

# Kittitas County Prehospital EMS Protocols

## **SUBJECT:     INTRAOSSIOUS VENOUS ACCESS (IO)**

Intraosseous Venous Access utilizing the EZ-IO device may be warranted when intravenous fluids or medications are needed and a peripheral IV cannot be established in 2 attempts or 90 seconds **AND** the patient exhibits one or more of the following:

- A. Cardiopulmonary arrest (Medical or Trauma)
- B. An altered mental status (GCS of 8 or less)
- C. Impending Respiratory Failure (SaO<sub>2</sub> <80% after appropriate oxygen therapy or rate <10 or >40)
- D. Hemodynamic Instability (Systolic BP <80 mmHg)

### **Contraindications**

- A. Fracture of the bone selected for IO insertion
- B. Excess tissue at the insertion site with the absence of anatomical landmarks
- C. Previous significant orthopedic procedures (IO within previous 24 hours, prosthesis, previous bone / joint replacement)
- D. Infection at the site selected for insertion

### **Equipment**

EZ-IO Driver  
EZ-IO AD or EZ-IO PD Needle Set  
EZ-Connect Set  
Alcohol and Betadine Swabs  
10cc Syringe  
Tape  
Gauze  
Isotonic Crystalloid  
IV Extension Set  
Pressure Bag or Infusion Pump  
2% Lidocaine  
EZ-IO Yellow Wristband

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## Procedure

- A. Determine indications for IO access and rule out contraindications
- B. Identify anatomical landmarks and locate appropriate insertion site per instructions of device.
- C. Cleanse insertion site using an aseptic technique
- D. Prepare EZ-IO device driver and needle set
- E. Stabilize site and insert EZ-IO needle set
- F. Remove EZ-IO driver from needle set while stabilizing catheter hub
- G. Remove stylet from needle and safely dispose of stylet in approved sharps container
- H. Confirm placement
- I. Connect primed EZ-connect
- J. For **conscious** patient, slowly administer 2% Lidocaine
  - EZ-IO AD (Adults) – slowly administer 20-50mg 2% Lidocaine
  - EZ-IO PD (Pediatrics) – slowly administer 0.5mg/kg 2% Lidocaine
- K. Flush EZ-IO catheter with 10cc normal saline through the EZ-connect

**NO FLUSH = NO FLOW**
- L. Place pressure bag on solution and begin infusion (or utilize IV pump if available)
  - Pressure on IV bag should be up to 300 mmHg, or firm enough to generate a flow of fluids
- M. Dress and secure site and monitor for signs of extravasation
- N. Attach IO notification wristband

## Procedure for Removal

Removal of IO devices should be performed infrequently in the field. If asked to assist with removal in the Emergency Department, please use the following procedure:

- A. Attach a sterile syringe to the hub
- B. Support the patient while rotating the catheter (clockwise – if using the syringe to keep it from becoming detached) and gently pull the catheter out

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- C. Be sure to maintain a 90 degree angle while rotating catheter.
- D. Do **NOT** rock the catheter while rotating. Rocking may cause the catheter to separate from the hub
  - If hub catheter separation occurs, use hemostat to grasp and remove the catheter while rotating and gently removing
- E. Once catheter is removed, immediately dispose of it in a sharps container