I. Purpose:

A. To define training requirements, indications, guidelines, and the standard procedure for access of pre-existing vascular access devices on critically ill patients.

II. Authority:

A. Health and Safety Code, Section 1797.220, 1798. Title 22, Section 100170.

III. Definitions:

A. Pre-existing vascular access device (PVAD): An indwelling catheter or device placed into a central vein to provide vascular access for long term use or hemodialysis.

1. Externally accessible central venous line: External central venous catheter; may be single or multi-lumen. Usually located in subclavian, jugular or femoral veins. Often called a PICC line (peripherally inserted central catheter). Accessed through injection cap.
2. Hemodialysis fistula: A permanently placed device that diverts blood flow from an artery to a vein. Usually located on the upper extremity and is used for dialysis. This is only to be used in critical setting.
3. Internal indwelling catheter: Tunneled and implanted long term port. Usually on chest wall or arm. No external lumens noted. <u>This device is not to be used by prehospital personnel.</u>

IV. Policy:

A. Indications:

1. External indwelling catheters:
    a. Existing peripheral saline locks - May be used in any situation as long as patency is established.
    b. External central venous catheters - May be used in unstable patients with impending arrest when no other access can be established.
2. Internal indwelling catheters:
    a. Hemodialysis fistula - May only be accessed and used when no other access can be established (IV or IO) and patient is impending arrest or critically unstable.

B. Documentation will include:

1. Date and time device accessed
2. Type of device accessed
3. Prior attempts for establishing peripheral access

4. Patient's condition requiring device to be access
5. Any complications encountered
6. Medications and/or fluids administered

B. Risks:

1. Introduction of an air embolism (and possible stroke, heart attack, or end organ damage)
2. Uncontrolled bleeding
3. Blood or local skin infection
4. Loss of access in a difficult venous access patient

V. Procedure:

A. Externally accessible central venous line:

1. Assemble necessary equipment
    a. Appropriate PPE
    b. Two (2) 10 cc syringes; 1 empty and 1 with 10 cc NS
    c. IV tubing and fluids
    d. Alcohol prep pads
2. Disconnect any existing IV lines
3. Prep injection caps with alcohol pads for 15 seconds
4. Attach empty 10 cc syringe and unclamp catheter
5. Withdraw 5 cc of blood and discard. **If resistance met, discontinue procedure**
6. Slowly inject 5-10 cc of normal saline with prefilled syringe. **If resistance met, discontinue procedure**
7. Clean injection cap with alcohol for 15 seconds again and attach IV tubing. Once flowing well, can use for medication administration
8. Closely monitor site

B. Hemodialysis Fistula/Graft:

1. Assemble necessary equipment
    a. Appropriate PPE
    b. IV start kit
    c. 20 g IV needle
    d. 10 cc normal saline flush
    e. IV normal saline and primed tubing set

2. Assess upper extremity access site. Check for thrill and bruit
3. Clean site with alcohol pad
4. Apply tourniquet to the upper portion of the arm containing the fistula
5. Pull skin taut in the opposite direction of the needle insertion and stabilize the vessel.
6. Insert the arterial needle into dialysis site at a 25-45 degree angle
7. Make sure that the needle insertion site is at least 1 inch (2.5 cm) from the arterial/venous anastomotic site. **Be careful not to puncture the posterior wall of the access**
8. Remove the tourniquet
9. Advance the needle with the bevel up
10. Thread the catheter all the way to the hub
11. Apply pressure at the end of the catheter to tamponade blood flow
12. Be prepared for arterial, pulsatile blood flow
13. Attach primed tubing
14. Flush with 10 cc normal saline
15. Secure site and reassess for patency

APPROVED:

Signature on File

Katherine Staats, M.D. FACEP

EMS Medical Director