

# CVAD SELECTION & ASSESSMENT

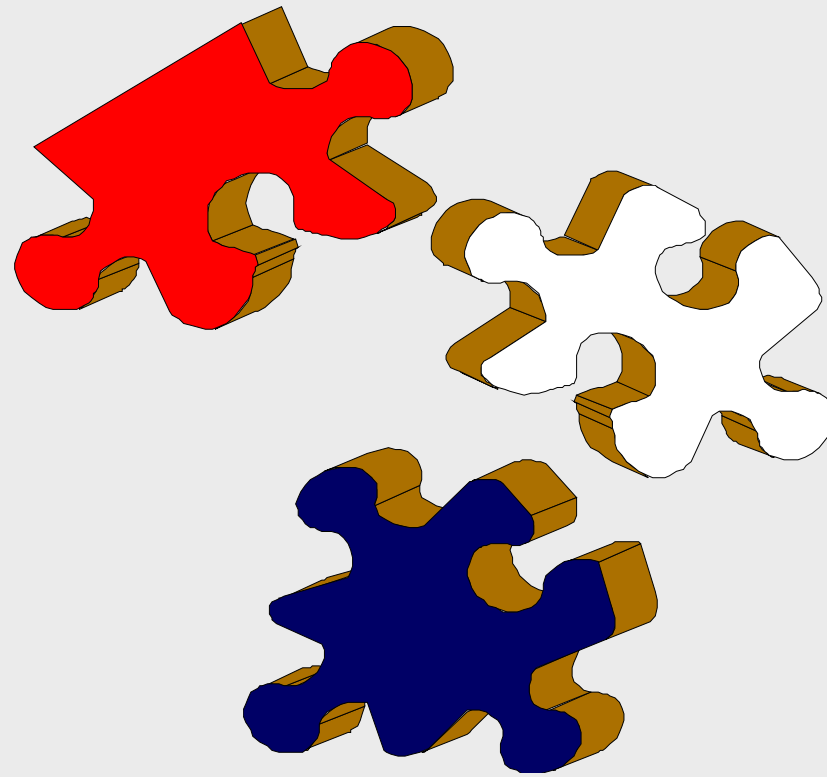


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May 2010

*“Without question, intravenous infusion therapy has become an indispensable therapeutic modality in present-day medicine. It has saved more lives than all the antibiotics ever developed”.*

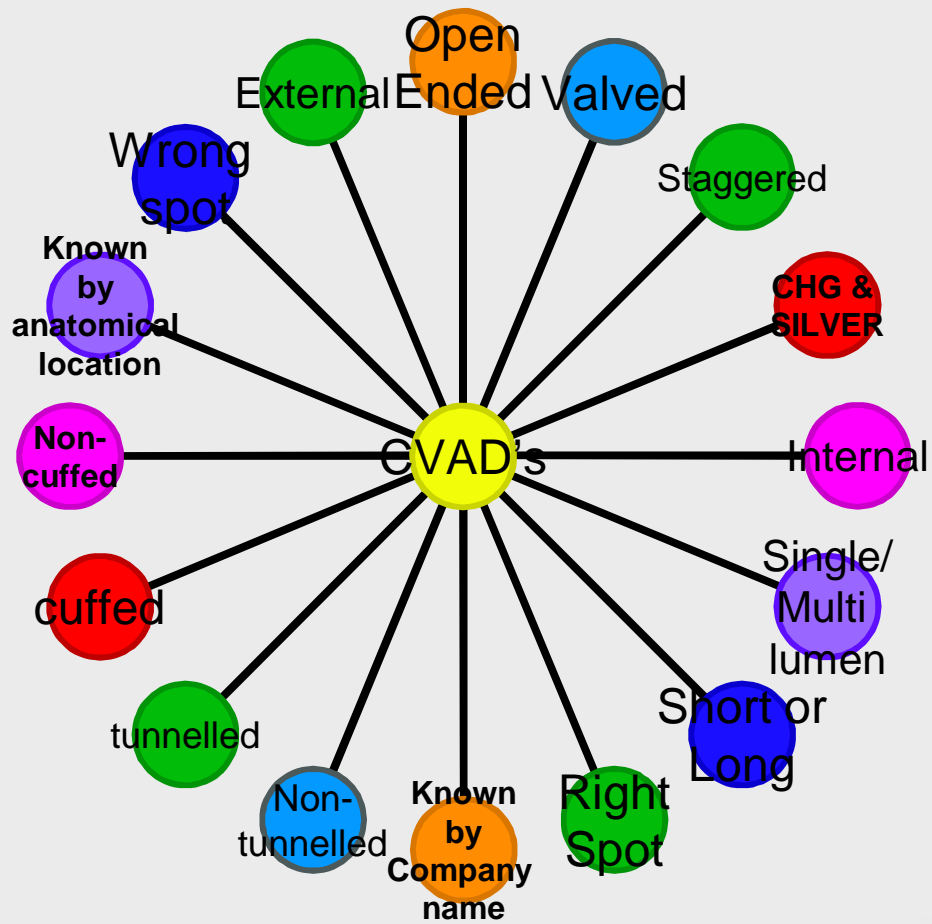
MAKI 1977





Terminology





There are only 2 designations for  
intravenous  
catheters:

peripheral and central.



# CENTRAL VENOUS ACCESS DEVICES

## Short Term CVADs

- Single
- Double
- Triple
- Quad &
- Quinn Lumen
- Longlines

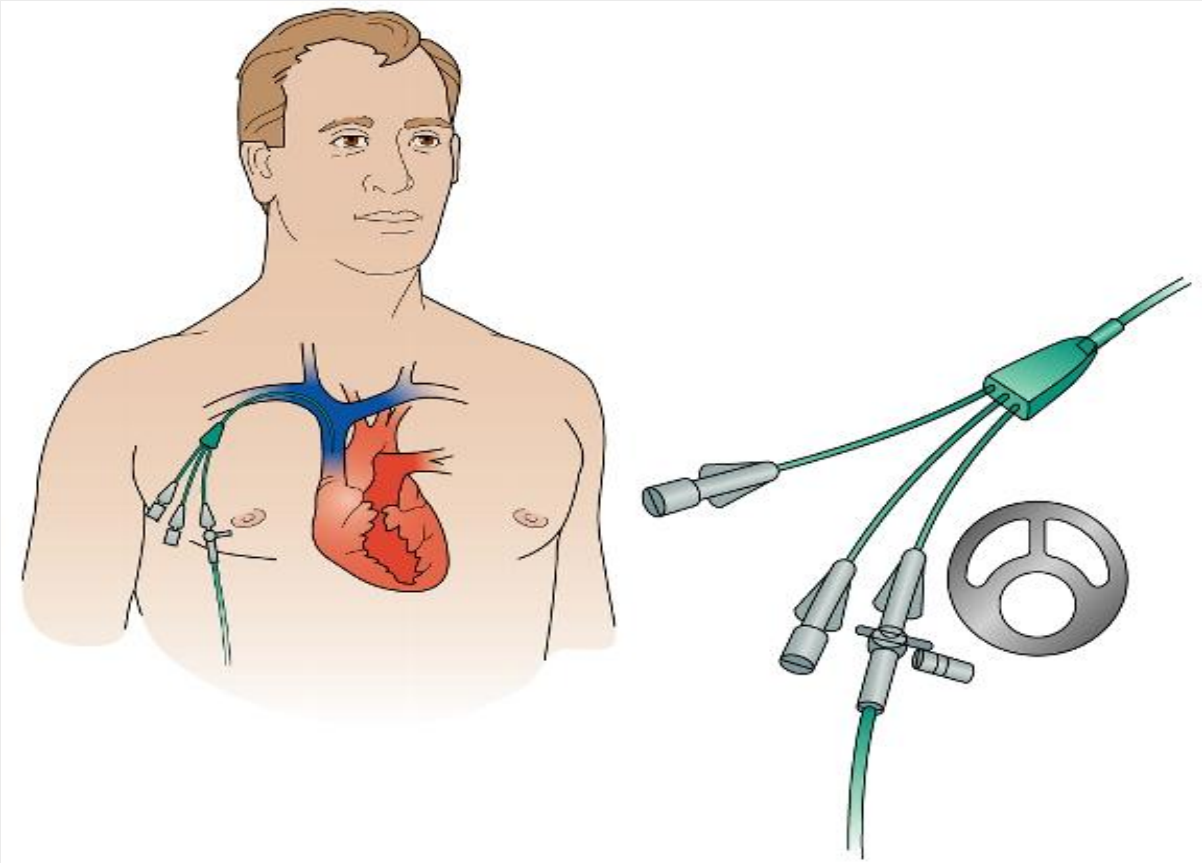
## Intermediate

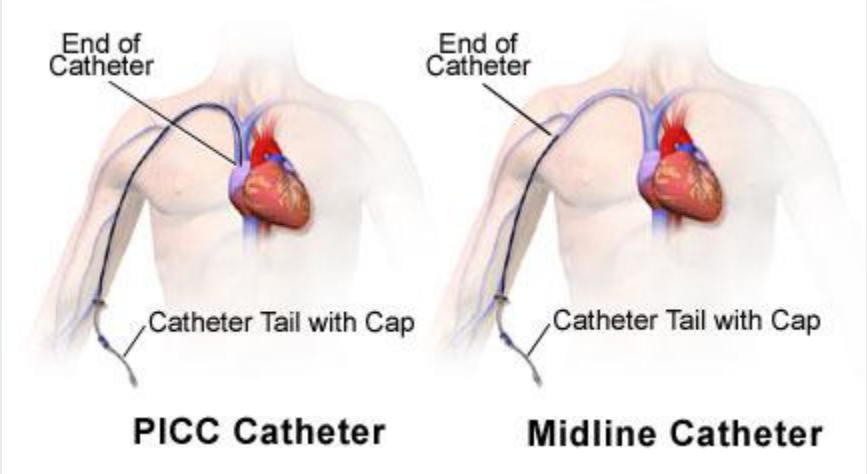
- MID Lines
- Peripherally Inserted  
Central Catheters  
(P.I.C.C.S)

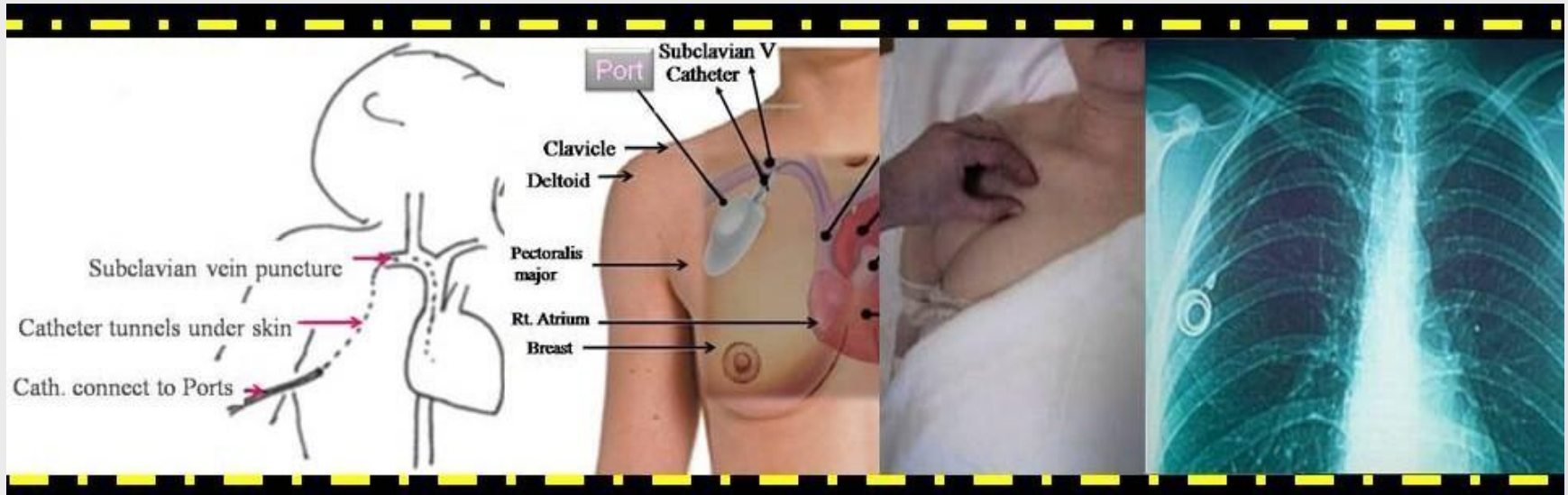
## Long Term CVADs *Vascular Access Devices* *VADs*

- Subcutaneous Ports
- Tunnelled Catheters









# Risk Benefit

- The list of intravenous infusates, medications, and biologicals continues to increase
- Before administration of an intravenous infusates and/or medications:
  - Associated precautions
  - Contraindications &
  - Adverse effects.



# One size fits all.....?



# CDC Guidelines 2009 (Draft)

- **Category IA:** Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiologic studies.
- **Category IB:** Strongly recommended for implementation and supported by some experimental, clinical, or epidemiologic studies, and a strong theoretical rationale.
- **Category IC:** Required by state or federal regulations, rules, or standards.
- **Category II:** Suggested for implementation and supported by suggestive clinical or epidemiologic studies or a theoretical rationale.
- **Unresolved issue:** Represents an unresolved issue for which evidence is insufficient or no consensus regarding efficacy exists.



# Site selection

## Recommendations for peripheral catheters and midline catheters

In adults, use an upper-extremity site for catheter insertion. Replace a catheter inserted in a lower extremity site to an upper extremity site as soon as possible	Category IB
Select catheters on the basis of the intended purpose and duration of use, known infectious and non-infectious complications (e.g., phlebitis and infiltration), and experience of individual catheter operators	Category IB
Use a midline catheter or peripherally inserted central catheter (PICC), instead of a short peripheral catheter, when the <u>duration of IV therapy will likely exceed six days</u>	Category IB



# Recommendations for Central Venous Catheters

Weigh the risk and benefits of placing a central venous device at a recommended site to reduce infectious complications against the risk for mechanical complications (e.g., pneumothorax, subclavian artery puncture, subclavian vein laceration, subclavian vein stenosis, hemothorax, thrombosis, air embolism, and catheter misplacement)	Category IA
Use a subclavian site, rather than a jugular or a femoral site, in adult patients to minimize infection risk for nontunneled CVC placement	Category IA
No recommendation can be made for a preferred site of insertion to minimize infection risk for a tunneled CVC.	<i>Unresolved issue</i>
Place catheters used for hemodialysis and pheresis in a jugular or femoral vein, rather than a subclavian vein, to avoid venous stenosis	Category IA
Use ultrasound guidance to place central venous catheters to reduce the number of cannulation attempts and mechanical complications if this technology is available	Category IB
Use an antimicrobial or antiseptic impregnated CVC in adults whose catheters are expected to be > 5 days	Category 1B
Promptly remove any IV catheter that is no longer essential	Category 1A

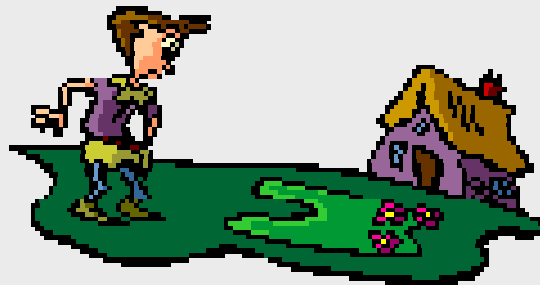
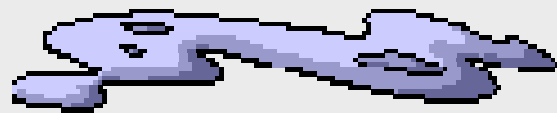


# CVAD Fundamentals

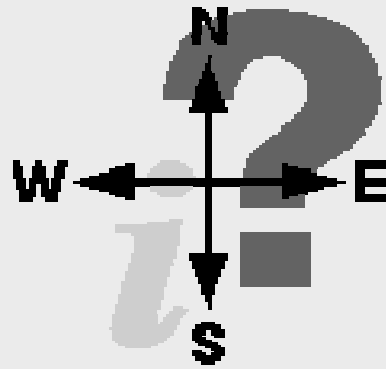
- **ASSESSMENT**
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- Right VAD Prescription **(1A)**
- Right Patient
- Right Regime **(1A)**





- Device Management Plan

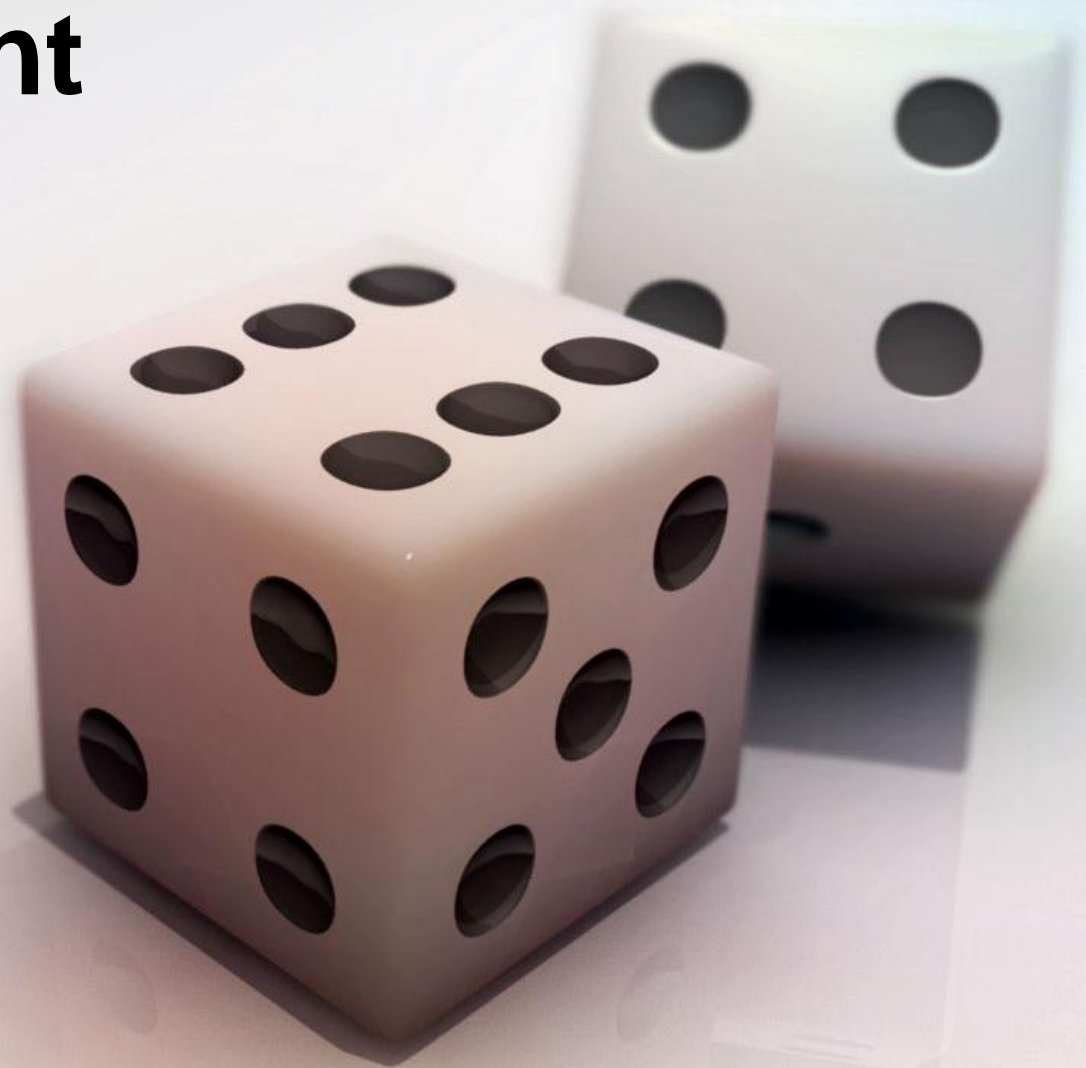


# 4 Main Categories

1. Patient Characteristics
2. Patient History (Co-Morbidities)
3. Infusion Requirements
4. Device Options



# The Patient



- Patients Perspective – their understanding  $\Delta/Rx$
- Life style – Recreational pursuits
- Occupation
- Anxious – needle phobic
- Patient Preference – for example; TPN



- Self-Care ► Site the Device

- » Upper extremity; ROM
- » No mirror required!
- » Clothes
- » Seatbelts



# Cognitive Capacity

- “Out of sight out of mind”
- Retrograde Device



# History & Co-Morbidities



# History

- Previous VAD History
- Complications
- Previous Surgical Interventions:
  - » IVC Filters
  - » Pacemakers
  - » Grafting



# Co-Morbidities

- Obesity
- Malignancies
- Diabetes
- Lymphedema
- Skin Integrity
- Allergies – Dressings, CHG, Latex





# Physical Examination

- Skin Integrity
- Skin Lesions
- Oedema
- Collateral Circulation – Suspicious of Central Venous Stenosis
- Check out the veins!
- Assess for other devices!
- Is the patient dry?
- Are they Anxious?



# ROM: Placement Plan

- Can the patient be positioned appropriately for the insertion?
- Arthritis, Obesity, Respiratory/Cardiac Conditions
- Assess for Contractures



# Infusion Needs



- Acute needs
- Chronic requirements
- Both?
- Multiple Infusions – sequentially or simultaneously
- Primary Infusions
- Vessicants/Irritants
- Rates required
- Compatibilities
- Interventional Investigation needs





# GOAL

Deliver a whole course of treatment on one device



# Device Options



The Patients overall Clinical Condition will  
dictate device survival

*(as opposed to the characteristics of the  
device!)*



# **Consider Advantages & Disadvantages of Device Options**



# Short-Term CVADs

- **Advantages:**

- Rapid Insertion
- Easy Access
- Multiple Lumens
- Easy to remove
- Multiple Modalities
- Lower grade material

- **Disadvantages:**

- Shorter Dwell time than Long term
- Direct entry into the vein
- Requires Suturing and/or Stabilisation Device



# Intermediate: *6 days or longer*

- **Advantages**
  - Higher grade material
  - Longer dwell time:  
weeks to 12 months
  - Ante-Cubital Fossa  
Placement
  - Lower (safer) insertion  
risks
  - Poor blood sampling

## **Disadvantages**

Requires Stabilisation Device and/or  
Sutures  
Poor blood letting  
Some Activity restrictions  
High Maintenance



# Long Term:

- **Advantages**

- Can last Years
- Self Care
- Device generally survives the host
- Long term devices – Years
- Tissue in-growth cuff and/or internal sutures securing the device
- Ports – Low Maintenance

## **Disadvantages**

- High grade material – expensive
- Tunnelled CVADs – High Maintenance
- Ports Require a non-coring needle
- Inserted by Surgeons and/or Radiologists



# Summary

- Consider Global trends
- Device Management Plan based on the 4 Main categories:
  - The Patient
  - Patient H & Co-Morbidities
  - Infusion Requirements
  - Device Options
- Right VAD Prescription **(1A)**
- Right Patient
- Right Regime **(1A)**

**Be Kind – Define the Line!**

