

Therapeutics Bulletin

Colistin dosing guidance – Adults

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- To date, the dosing guidances available in South Africa included those by Visser Kift[1] and Labuschagne.[2] While very useful, **these guidances were not developed using rigorous guideline development principles**, and are subsequently described as narrative guidelines.

- Patients were **probably underdosed** with colistin using these narrative guidelines, especially in renal impairment.

- **A new international guideline was developed in 2019 using accredited guideline development tools.**[3] Dosing recommendations for colistin were developed by assessing empiric minimum inhibitory concentrations (MIC), drug exposure needed to overcome these MICs, the average steady-state drug concentration that correlates with overall drug exposure, and dose adjustments in renal impairment.

Updated dosing of colistin for Tygerberg Hospital is based on an adapted version:

- **Loading dose**
  - 9 million IU over 1 hour
- **Maintenance dose**
  - Depends on renal function (see table below)
  - Expressed as dose per infusion, **12-hourly, over 1 hour**
  - Normal renal function (creatinine clearance ≥ 80 mL/min)
    - **5 million IU**
    - Adjust according to creatinine clearance:

Creatinine clearance	Dose in international units (IU)
≥ 80 mL/min	5.0 million IU
60 - 80 mL/min	4.5 million IU
40 - 60 mL/min	3.5 million IU
20 - 40 mL/min	3.0 million IU
5 - 20 mL/min	2.3 million IU
0 - 5 mL/min	2.0 million IU

- Maintenance dosing bands are rounded off for simplified dosing. If more precise dosing is needed, contact the **Clinical Pharmacologist** on call.
- Discard contents of leftover vials.
- **Monitoring:** Renal function (colistin is nephrotoxic & neurotoxic).

If you are uncertain about dose adjustment, or for haemodialysis dose adjustments, contact the Clinical Pharmacologist on call.

References:

1. Visser Kift E, Maartens G, Bamford C. Systematic review of the evidence for rational dosing of colistin. South African Medical Journal. 2014 Feb 27;104(3):183-186.
2. Labuschagne Q, Schellack N, Gous A, et al. Colistin: Adult and paediatric guideline for South Africa, 2016. Southern African Journal of Infectious Diseases. 2016 Mar 4;31(1):3-7.
3. Tsuji BT, Pogue JM, Zavascki AP, et al. International Consensus Guidelines for the Optimal Use of the Polymyxins. Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy. 2019 Jan;39(1):10-39.

