

EZ Intra-Osseous Infusion Device

Supersedes: 11-22-11

Effective: 11-01-16

INDICATIONS

Boston EMS Advanced EMTs or Paramedics may initiate an EZ intra-osseous infusion for any patient who is in need of volume replacement or medication administration due to a life threatening condition and where standard attempts at IV cannulation have failed or when IV access appears to be difficult or unlikely.

CONTRAINDICATIONS:

- Patient has evidence of current pelvic injury, bony or vascular injury to the thigh precluding tibial IO placement (may use humeral head if not contraindicated), or
- Patient has evidence of previous or current injury, or prior surgery to the knee or shoulder on that extremity (may use the other side if not contraindicated), or
- Evidence of infection at the insertion site, or
- Excessive tissue at insertion site / inability to identify landmarks

RELATIVE CONTRAINDICATIONS:

- Burns at the insertion site, except when no reasonable alternative is available
- Known severe osteoporosis

MEDICATIONS APPROVED FOR INFUSION:

All intravenous medications currently used in Boston EMS ALS ambulances are approved for infusion via intra-osseous route with one exception: HYPERTONIC SALINE may not be infused through an intra-osseous route.

EQUIPMENT:

- EZ-IO™ Driver and Needle Set
- Chlorascrub Swabs
- EZ-Connect™
- 10 ml Syringe
- 2% Lidocaine HCL
- Normal Saline (or suitable sterile fluid)
- Tape or gauze
- Pressure bag

PROCEDURE:

1. Determine EZ-IO™ Indications.
2. Rule out contraindications.
3. If the patient is conscious, advise them of the EMERGENT NEED for this procedure.
4. Wear approved Body Substance Isolation Equipment.

5. Locate insertion site. The primary EZ-IO™ needle introduction site is the proximal tibia. The humeral head can be used as an *alternative* needle introduction site if there are any contraindications to placement or inability to gain access in the proximal tibia. In pediatric patients 39kg or less, the distal femur insertion site may be used.
6. If the humeral head is used as the needle insertion site, be sure that the upper extremity is appropriately stabilized.
7. Cleanse insertion site using aseptic technique.
8. Select the appropriate needle size for the patient (See appendix below for manufacture's recommended needle size guide).
9. Prepare the EZ-IO™ driver and needle set.
10. Stabilize the target extremity and insert EZ-IO™ needle set. *Gently* power or press needle set until needle set tip touches bone. Ensure at least 5 mm of the catheter is visible.
11. Penetrate bone cortex until a sudden "give" is felt and the desired insertion depth is achieved.
12. Remove the driver from the needle set while stabilizing catheter hub.
13. Remove stylet from needle set, place stylet in sharps container.
14. Confirm placement by aspiration of bone marrow.
15. Connect primed EZ-Connect™ – extension set.
16. Flush or rapidly bolus the EZ-IO™ catheter with 10 ml of normal saline using a 10 ml syringe. Alternatively, administer 20 mg of lidocaine 2% (0.5 mg/kg IO bolus up to 20 mg for pediatric patients) via the EZ-IO™ catheter followed by 10 ml NS flush for local anesthesia if the patient reports pain at the insertion site. Any additional doses of lidocaine for local IO anesthesia require consultation with medical control.
17. Place a pressure bag on solution being infused where applicable. For medications utilizing an IV infusion pump, the medication should be infused directly via the IO catheter.
18. Begin infusion.
19. For medications utilizing IV infusion pump 'piggy back' medication on pressure bag infusion line when appropriate.
20. Dress site, secure tubing and apply wristband.
21. Frequently monitor IO catheter site and patient condition.
22. If placement is unsuccessful on the first attempt, the other leg (or humeral head) may be used to attempt IO placement if there are no contraindications. No more than one attempt may be made for each extremity.

REMOVAL OF IO CATHETER

Once inserted, the IO catheter should remain in place until removed by hospital staff at the receiving facility. In very rare cases (intractable severe pain, uncontrolled bleeding at insertion site, etc.), the IO catheter may be removed by pre-hospital personnel.

Personnel should utilize the following procedure for IO removal:

1. Attach a sterile 10 ml syringe to the catheter hub.
2. Support the patient's extremity and rotate the catheter in a clockwise direction (the same direction used to attach the syringe) while gently withdrawing the catheter.
3. Always maintain 90 degree angle to the skin over the insertion site while removing catheter to minimize complications.
4. Never rock the catheter back and forth while removing. This may cause separation of the catheter from the hub.

5. If the catheter and hub do separate, use a hemostat and remove catheter in same manner as suggested above (grasp, rotate, and gently pull).
6. If the broken catheter set is not accessible, notify emergency department staff at the receiving facility. They should contact the emergency number on the yellow wrist band for further removal instructions.

PAR LEVELS:

Three EZ-IO™ needle sets, three wristbands and three EZ-Connect™ IV tubing sets are included in each case with the driver. Restocking for each item should occur when the par level falls below two. Restocking should be done at Materials Management Division (Supply).

DOCUMENTATION OF IO NEEDLE INSERTION:

Use the Safety Pad™ to document intra-osseous needle placement in adults. EZ-IO™ needle cannula size is 15 gauge.

APPENDICES:

• Needle Sizing

15 mm needle (pink hub): patient weighs 3 – 39 kg

25 mm needle (blue hub): patient weighs 40 kg or more

45 mm needle (yellow hub): patient weighs 40 kg or more with excessive tissue over the targeted insertion site

• Manufacturer's insertion instructions can be accessed at

http://www.vidacare.com/admin/files/VIDO5-8016-REXH_02-26_HIRES.pdf