

	COUNTY OF SACRAMENTO EMERGENCY MEDICAL SERVICES AGENCY	Document #	8802.06
	<u>PROGRAM DOCUMENT:</u> Intraosseous Infusion	Draft Date:	01/11/07
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EMS Medical Director

EMS Administrator

Purpose:

- A. To serve as an advanced life support skill guideline for Intraosseous (IO) infusion.

Authority:

- A. California Health and Safety Code, Division 2.5
- B. California Code of Regulations, Title 22, Division 9

Indications:

Adult and pediatric patients who are unable to be successfully intravenously cannulated and who need administration of medication or intravenous (IV) fluids for:

Cardiac Arrest

- A. Patients in extremis who have IMMEDIATE LIFE-SAVING NEED for IV medication or fluids (critical trauma patients)
- B. When indicated by protocols

Contraindications:

- A. Recent fracture of involved bone.
- B. Infection at the site selected for insertion.
- C. Excessive tissue at insertion site with the absence of anatomical landmarks.
- D. Previous significant orthopedic procedures in insertion area.
- E. Previous IO within forty-eight (48) hours on that extremity.

Special Precautions:

- A. IO lines will NOT be established as precautionary. Only patients who have an IMMEDIATE need for an IO medication and who are in extremis when peripheral venous access cannot be obtained shall undergo intraosseous cannulation.
- B. All other uses of the IO route require a base station order.

Equipment:

- A. EZ-IO® Driver.
- B. EZ-IO® Adult 15mm, 25mm and 45mm Needles.
- C. Antiseptic Solution.
- D. EZ-Connect® extension set.
- E. 10 ml Syringe.
- F. Normal Saline (or suitable sterile fluid).
- G. Pressure Bag or Infusion Pump.
- H. EZ-IO **Device** Stabilizer (~~Pediatric and Adult, for Proximal Humerus~~) [optional].

Procedure:

- A. Assemble the needed equipment and don gloves.
- B. Fill syringe with normal saline, keeping the needle tip sterile.
- C. Locate an appropriate insertion site:
 1. Non-traumatized Proximal Tibia - Locate the insertion site medial to the tibial tuberosity two (2) finger breadths below the patella on the anteromedial flat bony surface of the proximal tibia.
 2. Non-traumatized Humerous - The insertion site is located on the greater tubercle of the humeral head, age greater than or equal to five (5) years old.
 3. Non-traumatized Adult Distal Tibia - Adult is defined as age greater than or equal to fifteen (15) years old. On the distal tibia, locate the insertion site two (2) fingerbreadths proximal to the medial malleolus.
- D. Prepare the site. Position the patient so that the site is accessible. Scrub insertion site.
- E. Prepare the EZ-IO® driver and appropriate needle set as follows:
 1. 15mm (Pink) – Patients Commonly 3 – 39 Kg *
 2. 25mm (Blue) - Patients 40 Kg* or greater
 3. 45mm (Yellow) - Patients greater than 40 Kg * with excessive tissue or placement in the humeral head.* Consider tissue density when selecting size of IO needle.
- F. Insert the appropriate IO needle.
 1. Stabilize site and insert appropriate needle set.
 2. Remove EZ-IO® driver from needle set while stabilizing catheter hub.
 3. Remove stylet from catheter, dispose of stylet in sharps container.
 4. Attach primed side port extension set (EZ-connect) to IO hub
 5. Attempt to confirm IO placement by aspirating a small amount of bone marrow into the extension tubing (may not get return)
 6. Flush the IO needle with 10ml of Normal Saline (NS) in an adult (5ml in a pediatric/neonate) via the extension set using a syringe
- G. In an adult patient with a response to pain administer:
 1. 2 ml of 2% Lidocaine (40mg) via IO at a rate of 15-30 seconds/ml (slowly).
 2. Wait 15-30 seconds then give 10cc Normal Saline flush via IO.
 3. 1ml of 2% Lidocaine (20mg) via IO.
(Third degree heart block is a contraindication to Lidocaine administration)
- H. In a conscious pediatric patient weighing less than 50 kg and less than fifteen (15) years of age administer 0.5 mg/kg of 2% preservative free Lidocaine via IO.
- I. Administer appropriate medication using a syringe or preload as appropriate.
- J. Utilize pressure (pressure bag or infusion pump) for continuous intraosseous infusions.
- K. Dress site and secure tubing.
- L. Monitor IO site and patient condition.

Special Notes:

- A. The preferred site for infusion is a peripheral vein. Before an IO attempt is considered, it will be ascertained that peripheral sites are not available and that no preexisting venous access device, central line, PICC line, or tunneled catheter, is available. This information will be documented on the patient care report.
- B. There will be only one attempt per extremity at establishing an IO infusion. No more than two (2) total attempts will be allowed for IO infusion. Scene time will not be delayed for IO infusion attempts. Generally, make one attempt at scene; the second enroute. Any deviation from one attempt on scene only, must be documented as to the reason.