

Polymyxin B

IV Only

Use requires formal ID Consult

Polymyxin B and Colistin (also known as Polymyxin E or Colistimethate) are the two polymyxin antibiotics. Their spectrum of activity is similar. However, their pharmacology is very different. Polymyxin B is administered as the active drug and is not cleared renally. Colistin is a prodrug (Colistimethate sodium) and is cleared renally.

The product vials may be labeled as International Units (IU) or mg.

To avoid major dosing errors, carefully read vial labels. Recommend that all doses be converted to mg.

Conversion: 10,000 International Units = 1 mg

Activity: Coverage against most gram-negatives, including many multi-drug resistant (MDR) Enterobacteriaceae (such as *E. coli*, *Klebsiella* spp.; including ESBL-producing and carbapenem-resistant Enterobacteriaceae), *Pseudomonas* spp., and *Acinetobacter* spp.

NOT ACTIVE against *Proteus*, *Serratia*, *Providencia*, *Burkholderia*, *Stenotrophomonas*, gram-negative cocci, gram-positive organisms, or anaerobes

Criteria for Use:

- Treatment of infections due to MDR Enterobacteriaceae, *Pseudomonas* spp., and *Acinetobacter* spp. with **no other** treatment options

Unacceptable Uses:

- Empiric treatment of suspected gram-negative infections
- Monotherapy for serious infections due to rapid resistance development
- Treatment of UTIs. Colistin preferred over polymyxin B for UTIs

Dosing in Adults: Optimal dosing regimens are not well established

- Standard dose: 2.5 mg/kg IV as a 2 hr infusion ONCE (load), then 12 hours later start 1.5 mg/kg IV as a 1 hr IV infusion. Repeat Q12H
- No renal or hepatic dose adjustment
- Use **actual body weight** for dosing
- **Caution in use > maximum product recommended daily dose (300mg)**

Monitoring:

- BUN/ SCr at baseline and at least twice weekly

Considerations for Use:

- The most important side effect of IV polymyxin B is nephrotoxicity (20-40% of patients); less frequently reported concerns include neurotoxicity and neuromuscular blockade
- Recent literature suggests that nephrotoxicity rates may be lower with polymyxin B as compared to colistin

BUN= Blood urea nitrogen; ESBL= Extended spectrum beta-lactamase; H= hour(s); ID= Infectious Diseases; IU= international Units; IV= Intravenous; MDR= multi-drug resistant; Q= every; SCr= Serum creatinine; spp= Species; UTI= Urinary tract infection