

Medication Administration

via Syringe Pump

Indication

- Administering an intermittent medication via an intravenous access (central or peripheral) using a syringe pump.

Material

- Syringe of intravenous medication (prepared by pharmacy or 2 nurses)
- Extension tubing (0.5ml internal volume)
- NS Posiflush syringe (10 ml)
- Alcohol cap
- Syringe pump Dilantin filter (if required to administer medication) (internal volume 0.48 mL)



Key points

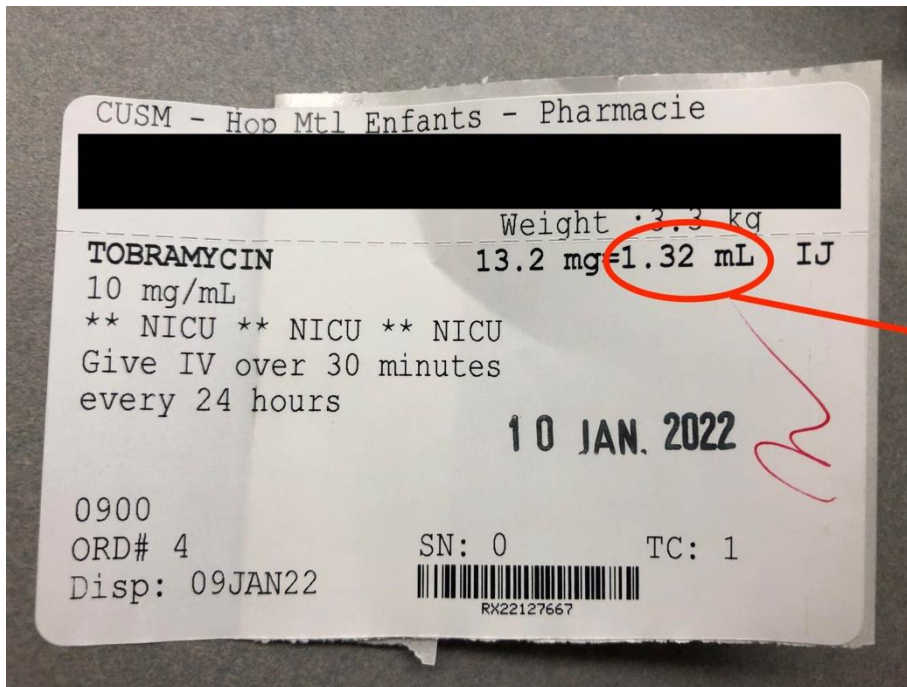
- Before setting up for the administration, verify the **compatibility** of the medication you need to administer with the infusion(s) already running in your IV access, if any. This information can be found on your computer desktop, on Weebly under [Medication Protocols](#), or directly in **Lexicomp**. In case of doubt, ask the pharmacist.
- **IMPORTANT** : The medication should **never** be infused into the same venous access as one infusing **inotropes or PGE**. Ideally, intermittent medication should also not be administered in the same line as the one infusing **sedation**; if there is no alternative available, this can be discussed with the medical team.

Procedure

1. Verify the medication to be administered using the "5 rights" technique : right patient, right medication, right time, right dose, right route.

2. If there is an **INCOMPATIBILITY** between the medication to be infused and the infusions running in the IV access, turn off the infusion(s) in question and clamp the line(s). You can use the standby function and program the pump to stay in standby mode for the duration of the medication infusion. It will then wake up automatically around the time that the medication infusion ends. (Note: DO NOT clamp or turn off inotropes, sedation, PGE, or insulin infusions! If these are running, and there is no other access available, consult the medical and pharmacy team to make a plan.)
3. Connect your extension tubing to the medication syringe, and prime tubing manually (internal volume = 0.5 mL). If a Dilantin filter has been added, the priming volume will be a total of 0.98 mL.
4. Place the syringe in the pump, and select the appropriate syringe brand and size on the screen. Choosing the correct brand of syringe is important as this will affect delivery of the medication.
5. A screen asking to reset data will then appear. Select yes in order to program your infusion.
6. A screen asking if you would like to prime tubing will appear next. **Do not** prime the tubing using the pump – some variability in tubing internal volume may cause you to lose medication and you will only receive the exact quantity needed to infuse.
7. Next, you will be directed to the infusion programming screen. On this screen you will have 3 lines: rate, VTBI (volume to be infused) and time.

Go directly into the **VTBI** window. Enter **your volume to be infused** (written on your medication label or calculated by 2 nurses) **ADDED to 0.5 ml (tubing quantity)**. If a **Dilantin** filter has been added to the medication tubing, your **VTBI** will be the **volume written on your medication label + 1 mL** (to account for internal volume of medication tubing and filter).



Example :

This baby needs to receive 13.2 mg of Tobramycin.

With a concentration of 10 mg/mL, this gives a volume of 1.32 mL.

Volume of medication in syringe

On the pump, you will enter 1.82 mL as your VTBI (1.32 mL + 0.5 mL)

****If this medication required a Dilantin filter, your VTBI would be 1.32 mL + 1 mL = 2.32 mL****

- You will then go down to the **TIME** window, in order to enter over how long the medication needs to be infused. This **varies depending on the medication** being given. On the example above, it is written: GIVE IV OVER 30 minutes. You will then enter 30 minutes in the **TIME** window.

By entering the time and the VTBI, the **rate** will be **automatically** calculated.

- Connect the IV tubing to the IV port access (should be the red port on the 3-way IV extension). This should be covered with an alcohol cap, so the tubing can be connected directly. If not, scrub the hub as per protocol (15-seconds of scrubbing, 15-30 seconds of drying with CHG 0.5% and 70% alcohol) before connecting.
- Unclamp the medication line (both tubing + IV access) and start the infusion by pressing **start** on the pump.
- Near the end of the infusion, the pump will ring “ **Syringe empty**”, but there will be a **remaining VTBI (should be around 1 mL)**. This is the result of priming the extension tubing with the medication. In order to give the total quantity of medication, you will **REPLACE** the medication syringe (now empty) by a 10 mL NS Posiflush syringe, and restart the pump, **WITHOUT** touching any setting. Disinfect the port of your tubing as per protocol before connecting your flush syringe.

NOTE: In order to create less pressure , use a 10 ml NS syringe. Using 3 ml NS syringe can cause your pump to ring “pressure high” .

12. At the end of infusion, the pump will ring indicating “**VTBI done**”. This mean the whole quantity of medication has been given. You can open the pump, take out the syringe, and disconnect the tubing extension. You **DO NOT** need to flush the med port with additional NS. Simply **clamp the med line** and place a new alcohol cap on the port.

NOTE: If you previously TURNED OFF any infusion (s) in order to give the medication, don't forget to RESTART them

Additional example :

Fluconazole.

Bb must receive 21.6 mg. Concentration 2 mg/ ml.
Volume to be infused (MEDICATION ONLY) = 10.8 ml
Time: Over 60 minutes

Setting on the pump should be :

Rate : 11.3 ml/hr (automatically calculated)

VTBI: 11.3 ml (10.8 ml + 0.5 ml tubing)

Time: 1:00 hr

