

PAEDIATRIC STANDARD CONCENTRATION INFUSION SMART-PUMP DRUG LIBRARY

Instructions for the Preparation of Standard Concentration Infusions (SCIs) using IV Fluid Bags

Note: Information in this document is to be used in conjunction with the 'Standard Operating Procedure for Use of the Children's Health Ireland Paediatric Smart-Pump Drug Library'.

Preparation of standard concentration infusions and compliance with the CHI smart-pump library for certain medications can require reconstitution and dilution directly into IV fluid bag of diluents e.g. 100mL, 250mL, 500mL Sodium Chloride 0.9%. Example scenarios include: lack of access to a buretrol set or sterile empty 250mL bag; where an infusion exceeds 250mL.

As IV diluent fluid bags contain an overage of volume (see Table 1 below), this must be accounted for to ensure an accurate final concentration when preparing SCI medications. Failure to do so may result in incomplete delivery of prepared doses.

Table 1: Overage Volumes in Baxter 100mL, 250mL, 500mL Viaflo Bags¹

Nominal Volume In Bag	Average Actual Volume in Bag	Maximum Volume for Addition to Bag	Maximum Volume capacity of Bag
100mL	111mL	77mL	111mL + 77mL = 188mL
250mL	271mL	167mL	271mL + 167mL = 438mL
500mL	530mL	295mL	530mL + 295mL = 825mL

Reference: Baxter Healthcare

Sample prescription and calculations for preparation:

Patient: Peg O'Toole	DOB: 05/03/20XX	MRN: 111111	Weight: 55kg
Drug: Vancomycin	Route: IV	Dose: 825mg (15mg/kg)	Frequency: QDS

- Reconstitute Vancomycin 500mg vial as per CHI formulary to give a 50mg/mL solution
- Dose prescribed as above: 825mg
- Volume Vancomycin (50mg/mL) to be withdrawn from vial: **16.5mL (825mg)**
- SCI for Vancomycin: 5mg/mL (*see SCI Table*)
- Volume to be Infused (VTBI): Total dose ÷ SCI = 825mg ÷ 5mg/mL = **165mL final infusion volume**
- Volume of diluent required = Final infusion volume – Dose volume = **165mL - 16.5mL = 148.5mL**
- **271mL** already in IV fluid bag (as per table 1 above: 250mL bag + 21mL overage)
- Volume to be withdrawn from IV fluid bag: **271mL** (volume in bag) – **148.5mL** (volume of diluent required) = **122.5mL** (discarded)
- Add **16.5mL** Vancomycin to the **148.5mL** remaining in the IV fluid bag
- Final VTBI and IV fluid bag volume content: **165mL**