

## Colistimethate Sodium

**Overview:** The polymyxins, including colistin and polymyxin B, are used for the treatment of multi-drug resistant gram negative bacterial infections. Colistin is available as the inactive prodrug, colistimethate sodium (CMS).

**PK/PD:** Colistin demonstrates concentration-dependent bactericidal activity and its therapeutic efficacy is dependent upon the area under the curve (AUC) to bacterial MIC ratio.

**Dosing:** In the United States, Colistimethate Sodium (CMS) for Injection is labeled in terms of the base drug, colistin base activity. In Europe, the drug is dosed in terms of international units of colistimethate sodium (CMS).

- 1 mg colistin BASE activity = 2.4 mg colistimethate sodium
- 1 mg colistin BASE activity = 30,000 IU
- 1 mg colistimethate sodium (CMS) = 12,500 IU

- A loading dose is used to ensure rapid attainment of therapeutic concentrations
- Weight-based dosing should utilize ideal body weight in obese patients

**Table 1: Dosing and dose-adjustments for renal dysfunction**

[Dalfino 2012, Garonzik 2011, Plachouras 2009, Nation 2017]

Renal Function	Loading Dose (Maximum dose: 300 mg)	Maintenance Dose
CrCl > 50 mL/min	CBA: 5mg/kg x 1	CBA 2.5 mg/kg IV Q12H
CrCl: 20-50 mL/min	CBA: 5mg/kg x 1	CBA 1.5 mg/kg IV Q12H
CrCl: ≤ 20 mL/min	CBA: 5mg/kg x 1	CBA 1 mg/kg IV Q12H

**Table 2: Dosing in patients dependent upon renal replacement therapy\*** [Nation 2017]

Renal Function	Loading Dose (Maximum dose: 300 mg)	Maintenance Dose
Intermittent hemodialysis	CBA: 5mg/kg IV x 1	65 mg IV BID; then 50 mg post-HD supplement on HD days only**
Continuous renal replacement therapy	CBA 5mg/kg IV x 1	220 mg CBA IV q12h

\*Supporting data based upon pharmacokinetic information in < 30 patients; recommendations may change as more information becomes available.

\*\*Assumes 4-hour HD session

**Inhaled Colistin:** CBA: 75 mg inhaled q 12; all solutions for nebulization should be used promptly after preparation.