oxacillin (ox-a-sill-in)
flucillin

**Classification**
Therapeutic: anti-infection
Pharmacologic: penicillinase resistant penicillins

**Pregnancy Category B**

**Indications**
Treatment of the following infections due to penicillinase-producing staphylococci:
Respiratory tract infections, Sinusitis, Skin and skin structure infections, Bone and joint infections, Endocarditis, Bacteremia, Meningitis.

**Action**

**Pharmacokinetics**
Absorption: completely absorbed following IV administration; well absorbed from IM sites.
Distribution: widely distributed, penetration into CSF is minimal but sufficient in the presence of inflamed meninges; cross the placenta and enter breast milk.
Protein Binding: 94% to albumin.
Metabolism and Excretion: Partially metabolized by the liver (9%), partially excreted unchanged by the kidneys.
Half-life: Neonates: 1.6 hr; Children up to 2 yr: 0.9–1.8 hr; Adults: 0.3–0.8 hr (in severe hepatic impairment).

**Contraindications/Precautions**
Contraindicated in: Previous hypersensitivity to penicillins (cross-sensitivity exists with cephalosporins and other beta-lactam antibiotics).
Use Cautiously in: Severe renal or hepatic impairment; Pedi: Hematuria and azotemia have occurred in neonates and infants receiving high-dose oxacillin.

**Adverse Reactions/Side Effects**
CNS: seizures.
GI: diarrhea, epigastric distress, nausea, vomiting, pseudomembranous colitis.
GU: interstitial nephritis.
Derm: rash, urticaria.
Hemat: eosinophilia, leukopenia.
Local: pain at IM site, phlebitis at IV site.
Misc: allergic reactions including anaphylaxis, serum sickness, superinfection.

**Interactions**
Drug-Drug: Probenecid may decrease effectiveness of oral contraceptives. Probencid may increase levels of oxacillin (therapy may be combined for this purpose). Concurrent use with methotrexate may decrease elimination and risk of serious toxicity. Tetracyclines may decrease effectiveness of oxacillin.

**Route/Dosage**
IM, IV (Adults and Children ≥40 kg): 250–2000 mg q 4–6 hr (up to 12 g/day).
IM, IV (Children <40 kg): 100–200 mg/kg/day divided q 4–6 hr, maximum: 12 g/day.
IM, IV (Neonates ≤3 kg): 50 mg/kg/day divided q 12 hr.
IM, IV (Neonates 1.2–2 kg): 50 mg/kg/day divided q 12 hr for the first 7 days of life, then 75 mg/kg/day divided q 8 hr.
IM, IV (Neonates 3.2–3.9 kg): 50 mg/kg/day divided q 4 hr for the first 7 days of life, then 75 mg/kg/day divided q 8 hr.

**NURSING IMPLICATIONS**
Assessment:
- Monitor for infection (vital signs, appearance of wound, sputum, urine, and stool).
- WBC at beginning of and throughout therapy.
- Complete blood count at baseline and periodically during therapy.
- Monitor for renal function (BUN, Cr, and serum electrolytes) periodically during therapy.
- Monitor for signs of superinfection.

**TIME/ACTION PROFILE**

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<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tr>
<td>IV</td>
<td>rapid</td>
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**Elimination**
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**Elimination**
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Obtain a history before initiating therapy to determine previous use of and reactions to cephalosporins or other beta-lactam antibiotics. Persons with a negative history of penicillin sensitivity may still have an allergic response.

Obtain specimens for culture and sensitivity prior to initiating therapy. First dose may be given before receiving results.

Observe patient for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing, abdominal pain). Discontinue the drug and notify the physician or other health care professional immediately if these occur. Keep epinephrine, an antihistamine, and resuscitation equipment close by in the event of an anaphylactic reaction.

Assess vein for signs of irritation and phlebitis. Change IV site every 48 hr to prevent phlebitis.

Lab Test Considerations:
- May cause leukopenia and neutropenia, especially with prolonged therapy or hepatic impairment.
- May cause positive direct Coombs’ test result.
- May cause AST, ALT, LDH, and serum alkaline phosphatase concentrations.

Potential Nursing Diagnoses
- Risk for infection (Indications) (Side Effects)
- Noncompliance (Patient/Family Teaching)

Implementation

IM:
- To reconstitute for IM or IV use, add 1.4 mL of sterile water for injection to each 250-mg vial, 2.7 mL to each 500-mg vial, 5.7 mL to each 1-g vial, 11.5 mL to each 2-g vial, and 23 mL to each 4-g vial, for a concentration of 250 mg/1.5 mL. Stable for 3 days at room temperature or 7 days if refrigerated.

IV Administration
- pH: 6.0–8.5.
- Direct IV: Diluent: Further dilute each reconstituted 250-mg or 500-mg vial with 5 mL of sterile water or 0.9% NaCl for injection, 10 mL for each 1-g vial, 20 mL for each 2-g vial, and 40 mL for each 4-g vial. Rate: Administer slowly over 10 min.
- Intravenous Infusion: Diluent: Dilute to 0.9% NaCl D5W, 25%–50% NaCl, or 12% Concentration: 0.5–40 mg/mL. Rate: May be infused for up to 6 hr.
- Y-Site Incompatibility: amphotericin B colloidal, calcium chloride, calcium gluconate, diazoxide, diphenhydramine injection, droperidol, doxycycline, ephedrine, esmolol, haloperidol, lidocaine, meropenem, metronidazole, pentamidine, phenytoin, procainamide, povidone, pyridoxine, succinylcholine, thioguanine, trimethaphan, vancomycin, vasopressin, vitamin B complex with C, and/or dextrose.

Patient/Family Teaching

- Instruct patient to take medication around the clock and to finish the drug completely as directed, even if feeling better. Missed doses should be taken as soon as remembered. Adhere patient's knowledge of this medication may be dangerous.
- Advise patient to report signs of superinfection (black, furry overgrowth on the tongue, vaginal itching or discharge, loose or foul-smelling stools) and allergy.
- Instruct patient to notify health care professional if fever and diarrhea develop, especially if stool contains blood, pus, or mucus. Advise patient not to treat diarrhea without consulting health care professional.
- Instruct patient to seek health care professional if symptoms do not improve.

Evaluation/Desired Outcomes
- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.

Why was this drug prescribed for your patient?