



# INTRAOSSEOUS NEEDLE INFUSION (EZ-IO)



## Escambia County, Florida - ALS/BLS Medical Protocol

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### INDICATIONS

Any medical or trauma patient who may require IV medications or fluid replacement.

### INTRAVENOUS FLUIDS

- PRN Adaptor / Saline Lock / Reseal- Use in patients requiring venous access for a medication route, but not suspected of needing volume replacement.
- Normal Saline (1000 cc bag) - Use in patients suspected of, or requiring volume replacement. Generally use macrodrip set and larger catheters (#14-16).
- Normal Saline (with MINIDRIP) - Use in pediatrics and any patient with whom medication and/or fluid given must be precisely measured.

### SITE / METHODS OF ACCESS

#### PERIPHERAL LINES

Peripheral lines are the lines of choice except as noted below. The external jugular vein is considered a peripheral vein.

#### CENTRAL LINES (**DO NOT USE**)


The internal jugular, femoral and subclavian veins are nonapproved sites for intravenous access.



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### INTRAOSSEOUS LINES

Intraosseous access should be established in pediatric patients requiring a medication route or fluid replacement when other access to the circulatory system is not possible. Boluses may be given with 60-120 cc syringes. **Never hang a 1000cc bag on a pediatric patient when using a pressure infuser.**

### PREEXISTING VASCULAR ACCESS

Paramedics may **NOT** use pre-existing vascular access, including PIC lines, Hickman catheters, dialysis shunts, and other devices at their discretion. Use of these lines should be a **last** resort for intravenous access.

### **YOU MUST MAKE MEDICAL CONTROL CONTACT PRIOR TO USE**

Use of these lines should be based on the paramedic's comfort level with the line in question, suspected patency of the access line, patient severity, and good clinical judgement

### FLUID RESUSCITATION

In situations requiring rapid fluid resuscitation, multiple IV lines should be established utilizing any combination of:

Ringers Lactate solution, short, large-bore catheters (1 1/4", 14-16)  
IV administration sets (10 gtts / ml)  
IV pressure infusion bags

**Generally, fluid resuscitation in these patients will be initiated enroute to the hospital to avoid delays in transport.**

#### **Adults:**

250-500 cc bolus, repeated as needed while observing for signs and symptoms fluid overload.

#### **Peds:**


20 cc/kg bolus, repeated as needed up to 3 times.



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### INSERT NEEDLE OR CATHETER

Have equipment within reach, cut tape for securing IV. Apply tourniquet and select vein. Tourniquet should be loose enough to allow arterial blood flow, yet tight enough to prevent venous flow. Avoid antecubital area and other flexion joints if possible, except when a large bore IV is needed or the patient is hypotensive. Palpate vein. If vein is not readily palpable do not thump vein; it may cause spasms.

The following may be helpful:

Have patient hang arm over the side of the stretcher.  
Rub toward the trunk with alcohol swab.  
Remove tourniquet.  
Cleanse the skin with alcohol swab using circular motion moving outward.  
Allow skin to dry.

### SPECIAL NOTES

Never push the needle back through the catheter while the catheter is in the vein. The sharp double edge may cut the catheter and become an embolus. If at any time, the venipuncture is unsuccessful, remove the needle and catheter. If an extremity is involved with trauma (i.e. fracture, sprain, dislocation, or burn) or is an area of infection, the other extremity should be used. If both arms are involved, external jugular cannulation should be considered; if unable to start external jugular and both extremities are involved and the patient's condition will deteriorate without IV replacement, attempt IV in arms. If necessary, IV cannulation can be attempted at a burn site although some burns make IV cannulation difficult.

Use the appropriate size catheter for the patient's diagnosis and treatment. Large bore IV cannulas should be attempted in patients who need or may need fluid replacement.

Communicate with the patient prior to the procedure to alleviate any fears.

When possible, take patient's blood pressure in unaffected extremity to prevent problems with IV flow rate.

Wear gloves.


Use aseptic technique.



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# INTRAOSSUEOUS NEEDLE INFUSION (EZ-IO)



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Document all IVs (and attempts) appropriately. Central lines and dialysis shunts may be used for IV infusions and medications if the patient is in full cardiac arrest, with on-line Medical Control approval. PIC lines should not be used for fluids, but may be used for administering medications, with on-line Medical Control approval.

### PEDIATRIC CONSIDERATIONS

Procedure the same as adult. May need to restrain child. Enlist help. Restrain gently. Always explain reason for restraints to parents. Check circulation and document circulation checks.

### RESEAL DEVICE (PRN ADAPTOR)

Fill syringe with 5 cc saline, flush PRN adaptor with saline, if indicated. After venipuncture, attach PRN adaptor securely to hub of IV catheter. Using saline filled syringe with one (1) inch needle, thoroughly cleanse injection port and inject 3 cc saline flush.

Remove syringe.

Secure adaptor in place with tape.

In addition to the documentation above, chart the saline flush of the PRN adaptor after IV started.

### USING PRN ADAPTOR FOR MEDICATIONS


Thoroughly cleanse injection port with alcohol swab. Always flush PRN adaptor before and after medications.



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