**EZ-IO® Distal Femur Insertion Site Identification – Infant/Child**

Secure the leg out-stretched to ensure the knee does not bend.  Identify the patella by palpation.

The insertion site is just proximal to the patella (maximum 1cm) and approximately 1-2 cm **medial** to midline.

**EZ-IO® Distal Femur Insertion Technique – Infant/Child**

* Prepare the site by using antiseptic of your choice
* Use a clean “no touch” technique
* Remove the EZ-IO® Needle Set cap
* Aim the needle set toward the center of the bone at a 90-degree angle
* Push the needle set tip through the skin until the tip rests against the bone
* The 5 mm mark must be visible above the skin for confirmation of adequate needle set length
* Gently drill, immediately release the trigger when you feel the “pop” or “give” as the needle set enters the medullary space
	+ Avoid recoil – do NOT pull back on the driver when releasing the trigger
* Hold the hub in place and pull the driver straight off
* Continue to hold the hub while twisting the stylet off the hub with counter clockwise rotations
	+ The catheter should feel firmly seated in the bone (1st confirmation of placement)
* Place the stylet in a sharps container
	+ Always dispose of all sharps and biohazard materials from intraosseous lines using standard biohazard practices and disposal containers. If using the NeedleVISE® 1 port sharps block, place on stable surface and use a one-handed technique.
* Place the EZ-Stabilizer® Dressing over the hub
* Attach a primed EZ-Connect**®** Extension Set to the hub, firmly secure by twisting clockwise
* Pull the tabs off the EZ-Stabilizer® Dressing to expose the adhesive, apply to the skin
* Aspirate for blood/bone marrow (2nd confirmation of placement)
	+ Inability to withdraw/aspirate blood from the catheter hub does not mean the insertion was unsuccessful. Consider attempting to aspirate after the flush. Site placement can also be confirmed by ability to administer pressurized fluids, and noting the pharmacologic effects of medication administration after flow is established.
* Continue per instructions below: patients responsive or unresponsive to pain

**NOTE:** The leg should remain immobilized until the IO catheter is removed.

**NOTE:** In the unlikely event that the battery on the driver fails, clinicians may manually insert the needle set by penetrating the bone cortex with steady, firm pressure. Do NOT use excessive force, do NOT rock or bend needle set during insertion.

**Recommended Anesthetic for Infant/Child Responsive to Pain:**

* Observe recommended cautions/contraindications to using 2% preservative and epinephrine free lidocaine (intravenous lidocaine)
* Confirm lidocaine dose per institutional protocol

Usual initial dose is 0.5 mg/kg, not to exceed 40 mg

* Prime extension set with lidocaine

*Note that the priming volume of the EZ-Connect® Extension Set is approximately 1.0 mL*

For small doses of lidocaine, consider administering by carefully attaching syringe directly to needle hub (prime extension set with normal saline)

* Slowly infuse lidocaine over 120 seconds

Allow lidocaine to dwell in IO space 60 seconds

* Flush with 2-5 mL of normal saline
* Slowly administer subsequent lidocaine (half the initial dose) IO over 60 seconds

Repeat PRN

* Consider systemic pain control for patients not responding to IO lidocaine

**Infant/Child Unresponsive to Pain**

* Prime extension set with normal saline
* Flush the IO catheter with 2-5 mL of normal saline
* Connect fluids if ordered, infusion may need to be pressurized to achieve desired rate
* Assess for any signs of extravasation/complications

Should patient develop signs that indicate responsiveness to pain, refer to section “Recommended Anesthetic for Infant/Child Responsive to Pain”

**EZ-IO® Catheter Removal Technique**

* Remove extension set and dressing
* Stabilize catheter hub and attach a Luer lock syringe to the hub
* Maintaining axial alignment, twist clockwise and pull straight out
	+ Do not rock the syringe
* Dispose of catheter with syringe attached into sharps container

The use of any medication, including lidocaine, given IV or IO is the responsibility of the treating physician, medical director or qualified prescriber and not an official recommendation of Teleflex. Teleflex is not the manufacturer of lidocaine, and the user should be familiar with the manufacturer’s instructions or directions for use for all indications, side-effects, contraindications, precautions and warnings of lidocaine.  Teleflex disclaims all liability for the use, application or interpretation of the use of this information in the medical treatment of any patient. *Lidocaine dosing recommendations were developed based on research; for additional information, please visit* [www.eziocomfort.com](http://www.eziocomfort.com)

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