INDICATIONS FOR USE:
For intraosseous access anytime in which vascular access is difficult to obtain in emergent, urgent or medically necessary cases.

ADULTS
• Proximal humerus
• Proximal tibia
• Distal tibia

PEDIATRICS
• Proximal humerus
• Proximal tibia
• Distal tibia
• Distal femur

CONTRAINDICATIONS FOR USE:
• Fracture in target bone.
• Previous, significant orthopedic procedure at the site, prosthetic limb or joint.
• IO catheter use in past 48 hours of the target bone.
• Infection at the area of insertion.
• Excessive tissue (severe obesity) and/or absence of adequate anatomical landmarks.

WARNINGS AND PRECAUTIONS FOR EZ-IO® INTRAOSSEOUS VASCULAR ACCESS SYSTEM:
CAUTION: Use aseptic technique.
CAUTION: Check skin, adipose and muscle thickness before insertion.
CAUTION: Extra care should be taken during insertion and site monitoring when used in patients with bone diseases that increase the likelihood of fracture, extravasation and dislodgement.
CAUTION: Do not recap Needle Sets or reconnect separated components. Use biohazard and sharps disposal precautions.
CAUTION: Before administering vesicant, toxic, or highly-concentrated drugs, check the IO Catheter again for placement and patency.
CAUTION: Use caution with chemotherapeutic agents.
CAUTION: Monitor insertion site frequently for extravasation.
CAUTION: Stylet and Catheter are NOT MRI compatible.
CAUTION: Do not leave the Catheter inserted for longer than 24 hours.
CAUTION: Needle Sets are single use only.

STORAGE: -20°C to 50°C (-4°F to 122°F).
**EZ-IO® NEEDLE SETS: DESCRIPTION**

- Comprised of Catheter with Luer-lock connection, Stylet, Safety Cap.
- 15 gauge, 304 stainless steel in 15 mm, 25 mm and 45 mm lengths.
- Sterile, non-pyrogenic, in protective packaging.
- Intended for use with EZ-IO® Power Driver.

---

**EZ-IO® Power Driver and Needle Sets: Description**

1. Clean insertion site per institutional protocol/policy.
2. Prepare supplies.
   a. Prime EZ-Connect®.
      - Unlock clamp.
      - Prime set and purge air.
   b. Open EZ-Stabilizer™ package.
3. Attach Needle Set to EZ-IO® Power Driver and remove Safety Cap from Catheter.
   **IMPORTANT:** Only handle Needle Set by the plastic Hub.
   **IMPORTANT:** Control patient movement prior to and during procedure.
4. Push Needle Set through skin until tip touches bone.
5. 5 mm of the Catheter (at least one black line) must be visible outside the skin.
6. Squeeze trigger and apply moderate steady pressure. 
**IMPORTANT:** DO NOT USE EXCESSIVE FORCE. Use moderate steady downward pressure and allow Needle Set rotation to penetrate the bone. 
*Note:* If Driver stalls and Needle Set will not penetrate the bone, operator may be applying too much downward pressure to penetrate bone. 
*Note:* In the event of a Driver failure, disconnect the Power Driver, grasp the Needle Set Hub by hand and advance into the medullary space while twisting.

7. Advance Needle Set and release Trigger. 
**Pediatrics:** Release trigger when sudden “give” or “pop” is felt, indicating entry into medullary space. 
**Adult:** Advance Needle Set approximately 1-2 cm after entry into medullary space; in Proximal humerus for most adults Needle Set should be advanced 2 cm or until Hub is flush or against the skin.

8. Stabilize Needle Set Hub, disconnect Driver, and remove Stylet.

9. Place Stylet into NeedleVISE® for sharps containment. 
*Note:* Place the NeedleVISE® on a flat stable surface. Immediately following use of a Needle and while still holding it with one hand away from the sharp end, firmly insert the sharp pointed tip straight down into the opening in the NeedleVISE® until it stops, making sure to **KEEP YOUR FREE HAND AWAY FROM THE SHARPS SECURING DEVICE DURING INSERTION.** **DO NOT HOLD NeedleVISE® WITH FREE HAND WHILE INSERTING NEEDLE.** **ALWAYS USE ONE-HANDED TECHNIQUE WHEN INSERTING SHARP into NeedleVISE®.** Dispose of opened sharp into NeedleVISE® whether or not it has been used.

10. Obtain samples for lab analysis, if needed. 
*Note:* Only attach a Syringe directly to the EZ-IO® Catheter Hub when drawing blood for laboratory analysis (stabilize Catheter) or removal. 

11. Use of the EZ-Stabilizer™ is strongly recommended for all EZ-IO® insertions. 
   a. Place Stabilizer over Catheter Hub. 

12. Attach a primed EZ-Connect® extension set to the Hub, firmly secure by twisting clockwise. 
*Note:* Do NOT use any instruments to tighten connections. 
*Note:* To prevent valve damage, Do NOT use needles or blunt cannula to access the swabable valve. Non-standard syringes or connectors can damage the swabable valve. 
*Note:* Operator may use a sterile alcohol wipe, to swab the surface of the EZ-Connect® valve and let it air dry.

13. Attach EZ-Stabilizer™ dressing by pulling the tabs to expose the adhesive and adhere to skin.

14. For patients responsive to pain, consider 2% preservative and epinephrine free lidocaine (intravenous lidocaine), follow institutional protocols/policy. 
   a. Local anesthetics intended for the medullary space must be administered very slowly until desired anesthetic effect is achieved.

15. Flush the EZ-IO® with normal saline (0.9% Sodium Chloride) (5-10 ml for adults; 2-5 ml infant/child).  
   a. Prior to flush, aspirate slightly for visual confirmation of bone marrow. 
   b. Failure to appropriately flush the EZ-IO® Catheter may result in limited or no flow. Repeat flush as needed.  
   c. Once EZ-IO® Catheter has been flushed, administer fluids or medications as indicated.

16. Confirm Catheter placement with the following recommended methods: 
   • Stability of Catheter in the bone. 
   • Ability to aspirate after flush. 
   • Adequate flow rate.

17. Document date/time of insertion and apply EZ-IO® wristband.  
**CAUTION:** Monitor insertion site frequently for extravasation.  
**CAUTION:** Do not leave the Catheter inserted for longer than 24 hours. 

To remove EZ-IO® from patient: 
   a. Remove EZ-Connect®. 
   b. Lift & remove EZ-Stabilizer™ adhesive dressing. 
   c. Attach Luer-lock Syringe to Hub of Catheter. Withdraw the Catheter by applying traction while rotating the Syringe and Catheter clockwise. Maintain axial alignment during removal, **do NOT rock or bend the Catheter.** 
   d. Once removed, immediately place Syringe/Catheter in appropriate sharps container. 
   e. Dress site per institutional protocol/policy.

**Education and training materials available at EZIOaccess.com**