Cefmetazole

**Antibiotic Class:**
Second-Generation Cephalosporin (2\textsuperscript{nd} generation cephemycin)

**Antimicrobial Spectrum:**
*Staphylococcus aureus* (methicillin susceptible), Coagulase negative Staphylococci, *Streptococcus pneumoniae* (penicillin susceptible), *Streptococcus spp* (less activity for Gram positives compared to 1\textsuperscript{st} and 2\textsuperscript{nd} generation cephalosporins), *Haemophilus influenzae, Moraxella catarrhalis, Neisseria meningitides, Neisseria gonorrhoeae, Enterobacteriaceae, E. coli Bacteroides spp.*

**Mechanism of Action:**
Cephalosporins exert bactericidal activity by interfering with bacterial cell wall synthesis and inhibiting cross-linking of the peptidoglycan. The cephalosporins are also thought to play a role in the activation of bacterial cell autolysins which may contribute to bacterial cell lysis.

**Pharmacodynamics:**
Cephalosporins exhibit time-dependent killing (T > MIC)

**Pharmacokinetics:**
Dose of 2g: Cmax: 140 mcg/L; Protein binding: 85%; Half-life: 1-1.5 hours; Table 10

**Adverse Effects:**
Hypersensitivity: Maculopapular rash, Urticaria, Pruritis, Anaphylaxis/angioedema, eosinophilia
Hematologic: Hypoprothrombinemia, Neutropenia, Leukopenia, Thrombocytopenia
GI: Diarrhea, *C. difficile* disease
Renal: Interstitial nephritis
Table 14

**Dosage:**
IV: Powder for reconstitution: 1g, 2g

Dosing in adults:
2g IV q 6-12h

Dosing in pediatrics:
Not Recommended

Disease state based dosing:
Renal failure:
\begin{align*}
\text{CrCl} & > 90: \text{Standard dosing} \\
\text{CrCl} & 50-90\text{mL/min}: \ 1-2g \ q12h \\
\text{CrCl} & 30-49\text{mL/min}: \ 1-2g \ q16h \\
\text{CrCl} & 10-29\text{mL/min}: \ 1-2g \ q24h \\
\text{CrCl} & < 10\text{mL/min}: \ 1-2g \ q48h
\end{align*}
Hepatic failure: No dosing changes recommended at this time.

**Contraindications/Warnings/Precautions:**
Precautions: hypersensitivity to penicillins, history of gastrointestinal disease, particularly colitis, renal impairment, concomitant alcohol intake (disulfiram reactions)

**Drug Interactions:**
Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

**Pregnancy:**
Category B: No evidence of risk in humans but studies inadequate.

**Monitoring Requirements:**
Therapeutic: Culture and sensitivities, serum levels, signs and symptoms of infection, white blood cell count
Toxic: Urinalysis, BUN, SCr, AST and ALT, skin rash, Neutropenia and leukopenia, Prothrombin time in patients with renal or hepatic impairment or poor nutritional state, as well as patients receiving a protracted course of antimicrobial therapy, and patients previously stabilized on anticoagulant therapy.

**Brand names/Manufacturer:** Zefazone®/Upjohn