PRACTICE GUIDELINES:
CENTRAL VENOUS ACCESS

INTRODUCTION

Central lines are by far the number one cause of all in hospital cases of blood stream infections (BSI). Roughly 1 – 5% of non-cuffed central lines in hospital settings are associated with infections. Data from the National Nosocomial Infection Surveillance System (NNIS) demonstrate BSI rates ranging from 2 per 1000 device days in respiratory units to 30 per 1000 device days in burn units.

Significant reduction in infection rates have been demonstrated by 1) utilizing antiseptic/antibiotic impregnated catheters and 2) utilizing full barrier, sterile technique. Multiple studies have demonstrated reduction in infections from both # 1 and #2 above. Our current lines are antiseptic impregnated. A further reduction may be accomplished by utilizing minocycline/rifampin impregnated catheters; however concern regarding the development of bacterial antibiotic resistance limits their use in this hospital. Studies have consistently demonstrated a ***2 – 6 fold reduction*** in line infections if full barrier, sterile procedures are utilized during insertion.

Finally, the CDC has published guidelines regarding the indications for changing indwelling catheters to minimize both infections and insertion related complications. The guideline that follows incorporates these recommendations.

GUIDELINE

Catheters: When available, antibiotic impregnated catheters should be utilized for all central line insertions.

Insertion technique: Full barrier precautions should be utilized for all invasive catheters.
This includes:

- Mask
- Cap
- Gown
- Large drape (not 4 “blue towels”)

Skin should be free of debris and adequately and widely prepped. When re-wiring a line, gloves should be changed after the old catheter is removed and the guidewire should be prepped before handling the new catheter.

Replacement of central venous catheters:

- Evidence of local catheter infection – purulence, erythema, tenderness, mandates a catheter change to a **new site**.
- New clinical evidence of possible catheter infection but without hemodynamic changes, sepsis, no signs of insertion site infection and catheter > 3days old – **change over guidewire** (see technique above) and **send > 5cm length of catheter of intracutaneous portion for quantitative culture.** If cultures indicate infection or colonization, line must be changed to a new site.
- ICU patients with persistent leukocytosis, fever after previous line changes that are culture negative – **change over wire when catheter in place for 3 days**.
- Patients with evidence of BSI with hemodynamic instability, sepsis – **change line to new site**.
- No clinical evidence of infection – **do not change line**.
- **Pulmonary artery catheters** – replace every 5-7 days and culture the introducer sheath. If PA catheter is being changed for signs of infection/sepsis, culture tip of PA catheter as well.

- **Resuscitation lines –** placed in the trauma bay should be removed within 24 hrs.
- **Anesthesia placed resuscitation lines –** should be removed within 24 hrs.