My patient has a CVAD....

What does that mean?

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What is a CVAD?

- Central Venous Access Device
- A catheter placed via:
  - Subclavian vein
  - Superior/Inferior vena cava
  - Right atrium
  - Common femoral vein
  - Umbilical vein
- The ideal position is the distal end of the superior vena cava
Types of CVAD

- **Tunneled**
  - **Broviac**, Hickman, Cook, Groshong
  - Implanted Ports
    - **Mediport**
- **Non Tunneled**
  - Cook, Arrow
  - **PICC**
    - Peripheral Inserted Central Catheter
Broviac - PICC - Port
Why is a CVAD placed?

- **On West 11:**
  - Intravenous antibiotics
  - TPN/IL

- **Other units:**
  - Long term IV access need
  - Chemotherapy
  - Blood products
  - Frequent lab draws
General Care for all CVADs’

- Ensure line is secure
- Use ‘grip-lok’
- Assess dressing - occlusive and clean
- Biopatch for children > 2 months
General Care

- Dressing change Q 7 days if transparent; Q 2 days if gauze dressing and prn
- If dressing becomes non-occlusive or soiled - needs a dressing change done
- Tubing and cap change Q 3 days: tubing change for intralipids -> daily
- Daily Chlorhexidine bath
- Clothes and linen change daily
General Care

- Whenever flushing/capping line need to use 10 cc syringe
- Flush with normal saline followed by heparin/vanco solution (MD order) if ‘capping’ line
  - Normal Saline: 2 ml
  - Vanco/hep: 3 ml
- Usual capping solution for Broviac/PICC: Vancomycin 25 mcg/ml and heparin 9.9U/ml
General Care: Site scrub and Clave caps

- Cleaning/Scrubbing cap/connection
  **Site Scrub**: scrub for 10 sec., air dry 5 sec.

- ‘Positive pressure/Pulsing’ motion when flushing (clear the CVAD/CVL of blood or meds that may adhere to internal surface; positive pressure flushing while clamping the CVAD/CVL)

- ‘Clave’ caps on all catheter hubs
General Care: Dual Cap

• DualCap Dark Blue: protects the male luer lock (the exposed end of the IV tubing)
• DualCap Light Blue: protects access ports on central line tubing (Nano-clave T-connector, blue clave, injection ports)
• If a patient has a CVAD and a PIV – the PIV line must also have DualCaps
General Care: Dressing change

- Children over 2 months of age
  - Chlorhexidine (2% chlorhexidine and 70% alcohol)
  - Biopatch

- Children under 2 months of age
  - Betadine swabs
  - Wipe off betadine using sterile saline
  - Chlorhexidine: increased risk of skin irritation and drug absorption
Tunneled (Broviac)

- ‘tunneled’ through subcutaneous tissue under skin into vein
- Dacron cuff – stability and antibiotic

- Single to multiple lumens
Tunneled (Broviac)

- Placement is surgical procedure with general anesthesia
- Sutures in place for 6-8 weeks
- Placement verified by chest X-ray
- Removed by surgeon or radiologist
Specific Care for Broviac

- Loop catheter under sterile dressing
- Remember the ‘tension relieving’ loop under the dressing incorporating all the tubing to the thick ‘clamp here’ portion
- Ensure lines are secure and not pulling
Broviac catheter

- What’s the worry here??
Non tunneled (PICC)

- Goes through skin and directly into the vein at insertion site
- Used for short term use
- Placement typically in Interventional Radiology but can be done at the bedside
- Placement verified by chest X-ray
PICC

- No cuff
- Several weeks – months
- Usually placed subclavian or femoral
- Single or double lumen
- Kids < 2 years old, sutured in place
- Kids > 2 years old, ‘stat-lock’
- RN may remove with MD order
PICC line
Specific Care for PICC lines

• Measure arm circumference 2 inches above insertion site Q shift and document
• Ensure dressing is secure and lines are not pulling
• If Ace wrap covering – must remove wrap to fully assess site

• What’s the worry here?
Tunneled: Ports

- Entire device is implanted under the skin
- Surgically implanted and removed
- Several months to years
- Huber needle for access
- When not access (in use) flushed with 100 U of heparin every 4-6 weeks for maintenance
Huber needle

- To Access
  - Must use Huber Needle
  - Need to know length and diameter
    - IE: 1 inch 20 gauge
- Per policy, students cannot access port
Specific Care for Ports

- Huber needle change Q week with dressing change
- When ‘deaccessing’ use heparin -> flush with 10ml normal saline and then lock/cap with 3 ml of 100 unit/ml Heparin.
What’s the concerns here”
What to think about with all CVADs’

- Infection prevention
- General guidelines
- Patency and securement
- Safety measures
- Comfort care
- Single or Multi lumen catheters
Multi Lumen Catheters

- Two separate lumens all the way to the tip
- Treat each lumen as a separate line
  - Flush both lumens
  - Draw blood cultures from both lumens
- Can run incompatible meds through each lumen
Complications - insertion

• Malposition
• Pneumothorax: air in pleural space (between lung & chest wall)
• Hydro/hemothorax: fluid/blood in the pleural cavity
• Arterial puncture
Complications – general

- Line become occluded
  - Flushing with ‘pulse’ technique
  - Flush before and after medication (5-10 ml)
  - Check drug compatibility
  - Use of t-PA

- Line breaks
  - Clamp with padded clamp between the break and the patient
  - Follow P&P
Removal

- **Broviac and Port**: Surgical procedure
- **PICC**: RN can remove w/ MD order
- Sterile procedure
- P&P
- Measure catheter once removed
- Check tip for line patency
- Document removal
Complications - removal

Contact MD immediately if:

- Line is stuck (resistance)
  - Do not force removal; ? vasospasm
- Differences in catheter measurement or tip is not patent
Resources

- Policy and Procedure: Central Venous Access Device and Central Venous line Care
- Patient/Family Education: Caring for a child with a Central Venous Access Device (CVAD)
- Central Access Team (CAT)