

HEALTHEAST MEDICAL TRANSPORTATION  
MEDICAL OPERATIONS MANUAL

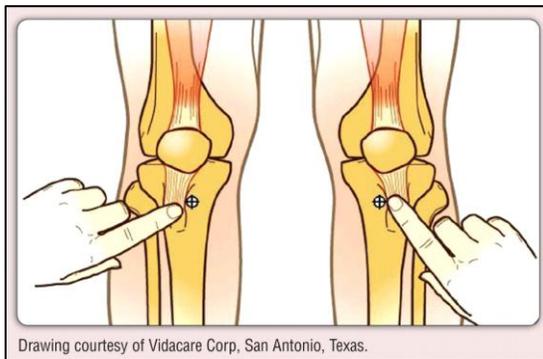
**7R INTRAOSSEOUS ACCESS**

**PATIENT CARE GOALS**

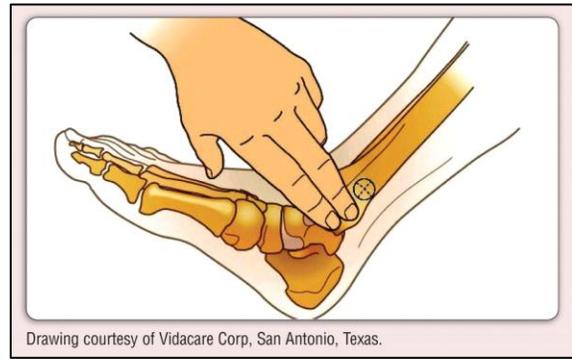
- Provide vascular access for patients in critical need of volume replacement or medication administration who either have poor vein selection or in whom one or two intravenous attempts have failed.<sup>1,2</sup>

**EMT**

1. Assemble and prepare all equipment, including a bag of normal saline with tubing purged.
2. Locate landmarks at one of the following insertion sites (see figures, below):
  - Proximal tibia – flat anteromedial surface of the tibia, one or two finger widths below the tibial tuberosity.
  - Distal medial tibia – one or two finger widths above the medial malleolus and slightly posterior to avoid the saphenous vein.
3. Prepare the site by wiping with alcohol.



Proximal tibia insertion site



Distal medial tibia insertion site

ADULT	PEDIATRIC (less than 50 kg)
<ol style="list-style-type: none"> <li>4. Choose the appropriate size needle                             <ul style="list-style-type: none"> <li>• &gt; 39 kg: Blue AD 25 mm EZ-IO needle</li> <li>• &gt; 39 kg with excess tissue Yellow LD 45 mm EZ-IO needle</li> </ul> </li> <li>5. Remove cap from the needle by rotating it until it is loose and can be pulled free.</li> <li>6. Stabilize leg with non-dominant hand, position the driver over the site at a 90-degree angle to the bone surface and insert the needle through the skin <b>only to the bone surface.</b><sup>3</sup></li> <li>7. Applying firm, steady pressure, power the</li> </ol>	<ol style="list-style-type: none"> <li>4. Choose the appropriate size needle                             <ul style="list-style-type: none"> <li>• Illinois needle as directed by appropriate Handtevy pouch</li> <li>• 3 – 39 kg: Red PD 15 mm EZ-IO needle</li> <li>• &gt; 39 kg: Blue AD 25 mm EZ-IO needle</li> </ul> </li> <li>5. Remove cap from the needle by rotating it until it is loose and can be pulled free.</li> <li>6. Stabilize leg with non-dominant hand, position needle over the site at a 90-degree angle to the bone surface and insert the needle through the skin <b>only to the bone surface.</b><sup>3</sup></li> </ol>

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<b>ADULT</b>	<b>PEDIATRIC (less than 50 kg)</b>
<p>needle into the bone until the flange touches the skin or a sudden lack of resistance is felt.</p> <p>8. While supporting the needle set with one hand, pull straight back on the driver to detach it from the needle set.</p> <p>9. Grasping the hub firmly with one hand, rotate the stylet counter clockwise until loose, pull it from the hub, place it in the stylet cartridge, and place in a sharps container.</p> <p>10. Attach flushed extension set.</p>	<p>For Manual Illinois Needle</p> <p>7. Turn down the needle guard until it is about ¼ inch away from the skin. This prevents the needle from advancing too deep.</p> <p>8. Apply firm pressure along with a twisting motion until the needle gives as it enters the bone cavity or the needle guard touches the skin.</p> <p>9. Twist the cap off the top of the needle set and remove stylet.</p> <p>10. For EZ-IO utilize the same steps as the adult.</p> <p>11. Attach flushed extension set.</p>

11. Confirm placement using one or more of the following:

- Visible blood at the tip of the stylet
- Aspiration of marrow
- Free flow of IV fluid without evidence of leakage or extravasation.

12. Rapidly infuse a 10 mL flush of normal saline.

13. Secure catheter and extension set.

14. Attach IV tubing to extension set and set flow to appropriate rate. If drip rate is slow, place a pressure infuser on the IV fluid bag.

15. Watch for soft tissue swelling.

## PARAMEDIC

<b>ADULT</b>	<b>PEDIATRIC (less than 60 kg)</b>
<p>16. If the patient responds to pain (GCS &gt; 8) administer <b>lidocaine 50 mg slowly IO</b> followed by a fluid flush.</p>	<p>16. If the patient responds to pain (GCS &gt; 8) administer <b>lidocaine 0.5 mg/kg slowly IO</b> followed by a fluid flush.</p>

## DOCUMENTATION KEY POINTS

- Indication for intraosseous access
- Needle size and insertion site
- Patency and/or complications of insertion
- Administration of **lidocaine** if indicated

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## NOTES

<sup>1</sup> If a patient needs immediate access for medications or fluid therapy, the EZ-IO may be used in patients who are alert and oriented.

<sup>2</sup> Contraindications for intraosseous access include:

- Fracture of target bone
- Infection at area of insertion
- Inability to identify landmarks
- IO or attempted IO access in target bone within previous 48 hours
- Prosthesis or orthopedic procedure near insertion site

<sup>3</sup> For adults: ensure the 5 mm mark (closest to the flange) on the catheter is visible prior to inserting the needle into the bone. If the mark is not visible, do not proceed, as the needle set is not long enough to penetrate the intraosseous space.