Clinical Practice Guideline* for the Diagnosis and Management of Acute Bacterial Skin and Soft Tissue Infection (SSTI) in Nursing Home Residents

Context
- On average, about 1 in 10 nursing home residents is receiving antibiotics on any given day [1]
- Antibiotic use is highly variable across nursing homes, and antibiotic related adverse events are significantly more common in highest use nursing homes [2]
- Presumed SSTI is the 3rd most common reason for antibiotic prescriptions in nursing home patients, after presumed urinary tract infections and presumed respiratory infections [3]
- As many as 30% of all “cellulitis” cases are misdiagnosed and are treated with unnecessary antibiotics [4]
- Antibiotic stewardship initiatives have been shown to be effective in impacting antimicrobial use and prescribing in nursing home settings [5]

Objective
- Support providers in clinical decision making for appropriate initiation and use of antibiotics in nursing home residents with presumed SSTI through the development of an evidence based clinical guideline

Goals
- Encourage practice patterns focusing on appropriate spectrum and appropriate treatment duration as recommended by the latest evidence based professional society guidelines for treatment of uncomplicated SSTI [6]
- Reduce inappropriate wound culturing practices in settings of uncomplicated SSTI
- Reduce nursing home-acquired C. difficile infection [7,8]

* This guideline is intended to serve as a reference tool during the care of a nursing home patient with suspicion of uncomplicated bacterial SSTI. This guideline is not intended to address issues related to complex wound care, complex diabetic foot infections, or other specialized clinical circumstances. It is not intended to be a set of rigid criteria to replace clinical judgment regarding each patient’s particular circumstances, clinical presentation, and other factors.
Cellulitis: Cellulitis of the legs involves only one of the extremities

<table>
<thead>
<tr>
<th>Non-Purulent Cellulitis (treatment Fig 1)</th>
<th>Purulent Cellulitis (Treatment Fig 2)</th>
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<tbody>
<tr>
<td>- A common bacterial infection of the deeper dermis and subcutaneous tissue with erythema, warmth, pain, and swelling, typically with ill-defined borders, most commonly affecting the extremities in adults, frequently associated with symptoms and signs of systemic illness (e.g. fever, chills, malaise, tachycardia, hypotension in more severe cases).</td>
<td>- Cellulitis associated with focus of evolving purulence, such as a cutaneous phlegmon, abscess, furuncle, carbuncle, infected epidermoid cyst.</td>
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<td>- More likely associated with β hemolytic Streptococcus (group A, B, C, G), Staphylococcus aureus rare</td>
<td>- Strong association with Staphylococcus aureus</td>
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<tr>
<td>- Routine cultures not recommended</td>
<td>- Deep cultures of purulence (collected during I &amp; D, avoid superficial cultures) may be helpful with determining susceptibility pattern</td>
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Two Common conditions causing “red leg” often mistaken for Cellulitis: Commonly bilateral

<table>
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<th>Stasis Dermatitis</th>
<th>Lipodermatosclerosis</th>
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<tr>
<td>- Skin erythema due to chronic venous stasis and edema</td>
<td>- Associated with chronic venous hypertension and stasis</td>
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<td>- Skin redness often associated with scale</td>
<td>- Inflammation of the subcutaneous fat</td>
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<tr>
<td>- Unilateral or Bilateral</td>
<td>- Present as fibroed, rigid red or brown skin</td>
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<td>- Usually chronic or recurring</td>
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<tr>
<td>- Pruritic lesions, weeping lesions</td>
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<td>- Relapsing and Remitting Course</td>
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Chronic decubitus ulcers: When to culture and Treat?

- **Culture:** Do not use a superficial swab culture to diagnose infection because pressure ulcers are colonized by bacteria, deep cultures are needed if infection suspected
- **Infection suspected if:**
  1. Edema, erythema, increased purulence and drainage, necrosis, new or increasing pain **and**
  2. Presence of systemic infection: fever, leukocytosis, hypotension
When to initiate antibiotics for skin and soft tissue infection:

<table>
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<th>New or increasing purulent drainage at a wound, skin, or soft-tissue site</th>
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Or

At least **two** of the following:
- Fever (temperature $> 100^\circ F \ [37.9^\circ C]$ or two repeated temperatures of $99^\circ F \ [37^\circ C]$), 2°F (1°C) above the baseline or
- Redness, or
- Tenderness, or
- Warmth, or
- Swelling that is new or increasing at the affected site

Updated Mc Geer Surveillance criteria for skin and soft tissue infection:

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<th>Purulence at SSTI site</th>
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Or

New or increasing presence of at least **4** of the following sign or symptom subcriteria:
- Heat at the affected site
- Redness at the affected site
- Swelling at the affected site
- Tenderness or pain at the affected site
- Serous drainage at the affected site
- One constitutional criterion
  - fever
  - leukocytosis (WBC 114,000 leukocytes/mm3, left shift (16% bands or $\geq 1,500$ bands/mm3)
  - Acute mental status changes
  - Acute functional decline
Figure 1. Treatment of non-purulent cellulitis

Non Purulent Cellulitis

Mild or Moderate

MRSA risk Factors?
e.g. Prior MRSA infection or Cellulitis treatment failure

Yes

Cephalexin 500 mg 3 times per day

Plus
TMP/SMX 1 DS tab* once a day for 5 days
or
Doxycycline 100 mg twice a day for 5 days

NO

Cephalexin 500 mg 3 times per day

Severe Systemic symptoms?
e.g. high fever with chills, tachycardia, tachypnea

Ceftriaxone 1mg IM every 24 hrs
Consider Vancomycin IV and Evaluate for hospital transfer

Severe Penicillin allergy

Replace Cephalexin with

Clindamycin 300 mg 3 times a day for 5 days

The recommended duration is 5 days. Treatment should be extended if the infection has not improved within this time period

* Increase TMP/SMX dose to 1 DS twice a day for residents with creatinine clearance > 30ml/min
Figure 2. Treatment of purulent cellulitis

The recommended duration is 7 days. Treatment should be extended if the infection has not improved within this time period.

* Increase TMP/SMX dose to 1 DS twice a day for residents with creatinine clearance > 30ml/min
REFERENCES:


