

	COUNTY OF SACRAMENTO EMERGENCY MEDICAL SERVICES AGENCY	Document #	8803.12
	PROGRAM DOCUMENT: Intraosseous Infusion-Pediatric, Manual Insertion DELETE	Draft Date:	09/01/92
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EMS Medical Director

EMS Administrator

Purpose:

- A. Paramedic skills guideline for performing Intraosseous Infusion (IO) on pediatric patients using a manual insertion device.

Authority:

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

Indications:

When EZ-IO® equipment is available Intraosseous Infusion Policy Document (PD) #8802 shall be followed if IO access is indicated. When EZ-IO® equipment is not available this protocol shall be followed for pediatric patients who have indications for IO access including:

- A. Cardiac Arrest
- B. Patients in extremis who have IMMEDIATE NEED for an intravenous medication or intravenous fluids.
- C. 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.

Equipment:

- A. IO needle:
 - 15 mm (Pink) – Patients Commonly 3-39 Kg*
 - 25mm (Blue)- Patients 40 Kg* or greater
 - 45 mm (Yellow) – Patients greater than 40Kg* with excessive tissue or placement in the humeral head

*Consider tissue density when selecting size of IO needle
- B. Gloves.
- C. Antiseptic solution.

- D. Sterile gauze pads.
- E. Two (2) 5ml syringes.
- F. Normal Saline (NS) and flushed tubing.
- G. Adhesive tape.
- H. Intravenous tubing.

Procedure:

- A. Assemble the needed equipment.
- B. Ascertain that there is no available peripheral site.
- C. Locate the appropriate insertion site; a non-traumatized proximal tibia. Locate the landmarks 2-3 cm below the tibial tuberosity on the anteromedial flat bony surface of the proximal tibia.
- D. Prepare the insertion site. Position the infant/child so that the insertion site is accessible. Scrub insertion site using circular motion from inside out. Dry the insertion site with a sterile gauze pad.
- E. Fill one syringe with normal saline, keeping the needle tip sterile.
- F. Don gloves.
- G. Insert the IO needle.
 - 1. Hold the child's leg steady.
 - 2. Grasp the needle with the obturator still in place, and insert it through the skin at the selected site 90 degrees to the skin surface.
 - 3. Once the periosteum of the bone has been reached, direct the needle 60 degrees away from the knee, rotating and gently pushing the needle forward.
 - 4. When the needle is felt to "pop" into the bone marrow space, remove the obturator and attach a dry 5 ml syringe and attempt to aspirate bone marrow to confirm placement.
 - 5. Attach the 5 ml syringe, containing the Intravenous (IV) solution, to flush the IO needle.
 - 6. Once satisfactory flushing is achieved, secure the needle by taping, connect the IV tubing, and begin to infuse the amount of fluids and/or medications as directed by the protocol. Monitor for extravasation (look and feel).
 - 7. Any hypertonic, irritating, or alkaline solutions may be diluted upon the instructions of the base hospital and always infuse slowly (administered per appropriate protocols).
 - 8. Active pushing of fluids may be more successful than gravity infusion. Thus, close observation of flow is required. Apply pressure to IV solution bag as necessary.
 - 9. Sterile technique must be adhered to at all times.
 - 10. Restrain the child's leg as needed to prevent inadvertent dislodging of the needle.
 - 11. If the needle is removed, stop the IV infusion and apply pressure at the site with sterile gauze.

Special Notes:

- A. The preferred site for infusion is a peripheral vein. Before an intraosseous attempt is considered it will be ascertained that peripheral sites are not available and that no preexisting venous access device, central line, Peripherally Inserted Central Catheter (PICC), or tunneled catheter, is available. This information will be documented on the emergency medical services response form.
- B. There will be only one attempt per extremity at establishing an intraosseous infusion. No more than two (2) total attempts will be allowed for intraosseous infusion. Scene time will not be delayed for intraosseous infusion attempts. Generally one attempt is acceptable at scene with a second enroute. Any deviation from one attempt on scene only, must be documented as to the reason why.

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