CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

Degree of Severity Definition		
Severity	**Purulent**	**Non-Purulent**
Mild	No systemic signs of infection	
Moderate	Systemic signs of infection without sepsis or severe immunocompromise	
Severe	Failed I&D Sepsis Severely Immunocompromised	Sepsis Severely Immunocompromised Presence of bullae or sloughing

*Systemic signs of infection include Temp >100.4 F, WBC >12,000 or <4,000, hemodynamic instability

Management of <u>non-purulent</u> SSTI				
Type of Infection	**Organisms**	**Preferred Treatment**	**Alternative Treatment (PCN allergy)**	**Duration**
Cellulitis and Erysipelas *Erysipelas has defined borders * Blood cultures, tissue aspirates, and skin biopsies **NOT** routinely recommended due to low yield	**Beta-hemolytic Streptococci:** Group A – *S. pyogenes* (most common), Group B – *S. agalactiae*, Groups C, G, F ***Staphylococcus aureus* only if:** large open wound, IV drug user, penetrating trauma, active *S. aureus* infection at another site	**Mild Treatment Options (oral):** Penicillin VK 500 mg q6h **OR** Amoxicillin 500 mg q8h OR 875 mg q12h	Cephalexin 500 mg q6h **OR** Clindamycin 300-450 mg q6h	5 days Duration is not contingent on erythema resolution alone, may extend to 7-10 days if slow clinical improvement
		Moderate Treatment Options (intravenous): Penicillin G 3-4 million units q4h **OR** Ampicillin 2 g q4-6h	Cefazolin 2 g q8h **OR** Clindamycin 600 mg q8h	
		Severe Treatment Options (intravenous antibiotics): See Necrotizing Fasciitis below Consider ID consult		

Last Updated: February 23, 2023

CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

Impetigo * Oral antimicrobials recommended for numerous lesions or outbreaks affecting several people to decrease transmission	*S. aureus* *S. pyogenes*	**Mild:** Mupirocin (topical) twice daily **Moderate-Severe:** <u>Empiric/MSSA</u> Cephalexin 500 mg PO q6h <u>MRSA suspected/confirmed</u> Doxycycline 100 mg PO q12h **OR** SMX/TMP 2 DS tabs q12h	**Moderate-Severe:** <u>Empiric/MSSA</u> Clindamycin 300-450 mg PO q6h <u>MRSA</u> Clindamycin (only with susceptibilities) 300-450 mg PO q6h	Mupirocin: 5 days All others: 7 days
Folliculitis	*S. aureus* *Pseudomonas aeruginosa* (hot tubs)	**No antimicrobials** Warm compresses Gentle cleanser		
Necrotizing Soft Tissue Infections/ Fasciitis	**Empirically:** Broad spectrum gram positive, gram negative and anaerobic coverage **Most common organisms:** Group A Streptococci (GAS) Gas Gangrene: *Clostridium perfringens, Clostridium septicum*	**Emergent surgical consultation**		
		Empiric: Vancomycin **PLUS** Piperacillin/tazobactam 4.5 g IV q8h **Identified GAS or *Clostridium:*** Penicillin G 3-4 million units IV q4h **PLUS** Clindamycin 900 mg IV q8h	**Empiric:** Linezolid 600 mg IV q12h **PLUS** Cefepime 2 g IV q8h **PLUS** metronidazole 500 mg IV q8h	Dependent upon surgical debridement/ source control *Clindamycin used in combination for toxin binding should be **discontinued after 48-72 hours**

***Addition of clindamycin has been shown to reduce the in vitro release of streptococcal pyrogenic exotoxins, however there is still a lack of clinical prospective trials strongly recommending its use in this setting. **Addition is not needed if linezolid is part of the empiric regimen as linezolid has been shown to reduce toxin production**. Surgical intervention remains the most important treatments to manage necrotic spread.

**Doxycycline, Metronidazole and Linezolid: IV and Oral have similar bioavailability, if patients are able to take PO that can be initiated

Last Updated: February 23, 2023

CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

Management of purulent SSTI				
Type of Infection	**Organisms**	**Preferred Treatment**	**Alternative Treatment (IV, PCN allergy)**	**Duration**
Abscesses (Furuncles, Carbuncles) * For moderate/ severe, send purulent material for culture and sensitivity	*S. aureus* *MRSA should always be covered for empirically (~50% of local *S. aureus* is MRSA)	**Mild** I&D only		
		Moderate/Severe I&D + systemic antibiotics **Empiric/MRSA:** SMX/TMP 2 DS tabs q12h **OR** Doxycycline 100 mg PO/ IV q12h **OR** Vancomycin **MSSA:** Cephalexin 500 mg PO q6h **OR** Cefazolin 2 g IV q8h	**Empiric/MRSA:** Linezolid 600 mg PO/IV q12h **OR** Clindamycin (only with susceptibilities) 300-450 PO mg q6h **MSSA:** Nafcillin 2 g IV q4h **OR** Clindamycin 300-450 mg PO q6h	5 days May extend to 7-10 days if slow clinical improvement

Last Updated: February 23, 2023

CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

Surgical Site Infections		
Type of Infection	**Suspected Organisms**	**Recommended Treatment**
Surgical Site Infections * Culture and sensitivity for any purulent material * Short course (24-48 hours) recommended **ONLY** for patients with significant systemic response	**≤48 hours post-surgery:** *S. pyogenes*, Clostridium spp **>48 hours post-surgery:** *S. aureus*	**Suture removal plus I&D** **MRSA** Vancomycin **OR** Linezolid 600 mg IV q12h **MSSA** Cefazolin 2 g IV q8h **OR** Nafcillin 2 g IV q4h
	Consider adding coverage for gram negatives and anaerobes for surgeries involving: • GI tract • Perineum • Female genital tract	Ceftriaxone 1 g IV q24h **PLUS** Metronidazole 500 IV/PO mg q8h PCN allergy: Levofloxacin 750 IV q24h **PLUS** Metronidazole 500 mg IV/PO q8h

Diabetic Foot Infections			
Collection of Specimen: • Collect from all infected wounds (avoid surface swabs). • Cleanse and debride the wound before obtaining cultures. • Aspirate any purulent secretions. **Deescalate based on cultures if obtained from a non-superficial site** **Osteomyelitis excluded**			
Definition	Suspected Organism	Recommended Treatment	Duration
Mild: >2 of the following signs of local infection: • Induration • Erythema • Tenderness • Warmth • Pus	Beta-hemolytic streptococci (GAS, GBS), MSSA	**GAS, GBS and MSSA** Cephalexin 500 mg PO q6h **OR** Amoxicillin-clavulanate 875/125 mg PO q12h **History of MRSA*** Doxycycline 100 mg PO q12h OR TMP/SMX DS 2 tab PO q12h **PCN Allergy:** Clindamycin 300-450 mg q6h	1-2 weeks May extend up to 4 weeks if slow to resolve

Last Updated: February 23, 2023

CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

Moderate: Mild infection PLUS abscess, osteomyelitis, septic arthritis >2 cm erythema or lymphangitis, without systemic signs of inflammation *Consider holding antibiotics until tissue is obtained for culture	Mild infection pathogens plus enteric gram-negative rods	**IV treatment** Ceftriaxone 2g daily **PLUS** Metronidazole 500 mg q8h **OR** Ampicillin/sulbactam 3 g q6h **History of MRSA*** Vancomycin **PCN Allergy** Levofloxacin 750 mg IV daily PLUS Clindamycin 900 mg IV q8h **PO Treatment** Amoxicillin-clavulanate 875/125 mg q12h **History of MRSA *** Doxycycline 100 mg q12h **OR** TMP/SMX DS 2-tab q12h **PCN Allergy** Levofloxacin 750 mg PO daily PLUS doxycycline 100 mg PO q12h	1-3 weeks
Severe: Moderate PLUS systemic signs of infection • Fever • Tachycardia • Leukocytosis • Hypotension • Sepsis syndrome	Same pathogen as above plus anaerobes *MRSA infection rate: cover only if risk factors (history of MRSA infection or colonization) • Alternative to Vancomycin: linezolid 600 mg PO/IV q12h or daptomycin 8 mg/kg IV q24h *Pseudomonas infection: cover only with risk factors • Previous isolation of pseudomonas • Broad spectrum antibiotic therapy in the previous 90 days • Wound was exposed to fresh water	**Empiric coverage** Vancomycin **PLUS** Ceftriaxone 2 g IV daily **PLUS** Metronidazole 500 mg IV q8h **OR** Vancomycin **PLUS** Piperacillin/tazobactam 4.5 g IV q8h **PCN Allergy** Vancomycin **PLUS** Aztreonam 2 g IV q8h **PLUS** Metronidazole 500 mg IV q8h	2-4 weeks

Last Updated: February 23, 2023

CARILION CLINIC
Antimicrobial Stewardship

Adult Skin and Soft tissue Infection Treatment guideline

Disclaimer: This guideline should not replace clinical judgement

<table>
<tr><th colspan="5">Bite Wounds</th></tr>
<tr><td colspan="5">Tetanus and Rabies vaccines as appropriate</td></tr>
<tr><td colspan="5">Not all bite wounds require antibiotic management in addition to appropriate wound care.
3-5 days of pre-emptive antimicrobial therapy considered for non-infected appearing wounds if:
• Immunocompromised or asplenic
• Advanced liver disease
• Preexisting or resultant edema of the affected area
• Moderate to severe injuries (especially hands or face)
• Injuries involving periosteum or joint capsule</td></tr>
<tr><th rowspan="2">Source of bite</th><th rowspan="2">Common Organisms</th><th colspan="3">Antimicrobial Agents</th></tr>
<tr><th>Oral</th><th>Oral, PCN allergy</th><th>IV</th><th>IV, PCN allergy</th></tr>
<tr><td>Dog, cat, other mammal</td><td>Pasteurella spp
S. aureus
Streptococci
Capnocytophaga spp
Moraxella spp
Anaerobes</td><td rowspan="2">Amoxicillin/ Clavulanate 875 mg q12h</td><td rowspan="2">Cefdinir 300 mg q12h
OR
TMP/SMX 2 DS tabs q12h
PLUS
Clindamycin 300-450 mg q6h</td><td rowspan="2">Ampicillin-sulbactam 3 g q6h</td><td rowspan="2">Ceftriaxone 1 g q24h
OR
TMP/SMX 2 DS tabs q12h
PLUS
Clindamycin 600 mg q6-8h</td></tr>
<tr><td>Human</td><td>+ Eikenella corrodens</td></tr>
</table>

References

1. Carilion 2022 antibiogram
2. Stevens DL, Bisno AL, Chambers HF, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the infectious diseases society of America. 2014 July; 59:10-52.
3. Lipsky BA, Berendt AR, Cornia PB, et al. Infectious Diseases Society of America. 2012 Infectious Diseases Society of America clinical practice guideline for the diagnosis and treatment of diabetic foot infections. Clin Infect Dis. 2012 Jun;54(12):e132-73