Azithromycin (All Populations Monograph)

Indications/Dosage

Labeled

- bacterial conjunctivitis
- bronchitis
- chancroid
- chlamydia infection
- community-acquired pneumonia
- gonorrhea
- Mycobacterium avium complex (MAC) prophylaxis
- Mycobacterium avium complex infection
- non-gonococcal urethritis (NGU)
- otitis media
- pelvic inflammatory disease (PID)
- pharyngitis
- pneumonia
- sinusitis
- skin and skin structure infections
- tonsillitis

Off-Label

- babesiosis †
- bartonellosis †
- campylobacteriosis †
- chlamydial infection prophylaxis †
- cholera †
- coronavirus disease 2019 (COVID-19) †
- cystic fibrosis †
- dental abscess (apical) †
- dental abscess (periapical) †
- dental infection †
- dentoalveolar infection †
- endocarditis prophylaxis †
- gonorrhea prophylaxis †
- granuloma inguinale †
- Lyme disease †
- lymphogranuloma venereum †
- ophthalmia neonatorum †
- pertussis (whooping cough) †
- pertussis prophylaxis †
- rheumatic fever prophylaxis †
- scrub typhus †
- severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection †
- shigellosis †
- syphilis †
- toxoplastic encephalitis †
- toxoplasmosis †
- traveler's diarrhea †
- typhoid fever †

† Off-label indication

NOTE: To reduce the development of drug-resistant bacteria and maintain the effectiveness of antibacterial drugs, this drug should be used only to treat or prevent infections that are proven or strongly suspected to be caused by susceptible bacteria. When culture and susceptibility information are available, they should be considered in selecting or modifying antibacterial therapy. In the absence of such data, local epidemiology and susceptibility patterns may contribute to the empiric selection of therapy.
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:


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:

*Bacillus anthracis*, *Gardnerella vaginalis*, *Helicobacter pylori*, *Klebsiella granulomatis*, *Mycoplasma genitalium*, *Rickettsia tsutsugamushi*, *Salmonella typhi*, *Staphylococcus epidermidis*, *Streptococcus sp. (Group C)*, *Streptococcus sp. (Group F)*, *Streptococcus sp. (Group G)*, *Toxoplasma gondii*, *Vibrio cholerae*.

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.

Azithromycin is used for many indications. In an effort to present the data most relevant to the management of COVID-19, only dosing related to community-acquired pneumonia and COVID-19 are displayed in this document.

For the treatment of community-acquired pneumonia (CAP):

**Oral dosage (immediate-release formulations)**

**Outpatient Adults**

500 mg PO on day 1, followed by 250 mg PO once daily for at least 5 days as monotherapy for patients without comorbidities or risk factors for MRSA or *P. aeruginosa* and as part of combination therapy for patients with comorbidities. Guide treatment duration by clinical stability.[28855] [34362] [64669] FDA-approved labeling recommends a 5-day treatment course.[28855]
Hospitalized Adults

500 mg PO once daily for at least 5 days as part of combination therapy. Guide treatment duration by clinical stability.[34362] [64669]

Adolescents

10 mg/kg/dose (Max: 500 mg/dose) PO on day 1, followed by 5 mg/kg/dose (Max: 250 mg/dose) PO once daily on days 2 through 5.[28855] Guidelines recommend azithromycin as oral step-down therapy or as initial oral therapy in patients with atypical pathogens and as part of combination therapy for HIV-infected patients.[34362] [46963]

Infants and Children 6 months to 12 years

10 mg/kg/dose (Max: 500 mg/dose) PO on day 1, followed by 5 mg/kg/dose (Max: 250 mg/dose) PO once daily on days 2 through 5.[28855] Guidelines recommend azithromycin as oral step-down therapy or as initial oral therapy in patients with atypical pathogens and as part of combination therapy for hospitalized HIV-infected patients.[34361] [46963]

Infants 3 to 5 months†

10 mg/kg/dose PO on day 1, followed by 5 mg/kg/dose PO once daily on days 2 through 5. Guidelines recommend azithromycin as oral step-down therapy or as initial oral therapy in patients with atypical pathogens and as part of combination therapy for hospitalized HIV-infected patients.[34361] [46963]

Oral dosage (extended-release oral suspension)

Adults

2 g PO as a single dose. This dosage form is not recommended for patients with moderate or severe illness or those with other underlying risk factors for which oral therapy is inappropriate.[34473]

Infants, Children, and Adolescents 6 months to 17 years

60 mg/kg/dose (Max: 2 g/dose) PO as a single dose. This dosage form is not recommended for patients with moderate or severe illness or those with other underlying risk factors for which oral therapy is inappropriate.[34473]

Intravenous dosage

Adults

500 mg IV once daily for at least 5 days as part of combination therapy for hospitalized patients. Guide treatment duration by clinical stability.[34362] [64669] FDA-approved labeling recommends IV therapy for at least 2 days then step-down to oral therapy to complete a 7- to 10-day treatment course. The switch to oral therapy should be done at the discretion of the physician and based on the clinical response of the patient. [43974]

Adolescents 16 to 17 years

500 mg IV once daily for at least 2 days, followed by oral therapy to complete a 7- to 10-day treatment course. [43974] Guidelines recommend azithromycin as monotherapy for definitive atypical pneumonia and as part of combination therapy for hospitalized patients, including HIV-infected patients, when atypical pathogens are suspected.[34362] [46963]
Infants, Children, and Adolescents 3 months to 15 years†

10 mg/kg/dose (Max: 500 mg/dose) IV once daily for 2 days, followed by oral therapy to complete a 5-day treatment course. Guidelines recommend azithromycin as monotherapy for definitive atypical pneumonia and as part of combination therapy for hospitalized patients, including HIV-infected patients, when atypical pathogens are suspected.[34361] [34362] [46963]

INVESTIGATIONAL USE: For adjunctive use in 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

Data are limited and efficacy has not been established. Azithromycin is being used in some COVID-19 institutional protocols. Risk of adverse events (e.g., cardiac arrhythmias), must be weighed against potential benefit. Azithromycin 500 mg PO on day 1 then 250 mg PO once daily for 5 days was administered in combination with hydroxychloroquine in one small study (total n = 26). On day 6, all patients treated with hydroxychloroquine and azithromycin (n = 6) were virologically cured compared to 57.1% of patients treated with hydroxychloroquine alone (n= 20).[65147] In a retrospective analysis of a multicenter cohort study (n = 349) in patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV), 136 patients received macrolide therapy in combination with antiviral treatment. Macrolide therapy was not associated with a reduction in 90-day mortality compared to the control group (adjusted OR: 0.84; 95% CI: 0.47 to 1.51; p = 0.56).[65149]
Maximum Dosage Limits

Adults

500 mg/day PO is FDA-approved dosage; however, doses up to 1,200 mg/day PO are used off-label; 2 g PO when given as single dose; 500 mg/day IV infusion.

Geriatric

500 mg/day PO is FDA-approved dosage; however, doses up to 1,200 mg/day PO are used off-label; 2 g PO when given as single dose; 500 mg/day IV infusion.

Adolescents

16 to 17 years: 500 mg/day PO is FDA-approved dosage; however, doses up to 1,200 mg/day PO are used off-label; 2 g PO when given as single dose; 500 mg/day IV infusion.

13 to 15 years: For the immediate-release oral suspension or tablets, 12 mg/kg/day PO (Max: 500 mg/dose) and single doses up to 30 mg/kg PO (Max: 1.5 g/dose) are the maximum FDA-approved dosages; however, doses up to 20 mg/kg/day PO (Max: 1,000 mg/day) or 1,200 mg/day are used off-label. For extended-release oral suspension, 60 mg/kg single dose PO (Max: 2 g/dose). Safety and efficacy have not been established for IV; however, doses up to 10 mg/kg/day (Max: 500 mg/dose) have been used off-label.

Children

2 to 12 years: For the immediate-release oral suspension or tablets, 12 mg/kg/day PO (Max: 500 mg/dose) and single doses up to 30 mg/kg PO (Max: 1.5 g/dose) are the maximum FDA-approved dosages; however, doses up to 20 mg/kg/day PO (Max: 1,000 mg/day) are used off-label. For extended-release oral suspension, 60 mg/kg single dose PO (Max: 2 g/dose). Safety and efficacy have not been established for IV; however, doses up to 10 mg/kg/day (Max: 500 mg/dose) have been used off-label.

1 year: For the immediate-release oral suspension or tablets, 10 mg/kg/day PO and single doses up to 30 mg/kg PO are the maximum FDA-approved dosages; however, doses up to 20 mg/kg/day PO are used off-label. For extended-release oral suspension, 60 mg/kg single dose PO. Safety and efficacy have not been established for IV; however, doses up to 10 mg/kg/day have been used off-label.

Infants

6 to 11 months: For the immediate-release oral suspension or tablets, 10 mg/kg/day PO and single doses up to 30 mg/kg PO are the maximum FDA-approved dosages; however, doses up to 20 mg/kg/day PO are used off-label. For extended-release oral suspension, 60 mg/kg single dose PO. Safety and efficacy have not been established for IV; however, doses up to 10 mg/kg/day have been used off-label.

3 to 5 months: Safety and efficacy have not been established; however, doses up to 20 mg/kg/day PO or 10 mg/kg/day IV have been used off-label.

1 to 2 months: Safety and efficacy have not been established; however, doses up to 20 mg/kg/day PO have been used off-label.

Neonates

Safety and efficacy have not been established; however, doses up to 20 mg/kg/day PO have been used off-label.
Patients with Hepatic Impairment Dosing

Dosage adjustment recommendations are not available; azithromycin has not been studied in patients with impaired hepatic function.[28855]

Patients with Renal Impairment Dosing

CrCl more than 80 mL/min: No dosage adjustment is needed.

CrCl 10 to 80 mL/min: No dosage adjustment is recommended.

CrCl less than 10 mL/min: No dosage adjustment is recommended; however, the manufacturer recommends caution in patients with severe renal impairment since mean AUC is increased roughly 35%.[28855][43974]

† Off-label indication

Revision Date: 03/26/2020 05:21:19 PM

References


Clinical Pharmacology powered by ClinicalKey

3/27/2020


61833 – Nishimura RA, Otto CM, Bonow RO, et al. 2017 AHA/ACC focused update of the 2014 AHA/ACC guideline for the management of patients with valvular heart disease: a report of the American College of


How Supplied

<table>
<thead>
<tr>
<th>Azithromycin Lyophilisate for solution for injection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 2.5g Powder for Injection</strong> (00703-9089) (Teva Pharmaceuticals USA)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (60505-6076) (Apotex Corp)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (70860-0100) (Athenex Pharmaceutical Division LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (55150-0174) (AuroMedics Pharma LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (10019-0648) (Baxter Anesthesia/Critical Care) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (63323-0398) (Fresenius Kabi USA, LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (10019-0648) (Hikma Pharmaceuticals USA inc.) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (00409-0144) (Hospira Worldwide, Inc., a Pfizer Company)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (25021-0112) (Sagent Pharmaceuticals) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (70436-0019) (Slate Run Pharmaceuticals, LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (62756-0512) (Sun Pharmaceutical Industries, Inc.)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (00703-9085) (Teva Pharmaceuticals USA) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection</strong> (50111-0794) (Teva Pharmaceuticals USA)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection (NOVAPLUS)</strong> (70860-0125) (Athenex Pharmaceutical Division LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection (NOVAPLUS)</strong> (63323-0398) (Fresenius Kabi USA, LLC)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Powder for Injection (PREMIER ProRx)</strong> (63323-0398) (Fresenius Kabi USA, LLC)</td>
</tr>
</tbody>
</table>

**Zithromax 500mg Powder for Injection** (00069-3150) (Pfizer Inc.)
### Azithromycin Lyophilisate for solution for injection

- **Zithromax 500mg Powder for Injection** (00069-3150) (Pfizer Inc.) (off market)
- **Zithromax 500mg Powder for Injection (Amerinet)** (00069-0400) (Pfizer Injectables)

### Azithromycin Ophthalmic drops, solution

- **Azasite 1% Ophthalmic Solution** (17478-0307) (Akorn Inc)
- **Azasite 1% Ophthalmic Solution** (31357-0040) (Inspire Pharmaceuticals Inc.) (off market)
- **Azasite 1% Ophthalmic Solution** (31357-0040) (Inspire Pharmaceuticals Inc.) (off market)
- **Azasite 1% Ophthalmic Solution** (31357-0040) (Oak Pharmaceuticals wholly-owned subsidiary Akorn Inc.) (off market)

### Azithromycin Oral capsule

- **Zithromax 250mg Capsule** (00069-3050) (Pfizer Inc.) (off market)
- **Zithromax Z-PAK 250mg Capsule** (00069-6050) (Pfizer Inc.) (off market)

### Azithromycin Oral tablet

- **Azithromycin 250mg Tablet** (68084-0278) (American Health Packaging) (off market)
- **Azithromycin 250mg Tablet** (68084-0443) (American Health Packaging)
<table>
<thead>
<tr>
<th>Azithromycin Oral tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (68084-0656) (American Health Packaging) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (68084-0906) (American Health Packaging) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (68084-0278) (American Health Packaging)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (60687-0282) (American Health Packaging) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (60687-0282) (American Health Packaging)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (60505-2581) (Apotex Corp)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (65862-0641) (Aurobindo Pharma USA Inc.)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50268-0098) (AvPAK; a Division of AvKARE Inc) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50268-0100) (AvPAK; a Division of AvKARE Inc) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50268-0103) (AvPAK; a Division of AvKARE Inc) (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50268-0098) (AvPAK; a Division of AvKARE Inc)</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (69452-0171) (Bionpharma Inc)</td>
</tr>
</tbody>
</table>
### Azithromycin Oral tablet

<table>
<thead>
<tr>
<th>Azithromycin 250mg Tablet</th>
<th>(59762-3060) (Greenstone Ltd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(59762-2198) (Greenstone Ltd)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(68180-0160) (Lupin Pharmaceuticals, Inc.)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(00904-6010) (Major Pharmaceuticals Inc, a Harvard Drug Group Company) (off market)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(00904-6010) (Major Pharmaceuticals Inc, a Harvard Drug Group Company) (off market)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(00904-6405) (Major Pharmaceuticals Inc, a Harvard Drug Group Company) (off market)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(00904-6708) (Major Pharmaceuticals Inc, a Harvard Drug Group Company)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(63739-0575) (McKesson Packaging) (off market)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(51079-0591) (Mylan Institutional LLC)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(51079-0040) (Mylan Institutional LLC)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(43063-0090) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(55289-0964) (PD-Rx Pharmaceuticals, Inc.)</td>
</tr>
<tr>
<td>Azithromycin 250mg Tablet</td>
<td>(43063-0090) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (43063-0524) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (43063-0572) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (43063-0728) (PD-Rx Pharmaceuticals, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (33358-0040) (RxChange Co.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (00781-1496) (Sandoz Inc. a Novartis Company) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (00781-5776) (Sandoz Inc. a Novartis Company)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (00781-8089) (Sandoz Inc. a Novartis Company)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (51224-0022) (TAGI Pharma, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (00093-7146) (Teva Pharmaceuticals USA) (off market)</td>
<td></td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>--</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50111-0787) (Teva Pharmaceuticals USA) (off market)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50111-0787) (Teva Pharmaceuticals USA) (off market)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (50111-0787) (Teva Pharmaceuticals USA)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (64679-0961) (Wockhardt USA, LLC) (off market)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet</strong> (64679-0961) (Wockhardt USA, LLC)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (60505-2581) (Apotex Corp) (off market)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (60505-2581) (Apotex Corp)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (65862-0641) (Aurobindo Pharma USA Inc.)</td>
<td>![Image]</td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (70882-0107) (Cambridge Therapeutics Technologies, LLC)</td>
<td>![Image]</td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (59762-3060) (Greenstone Ltd)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (59762-2198) (Greenstone Ltd)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (68180-0160) (Lupin Pharmaceuticals, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (00378-1533) (Mylan Pharmaceuticals Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (00781-1496) (Sandoz Inc. a Novartis Company) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (00781-5776) (Sandoz Inc. a Novartis Company) (off market)</td>
<td></td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (00781-8089) (Sandoz Inc. a Novartis Company)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (51224-0022) (TAGI Pharma, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (00093-7146) (Teva Pharmaceuticals USA)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (64679-0961) (Wockhardt USA, LLC) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 250mg Tablet (6ct Blister Card)</strong> (64679-0961) (Wockhardt USA, LLC)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (66267-0928) (NuCare Pharmaceuticals Inc) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (55289-0310) (PD-Rx Pharmaceuticals, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (58864-0791) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (58864-0655) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (00069-3060) (Pfizer Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 250mg Tablet</strong> (00069-4061) (Pfizer Inc.)</td>
<td></td>
</tr>
</tbody>
</table>
## Azithromycin Oral tablet

<table>
<thead>
<tr>
<th><strong>Azithromycin Oral tablet</strong></th>
<th><img src="image1.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zithromax Z-PAK 250mg Tablet</strong> (00069-3060) (Pfizer Inc.)</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (68084-0279) (American Health Packaging) (off market)</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (68084-0913) (American Health Packaging) (off market)</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (68084-0279) (American Health Packaging)</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (60687-0271) (American Health Packaging)</td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (60505-2582) (Apothex Corp)</td>
<td><img src="image7.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (65862-0642) (Aurobindo Pharma USA Inc.)</td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (50268-0099) (AvPAK; a Division of AvKARE Inc) (off market)</td>
<td><img src="image9.png" alt="Image" /></td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td><img src="https://example.com/azithromycinoral.png" alt="Image" /></td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (50268-0101) (AvPAK; a Division of AvKARE Inc) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (50268-0104) (AvPAK; a Division of AvKARE Inc) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (50268-0099) (AvPAK; a Division of AvKARE Inc)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (69452-0172) (Bionpharma Inc)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (70882-0108) (Cambridge Therapeutics Technologies, LLC) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (59762-3070) (Greenstone Ltd)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (68180-0161) (Lupin Pharmaceuticals, Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (00904-6011) (Major Pharmaceuticals Inc, a Harvard Drug Group Company) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (55289-0274) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet</strong> (55289-0274) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
<td></td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td>Azithromycin 500mg Tablet (43063-0506) (PD-Rx Pharmaceuticals, Inc.)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (43063-0540) (PD-Rx Pharmaceuticals, Inc.)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (43063-0568) (PD-Rx Pharmaceuticals, Inc.) (off market)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (43063-0713) (PD-Rx Pharmaceuticals, Inc.)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (00781-1941) (Sandoz Inc. a Novartis Company) (off market)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (00781-5789) (Sandoz Inc. a Novartis Company)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (51224-0122) (TAGI Pharma, Inc.)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (00093-7169) (Teva Pharmaceuticals USA)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (50111-0788) (Teva Pharmaceuticals USA)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (50111-0788) (Teva Pharmaceuticals USA) (off market)</td>
</tr>
<tr>
<td></td>
<td>Azithromycin 500mg Tablet (64679-0964) (Wockhardt USA, LLC) (off market)</td>
</tr>
</tbody>
</table>
### Azithromycin Oral tablet

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet</strong> (64679-0964) (Wockhardt USA, LLC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (60505-2582) (Apotex Corp) (off market)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (60505-2582) (Apotex Corp)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (65862-0642) (Aurobindo Pharma USA Inc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (70882-0118) (Cambridge Therapeutics Technologies, LLC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (59762-3070) (Greenstone Ltd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (68180-0161) (Lupin Pharmaceuticals, Inc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (00378-1534) (Mylan Pharmaceuticals Inc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image8.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
## Azithromycin Oral tablet

<table>
<thead>
<tr>
<th>Name</th>
<th>Code</th>
<th>Manufacturer</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>55289-0274</td>
<td>PD-Rx Pharmaceuticals, Inc.</td>
<td>(off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>00781-1941</td>
<td>Sandoz Inc. a Novartis Company</td>
<td>(off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>00781-5789</td>
<td>Sandoz Inc. a Novartis Company</td>
<td>(off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>00781-8090</td>
<td>Sandoz Inc. a Novartis Company</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>51224-0122</td>
<td>TAGI Pharma, Inc.</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>00093-7169</td>
<td>Teva Pharmaceuticals USA</td>
<td>(off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong></td>
<td>50111-0788</td>
<td>Teva Pharmaceuticals USA</td>
<td></td>
</tr>
<tr>
<td>Azithromycin Oral tablet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (64679-0964) (Wockhardt USA, LLC) (off market)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Azithromycin 500mg Tablet (3ct Blister Card)</strong> (64679-0964) (Wockhardt USA, LLC)</th>
</tr>
</thead>
</table>

| **Zithromax 500mg Tablet** (00069-3070) (Pfizer Inc.) |

| **Zithromax Tri-Pak 500mg Tablet** (00069-3070) (Pfizer Inc.) |

| **Azithromycin 600mg Tablet** (68084-0464) (American Health Packaging) |

| **Azithromycin 600mg Tablet** (68084-0920) (American Health Packaging) (off market) |
| **Azithromycin 600mg Tablet** (60687-0314) (American Health Packaging) |
| **Azithromycin 600mg Tablet** (60505-2583) (Apotex Corp) |
| **Azithromycin 600mg Tablet** (69452-0173) (Bionpharma Inc) |

| **Azithromycin 600mg Tablet** (59762-3080) (Greenstone Ltd) |

<p>| <strong>Azithromycin 600mg Tablet</strong> (68180-0162) (Lupin Pharmaceuticals, Inc.) |
| <strong>Azithromycin 600mg Tablet</strong> (00378-1535) (Mylan Pharmaceuticals Inc.) |</p>
<table>
<thead>
<tr>
<th>Azithromycin Oral tablet</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (00781-1497) (Sandoz Inc. a Novartis Company) (off market)</td>
<td><img src="image1" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (00781-5793) (Sandoz Inc. a Novartis Company)</td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (51224-0222) (TAGI Pharma, Inc.)</td>
<td><img src="image3" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (00093-7147) (Teva Pharmaceuticals USA) (off market)</td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (50111-0789) (Teva Pharmaceuticals USA)</td>
<td><img src="image5" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (50111-0789) (Teva Pharmaceuticals USA) (off market)</td>
<td><img src="image6" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (64679-0962) (Wockhardt USA, LLC) (off market)</td>
<td><img src="image7" alt="Image" /></td>
</tr>
<tr>
<td><strong>Azithromycin 600mg Tablet</strong> (64679-0962) (Wockhardt USA, LLC)</td>
<td><img src="image8" alt="Image" /></td>
</tr>
<tr>
<td><strong>Zithromax 600mg Tablet</strong> (00069-3080) (Pfizer Inc.)</td>
<td><img src="image9" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Azithromycin Powder for oral suspension</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 1g Single-Dose Powder for Suspension</strong> (59762-3051) (Greenstone Ltd)</td>
<td><img src="image10" alt="Image" /></td>
</tr>
<tr>
<td><strong>Zithromax 1g Single-Dose Powder for Suspension</strong> (00069-3051) (Pfizer Inc.)</td>
<td><img src="image11" alt="Image" /></td>
</tr>
<tr>
<td>Azithromycin Powder for oral suspension</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5ml Powder for Suspension</strong> (59762-3110) (Greenstone Ltd)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5ml Powder for Suspension</strong> (00185-7203) (Sandoz Inc. a Novartis Company)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5ml Powder for Suspension</strong> (00093-7148) (Teva Pharmaceuticals USA) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5ml Powder for Suspension</strong> (00093-2027) (Teva Pharmaceuticals USA)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5ml Powder for Suspension</strong> (00093-7148) (Teva Pharmaceuticals USA) (off market)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5mL Powder for Suspension</strong> (59651-0007) (Aurobindo Pharma Limited)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5mL Powder for Suspension</strong> (42806-0147) (Epic Pharma LLC)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5mL Powder for Suspension</strong> (43386-0470) (Gavis Pharmaceuticals, LLC, wholly owned subsidiary of Lupin)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 100mg/5mL Powder for Suspension</strong> (70710-1457) (Zydus Pharmaceuticals (USA) Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Zithromax 100mg/5mL Powder for Suspension</strong> (00069-3110) (Pfizer Inc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (59762-3120) (Greenstone Ltd)</td>
<td></td>
</tr>
</tbody>
</table>
### Azithromycin Powder for oral suspension

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (59762-3130)</td>
<td>Greenstone Ltd</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (59762-3140)</td>
<td>Greenstone Ltd</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (00185-7206)</td>
<td>Sandoz Inc. a Novartis Company</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (00185-7209)</td>
<td>Sandoz Inc. a Novartis Company</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (00185-7212)</td>
<td>Sandoz Inc. a Novartis Company</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (00093-7149)</td>
<td>Teva Pharmaceuticals USA (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (00093-2026)</td>
<td>Teva Pharmaceuticals USA</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (50111-0767)</td>
<td>Teva Pharmaceuticals USA (off market)</td>
</tr>
<tr>
<td><strong>Azithromycin 200mg/5ml Powder for Suspension</strong> (50111-0791)</td>
<td>Teva Pharmaceuticals USA (off market)</td>
</tr>
<tr>
<td>Product Name</td>
<td>Code</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Azithromycin Powder for oral suspension</td>
<td></td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(50111-0792)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(59651-0008)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(42806-0149)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(42806-0150)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(42806-0151)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(43386-0471)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(70710-1458)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(70710-1459)</td>
</tr>
<tr>
<td>Azithromycin 200mg/5mL Powder for Suspension</td>
<td>(70710-1460)</td>
</tr>
<tr>
<td>Zithromax 200mg/5mL Powder for Suspension</td>
<td>(00069-3130)</td>
</tr>
<tr>
<td>Zithromax 200mg/5mL Powder for Suspension</td>
<td>(00069-3120)</td>
</tr>
<tr>
<td>Zithromax 200mg/5mL Powder for Suspension</td>
<td>(00069-3140)</td>
</tr>
</tbody>
</table>
**Azithromycin Powder for oral suspension, extended release**

<table>
<thead>
<tr>
<th>Zmax 2g Extended-Release Powder for Suspension</th>
<th>(00069-4170) (Pfizer Inc.) (off market)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Zmax 2g Extended-Release Powder for Suspension</th>
<th>(00069-4170) (Pfizer Inc.)</th>
</tr>
</thead>
</table>

| Zmax Pediatric 2g Extended-Release Powder for Suspension | (00069-4170) (Pfizer Inc.) (off market) |

## Description/Classification

### Description

Azithromycin is a semisynthetic antibiotic belonging to the macrolide subgroup of azalides and is similar in structure to erythromycin. Azithromycin offers the advantage that it can be dosed once daily and produces less GI intolerance than does erythromycin. Azithromycin has a wider spectrum of activity than erythromycin against *Mycobacterium avium* complex (MAC), *Haemophilus influenzae*, nontuberculous mycobacteria, and *Chlamydia trachomatis*. Another apparent advantage over erythromycin is that azithromycin reaches higher intracellular concentrations, thus increasing its efficacy and duration of action.[50470] These advantages are demonstrated in studies that show that single doses of azithromycin are effective for the treatment of acute otitis media and sexually transmitted diseases (STDs) due to chlamydia and gonorrhea.[23529][24204][51748] Azithromycin is better tolerated and offers shorter treatment durations compared with clarithromycin.[50470] Azithromycin is used for the treatment of a variety of respiratory infections, including otitis media, pharyngitis/tonsillitis, pertussis, community-acquired pneumonia, and sinusitis.[28855][51747] However, macrolides are not recommended for empiric monotherapy of acute bacterial sinusitis due to high rates of *Streptococcus pneumoniae* resistance (approximately 30%).[49853] Azithromycin is also used for the treatment of STDs due to chlamydia and gonorrhea, and for the prophylaxis and treatment of *Mycobacterium avium* complex (MAC) disease.[34361][43632] An ophthalmic preparation is used for the treatment of bacterial conjunctivitis.[43976] Long-term azithromycin is used off-label to improve lung function and decrease pulmonary exacerbation in cystic fibrosis patients 6 years and older who have sputum cultures persistently positive for *P. aeruginosa*.[51770] Additionally, long-term azithromycin may be used as an add-on therapy in adults with moderate to severe asthma. Prior to starting therapy, sputum should be checked for atypical mycobacteria.[64807] While azithromycin has been studied in regimens for *H. pylori* eradication and some studies show efficacy, the azithromycin-containing regimens have not been as effective as regimens containing clarithromycin in terms of eradication rates.[51749][51750] Macrolide cross-resistance is also an issue.[51751]

### Updates for coronavirus disease 2019 (COVID-19):

Available data regarding the use of azithromycin as adjunctive treatment of COVID-19 due to SARS-CoV-2 are limited and inconclusive. Azithromycin is being used in some COVID-19 protocols based on preliminary data; however, the risk of adverse events, particularly when given in combination with chloroquine or hydroxychloroquine (e.g., cardiac arrhythmias), should be considered. In an open-label, non-randomized clinical trial of hydroxychloroquine (n = 26), azithromycin was administered in combination with hydroxychloroquine to prevent bacterial superinfection in 6 patients. On day 6, all patients treated with the combination (hydroxychloroquine and azithromycin) were virologically cured compared to 57.1% of patients treated with hydroxychloroquine alone (n= 20).[65147] In a retrospective analysis of a multicenter cohort study (n = 349) in patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV), 136 patients received macrolide therapy in combination with antiviral...
treatment. Macrolide therapy was not associated with a reduction in 90-day mortality compared to the control group. [65149]

Classifications

- **General Anti-infectives Systemic**
  - **Systemic Antibiotics**
    - **Macrolide Antibiotics**
  - **Sensory Organs**
    - **Ophthalmologicals**
      - **Ophthalmological Anti-infectives**

Revision Date: 03/23/2020 05:50:52 PM

References


43632 – Centers for Disease Control and Prevention (CDC). Sexually Transmitted Diseases Treatment Guidelines 2010. MMWR. 2010;59:1-110


Administration Information

General Administration Information

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

Route-Specific Administration

Oral Administration

Oral Solid Formulations

- May be taken with or without food; however, increased tolerability has been observed when the tablets are taken with food.[28855][43975]

Oral Liquid Formulations

Oral suspension (immediate-release, bottles for reconstitution):

- Review the reconstitution instructions for the particular product and package size, as the amount of water required for reconstitution may vary from manufacturer to manufacturer.
- Tap the bottle to loosen the powder. Add water in 2 portions and shake well after each portion.
- Azithromycin for oral suspension (100 mg/5 mL or 200 mg/5 mL strengths) may be taken with or without food.
- Measure dosage with a calibrated spoon, cup, or oral syringe.
- Storage after reconstitution: Store at 5 to 30 degrees C (41 to 86 degrees F). Discard any unused portion per manufacturer recommendations.[28855]

Oral suspension (1 gram single-dose packet):

- Do not use for administration of doses other than 1 gram.
- Zithromax for oral suspension (1-g single-dose packet) may be taken with or without food; however, administration with food may increase tolerability.
Mix the entire contents of the packet in 60 mL (approximately 2 ounces) of water. Administer the entire contents immediately, then add an additional 60 mL of water, mix and administer to assure complete administration of the dosage.[43975]

**Oral suspension (extended-release, bottles for reconstitution):**

- Extended-release oral suspension (2 grams azithromycin) should be taken as a single dose at least 1 hour before or 2 hours after a meal.
- If a patient vomits within 5 minutes of the dose, the manufacturer recommends additional antibiotic treatment due to minimal absorption of the azithromycin dose. If a patient vomits between 5 to 60 minutes following the dose, consider alternate therapy. In patients with normal gastric emptying, if vomiting occurs 60 minutes or later after the dose, no additional antibiotic therapy is warranted. In patients with delayed gastric emptying, consider alternative therapy.
- Constitute with 60 mL of water, replace cap, and shake bottle well.
- Storage after reconstitution: Do not refrigerate. Use within 12 hours.[34473]

**Injectable Administration**

- Visually inspect parenteral products for particulate matter and discoloration prior to administration whenever solution and container permit.

**Intravenous Administration**

**Reconstitution:**

*NOTE: When using the Vial-Mate drug reconstitution device, please refer to the Vial-Mate instructions for assembly and reconstitution.*[43974]

- Add 4.8 mL of Sterile Water Injection to a concentration of 100 mg/mL.
- Because the vial is supplied under vacuum, it is recommended that a standard 5 mL (non-automated) syringe be used to ensure that the exact amount of 4.8 mL of sterile water is dispensed.
- Shake until all of the drug is dissolved.
- Further dilution is required.
- Storage: The reconstituted solution is stable for 24 hours when stored below 30 degrees C (86 degrees F).[43974]

**Dilution:**

- Dilute by transferring 5 mL of the reconstituted solution into a compatible diluent; use 500 mL of diluent for a concentration of 1 mg/mL and 250 mL of diluent for a concentration of 2 mg/mL.
- Compatible diluents include: 0.9% Sodium Chloride Injection, 0.45% Sodium Chloride Injection, 5% Dextrose Injection, Lactated Ringer's Injection, 5% Dextrose and 0.45% Sodium Chloride Injection with 20 mEq KCl, 5% Dextrose and Lactated Ringer's Injection, 5% Dextrose and 0.3% Sodium Chloride Injection, 5% Dextrose and 0.45% Sodium Chloride Injection, Normosol-M and 5% Dextrose Injection, and Normosol-R and 5% Dextrose Injection.
- Storage: Diluted solutions are stable for 24 hours at or below room temperature (30 degrees C or 86 degrees F) or for 7 days if stored under refrigeration (5 degrees C or 41 degrees F).[43974]

**Intravenous infusion:**
- Do not administer intramuscularly or via IV bolus.
- Other intravenous substances, additives, or medications should not be added to azithromycin or infused simultaneously through the same IV line.
- For a dose of 500 mg in 250 mL (concentration = 2 mg/mL), infuse over 1 hour. For a dose of 500 mg in 500 mL (concentration = 1 mg/mL), infuse over 3 hours.[43974]

**Ophthalmic Administration**

- For ophthalmic use only. Apply topically only to the eye.
- Instruct patient on proper instillation of eye solution.
- Avoid contamination of the eye solution; do not touch the tip of the eye dropper to the eye, fingertips, or other surface.
- Due to the difficulty of administering eye drops to pediatric patients, consider a 2 person administration approach to ensure proper installation of the drops (1 person to hold the eyelids open and 1 person to administer the drops).
- To avoid contamination, do not share an opened bottle among patients.[43976]

---

**Clinical Pharmaceutics Information**

From Trissel's 2™ Clinical Pharmaceutics Database

**Azithromycin**

1. **pH Range**

   pH 6.4 to 6.6

2. **Stability**

   Azithromycin injection in intact containers stored as directed by the manufacturer is stable until the labeled expiration date. The manufacturer indicates the reconstituted azithromycin injection is stable for 24 hours at controlled room temperature. Infusion Solutions: The manufacturer indicates that azithromycin diluted to 1 to 2 mg/mL is stable for 24 hours at room temperature and 7 days refrigerated in the infusion solutions noted below. Dextrose 5% Dextrose 5% in lactated Ringer's Dextrose 5% in sodium chloride 0.3% Dextrose 5% in sodium chloride 0.45% Dextrose 5% in sodium chloride 0.45% with potassium chloride 20 mEq/L Lactated Ringer's injection Normosol-M in dextrose 5% Normosol-R in dextrose 5% Sodium chloride 0.45% Sodium chloride 0.9%

3. **References**

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

---
Zhang et al. evaluated the stability of azithromycin in aqueous solution over a pH range of 4 to 7.2. They reported that azithromycin in aqueous solution exhibits maximum stability at pH 6.3. Below pH 6.0, the decomposition rate is rapid. At pH above 6.3 the rate of degradation increases with increasing pH. Mareno et al. similarly reported nearly total loss of azithromycin in hydrochloric acid and sodium hydroxide solutions with a concentration of 0.1 mol/L. Fiese et al. evaluated the stability of azithromycin in aqueous solution over the acidic pH range 1.0 to 4.1. Azithromycin underwent extensive decomposition at acidic pH. The time for 10% decomposition to occur at pH 2 was determined to be about 20 minutes at 37 degree C. The authors also reported that a ten-fold improvement in azithromycin stability occurred for each unit of pH increase within the tested range.

References


4. Light Exposure

Azithromycin in solution has been shown to undergo increased decomposition if exposed to sunlight and ultraviolet light.

References


5. Other Information

Trace metals- Zhang et al. reported that the presence of EDTA does not alter the rate of azithromycin decomposition in solution indicating that trace metal ions are not likely to be involved in the degradation of azithromycin.

References


6. Stability Max

Maximum reported stability periods: Reconstituted solution- 24 hours at room temperature. In infusion solutions- 24 hours at room temperature and 7 days refrigerated

References

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

From Trissel's 2™ Clinical Pharmaceutics Database

Azithromycin

1. Identity/Properties

Azithromycin occurs as a white or almost white crystalline material. Solubility: Azithromycin is practically insoluble in water but freely soluble in dehydrated ethanol and dichloromethane. pH: Azithromycin oral suspension has a pH between 8.5 and 11. Reconstituted azithromycin injection at 100 mg/mL is buffered with citric acid to a pH of 6.4 to 6.6. pKa: Azithromycin has apparent pKa values of 9.16 and 9.37.

References


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


2. General Stability Info

Azithromycin bulk powder and oral suspension powder should be packaged in tight containers and stored at controlled room temperature. Azithromycin oral capsules and tablets should be packaged in well-closed containers and stored at controlled room temperature. Single-dose packets of oral suspension powder should be stored between 5 and 30degree C. Azithromycin for injection vials should be stored at controlled room temperature. Reconstituted azithromycin oral suspension should be stored between 5 and 30degree C. After reconstitution, the oral suspension should be used according to the manufacturer's labeling for the specific product. Reconstituted azithromycin injection at 100 mg/mL is stable for 24 hours at controlled room temperature. Diluted for use to 1 to 2 mg/mL in a compatible infusion solution, the drug is stable for 24 hours at controlled room temperature and for seven days refrigerated.

References


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

3. Enteral Feeds

Klang et al. evaluated the compatibility of azithromycin oral suspension 200 mg/5 mL with Osmolite 1.2 (Abbott). Five milliliters of the drug was vortex mixed with 5 mL of the enteral nutrition product for one
minute. The sample was placed in an incubated shaker at 37\degree C for one hour. The mixture was evaluated for its ability to pass through a glass funnel stem (simulating a feeding tube). The portion of the mixture that passed through the funnel stem was filtered through a 100-micron filter and evaluated for retained solid matter. The test mixture passed through the glass funnel stem and did not demonstrate solid clumps upon filtration. Azithromycin oral suspension was reported to be compatible with Osmolite 1.2.

**References**


4. **Rectal**

Kauss et al. (2012) screened several compounded dosage forms of azithromycin for potential rectal administration in children who cannot take oral dosage forms. A rectal suspension, two rectal gels, a hard gelatin capsule, and a polyethylene glycol (PEG) suppository formulation were assessed; the suppository was selected as the best candidate dosage form for further development. Kauss et al. (2013) then developed and evaluated the stability of a pediatric PEG azithromycin rectal suppository formulation. Each suppository contained azithromycin 419 mg (equivalent to anhydrous azithromycin 400 mg), PEG 1500 1760 mg, and PEG 4000 440 mg. The suppositories were prepared in three ways: as suspended, co-melted, and solid solution suppositories. The solid solution suppositories proved to be the preferred form. They were prepared by melting the PEGs at 90\degree C using a water bath and then adding the azithromycin powder. The mixture was stirred until a homogenous limpid mixture was obtained. The mixture was cooled to 55 to 60\degree C and was poured into 2-g suppository moulds. The suppositories were allowed to harden at room temperature in a dessicator for 24 hours. The stability of the solid solution azithromycin suppositories was evaluated at 40\degree C and 75% relative humidity for 12 weeks packaged in alu/alu foil blisters (SGM India) and plastic moulds. In plastic moulds the suppositories underwent unacceptable changes including drug loss. However, in the alu/alu blisters the suppositories were much more stable. No change in the appearance and melting point of the suppositories occurred. HPLC analysis, differential scanning calorimetry, FTIR analysis, and X-ray diffraction found the azithromycin to be stable throughout the 12-week study period. In vitro drug release was unchanged, and in vivo bioavailability in rabbits was comparable to oral azithromycin.

**References**


5. **Ophthalmic**

Ophthalmic preparations, 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. Mareno et al. evaluated factors that affect the stability of azithromycin ophthalmic solution. The ophthalmic solution had an azithromycin concentration of 1.667 mg/mL in an unspecified physiological solution. The ophthalmic solution was subjected to a variety of stresses to observe the effects on the drug's stability. A microbiological assay technique was used to assess stability. Extremes of pH were evaluated using hydrochloric acid and sodium hydroxide 0.1 mol/L along with heat of 70\degree C; these resulted in nearly total loss of the drug in six hours. Exposure to hydrogen peroxide 0.3% yielded a similar result. Exposure of the azithromycin ophthalmic solution to sunlight and ultraviolet light (at 254 and 284 nm) resulted in losses of 11, 38, and 20%, respectively, in 48 hours. The
authors concluded that azithromycin ophthalmic solution pH and exposure to light should be controlled for stability.

References


Adverse Reactions

- abdominal pain
- acute generalized exanthematous pustulosis (AGEP)
- agitation
- anaphylactic shock
- anaphylactoid reactions
- anemia
- angioedema
- anorexia
- anosmia
- anxiety
- arthralgia
- asthenia
- atopic dermatitis
- azotemia
- blurred vision
- bronchospasm
- candidiasis
- chest pain (unspecified)
- chills
- cholestasis
- conjunctivitis
- constipation
- contact dermatitis
- corneal erosion
- cough
- diaphoresis
- diarrhea
- dizziness
- drowsiness
- Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)
- dysgeusia
- dysosmia
- dyspepsia
- dyspnea
- dysuria
- eczema vaccinatum
- edema
- elevated hepatic enzymes
- emotional lability
- eosinophilia
- erythema
- erythema multiforme
- fatigue
- fever
- flatulence
- gastritis
- headache
- hearing loss
The most common adverse reactions in patients receiving systemic regimens of azithromycin were gastrointestinal-related, which tended to be more frequent in the single-dose oral regimens in adults and higher doses in pediatrics. Among the most commonly reported gastrointestinal adverse events were diarrhea or loose stools (4% to 14% of adults; 1.8% to 10% of pediatric patients), nausea (1.8% to 18% adults; 0.4% to 4% pediatrics), vomiting (up to 13% adults; 1.1% to 14% pediatrics), abdominal pain (1.9% to 14% adults; 1.2% to 4% pediatrics), flatulence (up to 5% adults; up to 1% pediatric patients), and anorexia (2% adults; up to 1% pediatrics). Adverse GI effects occurring in up to 1% of adult and pediatric patients included gastritis, constipation, and dyspepsia. In adults melena, oral moniliasis, nephritis, and mucositis were also reported in up to 1%; stomatitis was reported by 1.9% of adults. In pediatric patients, enteritis was reported in up to 1%; dysuria was noted in less than 1%. In HIV-infected patients receiving prophylactic azithromycin (i.e., 1,200 mg once weekly) for disseminated Mycobacterium avium complex (MAC) the incidences of the following GI-related adverse events were higher than other patient populations: diarrhea or loose stools (12.9% to 52.8%), nausea (27% to 32.6%), abdominal pain (27% to 32.2%), dyspepsia (4.7% to 9%), flatulence (9% to 10.7%), vomiting (6.7% to 9%), and anorexia 2.1%. Elevated BUN (azotemia) and elevated creatinine occurred in up to 1% of patients, with elevated creatinine reported in 4% to 6% of patients receiving IV therapy. Postmarketing adverse gastrointestinal and genitourinary reactions have also included acute renal failure (unspecified), interstitial nephritis, pancreatitis, pyloric stenosis, and rare reports of tongue discoloration.\[28855\]\[34473\]\[43974\]\[43975\]

In clinical trials, elevated hepatic enzymes (ALT, AST) occurred in 4% to 6% of patients receiving intravenous azithromycin. Elevations of ALT (SGPT), GGT, and AST (SGOT) occurred with an incidence of 1% to 2% in patients receiving oral therapy. Hyperbilirubinemia was noted in up to 3% of patients. Up to 1% of drug recipients experienced hepatic failure, hepatic necrosis, hepatitis, hyperbilirubinemia, hyperglycemia, hypokalemia, hypokalemia, hypotension, injection site reaction, insomnia, interstitial nephritis, irritability, jaundice, keratitis, leukemia, leukopenia, lymphocytosis, lymphoma, lymphopenia, maculopapular rash, malaise, melena, myasthenia, nasal congestion, nausea, neutropenia, ocular discharge, ocular irritation, ocular pain, ocular pruritus, palpitations, pancreatitis, paresthesias, pharyngitis, photosensitivity, pleural effusion, pruritus, pseudomembranous colitis, pyloric stenosis, QT prolongation, rash, renal failure (unspecified), rhinitis, seizures, sinusitis, Stevens-Johnson syndrome, stomatitis, superinfection, syncope, thrombocytopenia, tinnitus, tongue discoloration, torsade de pointes, toxic epidermal necrolysis, urticaria, uveitis, vaginitis, ventricular tachycardia, vertigo, vesicular rash, visual impairment, vomiting, xerophthalmia.
Microbial overgrowth and superinfection can occur with antibiotic use. *C. difficile*-associated diarrhea (CDAD) or pseudomembranous colitis has been reported with azithromycin. If pseudomembranous colitis is suspected or confirmed, ongoing antibacterial therapy not directed against *C. difficile* may need to be discontinued. Institute appropriate fluid and electrolyte management, protein supplementation, *C. difficile*-directed antibacterial therapy, and surgical evaluation as clinically appropriate. Other infections reported during treatment with systemic azithromycin therapy during clinical trials included vaginitis (up to 2.8%), fungal superinfection (less than 1%), and fungal dermatitis (less than 1%). Cases of oral candidiasis (thrush) and vaginitis have also been noted during postmarketing use of the drug.[28855] [34473] [43974] [43975] [43976]

Hematologic adverse reactions noted in more than 1% of patients treated with systemic azithromycin during clinical trials included decreased hemoglobin, hematocrit, lymphocytes (lymphopenia), and neutrophils; as well as increased platelet counts, lymphocytes (lymphocytosis), neutrophils, and eosinophils (eosinophilia). Leukopenia, neutropenia, decreased platelet counts, elevated monocytes, and elevated basophils have been reported in less than 1% of adults. In children, anemia and leukopenia occurred in up to 1% of patients. Thrombocytopenia and mild neutropenia have been reported during postmarketing surveillance.[28855] [34473] [43974] [43975]

Respiratory adverse reactions have been reported in up to 1% of pediatric patients receiving azithromycin. These adverse reactions have included asthma, bronchitis, cough, pharyngitis, pleural effusion, and rhinitis. Dyspnea has been noted in 1.9% of patients receiving the intravenous formulation of azithromycin and in up to 1% of pediatric patients.[28855] [34473] [43974] [43975] Nasal congestion and sinusitis have been reported in less than 1% of patients receiving the ophthalmic preparation of azithromycin.[43976]

An injection site reaction has been associated with the administration of intravenous azithromycin. Approximately 12% of patients treated for pneumonia experienced a side effect related to the intravenous infusion; most common were pain at the injection site (6.5%) and local inflammation or erythema (3.1%). Application site reactions occurred in 1.9% of patients receiving infusions for pelvic inflammatory disease.[43974]

During clinical trials, recipients of systemic azithromycin reported fatigue (up to 3.9%), fever (2.1%), malaise (up to 1.1%), pain (up to 1%), chills and influenza-like symptoms (less than 1%), paresthesias (less than 1%), and asthenia (less than 1%). Cases of asthenia, paresthesias, fatigue, and malaise have also been noted during postmarketing use of the drug.[28855] [34473] [43974] [43975]

Central nervous system (CNS) adverse reactions have been associated with the use of systemic azithromycin. In patients receiving systemic formulations of azithromycin during clinical trials, vertigo (up to 1%), headache (up to 5%), dizziness (up to 3.9%), and somnolence or drowsiness (up to 1%) were reported. Additional CNS adverse reactions noted in less than 1% of pediatric drug recipients included agitation, nervousness, emotional lability, hostility, hyperkinesis, insomnia, and irritability. Postmarketing CNS effects have also included convulsions (seizures), hyperactivity, and syncope. Postmarketing psychiatric adverse reactions include aggression and anxiety.[28855] [34473] [43974] [43975]

Cardiovascular adverse reactions associated with systemic azithromycin therapy reported in up to 1% of patients include chest pain (unspecified) and palpitations. Although uncommon, these are potentially serious adverse reactions. In postmarketing experience, there have been reports of arrhythmias including ventricular tachycardia, hypotension, QT prolongation, and torsade de pointes.[28855] [34473] [43974] [43975]

Conjunctivitis and uveitis were reported in up to 1% of patients receiving systemic azithromycin. Taste perversions (dysgeusia) was reported in up to 1.3% of patients receiving systemic azithromycin and in less than 1% of patients using the ophthalmic preparation. Decreased hearing (0.9% to 1.1%) and tinnitus (0.9% and 3.4%) were noted by patients receiving weekly azithromycin doses of 1,200 mg. During postmarketing use of systemic azithromycin, cases of dysgeusia, dysosmia (smell perversion) and anosmia (loss of smell), and hearing disturbances including hearing loss, deafness or tinnitus have been reported.[28855] [34473] [43974] [43975] [43976]

Dermatological and hypersensitivity-related adverse reactions have been reported with azithromycin therapy. During clinical trials, a generalized rash was reported in up to 8.1% of azithromycin recipients. More specifically, rashes were
noted in 1% of adult patients receiving oral therapy, up to 5% of pediatric patients, 1.9% of patients receiving IV therapy, 3.4% to 8.1% of patients receiving a 1,200 mg once weekly dose, and in less than 1% of patients receiving ophthalmic therapy. Maculopapular rash and vesicular rash were reported in up to 1% of drug recipients. Patients also reported episodes of pruritus (up to 3.9%) and arthralgia (up to 3%). Other, less frequently reported adverse reactions (up to 1%) included photosensitivity, urticaria, bronchospasm, angioedema, and diaphoresis. Adverse events reported in less than 1% of patients using the ophthalmic solution included contact dermatitis, hives, and periocular swelling. Eczema vaccinatum (atopic dermatitis) was reported in up to 1% of pediatric patients, while dermatitis was noted in 2% of pediatric patients. Cases of angioedema, arthralgia, edema, photosensitivity, pruritus, rash, and urticaria have also been noted during postmarketing use. Serious skin reactions including erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis, and drug reaction with eosinophilia and systemic symptoms (DRESS) have been reported. Azithromycin therapy should be withdrawn if there are signs and symptoms of an allergic reaction. Some patients have a recurrence of allergic symptoms once symptomatic treatment is withdrawn, even though azithromycin therapy is not reinstated. Correlation between the long tissue half-life and duration of allergic symptoms has not yet been determined. Anaphylaxis (anaphylactoid reactions, anaphylactic shock) has been reported, including fatal cases.[28855] [34473] [43974] [43975] [43976]

Systemic azithromycin therapy has been associated with cases of acute generalized exanthematous pustulosis (AGEP). The nonfollicular, pustular, erythematous rash starts suddenly and is associated with a fever above 38 degrees C. Typically, the first episode of AGEP appears 2 to 3 weeks after exposure to the inciting drug; however, unintentional reexposure may cause a second episode within 2 days.[27736] [43974]

Ocular irritation was the most frequently reported adverse reaction after ophthalmic administration of azithromycin and occurred in approximately 1% to 2% of patients. Other reported adverse reactions occurring in less than 1% of patients included blurred vision, corneal erosion, ocular discharge, ocular pain (burning, stinging, and irritation upon instillation), ocular pruritus, punctate keratitis, visual impairment (reduced visual acuity), and xerophthalmia.[43976]

The exacerbation of myasthenia gravis symptoms as well as the new onset of myasthenic syndrome have been reported with systemic azithromycin therapy. While rare, this side effect has been reported with other macrolide antibacterial agents.[28855] [34473] [43974] [43975]

Laboratory abnormalities have been noted with systemic azithromycin use. These include decreased bicarbonate (up to 1%), increased bicarbonate (less than 1%), hyperkalemia (1% to 2%), hypokalemia (less than 1%), hyponatremia (less than 1%), hyperglycemia and hypoglycemia (up to 1%), elevated phosphokinase (1% to 2%), elevated serum alkaline phosphatase (less than 1%), elevated LDH (up to 3%), and elevated phosphate (less than 1%).[28855] [34473] [43974] [43975]

An increased relapse rate of cancers of the blood or lymph nodes (i.e., leukemia, lymphoma), including death, has been observed in allogeneic stem cell transplant patients who were receiving azithromycin as prophylaxis for bronchiolitis obliterans syndrome (BOS). In a clinical trial (n = 480) evaluating the effectiveness of long-term azithromycin to prevent BOS in patients who undergo donor stem cell transplants for cancers of the blood or lymph nodes, cancer relapse was observed in 32.9% of azithromycin-treated patients vs. 20.8% of patients who were given a placebo. The 2-year survival rate was 56.6% in azithromycin-treated patients vs. 70.1% in those given a placebo. [63410]

Revision Date: 03/26/2020 03:57:07 PM

References


Azithromycin does not treat viral infection (e.g., common cold). Prescribing azithromycin in the absence of a proven or strongly suspected bacterial infection or a prophylactic indication is unlikely to provide benefit to the patient and increases the risk of the development of drug-resistant bacteria. Patients should be told to complete the full course of treatment, even if they feel better earlier.

Azithromycin is contraindicated in patients with a known azithromycin or macrolide hypersensitivity. Azithromycin has a rare risk of serious hypersensitivity reactions or anaphylaxis, including angioedema and severe dermatologic reactions, including acute generalized exanthematous pustulosis (AGEP), Stevens-Johnson syndrome, and toxic epidermal necrolysis. Fatalities associated with these severe reactions have been reported. There is a risk of cross sensitivity with other macrolide antibiotics. Some patients have a recurrence of allergic symptoms once symptomatic treatment is withdrawn, even though azithromycin therapy is not reinstated.[28855] [43974]

Systemic azithromycin is contraindicated in patients with a history of jaundice and/or hepatic dysfunction associated with the prior use of azithromycin. Systemically administered azithromycin should be used with caution in patients

---

3/27/2020

Clinical Pharmacology powered by ClinicalKey


who have hepatic disease. In addition, abnormal hepatic function, hepatitis, cholestatic jaundice, hepatic necrosis, and hepatic failure have been reported with use, including cases that have resulted in death. Monitor liver function tests in patients receiving systemic azithromycin. Discontinue treatment immediately if signs and symptoms of hepatitis and liver dysfunction occur.[28855]

Safe use of systemically-administered azithromycin in patients with severe renal impairment has not been determined; limited data are available. Azithromycin should be used cautiously in patients with preexisting severe renal impairment or renal failure (CrCl less than 10 ml/min).[28855]

Almost all antibacterial agents, including systemic azithromycin, have been associated with pseudomembranous colitis or *C. difficile*-associated diarrhea (CDAD) which may range in severity from mild to life-threatening. Treatment with antibacterial agents alters the normal flora of the colon leading to overgrowth of *C. difficile*. Consider pseudomembranous colitis in patients presenting with diarrhea after antibacterial use. Careful medical history is necessary as pseudomembranous colitis has been reported to occur over 2 months after the administration of antibacterial agents. If pseudomembranous colitis is suspected or confirmed, ongoing antibacterial therapy not directed against *C. difficile* may need to be discontinued. Institute appropriate fluid and electrolyte management, protein supplementation, *C. difficile*-directed antibacterial therapy, and surgical evaluation as clinically appropriate.[28855]

Macrolides are associated with QT prolongation, and cases of cardiac arrhythmias and torsade de pointes (TdP) have been noted during azithromycin post-marketing surveillance. Caution is warranted when using the drug in high-risk patients, including those with known prolongation of the QT interval or a history of TdP.[34473] Use azithromycin with caution in patients with cardiac disease or other conditions that may increase the risk of QT prolongation including cardiac arrhythmias, congenital long QT syndrome, heart failure, bradycardia, myocardial infarction, hypertension, coronary artery disease, hypomagnesemia, hypokalemia, hypocalcemia, or in patients receiving medications known to prolong the QT interval or cause electrolyte imbalances. Females, patients with diabetes mellitus, thyroid disease, malnutrition, alcoholism, or hepatic impairment may also be at increased risk for QT prolongation.[28432] [28457] [56959] [56961] [56592] [56963] Data from a cohort study in adults have associated azithromycin with an increased risk of cardiovascular death. The study included persons receiving prescriptions for azithromycin (n = 347,795), amoxicillin (n = 1,348,672), ciprofloxacin (n = 264,626), levofloxacin (n = 193,906), and matched persons receiving no antibiotics (n = 1,391,180). Analysis of the data found those persons receiving a 5-day course of azithromycin had a significantly greater risk of cardiovascular death than persons not treated with antibiotics (HR: 2.88; 95% CI: 1.79 to 4.63; p less than 0.001), persons treated with 5 days of amoxicillin (HR: 2.49; 95% CI: 1.38 to 4.50; p = 0.002), and persons in the first 5 days of ciprofloxacin therapy (HR: 3.49; 95% CI: 1.32 to 9.26; p = 0.01); mortality rate did not differ from levofloxacin.[50182] [50183]

Clinical trials of oral and intravenous azithromycin and other reported clinical experience has not identified overall differences in safety and effectiveness between geriatric and younger adult subjects. Greater sensitivity of some older individuals cannot be ruled out. Health care providers are advised that geriatric patients may be more susceptible to drug-associated effects on the QT interval. Caution is advised in patients with known prolongation of the QT interval or a history of TdP.[28855] [43974] The federal Omnibus Budget Reconciliation Act (OBRA) regulates medication use in residents of long-term care facilities. According to OBRA, use of antibiotics should be limited to confirmed or suspected bacterial infections. Antibiotics are non-selective and may result in the eradication of beneficial microorganisms while promoting the emergence of undesired ones, causing secondary infections such as oral thrush, colitis, or vaginitis. Any antibiotic may cause diarrhea, nausea, vomiting, anorexia, and hypersensitivity reactions.[60742]

Available data over several decades with systemic azithromycin use in pregnant women have not identified any drug-associated risks for major birth defects, miscarriage, or adverse maternal or fetal outcomes. Developmental toxicity studies in animals showed no drug-induced fetal malformations at doses up to 4 times the adult human daily dose of 500 mg based on body surface area; however, decreased viability and delayed development were observed in the offspring of pregnant rats given azithromycin at a dose equivalent to 4 times the adult human daily dose from day 6 of pregnancy through weaning.[28855] In a nested, case-control study (n = 87,020 controls; 8,702 cases) within the Quebec Pregnancy Cohort, systemic azithromycin use during early pregnancy was associated with an increased risk of spontaneous abortion (adjusted odds ratio (aOR) 1.65, 95% CI 1.34 to 2.02, 110 exposed cases); residual confounding by severity of infection may be a potential limitation of this study.[62176] In a large population-based cohort study (n = 104,605 live births) assessing systemic macrolide (n = 8,632) or penicillin (n = 95,973) use during pregnancy and the risk of major malformations, macrolide use in the first trimester was associated with increased risk of any...
malformation (27.7 vs. 17.7 per 1,000 live births; adjusted risk ratio 1.55, 95% CI 1.19 to 2.03), and in particular, cardiovascular malformations (10.6 vs. 6.6 per 1,000 live births; adjusted risk ratio 1.62, 95% CI 1.05 to 2.51). Specific findings for azithromycin use during the first trimester were precluded due to few events. Macrolide use during the second and third trimesters showed no increased risk of any major malformation (19.5 vs. 17.3 per 1,000 live births; adjusted risk ratio 1.13, 95% CI 0.94 to 1.36); however, a borderline association with gastrointestinal malformations was observed (adjusted risk ratio 1.89, 95% CI 1 to 3.58). Macrolide use in any trimester was associated with an increased risk of genital malformations (adjusted risk ratio 1.58, 95% CI 1.14 to 2.19), mainly hypospadias.[65012] Additionally, in another large population-based cohort study (n = 139,938 live births) assessing systemic antibiotic exposure during the first trimester of pregnancy (n = 15,469 exposures) and the risk of major birth defects, macrolide exposure was associated with an increased risk of digestive system malformations (adjusted odds ratio (aOR) 1.46, 95% CI 1.04 to 2.06, 35 exposed cases).[62177]

Azithromycin is present in human breast milk. Non-serious adverse reactions have been reported in breast-fed infants after maternal administration of azithromycin. Consider the developmental and health benefits of breast-feeding along with the mother's clinical need for azithromycin and any potential adverse effects on the breast-fed infant from azithromycin or the underlying maternal condition. Monitor the breast-fed infant for diarrhea, vomiting, or rash. There are no available data on the effects of azithromycin on milk production. Azithromycin breast milk concentrations were measured in 20 women receiving a single 2 g oral dose during labor. Azithromycin was present in breast milk up to 4 weeks after dosing. Another study of 8 women receiving azithromycin IV before incision of cesarean section showed azithromycin was present in breast milk up to 48 hours later.[28855] A prospective observational study assessing the safety of macrolide antibiotics during lactation found that 12.7% (n = 55) of babies exposed to macrolides via breast milk experienced adverse events including rash, diarrhea, loss of appetite, and somnolence. The adverse event rate was similar to that seen in babies in a control group whose mothers were treated with amoxicillin (8.3%). Only 10 mothers in the study received azithromycin, 6 received clarithromycin, 2 received erythromycin, and the remainder were treated with roxythromycin.[45767] A population-based cohort study found that babies diagnosed with infantile hypertrophic pyloric stenosis were 2.3 to 3 times more likely to have been exposed to a macrolide antibiotic through breast milk during the first 90 days of life than babies not exposed during that same time period. The study did not specify which antibiotic the mothers of affected babies were prescribed; however, the majority of macrolide prescriptions were for erythromycin (72%), with 7% for azithromycin and 1.7% for clarithromycin.[45779] Previous American Academy of Pediatrics (AAP) recommendations consider erythromycin to be usually compatible with breast-feeding; azithromycin has not been evaluated by the AAP.[27500]

Use azithromycin with caution and with proper monitoring in young infants and neonates; there have been reports of infantile hypertrophic pyloric stenosis (IHPS) occurring in young infants after azithromycin therapy.[43974][57925][57926] Because azithromycin is sometimes used for the treatment of conditions that are associated with significant mortality or morbidity (e.g., pertussis), weigh the benefit of azithromycin therapy against the potential risk of developing IHPS. Inform parents and other caregivers to contact their physician if vomiting or irritability with feeding occurs. In a retrospective study of 148 infants given azithromycin during the first 14 days of life, IHPS developed in 3 patients (2%) for an odds ratio of 8.26 (95% CI: 2.62 to 26; p less than 0.001). Of 729 infants aged 15 to 42 days at the time of azithromycin exposure, 5 patients developed IHPS for an OR of 2.98 (95% CI: 1.24 to 7.2; p = 0.015). A male predominance was also observed, as all 8 infants who developed IHPS were boys. No infants aged 43 to 90 days at the time of azithromycin exposure developed IHPS; however, there have been 2 case reports of older infants developing IHPS (89 and 94 days old at diagnosis, respectively).[57925][57926]

Direct sunlight (UV) exposure should be minimized during therapy with systemic azithromycin. Photosensitivity has been reported as an adverse reaction to azithromycin.[28855][34473][43975]

Some intravenous formulations of azithromycin contain a total of 4.96 mEq (114 mg) of sodium per 500-mg vial. The sodium amounts should be considered in patients with requirements for sodium restriction or blunted natriuresis to salt loading (i.e., cardiac disease or hypertension).[43974]

Patients who wear contact lenses should avoid wearing them while being treated for an ocular infection with azithromycin ophthalmic solution.[43976]

Exacerbation of symptoms of myasthenia gravis and new onset of myasthenic syndrome have been reported in patients receiving systemic azithromycin therapy.[28855]
While azithromycin may be used to treat certain sexually transmitted diseases (STD), the drug may mask or delay the symptoms of incubating syphilis when given as part of an STD treatment regimen. All patients with a diagnosed or suspected STD should be tested for other STDs, which may include HIV, syphilis, chlamydia, and gonorrhea, at the time of diagnosis. Initiate appropriate therapy and perform follow-up testing as recommended based upon sexually transmitted disease diagnosis.[28855] [59799]

Do not use azithromycin for long-term prophylaxis of bronchiolitis obliterans syndrome (BOS) in patients with cancers of the blood or lymph nodes (i.e. leukemia, lymphoma) who undergo an allogeneic stem cell transplant because of the increased risk for cancer relapse or death.[63410]

References


**Mechanism of Action**

Azithromycin inhibits protein synthesis in bacterial cells by binding to the 50S subunit of bacterial ribosomes. Action is generally bacteriostatic but can be bactericidal in high concentrations or against susceptible organisms. Azithromycin is more active against gram-negative organisms but has less activity against streptococci and staphylococci than does erythromycin; erythromycin-resistant gram-positive isolates demonstrate cross-resistance to azithromycin.[34473] [50470] Azithromycin concentrates in phagocytes and fibroblasts leading to high intracellular concentrations. Drug distribution to inflamed tissues is thought to occur from the concentration in phagocytes.[43975]

The susceptibility interpretive criteria for azithromycin are delineated by pathogen. The MICs are defined for beta-hemolytic streptococci, *S. viridans* group, and *S. pneumonitae* as susceptible at 0.5 mcg/mL or less, intermediate at 1 mcg/mL, and resistant at 2 mcg/mL or more. The MICs are defined for *Staphylococcus* sp. as susceptible at 2 mcg/mL or less, intermediate at 4 mcg/mL, and resistant at 8 mcg/mL or more. The MICs are defined for *S. enterica* ser. Typhi as susceptible at 16 mcg/mL or less and resistant at 32 mcg/mL or more. The MICs are defined for *H. influenzae* and *H. parainfluenzae* as susceptible at 4 mcg/mL or less. The MICs are defined for *N. meningitidis* as susceptible at 2 mcg/mL or less, which may be only appropriate for prophylaxis of meningococcal case contacts and does not apply to treatment of invasive disease. The MICs are defined for *N. gonorrhoeae* as susceptible at 1 mcg/mL or less, presuming use of a 1 g single dose regimen that includes an additional antimicrobial agent.[63320] [63321]
viral infections; however, their direct effects on viral clearance are uncertain. Immunomodulatory mechanisms may include reducing chemotaxis of neutrophils (PMNs) to the lungs by inhibiting cytokines (i.e., IL-8), inhibition of mucus hypersecretion, decreased bacterial adhesion to the epithelium, decreased production of reactive oxygen species, accelerating neutrophil apoptosis, and blocking the activation of nuclear transcription factors.[65149] [65150] [65151] [65152] [65153]

References


Pharmacokinetics

Azithromycin is administered orally, intravenously, and topically to the eye. Following systemic administration, it is widely distributed to body tissues and fluids including bone, prostate, ovary, uterus, stomach, liver, middle ear, lung, tonsils and adenoids, and sputum.[28855][51754] Azithromycin exhibits significant intracellular penetration and concentrates within fibroblasts and phagocytes. As a result, tissue concentrations are significantly higher than are plasma concentrations.[34473][51757] Azithromycin is distributed widely into brain tissue but not into cerebrospinal fluid or the aqueous humor of the eye.[31755] Protein binding varies with plasma concentration; 51% of the drug is bound at low concentrations (0.02 mcg/ml) and this binding decreases to 7% at higher concentrations (2 mcg/ml).[28855] Azithromycin has a long half-life in both adults (40 to 68 hours) and children (32 to 64 hours), which is
partially explained by its extensive tissue uptake and slow release.\[28855]\[43975]\[51754]\[51755]\[51756] Elimination is largely in the feces, following excretion into the bile, with less than 14% excreted in the urine.\[28855]\[43974]

Affected cytochrome P450 isoenzymes and drug transporters: none

Route-Specific Pharmacokinetics

- **Oral Route**

  **Immediate-release suspension**

  Peak concentrations of azithromycin occur approximately 2 hours after administration.\[51753\] Food increases the Cmax by approximately 56% but the extent of absorption is unaltered.\[28855\]

  **Single-dose (1 g) immediate-release suspension**

  Administration with food increased the Cmax by 46% and the AUC by 14%.\[43975\]

  **250 mg and 500 mg immediate-release tablets**

  The absolute bioavailability is approximately 38%. The Cmax for a 5-day regimen of 250 mg PO ranged from 0.24 to 0.43 mcg/mL and the AUC was 14.9 mcg x h/mL. The Cmax for 3-day regimen of 500 mg PO ranged from 0.44 to 0.54 mcg/mL and the AUC was 17.4 mcg x h/mL. Food increases the Cmax by approximately 23%, but the extent of absorption is unaltered.\[28855\]

  **600 mg immediate-release tablets**

  The absolute bioavailability is 34%. For a 1200 mg dose, the Cmax is 0.33 mcg/mL, the Tmax is 2.5 h, and the AUC is 6.8 mcg x h/mL. Administration with food increased the Cmax by 31%; however, the AUC was unchanged.\[43975\]

  **Extended-release suspension**

  The bioavailability of the extended-release suspension compared to the immediate-release suspension is 83%. Food increases absorption. Administration with a high-fat meal increased the Cmax by 115% and the AUC by 23% compared to the fasted state. Administration with a standard meal increased the Cmax by 119% and the AUC by 12%.\[34473\] Peak concentrations occur approximately 3 hours (range 2 to 8 hours) after administration.\[51753\] Extended-release suspension and immediate-release formulations are not bioequivalent and cannot be interchanged.\[34473\]

- **Intravenous Route**

  Azithromycin doses of 500 mg IV daily administered over 1 hour for 2 to 5 days resulted in a mean Cmax +/- SD of 3.63 +/- 1.60 mcg/mL, a 24-hour trough of 0.20 +/- 0.15 mcg/mL, and an AUC\textsubscript{24} was 9.60 +/- 4.80 mcg x h/mL. Doses of 500 mg IV administered over 3 hours resulted in a mean Cmax of 1.14 +/- 0.14
mC/mL, a 24-hour trough of 0.18 +/- 0.02 mcg/mL, and an AUC_{24} of 8.03 +/- 0.86 mcg x h/mL. Similar pharmacokinetic values were obtained in patients that received the same 3-hour IV infusion regimen for 2 to 5 days. A comparison of the pharmacokinetics after the first and fifth daily doses showed an increase in AUC_{24} of 61%, reflecting a 3-fold rise in trough concentrations. Cmax increased by 8%.\[43974\]

- **Other Route(s)**
  
  **Ophthalmic Route**
  
  The systemic concentration of azithromycin after ocular administration is estimated to be below quantifiable limits (10 ng/mL or less).\[43976\]

### Special Populations

- **Hepatic Impairment**
  
  Azithromycin pharmacokinetics have not been studied in patients with hepatic impairment. Azithromycin is not substantially metabolized.\[28855\]

- **Renal Impairment**
  
  After the oral administration of a single 1000 mg oral dose of azithromycin, mean Cmax was increased by 5.1% and the AUC increased by 4.2% in subjects with mild to moderate renal impairment (GFR 10 to 80 mL/min) compared to subjects with normal renal function (GFR greater than 80 mL/min). The Cmax and AUC of azithromycin are increased by 61% and 35%, respectively, in patients with severe renal impairment (GFR less than 10 mL/min).\[28855\]

- **Pediatrics**
  
  **Immediate-release oral formulations:**
  
  **Children 6 years and older and Adolescents**
  
  In a pharmacokinetic study in children 6 years to 15 years of age who received 10 mg/kg azithromycin orally on day 1, followed by 5 mg/kg orally on days 2 to 5, mean Cmax, AUC, and clearance were 0.383 mcg/mL, 3.109 mcg x hr/mL, and 4.27 L/kg/hr, respectively.\[51756\] \[51760\]

  **Infants and Children 1 to 5 years**
  
  Maximum plasma concentrations (Cmax) and area under the curve (AUC) have been reported to be lower, and clearance has been reported to be higher for younger children compared with older children. In a pharmacokinetic study in children 6 months to 5 years of age who received azithromycin 10 mg/kg orally on day 1, followed by 5 mg/kg orally on days 2 to 5, mean Cmax, AUC, and clearance were 0.224 mcg/mL, 1.841 mcg x hr/mL, and 2.27 L/kg/hr, respectively. Mean elimination half-life was 32 hours.\[51755\] \[51756\]

  **Extended-release suspension:**
  
  **Infants 3 to 11 months, Children, and Adolescents 13 to 16 years**
The pharmacokinetics were characterized following a single 60 mg/kg dose of azithromycin in pediatric patients 3 months to 16 years. Although there was high inter-patient variability in systemic exposure (AUC and Cmax) across the age groups studied, individual azithromycin AUC and Cmax values in pediatric patients were comparable to or higher than those following administration of 2 g extended-release suspension in adults.[34473]

**Intravenous formulation:**

*Infants 6 to 11 months, Children, and Adolescents less than 16 years*

In a pharmacokinetic study in children (6 months to less than 16 years), after a single azithromycin IV dose of 10 mg/kg (Max: 500 mg/dose), mean peak concentration was 2.4 mcg/ml, clearance was 15.3 mL/min/kg, and elimination half-life was 65 hours. Peak concentrations occurred 1 hour after administration. No differences in pharmacokinetic parameters were noted among different age groups.[31756]

- **Geriatric**
  
The pharmacokinetic parameters of azithromycin in older volunteers (65 to 85 years) were similar to those in younger volunteers for a 5-day oral regimen.[28855]

- **Gender Differences**
  
No significant differences in azithromycin pharmacokinetics occur based on gender.[28855]

Revision Date: 03/26/2020 03:21:14 PM

**References**


Pregnancy/Breast-feeding

Pregnancy

Available data over several decades with systemic azithromycin use in pregnant women have not identified any drug-associated risks for major birth defects, miscarriage, or adverse maternal or fetal outcomes. Developmental toxicity studies in animals showed no drug-induced fetal malformations at doses up to 4 times the adult human daily dose of 500 mg based on body surface area; however, decreased viability and delayed development were observed in the offspring of pregnant rats given azithromycin at a dose equivalent to 4 times the adult human daily dose from day 6 of pregnancy through weaning.[28855] In a nested, case-control study (n = 87,020 controls; 8,702 cases) within the Quebec Pregnancy Cohort, systemic azithromycin use during early pregnancy was associated with an increased risk of spontaneous abortion (adjusted odds ratio (aOR) 1.65, 95% CI 1.34 to 2.02, 110 exposed cases); residual confounding by severity of infection may be a potential limitation of this study.[62176] In a large population-based cohort study (n = 104,605 live births) assessing systemic macrolide (n = 8,632) or penicillin (n = 95,973) use during pregnancy and the risk of major malformations, macrolide use in the first trimester was associated with increased risk of any malformation (27.7 vs. 17.7 per 1,000 live births; adjusted risk ratio 1.55, 95% CI 1.19 to 2.03), and in particular, cardiovascular malformations (10.6 vs. 6.6 per 1,000 live births; adjusted risk ratio 1.62, 95% CI 1.05 to 2.51). Specific findings for azithromycin use during the first trimester were precluded due to few events. Macrolide use during the second and third trimesters showed no increased risk of any major malformation (19.5 vs. 17.3 per 1,000 live births; adjusted risk ratio 1.13, 95% CI 0.94 to 1.36); however, a borderline association with gastrointestinal malformations was observed (adjusted risk ratio 1.89, 95% CI 1 to 3.58). Macrolide use in any trimester was associated with an increased risk of genital malformations (adjusted risk ratio 1.58, 95% CI 1.14 to 2.19), mainly hypospadias.[65012] Additionally, in another large population-based cohort study (n = 139,938 live births) assessing systemic antibiotic exposure during the first trimester of pregnancy (n = 15,469 exposures) and the risk of major birth defects, macrolide exposure was associated with an increased risk of digestive system malformations (adjusted odds ratio (aOR) 1.46, 95% CI 1.04 to 2.06, 35 exposed cases).[62177]

Breast-Feeding

Azithromycin is present in human breast milk. Non-serious adverse reactions have been reported in breast-fed infants after maternal administration of azithromycin. Consider the developmental and health benefits of breast-feeding along with the mother's clinical need for azithromycin and any potential adverse effects on the breast-fed infant from azithromycin or the underlying maternal condition. Monitor the breast-fed infant for diarrhea, vomiting, or rash. There are no available data on the effects of azithromycin on milk production. Azithromycin breast milk concentrations were measured in 20 women receiving a single 2 g oral dose during labor. Azithromycin was present in breast milk up to 4 weeks after dosing. Another study of 8 women receiving azithromycin IV before incision of cesarean section showed azithromycin was present in breast milk up to 48 hours later.[28855] A prospective observational study assessing the safety of macrolide antibiotics during lactation found that 12.7% (n = 55) of babies exposed to macrolides via breast milk experienced adverse events including rash, diarrhea, loss of appetite, and somnolence. The adverse event rate was similar to that seen in babies in a control group whose mothers were treated with amoxicillin (8.3%). Only 10 mothers in the study received azithromycin, 6 received clarithromycin, 2 received erythromycin, and the remainder...
were treated with roxythromycin. A population-based cohort study found that babies diagnosed with infantile hypertrophic pyloric stenosis were 2.3 to 3 times more likely to have been exposed to a macrolide antibiotic through breast milk during the first 90 days of life than babies not exposed during that same time period. The study did not specify which antibiotic the mothers of affected babies were prescribed; however, the majority of macrolide prescriptions were for erythromycin (72%), with 7% for azithromycin and 1.7% for clarithromycin. Previous American Academy of Pediatrics (AAP) recommendations consider erythromycin to be usually compatible with breast-feeding; azithromycin has not been evaluated by the AAP.

Revision Date: 03/27/2020 09:28:23 AM

References


Interactions

Level 1 (Severe)

- Bepridil
- Cisapride
- Dronedarone
- Halofantrine
- Levomethadyl
- Mesoridazine
- Pimozide
- Sparfloxacin
- Terfenadine
- Thioridazine

Level 2 (Major)

- Abarelix
- Amiodarone
- Amoxicillin; Clarithromycin; Lansoprazole
- Amoxicillin; Clarithromycin; Omeprazole
- Anagrelide
- Arsenic Trioxide
- Artemether; Lumefantrine
- Asenapine
- Bedaquiline
- Buprenorphine
- Buprenorphine; Naloxone
- Ceritinib
- Chloroquine
- Chlorpromazine
- Citalopram
- Clarithromycin
• Clofazimine
• Crizotinib
• Desflurane
• Dextromethorphan; Quinidine
• Disopyramide
• Dofetilide
• Droperidol
• Encorafenib
• Enflurane
• Entrectinib
• Eribulin
• Erythromycin
• Erythromycin; Sulfisoxazole
• Foscarnet
• Glasdegib
• Halogenated Anesthetics
• Halothane
• Hydroxychloroquine
• Ibutilide
• Iloperidone
• Inotuzumab Ozogamicin
• Isoflurane
• Ivosidenib
• Lanthanum Carbonate
• Lefamulin
• Lenvatinib
• Lofexidine
• Lopinavir; Ritonavir
• Macimorelin
• Methadone
• Midostaurin
• Mifepristone

• Moxifloxacin
• Nilotinib
• Ondansetron
• Osimertinib
• Oxaliplatin
• Paliperidone
• Panobinostat
• Pazopanib
• Pentamidine
• Phenicol Derivatives
• Pimavanserin
• Pitolisant
• Procaainamide
• Propafenone
• Quetiapine
• Quinidine
• Quinine
• Ribociclib
• Ribociclib; Letrozole
• Saquinavir
• Sevoflurane
• Siponimod
• Sodium picosulfate; Magnesium oxide; Anhydrous citric acid
• Sorafenib
• Sotalol
• Tetrabenazine
• Toremifene
• Trazodone
• Vandetanib
• Vemurafenib
• Ziprasidone

Level 3 (Moderate)

• Aclidinium; Formoterol
• Alfuzosin
• Aluminum Hydroxide
• Aluminum Hydroxide; Magnesium Carbonate
• Aluminum Hydroxide; Magnesium Hydroxide
• Aluminum Hydroxide; Magnesium Hydroxide; Simethicone
• Aluminum Hydroxide; Magnesium Trisilicate
• Amlodipine; Atorvastatin
• Apomorphine
• Arformoterol
• Aripiprazole
• Aspirin, ASA; Pravastatin
• Atomoxetine
• Atorvastatin
• Atorvastatin; Ezetimibe
• Bismuth Subcitrate Potassium; Metronidazole; Tetracycline
• Bismuth Subsalicylate; Metronidazole; Tetracycline
• Budesonide; Formoterol

• Calcium Carbonate; Magnesium Hydroxide
• Ciprofloxacine
• Clozapine
• Codeine; Phenylephrine; Promethazine
• Codeine; Promethazine
• Colchicine
• Colchicine; Probenecid
• Conjugated Estrogens; Bazedoxifene
• Cyclosporine
• Dasatinib
• Degarelix
• Deutetrabenazine
• Dextromethorphan; Promethazine
• Dienogest; Estradiol valerate
• Digoxin
• Dolasetron
• Dolutegravir; Rilpivirine
• Donepezil
• Donepezil; Memantine
• Drospirenone
• Drospirenone; Estradiol
- Drospernone; Ethinyl Estradiol
- Drospernone; Ethinyl Estradiol; Levomefolate
- Efavirenz
- Efavirenz; Emtricitabine; Tenofovir
- Efavirenz; Lamivudine; Tenofovir Disoproxil Fumarate
- Eliglustat
- Emtricitabine; Rilpivirine; Tenofovir alafenamide
- Emtricitabine; Rilpivirine; Tenofovir disoproxil fumarate
- Escitalopram
- Estradiol; Levonorgestrel
- Estradiol; Norethindrone
- Estradiol; Norgestimate
- Ethinyl Estradiol
- Ethinyl Estradiol; Desogestrel
- Ethinyl Estradiol; Ethynodiol Diacetate
- Ethinyl Estradiol; Etonogestrel
- Ethinyl Estradiol; Levonorgestrel
- Ethinyl Estradiol; Levonorgestrel; Ferrous bisglycinate
- Ethinyl Estradiol; Levonorgestrel; Folic Acid; Levomefolate
- Ethinyl Estradiol; Norelgestromin
- Ethinyl Estradiol; Norethindrone
- Ethinyl Estradiol; Norethindrone Acetate
- Ethinyl Estradiol; Norethindrone Acetate; Ferrous fumarate
- Ethinyl Estradiol; Norethindrone; Ferrous fumarate
- Ethinyl Estradiol; Norgestimate
- Ethinyl Estradiol; Norgestrel
- Ezogabine
- Fingolimod
- Flecainide
- Fluconazole
- Fluoxetine
- Fluoxetine; Olanzapine
- Fluticasone; Salmeterol
- Fluticasone; Umeclidinium; Vilanterol
- Fluticasone; Vilanterol
- Fluvoxamine
- food
- Formoterol
- Formoterol; Mometasone
- Gemifloxacin
- Gemtuzumab Ozogamicin
- Gilteritinib
- Glycopyrrolate; Formoterol
- Goserein
- Granisetron
- Haloperidol
- Histrelin
- Hydroxyzine
- Indacaterol
- Indacaterol; Glycopyrrolate
- Itraconazole
- Ketoconazole
- Lapatinib
- Leuprolide
- Leuprolide; Norethindrone
- Levofloxacin
- Levonorgestrel
- Lithium
- Long-acting beta-agonists
- Loperamide
- Loperamide; Simethicone
- Magnesium Hydroxide
- Maprotiline
- Mefloquine
- Meperidine; Promethazine
- Mestranol; Norethindrone
- Metronidazole
- Mirtazapine
- Nelfinavir
- Norethindrone
- Norfloxacin
- Norgestrel
- Octreotide
- Ofloxacin
- Olanzapine
- Olodaterol
- Oral Contraceptives
- Pasireotide
- Phenylephrine; Promethazine
- Posaconazole
- Pravastatin
- Primaquine
- Promethazine
- Ranolazine
- Rilpivirine
- Risperidone
- Romidepsin
- Salmeterol
- Segesterone Acetate; Ethinyl Estradiol
- Sertraline
- Solifenacin
- Sunitinib
- Tacrolimus
- Talazoparib
- Tamoxifen
- Telavancin
- Telithromycin
- Tiotropium; Olodaterol
- Tolterodine
- Triptorelin
- Umeclidinium; Vilanterol
- Vardenafil
- Venlafaxine
- Voriconazole
- Vorinostat
- Warfarin
Level 4 (Minor)

- Albuterol
- Albuterol; Ipratropium
- Amitriptyline
- Amitriptyline; Chlordiazepoxide
- Belladonna Alkaloids; Ergotamine; Phenobarbital
- Caffeine; Ergotamine
- Clomipramine
- Desipramine
- Dihydroergotamine
- Doxepin
- Ergotamine
- Fluphenazine
- Fosphenytoin
- Imipramine
- Levalbuterol
- Metaproterenol
- Nortriptyline
- Perphenazine
- Perphenazine; Amitriptyline
- Phenotoin
- Pirbuterol
- Prochlorperazine
- Promptriptyline
- Short-acting beta-agonists
- Terbutaline
- Tricyclic antidepressants
- Trifluoperazine
- Trimipramine

**Abarelix:** (Major) There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. If azithromycin and another drug that prolongs the QT interval must be coadministered, ECG monitoring is recommended; closely monitor the patient for QT interval prolongation. Abarelix is associated with a possible risk for QT prolongation and torsade de pointes (TdP) based on varying levels of documentation. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28406] [28432] [28855] [43974]

**Aclidinium; Formoterol:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

**Albuterol:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]

**Albuterol; Ipratropium:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]

**Alfuzosin:** (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as alfuzosin. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Alfuzosin may prolong the QT interval in a dose-dependent manner. [28261] [28855] [43974]
Aluminum Hydroxide: (Moderate) Antacids containing aluminum salts and/or magnesium salts can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Aluminum Hydroxide: Magnesium Carbonate: (Moderate) Antacids containing aluminum salts and/or magnesium salts can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Aluminum Hydroxide: Magnesium Hydroxide: (Moderate) Antacids containing aluminum salts and/or magnesium hydroxide can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Aluminum Hydroxide: Magnesium Hydroxide: Simethicone: (Moderate) Antacids containing aluminum salts and/or magnesium hydroxide can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Aluminum Hydroxide: Magnesium Trisilicate: (Moderate) Antacids containing aluminum salts and/or magnesium salts can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Amiodarone: (Major) If possible, avoid coadministration of amiodarone and drugs known to prolong the QT interval. 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. Reports of QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. QT prolongation was reported in a 68-year old woman receiving azithromycin and amiodarone. The patient had a history of stable congestive heart failure and a posterior communicating artery aneurysm. She was receiving amiodarone (200 mg/day) for over a year for paroxysmal atrial fibrillation. Additional medications included furosemide, enalapril, and aspirin. A regular sinus rhythm with normal P-R, QRST, and QTc intervals was noted prior to initiation of azithromycin therapy. Therapy with azithromycin was started at 500 mg PO on day 1, followed by 250 mg PO once daily for 4 days. Sinus bradycardia with marked QT prolongation and increased QT dispersion were noted on day 3 of treatment. Azithromycin was discontinued; QT and QTc intervals and QT dispersion returned to baseline in 4 days. Hypokalemia or hypomagnesemia were not noted in the patient and the amiodarone dose remained consistent at 200 mg/day. [28224] [28432] [28457] [28855] [43974]

Amitriptyline: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Amitriptyline: Chlordiazepoxide: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]
Amlodipine; Atorvastatin: ( Moderate) Monitor for evidence of rhabdomyolysis if atorvastatin is coadministered with azithromycin. A clinically significant pharmacokinetic interaction was not observed when atorvastatin was administered with azithromycin in a drug interaction study. However, a case series in the World Health Organization Adverse Drug Reaction (WHO-ADR) database was suggestive of a possible drug interaction resulting in rhabdomyolysis between statins, including atorvastatin, and azithromycin. [28855][62597][62598]

Amoxicillin; Clarithromycin; Lansoprazole: ( Major) Both clarithromycin and azithromycin are macrolide antibiotics and coadministration would represent duplicate therapy. Additionally, coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). Clarithromycin is associated with an established risk for QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28225][28238][28855][43974]

Amoxicillin; Clarithromycin; Omeprazole: ( Major) Both clarithromycin and azithromycin are macrolide antibiotics and coadministration would represent duplicate therapy. Additionally, coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). Clarithromycin is associated with an established risk for QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28225][28238][28855][43974]

Anagrelide: ( Major) Torsades de pointes (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. A cardiovascular examination, including an ECG, should be obtained in all patients prior to initiating anagrelide therapy. Monitor patients during anagrelide therapy for cardiovascular effects and evaluate as necessary. Drugs with a possible risk for QT prolongation and TdP that should be used cautiously with anagrelide include azithromycin. [28855][30163][43974]

Apomorphine: ( Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as apomorphine. There have been case reports of QT prolongation and torsade de pointes (TdP) with the post-market use of azithromycin. Limited data indicate that QT prolongation is also possible with apomorphine administration; the change in QTc interval is not significant in most patients receiving dosages within the manufacturer’s guidelines. [28661][28855][43974]

Arformoterol: ( Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467][28855][32901][41231][43974][44979][54633][57710]

Aripiprazole: ( Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as aripiprazole. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. QT prolongation has occurred during therapeutic use of aripiprazole and following overdose. [28855][42845][43974]

Arsenic Trioxide: ( Major) If possible, use of azithromycin should be discontinued prior to initiating arsenic trioxide therapy, as coadministration may lead to increased risk for QT prolongation and torsade de pointes (TdP). Azithromycin has been associated with cases of QT prolongation and TdP during post-marketing use. Cases of TdP and complete atrioventricular block have also been reported with arsenic trioxide; QT prolongation should be expected with the use of arsenic trioxide. [28226][28855][43974][4951]

Artemether; Lumefantrine: ( Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), concurrent use of azithromycin with artemether; lumefantrine should be avoided. Consider ECG monitoring if azithromycin must be used with or after artemether; lumefantrine treatment. Artemether; lumefantrine is associated with prolongation of the QT interval, and rare cases of QT prolongation and TdP have been reported during post-market use of azithromycin. Although no studies have examined the effects of administering these medications together, their concurrent use may result in additive QT prolongation and should be avoided. [28855][35401][43974][5162]( Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), concurrent use of azithromycin with artemether; lumefantrine should be avoided. Consider ECG monitoring if other QT prolonging drugs must be used with or after artemether; lumefantrine treatment. Artemether; lumefantrine is associated with...
prolongation of the QT interval, and cases of QT prolongation and TdP have been reported during post-market use of azithromycin. Although no studies have examined the effects of administering these medications together, their concurrent use may result in additive QT prolongation and should be avoided. [28432] [28855] [35401] [43974]

**Asenapine:** (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), the manufacturer of asenapine recommends avoiding its use in combination with agents known to prolong the QT interval, such as azithromycin. Asenapine has been associated with QT prolongation, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28855] [36343] [43974] [5162]

**Aspirin, ASA; Pravastatin:** (Moderate) Azithromycin has the potential to increase pravastatin exposure when used concomitantly. Coadminister pravastatin and azithromycin cautiously due to a potential increased risk of myopathies. [45507]

**Atomoxetine:** (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as atomoxetine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. QT prolongation has occurred during therapeutic use of atomoxetine and following overdose. Concurrent use may increase the risk of QT prolongation. [28405] [28855] [43974] [59321]

**Atorvastatin:** (Moderate) Monitor for evidence of rhabdomyolysis if atorvastatin is coadministered with azithromycin. A clinically significant pharmacokinetic interaction was not observed when atorvastatin was administered with azithromycin in a drug interaction study. However, a case series in the World Health Organization Adverse Drug Reaction (WHO-ADR) database was suggestive of a possible drug interaction resulting in rhabdomyolysis between statins, including atorvastatin, and azithromycin. [28855] [62597] [62598]

**Atorvastatin; Ezetimibe:** (Moderate) Monitor for evidence of rhabdomyolysis if atorvastatin is coadministered with azithromycin. A clinically significant pharmacokinetic interaction was not observed when atorvastatin was administered with azithromycin in a drug interaction study. However, a case series in the World Health Organization Adverse Drug Reaction (WHO-ADR) database was suggestive of a possible drug interaction resulting in rhabdomyolysis between statins, including atorvastatin, and azithromycin. [28855] [62597] [62598]

**Bedaquiline:** (Major) Coadministration of bedaquiline with other QT prolonging drugs, such as azithromycin, may result in additive or synergistic prolongation of the QT interval. Prior to initiating bedaquiline, obtain serum electrolyte concentrations and a baseline ECG. An ECG should also be performed at least 2, 12, and 24 weeks after starting bedaquiline therapy. [28855] [34329] [43974] [52746]

**Belladonna Alkaloids; Ergotamine; Phenobarbital:** (Minor) The manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin and ergotamine, because simultaneous use of ergotamine with other macrodiles may produce ergot toxicity. [28855]

**Bepridil:** (Severe) There have been rare case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in postmarketing reports. Other drugs, such as bepridil, have been specifically established to have a causal association with QT prolongation and TdP and are contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28227] [28432] [28855] [43974]

**Bismuth Subcitrate Potassium; Metronidazole; Tetracycline:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and metronidazole should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Potential QT prolongation has been reported in limited case reports with metronidazole. [28855] [43974] [57377] [57378]

**Bismuth Subsalicylate; Metronidazole; Tetracycline:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and metronidazole should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Potential QT prolongation has been reported in limited case reports with metronidazole. [28855] [43974] [57377] [57378]
Budesonide; Formoterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Buprenorphine: (Major) Avoid coadministration of buprenorphine with azithromycin. Buprenorphine has been associated with QT prolongation and has a possible risk of torsade de pointes (TdP). QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [41235] [43974] [60270]

Buprenorphine; Naloxone: (Major) Avoid coadministration of buprenorphine with azithromycin. Buprenorphine has been associated with QT prolongation and has a possible risk of torsade de pointes (TdP). QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [41235] [43974] [60270]

Caffeine; Ergotamine: (Minor) The manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin and ergotamine, because simultaneous use of ergotamine with other macrolides may produce ergot toxicity. [28855]

Calcium Carbonate; Magnesium Hydroxide: (Moderate) Antacids containing aluminum salts and/or magnesium salts can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

Ceritinib: (Major) Avoid coadministration of ceritinib with azithromycin if possible due to the risk of QT prolongation. If concomitant use is unavoidable, periodically monitor ECGs and electrolytes; an interruption of ceritinib therapy, dose reduction, or discontinuation of therapy may be necessary if QT prolongation occurs. Ceritinib causes concentration-dependent QT prolongation. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28225] [43974] [57094]

Chloroquine: (Major) Coadministration of azithromycin and chloroquine may result in additive QT prolongation; perform an ECG at baseline and monitor closely throughout therapy, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances prior to initiation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Chloroquine is associated with an increased risk of QT prolongation and TdP; fatalities have been reported. The risk of QT prolongation is increased with higher chloroquine doses. [28229] [28230] [28231] [28855] [43974] [65157]

Chlorpromazine: (Major) Agents that prolong the QT interval, such as azithromycin, could lead to torsade de pointes (TdP) when combined with a phenothiazine, and therefore are generally not recommended for combined use. Phenothiazines have been associated with a risk of QT prolongation and/or TdP. This risk is generally higher at elevated drugs concentrations of phenothiazines. Chlorpromazine is specifically associated with an established risk of QT prolongation and TdP; case reports have included patients receiving therapeutic doses of chlorpromazine. Cases of QT prolongation and TdP were also reported during the post-marketing use of azithromycin. [28415] [28416] [28417] [28855] [43065] [43974]

Ciprofloxacin: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and ciprofloxacin should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Rare cases of QT prolongation and TdP have been reported with ciprofloxacin during postmarketing surveillance. [28432] [28457] [28855] [29833] [33144] [33145] [33146] [43411] [43974] [48869] [48871]

Cisapride: (Severe) There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. Azithromycin is contraindicated with other drugs that have been specifically established that have a causal association with QT prolongation and torsade de pointes, such as cisapride. [28407] [28855] [43974]
Citalopram: (Major) Concurrent use of citalopram with azithromycin is not recommended due to an increased risk for QT prolongation and torsade de pointes (TdP). Citalopram causes dose-dependent QT interval prolongation, and azithromycin has been associated with cases of QT prolongation and TdP. If concurrent therapy is considered essential, ECG monitoring is recommended. [28269] [28855] [43974]

Clarithromycin: (Major) Both clarithromycin and azithromycin are macrolide antibiotics and coadministration would represent duplicate therapy. Additionally, coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). Clarithromycin is associated with an established risk for QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28225] [28238] [28855] [43974]

Clofazimine: (Major) Monitor ECGs for QT prolongation when clofazimine is administered with azithromycin. QT prolongation and torsade de pointes (TdP) have been reported in patients receiving clofazimine in combination with QT prolonging medications. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63936]

Clomipramine: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Clozapine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as clozapine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Treatment with clozapine has been associated with QT prolongation, TdP, cardiac arrest, and sudden death. [28262] [28855] [43974]

Codeine; Phenylephrine; Promethazine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

Codeine; Promethazine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

Colchicine: (Moderate) Caution is warranted with the concomitant use of colchicine and azithromycin as increased colchicine concentrations may occur. Monitor for colchicine toxicity. Colchicine accumulation may be greater in patients with renal or hepatic impairment. Coadministration with azithromycin resulted in an increase in colchicine Cmax of 21.6% and an increase in the AUC of 57.1%. [36114]

Colchicine; Probenecid: (Moderate) Caution is warranted with the concomitant use of colchicine and azithromycin as increased colchicine concentrations may occur. Monitor for colchicine toxicity. Colchicine accumulation may be greater in patients with renal or hepatic impairment. Coadministration with azithromycin resulted in an increase in colchicine Cmax of 21.6% and an increase in the AUC of 57.1%. [36114]

Conjugated Estrogens; Bazedoxifene: (Moderate) In clinical evaluation, azithromycin 500 mg was given once daily for 8 consecutive days in 30 postmenopausal women. Azithromycin 500 mg and a bazedoxifene 40 mg tablet were co-administered on Day 9. Azithromycin 250 mg administration once daily continued on Days 10 to 13. Co-administration increased the Cmax of bazedoxifene by 6% and decreased AUC of bazedoxifene by 15%. The clinical effect of this change is not known. A reduction in bazedoxifene exposure may be associated with an increased risk of endometrial hyperplasia. Monitor patients for loss of efficacy and increased side effects during conjugated estrogens; bazedoxifene therapy. [56074]

Crizotinib: (Major) Avoid coadministration of crizotinib with azithromycin due to the risk of QT prolongation. If concomitant use is unavoidable, monitor ECGs for QT prolongation and monitor electrolytes. An interruption of therapy, dose reduction, or discontinuation of therapy may be necessary for crizotinib if QT prolongation occurs.
Crizotinib has been associated with concentration-dependent QT prolongation. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [45458]

**Cyclosporine:** (Moderate) Caution is warranted with the concomitant use of azithromycin and cyclosporine as increased cyclosporine concentrations may occur. Dose adjustment of cyclosporine may be necessary; monitor cyclosporine serum concentrations during use with azithromycin and after discontinuation of azithromycin. [28404]

**Dasatinib:** (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised during coadministration of dasatinib and azithromycin. In vitro studies have shown that dasatinib has the potential to prolong cardiac ventricular repolarization (prolong QT interval). Additionally, cases of QT prolongation and TdP have been reported during the post-marketing use of azithromycin. [28855] [32387] [43974]

**Degarelix:** (Moderate) Consider whether the benefits of androgen deprivation therapy outweigh the potential risks in patients receiving azithromycin as concurrent use may increase the risk of QT prolongation. Androgen deprivation therapy (i.e., degarelix) may prolong the QT/QTc interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [46869]

**Desflurane:** (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]

**Desipramine:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

**Deutetrabenazine:** (Moderate) For patients taking a deutetrabenazine dosage more than 24 mg/day with azithromycin, assess the QTc interval before and after increasing the dosage of either medication. Clinically relevant QTc prolongation may occur with deutetrabenazine. Reports of QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [61845]

**Dextromethorphan:** Promethazine:** (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

**Dextromethorphan:** Quinidine:** (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when coadministering quinidine with azithromycin. Quinidine is associated with QT prolongation and TdP, and rare cases of QT prolongation and TdP have been reported during the postmarketing use of azithromycin. [28855] [42280] [43974] [47357]

**Dienogest:** Estradiol valerate:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of
such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Digoxin:** (Moderate) Monitor digoxin concentrations before and during concomitant use of azithromycin and reduce the digoxin dose if necessary. Elevated digoxin concentrations have been observed when azithromycin has been coadministered with digoxin. [28272] [29743]

**Dihydroergotamine:** (Minor) Until more data are available, the manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin and either ergotamine or dihydroergotamine concurrently. The simultaneous use of certain ergot alkaloids with certain macrolides may produce ergot toxicity. [28855] [28858]

**Disopyramide:** (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering disopyramide with azithromycin. Disopyramide is associated with QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during the post-marketing use of azithromycin. [28228] [28855] [43974]

**Dofetilide:** (Major) Coadministration of dofetilide and azithromycin is not recommended as concurrent use may increase the risk of QT prolongation. Dofetilide, a Class III antiarrhythmic agent, is associated with a well-established risk of QT prolongation and torsade de pointes (TdP). QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28221] [28432] [28457] [28855] [43974]

**Dolasetron:** (Moderate) Administer dolasetron with caution in combination with azithromycin; concurrent use may increase the risk for QT prolongation. Dolasetron has been associated with a dose-dependent prolongation in the QT, PR, and QRS intervals on an electrocardiogram. Additionally, QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [42844] [43974]

**Dolutegravir; Rilpivirine:** (Moderate) Use caution when coadministering rilpivirine with azithromycin. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44376]

**Donepezil:** (Moderate) Use donepezil with caution in combination with azithromycin; concurrent use increases the risk for QT prolongation and torsade de pointes (TdP). Case reports indicate that QT prolongation and torsade de pointes (TdP) can occur during donepezil therapy. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [59321] [59322]

**Donepezil; Memantine:** (Moderate) Use donepezil with caution in combination with azithromycin; concurrent use increases the risk for QT prolongation and torsade de pointes (TdP). Case reports indicate that QT prolongation and torsade de pointes (TdP) can occur during donepezil therapy. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [59321] [59322]

**Doxepin:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

**Dronedarone:** (Severe) Coadministration of dronedarone and azithromycin is contraindicated due to the potential for QT prolongation and torsade de pointes (TdP). There have been case reports of QT prolongation and TdP with the use of azithromycin in post-marketing reports. 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 1600 mg twice daily. Although there are no studies examining the effects of dronedarone in patients receiving other QT prolonging drugs, coadministration of such drugs may result in additive QT prolongation. [28855] [36101] [43974]

---

Digoxin: (Moderate) Monitor digoxin concentrations before and during concomitant use of azithromycin and reduce the digoxin dose if necessary. Elevated digoxin concentrations have been observed when azithromycin has been coadministered with digoxin. [28272] [29743]

Dihydroergotamine: (Minor) Until more data are available, the manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin and either ergotamine or dihydroergotamine concurrently. The simultaneous use of certain ergot alkaloids with certain macrolides may produce ergot toxicity. [28855] [28858]

Disopyramide: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering disopyramide with azithromycin. Disopyramide is associated with QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during the post-marketing use of azithromycin. [28228] [28855] [43974]

Dofetilide: (Major) Coadministration of dofetilide and azithromycin is not recommended as concurrent use may increase the risk of QT prolongation. Dofetilide, a Class III antiarrhythmic agent, is associated with a well-established risk of QT prolongation and torsade de pointes (TdP). QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28221] [28432] [28457] [28855] [43974]

Dolasetron: (Moderate) Administer dolasetron with caution in combination with azithromycin; concurrent use may increase the risk for QT prolongation. Dolasetron has been associated with a dose-dependent prolongation in the QT, PR, and QRS intervals on an electrocardiogram. Additionally, QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [42844] [43974]

Dolutegravir; Rilpivirine: (Moderate) Use caution when coadministering rilpivirine with azithromycin. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44376]

Donepezil: (Moderate) Use donepezil with caution in combination with azithromycin; concurrent use increases the risk for QT prolongation and torsade de pointes (TdP). Case reports indicate that QT prolongation and torsade de pointes (TdP) can occur during donepezil therapy. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [59321] [59322]

Donepezil; Memantine: (Moderate) Use donepezil with caution in combination with azithromycin; concurrent use increases the risk for QT prolongation and torsade de pointes (TdP). Case reports indicate that QT prolongation and torsade de pointes (TdP) can occur during donepezil therapy. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [59321] [59322]

Doxepin: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Dronedarone: (Severe) Coadministration of dronedarone and azithromycin is contraindicated due to the potential for QT prolongation and torsade de pointes (TdP). There have been case reports of QT prolongation and TdP with the use of azithromycin in post-marketing reports. 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 1600 mg twice daily. Although there are no studies examining the effects of dronedarone in patients receiving other QT prolonging drugs, coadministration of such drugs may result in additive QT prolongation. [28855] [36101] [43974]
Droperidol: (Major) Droperidol should not be used in combination with any drug known to have potential to prolong the QT interval, such as azithromycin. 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. If coadministration cannot be avoided, use extreme caution; initiate droperidol at a low dose and increase the dose as needed to achieve the desired effect. [28235] [28236] [28237] [28855] [43974] [51289]

Drospirenone: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Drospirenone: Estradiol: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]
concur with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Drospirenone; Ethinyl Estradiol; Levomefolate: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tamafoxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Efavirenz: (Moderate) Consider alternatives to efavirenz when coadministering with azithromycin; coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). QTc prolongation has been observed with the use of efavirenz. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28442] [28855] [43974]

Efavirenz; Emtricitabine; Tenofovir: (Moderate) Consider alternatives to efavirenz when coadministering with azithromycin; coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). QTc prolongation has been observed with the use of efavirenz. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28442] [28855] [43974]

Efavirenz; Lamivudine; Tenofovir Disoproxil Fumarate: (Moderate) Consider alternatives to efavirenz when coadministering with azithromycin; coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). QTc prolongation has been observed with the use of efavirenz. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28442] [28855] [43974]

Eliglustat: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as eliglustat. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Eliglustat is predicted to cause PR, QRS, and/or QT prolongation at significantly elevated plasma concentrations. [28855] [43974] [57803]

Emtricitabine; Rilpivirine; Tenofovir alafenamide: (Moderate) Use caution when coadministering rilpivirine with azithromycin. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44376]

Emtricitabine; Rilpivirine; Tenofovir disoproxil fumarate: (Moderate) Use caution when coadministering rilpivirine with azithromycin. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. QT
prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44376]

**Encorafenib:** (Major) Avoid coadministration of encorafenib and azithromycin due to QT prolongation. If concurrent use cannot be avoided, monitor ECGs for QT prolongation and monitor electrolytes; correct hypokalemia and hypomagnesemia prior to treatment. Encorafenib is associated with dose-dependent prolongation of the QT interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63317]

**Enflurane:** (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]

**Entrectinib:** (Major) Avoid coadministration of entrectinib with aripiprazole due to the risk of QT prolongation. Entrectinib has been associated with QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [64567]

**Ergotamine:** (Minor) The manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin and ergotamine, because simultaneous use of ergotamine with other macrolides may produce ergot toxicity. [28855]

**Eribulin:** (Major) Concurrent use of eribulin and azithromycin should be avoided due to an increased risk for QT prolongation and torsade de pointes (TdP). If these drugs must be coadministered, ECG monitoring is recommended; closely monitor the patient for QT interval prolongation. Eribulin has been associated with QT prolongation, and cases of QT prolongation and TdP have been reported with the use of azithromycin during the post-marketing period. [28855] [42449] [43974]

**Erythromycin:** (Major) Avoid use of azithromycin and erythromycin together as this would be considered duplicate therapy. Cross-resistance with gram-positive organisms would be expected. Additionally, the risk for QT prolongation and torsade de pointes (TdP) increases if these drugs are administered together. Erythromycin has been associated with QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28855] [43258] [43974]

**Erythromycin; Sulfisoxazole:** (Major) Avoid use of azithromycin and erythromycin together as this would be considered duplicate therapy. Cross-resistance with gram-positive organisms would be expected. Additionally, the risk for QT prolongation and torsade de pointes (TdP) increases if these drugs are administered together. Erythromycin has been associated with QT prolongation and TdP, and cases of QT prolongation and TdP have been reported during post-marketing use of azithromycin. [28855] [43258] [43974]

**Escitalopram:** (Moderate) Use escitalopram with caution in combination with azithromycin as concurrent use may increase the risk of QT prolongation. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in postmarketing reports. Escitalopram has been associated with a risk of QT prolongation and TdP. [28270] [28855] [43974]

**Estradiol; Levonorgestrel:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclaxin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of
such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Estradiol; Norethindrone:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Estradiol; Norgestimate:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma
antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Desogestrel: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Ethynodiol Diacetate: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Etonogestrel: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]
the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Levonorgestrel; (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclines, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Levonorgestrel; Ferrous bisglycinate; (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclines, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Levonorgestrel; Folic Acid; Levomefolate; (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and
progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol; Norelgestromin:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol; Norethindrone Acetate:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol; Norethindrone Acetate; Ferrous fumarate:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously...
thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol; Norethindrone:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Ethinyl Estradiol; Norethindrone; Ferrous fumarate:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracycline, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]
Ethinyl Estradiol; Norgestimate: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ethinyl Estradiol; Norgestimate: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Ezogabine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as ezogabine. Ezogabine has been associated with QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44800]

Fingolimod: (Moderate) Cautious use of fingolimod with azithromycin is advised, as azithromycin has been associated with post-marketing reports of QT prolongation and torsade de pointes (TdP). Fingolimod initiation results in decreased heart rate and may prolong the QT interval. After the first fingolimod dose, overnight monitoring with continuous ECG in a medical facility is advised for patients taking QT prolonging drugs with a known risk of TdP. 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. [28855] [41823] [43974]

Flecainide: (Moderate) Cautious use of flecainide with azithromycin is advised, as azithromycin has been associated with post-marketing reports of QT prolongation and torsade de pointes (TdP). Flecainide is a Class IC antiarrhythmic and is also 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 which have the potential for QT prolongation, such as azithromycin, may have an increased risk of developing proarrhythmias. [23774] [28752] [28855] [43974]

Fluconazole: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering fluconazole with azithromycin. Fluconazole has been associated with QT prolongation and rare cases of TdP. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. An open-label, randomized, three-way crossover study evaluated 800 mg fluconazole and a single 1200 mg oral dose of azithromycin. There was no significant pharmacokinetic interaction between the two agents. [28674] [28855] [43974]

Fluoxetine: (Moderate) Use fluoxetine with caution in combination with azithromycin. Coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). QT prolongation and TdP have been reported in patients treated with fluoxetine. Azithromycin has also been associated with postmarketing reports of QT prolongation and TdP. [28855] [32127] [43974]

Fluoxetine; Olanzapine: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering olanzapine with azithromycin. Limited data, including some case reports, suggest that olanzapine may be associated with a significant prolongation of the QTc interval. During postmarketing use, azithromycin has also been associated with case reports of QT prolongation and TdP. [28785] [28855] [32732] [32734] [32745] [32746] [43974] (Moderate) Use fluoxetine with caution in combination with azithromycin. Coadministration may increase the risk for QT prolongation and torsade de pointes (TdP). QT prolongation and TdP have been reported in patients treated with fluoxetine. Azithromycin has also been associated with postmarketing reports of QT prolongation and TdP. [28855] [32127] [43974]

Fluphenazine: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and fluphenazine should be used together cautiously. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. Fluphenazine is associated with a possible risk for QT prolongation. Theoretically, fluphenazine may increase the risk of QT prolongation if coadministered with other drugs that have a risk of QT prolongation. [28514] [28855] [43974]

Fluticasone; Salmeterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Fluticasone; Umeclidinium; Vilanterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Fluticasone; Vilanterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Fluvoxamine: (Moderate) Use fluvoxamine with caution in combination with azithromycin. QT prolongation and torsade de pointes (TdP) have been reported during post-marketing use in both azithromycin and fluvoxamine. [28855] [50507]
Food: (Moderate) The effect of food on the oral bioavailability of azithromycin is variable depending on the specific azithromycin dosage form. Azithromycin capsules (no longer marketed) have an oral bioavailability of 37%; food reduces the extent of absorption (AUC) by about 43%. Therefore, azithromycin capsules should be administered 1 hour before or 2 hours after meals. In contrast, azithromycin serum concentrations increase by about 23%, while AUC remains unchanged, when tablets are administered with a high-fat meal. Therefore, azithromycin tablets can be taken with or without food. Food increases the rate of absorption (Cmax) of the suspension by about 56%; however, the extent of absorption is unchanged. Because peak azithromycin serum concentrations are increased substantially when the suspension is taken with food, the suspension should be taken on an empty stomach. [28855]

Formoterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Formoterol; Mometasone: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Foscarnet: (Major) When possible, avoid concurrent use of foscarnet with other drugs known to prolong the QT interval, such as azithromycin. Foscarnet has been associated with QT prolongation and torsades de pointes (TdP). There have also been case reports of QT prolongation and TdP with postmarketing use of azithromycin. If these drugs are administered together, obtain an electrocardiogram and electrolyte concentrations before and periodically during treatment. [28377] [28855] [43974]

Fosphenytoin: (Minor) Until more data are available, the manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin with fosphenytoin. Azithromycin was not implicated in clinical trials with drug interactions with fosphenytoin. However, specific drug interaction studies have not been performed with the combination of azithromycin and fosphenytoin. [28855]

Gemifloxacin: (Moderate) Gemifloxacin should be used cautiously with other agents that may prolong the QT interval or increase the risk of torsades de pointes (TdP) such as azithromycin. QT prolongation and torsades de pointes have been spontaneously reported during azithromycin postmarketing surveillance. Gemifloxacin may also 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 dose of the drug; therefore, the recommended dose should not be exceeded especially in patients with renal or hepatic impairment where the Cmax and AUC are slightly higher. [28419] [28420] [28424] [28855] [43974]

Gemtuzumab Ozogamicin: (Moderate) Use gemtuzumab ozogamicin and azithromycin together with caution due to the potential for additive QT interval prolongation and risk of torsade de pointes (TdP). If these agents are used together, obtain an ECG and serum electrolytes prior to the start of gemtuzumab and as needed during treatment. Although QT interval prolongation has not been reported with gemtuzumab, it has been reported with other drugs that contain calicheamicin. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [62292]

Gilteritinib: (Moderate) Use caution and monitor for evidence of QT prolongation if concurrent use of gilteritinib and azithromycin is necessary. Gilteritinib has been associated with QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63787]

Glasdegib: (Major) Avoid coadministration of glasdegib with azithromycin due to the potential for additive QT prolongation. If coadministration cannot be avoided, monitor patients for increased risk of QT prolongation with...
increased frequency of ECG monitoring. Glasdegib therapy may result in QT prolongation and ventricular arrhythmias including ventricular fibrillation and ventricular tachycardia. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63777]

**Glycopyrrolate; Formoterol:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

**Goserelin:** (Moderate) Consider whether the benefits of androgen deprivation therapy (i.e., goserelin) outweigh the potential risks of QT prolongation in patients receiving azithromycin. Androgen deprivation therapy may prolong the QT/QTc interval. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28592] [28855] [43974]

**Granisetron:** (Moderate) Use granisetron with caution in combination with azithromycin due to the risk of QT prolongation. Granisetron has been associated with QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [31723] [43974]

**Halofantrine:** (Severe) There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in postmarketing reports. Other drugs, such as halofantrine, have been specifically established to have a causal association with QT prolongation and TdP and are contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28225] [28241] [28432] [28855] [43974]

**Halogenated Anesthetics:** (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]

**Haloperidol:** (Moderate) Use caution when combining haloperidol concurrently with azithromycin. QT prolongation and torsade de pointes (TdP) have been observed during treatment with haloperidol and with azithromycin. Excessive doses (particularly in the overdose setting) or IV administration of haloperidol may be associated with a higher risk of QT prolongation. [23500] [23779] [28225] [28307] [28415] [28416] [28855] [43974]

**Halothane:** (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]

**Histrelin:** (Moderate) Consider whether the benefits of androgen deprivation therapy (i.e., histrelin) outweigh the potential risks of QT prolongation in patients receiving azithromycin. Androgen deprivation therapy may prolong the QT/QTc interval. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [30369] [43974]

**Hydroxychloroquine:** (Major) Avoid coadministration of hydroxychloroquine and azithromycin due the risk of additive QT prolongation. If use together is necessary, perform an ECG at baseline and monitor closely throughout therapy, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances prior to initiation. Hydroxychloroquine prolongs the QT interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Postmarketing data indicate that hydroxychloroquine causes QT prolongation and TdP. [28855] [41806] [43974] [65157]

**Hydroxyzine:** (Moderate) Consider the risk of QT prolongation, which can be fatal, when administering azithromycin to patients on other QT prolonging agents such as hydroxyzine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Postmarketing data indicate that hydroxyzine causes QT prolongation and TdP. [28855] [43974] [47129]
**Ibutilide:** (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), cautious use of ibutilide with azithromycin is advised. Ibutilide administration can cause QT prolongation and TdP; proarrhythmic events should be anticipated. The potential for proarrhythmic events with ibutilide increases with the coadministration of other drugs that prolong the QT interval. Azithromycin has been associated with post-marketing reports of QT prolongation and TdP. [28855] [41830] [43974]

**Iloperidone:** (Major) Concurrent use of iloperidone and azithromycin should be avoided due to an increased risk for QT prolongation and torsade de pointes (TdP). Iloperidone has been associated with QT prolongation, and cases of QT prolongation and TdP have been reported with the post-marketing use of azithromycin. [28855] [36146] [43974]

**Imipramine:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

**Indacaterol:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

**Indacaterol; Glycopyrrolate:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

**Inotuzumab Ozogamicin:** (Major) Avoid coadministration of inotuzumab ozogamicin with azithromycin due to the potential for additive QT interval prolongation and risk of torsade de pointes (TdP). If coadministration is unavoidable, obtain an ECG and serum electrolytes prior to the start of treatment, after treatment initiation, and periodically during treatment. Inotuzumab has been associated with QT interval prolongation. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [62245]

**Isoflurane:** (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]

**Itraconazole:** (Moderate) Use itraconazole with caution in combination with azithromycin. Itraconazole has been associated with prolongation of the QT interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [40233] [43974] [57441]

**Ivosidenib:** (Major) Avoid coadministration of ivosidenib with azithromycin due to an increased risk of QT prolongation. If concomitant use is unavoidable, monitor ECGs for QTc prolongation and monitor electrolytes; correct any electrolyte abnormalities as clinically appropriate. 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. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63368]

**Ketoconazole:** (Moderate) Use ketoconazole with caution in combination with azithromycin. Ketoconazole has been associated with prolongation of the QT interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [27982] [28855] [43974]
Lanthanum Carbonate: (Major) Oral compounds known to interact with antacids, like macrolides, should not be taken within 2 hours of dosing with lanthanum carbonate. If these agents are used concomitantly, space the dosing intervals appropriately. Monitor serum concentrations and clinical condition. [9126]

Lapatinib: (Moderate) Monitor for evidence of QT prolongation if lapatinib is administered with azithromycin. Lapatinib has been associated with concentration-dependent QT prolongation; ventricular arrhythmias and torsade de pointes (TdP) have been reported in postmarketing experience with lapatinib. QT prolongation and TdP have also been spontaneously reported during azithromycin postmarketing surveillance. [28855] [33192] [43974]

Lefamulin: (Major) Avoid coadministration of lefamulin with azithromycin as concurrent use may increase the risk of QT prolongation. If coadministration cannot be avoided, monitor ECG during treatment. Lefamulin has a concentration dependent QTc prolongation effect. The pharmacodynamic interaction potential to prolong the QT interval of the electrocardiogram between lefamulin and other drugs that effect cardiac conduction is unknown. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [64576]

Lenvatinib: (Major) Avoid coadministration of lenvatinib with azithromycin due to the risk of QT prolongation. Prolongation of the QT interval has been reported with lenvatinib therapy. QT prolongation and torsade de pointes (TdP) have also been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [58782]

Leuprolide: (Moderate) Consider whether the benefits of androgen deprivation therapy (i.e., leuprolide) outweigh the potential risks of QT prolongation in patients receiving azithromycin. Androgen deprivation therapy may prolong the QT/QTc interval. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43800] [43974]

Leuprolide: Norethindrone: (Moderate) Consider whether the benefits of androgen deprivation therapy (i.e., leuprolide) outweigh the potential risks of QT prolongation in patients receiving azithromycin. Androgen deprivation therapy may prolong the QT/QTc interval. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43800] [43974] (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxcycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Levalbuterol: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]
Levofloxacin: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as levofloxacin. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Levofloxacin has been associated with a risk of QT prolongation and TdP. Although extremely rare, TdP has been reported during postmarketing surveillance of levofloxacin. [28421] [28855] [43974]

Levomethadyl: (Severe) There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in postmarketing reports. Other drugs, such as levomethadyl, have been specifically established to have a causal association with QT prolongation and torsade de pointes and are contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28225] [28350] [28352] [28416] [28432] [28855] [43974]

Levonorgestrel: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Lithium: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and lithium should be used together cautiously. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Lithium has also been associated with QT prolongation. [28855] [43974] [59809] [59810] [59811]

Lofexidine: (Major) Monitor ECG if lofexidine is coadministered with azithromycin due to the potential for additive QT prolongation and torsade de pointes (TdP). Lofexidine prolongs the QT interval. In addition, there are postmarketing reports of TdP. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [63161]

Long-acting beta-agonists: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Loperamide: (Moderate) Loperamide should be used cautiously and with close monitoring with azithromycin. At high doses, loperamide has been associated with serious cardiac toxicities, including syncope, ventricular tachycardia, QT prolongation, torsade de pointes (TdP), and cardiac arrest. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [30106] [43974] [60864]
**Loperamide; Simethicone: (Moderate)** Loperamide should be used cautiously and with close monitoring with azithromycin. At high doses, loperamide has been associated with serious cardiac toxicities, including syncope, ventricular tachycardia, QT prolongation, torsade de pointes (TdP), and cardiac arrest. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [30106] [43974] [60864]

**Lopinavir; Ritonavir: (Major)** Co-administration of lopinavir; ritonavir and azithromycin may result in additive QT prolongation; perform an ECG at baseline and monitor closely throughout therapy, avoid any non-essential QT prolonging drugs, and correct electrolyte imbalances prior to initiation. Lopinavir; ritonavir is associated with QT prolongation. QT prolongation and torsade de pointe (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28341] [28855] [43974] [65157]

**Macimorelin: (Major)** Avoid concurrent administration of macimorelin with drugs that prolong the QT interval, such as azithromycin. Use of these drugs together may increase the risk of developing torsade de pointes-type ventricular tachycardia. Sufficient washout time of drugs that are known to prolong the QT interval prior to administration of macimorelin is recommended. Treatment with macimorelin has been associated with an increase in the corrected QT (QTC) interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [62723]

**Magnesium Hydroxide: (Moderate)** Antacids containing aluminum salts and/or magnesium salts can decrease the oral absorption of immediate-release azithromycin, resulting in lower peak plasma concentrations. If antacids must be taken, stagger the administration of the antacid and azithromycin. The extended-release suspension may be taken without regard to antacids containing magnesium hydroxide and/or aluminum hydroxide. [28855] [34473] [43975]

**Maprotiline: (Moderate)** Due to an increased risk for QT prolongation and torsade de pointes (TdP), cautious use of maprotiline with azithromycin is advised. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. 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. [28759] [28855] [43974]

**Mefloquine: (Moderate)** Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering mefloquine with azithromycin. There is evidence that use of halofantrine after mefloquine causes a significant lengthening of the QTc interval. Mefloquine alone has not been reported to cause QT prolongation; however due to the lack of clinical data, mefloquine should be used with caution in patients receiving drugs that prolong the QT interval, such as azithromycin. Post-marketing use of azithromycin has been associated with cases of QT prolongation and TdP. [28301] [28855] [43974]

**Meperidine; Promethazine: (Moderate)** Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

**Mesoridazine: (Severe)** There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. Other drugs, such as mesoridazine, have been specifically established to have a causal association with QT prolongation and torsade de pointes and are contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28225] [28432] [28855] [29096] [43974]

**Mestranol; Norethindrone: (Moderate)** It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined
clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, temafloxacin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Metaproterenol: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]

Methadone: (Major) Use of azithromycin during the post-marketing period has been associated with cases of QT prolongation and torsade de pointes (TdP). The need to coadminister methadone with drugs known to prolong the QT interval, such as azithromycin, should be done with extreme caution and a careful assessment of treatment risks versus benefits. 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). [28319] [28320] [28321] [28322] [28855] [33136] [43974]

Metronidazole: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and metronidazole should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Potential QT prolongation has been reported in limited case reports with metronidazole. [28855] [43974] [57377] [57378]

Midostaurin: (Major) The concomitant use of midostaurin and azithromycin may lead to additive QT interval prolongation. If these drugs are used together, consider obtaining electrocardiograms to monitor the QT interval. In clinical trials, QT prolongation was reported in patients who received midostaurin as single-agent therapy or in combination with cytarabine and daunorubicin. Reports of QT prolongation and torsade de pointes have been reported during postmarketing surveillance of azithromycin. [28855] [43974] [61906]

Mifepristone: (Major) Due to the potential for QT prolongation and torsade de pointes (TdP), caution is advised when administering mifepristone with azithromycin. Mifepristone has been associated with dose-dependent prolongation of the QT interval, and rare cases of QT prolongation and TdP have been reported with azithromycin during postmarketing use. To minimize the risk of QT prolongation, the lowest effective mifepristone dose should always be used. [28855] [43974] [48697]

Mirtazapine: (Moderate) Coadminister azithromycin and mirtazapine with caution. There may be an increased risk for QT prolongation and torsade de pointes (TdP) during concurrent use. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. 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. [28855] [40942] [43974]

Moxifloxacin: (Major) Concurrent use of moxifloxacin and azithromycin should be avoided due to an increased risk for QT prolongation and torsade de pointes (TdP). Prolongation of the QT interval has been reported with administration of moxifloxacin. Post-marketing surveillance has identified very rare cases of ventricular arrhythmias including TdP, usually in patients with severe underlying proarrhythmic conditions. The likelihood of QT prolongation may increase with increasing concentrations of moxifloxacin, therefore the recommended dose or infusion rate should
contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Norfloxacin: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and norfloxacin should be used together cautiously. There have been reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Additionally, quinolones have been associated with a risk of QT prolongation and 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] [28432] [28457] [28855] [29818] [43974]

Norgestrel: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tamaflaxcin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for...
drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

**Nortriptyline:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

**Octreotide:** (Moderate) Use octreotide with caution in combination with azithromycin as concurrent use may increase the risk of QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. 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. [28432] [28855] [29113] [30624] [43974]

**Ofloxacin:** (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering ofloxacin with azithromycin. Some quinolones, including ofloxacin, have been associated with QT prolongation and infrequent cases of arrhythmia. Post-marketing surveillance for ofloxacin has identified very rare cases of TdP. Cases of QT prolongation and TdP have also been reported with the post-marketing use of azithromycin. [28855] [30738] [43974]

**Olanzapine:** (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering olanzapine with azithromycin. Limited data, including some case reports, suggest that olanzapine may be associated with a significant prolongation of the QTc interval. During postmarketing use, azithromycin has also been associated with case reports of QT prolongation and TdP. [28785] [28855] [32732] [32734] [32745] [32746] [43974]

**Olodaterol:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

**Ondansetron:** (Major) If azithromycin and ondansetron must be coadministered, ECG monitoring is recommended; closely monitor the patient for QT interval prolongation. Ondansetron has been associated with a dose-related increase in the QT interval and postmarketing reports of torsade de pointes (TdP). If ondansetron and another drug that prolongs the QT interval must be coadministered, ECG monitoring is recommended. Azithromycin has also been associated with cases of QT prolongation and TdP during the post-marketing period. [28855] [31266] [32722] [43974]

**Oral Contraceptives:** (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclines, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-
reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Osimertinib: (Major) Avoid coadministration of azithromycin with osimertinib if possible due to the risk of QT prolongation and torsade de points (TdP). If concomitant use is unavoidable, periodically monitor ECGs for QT prolongation and monitor electrolytes if coadministration of azithromycin with osimertinib is necessary; an interruption of osimertinib therapy with dose reduction or discontinuation of therapy may be necessary if QT prolongation occurs. Concentration-dependent QTc prolongation occurred during clinical trials of osimertinib. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [60297]

Oxaliplatin: (Major) Monitor ECGs and electrolytes in patients receiving oxaliplatin and azithromycin concomitantly; correct electrolyte abnormalities prior to administration of oxaliplatin. QT prolongation and ventricular arrhythmias including fatal torsade de points (TdP) have been reported with oxaliplatin use in postmarketing experience. QT prolongation and TdP have also been spontaneously reported during azithromycin postmarketing surveillance. [28855] [41958] [43974]

Paliperidone: (Major) Concurrent use of paliperidone and azithromycin should be avoided due to an increased risk for QT prolongation and torsade de points (TdP). If these drugs must be coadministered, close monitoring for QT interval prolongation is advised. Paliperidone has been associated with QT prolongation; TdP and ventricular fibrillation have been reported in the setting of overdose. Cases of QT prolongation and TdP have been reported with the use of azithromycin during postmarketing use. [28855] [40936] [43974]

Panobinostat: (Major) QT prolongation has been reported with panobinostat therapy in patients with multiple myeloma in a clinical trial; use of panobinostat with other agents that prolong the QT interval is not recommended. Obtain an electrocardiogram at baseline and periodically during treatment. Hold panobinostat if the QTcF increases to >= 480 milliseconds during therapy; permanently discontinue if QT prolongation does not resolve. Drugs with a possible risk for QT prolongation and torsade de pointes that should be used cautiously and with close monitoring with panobinostat include azithromycin. [28855] [43974] [58821]

Pasireotide: (Moderate) Due to an increased risk for QT prolongation, use caution when using pasireotide in combination with azithromycin. QT prolongation and torsade de points (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. QT prolongation has also occurred with pasireotide at therapeutic and supra-therapeutic doses. [28855] [43974] [52611]

Pazopanib: (Major) Due to an increased risk for QT prolongation and torsade de points (TdP), coadministration of pazopanib and azithromycin is not advised; both pazopanib and azithromycin have been reported to prolong the QT interval. If these drugs must be given together, closely monitor the patient for QT interval prolongation. [28855] [37098] [43974]

Pentamidine: (Major) Due to an increased risk for QT prolongation and torsade de points (TdP), caution is advised when administering pentamidine with azithromycin. Pentamidine has been associated with QT prolongation, and cases of QT prolongation and TdP have been reported with the post-marketing use of azithromycin. [23620] [23778] [28419] [28855] [28879] [43974]

Perphenazine: (Minor) Due to an increased risk for QT prolongation and torsade de points (TdP), caution is advised when administering perphenazine with azithromycin. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Perphenazine is also associated with a possible risk for QT prolongation. Theoretically, perphenazine may increase the risk of QT prolongation if coadministered with other drugs that have a risk of QT prolongation. [28415] [28855] [43974]

Perphenazine; Amitriptyline: (Minor) Due to a possible risk for QT prolongation and torsade de points (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT
prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]
(Minor) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering perphenazine with azithromycin. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Perphenazine is also associated with a possible risk for QT prolongation. Theoretically, perphenazine may increase the risk of QT prolongation if coadministered with other drugs that have a risk of QT prolongation. [28415] [28855] [43974]

Phenicol Derivatives: (Major) Chloramphenicol and macrolides are bactericidal or bacteriostatic via the same or similar mechanisms of action. Antagonism in vitro has been demonstrated. It is not recommended to administer these agents together in any combination due to potential antagonism. [4978]

Phenylephrine; Promethazine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

Phenytoin: (Minor) Until more data are available, the manufacturer of azithromycin recommends caution and careful monitoring of patients who receive azithromycin with phenytoin. Azithromycin was not implicated in clinical trials with drug interactions with phenytoin. However, specific drug interaction studies have not been performed with the combination of azithromycin and phenytoin. [28855]

Pimavanserin: (Major) Pimavanserin may cause QT prolongation and should generally be avoided in patients receiving other medications known to prolong the QT interval, such as azithromycin. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. Coadministration may increase the risk for QT prolongation. [28855] [43974] [60748]

Pimozide: (Severe) Pimozide is associated with a well-established risk of QT prolongation and torsade de pointes (TdP). Because of the potential for TdP, use of macrolide antibiotics with pimozide is contraindicated. [28225] [28855] [43258] [43463] [59321]

Pirbuterol: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing 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. [28318] [28855] [33925] [43974]

Pitolisant: (Major) Avoid coadministration of pitolisant with azithromycin as concurrent use may increase the risk of QT prolongation. Pitolisant prolongs the QT interval. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [64562]

Posaconazole: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering posaconazole with azithromycin. Reports of QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. Posaconazole has been associated with prolongation of the QT interval as well as rare cases of TdP. [28855] [32723] [43974]

Pravastatin: (Moderate) Azithromycin has the potential to increase pravastatin exposure when used concomitantly. Coadminister pravastatin and azithromycin cautiously due to a potential increased risk of myopathies. [45507]

Primaquine: (Moderate) Due to the potential for QT interval prolongation with primaquine, caution is advised when coadministered with azithromycin. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [41984] [43974]

Procainamide: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering procainamide with azithromycin. Procainamide is associated with a well-established risk of QT prolongation and TdP, and cases of QT prolongation and TdP have been reported with the post-marketing use of azithromycin. [28250] [28855] [43974]
Prochlorperazine: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and prochlorperazine should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Prochlorperazine is associated with a possible risk for QT prolongation. Theoretically, prochlorperazine may increase the risk of QT prolongation if coadministered with other drugs that have a risk of QT prolongation. [28415] [28855] [43974]

Promethazine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as promethazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Promethazine is a phenothiazine that is associated with possible risk for QT prolongation. [28225] [28855] [43974] [55578]

Propafenone: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering propafenone with azithromycin. Propafenone is a Class IC antiarrhythmic which increases the QT interval, but largely due to prolongation of the QRS interval. Azithromycin has been associated with cases of QT prolongation and TdP, reported during the postmarketing period. [28287] [28855] [43974]

Protriptyline: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Quetiapine: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering quetiapine with azithromycin. Limited data, including some case reports, suggest that quetiapine may be associated with a significant prolongation of the QTc interval in rare instances. Additionally, azithromycin has been associated with cases of QT prolongation and TdP, reported during the post-marketing period. [28855] [29118] [33068] [33072] [33074] [43974]

Quinidine: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when coadministering quinidine with azithromycin. Quinidine is associated with QT prolongation and TdP, and rare cases of QT prolongation and TdP have been reported during the postmarketing use of azithromycin. [28855] [42280] [43974] [47357]

Quinine: (Major) Concurrent use of quinine and azithromycin should be avoided due to an increased risk for QT prolongation and torsade de pointes (TdP). Quinine has been associated with prolongation of the QT interval and rare cases of TdP. There have also been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28855] [31403] [43974]

Ranolazine: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as ranolazine. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Ranolazine is associated with dose- and plasma concentration-related increases in the QTc interval. Although there are no studies examining the effects of ranolazine in patients receiving other QT prolonging drugs, coadministration of such drugs may result in additive QT prolongation. [28855] [31938] [43974]

Ribociclib: (Major) Avoid coadministration of ribociclib with azithromycin due to an increased risk for QT prolongation and torsade de pointes (TdP). Ribociclib has been shown to prolong the QT interval in a concentration-dependent manner. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Concomitant use may increase the risk for QT prolongation. [28855] [43974] [61816]

Ribociclib: Letrozole: (Major) Avoid coadministration of ribociclib with azithromycin due to an increased risk for QT prolongation and torsade de pointes (TdP). Ribociclib has been shown to prolong the QT interval in a concentration-dependent manner. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Concomitant use may increase the risk for QT prolongation. [28855] [43974] [61816]

Rilpivirine: (Moderate) Use caution when coadministering rilpivirine with azithromycin. Supratherapeutic doses of rilpivirine (75 to 300 mg/day) have caused QT prolongation. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [44376]
Risperidone: (Moderate) Use risperidone and azithromycin together with caution due to the potential for additive QT prolongation and risk of torsade de pointes (TdP). Risperidone has been associated with a possible risk for QT prolongation and/or TdP, primarily in the overdose setting. Azithromycin has also been associated with postmarketing reports of QT prolongation and TdP. [28225] [28414] [28416] [28855] [43974]

Romidepsin: (Moderate) Consider monitoring electrolytes and ECGs at baseline and periodically during treatment if romidepsin is administered with azithromycin. Romidepsin has been reported to prolong the QT interval. Additionally, QT prolongation and torsade de pointes have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [37292] [43974]

Salmeterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Saquinavir: (Major) Avoid administering saquinavir boosted with ritonavir with other drugs that may prolong the QT interval, such as azithromycin. Saquinavir boosted with ritonavir increases the QT interval in a dose-dependent fashion, which may increase the risk for serious arrhythmias such as torsade de pointes (TdP). If no acceptable alternative therapy is available, perform a baseline ECG prior to initiation of concomitant therapy and carefully follow monitoring recommendations. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28855] [28995] [43974]

Segesterone Acetate; Ethinyl Estradiol: (Moderate) It would be prudent to recommend alternative or additional contraception when oral contraceptives (OCs) are used in conjunction with antibiotics. It was previously thought that antibiotics may decrease the effectiveness of OCs containing estrogens due to stimulation of metabolism or a reduction in enterohepatic circulation via changes in GI flora. One retrospective study reviewed the literature to determine the effects of oral antibiotics on the pharmacokinetics of contraceptive estrogens and progestins, and also examined clinical studies in which the incidence of pregnancy with OCs and antibiotics was reported. It was concluded that the antibiotics ampicillin, ciprofloxacin, clarithromycin, doxycycline, metronidazole, ofloxacin, roxithromycin, tetracyclaxin, and tetracycline did not alter plasma concentrations of OCs. Antituberculous drugs (e.g., rifampin) were the only agents associated with OC failure and pregnancy. Based on the study results, these authors recommended that back-up contraception may not be necessary if OCs are used reliably during oral antibiotic use. Another review concurred with these data, but noted that individual patients have been identified who experienced significant decreases in plasma concentrations of combined OC components and who appeared to ovulate; the agents most often associated with these changes were rifampin, tetracyclines, and penicillin derivatives. These authors concluded that because females most at risk for OC failure or noncompliance may not be easily identified and the true incidence of such events may be under-reported, and given the serious consequence of unwanted pregnancy, that recommending an additional method of contraception during short-term antibiotic use may be justified. During long-term antibiotic administration, the risk for drug interaction with OCs is less clear, but alternative or additional contraception may be advisable in selected circumstances. Data regarding progestin-only contraceptives or for newer combined contraceptive deliveries (e.g., patches, rings) are not available. [28482] [28509]

Sertraline: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as sertraline. If use together is necessary, use caution and monitor patients for QT prolongation. QT prolongation and torsade de pointes have been spontaneously reported during azithromycin postmarketing surveillance. Sertraline's FDA-approved labeling recommends avoiding concomitant use with drugs known to prolong the QTc interval; however, 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). [28343] [28855] [43974] [64391] [64392] [64394] [64395] [64396]

Sevoflurane: (Major) Halogenated Anesthetics should be used cautiously and with close monitoring with azithromycin. Halogenated Anesthetics can prolong the QT interval. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28458] [28855] [43974]
**Short-acting beta-agonists:** (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]

**Siponimod:** (Major) In general, do not initiate treatment with siponimod in patients receiving azithromycin due to the potential for QT prolongation. Consult a cardiologist regarding appropriate monitoring if siponimod use is required. Siponimod therapy prolonged the QT interval at recommended doses in a clinical study. QT prolongation and torsade de pointes have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [64031]

**Sodium picosulfate; Magnesium oxide; Anhydrous citric acid:** (Major) Prior or concomitant use of antibiotics with sodium picosulfate; magnesium oxide; anhydrous citric acid may reduce efficacy of the bowel preparation as conversion of sodium picosulfate to its active metabolite bis-(p-hydroxy-phenyl)-pyridyl-2-methane (BHPM) is mediated by colonic bacteria. If possible, avoid coadministration. Certain antibiotics (i.e., tetracyclines and quinolones) may chelate with the magnesium in sodium picosulfate; magnesium oxide; anhydrous citric acid solution. Therefore, these antibiotics should be taken at least 2 hours before and not less than 6 hours after the administration of sodium picosulfate; magnesium oxide; anhydrous citric acid solution. [51258]

**Solifenacin:** (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and solifenacin should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Solifenacin has been associated with dose-dependent prolongation of the QT interval. TdP has been reported with postmarketing use, although causality was not determined. [28855] [30515] [43974]

**Sorafenib:** (Major) Monitor ECGs for QT prolongation and monitor electrolytes if coadministration of sorafenib with azithromycin is necessary; correct any electrolyte abnormalities. An interruption or discontinuation of sorafenib therapy may be necessary if QT prolongation occurs. Sorafenib has been associated with QT prolongation. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin in postmarketing surveillance. [28855] [31832] [43974]

**Sotalol:** (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), cautious use of sotalol with azithromycin is advised. Azithromycin has been associated with post-marketing reports of QT prolongation and TdP. Sotalol administration is also associated with QT prolongation and TdP. Proarrhythmic events should be anticipated after initiation of sotalol therapy and after each upward dosage adjustment. [28234] [28855] [43974]

**Sparfloxacin:** (Severe) There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. Other drugs, such as sparfloxacin, have been specifically established to have a causal association with QT prolongation and torsade de pointes and are contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. In addition to avoiding concurrent drug interactions, the potential for TdP can be reduced by avoiding the use of QT prolonging drugs in patients at substantial risk for TdP. Examples of general risk factors for TdP include congenital long QT syndrome, female sex, elderly patients, significant bradycardia, hypokalemia, hypomagnesemia, and underlying cardiac disease (e.g., arrhythmias, cardiomyopathy, acute myocardial ischemia). [28225] [28232] [28432] [28855] [43974]

**Sunitinib:** (Moderate) Monitor patients for QT prolongation if coadministration of azithromycin with sunitinib is necessary. Sunitinib can cause dose-dependent QT prolongation, which may increase the risk for ventricular arrhythmias, including torsades de points (TdP). Prolongation of the QT interval and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [31970] [43974]

**Tacrolimus:** (Moderate) Consider ECG and electrolyte monitoring periodically during treatment if tacrolimus is administered with azithromycin. Tacrolimus may prolong the QT interval and cause torsade de pointes (TdP). Additionally, QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [27353] [27354] [28225] [28855] [43974]

**Talazoparib:** (Moderate) Monitor for an increase in talazoparib-related adverse reactions if coadministration with azithromycin is necessary. In clinical trials, coadministration with azithromycin increased talazoparib exposure by...
Tamoxifen: (Moderate) Caution is advised with the concomitant use of tamoxifen with azithromycin due to an increased risk of QT prolongation and torsade de pointes (TdP). 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. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [61870] [61871] [61872] [63589]

Telavancin: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering telavancin with azithromycin. Telavancin has been associated with QT prolongation; cases of QT prolongation and TdP have been reported with the post-marketing use of azithromycin. [28855] [36615] [43974]

Telithromycin: (Moderate) Consider the risk of QT prolongation which can be fatal when administering azithromycin to patients on other QT prolonging agents such as telithromycin. QT prolongation and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. Telithromycin is also associated with QT prolongation and TdP. [28156] [28855] [43974]

Terbutaline: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and short-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28318] [28855] [33925] [43974]

Terfenadine: (Severe) Co-administration is contraindicated due to the risk for QT prolongation and torsade de pointes (TdP). Consider alternative antihistamine therapy. Terfenadine has been specifically established to have a causal association with QT prolongation and TdP and is contraindicated for use with drugs that potentially cause QT prolongation, such as azithromycin. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in postmarketing reports. [23595] [28432] [28855] [43974] [59321] [62289]

Tetrabenazine: (Major) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering tetrabenazine with azithromycin. Tetrabenazine causes a small increase in the corrected QT interval (QTc), and cases of QT prolongation and TdP have been reported with the post-marketing use of azithromycin. [28855] [34389] [43974]

Thioridazine: (Severe) Because of the potential for torsade de pointes (TdP), use of azithromycin with thioridazine is contraindicated. Thioridazine is associated with a well-established risk of QT prolongation and TdP. Thioridazine is considered contraindicated for use along with agents that, when combined with a phenothiazine, may prolong the QT interval and increase the risk of TdP. There have been case reports of QT prolongation and TdP with the use of azithromycin in post-marketing reports. [28225] [28293] [28855] [43974]

Tiotropium; Olodaterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [44974] [44979] [54633] [57710]

Tolterodine: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tolterodine should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Tolterodine has been associated with dose-dependent prolongation of the QT interval, especially in poor CYP2D6 metabolizers. Concurrent use may increase the risk of QT prolongation. [28855] [31112] [43974]

Toremifene: (Major) Avoid coadministration of azithromycin with toremifene if possible due to the risk of additive QT prolongation. If concomitant use is unavoidable, closely monitor ECGs for QT prolongation and monitor electrolytes; correct hypokalemia or hypomagnesemia prior to administration of toremifene. Toremifene has been
shown to prolong the QTc interval in a dose- and concentration-related manner. Prolongation of the QT interval and torsade de pointes (Tdp) have also been spontaneously reported during azithromycin in postmarketing surveillance. [28822] [28855] [43974]

Trazodone: (Major) Trazodone can prolong the QT/QTc interval at therapeutic doses. In addition, there are post-marketing reports of torsade de pointes (TdP). Therefore, the manufacturer recommends avoiding trazodone in patients receiving other drugs that increase the QT interval, such as azithromycin. There have been case reports of QT prolongation and torsade de pointes (TdP) with the use of azithromycin in post-marketing reports. [28855] [43974]

Tricyclic antidepressants: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Trifluoperazine: (Minor) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering trifluoperazine with azithromycin. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. Trifluoperazine is associated with a possible risk for QT prolongation. Theoretically, trifluoperazine may increase the risk of QT prolongation if coadministered with other drugs that have a risk of QT prolongation. [28415] [28855] [43974]

Trimipramine: (Minor) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and tricyclic antidepressants (TCAs) should be used together cautiously. 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). There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. [28225] [28415] [28416] [28855] [43974]

Triptorelin: (Moderate) Consider whether the benefits of androgen deprivation therapy (i.e., triptorelin) outweigh the potential risks of QT prolongation in patients receiving azithromycin. Androgen deprivation therapy may prolong the QT/QTc interval. Prolongation of the QT interval and torsade de pointes (TdP) have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43974] [45411]

Umeclidinium; Vilanterol: (Moderate) Due to a possible risk for QT prolongation and torsade de pointes (TdP), azithromycin and long-acting beta-agonists should be used together cautiously. There have been case reports of QT prolongation and TdP with the use of azithromycin in postmarketing reports. 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. [28467] [28855] [32901] [41231] [43974] [44979] [54633] [57710]

Vandetanib: (Major) Avoid coadministration of vandetanib with azithromycin due to an increased risk of QT prolongation and torsade de pointes (Tdp). If concomitant use is unavoidable, monitor ECGs for QT prolongation and monitor electrolytes; correct hypocalcemia, hypomagnesemia, and/or hypomagnesemia prior to vandetanib administration. An interruption of vandetanib therapy or dose reduction may be necessary for QT prolongation. Vandetanib can prolong the QT interval in a concentration-dependent manner; TdP and sudden death have been reported in patients receiving vandetanib. Prolongation of the QT interval and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28855] [43901] [43974]

Vardenafil: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering vardenafil with azithromycin. Azithromycin has been associated with postmarketing reports of QT prolongation and TdP. Both therapeutic and supratherapeutic doses of vardenafil produce an increase in QTc interval. [28216] [28855] [41124] [43974]

Vemurafenib: (Major) Vemurafenib has been associated with QT prolongation. If vemurafenib and another drug, such as azithromycin, that is associated with a possible risk for QT prolongation and torsade de pointes (TdP) must be coadministered, ECG monitoring is recommended; closely monitor the patient for QT interval prolongation. [28855] [43974] [45335]
Venlafaxine: (Moderate) Use caution if venlafaxine is coadministered with azithromycin due to the potential for QT prolongation and torsade de pointes (TdP). Venlafaxine administration is associated with a possible risk of QT prolongation; TdP has reported with postmarketing use. Azithromycin has also been associated with postmarketing reports of QT prolongation and TdP. [28855] [33715] [43974]

Voriconazole: (Moderate) Due to the potential for QT prolongation and torsade de pointes (TdP), caution is advised when administering voriconazole with azithromycin. Voriconazole has been associated with prolongation of the QT interval and rare cases of arrhythmias, including TdP. There have also been case reports of QT prolongation and TdP with azithromycin. [28158] [28855] [43974]

Vorinostat: (Moderate) Due to an increased risk for QT prolongation and torsade de pointes (TdP), caution is advised when administering vorinostat with azithromycin. Vorinostat is associated with a risk of QT prolongation, and cases of QT prolongation and TdP have been reported with the postmarketing use of azithromycin. [28855] [32789] [43974]

Warfarin: (Moderate) Azithromycin did not affect the prothrombin time response to a single dose of warfarin. Compared to other macrolides, azithromycin has less of an effect on cytochrome P450 isoenzymes. Reports of an interaction between azithromycin and warfarin have been made to the manufacturers suggesting that concomitant administration may potentiate the effects of warfarin. Monitor the INR in patients who receive warfarin and azithromycin concurrently as a potential interaction may occur. The concurrent use of other macrolides and warfarin in medical practice has been associated with increased anticoagulant effects. [23809] [28855]

Ziprasidone: (Major) Concomitant use of ziprasidone and azithromycin should be avoided due to the potential for additive QT prolongation. Clinical trial data indicate that ziprasidone causes QT prolongation; there are postmarketing reports of torsade de pointes (TdP) in patients with multiple confounding factors. QT prolongation and TdP have been spontaneously reported during azithromycin postmarketing surveillance. [28233] [28855] [43974]

References


28262 – Clozaril (clozapine) tablets package insert. Rosemont, PA: HLS Therapeutics (USA), Inc. (Clozaril is a registered trademark of Novartis AG); 2017 Feb.


28350 – Orlaam® (levomethadyl) package insert. Columbus, OH: Roxane Laboratories, Inc.; 2000 Jan. NOTE: In August 2003, levomethadyl was voluntarily removed from the US market due to cited reasons such as decreasing sales, safety concerns and the availability of other options for the management of opiate dependance.


28407 – Propulsid (cisapride) package insert. Titusville, NJ: Janssen Pharmaceutica; 2006 Oct. NOTE: As of May 2000; Propulsid has only been available in the United States via an investigational limited access program to ensure proper patient screening and prescribing.


28592 – Zoladex (goserelin acetate 3.6 mg implant) package insert. Lake Forest, IL: TerSera Therapeutics LLC; 2019 Feb.


57094 – Zykadia (ceritinib) package insert. Indianapolis, IN: Novartis; 2019 March.
57803 – Cerdelga (eliglustat) capsules. Waterford, Ireland: Genzyme Ireland, Ltd.; 2018 Sept.


62289 – Seldane (terfenadine tablets) package insert. Kansas City MO. Merrell Pharmaceuticals Inc. subsidiary of Hoescht Marion Roussel; 1997 May. NOTE: Terfenadine was voluntarily and permanently removed from the U.S. market in February 1998 in response to safety concerns.


### Monitoring Parameters

- ECG
- LFTs

---

### IV Compatibility of Azithromycin with:

Legend

- ✅ = Compatible
- ✗ = Incompatible
- 🔄 = Results uncertain, variable or dependent on conditions
- ND = No Data Available

From Trissel's 2™ Clinical Pharmaceutics Database

<table>
<thead>
<tr>
<th>Medication</th>
<th>Admixture</th>
<th>Syringe</th>
<th>Y-Site Administration</th>
<th>For Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir sodium</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Alatrofloxacin mesylate</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Alemtuzumab</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Alfentanil hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Amikacin sulfate</td>
<td>ND</td>
<td>ND</td>
<td>🔄</td>
<td>ND</td>
</tr>
<tr>
<td>Aminocaproic acid</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Aminophylline</td>
<td>ND</td>
<td>ND</td>
<td>✅</td>
<td>ND</td>
</tr>
<tr>
<td>Amiodarone hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✗</td>
<td>ND</td>
</tr>
<tr>
<td>Amphotericin B conventional colloidal</td>
<td>ND</td>
<td>ND</td>
<td>✗</td>
<td>ND</td>
</tr>
<tr>
<td>Drug</td>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------</td>
<td>---------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Amphotericin B lipid complex (Abelcet)</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Amphotericin B liposome (AmBisome)</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ampicillin sodium</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ampicillin sodium-sulbactam sodium</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Anidulafungin</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Argatroban</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Arsenic trioxide</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Asparaginase</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Atenolol</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Atracurium besylate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Aztreonam</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Bivalirudin</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Bleomycin sulfate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Bumetanide</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Buprenorphine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Butorphanol tartrate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Calcium chloride</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Calcium gluconate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cangrelor</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Capreomycin sulfate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Carboplatin</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Carmustine</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Caspofungin acetate</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cefazolin sodium</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cefepime hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cefoperazone</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Cefotaxime (L-arginine)</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ceftazidime</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ceftazidime (L-arginine)</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ceftizoxime</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ceftobiprole medocaril</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td>Ceftolozane; Tazobactam</td>
<td>ND</td>
<td>ND</td>
<td>☒</td>
<td>ND</td>
</tr>
<tr>
<td></td>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>---------</td>
<td>-----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Ceftriaxone sodium</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Chlorpromazine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cimetidine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cisatracurium besylate</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cisplatin</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Clindamycin phosphate</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cloxacillin sodium</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cyclophosphamide</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Cytarabine</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>D5W-Dextrose 5%</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dacarbazine</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Daptomycin</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Daunorubicin citrate liposome</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dexamethasone sodium phosphate</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dexmedetomidine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dexrazoxane</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dextrose 5% in lactated Ringer's</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dextrose 5% in sodium chloride 0.3%</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dextrose 5% in sodium chloride 0.45%</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Diazepam</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Digoxin</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Diltiazem hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Diphenhydramine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dobutamine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Docetaxel</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dolasetron mesylate</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Dopamine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Doripenem</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Doxacurium chloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Doxorubicin hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Doxorubicin hydrochloride liposomal</td>
<td>ND</td>
<td>ND</td>
<td>△</td>
<td>ND</td>
</tr>
<tr>
<td>Drug</td>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------</td>
<td>---------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Doxycycline hyclate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Droperidol</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Enalaprilat</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Ephedrine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Epinephrine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Epirubicin hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Eptifibatide</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Ertapenem sodium</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Esmolol hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Etoposide</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Etoposide phosphate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Famotidine</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Fenoldopam mesylate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Fentanyl citrate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Fluconazole</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Fluorouracil</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Foscarnet sodium</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Fosphenytoin sodium</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Furosemide</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Gallium nitrate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Ganciclovir sodium</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Garenoxacin Mesylate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Gatifloxacin</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Gemcitabine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Gemtuzumab ozogamicin</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Gentamicin sulfate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Granisetron hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Haloperidol lactate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Heparin sodium</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Hetastarch 6% (Hextend)</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Hydrocortisone sodium phosphate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Hydrocortisone sodium succinate</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Hydromorphone hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Hydroxyzine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Idarubicin hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
</tr>
<tr>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------</td>
<td>-----------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Ifosfamide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Imipenem-cilastatin sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Inamrinone lactate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Irinotecan hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Isavuconazonium Sulfate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Isoproterenol hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ketorolac tromethamine</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Labetalol hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Lactated Ringer's Injection</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Lepirudin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Leucovorin calcium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Levofoxacin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Levorphanol tartrate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Lidoconaine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Linezolid</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Lorazepam</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Magnesium sulfate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mannitol</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mechlorethamine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Meperidine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Meropenem</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mesna</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Methadone hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Methohexital sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Methotrexate sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Methylprednisolone sodium succinate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Metoclopramide hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Metronidazole</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Midazolam hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Milrinone lactate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Minocycline hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mitoxantrone hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mivacurium chloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Morphine sulfate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Mycophenolate mofetil hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------</td>
<td>-----------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Nalbuphine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Naloxone hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Nesiritide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Nicardipine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Nitroglycerin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Nitroprusside sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Normal saline- Sodium chloride 0.9%</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Normosol M in dextrose 5%</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Normosol R in dextrose 5%</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Octreotide acetate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ondansetron hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ornidazole</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Oxaliplatin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Oxytocin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Paclitaxel (solvent/surfactant)</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Palonosetron hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pamidronate disodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pancuronium bromide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pantoprazole sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pemetrexed disodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pentamidine isethionate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Pentobarbital sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Phenobarbital sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Phenylephrine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Phenytoin sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Piperacillin sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Piperacillin sodium-tazobactam sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Plazomicin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Potassium acetate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Potassium phosphates</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Procainamide hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Prochlorperazine edisylate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Admixture</td>
<td>Syringe</td>
<td>Y-Site Administration</td>
<td>For Dilution</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------</td>
<td>------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Promethazine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Propranolol hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Quinupristin-Dalfopristin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ranitidine hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Remifentanil hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Rocuronium bromide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Salbutamol</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sodium acetate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sodium bicarbonate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sodium chloride 0.45%</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sodium phosphates</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Succinylcholine chloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sufentanil citrate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Sulfamethoxazole-trimethoprim</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tacrolimus</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tedizolid phosphate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Telavancin hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Teniposide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Thiopental sodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Thiotepa</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ticarcillin disodium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Ticarcillin disodium-clavulanate potassium</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tigecycline</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tirofiban hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Tobramycin sulfate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>TPN (2-in-1) Total Parenteral Nutrition Admixture</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Trimethobenzamide hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Vancocin hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Vasopressin</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Vecuronium bromide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Verapamil hydrochloride</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>VinCRISTine sulfate</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Voriconazole</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Zidovudine</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Zoledronic acid</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
</tbody>
</table>

https://www.clinicalkey.com/pharmacology/monograph/print?cpnum=53&type=0&printSections=monindi&printSections=monsup&printSections=mons...
US Drug Names

- Azasite
- Zithromax
- Zithromax Tri-Pak
- Zithromax Z-Pak
- Zmax

Global Drug names

Argentina

- Arzomicin - (Takeda)
- Azibiatic - (Baliarda)
- Azitral - (Sanitas)
- Azitrogal - (Sant Gall)
- Azitrolabsa - (Labsa)
- Azitrolan - (Lanpharm)
- Azitrona - (Klonal)
- Azitrox - (Lepetit)
- Cetaxim - (TRB)
- Clearsing - (Duncan)
- Cronopen - (Elea)
- Doyle - (Raffo)
- Fabodrox - (Fabop)
- Fabramicina - (Fabra)
- Finatres - (Finadiet)
- Macromax - (Investi)
- Misultina - (Bernabo)
- Naxocina - (AstraZeneca)
- Neblic - (Lazar)
- Nifostin - (Penn)
- Nozovitron - (Laboratorio Internacional)
- Orobiotic - (Fortbenton)
- Sitrox - (Biotenk)
- Sumir - (Craveri)
- Talcilina - (Ronnet)
- Tanezox - (Microsules)
- Triamid - (Beta)
- Tritab - (Sidus)
- Tromiatlas - (Atlas)
- Vectocilina - (Panalab)
- Visag - (Poen)
- Zitromax - (Pfizer)

Australia

- Azith - (Alphapharm)
- Zedd - (Medis)
- Zithromax - (Pfizer)
- Zitrocin - (Pfizer)
Austria

- Azyter - (Thea)
- Zithromax - (Pfizer)

Belgium

- Zitromax - (Pfizer)

Brazil

- Astro - (Eurofarma)
- Atromicin - (Teuto)
- Azalide - (Bunker)
- Azatill - (Prodotti)
- Azi - (Sigma)
- Azidromic - (Royton)
- Azimax - (EMS)
- Azimed - (Cimed)
- Azimix - (Ativus)
- Azinostil - (EMS)
- Azitrax - (Farmoquimica)
- Azitrin - (Delta)
- Azitrocin - (Cibran)
- Azitrogran - (Legrand)
- Azitrolab - (Multilab)
- Azitromed - (Medquimica)
- Azitromicil - (Greenpharma)
- Azitromin - (Farmasa)
- Azitron - (Cifarma)
- Azitronax - (Pharlab)
- Azitrophar - (Pharlab)
- Azitrosol - (Luper)
- Azitroxil - (De Mayo)
- Biozitrom - (Biofarma)
- Clindal - (Merck)
- Clindaz - (Merck)
- Ems-Max - (EMS)
- Mac Azi - (Sigma)
- Mazitron - (Uniao Quimica)
- Novatrex - (Ache)
- Selimax - (Libbs)
- Selimax Pulso - (Libbs)
- Siftromin - (Sinterapico)
- Triazi - (Itaca)
- Tromix - (Ariston)
- Tromizir - (Belfar)
- Trozyman - (IQB)
- Zidimax - (Laboris)
- Zimicina - (Sandoz)
- Zitril - (Cazi)
- Zitromax - (Pfizer)
- Zitromil - (GSK)
- Zitroneo - (Neo Quimica)
- Zolprox - (Globo)

Canada
- Zithromax - (Pfizer)
- Zmax - (Pfizer)
- Z-Pak - (Pfizer)

Chile

- Abacten - (Andromaco)
- Asipral - (Labomed)
- Atizor - (Medipharm)
- Azibay - (Bayer)
- Azimit - (Interpharma)
- Azitrom - (Laboratorios Chile)
- Azydrop - (Andromaco)
- Ricilina - (Recalcine)
- Trex - (Saval)
- Zetamax - (Eurofarma)
- Zithromax - (Pfizer)

China

- A Sai Qi - (Yiqiao)
- Ai Mi Qi - (Mei Luo)
- An Mei Qin - (ZhenYuan)
- Ao Li Ping - (Aoya)
- Ba Qi - (Da Heng)
- Bai Ke De Rui - (Bai Ke)
- Bin Qi - (Qi Li)
- BinQi - (Binhu Shuanghe)
- Bo Kang - (Star)
- Chen Yu - (Lukang Chenxin)
- Feng Da Qi - (Asia Pioneer)
- Fu Qi-Hua Yuan - (Jinhui)
- Fu Rui Xin - (Lai En)
- Fuqixing - (Changzheng-Xinkai)
- Fuxin - (Haixin)
- Jin Nuo - (Fenghuang)
- Jin Pai Qi - (Lijun)
- Jinbo - (TianJin)
- Jun Jie - (Lunan)
- Jun Wei Qing - (Tianlong)
- Kai Qi - (Qianjiang)
- Kang Li Jian - (San Lian)
- Kang Qi - (Shunfeng)
- Ke Lin Da - (Liaoyuan Yadong)
- Ke Yan Li - (Liuang Huayuan)
- Kuai Di - (Hayao)
- Kuai Yu - (LuoXin)
- Li Ke Si - (Lai Mei)
- Li Li Kai - (Haishen Liansheng)
- Li Li Xing - (Haishen Liansheng)
- Li Qi - (Yangtze River)
- Lin Bi - (Double-Crane)
- Lipuqi - (Neptunus)
- Lipuxin - (Neptunus)
- Lizhu Qile - (Livzon)
- Lu Jia Kang - (Kanglong)
- Luo Bei Er - (Yong He)
- Luo Qi - (Aida)
- Luoxin Shoukang - (LuoXin)
- Ming Qi Xin - (Mingxin)
- Na Qi - (Pu Luo Kang Yu)
- Pai Fen - (Wanjie High Tech)
- Pai Fu - (Double-Crane)
- Paiqi - (Lijun)
- Pu He - (Chang Fu Jie Jing)
- Pu Le Qi - (Shyndec)
- Pu Yang - (Xin Ma)
- Qi Gu Mei - (Huang Long)
- Qi Hong - (Hayao)
- Qi Mai Xing - (Yatai)
- Qi Nuo - (Double-Crane)
- Qi Tai - (Jiu Tai)
- Qi Xian - (Shenyang First)
- QiLi - (Zhong Bao)
- Qiyue - (Jiqi Huakang)
- Ru Shuang Qi - (Kangliyuan)
- Rui Qi - (GuoRui)
- Rui Qi Lin - (Qian Long)
- Sai Jin Sha - (Tongde)
- Sai Le Xin - (United Lab)
- Sai Qi - (Dade)
- Sheng Nuo Ling - (Sanhome)
- Shepherd - (Ke Lun)
- Shu Luo Kang - (JiChuan)
- Su Shuang - (GuoGuang)
- Sumamed - (Pliva)
- Tailite - (Taiyang)
- Te Li Xin - (Hui Yin Bi)
- Tong Tai Qi Li - (Yi Kang)
- Tuo Neng - (Haixin)
- TuoQi - (Jinfeng)
- Wei Li Qing - (Qingfeng)
- Wei Lu De - (Jianfeng)
- Wei Zong - (Bikang)
- Weihong - (CSPC)
- Xi Le Xin - (Lukang Chenxin)
- Xi Mei - (C & O)
- Xin Da Kang - (Salubris)
- Xin Pu Rui - (Tianlong)
- Ya Rui - (Yatai)
- Yan Sha - (Xibaishou)
- Yi Nuo Da - (ShiJiaZhuang No 4)
- Yi Ou Qing - (Qilu)
- Yi Song - (De Zhou)
- Yi Xin - (Ankehengyi)
- Yin Pei Kang - (Jin Si Li)
- Yong Qi - (Shenlong)
- You Ni Ke - (Tong Yong Tong Meng)
- Yu Qi - (Limin)
- Zaiqi - (Simcere)
- Ze Qi - (Hicin)
- Zithromax - (Pfizer)
- Zithrome - (Hailing)
Czech Republic

- Azibiot - (KRKA)
- Azitrox - (Zentiva)
- Azyter - (Thea)
- Sumamed - (Teva)
- Zetamac - (Pfizer)
- Zitrocin - (Teva)

Denmark

- Azyter - (Thea)
- Zitromax - (Pfizer)

Finland

- Azyter - (Thea)
- Zithromax - (Pfizer)

France

- Azadose - (Pfizer)
- Azyter - (Thea)
- Ordipha - (Tonipharm)
- Zithromax - (Pfizer)

Germany

- Azithro - (Meda)
- Azithrobeta - (Betapharm)
- Azyter - (Thea)
- InfectoAzit - (Infectopharm)
- Ultreon - (Pfizer)
- Zithromax - (Pfizer)

Greece

- Alzirax - (Rafarm)
- Azibactron - (Cross)
- Azibiom - (Chemica)
- Azifarm - (Venifar)
- Azirox - (Pharmanel)
- Azirutec - (Zwitter)
- Azithral - (Cooper (Κοπερ))
- Azithrin - (Alet)
- Azitrolid - (Minerva (Μινερβα))
- Azivirus - (Verisfield)
- Azytan - (Medilat)
- Azyter - (Thea)
- Bezanin - (Iasis)
- Binozyt - (Sandoz)
- Ciroz - (Velka)
- Disithrom - (SJA)
- Flumax - (Gerolymatos)
- Goldamycin - (Leon)
- Gramokil - (Santa)
- Novozithron - (Novofarm (Νοβοφαρμ))
- Razimax - (Rafarm)
- Thoraxx - (Alapis)
- Throzimax - (Medilat)
- Zinfec - (Verisfield)
- Zithrobest - (Lyofin)
- Zithro-Due - (Vivax)
- Zithromax - (Pfizer)
- Zithroned - (Euroned)
- Zithropan - (Vocate)
- Zithroplus - (Balu)
- Zithrotel - (Anpharf (Ανφαρμ))
- Zithroxyn - (Help)
- Zitrax - (Gene Pharm)
- Zyramycin - (Leovan)

Hong Kong

- Athromax - (Quality)
- AZ-1 - (Nidoway)
- AZA - (XL)
- Azee - (Cipla)
- Azibact - (Swedish Trading)
- Azicine - (Stada)
- Azilide - (Yanny Medicines)
- Azimax - (Hovid)
- Azin - (Deltapharm)
- Azinix - (Julius Chen)
- Azirodin - (Julius Chen)
- Azirox - (Sincerity)
- Azitcin - (Wah Kin)
- Azithmax - (Vickmans)
- Azithrocin - (Eugenpharm)
- Azocin - (Eugenpharm)
- Aztrin - (Viewbest)
- Azure - (Eugenpharm)
- Azyter - (Thea)
- Binozyt - (Novartis)
- Clindal AZ - (APT)
- Euzimax - (Vickmans)
- Floctil - (Unison)
- Imexa - (Xepa-Soul Pattinson)
- Marzomax - (Vickmans)
- Nifomax - (Vickmans)
- Qualizith - (Quality)
- Sharozy - (Pharasky)
- Sumamed - (Lee)
- Uni-Zitho - (Vickmans)
- Vick-Azithro - (Vickmans)
- Zaron - (Perfect Groups)
- Zathrin - (Star)
- Zetro - (Chariot)
- Zimax - (Unipharm)
- Zimycin - (Star)
- Zith - (Leon)
- Zithrin - (HealthCare PharmaScience)
- Zithromax - (Pfizer)
- Zmax - (Pfizer)
- Zotax - (Hovid)
- Zycin - (Natural Health)

Hungary

- Azi - (Sandoz)
- Azibiot - (KRKA)
- Azicid - (Generics)
- Aziwill - (Goodwill)
- Sumamed - (Teva)
- Zitinn - (Actavis)
- Zitrocin - (Teva)
- Zmax - (Pfizer)

India

- Acex - (Orion)
- Actimycin - (Venus)
- Alicin - (Allenge)
- A-OD - (Elisa)
- Apocin - (Apotex)
- Arcin - (Chemech)
- Arizith - (Arika)
- Arz - (Willow)
- Atm - (Indoco)
- A vzeth - (Positif)
- Az-1 - (Kopran)
- Azard - (Pharma-Tech)
- Azauk - (Aamorb)
- Azbir - (Birz)
- Aze - (Cipla)
- Azegud - (Biosync)
- Azeloc - (Symbiotic)
- Azforin - (Unichem)
- Azibact - (Ipca)
- Azibest - (Blue Cross)
- Azi-Big - (Bestochem)
- Azicip - (Cipla)
- Azicos - (Symbiosis)
- Azicure - (Radicura)
- Azid - (Indi)
- Azidraw - (Q Check)
- Azifast - (Ipca)
- Azifem - (Fem Care)
- Azifine - (Glenmark)
- Azigram - (United Lifecare)
- Azikab - (Lancer)
- Azikare - (Ankare)
- Azikil - (Maxo)
- Azileb - (Leben)
- Azilide - (Micro)
- Azilife - (Aqualife)
- Azilin - (Lincoln)
- Azilup - (Lupin)
- Azim - (BL)
- Azimac - (Mandar)
- Azimax - (Cipla)
- Azin - (Indo Pacific)
- Azina - (Zota)
- Azinex - (Aronex)
- Azinix - (Khandelwal)
- Azinova - (Bombay Tablet)
- Azintra - (Intra-Labs)
- Azintra-AX - (Intra-Labs)
- Aziom - (Zenon)
- Azipar - (Molekule)
- Azipokyn - (Misha)
- Azipos - (Aglowmed)
- Aziral - (Hiral)
- Azirid - (Armour)
- Aziriv - (East African)
- Azirock - (Ankom)
- Azis - (Taurus)
- Azisafe - (UniOrange)
- Azisara - (Sarbhai Piramal)
- Aziset - (Active)
- Azisia - (Willow)
- Azison - (Dr Alson)
- Azistar - (Sanify)
- Azisym - (Symbiosis)
- Azitas - (Intas)
- Aziter - (Gujarat Terce)
- Azith - (Zee)
- Azithom - (Om Biotec)
- Azithral - (Alembic)
- Azithral Jun - (Alembic)
- Azithro - (Ind-Swift)
- Azitone - (Keshav)
- Azitoz - (ATOZ)
- Azitrac - (Invision)
- Azitrin - (Pharmatech)
- Azitrop - (Elfin)
- Azitsa - (Akesiss)
- Azitus - (Zuventus)
- Azivar - (Zota)
- Aziwin - (Bal)
- Aziwok - (Wockhardt)
- Azix - (Alicon)
- Azla - (Candor)
- Azmag - (Magnus)
- Azmic - (Emar)
- Azobac - (Medinova)
- Azolid - (Scoshia)
- Azolife - (Dexter)
- Azom - (Finecure)
- Azomax - (Max)
- Azone - (NB)
- Azopet - (Vista)
- Azostar - (Gentech)
- Azras - (Rass)
- Azrea - (Cinerea)
- Azro - (Abbott)
- Azro AM - (Abbott)
- Aztin - (Laksun)
- Aztus - (Emcure)
Azvig - (Madhav)
Azy - (Uniroyal)
Azylin - (Zota)
Azysafe - (Overseas)
Azystate - (Haledew)
Azyxin - (Centaur)
Azyxin Plus - (Centaur)
Azza - (Wintech)
Bezit - (Plus)
Bio-AZ - (Biomax)
Cazita - (Admac)
Corzi - (DWD)
Cumycin - (Curex)
Dazy - (Daksh)
Elgram - (Captab)
Elzee - (Elder)
Ertycin - (Abbott)
Eszit - (Ester)
Ezith - (Evershine)
Flaag - (Flamingo)
Forit - (Health Care)
Fydozith - (Xieon)
Gitro - (Plus)
G-Thro - (Globus)
Hizy - (Hos & Ins)
Infurox - (Servocare)
Itha - (Alna)
I-Thro - (Zubit)
Jocin - (DR Johns)
Kanny - (Kalpataru)
Laz - (Hetero)
Laz-AX - (Hetero)
Lazith - (Admac)
Lethro - (Forgo)
LG-Thral - (Anvik)
Loromycin - (Novartis)
L-Thro - (Lexus)
Macrosafe - (MSN)
Macrotar - (Torrent)
Maxazi - (United Biotech)
Myza - (Esma)
Nizithro - (Neiss)
Nodycin - (Nodysis)
Orflaz Kit - (Aristo)
Saf Kit - (Biochem)
Zithrocin - (Biochem)
Zycin - (Cadila)

Indonesia

Aziwin - (Aventis)
Azomax - (Dexa)
Aztrin - (Pharos)
Azyter - (Kalbe Vision)
Binozyt - (Sandoz)
Ethrimax - (Ethica)
Maxmor - (Mahakam Beta)
- Mezatrin - (Sanbe)
- Sohomac - (Ethica)
- Trozin - (Tempo Scan Pacific)
- Zarom - (Pyridam)
- Zibramax - (Guardian)
- Zicho - (Nicholas)
- Zifin - (Yarindo)
- Zistic - (Bernoefarm)
- Zithrax - (Kalbe)
- Zithromax - (Pfizer)
- Zitrolin - (Otto)
- Zycin - (Interbat)

Ireland

- Azromax - (Gerard)
- Azyter - (Thea)
- Zedbac - (Aspire)
- Zithromax - (Pfizer)

Israel

- Azenil - (Pfizer)
- Zeto - (Trima)
- Zithromax - (Pfizer)
- Zmax - (Pfizer)

Italy

- Azitrocin - (Pfizer)
- Batif - (Epifarma)
- Ribotrex - (Pierre Fabre)
- Trozocina - (Sigma-Tau)
- Zindel - (SoSe)
- Zitrobiotic - (Epifarma)
- Zitromax - (Pfizer)

Japan

- Zithromac - (Pfizer)

Malaysia

- Azicine - (Stada)
- Azimax - (Hovid)
- Azithro - (M & H)
- Binozyt - (Sandoz)
- Floctil - (Unison)
- Imexa - (Xepa-Soul Pattinson)
- Zithrolide - (Pharmaniaga)
- Zithromax - (Pfizer)
- Zmax - (Pfizer)
- Zynomax - (CCM)

Mexico

- Amsati - (Amsa)
- Atoxitom - (Landsteiner)
- Azibiot - (Mavi)
- Azidral - (Silanes)
- Aziphar - (Alpharma)
- Aziteva - (Teva)
- Azitrocin - (Pfizer)
- Azitrohexal - (Sandoz)
- Azo-Max - (Unipharm)
- Azotive - (Aspen)
- Aztrogecin - (Lakeside)
- Charyn - (Wermar)
- Craztronin - (Raam)
- Koptin - (Chinoind)
- Macrozit - (Liomont)
- Marzivag - (Novag)
- Medatz - (Bajamed)
- Mizotryn - (Liferpal)
- Sicalan - (Loeffler)
- Texis - (Atlantis)
- Tromicina - (Offenbach)
- Truxa - (Asofarma)
- Zertalin - (Collins)
- Zithran - (Ranbaxy)
- Zitroflam - (Rimsa)
- Zitroken - (Kendrick)

Netherlands

- Azacleus - (Nucleus)
- Azitro - (Merck)
- Azyter - (Thea)
- Bazyt - (Thea)
- Merckazitro - (Merck)
- Nucaza - (Nucleus)
- Zithromax - (Pfizer)

New Zealand

- Zithromax - (Pfizer)

Norway

- Azitromax - (Pfizer)
- Azyter - (Thea)

Philippines

- Aza-500 - (XL)
- Azeecor - (Akums)
- Azeemycin - (SRS)
- Azemax - (Cathay)
- Azi - (InnoGen)
- Azimax - (Twilight Litaka)
- Azin - (ACME)
- Azithro - (Natrapharm)
- Azithrogen - (Nutramedica)
- Azitrocin - (Mundipharma)
- Azo - (Mediwin)
- Azomycin - (Royale)
- Aztro - (Stallion)
- Azyth - (Sandoz)
- Decantin - (Lok-Beta)
- Geozit - (Geofman)
- Jazit - (Somatec)
- Macromax - (Domesco)
- Macrozyth - (Cipla)
- OD Mac - (Farma Iberica)
- Pediazith - (Medlink)
- Romzin - (Biopharma)
- Sitimax - (CSPC)
- Thromaxin - (ACME)
- Trozin - (Mercury)
- Wiltrozin - (Hizon)
- Zenith - (Pediatrica)
- Zithran - (Lloyd)
- Zithrocare - (Khriz)
- Zithrocin - (Pharma Nutria)
- Zithromax - (Pfizer)
- Zithrozan - (Biopharma)
- Zit-Od - (PSA)
- Zmax - (Pfizer)

Poland

- Abiazyt - (Artespharm)
- Azibiot - (KRKA)
- Azigen - (Generics)
- Azimycin - (Polfa Tarchomin)
- AzíTeva - (Teva)
- Azitrin - (Genexo)
- AzitroLEK - (Sandoz)
- Azitro-Mepha - (Mepha)
- Azitrox - (Zentiva)
- Azycyna - (Adamed)
- Azytact - (Tactica)
- Azyter - (Thea)
- Bactrazol - (Teva)
- Canbiox - (Apotex)
- Macromax - (PharmaSwiss)
- Nobaxin - (Lek-Am)
- Oranex - (Farmacom)
- Sumamed - (Teva)
- Zetamax - (Pfizer)

Portugal

- 3Z - (Jaba Recordati)
- Arzomicina - (APS)
- Azimax - (Pfizer)
- Azimed - (Daquimed)
- Aziton - (Labesfal)
- Azitrix - (Pentafarma)
- Azixratio - (Ratiopharm)
- Azyter - (Thea)
- Biozitra - (BioSaude)
- Gigatrom - (Medilusa)
- Imrotim - (Statim)
- Lazitrom - (Azemedos)
- Neofarmiz - (Farmoz)
- Unizitro - (Tecnimed)
- Vascin - (Helm)
- Zithromax - (Pfizer)
- Zitrina - (Decomed)
- Zitrozina - (Sidefarma)

Russian Federation

- Azicid - (Zentiva)
- Azimycin - (Micro)
- Azithrox - (Farmstandart)
- Azithrus - (Sintez)
- Azitral - (Shreya)
- Aziwok - (Wockhardt)
- Azydrop - (Thea)
- Econom - (Avva)
- Hemomycin - (Hemofarm)
- Safocid - (Stada)
- Sumaklid - (Biosintez)
- Sumamecin - (Obolenskoe)
- Sumamed - (Pliva)
- Sumamox - (Oxford Laboratories)
- Sumatrolid - (Ozone)
- Sumazid - (Bryntsalov)
- Tremak - (Sanovel)
- Zetamax - (Pfizer)
- ZI-Factor - (Veropharm)
- Zithrocin - (Unique)
- Zitnob - (Nobel)
- Zitrolid - (Valenta)

Singapore

- Azimax - (Hovid)
- AZmycin - (Invent)
- Binozyt - (Sandoz)
- Zithromax - (Pfizer)
- Zmax - (Pfizer)

South Africa

- Azimax - (Teva)
- Binozyt - (Zydus)
- Clamelle - (Cipla-Medpro)
- Jubazi - (LeBasi)
- Ultreon - (Pfizer)
- Varimax - (MDI)
- Zeemide - (Ascendis)
- Zithrogen - (Mylan)
- Zithromax - (Pfizer)

Spain

- Altezym - (Alter)
- Aratro - (Arafarma)
• Azydrop - (Thea)
• Goxil - (Pfizer)
• Pefloden - (Vita)
• Toraseptol - (Warner Chilcott)
• Vinzam - (Almirall)
• Zentavion - (Warner Chilcott)
• Zitromax - (Pfizer)

Sweden

• Azitromax - (Pfizer)
• Azyter - (Thea)

Switzerland

• Azitro - (Acino)
• Zithromax - (Pfizer)

Thailand

• Azith - (Siam Bheasach)
• Azithrin - (TO-Chemicals)
• Azithro - (M & H)
• Azycin - (GPO)
• Azyter - (Thea)
• Binozyt - (Sandoz)
• Floctil - (Unison)
• Meithromax - (Meiji)
• Onzet - (M & H)
• Zithromax - (Pfizer)
• Zmax - (Pfizer)

Turkey

• Azacid - (Fako)
• Azax - (Nobel)
• Azeltin - (Biofarma)
• Azitro - (Deva)
• Azitrotek - (Deva)
• Azomax - (Kocak)
• Azro - (Zentiva)
• Azyter - (Thea)
• Tremac - (Sanovel)
• Zitromax - (Pfizer)
• Zitrotek - (Pfizer)

Ukraine

• Azax - (Nobel)
• Azibiot - (KRKA)
• Azicin - (Darnitsa)
• Azimed - (Arterium)
• Azinort - (Norton)
• Azithral - (Alembic)
• Azithro - (Sandoz)
• Azithromax - (Pharmascience)
• Azitrox - (Zentiva)
• Aziwok - (Wockhardt)
Azo - (Tulip)
Azro - (Eczacibasi)
Hemomicin - (Hemofarm)
Ormax - (Sperko)
Sumamed - (Teva)
Zatrin - (Euro Lifecare)
Zetamax - (Pfizer)
Ziromin - (World Medicine)
Zithrocin - (Unique)
Zithrolex - (October Pharma)
Zomax - (Hikma)
Zyomicin - (Kusum)

United Arab Emirates

Azomycin - (Julphar)

United Kingdom

Azyter - (Spectrum)
Clamelle - (Actavis)
Zedbac - (Aspire)
Zithromax - (Pfizer)

Venezuela

Amizin - (Giempi)
Amovin - (Cofasa)
Aruzilina - (Leti)
Arzomidol - (Dollder)
Atromizin - (Cafar)
Azigram - (Vivax)
Azimakrol - (Roemmers-Klinos)
Azitrom - (SM)
Azitromin - (Farma)
Binozyt - (Sandoz)
Ricilina - (Gynopharm)
Saver - (Elmor)
Surgot - (Klinos)
Tromizid - (Medley)
Zitromax - (Pfizer)
Zival - (Valmor)
Zocin - (Biogalenic)

Copyright © 2017 Elsevier Inc. All rights reserved.