

## Antibiotic and Electrolyte Maximum Concentrations for fluid restricted ICU patients (via CVC only)

The table below outlines electrolyte and antibiotics that may be administered in higher concentrations (and therefore smaller volumes) compared to standard BHS critical care administration practice. Standard BHS practice is supported by the Australian Injectable Drugs Handbook (yellow book), BHS drug guidelines or other standard texts. The concentrations outlined below are not available in standard references, but is taken with thanks and acknowledgement from The Alfred's document 'Management of Electrolytes and Antibiotics via CVC in ICU'. Small volumes such as 50 mL can be obtained by diluting in a 50 mL syringe using the Alaris PC with syringe attachment, or by removing excess volume from a 100 mL minibag before adding the medication and using the LVP. All infusions must be run using Guardrails EXCEPT small volumes over a short timeframe that are given by hand. Not all antibiotics or electrolytes are listed, only those where smaller volumes are appropriate/possible (e.g. premixed bags cannot be altered). Antibiotics or electrolytes not routinely used at BHS are not included. Doses outlined below may not be appropriate for all patients (e.g. lower doses may be required for patients who are underweight, elderly or have impaired renal or hepatic function). If halving the dose, halve the volume and the administration time, similarly if doubling the dose (where appropriate), double the volume and the administration time unless outlined otherwise below). **Prior to transfer to the General Wards, the following low volume medications infusions must have finished and only doses and volumes suitable for the General Wards charted.**

The following table is only to be used for patients that fulfill **ALL** of the following criteria:

- ICU patient with a **CVC**
- **Fluid restricted** patients unable to tolerate standard concentrations
- Patients receiving electrolytes as below must have **ECG monitoring**

FOR CVC ONLY IN ICU	Medication	Maximum concentration (or minimum volume) for CVC administration (in sodium chloride 0.9% or glucose 5% unless specified)
	Initial reconstitution as per AIDH (yellow book)	
	Aciclovir	Dose (undiluted) over 60 min. Caution: inadequate fluid intake may cause crystalluria and renal toxicity. Maximum dose in Guardrails 1200 mg
	Azithromycin	500 mg in 100 mL over 60 min.
	Benzylpenicillin	Dose (undiluted), maximum rate 1.2 g every 5 min. Maximum dose in Guardrails 3 g
	Calcium gluconate	Maximum 4.4 mmol in 50 mL over 10 min. Note: may be run over 1-2 hr if not urgent.
	Ceftriaxone high dose	2 g in 20 mL (undiluted) over 30 min. Note: 4 g in 40 mL can also be given over 30 min.
	Erythromycin	Maximum 1 g in 100 mL (10 mg/mL) of sodium chloride 0.9% over 30 min.
	Flucloxacillin	Dose (undiluted), maximum rate 1 g over 5 minutes. Maximum dose 2 g
	Gentamicin	Dose (undiluted) over 30 min. Maximum dose in Guardrails 710 mg
	Magnesium sulfate	10 mmol in 25 mL or maximum 20 mmol in 50 mL over 30 - 60 min.
	Piperacillin/Tazobactam	4.5 g (= 4 g piperacillin) in 20 mL (undiluted) over 20 min <sup>1</sup> .
	Sodium phosphate	Maximum 10 mmol in 50 mL over 60 min <sup>2</sup> .
	Trimethoprim/Sulfamethoxazole (Co-trimoxazole)	Dose (undiluted) over 60-90 min. Maximum dose in Guardrails 600/3000 mg
	Vancomycin	Each 1 g in 50 mL, maximum rate 500 mg/hr. Maximum dose in Guardrails 4 g

<sup>1</sup> Australian Injectable Drugs Handbook

<sup>2</sup> SA Health Royal Women's Hospital Phosphate Intravenous Replacement Oct 2017

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