PROMETRA® 20 mL

PROGRAMMABLE PUMP (REF 11827)

For use with Intrathecal Catheter

MR Conditional

Caution: Federal Law (USA) restricts this device to sale by or on the order of a physician.

Table of Contents

Introduction

The Prometra Programmable Pump is designed to provide controlled delivery of Infumorph® to the intrathecal space via the separately supplied Intrathecal Catheter. The Prometra Programmer is a separately supplied handheld, menu-driven device that enables remote programming of the Prometra Pump.

Note: The use of the terms “medication” and “drug” throughout this document refer to the use of Infumorph.

Contents

The following components are sterile and non-pyrogenic:

- 1 – Prometra Programmable Pump
- 1 – Needle, Non-Coring, 0.7 mm (22G) x 38 mm (1.5 in.)
- 1 – Needle, Catheter Access, 0.9 mm (20G) x 45 mm (1.75 in.)

Non-sterile components:

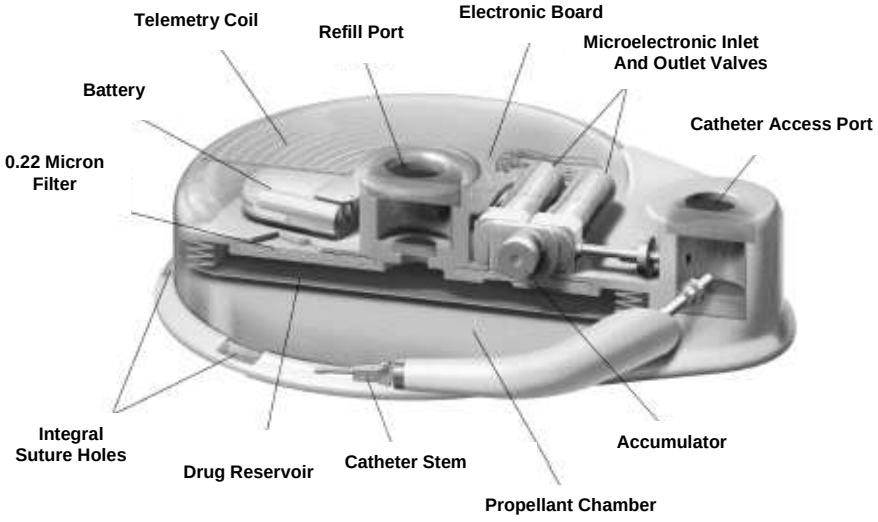
- 1 – Patient and Physician Information Packet:
  - 1 – Instructions for Use
  - 1 – Calculations Guide
  - 1 – Patient Guide
  - 2 – Temporary Patient Implant Cards
  - 1 – Sheet of Device ID Stickers
  - 1 – Patient Device Tracking Form
  - 1 – Warranty Card

Description

The Prometra Pump is a battery-powered, teardrop-shaped pump with a rigid titanium housing and a triple redundancy flow controller system.

The triple redundancy flow control system is designed to provide a precise and accurate flow rate. The flow rate accuracy is independent of normal operating environmental conditions such as altitude, temperature and reservoir volume.

Once implanted, the device can be identified by using the programmer to inquire the system. If a programmer is not available, the shape of the pump, tear drop access port and raised refill port provide features distinct to the Prometra pump for easy identification.



Specifications of the Prometra Programmable Pump are:

Device Longevity	
Pump	10 years at 0.25 mL/day
Septum (Refill and CAP)	1000 punctures maximum
External Properties	
Material	Titanium Polyphenylsulfone access ports
Thickness (nominal)	20 mm
Diameter (excluding CAP)	69 mm
Average Volume Displacement	100 mL
Weight, unfilled	150 g
Drug Reservoir	
Material	Titanium
Usable Capacity	20 mL
Precision Dosing System	
Material	Titanium MP35N alloy Stainless steel Silicone rubber
Refill Septum	
Septum material	Silicone rubber
Access needle	Huber point, 22G non-coring needle
Catheter Access Septum	
Septum material	Silicone rubber
Access needle	Lancet point with side hole, 20G
Bacterial filter	
Material	Polyvinylidene fluoride
Pore size	0.22 micron
Flow Rate	
Range	0-28.8 mL/day
Accuracy	95.9-97.7% (90% confidence limit)
Refill Interval	Not more than 90 days

The pump is supplied with a Catheter Access needle and a non-coring Refill needle for priming the pump at implantation. The Patient Information packet contains a patient guide and two patient implant cards to be completed and given to the patient. Additionally, a federally-mandated patient device tracking form is included.

Indications

The Prometra Programmable Infusion System is indicated for intrathecal infusion of Infumorph® (preservative-free morphine sulfate sterile solution) or preservative-free sterile 0.9% saline solution (Sodium Chloride Injection, USP).

Drug Information

Refer to the Infumorph labeling for a complete list of indications, contraindications, warnings, precautions, dosage administration information and screening procedures

Contraindications

Implantation of this device is contraindicated when:

- The presence of infection is known or suspected.
- The patient's body size or anatomy is insufficient to accommodate the size of the implanted pump or catheter.
- The pump cannot be implanted 2.5 cm (1 in.) or less from the surface of the skin. Deeper implants could interfere with septum access or telemetry.
- The patient is known or is suspected to be allergic to materials contained in the catheter: silicone elastomers, barium sulfate, tungsten, polyacetal resin, ink, stainless steel, hydroglide hydro gel coating, or plastic needle hubs (polypropylene and acrylic based).
- The patient is known or is suspected to be allergic to materials contained in the pump: titanium, silicone elastomers, polyphenylsulfone, silicone adhesive, polyvinylidene fluoride, MP35N metal (nickel-cobalt-chromium-molybdenum alloy), or stainless steel (AL29-4, 316L).
- The patient has exhibited a prior intolerance to implanted devices.
- The patient has a spinal column anatomy that would obstruct cerebrospinal fluid flow or that would prevent intraspinal drug administration.
- The patient has emotional, psychiatric or substance abuse problems that are deemed to prohibit intrathecal drug administration.
- Contraindications relating to Infumorph must be observed and followed per the approved drug labeling.

Warnings

General

WARNING: USE OF UNAPPROVED DRUGS (e.g., DRUG COCKTAILS, PHARMACY-COMPOUNDED DRUGS, MORPHINE WITH PRESERVATIVES, ETC.) WITH THE PROMETRA PUMP COULD RESULT IN PUMP FAILURE AND/OR SERIOUS ADVERSE EVENTS INCLUDING DEATH.

WARNING: FAILURE TO EMPTY THE PUMP PRIOR TO EXPOSURE TO MRI ENVIRONMENT COULD RESULT IN DRUG OVERDOSE THAT COULD LEAD TO SERIOUS PATIENT INJURY OR DEATH. THE PUMP MAY NEED TO HAVE AS MUCH AS 20ML OR 40ML OF DRUG REMOVED DEPENDING ON THE PUMP TYPE AND MODEL NUMBER.

- Prior to infusion of Infumorph into the catheter, medical personnel should be familiar with and observe all warnings, cautions, contraindications, and instructions as specified by the drug manufacturer.
- Patients should not undergo hyperbaric therapy since exposure could result in drug underdose.
- Always select and program dosages consistent with the Infumorph® labeling to prevent improper drug administration.
- In the event of over-medication, refer to the approved Infumorph labeling for appropriate treatment.
- Clinicians implanting, programming, accessing, or maintaining implanted programmable pumps must comply with the instructions for use. Technical errors may result in a return of underlying symptoms, drug withdrawal symptoms, or clinically significant or fatal overdose.
- The Prometra Programmable Pump components are supplied sterile and non-pyrogenic. The packages should be examined carefully prior to opening. Do not use the contents if there is any evidence of damage to the package or package seal that could compromise sterility. Do not resterilize contents of any damaged or opened packages.
- After use, this device is a biohazard. Handle and dispose of in accordance with accepted hospital practice and all applicable laws and regulations.
- Do not incinerate or cremate the pump.
- Do not expose the pump to temperatures above 57˚C (134.6˚F) or below 2˚C (35.6˚F).
- The patient has an occupation where he/she would be exposed to high current industrial equipment, powerful magnets or transmitting towers, such as, electricians, electrical engineers or MRI technicians.

Magnetic Resonance Imaging (MRI) Safety Information

Prometra® 20 mL (REF 11827), Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Programmable Pumps Magnetic Resonance Imaging (MRI) Instruction Guide

GENERAL

MR Conditional

WARNING: FAILURE TO EMPTY THE PUMP PRIOR TO EXPOSURE TO MRI ENVIRONMENT COULD RESULT IN DRUG OVERDOSE THAT COULD LEAD TO SERIOUS PATIENT INJURY OR DEATH. THE PUMP MAY NEED TO HAVE AS MUCH AS 20ML OR 40ML OF DRUG REMOVED DEPENDING ON THE PUMP TYPE AND MODEL NUMBER.

Warning: Patients should not be exposed to MRI environments until the surgical site following pump implantation is fully healed.

Warning: EMPTY ALL DRUG SOLUTION FROM ALL PROMETRA 20 ML (REF 11827), PROMETRA II 20 ML (REF 13827) AND PROMETRA II 40 ML (REF 16827) PUMPS PRIOR TO ENTERING THE MRI ENVIRONMENT. If a patient with a Prometra II 20 mL (REF 13827) or Prometra II 40 mL (REF 16827) Pump requires an emergent MRI, please see page 14 of these instructions for more details on the potential risks involved.

Strong magnetic fields, such as those created in MRI scanners, may cause the Inlet and Outlet Valves to open, resulting in the immediate discharge of the contents of the Drug Reservoir and Catheter into the patient. This could result in drug overdose that could lead to serious patient injury or death.

Prior to initiating the MRI procedure, the physician must determine if the patient can safely be deprived of medication for the length of the MRI procedure. If medication is needed, then alternate means of drug delivery (such as I.V. administration) should be employed for the duration of the MRI procedure.

WARNING: IF SUSPENDING INTRATHECAL DRUG THERAPY, ALTERNATIVE DRUG THERAPY ADMINISTRATION ROUTES (E.G., ORAL OR INTRAVENOUS) MAY BE NECESSARY. AN ALTERNATIVE ORAL OR PARENTERAL DOSE "EQUIVALENT" TO THE INTRATHECAL DOSE MAY RESULT IN SIDE EFFECTS THAT WARRANT TEMPORARY MONITORING IN AN EMERGENCY DEPARTMENT OR INPATIENT FACILITY.

Prior to scheduling an MRI scan and upon its completion, pump status should be confirmed by inquiring the pump to verify pump operation and settings.

Note: Pre-MRI, Post-MRI, and Medical Emergency Use instructions are provided in this document.

SCANNING PARAMETERS

Non-clinical testing has demonstrated that the Prometra 20 mL (REF 11827), Prometra II 20 mL (REF 13827), and Prometra II 40 mL (REF 16827) Programmable Pumps are MR Conditional. A patient with this device can be safely scanned in an MR system meeting the following conditions:

1. Static magnetic field of 1.5 T
2. Maximum spatial field gradient of 1,900 gauss/cm (19 T/m)

Warning: Exceeding the 1,900 gauss/cm (19T/m) at 1.5T limit could result in excessive force or torque which could lead to patient injury.

3. Maximum MR System reported, whole body averaged specific absorption rate (SAR) of 2 W/kg (Normal Operating Mode) using body coil transmission.
4. Scan duration should be limited to 10 minutes per pulse sequence
5. All Pre-MRI Instructions must be completed.

NOTE: The MRI conditions for safe scanning detailed in this document only pertain to the Prometra Pumps implanted in the abdomen. Testing has not been conducted in other implantation locations or in the presence of other implanted active or passive medical devices. Other implanted devices (such as pacemakers, abandoned leads, knee implants, etc.) could have conflicting MR conditions which could lead to patient injury or device malfunction.

Tissue Heating Adjacent to Implant during MR Scans

The local temperature increase produced by the pump is considered to be below level of concern. In the unlikely event that the patient experiences uncomfortable warmth near the pump, the MRI scan should be stopped and the scan parameters adjusted to reduce SAR to comfortable levels.

Warning: Static Magnetic Field
In a 1.5 Tesla MR environment, the pump has a significant magnetically induced deflection force and very strong torque. The static and gradient magnetic fields produced by an MRI scanner could potentially interact with the pump and cause vibration. However, when pumps are implanted with proper techniques, the patient may safely be scanned under the conditions listed above. Not following the specific conditions may result in serious patient injury. The patient may experience a tugging and/or vibration sensation at the implant site when placed within the magnetic field. An elastic garment or wrap will help restrict movement and reduce these sensations while the patient is in the magnetic field.

Image Artifacts

The programmable pump contains ferromagnetic components that will cause image distortion and localized voids in regions of the image around the pump. MR image quality will be compromised if the area of interest is near the pump.

In non-clinical testing, the image artifact caused by Flowonix Medical's Prometra II 20 mL (REF 13827) and Prometra II 40 mL (REF 16827) Pumps extends approximately 18.5 cm from the device when imaged with a spin-echo or gradient-echo pulse sequence in a 1.5 T MRI system. Image artifacts may be reduced when sequences are optimized for imaging (e.g. shorter echo time, decreased water fat shift, etc.). Images of the head and lower extremities away from the location of the Prometra Pump should be largely unaffected.

SPECIFIC PRE-MRI INSTRUCTIONS

WARNING: FAILURE TO EMPTY THE PUMP PRIOR TO EXPOSURE TO MRI ENVIRONMENT COULD RESULT IN DRUG OVERDOSE THAT COULD LEAD TO SERIOUS PATIENT INJURY OR DEATH. THE PUMP MAY NEED TO HAVE AS MUCH AS 20ML OR 40ML OF DRUG REMOVED DEPENDING ON THE PUMP TYPE AND MODEL NUMBER.

Prometra® 20 mL (REF 11827), Prometra® II 20 mL (REF 13827), and Prometra® II 40 mL (REF 16827) Programmable Pumps

Protocol for Prometra® 20 mL (REF 11827), Prometra® II 20mL (REF 13827), Prometra® II 40 mL (REF 16827) Programmable Pumps

Pre-MRI Procedure

Warning: EMPTY ALL DRUG SOLUTION FROM ALL PROMETRA 20 ML (REF 11827), PROMETRA II 20 ML (REF 13827), AND PROMETRA II 40 ML (REF 16827) PUMPS PRIOR TO ENTERING THE MRI ENVIRONMENT. If a patient with a Prometra II 20 mL (REF 13827) or Prometra II 40 mL (REF 16827) Pump requires an emergent MRI, please see page 14 of these instructions for more details on the potential risks involved.

Strong magnetic fields, such as those created in MRI scanners, may cause the Inlet and Outlet valves to open, resulting in the immediate discharge of the contents of the Drug Reservoir and Catheter into the patient. This could result in drug overdose that could lead to serious patient injury or death.

The physician must determine if the patient can safely be deprived of medication during the MRI procedure. If medication is needed then alternative means of drug delivery (such as I.V. administration or analgesic patch) should be employed.

IF AN MRI PROCEDURE IS NECESSARY, THE PUMP MUST BE EMPTIED of drug solution, not refilled and the PUMP PROGRAMMED TO 0.0 MG/DAY DRUG FLOW RATE prior to entering the environment of the MRI.

PERFORM THE FOLLOWING STEPS PRIOR TO ENTERING THE MRI ENVIRONMENT.

1. **Pump Inquiry**
   Inquire the pump with the programmer to verify pump model and volume, the pump is operational and without errors. Print inquiry page.

NOTE: If the Clinician Programmer repeatedly displays the message “Pump Communication Failed. Please try again”, the Programmer software version may not be compatible with the pump model. In the event that a Programmer is confirmed to not be compatible with the pump model, Flowonix

Technical Solutions will provide instructions to empty the drug reservoir prior to an MRI without performing additional pump programming. Prior to emptying the drug reservoir, the physician must determine if the patient can safely be deprived of medication until the post-MRI procedure can be completed with a Programmer that is compatible with the pump model. An alternate means of drug delivery (such as IV administration or oral drug therapy) should be employed, if medically necessary, while the pump is not delivering drug therapy. Please contact Flowonix Technical Solutions for assistance at: 855-356-9665.

WARNING: IF PUMP STATUS CANNOT BE PROPERLY CONFIRMED, DO NOT PROCEED SINCE THE PUMP MAY NOT BE OPERATING PROPERLY OR THE PROGRAMMER SOFTWARE MAY NOT BE COMPATIBLE WITH THE PUMP. PLEASE CONTACT FLOWONIX TECHNICAL SOLUTIONS FOR ASSISTANCE AT: 855-356-9665.

2. **Pump Programming**
   Set the flow mode to a constant flow rate of 0.0 mg/day. Re-inquire the pump and print inquiry page to confirm a constant flow rate of 0.0 mg/day.

3. **Empty Drug Reservoir**
   Follow the procedures for emptying the Drug Reservoir in the Refill Kit Instructions for Use. Be sure to recall the maximum volume of the pump, which may be either 20mL or 40mL, depending on the pump type and model.

SPECIFIC POST-MRI INSTRUCTIONS

Protocol for Prometra® 20mL (REF 11827), Prometra® II 20mL (REF 13827), and Prometra® II 40 mL (REF 16827) Programmable Pumps

Post-MRI Procedure

1. **Confirm Pump Operational Status –**
   a. Inquire the pump with the programmer to verify pump operation and settings.
   b. Confirm that settings are unchanged from the Pre-MRI settings, e.g., flow rate must be 0.0 mg/day.
   c. If the programmer displays any pump errors, proceed to Step 2 "Clear Pump Errors".
   d. If no pump errors are displayed, proceed to Step 3 "Inlet and Outlet Valve Closure Confirmation".

WARNING: IF PUMP STATUS CANNOT BE PROPERLY CONFIRMED, DO NOT PROCEED SINCE THE PUMP MAY NOT BE OPERATING PROPERLY OR THE PROGRAMMER SOFTWARE MAY NOT BE COMPATIBLE WITH THE PUMP. PLEASE CONTACT FLOWONIX TECHNICAL SOLUTIONS FOR ASSISTANCE AT: 855-356-9665.

2. **Clear Pump Errors**
   a. If pump errors are displayed from the Inquiry performed in Step 1, perform an Emergency Pump Stop using the programmer, and contact Flowonix Technical Solutions for assistance 855-356-9665.
   b. If pump errors are cleared, proceed to Step 3.

3. **Confirm Inlet / Outlet Valve Closure**
   a. Attempt to aspirate the Drug Reservoir through the Refill Port. To aspirate, attach the 22G non-coring needle (available in Refill Kit) to a sterile syringe.
   b. Advance needle through center Refill Port Septum until needle tip resides completely inside the Drug Reservoir.
   c. Pull a vacuum with the syringe for approximately 10 to 30 seconds to confirm Inlet / Outlet Valve closure.

Warning: If any significant volume (>1ml) is retrieved, it may be indicative that the pump Inlet / Outlet Valves are open, providing direct access to the catheter/cerebral spinal fluid; If so, DO NOT proceed with the refill since the pump may not be operating properly. The pump may need to be explanted and replaced. For questions, Contact Flowonix Technical Solutions for assistance at: 855-356-9665.

4. **Refill The Drug Reservoir**
   a. Proceed to refill the Drug Reservoir in accordance with the refill procedure defined in the Refill Kit Instructions for Use. Be sure to recall the maximum volume of the pump, which may

be either 20mL or 40mL, depending on the pump type and model.

b. Confirm the correct prescription is programmed, or program a new prescription.

Warning: A period of observation should follow the Refill Procedure to closely monitor patients for clinical symptoms of underdose or overdose based upon Infumorph's prescribing information.

IN THE EVENT OF A MEDICAL EMERGENCY REQUIRING AN MRI SCAN:

Prometra® 20mL Programmable Pump (REF 11827)

Medication **MUST** be removed from the Prometra® 20 mL Pump (REF 11827). Do not expose patient to MRI magnetic fields with drug in the Prometra Drug Reservoir, even in the event of a medical emergency. Follow instructions above (Pre-MRI) for removing drug from the Prometra Pump.

WARNING: FAILURE TO EMPTY THE PUMP PRIOR TO EXPOSURE TO MRI ENVIRONMENT COULD RESULT IN DRUG OVERDOSE THAT COULD LEAD TO SERIOUS PATIENT INJURY OR DEATH.

Prometra® II 20mL (REF 13827) and Prometra® II 40 mL (REF 16827) Programmable Pumps

In the event of a medical emergency requiring a STAT MRI, the treating physician must be aware of the following as inputs to decision making regarding proceeding with an Emergency MRI for the Prometra II 20mL Pump (REF 13827) and the Prometra II 40mL Pump (REF 16827):

WARNING: FAILURE TO EMPTY THE PUMP PRIOR TO EXPOSURE TO MRI ENVIRONMENT COULD RESULT IN DRUG OVERDOSE THAT COULD LEAD TO SERIOUS PATIENT INJURY OR DEATH. THE PUMP MAY NEED TO HAVE AS MUCH AS 20ML OR 40ML OF DRUG REMOVED DEPENDING ON THE PUMP TYPE AND MODEL NUMBER.

WARNING: In the event an MRI scan was performed on a patient with a **Prometra® II 20 mL (REF 13827) or Prometra® II 40 mL (REF 16827) Pump** where the drug was NOT removed due to a medical emergency situation, the **Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps** contain a Flow Activated Valve (FAV) intended to reduce, but not eliminate, the risk of drug overdose. A physician must evaluate the patient immediately for signs and symptoms of drug overdose and develop a plan for immediate monitoring in a medically supervised and adequately equipped environment. Resuscitative equipment should be available, as should medications to manage drug overdose.

FLOWONIX STRONGLY RECOMMENDS THAT ALL DRUG BE REMOVED FROM THE PROMETRA® II 20 ML (REF 13827) AND PROMETRA® II 40 ML (REF 16827) DRUG RESERVOIRS PRIOR TO ANY MRI SCAN.

The Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps include a Flow Activated Valve (FAV) intended to reduce, but not eliminate, the risk of drug over-infusion during an MRI procedure.

If the Drug Reservoir volume is ≤1mL or expected to be ≤1mL at the time of the Emergency MRI scan, do not proceed with an Emergency MRI scan without first emptying the drug from the Reservoir, If there is ≤1mL of drug in **the Reservoir, the drug must be removed prior to the Emergency MRI procedure. When the Reservoir volume is at < 1 mL, the FAV may not close.** Thus, the drug within the Reservoir may be bolused to the patient. This could result in drug overdose that could lead to serious patient injury or death. To determine the volume of drug in the Reservoir, inquire the pump with a Prometra® Programmer. The Reservoir volume is shown on the inquiry screens. **If a Programmer is not available, then all drug must be removed from the Drug Reservoir prior to the Emergency MRI scan.**

The Flow Activated Valve (FAV) of the Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps is intended to shut off drug flow when exposed to strong magnetic fields. When this occurs a small amount of drug, ≤10 µL, will be delivered to the patient. **The physician must determine if the patient can safely receive this 10 µL bolus dose during the Emergency MRI procedure[1].** If not, then all drug must be completely emptied from the Drug Reservoir prior to the Emergency MRI procedure.

NOTE: For a pump containing Infumorph® at a concentration of 25 mg/mL, a bolus dose of < 0.25 mg would be delivered to the patient during an Emergency MRI procedure if the drug was not removed from the Drug Reservoir prior to the MRI.

Following an MRI, the FAV will be closed, and will prevent further drug delivery to occur until the pump is manually reset after the completion of the MRI procedure. **The physician must determine if the patient can safely be deprived of medication until the FAV is reset after the MRI procedure.** If medication is needed, then alternate means of drug delivery (such as I.V. administration or analgesic patch) should be employed keeping in mind that the patient will be receiving up to a 10 µL bolus of drug during the Emergency MRI if drug was not removed from the Reservoir prior to the MRI procedure.

In the event that an Emergency MRI scan was performed on a patient with a Prometra® II 20 mL (REF 13827) or Prometra® II 40 mL (REF 16827) pump in which the drug was NOT removed due to a medical emergency situation, the FAV must be reset by performing a reset procedure.

[1]Per Deer et al., Polyanalygesic Consensus Conference 2012: Recommendation for the Management of Pain by Intrathecal (Intraspinal) Drug Delivery: Report of an Interdisciplinary Expert Panel, bolus doses of 5%-20% of the daily dose are typical, but cautions that doses are additive to baseline infusion and cumulative side effects could occur.

Emergency Procedure PRE-MRI Steps for Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps

1. **Pump Inquiry**
   a. Inquire the pump with the programmer to verify pump model and volume, the pump is operational and without errors.
   b. Verify that more than 1mL of drug is present in the Drug Reservoir.
   c. Print inquiry page.

NOTE: If the Clinician Programmer repeatedly displays the message "Pump Communication Failed. Please try again", the Programmer software version may not be compatible with the pump model. In the event that a Programmer is confirmed to not be compatible with the pump model, Flowonix Technical Solutions will provide instructions to empty the drug reservoir prior to an MRI without performing additional pump programming. Prior to emptying the drug reservoir, the physician must determine if the patient can safely be deprived of medication until the post-MRI procedure can be completed with a Programmer that is compatible with the pump model. An alternate means of drug delivery (such as IV administration or oral drug therapy) should be employed, if medically necessary, while the pump is not delivering drug therapy. Please contact Flowonix Technical Solutions for assistance at: 855-356-9665.

WARNING: IF PUMP STATUS CANNOT BE PROPERLY CONFIRMED, DO NOT PROCEED SINCE THE PUMP MAY NOT BE OPERATING PROPERLY OR THE PROGRAMMER SOFTWARE MAY NOT BE COMPATIBLE WITH THE PUMP. PLEASE CONTACT FLOWONIX TECHNICAL SOLUTIONS FOR ASSISTANCE AT: 855-356-9665.

2. **Pump Programming**
   a. Set the flow mode to a constant flow rate of 0.0 mg/day.
   b. Re-inquire the pump and print inquiry page to confirm a constant flow rate of 0.0 mg/day.

Emergency Procedure POST-MRI Steps for Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps

1. **Confirm Pump Operational Status –**
   a. Inquire the pump with the programmer to verify pump operation and settings.
   b. Confirm that settings are unchanged from the Pre-MRI settings, e.g., flow rate must be 0.0 mg/day.
   c. If the programmer displays any pump errors, proceed to Step 2 "Clear Pump Errors".
   d. If no pump errors are displayed, proceed to Step 3 "FAV Reset Procedure".

WARNING: IF PUMP STATUS CANNOT BE PROPERLY CONFIRMED, DO NOT PROCEED SINCE THE PUMP MAY NOT BE OPERATING PROPERLY OR THE PROGRAMMER SOFTWARE MAY NOT BE COMPATIBLE WITH THE PUMP. PLEASE CONTACT FLOWONIX TECHNICAL SOLUTIONS FOR ASSISTANCE AT: 855-356-9665.

2. **Clear Pump Errors**
   a. If pump errors are displayed from the Inquiry performed in Step 1, perform an Emergency Pump Stop using the programmer, and contact Flowonix Technical Solutions for assistance 855-356-9665.
   b. If pump errors are cleared, proceed to Step 3.

3. **FAV Reset Procedure**
   a. Remove drug from Drug Reservoir by aspirating through the Refill Port.
   b. To aspirate, attach the 22G non-coring needle to a syringe barrel (available in Refill Kit).
   c. Advance needle through the center Refill Port Septum until needle tip resides completely inside the Drug Reservoir.
   d. Empty the Drug Reservoir until there is no more fluid returning to the syringe barrel. Be sure to recall the maximum volume of the pump which may be either 20mL or 40mL, depending on the pump type and model. (Refer to Refill Kit Instructions for Use for further details on emptying the pump).
   e. After ensuring the Drug Reservoir is fully empty, program a Demand Bolus to deliver (0.03 mL x concentration) over 2 minutes (this will not dispense drug since the Drug Reservoir is empty).
   f. Wait for the 2-minute Demand Bolus to complete before proceeding.

4. **Confirm Inlet / Outlet Valve Closure**
   a. Attempt to aspirate the Drug Reservoir through the Refill Port. To aspirate, attach a sterile syringe to the 22G non-coring needle used in Step 3c above.
   b. Pull a vacuum with the syringe for approximately 10 to 30 seconds to confirm Inlet / Outlet Valve closure.

Warning: If any significant volume (>1ml) is retrieved, it may be indicative that the pump Inlet / Outlet Valves are open, providing direct access to the catheter/cerebral spinal fluid; If so, DO NOT proceed with the refill since the pump may not be operating properly. The pump may need to be explanted and replaced.

For questions, Contact Flowonix Technical Solutions for assistance at: 855-356-9665.

5. **Refill The Drug Reservoir**
   a. Proceed to refill the Drug Reservoir in accordance with the refill procedure defined in the Refill Kit Instructions for Use. Be sure to recall the maximum volume of the pump which may be either 20mL or 40mL, depending on the pump type and model.

b. Confirm the correct prescription is programmed, or program a new prescription.

Warning: A period of observation should follow the Refill Procedure to closely monitor patients for clinical symptoms of underdose or overdose based upon Infumorph's prescribing information.

Pump Model and Volume Determination

To identify the pump model and volume prior to an Emergency MRI scan use the following methods:

- **Inquiry by programmer:** See tables below for information on pump compatibility and pump model information displayed on the Inquiry Screen for Prometra Clinician Programmers (REF 12828 and REF 13828). Contact Flowonix Technical Solutions at 855-356-9665 if you require access to a Flowonix Clinician Programmer with upgraded software.

Pump Compatibility with Clinician Programmer Software Versions		
	Clinician Programmer software version 2.01.5	Clinician Programmer software versions 1.02.1, 1.03.2, 1.04.10, 2.00.29, 2.00.30
Prometra 20 mL (REF 11827	✓	✓
Prometra II 20mL (REF 13827)	✓	✓
Prometra II 40 mL (REF 16827)	✓	Not compatible, programmer displays "Communication Failed. Please try again"

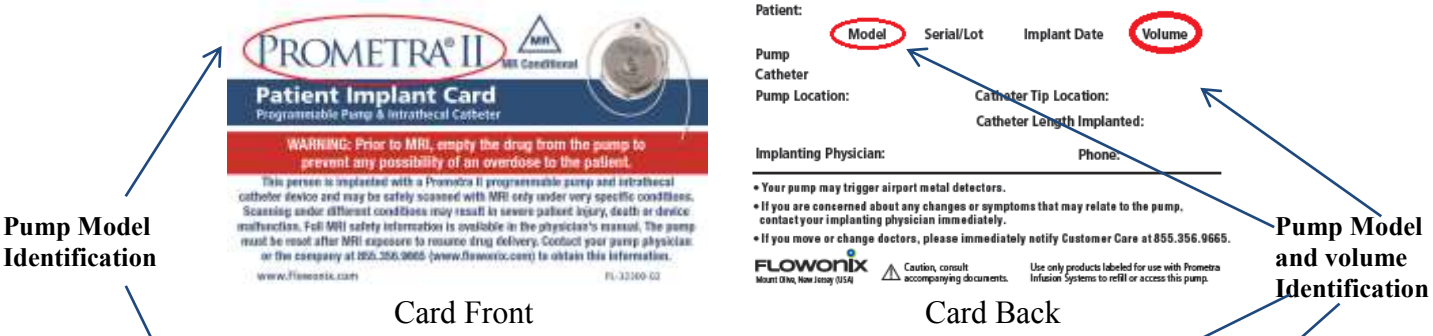
"Pump Model" Information Displayed on Inquiry Screen for Clinician Programmer Software Versions		
	Clinician Programmer software version 2.01.5	Clinician Programmer software versions 1.02.1, 1.03.2, 1.04.10, 2.00.29, 2.00.30
Prometra 20 mL (REF 11827	Prometra 20 mL	Prometra
Prometra II 20 mL (REF 13827)	Prometra II 20 mL	Prometra II
Prometra II 40 mL (REF 16827)	Prometra II 40 mL	Programmer displays "Communication Failed. Please try again." The Inquiry Screen is not displayed.

- **Patient ID Card:** Identifies the pump model as **Prometra®** (Model # **11827, 20 mL Volume**), **Prometra® II** (Model # **13827, 20 mL Volume**) or **Prometra® II** (Model # **16827, 40 mL Volume**) as noted in the examples on the following page.

- **Note:** Patients with **Prometra® 20 mL (REF 11827), Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps** also have Medical Alert bracelets that indicate that the pump must be emptied prior to an MRI.

- **Contact patient's pump management physician:** The patient's medical records indicate the pump model and serial number implanted. **Flowonix provides medical chart labels to facilitate patient record documentation.**
- **Pump serial number:** There is a distinct difference in the serial numbers for the Prometra® 20 mL (REF 11827) Pump versus the Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps. The Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) pumps' serial number ends with an X, while the Prometra® 20 mL (REF 11827) Pump's serial number ends with a number.
- **Contact Flowonix Technical Solutions at 855-356-9665:** Pump information may be determined from our patient registration system. **This number is staffed 24 hours a day.**
- **Perform an X-ray of the pump:** The Prometra® II 20 mL (REF 13827) and the Prometra® II 40 mL (REF 16827) pumps can be differentiated from the Prometra® 20 mL (REF 11827) Pump via X-rays as shown on the following page. The image of the Prometra® II 20 mL (REF 13827) and Prometra® II 40 mL (REF 16827) Pumps shows the addition of the flow-activated valve (FAV) within the Catheter Access Port.

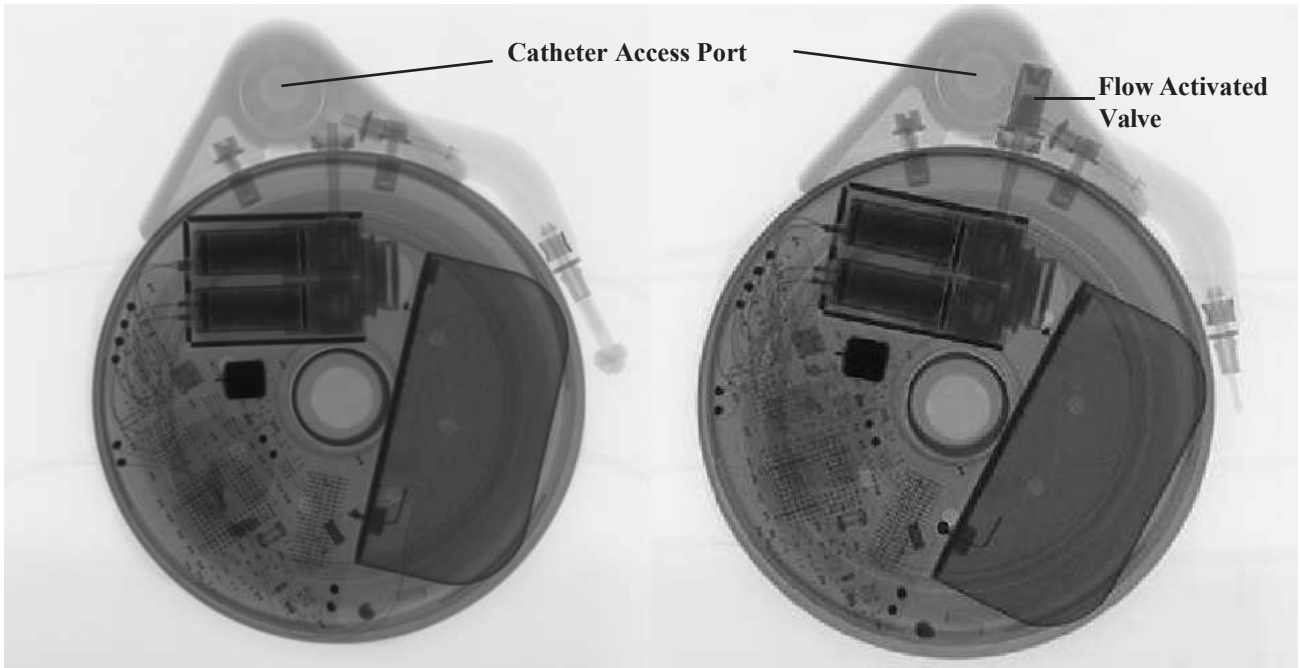
Prometra® II Pump Patient ID Card



Card Front Card Back

Prometra® Pump Patient ID Card

Card Front Card Back



Prometra® 20 mL (REF 11827) Pump X-ray **Prometra® II 20 mL (REF 13827) Pump X-ray**

Precautions

General

- Carefully read all instructions prior to use. Follow all instructions.
- Certain equipment may cause electrical noise, which may interfere with programming. If suspected, move the patient from the suspected source of interference to facilitate the programming procedure. Examples of equipment that may cause interference include cathode ray tube (CRT) monitors and large electric motors.
- Do not use accessories that are not referenced in these instructions for use. Only use devices and accessories that are referenced for use with the Prometra® Programmable Pump in these instructions.
- Safety and effectiveness for use in pediatric patients under 22 years old has not been investigated or established.
- The effects of implanting this device in patients with other implanted medical devices, other than neurostimulators, are unknown.
- Pain on injection that was not noted during previous injections may be an early sign of infection.

Implant

- Implantation of this device and subsequent use, reprogramming, and refill should only be conducted by qualified medical personnel specifically trained for surgical implantation, use, and maintenance of the device. Use of this device by non-qualified or untrained personnel could lead to serious consequences involving under- or over-dosage of Infumorph. In the event of over-dosage, refer to the approved Infumorph labeling for appropriate treatment.
- The pump and catheter system should be implanted carefully to avoid any sharp or acute angles, which could compromise the patency of the catheter lumen.
- Over-pressurization can damage the catheter. Small syringes can generate very high pressures and may damage the catheter or catheter connection. Do not use a syringe smaller than 10 mL when accessing the catheter access chamber.
- If therapy is discontinued for an extended period, the pump should be emptied of Infumorph and filled with a preservative-free 0.9% sterile saline solution and programmed to a low infusion rate to maintain catheter patency.

Device Compatibility

- **Pump accessories.** Only use the Prometra Programmable Pump with the accessories listed in these instructions for use. Use of alternate accessories may result in damage to Prometra components, less than adequate therapy, or increased risks to the patient.
- **Pump.** Only use with Prometra Programmer.
- **Alcohol.** Do not use alcohol on any part of the pump or catheter system. Alcohol is neurotoxic.
- **Contrast media.** Do not inject contrast media into the refill reservoir since this may damage the pump or impair pump function.

- **External devices.** Do not connect any external devices or pumps to the Prometra Pump. Pressures generated by an external pump could damage the implanted pump/catheter system and result in serious patient injury or death.
- **Therapeutic ultrasonics or lithotripsy -** Use of therapeutic ultrasonic devices, such as electrohydraulic lithotriptors, has not been tested on the Prometra pump. If lithotripsy must be used, do not focus the beam in proximity of the pump.
- **Medical devices**. The Prometra Programmer may affect other medical devices. Use or interference with medical devices, other than neurostimulators, has not been established.
- **Applied electric currents.** Interaction of the Prometra Pump with electric currents applied to the body such as cardioversion or defibrillation has not been established. Care must be exercised if the patient receives these treatments. Where practical, the pump should be turned off before application of electric currents to the patient's body. Confirmation that the pump programming has not changed must be carried out as soon as possible after the procedure.
- **Radiation.** Do not use radiation therapy in the area of the pump. The effects of ionizing radiation on the Prometra Pump have not been established, and these therapies may have effects on pump operation that are not immediately apparent.

Potential Adverse Events

The use of implanted pumps provides an important means of intrathecally delivering Infumorph. However, the potential exists for serious complications including the following:

Possible Risks Associated with Programmable Implantable Pump:

- Adverse reaction to pump materials
- Battery depletion
- Bleeding
- Body rejection phenomena
- Defective pump (e.g. propellant chamber leakage, pump rupture)
- Inability to locate septum
- Inability to program pump due to programmer failure or loss of telemetry
- Inflammation, necrosis, or scarring of skin over implant area
- Programming errors, resulting in over or under dosing
- Pump flipping or twisting
- Pump implanted too deep, resulting in difficulty accessing or inability to access port
- Pump migration
- Pump pocket pain/soreness
- Pump pocket seroma/hematoma, with or without infection
- Pump rotation
- Pump site skin erosion
- Pump stoppage
- Refill errors, including injection into pump pocket, injection into wrong port, incorrect volume, incorrect concentration, difficulty accessing pump port
- Septum dislodgement

- Septum leakage
- Slow, erratic or fast flow
- Software error

Possible Risks Associated with Intrathecal Catheter:
- Catheter disconnection
- Catheter kinking
- Catheter fracture
- Catheter migration (unrelated to surgical complication)
- Cerebrospinal fluid (CSF) leak
- Disconnection
- Erosion
- Fibrosis
- Infection in intrathecal space, including meningitis
- Inflammatory mass formation (e.g., granuloma)
- Malpositioning
- Nerve damage
- Pain on injection
- Poor radiopacity
- Post dural puncture headache
- Reaction to catheter materials
- Reversible or irreversible partial or complete occlusions
- Spinal cord pressure leading to paralysis
- Spinal cord trauma, perforation, laceration
- Subcutaneous catheter tract infection
- Subcutaneous tunnel infection
- Tears/breaks

In rare instances, the development of an inflammatory mass at the tip of the implanted catheter may occur, which can result in serious neurological impairment. Patients should be monitored carefully at each visit for any new neurological signs or symptoms, including:
- progressive change in the character, quality, or intensity of pain
- an increase in the level and degree of pain despite dose escalation
- sensory changes (i.e., numbness, tingling, burning)
- hyperesthesia and/or hyperalgesia

Presentations that require <u>immediate</u> diagnosis include
- bowel and/or bladder dysfunction
- myelopathy
- conus syndrome
- gait disturbances or difficulty ambulating
- paraparesis or paralysis

If the presence of an inflammatory mass is suspected, recommended evaluation should include a review of the patient history and neurological evaluation, radiological diagnostic procedures (such as a CT scan with contrast) and appropriate clinical consultation.

Inflammatory mass has been associated with a wide range of doses and concentrations of opioids. No dose or concentration of Infumorph can be considered completely free of risk from inflammatory mass. The risk of inflammatory mass occurrence appears to be cumulative over time and increases with higher concentrations and doses of opioids.

Clinical Studies

The performance and safety of the Prometra Pump was examined in an open-label, non-randomized, multi-center study. This study was designed to demonstrate the accuracy and safety of the pump's delivery of Infumorph into the intrathecal space.

The primary endpoint of the study was to demonstrate accuracy of drug delivery is within the range of 85-115% through six months post implantation. Additional endpoints evaluated the safety profile, as determined by the rate of device-related serious adverse events and device complications.

A total of 110 Patients enrolled in the study were implanted with the Prometra Pump. Patients eligible for enrollment were suffering from cancer pain requiring strong opioids, chronic, non-malignant pain, or required an implantable pump system replacement due to malfunction or battery depletion. The average patient age at implant was 56 years with 54% male and 46% female patients.

Patients were followed monthly for the first 6 months post implantation. During each monthly follow-up visit, the pump was refilled and infused volumes of medication were documented. Drug delivery accuracy and adverse events were documented at the monthly visits.

Results

The accuracy of drug delivery was found to be 96.8% with a 90% confidence interval of 95.5% - 97.7%. This met the required range of 85% - 115%.

Adverse Events reported during the study are shown in Table 1.

Table 1: Adverse Events Reported as Possibly, Probably, or Definitely Related to the Device or Study Procedure

System Organ Class	Preferred Term	N (%)
Gastrointestinal Disorders	Nausea	15 (14)
	Vomiting	8 (7)
General Disorders and Administration Site Conditions	Implant Site Pain	20 (18)
	Implant Site edema	11 (10)
	Implant Site Erythema	9 (8)
	Implant Site Swelling	4 (4)
	Pain	4 (4)
	Implant Site Inflammation	3 (3)

System Organ Class	Preferred Term	N (%)
	Drug Withdrawal Syndrome	2 (2)
	Implant Site Hemorrhage	2 (2)
	Pyrexia	2 (2)
	Tenderness	2 (2)
Infections and Infestations	Incision Site Infection	4 (4)
Injury, Poisoning and Procedural Complications	Procedural Pain	37 (34)
	Post Lumbar Puncture Syndrome	9 (8)
	Wound Secretion	9 (8)
	Seroma	4 (4)
	Wound Dehiscence	3 (3)
Musculoskeletal and Connective Tissue Disorders	Back Pain	2 (2)
	Pain in Extremity	2 (2)
Nervous System Disorders	Headache	8 (7)
	Dizziness	3 (3)
	Intracranial Hypotension	2 (2)
Skin and Subcutaneous Tissue Disorders	Dermatitis Contact	5 (5)
	Pruritus	2 (2)
	Scab	2 (2)
Surgical and Medical Procedures	Surgery[1]	10 (9)

[1] Surgery to replace or revise intrathecal catheter

Adverse Events with incidence of 1% or less. Tinnitus, Abdominal Pain, Constipation, Oral Mucosal Blistering, Catheter Site Edema, Implant Site Bruising, Implant Site Effusion, Implant Site Hypersensitivity, Implant Site Irritation, Implant Site Necrosis, Edema Peripheral, Hypersensitivity, Extradural Abscess, Implant Site Cellulitis, Spinal Infection Viral, Excoriation, Hip Fracture[2], Procedural Nausea, Balance Disorder, Burning Sensation, Diplegia, Hypoesthesia, Neuropathy Peripheral, Tremor, Dyspnea, Respiratory Depression, Ecchymosis, Rash, Hematoma.

[2]Event occurred while patient was being treated with a drug other than Infumorph via Prometra System

Equipment

- Prometra Programmable Pump
- Intrathecal Catheter
- Tunneler
- Prometra Programmer (Not Sterile)

The following items may be needed and are not provided:

- Sterile Programmer Sleeve
- Sterile preservative-free 0.9% saline
- Infumorph solution (infusate) for refill, not to exceed 20 mL

Pump Operation

Programmable Features

The Prometra Programmer uses telemetry to exchange information with the pump. This information includes the following:

- Date and Time
- Current Prescription
- Patient Identification
- Drug Name and Concentration
- Flow Mode, Drug Dose and Delivery Rate
- Pump Model and Serial Number
- Low Reservoir Setting and Alarm
- Low Battery Alarm
- Next Refill Date

The Prometra Programmer allows clinicians convenient, non-invasive access for interrogating and programming the implanted Prometra Pump. Refer to the Prometra Programmer Technical Manual for further information regarding pump programming.

Programming Medication Regimens

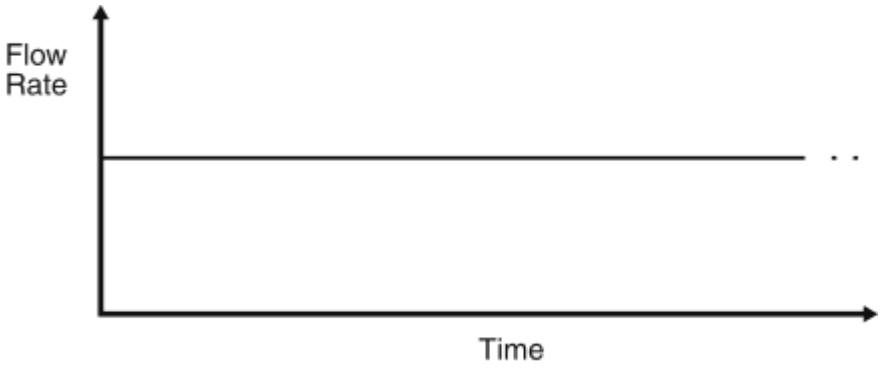
The Prometra Programmable Pump can be programmed to deliver a precise flow of medication at a constant or variable rate, or it can be set to periodically deliver a drug dosage at distinct intervals of time (i.e. Periodic Flow Mode). There is also an option to interrupt the pump's current medication regimen and deliver an immediate infusion of medication (Demand Bolus). Refer to the Prometra Programmer Technical Manual for further information regarding pump programming.

Warning: Implantation of the Prometra Programmable Pump System and subsequent use, reprogramming and refill should only be conducted by qualified medical personnel specifically trained for surgical implantation, use and maintenance of the device. Prescription of pump infusion regimens may only be conducted by physicians with a full understanding of the relationships between concentration, dose, and infusion rate. Use of this device by non-qualified or untrained personnel could lead to serious consequences involving under or over-medication. In the event of over-medication, refer to the approved Infumorph labeling for appropriate treatment.

The following illustrations describe the four basic medication regimens:

Constant Flow

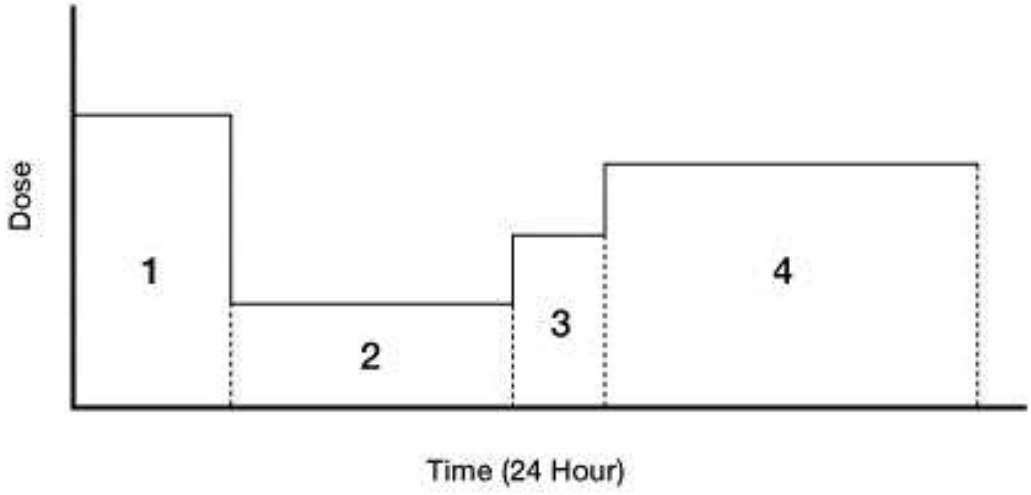
The Constant Flow regimen delivers a specific daily dose, e.g. mg/24 hr, of Infumorph at a constant flow rate dependent on its concentration.



Constant Flow Regimen

Multiple Rates

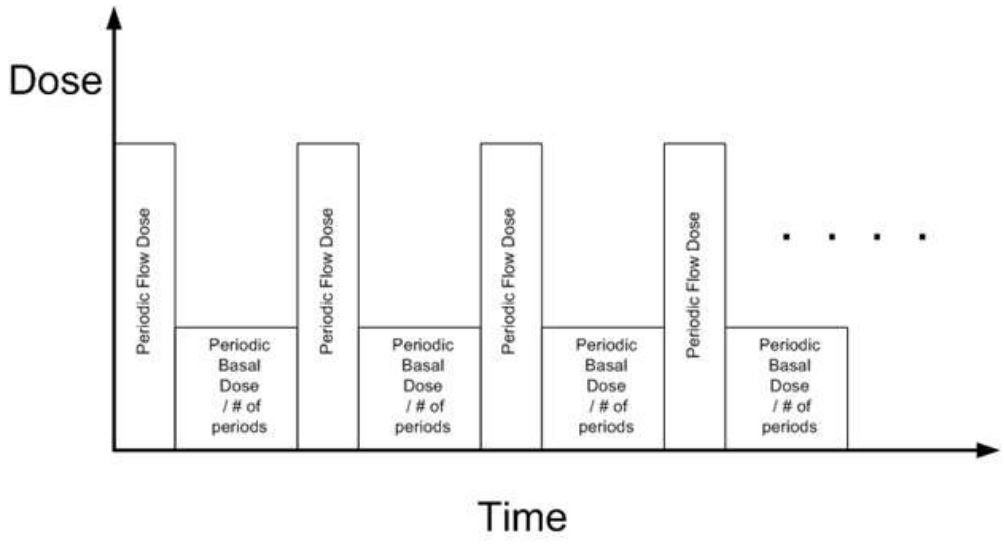
The Multiple Rates regimen delivers medication using one to four user-programmed rates that repeat daily. For each prescribed rate, the specific medication dose and time period is programmed.



Multiple Rates Regimen

Periodic Flow

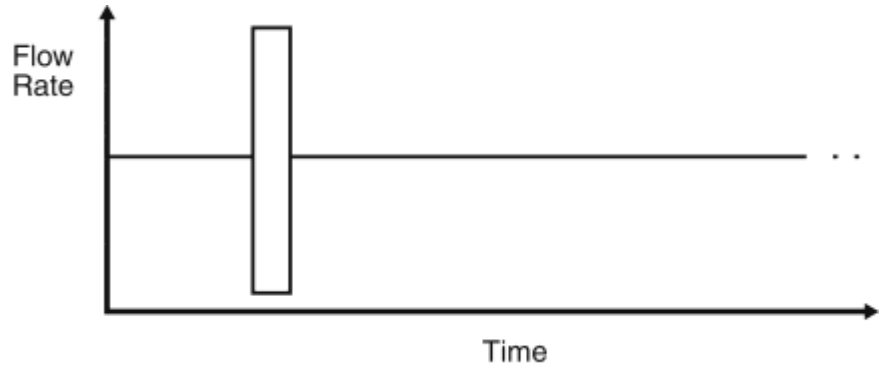
The Periodic Flow regimen delivers medication in a sequence of periodic infusions with a daily basal dose. The first periodic flow dose starts immediately upon programming. When the periodic infusion is not active, medication will be delivered according to the daily basal dose setting. The medication dose, the time over which the dose is delivered, and the interval at which the dose is repeated are programmed.



Periodic Flow Regimen

Demand Bolus

The Demand Bolus regimen temporarily replaces the current dose regimen to deliver an immediate, one-time infusion of medication. The medication dose and the time over which the dosage is delivered are programmed. Once the Demand Bolus is complete, the pump resumes its previously programmed regimen.



Demand Bolus Regimen

Pre-Programmed Pump Settings

When the Prometra Programmer inquires the Prometra Pump for the first time, the pump status screens display the pre-programmed pump settings. The clinician can change these presets using the programmer.

Parameter	Description	Data Preset
Patient	Name or code	No
Pump Model	Model of Pump	Yes, Prometra
Pump SN	Serial Number of Pump	Yes, pump specific

Parameter	Description	Data Preset
	(e.g., 36DA4A77)	
Pump Ver.	Current control software version (e.g. 1.02)	Yes, pump specific
Drug	Drug contained in pump	No, specified by user
Conc	Concentration of drug in pump	Yes, preset to 1.000 mg/mL
Accum	Accumulator Volume Constant (e.g. 2.010 µL)	Yes, pump specific
Reservoir Volume	Current estimated volume contained in reservoir	Yes, 00.0 mL
Low Res. Alarm	Alarm to indicate reservoir volume is low	Yes, to OFF
Low Res. Volume	Setting to actuate Low Reservoir Alarm	Yes, 2.0 mL
Battery	Pump battery charge status	No, reports condition, e.g. OK or Low
Flow Mode	Constant Flow, Multiple Rates, Periodic Flow or Demand Bolus	Yes, to Constant Flow
Next Refill	Date: month/day/year (mo/da/yr) Calculated by programmer, appears after refill is programmed	No
Daily Dose	Programmed daily dose (e.g. 2.005 mg)	Yes, to 0.000 mg

Pump Alarms

The Prometra Pump has two audible alarms that alert patients and clinicians to low reservoir volume and critical errors that cause the drug delivery to stop. All alarms use the same tone but can be distinguished from each other by the number of “beeps” in a group and the length of each beep.

Low Reservoir Alarm

The Low Reservoir Alarm warns patients when the medication in the pump reservoir gets below a certain volume. The pump signals a low volume condition by sounding two short (1/4 second) beeps every 30 minutes. The alarm continues to sound until turned off by telemetry using the Prometra Programmer or until a new volume of drug is programmed into the pump.

The Low Reservoir Alarm must be turned “On” and the threshold volume programmed using the Prometra Programmer. When pumps are shipped from the factory, the Low Reservoir Alarm is set to “Off”. For information on setting the low reservoir volume and enabling the alarm, refer to the Prometra Programmer Instructions.

Critical Error Alarm

The Critical Error Alarm alerts patients and clinicians that the pump has stopped delivering medication. The pump signals an error condition by sounding three long (1/2 second) beeps every 30 minutes. This

alarm occurs for any detected condition that results in the pump not delivering medication, including a low pump battery.

If due to a low battery, the alarm will continue to sound until the pump is explanted or until the battery power is depleted to a point that the pump can no longer communicate with the programmer. As the battery is further depleted, the alarm signal may convert to a continuous tone. If due to another error condition, the alarm continues to sound until a drug delivery schedule is programmed using the Prometra Programmer.

Each time the pump is inquired, the Prometra Programmer reads and displays the condition(s) causing the alarm to sound. The Prometra Programmer clears the error and attempts to restart the pump. If the error condition remains, the pump will restart the error alarm.

Implantation Instructions

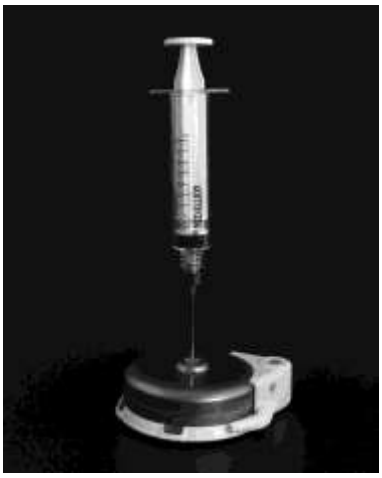
The implanting physician is responsible for choosing the surgical procedure, techniques, and the intended therapy for the patient. These instructions are provided as a guide.

Pre-Implant Pump Programming Set Up

Warning: Examine all packages carefully. If any package has been damaged or opened prior to use, do not use package contents. If the pump has been dropped onto a hard surface or shows signs of damage, do not implant. Do not re-sterilize any pump system components.

Warning: Make sure the Programmer is sealed in a Sterile Sleeve before approaching the sterile field.

1. Open the outer pump box and verify that the pump serial number on the pump matches that on the Patient Implant Card.
2. Place one of the pump labels on the patient implant card.
3. While the pump is still in the packaging and facing upward, turn the programmer on, press inquire and place the programmer over the pump.
4. From the Main Menu select Setup, Pump Setup, and then Patient Name.
5. Enter the patient's name using the select and navigation keys.
6. Transfer patient's name by placing the programmer over the pump.
7. Under Pump Setup, select low reservoir alarm and program the low reservoir alarm to the "ON" position at a level of 2.0 mL.
8. Verify that the daily dose limit is NOT enabled.
9. Program by placing the programmer over the pump while still in the inner box.
10. From the main menu select refill.
11. Enter the appropriate information (drug, concentration, refill volume) into each field and then program the pump.
12. Again, from the main menu select constant flow and continue to program in the physician's prescribed daily dose.
13. Pass the pump, catheter, and tunneler to the scrub nurse in sterile fashion.
14. Attach a sterile syringe filled with 5 mL of sterile preservative-free 0.9% saline solution to the 22G non-coring needle provided in the Prometra Pump tray.
15. Advance needle through center refill septum until needle tip resides completely inside the drug refill reservoir.



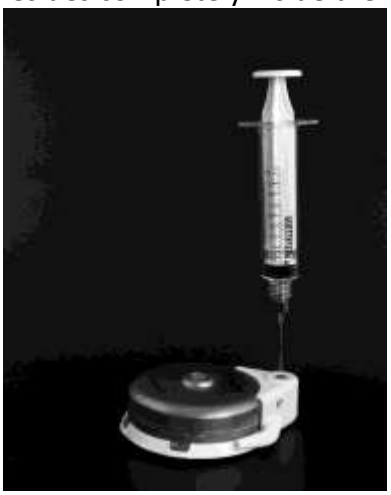
Caution: Do not force the needle. Excessive force on the needle may damage the needle tip. Do not rock the needle sideways as this could damage the septum or cause drug to leak from the reservoir.

16. Inject the 5 mL of sterile preservative-free 0.9% saline solution into the drug reservoir. Allow the saline solution to return from the pump reservoir into the empty syringe barrel.
    Note: Return volume may be more or less than the infused volume. If air is noted, repeat the priming procedure with another 5 mL of the sterile preservative-free 0.9% saline solution.
17. Remove the syringe from the needle.
    Note: Since some sterile saline will remain in the pump reservoir, the final concentration of drug varies based on the fill method. See the below table for the expected reduction in concentration.

Expected concentration of drug in pump reservoir based on fill method

Filling without rinsing	Rinsing with 20 mL of drug
87%	98%

18. If you are rinsing the pump before filling, rinse and discard the returned volume based on the fill method shown above.
19. Verify that the volume of infusate in the syringe does not exceed 20 mL, the maximum volume of the pump reservoir. Attach the syringe filled with the infusate to the 22G non-coring needle provided with the pump.
    Caution: When first filled, the Prometra Pump has a small amount (2-3ml) of sterile water in the pump. As a result, there is an approximate 13% dilution of drug in the initial filling of the 20mL drug reservoir.
20. Inject the infusate into the pump reservoir. Remove the needle and syringe assembly from the refill septum.
21. Remove and discard the knotted silicone rubber tubing from the pump stem.
22. Attach a syringe filled with 5 mL of sterile preservative free 0.9% saline to the 20G Catheter Access Port needle. Advance needle through the Catheter Access septum until needle tip resides completely inside the Catheter Access chamber.



23. Flush approximately 5 mL through the Catheter Access septum to remove air from the fluid pathway. Fluid will emerge from the pump stem. Remove the needle and syringe assembly from the Catheter Access chamber and discard.

Pump Priming Preparation

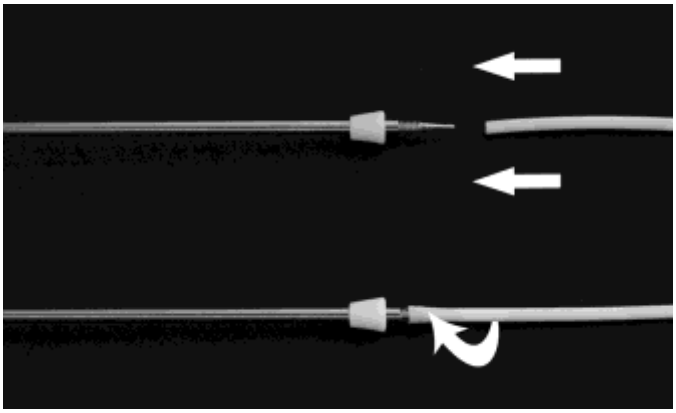
1. Upon completion of the Pump Programming Setup, in a sterile manner, program the pump for a Demand Bolus of 0.2 mg in 15 minutes using the preset concentration of 1 mg/mL, again following the prompts presented on the Prometra Programmer.
2. Verify that fluid beads form at the tip of the pump stem.
   Warning: Do not implant pump if fluid beads are not observed forming at the tip of the pump stem.
3. The pump is now ready for implantation.

Implantation of the Intrathecal Catheter

1. **Implant the Intrathecal Catheter as per the Prometra Programmable Infusion Systems Intrathecal Catheter IFU**.

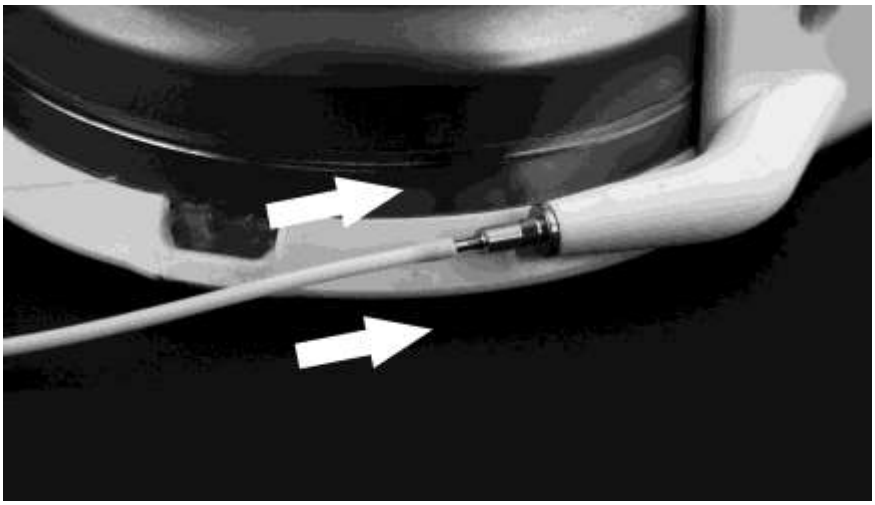
Implantation of the Prometra Programmable Pump

1. **USE STERILE TECHNIQUE**. Always inspect and aseptically prepare the site according to standard practice.
2. Form a subcutaneous pocket using standard technique ensuring snug fit for the pump. Do a trial placement to verify that the pocket is large enough to accommodate the pump and that the pump does not lie beneath the incision.
   Warning: Implant the pump 2.5 cm (1 in.) or less under the skin. Deeper implants could interfere with septum access or programming.
3. Create a subcutaneous tunnel using the Tunneler.
4. Push the catheter onto the tunneler until it stops, then turn catheter clockwise until it is fully threaded onto the tunneler.

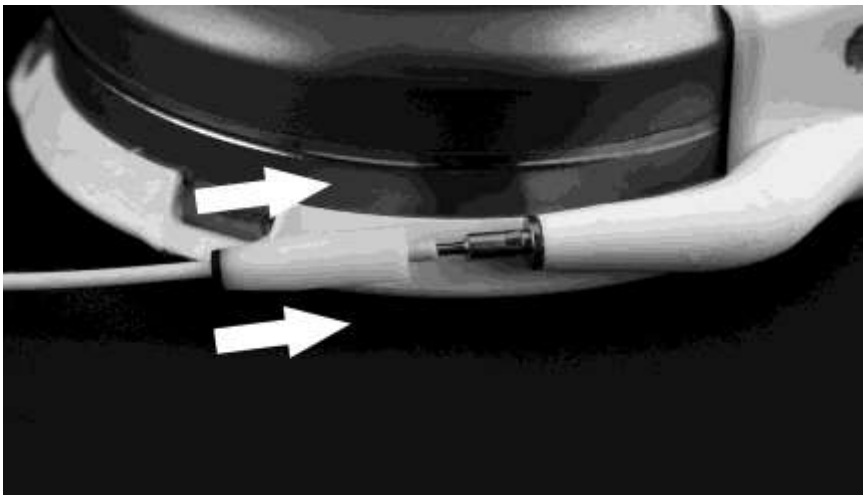


5. Insert the tunneler at the paravertebral incision site and advance the tunneler tip to the pump pocket site. If necessary, use a second tunneling procedure with a temporary exit in the plane of the midaxillary line.
   Warning: Do not puncture the skin or thoracic wall with the tip of the tunneler.

6. Trim the catheter to length at a 90˚ angle allowing sufficient slack for body movement, pump connection, and an additional 2-3 cm in case a pump reconnection is required. Always trim at least 5 cm from the proximal end of the catheter. Assure that the cut is straight and no catheter fragments are produced. Save the trimmed portion of the catheter – the measurement of this piece will be used to calculate the catheter implant volume.
   Caution: Always trim excess catheter length. Failure to trim excess length may result in catheter occlusion or kinking.
   Warning: Always save trimmed portion of catheter to measure length and calculate implanted catheter volume. This calculation is required to prevent under- or over-medication.
7. Slide catheter lock on to catheter with larger end towards the pump. Align pump stem with catheter lumen. Advance catheter over barb on pump stem to midway point.



   Warning: Prior to advancing the catheter lock, ensure that the catheter is properly positioned on the pump stem. The catheter must be straight with no sign of kinking prior to advancing the catheter lock. A slight pull on the catheter is sufficient to straighten it. Advancing the catheter lock over a kinked catheter may damage the catheter.
8. Advance the catheter lock until it clicks into place, ensuring that the radiopaque band is distal to the pump.



9. Once the catheter and lock are connected, if disconnection and reconnection are required, trim 2-3 cm of the catheter end to ensure a secure connection.
   Caution: Always cut the catheter as close to the pump stem as possible to avoid excessive stretching. Excessive stretching may damage the catheter.
10. Place the pump in the subcutaneous pocket away from the incision line about 2.5 cm (1 in.) beneath the skin surface. The pump should be positioned so that the Catheter Access septum is medial. This allows the catheter a direct line to the spine and keeps this area away from the ribs.
11. Secure to the underlying fascia using one non-absorbable, monofilament suture per pump suture hole. This will reduce the risk of pump migration and the possibility of the pump rotating or flipping over.
12. Verify that the catheter is not kinked or constrained by the pump sutures.
13. After suturing the pump in the pocket, flush the wound with an appropriate antibiotic solution.
14. Close the incision site so that the pump does not lie beneath the incision.
15. Flush the paravertebral site with an appropriate antibiotic solution.
16. Close the entry site making sure the catheter remains straight.
17. Measure and record in the patient's records the length of intrathecal catheter that was trimmed off. This measurement is required to determine the volume of the implanted catheter.
18. Calculate and record the implanted catheter length and volume:

    Implanted Catheter Length (cm) = 110 cm – Trimmed Catheter Length (cm)
    Implanted Catheter Volume (mL) = Implanted Catheter Length (cm) x 0.0026 mL/cm

    Warning: Always measure and record the length of the trimmed portion of the catheter, and calculate and record the implanted catheter length and volume. These calculations are required to prevent under- or over-medication.

Patient Implant Card and Registration

Included with each Prometra Programmable Pump package is a Patient Implant Tracking/Registration Form. This pre-addressed form should be completed and returned to Flowonix Medical. Flowonix Medical will use this information to create a record of the implant in their database. A copy should also be placed in the patient's implant records.

A patient guide and two patient implant cards are also provided for the patient. The patient implant card contains information pertinent to the implanted Prometra Programmable Pump. The implant card should be carried by the patient at all times. A second card is provided for placement in their glovebox, to be given to a caregiver, or other easily accessible location.

Pump Explantation

The Prometra Programmable Pump should only be explanted in accordance with the hospital procedures. Explanted product is to be treated as a biohazard.

Warning: Prior to cremation, the pump should always be explanted. The pump will explode at high temperatures.

Calculations

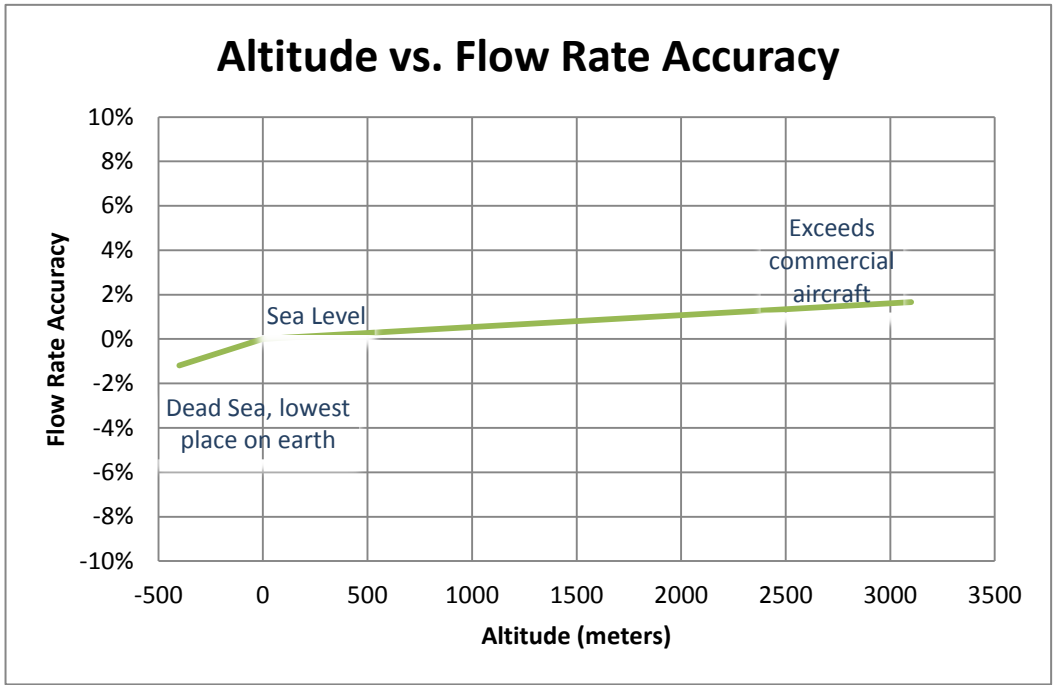
Please refer to the supplementary **Prometra Calculations Guide**.

Patient-Related Variables and Flow Rate Accuracy

The Prometra Pump was designed such that changes in pressure or temperature in normal operating environments do not affect the pump's operation.

Geographical Elevation

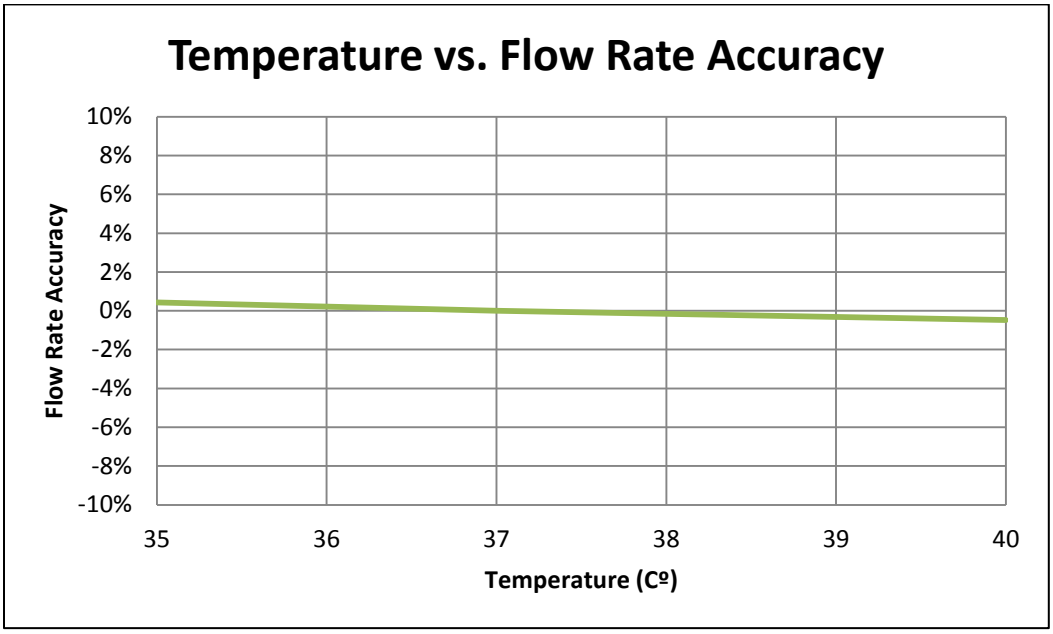
Activities that involve temperature or elevation changes such as skiing, flying, hot-tubbing, or saunas will not affect the operation of the pump.



Activities that involve an increase in environmental pressure of approximately 1 atmosphere or greater, such as scuba diving or hyperbaric therapy may cause the pump to temporarily stop delivering drug. When normal atmospheric pressure is returned, the pump will resume its programmed delivery rate.

Temperature Variation

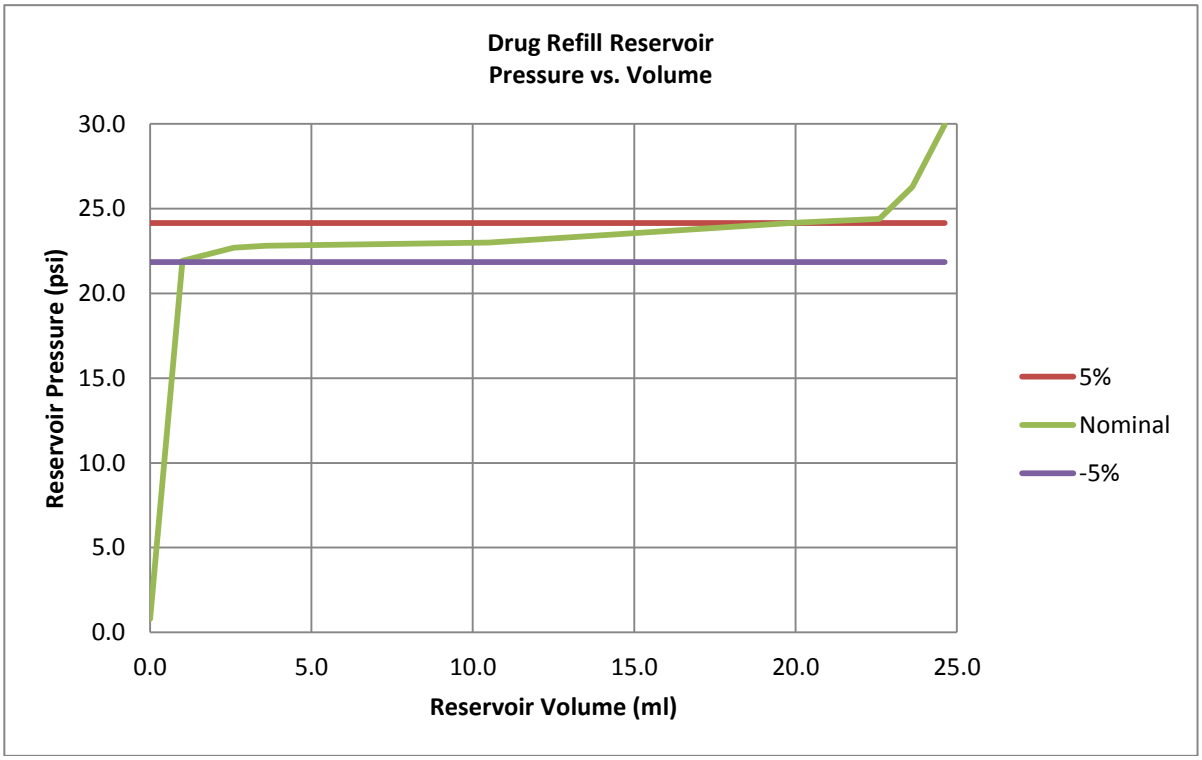
Activities that involve temperature or elevation changes such as skiing, flying, hot-tubbing, or saunas will not affect the operation of the pump. Temperature related therapies such as deep heat therapy, e.g. diathermy, will not affect the operation of the pump.



Flow Rate Accuracy

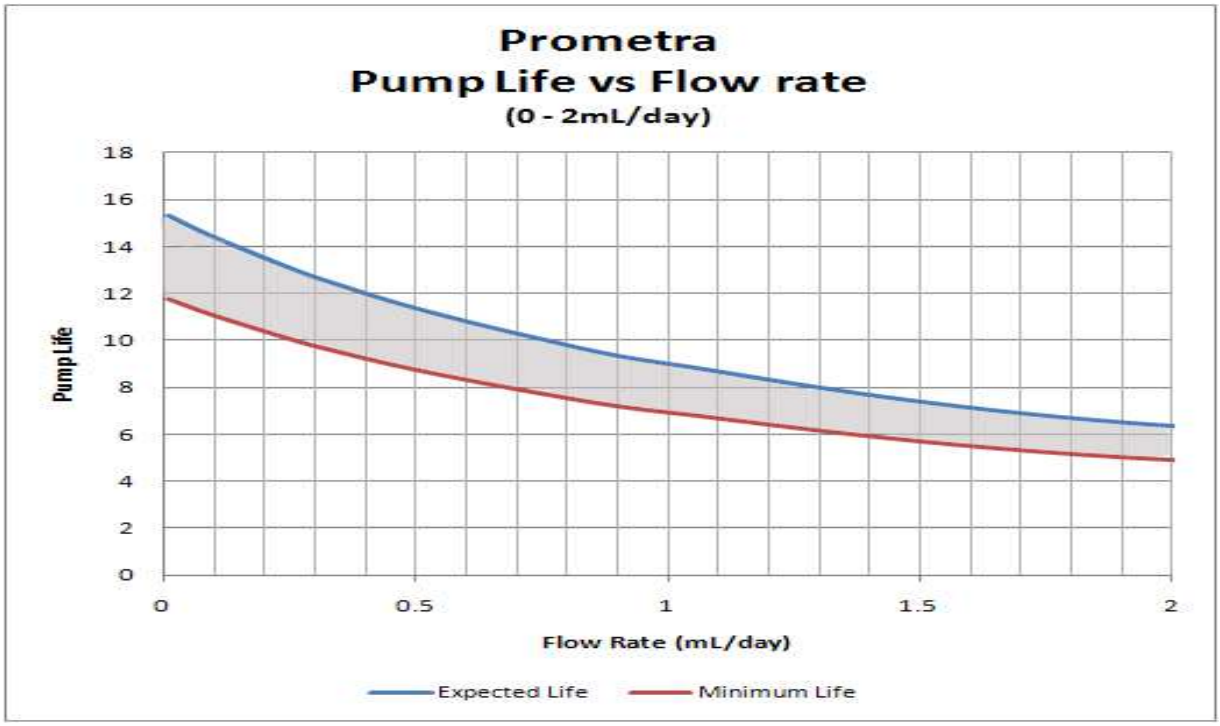
Pump flow rate accuracy was evaluated at multiple infusion rates (≈0.05mL/day – 28.8mL/day), at 37°c body temperature, utilizing both constant flow and variable flow regimes.

Although it is strongly recommended to program the low reservoir volume alarm to 2 mL, it is important to know that reservoir volume down to 1 mL will not affect the operation of the pump. This margin of safety was designed to offer your patients an additional measure of comfort and safety.



Device Longevity

The useful life of the Prometra Programmable Pump is dependent on the drug delivery rate. The Prometra pump utilizes an accumulator and dual-gated valve system to regulate the flow rate in order to conserve energy required for pump operation. The life of the pump is a minimum of 10 years at a drug delivery rate of 0.25mL/day.



Drug Stability

Drug stability has been tested for the drug and concentration listed in the table below:

Table: Stability for Drugs Approved for Use

Drug	Manufacturer	Concentration	Duration of Study
Infumorph Preservative-free Morphine Sulfate Sterile Solution	Baxter Healthcare (Infumorph has been acquired by West-Ward Pharmaceuticals)	25 mg/mL, 10 mg/mL	90 days

Issue Date: August 2019

An issued or revision date for these instructions is included for the user's information. In the event two years have elapsed between this date and product use, the user should contact Flowonix Medical, Inc. to see if additional product information is available.

Infumorph® is a registered trademark of West-Ward Pharmaceuticals Corporation.

Flowonix® and Prometra® are trademarks of Flowonix Medical, Inc. No use of any of these may be made without prior written authorization of the Company, except to identify the products or services of the Company.

US and Foreign patents issued and pending. Please consult www.flowonix.com for the most up-to-date information.

Manufactured by:
Flowonix Medical Inc.
500 International Drive, Suite 200
Mount Olive, NJ 07828 USA
T 973.426.9229
F 973.426.0035
www.flowonix.com

FLOWONIX

PL-21790-04