

# medCOMP®

## Tri-Flow Catheter

### Triple Lumen

### TEMPORARY CATHETER

### INSTRUCTIONS FOR USE

INDICATIONS FOR USE:

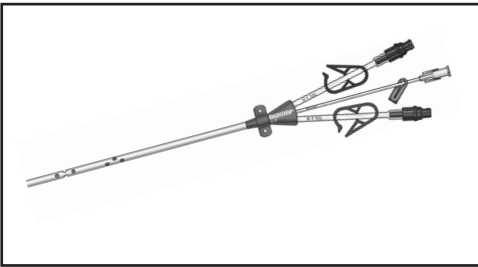
- The Medcomp® Tri-Flow Triple Lumen Catheter is designed for acute central vein catheterization, TPN, fluid administration, drug infusion, and continuous therapies. It may be inserted percutaneously and is ideally placed in the internal jugular vein. Although this catheter may be inserted into the subclavian or femoral vein, the internal jugular is the preferred site.

CONTRAINDICATIONS:

- This catheter is not intended for dialysis, or any use other than that which is indicated. Do not implant catheter in thrombosed vessels.

DESCRIPTION:

- The Tri-Flow Catheter lumens are manufactured from thermosensitive material which provides increased patient comfort while providing excellent biocompatibility.



POTENTIAL COMPLICATIONS:

- Air Embolus
- Bacteremia
- Brachial Plexus Injury
- Cardiac Arrhythmia
- Cardiac Tamponade
- Central Venous Thrombosis
- Endocarditis
- Exit Site Infection
- Exsanguination
- Femoral Artery Bleed
- Femoral Nerve Damage
- Hematoma
- Hemorrhage
- Hemothorax
- Inferior Vena Cava Puncture
- Laceration of the Vessel
- Lumen Thrombosis
- Mediastinal Injury
- Perforation of the Vessel
- Pleural Injury
- Pneumothorax
- Retroperitoneal Bleed
- Right Atrial Puncture
- Septicemia
- Subclavian Artery Puncture
- Subcutaneous Hematoma

- Superior Vena Cava Puncture
- Thoracic Duct Laceration
- Vascular Thrombosis
- Venous Stenosis

- Before attempting the insertion, ensure that you are familiar with the potential complications and their emergency treatment should any of them occur.

WARNINGS:


- In the rare event that a hub or connector separates from any component during insertion or use, take all necessary steps and precautions to prevent blood loss or air embolism and remove the catheter.

- Do not advance the guidewire or catheter if unusual resistance is encountered.

- Do not insert or withdraw the guidewire forcibly from any component. The wire may break or unravel. If the guidewire becomes damaged, the catheter and guidewire must be removed together.

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

- This catheter is for Single Use Only.

-  Do not resterilize the catheter or accessories by any method.
- Re-use may lead to infection or illness/injury.

- The manufacturer shall not be liable for any damages caused by re-use or resterilization of this catheter or accessories.

- Contents sterile and non-pyrogenic in unopened, undamaged package.

- STERILE

EO
- Do not use catheter or accessories if package is opened or damaged.
  - Do not use catheter or accessories if any sign of product damage is visible.

- End caps are not intended to be punctured with a needle.

CATHETER PRECAUTIONS:

- Do not use sharp instruments near the extension lines or tubing. Do not use scissors to remove dressing, as this could possibly cut or damage catheter. Do not suture through any part of the catheter. Catheter tubing can tear when subjected to excessive force or rough edges.

- Use only smooth jawed forceps for clamping when not using clamps supplied with the catheter. We recommend using only line extension clamps which have been provided for clamping. Clamping the catheter repeatedly in the same spot could weaken the tubing. Change the position

of the clamp regularly to prolong the life of the tubing. Avoid clamping near the adapter and hub of the catheter. Do not clamp the lumen portion of the catheter. Clamp only the extensions. Examine tubing for damage at the end of each treatment.

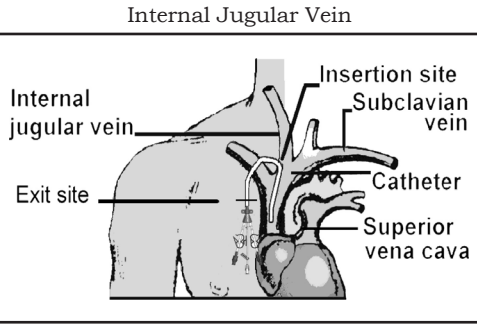
- Tape end caps (or other types used) between treatments to safeguard them against accidental removal.

- It is recommended that only luer lock (threaded) connections be used with this catheter (including syringes, bloodlines, IV tubing, and end caps). Repeated over tightening bloodlines, syringes, and caps will reduce connector life and could lead to potential connector failure. Inspect the catheter frequently for nicks, scrapes, cuts, etc. which could impair its performance.

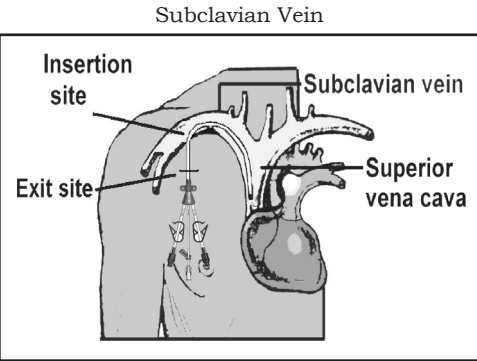
- Do not use any alcohol based solutions on this catheter.

INSERTION SITES:

- The patient should be in a modified Trendelenburg position, with the upper chest exposed and the head turned slightly to the side opposite the insertion area. A small rolled towel may be inserted between the shoulder blades to facilitate the extension of the chest area.



- Have patient lift his/her head from the bed to define the sternomastoid muscle. Catheterization will be performed at the apex of a triangle formed between the two heads of the sternomastoid muscle. The apex should be approximately three finger breadths above the clavicle. The carotid artery should be palpated medial to the point of catheter insertion.

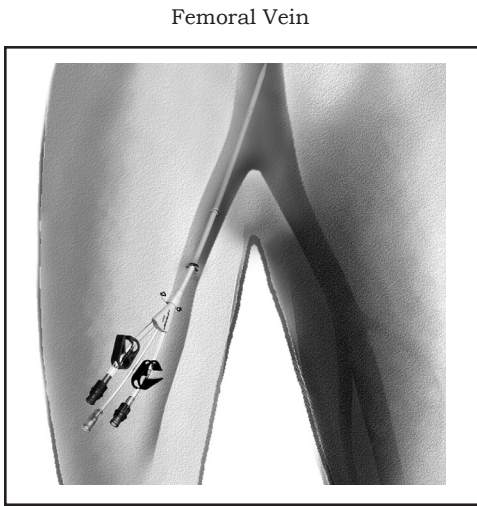
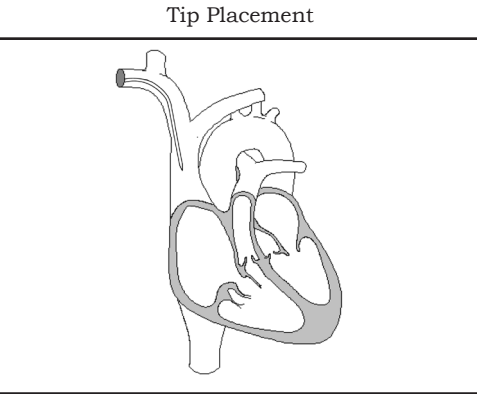


- Note the position of the subclavian vein, which is posterior to the clavicle, superior to the first rib, and anterior to the subclavian artery. (At a point just

lateral to the angle made by the clavicle and the first rib.)

**Warning:** Patients requiring ventilator support are at increased risk of pneumothorax during subclavian vein cannulation, which may cause complications.

**Warning:** Extended use of the subclavian vein may be associated with subclavian vein stenosis.



- The patient should lie completely on his/her back. Both femoral arteries should be palpated for site selection and consequence assessment. The knee on the same side of the insertion site should be flexed and the thigh abducted. Place the foot across the opposite leg. The femoral vein is then posterior/medial to the artery.

**Caution:** The incidence of infection may be increased with femoral vein insertion.

- Confirm final position of catheter with chest x-ray. Routine x-ray should always follow the initial insertion of this catheter to confirm proper tip placement prior to use.

DIRECTIONS FOR SELDINGER INSERTION

- Read instructions carefully before using this device. The catheter should be inserted, manipulated, and removed by a qualified, licensed physician or other qualified health care professional under the direction of a physician.

- The medical techniques and procedures described in these instructions for use do not represent all medically acceptable protocols, nor are they intended as a substitute for the physician's experience and judgment in treating any specific patient.

- Use standard hospital protocols when applicable.

- Strict aseptic technique must be used during insertion, maintenance, and catheter removal procedures. Provide a sterile operative field. The Operating Room is the preferred location for catheter placement. Use sterile drapes, instruments, and accessories. Shave the skin above and below the insertion site. Perform surgical scrub. Wear gown, cap, gloves, and mask. Have patient wear mask.
- The selection of the appropriate catheter length is at the sole discretion of the physician. To achieve proper tip placement, proper catheter length selection is important. Routine x-ray should always follow the initial insertion of this catheter to confirm proper placement prior to use.

- Administer sufficient local anesthetic to completely anesthetize the insertion site.

- Insert the introducer needle with attached syringe into target vein. Aspirate to insure proper placement.

- Remove the syringe, and place thumb over the end of the needle to prevent blood loss or air embolism. Draw flexible end of guidewire back into advancer so that only the end of the guidewire is visible. Insert advancer's distal end into the needle hub. Advance guidewire with forward motion into and past the needle hub into the target vein.

**Caution:** The length of the wire inserted is determined by the size of the patient. Monitor patient for arrhythmia throughout this procedure. The patient should be placed on a cardiac monitor during this procedure. Cardiac arrhythmias may result if guidewire is allowed to pass into the right atrium. The guidewire should be held securely during this procedure.

**Caution:** When introducer needle is used, do not withdraw guidewire against needle bevel to avoid possible severing of guidewire.

- Remove the needle, leaving guidewire in the vessel. Enlarge cutaneous puncture site with scalpel.

- Thread the dilator over the proximal end of the guidewire. Dilate subcutaneous tissue and vein wall to allow easy passage of catheter into target vein.

**Caution:** Insufficient tissue dilation can cause compression of the catheter lumen against the guidewire causing difficulty in the insertion and removal of the guidewire from the catheter. This can lead to bending of the guidewire.

- Remove the dilator leaving the guidewire in place.

**Caution:** Do not leave vessel dilator in place as an indwelling catheter to avoid possible vessel wall perforation.

- Irrigate catheter with saline, then clamp catheter extensions to assure that saline is not inadvertently drained from catheter. Use clamps provided.

**Caution:** Do not clamp the lumen portion of the catheter. Clamp only the extensions. Do not use serrated forceps, use only the in-line clamps provided.

- Open distal extension clamp. Thread the catheter over proximal end of the guidewire.

- Ease the catheter through the subcutaneous tissue and into the target vein.

- Make any adjustments to catheter under fluoroscopy. The distal tip should be located just before the junction of the superior vena cava and the right atrium. Femoral tip placement to be determined by physician.

- Once proper placement is confirmed, remove guidewire and close slide clamp.

- Attach syringes to all extensions and open clamps. Blood should aspirate easily from all lumens. If the lumens exhibit excessive resistance to blood aspiration, the catheter may need to be rotated or repositioned to obtain adequate blood flows.

- Once adequate aspiration has been achieved, all lumens should be irrigated with saline filled syringes using quick bolus technique. Assure that extension clamps are open during irrigation procedure.

- Close the extension clamps, remove the syringes, and place an end cap on each luer lock connectors. Avoid air embolism by keeping extension tubing clamped at all times when not in use and by aspirating then irrigating the catheter with saline prior to each use. With each change in tubing connections, purge air from the catheter and all connecting tubing and caps.

- To maintain patency, a heparin lock must be created in all lumens. Refer to hospital heparinization guidelines.

**Caution:** Assure that all air has been aspirated from the catheter and extensions. Failure to do so may result in air embolism.

- Once the catheter is locked with heparin, close the clamps and install end caps onto the extensions' female luers.

19. Confirm proper tip placement with fluoroscopy. The distal venous tip should be located just before the junction of the superior vena cava and the right atrium. Femoral tip placement to be determined by physician.

**Caution:** Failure to verify catheter placement may result in serious trauma or fatal complications.

**CATHETER SECUREMENT AND WOUND DRESSING:**

20. Suture the catheter to the skin using the suture wing. Do not suture the catheter tubing.

**Caution:** Care must be taken when using sharp objects or needles in close proximity to catheter lumen. Contact from sharp objects may cause catheter failure.

21. Cover the insertion site with an occlusive dressing.
22. Catheter must be secured/sutured for entire duration of implantation.
23. Record catheter length and catheter lot number on patient’s chart.

**INFUSION**

- The heparin solution must be removed from each lumen prior to treatment to prevent systemic heparinization of the patient. Aspiration should be based on hospital/facility protocol.
- Before treatment begins, all connections should be examined carefully.
- Frequent visual inspection should be conducted to detect leaks to prevent blood loss or air embolism.
- If a leak is found, the catheter should be clamped immediately.

**Caution:** Only clamp catheter with in-line clamps provided.

- Necessary remedial action must be taken prior to the continuation of the treatment.

**Note:** Excessive blood loss may lead to patient shock.

- Treatment should be performed under physician’s instructions.

**HEPARINIZATION**

- If the catheter is not to be used immediately for treatment, follow the suggested catheter patency guidelines.
- To maintain patency between treatments, a heparin lock must be created in each lumen of the catheter.
- Follow hospital protocol for heparin concentration.

- Draw heparin into syringes, corresponding to the amount designated on each extension. Assure that the syringes are free of air.
- Remove end caps from the extensions.
- Attach a syringe containing heparin solution to the female luer of each extension.
- Open extension clamps.
- Aspirate to insure that no air will be forced into the patient.
- Inject heparin into each lumen using quick bolus technique.

**Note:** Each lumen should be completely filled with heparin to ensure effectiveness.

- Close extension clamps.

**Caution:** Extension clamps should only be open for aspiration, flushing, and infusion treatment.

- Remove syringes.
- Attach a sterile end cap onto the female luers of the extensions.

- In most instances, no further heparin is necessary for 48-72 hours, provided the lumens have not been aspirated or flushed.

**SITE CARE**

- Clean skin around catheter. Cover the exit site with occlusive dressing and leave extensions, clamps, and caps exposed for access by staff.
- Wound dressings must be kept clean and dry.

**Caution:** Patients must not swim, shower, or soak dressing while bathing.

- If profuse perspiration or accidental wetting compromises adhesion of dressing, the medical or nursing staff must change the dressing under sterile conditions.

**CATHETER PERFORMANCE**

**Caution:** Always review hospital or unit protocol, potential complications and their treatment, warnings, and precautions prior to undertaking any type of mechanical or chemical intervention in response to catheter performance problems.

**Warning:** Only a physician familiar with the appropriate techniques should attempt the following procedures.

**INSUFFICIENT FLOWS:**

The following may cause insufficient blood flows:

- Occluded proximal holes due to clotting or fibrin sheath.
- Occlusion of the side holes due to contact with vein wall.

Solutions include:

- Chemical intervention utilizing a thrombolytic agent.

**MANAGEMENT OF ONE-WAY OBSTRUCTIONS:**

One-way obstructions exist when a lumen can be flushed easily but blood cannot be aspirated. This is usually caused by tip malposition.

One of the following adjustments may resolve the obstruction:

- Reposition catheter.
- Reposition patient.
- Have patient cough.

- Provided there is no resistance, flush the catheter vigorously with sterile normal saline to try to move the tip away from the vessel wall.

**INFECTION:**

**Caution:** Due to the risk of exposure to HIV (Human Immunodeficiency Virus) or other blood borne pathogens, health care professionals should always use Universal Blood and Body Fluid Precautions in the care of all patients.

- Sterile technique should always be strictly adhered to.
- Clinically recognized infection at a catheter exit site should be treated promptly with the appropriate antibiotic therapy.

- If a fever occurs in a patient with a catheter in place, take a minimum of two blood cultures from a site distant from catheter exit site. If blood culture is positive, the catheter must be removed immediately and the appropriate antibiotic therapy initiated. Wait 48 hours before catheter replacement. Insertion should be made on opposite side of original catheter exit site, if possible.

**CATHETER REMOVAL**

**Warning:** Only a physician familiar with the appropriate techniques should attempt the following procedures.

**Caution:** Always review hospital or unit protocol, potential complications and their treatment, warnings, and precautions prior to catheter removal.
















- Cut sutures from suture wing. Follow hospital protocol for removal of skin sutures.
- Withdraw catheter through the exit site.
- Apply pressure to exit site for approximately 10-15 minutes or until bleeding stops.
- Apply dressing in a manner to promote optimal healing.

**WARRANTY**

**Medcomp® WARRANTS THAT THIS PRODUCT WAS MANUFACTURED ACCORDING TO APPLICABLE STANDARDS AND SPECIFICATIONS. PATIENT CONDITION, CLINICAL TREATMENT, AND PRODUCT MAINTENANCE MAY AFFECT THE PERFORMANCE OF THIS PRODUCT. USE OF THIS PRODUCT SHOULD BE IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED AND AS DIRECTED BY THE PRESCRIBING PHYSICIAN.**

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SYMBOL TABLE		
5.1.1		Manufacturer *
5.3.4		Keep Dry *
5.6.3		Non-pyrogenic *
5.3.2		Keep Away from Sunlight *
5.2.3		Sterilized Using Ethylene Oxide *
5.2.8		Do Not Use if Package is Damaged *
5.1.4		Use-by Date *
5.2.6		Do Not Resterilize *
5.1.5		Batch/Lot Number *
5.1.6		Catalogue Number *
5.4.4		Caution, consult Accompanying Documents *
5.4.2		Do Not Re-use *
5.4.2		Consult Instructions for Use *
Rx Only		Prescription Use Only ***
5.3.7		Upper and Lower Temperature Limits *

\* This symbol is in accordance with ISO 15223-1.  
\*\*\* FDA guidance Use of Symbols in Labeling.  
**Note: Temperature symbols : "This symbol only applies to kits with drugs".**



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