Treatment of Methicillin-Resistant Staphylococcus aureus (MRSA)
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Decolonization:

- May be selected in the following cases:
  - A patient developing recurrent MRSA SSTI despite optimized wound care and hygiene measures
  - Ongoing transmission of MRSA is occurring among household members or other close contacts despite optimized wound care and hygiene measures
  - Prior to surgery if the site of colonization may cause cross contamination with the surgical site/wound

- Decolonization Methods:
  - Nasal decolonization with nasal mupirocin BID for 5 (10 days can be considered in some cases)
  - Nasal decolonization with nasal mupirocin BID along with skin antiseptic solution (chlorhexidine) x 5-10 days (recommended for patients with recurrent SSTI due to the effect on other colonized regions of the skin including the groin region and arm pits)

IDSA Guidelines for the Treatment of MRSA:

- SSTI
  - Cutaneous abscess:
    - Incision and drainage is the primary treatment
    - Antibiotics are recommended if the abscess is severe, extensive, or progressive or if the abscess is associated with systemic signs of infection or in an area where I&D is difficult to perform
    - Antibiotics are also recommended in immunosuppressed patients
    - See therapy for Purulent cellulitis for treatment options
  - Purulent Cellulitis:
    - Empiric therapy focused on CA-MRSA and not beta-hemolytic streptococci
    - TMP-SMX, doxycycline, minocycline, or linezolid
    - Rifampin is not recommended as monotherapy or as adjunctive therapy
    - Therapy 5-10 days

- Non-purulent cellulitis:
  - Empiric therapy to cover beta-hemolytic streptococci in addition to CA-MRSA
  - Clindamycin monotherapy, TMP/SMX + amoxicillin, doxycycline + amoxicillin, minocycline + amoxicillin, linezolid monotherapy
  - Rifampin is not recommended as monotherapy or as adjunctive therapy
  - Therapy 5-10 days

- Bacteremia
  - Uncomplicated bacteremia: (patient with positive BCX results and ruled out endocarditis (TEE negative), no prostheses, with follow up negative BCX after 2-4 days after initial set grow MRSA)
    - Rule out possible endocarditis by use of TEE (recommended over TTE)
    - Vancomycin (target trough of 15-20 mg/L) x 2 weeks
    - Alternative: daptomycin 6-8mg/Kg BID x 2 weeks
  - Complicated bacteremia: (patient with positive blood cultures who does not meet the criteria for uncomplicated bacteremia including native valve endocarditis)
    - Vancomycin (target trough of 15-20 mg/L) x 4-6 weeks
    - Alternative: daptomycin 8-10mg/Kg BID x 4-6 weeks
Repeat BCX every 2-4 days until BCX negative
- Rifampin and gentamicin are not recommended as adjunctive therapy in bacteremia and native valve endocarditis
- Evaluation for valve replacement surgery is highly recommended if evidence of native valve endocarditis present:
  - Large vegetation (>10mm in diameter)
  - ≥ 1 embolic event during the past 2 weeks of therapy
  - Severe valvular insufficiency, valvular perforation or dehiscence, decompensated heart failure, perivalvular or myocardial abscess, new heart block
  - Persistent bacteremia or fevers are present
- Prosthetic Valve Endocarditis:
  - Vancomycin (target trough 15-20mg/L) + rifampin 300mg PO/IV Q 8 Hrs x 6 weeks + gentamicin 1mg/Kg/dose Q8H for the initial 2 weeks

**Pneumonia**
- Empiric MRSA coverage is indicated in patients severe PNA defined as having one of the following regardless if CA or HA-pneumonia:
  - Requirement for admission to the ICU
  - Necrotizing or cavitary infiltrates
  - Empyema
- Treatment:
  - Vancomycin (target trough 15-20mg/L) IV
  - Linezolid 600mg IV/PO BID
  - Clindamycin 600mg IV/PO TID
  - Duration of therapy 7-21 days

**Osteomyelitis:**
- Surgical debridement and drainage should be performed whenever feasible
- Treatment:
  - Vancomycin (target trough 15-20mg/L) IV
  - Daptomycin 6mg/Kg/day IV (QD)
  - TMP/SMX (4mg/kg/dose TMP = 2 Double strength) BID + rifampin 600mg once daily
  - Linezolid 600mg PO/IV BID
  - Clindamycin 600mg TID
  - May add rifampin 600mg daily or 300-450mg BID in conjunction with the above but only AFTER the clearance of the bacteremia to avoid development of rifampin resistance
  - Therapy duration of 8 weeks (possibly longer in some cases) followed by 4-12 weeks of oral therapy with:
    - Rifampin 600mg PO daily PLUS ONE of the following agents: TMP/SMX, clindamycin, doxycycline, minocycline)
    - NOTE: Linezolid is not recommended for prolonged oral therapy due to incidence of thrombocytopenia with prolonged use

**Septic Arthritis:**
- Drainage and debridement followed by antibiotic therapy
- Similar therapy as osteomyelitis
- Duration of therapy 3-4 weeks

**Device-related osteoarticular infections:**
- Early Onset (<2 months post-surgery and ≤ 3 weeks of symptoms)
  - Same therapy as osteomyelitis PLUS rifampin 600mg daily for 2 weeks followed by:
    - Rifampin 600mg PO daily PLUS ONE of the following agents: TMP/SMX, clindamycin, doxycycline, minocycline
    - Duration 3 months for hips and 6 months for knees
- Late Onset
  - Same as early onset however if removal of device is not feasible, long term suppressive therapy may be warranted with oral agents +/- rifampin.