



# Hydroxychloroquine

**Generic Name:** hydroxychloroquine (hye drox ee KLOR oh kwin)

**Brand Names:** *Plaquenil, Plaquenil Sulfate, Quineprox*

Medically reviewed by **Sanjai Sinha, MD** Last updated on May 11, 2020.

## What is hydroxychloroquine?

**Hydroxychloroquine** is a **quinoline medicine** used to treat or prevent **malaria**, a disease caused by parasites that enter the body through the bite of a mosquito. Malaria is common in areas such as Africa, South America, and Southern Asia. This medicine is not effective against all strains of malaria.

Hydroxychloroquine is not effective against all strains of malaria, or against malaria in areas where the infection has been resistant to a similar drug called **chloroquine**.

Hydroxychloroquine is also used to treat symptoms of **rheumatoid arthritis** and discoid or **systemic lupus erythematosus**.

**Hydroxychloroquine has not been approved to treat coronavirus or COVID-19.** However, the US Food and Drug Administration (FDA) has authorized emergency use of hydroxychloroquine in adults and adolescents weighing at least 110 pounds (50 kilograms) who are hospitalized with COVID-19.

Hydroxychloroquine is being used to try and stop coronavirus from spreading inside your body. It is not yet known if hydroxychloroquine is a safe and effective treatment for COVID-19, and this use is still experimental.

## Important Information

**Hydroxychloroquine has not been approved to treat coronavirus or COVID-19.** However, the FDA has authorized emergency use in adults and adolescents hospitalized with COVID-19. **It is not yet known if hydroxychloroquine is an effective treatment for COVID-19. This use is still experimental.**

Taking hydroxychloroquine long-term or at high doses may cause irreversible damage to the retina of your eye. **Stop taking hydroxychloroquine and call your doctor at once if you have** blurred vision, trouble focusing, distorted vision, blind spots, trouble reading, changes in your color vision, increased sensitivity to light.

Before using hydroxychloroquine, tell your doctor if you are allergic to any drugs, or if you have psoriasis, porphyria, liver disease, alcoholism, or glucose-6-phosphate dehydrogenase (G-6-PD) deficiency.

Call a poison control center at once and then seek emergency medical attention if you think you

have used too much of this medicine. An overdose of hydroxychloroquine can be fatal, especially in children.

Take hydroxychloroquine for the full prescribed length of time for malaria. Your symptoms may improve before the infection is completely cleared.

When treating lupus or arthritis, tell your doctor if your symptoms do not improve after 6 months of treatment.

## Before taking this medicine

You should not use hydroxychloroquine if you are allergic to hydroxychloroquine or chloroquine.

High doses or long-term use of hydroxychloroquine may cause irreversible damage to your retina (the membrane layer inside your eye that helps produce vision). This could progress to permanent vision problems. The risk of retinal damage is higher in people with pre-existing eye problems, kidney disease, or people who also take **tamoxifen**.

To make sure hydroxychloroquine is safe for you, tell your doctor if you have ever had:

- vision changes or damage to your retina caused by an anti-malaria medication;
- heart disease, heart rhythm disorder (such as **long QT syndrome**);
- diabetes;
- a stomach disorder;
- an allergy to **quinine**;
- liver or kidney disease;
- **psoriasis**;
- **alcoholism**;
- **porphyria** (a genetic enzyme disorder that causes symptoms affecting the skin or nervous system); or
- a genetic enzyme deficiency called glucose-6-phosphate dehydrogenase (G6PD) deficiency.

Tell your doctor if you are pregnant or plan to become pregnant. **Malaria is more likely to cause serious illness or death in a pregnant woman.** Having malaria during pregnancy may also increase the risk of miscarriage, stillbirth, premature delivery, and low birth weight.

It is not known whether hydroxychloroquine will harm an unborn baby. If you are pregnant, ask your doctor about the risks of traveling to areas where malaria is common.

It may not be safe to breastfeed while using this medicine. Ask your doctor about any risk.

Hydroxychloroquine is not approved for treating **lupus** or rheumatoid arthritis in anyone younger than 18 years old.

## How should I take hydroxychloroquine?

Take hydroxychloroquine exactly as prescribed by your doctor. Follow all directions on your prescription label and read all medication guides or instruction sheets.

The best hydroxychloroquine dose to treat COVID-19 is not known. Follow your doctor's dosing instructions very carefully.

To treat lupus or arthritis, hydroxychloroquine is usually taken daily.

To prevent malaria: Hydroxychloroquine is usually taken once per week on the same day each week. Start taking the medicine 2 weeks before entering an area where malaria is common. Keep taking the medicine during your stay and for at least 4 weeks after you leave the area.

To treat malaria: Hydroxychloroquine is usually given as one high dose followed by smaller doses during the next 2 days in a row.

Take hydroxychloroquine with a meal or a glass of milk unless your doctor tells you otherwise.

Use this medicine for the full prescribed length of time, even if your symptoms quickly improve.

Call your doctor as soon as possible if you have been exposed to malaria, or if you have fever or other symptoms of illness during or after a stay in an area where malaria is common.

Use protective clothing, insect repellents, and mosquito netting around your bed to further prevent mosquito bites that could cause malaria.

No medication is 100% effective in treating or preventing all types of malaria. Talk with your doctor if you have fever, **vomiting**, or **diarrhea** during your treatment.

If you use this medicine long-term, you may need frequent medical tests and vision exams.

While using hydroxychloroquine, you may need frequent blood tests and vision exams.

Store at room temperature away from moisture, heat, and light.

## Hydroxychloroquine dosing information

### Usual Adult Dose for Malaria Prophylaxis:

400 mg salt (310 mg base) orally once a week

Weight-based dosing: 6.5 mg/kg salt (5 mg/kg base) orally once a week

-Maximum dose: 400 mg salt (310 mg base)/dose

### Comments:

-This drug should be administered on the same day of each week.

-Suppressive therapy should begin 2 weeks prior to exposure and should continue for 4 weeks after leaving the endemic area.

Use: For the prophylaxis of malaria in geographic areas where chloroquine resistance is not reported

US CDC Recommendations: 310 mg base (400 mg salt) orally once a week

Comments:

- An alternative to chloroquine for prophylaxis only in areas with chloroquine-sensitive malaria
- Prophylaxis should start 1 to 2 weeks before travel to malarious areas; should continue weekly (same day each week) while in malarious areas and for 4 weeks after leaving such areas
- If malaria develops while using this drug for chemoprophylaxis, it should not be used as part of the treatment regimen.
- Current guidelines should be consulted for additional information.

**Usual Adult Dose for Malaria:**

800 mg salt (620 mg base) orally as an initial dose, followed by 400 mg salt (310 mg base) at 6, 24, and 48 hours after the initial dose

Total dose: 2000 mg salt (1550 mg base)

Weight-based dosing:

- First dose: 13 mg/kg salt (10 mg/kg base) orally
- Second dose (6 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally
- Third dose (24 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally
- Fourth dose (48 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally

Maximum Dose:

- First dose: 800 mg salt (620 mg base)/dose
- Second, third, and fourth dose: 400 mg salt (310 mg base)/dose

Comments:

- Concomitant therapy with an 8-aminoquinoline compound is necessary for radical cure of *Plasmodium vivax* and *P ovale* infections.

Use: For the treatment of uncomplicated malaria due to *P falciparum*, *P malariae*, *P ovale*, and *P vivax*

US CDC Recommendations: 620 mg base (800 mg salt) orally at once, followed by 310 mg base (400 mg salt) orally at 6, 24, and 48 hours

Total dose: 1550 mg base (2000 mg salt)

Comments:

- Recommended for uncomplicated malaria (*P falciparum* or species not identified) in regions with chloroquine sensitivity
- Recommended for uncomplicated malaria (*P malariae*, *P knowlesi*, *P vivax* [unless chloroquine-resistant *P vivax* suspected], or *P ovale*) in all regions; if treating *P vivax* or *P ovale* infections, concomitant treatment with primaquine (after quantitative testing to rule out glucose-6-phosphate dehydrogenase [G6PD] deficiency) is recommended.
- Recommended for uncomplicated malaria treatment for pregnant women in regions with chloroquine sensitivity
- Current guidelines should be consulted for additional information.

**Usual Adult Dose for Systemic Lupus Erythematosus:**

200 to 400 mg salt (155 to 310 mg base)/day orally divided in 1 or 2 doses

**Comments:**

- Doses above 400 mg/day are not recommended.
- Higher incidence of retinopathy reported when this maintenance dose is exceeded.

Uses: For the treatment of chronic discoid lupus erythematosus and systemic lupus erythematosus

**Usual Adult Dose for Rheumatoid Arthritis:**

Initial dose: 400 to 600 mg salt (310 to 465 mg base)/day orally divided in 1 or 2 doses

Maintenance dose: 200 to 400 mg salt (155 to 310 mg base)/day orally divided in 1 or 2 doses

Maximum dose: 600 mg salt (465 mg base)/day or 6.5 mg/kg salt (5 mg/kg base)/day, whichever is lower

**Comments:**

- The action of this drug is cumulative and may require weeks to months to achieve the maximum therapeutic effect.
- When a good response is obtained, the initial dose may be reduced by 50% and continued at a maintenance dose.
- Higher incidence of retinopathy reported when this maintenance dose is exceeded; 600 mg salt (465 mg base) or 6.5 mg/kg salt (5 mg/kg base), whichever is lower, should not be exceeded per day.
- Corticosteroids and salicylates may be used with this drug, and they can generally be decreased gradually in dosage or eliminated after a maintenance dose of this drug has been achieved.

Use: For the treatment of acute and chronic rheumatoid arthritis

**Usual Adult Dose for COVID-19:**

At least 50 kg: 800 mg salt (620 mg base) orally on day 1, followed by 400 mg salt (310 mg base) orally once a day

Total duration of therapy: 4 to 7 days, based on clinical evaluation

**Comments:**

- In March 2020, the US FDA issued an emergency use authorization (EUA) to allow the emergency use of hydroxychloroquine sulfate supplied from the Strategic National Stockpile (SNS) for treatment of coronavirus disease 2019 (COVID-19) in certain hospitalized patients.
- The optimal dosing and duration of treatment for COVID-19 are unknown; recommended dose and duration may be updated as clinical trial data becomes available.
- For additional information: <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covidtherapeutics>

Use: For the treatment of patients hospitalized with COVID-19 for whom a clinical trial is not available, or participation is not feasible

**Usual Pediatric Dose for Malaria Prophylaxis:**

6.5 mg/kg salt (5 mg/kg base) orally once a week  
Maximum dose: 400 mg salt (310 mg base)/dose

**Comments:**

- This drug should be administered on the same day of each week.
- Suppressive therapy should begin 2 weeks prior to exposure and should continue for 4 weeks after leaving the endemic area.

Use: For the prophylaxis of malaria in geographic areas where chloroquine resistance is not reported

US CDC Recommendations: 5 mg/kg base (6.5 mg/kg salt) orally once a week  
Maximum dose: 310 mg base (400 mg salt)/dose

**Comments:**

- An alternative to chloroquine for prophylaxis only in areas with chloroquine-sensitive malaria
- Prophylaxis should start 1 to 2 weeks before travel to malarious areas; should continue weekly (same day each week) while in malarious areas and for 4 weeks after leaving such areas
- If malaria develops while using this drug for chemoprophylaxis, it should not be used as part of the treatment regimen.
- Current guidelines should be consulted for additional information.

**Usual Pediatric Dose for Malaria:**

First dose: 13 mg/kg salt (10 mg/kg base) orally  
Second dose (6 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally  
Third dose (24 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally  
Fourth dose (48 hours after first dose): 6.5 mg/kg salt (5 mg/kg base) orally

**Maximum Dose:**

- First dose: 800 mg salt (620 mg base)/dose
- Second, third, and fourth dose: 400 mg salt (310 mg base)/dose

**Comments:**

- Concomitant therapy with an 8-aminoquinoline compound is necessary for radical cure of *P vivax* and *P ovale* infections.

Use: For the treatment of uncomplicated malaria due to *P falciparum*, *P malariae*, *P ovale*, and *P vivax*

US CDC Recommendations: 10 mg/kg base orally at once, followed by 5 mg/kg base orally at 6, 24, and 48 hours  
Total dose: 25 mg/kg base

**Comments:**

- Pediatric dose should never exceed adult dose.

- Recommended for uncomplicated malaria (*P falciparum* or species not identified) in regions with chloroquine sensitivity
- Recommended for uncomplicated malaria (*P malariae*, *P knowlesi*, *P vivax* [unless chloroquine-resistant *P vivax* suspected], or *P ovale*) in all regions; if treating *P vivax* or *P ovale* infections, concomitant treatment with primaquine (after quantitative testing to rule out G6PD deficiency) is recommended.
- Current guidelines should be consulted for additional information.

### Usual Pediatric Dose for COVID-19:

Adolescents at least 50 kg: 800 mg salt (620 mg base) orally on day 1, followed by 400 mg salt (310 mg base) orally once a day

Total duration of therapy: 4 to 7 days, based on clinical evaluation

### Comments:

- In March 2020, the US FDA issued an EUA to allow the emergency use of hydroxychloroquine sulfate supplied from the SNS for treatment of COVID-19 in certain hospitalized patients.
- The optimal dosing and duration of treatment for COVID-19 are unknown; recommended dose and duration may be updated as clinical trial data becomes available.
- For additional information: <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#covidtherapeutics>

Use: For the treatment of patients hospitalized with COVID-19 for whom a clinical trial is not available, or participation is not feasible

### See also:

**Hydroxychloroquine dosage information** (in more detail)

## What happens if I miss a dose?

Llame a su médico para recibir instrucciones si se salta una dosis.

## What happens if I overdose?

Seek emergency medical attention or call the Poison Help line at 1-800-222-1222. **An overdose of hydroxychloroquine can be fatal, and must be treated quickly.**

Overdose symptoms may include drowsiness, vision changes, seizure, **slow heart rate**, weak pulse, pounding heartbeats, sudden **dizziness**, fainting, shortness of breath, or slow breathing (breathing may stop).

Keep hydroxychloroquine out of the reach of children. A hydroxychloroquine overdose can be fatal to a child who accidentally swallows this medicine.

## What should I avoid while taking hydroxychloroquine?

This medicine may cause blurred vision and may impair your reactions. Avoid driving or hazardous activity until you know how this medicine will affect you.

## Hydroxychloroquine side effects

Get emergency medical help if you have **signs of an allergic reaction to hydroxychloroquine: (hives, difficult breathing, swelling in your face or throat) or a severe skin reaction (fever, sore throat, burning eyes, skin pain, red or purple skin rash with blistering and peeling).**

Seek medical treatment if you have a serious drug reaction that can affect many parts of your body. Symptoms may include: skin rash, fever, swollen glands, muscle aches, severe weakness, unusual bruising, or yellowing of your skin or eyes.

Call your doctor at once if you have:

- fast or pounding heartbeats, fluttering in your chest, shortness of breath, and sudden dizziness (like you might pass out);
- a seizure;
- yellowing of your eyes;
- ringing in your ears, trouble hearing;
- unusual mood changes;
- severe muscle weakness, loss of coordination, underactive reflexes;
- **low blood cell counts** - fever, chills, tiredness, sore throat, mouth sores, easy bruising, unusual bleeding, pale skin, **cold hands** and feet, feeling light-headed or short of breath; or
- **low blood sugar - headache**, hunger, sweating, irritability, dizziness, **fast heart rate**, and feeling anxious or shaky.

Taking hydroxychloroquine long-term or at high doses may cause irreversible damage to the retina of your eye. **Stop taking hydroxychloroquine and tell your doctor if you have:**

- blurred vision, trouble focusing;
- distorted vision, blind spots;
- trouble reading;
- changes in your color vision;
- hazy or cloudy vision;
- seeing light flashes or streaks, seeing halos around lights; or
- increased sensitivity to light.

Common hydroxychloroquine side effects include:

- headache, dizziness;
- **nausea**, vomiting, stomach pain;
- loss of appetite, **weight loss**;
- feeling nervous or irritable;



- skin rash or itching; or
- **hair loss**.

This is not a complete list of side effects and others may occur. Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

**See also:**

**Hydroxychloroquine side effects** (in more detail)

## What other drugs will affect hydroxychloroquine?

**Hydroxychloroquine can cause a serious heart problem.** Your risk may be higher if you also use certain other medicines for infections, **asthma**, heart problems, **high blood pressure**, **depression**, mental illness, cancer, malaria, or **HIV**.

If you take an antacid or **Kaopectate (kaolin-pectin)**, take it 4 hours before or 4 hours after you take your hydroxychloroquine dose.

Tell your doctor about all your other medicines, especially:

- **cimetidine**;
- **cyclosporine**;
- **methotrexate**;
- **praziquantel**;
- tamoxifen;
- heart rhythm medicine;
- **insulin** or oral diabetes medicine; or
- seizure medication.

This list is not complete. Other drugs may interact with hydroxychloroquine, including prescription and over-the-counter medicines, **vitamins**, and **herbal products**. Not all possible drug interactions are listed here.

**See also:**

**Hydroxychloroquine drug interactions** (in more detail)

## Further information

Remember, keep this and all other medicines out of the reach of children, never share your medicines with others, and use hydroxychloroquine only for the indication prescribed.

Always consult your healthcare provider to ensure the information displayed on this page applies to your personal circumstances.

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## **Related questions**

- **Is hydroxychloroquine effective for COVID-19?**
- **Does hydroxychloroquine cause emotional lability?**