UWTASP tele-antimicrobial stewardship program | echo

August 1, 2017

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Agenda

- Didactic: Skin and Soft Tissue Infections 2
- Case Discussion
- Open Discussion

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Skin and Soft Tissue Infections Part 2

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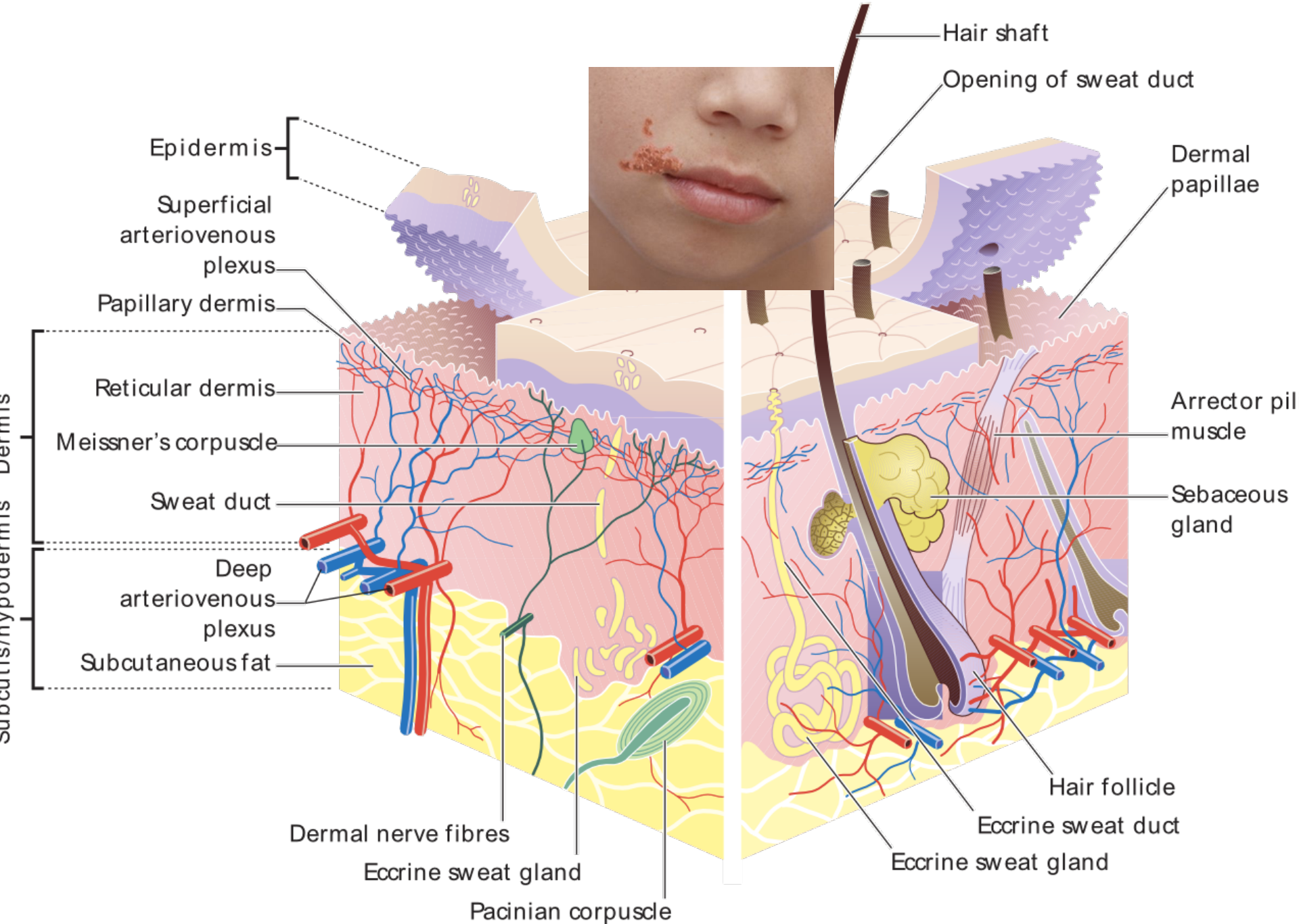
This presentation is intended for educational use only, and does not in any way constitute medical consultation or advice related to any specific patient.

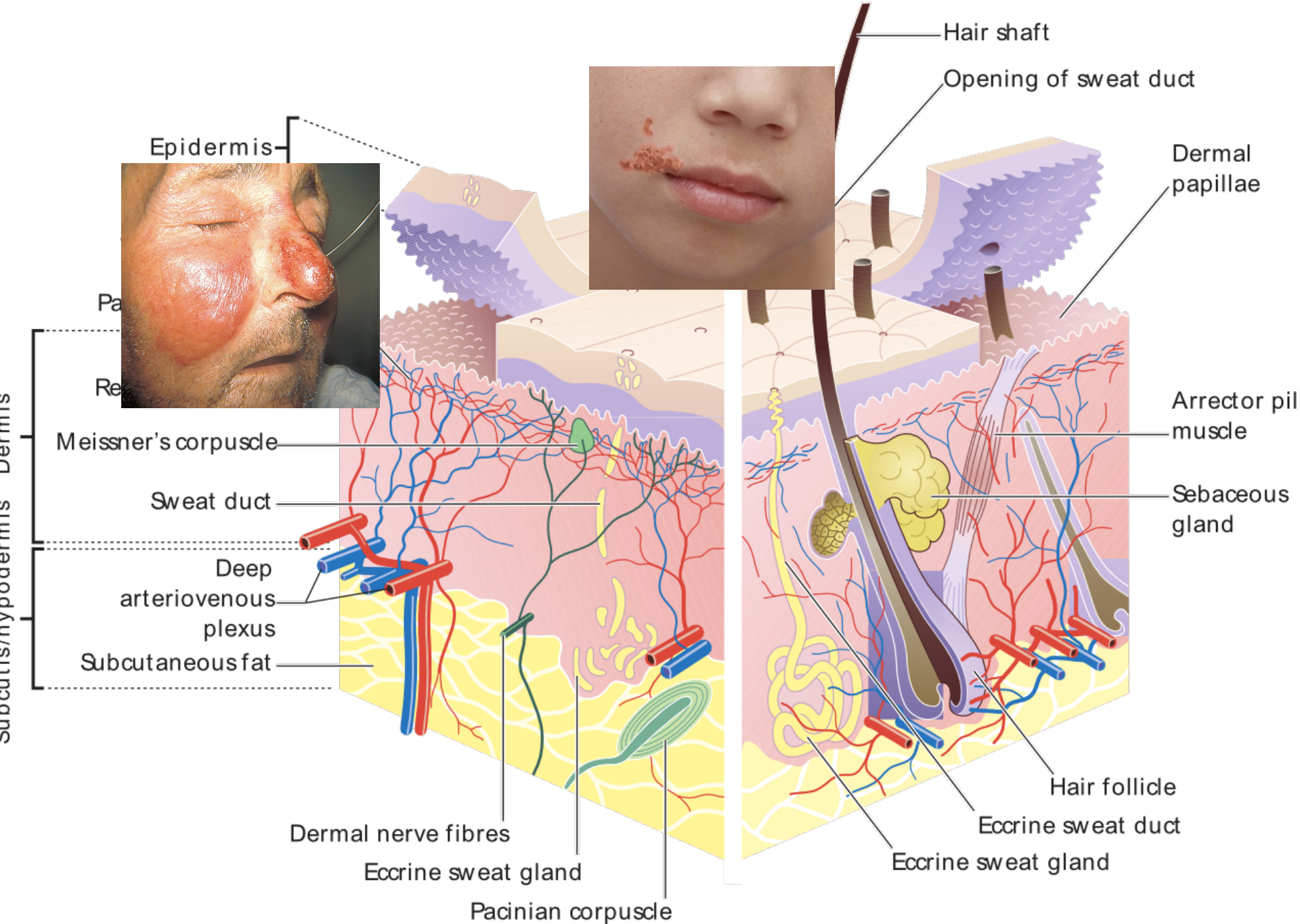
Types of SSTI

- Erysipelas
- Impetigo
- Cellulitis
- Necrotizing skin and soft tissue infection (and Fournier's gangrene)
- Furuncle and carbuncle (diff than folliculitis)
- Cutaneous abscess
- Pyomyositis
- Gas gangrene
- Wound infections….

SSTI: Most Common Organisms

- Aerobic Gram-positive bacteria
- *Staphylococcus aureus* (MSSA and MRSA)
  - Purulent SSTI like abscesses and wound infections
- *Streptococcus pyogenes (*aka Group A strep)
  - Non-purulent SSTIs like cellulitis
- *Vibrio vulnificis,* aeromonas, peptostreptococcus, clostridia species
- Polymicrobial infections


Hair shaft
Opening of sweat duct
Epidermis
Dermal papillae
Superficial arteriovenous plexus
Papillary dermis
Reticular dermis
Meissner's corpuscle
Arrector pili muscle
Sweat duct
Sebaceous gland
Deep arteriovenous plexus
Subcutaneous fat
Dermis
Subcutis/hypodermis
Hair follicle
Eccrine sweat duct
Eccrine sweat gland
Dermal nerve fibres
Eccrine sweat gland
Pacinian corpuscle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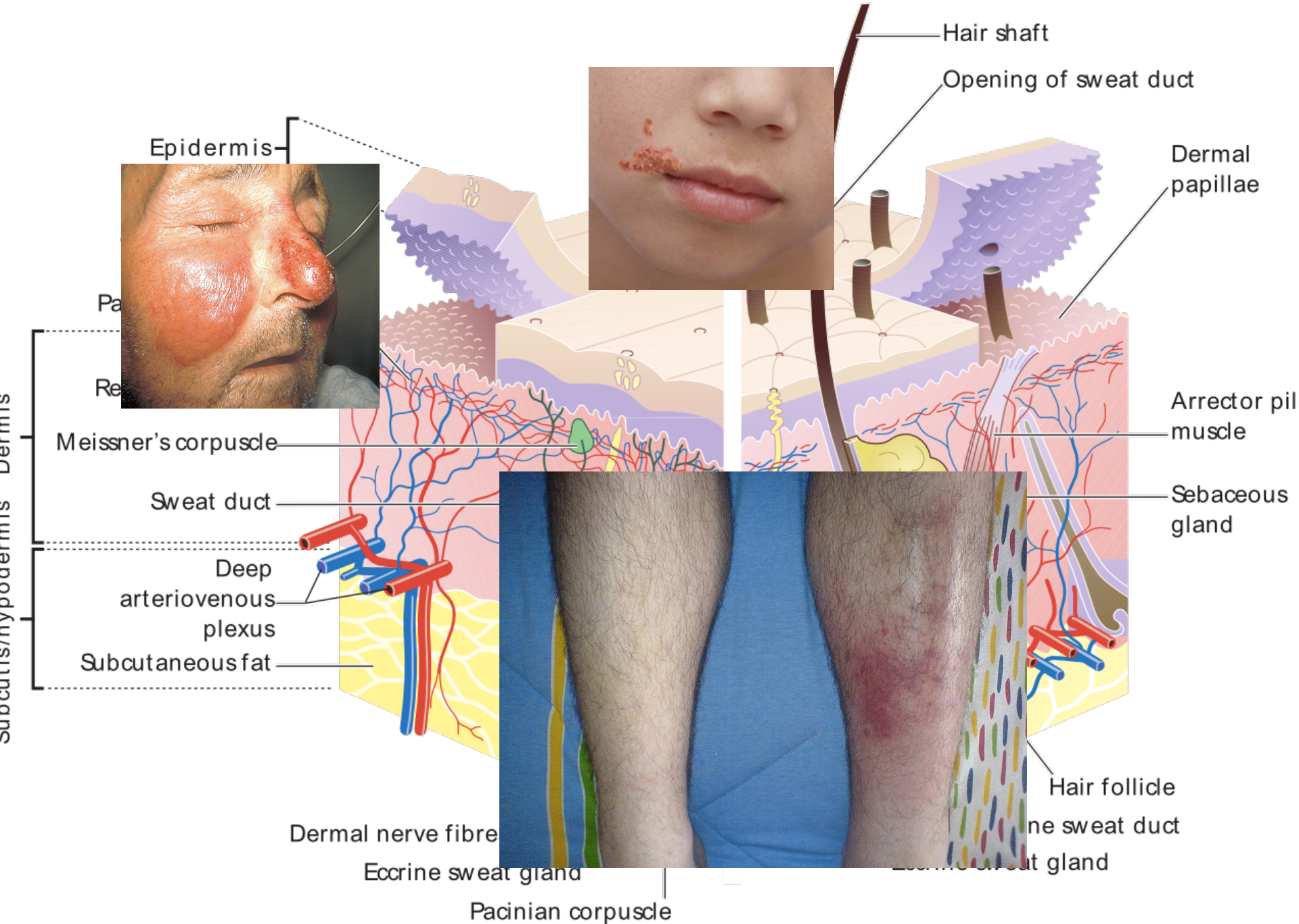
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10 Cellulitis Myths

- Myth 1: Skin that is red and swollen is definitely cellulitis.
- Lesson 1: Local presentation of edema, erythema, warmth, hyperemia, tenderness, “orange peel” appearance, vesicles, bullae, petechiae, and pain may lead to a diagnosis of ABSSSI.
- Diagnoses of deep venous thrombosis (DVT), venous stasis dermatitis, venous insufficiency, lymphedema, contact dermatitis, gout, herpes zoster, acute lipodermatosclerosis, noninfectious phlebitis, insect bite hypersensitivity, Sweet's syndrome, and fixed drug reaction should also be considered
- Straight leg raise test

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10 Cellulitis Myths

- Myth 2: My patient has bilateral lower-extremity swelling and redness; my patient has bilateral cellulitis.
- Lesson 2: Bilateral lower-extremity cellulitis is exceedingly rare. If bilateral swelling is present, noninfectious etiologies should be considered first, including but not limited to chronic stasis dermatitis, DVT, heart failure, venous stasis, and lymphedema.

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10 Cellulitis Myths

- Myth 4: With the increased prevalence of methicillin-resistant *Staphylococcus aureus*(MRSA) in the community, all clinically stable, community-dwelling patients presenting to the ED with cellulitis should be treated with an antibiotic that has activity against MRSA.
- Lesson 4: The antibiotic spectrum decision should be based on several factors, including presence or absence of purulence, severity of illness, patient-specific risk factors for MRSA, and local bacteria ecology.

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10 Cellulitis Myths

- Lesson 4: The antibiotic spectrum decision should be based on several factors, including presence or absence of purulence, severity of illness, patient-specific risk factors for MRSA, and local bacteria ecology.
- Impetigo, erysipelas, and cellulitis that is diffuse, erythematous, nonpurulent with extensive lymphangitic spread, or unassociated with a defined portal is more commonly caused by Group A or other β-hemolytic streptococci rather than *Staphylococcus* spp., however, *S. aureus* may also be present. In nonpurulent cellulitis, the addition of MRSA coverage (with trimethoprim-sulfamethoxazole [TMP-SMX]) to cephalexin does not improve patient outcomes, including clinical cure or progression to abscess

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10 Cellulitis Myths

- Myth 5: My patient requires hospitalization for cellulitis, therefore, my patient has a MRSA infection and requires MRSA targeted anti-infective therapy.
- Lesson 5: Similar to lesson 4, the presence or absence of purulence, severity of illness, patient-specific risk factors for MRSA, and local bacteria ecology should guide the provider in determining the causative pathogen of an ABSSSI, irrespective of the location of the patient.

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10 Cellulitis Myths

- Lesson 5: Similar to lesson 4, the presence or absence of purulence, severity of illness, patient-specific risk factors for MRSA, and local bacteria ecology should guide the provider in determining the causative pathogen of an ABSSSI, irrespective of the location of the patient.
- In patients who are sick enough to be hospitalized, it is reasonable to begin an antibiotic with activity against MRSA, such as vancomycin, and culture the lesion. If the lesion is not culturable, it is reasonable to obtain MRSA swabs of the nares and pooled axilla/groin to guide definitive antibiotic therapy.

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10 Cellulitis Myths

- Myth 7: Because one cannot tell whether cellulitis is caused by *Streptococcus* spp., MSSA, MRSA, Gram-negative or anaerobic pathogens, each patient needs to be treated with broad-spectrum antibiotic therapy.
- Lesson 7: Antibiotic therapy should be selected based on the characteristics of the infection, severity of illness, and patient-specific risk factors for different organisms. Most cases of uncomplicated cellulitis without abscess or purulence will not need combination therapy with a β-lactam and anti-MRSA antibiotic. Gram-negative and anaerobic coverage is generally unnecessary.
- NOTE: TMP-SMX?

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10 Cellulitis Myths

- Myth 8: If the redness extends beyond the drawn wound margin in a patient with cellulitis, the patient is getting worse.
- Lesson 8: Because of the subacute spread of redness, edema, or induration in some patients at the time of presentation with cellulitis, the lesion may continue to spread for the first 48 h after administration of antibacterial drug therapy.

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10 Cellulitis Myths

- Lesson 8 continued…
- Erythema may extend beyond documented margins during the first 48 h without necessarily representing treatment failure. The intensity of the erythema is often a more important variable, with improving cases resulting in less intensely red inflammation.
- If erythema and fever continue beyond 48 to 72 h, treatment failure should be considered and antibiotic therapy should be reassessed.
- The Infectious Diseases Society of America recommends 5 days of treatment for erysipelas and cellulitis, with the option to extend treatment duration in the absence of clinical improvement within this time period.

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10 Cellulitis Myths

- Myth 10: All patients with tick bites and surrounding redness have cellulitis.
- Lesson 10: Local tick bite reactions are predictable and do not indicate that a patient has cellulitis. These reactions are usually no more than a few centimeters in size.

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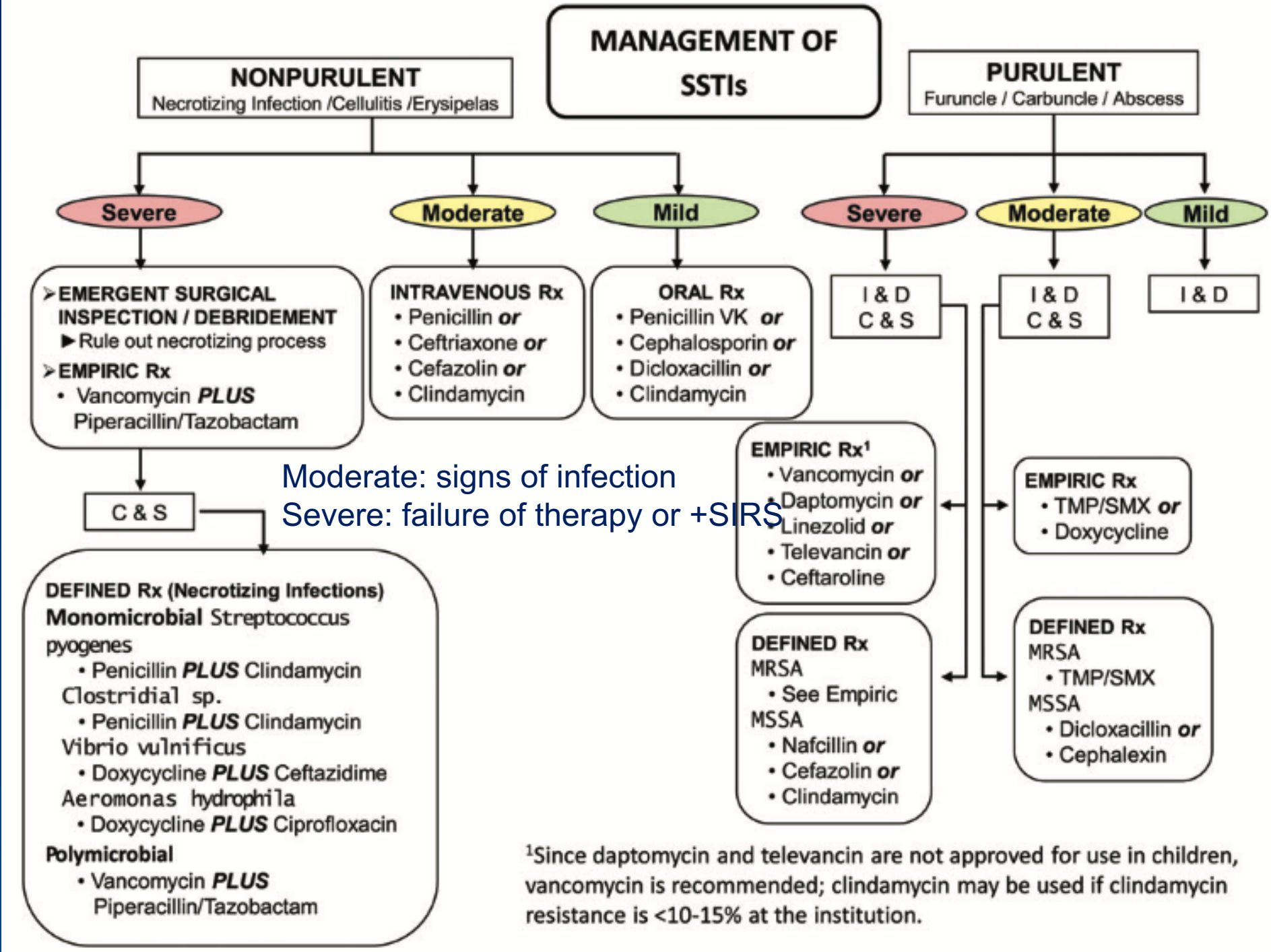
IDSA GUIDELINE

Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America

Dennis L. Stevens,[1] Alan L. Bisno,[2] Henry F. Chambers,[3] E. Patchen Dellinger,[4] Ellie J. C. Goldstein,[5] Sherwood L. Gorbach,[6] Jan V. Hirschmann,[7] Sheldon L. Kaplan,[8] Jose G. Montoya,[9] and James C. Wade[10]

[1]Division of Infectious Diseases, Department of Veterans Affairs, Boise, Idaho; [2]Medical Service, Miami Veterans Affairs Health Care System, Florida; [3]San Francisco General Hospital, University of California; [4]Division of General Surgery, University of Washington, Seattle; [5]University of California, Los Angeles, School of Medicine, and R. M. Alden Research Laboratory, Santa Monica, California; [6]Department of Community Health, Tufts University, Boston, Massachusetts; [7]Medical Service, Puget Sound Veterans Affairs Medical Center, Seattle, Washington; [8]Department of Pediatrics, Baylor College of Medicine, Houston, Texas; [9]Department of Medicine, Stanford University, California; and [10]Geisinger Health System, Geisinger Cancer Institute, Danville, Pennsylvania


MANAGEMENT OF SSTIs
NONPURULENT
Necrotizing Infection /Cellulitis /Erysipelas
PURULENT
Furuncle / Carbuncle / Abscess
Severe
Moderate
Mild
Severe
Moderate
Mild
➢EMERGENT SURGICAL INSPECTION / DEBRIDEMENT
►Rule out necrotizing process
➢EMPIRIC Rx
• Vancomycin PLUS Piperacillin/Tazobactam
INTRAVENOUS Rx
• Penicillin or
• Ceftriaxone or
• Cefazolin or
• Clindamycin
ORAL Rx
• Penicillin VK or
• Cephalosporin or
• Dicloxacillin or
• Clindamycin
I & D C & S
I & D C & S
I & D
C & S
Moderate: signs of infection
Severe: failure of therapy or +SIRS
EMPIRIC Rx[1]
• Vancomycin or
• Daptomycin or
• Linezolid or
• Televancin or
• Ceftaroline
EMPIRIC Rx
• TMP/SMX or
• Doxycycline
DEFINED Rx (Necrotizing Infections)
Monomicrobial Streptococcus pyogenes
• Penicillin PLUS Clindamycin
Clostridial sp.
• Penicillin PLUS Clindamycin
Vibrio vulnificus
• Doxycycline PLUS Ceftazidime
Aeromonas hydrophila
• Doxycycline PLUS Ciprofloxacin
Polymicrobial
• Vancomycin PLUS Piperacillin/Tazobactam
DEFINED Rx
MRSA
• See Empiric
MSSA
• Nafcillin or
• Cefazolin or
• Clindamycin
DEFINED Rx
MRSA
• TMP/SMX
MSSA
• Dicloxacillin or
• Cephalexin
[1]Since daptomycin and televancin are not approved for use in children, vancomycin is recommended; clindamycin may be used if clindamycin resistance is <10-15% at the institution.

References

McCreary, E. K. *et al.* Top 10 Myths Regarding the Diagnosis and Treatment of Cellulitis. *J. Emerg. Med.* (2017). doi:10.1016/j.jemermed.2017.05.007