Additional Instructions for Use of PowerPICC® Provena™ Catheters in Pediatric Patients

The following instructions are to be used in conjunction with the primary PowerPICC® Provena™ catheter Instructions for Use and facility protocol. For additional information regarding placement and use of PICCs in pediatric patients, reference appropriate clinical guidelines, such as those provided by the National Association of Neonatal Nurses (NANN), the Pediatrics Special Interest Group (PediSIG) and the Infusion Nurses Society (INS).

Indications for Use / Contraindications:
Consult primary PowerPICC® Provena™ catheter Instructions for Use for catheter indications for use and contraindications.

Possible Complications:
Consult primary PowerPICC® Provena™ catheter Instructions for Use for possible complications.

Caution: Insertion techniques and placement locations are often modified according to the size and developmental age of the child. Only clinicians experienced in proper positioning and placement of PICCs in pediatric patients should place this catheter in this patient population.

Note: Insertion of PICCs in pediatric patients may require the use of accessories or components not included in this kit configuration, based on the size and developmental age of the child and facility protocol. Follow manufacturer’s recommendations regarding use of any drugs or medications such as chlorhexidine prep solutions, lidocaine injection and heparin lock solutions.

Catheter and Vessel Selection:
"Assess the patient's condition; age; diagnosis; comorbidities; condition of the vasculature at the insertion site and proximal to the intended insertion site; condition of skin at intended insertion site; history of previous venipunctures and access devices; type and duration of infusion therapy; and patient preference for VAD site selection." 6 In addition, facility policies, procedures, and/or practice guidelines can be used to assess proper site selection.

"Common sites for PICC insertion include the arm and the lower extremity if the patient is non-moblie. The vein of choice in the upper arm is the basilic vein because of its larger diameter and fewer valves. The cephalic and brachial veins in the upper arm are also an option but have a higher risk of insertion-related complications. 7 "Scalp veins can be used for insertions in children up to 18 months of age." 8 However, this catheter has not been evaluated for risks associated with placement in scalp veins. 9 For lower extremity PICCs, the saphenous or popliteal vein can be used. 3 Although the saphenous and popliteal veins may be used on pediatric patients, this catheter has not been evaluated for risks associated with tip placement in the Inferior Vena Cava (IVC).

This catheter size may not be suitable for all pediatric subpopulations. "Matching the most appropriate catheter size to the patient is crucial. In the clinical setting, the catheter-to-vessel ratio used is 50%." 2

Note: These catheters feature a reverse-taper catheter design. Taper length and size should be taken into account when selecting the appropriate vessel and determining catheter length.

Skin Preparation:
Prep the insertion site and surrounding skin per facility policies, procedures, and/or practice guidelines. Consider chlorhexidine gluconate or povidone iodine as disinfectant agents for skin antisepsis.

"Use all chlorhexidine antiseptic agents with caution in infants under 2 months of age." 3 Remove povidone iodine prior to dressing application to minimize risk of tissue damage, absorption, and thyroid suppression. 3

Warning: As reported in literature, anaphylactic or anaphylactic-like reactions occur in a small percentage of the population during placement, positioning, flushing, and manipulation of the catheter and/or use of chlorhexidine gluconate (CHG) in some patients. Be aware of the potential symptoms or signs of these reactions and take precautionary steps as dictated by institution protocol for their prevention or treatment.

Insert and Advance the Catheter:
INS and PediSIG guidelines recommend the lower 1/3 of the superior vena cava (SVC) as the ideal tip location for upper body PICC insertions. 10 “Overtime, the patient’s growth can render the catheter tip location inappropriate.” 2 Ensure the catheter lies parallel to the vessel wall.

Warning: This is not a right atrium catheter. Avoid positioning the catheter tip in the right atrium. Placement or migration of the catheter tip into the right atrium may cause cardiac arrhythmia, myocardial erosion or cardiac tamponade. The risk of these complications may be more likely in neonatal patients.

Warning: The Sherlock 3CG® Tip Confirmation System is not indicated for pediatric nor neonatal use for tip confirmation. In these patients, users may rely on magnetic navigation during catheter advancement and external measurement combined with chest X-ray or fluoroscopy to confirm the catheter tip location per facility protocol and clinical expertise.

Note: When the patient’s body size is small relative to the Sherlock® or Sherlock 3CG® sensor, the sensor may not detect or properly track the stylot during magnetic navigation. In these cases, the user can refer to the Sherlock® hardware IFU for troubleshooting and rely on clinical expertise.

Catheter Maintenance:
Follow the primary PowerPICC® Provena™ catheter Instructions for Use regarding flushing and locking of the catheter.

Caution: DO NOT USE A SYRINGE SMALLER THAN 10 mL TO FLUSH AND CONFIRM PATENCY. Patency should be assessed with sterile saline using a 10 mL syringe or larger. Upon confirmation of patency, administration of medication should be given in a syringe appropriately sized for the dose. Do not infuse against resistance.

Note: When infusion volume is a concern in small or pediatric patients, flush with 3mL per lumen or per facility guidelines. Periodically confirm catheter placement, tip location, patency, and security of dressing.

Injection of Contrast Media:
Follow the primary PowerPICC® Provena™ catheter Instructions for Use regarding injection of contrast media.

Contrast media injection rate and method should be determined based on diagnostic procedure, patient size and facility protocol. Do not exceed maximum injection rate indicated for the catheter.

Warning: Catheter indication for power injection of contrast media implies the catheter’s ability to withstand the procedure. A suitably trained clinician is responsible for evaluating the health status of a patient as it pertains to a power injection procedure.

Contrast media should be warmed to body temperature prior to injection. Room temperature contrast is more viscous than warmed contrast, and will develop higher internal pressures during injection. Internal catheter pressures are also greater with small diameter catheters.

Warning: Failure to warm contrast media to body temperature prior to power injection may result in catheter failure.

Central Venous Pressure Monitoring:
Follow the primary PowerPICC® Provena™ catheter Instructions for Use regarding central venous pressure monitoring.

It is recommended that a continuous infusion of saline is maintained through the catheter while measuring central venous pressure to improve accuracy of CVP results. Rates of continuous infusion used in pediatric patients may be different than those recommended for general population.

Note: Catheter testing for verification of central venous pressure was conducted at pressures of 1 mmHg and above.

References:
1 Journal of Infusion Nursing (January/February 2016). Infusion Therapy Standards of Practice.
4 Halpern M.D., Georges. "Allergic and Toxic Reactions." Adverse Events During Infusion Therapy Symposium, University of California, Davis School of Medicine. (1993)

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