

Surgical Intensive Care Unit

Practice Management Guideline: Necrotizing Soft Tissue Infection (NSTI)

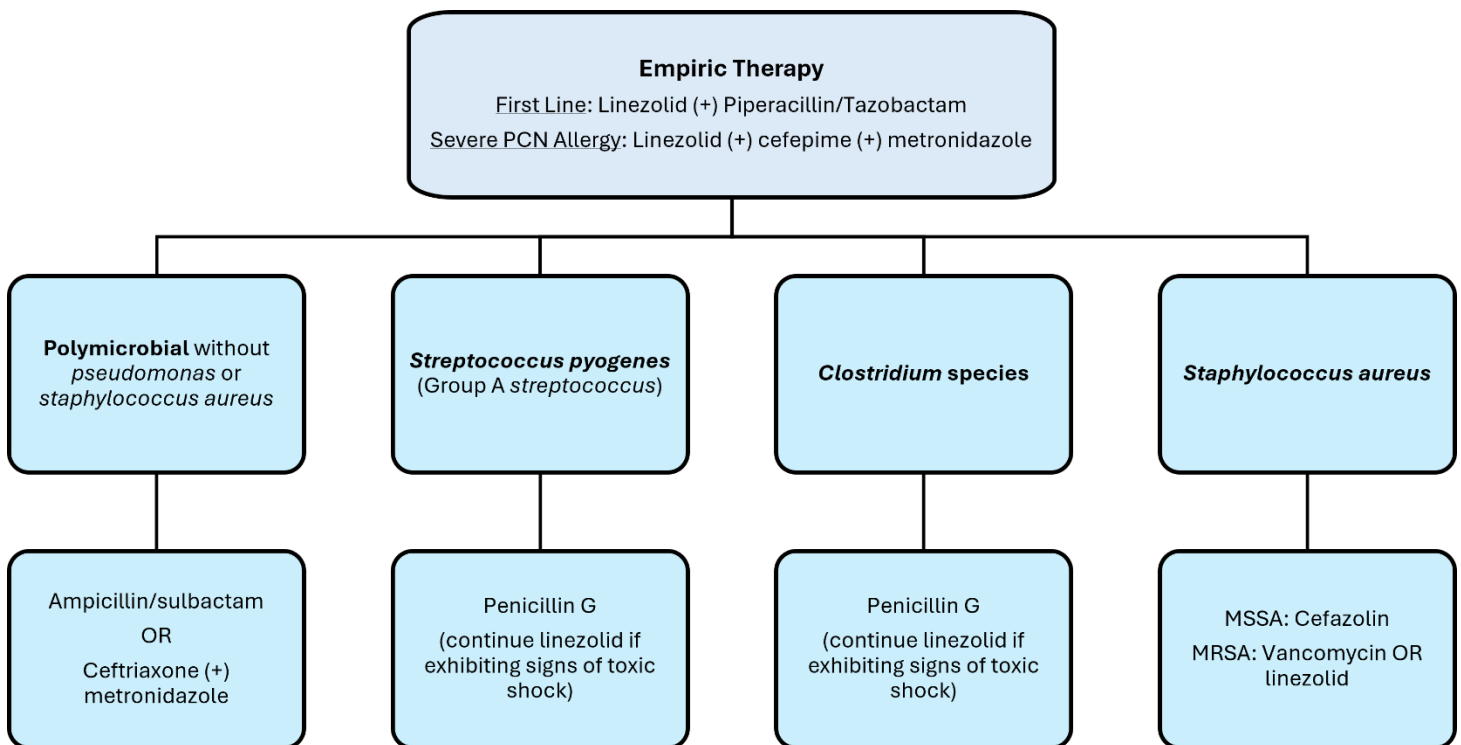
Background: Necrotizing soft tissue infection (NSTI) is a severe, rapidly progressing infection with high morbidity and mortality. Early recognition, appropriate antibiotics, and surgical debridement is critical.

Isolation Requirement

Contact isolation AND droplet precautions are required for 24 hours after the first dose of broad-spectrum antibiotics. After 24 hours of contact and droplet precautions, both can be discontinued as long as the patient does not grow a pathogen that requires isolation per VUMC guidelines.

Antimicrobial Therapy

Please refer the VUMC approved antimicrobial dosing guidelines: [Dosing Guideline](#)



Labs/Cultures

- Peripheral blood cultures x 2 on presentation
- Operative tissue cultures
- Daily CBC
- Hemoglobin A1c

Infectious Disease Consult

The infectious disease service should be consulted for any of the following criteria

- Multidrug resistant pathogens
- Debridement with osteoarticular involvement (bone or exposed bone)
- Consult required per VUMC policy (e.g. *Staph aureus*, *enterococcus* bacteremia)

Antibiotic Duration

Systemic antibiotics in soft tissue infections should be continued until the following criteria are met:

1. Source control has been obtained
2. Patient is hemodynamically normal
3. Fever has been absent for 48 hours
4. White blood cell count has improved

Glucose Management

Blood glucose should be managed according to the SICU Glycemic Practice Management Guidelines.

IVIG

IVIG may be considered in a patient with group A *streptococcus* infection if ALL following criteria are met:

1. Culture confirmed group A *streptococcus* infection
2. Shock without clinical improvement after debridement
3. Diagnosis within the past 48 hours

IVIG Dosing: 1 g/kg (ideal body weight) x 1 dose, then 0.5 g/kg (ideal body weight) q24h x 2 doses

References

1. Babiker A, Warner S, Li X, Chishti EA, et al. Adjunctive linezolid versus clindamycin for toxin inhibition in β -lactam-treated patients with invasive group A streptococcal infections in 195 US hospitals from 2016 to 2021: a retrospective cohort study with target trial emulation. *Lancet Infect Dis*. 2025 Mar;25(3):265-275.
2. Beauchamp LC, Mostafavifar LG, Evanc DC, et al. Sweet and Sour: Impact of early glycemic control on outcomes in necrotizing soft- tissue infections. *Surgical Infections*. 2019; 20: 305-310.
3. Darenberg J, Ihendyane J, Sjolín J, et al. StreptIG Study Group. Intravenous immunoglobulin G therapy in streptococcal toxic shock syndrome: a European randomized, double-blind, placebo-controlled trial. *Clin Infect Dis*. 2003;37(3):333-340.
4. Dorazio J, Chiappelli AL, Shields RK, et al. Clindamycin plus vancomycin versus linezolid for treatment of necrotizing soft tissue infection. *Open Forum Infect Dis*. 2023 May 11;10(6):ofad258.
5. Duane TM, Huston JM, Collom M, et al. Surgical infection society 2020 updated guidelines on the management of complicated skin and soft tissue infections. *Surg Infect (Larchmt)*. 2021 May;22(4):383-399.
6. 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. *Clin Infect Dis* 2014; 26:147.
7. Lauerma MH, Kolesnik O, Sethuraman K, et al. Less is more? Antibiotic duration and outcomes in Fournier's gangrene. *Trauma and Acute Care Surgery*. 2017; 83: 443-448.
8. Nixon J, Parli SE, Bishop JM, et al. Assessment of Therapeutic Approaches: Necrotizing soft tissue infections and the choice between vancomycin + clindamycin and linezolid. *Surg Infect (Larchmt)*. 2025 Sep;26(7):467-473.
9. Parks T, Wilson C, Curtis N, et al. Polyspecific intravenous immunoglobulin in clindamycin-treated patients with streptococcal toxic shock syndrome: a systematic review and meta-analysis. *Clin Infect Dis*. 2018;67(9):1434-1436.
10. Terzian WTH, Nunn AM, Call EB, Bliss SE, Swinarska JT, Rigdon J, Avery MD, Hoth JJ, Miller PR 3rd. Duration of antibiotic therapy in necrotizing soft tissue infections: shorter is safe. *Surg Infect (Larchmt)*. 2022 Jun;23(5):430-435.

Authors

Kelli Rumbaugh, PharmD

Rachel Appelbaum, MD