

INTRAOSSUEOUS INFUSION IN CHILDREN



INDICATIONS: To obtain emergency intraosseous access for the critically unstable* infant or child < 3 years old when peripheral, central, or additional IV's cannot be established within 90 seconds. **DO NOT** delay transport of critical pediatric patients by prolonged attempts of this technique.

COMPLICATIONS:

- ✓ Incorrect placement with SQ infiltration
- ✓ Osteomyelitis
- ✓ SQ infection
- ✓ Leakage from original puncture site, if same base repeatedly punctured
- ✓ Sepsis
- ✓ Fat/bone embolism

EQUIPMENT:

- ✓ 15 gauge 1" bone marrow needle
- ✓ Povidone-iodine solution for skin prep
- ✓ Gauze 2 x 2's
- ✓ Tape
- ✓ T-piece adapter
- ✓ 3-way stopcock
- ✓ 10 cc syringe
- ✓ IV fluid

PROCEDURE:

1. Restrain limb, if necessary.
2. Position child in the supine position.
3. Cleanse skin with povidone-iodine solution.
4. Locate site approximately 1.5-3 cm below and slightly medial to tibial tuberosity over flat edge of the bone.†

5. Using aseptic technique, direct needle perpendicular or slightly inferior into bone marrow, avoiding epiphyseal plate
6. Needle is in correct position when all of the following conditions are present (**see fig. 2.1**):
 - ✓ Decrease in resistance after through the bone cortex
 - ✓ Needle is firmly in position and stands upright without support
 - ✓ Syringe aspiration yields bone marrow
 - ✓ Free flow of fluids with no significant SQ filtration
7. Connect T-piece adapter and stopcock to needle
8. Attach stopcock to appropriate IV infusion
9. Stabilize needle on both sides with gauze 2 x 2. Secure with tape, minimizing direct tension on needle.
10. To maintain optimal flow, apply pressure (up to 300 mmHg) to the infusion bag.

*Critically unstable patient types would include CPA, severe hypotension (shock), respiratory failure, and coma.

†If the proximal tibia is inaccessible or contraindicated, the distal tibia, proximal humerus, or distal femur may be used as an alternative.