**Skin Infections**

For Providers

What are common types of skin infections seen in nursing homes?

- **Cellulitis**
  - Infection of the dermis or subcutaneous tissue caused by the entry of a microbe through an opening in the skin.
  - Can be purulent or non-purulent depending on the presence of pus
    - Purulent cellulitis often caused by *Staphylococcus aureus*.
    - Non-purulent cellulitis often caused by *Streptococcal* species.
- **Abscess**
  - Collections of pus in the dermis or subcutaneous layers of skin
  - Often caused by *S. aureus*
- **Infected pressure injuries**
  - Chronic wounds that can be staged based on depth (layers of tissue involved)
  - Pressure wounds and other chronic wounds are often colonized by many different microbial species, so infection is less likely to be diagnosed by culture rather than signs and symptoms of infection.

What are the clinical manifestations of skin infections?

- Local signs: erythema, warmth, swelling, heat, edema, and lymphadenopathy
- Systemic signs: fever or 2°F increase in baseline temperature, leukocytosis, hypotension
  - Elderly patients often present as afebrile
- Cellulitis: poorly defined region of erythema; usually unilateral

What factors make patients at a higher risk for skin infections?

- Skin barrier disruption such as a wound or skin tear
- Edema: accumulation of fluid causes stretching of the skin and increases likelihood to break
- Older age: breakdown and frailty of skin with age, as well as decreased water retention contributes to an impaired barrier protection.
- Poorly controlled diabetes: hyperglycemia can cause dysfunction of the immune system.
- Immunosuppressant medication
- Incontinence: contributes to skin breakdown and raises pH of skin, increasing susceptibility to infection
- Comorbidities such as: Obesity, CHF, PVD and diabetes
What is the antibiotic treatment needed to resolve skin infections?

- Determine antibiotic needed based on type of infection and probable pathogen
- Non-purulent cellulitis:
  - **Mild to moderate:** anti-Streptococcal agents, ex: cephalexin, cefazolin, ceftriaxone, clindamycin for penicillin allergy
  - **Severe:** broad spectrum IV antibiotics, ex: vancomycin + pipercillin/tazobactam; consider hospitalization and surgical debridement
- Purulent cellulitis and abscesses:
  - Incision and drainage with culture
  - **Mild to moderate:**
    - If suspect MSSA: cephalexin, dicloxacillin, or clindamycin for true penicillin allergy
    - If suspect MRSA: TMP-SMX, doxycycline, clindamycin or linezolid
  - **Severe:** broad spectrum IV antibiotics, ex: vancomycin + pipercillin/tazobactam, linezolid, daptomycin, tigecycline; consider hospitalization and surgical debridement
- Follow standards of antibiotic stewardship
  - Highest safe dose
  - Shortest effective duration
  - Avoid broad spectrum antibiotics unless necessary

Sources: