

Comprehensive Protocol Development Guide¹

Training:

EZ-IO® infusion systems require specific training prior to use.

INDICATIONS:

EZ-IO® 25mm (40 kg and over) & EZ-IO® 15mm (3–39 kg) EZ-IO® 45mm (40 kg and over with excessive tissue)

For adults and pediatrics anytime in which vascular access is difficult to obtain in emergent, urgent or medically necessary cases.

CONTRAINDICATIONS:

- Fracture of the bone selected for IO infusion (*consider alternate sites*)
- Excessive tissue at insertion site with the absence of anatomical landmarks (*consider alternate sites*)
- Previous significant orthopedic procedures (*IO within 24 – 48 hours, prosthesis - consider alternate sites*)
- Infection at the site selected for insertion (*consider alternate sites*)

CONSIDERATIONS:

Flow rate: Ensure the administration of a rapid and vigorous 10ml flush with normal saline prior to infusion **“NO FLUSH = NO FLOW”**

- Repeat syringe bolus (flush) as needed

Pain: If prescribed by a physician the 2% lidocaine without preservatives or epinephrine (cardiac lidocaine) must be infused slowly to prevent it from being sent directly into the central circulation. Medications intended to remain in the medullary space, such as a local anesthetic, must be administered very slowly until the desired anesthetic effect is achieved.

****Consult pharmaceutical DFU’s for lidocaine 2% (preservative and epinephrine-free) prior to infusion***

****Authorized prescriber must authorize appropriate dosage range and titration***

Pain Management Bibliography available to aid decision (M-220)

EQUIPMENT:

- One (1) EZ-IO Power Driver
- Appropriate size intraosseous Needle Set based on patient size and weight
- EZ-IO 15mm 3-39 kg
- EZ-IO 25mm 40kg and greater
- EZ-IO 45mm 40kg and greater with excessive tissue
- One (1) EZ-Connect®
- Two (2) 10 ml syringes
- Sterile saline solution for flush **Note:** Consider 2% lidocaine without preservatives or epinephrine (cardiac lidocaine) for patients responding to pain
- Non-sterile non-latex gloves
- Antiseptic agent per institution protocol
- One (1) semi-permeable transparent dressing (optional)
- One (1) sterile 2x2 or 4x4 gauze pad
- One (1) (appropriate volume and type) intravenous solution
- One (1) fluid administration set (institution specific)
- One (1) fluid administration pump or pressure bag (institution specific)
- EZ-Stabilizer
- EZ-IO wrist band

PROCEDURE: *If the patient is conscious, explain procedure*

- Apply non-sterile latex free gloves
- Cleanse site using antiseptic agent per institution protocol
- Allow to air dry thoroughly
- Connect appropriate Needle Set to driver
- Stabilize site
- Remove needle cap
- Insert EZ-IO needle into the selected site. **IMPORTANT:** Keep hand and fingers away from Needle Set
- Position the driver at the insertion site with the needle set at a 90-degree angle to the bone surface.

¹ This template is for illustrative purposes only. Vidacare recommends that this document be subject to internal review of the institution and edited and approved in accordance with institutional policy and procedure.

- Gently pierce the skin with the Needle Set until the Needle Set tip touches the bone.
- Ensure visualization of at least on black line Needle Set
- Penetrate the bone cortex by squeezing driver's trigger and applying gentle, consistent, steady, downward pressure (allow the driver to do the work)
 - ***Do not use excessive force.** In some patients insertion may take greater than 10 seconds, if the driver sounds like it is slowing down during insertion; reduce pressure on the driver to allow the RPMs of the needle tip to do the work.
 - *In the unlikely event that the battery on the Driver fails clinicians may manually finish inserting the EZ-IO Needle Set. Grasp the Needle Set and, rotate arm, while pushing the needle into the intraosseous space. This may take several minutes.
- On adult patients when accessing the tibia using the 25mm Needle Set or the proximal humerus using the 45mm Needle Set, you may stop by releasing the trigger when the hub is almost flush with the skin.
- On pediatric patients when you feel a decrease in resistance indicating the Needle Set has entered the medullary space, release the trigger.
- Remove EZ-IO Power Driver from Needle Set while stabilizing the catheter hub
- Remove stylet from catheter by turning counter-clockwise and immediately dispose of stylet in appropriate biohazard sharps container
 - ***NEVER** return used stylet to the EZ-IO kit
- Secure site with EZ Stabilizer
- Connect primed EZ-Connect to exposed Luer-lock hub
- Confirm placement
- Syringe bolus: flush the catheter with 10 ml of normal saline
 - * If the patient is responsive to pain, the clinician may consider 2% lidocaine without preservatives or epinephrine (cardiac lidocaine) for anesthetic effect prior to the 10ml normal saline flush
- Assess for potential IO complications
- Disconnect 10 ml syringe from EZ-Connect extension set
- Connect primed EZ-Connect extension set to primed IV tubing
- Begin infusion utilizing a pressure delivery system
- Secure tubing per institution policy
- Continue to monitor extremity for complications
- Place EZ-IO armband on patient, document time and date