INTERA 3000

HEPATIC ARTERY INFUSION PUMP

Manufactured for:
Intera Oncology, Inc.
65 William St., Suite 200
Wellesley, MA 02481 USA
800-660-2660

ENGLISH

IMPORTANT INFORMATION
Please Read Before Use

INTERA 3000
HEPATIC ARTERY INFUSION PUMP

℞ ONLY STERILE

Description

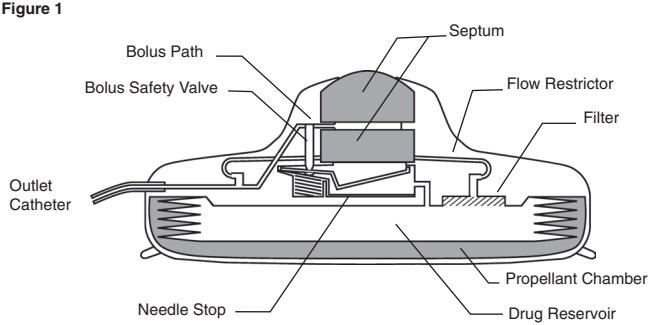
The Intera 3000 Hepatic Artery Infusion Pump, hereafter called the “pump” is an implantable drug delivery device with an attached silicone rubber catheter intended for long term delivery of medication to the hepatic artery.

The pump delivers infusate at a preset flow rate and is ideally suited for the ambulatory patient. The pump is refilled percutaneously using a non-coring needle and tubing set as supplied in the Refill Kit. Bolus injections are performed percutaneously using the special bolus needle.

The pump contains a safety valve in-line with the bolus pathway to ensure that a bolus procedure can only be performed when using a properly positioned special bolus needle.

Intera 3000 Cross Section Schematic

Figure 1



INDICATIONS

The pump is indicated for the continuous regional delivery of the following infusates with arterial administration:

- Cerona Therapeutics Floxuridine for Injection, USP
- Heparinized Saline
- Saline
- Bacteriostatic Water
- Glycerin Injection

The approved labeling for Cerona Therapeutics Floxuridine for Injection, USP stipulates the indications, contraindications, and warnings for use of the drug in the pump.

Bacteriostatic water or saline must be used to achieve the desired concentration of the drug. Heparinized saline can be used during an interruption of Hepatic Artery Infusion therapy to maintain catheter patency.

Glycerin infusion is indicated for patients who are receiving continuous Hepatic Arterial Infusion Chemotherapy. Glycerin infusion is employed as a placebo to keep the catheter patent or to extend the refill interval for patients who require therapy interruption or withdrawal.

The Intera 3000 Hepatic Artery Infusion Pump is indicated for use in the adult population only.

CONTRAINDICATIONS

The Intera 3000 Hepatic Artery Infusion Pump is contraindicated for use in patients with

- Known or suspected infection, bacteremia, septicemia or peritonitis.
- Known allergic reaction or other signs of intolerance to implanted devices.
- Emotional or psychiatric problems.
- Insufficient body size to accommodate the physical size of the pump.
- Cerona Therapeutics Floxuridine for Injection, USP should be used with added caution in patients with impaired hepatic or renal function.
- Patients with known disease extending beyond an area capable of infusion must be considered for systemic therapy with other chemotherapeutic agents.

Contraindications relating to the specific drug to be used must be observed and followed per the approved drug labeling.

WARNINGS

The pump must be implanted and refilled only by qualified medical personnel, knowledgeable in the surgical use and servicing of implantable devices and catheters, and trained specifically to implant or refill the pump. Use of the pump by personnel not properly trained in its implantation and/or servicing may lead to serious consequences involving either under or over-delivery of drug to the patient. In the event of an over-delivery of drug refer to the approved drug labeling for appropriate action.

Utilization of the pump requires the proper handling (filling, storage and dispensing) of a significant volume/dosage of drug. This amount of drug can be extremely harmful to the patient if delivered suddenly or inappropriately.

Bolus access and pump refill procedures must be performed using the correct access needle. Never attempt to refill the pump using a special bolus needle. This use will result in giving a bolus injection to the patient and can cause a fatal drug overdose.

PRECAUTIONS
REGARDING THE USE OF THE PUMP

Inspect the sterile package carefully. Do not use if:

- the package or seal appears damaged,
- contents appear damaged, or
- the expiry date has passed.

This device is for **single use only. Do not reuse.**

Use sterile technique in all phases of handling this product.

Never aspirate fluid from the pump. Aspiration will cause blood to be drawn into the catheter and result in occlusion.

Only use special bolus or non-coring needles to access the pump septum. It is critical to the integrity of the pump septum that no other needles be used to penetrate the septum.

It is important to precisely follow the pump refill instructions to successfully complete the pump refill procedure. If the needle is not properly positioned and verified as detailed in the pump refill procedures, drug extravasation can occur.

Before performing a bolus injection of any drug, review all warnings, precautions, indications, and contraindications on the drug labeling.

Do not use a mechanical pressure injector system to accomplish a bolus procedure. Pressures must not exceed 40 psi (276 000 Pa) when administering a bolus injection or infusion. Use only 10 mL (or larger) syringes for injections and do not inject or infuse at a rate greater than 5 mL/min.

When the system is flushed with saline while performing a bolus procedure, the patient will receive a bolus dose of drug equal to the volume of drug contained in the internal bolus pathway of the pump, plus the volume of drug in the catheter. The volume of drug in the internal pathway is 0.3 mL. The volume of the drug contained in the catheter is calculated by multiplying the length (in cm) of the catheter by 0.003 mL/cm.

ADVERSE EVENTS

Possible adverse events of the pump are those potential risks associated with any implanted drug delivery device and include:

- catheter thrombosis,
- bolus path occlusion,
- vessel thrombosis,
- pump dislodgement,
- seroma, or recurrent hematoma,
- infection,
- extravasation,
- catheter shear,
- dislodgement or leakage,
- migration,
- arterial pseudoaneursym,
- arterial dissection,
- and extrahepatic perfusion.

Drug extravasation can result if the instructions for use are not followed correctly during a pump refill (see Pump Refill Procedure section) or bolus procedure (see Bolus Procedure). It is important that a Refill Kit be utilized for pump refill and that the refill procedure be carried out in accordance with the instructions provided in this pamphlet and in the Refill Kit. A special bolus needle must be utilized to successfully perform a bolus procedure.

MRI INFORMATION

MR Conditional

Read and understand this document in its entirety prior to performing a Magnetic Resonance Imaging (MRI) procedure on a patient with an implanted Intera 3000 Hepatic Artery Infusion Pump. Failure to adhere to the conditions for safe use may result in serious injury to the patient.

The Intera 3000 Hepatic Artery Infusion Pump is MR Conditional.

MRI SAFETY INFORMATION

Non-clinical testing has demonstrated that the **Intera 3000 Hepatic Artery Infusion Pump** is MR Conditional. A patient implanted with this device can be safely scanned in an MR system which meets or is operated under the following conditions:

- Static magnetic field of 1.5 Tesla or 3 Tesla, only
- Maximum spatial gradient magnetic field of 4,000 G/cm (40 T/m)
- Maximum MR system reported, whole body averaged specific absorption rate (SAR) of 2.0 W/kg
- Maximum gradient slew-rate (SR) of 150T/m/s per axis

WARNING: Exceeding the listed MRI Parameters could result in excessive force or torque, which could lead to patient injury.

MRI-Related Heating

Under the scanning conditions defined above, the Intera 3000 Hepatic Artery Infusion Pump is expected to produce a maximum temperature rise of less than 6.5°C after 15 minutes of continuous scanning. Scans longer than 15 minutes will require cooling delay periods equal in length to the exposure period to minimize risk of patient injury.

WARNING: A temperature increase of 6.5˚C may temporarily increase the flow rate by 90%. Please see the table below for the maximum volume that can be administered to a patient during a 15 minute MRI exposure for each pump.

WARNING: Consult with a physician to ensure that the patient can safely receive an increased dosage of the specific drug that is contained in the pump. The physician should calculate the exact drug dosage that will be administered during the MRI scan based on the concentration of the drug contained within the pump and the duration of the scan as determined by the MRI technician and/or radiologist. Please be aware, that the increased flow rate of the pump will persist until the pump has returned to body temperature. This may take up to 65 minutes. **Note:** In the event that the patient experiences uncomfortable warmth near the pump, the MRI scan should be stopped and the scan parameters should be adjusted to comfortable levels.

If the patient **CANNOT** safely receive the increased dosage please empty the pump of all drug prior to the MRI or do not perform the MRI scan.

WARNING: MRI must be completed at a facility with resuscitative equipment and has proper drug reversal agents on hand.

A physician must evaluate the patient immediately after MRI for signs and symptoms of drug overdose and develop a plan for immediate monitoring in a medically supervised and adequately equipped environment.

A 6.5°C temperature increase will temporarily affect the flow rate as indicated below:

Pump	Nominal Flow Rate (mL/day)	Volume administered at the Nominal Flow Rate in 15 minutes (mL)	Maximum volume that may be administered per 15 minutes of continuous MRI scanning (mL)
AP-03000-H High Flow Pump	1.7	0.0177	0.040

Artifact Information
In non-clinical testing, the image artifact caused by the device extends less than 60mm form the Intera 3000 Hepatic Artery Infusion Pump when imaged with a gradient echo pulse sequence at 3.0T.

INFORMATION FOR THE PATIENT

The patient must notify his or her physician immediately if any unusual symptoms are noticed.

The patient must refrain from physical activity that can cause injury to the area near the pump implant site or the pump itself.

The patient must return on established refill times to prevent the pump from running dry as this can lead to thrombus formation at the catheter tip.

The patient must carry the Patient I.D. card in case of a medical emergency to alert health care workers to the presence of the pump.

The patient must contact their physician before traveling by air. Changes in ambient pressure affect pump flow rate and can lead to under or over-delivery of drug to the patient.

The patient must not use a heating pad over the pump site or take long hot baths or saunas. Elevated temperature and decreased ambient pressure will increase the flow rate of the pump and can lead to over-delivery of drug to the patient.

The patient must inform their physician if they have an increased body temperature. Elevated body temperature will increase the flow rate of the pump (Figure 11 shows temperature effect on pump).

The patient must inform their physician if they move to a different altitude (Figure 12 shows altitude effect on pump).

The patient must be informed of the appropriate precautions listed in the drug labeling.

The patient must be provided a Patient Education Booklet and must thoroughly understand the information in the booklet prior to implantation.

The patient must remain still throughout a bolus infusion to prevent any movement of the special bolus needle. If the needle is withdrawn an amount exposing the lumen above the upper septum of the pump, drug extravasation can occur.

PRODUCT DESCRIPTION

The pump's exterior (elements directly in contact with patient's body) is constructed of titanium and silicone rubber, materials recognized for their high degree of biocompatibility and long life.

The inside of the pump is divided into inner and outer chambers by an accordion-like bellows (Figure 1). The inner chamber contains the drug to be infused. The outer chamber contains a propellant permanently sealed inside. The temperature of the patient's body warms the propellant.

The warmed propellant exerts a constant pressure on the bellows causing the drug to flow out of the inner chamber, through a filter and flow restrictor, and then slowly out the catheter.

Refilling the pump with drug expands the bellows and starts the pump on the next cycle of drug infusion.

STERILITY

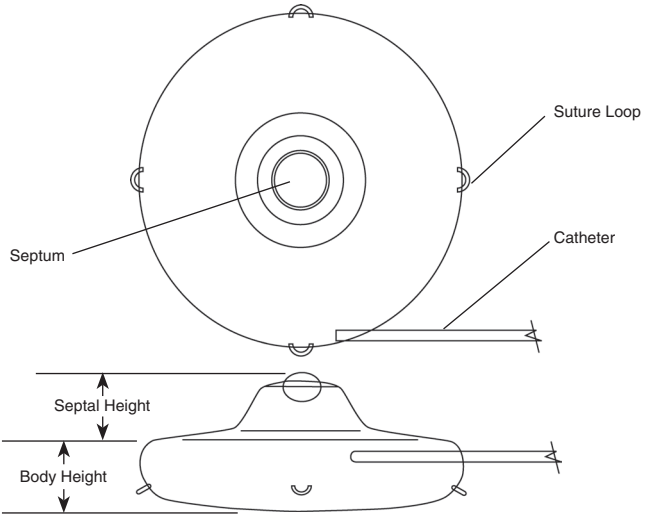
The Intera 3000 pump is intended for SINGLE USE ONLY; DO NOT RESTERILIZE. Use aseptic technique in all phases of handling. Intera Oncology will not be responsible for any product that is resterilized, nor accept for credit or exchange any product that has been opened but not used.

If the individual package is not opened or damaged, the product is sterile. All components have been tested and were determined to be nonpyrogenic, except for the Operating Room Prep Kit syringe barrel, which is not tested.

BOLUS OF DRUG

A bolus of drug can be administered through the pump using a special bolus needle. Using the special bolus needle, the clinician can bypass the pump reservoir and inject or infuse drug directly to the patient through the pump's silicone rubber catheter. The pump contains a safety valve in the bolus pathway that allows for a bolus delivery of drug through the pump only when a properly positioned special bolus needle is utilized. The safety valve prevents administering an inadvertent bolus of drug through the pump while attempting to refill the pump with a standard non-coring needle.

PUMP DRAWING/SPECIFICATIONS
Figure 2



Pump material:	Titanium and Silicone Rubber
Weight (empty):	137 g
Septum target diameter:	10.2 mm
Septal height:	14.5 mm
Body height:	19.5 mm
Overall height:	34.0 mm
Overall diameter (excluding loops):	78.0 mm
Reservoir volume:	30.0 mL
Catheter Material:	Silicone rubber with 3 suture beads
Catheter:	I.D. 0.6 mm, O.D. 2.3 mm
Catheter Length:	50 cm
Catheter Volume:	0.15 mL (50 cm) or 0.003 mL/cm
Flow rate:	Preset

HOW SUPPLIED

The pump is supplied sterile in a double tub package. Also, accompanying the pump and supplied sterile and individually packaged are:

(1) 22 gauge, straight Non-Coring Needle (REF AP-04009 or REF AP-04011 or REF AP-04030)
(1) Special Bolus Needle (REF AP-04013 or REF AP-04032)
(1) Operating Room Prep Kit (REF AP-07004)

The package also contains an Instructions for Use pamphlet, Implant Record, Flow Rate Information (O.R. Record and Physician Record), Patient I.D. Card and Patient Education Booklet.

Federal law (U.S.A.) requires that this device be used in strict accordance with FDA approved labeling noting indications, contraindications, precautions, and adverse events of the device.

TECHNICAL ASSISTANCE

Additional information can be obtained by calling or writing:

Intera Oncology, Inc. 800-660-2660
65 William St., Suite 200
Wellesley, MA 02481 USA

PRECAUTION

It is important to precisely follow the pump refill instructions as detailed in this pamphlet (or the Pump Refill Kit) to successfully complete the pump refill procedure. If the needle is not properly positioned and verified as detailed in the pump refill procedures, drug extravasation can occur.

- Use USP size 2-0 (or larger) nonabsorbable monofilament sutures to permanently anchor the pump.
- Never aspirate back from the pump. Use an empty syringe barrel to obtain the residual volume removed from the pump.
- **Use only a 22-gauge non-coring needle for refilling the pump reservoir.**
- Be sure to insert the needle **PERPENDICULAR** to the pump septum. This will ensure that the needle bevel will clear the septum.
- **Use only the special bolus needle for bolus applications.**
- Use only 10 mL syringes or larger for bolus procedures.

PREPARING THE PUMP FOR IMPLANT

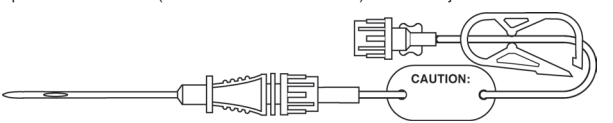
It is suggested that the pump be prepared well ahead of prepping the patient to ensure adequate time to properly complete the pre-implant procedure.

OPERATING ROOM PUMP PREPARATION PROCEDURE USING THE WATER METHOD

SUPPLIES NEEDED:

- (1) Sterile Intera 3000 Pump
- (1) Operating Room Prep Kit
- (1) Extra 22-gauge Non-Coring Needle (supplied with the pump) for filling the reservoir
- (1) Extra Special Bolus Needle (REF AP-04013 or AP-04032 – supplied with the pump) for flushing the bolus pathway and pump catheter
- (1) 10 mL syringe filled with 10 mL of appropriate flush solution
- (1) Syringe filled with 30 mL of appropriate refill solution
- An incubator or warming cabinet set to 48°C to 60°C (120°F to 140°F)
- (1) Sterile basin (3 liter)
- (2–3) liters of sterile, warmed saline or water from the warming cabinet in the Operating Room. The temperature should be 48°C to 60°C (120°F to 140°F)
- (1) Sterile thermometer capable of measuring 27° to 60°C (80° to 140°F)
- (1) Sterile pair of scissors
- A timer or watch
- An extra pump to serve as backup in case sterile procedure is violated
- 22ga, Straight Non-coring Needle for reservoir refill

- Special Bolus Needle (REF AP-04013 or AP-04032) for Bolus injection.



DRUG RESERVOIR SOLUTION TO BE INFUSED

O.R. Fill Solution	Pump Fill Solution	Bolus Pathway Flush Solution
Heparinized Saline (1,000 I.U./mL)	30,000 I.U. Heparinized Saline to = 30 mL total volume	Low Dose Heparinized Saline 100 I.U./mL in 10 mL of saline (10 mL volume)

INTRA-ARTERIAL HEPARINIZED SALINE MIXING RECOMMENDATIONS

Heparin Strength 5,000 I.U. (mL)	Saline (mL)	Total Fill Volume
6.0 mL	24.0 mL	30.0 mL (30,000 I.U.) Heparinized Saline

Heparin Strength 10,000 I.U. (mL)	Saline (mL)	Total Fill Volume
3.0 mL	27.0 mL	30.0 mL (30,000 I.U.) Heparinized Saline

PRE-IMPLANT PUMP PREPARATION PROCEDURE

1. Place the Intera 3000 pump (still in its sterile package), and the solution for reservoir fill and flushing of the bolus pathway into a warming cabinet. Do not warm above 60°C (140°F). *All remaining steps are to be performed in the O.R. suite using sterile techniques.*
2. Deliver the pump to the sterile field. Remove pump from inner package. Cut off knot at tip of catheter and place pump in basin. Fill basin with pre-warmed water covering pump. The raised septum must still be exposed. Water temperature must be 48° to 60°C (120° to 140°F). Verify water temperature with sterile thermometer.
3. Connect the non-coring needle to the male luer lock end of the tubing set/empty syringe barrel assembly supplied in the O.R. Prep Kit. Secure all connections. Check that the tubing set clamp is in the open position.
4. Insert needle in the pump septum. Allow reservoir contents to drain from the pump reservoir into the empty syringe barrel. After the pump has emptied, close the tubing clamp, disconnect the syringe barrel containing the reservoir volume from the tubing set, and discard the syringe barrel. *Complete this step within three (3) minutes of adding water to the basin.*
   Please note that the pump is prefilled with bacteriostatic water in the manufacturing facility prior to sterilization. Upon puncturing the pump septum, it is normal to observe fluid draining into the empty syringe barrel from the pump reservoir through the needle and tubing set.
5. Attach fill syringe containing 30mL's of Heparinized Saline 1,000 I.U./mL to the tubing set. Fill pump. At 5 mL increments, release pressure on the plunger and allow 1 mL of solution to return into syringe. This confirms proper functioning of the reservoir. *Do this step within 10 minutes of adding water to the basin.*
6. Connect 10 mL syringe filled with Low Dose Heparinized Saline 100 I.U./mL to special bolus needle. Insert bolus needle into septum and flush the bolus pathway and pump catheter.
7. Position pump catheter tip over the edge of the basin so that as much catheter as possible remains in the basin.
8. Add at least 1.5 Liters of pre-warmed water to the basin. Verify that the temperature of the water is 48° to 60°C (120° to 140°F).
   Note: A drop may form at the tip of the catheter. *Drops at this time do not indicate that pump flow has been initiated.*
9. Allow the water temperature to cool to 32° to 35°C (90° to 95°F). During this time do not disturb the pump in any way; including adding water to the basin, performing a bolus procedure or removing the pump or catheter from the basin.
10. When the water temperature has cooled to 32° to 35°C (90° to 95°F), dab off any drops that may have formed. Do not disturb the pump. Wait 10 minutes and observe the catheter tip for flow.

Figure 3

A drop at least this size must form at the catheter tip.

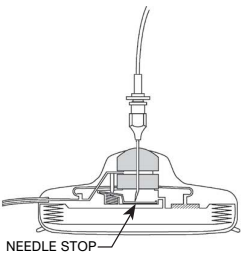
11. Maintain pump temperature between 27°C and 37°C (80°F and 98°F) until pump is implanted. If desired, pump flow can be reconfirmed by repeating Steps 7 through 10.
12. After implant, federal law mandates that the Device Tracking Implant Card located in the Documentation Envelope be completed. The facility retains the top copy; forward the bottom copy to Intera Oncology, Inc.

TROUBLESHOOTING GUIDE:

If no fluid returns during pump emptying, or during the pump prep injection procedure, proceed as follows.

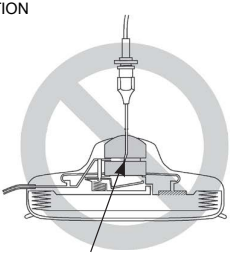
A. Confirm the solution warmer is at the correct temperature and that the solution and pump are warm.

B. Confirm needle position and that a 22 gauge, non-coring needle is being used. Check that the needle is PERPENDICULAR to the pump septum and is fully depressed and in contact with the needle stop. If no volume returns proceed with steps C, D, and E.



CORRECT NEEDLE POSITION

INCORRECT POSITION



INCORRECT POSITION

C. Attach a 10 mL syringe containing Low Dose Heparinized Saline solution to the OR Prep tubing set.

D. Keep downward pressure on the needle and inject 5 mL of saline into the pump. Release pressure on the syringe plunger and allow the fluid to return to the syringe. If fluid returns, the needle is in the proper position. Replace the 10 mL syringe with the 30 mL syringe containing the pump refill solution and continue with the refill procedure (steps 5 and 6).

E. If there is still no fluid return after injection of the 5 mL of saline, contact Intera Oncology, Inc. for 24 Hour Technical Assistance at 800-660-2660.

IMPLANTATION OF THE INTERA 3000 PUMP—ARTERIAL DELIVERY– Cerona Therapeutics Floxuridine for Injection, USP

Place the patient NPO after midnight. The day of the operation, take the patient to the operating room and place him/her in a supine position on the operating table. After induction of satisfactory general endotracheal anesthesia, shave the abdomen and prep in the usual fashion. Open the abdomen through an upper abdominal incision and explore thoroughly. Take specific care to evaluate for the presence of extrahepatic metastases. Excise enlarged periportal lymph nodes for frozen section, even if not suspicious for malignancy. If there are unresectable extrahepatic metastases, do not place pump. If the patient's gall bladder is in situ, perform a cholecystectomy. Delineate and dissect the hepatic artery, gastroduodenal artery and branches of the common hepatic artery free from surrounding tissue. Divide and tie all branches from the hepatic arteries to the proximal gastrointestinal tract with 2-0 suture material. Ligate all vessels supplying the superior border of the distal stomach and proximal duodenum that arise from the celiac axis to prevent gastrointestinal toxicity. Once a sufficient portion of the gastroduodenal artery has been dissected free from surrounding tissues and it appears that the patient meets criteria for placement of a pump, fashion a pump pocket in the anterior abdominal wall on either the right or the left side. Make a transverse incision taking care that the pump will not abut the anterior iliac spine and that it will fit comfortably on the anterior abdominal wall. Dissect up the subcutaneous tissues to allow the pump to be affixed directly to the rectus fascia. After proper preparation (vide infra) suture the pump in place using interrupted 2-0 PROLENE® sutures. Pass the catheter through the anterior abdominal wall in a way that allows for gentle curvature of the catheter without kinking. Isolate a sufficient portion of the gastroduodenal artery between 3-0 silk surgical ties. Using a Heifitz occlusion clamp, introduce the catheter into the gastroduodenal artery, and advance its tip to the junction of the gastroduodenal artery and the hepatic artery. Insert no portion of the catheter into the hepatic artery. Tie the catheter in place with at least three 3-0 silk sutures to prevent kinking. Use the bolus chamber to ascertain appropriate flow forward.

Close the abdomen with #2 PROLENE sutures in the standard manner. Close the skin with staples. Close the pump pocket with subcutaneous sutures of 3-0 VICRYL®, and close the skin with running 4-0 VICRYL suture. Apply a pressure dressing over the pump pocket. Apply sterile dressings and send the patient to the recovery room.

When implanting the pump, observe the following precautionary measures:

1. **Carefully** and firmly secure the pump, using all four available pump suture loops for tiedowns. This will enable the patient to resume reasonable physical activity and prevent the pump from turning over or rotating in the pump pocket. When suturing the pump in place, take care to assure immobility of the pump for the standing or active patient.
2. **Suture** the pump catheter to prevent catheter dislodgement. When suturing around the soft catheter, avoid excessive suture tightness and pinching of the catheter, which can obstruct flow. An obstructed catheter can require future surgical correction. Allow sufficient slack between the catheter attachment and pump to avoid strain at the cannulated site.
3. **Allow** adequate room in the pump pocket so that the skin is not drawn too tightly over the pump.

SURGICAL PROCEDURE REFERENCES

Niederhuber, J.E. and Ensminger, W.D. (1983) Surgical Considerations in the Management of Hepatic Neoplasia. Sem. Onc. 10:135–147.

Ensminger, W., Niederhuber, J., Dakkil, S., Thrall, J. and Wheeler, R. (1981) Totally Implanted Drug Delivery System for Hepatic Arterial Chemotherapy. Cancer Treat. Rep. 65:393–400.

Cohen, A.M., et al, Transbrachial Hepatic Arterial Chemotherapy using an Implantable Infusion Pump. Dis. Col. & Rect. 1980; 23:223–227.

POSTOPERATIVE CONSIDERATIONS

Following surgery, delay filling the pump with drug for several days to allow for adequate wound healing. If conditions indicate further delay of administration of drug through the pump, continue to refill the pump with saline solution.

Post-implant patients must be monitored carefully to confirm proper pump performance, wound healing, and response to therapy.

PATIENT REGISTRATION

A Patient Identification Card, Implant Record and Patient Education Booklet are included with each pump. The surgeon must complete the pre-addressed Implant Record and return it to Intera Oncology, Inc. Upon receipt, this record will initiate the patient's registration and warranty. Give the patient the wallet-sized identification card containing information pertinent to the implanted pump. The patient must carry this card at all times. It is essential that the physician complete the information requested on the back of the card. Give the patient a copy of the Implant Record along with the Patient Education Booklet. The patient must thoroughly understand the information contained in the Patient Education Booklet prior to pump implantation.

PUMP REFILL PROCEDURE

Note: Utilize a Refill Kit containing the necessary materials (excluding gloves, drug, syringe and a disinfecting agent to prep the pump site) to accomplish a pump refill. The kit contains a helpful picture poster of the refill procedure and Refill Data sticker. **WARNING:** Only properly trained and qualified physicians and medical personnel can perform and assist in the pump refill procedure.

REVIEW ALL INSTRUCTIONS BEFORE PROCEEDING:

PRECAUTION: 1) A needle is provided in this kit. It is critical to the safe functioning of the pump that no other needle be used to penetrate the septum.

PRECAUTION: 2) Do not aspirate fluid from pump. Aspiration will cause blood to be drawn into catheter and result in occlusion.

PRECAUTION: 3) It is important to precisely follow the pump refill instructions as detailed in this pamphlet (or the Pump Refill Kit) to successfully complete the pump refill procedure. If the needle is not properly positioned and verified as detailed in the pump refill procedures, a drug extravasation can occur.

Place patient in a supine position. Expose the pump pocket site. Palpate the pump site and locate the raised septum.

1. Fill a 30 mL syringe with 30 mL of appropriate refill solution and a 10 mL syringe with injectable Saline 100 I.U./mL.
2. Using sterile technique, open refill kit and expose kit components.
3. Don sterile gloves. Use a disinfecting agent to prep the pump site in a circular fashion extending the prepped area beyond the periphery of the pump. Allow prepped area to dry. Place fenestrated drape over pump site.
4. Attach the needle and the stopcock to the tubing set. Stopcock and clamp must be in the OPEN position. Next attach the 50 mL calibrated syringe barrel to the stopcock. Tighten all connections.
5. Re-palpate the pump site and locate the raised septum.
6. Insert the non-coring needle PERPENDICULAR to the pump septum. Advance the needle until it is in contact with the needle stop (Figure 4).
7. Allow the pump reservoir to empty. (Figure 5). Keep downward pressure on the needle throughout the procedure. **If no fluid returns to the syringe refer to Troubleshooting Guide for assistance. Note:** After allowing the pump to “empty” into the syringe barrel, fluid from the previous refill will remain in the pump. The approximate residual volume is 2.72 mL.

Figure 4

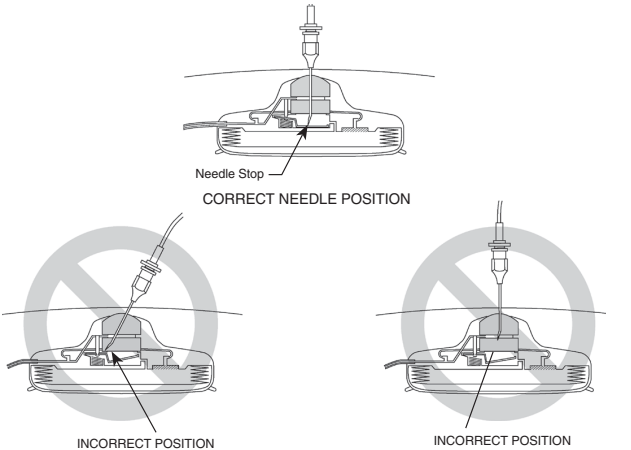
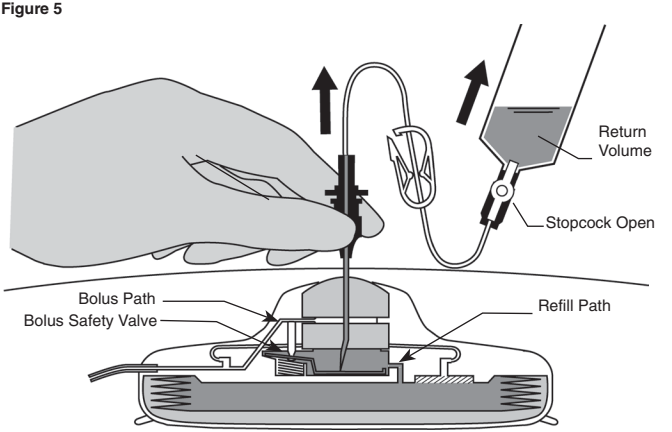
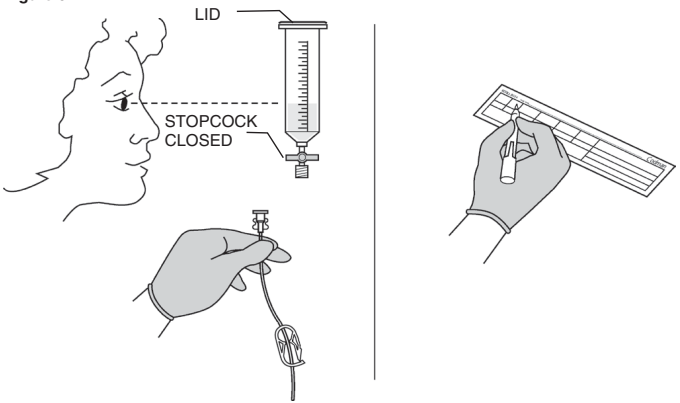


Figure 5



8. CLOSE STOPCOCK and clamp on tubing set. Disconnect the stopcock and syringe barrel, leaving the needle and refill set in place. Note the returned volume (mL) from the syringe barrel and record on refill data sticker provided (Figure 6). Discard syringe barrel and stopcock, leaving the needle and refill set in place.

Figure 6



EXAMPLE:

A	B	C	D
Volume Returned from Pump 12 mL	Volume Infused 30 mL – A 30 – 12 = 18 mL	No. of Days from Last Refill 14 days	Flow Rate B/C 18 mL/14 days = 1.3 mL/day

9. Expel air from the 10 mL syringe of saline. Attach the syringe to the proximal end of the refill set and confirm that the needle is still in contact with the needle stop. Open the clamp on the tubing set while keeping down-ward pressure on the needle and inject 5 mL of saline into the pump (Figure 7).

10. Release pressure on the plunger and allow the 5 mL injected to return to the syringe. This procedure reconfirms correct positioning of the needle (Figure 8). If no fluid returns, refer to *Troubleshooting Guide* for assistance. Close the clamp on the tubing set and disconnect the syringe from the refill set.

11. Expel air from the refill syringe. Attach the syringe to the proximal end of the refill set and confirm that the needle is still in contact with the needle stop.

12. Open the clamp on the tubing set while keeping downward pressure on the needle and begin to inject refill solution into the pump. Release pressure on plunger at 5 mL increments and allow 1 mL of solution to return to syringe. This will verify that the needle is in the correct position and the pump reservoir is being filled. Continue to inject and check needle placement until the syringe is emptied (Figure 9).
PRECAUTION: If no fluid returns to the syringe upon release of the plunger, DO NOT CONTINUE TO INJECT REFILL SOLUTION UNTIL YOU HAVE VERIFIED THE NEEDLE PLACEMENT PER THE PROCEDURE IN THE TROUBLESHOOTING GUIDE. Follow steps A, B, C, D per the *Troubleshooting Guide*.

13. After injecting the entire refill solution, maintain pressure on the syringe plunger, close the clamp on the tubing set and pull the needle out of the pump septum. Remove drape and apply adhesive bandage to access site.

Figure 7

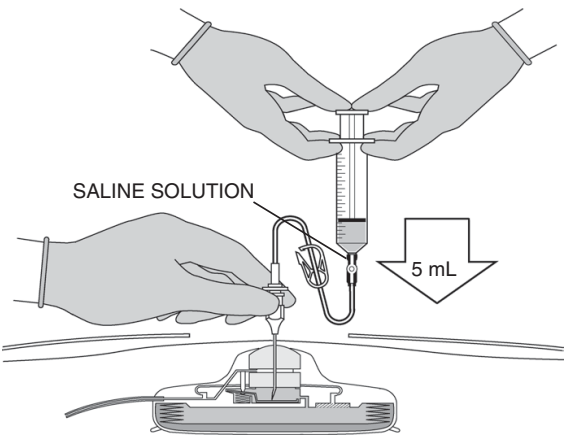


Figure 8

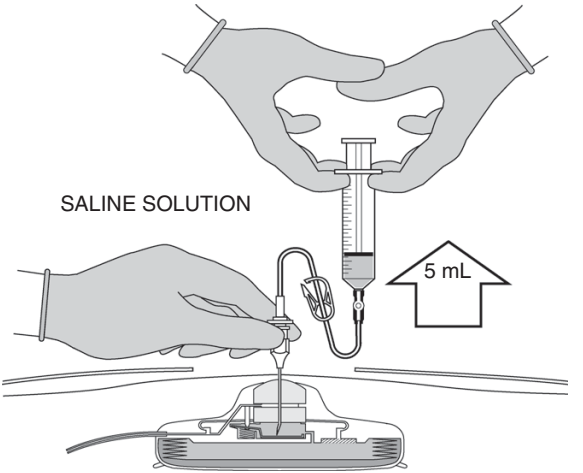
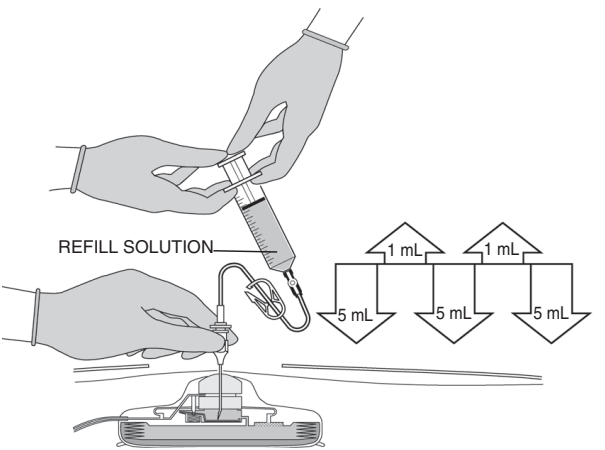


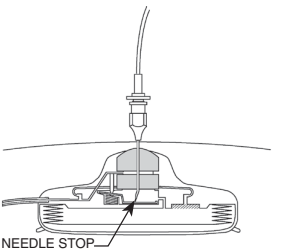
Figure 9



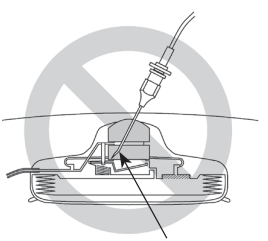
TROUBLESHOOTING GUIDE:

If no fluid returns during pump emptying, or during the refill injection procedure, proceed as follows.

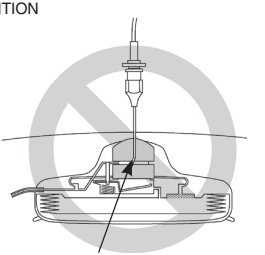
A. Confirm needle position and that a 22 gauge, non-coring needle is being used. Check that the needle is **PERPENDICULAR** to the pump septum and is fully depressed and in contact with the needle stop. If no volume returns proceed with steps B, C, D.



CORRECT NEEDLE POSITION



INCORRECT POSITION



INCORRECT POSITION

B. Attach a 10 mL syringe containing saline solution to the refill tubing set.

C. Keep downward pressure on the needle and inject 5 mL of saline into the pump. Release pressure on the syringe plunger and allow the fluid to return to the syringe. If fluid returns, the needle is in the proper position and this indicates that the pump was empty at the start of the refill procedure. Replace the 10 mL syringe with the 30 mL syringe containing the pump refill solution and continue with the refill procedure (steps 12 and 13).

D. If there is still no fluid return after injection of the 5 mL of saline, remove both the needle and the refill tubing set. Flush the refill set to confirm that the system is patent. Re-insert the needle perpendicular into the pump septum until it is in contact with the needle stop. Repeat step C.

E. If there is still no fluid return after injection of the 5 mL of saline, contact Intera Oncology, Inc. for 24 Hour Technical Assistance at 800-660-2660.

BOLUS PROCEDURE

WARNING: NEVER attempt to REFILL the pump using a special bolus needle. This use will result in giving a bolus injection to the patient and can cause a drug overdose.

PRECAUTION: 1) Before performing a bolus injection of any drug, review all warnings, precautions, indications and contraindications on the drug labeling.

PRECAUTION: 2) Use only a special bolus needle for performing a bolus procedure (Figure 10).

PRECAUTION: 3) Do not aspirate fluid/blood back through the bolus path as catheter occlusion can result.

PRECAUTION: 4) Do not use a mechanical pressure injector system to accomplish a bolus procedure. Pressures must not exceed 40 psi when administering a bolus injection or infusion. Use only 10 mL (or larger) syringes for injections and do not inject or infuse at a rate greater than 5 mL/min.

1. Fill a 10 mL syringe with Low Dose Heparinized Saline (100 I.U./mL). Connect the syringe to the special bolus needle (Figure 10).
2. Open the clamp and inject 3 mL of Low Dose Heparinized Saline (100 I.U./mL) to flush the tubing set and needle of air. Close the clamp.
3. Insert the needle into the septum until contact is made with the needle stop. Ensure that the needle is **PERPENDICULAR** to the pump and that contact with the needle stop is maintained throughout the procedure. **Note:** If the needle does not remain fully inserted and in contact with the needle stop, the bolus valve will close and it will not be possible to accomplish the bolus procedure. Open the clamp and flush the system with 3 mL of Low Dose Heparinized Saline (100 I.U./mL). Close the clamp and remove the syringe.
   PRECAUTION: When the system is flushed with Low Dose Heparinized Saline (100 I.U./mL) the patient will receive a bolus dose of drug equal to the volume of drug contained in the internal bolus pathway of the pump, plus the volume of drug in the catheter. The volume of drug contained in the catheter can be calculated by multiplying the length (in cm) of the catheter utilized by the volume of fluid contained per cm of catheter.
   The volume of drug in the internal pathway of the pump is 0.3 mL
   Pump Catheter: 0.003 mL/cm

FOR BOLUS INJECTIONS:

4. Attach a 10 mL syringe containing the bolus drug to the tubing set. Open the clamp and slowly inject the desired amount of drug. **Do not inject at a rate greater than 5 mL/ minute.**

OR

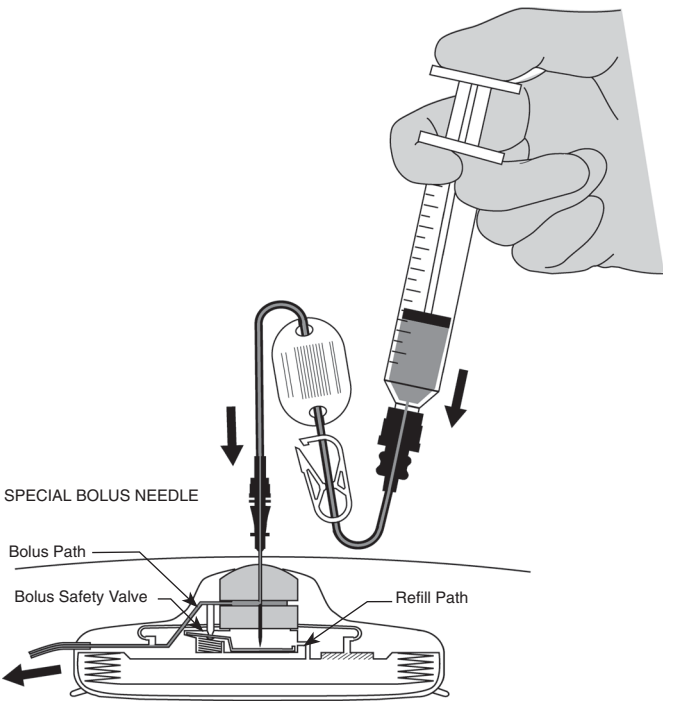
FOR BOLUS INFUSIONS:

4. Attach a purged line from the external pump or controller system to the special bolus needle tubing set. Open the clamp on the special bolus needle tubing set and begin the infusion procedure. **Do not infuse at a rate greater than 5 mL/minute.**

PRECAUTION: The patient must remain still throughout this procedure to prevent any movement of the special bolus needle. If the needle is withdrawn during the procedure, the bolus safety valve will close and it will not be possible to accomplish this procedure. If the needle is withdrawn an amount exposing the lumen above the upper septum of the pump, a drug extravasation can occur.

5. After the drug injection or infusion, close the clamp, remove the drug syringe or line from the external pump, and replace it with the 10 mL syringe containing Low Dose Heparinized Saline (100 I.U./mL). Open the clamp and slowly inject 3 mL of Low Dose Heparinized Saline 100 I.U./mL.
6. Close the clamp, remove the needle from the patient, and apply pressure and a bandage to the puncture site.

Figure 10



SUSPECTED PUMP CATHETER OCCLUSION

If difficulty is encountered in administering fluids via the bolus route, or if the pump has failed to deliver the contents in the reservoir, consider the following possible causes before proceeding to Fibrinolytic Therapy:

- The special bolus needle may not be perpendicular to the pump and fully inserted through the septum, contacting the needle stop. Reinsert the needle until it is in contact with needle stop.
- The needle may be occluded. Remove from the septum and flush to confirm patency.
- The catheter may be kinked. Confirm radiologically.

If the occlusion persists after taking the above steps, proceed to prepare appropriate fibrinolytic agent (urokinase, streptokinase) per hospital pharmacy guidelines.

1. Observing aseptic technique, cleanse and prepare injection site.

2. Connect special bolus needle to a syringe containing fibrinolytic agent.

3. Insert needle through septum perpendicular to the pump and maintain contact with the needle stop.

4. Slowly inject contents.

Wait 10 minutes and repeat until flow is accomplished.

If occlusion continues to persist after steps 1 through 4, call for 24-hour technical assistance: 800-660-2660.

5. Once catheter is clear, connect a second 10 mL syringe filled with 5 mL of Low Dose Heparinized Saline 100 I.U./mL to a special bolus needle and slowly flush the cleared catheter.

FLOW RATE GRAPHS

Introduction

Each pump has a unique serial number and has been manufactured to flow at a specific rate under a defined set of conditions. The flow label on the pump box describes the flow rate for that specific pump when used in vitro and after implantation when the tip of the catheter is placed in an artery. The flow rate listed are calculated using a normal patient temperature 37°C (98.6°F) and an altitude of sea level.

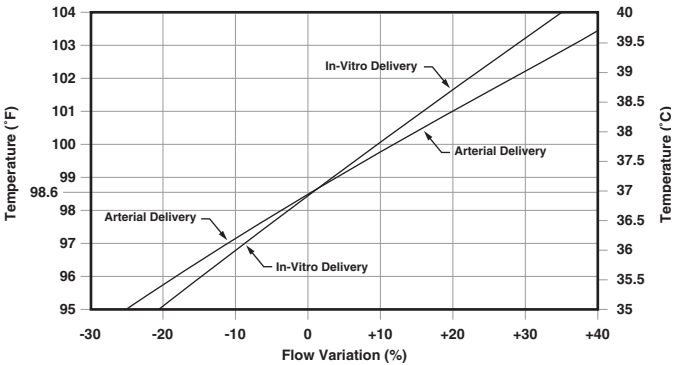
Flow Rate Changes

The flow rate data of the pump will be different from the stated rate if the conditions of patient temperature or patient altitude are different than the noted conditions (i.e., temperature 37°C; altitude sea level).

a. **Temperature change:** If the patient runs a fever of 100°F, (Figure 11) the clinician can use the graph to determine that the flow rate of the pump will be 10% faster than the stated arterial flow rate for the duration of the fever. The clinician can then determine whether a dosage adjustment should be made to compensate for the increased flow rate.

Figure 11

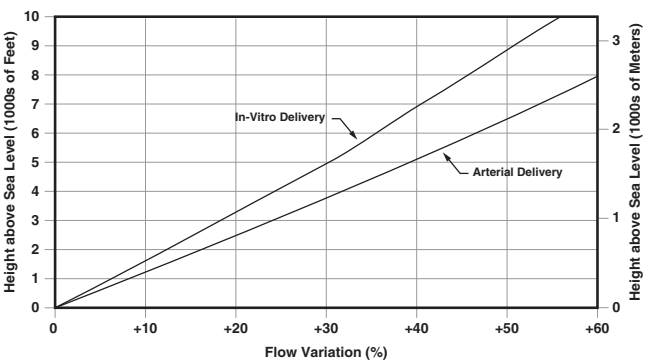
Variation in pump Flowrate as a Function of Temperature



b. Altitude change: For a patient living at an elevation above sea level, the clinician can use the altitude graph to determine the change in arterial flow rate of the pump from the value stated on the pump label. The clinician can then use the adjusted (increased) flow value to determine the appropriate drug dosage.

Figure 12

Variation in pump Flowrate as a Function of Altitude



WARRANTY

Intera 3000 Hepatic Artery Infusion Pump

Intera Oncology, Inc., warrants that this medical device is free from defects in both materials and workmanship. Any other express or implied warranties, including warranties of merchantability or fitness, are hereby disclaimed. Suitability for use of this medical device for any surgical procedure should be determined by the user in conformance with the manufacturer's instructions for use. There are no warranties that extend beyond the description on the face hereof.

SYMBOLS GLOSSARY

Do not resterilize

Do not reuse

Sterile

Sterilized using ethylene oxide

Sterilized using steam

Do not use if package is damaged

Keep dry

Nonpyrogenic, see instructions for use

MR Conditional

Consult Instructions for Use

Prescription device only (USA)

Use by date

Serial number

Date of manufacture

Made in

Quantity

Manufactured for:
Intera Oncology, Inc.
65 William St., Suite 200
Wellesley, MA 02481 USA
800-660-2660

0883-20072 Rev. F

Revised 03/2023