Blood Cultures 101

- **Collection of blood cultures**
  - 2-3 sets of blood cultures from 2 separate sites should be collected prior to initiating antibiotic therapy
    - minimizes false negative results
    - 1 anaerobic and 1 aerobic bottle should be taken for each set
- **Duration of incubation**
  - 5-day incubation of blood cultures is sufficient to detect most pathogens
- **Patterns of bacteremia**
  - Intermittent
    - + bacteria in blood for periods of time followed by non-bacteria intervals
      - skin and soft tissue infections
      - bone infections
  - Continuous
    - persistent endovascular source of infection
      - endocarditis
      - infected endovascular graft/catheter

Interpretation of findings

- **<u>Possible contaminants -- need to clinically correlate</u>**
  - Coagulase-negative Staph
    - except Staph Lugdunesis
  - Corynebacterium (diphtheroids)
    - Except C. jeikeium and C. diphtheriae
  - Cutibacterium (Propionibacterium) acnes
  - Enterococci - may or may not be clinically relevant
  - Viridans Strep - may or may not be clinically relevant
- **<u>Organisms that always should be considered clinically significant</u>**
  - S. aureus
  - Streptococcus pneumoniae
  - Group A Streptococcus
  - Enterobacteriaceae
  - Haemophilus influenza
  - Pseudomonas aeruginosa
  - Bacteroidaceae
  - Candida species

Management Strategies

- **Follow-up blood cultures**
  - Blood cultures should be drawn every 24-48 hrs until negative cultures are demonstrated
- **Imaging**
  - + Blood cultures should increase suspicion of endocarditis
  - An echocardiogram should be ordered (TTE vs TEE)
- **Duration of therapy**
  - uncomplicated bacteremia -
    14 days from 1st negative blood culture)
  - complicated bacteremia - longer duration of therapy (4+ weeks)