

# Syringe pump



**Lets ask you what do you know  
about our topic**



## Introduction

Researchers originally developed infusion pumps, of which syringe pumps are one type, for controlled drug delivery .

its a small infusion pump (some include infuse and withdraw capability), used to gradually administer small amounts of fluid (with or without medication) to a patient.



# Definition



It's a small, lightweight, battery operated, portable pump, used to administer medications to the pt. slowly and steadily over a period of time, usually 24 hours.



# Equipment

- The syringe that is connected to the Syringe Pump is filled with prescribed medication.
- Solution set.
- Gloves.
- Adhesive tab.
- Record.

## How will the Syringe Pump be connected to the pt.?

- \* Liquid medication is put into a syringe.
- \* Then a long thin tube, with a tiny needle at the other end, is connected to it.
- \* The nurse will insert the needle just under the skin.
- \* They will put a clear dressing over the cannula to keep it clean, dry and in place.



# Indication

- Intravenous, intra-arterial, enteral, subcutaneous, and epidural infusion of medications or fluids requiring continuous delivery at controlled infusion rates.
- continuous infusion of a local anesthetic directly into the intraoperative site for postoperative pain management.



# Procedure Steps:





Steps	Rational
<b>Wash hands</b>	To minimize risk of infection .
<b>Check medication order.</b>	To prevent dosage errors.
<b>Prepare necessary equipment.</b>	To save time and effort.
<b>Explain procedure to the pt.</b>	To gain his cooperation and reassure him.

**Calculates the hourly infusion rate by dividing the volume to be infused by the number of hours it is to be infused.**

**To give pt right prescribed dose at right time and maintain prescribed rate .**

**Verifies the calculation.**

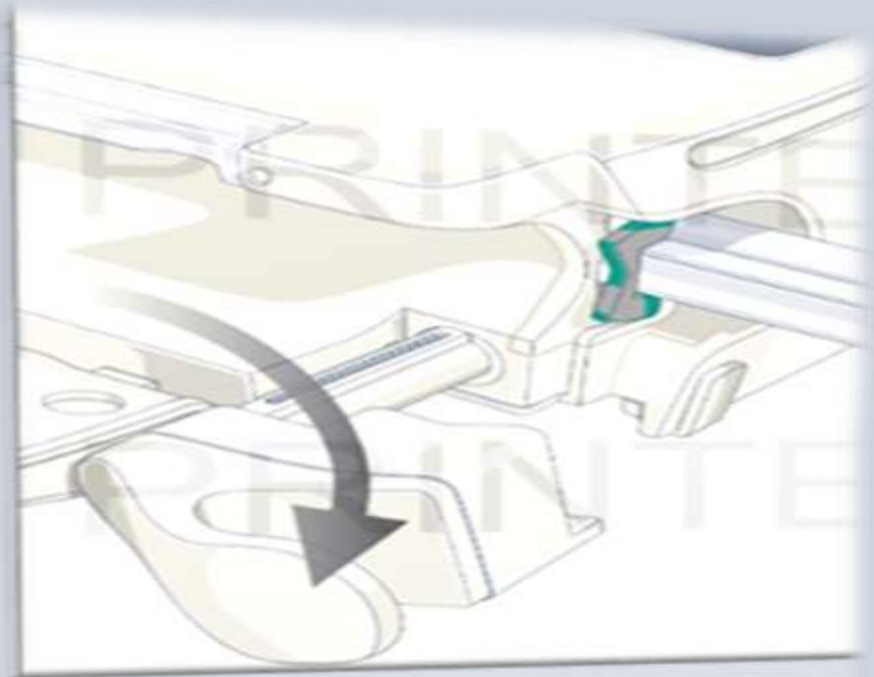
To avoid any mistakes.

**Turns on the Syringe pump ( plugs it into the nearest electrical outlet and press the start button ).**

an automatic self-test will start .



Open front cover and syringe holder by gently pulling and turning to the right



Insert an appropriate labeled syringe with the syringe wings positioned in the slot (open) to the right of the housing.

To ensure right position. (ensure that the syringe graduated markings are facing outwards).

Gently close the syringe holder and front cover.

Programs the pump with the prescribed infusion rate (hourly rate) and the volume to be infused (usually the total amount in the IV bag). To start infusion.



Inspects the tubing for the presence of air. If air bubbles remain in the tubing, flicks the tubing with a fingernail to mobilize the bubbles.

connects the syringe pump tube ( extension tube) to pt. patent IV access .

Ensures that all alarms are turned on and audible.

Checks the syringe pump hourly to make sure the correct volume is infusion.



## **The end of infusion:**

- ✓ **Press stop to cease infusion - the green LED will disappear.**
- ✓ **Disconnect the extension tube) from patient's IV access.**
- ✓ **Open front cover.**
- ✓ **Open syringe holder by gently pulling and turning right.**
- ✓ **Remove the syringe, move syringe holder into an upright position and close the front door.**
- ✓ **Press close button for 3 seconds to switch the pump off - the driver will move into the park position.**

**At end of shift (or at the time specified by the agency),**

**stop or clears the syringe pump of the volume infused and records the volume on the I&O form.( according to hospital policy).**

**Collect and return equipment ( dispose of unnecessary equipment)**

**Wash hands.**

**Record date, time, dose of medication, route and pt response.**



how you can dell with the  
alarm ?







## 4.2 Alarm conditions

When the pump detects a problem, four things occur:

1. The infusion stops
2. An audible alarm is activated
3. A message appears on the display screen indicating the cause of the alarm
4. The LED indicator turns red

There are seven possible alarms. The following table indicates the appropriate action for each situation:

Alarm	Probable Cause	Action
Occlusion/Syringe Empty	Administration set blocked	Replace administration set, re-site and resume infusion
	Tubing occluded (kinked or trapped)	Clear the occlusion
	Actuator has reached minimum travel position	Turn pump off
Syringe Displaced	One or more of syringe detection sensors is not detecting the syringe due to syringe being removed or displaced	Check syringe and reseal as necessary
Pump Paused Too Long	Programming not completed and/or pump left in 'stop' mode with no keypad presses detected for 2 minutes	Start the infusion, continue programming or turn pump off if not needed

Alarm	Probable Cause	Action
Near End	Infusion will end in approximately 40-45 minutes	Prepare to change the syringe or turn pump off if not needed
End Program	Infusion is complete	As above
Low battery	Battery is almost depleted (30 minutes left)	Prepare to change battery
End battery	Battery is depleted	Change battery

THANK

YOU!