INSTRUCTIONS FOR USE

INDICATIONS FOR USE:
- The CT Midline Catheter is indicated for Short-term peripheral access to the peripheral venous system for continuous infusions, blood sampling, and power injection of contrast media. The maximum recommended injectate flow rate varies by catheter French size and is noted on the catheter.

IMPORTANT INFORMATION PERTAINING TO POWER INJECTION:
- Contrast media should be warmed to body temperature prior to power injection. Warning: Contrast media is not compatible with contrast to body temperature prior to power injection may result in catheter failure.
- Vigorously flush the CT Midline catheter using a 10cc or larger syringe and sterile saline prior use and immediately following the completion of power injection studies. This will ensure the efficiency of the catheter and prevent possible damage to the catheter. Resistance to flushing may indicate partial or complete catheter occlusion. Do not proceed with power injection study until occlusion has been cleared.

WARNING:
- Failure to ensure the presence of visible defects. If needle access is attempted, the needleless access port must not be used with needles, blunt cannula, or other non-luer connectors, or luer connectors with visible defects. If needle access is attempted, the needleless access port must be replaced immediately. Do not exceed 100 actualizations. Follow local institutional policy.

CONTRAINdications:
- This catheter is not indicated for any use other than that which is indicated. Do not implant catheter in varicose vessels.
- The presence of skin related problems around the insertion site (infection, phlebitis, scars, etc.).
- The presence of device related bacteremia or septicemia.
- History of mastectomy on insertion side.
- Federal Law (USA) restricts this device to single use only.
- History of mastectomy on insertion side.

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 supervision of a qualified health care professional.
- Sterile technique must be maintained throughout the procedure.
- If needle access is attempted, the needleless access port must be replaced immediately. Do not exceed 100 actualizations. Follow local institutional policy.

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PREPARE CATHETER:
- Wash catheter under running water.
- Identify insertion site and vein, taking into account the following variables:
  - patient diagnosis
  - age and size of patient
  - unusual anatomical variables
  - type and purpose of IV therapy
  - anticipated dwell time of catheter

POTENTIAL COMPLICATIONS:
- Air Embolism
- Anaphylactic Reactions
- Infection
- Catheter occlusion
- Thrombosis
- Does not assist in alleviating pain
- External connection
- Venous obstruction
- Migration/Infusion
- Perfusion of the vessel
- Septic
- Subcutaneous hematoma
- Thrombosis
- Do not use syringes near the catheter tip.
- Caution: Never leave sheath in place as an indwelling catheter. Damage to the vessel will occur.
- 10. Insert dilator sheath from catheter into the sheath until catheter tip is correctly positioned in the target vein.
- Remove the tear-away sheath by slowly pulling the sheath out of the vessel while simultaneously splitting the sheath by grabbing the tabs and pulling them apart (a slight twisting motion may be helpful).
- Caution: Do not pull apart the portion of sheath that remains in the vessel. To avoid vessel damage, pull the sheath as far as possible and tear the sheath only few centimeters at a time.
- 13. Once adequate aspiration has been achieved, the sheath should be irrigated with saline filled syringe(s). Clamping(s) should be open for this procedure.

CATHETER SECUREMENT AND WOUND DRESSING:
- The insertion site and external portion of the sheath should always be covered with a occlusive dressing.
- 15. Cover the exit site with an occlusive dressing according to the facility policy.
- 16. Record catheter length, catheter lot number, and tip position on patient’s chart.

POWER INJECTION PROCEDURE:
- 1. Remove the injection/needleless cap from the CT Midline catheter.
- 2. Using a 10cc or larger syringes, aspirate catheter lumen(s) to assure patency and remove any air bubbles.
- 3. Attach a saline filled syringe to the needleless access port and completely flush catheter. For multi-lumen catheters, flush all lumens prior to removing syringe(s) prior to clamping extension(s).

INSERTION:
- The basilic, median cubital, or cephalic vein may be catheterized. The basilic vein is the preferred site.

DIRECTIONS FOR VENIPUNCTURE INSERTION:

PRIOR TO PLACEMENT:
Identify insertion site and vein, taking into account the following variables:
- patient diagnosis
- age and size of patient
- unusual anatomical variables
- type and purpose of IV therapy
- anticipated dwell time of catheter

5. May apply tourniquet to arm about 3 inches above anticipated insertion site.

6. Insert the introducer needle with attached syringe into the target vein. Aspirate to ensure proper placement. Release tourniquet.

7. Release tourniquet. The removal of the needle with the catheter is now attempted. The catheter should be open for this procedure. Warning: Failure to ensure the presence of visible defects. If needle access is attempted, the needleless access port must be replaced immediately. Do not exceed 100 actualizations. Follow local institutional policy.

8. Remove needle, leaving guidewire in the target vein. Thread sheath/dilator over the proximal end of the guidewire into the target vein.

9. Insert sheath/dilator. The sheath/dilator may damage the catheter. The use of 10cc or larger syringes are recommended.

10. Insert dilator sheath from catheter into the sheath until catheter tip is correctly positioned in the target vein.

11. Remove the tear-away sheath by slowly pulling the sheath out of the vessel while simultaneously splitting the sheath by grabbing the tabs and pulling them apart (a slight twisting motion may be helpful).

12. Caution: Do not pull apart the portion of sheath that remains in the vessel. To avoid vessel damage, pull the sheath as far as possible and tear the sheath only few centimeters at a time.

13. Once adequate aspiration has been achieved, the sheath should be irrigated with saline filled syringe(s). Clamping(s) should be open for this procedure.

14. Remove the syringe(s) and close extension clamp(s). Avoid air embolism by keeping catheter tubing clamped at all times when not in use and keeping the sheath/dilator and guidewire in the vessel. Do not use midline catheters for continuous vesican therapy, parenteral nutrition or infusates with an osmolarity greater than 1000 mOsm/L. See Alternate Insertion Technique using Seldinger Stylet and Siplot Adapter Recept. Note: For insertion with a seldinger stylet, see Alternate Insertion Technique using Seldinger Stylet and Siplot Adapter Recept.
**Gravity Flow**

**PATENCY.**

**saline and then locked to maintain normal saline prior to drug solution.

• assessed to determine if catheter migration external length of the catheter should be changed per institutional policy or patient shock.

- Disconnect the power injection device.

- Flush the CT Midline catheter with 10cc of sterile normal saline, using a 10cc or larger syringe. For multi-lumen catheters, flush all lumens after power injection.

- Replace the injection/needleless cap on the CT Midline catheter.

**INFUSION**

- Before infusion 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 and replaced.

**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.

**CATHETER REMOVAL**

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

**Caution:** Always review facility protocol, patient medical history, current condition, and any changes, warnings, and precautions prior to catheter removal.

1. Wash hands, gather equipment.

2. Remove old dressing and inspect insertion site for redness, tenderness, and drainage.

3. Grasp catheter near insertion site and using a slow steady motion, remove catheter from vein. If resistance is felt - STOP. Retake the catheter and apply a warm compress to the extremity for 20-30 minutes.

4. Resume removal procedure. If catheter remains “stuck” follow institutional policy for further intervention.

5. Apply pressure, if necessary, until bleeding stops and dress site following institutional policy. **Note:** Ingest catheter and measure length. It must be equal to baseline measurement taken when the catheter was inserted.

**ALTERNATE INSERTION TECHNIQUE USING STIFFENING STYLET AND SIDEPORT ADAPTER**

**PREPARE CATHETER:**

- Preflush catheter, sideport adapter, and needleless access ports.

**Infectious Caps - injection cap(s) or needleless access port(s) should be changed per institutional policy.**

**CATHETER PERFORMANCE**

- Occluded/Partially Occluded Catheter - If resistance is encountered to aspirating or flushing, the lumen may be partially or completely occluded.

**Warning:** Do not flush against resistance.

- If the lumen will neither aspirate nor flush, and it has been determined that the catheter is occluded with blood, follow institutional decontamination procedure.

**Infection:**

- Due to risk of exposure to HIV or other blood borne pathogens, health care professionals should always use sterile Blood and Body Fluid Precautions in the care of all patients.

- Sterile technique should always be observed.

- Clinically recognized infection should be treated promptly per institutional policy.

**Caution:** Always use connector tubing needleless access ports.

- The needleless access port should not be used with needles, blunt cannula, or other non-luer connectors, or luer connectors with visible defects. If needle access is attempted, the needleless access port must be immediately replaced. Do not exceed 100 actuators.

**INSERTION:**

1. Straight aseptic technique must be used during insertion, maintenance, and catheter removal procedures. Provide a sterile operative field. Use sterile drapes, instruments, and accessories. Perform surgical scrub. Wear gown, cap, gloves, and mask.

2. Apply tourniquet to arm above anticipated insertion site to distend the vein.

3. Insert the introducer needle with attached syringe into the target vein. Aspirate to insure proper placement. Ensure guidewire is visible. Insert guidewire.

4. Remove the syringe and place thumb over the end of the needle to prevent blood loss or air embolism. Draw the flexible end of marked .018” guidewire back into advance so that only the end of the guidewire is visible. Insert the advance’s distal end into the needle hub. Advance guidewire with forward motion into and past the needle hub into the target vein.

5. Remove needle, leaving guidewire in the target vein. Thread sheath/dilator overlap into the proximal end of the guidewire into target vein.

**Caution:** DO NOT bend the sheath/dilator during insertion as bending will cause the sheath to prematurely tear. Hold sheath/dilator close to the tip (approximately 3cm from tip) when initially inserting through the skin surface. To progress the sheath/dilator towards the vein, regrasp the sheath/dilator a few centimeters (approximately 5cm) above the original grasp location and push down on the sheath/dilator. Repeat procedure until sheath/dilator is fully inserted.

**Caution:** Never leave sheath in place as an in vivo catheter. Damage to the vein will occur.

7. Remove locking collar of sideport and withdraw stylet back beyond point where the catheter is to be trimmed by at least 5 inch (1cm).

**Caution:** Never attempt to cut stylet.

**Caution:** Always withdraw stylet back beyond the tip of the catheter prior to insertion.

8. Once proper catheter length and stylet position has been achieved, tighten locking collar to keep stylet in place.

9. Remove dilator from sheath.

10. Insert distal tip of catheter into and through the sheath until catheter tip is correctly positioned in the target vein.

11. Remove the tear-away sheath by slowly pulling it out of the vessel while simultaneously splitting the sheath by grasping the tabs and pulling them apart (a slight twisting motion may be helpful).

**Caution:** Do not pull apart the portion of the sheath that remains in the vessel. To avoid vessel damage, pull back the sheath as far as possible and tear the sheath only few centimeters at a time.

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

12. Remove locking collar of sideport. Remove the stylet by applying gentle pressure with the other hand above the needleless access site while grasping the stylet with the other hand and slowly pulling back with a constant motion. Remove sideport adapter and replace with needleless access port. Attach saline filled syringe to needleless access port, aspirate lumen and then irrigate with saline. Remove syringe prior to clamping extension.

**Caution:** If difficulty and/or bunching of the catheter lumen are experienced while removing the sideport, additional flushing of the catheter may be helpful. The catheter may need to be repositioned to allow for removal of the stylet.

**Caution:** Do not attempt to reinset stylet once it has been withdrawn.

**Caution:** Never leave stylet in place after catheter insertion; injury may result. Do not remove both stylet and sideport adapter after insertion.

**13. Continue following directions at step #13 of “Insertion” Section.**