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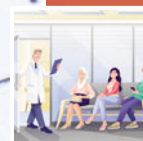
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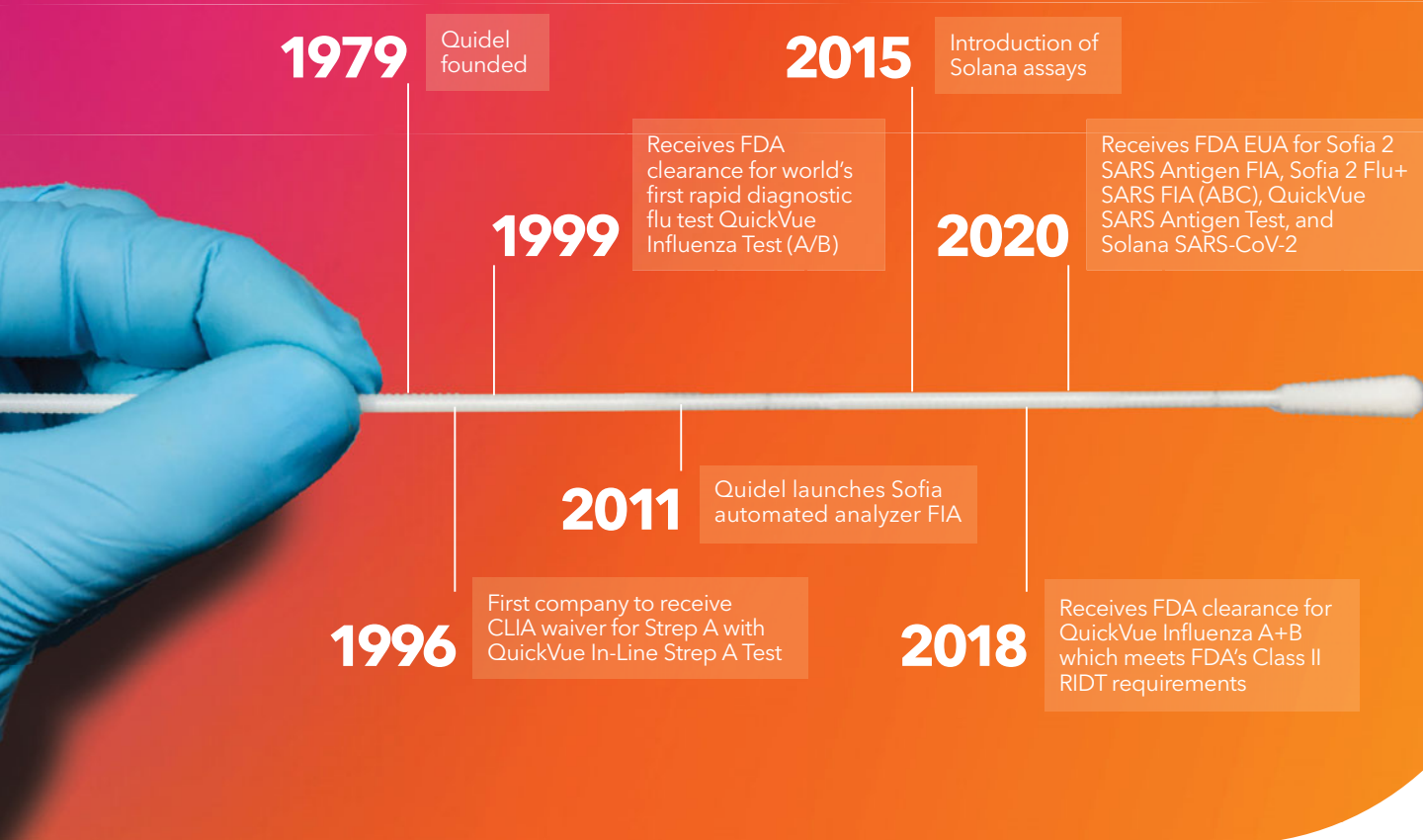
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Which ED Referrals Are Appropriate? The Problem of Perspective



I didn't want to send her to the ER, but what else could I do? Mrs. C was a gaunt 72-year-old Chinese-American woman who had never been to our clinic before. Her son carried her in at 7:56 pm like a bride across the threshold.

"She cannot walk," he said, startling the MA sitting at the front desk.

"Has she been seen here before?" our MA asked with widened eyes.

They both stared back blankly. She'd already run into the limits of the pair's English. Astutely, she quickly stood and ushered them into the nearest exam room. I followed behind, mentally running through a differential as I hurried across the clinic. I was able to come up with stroke, ischemic limb, septic joint, and fracture before greeting them.

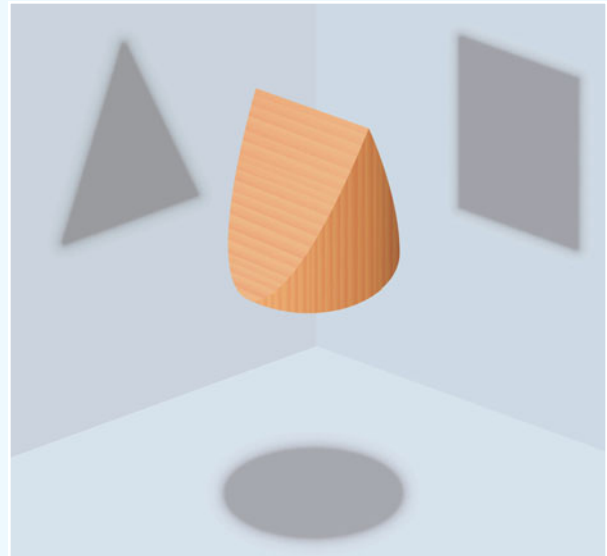
The MA began to collect Mrs. C's vital signs as I attempted a history. I was able to glean that she'd had pain in her lower leg and ankle that started sometime that morning. Why had they waited until 4 minutes before closing to come in?

My wondering wasn't as much due to frustration about staying late, but rather because our x-ray technician had left 15 minutes earlier to relieve his wife who'd been solo with sick-kid duty at home all day. The clinic was empty at the time and it was less than a half hour before closing. It seemed reasonable in the moment.

My MA shot me a look of desperation belying her end-of-shift fatigue as she held the language tablet up between the patient and her son as they jawed over one another and the interpreter. I soon found out that they spoke a Chinese dialect that was not similar enough to Mandarin or Cantonese for the language operator to discern her story, either. The barriers to providing definitive, or even adequate, care to Mrs. C continued to mount.

I decided we'd reached the tipping point. We couldn't get an x-ray or even communicate with her and the clinic was now closed. Reluctantly, I explained, through a combination of pantomime, sentence fragments, and Google maps, that her son would have to take her to the emergency department.

In the ED, the patient was given a dose of oral pain medication. An x-ray of her lower leg didn't show any cause for her pain, and she was discharged with a provisional diagnosis of gout (which it probably was). Nothing heroic was done for her and she ended up being fine.



Was this an "unnecessary" ED referral? Maybe. It depends on who you ask.

A handful of studies examining patients referred from UC to the ED have been published in the emergency medicine literature in recent years. In each of these studies, the authors have developed their own criteria for "unnecessary" or "nonurgent transfers." The investigators defined aspects of care such as specialist consultation, performance of lab testing or advanced imaging, and hospital admission among appropriate justifications for the ED referrals.

Conversely, patients not receiving such testing or care were deemed inappropriate for referral.¹

At first glance, these seem reasonable. The definition is certainly arbitrary, but for research purposes, a line needs to be drawn somewhere. The issue, however, lies in that these criteria only take into account what happens to the patient in the ED, while failing to consider what the circumstances were in the UC leading to the referral.

Consider a bystander calling 911 after witnessing a man collapse on the street. Imagine then that the would-be patient comes to before the paramedics arrive and subsequently reveals that he has vasovagal syncope weekly.

In this scenario, was this an "unnecessary" activation of EMS?

Perhaps if you asked the paramedics, they'd be of that opinion. But this is only because the situation had become apparent by the time they'd arrived and it was clear their assistance wasn't needed after all. But in the absence having the advantage of hindsight, we can all agree the safest decision when witnessing a stranger faint is to call 911. Yes, there will be occasional "false alarms," but it's preferable to an alternative society where medics are only dispatched when it's certain there's a disaster unfolding.

Similarly, the existing literature regarding UC-to-ED referrals examines necessity and urgency exclusively based on the outcome of care in the ED. According to the definition outlined by Zitek, et al, referring Mrs. C to the ED that evening was "unnecessary."¹ Perhaps it would be better to consider "appropriateness" rather than labeling visits as "unnecessary" or "nonurgent" based on the circumstances at the time of the UC referral.

This is the medical equivalent of "Monday morning quarterbacking" and fails to consider the situation faced by the referring UC clinician. Patients, in general, present to UC centers because that's where they want to be seen; neither UC providers nor patients commonly seek rationale to transition care to the ED. Escalating care is merely a recommendation. Moreover, patients who disagree, for whatever reason, will simply not go to the ED (which, as an aside, is why the label of "referral" is more precise than "transfer" when this occurs).

These studies are problematic, additionally, because they are not only entirely ED-centric, but are also retrospective. The researchers are forced to choose an arbitrary and rigid definition of necessity/urgency which universally fails to capture the complexity of the decision and the myriad of other reasons we refer our patients to EDs. Common justifications for ED referrals which aren't captured within this definition, for example, include acute mental health concerns, limited UC staffing, patient demands for specialist care, and complex presentations near closing time, as was the case with Mrs. C.

An additional concern with the asymmetric perspective of these publications involves an exaggeration of the scope of this "problem." When I work shifts in the ED these days, I certainly see more patients who've been sent in from UC, but this is expected given the dramatic rise in UC visits over the past few decades.² It is spurious logic to presume that the reason more patients have been referred from UC centers is that UC providers are referring an excessive proportion of patients to the ED. It is simply an expected occurrence based on escalating UC volumes.

In several recent studies examining UC-to-ED referrals, the authors were nominally examining ED care for referred patients and whether pediatric urgent care centers would refer fewer "nonurgent" patients to the pediatric ED than would full-scope UCs (ie, those that also see adult patients).

While their data did support this to be the case, the more interesting finding was the total number of patients referred from any UC to their pediatric ED over the 11-month study

period between the two studies: 349.^{3,4} Regardless of the perceived necessity for the referrals, this amounts to less than one extra patient per day. In a pediatric ED with roughly 50,000 annual visits,⁵ even if some UC referrals weren't captured, it's difficult to imagine additional volume of this scale is highly consequential, or even perceptible.

As the number of patients seen in UC centers has expanded, it stands to reason that there would be a commensurate increase in the total number of ED referrals. What isn't clear from these studies examining ED referrals is whether or not the increase in ED referrals is disproportionate—and this is the more important question.

The authors of these papers fail to address, or even speculate, however, on this alternative possibility: UC centers, on average, may very well *prevent* ED visits. In other words, these researchers have focused only on the numerator and disregarded the denominator—the millions of patients who are seen in UC and not referred to an ED.

Prevention of a certain outcome is inherently difficult to study and requires considerable assumptions. Thankfully, a series of studies in recent years have attempted to empirically quantify urgent care's effects on ED volume. This body of research offers a distinctly different assessment of the situation. These researchers took a different approach by looking at the changes in ED presentations for low-acuity conditions in local EDs before and after UC openings in the area. The consensus of findings from authors using this approach: nearby UC openings were associated with significant reductions in low-acuity ED visits.⁶⁻⁸ Moreover, other investigators have shown that alternate sites for care, such as primary care offices, are more likely than urgent care centers to refer patients to EDs.⁹

In other words, the alleged problem of "unnecessary" or "nonurgent" referrals, based on these findings, would likely be much worse in a world without UC.

Where the truth lies is an unsettled debate. The studies which counter the narrative of UC as a contributor to the problem of ED overcrowding are refreshing. However, there remains a considerable and undeniable bias in much of the emergency medicine community towards inflating the frequency and frivolousness of UC-to-ED referrals. It's the same bias that paramedics may have against "false alarm" situations like the one previously mentioned, when they arrive on scene and their services are not needed. In both cases, frustrations are understandable. ED providers are already overtaxed with current patient volumes. Consequently, the tendency to seek a worthy scapegoat for this untenable reality is unsurprising. Whether UC deserves blame remains unclear.

We find ourselves faced with competing narratives regarding our utility. Does UC prevent or promote additional ED visits, and what proportion of these referrals are appropriate? These are vital questions for us to answer correctly. So why are we al-

lowing them to be addressed exclusively by EM researchers? To settle the score and defend the value of our services, it is incumbent upon the UC community to take action and conduct UC-based studies on this practice.

The most effective way to do this is by defining who our patients are, who gets escalated to an ED level of care, and how often we are referring patients in appropriate situations. This will offer the added benefit of demonstrating our virtue to the larger medical community through self-policing and striving to ensure we are providing the high-value, resource-conscious care we aspire to.

Until we perform UC-based studies evaluating such questions, these referrals will continue to be judged based solely on ED outcomes. This is simply unfair. Just as it only makes sense to assess activation of EMS based on the circumstances that led onlookers to calling 911, ED referrals are most appropriately judged by reviewing the care in our clinic, not the ED chart. This is, after all, the context within which the referral decision is made.

Until such UC-based research is performed, however, our portrayal in the medical literature will remain at the mercy of those focused on their own challenges and who have likely never faced a 7:56 PM “walk-in” like Mrs. C. ■



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CLINICAL

15 The Rising Importance of Urgent Care in the Fight Against the STI Epidemic

STIs dipped during the height of the COVID-19 pandemic. At the same time, many specialty clinics closed down. Now infection rates are climbing again—and with them, the importance of urgent care in fighting the epidemic. Get an update on current guidelines and best practices.

Glenn Harnett, MD

PRACTICE MANAGEMENT

21 How Urgent Care Can Address Its Degrading Scope of Practice



Changing reimbursement policies and staffing models have forced many urgent care centers to revamp the way they do business, with the net effect being a slow degradation in acuity level. It's a trend that doesn't serve the industry well—but it can be turned around.

Benjamin Barlow, MD; Monte Sandler; Alan Ayers, MBA, MAcc

ORIGINAL RESEARCH

27 Antibiotic Duration for Skin and Soft Tissue Infections in Pediatric Urgent Care



There's no doubt that antibiotics are necessary in a good proportion of skin and soft tissue infections in children. That doesn't necessarily mean they can't be prescribed for durations that may be excessive. The question is, where do you draw the line?

Megan Hamner, MD; Amanda Nedved, MD; Holly Austin, MD; Donna Wyly, RN, MSN, CPNP-AC, PPCNP-BC; Alaina Burns, PharmD, BCPPS; Brian Lee, PhD, MPH; and Rana E. El Feghaly MD, MSCI

PRACTICE MANAGEMENT

39 Benefits of Utilizing Limited-Scope X-Ray Techs in the Urgent Care Setting



Between rising costs and staffing issues, some urgent care centers may find it challenging to ensure x-rays can be taken every time they're needed. Creative solutions may be needed.

Alan A. Ayers, MBA, MAcc

CASE REPORT

42 Mysterious Skin Lesions in a Horse Trainer



Medical histories can be highly informative in determining a patient's diagnosis. They can also be misleading, with severe consequences if there's a misdiagnosis.

Candace Walkley, MD and Kyle Swanson, OMS-3

CLINICAL

46 Managing Cough Without Codeine in the Urgent Care Setting



Some guidelines may support use of cough medications that contain codeine, but with opioid-related addiction and deaths continuing to climb it may be time to reevaluate the wisdom of that.

Megan Penner, PharmD and Hojung Jang, PharmD Candidate

IN THE JANUARY ISSUE OF JUCM

Most adults experience back pain at some point in their lives. Consequently, it's a common presenting complaint in the urgent care setting. Determining the cause—and, therefore, initiating appropriate care—is the tricky part. Unfortunately, some of the less common etiologies also carry the greatest risk for morbidity and mortality. You can read about one that you can't afford to miss in the January issue of *JUCM*.

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A rare and subtle benefit of the devastating COVID-19 pandemic—or, more specifically, the associated social distancing—has been a downturn in what had been an epidemic of sexually transmitted infection in the United States. People simply did not interact as freely during the pandemic as they did before, and so were far less likely to engage in casual or risky sexual activity.

As case rates and COVID-related fatalities have declined, however, the general public has crept closer to prepandemic behaviors. So, consequently, have rates of STI cases crept closer to prepandemic levels, to the extent that we can now consider them to be epidemic again.

The timing couldn't be worse from a public health perspective. Recent years have seen the number of facilities dedicated to STI testing and treatment dwindle. So, as more people are getting sick there are fewer options for care.

This is all prologue for our cover article this month. In *The Rising Importance of Urgent Care in the Fight Against the STI Epidemic* (page 15), author **Glenn Harnett, MD** presents a compelling case for why urgent care could be an ideal destination for patients concerned that they could have an STI in 2022 and beyond. He also walks us through important and timely updates to relevant treatment guidelines.

Dr. Harnett is chief executive officer of No Resistance and sits on the *JUCM* Editorial Board.

Guidelines and the threat of antibiotic resistance also figure prominently in an original research article we're happy to present to you. Would it surprise you to learn that more than a third of antibiotic prescriptions written for pediatric patients exceed guideline-recommended durations? Actually, the more important question is, *why* is that the case?

Authors **Megan Hamner, MD, Amanda Nedved, MD, Holly Austin, MD, Donna Wyly, RN, MSN, CPNP-AC, PPCNP-BC, Alaina Burns, PharmD, BCPPS, Brian Lee, PhD, MPH, and Rana E. El Feghaly MD, MSCI** reveal what they found in their search for an answer in *Antibiotic Duration for Skin and Soft Tissue Infections in Pediatric Urgent Care* (page 27). All are colleagues at Children's Mercy Kansas City. Dr. Nedved is also affiliated with the University of Missouri Kansas City, as are Dr. Austin, Dr. Burns, Dr. Lee, and Dr. El Feghaly.

Another clinical challenge is determining the most optimal approach to treating cough. In an era of rising opioid-related deaths, it's essential that a medication work without putting patients at risk. In *Managing Cough Without Codeine in the Urgent Care Setting* (page 46), **Megan Penner, PharmD** and **Hojung Jang** suggest that it's time to reevaluate the appropriateness of using codeine in suppressing cough. Dr. Penner is a clinical assistant professor at the Idaho State University College of Pharmacy, where Mr. Jang is a PharmD candidate.

Sometimes, the challenge is differentiating when a patient's medical history is helpful and when elements of it could amount to red herrings. In *Mysterious Skin Lesions in a Horse Trainer* (page 42), **Candace Walkley, MD** and **Kyle Swanson, OMS-3** illustrate the dangers of being swayed by erroneous historical elements or cognitive biases. Both authors are affiliated with Sam Houston State University.

All these articles reflect urgent care professionals employing the full scope of their expertise. Unfortunately, in today's healthcare environment, there can be obstacles to doing so. It's a serious issue that affects the industry as a whole, every day—but not one without a solution, as you'll read in *How Urgent Care Can Address Its Degrading Scope of Practice* (page 21), by **Benjamin Barlow, MD, Monte Sandler, and Alan Ayers, MBA, Macc.**

Dr. Barlow is chief medical officer of Experity, where Mr. Sandler is chief operating officer and Mr. Ayers is president of Experity Consulting (while also serving as senior editor, practice management for *JUCM*).

On a related note, rising costs and staffing concerns can make it difficult for urgent care operators to ensure that patients can get x-rays on site anytime they're needed. Given that x-rays differentiate urgent care from retail clinics and other lower-acuity walk-in settings, creative solutions are needed. Mr. Ayers offers insights into one possible answer in *Benefits of Utilizing Limited-Scope X-Ray Techs in the Urgent Care Setting* (page 39).

Still more clinical and practice management challenges are addressed in *Abstracts in Urgent Care* (page 35). We appreciate the efforts of **Ivan Koay MBChB, MRCS, FRNZCUC, MD** in summarizing new articles on treating ankle injuries in pediatric patients, subconjunctival hemorrhage in young patients, the effects of burnout in healthcare providers, and more. Dr. Koay is an urgent care physician; RNZCUC examiner, education faculty for the RCSI Fellowship of Urgent Care Medicine; and head of faculty na hÉireann Royal New Zealand College of Urgent Care.

A Note of Appreciation for Our Peer Reviewers

We rely on the urgent care professionals who volunteer to serve as peer reviewers to ensure the content we publish is relevant and unbiased. For their work in reviewing content for the October, November, and December issues of this year, we thank:

Charlotte Albinson, MD; Suzanne Alton, DNP, FNP-BC, RN; Tracey Quail Davidoff, MD, FACP, FCUCM; Aldo C. Dumlaio, MD; Rob Estridge, BA, BS, MPAS, PA-C; Daniel Forsberg, PA-C, MPH, CPH, DFAAPA; Thomas E. Gibbons, MD, MBA, FACEP; David Pick, MD; and Lo Fu Tan, MD, MS, FCFP, FAAFP

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Timing is Everything

■ LOU ELLEN HORWITZ, MA

ately it's been hard to keep up around here, so I wanted to begin with confirming what we announced by email in October: We are calling off the search for a new CEO for another year. We'd announced my planned retirement in June, and launched the search in August, and had an overwhelming response. However, as the search committee reviewed candidates, we began to have concerns about timing of a change in leadership on that projected timetable. There's a potential lull in momentum that happens while a new leader is getting up to speed and we concluded that a lull in momentum right now was highly undesirable.

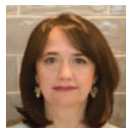
I want to express my appreciation to the search committee for their partnership on determining our best course, to the UCA Board of Directors for their support of my continuing as CEO for a while longer, and especially to the staff for involuntarily riding this roller coaster. We have so many wonderful things under development and I'm happy to postpone my retirement to fully leverage the progress we've made so far.

Web Presence

You will see the most immediate evidence of this progress in our new website, which launches this month. It comes with a new URL—urgentcareassociation.org—and our affiliates will have new sites, as well (urgentcarecollege.org for CUCM and urgentcarefoundation.org for UCF). We are beyond excited to have you visit us there and see how much it's improved.

Behind the scenes, we're also replacing our AMS (Association Management System), which is where all of your UCA/CUCM/UCF membership and activity information lives. And even though it's behind the scenes, you should see a tremendous improvement in the experience of how you connect with us online.

Both of these technological efforts have enabled us to create our new Learning Center, which we piloted this summer. If you were one of the thousands of visitors we've had so far, we hope you liked what you found! We will constantly be curating, de-



Lou Ellen Horwitz, MA is the chief executive officer of the Urgent Care Association.



veloping, and adding new resources to the Learning Center to ensure you have best practices across all Urgent Care operations and clinical practice available at your fingertips.

Membership Improvements

We are also making significant improvements to how membership works and growing the benefits you get as a member. If you are an organizational member, our new structure scales with the number of centers in your company instead of having "tiers," which means your membership dues are tailored specifically to your organization and membership benefits are available to everyone who works for you (and we've made it super-easy to access those benefits). There are new benefits, as well; you can discover them all for yourself on the new website, or we'll walk you through it when it's time to renew.

Product and Service Provider Engagement

We have a new digital membership option for individuals. This is great for people who are just dipping their toe into Urgent Care but don't yet want to take advantage of everything that full membership has to offer. If you are one of the many who have asked for access to our digital activities but don't actually work in Urgent Care, this one is for you.

We've also revamped engagement opportunities for all of you who provide products and services to Urgent Care centers. There are new ways to interact with members and support ev-

"It's exciting just to think about, isn't it—that our industry is big enough that we could actually, finally, get something done on a national level? Look out, world."

everything that UCA, CUCM, and UCF are doing on behalf of our members. We all appreciate your support and hope you will like what we've created for you, too!

Moving Forward

If it sounds like a lot has been under wraps around here, that's entirely accurate. Most of these transformations have been underway for 2 years or more, and we hope that with their release you will see how hard we have been working to earn your trust as *The Urgent Care Association* that will be your partner in advancement and long-term success for many years to come. We promise to continue to evolve and grow our ability to lead national efforts on your behalf.

It's been a while since I've talked about those national efforts in this column, so let's catch up a bit. As we all know, the pandemic finally woke everyone up to the role that Urgent Care plays in our national healthcare system, and to how poorly integrated into that system we actually were.

Part of this is our own fault. Until that point, we'd done work on relationship-building with the federal government and public health, but not in a way that was making a national-level impact. Isolated groups of volunteers or Urgent Care companies were working on this, but we were not banding together as an industry, so our progress was also isolated and very limited. The cold reality of what that meant for the industry has smacked us time and again throughout the pandemic.

Because we hadn't had one voice, the concept of working with Urgent Care on a national level wasn't even considered. This made it hard (and expensive) for you to get PPE, hard for you to get tests once they were available, hard for you to participate in vaccinations, hard for you to get treatments once they came out, and—worst of all—hard for you to serve your communities in the way that you were absolutely prepared to do. We are all complicit in the limited access to care that persists to this day because of our lack of a unified, national voice.

There's a quote that applies here that I both love and hate: *The best time to plant a tree is 20 years ago; the second-best time is today.* Nothing brought that home to Urgent Care like our shared experiences through the pandemic. We had not done the work for the past 20 years to be ready to go when the time came; to share another quote: *The time to be ready is not the time to get ready.*

I think you can figure out what that means. We *must* invest in advocacy today, and we must invest *aggressively*, or we will

be left out again and we will deserve it—because we weren't willing to do the work on our own behalf.

Surely, surely we are not going to let that happen.

Part of our work has been done. We have identified our advocacy priorities and the paths to get there.

1. Educate – There are people with direct power to influence our future who still don't fully understand what we are capable of. We have a plan to fix that.
2. Nationalize UC Scope – This is necessary to have a foundation for all of the changes we want in how Urgent Care are treated. Together we can stand up for who we are in a way that's clear to all stakeholders.
3. Improve Industry Sustainability – We must shift the way Urgent Care is paid to align with (and expand) the contributions we make to society. This is a key issue for equitable access to healthcare and your basic ability to serve your communities.

As we've solidified these priorities and mapped out the strategies, our path is clear but still very uncertain. *We will not succeed*, or even be able to pursue our agenda, *without participation from the majority of the industry.* To date, we've not achieved that, and I want to be transparent with you: If we don't unify our voice, these efforts are going to continue to fail.



What does unifying our voice look like? It looks like donating to the cause. We have experts and strategies figured out and ready to go, but we cannot afford it by ourselves. We know that most of you don't have the capacity to donate time, so we are asking you to donate dollars. We are

asking *every Urgent Care center* to donate \$100 (just scan the QR code). That's covered by about one patient for a center, but collectively it adds up to over a million dollars—and we can do a lot with a million dollars.

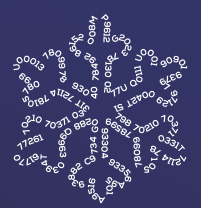
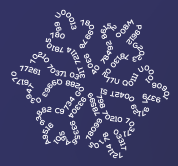
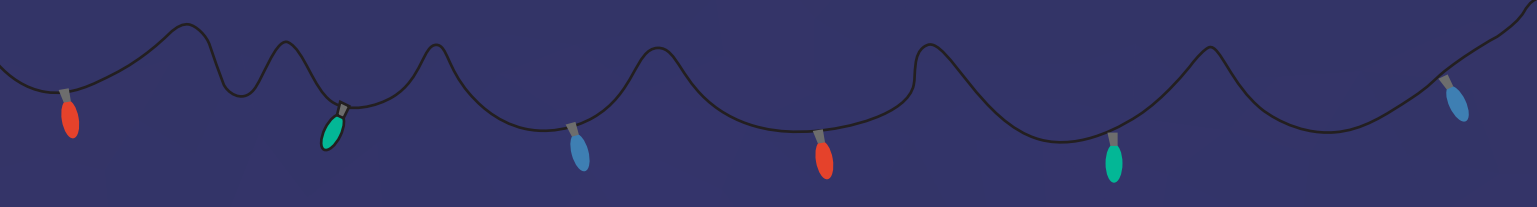
I can't say it more clearly: The future is up to you and the time to step up is now.

It's exciting just to think about, isn't it—that our industry is big enough that we could actually, finally, get something done on a national level? Look out, world.

As we close out another year of working together, I want to say again how thankful I am that you are part of Urgent Care and part of transforming healthcare in your communities. You are the leaders in redefining what quality of care and patient experience can look like, and I know that this is your time. I know that we can leverage all of the work that you are doing every day into something even better. I know that though there are struggles, our future is bright.

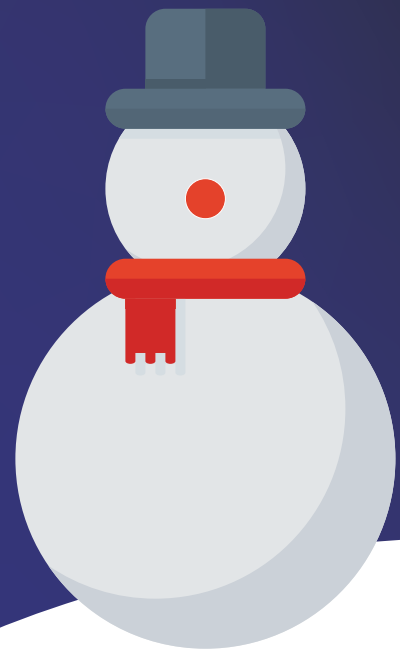
If you haven't already done so, save March 31–April 4 in your calendar. Those are the dates of the Urgent Care Convention, and it's going to be the best yet.

Look out, 2023, we're coming for you. ■



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2. To review clinical guidelines wherever applicable and discuss their relevancy and utility in the urgent care setting
3. To provide unbiased, expert advice regarding the management and operational success of urgent care practices
4. To support content and recommendations with evidence and literature references rather than personal opinion

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This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Institute for Medical and Nursing Education (IMNE) and the Institute of Urgent Care Medicine. IMNE is accredited by the ACCME to provide continuing medical education for physicians. The IMNE designates this journal-based CME activity for a maximum of 3 *AMA PRA Category 1 Credits™*.

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CONTINUING MEDICAL EDUCATION

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The Rising Importance of Urgent Care in the Fight Against the STI Epidemic (page 15)

1. In what way could advances in the treatment of HIV contribute to the current surge in sexually transmitted infections in the United States?

- a. Successes in treating HIV has resulted in a withdrawal of funds for all HIV research
- b. Successes in treating HIV may have caused some to change their attitudes toward condom use and other preventive strategies
- c. Funding for public education regarding sexual health has been reduced in response to lower rates of HIV infection
- d. It is unlikely successes in treating HIV have had any effect on the current surge in STIs

2. Routine screening for chlamydia and gonorrhea infection is recommended:

- a. On an annual basis for all sexually active females under 25 years of age
- b. For women over 25 years of age who have had a new sex partner within the last year
- c. For all persons diagnosed with gonorrhea or chlamydia, 3 months after treatment
- d. All of the above

3. Per changes in the 2021 CDC STI Treatment Guidelines, what is the first-line treatment for *Chlamydia trachomatis* in adults and children >45 kg?

- a. Doxycycline 100 mg orally twice daily for 7 days
- b. Azithromycin single dose 1 g orally
- c. Ceftriaxone 500 mg IM
- d. None of the above is first-line treatment for *C trachomatis* in adults and children >45 kg

Benefits of Limited-Scope X-Ray Techs in the Urgent Care Setting (page 39)

1. Approximately what percentage of urgent care visits require an x-ray?

- a. 9%
- b. 15%
- c. 22%
- d. 30%

2. Which of the following is among the factors to blame for the current shortage of licensed radiology technicians?

- a. Lower rates of injuries among patients due to the COVID-19 pandemic
- b. Increased subspecialty needs
- c. Increased educational and licensing requirements in some states
- d. All of the above

3. Which of the following is true of radiology technicians but not of limited-scope x-ray technicians?

- a. Can perform all diagnostic imaging (eg, x-ray, CT scan, ultrasound)
- b. Depending on the state, may not require a degree
- c. There is no national minimum continuing education standard
- d. All of the above apply to radiology technicians

Mysterious Skin Lesions in a Horse Trainer (page 42)

1. What is the most common cause of indolent lymphangitis?

- a. *Blastomyces species*
- b. Actinomycosis
- c. Epithelioma
- d. Sporotrichosis

2. Exposure to farm animals should broaden the differential for an immune-competent patient with progressive, indolent, nonpurulent lymphocutaneous nodules to include:

- a. Anthrax
- b. Tularemia
- c. Erysipeloid
- d. All of the above

3. Medications to treat methicillin-resistant *S aureus* include:

- a. An intravenous antibiotic (vancomycin, daptomycin, linezolid, telavancin, or ceftaroline)
- b. An oral doxycycline
- c. Trimethoprim-sulfamethoxazole
- d. Any of the above

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The Rising Importance of Urgent Care in the Fight Against the STI Epidemic

Urgent message: After a brief hiatus during the peak of the COVID-19 pandemic, new sexually transmitted infections have resumed climbing to epidemic rates in the United States. With many specialty STI clinics having closed, urgent care may be better positioned than ever to help curb their spread.

GLENN HARNETT, MD

Citation: Harnett G. The rising importance of urgent care in the fight against the STI epidemic. *J Urgent Care Med.* 2022;16(3):15-20.

Key words: chlamydia, gonorrhea, STD, STI, syphilis

Introduction

The 2020 CDC STD Surveillance Report showed a decrease in reported sexually transmitted infections during the early months of the COVID-19 pandemic—quickly followed by a resurgence in reported cases of gonorrhea and syphilis that surpassed 2019 levels,¹ including more than 2.5 million cases of chlamydia, gonorrhea, and syphilis. Gonorrhea cases rose to 616,392, a 56% increase from 2015, while chlamydia cases rose to 1.8 million, up 19% from 2015.² Chlamydia cases declined slightly in 2020, but the Centers for Disease Control and Prevention attributed that dip to decreases in screening and underdiagnosis during the pandemic (**Figure 1**).

The American healthcare system incurs nearly \$16 billion in direct lifetime medical costs (**Figure 2**)—just for the new STIs contracted in a single calendar year.³

This surge may be due, in part, to recent advances in the treatment and prevention of human immunodeficiency virus (HIV). The successes against HIV may have caused some to change their attitudes toward condom



use and other prevention strategies, with the unfortunate and initially counterintuitive result that reducing the threat of HIV may be accompanied by increasing exposures to other STIs.⁴

Both chlamydia and gonorrhea are very common among young people, with two-thirds of new chlamydia

Author affiliations: Glenn Harnett, MD, No Resistance Consulting Group; JUCM Editorial Board. In the past 12 months Dr. Harnett has received consulting fees from Visby Medical's marketing and commercial department for hosting an educational webinar, organizing a marketing focus group, and presenting a seminar on the urgent care industry to the management team. He is an active principal investigator in Visby clinical trials for respiratory and STI indications.

Figure 1. Weekly Reported U.S. STI Cases: 2020 vs 2019

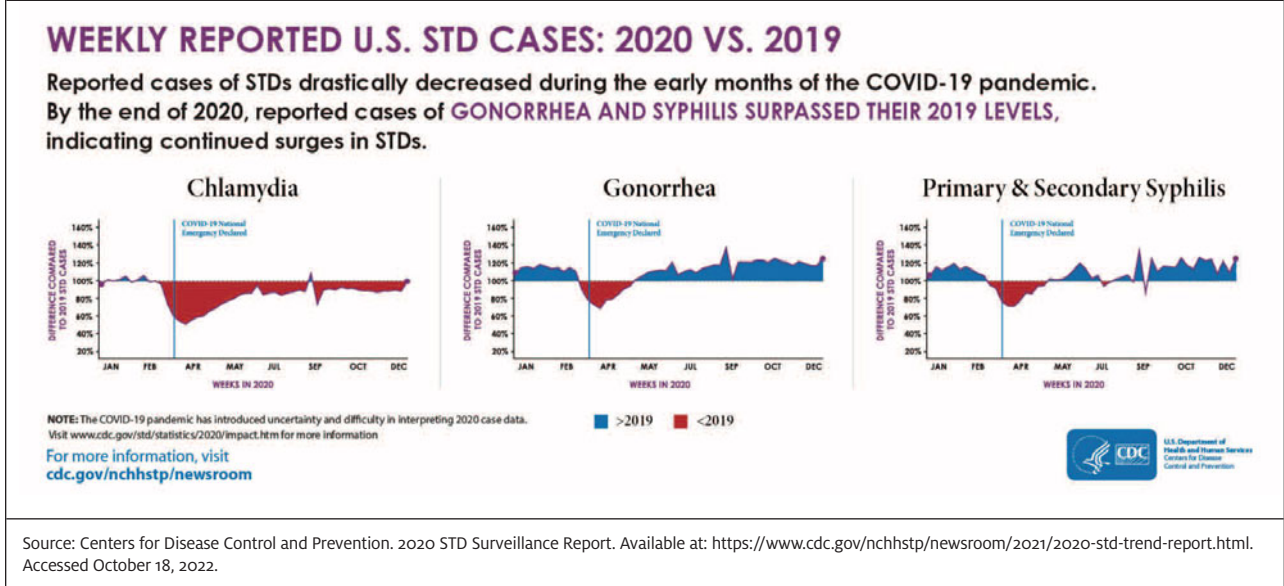
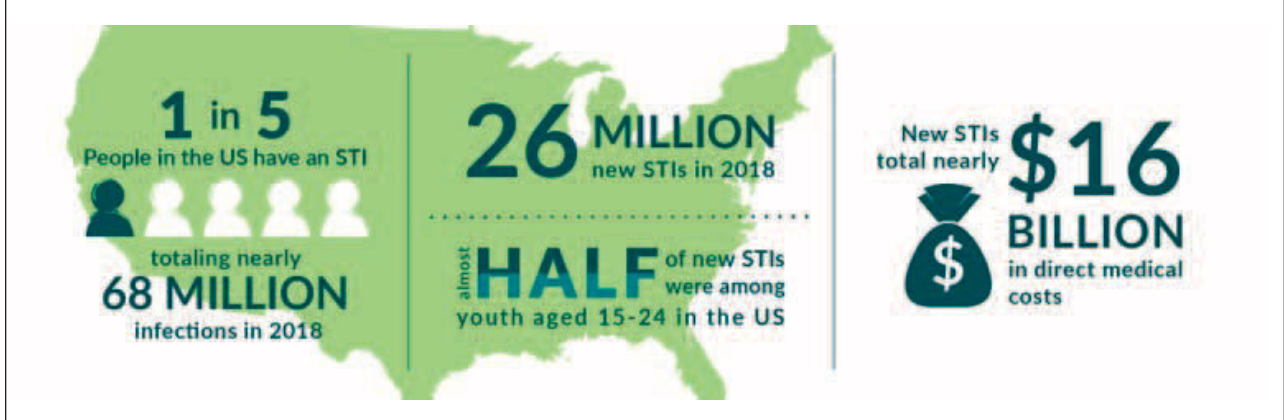


Figure 2. Costs Associated with New STIs in a Single Year



and half of gonorrhea infections occurring among people between 15 and 24 years of age. It has been estimated that 1 in 20 sexually active women aged 14-24 has chlamydia.⁵

Asymptomatic Infections Are Common; More Screening Is Needed

Chlamydial infections are asymptomatic in 70% to 75% of women,⁶ while gonorrhea is asymptomatic in 50% of women.⁷ This high prevalence of asymptomatic infections led the CDC to recommend routine chlamydia and gonorrhea screening for all sexually active women aged 15-24, as this population accounts for almost half

of all new STD infections yearly.⁶ (See **Table 1.**) Despite public health efforts, current data suggest that only a very small percentage of adolescent women are screened annually. A national survey of youth 15–25 years of age found that most had never received an STI test; only 16.6% of females and 6.6% of males had been tested in the past 12 months.⁸

A Role for Urgent Care

In the 1980s and 1990s, most STI care was provided in dedicated STI clinics. Funding cuts at the beginning of this century have led to a decrease in these specialty clinics, with almost 80% of STI cases now diagnosed in

non-STI clinics.⁹ This closure of STI clinics, along with generational changes in how younger people access healthcare, has increased the utilization of urgent care for STI diagnosis and treatment.

Currently, only 55% of Generation Z (those aged 10-25 in 2022) report having a primary care doctor. Millennials (those aged 26-41 in 2022) have a slightly higher rate of having an identified PCP (65%), but 24% of them admit it has been 5 or more years since their last annual exam.¹⁰

The lack of an established provider-patient relationship contributes to adolescents having greater concerns about confidentiality and makes them less likely than adults to utilize sexual health services. This reluctance to seek timely care leads to lower rates of diagnosis and treatment in this age group, which in turn causes higher rates of disease transmission.¹¹

This is concerning because *C trachomatis* (CT) and *N gonorrhoeae* (NG) infections can lead to multiple sequelae (which are exacerbated by delayed diagnosis and treatment), the most serious of which include:

- Pelvic inflammatory disease
- Ectopic pregnancy
- Infertility
- Chronic pelvic pain
- Increased risk for HIV transmission and acquisition

Because so many infections are initially asymptomatic, some women don't exhibit recognizable symptoms until complications (eg, PID) have occurred.

2021 CDC STI Treatment Guidelines for CT, NG, and TV

The 2021 CDC STD Treatment Guidelines⁶ contain several important changes from the previous guidelines, released in 2015. See **Table 2**.

Presumptive treatment with antimicrobials for *C trachomatis* and *N gonorrhoeae* should be provided for women at increased risk (eg, those aged <25 years and women with a new sex partner, a sex partner with concurrent partners, or a sex partner who has an STI), if follow-up cannot be ensured, or if testing with NAAT is not possible.⁶

Rationale for Guideline Changes

A global surge of antibiotic resistance among bacterial STIs, especially gonorrhea, has left ceftriaxone as the single reliable drug option for gonorrhea. The change to a higher dose of ceftriaxone was based on new pharmacokinetic and pharmacodynamic modeling that revealed 250 mg ceftriaxone has insufficient MIC to adequately treat gonorrhea in all cases. It was also determined that an even higher dose was necessary for

Table 1. CDC STD Screening Guidelines for Chlamydia and Gonorrhea⁶

- Routine screening for chlamydia and gonorrhea infection on an annual basis is recommended for all sexually active females aged <25 years
- Annual screening is also recommended for women >25 years of age who have a new sex partner in the last year, have more than one sex partner, have a sex partner with concurrent partners, or have a sex partner with an STI
- Screening of sexually active young men should be considered in clinical settings with a high prevalence of chlamydia
- More frequent screening than annual for certain women (eg, adolescents) or certain men (eg, men who have sex with men) might be indicated on the basis of risk behaviors.
- *All persons diagnosed with gonorrhea or chlamydia should be rescreened 3 months after treatment.*

Stewardship Tip!

The advent of new and more rapid point-of-care CT and NG testing will make it easier to exclude co-infection with both pathogens. Stick to monotherapy if either CT or NG has been excluded by testing. Unnecessary dual treatment adds risk for bacterial resistance at both the patient and community levels.

patients >150 kg.

The removal of azithromycin as dual therapy for gonorrhea was based in part on the CDC's Gonococcal Isolate Surveillance Project (GISP), which found the percentage of gonorrhea isolates exhibiting resistance to azithromycin increased more than seven-fold from 2013 to 2018.¹² The removal of azithromycin as a first-line treatment for chlamydia was based on recent evidence that raised concern for its efficacy, especially in rectal infections.¹³

To Treat or Not to Treat? Key Challenges with STD Testing Today

Common STD symptoms, such as dysuria, lower abdominal pain, vaginal discharge, and testicular pain, are often not specific enough to make a definitive diagnosis, which makes diagnostic testing a necessity.

CT and NG are commonly tested for at the same time due to similar symptoms and the prevalence of co-infections.

The problem in urgent care is that the vast majority of current, routine STI testing must be sent out to a reference lab, with results often unavailable for 2-4 days or longer. Delays in testing for STIs require urgent care providers to make treatment decisions without the benefit of test results; this poses significant challenges

| Table 2. Changes in 2021 CDC STI Treatment Guidelines for CT, NG, and TV ⁶ | |
|---|---|
| <p>Neisseria gonorrhoeae Treatment (adults and children >45 kg):</p> <ul style="list-style-type: none"> • First-line—Ceftriaxone (Rocephin): 500 mg intramuscularly for persons <150 kg or 1 g intramuscularly for persons >150 kg • Oral alternative—Cefixime (Suprax): single 800 mg oral dose • If chlamydial infection has not been excluded, doxycycline 100 mg orally twice a day for 7 days | <p>NG Important Changes</p> <p><i>Higher-dose ceftriaxone azithromycin no longer recommended as dual therapy</i></p> |
| <p>Chlamydia trachomatis Treatment (adults and children >45 kg):</p> <ul style="list-style-type: none"> • First-line—Doxycycline 100 mg: orally twice daily for 7 days • Alternative—Azithromycin: single dose 1 g orally • If gonorrhea infection has not been excluded, ceftriaxone 500 mg IM is recommended | <p>CT Important Change</p> <p><i>Azithromycin removed as first-line therapy</i></p> |
| <p>Trichomoniasis vaginalis Treatment</p> <ul style="list-style-type: none"> • Women first-line—Metronidazole: 500 mg orally 2x/day x 7 days • Women alternative—Tinidazole: 2 g orally single dose • Men—Metronidazole: 2 g orally in a single dose | |

for patients and providers, along with the potential to disrupt the clinic’s workflow.

Challenges for patients include:

- Overtreatment: Patients treated presumptively with antibiotics who then test negative are placed at risk for antibiotic complications unnecessarily
- Undertreatment: Patients who are not presumptively treated with antibiotics, but who then test positive, can have disease progression and further transmit disease
- Undertreated patients may be lost to follow-up. A recent study found that 20% of patients with positive CT and NG screening cultures did not return to the clinic within 30 days for treatment. Further, of those who did return, 30% did so only after 14 days.¹⁴
- Missed opportunity for expedited partner(s) treatment (EPT) at initial visit
- Lack of a definitive diagnosis creates a missed opportunity for patient education

Providers, on the other hand, may be forced to make treatment decisions without benefit of test results. These include:

- Overtreatment: Prescribing unnecessary antibiotics which may contribute to antibiotic resistance
- Provider continuity: New providers must review the patient’s medical record before making follow-

up and treatment decisions

Finally, the clinic workflow may be disrupted in the following ways:

- Time burden and cost of delayed results notification and follow-up scheduling—eg, gonorrhea-positive patients (not treated presumptively) will need to return to the clinic for CDC-recommended first-line treatment (IM ceftriaxone)
- Relaying positive STI testing results over the phone is not ideal for patient or provider
- Patients lost to follow-up

A New Era in STI Testing

The disadvantages of the prolonged turnaround time of CT and NG test results have not gone unrecognized by researchers and public health officials. In 2016, the World Health Organization developed the Sustainable Development Goal of ending STI epidemics as major public health threats by 2030.¹⁵ In response to the WHO goal, the National Institutes of Health has declared there is a critical need for the development of innovative, rapid, point-of-care diagnostic tests, new treatments, and vaccines for STIs.¹⁶

Several recent studies have demonstrated improvements in both over- and undertreatment of CT and NG when using rapid molecular POC tests vs “send-out” nucleic acid amplification tests (NAAT).

May, et al, found a significant reduction in unnecessary antibiotic treatment (overtreatment) for CT/NG in subjects tested on a rapid molecular test compared with those tested with delayed NAAT.¹⁷

Gaydos, et al,¹⁸ also compared rapid CT/NG testing vs delayed CT and NG testing. In this study, none of the patients in the rapid testing group were undertreated, compared with 56% who were undertreated in the routine testing group. Overtreatment was reduced, as well, with only 25% unnecessarily treated in the rapid testing group vs 47% in the routine testing group.

Help appears to be on the way, as indicated by the recent clinical trial results of a rapid PCR test for CT, NG, and TV in women, which were published in *Lancet Infectious Diseases* (2021). The device had a sensitivity of 97.6% and specificity of 98.3% for chlamydia and a sensitivity of 97.4% and specificity of 99.4% for gonorrhea.¹⁹ It received FDA clearance in late 2021 as a point-of-care test and was also granted a CLIA waiver, making it accessible for use in urgent care.

The availability of accurate and rapid molecular POC testing for STIs could help solve many of the challenges that delayed testing creates, including the following:

- Significantly reduce undertreatment and the long-term consequences of untreated STIs
- Reduce presumptive overtreatment with unnecessary antibiotics
- Prompter treatment for positive patients, face-to-face educational window, and quicker opportunity for EPT
- Reduce loss of patient follow-up and negate need for an additional visit specifically for test results or IM treatment
- Reduce chances of ongoing community transmission
- Reduced staff time spent contacting patients to inform them of send-out lab results and scheduling repeat visit if treatment needed

Discussion

Young people 15 to 24 years of age are most at risk from the STI epidemic. Because so many CT and NG infections are asymptomatic, screening should be performed on at least an annual basis for sexually active women in this age group. However, many young people do not have annual exams or PCPs, and current U.S. screening rates hover below 50%.²⁰

Unfortunately, readily available low-cost antigen- and antibody-detection POC tests for CT and NG are insufficiently sensitive for screening purposes.¹⁶ The recent FDA approval of accurate, rapid, molecular POC testing

“New rapid molecular POC testing devices, if economically feasible, will give urgent care providers the ability to make earlier and more informed treatment decisions, as well as better steward their antibiotic use by prescribing monotherapy for CT and NG when results indicated.”

for CT and NG with sufficient sensitivity for screening makes urgent care clinics well-positioned to become a solution to this problem.

Unfortunately, there is an elephant in the room: While molecular POC CT NG tests are much more sensitive and are better suited to screening, they are also more expensive. This creates a significant barrier to adoption for clinics with flat-fee payer contracts.

In this type of payer arrangement, the urgent care clinic is paid a specified dollar amount for each of the payer’s patients they care for. If the clinic wishes to use a faster, more accurate molecular POC CT NG test they must bear 100% of the additional cost burden of purchasing and performing the test while receiving no additional reimbursement.

A very significant percentage of UCCs have flat-fee payer contracts. As such, their patients may be unlikely to take advantage of this new technology that has the potential to enable a seismic shift in our approach to STI treatment and prevention in urgent care. The urgent care community’s ability to participate in and bolster public health testing and screening initiatives against the STI epidemic could be substantially dampened if this remains the case. Guidance from health insurers on what clinical data and economic endpoints would support the use of molecular POC molecular tests in our setting would benefit urgent care researchers.

Conclusion

The STI epidemic emerged during an era of increasing bacterial resistance.²¹ *Neisseria gonorrhoea* resistance is of particular concern, with cephalosporins the only remaining drug class still effective for treatment.

New CDC gonorrhea treatment guidelines now recommend a higher dose of ceftriaxone, and the removal of azithromycin as a first-line treatment. Doxycycline remains the drug of choice for chlamydia, with azithro-

“Urgent care is uniquely positioned to address the current gaps in screening. We should embrace the opportunity and responsibility of providing screening services to this vulnerable population.”

mycin now listed as an alternative therapy due to increased resistance.

The CDC estimates that between 30% and 50% of antibiotics prescribed in outpatient clinics are unnecessary.²² They strongly encourage antibiotic monotherapy to treat gonorrhea and chlamydia when test results are known at the time of treatment decision. New rapid molecular POC testing devices, if economically feasible, will give urgent care providers the ability to make earlier and more informed treatment decisions, as well as better steward their antibiotic use by prescribing monotherapy for CT and NG when results indicated. Recent studies have shown that these tests also have the potential to significantly reduce over- and undertreatment with antibiotics.

Rates of gonorrhea and chlamydia continue to rise, and our young people aged 15-24 are most at risk from this epidemic.

Because so many CT and NG infections are asymptomatic, annual screening in this age group is essential to stem the tide of STIs.

Urgent care is uniquely positioned to address the current gaps in screening. We should embrace the opportunity and responsibility of providing screening services to this vulnerable population. ■

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TAKE-HOME POINTS

- Annual screening for chlamydia and gonorrhea infection is recommended for all sexually active females under 25 years of age; women over 25 years of age who have had a new sex partner within the last year, have a sex partner with concurrent partners, or have a sex partner with an STI; and for all persons diagnosed with gonorrhea or chlamydia 3 months after treatment.
- More frequent screening may be recommended for both men and women on the basis of risk behaviors.
- First-line treatment for *Neisseria gonorrhoeae* in adults and children >45 kg is ceftriaxone 500 mg intramuscularly (persons <150 kg) or 1 g intramuscularly (persons >150 kg).
- First-line treatment for *Chlamydia trachomatis* in adults and children >45 kg is doxycycline 100 mg orally twice daily for 7 days.
- First-line treatment for women with *Trichomoniasis vaginalis* is metronidazole 500 mg orally twice daily for 7 days.
- First-line treatment for men with *Trichomoniasis vaginalis* is metronidazole 2 g orally in a single dose.

How Urgent Care Can Address Its Degrading Scope of Practice

Urgent message: Founded by emergency medicine doctors on a mission to keep nonemergent patients out of the ED, urgent care has been forced by changes in reimbursement policies to prioritize high productivity and labor cost savings—ultimately leading to overall fewer procedures and thus a lower acuity level for urgent care centers.

BENJAMIN BARLOW, MD; MONTE SANDLER; and ALAN AYERS, MBA, MAcc

The urgent care community has faced many challenges over the past several years. The largest was opening our doors to millions of patients in need of COVID-19 testing when no other options existed. Urgent care centers tackled this challenge by increasing the efficiency and speed of registration, innovating testing access solutions, and developing new workflows to accommodate rapid patient flow and treatment.

We are now facing another challenge.

Degradation in the scope of care provided in urgent care clinics represents a serious threat to the industry. Though the COVID pandemic was a catalyst for this trend, it is not new. It has also refused to disappear as the pandemic's effects continue to wane.

When urgent care was first popularized by emergency medicine physicians 20 years ago, the focus was on keeping patients out of the emergency room and orthopedic offices. Thanks to the training and skillset of ER physicians, they could perform laceration repairs, casting, EKGs, fluid hydration, and other “complex” procedures.

These services were reimbursed by insurance companies with a fee-for-service (FFS) model, offering urgent care clinics a lucrative payout while still presenting value to consumers versus a trip to the emergency room.

The degradation of urgent care's scope of practice began as payers shifted away from the FFS model and started using a case rate.

This new form of reimbursement offered a flat fee, based on a weighted average of all services, for each visit. In response, the industry started to focus on cases that could be treated most efficiently. We also saw patients per hour



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per provider become the main KPI in urgent care.

The COVID pandemic sped these trends up considerably.

As lines of patients seeking COVID testing and care gathered outside our centers during the summer of 2020, urgent care was forced to adapt once again. Suddenly, a patient needing a laceration repaired, an x-ray for an injured ankle, or an abscess drained waited for hours in a sea of COVID patients.

Unfortunately, for many of these non-COVID patients, the ED or the primary care office became a faster and more reliable option. This is a complete reversal of what patients experienced before the pandemic.

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“One promising solution is education for APPs that serves as an across-the-board refresher and expansion of clinical skills and services.”

Meanwhile, the industry saw a huge influx of advanced-practice providers. This trend had also been evident before the pandemic, as EM doctors are both expensive and difficult to recruit. As a result, family medicine providers and APPs became the standard for urgent care. Today, 84% of providers working in urgent care clinics are APPs (Figure 1).

This presents another set of challenges. Nurse practitioners have a narrower skillset than physicians. Thus, extra training and education are required for procedures like laceration repair, reading x-rays, and reading EKGs.

Before the pandemic, newly hired urgent care APPs went through a training period alongside a physician or seasoned APP. They were given time to learn additional procedural skills and how to form and work up a differential diagnosis in the urgent care setting.

The pandemic practically eliminated this ramp-up period for newly hired APPs out of necessity to handle the massive patient volume. Many APPs who started working during the pandemic have only seen COVID patients, many of whom had no or very mild symptoms.

With APPs making up most of the provider base in urgent care and COVID patients flooding waiting rooms, the industry made some tough decisions.

Many centers moved away from x-ray, EKGs, and other high-acuity procedures for which demand was low and fell outside of an NP’s skillset. Instead, they focused on low-acuity head and chest conditions.

Some operators took things further, opening “pop-up” or “limited urgent care” centers. These facilities were designed without x-ray capabilities or procedure rooms despite payer contracts that define urgent care as offering extended/night/weekend hours, x-ray, rapid lab tests, and procedures.

As a result, many urgent cares now refer higher-acuity cases out to the ED and orthopedic offices rather than treating them internally. Incentivized by hospital ownership searching for downstream revenue, these referrals go against the very nature of urgent care’s original purpose.

Moving away from high-acuity cases has combined with the case rate reimbursement model to create a troubling downward spiral. Thanks to the use of weighted averages, the increase in low-acuity cases over time sig-

nificantly lowers reimbursement case rates. As urgent care clinics try to recover lost revenue by increasing their efficiency, they take on more low-acuity cases, and the cycle continues.

Data from Experity illustrate several ways the industry is experiencing a degradation in the scope of practice.

As shown in Figure 2, the average E&M weight and procedure codes for visits is decreasing, down from a high of 3.81 in 2019 to 3.49 in 2022, to date. While medicine did go through a coding change, this doesn’t explain the sharp decrease we are observing.

Prior to 2019, the urgent care industry was doing an outstanding job of gradually increasing its scope of practice, as shown by yearly increases in the average E&M code. That is no longer the case.

Meanwhile, the percentage of visits with a higher E&M is also decreasing (see Figure 3). This trend is prevalent among new and established patients alike, with both seeing a sharp decrease in E&M weight since the pandemic (Figure 4).

These data correlate with the types of patients we are taking care of in our clinics. Current data show only 0.55% of visits are for laceration repairs (Figure 5). That is a significant decrease from the 0.72% share in 2019 (before the pandemic).

Meanwhile, 5.4% of visits include radiology (Figure 6). This represents nearly a 40% decrease since 2019, when radiology needs accounted for 8.6% of visits. Going hand-in-hand with radiology, 0.12% of current urgent care visits are related to fracture care (Figure 7). That number is also lower than it was in 2019 before the pandemic.

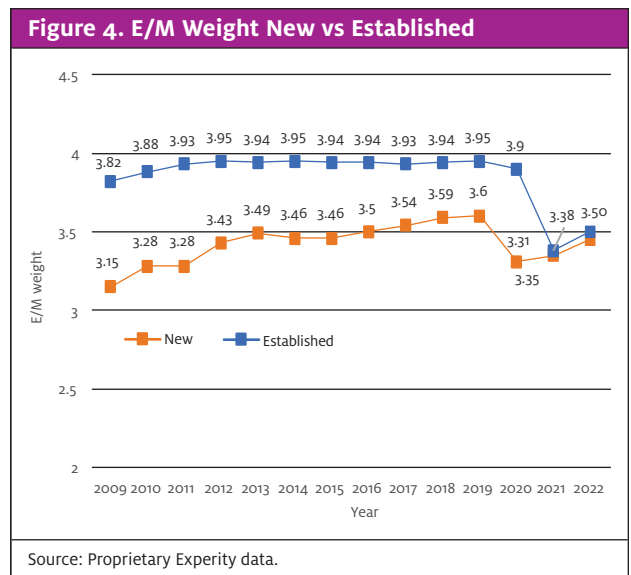
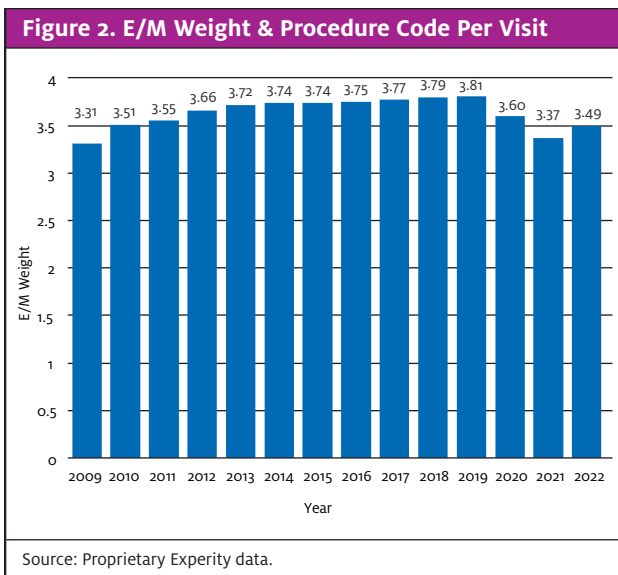
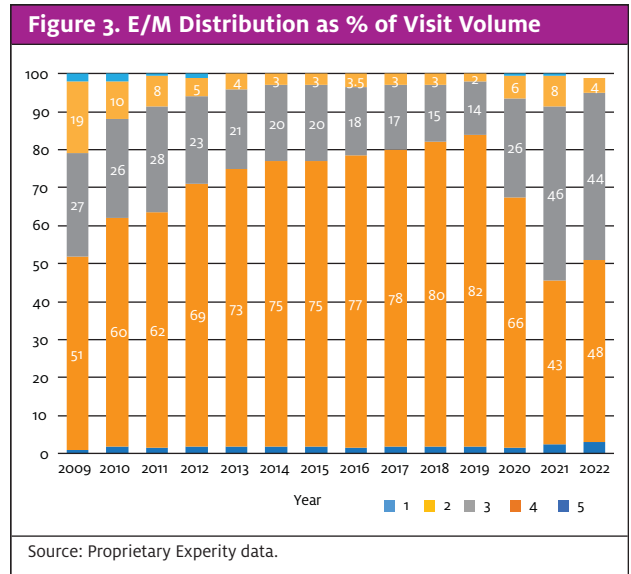
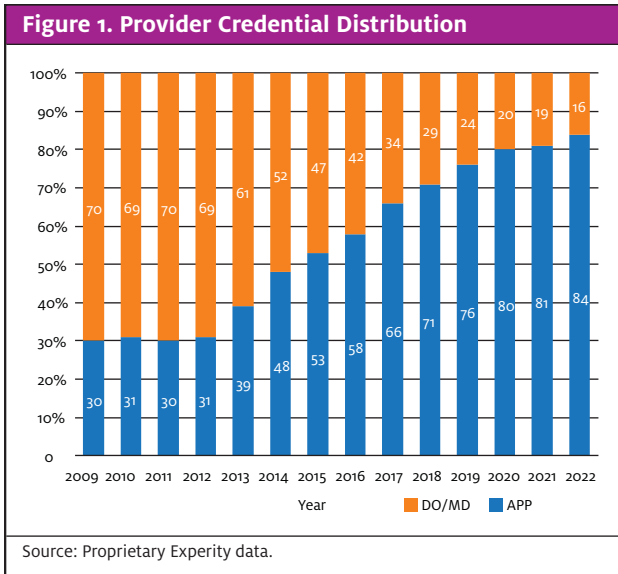
The number of procedure codes per visit has also declined since the pandemic, and failed to recover. It currently sits at 2.08 compared with 2.22 in 2019 (Figure 8).

Perhaps one of the more concerning effects of these trends is what the data reveal about new versus established patients. In 2013, new patients accounted for roughly half of all visits. Now, they account for just 39% of visits (Figure 9). Though this change is due to many factors, the degradation of acuity is certainly one of them.

Possible Ways to Reverse the Trends

So, what can we as the urgent care industry do to reverse these trends and recover our advantage in treating high-acuity patients? Let’s take a lesson from the military.

For years, the military has been sending physicians to deployment locations where they handle almost exclusively trauma patients. Before many of these physicians deploy, they receive extensive and renewed trauma



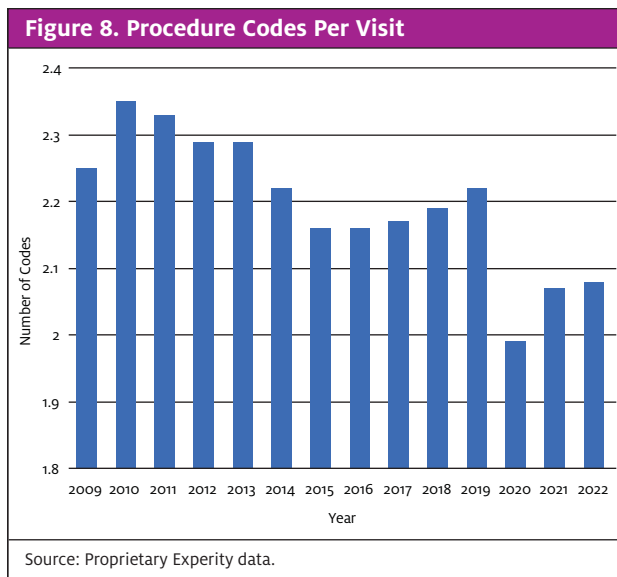
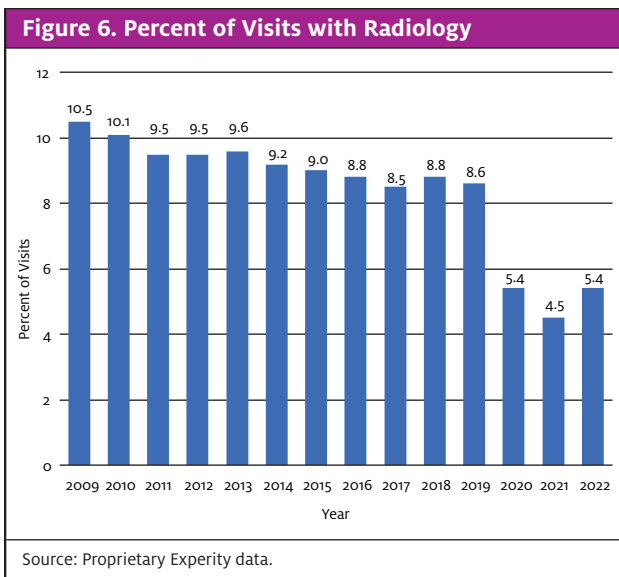
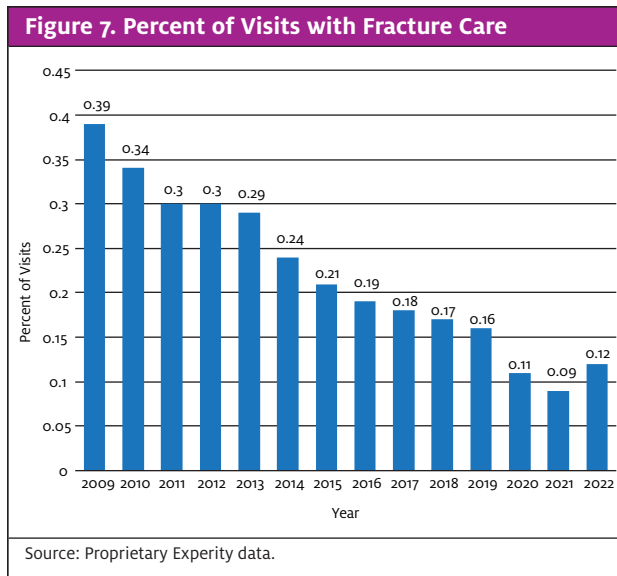
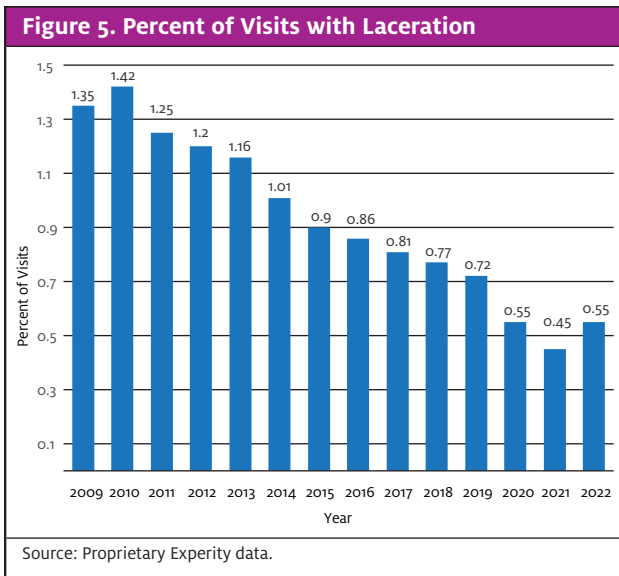
training. This prepares them well for the challenges they face during deployment. On returning home, however, many military physicians experience a degradation of their nontrauma medical skills. Procedures like delivering babies, performing lumbar punctures, and managing asthma exacerbations were no longer part of their everyday practice while deployed. There is literature that shows that deployed family physicians gained confidence in trauma skills, but lost confidence in their other medical skills.¹

The military’s approach to solving this was to offer postdeployment training for physicians returning

home, just as they underwent predeployment training before shipping out. This strategy can be similarly implemented in urgent care.

Providers are now experts in caring for COVID patients. However, responding to the pandemic has come at the cost of losing many essential skills. Procedures that were once an everyday part of urgent care, such as laceration repair and x-ray readings, now fall outside the skillset of many providers.

For urgent care to remain competitive with telemedicine, retail clinics, and on-demand primary care, we must retain our acuity edge. Urgent care offers tremen-



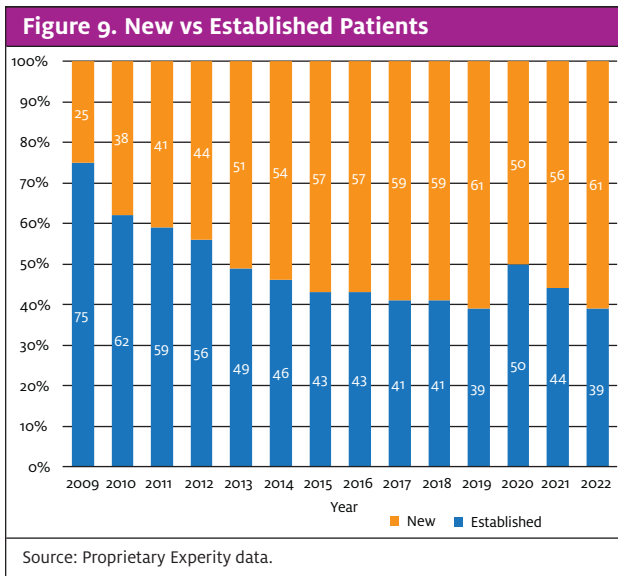
dous value to patients when operating at the top of its scope of practice. This means performing on-site procedures, x-ray services, rapid lab testing, and more—not just referring out to an ER or orthopedic office.

Yet, two problems remain: Providers need to be confident in offering these services, and urgent care centers must find a way to be reimbursed profitably.

One promising solution is education for APPs that serves as an across-the-board refresher and expansion of clinical skills and services. This helps decrease inconsistencies among urgent care clinics and ensures NPs are operating with a consistent skillset.

To develop such a program, urgent care operators must ask themselves tough questions.

- What types of patients did you treat previously that you are no longer taking care of?
- Do your experienced providers agree with the workups and care being provided by your less-experienced providers?
- How do your physicians and APPs feel about their skills and ability to treat lacerations, abscesses, injuries, hypertension, etc.?
- Do your clinics have the necessary supplies to treat higher-acuity patients?



After identifying the deficits, develop a comprehensive plan to help providers and staff gain the knowledge, confidence, and resources they need to provide a higher

level of care.

This change doesn't have to happen all at once.

If you increase your scope of care with the right training and resources, the patients will follow. This process may involve internal training by a knowledgeable provider or staff member, obtaining new supplies, or having providers attend external courses. Ultimately, the approach should be tailored to the unique needs of your operation.

Meanwhile, as the number of high-acuity cases increases, especially among established patients, reimbursement will start to increase once again.

The urgent care industry is comprised of resilient and dedicated people. If COVID has taught us anything, it is that we are highly adaptable. We can recover from the current degradation in the acuity of patients we treat. It will take dedication and a hard look at the data. Yet, with the right training, restocking, and focus, pushing urgent care's scope of care higher is possible. ■

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Antibiotic Duration for Skin and Soft Tissue Infections in Pediatric Urgent Care

Urgent message: Approximately one quarter of pediatric ambulatory visits result in antibiotic prescriptions, with over one third of those exceeding guideline-recommended durations. Factors that influence urgent care providers toward longer durations have not been studied previously.

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Keywords: cellulitis, abscess, duration, antimicrobial stewardship, pediatric urgent care

Abstract

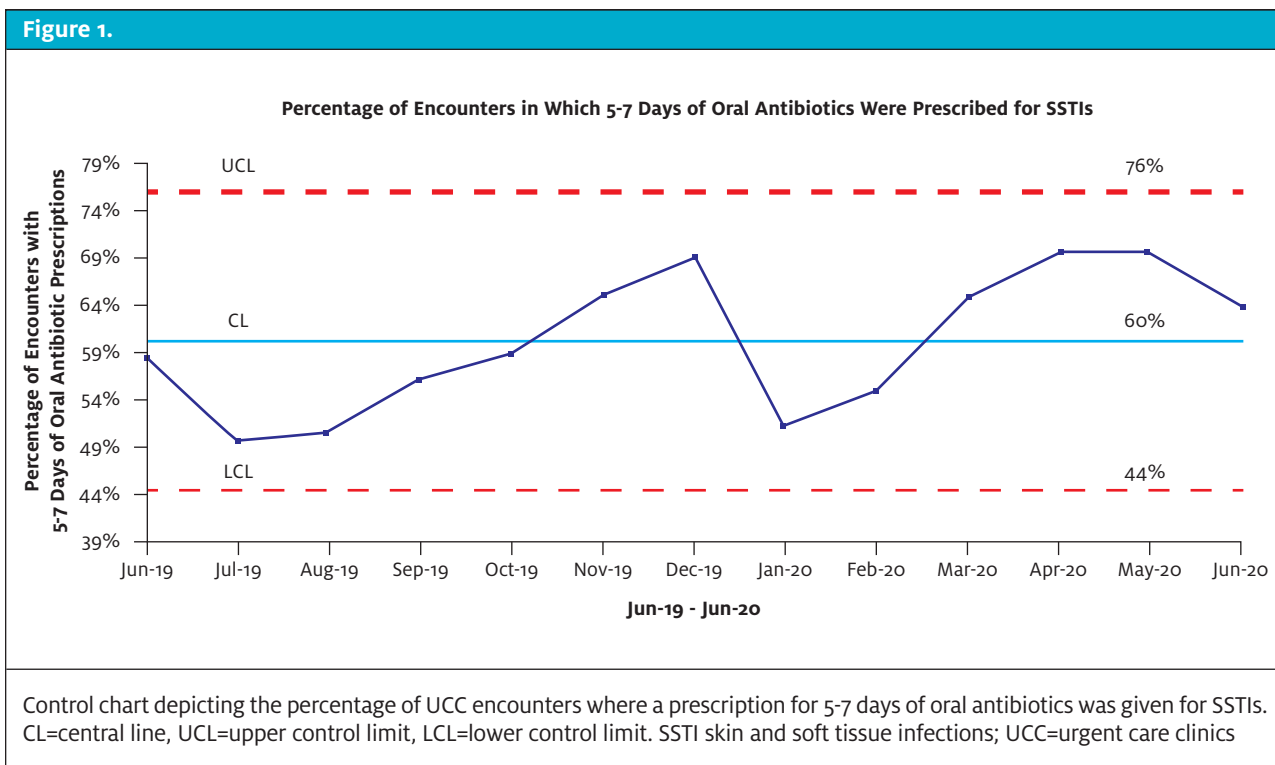
Objective: National guidelines recommend a 5–7-day course of antibiotics for most skin and soft tissue infections (SSTIs). Our goal was to evaluate the baseline rate of oral antibiotic duration for SSTIs in our pediatric urgent care clinics (UCCs) and interrogate factors that influence providers towards longer durations.

Methods: We evaluated all patient encounters with a diagnosis of SSTIs from three pediatric UCCs between June 2019 and June 2020. Data included patient age, concomitant diagnoses, antibiotics prescribed, and their duration. We excluded encounters if the patient was younger than 3 months of age, transferred to the emergency department or admitted, no oral antibiotics were prescribed, or if there was a concurrent diagnosis requiring antibiotics. We also sent out a 22-question survey to urgent care providers to gain an understanding of prescribing habits, focusing on factors prompting longer antibiotic courses.



Results: We reviewed 2,575 encounters in our study period, out of which 2,039 (79.2%) met our inclusion criteria. Of those, 822 (40.3%) included an oral antibiotic prescription for greater than 7 days while 1,181 (57.9%) included an oral antibiotic prescription for 5-7 days. The survey was sent to 50 providers, with 27 responding (a 54% response rate). Barriers for shorter treatment courses included concern for acute rheumatic fever development, parental pressure, fear of complica-

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tions, and accustomed antibiotic duration.

Conclusion: Forty percent of children with SSTIs seen in our UCCs received unnecessary long courses of antibiotics. Antibiotic duration would be a good target for future quality improvement interventions.

Introduction

Antimicrobial stewardship programs (ASPs) in the inpatient setting have successfully refined antibiotic prescribing habits leading to advances in patient safety and improved outcomes.¹ Approximately one quarter of pediatric ambulatory visits result in antibiotic prescriptions²; over a third of these exceed guideline-recommended durations.³

In their joint statement, the American Academy of Pediatrics and the Pediatric Infectious Diseases Society identified outpatient pediatrics, including urgent care clinics, as an important target of ASP initiatives.⁴ Skin and soft tissue infections (SSTIs) are the second most common diagnosis leading to pediatric antibiotic prescriptions in the outpatient setting, after respiratory diagnoses.² Multiple studies have shown that a short (5–7-day) course of antibiotics is sufficient for children with SSTI,⁵⁻⁸ and current guidelines recommend 5–7 days for most diagnoses^{9, 10}; however over 75% of chil-

dren diagnosed with SSTI received a prolonged >7 days of oral antibiotics.^{3, 9}

In this study, we aimed to evaluate the antibiotic duration appropriateness for children seen in our pediatric urgent care clinics (UCCs) with SSTIs, and to explore factors that influence providers toward longer durations. In our effort to improve outpatient antimicrobial use in our institution, these data were used to determine whether SSTI antibiotic durations would be a good target for future quality improvement (QI) interventions.

Methods

Our organization has three pediatric UCCs located throughout a midwestern metropolitan area with over 90,000 encounters a year. The UCCs are staffed by board-certified general pediatricians and advanced-practice registered nurses. We conducted a retrospective chart review of all UCC visits with a final diagnosis of SSTI (**Appendix 1**) between June 2019 and June 2020. We collected patient and clinical demographics, including age, weight, concomitant diagnoses, antibiotics prescribed, dose, duration, and any return visits with a diagnosis of SSTIs within 14 days. These data were obtained from the electronic health record via International Classification of Diseases (ICD) 10 codes for common SSTIs and were then validated through chart

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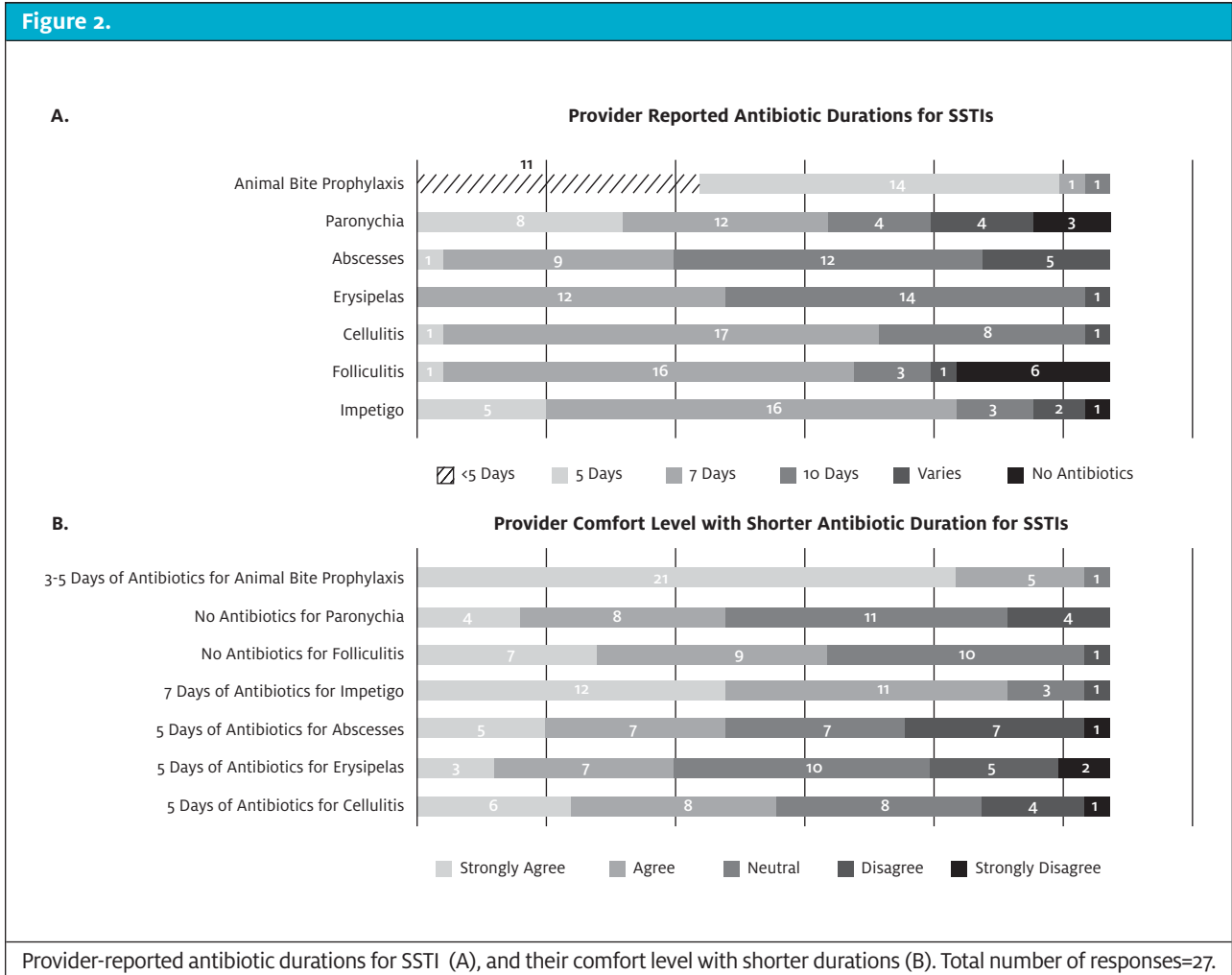
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review. We excluded encounters when patients were admitted or transferred to the emergency department, patients were <90 days of age or >21 years of age, no antibiotics or only topical antibiotics were prescribed, or patients had concomitant diagnoses that may require antibiotics.¹¹

We reviewed return visits to determine the outcome of the visit. If a patient returned for an SSTI such as cellulitis or abscess and was prescribed a new antibiotic, both their original encounter and the return encounter were counted. If patients did not receive a new antibiotic prescription or were only prescribed a topical antibiotic, the return encounter was excluded.

In addition, we developed an anonymous 22-question provider survey using REDCap to better understand prescribing habits, particularly focusing on factors prompting administration of longer antibiotic courses (Appendix 2).

This survey included a mix of questions including evaluation of provider comfort level with diagnosing and treating SSTIs and with prescribing short courses of antibiotics for SSTIs, and evaluation of their current practice with antibiotic duration for SSTIs. We also provided free text boxes for providers to expand on factors that may prompt longer antibiotic durations. The survey was evaluated by four urgent care providers for clarifications and feedback before it was deployed by email to all UCC providers in mid-July 2020. We used descriptive statistics to share our results, and control charts to display month-to-month data.

This study received exempt status by our institutional review board.

Results

During our study period, we reviewed 2,575 individual encounters. We excluded 536 (20.8%) patients; 66 were

admitted or transferred to the emergency department, 15 were younger than 90 days of age, 68 received no antibiotic prescription, 328 only received topical antibiotic prescriptions, and 59 had concomitant diagnoses that may require antibiotics. Our final analysis included 2,039 encounters.

Most common antibiotics prescribed included cephalexin, clindamycin, and trimethoprim-sulfamethoxazole. Of those, 1,181 (57.9%) included an oral antibiotic prescription for 5-7 days with a monthly mean of 60% (control limits: 44%-76%) on the control chart (**Figure 1**), while 822 (40.3%) included an oral antibiotic prescription for greater than 7 days with a mean of 38% (control limits 21%-55%). We observed some variation in our duration data, but no special cause variation was identified.

There were 27 (1.3%) total return visits to the UCCs for SSTIs over our study period. Of these, only 13 (0.6%) visits resulted in a change in antibiotics, most commonly with the addition of methicillin-resistant *S aureus* coverage (eg, switch from cephalexin to clindamycin for cellulitis).

The survey was sent to 50 UCC providers, with 27 responding (54% response rate). Providers' reported duration of antibiotic therapy for common SSTI and their comfort level with short durations are included in **Figure 2**. Only five (19%), seven (26%), and eight (29%) providers expressed being uncomfortable with a 5-day treatment course for cellulitis, erysipelas, and abscesses, respectively. Free text responses for barriers for shorter treatment courses included the following: four (15%) providers expressed most comfort with their accustomed antibiotic duration, two (7%) were concerned about treatment failures, two (7%) were concerned about parental pressure, and two (7%) were concerned about the development of acute rheumatic fever with shorter antibiotic courses.

Discussion

At our pediatric UCCs, 40% of patients received inappropriately prolonged courses of oral antibiotics for SSTIs, placing them at risk for adverse drug events, development of multi-drug-resistant organisms, and increased healthcare costs.¹

This is not unique to our institution; in fact, a broad evaluation of provider prescribing practices across the United States revealed that approximately 93% of pediatric patients receive >5 days of antibiotics for cellulitis.² Other pediatric institutions have reported rates of more than 75% of antibiotic prescriptions with prolonged duration for SSTIs.¹²

Antimicrobial stewardship (AS) interventions have been shown to improve clinician antibiotic choice, dosing, and duration for respiratory diagnoses such as acute otitis media, upper respiratory tract infections, and pharyngitis¹³; however, studies evaluating the effect of AS interventions on the treatment of SSTIs in pediatrics are not widely available. Schuler, et al were able to use QI methodology to improve the percentages of patients with SSTIs discharged from the inpatient setting with short courses of antibiotics from 23% to 74%,¹² however there are no studies evaluating QI improvements in the ambulatory setting.

Our provider survey revealed interesting influences on selected antibiotic duration, such as parental pressure and fear of complications including perceived risk of rheumatic fever development.

Parental pressure is a frequently reported factor influencing clinician prescription decisions as seen in a 2015 systematic review.¹⁴ Specific provider concerns regarding parental pressure included fear of the potential for litigation, repeated visits, late night calls, desire for increased patient satisfaction, and avoidance of anxious and angry parents.¹⁴

The specific concern regarding the development of acute rheumatic fever in relation to Group A *Streptococcus* skin infections is largely unfounded, as in developed countries this is a very rare phenomenon with only two cases reported in the literature.¹⁵ In addition, initial studies regarding prevention of acute rheumatic fever occurred in epidemic settings where the incidence of the disease was higher than it currently is in the United States.¹⁶ This suggests that provider education can be an important aspect of AS interventions.

Limitations

Our study has limitations. First, encounters were restricted to UCCs of a single pediatric institution so results may not be generalizable to other locations. Second, we did not include virtual encounters, which have risen in utilization since the COVID-19 pandemic. Third, given its retrospective nature, accuracy of data relies on correct chart documentation. Additionally, our survey included a small number of providers and may not be reflective of all providers' prescribing behaviors or influences.

Conclusion

Overall, our study illustrates the need for AS interventions aimed at improving antibiotic durations for pediatric SSTIs in the urgent care setting. While we did see some variation in our numbers over the year of analysis,

there is still opportunity for improvement in decreasing the duration of antibiotics. Based on these findings, we are embarking on a QI project to increase the percentage of patients receiving 5-7 days of oral antibiotics for SSTIs in our pediatric UCCs by addressing the specific barriers we identified via our provider survey. ■

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| Appendix 1. ICD-10 Codes Utilized to Capture Patients with a Final Diagnosis of SSTIs | | |
|---|---|---|
| Lo8.9- Local infection of the skin and subcutaneous tissue, unspecified | Lo2.31- Cutaneous abscess of buttock | S91.059A- Open bite, unspecified ankle, initial encounter |
| Lo3.90- Cellulitis, unspecified | Lo1.00- Impetigo, unspecified | S01.95XA- Open bite of unspecified part of head, initial encounter |
| Lo3.319- Cellulitis of trunk | Lo1.03- Bullous impetigo | S61.451A- Open bite of right hand, initial encounter |
| Lo3.113- Cellulitis of right upper limb | Lo1.01- Non-bullous impetigo | S61.452A- Open bite of left hand, initial encounter |
| Lo3.114- Cellulitis of left upper limb | L73.9- Follicular disorder, unspecified | S51.851A- Open bite of right forearm, initial encounter |
| Lo3.115- Cellulitis of right lower limb | Lo2.12- Folliculitis/Furuncle of neck | S51.852A- Open bite of left forearm, initial encounter |
| Lo3.116- Cellulitis of left lower limb | Lo2.22- Folliculitis/Furuncle of trunk | S81.859A- Open bite, unspecified lower leg, initial encounter |
| Lo3.317- Cellulitis of buttock | Lo2.42- Folliculitis/Furuncle of limb | S91.051A- Open bite, right ankle, initial encounter |
| Lo2.91- Cutaneous abscess, unspecified | Lo2.32- Folliculitis/Furuncle of buttock | S91.052A- Open bite, left ankle, initial encounter |
| Lo2.419- Cutaneous abscess of limb, unspecified | Lo3.0- Cellulitis and acute lymphangitis of finger and toe/paronychia | S81.851A- Open bite, right lower leg, initial encounter |
| Lo2.415- Cutaneous abscess of right lower limb | Lo3.031- Cellulitis of right toe | S81.852A- Open bite, left lower leg, initial encounter |
| Lo2.416- Cutaneous abscess of left lower limb | Lo3.032- Cellulitis of left toe | W50.3XXA- Accidental bite by another person, initial encounter |
| Lo2.413- Cutaneous abscess of right upper limb | Lo3.011- Cellulitis of right finger | S60.479A- Other superficial bite of unspecified finger, initial encounter |
| Lo2.414- Cutaneous abscess of left upper limb | Lo3.012- Cellulitis of left finger | |
| Lo2.214- Cutaneous abscess of groin | Lo3.019- Cellulitis of unspecified finger | |
| Lo2.215- Cutaneous abscess of perineum | Lo3.039- Cellulitis of unspecified toe | |
| Lo2.219- Cutaneous abscess of trunk, unspecified | A46- Erysipelas | |
| | So61.459A- Open bite of unspecified hand, initial encounter | |
| | S71.159A- Open bite, unspecified thigh, initial encounter | |
| | S51.859A- Open bite of unspecified forearm, initial encounter | |

Appendix 2. Pre-Intervention UC Provider Survey

Confidential. Please complete the survey below. Thank you!

1. What is your degree designation?
 MD/DO
 APRN
 Other
2. How many years have you been in practice? < 5
 5-10
 10-15
 >15
3. At what UCC location(s) do you primarily work
 Blue Valley Urgent Care
 East Urgent Care
 North Urgent Care
 (Please check all locations you work at)
4. Have you practiced in a private setting?
 Yes, currently
 Yes, in the past
 No
5. How often do you work in the urgent care?
 Multiple shifts per week
 Once a week
 2-3 times per month
 Once a month
 Once every few months
 Very comfortable
 Comfortable
 Neutral
 Uncomfortable
 Very uncomfortable
6. How comfortable are you with diagnosing skin and soft tissue infections?
 If you selected uncomfortable or very uncomfortable, please explain why

 Very comfortable
 Comfortable
 Neutral
 Uncomfortable
 Very uncomfortable
7. How comfortable are you with treating skin and soft tissue infections?
 If you selected uncomfortable or very uncomfortable, please explain why

8. What is the oral antibiotic duration you most commonly prescribe for impetigo?
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

9. What is the oral antibiotic duration you most commonly prescribe for folliculitis?
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

10. What is the oral antibiotic duration you most commonly prescribe for cellulitis?
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

11. What is the oral antibiotic duration you most commonly prescribe for erysipelas?
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

12. What is the oral antibiotic duration you most commonly prescribe for abscesses? 5 days
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

13. What is the oral antibiotic duration you most commonly prescribe for paronychia?
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

14. What is the oral antibiotic duration you most commonly prescribe for animal bite prophylaxis?
 Less than 5 days
 5 days
 7 days
 10 days
 Varies
 No antibiotics
 If varies, please explain why

15. Are there any factors that would prompt you to prescribe a longer duration for a patient? If yes, please explain

 Please consider the following statements and select your answer based on how strongly you agree or disagree with the statement
 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
16. I would feel comfortable with prescribing only 5 days of antibiotics for cellulitis
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
17. I would feel comfortable with prescribing only 5 days of antibiotics for erysipelas
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
18. I would feel comfortable with prescribing only 5 days of antibiotics for abscesses
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
19. I would feel comfortable with disagree prescribing only 7 days of antibiotics for impetigo
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
20. I would feel comfortable with not prescribing antibiotics for folliculitis
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
21. I would feel comfortable with not prescribing antibiotics for paronychia
 If you selected disagree or strongly disagree, please explain why

 Strongly agree
 Agree Neutral
 Disagree
 Strongly disagree
22. I would feel comfortable with prescribing only 3-5 days of antibiotics for animal bite prophylaxis
 If you selected disagree or strongly disagree, please explain why

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ABSTRACTS IN URGENT CARE

- Assessing the Ottawa Ankle Rule in Pediatric Patients
- Subconjunctival Hemorrhage in Children
- How Much Cardiac Risk Is Acceptable to Patients?
- Discharging Children with Abnormal Vital Signs
- Analgesia for Children in Casts
- Effects of Burnout in Healthcare Providers
- Cod Liver Oil + Vitamin D and COVID-19: Preventive Medicine or Snake Oil?

■ IVAN KOAY, MBChB, FRNZCUC, MD

Applying the Ottawa Ankle Rule to Pediatric Patients

Take-home point: Application of the Ottawa Ankle Rule (OAR) limits unnecessary imaging in children without missing clinically relevant fractures.

Citation: de Almeida S, Rios J, Lima S, et al. Applying the Ottawa Ankle Rule in a pediatric emergency department. *Pediatr Emerg Care.* 2022;38(3):e1123-e1126.

Relevance: Ankle fractures in children are common. Use of the OAR, a simple clinical decision rule, by UC providers could save time and spare radiation and expense if effective in children.

Study summary: This was a prospective case control study based in a pediatric emergency department in Portugal. In the initial phase of the study (control), all clinicians were asked to complete a questionnaire and provide usual care for patients presenting to the ED with foot and ankle injuries. In the second phase (case), all clinicians were required to use the OAR to guide the decision regarding imaging. In both phases, a follow-up call was made 1 to 3 weeks after the ED evaluation. The OAR recommends ankle radiograph if there is pain in the malleolar region *and* bony tenderness along the distal 6 cm of the posterior edge of either malleolus or inability to bear weight for four steps both immediately after injury and in the ED. For midfoot injuries, a foot x-ray is recommended if there is bony tenderness at navicular bone or at the base of the fifth metatarsal or inability to bear weight for four steps both immediately after injury and in the ED.

The authors recruited 102 control and 104 case patients for the

study. They found prevalence of fractures between control and case group was similar (4%). There was a significant reduction in imaging in the case group ($p=0.001$). The sensitivity of the OAR in this study was 100% (95% CI, 39.76–100.00) and the specificity was 23.33% (95% CI, 15.06–33.43) with a negative predictive value of 100%. There was a 16% reduction in imaging ordered in the case group.

Editor's comments: This was a small single center study leading to large confidence intervals, especially for sensitivity. It is not clear these results could be extrapolated to the UC setting. Patients and parents often present expressly for the purposes of requesting an x-ray; therefore, acceptance of the OAR as sufficient evaluation may be variable. ■

Subconjunctival Hemorrhage in Children

Take-home point: Subconjunctival hemorrhage (SCH) is uncommon in children. Most cases are due to trauma, and the possibility of abuse should be considered.

Citation: Parikh A, Christian C, Forbes B, et al. Prevalence and causes of subconjunctival hemorrhage in children. *Pediatr Emerg Care.* 2022;38(8):e1428-e1432.

Relevance: Presentations with unusual signs and symptoms should prompt UC providers to take a thorough history. Early detection of nonaccidental trauma (NAT) can be lifesaving.

Study summary: This was a retrospective cross-sectional study of patients <18 years of age presenting to an outpatient eye clinic in Philadelphia. Data were abstracted from the medical record for each child. The primary study outcomes were the prevalence of SCH across all examinations based on ophthalmological examination findings documented in the ophthalmologist's clinical note.

The authors found 949 cases of SCH among a total of 86,277 examinations. The prevalence of SCH from any cause among all examinations was 1.1%. Most of the cases (636/949), were caused



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by ocular, eyelid, or orbital surgery. There were 313 cases of SCH that were not surgically related with a prevalence of 0.4% (95% CI, 0.3%–0.4%). Two hundred sixty-one cases (83%) were due to trauma, 40 (13%) were due to ocular surface inflammation, 7 (3%) were due to an orbital or conjunctival lesion, 3 (1%) were due to vessel rupture from choking or cough, and 2 (1%) were related to coagulopathy. Twelve cases were deemed to be due to child abuse/nonaccidental trauma.

Editor’s comments: There is limited generalizability due to the study setting in an ocular specialty clinic. For example, most SCH was postsurgical in this population. However, cases of NAT were identified in this population. It is likely that the proportion of SCH that is traumatic would be higher in a UC population. This warrants further study. ■

Patients’ Perspective of Acceptable Cardiac Risks

Take-home point: Engaging patients in discussions about their risk of adverse cardiac outcomes reduced admissions and unnecessary testing.

Citation: Greenslade J, Wilkinson S, Parsonage W, et al. What is an acceptable risk of major adverse cardiac event soon after discharge from emergency? The patient’s perspective. *Emerg Med J.* 2022;39(7):519-520.

Relevance: Many studies and clinical decision rules for chest pain evaluation have demonstrated there is little utility in admission or further invasive testing for low-risk patients. Shared decision-making is an increasingly accepted approach to medical decision-making. A better understanding of the patient’s perspective on acceptable risk may help individualize care and ensure it is acceptable to each patient.

Study summary: This was a cross-sectional study using a convenience sampling of adult patients presenting with chest pain to an inner-city ED in Queensland, Australia. A research assistant administered a questionnaire to the participants, who were asked whether they would like to have input or whether they would prefer the doctor to make decisions regarding their assessment. Patients were asked whether they would be willing to be discharged at various levels of risk of adverse cardiac events over the next 30 days. The options were presented in graphic and text form.

The authors found 80.8% of the 125 participants recruited wanted to be involved in decisions around their care. More than half (51.2%) of patients reported they would be willing to be discharged only if their risk were <0.1%; 10.4% patients were willing to be discharged at 2% risk; and 36.8% of patients did not want to be discharged unless there was 0% risk of a negative outcome.

Editor’s comments: There is limited generalizability to UC pop-

ulations in the U.S. based on the study setting and location. It is noteworthy that over a third of patients felt comfortable only if there were no risk of a 30-day event. This suggests that unrealistic expectations are common. ■

Can I Safely Discharge This Child with Abnormal Vital Signs?

Take-home point: Children with two or more abnormal vital signs (VS) at ED discharge had increased odds of ED revisit within the subsequent 48 hours.

Citation: Kazmierczak M, Thompson A, DePiero A, et al. Outcomes of patients discharged from the pediatric emergency department with abnormal vital signs. *Am J Emerg Med.* 2022;57:76-80.

Relevance: Abnormal vitals are common in children with viral illnesses. However, the significance of these findings is often uncertain in terms of short-term risk for adverse outcomes and repeat healthcare visits.

Study summary: This was a retrospective cohort study of children discharged from two pediatric tertiary-level, academic EDs in Delaware and Florida. The electronic health record was queried for children discharged from the ED during the study period with abnormal VS. Vitals were defined as abnormal if flagged in the EHR indicating a heart rate, respiratory rate, or blood pressure outside of the fifth and 95th percentiles for age, an oxygen saturation <95%, or temperature <97°F or >100.4°F. The primary outcomes were repeat ED visits within 48 hours and disposition at return visit. The secondary outcomes were admission location (inpatient, operating room, ICU) and adverse outcomes during admission.

The authors reviewed the cases of 83,092 patients discharged during the study period. Of those, 21.3% were discharged with at least one abnormal VS. Children discharged from the ED with abnormal VS were more likely to return to the ED within 48 hours if they had two or more abnormal VS (OR 1.62, 95% CI 1.25–2.11) compared with one abnormal VS, but they were not significantly more likely to require admission at revisit (OR 1.70, 95% CI 0.972–2.987, p=0.061). Heart rate, blood pressure, respiratory rate, and oxygen saturation did not individually have a significant association with revisit.

Editor’s comments: This study has significant limitations, including retrospective design and being conducted in tertiary care pediatric EDs. The authors’ analysis did not compensate for potential confounders like medications or medical conditions that cause VS abnormalities but are not reflective of severity of illness. Return visits may not have been captured if patients sought care at a different medical facility. The range of “normal” values for temperature and oxygen saturation were somewhat arbitrary. Despite these limitations, there was a significant finding that children with

multiple VS abnormalities are more likely to cause enough concern for parents to trigger repeat evaluations. It is also worth noting that although these patients returned more often, there was no increased risk of admission. ■

Analgesia Requirements for Children in Casts

Take-home point: Displaced fractures were associated with significantly higher rates of analgesia dosing compared with non-displaced fractures.

Citation: Cozzi G, Wiel LC, Bassi A, et al. Need for pharmacological analgesia after cast immobilisation in children with bone fractures: an observational cross-sectional study. *Emerg Med J.* 2022;39(8):595-600.

Relevance: Historically, casting has been used as a method of providing analgesia for limb fractures. Predicting which patients are likely to have higher additional analgesia requirements is useful in pain management and guiding expectations.

Study summary: This was a prospective, observational, cross-sectional study at a tertiary-level pediatric ED in Italy. Children with extremity fractures requiring cast immobilization were included. On discharge from the ED, caregivers of participants were provided with standardized instructions for pain management (ibuprofen 10 mg/kg as needed up to every 8 hours). Rescue therapy, in case of ibuprofen failure, was also prescribed (acetaminophen 20 mg/kg up to every 6 hours as needed). The primary outcome was the administration of analgesia in children with casts for fractures in the 10 days following discharge from the ED.

The authors enrolled 213 patients and found 201 (94.4%) non-displaced and 12 (5.6%) displaced fractures. One hundred thirty-seven (64.3%, 95% CI 57 to 70.7) children were not administered any analgesic and 76 (34.7%) received at least one dose of analgesia. Median number of daily doses was two (IQR 1-4). Fifty children (65.8%) were administered ibuprofen, while 24 patients (31.6%) used acetaminophen and two (2.6%) used ketoprofen. A strong association between receiving analgesia and type of fracture was found for displaced vs nondisplaced fracture (OR 5.5; 95%CI 1.4 to 21.0).

Editor's comments: There was no assessment of the child-reported pain in the study, and the administration of analgesics at home was based on parental discretion. There were very few displaced fractures in the population. Most notably, however, is the finding that two-thirds of children required no analgesia beyond immobilization. This suggests that simple over-the-counter analgesic options are sufficient for pain control in most pediatric fractures in UC. This also provides reasonable justification for opioid nonprescribing in this population and parental reassurance that significant pain, especially in nondisplaced fractures, is un-

common and warrants additional evaluation if it occurs. ■

Burnout in Healthcare Providers and Effects on Quality of Care

Take-home point: Physician burnout was found to affect patient outcomes and lead to career disengagement.

Citation: Hodkinson A, Zhou A, Johnson J, et al. Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis. *BMJ.* 2022;378:e070442.

Relevance: Understanding the association of burnout with career engagement is necessary in mitigating the global healthcare workforce crisis.

Study summary: This was a systematic review across four databases which included studies assessing the association of physician burnout with career engagement and the quality of patient care. Random-effect models were used to calculate the pooled odds ratios. Career engagement outcomes included career choice regret, career development, job satisfaction, productivity loss, and turnover intention. Quality of patient care outcomes included low professionalism, patient safety incidents, and patient satisfaction.

The authors identified 170 observational studies including 239,246 physicians for meta-analysis. They found burnout in physicians to be associated with a fourfold decrease in job satisfaction (OR 3.79, 95% CI 3.24 to 4.43, k=73 studies, n=146,980 physicians), threefold increase in career choice regret (OR 3.49, CI 2.43 to 5.00, k=16 studies, n=33,871), and threefold increase in turnover intention (OR 3.10, CI 2.30 to 4.17, k=25 studies, n=32,271). Physician burnout was also associated with a twofold increase in patient safety incidents (OR 2.03, CI 1.68 to 2.44, k=35 studies, n=41,059), a twofold decrease in professionalism (OR 2.33, CI 1.96 to 2.70, k=40 studies, n=32,321), and a twofold decrease in patient satisfaction (OR 2.22, CI 1.38 to 3.57, k=8 studies, n=1,002). The link between burnout and patient care outcomes was greatest in younger physicians working in emergency medicine.

Editor's comments: Diversity in the outcome definition may have led to overestimating the association with physician burnout in the study; nevertheless, there is compelling evidence that burnout adversely affects patient care. There is no easy solution immediately evident to prevent burnout. However, to avert a worsening crisis, healthcare organizations and authorities should institute effective, evidence-based interventions to mitigate burnout. ■



COVID-19 Abstract

Do Cod Liver Oil and Vitamin D Help Prevent COVID-19 or Other Respiratory Infections?

Take-home point: Supplementation with cod liver oil did not re-

ABSTRACTS IN URGENT CARE

duce the incidence of SARS-CoV-2 infection, serious COVID-19, or other acute respiratory infections vs placebo.

Citation: Brunvoll S, Nygaard A, Ellingjord-Dale M, et al. Prevention of COVID-19 and other acute respiratory infections with cod liver oil supplementation, a low dose vitamin D supplement: quadruple blinded, randomised placebo controlled trial. *BMJ*. 2022;378:e071245.

Relevance: Vitamin D supplementation is an increasingly common strategy implemented by patients in an effort to “boost immune function.” The current evidence for the efficacy of this practice is, however, lacking.

Study summary: This was a randomized, parallel group treatment, quadruple-blinded (participant, investigator, outcomes assessor, and data analysts), two-armed trial based in Norway. Participants were randomized to receive either cod liver oil or placebo (corn oil) to examine if cod liver oil affects the risk of COVID-19 infection, serious COVID-19, or other acute respiratory infections. The cod liver oil used contained 10 µg of vitamin D₃ (400 IU); long-chained

omega 3 polyunsaturated fatty acids, including eicosatetraenoic acid and docosahexaenoic acid (DHA); vitamin A; and of vitamin E while the placebo contained vitamin A and vitamin E.

The authors recruited 34,741 participants. They found similar rates of positive SARS-CoV-2 tests in both groups (RR 1.00, 97.0% CI 0.82 to 1.22). There was no association between concentrations of vitamin D and risk of SARS-CoV-2 infection or serious COVID-19. The relative risk of having one or more acute respiratory infection was 1.04 (99.9%, CI 0.97 to 1.11) for the cod liver oil group compared with placebo.

Editor’s comments: This was a well-designed RCT; however, it has some significant limitations. All were self-reported via questionnaire which introduces an element of recall bias. The dose of vitamin D₃ used was quite low relative to commonly recommended supplementation strategies and practices. The study population was homogenous and residing in an area of the world with relatively low levels of sunlight, which would limit generalizability. While there was no difference between groups, this is unlikely to put to rest the question of the utility of vitamin D supplementation to promote resilience to respiratory viruses. ■



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Benefits of Limited-Scope X-Ray Techs in the Urgent Care Setting

Urgent message: X-ray is an essential component of urgent care operations. Amid rising costs and staffing shortages, limited-scope x-ray techs may be a viable alternative to licensed radiology techs to perform imaging in the clinic.

ALAN A. AYERS, MBA, MAcc

One of the unexpected changes we've seen come out of the COVID-19 pandemic is the difficulty urgent care centers face in hiring licensed radiologic technologists (RTs). Even hospitals struggle to hire, offering sign-on bonuses of up to \$20,000 with \$34/hour pay rates now commonplace. How can an urgent care compete in such a tight labor market? The "shortage" of licensed x-ray techs, where required by law, creates an existential question for urgent care.

Urgent care has historically been seen as a "one-stop shop" for all but the most severe of illnesses and injuries. Without x-ray, however, the value of urgent care gets degraded to "triage medicine" with patients being moved on to specialists or the ED. Indeed, the availability of x-ray is a defining feature that differentiates urgent care from retail clinics, telemedicine, and walk-in primary care models.

Approximately 15% of urgent care visits require an x-ray, often just a handful of studies per day in centers with even moderate volumes.¹ This means centers that offer x-ray during all operating hours often find themselves with a surplus of downtime for x-ray techs.

Typically, this time is spent taking vitals, collecting specimens and running rapid tests, registering patients, or other medical-assisting tasks well below the pay grade of an RT. Not to mention that an RT is trained in multiple imaging modalities, but in urgent care they practice to the lowest end of their training. Doing lesser-skilled work in a hectic environment at below-market pay (also with exposure to COVID patients)...is there any question as to why RTs are not flocking to UCCs?

None of this changes the fact that x-ray services are



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still an essential part of urgent care. Patients expect to receive an x-ray on-site if deemed necessary and not to be redirected to the ED, a specialist's office, or an imaging facility. If patients feel their time was wasted by going to urgent care first, eventually they'll skip urgent care entirely—even for conditions when an x-ray isn't necessary. Likewise, maintaining x-ray services is key to urgent care's reimbursement premium, justified by payers as "cost avoidance" of EDs.

So, what's the solution?

One of the more promising approaches is to utilize limited-scope x-ray techs. These individuals can be a medical assistant (MA) with additional training, or be hired as a limited x-ray tech but assist around the clinic in an MA role. Limited-scope allows urgent care centers to continue offering x-ray services in an efficient, budget-friendly manner.

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| Table 1. Differences Between Licensed Radiologic Technologists and Limited-scope X-Ray Techs | |
|--|---|
| Radiology Tech (RT) | Limited-Scope X-Ray Tech |
| Requires Associate's degree and national licensure by exam with the American Registry of Radiologic Technologists (ARRT) in most states | Training and education requirements vary by state. No degree is required |
| Can perform all diagnostic imaging, including: <ul style="list-style-type: none"> • X-ray • CT scans • Mammograms • Bone density • Ultrasound • Fluoroscopy...and more | Limited to x-ray only based on state laws. Typically limited to x-ray of skeletal features |
| Make \$33/hour on average ² | Make \$22/hour on average ³ |
| Must earn a minimum of 24 hours of continuing education every 2 years to maintain licensure | Continuing education requirements vary by state. Not always required |
| Proficient in all types of x-ray exams and positioning thanks to extensive education | May struggle to produce high-quality images for unusual exams or positioning due to limited education |

Differences Between RTs and Limited-Scope X-Ray Techs

Simply put, an RT's more diverse skillset is necessary for hospitals, imaging centers, outpatient surgery centers, and other facilities. However, given the fact that urgent care only utilizes x-ray, a limited-scope tech can fill the need.

Table 1 highlights the primary differences between a radiology technologist and a limited-scope x-ray operator.

Combating the RT Shortage

Demand for healthcare workers is high across all disciplines. However, the shortage of RTs is particularly impactful. *Applied Radiology* suggests that a variety of factors are to blame, including increased demand due to population aging, increased subspecialty needs, and retention issues.⁴

Ideal for urgent care would be to hire MAs who were also trained in limited-scope x-ray as part of their MA education. However, these "unicorns" are few and far between.

MA programs offering limited x-ray training struggle to attract students. This is because most students looking to go further than basic MA training choose to invest in a full RT program (an Associate's degree) or opt for a nursing program (Bachelor's degree) instead.

That leaves on-the-job training. Though regulations vary by state, it is often simple, quick, and cheap to train an existing employee, such as an MA, to become qualified as a limited-scope x-ray operator.

While this increases the risk of that employee choosing to leave the company after getting their limited x-ray license, such can be mitigated by contractual terms including clawback provisions for the cost of the training.

Requirements vary by state.

Meanwhile, investing in someone already employed by your center can help build loyalty and improve retention. It offers a path of career progression for MAs who might otherwise leave for nursing school. Operators also know employees they choose to train for a limited x-ray role are competent and good workers.

Conclusion

Urgent care centers choosing to forgo x-ray services risk losing reimbursements and being unable to differentiate themselves from telemedicine and other non-ED walk-in settings. As such, continuing to offer x-ray is an essential part of the urgent care model. As a result of staffing challenges with RTs, cross-training support staff to a limited-scope x-ray role is one way to accomplish this efficiently.

Although x-ray techs don't have the same capabilities as RTs, they can perform most necessary imaging while also serving in support roles during downtime. ■

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This article was reviewed by Ron Boucher, MD, FACR, Chief Medical Officer, Experity Teleradiology.

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Mysterious Skin Lesions in a Horse Trainer

Urgent message: Medical histories can help inform diagnosis, but clinicians must ensure their decisions are not swayed by erroneous historical elements or cognitive biases.

CANDACE WALKLEY, MD and KYLE SWANSON, OMS-3

Abstract

Staphylococcus aureus and *Streptococcus pyogenes* may cause acute and inflammatory infections of the soft tissue in immunocompetent patients. However, patients with indolent and progressive lymphocutaneous infections should be evaluated for atypical bacterial and fungal pathogens.

Case Presentation

In March 2021, a 57-year-old healthy and immune-competent female presented to an urgent care provider complaining of a tender rash on her right hand. She reported that 3 weeks prior, she received multiple punctures to the hands while clearing dead plants from her yard following a harsh winter freeze. Within 1 week, she developed a red, tender, nonsuppurative, nodular lesion on the dorsum of the metacarpophalangeal joint of the long finger on her right hand. She was diagnosed with a staphylococcal infection and empirically prescribed 10 days of doxycycline. She did not improve and, soon after, developed multiple erythematous and nonsuppurative nodules on her right forearm and hand, proximal to the initial hand lesion.

Two months later, the patient presented to urgent care for persistent lesions on her right forearm after developing a painless swelling of her right elbow. She was diagnosed with a staphylococcal infection and empirically treated with 10 more days of doxycycline.

Two months after the second urgent care visit, she developed additional skin lesions and worsening of the elbow swelling. She presented again, whereupon the provider ascertained that she owned cows, dogs, and cats and was a horse trainer who traveled with horses



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on transatlantic flights to and from Belgium. Without further evaluation, she was diagnosed with brucellosis and empirically prescribed 45 days of doxycycline and rifampin.

One week later, without improvement, she presented as a self-referral to the authors, one of whom is trained in infectious disease, for a second opinion. Aside from her right hand, arm, and elbow complaints, her review of systems was negative.

Exam revealed an afebrile and well-appearing patient

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Figure 1.



Right hand erythematous lymphocutaneous lesions; initial inoculation site over the long-finger MCP.

Figure 2.



Flesh-colored and erythematous lymphocutaneous lesions and mild, inflammatory olecranon bursitis)

with numerous right hand and forearm erythematous and flesh-colored, nonsuppurative, nodular lesions along the lymphatics and a significant swelling of the right olecranon bursa with mild overlying, nontender erythema (see **Figure 1** and **Figure 2**). Complete blood count and comprehensive metabolic profile were normal. Chest and right elbow radiographs were negative for pulmonary or osseous involvement. Punch biopsies from the nodular skin lesions on the right forearm revealed granulomatous reaction suggestive of infectious etiology. Periodic acid Schiff and Fite's acid-fast stains were unrevealing. Fungal culture of the tissue was negative after 4 weeks.

Based on the patient's history, clinical features, and histopathology, she was diagnosed with lymphocutaneous sporotrichosis with involvement of the right olecranon bursa and treated with itraconazole.

Differential Diagnosis

In 2014, the Infectious Diseases Society of America (IDSA) issued guidelines on the diagnosis and management of skin and soft tissue infections (SSTIs).¹ The rec-

ommendations include dividing soft tissue infections into purulent and nonpurulent presentations, recognizing that when purulence is a presenting feature, generally *S aureus* is the culprit. In individuals who are systemically ill with a purulent infection, the recommendation is to treat methicillin-resistant *S aureus* using either an intravenous antibiotic (vancomycin, daptomycin, linezolid, telavancin, or ceftaroline) or oral doxycycline or trimethoprim-sulfamethoxazole.

In individuals with a nonpurulent presentation, the recommendation is to focus on treating *S pyogenes* using penicillin (if known group A streptococcal infection) or a cephalosporin.

The most important feature of this patient's case is her indolent lymphocutaneous presentation. Moreover, the clinical decline while taking doxycycline excludes *S aureus* and *S pyogenes* as etiologies, especially since a prolonged and gradual clinical course is distinctly atypical for infection with these organisms.

The differential diagnosis of an immune-competent patient with progressive, *indolent*, nonpurulent lymphocutaneous nodules after exposure to detritus is lim-

| Table 1. Infectious Etiologies of Lymphocutaneous Lesions | |
|---|--|
| Dematiaceous fungi | <i>Sporothrix schenckii</i> <i>Scedosporium apiospermum</i> <i>Scopulariopsis blochii</i> |
| Endemic fungi | <i>Blastomyces dermatitidis</i> <i>Coccidioides immitis</i> <i>Histoplasma capsulatum</i> |
| Other fungi | <i>Cryptococcus neoformans</i> <i>Fusarium</i> species |
| Filamentous bacteria | <i>Nocardia</i> species Mycobacteria <i>M marinum</i> <i>M chelonae</i> <i>M kansasii</i> <i>M avium-intracellulare</i> <i>M tuberculosis</i> <i>M fortuitum</i> <i>M flavescens</i> <i>M abscessus</i> <i>M haemophilum</i> |
| Pyogenic bacteria | <i>Staphylococcus aureus</i> <i>Streptococcus pyogenes</i> |
| Animal exposures | <i>Bacillus anthracis</i> (livestock) <i>Erysipelothrix rhusiopathiae</i> (pigs) Cowpox virus (cows) <i>Francisella tularensis</i> (rabbits, squirrels) |
| Protozoa | <i>Leishmania</i> species |

ited to endemic and dematiaceous fungi (eg, *Blastomyces*, *Scedosporium*, and *Sporothrix* species.), filamentous bacteria (*Nocardia*), and atypical mycobacteria (see Table 1). Exposure to farm animals should broaden the differential to include anthrax, tularemia, erysipeloid, and cowpox, but these infections cause a more acute presentation with different features.²

Discussion of Diagnostic Error and *Sporothrix schenckii*

We present a classic case of sporotrichosis that was misdiagnosed because of a focus on the patient's history of exposure to animals and a failure to recognize the indolent nature of cutaneous fungal infections.

Sporothrix schenckii is a fungus found commonly in soil and plant matter. Infection follows inoculation of the skin through abrasion or penetration while working with plants or soil. Sporotrichosis, or "rose gardener's disease," most commonly presents as a lymphocutaneous eruption with an erythematous, subcutaneous nodule at the site of inoculation. When untreated, the infection progresses indolently and proximally, causing

nodules along the lymphatics. The most common extracutaneous presentation is arthritis following hematogenous dissemination and, ultimately, possible progressive joint damage if untreated.³

Sporotrichosis is a rare infection that many providers do not include in their initial differential diagnosis of skin lesions. In stable and immune-competent patients with recent skin punctures, the initial diagnosis of bacterial soft tissue infection and empiric treatment with doxycycline for staphylococcal and streptococcal species are reasonable. However, lack of resolution and continued indolent spread of skin lesions call for a reevaluation of possible etiologies.

This patient's final visit to urgent care resulted in treatment for brucellosis despite a lack of suggestive symptoms and was based solely on the historical animal exposures. Failure to reexamine the differential diagnosis and the recurrent prescription of an inappropriate antibiotic resulted in dissemination of the infection to the bursa of the elbow. Unfortunately, osteoarticular involvement makes the infection more complex and difficult to treat.

Practitioners should be aware of common cognitive biases that may impact clinical reasoning, including anchoring bias, defined as a repeated focusing on a single piece of information despite contradictory evidence. Anchoring on this patient having a red, tender nodule on the right hand without considering the lack of fever and purulent drainage, the history of the lesion, and the lesion's lack of response to empiric treatment for common bacterial pathogens led repeatedly to the incorrect diagnosis of a pyogenic soft tissue infection. Furthermore, the transition of the working diagnosis to brucellosis was based on new information regarding animal exposures and undervalued the puncture wound as a likely site of inoculation. Anchoring to new information and disregarding the previous history of potential infection via direct inoculation led to the initiation of aggressive treatment for a rare and unlikely disease despite the patient demonstrating the classic presentation of another more likely condition.

Awareness of the pitfalls in clinical reasoning, such as the presence of cognitive biases, can reduce negative outcomes by imploring us to carefully consider our decision-making. Metacognition involves clinicians evaluating their thought processes in real time, reflecting on previous decisions, and improvement in future practice.

This case highlights the importance of having a thorough differential when assessing patients in urgent care settings to avoid unnecessary treatments and appropri-

Figure 3.



Resolution of initial site of inoculation and early lymphocutaneous spread.

Figure 4.



Substantial improvement in lymphocutaneous lesions on the right forearm.

Figure 5.



Near-complete resolution of the right olecranon bursitis.

Conclusion

A high degree of clinical suspicion is necessary when developing a differential diagnosis for soft tissue injuries in the urgent care setting. Classifying soft tissue lesions based on the acuity of their clinical presentation can help providers more accurately determine infectious etiologies. Sporotrichosis is the most common cause of indolent lymphangitis and should be considered in any patient with a history of penetrating wounds while working with soil or plant debris. When a patient treated for pyogenic infectious lymphangitis returns without improvement or is worse, it is important for clinicians to broaden the differential diagnosis to include uncommon etiologies that better fit the patient's presentation.

(Full written consent was obtained from the patient for publication of this case, including photographs.) ■

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ately manage infections in a timely manner.

Case Resolution

After 8 months of itraconazole treatment, the patient demonstrated slow resolution of lymphocutaneous lesions and substantial improvement in the right olecranon bursitis (see Figure 3, Figure 4, and Figure 5).

Managing Cough Without Codeine in the Urgent Care Setting

Urgent message: Opioid prescribing and opioid-related deaths have risen during the COVID-19 pandemic. Although supported in some scenarios by the CHEST Diagnosis and Management of Cough and NICE COVID-19 guidelines, it is time to reevaluate the appropriateness of using codeine in suppressing cough.

MEGAN PENNER, PHARMD and HOJUNG JANG, PHARMD CANDIDATE

Citation: Penner M, Jang H. Managing cough without codeine in the urgent care setting. *J Urgent Care Med.* 2022;17(3):46-47.

Clinical Scenario

A 54-year-old female with a past medical history of diabetes, hypertension, and depression presents to the urgent care center with congestion, nasal discharge, fatigue, and cough with symptoms starting 5 days prior to presentation. The patient is diagnosed with a viral respiratory tract infection and prescribed oral guaifenesin with codeine. The question is, are codeine-based antitussives really the safest and most efficacious agents for treating cough?

Introduction

Codeine is an opioid which exerts its antitussive effect by mediating mu and kappa opioid receptors in the medulla. Although considered a weak opioid, codeine is converted via cytochrome P450 (CYP) 2D6 to morphine and exerts its analgesic effects via this pathway. Codeine is often paired with anticholinergic and/or expectorant medications such as promethazine or guaifenesin to alleviate the symptoms of cough or related pain and congestion.

Therapies for cough are limited, with opioids and dextromethorphan being the two centrally acting antitussives, and benzonatate acting as a peripheral antitussive through local anesthetic effects. Patients often seek care after already trialing over the counter cough



suppressants.

The 2006 CHEST Diagnosis and Management of Cough guidelines recommend against centrally acting cough suppressants such as codeine and dextromethorphan for upper respiratory tract infections (URI) but endorse consideration of short-term therapy for chronic bronchitis, postinfectious cough, and other conditions if alternate agents have failed.¹ Since publication of the 2006 guidelines, CHEST has published

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additional guidelines and expert panel reports regarding cough; however, these subsequent guidelines do not address priority of antitussive therapy utilization.

Management of cough has become critical in the COVID-19 pandemic. The NICE COVID-19 guidelines recommend starting with simple measures for cough management such as consuming honey, but also recommend consideration of a short trial of codeine or morphine.²

It is important to note that these recommendations are based on consensus rather than an evidence-based framework.

Therapeutics

Because of genetic variances in CYP2D6 metabolism, patient response to codeine can be unpredictable. This metabolism and subsequent risk for respiratory depression led to the boxed warning and contraindication for use in children.³

In addition to the variable response, codeine's CYP450 activity poses risk for many drug interactions. Although less potent than other opioids, codeine still carries the typical opioid risks such as constipation, hypotension, sedation, and respiratory depression. (This "low-potency" opioid isn't looking so harmless anymore, right?)

While codeine has shown some effect on time spent coughing compared with given baseline, studies have shown no significant difference when compared with placebo. Additionally, studies have shown no significant differences in cough challenge thresholds or subjective cough measured for codeine compared with guaifenesin and dextromethorphan.^{4,5}

Although limited head-to-head comparisons have been published, the side effects of guaifenesin and benzonatate are minute compared with codeine.

Also, the formulation of codeine combined with promethazine is frequently utilized for cough suppression. This formulation is high risk for respiratory and central nervous system depression and has the associated common name of "purple drank" when being misused for recreational purposes. In addition to the additive central nervous system depression, promethazine carries the risk of anticholinergic side effects such as dry mucous membranes and sedation.

Dextromethorphan, which is structurally related to codeine, is also metabolized by CYP2D6, but exerts its antitussive effects through blockade of sigma opioid receptors rather than the mu and kappa opioid receptors which are associated with analgesia and euphoria. Dextromethorphan also acts as an antagonist at N-methyl-

D-aspartate (NMDA) receptors, which can lead to dissociation effects and hallucinations if misused. This risk escalates when paired with codeine.

Dextromethorphan also has serotonergic properties which should be considered before using for a patient with multiple serotonergic medications at baseline because of the risk of serotonin syndrome. Dextromethorphan cannot be used with a concomitant monoamine oxidase inhibitor (MAOI) or within 2 weeks of its discontinuation.

Benzonatate, a local anesthetic, is FDA-approved for cough management in adults. Side effects are rare, given its local action. Benzonatate requires a prescription.

Guaifenesin does not suppress cough, but acts as an expectorant by reducing viscosity of mucus and increasing hydration of the respiratory tract. Adverse effects with guaifenesin are also rare and usually limited to gastrointestinal irritation.

Many over-the-counter cold medications will contain multiple agents, so it is important to get a detailed history on the ingredients that have been trialed before moving on to opioid therapy. Additionally, non-pharmacologic treatments for cough such as increasing hydration, air humidification, eating 1-2 teaspoons of honey, utilizing cough drops, and breathing techniques should be used along with pharmacologic therapies.

Conclusion

Returning to the reference case: If the patient takes metformin, liraglutide, losartan, atorvastatin, escitalopram, and buspirone at home, how will this impact our medication choice? Both codeine and dextromethorphan will increase the serotonergic effect of escitalopram. Thus, guaifenesin should be trialed first to also assist with the congestion. Benzonatate could also be used. If these fail, dextromethorphan should be trialed before moving on to codeine. Although data regarding efficacy of cough suppressants are sparse, the available literature highlights the risks—and lack of benefits—of opioids. ■

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In each issue, *JUCM* will challenge your diagnostic acumen with a glimpse of x-rays, electrocardiograms, and photographs of conditions that real urgent care patients have presented with.

If you would like to submit a case for consideration, please e-mail the relevant materials and presenting information to editor@jucm.com.

A 42-Year-Old with Swelling After a Kick to the Face



Case

The patient is a 42-year-old male who presents with nose and facial swelling after being kicked in the face while wrestling with his teenage son.

View the images taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

THE RESOLUTION



Differential Diagnosis

- Fracture, anterior nasal spine
- Fracture, frontal nasal spine
- Fracture, nasal bone
- Fracture, nasal septum

Diagnosis

This patient sustained fractures of the anterior nasal spine and nasal bone.

Learnings/What to Look for

- The anterior nasal spine is a bony prominence at the intermaxillary suture located on the inferior edge of the nose at the level of the nostrils

- The anterior nasal spine is a major anatomic landmark for surgery involving the maxillofacial region, dental procedures, and in clinical nasal endoscopic sinus surgery
- Fractures of the anterior nasal spine in maxillofacial trauma are not uncommon (22%). However, the missed diagnosis rate of anterior nasal spine fractures is very high (95.4%) because this structure is often overlooked

Pearls for Urgent Care Management

- Conservative treatment is often sufficient, but open reduction and internal fixation via intraoral incision can be performed for displaced fractures

Acknowledgment: Images and case presented by Experity Teleradiology (www.experityhealth.com/teleradiology).



A 32-Year-Old with Fever, Cough, Arthralgia, and Photophobia



Case

A 32-year-old immunocompetent male presents with fever, cough, arthralgia, and photophobia for a few days. On examination, he had a temperature of 100°F (37.8°C) and conjunctival injection. There was a widespread erythematous macular rash on his wrist.

When asked about travel, the patient mentioned that he recently visited his family in the Dominican Republic. During his travels, he drank local water and sustained a few mosquito bites. His symptoms began approximately 4 days after his return home.

View the photo taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

THE RESOLUTION

**Differential Diagnosis**

- Dengue fever
- Influenza
- Chikungunya
- Leptospirosis

Diagnosis

This patient was diagnosed with chikungunya, an arthropod-borne alphavirus endemic in sub-Saharan Africa, Southeast Asia, Indonesia, the Philippines, and India. Additionally, since 2013 it has been reported in the Caribbean—especially the Dominican Republic. The typical clinical presentation is fever and joint pain. The incubation period is usually 3 to 7 days; however, it can be anywhere from 1 to 14 days.

Learnings/What to Look for

- Symptoms include 7-10 days of fever, chills, arthralgias, rash, myalgias, headache, and photophobia
- Arthralgias are typically migratory, symmetrical, polyarthralgia of the small joints lasting weeks to months
- Macular/maculopapular rash may develop on the trunk and extremities and, occasionally, the palms, soles, and face. Flushing of the face and trunk may also be seen
- Rarely, mucosa and gastrointestinal hemorrhage may occur; this is more likely in children

Pearls for Urgent Care Management

- Rest, fluids, and anti-inflammatory and analgesic agents may provide symptom relief
- Instruct patients to avoid aspirin until dengue can be ruled out to reduce risk for bleeding

Acknowledgment: Images and case presented by VisualDx (www.VisualDx.com/JUCM).



A 79-Year-Old Male with Left Shoulder Pain and a History of Hypertension and CAD

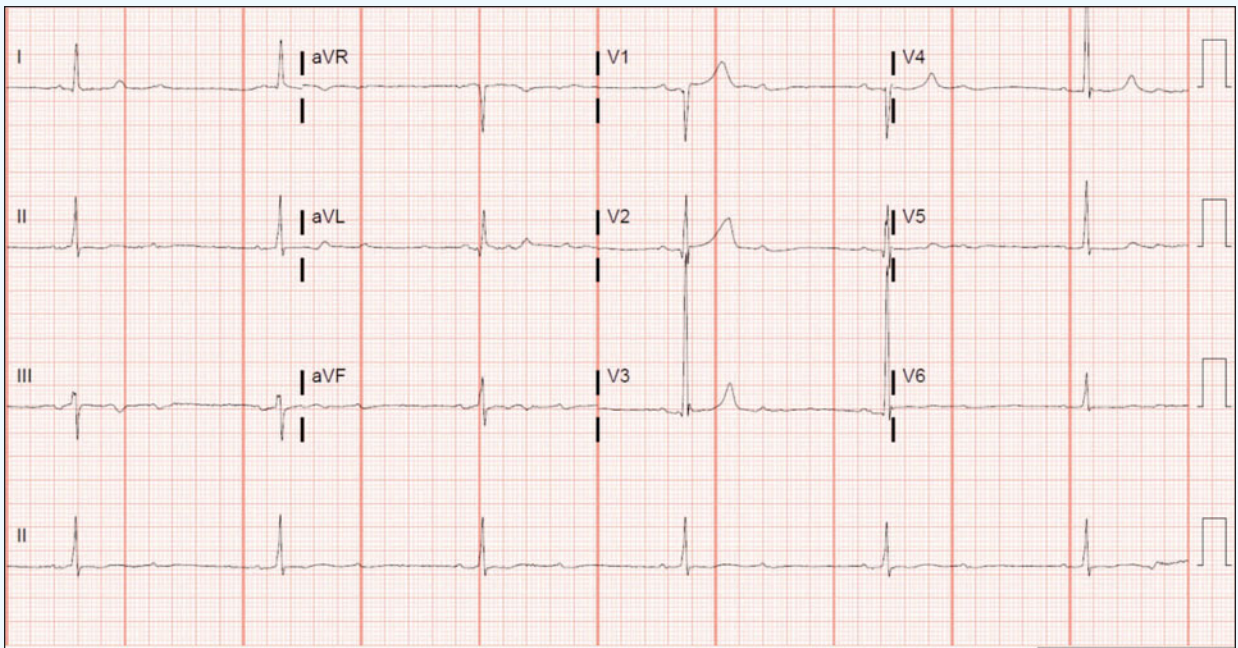


Figure 1. Initial ECG

A 79-year-old male with past medical history of hypertension and coronary artery disease presents to urgent care with left shoulder pain that is worse with movement. He reports intermittent nausea and vomiting, but denies dizziness, chest pain, shortness of breath, or history of trauma.

View the ECG taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

(Case presented by Catherine Reynolds, MD, McGovern Medical School at UTHealth Houston Department of Emergency Medicine.)

THE RESOLUTION

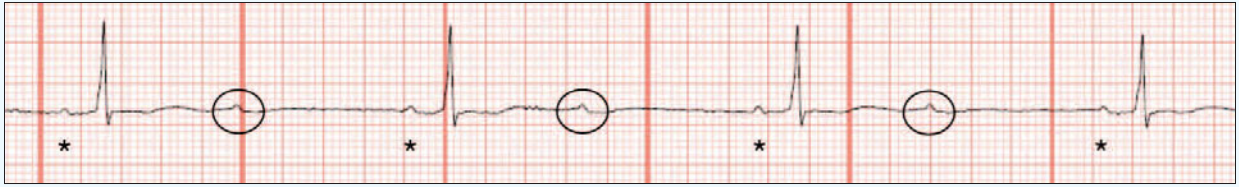


Figure 2. 2:1 AV block. Conducted P waves are designated with a circle while asterisks designate nonconducted P waves.

Differential Diagnosis

- Sinus bradycardia
- First-degree atrioventricular block
- Second-degree atrioventricular block, 2:1 conduction
- Second-degree atrioventricular block, Mobitz type I (Wenckebach)
- Second-degree atrioventricular block, Mobitz type II
- Complete heart block

Diagnosis

This patient was diagnosed with a second-degree atrioventricular block, 2:1 conduction. The initial ECG shows a ventricular rate of 36 BPM, with an atrial rate of 72 BPM. There are more P waves than QRS complexes, indicating the presence of an atrioventricular block.

In this case, there are always two P waves for each QRS complex (Figure 1 and Figure 2).

Careful analysis of the rhythm reveals that P waves are conducted in a 2:1 ratio, with every other P wave “dropped,” or fail-

“When AV block occurs in a 2:1 ratio, it is impossible to distinguish between Mobitz I and Mobitz II; therefore, 2:1 AV block is simply referred to as ‘2:1 AV block.’”

ing to conduct through the atrioventricular (AV) node. When P waves are conducted but intermittently dropped, it is referred to as second-degree AV block, which comes in two varieties: Mobitz I (or Wenckebach) and Mobitz II.

Mobitz I occurs when conduction is progressively delayed through the AV node and eventually fails. It is represented by progressively prolonging PR intervals followed by a dropped P wave. It does not always represent pathology, particularly when seen in younger or physically fit individuals with high vagal tone.

Mobitz II occurs when the infranodal conduction system intermittently fails, resulting in intermittently dropped P waves

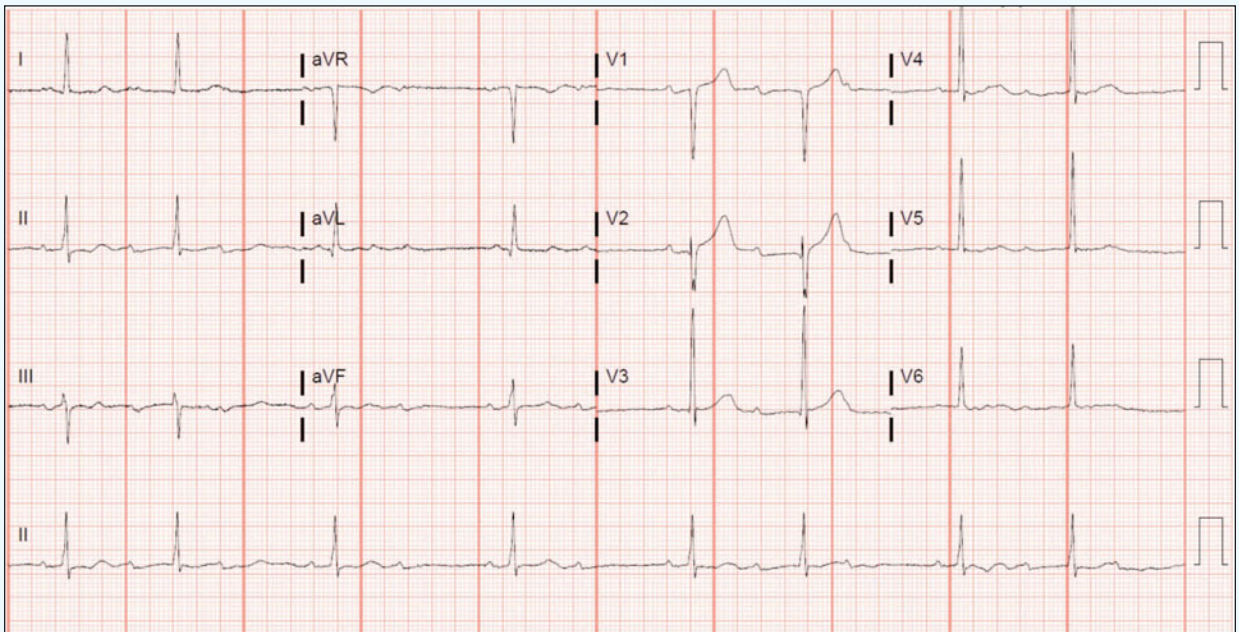


Figure 3. Repeat ECG

THE RESOLUTION



Figure 4. Ovals designate the progressively prolonging PR interval until a ventricular beat is dropped. The nonconducted P wave is indicated by the asterisk.

but consistent PR intervals when conducted. Mobitz II usually occurs with preexisting conduction disease (eg, combination of bundle branch and fascicular blocks), is always pathologic, and is more likely to progress to complete heart block.

When AV block occurs in a 2:1 ratio (Figure 2), it is impossible to distinguish between Mobitz I and Mobitz II; therefore, 2:1 AV block is simply referred to as “2:1 AV block.”

When the QRS is narrow, as in this case, Mobitz I is more likely; however, it is prudent to assume the worst scenario (ie, Mobitz II) and transfer for an electrophysiology study and/or pacemaker placement unless more information suggests otherwise.¹⁻³

In this case, another ECG was performed after a short period of time, which revealed Mobitz I conduction (Figure 3 and Figure 4).

In Figure 3, there are periods of 3:2 block, where the PR interval prolongs before the QRS is dropped. This confirms the diagnosis of second-degree atrioventricular block, Mobitz type I (Wenckebach). This is illustrated again in Figure 4.

Although Mobitz I is often benign, this patient is 79 years old with known coronary artery disease and is symptomatic with nausea and vomiting. Therefore, he was transferred for pacemaker placement.

Learnings/What to Look for

- The presence of more P waves than QRS complexes should prompt consideration of an atrioventricular block
- In general, a first-degree AV block and second-degree Mobitz I block are unlikely to progress to complete heart block, especially in young and healthy patients
- It is impossible to distinguish between Mobitz I and Mobitz II with a fixed 2:1 ratio. Serial ECGs may help make the diagnosis
- With a fixed 2:1 AV block, it is safest to assume Mobitz II due to its high risk of progression to third-degree AV block

“In a young patient, first-degree AV block is likely a benign finding. It may, however, represent serious pathology in an older patient with known heart disease and/or with preexisting conduction disturbances.”

Pearls for Initial Management and Considerations for Transfer

- Consider patient demographics when analyzing AV nodal blocks; in a young patient, first-degree AV block is likely a benign finding. It may, however, represent serious pathology in an older patient with known heart disease and/or with preexisting conduction disturbances
- Patients with 2:1 AV block should be transferred to a facility capable of pacemaker placement

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Case courtesy of ECG Stampede (www.ecgstampede.com).

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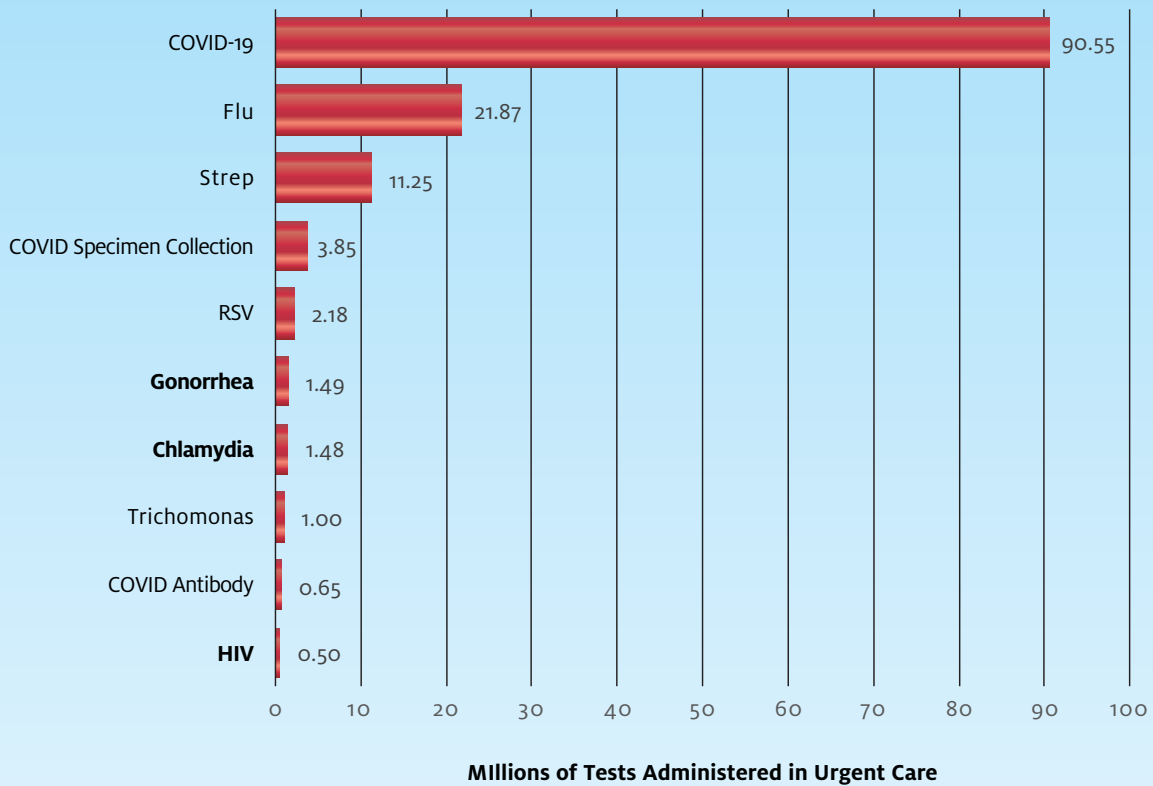
STIs Are Epidemic in the U.S.—but How Many of Those Patients Are Going to Urgent Care?

If you read this issue's cover article on how important urgent care is in fighting the current surge of sexually transmitted infections in the United States, you know that we are in the midst of an STI epidemic. (And if you didn't read it, you should turn to page 15 to do so after you're done here.)

Sure, there have been demographic shifts in healthcare preferences; more Americans than ever (especially in the younger

generational groups) are disinclined to establish traditional primary care relationships. But it's also true that the need for urgent care centers has intensified because many formerly busy STI-dedicated clinics are no longer in operation. So, urgent care it is. As you'll see in the graph below, three STIs rank among the top 10 tests administered in the urgent care setting. ■

WHERE STIs FALL AMONG THE TOP 10 TESTS ADMINISTERED IN URGENT CARE, 2021



Source: 2021 JUCM Chart Audit Research.



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