas where chloroquine resistance has been reported.</td>
</tr>
<tr>
<td><strong>Treatment of Malaria</strong></td>
<td>Malarone is indicated for the treatment of acute, uncomplicated <em>P. falciparum</em> malaria. Malarone has been shown to be effective in regions where the drugs chloroquine, halofantrine, mefloquine, and amodiaquine may have unacceptable failure rates, presumably due to drug resistance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Plaquenil</strong> (hydroxychloroquine sulfate)</th>
<th><strong>Malaria</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plaquenil is indicated for the treatment of uncomplicated malaria due to <em>P. falciparum</em>, <em>P. malariae</em>, <em>P. ovale</em>, and <em>P. vivax</em>.</td>
</tr>
<tr>
<td></td>
<td>Plaquenil is indicated for the prophylaxis of malaria in geographic areas where chloroquine resistance is not reported.</td>
</tr>
<tr>
<td></td>
<td><strong>Limitations of Use:</strong></td>
</tr>
<tr>
<td></td>
<td>• Plaquenil is not recommended for the treatment of complicated malaria.</td>
</tr>
<tr>
<td></td>
<td>• Plaquenil is not effective against chloroquine or hydroxychloroquine-resistant strains of <em>Plasmodium</em> species. Plaquenil is not recommended for the treatment of malaria acquired in geographic areas where chloroquine resistance occurs or when the <em>Plasmodium</em> species has not been identified.</td>
</tr>
<tr>
<td></td>
<td>• Plaquenil is not recommended for malaria prophylaxis in geographic areas where chloroquine resistance occurs.</td>
</tr>
<tr>
<td></td>
<td>• Plaquenil does not prevent relapses of <em>P. vivax</em> or <em>P. ovale</em> because it is not active against the hypnozoite forms of these parasites. For radical cure of <em>P. vivax</em> and <em>P. ovale</em> infections, concomitant therapy with an 8-aminoquinoline compound is necessary.</td>
</tr>
<tr>
<td></td>
<td>Prior to prescribing Plaquenil for the treatment or prophylaxis of malaria, consult the Centers for Disease Control and Prevention (CDC) Malaria website (<a href="http://www.cdc.gov/malaria">http://www.cdc.gov/malaria</a>).</td>
</tr>
<tr>
<td></td>
<td>See prescribing information INDICATIONS AND USAGE for additional (non-malarial) approved uses of Plaquenil.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Qualaquin</strong> (quinine sulfate)</th>
<th><strong>Qualaquin</strong> is an antimalarial drug indicated only for treatment of uncomplicated <em>Plasmodium falciparum</em> malaria. Quinine sulfate has been shown to be effective in geographical regions where resistance to chloroquine has been documented.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Limitations of Use:</strong></td>
<td>Plaquenil is not approved for:</td>
</tr>
<tr>
<td></td>
<td>• Treatment of severe or complicated <em>P. falciparum</em> malaria.</td>
</tr>
<tr>
<td></td>
<td>• Prevention of malaria.</td>
</tr>
<tr>
<td></td>
<td>• Treatment or prevention of nocturnal leg cramps.</td>
</tr>
</tbody>
</table>

### Recommended Dosing

#### FDA Recommended Dosing

<table>
<thead>
<tr>
<th>Product</th>
<th><strong>Dosage and Administration</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arakoda</strong> (tafenoquine)</td>
<td><strong>Tests to be Performed Prior to Arakoda Dose Initiation</strong></td>
</tr>
<tr>
<td></td>
<td>All patients must be tested for glucose-6-phosphate dehydrogenase (G6PD) deficiency prior to prescribing Arakoda. Pregnancy testing is recommended for females of reproductive potential prior to initiating treatment with Arakoda.</td>
</tr>
</tbody>
</table>
### Recommended Dosage and Administration Instructions

Arakoda can be administered for up to 6 months of continuous dosing.

<table>
<thead>
<tr>
<th>Regimen Name</th>
<th>Timing</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading regimen</td>
<td>For each of the 3 days before travel to a malarious area</td>
<td>200 mg (2 of the 100 mg tablets) once daily for 3 days</td>
</tr>
<tr>
<td>Maintenance regimen</td>
<td>While in the malarious area</td>
<td>200 mg (2 of the 100 mg tablets) once weekly – start 7 days after the last loading regimen dose</td>
</tr>
<tr>
<td>Terminal prophylaxis regimen</td>
<td>In the week following exit from the malarious area</td>
<td>200 mg (2 of the 100 mg tablets) taken one time, 7 days after the last maintenance dose</td>
</tr>
</tbody>
</table>

- Administer Arakoda with food.
- Swallow the tablet whole. Do not break, crush or chew the tablets.
- Complete the full course of Arakoda including the loading dose and the terminal dose.

### Coartem

#### (quinine sulfate)

**Dosage in Adult Patients (greater than 16 years of age)**
A 3-day treatment schedule with a total of 6 doses is recommended for adult patients with a bodyweight of 35 kg and above:

Four tablets as a single initial dose, 4 tablets again after 8 hours and then 4 tablets twice-daily (morning and evening) for the following 2 days (total course of 24 tablets).

#### Dosage in Pediatric Patients

- **5 kg to less than 15 kg bodyweight:** One tablet as an initial dose, 1 tablet again after 8 hours and then 1 tablet twice-daily (morning and evening) for the following 2 days (total course of 6 tablets).
- **15 kg to less than 25 kg bodyweight:** Two tablets as an initial dose, 2 tablets again after 8 hours and then 2 tablets twice-daily (morning and evening) for the following 2 days (total course of 12 tablets).
- **25 kg to less than 35 kg bodyweight:** Three tablets as an initial dose, 3 tablets again after 8 hours and then 3 tablets twice-daily (morning and evening) for the following 2 days (total course of 18 tablets).
- **35 kg bodyweight and above:** Four tablets as a single initial dose, 4 tablets again after 8 hours and then 4 tablets twice-daily (morning and evening) for the following 2 days (total course of 24 tablets).

### Krintafel

#### (tafenoquine)

**Tests to be Performed Prior to Treatment with Krintafel**
All patients must be tested for glucose-6-phosphate dehydrogenase (G6PD) deficiency prior to prescribing Krintafel.

Pregnancy testing is recommended for females of reproductive potential prior to initiating treatment with Krintafel.

**Recommended Dosage and Administration**
The recommended dose of Krintafel in patients aged 16 years and older is a single dose of 300 mg administered as two 150-mg tablets taken together. Coadminister
Krintafel on the first or second day of the appropriate antimalarial therapy (for example, chloroquine) for acute *P. vivax* malaria.

- Administer Krintafel with food to increase systemic absorption.
- Swallow tablets whole. Do not break, crush, or chew the tablets.
- In the event of vomiting within 1 hour after dosing, a repeat dose should be given. Re-dosing should not be attempted more than once.

### Malarone (atovaquone/proguanil)

The daily dose should be taken at the same time each day with food or a milky drink. In the event of vomiting within 1 hour after dosing, a repeat dose should be taken.

Malarone may be crushed and mixed with condensed milk just prior to administration to patients who may have difficulty swallowing tablets.

### Prevention of Malaria

Start prophylactic treatment with Malarone 1 or 2 days before entering a malaria-endemic area and continue daily during the stay and for 7 days after return.

**Adults**

One Malarone tablet (adult strength = 250 mg atovaquone/100 mg proguanil hydrochloride) per day.

**Pediatric Patients**

The dosage for prevention of malaria in pediatric patients is based upon body weight (Table 1).

#### Table 1. Dosage for Prevention of Malaria in Pediatric Patients

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Atovaquone/Proguanil HCl Total Daily Dose</th>
<th>Dosage Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>62.5 mg/25 mg</td>
<td>1 Malarone pediatric tablet daily</td>
</tr>
<tr>
<td>21-30</td>
<td>125 mg/50 mg</td>
<td>2 Malarone pediatric tablets as a single daily dose</td>
</tr>
<tr>
<td>31-40</td>
<td>187.5 mg/75 mg</td>
<td>3 Malarone pediatric tablets as a single daily dose</td>
</tr>
<tr>
<td>&gt;40</td>
<td>250 mg/100 mg</td>
<td>1 Malarone tablet (adult strength) as a single daily dose</td>
</tr>
</tbody>
</table>

### Treatment of Acute Malaria

**Adults**

Four Malarone tablets (adult strength; total daily dose 1 g atovaquone/400 mg proguanil hydrochloride) as a single daily dose for 3 consecutive days.

**Pediatric Patients**

The dosage for treatment of acute malaria in pediatric patients is based upon body weight (Table 2).

#### Table 2. Dosage for Treatment of Acute Malaria in Pediatric Patients

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>Atovaquone/Proguanil HCl Total Daily Dose</th>
<th>Dosage Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-8</td>
<td>125 mg/50 mg</td>
<td>2 Malarone pediatric tablets daily for 3 consecutive days</td>
</tr>
<tr>
<td>9-10</td>
<td>187.5 mg/75 mg</td>
<td>3 Malarone pediatric tablets daily for 3 consecutive days</td>
</tr>
</tbody>
</table>
Plaquenil (hydroxychloroquine sulfate)

**Prophylaxis**
Adults: 400 mg (310 mg base) once weekly on the same day of each week starting 2 weeks prior to exposure, and continued for 4 weeks after leaving the endemic area.

*Weight-based dosing in adults and pediatric patients:* 6.5 mg/kg (5 mg/kg base), not to exceed 400 mg (310 mg base), once weekly on the same day of the week starting 2 weeks prior to exposure, and continued for 4 weeks after leaving the endemic area.

**Treatment of Uncomplicated Malaria**
Adults: 800 mg (620 mg base) followed by 400 mg (310 mg base) at 6 hours, 24 hours and 48 hours after the initial dose (total 2000 mg hydroxychloroquine sulfate or 1550 mg base).

*Weight based dosage in adults and pediatric patients:* 13 mg/kg (10 mg/kg base), not to exceed 800 mg (620 mg base) followed by 6.5 mg/kg (5 mg/kg base), not to exceed 400 mg (310 mg base), at 6 hours, 24 hours and 48 hours after the initial dose. Plaquenil film-coated tablets cannot be divided, therefore they should not be used to treat patients who weigh less than 31 kg. For radical cure of *P. vivax* and *P. malariae* infections, concomitant therapy with an 8- aminoquinoline compound is necessary.

See prescribing information DOSAGE AND ADMINISTRATION for additional (non-malarial) approved uses of Plaquenil.

Qualaquin (quinine sulfate)

**Treatment of Uncomplicated *P. falciparum* Malaria**
For treatment of uncomplicated *P. falciparum* malaria in adults: Orally, 648 mg (two capsules) every 8 hours for 7 days.

Qualaquin should be taken with food to minimize gastric upset.

### Drug Availability

<table>
<thead>
<tr>
<th>Product</th>
<th>Drug Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arakoda</strong> (tafenoquine)</td>
<td>Supplied as a tablet containing 100 mg tafenoquine.</td>
</tr>
<tr>
<td><strong>Coartem</strong> (quinine sulfate)</td>
<td>Supplied as a tablet containing 20 mg of artemether and 120 mg of lumefantrine.</td>
</tr>
<tr>
<td><strong>Krintafel</strong> (tafenoquine)</td>
<td>Supplied as a tablet containing 150 mg of tafenoquine.</td>
</tr>
<tr>
<td><strong>Malarone</strong> (atovaquone/proguanil)</td>
<td><strong>Adult Strength</strong> Supplied as a tablet containing 250 mg atovaquone and 100 mg proguanil hydrochloride.</td>
</tr>
<tr>
<td></td>
<td><strong>Pediatric Strength</strong> Supplied as a tablet containing 62.5 mg atovaquone and 25 mg proguanil hydrochloride.</td>
</tr>
</tbody>
</table>
Plaquenil (hydroxychloroquine sulfate) | Supplied as a tablet containing 200 mg of hydroxychloroquine sulfate (equivalent to 155 mg base).
---|---
Qualaquin (quinine sulfate) | Supplied as a capsule containing 324 mg of quinine sulfate.

**Background**

**Therapeutic Alternatives**

An individual must document the failure of or intolerance to any Covered Alternative Drug(s) before coverage will be approved for the identified drug. A “Covered Alternative Drug” is a drug in the same therapeutic class that can be expected to have equivalent clinical efficacy and safety when administered to patients under the conditions specified in the FDA-approved product information (Label). The number of Covered Alternative Drugs may vary by employer group plan and Prescription Drug Lists (e.g. “closed” versus “open” formulary plan designs). Cigna providers may log in to the Cigna for Health Care Professionals website and search for specific patients to view their covered medications.

**Generics**

The FDA’s generic drug approval process does not require the drug sponsor to repeat costly animal and clinical research on ingredients or dosage forms already approved for safety and effectiveness. Generic drugs must establish the following for approval:

- contain the same active ingredients as the innovator drug (inactive ingredients may vary)
- be identical in strength, dosage form, and route of administration
- have the same use indications
- be bioequivalent
- meet the same batch requirements for identity, strength, purity, and quality
- be manufactured under the same strict standards of FDA’s good manufacturing practice regulations required for innovator products

A generic drug is the same as a brand-name drug in dosage, safety, strength, quality, the way it works, the way it is taken and the way it should be used. FDA requires generic drugs have the same high quality, strength, purity and stability as brand-name drugs. Not every brand-name drug has a generic drug. When new drugs are first made they have drug patents. Most drug patents are protected for 20 years. The patent, which protects the company that made the drug first, doesn’t allow anyone else to make and sell the drug. When the patent expires, other drug companies can start selling a generic version of the drug. But, first, they must test the drug and the FDA must approve it.

**References**

1. Arakoda [prescribing information], Washington DC: 60 Degrees Pharmaceuticals LLC; August 2018.
2. Coartem [prescribing information], East Hanover, NJ: Novartis Pharmaceuticals Corporation; August 2019.
7. U.S Food and Drug Administration. Generic Drugs Questions and Answers: http://www.fda.gov/Drugs/ResourcesForYou/Consumers/QuestionsAnswers/ucm100100.htm

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