

Cellulitis in Adults: Acute, Recurrent, and Masqueraders

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Disclosure

I have no financial interests or relationships to disclose.

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Cellulitis Management

How Can We Improve?

- Recent literature focus
 - Misdiagnosis rate and costs associated
 - Novel diagnostic tools, but ready for prime time?
- Focus on diagnostic considerations
 - Core vs Non-Core pathogens
 - Cellulitis Mimics
- Management
 - Acute and Recurrent cellulitis

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What Is the Diagnostic Accuracy Issue at Hand?

- Under diagnosis of cellulitis?
 - “Runaway” infections going untreated
 - Costs of mistreating an infection
- Over diagnosis of cellulitis?
 - Treating non-cellulitis conditions as if they were
 - Costs of mistreating a noninfection as an infection

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JAMA Dermatology | Original Investigation

Costs and Consequences Associated With Misdiagnosed Lower Extremity Cellulitis

Qing Yu Weng, MD; Adam B. Raff, MD, PhD; Jeffrey M. Cohen, MD; Nicole Gunasekera, BS; Jean-Phillip Okhovat, MD, MPH; Priyanka Vedak, MD; Cara Joyce, PhD; Daniela Kroshinsky, MD, MPH; Arash Mostaghimi, MD, MPA, MPH

- 259 patients with suspected cellulitis from the E.D.
 - 31% (79/259) were misdiagnosed with cellulitis
- 79 had Pseudocellulitis
 - 66% (52/79) were admitted primarily for cellulitis treatment
 - 85% (44/52) did not require hospitalization (but were)
 - 92% (48/52) received unnecessary antibiotics
- National projections - annually
 - 50-100K unnecessary admissions; \$250-500 million
 - 9000 nosocomial infections; 1-5K C diff cases

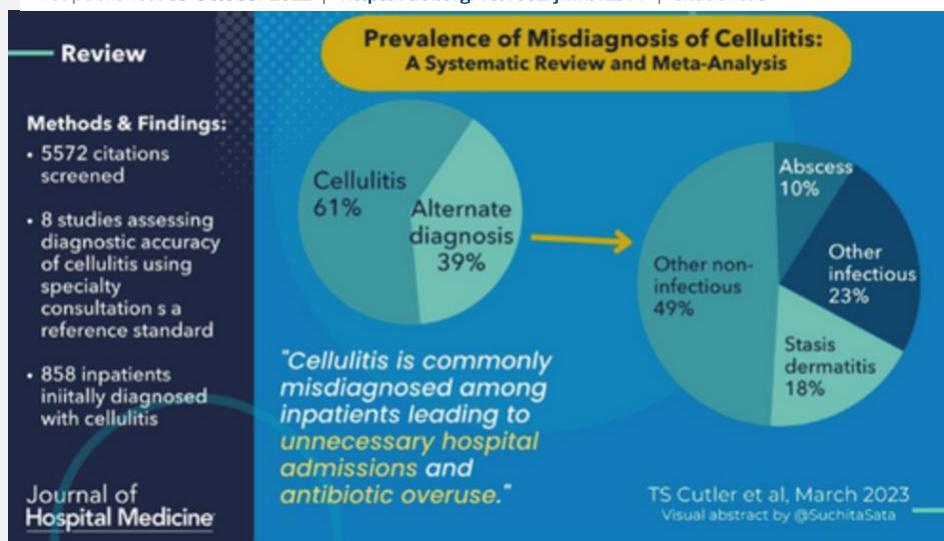
JAMA Dermatol 2017;153(2):141-146

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Prevalence of misdiagnosis of cellulitis: A systematic review and meta-analysis

Todd S. Cutler MD ✉, Deanna P. Jannat-Khah DrPH, MSPH, Brian Kam PharmD, Keith C. Mages PhD, MLS, MSN, Arthur T. Evans MD, MPH

First published: 03 October 2022 | <https://doi.org/10.1002/jhm.12977> | Citations: 3



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Misdiagnosis of Uncomplicated Cellulitis: a Systematic Review and Meta-analysis

Rachael Nightingale MD [✉](#), Krishan Yadav MD, Laura Hamill MD, Paul Glasziou PhD, Anna Mae Scott PhD, Justin Clark BA & Gerben Keijzers PhD

Journal of General Internal Medicine 38, 2396–2404 (2023) | [Cite this article](#)

- 9 studies, 6 inpatient, 3 outpatient
- Diagnostic error rate 19-83% (mean 41%)
- Three conditions account for 54% of misdiagnosis
 - Stasis dermatitis
 - Eczematous dermatitis
 - Edema/lymphedema

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Analysis of Readmissions Following Hospitalization for Cellulitis in the United States

Jonathan M. Fisher, MPH^{1,2}; Jeremy Y. Feng, MD^{1,3}; Sally Y. Tan, MD, MPH^{1,2}; et al

» Author Affiliations

JAMA Dermatol. 2019;155(6):720-723. doi:10.1001/jamadermatol.2018.4650

What is the national readmission rate within 30 days of discharge for cellulitis? **9.8% of 447,080 admissions**

Table 3. 10 Most Frequent CCS Categories of Primary Diagnosis at Readmission Within 30 Days of Cellulitis Discharge.

CCS Code	Primary Diagnosis at Readmission	Frequency, % (95% CI)	Cost, \$1 Million (95% CI) ^a
12.1	Skin and subcutaneous tissue infections	29.7 (28.9-30.4)	114.4 (106.8-122.0)
7.2	Diseases of the heart	8.3 (7.9-8.8)	53.3 (48.1-58.4)
1.1	Bacterial infection	8.0 (7.6-8.5)	67.7 (61.9-73.5)
10.1	Diseases of the urinary system	5.3 (4.9-5.7)	24.6 (22.1-27.1)
3.3	Diabetes with complications	4.3 (4.0-4.6)	25.5 (22.7-28.2)
16.10	Complications ^b	4.0 (3.7-4.3)	30.7 (26.4-35.0)
8.1	Respiratory infections	2.4 (2.2-2.7)	13.1 (11.2-15.0)
17.1	Ill-defined conditions ^c	2.4 (2.102.6)	12.4 (10.0-14.7)
7.5	Diseases of veins and lymphatics	2.1 (1.8-2.3)	9.5 (7.9-11.0)
13.1	Infective arthritis and osteomyelitis ^d	1.5 (1.3-1.7)	10.1 (8.4-11.7)
NA	Other	32.2 (31.5-32.9)	189.4 (178.3-200.5)
NA	All	100.0	553.3 (526.5-580.1)

Top reason for readmission
30% were for skin and SQ tissue infection

#2 reason for readmission
Disorders of the heart

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57-Year-Old Man

- Healthy, chronic LLE edema after MVA
- Hospitalized for LLE cellulitis
 - Temp 102.4, WBC 15K, Scr 1.6
 - IV vancomycin → ceftriaxone/metronidazole → WBC up to 18K, back to IV vancomycin
 - Blood cx negative
 - MRI: Cellulitis, no abscess, no osteomyelitis

57-Year-Old Man

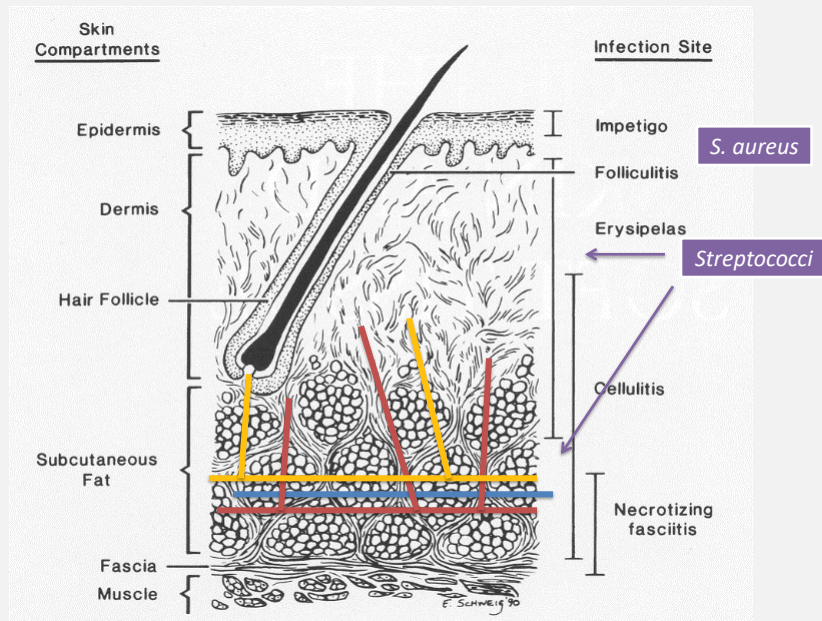
- Additional history from he and his wife
 - Patient - **“I was cleaning up Saturday night after having our relatives over to watch a football game and felt fine. Walking upstairs and then wham! I got chills then my leg started hurting”**

ARS Question #1

What Is This?

- A. Classic Strep
- B. Classic Staph
- C. Classic *Aeromonas hydrophila*
- D. Classic *Vibrio vulnificus*
- E. Classic *Mycobacterium marinum*

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Purulent Cellulitis <i>S. aureus</i>	Non-Purulent Cellulitis Beta-hemolytic Streptococci >> MSSA Gp A,B,G and <i>S dysgalactiae</i>
	
PUS! Drain it, and culture it Cover MRSA	Indistinct border, indurated, tender, warm. No pus, nothing to culture Cover Strep and MSSA
This familiar classification helps drive empiric therapy	

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Streptococci = The History

Patient - "I was cleaning up Saturday night after having our relatives over to watch a football game **and felt fine. Walking upstairs and then wham! I got chills then my leg started hurting**"

Streptococci = Lymphatics

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Microbiology

- Core pathogens for community cellulitis
 - Purulent, abscess: *S. aureus* (MRSA > MSSA)
 - Nonpurulent: Streptococci >> MSSA
- What about other organisms?
 - Non-core pathogens and epidemiologic risks
 - What questions should we ask?

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Epidemiologic Clues for Cellulitis Pathogens

Risk factor/setting	Expected bacterial pathogen(s)
Cat bite	<i>P. multocida</i> and other <i>Pasteurella</i> species
Dog bite	<i>P. multocida</i> , <i>Capnocytophaga canimorsus</i> , CDC group EF-4
Rat bite	<i>Spirillum minor</i> ^a
Shark bite	<i>V. carchariae</i>
Human bite	<i>Eikenella corrodens</i> , <i>Fusobacterium</i> , <i>Prevotella</i> , streptococci, etc.
Animal hides, carcasses	<i>B. anthracis</i> , <i>Francisella tularensis</i>
Injection drug use	<i>S. aureus</i> , <i>Clostridium</i> spp., <i>E. corrodens</i> , <i>S. pyogenes</i>
Hot tub or wading pool	<i>P. aeruginosa</i>
Body piercing	<i>S. aureus</i> , <i>S. pyogenes</i> , <i>P. aeruginosa</i> ^b , <i>Clostridium tetani</i>
Medicinal leeches	<i>A. hydrophila</i> , <i>Aeromonas sobria</i> , <i>Serratia marcescens</i> , <i>Vibrio fluvialis</i>
Salon foot baths	<i>Mycobacterium fortuitum</i>
Fresh water injury	<i>A. hydrophila</i>
Salt water injury	<i>V. vulnificus</i>
Soil contamination	<i>Nocardia brasiliensis</i> , <i>Clostridium</i> spp.
Fishmonger	<i>E. rhusiopathiae</i> , <i>Streptococcus iniae</i>
Fish tank exposure	<i>Mycobacterium marinum</i>

JAC 2004;53:ii37

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Mycobacterium marinum
Fish tank; subacute nodules

Erysipelothrix (Gram-positive rod)
Subacute cellulitis fingers, hands
Fish handlers, butchers, slaughterhouse

Vibrio vulnificus (Gram-negative rod)
Salt water, severe, rapid progression

Aeromonas spp (Gram-negative rod)
Freshwater, can be mild to necrotizing

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Other Site-Specific Considerations

- Overlying prosthetic joint, fracture fixation hardware, vascular graft, implants, mesh, vascular access device: concern deep infection
- Periorbital: preseptal vs orbital cellulitis
- Neck: consider deep space infection, severe odontogenic
- Genital/perineal: consider deep infection
- Hand: always get a hand surgeon involved, complex anatomy
- Severe neutropenia risks Gram-negative cellulitis
- Diabetes
 - Acute cellulitis usually strep and staph
 - Chronic ulcer associated can be polymicrobial
 - Severe limb/life-threatening assume polymicrobial

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Culture Methods

- Blood culture yield is low but important for
 - Prosthetic cardiac valves and devices
 - Immunocompromised
 - Inpatients
- Needle aspiration important to consider
 - Abscess, blisters/bullae, risk of unusual pathogen, failure to respond, immunocompromised
- Deep tissue biopsy
 - Debridement samples

J Clin Micro 2008;46(2):588
Infect Control Hosp Epidemiol 2013;34(2):161

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Archives of Dermatological Research (2024) 316:482
<https://doi.org/10.1007/s00403-024-03224-5>

STUDY PROTOCOL

The effect of histopathologic analysis and tissue cultures on inpatient management of cellulitis: a randomized control trial

- 56 pts admitted with suspected cellulitis
- Blood culture
 - 5% (3/56) were bacteremic
- Punch biopsies from proximal erythema
 - 14% (8/56) grew an aerobe, 5% (3/56) anaerobe
 - Tissue Culture results lead to no difference in LOS, Abx length (during/post DC), duration IV anti-MRSA or Pseudomonas, or 30d readmission

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Non-Culture Methods

- MRSA PCR – nasal and pooled axilla/groin
 - Extra nasal sampling at admission increased the yield for MRSA by 1/3
 - NPV can be useful for empiric Abx de-escalation
- ASO and anti-DNase B (streptococcal Ab)
 - Acute and Convalescent 3 weeks later
 - Cellulitis has weaker ASO response
 - **Patients with recurrent cellulitis**

Clin Infect Dis 2020;71(5):1142
Infect Control Hosp Epidemiol 2013;34(2):161
Peds Infect Dis J 2015;34(11):1250.

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The Role of β -Hemolytic Streptococci in Causing Diffuse, Nonculturable Cellulitis A Prospective Investigation

- Inpatients diffuse cellulitis, nothing to culture
 - Serology ASO, antiDNase-B (acute and convalescent)
 - Blood cultures
 - Response to beta-lactam antibiotics
- 73% (131/179) were shown to be caused by BHS
 - 126 of these had positive serology, 8 were bacteremic
 - 97% response to beta-lactam antibiotics
- 27% no direct evidence of BHS
 - 91% response to beta-lactam antibiotics

Medicine 2010;89(4):217

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Key Points

- Microbiologic diagnostic techniques are low yield in cellulitis. Except for Staphylococcal abscesses, we rarely obtain a microbiologic diagnosis
- Non-purulent cellulitis is usually streptococcal but all cases **need a good history** by asking about epidemiologic risks and exposures that may modify your therapy beyond 1st generation cephalosporins

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Novel Approaches to Diagnosis

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ALT-70

ALT-70 Predictive Model for Lower Extremity Cellulitis in the Emergency Department

Step 1: Calculate the score (0 to 7)

Clinical variable	Points
Asymmetry (unilateral leg involvement)	3
Leukocytosis (white blood cell count $\geq 10,000$ per μL [10×10^9 per L])	1
Tachycardia (heart rate ≥ 90 beats per minute)	1
70 years or older	2
Total:	_____

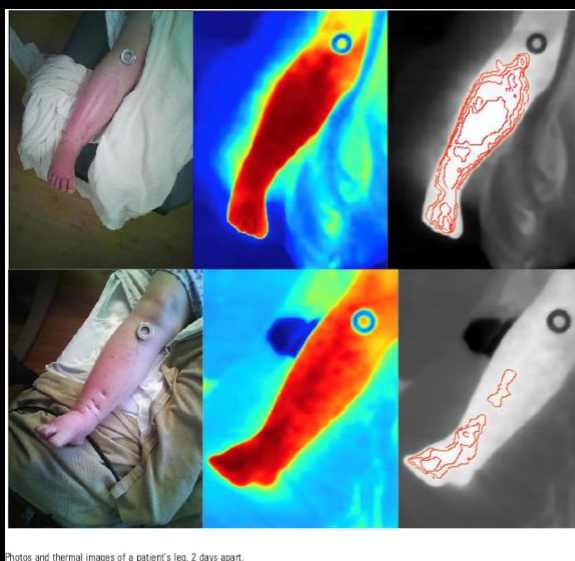
Step 2: Apply the score to a patient with suspected cellulitis

ALT-70 score	Likelihood of cellulitis (95% CI)	Clinical recommendation
0 to 2	9% (0 to 28%)	Cellulitis unlikely; reassess diagnosis
3 to 4	72% (57% to 87%)	Indeterminate; consider consultation
5 to 7	95% (85% to 100%)	Cellulitis likely; treat empirically

- Prospective validation sensitivity 97.8%, specificity 47.6%
- Applies only to LE cellulitis, excludes: recent surgery (30d), IV Abx (48h) trauma, hardware, burns, ulcers, abscess, osteomyelitis

Am Fam Physician 2021;104(3):309

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Photos and thermal images of a patient's leg, 2 days apart.

Amendola, et al OFID 2023

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Skin Surface Temperatures Measured by Thermal Imaging Aid in the Diagnosis of Cellulitis

Lauren N. Ko^{1,3}, Adam B. Raff^{1,2,3}, Anna C. Garza-Mayers¹, Allison S. Dobry¹, Antonio Ortega-Martinez², R. Rox Anderson^{1,2} and Daniela Kroshinsky¹

- Dermatology consult for ED pts suspected of cellulitis
 - Determined cellulitis or pseudocellulitis (28%)
- Thermal imaging affected and unaffected limb
 - Cellulitis avg max T 34.1 C, 3.7C warmer than unaffected limb
 - PseudoC avg max T 31.5C, 0.2C warmer than unaffected limb
- Temp difference $\geq 0.47C$ gave Sens 96.6%, Spec 45.5%, PPV 82.4%, NPV 83.3% for cellulitis

J Investigative Derm 2018;138:520

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March 27, 2024

Validation of Thermal Imaging and the ALT-70 Prediction Model to Differentiate Cellulitis From Pseudocellulitis

- 204 ED pts 92 with cellulitis (consensus panel)
- Sensitivity individual and combined all > 90%
- Specificity
 - ALT-70 22%
 - Thermal 38.4%
 - Combination 53.9%

JAMA Dermatol. 2024;160(5):511-517

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69-year-old Man

- Referred to ID for refractory LE cellulitis
- Over 4 months
 - Cephalexin x 2 courses (currently taking)
 - Amox/clav x 1 course
 - Clindamycin x 1 course
- Leg edema comes and goes, nothing seems to help take the red away but “I feel pretty good”
- Both legs vivid red, shin to dorsum
 - WBC normal, CRP 1.2 mg/dL (0-0.9)

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Useful Exam Technique

- Dependent rubor
 - Gravity dependent perfusion of an extremity
 - Red, but not XS warm or tender (clues)
 - Lift the affected part and the redness literally drains away before your eyes (cellulitis would never do that)



Pictures: NEJM 2011;364:26 (e56)



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- Leg edema comes and goes, nothing seems to help take the red away but “ I feel pretty good”
- Both legs vivid red, shin to dorsum
 - WBC normal, CRP 1.2 mg/dL (0-0.9)
- Made sure he and his wife could watch the erythema drain away
- Discussed why no role for antibiotics
- Recommended tinea pedis treatment and lymphedema management (to prevent cellulitis)

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Cellulitis Fakes

When to Consider Another Diagnosis

- Bilateral
- Chronic in nature
- Localized, not spreading
- Isolated color changes without other signs
- Not responding to usual antibiotics
- Lift the leg and it all goes away

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Cellulitis Fakes

- Most common
 - Venous stasis dermatitis
 - Lipodermatosclerosis
 - DVT/superficial thrombophlebitis
 - Dependent rubor
 - Gout/CPPD
 - Stress fractures
 - Contact dermatitis
 - Hematoma
 - Herpes zoster
 - Charcot arthropathy (acute)

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Key Points: Not All That's Red is Cellulitis

- Bilateral cellulitis is so uncommon, I nearly always expect to find something else
- Chronic cellulitis is not an entity I'm aware of
- Work through the DDx of cellulitis mimics each time, and integrate into your exam an assessment for dependent rubor

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Management of Cellulitis

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How Long Does It Take for Cellulitis to “Get Better”?

- Leppard (1985) treated until erythema and swelling disappeared
 - Erysipelas took 3-10 days, mean 6 (all improved by 24 hrs)
 - Cellulitis took 5-25 days, mean 12

Cellulitis is characterized as a low burden bacterial infection
However the inflammatory response is intense and long-lasting
Lymphedema and repeated bouts of cellulitis slow the resolution of the inflammation significantly

Leppard B, et al. British J Derm May 1985

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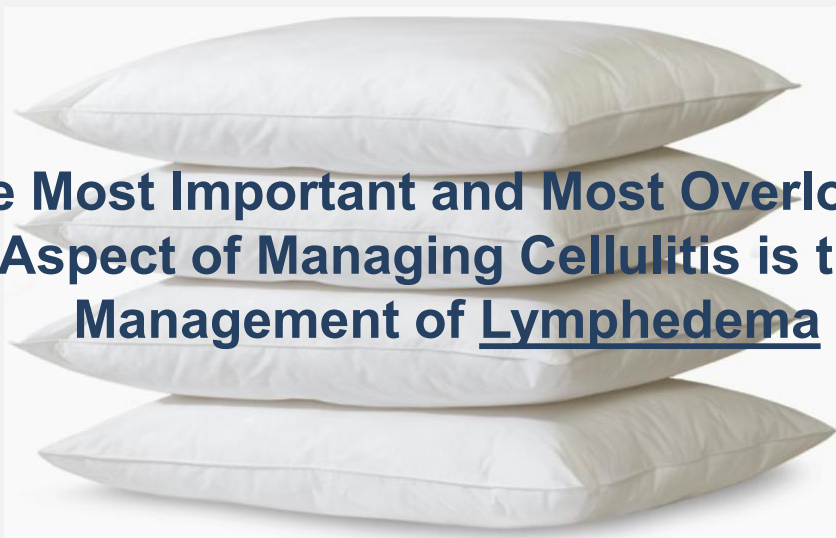
Cellulitis in the Emergency Department: A prospective cohort study with patient-centred follow-up

Rachael S Nightingale MBChB, Nimai Etheridge MBBS, Amy L Sweeny BSc, MPH, RN, Graham Smyth, William Dace BMBCh, BA ... [See all authors](#) ✓

First published: 13 March 2024 | <https://doi.org/10.1111/1742-6723.14401>

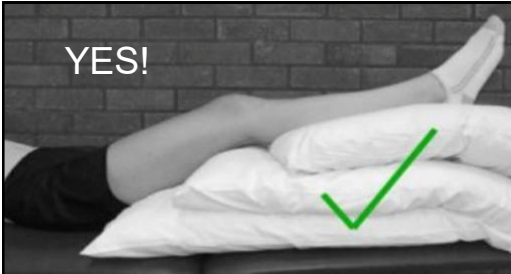
- 300 pts, mostly (75%) LE cellulitis, followed prospectively with questionnaire and EMR review at 3,7,14 days
- Trended erythema, warmth, swelling and pain
 - All trending improved by day 3
 - Warmth improved the most at each timepoint
- Day 14 clinician cure (86%) vs patient cure (53%)
 - Persistent erythema (41%) and swelling (37%) at day 14
- Antibiotic use by day of illness
 - 69% at day 7, 27% at day 14

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The Most Important and Most Overlooked Aspect of Managing Cellulitis is the Management of Lymphedema

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Lymphedema

- Above the level of the heart elevation
 - Big stack of pillows for LE, or foam support for UE
 - Diuretics don't help this kind of edema
 - Please educate to help ensure outpatient success
- Elevate acutely and compress chronically
 - Wraps, fitted stockings, send to PT

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DDX: When Cellulitis is Slow to Respond

1. Lymphedema management inadequate
2. It's not cellulitis
3. Abscess, deeper infection
4. Inadequate antibiotic coverage (rarely the case)

Cellulitis often looks worse in the first 24-36 hours despite appropriate antibiotics with erythema extending beyond the Sharpie line but the patient should be feeling better (inflammatory response to organism lysis and toxins)

Clinicians are very impatient when it comes to cellulitis management
Lymphedema management often does not get the attention it deserves

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Community Cellulitis: Non-Necrotizing, No Chronic Wounds, Core Pathogens

	Streptococcus	Streptococcus and MSSA	Streptococcus, MSSA and MRSA	MSSA and MRSA only
O R A L	Penicillin VK	Dicloxacillin	Linezolid	TMP/SMX
	Amoxicillin	Cephalexin/Cefadroxil	Clindamycin	Doxycycline
		Amox/clav	Delafloxacin	Linezolid
		Clindamycin	Omadacycline	
			Pen VK + T/S or Doxy	
I V	NON PURULENT Cefazolin Oxacillin		PURULENT Vancomycin Daptomycin Ceftaroline	
	Dalbavancin Oritavancin			

TMP/SMX and doxycycline have less potent streptococcal activity
Streptococci, MSSA, MRSA have increasing clindamycin R, know local antibiogram
Transition options oral step down, long acting glycopeptide, OPAT

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Cephalexin plus TMP-sulfa vs. Cephalexin alone for the treatment of uncomplicated cellulitis

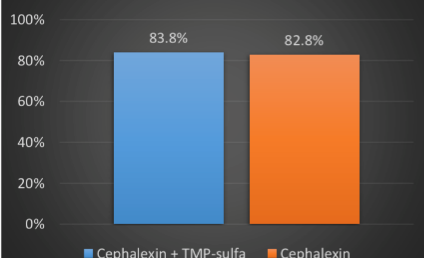
Important Design aspects:

- Multi-center DBPC-RCT
- Inpatient and outpatient (n=500)

Important Exclusions:

- No cutaneous abscess, no diabetes, no peripheral vascular disease

Clinical Cure



Conclusions:

- **Addition of MRSA agent for non-purulent cellulitis does not improve outcome**

DBPC-RCT = Double blind, placebo-controlled, randomized clinical trial

Moran GJ, et al. JAMA 2017, Pallin DJ et al. Clin Infect Dis 2013

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When to Include MRSA Coverage

- Abscess/Purulent cellulitis
- Prior episode or known colonization MRSA
- Early postoperative infection
- Periorbital cellulitis
- Injection drug associated
- Severe infection
- High-risk neutropenia
- Lack of response to beta-lactams
- CA-MRSA risks (close cohorts)

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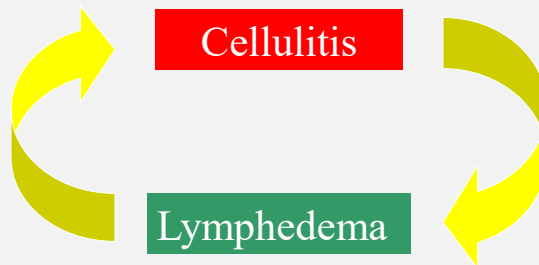
Duration of Therapy

- 5-7 days for uncomplicated cellulitis and drained abscesses
 - 2004 levofloxacin 5 vs 10 days, noninferior
 - 2013, 2014 tedizolid 6 days vs linezolid 10 days, noninferior
 - 2019 flucloxacillin 6 vs 12 days, noninferior but day 90 relapse rate was higher in the 6 day treatment group
 - 2020 meta-analysis “the evidence base for antibiotic treatment decisions in cellulitis is flawed..”
- Longer durations for severe infection, associated bacteremia, other sites of infection

Arch Int Med 2004; 164(15):1669; JAMA 2013;309(6):559;
Lancet Infect Dis 2014;14(8):696; Clin Microbiol Infect 2019;26(5):606; J Infect 2020;81(4):521

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Recurrent Cellulitis



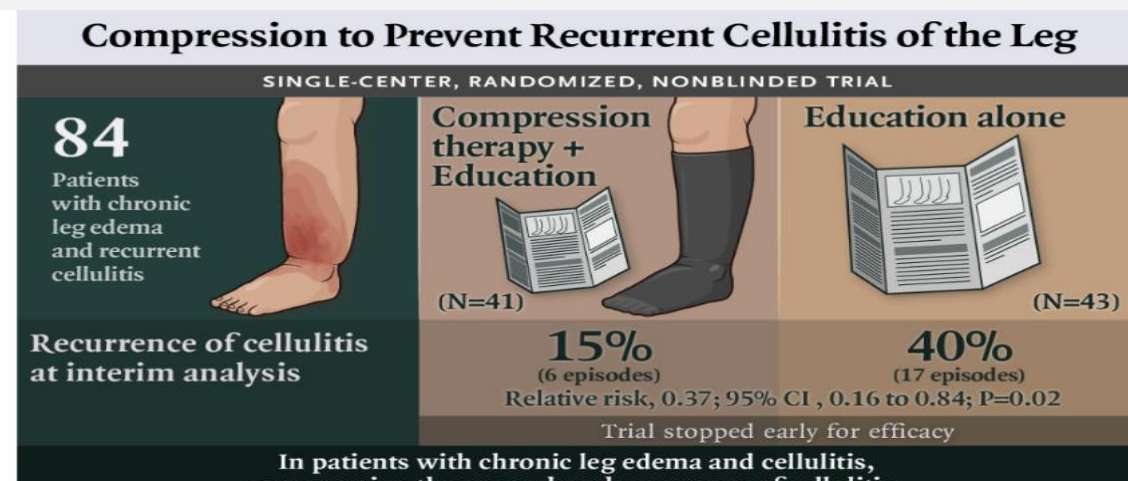
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Management of Recurrent Cellulitis

- Vicious cycle needs to be interrupted
 - First, identify the multiple episodes
 - Then, go after the predisposing factors
- There are 3 areas to address
 - Lymphedema
 - Portal of entry
 - Bacterial burden – antibiotic prophylaxis

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1. Lymphedema



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Factors associated with cellulitis in lymphoedema of the arm – an international cross-sectional study (LIMPRINT)

- 2160 pts, 95% of arm lymphedema cancer-related
- Cellulitis of the arm
 - Lifetime prevalence 22%
 - 1-year incidence 11%
- Factors associated with cellulitis
 - Lymphedema Duration: 1-2 yr OR 2.15, 2-5 yr OR 2.86, 5-10 yr OR 3.15
 - 46% reduction in cellulitis risk when lymphedema well controlled

Burian *et al.* *BMC Infectious Diseases* (2024) 24:102

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Recurrent Cellulitis After Coronary Bypass Surgery

Association With Superficial Fungal Infection
in Saphenous Venectomy Limbs

Larry M. Baddour, MD, Alan L. Bisno, MD

• Certain patients who have undergone coronary artery bypass grafts suffer from episodes of acute cellulitis, often repeatedly, in the saphenous vein donor extremity. We describe nine patients with this entity, five of whom suffered recurrent attacks (range, two to >20). The mean interval between surgery and the initial bout of cellulitis was 15 months (range, two to 46 months). A characteristic clinical syndrome was present in the majority of patients that included the abrupt onset of chills, followed by fever (generally >38.8 °C), prostration, and obvious cellulitis. Seven patients also suffered from tinea pedis; in two instances, measures to control the dermatophytosis were instituted and attacks ceased. The pathogenesis of the entity may involve complex interactions between fungal and bacterial agents. Factors such as direct bacterial infection, hypersensitivity to streptococcal exotoxins, and id reactions to dermatophytes are probably involved in varying combinations.

(JAMA 1984;251:1049-1052)



Anteromedial view of left lower extremity of patient 9 approximately ten hours after onset of chills. Patchy inflammation present in the area of saphenous phlebectomy scar.

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2. Portals of Entry

Visible portals of entry

- *Tinea pedis*
- Ulcer
- Trauma
- Eczema
- Psoriasis



Topical ketoconazole
Oral terbinafine
Dry after bathing

Bacteria do not require a visible “open door”,
but when it is there take it away from them

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3. Antibiotics

How and when to consider the use of long-term antibiotics?

- Vast majority of cases are streptococcal
- Sometimes you have a culture or strep AB result
- Narrow spectrum, low cost, low C. diff risk, low toxicity
- Set reasonable expectations
- Define the baseline

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Penicillin to Prevent Recurrent Leg Cellulitis

- Question: How effective is low-dose penicillin in preventing recurrent cellulitis?
- Design: RCT, double-blind
- Patients: 274 with ≥ 2 episodes of cellulitis in the past 3 years
 - Mean BMI 35, chronic edema (68%), tinea (38%)
 - Exclude: previous leg ulcer, surgery, trauma, pen allergy, other abx
- Intervention: Penicillin 250 mg BID x 12 months
- Comparison: Placebo x 12 months
- Primary Endpoint: Time to next episode
 - Secondary: Number of episodes, hospitalization, ADR, cost
- Timeframe: 1 year intervention, 2 year followup off therapy

NEJM 2013;368:1695

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Penicillin to Prevent Recurrent Leg Cellulitis

- Prophylaxis phase, year 1

Penicillin	22% recurrence
Placebo	37% recurrence

45% reduction in the risk of a repeat episode of cellulitis
HR 0.55, 95% CI 0.35-0.86, P=0.01

- Follow-up period (off therapy), years 2 and 3

Penicillin	27% recurrence
Placebo	27% recurrence

Effect not sustained after prophylaxis stopped

- Overall, 53% of those in the placebo group had at least 1 recurrence during the 3 year trial

NEJM 2013;368:1695

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Penicillin to Prevent Recurrent Leg Cellulitis

Table 3. Factors Predictive of Prophylaxis Failure.*

Factor	Odds Ratio (95% CI) [†]	P Value
No. of previous cellulitis episodes		
≥3	3.23 (1.82–5.73)	<0.001
<3	1	
Edema		
Preexisting edema	1.83 (0.97–3.47)	0.06
No evidence of edema	1	
BMI		
≥33	2.05 (1.16–3.64)	0.01
<33	1	

Each bout sets you up for the next one

Not surprising, have to maximally treat

Use higher dose

I don't agree

* Failure of prophylaxis was defined as at least one confirmed episode of cellulitis during the prophylaxis phase.

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Antibiotics for Recurrent Cellulitis My Approach

When to use antibiotic prophylaxis?

- 1 episode in a body part where edema cannot be reversed
- ≥ 2 episodes involving the same body part within a year

What to use?

- Pen VK 500-1000 mg BID (*Allergy evaluation if needed*)
- Dicloxacillin 250-500 mg BID (if MSSA likely)
- Others: macrolides, clinda, 1st gen cephs (less appealing)

What to say?

Give it a year then compare number of episodes and hospitalizations with the historical baseline, decide whether to continue or stop

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Back To Our First Case

3rd episode this year, 13th overall!

- No culture data to guide us
- MRSA PCR negative
- 5 pillows elevation
- Finish acute treatment with IV Pen G
- Tinea Rx – topical ketoconazole
- Transitions to Outpatient Care
 - PT for custom fitted compression stockings
 - Pen VK 500 mg BID prophylaxis
 - ASO titer 1286 IU/mL (≤ 200) – this should help us and the next Hospitalist team
 - Recurrences dropped to ZERO

It's All in the History

Patient - I was cleaning up Saturday night after having our relatives over to watch a football game and felt fine. Walking upstairs and then wham! I got chills then my leg started hurting

Wife – Every episode is like that

Me – How many episodes have you had?

Patient and Wife, perfect harmony - 13

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