

INTRA OSSEOUS NEEDLE PLACEMENT

I. Purpose:

To provide emergency vascular access on a child when peripheral access is unobtainable. This technique **CAN** be used on patients of all ages.

II. Rationale:

The bone marrow, a non-collapsible structure rich in network of arteries and veins, can provide a rapid and reliable route of administration of crystalloids, blood products, vasopressors and drugs into the central circulation.

III. Equipment:

Intraosseous needle*	IV pump
Betadine	Stopcock
10 cc syringe	TB syringe
NS for injection	1% xylocaine
IV tubing primed with fluid	Gauze/tape for splinting IO in place

*** can use spinal needle or any large bore needle in a pinch**

IV. Procedure:

1. The insertion site: tibia- flat, medial surface of the proximal shaft, 1 - 2 cm below the tibial tuberosity. Alternative site is the distal femur, 3 cm above the superior aspect of the patella. Apply rigid support to the posterior aspect of the insertion site (do not place your hand directly posterior to where needle will be driven).
2. Using aseptic technique, the selected site is prepped with betadine.
3. The skin is injected with xylocaine for local anesthesia in the awake patient.
4. After penetration of the skin, the intraosseous needle is directed at a slight angle (10 -15 degrees) caudad, (in the femur it is angled cephalad) and pressure is applied with to and fro rotary motion. As the needle passes from the cortex of the bone into the marrow, a release of resistance will be felt.
5. Remove the stylet and check needle placement by attaching the saline filled 10cc syringe. Bone marrow can be aspirated and fluid easily infused. Observe for fluid infiltration of the calf. If this occurs repeat attempt in opposite leg.
6. Attach the IV fluids to a stopcock and connect the stopcock to the Intraosseous needle.
7. Secure the tubing to the leg with tape and gauze.
8. Maintain vigilant care and observation of the insertion site. Accidental dislodgement of IO needle will manifest as fluid extravasation into a puffy calf or the needle will be mobile at the site.
9. **Complications:** Osteomyelitis, fracture, necrosis of epiphyseal plate, extravasation, and compartment syndrome.

