Using the Sigma Spectrum Infusion Pump

Expanded Scope Protocol for Interfacility Transfer

Intravenous Infusion Pump Use During Interfacility Transfers

Using the Sigma Spectrum Infusion Pump

Objectives:

- Able to identify the MMC EMS Expanded Scope of Practice regarding the use of IV pumps
- Able to verbalize/demonstrate loading and unloading of IV tubing set
- Able to verbalize/demonstrate programming and initiating medication infusions
- Able to titrate an infusion
- Able to stop an infusion
- Able to identify alarms and troubleshoot problems with the pump

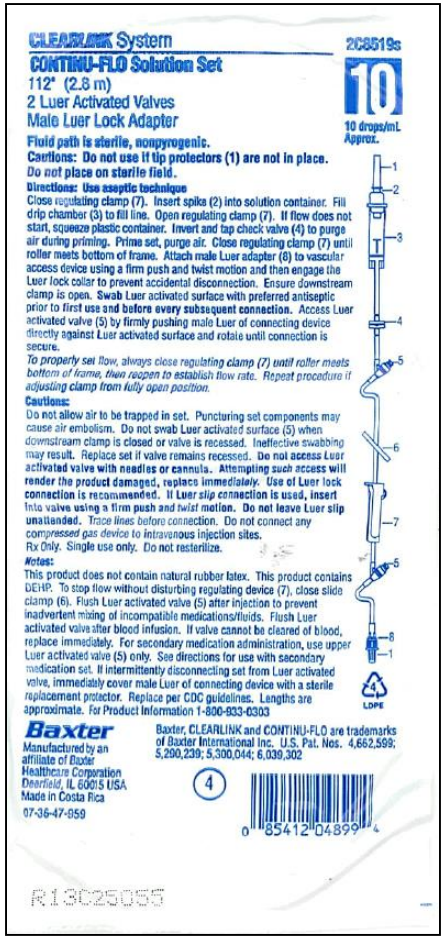
Memorial EMS – Expanded Scope of Practice

- Permits intravenous infusions during facility-to-facility transfers of critically ill patients.
- Under the expanded scope, medics can maintain the infusion of the following medications:
  - ✓ Heparin Sodium
  - ✓ Nitroglycerin
  - ✓ Dopamine
  - ✓ IV Fluids with Potassium Chloride (KCl) added
  - ✓ Amiodarone
  - ✓ Cardizem
  - ✓ Antibiotics
  - ✓ tPA
  - ✓ Levophed
  - ✓ Protonix
  - ✓ Dobutamine
  - ✓ N-Acetylcysteine
  - ✓ Blood Products
  - ✓ Multivitamin Banana Bag
  - ✓ Octreotide
- Dopamine and nitroglycerin can be titrated en route.
- Any drip can be stopped at any time.

Using the Sigma Spectrum Infusion Pump

- Loading and unloading the IV tubing set
- Programming/ initiating a medication infusion
- Titrating an infusion
- Stopping an infusion
- Pump alarms/ troubleshooting

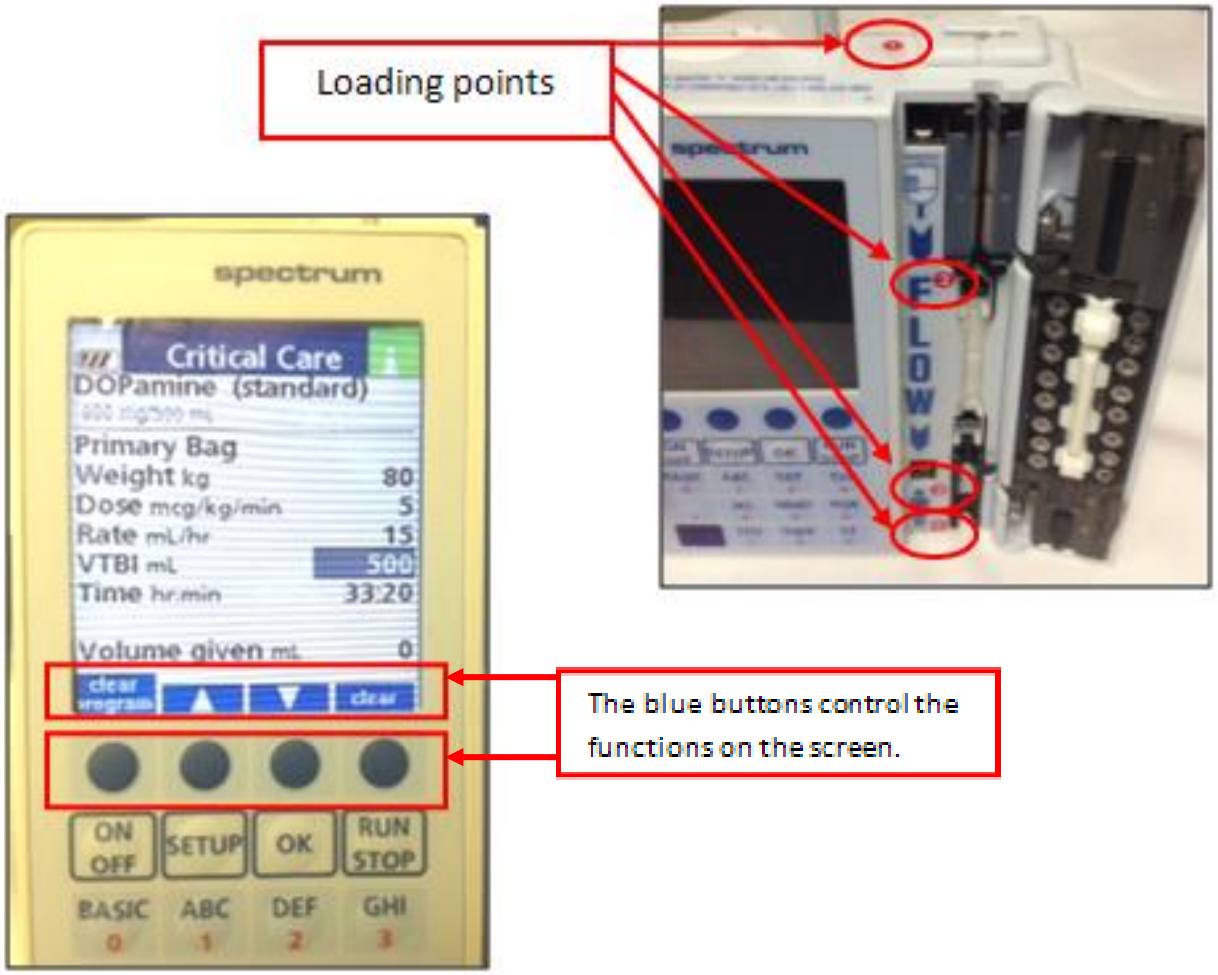
Sigma Infusion Pump Tubing



COMPATIBLE TUBING:

- Baxter Clearlink System Continu-FLO Solution Set
- 10 gtt/mL

The Sigma Spectrum Infusion Pump



Loading the Sigma Spectrum Infusion Pump

- The MMC EMS Expanded Scope of Practice does not cover the initiation of medication infusions.
- Medications should already be spiked and primed.

Before loading the tubing into the pump, the medication should be:

- Stopped
- Clamped via the roller clamp ***and*** slide clamp
- Disconnected from the patient

Loading the Sigma Spectrum Infusion Pump

<u>Loading tubing into the IV pump:</u>

After ensuring that the tubing is fully primed, hanging, and ready to continue infusion:

1. Insert the blue slide clamp into the keyhole (**loading point 1**).

   The slide clamp looks like an arrow pointing downward as you insert it into the keyhole. It will only fit one way.

Loading the Sigma Spectrum Infusion Pump

As you insert the clamp, the door will open to load the tubing and the pump will automatically turn on.

2. Pull the tubing down into the tubing channel.
3. Press the tubing into the channel at **loading points 2, 3 & 4.**

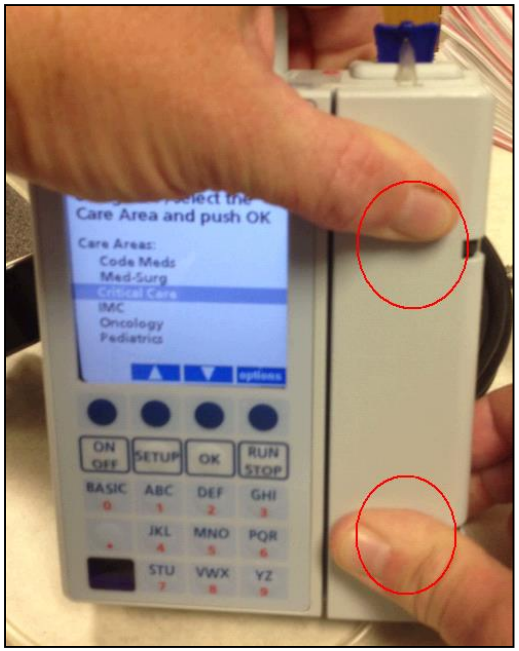
The pump will prompt you to press the tubing in at specific points if not inserted properly.

Loading the Sigma Spectrum Infusion Pump

- When all **loading points** are green checked, close the door.
  - Using two thumbs is the easiest way to close the door.

- Pull the blue slide clamp up.
  - If you don't pull the clamp out, the pump will prompt you to pull it out.

  - To remove or reposition tubing, reinsert the blue slide clamp into Point 1. The door will open.



Programming the Sigma Spectrum Infusion Pump

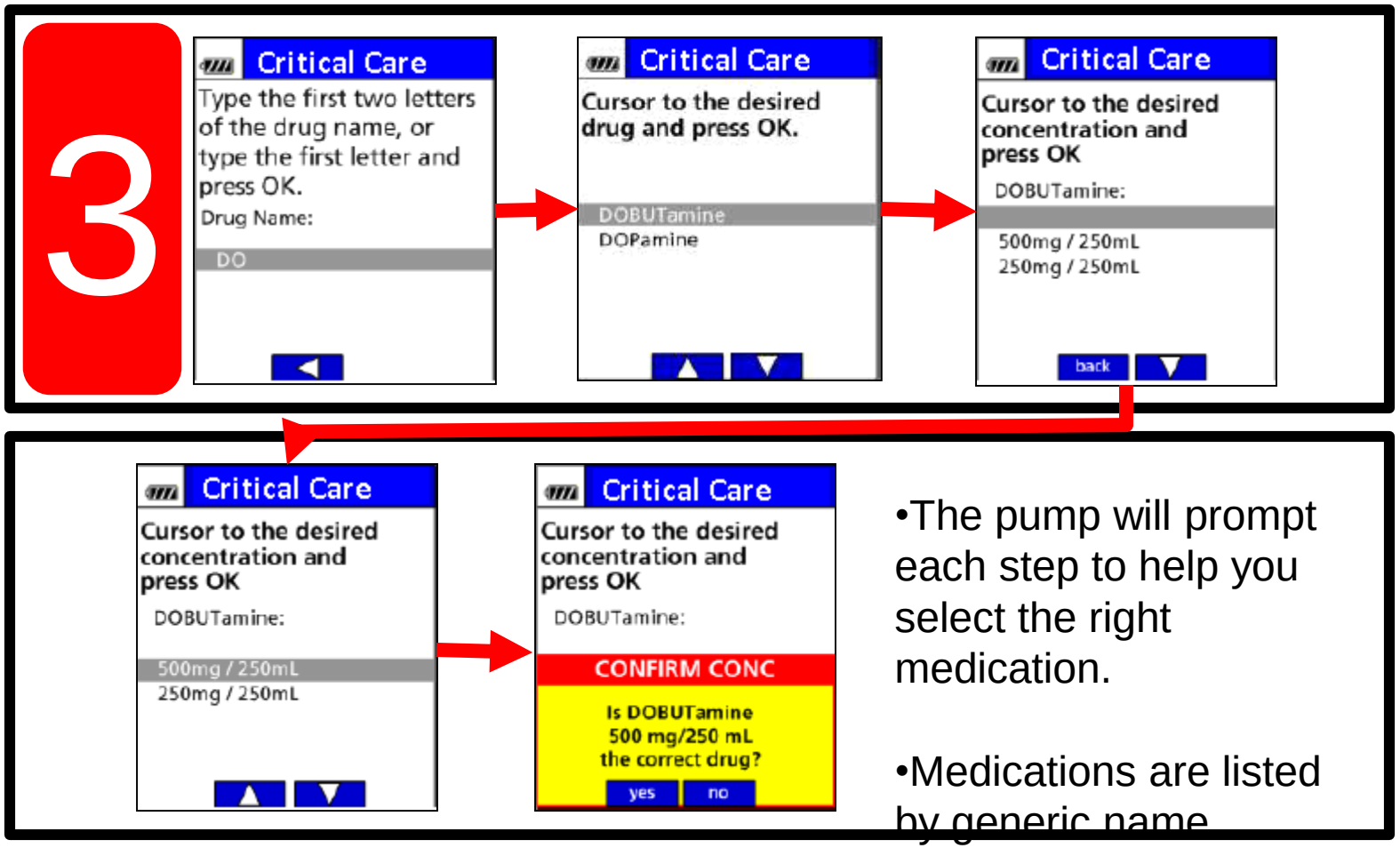
1

- Select “yes” to program a new infusion.
  - Selecting “no” will take you to the previously programmed medication.
    - Pre-programming medications before the IV set is loaded
    - Resuming paused infusions

2

- Use the blue buttons as labeled by the screen. These labels will change with each new screen.
- Select the “Critical Care” care area.

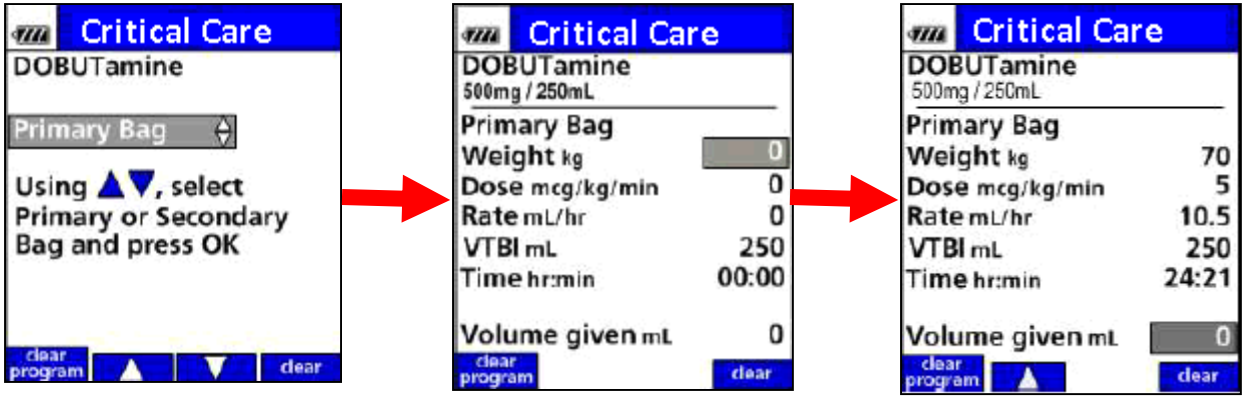
Programming the Sigma Spectrum Infusion Pump



- The pump will prompt each step to help you select the right medication.
- Medications are listed by generic name

Programming the Sigma Spectrum Infusion Pump

4



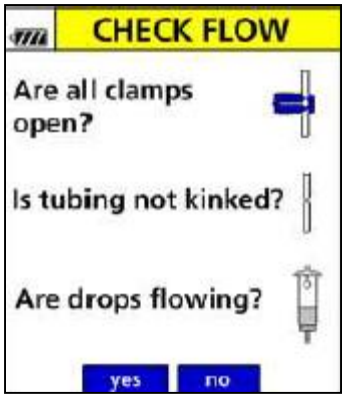
- The pump has some pre-programmed “hard stop” upper limits for medication rates.
- The pump will not allow you to exceed these limits.

Initiating the infusion

5

- Connect the tubing to the patient.
- Unclamp the roller tubing.
- Press RUN STOP to initiate the infusion.

6

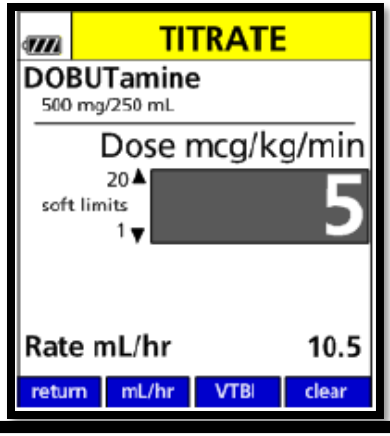


Observe the drip chamber for flow.

Titrating Infusions on the Sigma Pump

1

- Select “titrate”
- The current dose will appear in a grey box. Dosage limits appear at the left of the box.



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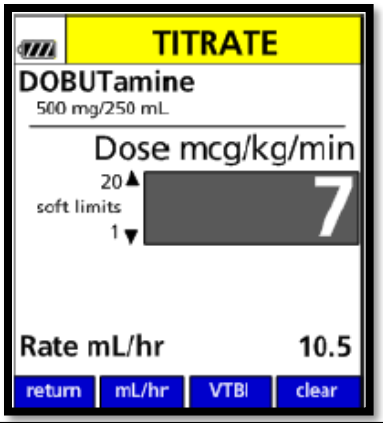


- Use the number pad to select a new dose.
- Press “OK” to accept.
- If your selection exceeds soft limits, an alert will prompt you to accept the new value or return to the prior value.
- The pump will not allow you to exceed hard limits.

Additional Functions on the Sigma Pump

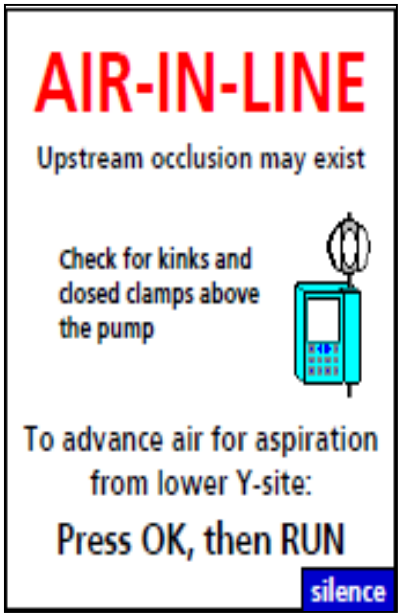
- Select “Review” to review:
  - current dose
  - rate
  - volume left to be infused
  - time left for infusion
  - volume given

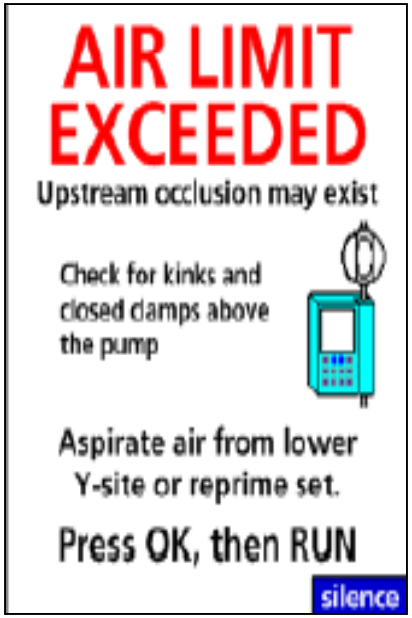
- Selecting “options” will open the settings for alarm volume and display.
- The default settings should be kept for consistency.

Stopping an Infusion

- You can stop an infusion at any time by simply pressing “RUN/STOP”.
- If you need to stop an infusion to change to obtain additional IV access or for longer than two minutes:
    - Press “RUN/STOP”
    - Then shut off the pump by pressing “ON/OFF”
    - When you turn the pump back on, the pump will ask if this is a new patient.
    - Select “No” to resume the current programmed infusion.

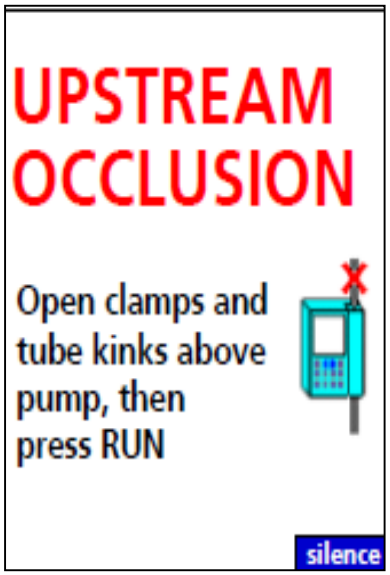
Alarms on the Sigma Pump

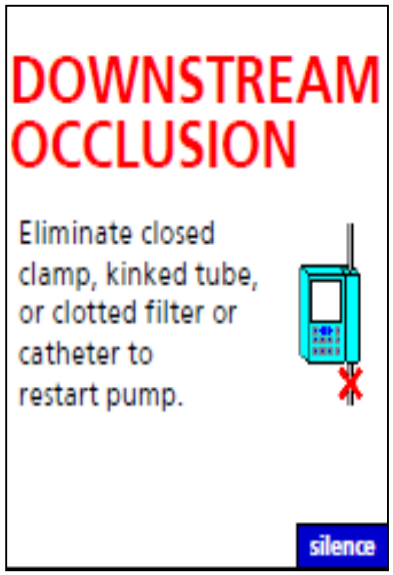




Each alarm will tell you what the problem is and how to fix it.

Alarms on the Sigma Pump

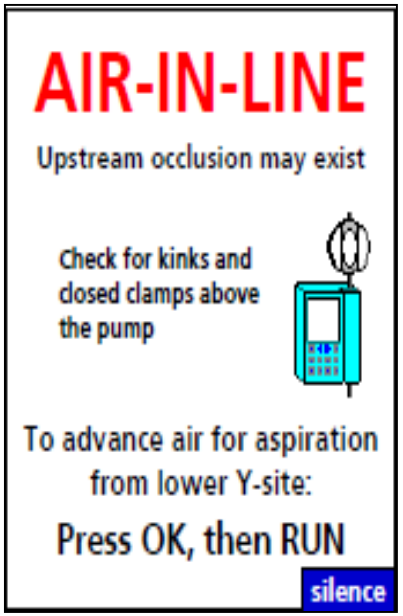


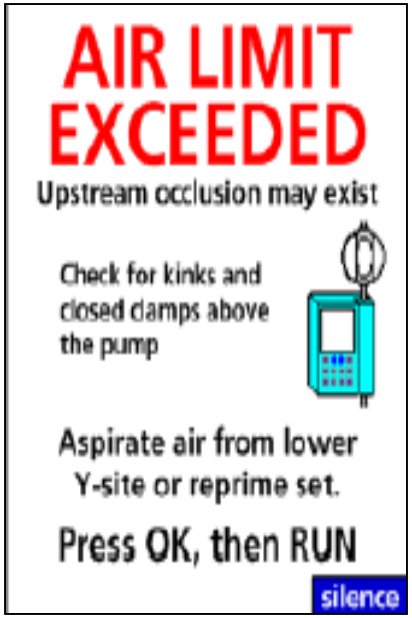


"DOWNSTREAM OCCLUSION"
Additional causes:

- Antecubital IV line with arm bent
- Positional IV
- ***Will not alarm if IV is infiltrating!***

Alarms on the Sigma Pump





Each alarm will tell you what the problem is and how to fix it.

Tips for Using the Smart Pump

- Always plug-in the pump when an outlet is available.
  - The battery takes a long time to recharge with enough power to hold during a transfer.
- Always select pre-programmed medications. Avoid basic mode.
  - Basic mode leads to greater risk of human error.
- Keep the roller clamp closed until you are ready to start your infusion.
  - When adjusting the tubing/pump, an open roller clamp can lead to an unintentional bolus.