Colistin (Polymyxin E or Colistimethate)

Colistin (also known as Polymyxin E or Colistimethate) and Polymyxin B are the two different polymyxin antibiotics. Colistin is a prodrug (Colistimethate sodium). The product vials may be labeled as International Units (IU) of prodrug, or mg of the active product: colistin base activity (CBA).

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

Conversion: 1,000,000 units of Colistimethate (prodrug) = 80 mg of Colistimethate (prodrug) = 30 mg of colistin base activity (CBA)

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 spp., Serratia spp., Providencia spp, Burkholderia spp, Stenotrophomonas spp, gram-negative coccii, 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
- Treatment of UTI. Colistin preferred over polymyxin B for UTIs

Unacceptable Uses:
- Empiric treatment of suspected gram-negative infections
- Use as monotherapy due to rapid resistance development

Dosing in Adults: Optimal dosing regimens are not well established
- Standard dose: 5 mg CBA/kg ONCE (load), then 2.5 mg CBA/kg Q12H
- Renal dose adjustment:
  - CrCl 20-50 mL/min: 5 mg CBA/kg ONCE (load), then 2.5 mg CBA/kg Q24H
  - CrCl < 20 mL/min: 5 mg CBA/kg ONCE (load), then 2.5 mg CBA/kg Q48H
  - Hemodialysis: 5 mg CBA/kg ONCE (load), then 30 mg CBA IV Q12H, AD
- No hepatic dose adjustment
- Use ideal body weight in obese patients for dosing
- Caution in use > max product recommended daily dose (300 mg CBA)

Monitoring:
- BUN/SCr at baseline and at least twice weekly

Considerations for Use:
- The most important side effect of IV colistin is nephrotoxicity (rates 50-60% of patients); less frequently reported concerns include neurotoxicity and neuromuscular blockade