



# IV or IO Access



## History

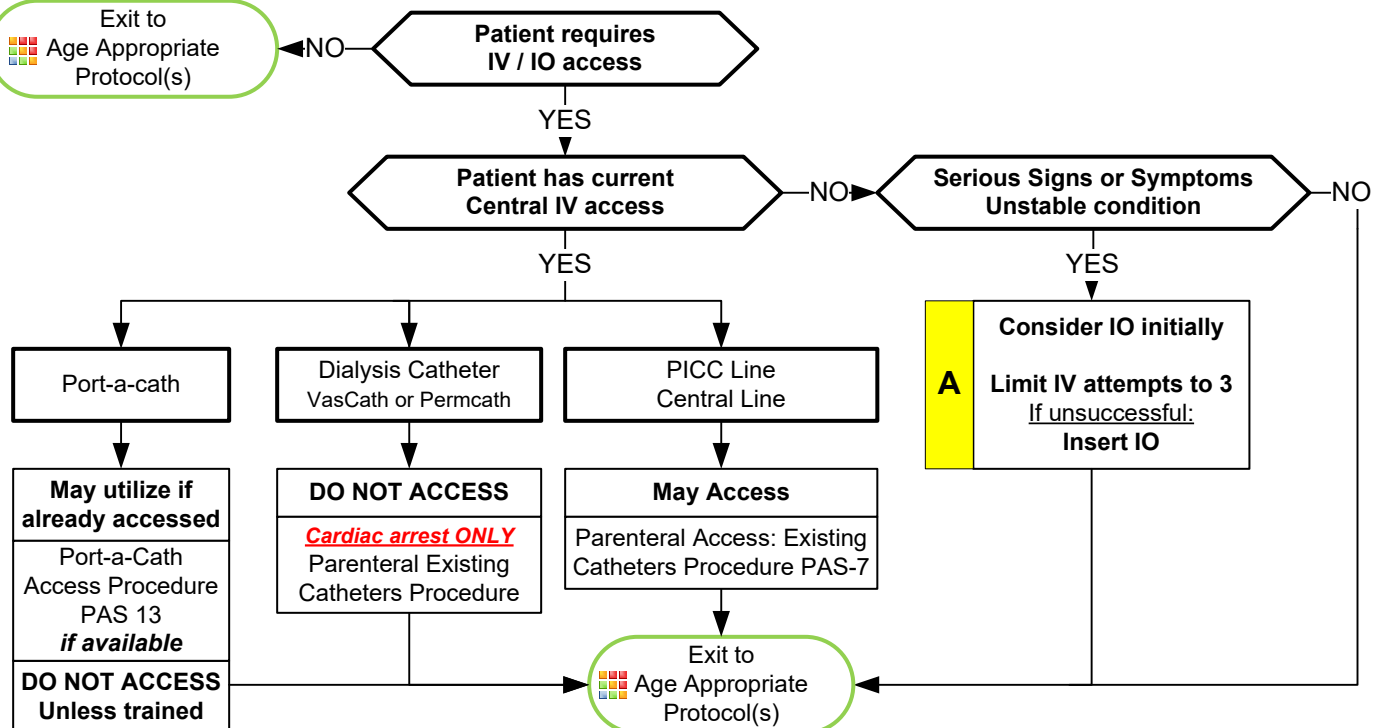
- Chronic medical conditions requiring recurrent need for IV access for medication, hydration, or blood sampling.
- Medical condition requiring administration of IV medications at home.
- End-stage renal disease requiring hemodialysis.
- Chronic medical condition requiring IV nutrition.

## Signs and Symptoms

- Fever
- Bleeding
- Hypotension
- Redness, swelling, and/or pain at IV catheter site
- Shortness of breath
- Chest pain
- IV catheter patency

## Differential

- Infection or sepsis
- Infection of catheter
- Clotted IV catheter
- Air embolism
- Pneumothorax
- Overdose of home medication
- Shock



Universal Protocol Section

## Pearls

- Frequent encounter of patients with IV access devices and confusion as to which device can be accessed and used by EMS providers are common.
- If unclear about device use, always ask "Is this device used for dialysis?"
- When accessing central catheter, always ensure sterility of catheter connection point by cleaning port with alcohol, or similar disinfectant, 2 – 3 times prior to access.
- Central line catheters placed for administration of chemotherapy, medications, electrolytes, antibiotics, and blood are available to EMS providers for access and administration of fluids, medications, antibiotics, and blood products.
- Central line catheters placed for hemodialysis are NOT available for access by EMS providers unless the patient is in cardiac arrest.
- Long term IV access is frequently needed for a variety of indications:
  - Medication administration such as antibiotics, pain relief, or chemotherapy.
  - Administration of IV nutrition or feeding.
  - Need for multiple IV line access or recurrent blood sampling.
  - Poor vasculature requiring repeated attempts at IV access.
  - End-stage renal disease requiring hemodialysis.
- Common complications of central access devices:
  - Infection
  - Damage to vasculature
  - Air embolism
  - Loss of patency due to clogging or clotting
  - Pneumothorax

## Types of IV catheters:

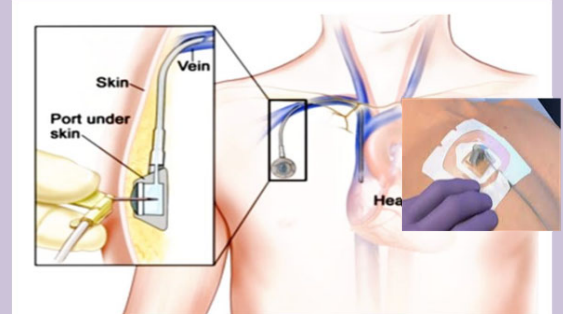
### **Port-a-Cath® :**

Surgically implanted device allowing easy access to venous system.  
The port and the catheter are all placed beneath the skin.  
Requires a special kit and a specific needle to access.

**Paramedic does NOT routinely access this device.**

**Paramedic may utilize if already accessed with needle/ extension.**

**Paramedic may access if trained on procedure  
with access to proper equipment.**



### **Dialysis Catheter:**

Surgically implanted device used to access the vasculature for hemodialysis.

May be tunneled under the skin with access on outside of skin surface or may be non-tunneled with greater portion of catheter on outside of skin surface.

Catheter has a RED port indicating use for dialysis:

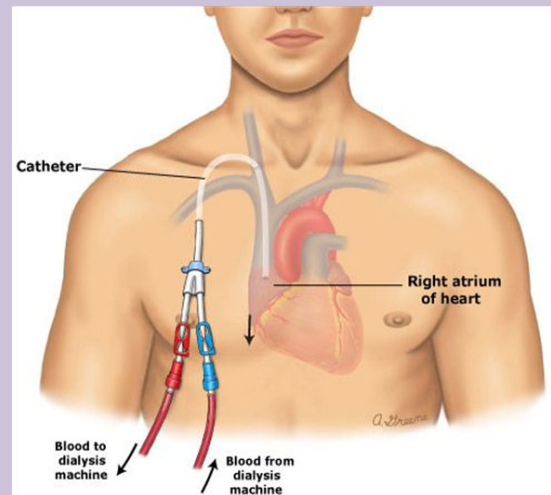
Most catheters have a RED port and a BLUE port.

Some catheters have a RED port and a WHITE port.

Dialysis catheters may be used for both short and long-term dialysis and should not be accessed or used for delivery of fluids, medications, antibiotics, or blood products as it increases risk of infection, which then requires removal and subsequent loss of dialysis access.

**Paramedic and AEMT do NOT routinely access this device.**

**Paramedic and AEMT MAY access during cardiac arrest only  
(Only if IV or IO access cannot be established.)**



### **PICC (Peripherally Inserted Central Catheters):**

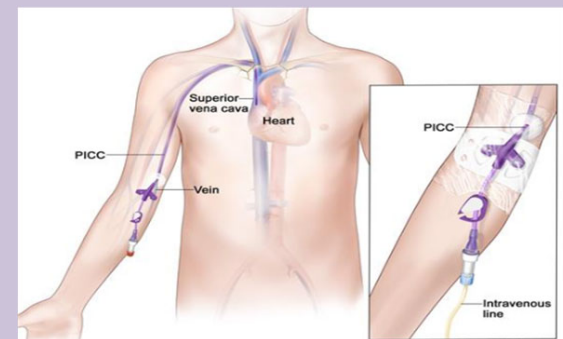
Long catheter inserted into a vein in arm or leg (less common) with the tip of the catheter positioned into the central circulation.

Used for long-term IV fluids, medication administration, blood administration or blood draws.

May have 1 or 2 ports (possibly more, but less common.)

Port ends usually white, blue, or purple. (May be red, less common and is not used for dialysis.)

**Paramedic and AEMT may access and utilize following clean technique.**



### **Central Lines:**

Catheter placed in large vein in the neck, under the clavicle, or in the groin.

Used for long-term IV fluids, medication administration, blood administration or blood draws.

May have 1 - 4 ports (possibly more, but less common.)

Port ends usually white, blue, or purple. (May be red, less common and is not used for dialysis.)

**Paramedic and AEMT may access and utilize following sterile technique.**

