

Intraosseous Infusion

I. Indications

IO infusions may be initiated as a first line intervention on patients in arrest or extremis. IO infusions may be initiated on other patients who are hemodynamically unstable and in need of fluid or medication following unsuccessful peripheral IV attempts when emergent therapy is indicated and the patient's mental status is such that the pain produced by the procedure is tolerable to the patient. If perfusion supports good mental status and the patient is alert, an IO is not advisable.

II. Contraindications

- Fractures in the targeted bone considered for IO insertion
- Infection at the insertion site

III. Procedure

Insert IO according to manufacturer's recommendation for the specific device.

IV. Medications Permitted Via Intraosseous Infusion

All medication and solutions intended for intravenous administration, **with the exception of hypertonic saline**, may be infused through an IO device.

V. Special Considerations

- A. Avoid IO insertion in extremities involving burned tissue, proximal bone (femur) fracture, or the presence of a proximal prosthetic knee or shoulder joint.
- B. In dialysis patients with shunts, access is preferred in non-shunted extremity.
- C. Only one patent IO infusion is necessary.
- D. If additional site(s) attempted, inform the physician on arrival at the hospital.
- E. Complications:
 1. Puncture through posterior bone cortex
 2. Incomplete penetration of the anterior cortex
 3. Infection
 4. Fluid leaking from puncture site
 5. Fat emboli (may be rapidly fatal)
 6. Compartment syndrome with use of pressure bag (following infiltration)
- F. With some IO devices, a tool is needed to remove the IO catheter. In such cases, ensure that the removal device is left with medical personnel at the facility with appropriate directions for use of the removal device.