Chloroquine

Indications/Dosage

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Labeled

- amebiasis
- malaria
- malaria prophylaxis

Off-Label

- coronavirus disease 2019 (COVID-19) †
- discoid lupus erythematosus †
- severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection †

† Off-label indication

Per the manufacturer, this drug has been shown to be active against most strains of the following microorganisms either in vitro and/or in clinical infections:

Entamoeba histolytica, *Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium ovale*, *Plasmodium vivax*.

NOTE: The safety and effectiveness in treating clinical infections due to organisms with in vitro data only have not been established in adequate and well-controlled clinical trials.

This drug may also have activity against the following microorganisms:

severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

NOTE: Some organisms may not have been adequately studied during clinical trials; therefore, exclusion from this list does not necessarily negate the drug's activity against the organism.

INVESTIGATIONAL USE: For the treatment of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection†, the virus that causes coronavirus disease 2019 (COVID-19)†

Oral dosage

- **Adults weighing 50 kg or more**

  Available data are limited and efficacy has not been established. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] 1,000 mg (600 mg base) PO on day 1 then 500 mg (300 mg base) PO once daily for 4 to 7 days in patients in which enrollment in clinical trials is not feasible is suggested by the FDA in the Emergency Use Authorization (EUA) statement.[65171] [65172] 500 mg (300 mg base) PO twice daily for 10 days is also being evaluated alone and in combination. Preliminary data suggest chloroquine may inhibit the exacerbation of pneumonia, improve lung imaging findings, promote virus-negative conversion, and shorten the disease course.[65119] [65120] [65123] [65124] [65125] [65126] [65148]

- **Adults weighing less than 50 kg**

  Available data are limited, and efficacy has not been established. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] 500 mg (300 mg base) PO twice daily for 10 days is being evaluated alone and in combination. Preliminary data suggest chloroquine may inhibit the exacerbation of pneumonia, improve lung imaging findings, promote virus-negative conversion, and shorten the disease course. [65119] [65120] [65123] [65124] [65125] [65126] [65148]

- **Adolescents weighing 50 kg or more**

  Available data are limited, and efficacy has not been established. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] 1,000 mg (600 mg base) PO on day 1 then 500 mg (300 mg base) PO once daily for 4 to 7 days in patients in which enrollment in clinical trials is not feasible is suggested by the FDA in the Emergency Use Authorization (EUA) statement.[65171] [65172] Based on extrapolation from pediatric dosing for other indications and comparative doses to the adult dosing regimen suggested for COVID-19, 8.3 mg (5 mg base)/kg/dose PO twice daily [Max: 500 mg/dose (300 mg base/dose)] is being used in limited pediatric dosing protocols.[29758] [63245] [65159] A 10-day course is being used in adult patients.[65125] [65126] [65148]

- **Adolescents weighing less than 50 kg**

  Efficacy and optimal dosing in pediatric patients are not established. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] Based on extrapolation from pediatric dosing for other indications and comparative doses to the

adult dosing regimen suggested for COVID-19, 8.3 mg (5 mg base)/kg/dose PO twice daily [Max: 500 mg/dose (300 mg base/dose)] is being used in limited pediatric dosing protocols.[29758] [63245] [65159] A 10-day course is being used in adult patients.[65125] [65126] [65148]

- **Infants and Children**

  Efficacy and optimal dosing in pediatric patients are not established. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] Based on extrapolation from pediatric dosing for other indications and comparative doses to the adult dosing regimen suggested for COVID-19, 8.3 mg (5 mg base)/kg/dose PO twice daily [Max: 500 mg/dose (300 mg base/dose)] is being used in limited pediatric dosing protocols.[29758] [63245] [65159] A 10-day course is being used in adult patients.[65125] [65126] [65148]

For the treatment of uncomplicated malaria due to susceptible strains of *P. falciparum*, *P. knowlesi*†, *P. malariae*, *P. ovale*, and *P. vivax*

Oral dosage

- **Adults**

  16.6 mg (10 mg base)/kg/dose [Max: 1,000 mg/dose (600 mg base/dose)] PO once, then 8.3 mg (5 mg base)/kg/dose [Max: 500 mg/dose (300 mg base/dose)] PO in 6 to 8 hours, then 8.3 mg (5 mg base)/kg/dose [Max: 500 mg/dose (300 mg base/dose)] PO once daily for 2 days.[29758] For *P. vivax* or *P. ovale*, give in combination with primaquine phosphate or tafenoquine. Guidelines recommend chloroquine for uncomplicated malaria in patients with chloroquine-sensitive *P. falciparum* or *P. vivax* or in all patients with *P. malariae, P. knowlesi,* or *P. ovale*.[64059]

- **Infants, Children, and Adolescents**

  16.6 mg (10 mg base)/kg/dose [Max: 1,000 mg/dose (600 mg base/dose)] PO once, then 8.3 mg (5 mg base)/kg/dose [Max: 500 mg/dose (300 mg base/dose)] PO in 6 to 8 hours, then 8.3 mg (5 mg base)/kg/dose [Max: 500 mg/dose (300 mg base/dose)] PO once daily for 2 days.[29758] [63245] For *P. vivax* or *P. ovale*, give in combination with primaquine phosphate or tafenoquine. Guidelines recommend chloroquine for uncomplicated malaria in patients with chloroquine-sensitive *P. falciparum* or *P. vivax* or in all patients with *P. malariae, P. knowlesi,* or *P. ovale*.[64059]

For malaria prophylaxis against chloroquine-sensitive *Plasmodium* species

Oral dosage

- **Adults**

  500 mg (300 mg base) PO weekly on the same day of each week, starting 2 weeks before entering the endemic area and continuing for 8 weeks after leaving the area. If it is not feasible to begin therapy before entering the endemic area, use 1,000 mg (600 mg base) as initial loading dose given in 2 divided doses 6 hours apart.[29758] Alternatively, guidelines suggest a shorter course; start the usual dosage regimen 1 to 2 weeks prior to entry into the endemic area and continue for 4 weeks after leaving the area.[63990]

- **Pregnant Female Adults†**

  500 mg (300 mg base) PO weekly for duration of pregnancy for *P. ovale* or *P. vivax* infections after completing acute treatment. After delivery, subsequent treatment with primaquine phosphate or tafenoquine is needed in patients without G6PD deficiency.[64059]

- **Pregnant Female Adolescents†**

  500 mg (300 mg base) PO weekly for duration of pregnancy for *P. ovale* or *P. vivax* infections after completing acute treatment. After delivery, subsequent treatment with primaquine phosphate or tafenoquine (16 years and older) is needed in patients without G6PD deficiency.[64059]

- **Infants, Children, and Adolescents**

  8.3 mg (5 mg base)/kg/dose [Max: 500 mg/dose (300 mg base/dose)] PO weekly on the same day of each week, starting 2 weeks before entering the endemic area and continuing for 8 weeks after leaving the area. If it is not feasible to begin therapy before entering the endemic area, use 16.6 mg (10 mg base)/kg/dose [Max: 1,000 mg/dose (600 mg base/dose)] as initial loading dose given in 2 divided doses 6 hours apart.[29758] [63245] Alternatively, guidelines suggest a shorter course; start the usual dosage regimen 1 to 2 weeks prior to entry into the endemic area and continue for 4 weeks after leaving the area.[63245] [63990]

For the treatment of extraintestinal amebiasis (adjunct treatment with an effective intestinal amebicide)

Oral dosage

- **Adults**

  1,000 mg (600 mg base) PO once daily for 2 days, then 500 mg (300 mg base) PO once daily for at least 2 to 3 weeks.[29758]

For the treatment of discoid lupus erythematosus†

Oral dosage

- **Adults**

  125 to 250 mg (75 to 150 mg base) PO once daily. Do not exceed 3.5 to 4 mg/kg/day to minimize retinal toxicity. Chloroquine is recommended in patients who fail hydroxychloroquine plus quinacrine; quinacrine may be continued with chloroquine.[62154]

Therapeutic Drug Monitoring

The following recommendations are for baseline and continuous monitoring when using chloroquine with azithromycin:

- Obtain a pre-treatment QTc using a standard 12-lead ECG, telemetry, or mobile ECG device.
- Obtain baseline electrolytes, including calcium, magnesium, and potassium; correct abnormalities.
- Determine if the patient is currently on any QT-prolonging medications that can be discontinued.[65170]
- Document high-risk cardiovascular and comorbid conditions.[65170] Assess and adjust for hepatic and renal dysfunction.[65242]

Inpatient Use

- Place telemetry prior to initiation, if possible.
- Monitor and optimize serum electrolytes daily.[65242]
- If the baseline QTc is 500 msec or more and/or the patient has an inherent tendency to develop an exaggerated QTc response (i.e., change of 60 msec or more), correct contributing electrolyte abnormalities, review and discontinue other unnecessary QTc prolonging medications, and proceed with close QTc surveillance.[65170] Some experts recommend withholding treatment for patients with a baseline QTc of 500 msec or more (or more than 530 to 550 msec in patients with a QRS interval more than 120 msec) or in those with congenital long QT syndrome.[65242]
- If the baseline QTc is 460 to 499 msec (prepubertal), 470 to 499 msec (postpubertal males), or 480 to 499 msec (postpubertal females), correct contributing electrolyte abnormalities, review and discontinue other unnecessary QTc prolonging medications, and obtain an initial on-therapy QTc daily (or 48 and 96 hours after treatment initiation).[65170] [65242]

- If the baseline QTc is less than 460 msec (prepubertal), less than 470 msec (postpubertal males), or less than 480 msec (postpubertal females), correct electrolyte abnormalities and obtain an initial on-therapy QTc daily (or 48 and 96 hours after treatment initiation).[65170] [65242]
- Obtain an initial on-therapy QTc approximately 2 to 4 hours after the first dose and then daily (some recommend 48 and 96 hours after treatment initiation).[65170] [65242]
- Discontinue azithromycin and/or reduce the antimalarial dose if the subsequent QTc is prolonged or significantly increased above the specified parameters. If the QTc remains prolonged or significantly increased, reevaluate the risk/benefit of therapy, consider consultation with an electrophysiologist, and consider hydroxychloroquine/chloroquine discontinuation.[65242]

Outpatient Use

- Do not initiate outpatient therapy in the setting of acute renal or hepatic failure.[65242]
- If the baseline QTc is 500 msec or more and/or the patient has an inherent tendency to develop an exaggerated QTc response (i.e., change of 60 msec or more), correct contributing electrolyte abnormalities, review and discontinue other unnecessary QTc prolonging medications, and proceed with close QTc surveillance.[65170] Some experts recommend withholding treatment in patients with a baseline QTc of 480 msec or more (or more than 510 to 530 msec in patients with a QRS interval more than 120 msec), congenital long QT syndrome, or a Tisdale risk score of 11 or more.[65242]
- Consider no further ECG/telemetry assessment for patients with a Tisdale risk score of 6 or less, if resource or quarantine constraints are prohibitive of monitoring. Otherwise, repeat the ECT 2 to 3 hours after dosing on day 3 of therapy. If the QTc exceeds 500 msec (or 530 to 550 msec if QRS is more than 120 msec) or increases by more than 30 to 60 msec, consider discontinuing therapy.[65242]

Maximum Dosage Limits

- Adults

  1,000 mg/dose (600 mg base/dose) PO for malaria up to a total of 2.5 g (1.5 g base) PO in 48 hours; 500 mg/week (300 mg base/week) PO for malaria prophylaxis; 1,000 mg/day (600 mg base/day) PO for other indications.

- Geriatric

  1,000 mg/dose (600 mg base/dose) PO for malaria up to a total of 2.5 g (1.5 g base) PO in 48 hours; 500 mg/week (300 mg base/week) PO for malaria prophylaxis; 1,000 mg/day (600 mg base/day) PO for other indications.

- Adolescents

  16.6 mg/kg/dose (10 mg base/kg/dose) [Max: 1,000 mg (600 mg base)] PO for malaria up to a total of 41.5 mg/kg (25 mg/kg base) [Max: 2.5 g (1.5 g base)] PO in 48 hours; 8.3 mg/kg/week (5 mg base/kg/week) [Max: 500 mg/week (300 mg base/week)] PO for malaria prophylaxis.

- Children

  16.6 mg/kg/dose (10 mg base/kg/dose) [Max: 1,000 mg (600 mg base)] PO for malaria up to a total of 41.5 mg/kg (25 mg/kg base) [Max: 2.5 g (1.5 g base)] PO in 48 hours; 8.3 mg/kg/week (5 mg base/kg/week) [Max: 500 mg/week (300 mg base/week)] PO for malaria prophylaxis.

- Infants

  16.6 mg/kg/dose (10 mg base/kg/dose) PO for malaria up to a total of 41.5 mg/kg (25 mg/kg base) PO in 48 hours; 8.3 mg/kg/week (5 mg base/kg/week) PO for malaria prophylaxis.

- Neonates

  Safety and efficacy have not been established.

Patients with Hepatic Impairment Dosing

Chloroquine concentrates in the liver. However, no specific dosage adjustment guidelines are available for patients with hepatic impairment.[29758]

Patients with Renal Impairment Dosing

CrCl 10 mL/minute or more: No dosage adjustment necessary.

CrCl less than 10 mL/minute: Decrease dose by 50%.[32569]

Intermittent hemodialysis:

Decrease dose by 50%.[32569]

Peritoneal dialysis:

Decrease dose by 50%.[32569]

Continuous renal replacement therapy:

No dosage adjustment necessary.[32569]

† Off-label indication

Revision Date: 04/22/2020 12:27:21 PM

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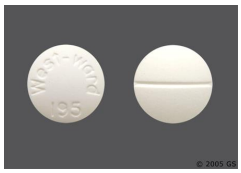
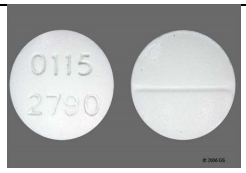
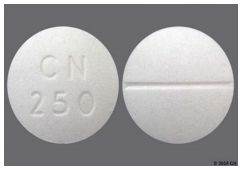
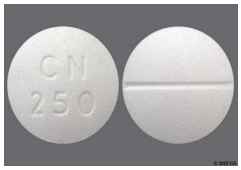
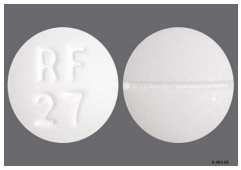
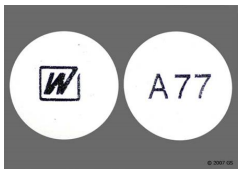
How Supplied

Chloroquine Hydrochloride Solution for injection
Aralen 50mg/ml Solution for Injection (00024-0074) (Sanofi U.S. LLC) (off market)

Chloroquine Phosphate Oral tablet	
Chloroquine Phosphate 250mg Tablet (00143-1195) (Hikma Pharmaceuticals USA inc.) (off market)	
Chloroquine Phosphate 250mg Tablet (00143-1195) (Hikma Pharmaceuticals USA Inc.) (off market)	
Chloroquine Phosphate 250mg Tablet (00115-2790) (Impax Generics, a division of Impax Laboratories, Inc.) (off market)	

Chloroquine Phosphate Oral tablet	
	
Chloroquine Phosphate 250mg Tablet (00115-7056) (Impax Generics, a division of Impax Laboratories, Inc.) (off market)	
Chloroquine Phosphate 250mg Tablet (64980-0177) (Rising Pharmaceuticals Inc) (off market)	
Chloroquine Phosphate 250mg Tablet (64980-0177) (Rising Pharmaceuticals Inc)	
Chloroquine Phosphate 250mg Tablet (63304-0460) (Sun Pharmaceutical Industries, Inc.) (off market)	
Aralen 500mg Tablet (00280-0084) (Bayer Corp Consumer Care Div) (off market)	
Aralen 500mg Tablet (00024-0084) (Sanofi U.S. LLC) (off market)	 
Chloroquine Phosphate 500mg Tablet (00143-2125) (Hikma Pharmaceuticals USA Inc.) (off market)	
Chloroquine Phosphate 500mg Tablet (00115-7010) (Impax Generics, a division of Impax Laboratories, Inc.) (off market)	
Chloroquine Phosphate 500mg Tablet (55289-0856) (PD-Rx Pharmaceuticals, Inc.)	
Chloroquine Phosphate 500mg Tablet (43063-0454) (PD-Rx Pharmaceuticals, Inc.)	
Chloroquine Phosphate 500mg Tablet (64980-0178) (Rising Pharmaceuticals Inc) (off market)	
Chloroquine Phosphate 500mg Tablet (64980-0178) (Rising Pharmaceuticals Inc)	

Chloroquine Phosphate Oral tablet
Chloroquine Phosphate 500mg Tablet (63304-0461) (Sun Pharmaceutical Industries, Inc.) (off market)

Description/Classification

Description

Chloroquine is a 4-aminoquinoline anti-protozoal agent indicated for the treatment and prophylaxis of susceptible malaria strains and for the treatment of extraintestinal amebiasis. Chloroquine is not active against gametocytes and the exoerythrocytic forms including the hypnozoite stage of the *Plasmodium* parasites. Resistance to chloroquine is widespread. Irreversible retinal damage has been observed with use, and postmarketing cases of life-threatening and fatal cardiomyopathy, including ventricular arrhythmias and torsade de pointes (TdP), have been reported.[29758]

Updates for coronavirus disease 2019 (COVID-19):

Available data are limited. Due to a lack of clinical data, the National Institutes of Health (NIH) COVID-19 treatment guidelines do not give recommendations for or against the use of chloroquine; however, if used, guidelines advise monitoring for adverse events including QT interval prolongation.[65314] The FDA has issued an Emergency Use Authorization (EUA) for the use of chloroquine to treat COVID-19 patients for whom clinical trial participation is not feasible.[65171][65172] Preliminary data suggest chloroquine may have clinical benefit in the treatment of COVID-19 due to SARS-CoV-2. In results for more than 100 patients, chloroquine was superior to control in inhibiting the exacerbation of pneumonia.[65119][65124][65126] Additional data regarding clinical efficacy for COVID-19 are being evaluated.[65123]

Classifications

- General Anti-infectives Systemic
  - Antiparasitic Agents, Insecticides, and Repellants
    - Antiprotozoals
      - Agents for Amoebiasis and Other Protozoal Diseases
      - Antimalarials

Revision Date: 04/22/2020 11:23:53 PM

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Administration Information

General Administration Information

For storage information, see the specific product information within the How Supplied section.

Route-Specific Administration

Oral Administration

- May administer with meals in patients who experience gastrointestinal side effects. [63990]

Oral Solid Formulations

- To mitigate bitter tablet taste for children, tablets may be pulverized and enclosed in gelatin capsules. If the child is unable to swallow the capsules or tablets, the gelatin capsules may be opened and the contents mixed with a small amount of something sweet, such as applesauce, chocolate syrup, or jelly.[63990]

Extemporaneous Compounding-Oral

NOTE: Chloroquine extemporaneous suspension is not FDA-approved.

Extemporaneous chloroquine suspension has been compounded using the following formulations:

- Chloroquine phosphate 15 mg/mL in 1:1 Ora-Sweet and Ora-Plus, 1:1 Ora-Sweet SF and Ora-Plus, or Cherry Syrup:
    - Pulverize three 500-mg chloroquine phosphate tablets into a fine powder in a mortar.
    - Add approximately 15 mL of vehicle, which may be a 1:1 mixture of Ora-Sweet and Ora-Plus, 1:1 mixture of Ora-Sweet SF and Ora-Plus, or cherry syrup.
    - Add the vehicle in geometric portions almost to volume and mix thoroughly after each addition.
    - Transfer the contents of the mortar to a calibrated bottle.
    - Add enough vehicle to bring the final volume to 100 mL.
    - Label "Shake Well Before Using" and "Protect from Light"
    - *Storage:* The suspension is stable for 60 days when stored without light at 5 and 25 degrees C.[62145]
- Chloroquine base 10 mg/mL in Cherry Syrup:
    - Pulverize two 500-mg chloroquine phosphate tablets in a mortar after removing the film coating.
    - Levigate with a small amount of sterile water.
    - Add by geometric proportions a significant amount of cherry syrup, and levigate until a uniform mixture is obtained.
    - Transfer the contents of the mortar to a conical graduated cylinder.
    - Add enough cherry syrup to bring the final volume to 60 mL.
    - Pour the suspension into an amber glass bottle and shake vigorously.
    - *Storage:* The suspension is stable for up to 4 weeks under refrigeration (4 degrees C), at room temperature (22 to 25 degrees C), and at 29 degrees C. [62150]
- Chloroquine base 15 mg/mL in Glycerin or Distilled Water, Cologel (Lilly), and Simple Syrup/Cherry Syrup:
    - Pulverize two 500-mg chloroquine phosphate tablets in a mortar.
    - Levigate with a small amount of glycerin or distilled water.
    - Add 13 mL of Cologel, and levigate until a uniform mixture is obtained.
    - Add by geometric proportion a significant amount of a 2:1 simple syrup/cherry syrup mixture, and levigate until a uniform mixture is obtained.
    - Transfer the contents of the mortar to a conical graduated cylinder.
    - Add enough of the syrup mixture to bring the final volume to 40 mL.
    - Pour the suspension into an amber glass bottle and shake vigorously.
    - Label "Shake Well" and "Refrigerate".

- *Storage:* The suspension is stable for 3 days when stored in the refrigerator. [62172]

Clinical Pharmaceutics Information

From Trissel's 2™ Clinical Pharmaceutics Database

Chloroquine

1. **pH Range**

   pH 5.5 to 6.6 (as the hydrochloride salt)

   # References

   McEvoy GK (ed). AHFS Drug Information (current edition). Bethesda, MD: American Society of Health-System Pharmacists.

2. **Stability**

   Chloroquine sulfate in intact containers stored as directed by the manufacturer is stable until the labeled expiration date. Infusion Solutions: Chloroquine sulfate 0.5 mg/mL in sodium chloride 0.9% was reported by Martens et al. to be stable for 24 hours at 21 degree C protected from exposure to light.

   # References

   Anon. Manufacturer's information and labeling. (Package insert).

   Martens HJ, De Goede PN, van Loenen AC. Sorption of various drugs in polyvinyl chloride, glass, and polyethylene-lined infusion containers. Am J Hosp Pharm. 1990; 47:369-73

3. **Light Exposure**

   Chloroquine injection should be protected from exposure to light during long-term storage.

   # References

   Anon. Manufacturer's information and labeling. (Package insert).

   Anon. BIAM; l'Universite et l'Industrie Pharmaceutique, Banque de donnes automatisee surles medicaments (Biam), Paris, France. Accessed at: http://www2.biam2.org.

Anon. South African Electronic Package Inserts, Malahyde Information Systems. Accessed at http://home.intekom.com/pharm/intramed.

4. **Filtration**

Geary et al. reported that chloroquine exhibited binding to cellulose acetate filters. About 60% or more of the drug was lost from 10 mL of a chloroquine 0.32-mg/mL solution passed through Millipore and Nalgene 0.45-micron cellulose acetate filters. No drug loss occurred when the chloroquine solution was passed through a polycarbonate filter. The clinical implications, if any, of binding to filters from such a low concentration are uncertain.

References

Geary TG, Akood MA, Jensen JB. Characteristics of chloroquine binding to glass and plastic. Am J Trop Med Hyg. 1984; 32:19-23

5. **Sorption Leaching**

Geary et al. reported that chloroquine at low concentrations exhibits sorption to glass. As much as 30 to 40% was lost to glass test tubes from a 0.32 mg/mL solution. No loss due to sorption to polycarbonate, polystyrene, or polypropylene plastics was found. The clinical implications, if any, of sorption from such a low concentration are uncertain. Moreover, Martens et al. were unable to confirm this result. They found no sorption to glass bottles, polyvinyl chloride (PVC) plastic bags, and polyethylene-lined laminated bags from a chloroquine 0.5 mg/mL (as sulfate) solution.

References

D'Arcy PF. Drug interactions with medical plastics. Drug Intell Clin Pharm. 1083; 17:726-31

Geary TG, Akood MA, Jensen JB. Characteristics of chloroquine binding to glass and plastic. Am J Trop Med Hyg. 1984; 32:19-23

Martens HJ, De Goede PN, van Loenen AC. Sorption of various drugs in polyvinyl chloride, glass, and polyethylene-lined infusion containers. Am J Hosp Pharm. 1990; 47:369-73

6. **Stability Max**

Maximum reported stability period: In NS- 24 hours at room temperature

References

Martens HJ, De Goede PN, van Loenen AC. Sorption of various drugs in polyvinyl chloride, glass, and polyethylene-lined infusion containers. Am J Hosp Pharm. 1990; 47:369-73

Compounding Drug Information

From Trissel's 2™ Clinical Pharmaceutics Database

Chloroquine

1. **Identity/Properties**

Chloroquine is a white to slightly yellow, odorless crystalline powder with a bitter taste. The hydrochloride, a white crystalline substance, is prepared using hydrochloric acid. Chloroquine hydrochloride 123 mg is approximately equivalent to 100 mg of chloroquine. The phosphate is a white or almost white, odorless, hygroscopic crystalline powder with a bitter taste. Chloroquine phosphate 161 mg is approximately equivalent to 100 mg of chloroquine. Solubility: Chloroquine is only slightly soluble in water. The hydrochloride and the phosphate are freely soluble in water. The phosphate has an aqueous solubility of about 250 mg/mL but is almost insoluble in ethanol. pH: Chloroquine hydrochloride injection has a pH between 5.5 and 6.5. A 1% chloroquine phosphate solution has a pH of about 4.5.

References

Anon. Manufacturer's information and labeling. (Package insert and bulk material data sheet).

Anon. The Merck Index, Whitehouse Station, New Jersey: Merck & Co., Inc. Current edition.

Anon. Martindale The Complete Drug Reference. London: The Pharmaceutical Press. Current edition and selected information from prior editions.

Anon. The United States Pharmacopeia. Rockville, Maryland: The United States Pharmacopeial Convention. Current edition.

McEvoy GK (ed). AHFS Drug Information (current edition). Bethesda, MD: American Society of Health-System Pharmacists.

2. **General Stability Info**

Chloroquine products should be stored in well-closed containers. The injection (as the hydrochloride) should be stored at controlled room temperature and protected from freezing and temperatures exceeding 40degree C. The phosphate is light sensitive, discoloring upon light exposure.

References

Anon. Martindale The Complete Drug Reference. London: The Pharmaceutical Press. Current edition and selected information from prior editions.

Anon. The United States Pharmacopeia. Rockville, Maryland: The United States Pharmacopeial Convention. Current edition.

McEvoy GK (ed). AHFS Drug Information (current edition). Bethesda, MD: American Society of Health-System Pharmacists.

3. **Injection, extemporaneous**

Injections, like other sterile drugs, should be prepared in a suitable clean air environment using appropriate aseptic procedures. When prepared from non-sterile components, an appropriate and effective sterilization method must be employed. Allen reported on a compounded formulation of chloroquine phosphate 64.5-mg/mL injection. The injection had the following formula: Chloroquine phosphate- 6.45 g Benzyl alcohol- 2 g Sterile water for injection- qs 100 mL The recommended method of preparation is to dissolve the chloroquine phosphate powder in about 90 mL of sterile water for injection. The benzyl alcohol is then added and stirred until dissolved. Sterile water for injection sufficient to bring the volume to 100 mL is added and the solution is mixed well. The solution is to be filtered through a suitable 0.2-micron sterilizing filter and packaged in sterile containers. If no sterility test is performed, the USP specifies a beyond-use date of 24 hours at room temperature or three days stored under refrigeration because of concern for inadvertent microbiological contamination during preparation. However, if an official USP sterility test for each batch of drug is performed, the author recommended a beyond-use date of six months at room temperature because this formula is similar or the same as a commercial medication in some countries with an expiration date of two years or more.

References

Allen LV Jr. Chloroquine phosphate 64.5-mg/mL injection. Int J Pharmaceut Compound. 2009; 13:154

4. **Oral Liquid**

Study 1: Closson reported that chloroquine hydrochloride injection (Aralen HCl, Sanofi Winthrop) was added to simple syrup to make a 20-mg/mL oral pediatric dosage form. The product was incubated at 49degree C for 63 hours; no visible changes in physical appearance or consistency occurred. The product then was frozen at -6degree C for eight hours; it became a white frozen solid and reliquified upon warming to its original colorless, slightly hazy appearance. No chemical analysis was performed. Study 2: Allen and Erickson evaluated the stability of three chloroquine phosphate 15-mg/mL oral liquids extemporaneously compounded from tablets. Vehicles used in this study were (1) an equal parts mixture of Ora-Sweet and Ora-Plus (Paddock), (2) an equal parts mixture of Ora-Sweet SF and Ora-Plus (Paddock), and (3) cherry syrup (Robinson Laboratories) mixed 1:4 with simple syrup. Three chloroquine phosphate 500-mg tablets (Sanofi Winthrop) were crushed and comminuted to fine powder using a mortar and pestle. About 15 mL of the test vehicle was added to the powder and mixed to yield a uniform paste. Additional vehicle was added geo-metrically and brought to the final volume of 100 mL, mixing thoroughly after each addition. The process was repeated for each of the three test suspension vehicles. Samples of each of the finished suspensions were packaged in 120-mL amber poly-ethylene terephthalate plastic prescription bottles and stored at 5degree C and 25degree C. Because the

phosphate salt is freely soluble in water, the drug is in solution in these products. No visual changes or changes in odor were detected during the study. Stability-indicating HPLC analysis found little or no drug loss in any of the liquid products stored at either temperature after 60 days of storage. Study 3: Odusote and Nasipuri evaluated the stability of three syrup formulations (See Table 1 below) containing chloroquine phosphate 16 mg/mL prepared from bulk powder. The sucrose syrup formulation was prepared by adding the chloroquine phosphate powder and sodium benzoate to heated syrup and stirring until complete dissolution occurred. The flavor and color were then added. The other two formulations were prepared by dispersing the methylcellulose in some hot water followed by ice-cold water and subsequently keeping the mixture in a freezer. The other materials then were added and mixed well. After preparation, the syrups were packaged in amber bottles and stored at 5, 25, and 40degree C for 12 weeks. Chloroquine content was assessed spectrophotometrically. No change in chloroquine concentration and no observable physical change were found in samples from any storage temperature during storage. If clear bottles were used instead of amber, exposure to light resulted in about 6% drug loss in eight weeks. If the syrup pH was adjusted from the original pH 4.5 to 4.9 down to pH 3.5 with citric acid (used to help mask the bitter taste), the chloroquine concentration remained constant over 12 weeks at all temperatures. However, if 1% sodium carboxymethylcellulose was substituted as the viscosity agent, a white turbidity or precipitate appeared (depending on concentration) along with a sudden drop in viscosity, indicating an interaction with the chloroquine phosphate. Consequently, Odusote and Nasipuri recommended using only methylcellulose as the viscosity-imparting agent. Table 1. Chloroquine Phosphate Formulations Tested for Stability by Odusote and Nasipuri Formula 1: Chloroquine phosphate 1.6 g Sodium benzoate 0.2 g Essence of lemon grass 0.5 mL Yellow food color 0.2 mL Sucrose syrup 84% (w/v) qs 100mL Formula 2: Chloroquine phosphate 1.6 g Sodium benzoate 0.2 g Saccharin sodium 0.05 g Essence of lemon grass 0.5 mL Yellow food color 0.2 mL Methylcellulose 1.12% solution qs 100 mL Formula 3: Chloroquine phosphate 1.6 g Sodium benzoate 0.2 g Talin 0.05 g Essence of lemon grass 0.5 mL Yellow food color 0.2 mL Methylcellulose 1.12% solution qs 100 mL Study 4: Mirochnick et al. attempted to determine the stability of a chloroquine phosphate suspension prepared from tablets. Although no loss of drug was found by HPLC analysis, substantial increases in drug concentration at various time points indicated a nonuniform dispersion of the drug might have existed. Study 5: Van Doorne et al. evaluated the suitability of several antimicrobial preservatives for use in chloroquine phosphate 16-mg/mL syrup containing sucrose 66%. Chloroform had been used previously, but it is carcinogenic, potentially toxic to liver and kidneys, and is volatile resulting in loss of protection over time. Benzalkonium chloride is unsuitable because of its taste and incompatibilities. The best result was obtained using sorbic acid 1.5 g/L along with citric acid 2 g/L to reduce the pH to 4. Methylparaben 1.8 g/L with propylparaben 0.2 g/L also was acceptable, although the latter system was not as effective against Aspergillus niger. Study 6: Chandibhamar et al. evaluated the stability of a taste-masked suspension of chloroquine. Chloroquine phosphate 1.7 g was dissolved in 40 mL of simple syrup containing glycerin 5% (v/v). Then 30 mL of hot syrup containing pamoate sodium 1.3 g and sodium bicarbonate 0.56 g was slowly mixed in at a rate of 5 mL per minute with constant stirring of 30 to 80 RPM. A precipitate of chloroquine pamoate was produced. The suspension was adjusted to pH 6.0 and sodium benzoate 100 mg, amaranth, and raspberry flavor were added. The suspension was brought to 100 mL with additional syrup. The suspension exhibited a very slow rate of sedimentation. Spectroscopic analysis found the suspension remained stable over at least 42 days at 25 degree C with over 98% of the ion pair remaining and only 1.75% of free chloroquine present. Elevated temperature of 45 degree C resulted

in an approximate doubling of the rate of free chloroquine formation. Bioavailability of this suspension was comparable with chloroquine phosphate liquid.

References

Allen LV Jr, Erickson MA. Stability of alprazolam, chloroquine phosphate, cisapride, enalapril maleate, and hydralazine hydrocloride in extemporaneously compounded oral liquids. Am J Health-Syst Pharm. 1998; 55:1915-20

Chandibhammar V, Yadav MR, Murthy RSR. Studies on the development of taste-masked suspension of chloroquine. Boll Chim Farm. 2004; 143:377-82

Closson RG. Liquid dosage form of chloroquine. Drug Intell Clin Pharm. 1988; 22:347

Mironchnick M, Barnett E, Clarke DF, et al. Stability of chloroquine in an extemporaneously prepared suspension stored at three temperatures. Pediatr Infect Dis J. 1994; 13:817-8

Odusote MO, Nasipuri RN. Effect of pH and storage conditions on the stability of a novel chloroquine phosphate syrup formulation. Pharm Ind. 1988; 50:367-9

Van Doorne H, Wieringa NF, Bosch EH, et al. The suitability of some preservatives in chloroquine phosphate syrup. Pharm Weekbl Sci Ed. 1988; 10:170-2

5. **Topical**

Brouwers et al. developed a topical gel containing chloroquine phosphate for use as a microbicide against HIV-1 infection. The gel was prepared by adding a mixture of hydroxyethyl cellulose 1.6% wt/wt and glycerol 2.5% to a solution of methyl- and propylparabens 0.18% and 0.02%, respectively. When mixed, a clear and homogeneous gel formed. The pH of the gel was decreased by adding lactic acid 0.05% and adjusting to pH 4.5 by adding sodium hydroxide 1 M. Chloroquine phosphate powder was added to the gel in varying amounts of 0.3, 1.3, 3, 10, and 30 mg/g of gel and mixed thoroughly to assure complete dissolution and uniformity. Entrapped air was removed by using reduced pressure. The completed gels were packaged in capped syringes. The gels were clear and homogeneous with an osmolality of 300 mOsm/kg, a pH of 4.6, and a viscosity of 1.4 Pa s. Samples containing chloroquine phosphate 3 mg/g were stored at 40degree C and 75% relative humidity for three months. Little or no change in gel mass, pH, and osmolality occurred. Viscosity decreased by 14%, which is similar to changes observed in previously reported observations for hydroxyethyl cellulose gels. HPLC analysis found that little or no change in chloroquine concentrations occurred over the three-month test period.

References

Brouwers J, Vermeire K, Schols D, et al. Development and in vitro evaluation of chloroquine gels as microbicides against HIV-1 infection. Virology. 2008; 378:306-10

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62150 – Mirochnick M, Barnett E, Clarke DF, et al. Stability of chloroquine in an extemporaneously prepared suspension stored at three temperatures. Pediatr Infect Dis J 1994;13:827-8.

62172 – ASHP (American Society of Hospital Pharmacists). Committee on extemporaneous formulations. Handbook on Extemporaneous Formulations. Bethesda MD: ASHP, 1987.

63990 – Arguin PM, Tan KR. Chapter 3. Infectious diseases related to travel. Malaria. In. Centers for Disease Control and Prevention. 2018 Yellow Book - Traveler's Health. Atlanta: U.S. Department of Health and Human Services, Public Health Service. https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/malaria

Adverse Reactions

- abdominal pain
- acute generalized exanthematous pustulosis (AGEP)
- agitation
- agranulocytosis
- alopecia
- anaphylactic shock
- anaphylactoid reactions
- angioedema
- anorexia
- anxiety
- aplastic anemia
- AV block
- blurred vision
- bundle-branch block
- cardiomyopathy
- confusion
- corneal deposits
- corneal opacification
- delirium
- depression
- diarrhea
- Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)
- dyskinesia
- elevated hepatic enzymes
- erythema multiforme
- exfoliative dermatitis
- hair discoloration
- hallucinations
- headache
- hearing loss
- hemolysis
- hemolytic anemia
- hepatitis
- hypoglycemia
- hyporeflexia
- hypotension
- insomnia
- macular degeneration
- myasthenia
- myopathy
- nausea
- neutropenia
- night blindness
- pancytopenia
- photosensitivity
- pruritus
- psoriasis
- psychosis
- QT prolongation
- retinopathy
- scotomata
- seizures
- skin discoloration
- Stevens-Johnson syndrome
- suicidal ideation
- thrombocytopenia
- tinnitus
- torsade de pointes
- torticollis
- toxic epidermal necrolysis
- urticaria
- ventricular fibrillation

- ventricular tachycardia
- visual impairment
- vomiting
- weakness

Irreversible maculopathy and macular degeneration have been reported with chloroquine or other 4-aminoquinoline compounds during postmarketing use. Irreversible retinopathy with retinal pigment changes (bull's eye appearance) and visual field defects (paracentral scotomas) have been reported in patients receiving long-term or high-dose 4-aminoquinoline therapy. Visual impairment (i.e., blurred vision and difficulty in focusing or accommodation), nyctalopia (night blindness), scotomatous vision with field defects of paracentral, pericentral ring types, and typically temporal scotomata (e.g., difficulty in reading with words tending to disappear, seeing half an object, misty vision, and fog before the eyes), and reversible corneal opacification (corneal deposits) have been reported. For patients with significant risk factors, monitoring should include annual examinations which include best corrected distance visual acuity (BCVA), automated threshold visual field (VF), and spectral domain optical coherence tomography (SD-OCT). For individuals without significant risk factors, annual exams can usually be deferred until 5 years of treatment. Discontinue chloroquine if ocular toxicity is suspected, and monitor the patient closely as retinal changes and visual disturbances may progress after cessation of therapy.[29758]

Erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis, exfoliative dermatitis, pleomorphic skin eruptions, skin and mucosal pigmentary changes (skin discoloration), lichen planus-like eruptions, pruritus, drug reaction with eosinophilia and systemic symptoms (DRESS), photosensitivity, hair loss (alopecia), bleaching of hair pigment (hair discoloration), urticaria, anaphylactoid reactions or anaphylactic shock, and angioedema have been reported during postmarketing use of chloroquine or other 4-aminoquinoline compounds. An acute attack of psoriasis can be precipitated by chloroquine in predisposed patients.[29758]

Chloroquine has been associated with acute generalized exanthematous pustulosis (AGEP). The non-follicular, pustular, erythematous rash starts suddenly and is associated with fever above 38 degrees C. Drugs are the main cause of AGEP. A period of 2 to 3 weeks after an inciting drug exposure appears necessary for a first episode of AGEP. Unintentional reexposure may cause a second episode within 2 days.[27736]

Hematological adverse reactions have been reported during postmarketing use of chloroquine or other 4-aminoquinoline compounds and include reversible agranulocytosis, aplastic anemia, pancytopenia, neutropenia, and thrombocytopenia. Chloroquine may cause hemolysis and hemolytic anemia in patients with glucose-6-phosphate dehydrogenase deficiency (G6PD deficiency).[29758]

During postmarketing use, chloroquine and/or other 4-aminoquinoline compounds have been associated with sensorimotor disorders as well as skeletal muscle myopathy or neuromyopathy leading to progressive weakness (myasthenia) and atrophy of proximal muscle groups, depressed tendon reflexes (hyporeflexia), and abnormal nerve conduction. Periodically test knee and ankle reflexes to detect any evidence of muscular weakness. Discontinue chloroquine if weakness develops.[29758]

Nerve type deafness, tinnitus, and reduced hearing (hearing loss) in patients with preexisting auditory damage have been reported during postmarketing use of chloroquine or other 4-aminoquinoline compounds. Discontinue chloroquine with any hearing defects, and monitor the patient closely.[29758]

Cardiovascular adverse reactions associated with chloroquine or other 4-aminoquinoline compounds during postmarketing include cardiomyopathy (which may result in cardiac failure and in some cases fatal outcome), electrocardiogram (ECG) changes (particularly, inversion or flattening of the T-wave with widening of the QRS complex), and hypotension. Cardiac arrhythmias, conduction disorders such as bundle-branch block and AV block, QT prolongation, torsade de pointes (TdP), ventricular arrhythmias (e.g., ventricular tachycardia, ventricular fibrillation) have been reported, including fatal cases. The risk is greater with higher doses, although cases have been reported with therapeutic doses. Chronic toxicity should be considered when conduction disorders, such as bundle-branch block or AV block, are diagnosed. Additionally, cases of cardiomyopathy resulting in cardiac failure with some cases of fatal outcome have been reported with chloroquine. Prompt discontinuation of chloroquine may prevent life-threatening complications if cardiotoxicity is suspected.[28225] [28229] [28230] [28231] [29758]

Adverse gastrointestinal effects noted with chloroquine or other 4-aminoquinoline compounds during postmarketing include hepatitis, elevated hepatic enzymes, nausea, vomiting, abdominal pain/cramps, diarrhea, and anorexia.[29758] Gastric effects can be minimized by taking chloroquine with food.[61673]

Nervous system adverse reactions associated with chloroquine or other 4-aminoquinoline compounds during postmarketing include headache (usually mild and transient), seizures, polyneuropathy, acute extrapyramidal symptoms (e.g., dystonia, dyskinesia, tongue protrusion, torticollis), and neuropsychiatric changes including psychosis, delirium, anxiety, agitation, insomnia, hallucinations, confusion, personality changes, depression, and suicidal ideation/behavior. Extrapyramidal symptoms usually resolve after treatment discontinuation and/or symptomatic treatment.[29758]

Chloroquine has been shown to cause severe hypoglycemia including loss of consciousness that could be life threatening in patients treated with or without antidiabetic medications. Monitor blood glucose and adjust treatment as necessary in patients presenting with clinical symptoms of hypoglycemia during chloroquine treatment.[29758]

Revision Date: 08/02/2017 10:28:02 AM

References

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28229 – Demaziere J, Fourcade JM, Busseuil CT, et al. The hazards of chloroquine self prescription in west Africa. J Toxicol Clin Toxicol 1995;33:369-70.

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Contraindications/Precautions

Absolute contraindications are italicized.

- *chloroquine hypersensitivity*
- *ocular disease*
- accidental exposure
- alcoholism
- antimicrobial resistance
- apheresis
- Asian patients
- AV block
- bradycardia
- breast-feeding
- cardiomyopathy
- celiac disease
- children
- diabetes mellitus
- Fabry disease
- females
- fever
- G6PD deficiency
- geriatric
- hearing impairment
- heart failure
- hepatic disease
- human immunodeficiency virus (HIV) infection
- hydroxychloroquine hypersensitivity
- hyperparathyroidism
- hypocalcemia
- hypoglycemia
- hypokalemia
- hypomagnesemia
- hypothermia
- hypothyroidism
- infants
- infertility
- long QT syndrome
- myocardial infarction
- neonates
- neurological disease
- pheochromocytoma
- porphyria
- pregnancy
- psoriasis
- QT prolongation
- renal failure
- renal impairment
- rheumatoid arthritis
- seizure disorder
- seizures
- sickle cell disease
- sleep deprivation
- stroke
- systemic lupus erythematosus (SLE)

Chloroquine is reported in the literature to be a weak genotoxic agent that may elicit both gene mutations and chromosomal/DNA breaks. Mechanisms may involve DNA intercalation or induction of oxidative stress. Both positive and negative results have been reported with in vitro reverse gene mutation assays and with in vivo animal studies. The chromosomal effects were not observed when chloroquine was administered to animals orally.[29758]

Antimicrobial resistance to chloroquine therapy is widespread in *P. falciparum* and is reported in *P. vivax*. Prior to chloroquine use, it should be ascertained whether chloroquine is appropriate for use based on resistance patterns. Information regarding the geographic areas where resistance to chloroquine occurs is available from the Centers for Disease Control and Prevention.[29758]

Use of chloroquine for indications other than acute malaria is contraindicated in patients with *ocular disease*, specifically those who have retinal or visual field changes of any etiology. Irreversible retinal damage has been observed in some patients who received chloroquine. Significant risk factors for retinal damage include daily doses of chloroquine phosphate more than 2.3 mg/kg of actual body weight, duration of use more than 5 years, subnormal glomerular filtration (renal impairment or renal failure), use of some concomitant drug products such as tamoxifen, and concurrent macular disease. Baseline ophthalmological examination should be performed within the first year of starting chloroquine and should include best corrected distance visual acuity (BCVA), automated threshold visual field (VF) of the central 10 degrees (with retesting if an abnormality is noted), and spectral domain optical coherence tomography (SD-OCT). In Asian patients, retinal toxicity may first be noticed outside the macula, and VF testing should be performed in the central 24 degrees instead of the central 10 degrees. For patients with significant risk factors, monitoring should include annual examinations which include BCVA, VF, and SD-OCT. For individuals without significant risk factors, annual exams can usually be deferred until 5 years of treatment. Discontinue chloroquine if ocular toxicity is suspected, and monitor the patient closely as retinal changes and visual disturbances may progress after cessation of therapy.[29758] The use of chloroquine should be approached with caution in patients with Fabry disease, particularly those with ocular symptoms. The drug can cause a keratopathy that is clinically and ultrastructurally indistinguishable from keratopathy caused by Fabry disease; this drug-induced keratopathy is reversible with drug cessation. In addition, chloroquine poses a theoretical risk of decreased intracellular alpha-galactosidase A activity in Fabry disease patients. Chloroquine has been reported to induce clinical symptoms that mimic those of Fabry disease, including formation of inclusion bodies that are biochemically and ultrastructurally similar in most of the cells affected by Fabry disease (e.g., striated muscle, smooth muscle, etc.). The distinguishing factor is that the ultrastructural features of chloroquine toxicity in striated muscle, curvilinear bodies, are not present in renal cells.[30609]

Chloroquine is contraindicated in patients with known *chloroquine hypersensitivity*, or with a known allergy to 4-aminoquinolines. Patients with hydroxychloroquine hypersensitivity may have cross sensitivity to chloroquine.[29758]

QT prolongation, torsade de pointes (TdP), and ventricular arrhythmias have been reported with chloroquine use. The risk is greater with higher doses, although cases have been reported with therapeutic doses.[28225] [28229] [28230] [28231] [29758] Use chloroquine with caution in patients with conditions that may increase the risk of QT prolongation including congenital long QT syndrome, bradycardia, AV block, heart failure, stress-related cardiomyopathy, myocardial infarction, stroke, hypomagnesemia, hypokalemia, hypocalcemia, or in patients receiving medications known to prolong the QT interval or cause electrolyte imbalances. Females, geriatric patients, patients with sleep deprivation, pheochromocytoma, sickle cell disease, hypothyroidism, hyperparathyroidism, hypothermia, systemic inflammation (e.g., human immunodeficiency virus (HIV) infection, fever, and some autoimmune diseases including rheumatoid arthritis, systemic lupus erythematosus (SLE), and celiac disease) and patients undergoing apheresis procedures (e.g., plasmapheresis [plasma exchange], cytapheresis) may also be at increased risk for QT prolongation.[28432] [28457] [29758] [56592] [65180] In patients taking chloroquine with another drug that also prolongs the QT interval (see Therapeutic Drug Monitoring for recommendations specific to azithromycin with chloroquine used together for COVID-19), obtain a pre-treatment QTc using a standard 12-lead ECG, telemetry, or mobile ECG device. Obtain baseline electrolytes, including calcium, magnesium, and potassium. Determine if the patient is currently on any QT-prolonging medications that can be discontinued. Document high-risk cardiovascular and comorbid conditions. If the baseline QTc is 500 msec or more and/or the patient has an inherent tendency to develop an exaggerated QTc response (i.e., change of 60 msec or more), correct contributing electrolyte abnormalities, review and discontinue other unnecessary QTc prolonging medications, and proceed with close QTc surveillance. Obtain an initial on-therapy QTc

approximately 2 to 4 hours after the first dose and then again at 48 and 96 hours after treatment initiation. If the baseline QTc is 460 to 499 msec (prepubertal), 470 to 499 msec (postpubertal males), or 480 to 499 msec (postpubertal females), correct contributing electrolyte abnormalities, review and discontinue other unnecessary QTc prolonging medications, and obtain an initial on-therapy QTc 48 and 96 hours after treatment initiation. If the baseline QTc is less than 460 msec (prepubertal), less than 470 msec (postpubertal males), or less than 480 msec (postpuberal females), correct electrolyte abnormalities and obtain an initial on-therapy QTc 48 and 96 hours after treatment initiation.[65170] Consider chronic chloroquine toxicity when conduction disorders, such as bundle-branch block or AV block, are diagnosed. Cases of cardiomyopathy resulting in cardiac failure, sometimes fatal, have been reported with chloroquine. Prompt discontinuation of chloroquine may prevent life-threatening complications if cardiotoxicity is suspected.[29758]

Chloroquine should not be used in patients with psoriasis unless the benefit to the patient outweighs the potential risks because it may precipitate a severe attack of psoriasis.[29758]

Chloroquine should be used with caution in patients with hepatic disease or alcoholism because the drug is metabolized in the liver and accumulation can occur producing toxic effects. Patients receiving other hepatotoxic drugs also should be treated with caution.[29758]

Chloroquine should be used with caution in patients with neurological disease including preexisting hearing impairment or seizure disorder. Polyneuritis, ototoxicity, seizures, neuromyopathy, and acute extrapyramidal symptoms (dystonia, dyskinesia, tongue protrusion, torticollis) have occurred with chloroquine therapy. Symptoms of muscle weakness and response of knee and ankle reflexes should be investigated regularly. If muscle weakness, extrapyramidal symptoms, or any defects in hearing occur during chloroquine therapy, the drug should be discontinued immediately and the patient observed closely.[29758]

Chloroquine can exacerbate porphyria or may cause hemolysis in patients with glucose-6-phosphate dehydrogenase deficiency (G6PD deficiency). Use chloroquine with caution in patients with these conditions. Blood monitoring for hemolytic anemia in G6PD deficiency patients may be necessary, particularly with concomitant use of other medications associated with hemolysis.[29758]

Use chloroquine with caution in patients with hypoglycemia or diabetes mellitus. Chloroquine can cause severe, life-threatening hypoglycemia in patients with or without antidiabetic medications. Warn patients about the risk of hypoglycemia and the associated clinical signs and symptoms. Monitor blood glucose and adjust treatment as necessary in patients presenting with clinical symptoms of hypoglycemia during chloroquine treatment.[29758]

Children are especially sensitive to the 4-aminoquinoline compounds. Fatalities have been reported after accidental exposure of chloroquine; some cases involved relatively small doses (e.g., 0.75 g or 1 g in a 3-year-old child). Strongly warn patients to keep chloroquine out of the reach of pediatric patients, including neonates, infants, children, and adolescents.[29758]

Weigh the benefit of chloroquine prophylaxis or treatment of malaria against the potential risk to the fetus, and consider the drug's potential to remain in the body for several months after discontinuation of therapy.[29758] [63990] [64059] In humans at recommended doses for prophylaxis and treatment of malaria, observational studies as well as a meta-analysis, including a small number of prospective studies with chloroquine during pregnancy, have shown no increase in the rate of birth defects or spontaneous abortions.[29758] Guidelines recommend chloroquine as a treatment option for acute malaria and for prophylaxis in pregnant women during all trimesters. Chloroquine crosses the placenta, but the potential damage to the mother from malaria is greater than the drug's risk to the fetus. Weekly prophylactic doses appear to have minimal adverse effects when administered during pregnancy.[63990] [64059] Animal studies showed embryo-fetal

developmental toxicity at doses 3 to 16 times the maximum recommended therapeutic dose and the potential of genotoxicity in some test systems. Autoradiographic studies have shown accumulation in the eyes and ears when chloroquine is administered at the start or end of gestation in animal studies.[29758]

Use caution when administering chloroquine to breast-feeding women. Chloroquine is excreted into breast milk. The excretion of chloroquine and the major metabolite, desethylchloroquine, in breast milk was investigated in 11 lactating mothers following a single oral dose of chloroquine (600 mg base).The maximum daily dose of the drug that the infant received from breast-feeding was about 0.7% of the maternal start dose of the drug in malaria chemotherapy. Separate chemoprophylaxis for an infant is required.[29758] However, previous American Academy of Pediatrics (AAP) recommendations consider chloroquine usually compatible with breast-feeding, and chloroquine has an established dosage in infants.[27500]

Chloroquine should be used with caution in males because animal studies suggest that infertility is possible; after 30 days of oral treatment, testosterone levels and weight of testes, epididymis, seminal vesicles, and prostate decreased.[29758]

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Mechanism of Action

Chloroquine, a 4-aminoquinoline, is an anti-protozoal agent. The precise mechanism is unknown. Chloroquine may exert its effect against *Plasmodium* species by concentrating in the acid vesicles of the parasite and by inhibiting polymerization of heme. It can also inhibit certain enzymes by its interaction with DNA. Chloroquine is not active against gametocytes and the exoerythrocytic forms, including the hypnozoite stage (*P. vivax* and *P. ovale*) of the *Plasmodium* parasites. Organisms with reduced susceptibilities to hydroxychloroquine also show reduced susceptibilities to chloroquine.[29758]

Although the mechanisms underlying the antiinflammatory and immunomodulatory effects of chloroquine are unknown, several possible mechanisms of action have been proposed. It is unclear if these mechanisms work similarly for rheumatic and autoimmune diseases. Potential mechanisms include reduced cytokine production, inhibition of immune effector cells, inhibition of platelet function, protection of the cell surface from external disturbances, competitive binding to nucleic acid ligands or toll-like receptors (TLRs), interference with lysosomal function, reduction of leakage of lysosomal enzymes, and interference with endosomal NADPH oxidase (NOX).[61727] [61728] [61729]

There are several potential mechanisms by which chloroquine may be active against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). These include inhibition of viral enzymes or processes such as viral DNA and RNA polymerase, viral protein glycosylation, virus assembly, new virus particle transport, and virus release. Other mechanisms may also involve ACE2 cellular receptor inhibition, acidification at the surface of the cell membrane inhibiting fusion of the virus, and immunomodulation of cytokine release.[61729] [61732] [65120] [65121] [65139] [65140] [65141] [65142] [65143]

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Pharmacokinetics

Chloroquine is administered orally. It is widely distributed into body tissues, with higher concentrations in the liver, kidneys, spleen, and lungs. Leukocytes also concentrate the drug. Smaller amounts of the drug are found in the brain and spinal cord. Cells containing melanin in the eyes and skin bind strongly to chloroquine. The drug also concentrates in erythrocytes and is bound to platelets and granulocytes. It is about 55% bound to plasma protein.[29758] [61731] [62151]

Excretion of chloroquine is largely through urine, but this is a slow process and may be increased by acidification of the urine. Chloroquine undergoes appreciable degradation in the body, and the major metabolite is desethylchloroquine. Slightly more than half of a dose is excreted in urine as unchanged drug and about 25% as the major metabolite; bisdesethylchloroquine and other metabolic products are found in small amounts. A small portion of the unabsorbed drug is excreted in the feces. Elimination appears to take place in a biphasic manner. The elimination half-life is 108 to 291 hours.[29758] [61731] [62151]

Affected cytochrome P450 isoenzymes and drug transporters: CYP2C8, CYP2D6, CYP3A4, P-gp

In vitro data suggest that chloroquine is metabolized primarily by CYP2C8 and CYP3A4, and to a much lesser extent, by CYP2D6.[65236] [65239] It has also been shown to be an inhibitor of the drug transporter P-glycoprotein (P-gp).[65237]

Route-Specific Pharmacokinetics

- **Oral Route**

  After oral administration, chloroquine is rapidly and almost completely absorbed from the gastrointestinal tract.[29758][62151] The Tmax is 2.7 to 6.9 hours with a Cmax of 283 to 1,430 ng/mL and an AUC of 8.2 to 140 mcg x hour/mL.[62151] A single study showed that the AUC in patients with malaria was higher than in normal volunteers (281 vs. 122 mcg x mL/L x hour).[61760]

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Pregnancy/Breast-feeding

Pregnancy

Weigh the benefit of chloroquine prophylaxis or treatment of malaria against the potential risk to the fetus, and consider the drug's potential to remain in the body for several months after discontinuation of therapy.[29758] [63990] [64059] In humans at recommended doses for prophylaxis and treatment of malaria, observational studies as well as a meta-analysis, including a small number of prospective studies with chloroquine during pregnancy, have shown no increase in the rate of birth defects or spontaneous abortions.[29758] Guidelines recommend chloroquine as a treatment option for acute malaria and for prophylaxis in pregnant women during all trimesters. Chloroquine crosses the placenta, but the potential damage to the mother from malaria is greater than the drug's risk to the fetus. Weekly prophylactic doses appear to have minimal adverse effects when administered during pregnancy.[63990] [64059] Animal studies showed embryo-fetal developmental toxicity at doses 3 to 16 times the maximum recommended therapeutic dose and the potential of genotoxicity in some test systems. Autoradiographic studies have shown accumulation in the eyes and ears when chloroquine is administered at the start or end of gestation in animal studies.[29758]

Breast-Feeding

Use caution when administering chloroquine to breast-feeding women. Chloroquine is excreted into breast milk. The excretion of chloroquine and the major metabolite, desethylchloroquine, in breast milk was investigated in 11 lactating mothers following a single oral dose of chloroquine (600 mg base).The maximum daily dose of the drug that the infant received from breast-feeding was about 0.7% of the maternal start dose of the drug in malaria chemotherapy. Separate chemoprophylaxis for an infant is required.[29758] However, previous American Academy of Pediatrics (AAP) recommendations consider chloroquine usually compatible with breast-feeding, and chloroquine has an established dosage in infants.[27500]

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Interactions

Level 1 (Severe)

- Cisapride
- Dronedarone
- Pimozide
- Thioridazine

Level 2 (Major)

- Acarbose
- Acetohexamide
- Aclidinium; Formoterol
- Albiglutide
- Albuterol
- Albuterol; Ipratropium
- Alfuzosin
- Alogliptin
- Alogliptin; Metformin
- Alogliptin; Pioglitazone
- Alpha-glucosidase Inhibitors
- Aluminum Hydroxide
- Aluminum Hydroxide; Magnesium Carbonate
- Aluminum Hydroxide; Magnesium Hydroxide
- Aluminum Hydroxide; Magnesium Hydroxide; Simethicone
- Aluminum Hydroxide; Magnesium Trisilicate
- Amiodarone
- Amitriptyline
- Amitriptyline; Chlordiazepoxide
- Amoxicillin; Clarithromycin; Lansoprazole
- Amoxicillin; Clarithromycin; Omeprazole
- Anagrelide
- Antacids
- Apomorphine
- Arformoterol
- Aripiprazole
- Arsenic Trioxide
- Artemether; Lumefantrine
- Asenapine
- Aspirin, ASA; Citric Acid; Sodium Bicarbonate
- Atomoxetine
- Azithromycin
- Bedaquiline
- Bismuth Subcitrate Potassium; Metronidazole; Tetracycline
- Bismuth Subsalicylate; Metronidazole; Tetracycline
- Budesonide; Formoterol
- Buprenorphine
- Buprenorphine; Naloxone
- Calcium Carbonate
- Calcium Carbonate; Magnesium Hydroxide
- Calcium Carbonate; Risedronate
- Calcium Carbonate; Simethicone
- Canagliflozin
- Canagliflozin; Metformin
- Ceritinib
- Chlorpromazine
- Chlorpropamide
- Cimetidine
- Ciprofloxacin
- Citalopram
- Clarithromycin
- Clofazimine
- Clomipramine
- Clozapine
- Codeine; Phenylephrine; Promethazine
- Codeine; Promethazine
- Crizotinib
- Cyclosporine
- Dapagliflozin
- Dapagliflozin; Metformin
- Dapagliflozin; Saxagliptin
- Dasatinib
- Degarelix
- Desflurane

- Desipramine
- Deutetrabenazine
- Dextromethorphan; Promethazine
- Dextromethorphan; Quinidine
- Dipeptidyl Peptidase-4 Inhibitors
- Disopyramide
- Dofetilide
- Dolasetron
- Dolutegravir; Rilpivirine
- Donepezil
- Donepezil; Memantine
- Doxepin
- Droperidol
- Dulaglutide
- Efavirenz
- Efavirenz; Emtricitabine; Tenofovir
- Efavirenz; Lamivudine; Tenofovir Disoproxil Fumarate
- Eliglustat
- Empagliflozin
- Empagliflozin; Linagliptin
- Empagliflozin; Linagliptin; Metformin
- Empagliflozin; Metformin
- Emtricitabine; Rilpivirine; Tenofovir alafenamide
- Emtricitabine; Rilpivirine; Tenofovir disoproxil fumarate
- Encorafenib
- Enflurane
- Entrectinib
- Eribulin
- Ertugliflozin
- Ertugliflozin; Metformin
- Ertugliflozin; Sitagliptin
- Erythromycin
- Erythromycin; Sulfisoxazole
- Escitalopram
- Exenatide
- Ezogabine
- Fingolimod
- Flecainide
- Fluconazole
- Fluoxetine
- Fluoxetine; Olanzapine
- Fluphenazine
- Fluticasone; Salmeterol
- Fluticasone; Umeclidinium; Vilanterol
- Fluticasone; Vilanterol
- Fluvoxamine
- Formoterol
- Formoterol; Mometasone
- Foscarnet
- Gemifloxacin
- Gemtuzumab Ozogamicin
- Gilteritinib
- Glasdegib
- Glimepiride
- Glimepiride; Pioglitazone
- Glimepiride; Rosiglitazone
- Glipizide
- Glipizide; Metformin
- Glyburide
- Glyburide; Metformin
- Glycopyrrolate; Formoterol
- Goserelin
- Granisetron
- Halogenated Anesthetics
- Haloperidol
- Halothane
- Histrelin
- Hydroxyzine
- Ibutilide
- Iloperidone
- Imipramine
- Incretin Mimetics
- Indacaterol
- Indacaterol; Glycopyrrolate
- Inotuzumab Ozogamicin
- Insulin Aspart
- Insulin Aspart; Insulin Aspart Protamine
- Insulin Degludec
- Insulin Degludec; Liraglutide
- Insulin Detemir
- Insulin Glargine
- Insulin Glargine; Lixisenatide
- Insulin Glulisine
- Insulin Lispro
- Insulin Lispro; Insulin Lispro Protamine
- Insulin, Inhaled
- Insulins
- Isoflurane
- Isophane Insulin (NPH)
- Itraconazole
- Ivosidenib
- Ketoconazole
- Lanthanum Carbonate
- Lapatinib
- Lefamulin
- Lente Insulin
- Lenvatinib
- Leuprolide
- Leuprolide; Norethindrone
- Levalbuterol
- Levofloxacin
- Linagliptin
- Linagliptin; Metformin

- Liraglutide
- Lithium
- Lixisenatide
- Lofexidine
- Lomefloxacin
- Long-acting beta-agonists
- Loperamide
- Loperamide; Simethicone
- Lopinavir; Ritonavir
- Macimorelin
- Magnesium Hydroxide
- Maprotiline
- Mefloquine
- Meglitinides
- Meperidine; Promethazine
- Metaproterenol
- Metformin
- Metformin; Pioglitazone
- Metformin; Repaglinide
- Metformin; Rosiglitazone
- Metformin; Saxagliptin
- Metformin; Sitagliptin
- Methadone
- Metronidazole
- Midostaurin
- Mifepristone
- Miglitol
- Mirtazapine
- Moxifloxacin
- Nateglinide
- Nilotinib
- Norfloxacin
- Nortriptyline
- Octreotide
- Ofloxacin
- Olanzapine
- Olodaterol
- Omeprazole; Sodium Bicarbonate
- Ondansetron
- Osilodrostat
- Osimertinib
- Oxaliplatin
- Paliperidone
- Panobinostat
- Pasireotide
- Pazopanib
- Penicillamine
- Pentamidine
- Perphenazine
- Perphenazine; Amitriptyline
- Phenylephrine; Promethazine
- Pimavanserin
- Pioglitazone
- Pirbuterol
- Pitolisant
- Posaconazole
- Pramlintide
- Primaquine
- Procainamide
- Prochlorperazine
- Promethazine
- Propafenone
- Protriptyline
- Quetiapine
- Quinidine
- Quinine
- Rabies Vaccine
- Ranolazine
- Regular Insulin
- Regular Insulin; Isophane Insulin (NPH)
- Repaglinide
- Ribociclib
- Ribociclib; Letrozole
- Rilpivirine
- Risperidone
- Romidepsin
- Rosiglitazone
- Salmeterol
- Saquinavir
- Saxagliptin
- Semaglutide
- Sertraline
- Sevoflurane
- SGLT2 Inhibitors
- Short-acting beta-agonists
- Simvastatin; Sitagliptin
- Siponimod
- Sitagliptin
- Sodium Bicarbonate
- Solifenacin
- Sorafenib
- Sotalol
- Sulfonylureas
- Sunitinib
- Tacrolimus
- Tamoxifen
- Telavancin
- Telithromycin
- Terbutaline
- Tetrabenazine
- Thiazolidinediones
- Tiotropium; Olodaterol
- Tolazamide
- Tolbutamide
- Tolterodine
- Toremifene

- Trazodone
- Tricyclic antidepressants
- Trifluoperazine
- Trimipramine
- Triptorelin
- Ultralente Insulin
- Umeclidinium; Vilanterol
- Vandetanib
- Vardenafil
- Vemurafenib
- Venlafaxine
- Vigabatrin
- Voriconazole
- Vorinostat
- Ziprasidone

Level 3 (Moderate)

- Ampicillin
- Articaine; Epinephrine
- Atropine; Hyoscyamine; Phenobarbital; Scopolamine
- Belladonna Alkaloids; Ergotamine; Phenobarbital
- Betrixaban
- Bupivacaine
- Bupivacaine Liposomal
- Bupivacaine; Lidocaine
- Carbamazepine
- Chloroprocaine
- Cobimetinib
- Dabigatran
- Dapsone
- Digoxin
- Edoxaban
- Interferon Alfa-2a
- Interferon Alfa-2b
- Interferon Alfa-2b; Ribavirin
- Interferon Alfa-n3
- Interferon Alfacon-1
- Interferon Beta-1a
- Interferon Beta-1b
- Interferon Gamma-1b
- Interferons
- Lidocaine
- Mepivacaine
- Mepivacaine; Levonordefrin
- Peginterferon Alfa-2a
- Peginterferon Alfa-2b
- Peginterferon beta-1a
- Penicillin G Benzathine; Penicillin G Procaine
- Penicillin G Procaine
- Phenobarbital
- Phenytoin
- Ponatinib
- Prilocaine
- Prilocaine; Epinephrine
- Ropivacaine
- Succinylcholine
- Tetracaine
- Trametinib

Level 4 (Minor)

- Praziquantel
- Telbivudine

Acarbose: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the alpha-glucosidase inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Acetohexamide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Aclidinium; Formoterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG

at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Albiglutide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Albuterol: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Albuterol; Ipratropium: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Alfuzosin: (Major) Avoid coadministration of chloroquine with alfuzosin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Alfuzosin may prolong the QT interval in a dose-dependent manner. [28229] [28230] [28231] [28261] [65157] [65170]

Alogliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Alogliptin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful

monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Alogliptin; Pioglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Alpha-glucosidase Inhibitors: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the alpha-glucosidase inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Aluminum Hydroxide: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Aluminum Hydroxide; Magnesium Carbonate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Aluminum Hydroxide; Magnesium Hydroxide: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Aluminum Hydroxide; Magnesium Hydroxide; Simethicone: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Aluminum Hydroxide; Magnesium Trisilicate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Amiodarone: (Major) Avoid coadministration of chloroquine with amiodarone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Amiodarone, a Class III antiarrhythmic agent, is associated with a well-established risk of QT prolongation and torsade de pointes (TdP). Although the frequency of TdP is less with amiodarone than with other Class III agents, amiodarone is still associated with a risk of TdP. Due to the extremely long half-life of amiodarone, a drug interaction is possible for days to weeks after discontinuation of amiodarone. [28224] [28229] [28230] [28231] [28432] [28457] [65157] [65170]

Amitriptyline: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in

overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Amitriptyline; Chlordiazepoxide: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Amoxicillin; Clarithromycin; Lansoprazole: (Major) Avoid coadministration of chloroquine with clarithromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Clarithromycin is associated with an established risk for QT prolongation and TdP. [28229] [28230] [28231] [28238] [29758] [59321] [65157] [65170]

Amoxicillin; Clarithromycin; Omeprazole: (Major) Avoid coadministration of chloroquine with clarithromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Clarithromycin is associated with an established risk for QT prolongation and TdP. [28229] [28230] [28231] [28238] [29758] [59321] [65157] [65170]

Ampicillin: (Moderate) Administer oral ampicillin 2 hours before or 2 hours after chloroquine. In a study of healthy volunteers, chloroquine significantly reduced the bioavailability of ampicillin. The reduction of ampicillin bioavailability could be attributed to slower gastric emptying and enhancement of gut motility produced by chloroquine. [29758] [61761]

Anagrelide: (Major) Avoid coadministration of chloroquine with anagrelide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TdP and ventricular tachycardia have been reported with anagrelide. In addition, dose-related increases in mean QTc and heart rate were observed in healthy subjects. [28229] [28230] [28231] [29758] [30163] [65157] [65170]

Antacids: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Apomorphine: (Major) Avoid coadministration of chloroquine with apomorphine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Limited data indicate that QT prolongation is possible

with apomorphine administration; the change in QTc interval is not significant in most patients receiving dosages within the manufacturer's guidelines. [28229] [28230] [28231] [28661] [29758] [65157] [65170]

Arformoterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Aripiprazole: (Major) Avoid coadministration of chloroquine with aripiprazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation has occurred during therapeutic use of aripiprazole and following overdose. [28229] [28230] [28231] [29758] [42845] [53394] [60196] [65157] [65170]

Arsenic Trioxide: (Major) Avoid coadministration of chloroquine with arsenic trioxide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TdP, QT interval prolongation, and complete atrioventricular block have been reported with arsenic trioxide use. [28226] [28229] [28230] [28231] [65157] [65170]

Artemether; Lumefantrine: (Major) Avoid coadministration of chloroquine with artemether; lumefantrine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Artemether; lumefantrine is associated with prolongation of the QT interval. [28229] [28230] [28231] [29758] [35401] [65157] [65170]

Articaine; Epinephrine: (Moderate) Coadministration of articaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue articaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [28996]

Asenapine: (Major) Avoid coadministration of chloroquine with asenapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT

prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Asenapine has also been associated with QT prolongation. [28229] [28230] [28231] [29758] [36343] [65157] [65170]

Aspirin, ASA; Citric Acid; Sodium Bicarbonate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Atomoxetine: (Major) Avoid coadministration of chloroquine with atomoxetine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation has occurred during therapeutic use of atomoxetine and following overdose. [28229] [28230] [28231] [28405] [29758] [59321] [65157] [65170]

Atropine; Hyoscyamine; Phenobarbital; Scopolamine: (Moderate) Coadministration of chloroquine and phenobarbital may decrease exposure of chloroquine which may reduce its efficacy. Chloroquine may be an in vitro CYP3A4 substrate and phenobarbital is a strong CYP3A4 inducer. [65210] [65237] [65239]

Azithromycin: (Major) Avoid coadministration of chloroquine with azithromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances (See Therapeutic Drug Monitoring for recommendations specific to COVID-19). Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28229] [28230] [28231] [28855] [29758] [43974] [65157] [65170]

Bedaquiline: (Major) Avoid coadministration of chloroquine with bedaquiline due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Discontinue bedaquiline if evidence of serious ventricular arrhythmia or QTcF interval greater than 500 msec. Bedaquiline prolongs the QT interval. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [52746] [65157] [65170]

Belladonna Alkaloids; Ergotamine; Phenobarbital: (Moderate) Coadministration of chloroquine and phenobarbital may decrease exposure of chloroquine which may reduce its efficacy. Chloroquine may be an in vitro CYP3A4 substrate and phenobarbital is a strong CYP3A4 inducer. [65210] [65237] [65239]

Betrixaban: (Moderate) Use caution if chloroquine is coadministered with betrixaban due to the potential for increased betrixaban exposure which may increase the risk of bleeding. Betrixaban is a P-gp substrate; limited data suggests that chloroquine is a P-gp inhibitor. [62037] [65210]

Bismuth Subcitrate Potassium; Metronidazole; Tetracycline: (Major) Avoid coadministration of chloroquine with metronidazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de

pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Potential QT prolongation has been reported in limited case reports with metronidazole. [28229] [28230] [28231] [29758] [57377] [57378] [65157] [65170]

Bismuth Subsalicylate; Metronidazole; Tetracycline: (Major) Avoid coadministration of chloroquine with metronidazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Potential QT prolongation has been reported in limited case reports with metronidazole. [28229] [28230] [28231] [29758] [57377] [57378] [65157] [65170]

Budesonide; Formoterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Bupivacaine Liposomal: (Moderate) Coadministration of bupivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue bupivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [52331]

Bupivacaine: (Moderate) Coadministration of bupivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue bupivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [52331]

Bupivacaine; Lidocaine: (Moderate) Coadministration of bupivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue bupivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [52331] (Moderate) Coadministration of lidocaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue lidocaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [43383]

Buprenorphine: (Major) Avoid coadministration of chloroquine with buprenorphine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Buprenorphine has been associated with QT prolongation and has a possible risk of TdP. [28229] [28230] [28231] [29758] [41235] [59321] [60270] [65157] [65170]

Buprenorphine; Naloxone: (Major) Avoid coadministration of chloroquine with buprenorphine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Buprenorphine has been associated with QT prolongation and has a possible risk of TdP. [28229] [28230] [28231] [29758] [41235] [59321] [60270] [65157] [65170]

Calcium Carbonate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Calcium Carbonate; Magnesium Hydroxide: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285] (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Calcium Carbonate; Risedronate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Calcium Carbonate; Simethicone: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Canagliflozin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Canagliflozin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Carbamazepine: (Moderate) Coadministration of chloroquine and carbamazepine may decrease exposure of chloroquine which may reduce its efficacy. Chloroquine may be an in vitro CYP3A4 substrate and carbamazepine is a strong CYP3A4 inducer. [65210] [65237] [65239]

Ceritinib: (Major) Avoid coadministration of chloroquine with ceritinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Interrupt, dose reduce, or discontinue

ceritinib if QT prolongation occurs. Ceritinib causes concentration-dependent QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [34353] [57094] [65157] [65170]

Chloroprocaine: (Moderate) Coadministration of chloroprocaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue chloroprocaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [29062]

Chlorpromazine: (Major) Avoid coadministration of chloroquine with chlorpromazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Chlorpromazine is associated with an established risk of QT prolongation and TdP. [28229] [28230] [28231] [29758] [43065] [59321] [65157] [65170]

Chlorpropamide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Cimetidine: (Major) Avoid concomitant use of chloroquine and cimetidine as cimetidine may inhibit the metabolism of chloroquine, increasing its plasma concentration. [29758] [34335] [34353] [61759] [61760]

Ciprofloxacin: (Major) Avoid coadministration of chloroquine with ciprofloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Rare cases of QT prolongation and TdP have been reported with ciprofloxacin during postmarketing surveillance. [28229] [28230] [28231] [29758] [43411] [46655] [65157] [65170]

Cisapride: (Severe) Coadministration of chloroquine with cisapride is contraindicated due to the increased risk of QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and ventricular arrhythmias, including TdP and death, have been reported with cisapride. [28229] [28230] [28231] [29758] [47221] [65157] [65170]

Citalopram: (Major) Avoid coadministration of chloroquine with citalopram due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Citalopram causes dose-dependent QT interval prolongation. [28229] [28230] [28231] [28269] [29758] [65157] [65170]

Clarithromycin: (Major) Avoid coadministration of chloroquine with clarithromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Clarithromycin is associated with an established risk for QT prolongation and TdP. [28229] [28230] [28231] [28238] [29758] [59321] [65157] [65170]

Clofazimine: (Major) Avoid coadministration of chloroquine with clofazimine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and TdP have been reported in patients receiving clofazimine in combination with QT prolonging medications. [28229] [28230] [28231] [29758] [63936] [65157] [65170]

Clomipramine: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Clozapine: (Major) Avoid coadministration of chloroquine with clozapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Treatment with clozapine has been associated with QT prolongation, TdP, cardiac arrest, and sudden death. [28229] [28230] [28231] [28262] [29758] [65157] [65170]

Cobimetinib: (Moderate) Concurrent use of chloroquine and cobimetinib is not recommended as there is an increased risk of retinal toxicity. [29758] [60281]

Codeine; Phenylephrine; Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Codeine; Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is

increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Crizotinib: (Major) Avoid coadministration of chloroquine with crizotinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. An interruption of therapy, dose reduction, or discontinuation of therapy may be necessary for crizotinib if QT prolongation occurs. Crizotinib can cause concentration-dependent QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28231] [29758] [45458] [65157] [65170]

Cyclosporine: (Major) Close monitoring of serum cyclosporine concentrations is recommended during coadministration of chloroquine. Sudden increases in cyclosporine concentrations have been reported after the addition of chloroquine. Discontinue chloroquine if necessary. [29758]

Dabigatran: (Moderate) Use caution if chloroquine is coadministered with dabigatran due to the potential for increased dabigatran exposure which may increase the risk of bleeding. Dabigatran is a P-gp substrate; limited data suggests that chloroquine is a P-gp inhibitor. [42121] [65210]

Dapagliflozin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Dapagliflozin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Dapagliflozin; Saxagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Dapsone: (Moderate) Coadministration of dapsone with chloroquine may increase the risk of developing methemoglobinemia. Advise patients to discontinue treatment and seek immediate medical attention with any signs or symptoms of methemoglobinemia. [60612]

Dasatinib: (Major) Avoid coadministration of chloroquine with dasatinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. In vitro studies have shown that dasatinib has the potential to prolong the QT interval. [28229] [28230] [28231] [29758] [32387] [65157] [65170]

Degarelix: (Major) Avoid coadministration of chloroquine with degarelix due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., degarelix) may also prolong the QT/QTc interval. [28229] [28230] [28231] [29758] [46869] [65157] [65170]

Desflurane: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

Desipramine: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Deutetrabenazine: (Major) Avoid coadministration of chloroquine with deutetrabenazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. For patients taking a deutetrabenazine dosage more than 24 mg/day, assess the QTc interval before and after increasing the deutetrabenazine dosage or other medications that prolong the QTc interval. Clinically relevant QTc prolongation may occur with deutetrabenazine. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [61845] [65157] [65170]

Dextromethorphan; Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Dextromethorphan; Quinidine: (Major) Avoid coadministration of chloroquine with quinidine due to the increased risk of QT prolongation or other drug toxicities. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinidine

administration is also associated with QT prolongation and TdP. [28229] [28230] [28231] [29758] [42280] [47357] [65157] [65170]

Digoxin: (Moderate) Monitor serum digoxin concentrations in patients receiving digoxin and chloroquine as coadministration may result in increased serum digoxin concentrations. Digoxin serum concentrations have been reported to increase when hydroxychloroquine was added. Although this interaction has not been reported with chloroquine, chloroquine may similarly increase the plasma concentration of digoxin. [41806] [60957]

Dipeptidyl Peptidase-4 Inhibitors: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Disopyramide: (Major) Avoid coadministration of chloroquine with disopyramide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Disopyramide administration is associated with QT prolongation and TdP. [28228] [28229] [28230] [28231] [29758] [65157] [65170]

Dofetilide: (Major) Avoid coadministration of chloroquine with dofetilide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Dofetilide, a Class III antiarrhythmic agent, is associated with a well-established risk of QT prolongation and TdP. [28221] [28229] [28230] [28231] [28432] [28457] [29758] [65157] [65170]

Dolasetron: (Major) Avoid coadministration of chloroquine with dolasetron due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Dolasetron has been associated with a dose-dependent prolongation of the QT, PR, and QRS intervals on an electrocardiogram. [28229] [28230] [28231] [29758] [34353] [42844] [55935] [65157] [65170]

Dolutegravir; Rilpivirine: (Major) Avoid coadministration of chloroquine with rilpivirine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. [28229] [28230] [28231] [29758] [44376] [65157] [65170]

Donepezil: (Major) Avoid coadministration of chloroquine with donepezil due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. Case reports indicate that QT prolongation and TdP can occur during donepezil therapy. [28229] [28230] [28231] [29758] [59321] [59322] [65157] [65170]

Donepezil; Memantine: (Major) Avoid coadministration of chloroquine with donepezil due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Case reports indicate that QT prolongation and TdP can occur during donepezil therapy. [28229] [28230] [28231] [29758] [59321] [59322] [65157] [65170]

Doxepin: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Dronedarone: (Severe) Coadministration of chloroquine with dronedarone is contraindicated due to the increased risk of QT prolongation. Dronedarone administration is associated with a dose-related increase in the QTc interval. The increase in QTc is approximately 10 milliseconds at doses of 400 mg twice daily (the FDA-approved dose) and up to 25 milliseconds at doses of 1,600 mg twice daily. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [36101] [65157] [65170]

Droperidol: (Major) Avoid coadministration of chloroquine with droperidol due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Initiate droperidol at a low dose and increase the dose as needed to achieve the desired effect. Droperidol administration is associated with an established risk for QT prolongation and torsade de pointes (TdP). Some cases have occurred in patients with no known risk factors for QT prolongation and some cases have been fatal. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28231] [28235] [28236] [28237] [28737] [29758] [51289] [59321] [65157] [65170]

Dulaglutide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Edoxaban: (Moderate) Use caution if chloroquine is coadministered with edoxaban due to the potential for increased edoxaban exposure which may increase the risk of bleeding. Edoxaban is a P-gp substrate; limited data suggests that chloroquine is a P-gp inhibitor. [58685] [65210]

Efavirenz: (Major) Avoid coadministration of chloroquine with efavirenz due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. QTc prolongation has been observed with the use of efavirenz. [28229] [28230] [28231] [28442] [29758] [65157] [65170]

Efavirenz; Emtricitabine; Tenofovir: (Major) Avoid coadministration of chloroquine with efavirenz due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QTc prolongation has been observed with the use of efavirenz. [28229] [28230] [28231] [28442] [29758] [65157] [65170]

Efavirenz; Lamivudine; Tenofovir Disoproxil Fumarate: (Major) Avoid coadministration of chloroquine with efavirenz due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QTc prolongation has been observed with the use of efavirenz. [28229] [28230] [28231] [28442] [29758] [65157] [65170]

Eliglustat: (Major) Avoid coadministration of chloroquine with eliglustat due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Eliglustat is predicted to cause PR, QRS, and/or QT prolongation at significantly elevated plasma concentrations. [28229] [28230] [28231] [29758] [57803] [65157] [65170]

Empagliflozin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Empagliflozin; Linagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Empagliflozin; Linagliptin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A

decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Empagliflozin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Emtricitabine; Rilpivirine; Tenofovir alafenamide: (Major) Avoid coadministration of chloroquine with rilpivirine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. [28229] [28230] [28231] [29758] [44376] [65157] [65170]

Emtricitabine; Rilpivirine; Tenofovir disoproxil fumarate: (Major) Avoid coadministration of chloroquine with rilpivirine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. [28229] [28230] [28231] [29758] [44376] [65157] [65170]

Encorafenib: (Major) Avoid coadministration of chloroquine with encorafenib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Encorafenib has been associated with dose-dependent QT prolongation. [28229] [28230] [28231] [29758] [63317] [65157] [65170]

Enflurane: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

Entrectinib: (Major) Avoid coadministration of chloroquine with entrectinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. Entrectinib has been associated with QT prolongation. [28229] [28230] [28231] [29758] [64567] [65157] [65170]

Eribulin: (Major) Avoid coadministration of chloroquine with eribulin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Eribulin has been associated with QT prolongation. [28229] [28230] [28231] [29758] [42449] [65157] [65170]

Ertugliflozin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Ertugliflozin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Ertugliflozin; Sitagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Erythromycin: (Major) Avoid coadministration of chloroquine with erythromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Erythromycin is associated with QT prolongation and TdP. [28229] [28230] [28231] [29758] [43258] [59321] [65157] [65170]

Erythromycin; Sulfisoxazole: (Major) Avoid coadministration of chloroquine with erythromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Erythromycin is associated with QT prolongation and TdP. [28229] [28230] [28231] [29758] [43258] [59321] [65157] [65170]

Escitalopram: (Major) Avoid coadministration of chloroquine with escitalopram due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with

an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Escitalopram has been associated with a risk of QT prolongation and TdP. [28229] [28230] [28231] [28270] [29758] [65157] [65170]

Exenatide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Ezogabine: (Major) Avoid coadministration of chloroquine with ezogabine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ezogabine has been associated with QT prolongation. [28229] [28230] [28231] [29758] [44800] [65157] [65170]

Fingolimod: (Major) Avoid coadministration of chloroquine with fingolimod due to the increased risk of QT prolongation. If use together is necessary, overnight monitoring with continuous ECG in a medical facility is advised after the first dose of fingolimod; monitor ECG closely throughout therapy, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Fingolimod initiation results in decreased heart rate and may prolong the QT interval. Fingolimod has not been studied in patients treated with drugs that prolong the QT interval, but drugs that prolong the QT interval have been associated with cases of TdP in patients with bradycardia. [28229] [28230] [28231] [29758] [65157] [65170]

Flecainide: (Major) Avoid coadministration of chloroquine with flecainide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Flecainide is a Class IC antiarrhythmic associated with a possible risk for QT prolongation and/or TdP; flecainide increases the QT interval, but largely due to prolongation of the QRS interval. Although causality for TdP has not been established for flecainide, patients receiving concurrent drugs that have the potential for QT prolongation may have an increased risk of developing proarrhythmias. [23774] [28229] [28230] [28231] [28752] [29758] [51070] [65157] [65170]

Fluconazole: (Major) Avoid coadministration of chloroquine with fluconazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Fluconazole has been associated with QT prolongation and rare cases of TdP. [28229] [28230] [28231] [28674] [29758] [60686] [65157] [65170]

Fluoxetine: (Major) Avoid coadministration of chloroquine with fluoxetine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. QT prolongation and TdP have been reported in patients treated with fluoxetine. [28229] [28230] [28231] [29758] [32127] [44058] [44059] [65157] [65170]

Fluoxetine; Olanzapine: (Major) Avoid coadministration of chloroquine with fluoxetine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and TdP have been reported in patients treated with fluoxetine. [28229] [28230] [28231] [29758] [32127] [44058] [44059] [65157] [65170] (Major) Avoid coadministration of chloroquine with olanzapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Limited data, including some case reports, suggest that olanzapine may be associated with a significant prolongation of the QTc interval. [28229] [28230] [28231] [28785] [29758] [32732] [32734] [32745] [65157] [65170]

Fluphenazine: (Major) Avoid coadministration of chloroquine with fluphenazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Fluphenazine is associated with a possible risk for QT prolongation. [28229] [28230] [28231] [28415] [29758] [59321] [65157] [65170]

Fluticasone; Salmeterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Fluticasone; Umeclidinium; Vilanterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Fluticasone; Vilanterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring,

avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Fluvoxamine: (Major) Avoid coadministration of chloroquine with fluvoxamine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and TdP has been reported during fluvoxamine postmarketing use. [28229] [28230] [28231] [29758] [50507] [65157] [65170]

Formoterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Formoterol; Mometasone: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Foscarnet: (Major) Avoid coadministration of chloroquine with foscarnet due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Both QT prolongation and TdP have been reported during postmarketing use of foscarnet. [28229] [28230] [28231] [28377] [29758] [65157] [65170]

Gemifloxacin: (Major) Avoid coadministration of chloroquine with gemifloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Gemifloxacin may prolong the QT interval in some patients. The maximal change in the QTc interval occurs approximately 5 to 10 hours following

oral administration of gemifloxacin. The likelihood of QTc prolongation may increase with increasing gemifloxacin dose; therefore, do not exceed the recommended dose, especially in patients with renal or hepatic impairment where the Cmax and AUC are slightly higher. [28229] [28230] [28231] [28419] [28420] [28424] [29758] [65157] [65170]

Gemtuzumab Ozogamicin: (Major) Avoid coadministration of chloroquine with gemtuzumab due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Although QT interval prolongation has not been reported with gemtuzumab, it has been reported with other drugs that contain calicheamicin. [28229] [28230] [28231] [29758] [62292] [65157] [65170]

Gilteritinib: (Major) Avoid coadministration of chloroquine with gilteritinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Gilteritinib has been associated with QT prolongation. [28229] [28230] [28231] [29758] [63787] [65157] [65170]

Glasdegib: (Major) Avoid coadministration of chloroquine with glasdegib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Glasdegib therapy may result in QT prolongation and ventricular arrhythmias including ventricular fibrillation and ventricular tachycardia. [28229] [28230] [28231] [29758] [63777] [65157] [65170]

Glimepiride: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glimepiride; Pioglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glimepiride; Rosiglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glipizide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glipizide; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glyburide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glyburide; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Glycopyrrolate; Formoterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Goserelin: (Major) Avoid coadministration of chloroquine with goserelin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., goserelin) may also prolong the QT/QTc interval. [28229] [28230] [28231] [28592] [29758] [65157] [65170]

Granisetron: (Major) Avoid coadministration of chloroquine with granisetron due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. Granisetron has been associated with QT prolongation. [28229] [28230] [28231] [29758] [31723] [65157] [65170]

Halogenated Anesthetics: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

Haloperidol: (Major) Avoid coadministration of chloroquine with haloperidol due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and TdP have been observed during haloperidol treatment. Excessive doses (particularly in the overdose setting) or IV administration of haloperidol may be associated with a higher risk of QT prolongation. [23500] [23779] [28229] [28230] [28231] [28307] [28415] [29758] [59321] [65157] [65170]

Halothane: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

Histrelin: (Major) Avoid coadministration of chloroquine with histrelin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., histrelin) may prolong the QT/QTc interval. [28229] [28230] [28231] [29758] [30369] [65157] [65170]

Hydroxyzine: (Major) Avoid coadministration of chloroquine with hydroxyzine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Postmarketing data indicate that hydroxyzine causes QT prolongation and TdP. [28229] [28230] [28231] [29758] [47129] [61470] [65157] [65170]

Ibutilide: (Major) Avoid coadministration of chloroquine with ibutilide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ibutilide administration can cause QT prolongation and TdP;

proarrhythmic events should be anticipated. The potential for proarrhythmic events with ibutilide increases with the use of other drugs that prolong the QT interval. [28229] [28230] [28231] [29758] [41830] [65157] [65170]

Iloperidone: (Major) Avoid coadministration of chloroquine with iloperidone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Iloperidone has also been associated with QT prolongation. [28229] [28230] [28231] [29758] [36146] [65157] [65170]

Imipramine: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Incretin Mimetics: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Indacaterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Indacaterol; Glycopyrrolate: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Inotuzumab Ozogamicin: (Major) Avoid coadministration of chloroquine with inotuzumab due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with

an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Inotuzumab has also been associated with QT interval prolongation. [28229] [28230] [28231] [29758] [62245] [65157] [65170]

Insulin Aspart: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Aspart; Insulin Aspart Protamine: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Degludec: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Degludec; Liraglutide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Detemir: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Glargine: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Glargine; Lixisenatide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Glulisine: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Lispro: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic

agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin Lispro; Insulin Lispro Protamine: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulin, Inhaled: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Insulins: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Interferon Alfa-2a: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Alfa-2b: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Alfa-2b; Ribavirin: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Alfacon-1: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Alfa-n3: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Beta-1a: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Beta-1b: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferon Gamma-1b: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Interferons: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Isoflurane: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

Isophane Insulin (NPH): (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Itraconazole: (Major) Avoid coadministration of chloroquine with itraconazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Itraconazole has also been associated with prolongation of the QT interval. [27983] [28229] [28230] [28231] [29758] [40233] [57441] [63821] [65157] [65170]

Ivosidenib: (Major) Avoid coadministration of chloroquine with ivosidenib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. An interruption of therapy and dose reduction of ivosidenib may be necessary if QT prolongation occurs. Prolongation of the QTc interval and ventricular arrhythmias have been reported in patients treated with ivosidenib. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [65157] [65170]

Ketoconazole: (Major) Avoid coadministration of chloroquine with systemic ketoconazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ketoconazole has been associated with prolongation of the QT interval. [27982] [28229] [28230] [28231] [29758] [59321] [65157] [65170]

Lanthanum Carbonate: (Major) Oral compounds known to interact with antacids, like chloroquine, should not be taken within 4 hours of dosing with lanthanum carbonate. If these agents are used concomitantly, space the dosing intervals appropriately. Monitor serum concentrations and clinical condition. [29758] [30284] [30285] [44406]

Lapatinib: (Major) Avoid coadministration of chloroquine with lapatinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Lapatinib has been associated with concentration-dependent QT prolongation; ventricular arrhythmias and TdP have been reported in postmarketing experience with lapatinib. [28229] [28230] [28231] [29758] [33192] [65157] [65170]

Lefamulin: (Major) Avoid coadministration of chloroquine with lefamulin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Lefamulin has a concentration dependent QTc prolongation effect. The potential to prolong the QT interval of the ECG between lefamulin and other drugs that effect cardiac conduction is unknown. [28229] [28230] [28231] [29758] [64576] [65157] [65170]

Lente Insulin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Lenvatinib: (Major) Avoid coadministration of chloroquine with lenvatinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Prolongation of the QT interval has been reported with lenvatinib therapy. [28229] [28230] [28231] [29758] [58782] [65157] [65170]

Leuprolide: (Major) Avoid coadministration of chloroquine with leuprolide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., leuprolide) may prolong the QT/QTc interval. [28229] [28230] [28231] [29758] [43800] [65157] [65170]

Leuprolide; Norethindrone: (Major) Avoid coadministration of chloroquine with leuprolide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., leuprolide) may prolong the QT/QTc interval. [28229] [28230] [28231] [29758] [43800] [65157] [65170]

Levalbuterol: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Levofloxacin: (Major) Avoid coadministration of chloroquine with levofloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Levofloxacin has been associated with prolongation of the QT interval and infrequent cases of arrhythmia. Additionally, rare cases of TdP have been spontaneously reported during postmarketing surveillance in patients receiving levofloxacin. [28229] [28230] [28231] [28421] [29758] [61195] [63729] [65157] [65170]

Lidocaine: (Moderate) Coadministration of lidocaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs

or is suspected, discontinue lidocaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [43383]

Linagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Linagliptin; Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Liraglutide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Lithium: (Major) Avoid coadministration of chloroquine with lithium due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Lithium has also been associated with QT prolongation. [28229] [28230] [28231] [29758] [59809] [59810] [59811] [65157] [65170]

Lixisenatide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Lofexidine: (Major) Avoid coadministration of chloroquine with lofexidine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Lofexidine also prolongs the QT interval. [28229] [28230] [28231] [29758] [63161] [65157] [65170]

Lomefloxacin: (Major) Avoid coadministration of chloroquine with lomefloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Cases of QT prolongation and TdP have been reported with lomefloxacin. [29758] [29948] [59321]

Long-acting beta-agonists: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG

at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Loperamide: (Major) Avoid coadministration of chloroquine with loperamide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. At high doses, loperamide has been associated with serious cardiac toxicities, including syncope, ventricular tachycardia, QT prolongation,TdP, and cardiac arrest. [28229] [28230] [28231] [29758] [30106] [60864] [65157] [65170]

Loperamide; Simethicone: (Major) Avoid coadministration of chloroquine with loperamide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. At high doses, loperamide has been associated with serious cardiac toxicities, including syncope, ventricular tachycardia, QT prolongation,TdP, and cardiac arrest. [28229] [28230] [28231] [29758] [30106] [60864] [65157] [65170]

Lopinavir; Ritonavir: (Major) Avoid coadministration of chloroquine and lopinavir due the risk of additive QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); fatalities have been reported. The risk of QT prolongation is increased with higher chloroquine doses. Lopinavir is also associated with QT prolongation. [28229] [28230] [28231] [28341] [29758] [65157] [65170]

Macimorelin: (Major) Avoid coadministration of chloroquine with macimorelin due to the increased risk of QT prolongation and torsade de pointes-type ventricular tachycardia. Allow a sufficient washout period before starting macimorelin. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Treatment with macimorelin has been associated with an increase in the corrected QT (QTc) interval. [28229] [28230] [28231] [29758] [62723] [65157] [65170]

Magnesium Hydroxide: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30285]

Maprotiline: (Major) Avoid coadministration of chloroquine with maprotiline due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased

with higher chloroquine doses. Maprotiline has been reported to prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). Cases of long QT syndrome and TdP tachycardia have been described with maprotiline use, but rarely occur when the drug is used alone in normal prescribed doses and in the absence of other known risk factors for QT prolongation. Limited data are available regarding the safety of maprotiline in combination with other QT-prolonging drugs. [28225] [28229] [28230] [28231] [29758] [51740] [65157] [65170]

Mefloquine: (Major) Avoid coadministration of chloroquine with mefloquine due to the increased risk of QT prolongation and seizures. These drugs are both analogs of quinine. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. There is evidence that the use of halofantrine after mefloquine causes a significant lengthening of the QTc interval. Mefloquine alone has not been reported to cause QT prolongation. Also, both drugs may lower the seizure threshold. [28229] [28230] [28231] [28301] [29758] [65157] [65170]

Meglitinides: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the meglitinides, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Meperidine; Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Mepivacaine: (Moderate) Coadministration of mepivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue mepivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [29100]

Mepivacaine; Levonordefrin: (Moderate) Coadministration of mepivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue mepivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [29100]

Metaproterenol: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with

adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Metformin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Metformin; Pioglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Metformin; Repaglinide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the meglitinides, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Metformin; Rosiglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Metformin; Saxagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Metformin; Sitagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including metformin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758] (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic

agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Methadone: (Major) Avoid coadministration of chloroquine with methadone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Methadone is considered to be associated with an increased risk for QT prolongation and TdP, especially at higher doses (more than 200 mg/day but averaging approximately 400 mg/day in adult patients). Most cases involve patients being treated for pain with large, multiple daily doses of methadone, although cases have been reported in patients receiving doses commonly used for maintenance treatment of opioid addiction. [28229] [28230] [28231] [28319] [28320] [28321] [28322] [29758] [33136] [65157] [65170]

Metronidazole: (Major) Avoid coadministration of chloroquine with metronidazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Potential QT prolongation has been reported in limited case reports with metronidazole. [28229] [28230] [28231] [29758] [57377] [57378] [65157] [65170]

Midostaurin: (Major) Avoid coadministration of chloroquine with midostaurin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation was reported in patients who received midostaurin in clinical trials. [28229] [28230] [28231] [29758] [61906] [65157] [65170]

Mifepristone: (Major) Avoid coadministration of chloroquine with mifepristone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Mifepristone is associated with dose-related prolongation of the QT interval. [28229] [28230] [28231] [29758] [48697] [65157] [65170]

Miglitol: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the alpha-glucosidase inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Mirtazapine: (Major) Avoid coadministration of chloroquine with mirtazapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Mirtazapine has been associated with dose-dependent prolongation of the QT interval. TdP has been reported postmarketing, primarily in overdose or in patients with other risk factors for QT prolongation. [28229] [28230] [28231] [29758] [40942] [65157] [65170]

Moxifloxacin: (Major) Avoid coadministration of chloroquine with moxifloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinolones have been associated with a risk of QT prolongation.TdP has been reported during postmarketing surveillance of moxifloxacin. These reports generally involved patients with concurrent medical conditions or concomitant medications that may have been contributory. [28229] [28230] [28231] [28423] [29758] [59321] [65157] [65170]

Nateglinide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the meglitinides, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Nilotinib: (Major) Avoid coadministration of chloroquine with nilotinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Sudden death and QT interval prolongation have occurred in patients who received nilotinib therapy. [28229] [28230] [28231] [29758] [58766] [65157] [65170]

Norfloxacin: (Major) Avoid coadministration of chloroquine with norfloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinolones have been associated with a risk of QT prolongation and torsade de pointes (TdP). Although extremely rare,TdP has been reported during postmarketing surveillance of norfloxacin. These reports generally involved patients with concurrent medical conditions or concomitant medications that may have been contributory. [28225] [28229] [28230] [28231] [28432] [28457] [29758] [29818] [65157] [65170]

Nortriptyline: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Octreotide: (Major) Avoid coadministration of chloroquine with octreotide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Arrhythmias, sinus bradycardia, and conduction disturbances have occurred during octreotide therapy. Since bradycardia is a risk factor for development of TdP, the potential occurrence of bradycardia during octreotide administration could theoretically increase

the risk of TdP in patients receiving drugs that prolong the QT interval. [28229] [28230] [28231] [28432] [29113] [29758] [30624] [64969] [65157] [65170]

Ofloxacin: (Major) Avoid coadministration of chloroquine with ofloxacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinolones have been associated with a risk of QT prolongation and TdP. Although extremely rare, torsade de pointes has been reported during postmarketing surveillance of ofloxacin. These reports generally involved patients with concurrent medical conditions or concomitant medications that may have been contributory. [28229] [28230] [28231] [29758] [30738] [65157] [65170]

Olanzapine: (Major) Avoid coadministration of chloroquine with olanzapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Limited data, including some case reports, suggest that olanzapine may be associated with a significant prolongation of the QTc interval. [28229] [28230] [28231] [28785] [29758] [32732] [32734] [32745] [65157] [65170]

Olodaterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Omeprazole; Sodium Bicarbonate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Ondansetron: (Major) Avoid coadministration of chloroquine with ondansetron due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ondansetron has been associated with a dose-related increase in the QT interval and postmarketing reports of TdP. [28229] [28230] [28231] [29758] [31266] [32722] [34335] [34353] [65157] [65170]

Osilodrostat: (Major) Avoid coadministration of chloroquine with osilodrostat due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Osilodrostat is associated with dose-dependent QT prolongation. [28229] [28230] [28231] [29758] [65098] [65157] [65170]

Osimertinib: (Major) Avoid coadministration of chloroquine with osimertinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. An interruption of osimertinib therapy with dose reduction or discontinuation may be necessary if QT prolongation occurs. Concentration-dependent QTc prolongation occurred during clinical trials of osimertinib. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [29758] [60297] [65157] [65170]

Oxaliplatin: (Major) Avoid coadministration of chloroquine with oxaliplatin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation and ventricular arrhythmias including fatal TdP have been reported with oxaliplatin use in postmarketing experience. [28229] [28230] [28231] [28415] [29758] [41958] [65157] [65170]

Paliperidone: (Major) Avoid coadministration of chloroquine with paliperidone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Paliperidone has been associated with QT prolongation; TdP and ventricular fibrillation have been reported in the setting of overdose. [28229] [28230] [28231] [29758] [40936] [65157] [65170]

Panobinostat: (Major) Avoid coadministration of chloroquine with panobinostat due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation has also been reported with panobinostat. [28229] [28230] [28231] [29758] [58821] [65157] [65170]

Pasireotide: (Major) Avoid coadministration of chloroquine with pasireotide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. QT prolongation has occurred with pasireotide at therapeutic and supra-therapeutic doses. [28229] [28230] [28231] [29758] [65157] [65170]

Pazopanib: (Major) Avoid coadministration of chloroquine with pazopanib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Pazopanib has also been reported to prolong the QT interval. [28229] [28230] [28231] [29758] [37098] [65157] [65170]

Peginterferon Alfa-2a: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Peginterferon Alfa-2b: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Peginterferon beta-1a: (Moderate) Concurrent use of chloroquine and interferons is not recommended as there is an increased risk of retinal toxicity. [29758] [47391]

Penicillamine: (Major) Do not use penicillamine concurrently with antimalarials due to an increased risk of severe hematologic and renal adverse reactions. [28834]

Penicillin G Benzathine; Penicillin G Procaine: (Moderate) Coadministration of penicillin G procaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue penicillin G procaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [31217]

Penicillin G Procaine: (Moderate) Coadministration of penicillin G procaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue penicillin G procaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [31217]

Pentamidine: (Major) Avoid coadministration of chloroquine with pentamidine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Systemic pentamidine has also been associated with QT prolongation. [23620] [23778] [28229] [28230] [28231] [28419] [28879] [29758] [65157] [65170]

Perphenazine: (Major) Avoid coadministration of chloroquine with perphenazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Perphenazine is associated with a possible risk for QT prolongation. [28229] [28230] [28231] [28415] [29758] [65157] [65170]

Perphenazine; Amitriptyline: (Major) Avoid coadministration of chloroquine with perphenazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Perphenazine is associated with a possible risk for QT prolongation. [28229] [28230] [28231] [28415] [29758] [65157] [65170] (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT

prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Phenobarbital: (Moderate) Coadministration of chloroquine and phenobarbital may decrease exposure of chloroquine which may reduce its efficacy. Chloroquine may be an in vitro CYP3A4 substrate and phenobarbital is a strong CYP3A4 inducer. [65210] [65237] [65239]

Phenylephrine; Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Phenytoin: (Moderate) Coadministration of chloroquine and phenytoin may decrease exposure of chloroquine which may reduce its efficacy. Chloroquine may be an in vitro CYP3A4 substrate and phenytoin is a strong CYP3A4 inducer. [65210] [65237] [65239]

Pimavanserin: (Major) Avoid coadministration of chloroquine with pimavanserin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Pimavanserin also prolongs the QT interval. [28229] [28230] [28231] [29758] [60748] [65157] [65170]

Pimozide: (Severe) Coadministration of chloroquine with pimozide is contraindicated due to the increased risk of QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Pimozide is associated with a well-established risk of QT prolongation and TdP. [28225] [28229] [28230] [28231] [29758] [43463] [65170]

Pioglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Pirbuterol: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Pitolisant: (Major) Avoid coadministration of chloroquine with pitolisant due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Pitolisant also prolongs the QT interval. [28229] [28230] [28231] [29758] [64562] [65157] [65170]

Ponatinib: (Moderate) Concurrent use of chloroquine and ponatinib is not recommended as there is an increased risk of retinal toxicity. [29758] [52603]

Posaconazole: (Major) Avoid coadministration of chloroquine with posaconazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Posaconazole has been associated with QT prolongation and TdP. [28229] [28230] [28231] [29758] [32723] [65157] [65170]

Pramlintide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including pramlintide, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Praziquantel: (Minor) Concomitant administration of chloroquine and praziquantel can reduce praziquantel bioavailability and maximum serum concentrations. The mechanism of the interaction is not certain. Clinicians should be alert to the possibility of praziquantel failure if chloroquine is used. [27846] [29758]

Prilocaine: (Moderate) Coadministration of prilocaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue prilocaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [29064]

Prilocaine; Epinephrine: (Moderate) Coadministration of prilocaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue prilocaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [29064]

Primaquine: (Major) Avoid coadministration of chloroquine with primaquine due to the increased risk of QT prolongation or other toxicities. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Primaquine may also prolong the QT interval. [28229] [28230] [28231] [29758] [41984] [65157] [65170]

Procainamide: (Major) Avoid coadministration of chloroquine with procainamide due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess

initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Procainamide is associated with a well-established risk of QT prolongation and TdP. [28229] [28230] [28231] [29758] [65157] [65170]

Prochlorperazine: (Major) Avoid coadministration of chloroquine with prochlorperazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Prochlorperazine is associated with a possible risk for QT prolongation. [28229] [28230] [28231] [28415] [29758] [65157] [65170]

Promethazine: (Major) Avoid coadministration of chloroquine with promethazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Promethazine is associated with a possible risk for QT prolongation. [28225] [28229] [28230] [28231] [29758] [55578] [65157] [65170]

Propafenone: (Major) Avoid coadministration of chloroquine with propafenone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Propafenone is a Class IC antiarrhythmic which increases the QT interval, but largely due to prolongation of the QRS interval. [28229] [28230] [28231] [28287] [29758] [65157] [65170]

Protriptyline: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Quetiapine: (Major) Avoid coadministration of chloroquine with quetiapine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Limited data, including some case reports, suggest that quetiapine may be associated with a significant prolongation of the QTc interval in rare instances. [28229] [28230] [28231] [29118] [29758] [33068] [33072] [33074] [65157] [65170]

Quinidine: (Major) Avoid coadministration of chloroquine with quinidine due to the increased risk of QT prolongation or other drug toxicities. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any

non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinidine administration is also associated with QT prolongation and TdP. [28229] [28230] [28231] [29758] [42280] [47357] [65157] [65170]

Quinine: (Major) Avoid coadministration of chloroquine with quinine due to the increased risk of QT prolongation or other drug toxicities. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Quinine has been associated with QT prolongation and rare cases of TdP. [28229] [28230] [28231] [29758] [31403] [65157] [65170]

Rabies Vaccine: (Major) If administered concurrently, antimalarials can impair the immunologic response to the rabies vaccine, thereby, decreasing its protective effect. If possible, administration of antimalarials should be avoided during use of the rabies vaccine for postexposure prophylaxis. When antimalarials must be administered to persons also receiving the rabies vaccine for postexposure prophylaxis, a serum rabies antibody titer should be obtained on day 14 (day of the 4th vaccination) to ensure an acceptable antibody response has been induced. [40848] [40849]

Ranolazine: (Major) Avoid coadministration of chloroquine with ranolazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ranolazine is associated with dose- and plasma concentration-related increases in the QTc interval. [28229] [28230] [28231] [29758] [31938] [65157] [65170]

Regular Insulin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Regular Insulin; Isophane Insulin (NPH): (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Repaglinide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the meglitinides, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Ribociclib: (Major) Avoid coadministration of chloroquine with ribociclib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ribociclib has been shown to prolong the QT interval in a concentration-dependent manner. [28229] [28230] [28231] [29758] [61816] [65157] [65170]

Ribociclib; Letrozole: (Major) Avoid coadministration of chloroquine with ribociclib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess

initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Ribociclib has been shown to prolong the QT interval in a concentration-dependent manner. [28229] [28230] [28231] [29758] [61816] [65157] [65170]

Rilpivirine: (Major) Avoid coadministration of chloroquine with rilpivirine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. [28229] [28230] [28231] [29758] [44376] [65157] [65170]

Risperidone: (Major) Avoid coadministration of chloroquine with risperidone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Risperidone has been associated with a possible risk for QT prolongation and/or TdP, primarily in the overdose setting. [22256] [28229] [28414] [29758] [59321] [65157] [65170]

Romidepsin: (Major) Avoid coadministration of chloroquine with romidepsin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Romidepsin has been reported to prolong the QT interval. [28229] [28230] [28231] [29758] [37292] [65157] [65170]

Ropivacaine: (Moderate) Coadministration of ropivacaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue ropivacaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [52330]

Rosiglitazone: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Salmeterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval.

This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Saquinavir: (Major) Avoid coadministration of chloroquine with saquinavir boosted with ritonavir due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Saquinavir boosted with ritonavir increases the QT interval in a dose-dependent fashion, which may increase the risk for serious arrhythmias such as TdP. [28229] [28230] [28231] [28995] [29758] [65157] [65170]

Saxagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Semaglutide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the incretin mimetics, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Sertraline: (Major) Avoid coadministration of chloroquine with sertraline due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. The risk of sertraline-induced QT prolongation is generally considered to be low in clinical practice. Its effect on QTc interval is minimal (typically less than 5 msec), and the drug has been used safely in patients with cardiac disease (e.g., recent myocardial infarction, unstable angina, chronic heart failure). [28229] [28343] [29758] [64391] [64392] [64394] [64396] [65157] [65170]

Sevoflurane: (Major) Avoid coadministration of chloroquine with halogenated anesthetics due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Halogenated anesthetics are known to prolong the QT interval. [28229] [28230] [28231] [28457] [28458] [28754] [28755] [28756] [29758] [59321] [65157] [65170]

SGLT2 Inhibitors: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the SGLT2 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Short-acting beta-agonists: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when

associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Simvastatin; Sitagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Siponimod: (Major) Avoid coadministration of chloroquine with siponimod due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Siponimod therapy prolonged the QT interval at recommended doses in a clinical study. [28229] [28230] [28231] [29758] [64031] [65157] [65170]

Sitagliptin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the dipeptidyl peptidase-4 inhibitors, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Sodium Bicarbonate: (Major) Chloroquine absorption may be reduced by antacids. Administer chloroquine and antacids at least 4 hours apart. [29758] [30284] [30285]

Solifenacin: (Major) Avoid coadministration of chloroquine with solifenacin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Solifenacin has been associated with dose-dependent prolongation of the QT interval. TdP has been reported with postmarketing use, although causality was not determined. [28229] [28230] [28231] [29758] [30515] [65157] [65170]

Sorafenib: (Major) Avoid coadministration of chloroquine with sorafenib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. An interruption or discontinuation of sorafenib therapy may be necessary if QT prolongation occurs. Sorafenib has been associated with QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses [28229] [28230] [28231] [29758] [31832] [65157] [65170]

Sotalol: (Major) Avoid coadministration of chloroquine with sotalol due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Sotalol administration is associated with QT prolongation and TdP. Proarrhythmic events should be anticipated after initiation of therapy and after each upward dosage adjustment. [28229] [28230] [28231] [28234] [29758] [65157] [65170]

Succinylcholine: (Moderate) Chloroquine may enhance the neuromuscular blocking action of succinylcholine. [42039]

Sulfonylureas: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Sunitinib: (Major) Avoid coadministration of chloroquine with sunitinib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Sunitinib can also prolong the QT interval. [28229] [28230] [28231] [29758] [65157] [65170]

Tacrolimus: (Major) Avoid coadministration of chloroquine with tacrolimus due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Tacrolimus may prolong the QT interval and cause TdP. [28229] [28230] [28231] [28611] [29758] [55401] [60497] [65157] [65170]

Tamoxifen: (Major) Avoid coadministration of chloroquine with tamoxifen due to the increased risk of QT prolongation and retinal toxicity. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Tamoxifen has been reported to prolong the QT interval, usually in overdose or when used in high doses. Rare case reports of QT prolongation have also been described when tamoxifen is used at lower doses. [28229] [28230] [28231] [29758] [61872] [63589] [65157] [65170]

Telavancin: (Major) Avoid coadministration of chloroquine with telavancin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Telavancin has also been associated with QT prolongation. [28229] [28230] [28231] [29758] [36615] [65157] [65170]

Telbivudine: (Minor) Monitor patients for signs or symptoms of unexplained muscle pain, tenderness, or weakness during concomitant treatment with chloroquine and telbivudine. Interrupt telbivudine therapy if myopathy is suspected and discontinue telbivudine if myopathy is confirmed. It is unknown if the risk of myopathy during treatment with telbivudine is increased with coadministration of other drugs associated with myopathy, like chloroquine. [32827]

Telithromycin: (Major) Avoid coadministration of chloroquine with telithromycin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is

increased with higher chloroquine doses. Telithromycin is also associated with QT prolongation and TdP. [28156] [28229] [28230] [28231] [29758] [65157] [65170]

Terbutaline: (Major) Avoid coadministration of chloroquine with short-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists as compared to short-acting beta-agonists. [28229] [28532] [29758] [49951] [51793] [59321] [65157] [65170]

Tetrabenazine: (Major) Avoid coadministration of chloroquine with tetrabenazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Tetrabenazine causes a small increase in the corrected QT interval (QTc). [28229] [28230] [28231] [29758] [34389] [65157] [65170]

Tetracaine: (Moderate) Coadministration of tetracaine with oxidizing agents, such as chloroquine, may increase the risk of developing methemoglobinemia. Monitor patients closely for signs and symptoms of methemoglobinemia if coadministration is necessary. If methemoglobinemia occurs or is suspected, discontinue tetracaine and any other oxidizing agents. Depending on the severity of symptoms, patients may respond to supportive care; more severe symptoms may require treatment with methylene blue, exchange transfusion, or hyperbaric oxygen. [31353]

Thiazolidinediones: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the thiazolidinediones, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Thioridazine: (Severe) Coadministration of chloroquine with thioridazine is contraindicated due to the increased risk of QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Thioridazine is associated with a well-established risk of QT prolongation and TdP. [28225] [28229] [28230] [28231] [28293] [29758] [65170]

Tiotropium; Olodaterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Tolazamide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the

antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Tolbutamide: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including the sulfonylureas, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Tolterodine: (Major) Avoid coadministration of chloroquine with tolterodine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Tolterodine has been associated with dose-dependent prolongation of the QT interval, especially in poor CYP2D6 metabolizers. [28229] [28230] [28231] [29758] [31112] [65157] [65170]

Toremifene: (Major) Avoid coadministration of chloroquine with toremifene due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Toremifene has been shown to prolong the QTc interval in a dose- and concentration-related manner. [28229] [28230] [28231] [28822] [29758] [65157] [65170]

Trametinib: (Moderate) Concurrent use of chloroquine and trametinib is not recommended as there is an increased risk of retinal toxicity. [29758] [60372]

Trazodone: (Major) Avoid coadministration of chloroquine with trazodone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Trazodone can prolong the QT/QTc interval at therapeutic doses. In addition, there are postmarketing reports of TdP. [28229] [28230] [28231] [29758] [38831] [63609] [65157] [65170]

Tricyclic antidepressants: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Trifluoperazine: (Major) Avoid coadministration of chloroquine with trifluoperazine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Trifluoperazine is associated with a possible risk for QT prolongation. [28229] [28230] [28231] [28415] [29758] [65157] [65170]

Trimipramine: (Major) Avoid coadministration of chloroquine with tricyclic antidepressants (TCAs) due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. TCAs share pharmacologic properties similar to the Class IA antiarrhythmic agents and may prolong the QT interval, particularly in overdose or with higher-dose prescription therapy (elevated serum concentrations). [28225] [28229] [28230] [28231] [28415] [28416] [29758] [65157] [65170]

Triptorelin: (Major) Avoid coadministration of chloroquine with triptorelin due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Androgen deprivation therapy (i.e., triptorelin) may prolong the QT interval. [28229] [28230] [28231] [29758] [45411] [65157] [65170]

Ultralente Insulin: (Major) Careful monitoring of blood glucose is recommended when chloroquine and antidiabetic agents, including insulin, are coadministered. A decreased dose of the antidiabetic agent may be necessary as severe hypoglycemia has been reported in patients treated concomitantly with chloroquine and an antidiabetic agent. [29758]

Umeclidinium; Vilanterol: (Major) Avoid coadministration of chloroquine with long-acting beta-agonists due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Beta-agonists may be associated with adverse cardiovascular effects including QT interval prolongation, usually at higher doses, when associated with hypokalemia, or when used with other drugs known to prolong the QT interval. This risk may be more clinically significant with long-acting beta-agonists (LABAs) as compared to short-acting beta-agonists.. [28229] [29758] [41231] [44026] [44063] [44979] [59321] [65157] [65170]

Vandetanib: (Major) Avoid coadministration of chloroquine with vandetanib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. An interruption of vandetanib therapy or dose reduction may be necessary for QT prolongation. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Vandetanib can prolong the QT interval in a concentration-dependent manner; TdP and sudden death have been reported in patients receiving vandetanib. [28229] [28230] [28231] [29758] [43901] [65157] [65170]

Vardenafil: (Major) Avoid coadministration of chloroquine with vardenafil due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Vardenafil is associated with QT prolongation. Both therapeutic and supratherapeutic doses of vardenafil produce an increase in QTc interval. [28216] [28229] [29758] [41124] [59321] [65157] [65170]

Vemurafenib: (Major) Avoid coadministration of chloroquine with vemurafenib due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Vemurafenib has also been associated with QT prolongation. [28229] [28230] [28231] [29758] [45335] [59321] [65157] [65170]

Venlafaxine: (Major) Avoid coadministration of chloroquine with venlafaxine due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Venlafaxine administration is associated with a possible risk of QT prolongation; TdP has been reported with postmarketing use. [28229] [28230] [28231] [29758] [33715] [65157] [65170]

Vigabatrin: (Major) Vigabatrin should not be used with chloroquine due to potential retinal toxicity associated with both drugs, unless the benefits of treatment clearly outweigh the risks. [29758] [36250]

Voriconazole: (Major) Avoid coadministration of chloroquine with voriconazole due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Voriconazole has been associated with QT prolongation and rare cases of TdP. [28158] [28229] [28230] [28231] [29758] [65157] [65170]

Vorinostat: (Major) Avoid coadministration of chloroquine with vorinostat due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Vorinostat therapy is also associated with a risk of QT prolongation. [28229] [28230] [28231] [29758] [32789] [65157] [65170]

Ziprasidone: (Major) Avoid coadministration of chloroquine with ziprasidone due to the increased risk of QT prolongation. If use together is necessary, obtain an ECG at baseline to assess initial QT interval and determine frequency of subsequent ECG monitoring, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances. Chloroquine is associated with an increased risk of QT prolongation and torsade de pointes (TdP); the risk of QT prolongation is increased with higher chloroquine doses. Clinical trial data indicate that ziprasidone causes QT prolongation; there are postmarketing reports of TdP in patients with multiple confounding factors. [28229] [28230] [28231] [28233] [29758] [65157] [65170]

Revision Date: 04/15/2020 02:37:00 AM

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Monitoring Parameters

- blood glucose
- CBC
- ECG
- glucose-6-phosphate dehydrogenase (G6PD) activity
- ophthalmologic exam

IV Compatibility of Chloroquine with:

Legend

C = Compatible
I = Incompatible
⚠ = Results uncertain, variable or dependent on conditions
ND = No Data Available

From Trissel's 2™ Clinical Pharmaceutics Database

	Admixture	Syringe	Y-Site Administration	For Dilution
Normal saline- Sodium chloride 0.9%	ND	ND	ND	C
Promethazine hydrochloride	C	I	ND	ND

US Drug Names

- Aralen

Global Drug names

Argentina

- Nivaquine - (Sanofi-Aventis)

Australia

- Chlorquin - (Aspen)
- Nivaquine - (Rhone-Poulenc Rorer)

Austria

- Resochin - (Bayer)

Belgium

- Nivaquine - (Sanofi)

Brazil

- Clopirim - (Quimioterapica)
- Diclokin - (Kinder)
- Difosquin - (Vitamed)
- Palux - (Biolab Sanus)
- Quinacris - (Cristalia)

Canada

- Aralen - (Sanofi Synthelabo)

Czech Republic

- Delagil - (ICN)

Denmark

- Malarex - (Actavis)

Finland

- Heliopar - (Orion)

France

- Nivaquine - (Sanofi-Aventis)
- Nopalu - (Pharmacie Centrale des Armees)
- Savarine - (AstraZeneca)

Germany

- Arthrabas - (Tosse)
- Resochin - (Bayer)
- Weimerquin - (Biokanol)

Greece

- Avloclor - (IFET)
- Demoquine - (Demo)
- Savarine - (IFET (ΙΦΕΤ))

Hong Kong

- Chlorocin - (Deltapharm)
- Chlorquin - (Fisons)
- Syncoquin - (Synco)

Hungary

- Delagil - (PharmaSwiss)

India

- Bitaquine - (Bombay Tablet)
- Cadiquin - (Zydus)
- Chlorolex - (Lexica)
- Clokit - (Indoco)
- Cloquin - (Indoco)
- C-Quin - (Ikon)
- Emquin - (Merck)
- E-Vivax - (Themis Medicare)
- Idiquin - (Indian Drugs)
- Ingaquine - (Inga)
- Jagquin - (Jagsonpal)

- La-Quin - (Stadmed)
- Lariago - (Ipca)
- Larover - (Aglowmed)
- Malaquin - (PC India)
- Maliago - (Cipla)
- Maligon - (Unijules)
- Malswift - (Ind-Swift)
- Melubrin - (Ranbaxy)
- Neoquine - (Neon)
- Nivaquine-P - (Piramal)
- Paraquin - (Shreya)
- Resochin - (Bayer)

Indonesia

- Avloclor - (AstraZeneca)
- Malarex - (Actavis)
- Mexaquin - (Konimex)
- Resochin - (Bayer)
- Riboquin - (Dexa)

Ireland

- Avloclor - (AstraZeneca)
- Nivaquine - (Rhone-Poulenc Rorer)

Israel

- Aralen - (Sanofi Winthrop)
- Avloclor - (Zeneca)

Italy

- Dichinalex - (Recordati)

Mexico

- Aralen - (Sanofi-Aventis)
- Klorokin - (Zerboni)
- Maclorex - (Alpharma)
- Paluken - (Kener)

Netherlands

- Nivaquine - (Sanofi-Aventis)

New Zealand

- Chlorquin - (Healthcare Logistics)
- Nivaquine - (Aventis)

Philippines

- Aralen - (Sanofi Synthelabo)
- Chlorofoz - (Am-Europharma)

- Chloromax - (Oboi)
- Clorkin - (Doctors)

Poland

- Arechin - (Polfa Pabianice)

Portugal

- Resochina - (BayHealth)

Russian Federation

- Delagil - (ICN)

Singapore

- Avloclor - (AstraZeneca)
- Malarex - (Danone Dumex)

South Africa

- Anoclor - (Rolab)
- Daraclor - (Glaxo Wellcome)
- Daramal - (GSK)
- Daramal-Paludrine - (Zeneca)
- Mirquin - (Mirren)
- Nivaquine - (Winthrop)
- Plasmoquine - (Medchem)
- Promal - (Propan)

Spain

- Cidanchin - (Cidan)
- Resochin - (Kern)

Switzerland

- Chlorochin - (Streuli)
- Nivaquine - (Sanofi-Aventis)
- Pharmaquine - (Pharma Plus)
- Resochine - (Bayer)

Thailand

- Chewoquine - (Chew)
- Diroquine - (Atlantic)
- Genocin - (General Drugs)
- Malacin - (ANB)
- Maliaquine - (Sriprasit)
- Nitaquin - (Utopian)
- P-Roquine - (PP Lab)
- Sinmoquin - (SSP)

Turkey

- Kutlu - (Keymen)

Ukraine

- Delagil - (Meda)

United Kingdom

- Avloclor - (Alliance)
- Malarivon - (Wallace Mfg Chem.)
- Malaviron - (Wallace Mfg Chem.)
- Nivaquine - (Sanofi-Aventis)
