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URGENT CARE ASSOCIATION

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CLINICAL cme

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The Value of Vitals – Part I

Recently, a PA I supervise called me about a young woman who came in for hematemesis and melena at home. The provider, let's call him Tom, told me that the patient had normal vital signs, but he thought she should still go to the ED.

I could sense some reluctance in his voice though. It was probably because the patient was just 32 years old and looked well. Understandably, Tom was conflicted, so he called me. I could only interpret the situation through his account.

"So, she's been vomiting blood and has black stool?" I asked.

"That's what she told me," Tom said, "and it looked like melena when I did a rectal."

There seemed to be a disconnect between the patient's appearance and her history and exam. I realized we needed more data. I asked Tom to repeat her vital signs while standing. He called me back 5 minutes later.

"She got hypotensive and nearly passed out," Tom said. "EMS is on the way."

In the hospital, the patient required a transfusion and underwent emergent endoscopy at which time a bleeding ulcer was identified and cauterized. She survived, but her course may have been much rockier had Tom sent her home or even to the ED by private vehicle.

Collecting vitals is a routine part of urgent care practice, but it's also fundamental—like blocking and tackling in football. While focusing on vitals may seem mundane, they can make a major difference in how we keep our patients safe.

This is the first of several pieces to come that will examine our approach to vital signs and how we integrate them into UC practice.

Patients presenting to urgent care are usually relatively healthy and have minor illnesses or injuries. And we do an excellent job of caring for the vast majority of these patients definitively. For these patients—the stubbed toes and sore throats—one set of vitals is usually plenty. This is good because we need to move through such patients quickly to meet their expectations and manage flow. However, it's this pressure for efficiency and rapid decision-making with limited data that makes paying attention to vital signs that much more, well, *vital*.

Patients do not necessarily self-triage appropriately and, though ambulatory, may present to UC with early signs of serious illness. Finding the metaphorical needle in the haystack is challenging, especially when hurried and fatigued.

To reduce the risk of missing dangerous diagnoses, it's important to develop a habit of running through several checkpoints when evaluating every patient: reviewing the MA's note and prior visits, for example. Atul Gawande advocates for this approach in his treatise, *The Checklist Manifesto*.[1] He argues that a sequential routine of checkpoints for every patient will train habits to ensure critical steps aren't missed. This is how the airline industry has created such an astounding track record of safety.

Consciously or unconsciously, habits arise automatically based on our routines. Hans Mesmer famously said, "Habits are like masters we can't see." Since we all develop a habitual clinical approach, it's worth choosing these "masters" with intention. After a few months, these intentions are no longer required; the behaviors become automatic. It no longer takes effort to "remember" to check your patient's past visits, for instance, if you've practiced doing it every time.

Perhaps the most important habit, however, is ensuring that there is a complete, plausibly accurate, *and* reasonably normal set of vital signs for every patient before they're discharged.

For many patients, the value of complete vital signs is, admittedly, questionable. You'd be hard pressed to convince me that checking the temperature of a 16-year-old with an ankle sprain would meaningfully affect management. However, this doesn't mean we should be checking vitals less routinely.

In fact, checking vitals on every patient offers a number of benefits for both patients and clinicians.

First, collecting vital signs is a very safe and noninvasive way of making patients feel cared for. Patients generally report feeling comforted by appropriate physical touch from healthcare providers and checking vitals provides a universal opportunity for this.[2,3]

More specifically, checking vitals also is an effective way to screen for hypertension (it's called the silent killer for a reason). Most importantly, the value of vital signs, or lack thereof, can only be determined *after* evaluating the patient.

In other words, we can't prospectively determine if one or more of the vital signs is unnecessary and/or irrelevant.

Let's consider a common example. Imagine you are caring for a well-appearing 7-year-old with a fever and cough. Your clinical gestalt suggests that this is a viral URI and not pneumonia. If the patient's oxygen saturation is 99%, you might think, "Well, I didn't need that data because I knew the child had a URI." However, if the oxygen saturation were 87%, you'd (hopefully) reconsider your impression.

We can't be sure when vitals will prove useful or impact management until we have already reviewed them and integrated them into our clinical impression. Furthermore, we certainly cannot expect our medical assistants to determine which patients do (or don't) require a full set of vitals.

Clinical assessment in UC is a hard task. We see many patients every shift, most of whom we've never met before and for whom we have little objective data available to guide us. Getting a reliable set of vital signs on every patient quickly provides a tremendous amount of information about the patient's clinical status, with no additional cost or risk. And, when vitals are normal, it bolsters the confidence with which we can reassure those that we care for that they're alright. But not always.

Sometimes one set of vitals, even if normal, isn't enough—as was the case with the young woman Tom saw with the GI bleed. There are occasions when rechecking the vitals proves critical for capturing patients at high risk for bad outcomes. And we'll discuss in which cases we'd be wise to recheck vitals next time.

Joshua W. Russell, MD, MSc, FCUCM, FACEP
Editor-in-Chief, *JUCM, The Journal of Urgent Care Medicine*
Email: editor@jucm.com • Twitter: @UCPracticeTips

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CLINICAL

IN THE NOVEMBER ISSUE OF *JUCM*

As autumn plods along and ultimately gives way to winter, you can expect to see an increase in patients presenting with various respiratory complaints. Many are likely to require antibiotics (though probably not as many as will request them), to the point that cold and flu season could just as easily be dubbed antibiotics season. With that in mind, the November issue of *JUCM* will feature several articles devoted to the appropriate use of antibiotics for not just respiratory concerns but also skin and soft tissue infections.

DEPARTMENTS

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EDITOR-IN-CHIEF
Joshua W. Russell, MD, MSc, FCUCM, FACEP
editor@jucm.com

EXECUTIVE EDITOR
Harris Fleming
hfleming@jucm.com

SENIOR EDITOR, PRACTICE MANAGEMENT
Alan A. Ayers, MBA, MAcc

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Ivan Koay, MBChB, FRNZCUC, MD

CONTRIBUTING EDITOR
Monte Sandler

SENIOR ART DIRECTOR
Tom DePrenda
tdeprenda@jucm.com

BRAVEHEART PUBLISHING

11 E Sundial Circle, Carefree, AZ 85377-5156

PUBLISHER AND ADVERTISING SALES
Stuart Williams
swilliams@jucm.com • (480) 245-6400

CLASSIFIED AND RECRUITMENT ADVERTISING
Carissa Riggs
carissa.riggs@communitybrands.com • *(860) 926-3498*

Mission Statement
JUCM The Journal of Urgent Care Medicine (ISSN 19380011) supports the evolution of urgent care medicine by creating content that addresses both the clinical practice of urgent care medicine and the practice management challenges of keeping pace with an ever-changing healthcare marketplace. As the Official Publication of the Urgent Care Association and the College of Urgent Care Medicine, *JUCM* seeks to provide a forum for the exchange of ideas regarding the clinical and business best-practices for running an urgent care center.

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With the ongoing emphasis on curbing unnecessary prescriptions for antibiotics in urgent care and other settings, it could be easy to forget that there are times when it really does make sense to prescribe prophylactically. Opting not to do so could have ramifications for patient outcomes, but also put you at risk legally.

Such is the case at the center of this issue's cover article. A Legal Quandary: A Diagnosis of Cellulitis...That Isn't recounts the tale of a "fight bite" that did *not* show signs of infection at the time of presentation. Thanks in part to the sketchy details the patient provided at the time, the treating provider formed an insufficient differential diagnosis and left themselves open to an eventual lawsuit by opting not to prescribe an antibiotic. Turn to page 11 to see how it turned out, and to page 9 to earn CME credits for your time.

We appreciate authors **Michael Weinstock, MD; Gabby Gostigian, MD;** and **Matthew Delaney, MD** explaining the nuances of what at first glance appeared to be a simple case. Dr. Weinstock is an emergency medicine attending physician with Adena Health System; director of research and CME, Adena Health System; professor of emergency medicine, adjunct, The Wexner Medical Center at The Ohio State University; and senior editor, clinical content for *JUCM*. Dr Gostigian is affiliated with the Department of Emergency Medicine at the University of Alabama at Birmingham, where Dr. Delaney is associate professor and director of educational innovation.

Another decision than might be more complicated than it first appears: where to refer a patient who clearly requires care beyond the scope of urgent care. For patients who are likely to need surgery after presenting with back and neck pain, the options boil down to orthopedic surgeons and neurosurgeons. Your recommendation as an urgent care provider could have a lot of influence on the patient's eventual outcomes, so an informed perspective would be helpful to all concerned. You can glean valuable insights from Where Should I Refer My Spinal Patient? Outcomes with Orthopedic and Neurosurgeons for Common Neck and Back Procedures (page 29) by **Rami Musleh, PA-C; Angela Blagojevski, MPAS, PA-C; Randy Brush, MS, PA-C;** and **Jessica Bruskoski, MS, PA-C.** The authors are all affiliated with the Valparaiso University PA program.

Urgent care providers have been stressing the safety of COVID-19 vaccine since their approval. And by and large they've had a stellar safety profile. As with all vaccines, however, there is a risk that a given patient may experience a reaction that's out of the ordinary. In reading Bullous Pemphigoid Reaction After the Second Dose of COVID-19 Vaccine (page 15), by **Amanda dos Santos, MD** and **Michael Pallaci, DO, FACEP, FACOEP**, you'll find that the timing of vaccinations may have a correlation to the likelihood of adverse reactions.

Dr. dos Santos is an emergency medicine resident at Summa Health Systems, where Dr. Pallaci is medical director, Virtual Care Simulation Lab and core faculty in the Emergency Medicine Residency program. He is also professor of emergency medicine at Northeast Ohio Medical University and adjunct clinical professor of emergency medicine at Ohio University Heritage College of Osteopathic Medicine.

This issue's practice management feature article concerns another initiative intended to keep the public safe, albeit in a much more expansive way—and one that could prove to be very good for your business at the same time. In DOT Physicals and Urine Drug Testing Represent a Growth Opportunity for Urgent Care Centers (page 19), **Alan A. Ayers, MBA, MAcc**, lays out what the Department of Transportation requires of truck drivers when it comes to physical exams and drug testing, among other things. There's no reason your urgent care center couldn't be an integral part of the effort. Mr. Ayers is president of Experity Consulting and senior editor, practice management for *JUCM*.

As always, we want to help you keep up to date with relevant topics published elsewhere. In this month's Abstracts in Urgent Care column (page 24), **Ivan Koay MBChB, FRNZCUC, MD** shares new information on Achilles tendon rupture, the predictive value of Seamens' Sign, physical therapy and meniscus tears, managing acute coronary syndrome in rural areas, how often it's advisable to follow up on radiology recommendations, and possible links between syncopal episodes and motor vehicle accidents. Dr. Koay is an urgent care physician as well as an examiner with the Royal New Zealand College of Urgent Care; education faculty for the RCSI Fellowship of Urgent Care Medicine; and head of faculty na hÉireann RNZCUC.

Finally, we thank **Monte Sandler** for ensuring we're up to date on the latest ICD-10-CM codes. His Revenue Cycle Management column begins on page 46. Mr. Sandler is chief operating officer at Experity. ■

Call for Peer Reviewers

In every issue of *JUCM*, there are select articles on which we ask members of our peer review panel to comment. It's one step we take in trying to ensure that all the content we publish is relevant, clearly communicated, and free of bias. We're grateful for their contributions.

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The Lies We Tell Ourselves

LOU ELLEN HORWITZ, MA

My full-time job involves thinking about you all day, in one form or another. What your challenges are, what you need us to be doing for you, are you going to like the things we are working on, and so forth. One of those forms is also thinking about what can hurt you—hurt *us*—and what we can do to avoid that.

Typically those thoughts are about other folks "coming after" our industry. There's a pretty long list, across a pretty long timeline—starting with retail clinics back in the early 2000s. As I am very fond of saying, Urgent Care is harder than it looks from the outside, and we seem to be moving out of the most recent target zone as we've seen another round of innovators trying to do what urgent care does and struggling mightily.

The other line of thinking about what's going to hurt us, is actually about us, so it's time for some tough love.

I was at a symposium this past weekend which featured a lot of speakers on some pretty cool healthcare tech, but it wasn't the tech presentations that kept me up at night. The two people who really threw me for a loop were an Urgent Care insider and someone from inside a health system. The first concern was about metrics and the second about change management.

I realize these are not inherently scary topics, so let me explain.

In Urgent Care we *think* we like metrics. We like NPS and door-to-door times and antibiotic prescription rates. The new tech kids like data too, and data are a key cornerstone of strategies to create equity in healthcare. It's all around us—except when it isn't. How many times have you heard (or said), "Urgent Care volumes are almost completely unpredictable. That's why it's so hard to staff appropriately"? I hear it all the time—from single-site to triple-digit-site organizations. It's become "conventional wisdom" about Urgent Care operations.

You know what they say about Conventional Wisdom? It is often more convention and less wisdom. And this got brought home to me 10x during the presentation by a leader from a large, well-established, successful Urgent Care chain last weekend.

"We get so excited about this great new thing we are finally ready to roll out and we forget that the people who have to implement it are hearing about it for the first time."

Essentially his entire time with us was spent questioning assumptions that are currently espoused across many, many, many centers in this country—including within his own organization. It will not surprise you to hear that with the right lens and your existing data and the complete trashing of your assumptions you can predict volumes easily—even after "the COVID effect." I almost fell out of my chair because it was so simple, but almost no one is doing it.

The second tipping point moment for me was when a health system leader reiterated something an Uber Health speaker had said the day before (my paraphrase): Virtually all success (or lack thereof) is ultimately about how good you are at change management. This is a lesson I have learned myself a thousand times and I still forget it—and it's a muscle that I think we could develop more in Urgent Care. We get so excited about this great new thing that we are finally ready to roll out and we forget that the people who have to implement it, or our customers, are hearing about it for the very first time—so we inadvertently rush things and when we eventually look back at the seats on our innovation bus...they are empty. Everyone who should be in those seats is a few miles back trying to ask a question that we can no longer hear.

There is a phrase made popular by comic strip artist Walt Kelly and his character Pogo Possum in 1970: "We have met the enemy and he is us." It was a summary of mankind's tendency to create our own problems—and "conventional wisdom" is certainly a modern version of that. Let's stop that tendency in its tracks, shall we, and recommit to looking harder at our assumptions before we continue to operate as if they are true.

You can imagine how excited I was to reach out to the team working on our 2023 educational content as soon as I got home. ■

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

CONTINUING MEDICAL EDUCATION

Release Date: October 1, 2022
Expiration Date: September 30, 2023

Target Audience
This continuing medical education (CME) program is intended for urgent care physicians, primary-care physicians, resident physicians, nurse-practitioners, and physician assistants currently practicing, or seeking proficiency in, urgent care medicine.

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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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- **Alan A. Ayers, MBA, MAcc**

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CONTINUING MEDICAL EDUCATION

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A Legal Quandary: A Diagnosis of Cellulitis...That Isn't (page 11)

1. **Damage and infection to deep structures with closed-fist injury (CFI) cases can be attributed to:**
   a. The relatively thin skin on the dorsal surface of the knuckles
   b. Delay in presenting for assessment and care on the part of the patient
   c. Mechanism of injury
   d. All of the above

2. **Tendons with up to 80% disruption may exhibit:**
   a. Near-typical flexibility
   b. Roughly 20% of the strength of the uninjured hand
   c. Symmetric strength, compared with the uninjured hand
   d. None of the above

3. **The most common species involved in infected human bites, in descending order of occurrence, are:**
   a. *Eikenella*, *Streptococcus*, and *Staphylococcus*
   b. *Streptococcus*, *Staphylococcus*, and *Eikenella*
   c. *Staphylococcus*, *Eikenella*, and *Streptococcus*
   d. *Eikenella* has not been shown to be among the top three organisms involved in infected human bites

Bullous Pemphigoid Reaction After a Second Dose of COVID-19 Vaccine (page 15)

1. **According to the Centers for Disease Control and Prevention, rare life-threatening reactions to COVID-19 vaccination (such as anaphylaxis) have been reported in:**
   a. 1 in 1 million injections
   b. 5 in 1 million injections
   c. 12 in 1 million injections
   d. 17 in 1 million injections

2. **Diagnosis of bullous pemphigoid reaction after COVID-19 vaccine is made:**
   a. Via histologic evidence of eosinophilic spongiosis or subepidermal detachment, IgG, and/or C3 deposition along the basement membrane
   b. Clinically
   c. Through analysis of skin scrapings
   d. All of the above

3. **Treatment of severe or refractory cases of bullous pemphigoid reaction after COVID-19 vaccine usually involves:**
   a. High-dose topical steroids
   b. Systemic steroids
   c. Immunosuppressants
   d. All of the above

DOT Physicals and Urine Drug Testing Represent a Growth Opportunity for Urgent Care Centers (page 19)

1. **Which of the following helps companies with a workforce insufficient to comply with mandatory random drug screening (ie, fewer than 49 employees)?**
   a. "Pool" their employees in a consortium with other companies
   b. File a request for an exemption from the state or federal agency imposing the requirement
   c. "Relocate" the official business address to a state that does not require random drug screening
   d. None of the above is an option

2. **Nationally, what proportion of employers not covered by Department of Transportation regulations require drug testing for their employees?**
   a. 10%
   b. 16%
   c. 25%
   d. Only DOT employers require drug testing at this time in the United States

3. **In the trucking industry, drug screenings take place:**
   a. Randomly
   b. During the onboarding process for new hires
   c. To establish whether a driver is fit to return for duty after an absence or leave
   d. All of the above

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A Legal Quandary: A Diagnosis of Cellulitis…That Isn't

Urgent message: Failure to consider subtleties and the context in which a patient presents can lead to insufficient differential diagnoses and missed diagnoses that leave the patient at risk for poor outcomes and the provider at risk for litigation.

MICHAEL WEINSTOCK, MD; GABBY GOSTIGIAN, MD; and MATTHEW DELANEY, MD

Introduction

Cellulitis from a wound infection in the urgent care is common, and so is our management: wound care and antibiotics. But consider a scenario in which a patient presents *before* the onset of infection and when prophylactic antibiotics need to be focused on a specific causative organism.

The Medical Case

A 23-year-old man presented with injuries to his hands after an altercation. The patient was seen and examined with documentation of contusions and lacerations but without evidence of erythema or purulence; there was no documentation of an infection present.

The patient was not prescribed antibiotics, but curiously was instructed to see an orthopedist the following morning. When the patient presented to the orthopedist the next morning, he was prescribed cephalexin for an infection, which continued to worsen.

He returned to the same orthopedist 3 days later and did not have a change in management but was referred to a hand specialist. Unfortunately, the patient did not follow through with this appointment.

Closed-Fist Injuries/"Fight Bite"

The key to diagnosing and managing a closed-fist injury (CFI) is to think about the diagnosis for all lacerations over the dorsal surface of the metacarpal joints. Even in a situation where a patient offers an alternative explanation for their injury, the clinician needs to keep a high degree of suspicion.

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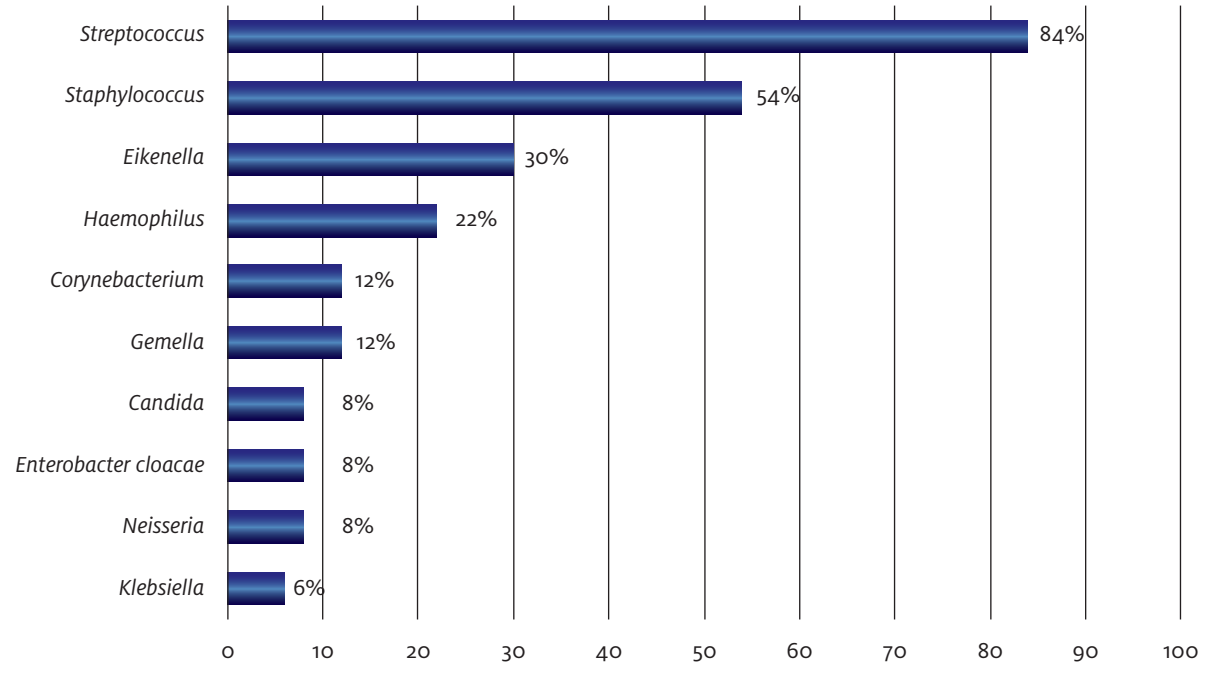
Identification of CFIs is important, given the high risk of associated damage to deep structures due to the relatively thin skin on the dorsal surface of the knuckles; approximately 75% of cases have associated injury to underlying tendon, joint capsule, cartilage, and bone.[1]

Initial exam should take place after adequate pain control and hemostasis is achieved. Range-of-motion and strength testing should be performed to assess for

Author affiliations: Michael Weinstock, MD, Adena Health System; The Wexner Medical Center at The Ohio State University. **Gabby Gostigian, MD,** University of Alabama at Birmingham. **Matthew Delaney, MD,** University of Alabama at Birmingham. The authors have no relevant financial relations with any commercial interests.

Figure 1. 10 Most Common Species Involved in Infected Human Bites



Adapted from Talan DA, Abrahamian FM, Moran GJ, et al. *Clin Infect Dis.* 2003;37(11):1481-1489.

underlying tendon injury. However, tendons with up to 80% disruption may still exhibit symmetric strength when compared with the uninjured hand.[2]

When examining the injury, the margins of the laceration may need to be extended to allow for better visualization of underlying structures. These structures should be examined with the interphalangeal and metacarpophalangeal joints in the flexed position because tendon injuries may be missed as they retract proximally when the hand is unclenched.

In addition to a through physical exam, radiographic imaging should be obtained to assess for fractures, foreign bodies, or intraarticular air that would suggest penetration of the underlying joint.[3] Any evidence of or suspected damage to underlying structures warrants immediate consultation with a hand specialist.

Wound care of CFIs should be performed similarly to that of any other animal bite to the hand. CFIs should be adequately cleaned, debrided, and irrigated to optimize outcomes and prevent infections.

Irrigation is one of the mainstays for decontaminating bite wounds and is associated with up to fivefold decrease in rates of infection.[4-6] Given the high rate of infection, CFIs should not be closed primarily but instead left open with a bulky dressing and splinted in a position of function.[1,7-13] CFIs require reevaluation within 1-2 days of initial presentation to monitor for evidence of infection due to high rates of osteomyelitis (39%), septic arthritis (29%), and tenosynovitis (26%).[7]

Ideally, the patient would follow up with a hand specialist but at a minimum they should be re-evaluated so that any potential complications could be referred appropriately.

In addition to close follow-up, these patients require prophylactic antibiotics for 3-5 days.[7,9-11,13-18] Infections from a CFI are often polymicrobial, with a mix of aerobic and anaerobic organisms.

The most common species involved in infected human bites include *Streptococcus* (84%), *Staphylococcus* (52%), and *Eikenella* (30%).[19] (See **Figure 1**.) The most common prophylactic monotherapy includes amoxicillin/clavulanate or moxifloxacin.[9,10,12,14-16,18,20,21] Alternative regimens include combining doxycycline, metronidazole, or clindamycin with either trimethoprim/sulfamethoxazole or ciprofloxacin.[14,15,18,20,21]

The Outcome

When the patient did return, he had an extensive infection from his fight bite/CFI which required surgery and antibiotics. The patient was left with scarring from his little finger across the palm into the forearm. A lawsuit was filed.

The Legal Case

Allegations from the Plaintiff

Predictably, the plaintiff's allegation was that the standard of care for a human bite wound was not met:

1. Antibiotic prophylaxis needs to be directed toward causative organisms, including *Eikenella corrodens,* a common organism found in oral flora. This was not done.
2. Follow-up was not accessible.
3. Permanent scarring and loss of function would have been avoided with proper care and follow-up.

Arguments from the Defense

The defendant was not aware that the patient's injuries were from a human bite wound. Though they documented that they were the result of an "altercation," it was not revealed that this altercation involved a punch to the mouth and a "closed-fist injury."

1. A culture was done at the initial examination and revealed strep, a common skin organism which did not require antibiotic prophylaxis.
2. Cephalexin was the correct antibiotic for a diagnosis of cellulitis.
3. The patient did not take the cephalexin as prescribed.
4. The patient said he filled the prescription, but the pharmacy did not have a record of it being picked up.

The Legal Decision

The case proceeded to trial. A verdict was returned for the defense.

Lessons Learned

How can we use this unfortunate case to improve diagnosis and management at the bedside in urgent care?

1. Consider the mechanism of injury. A laceration over a knuckle is a fight bite until proven otherwise.
2. When a patient has a suspected closed-fist injury, take extra steps to get an accurate history. This may include discussing potential complications, asking to speak with their friends and family, and assuring them that whatever they say will be kept confidential.[22]
3. Document that you considered closed-fist injury for lacerations over the metacarpophalangeal joints even if the patient continues to deny this mechanism of injury.
4. The antibiotic prophylaxis for a fight bite/closed-fist injury is different than that for normal skin infections: cover for *Eikenella corrodens* with amoxicillin/clavulanate.
5. Even with appropriate management and timely follow-up, there may still be an adverse outcome. Ensure that the patient and family/friends are aware of this and that it is documented in the chart.
6. Ensure that the patient knows the potential for progression of disease.
7. Document an action and time-specific recommendations for follow-up. ■

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The case described in this article was discussed on the HIPPO podcast: Urgent Care Reviews and Perspectives (UC RAP) by Michael Weinstock and Matthew Delaney in March 2020. It will be discussed further in an an upcoming UC MAX podcast.

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Case Report

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See **CME Quiz Questions** on page 9.

Bullous Pemphigoid Reaction After a Second Dose of COVID-19 Vaccine

Urgent message: Throughout the COVID-19 pandemic, unvaccinated people have shown higher rates of morbidity and mortality in comparison with those who are fully immunized. While most vaccination adverse reactions are mild and self-resolving, it is important to consider the timeline of vaccinations to correlate possible adverse reactions.

AMANDA DOS SANTOS, MD and MICHAEL PALLACI, DO, FACEP, FACOEP

Introduction

The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) pandemic continues to affect all aspects of our society and its end seems illusory as we continue to have intermittent outbreaks. Most recent variants reinforced the importance of vaccination against coronavirus disease (COVID) as severe cases have almost exclusively affected the unimmunized. With over 12 billion doses administered worldwide,[1] vaccines against COVID have proven to be safe and effective.

According to the Centers for Disease Control and Prevention, rare life-threatening reactions such as anaphylaxis have been reported in 5/1,000,000 injections, most often occurring in people with history of severe allergies; no deaths due to anaphylaxis have been reported, however.[2] Although the Vaccine Adverse Event Reporting System (VAERS) has received death reports days to months after the vaccination, thorough investigation has failed to prove correlation.[3] In comparison, over 6 million deaths have been directly linked to acute coronavirus infection.[1]

Nevertheless, as with any pharmaceutical treatment, mRNA vaccines have shown mild adverse reactions. Commonly reported side effects after the mRNA vaccines available in the United States—Pfizer-BioNTech BNT162b2 and Moderna mRNA-1273—include injection site pain, cutaneous reactions, generalized fatigue and weakness, myalgias, headache, chills, and fever. These symptoms tend to be minor and temporary, with a small fraction of patients requiring hospitalization (0.25% in an earlier study).[2,4]

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Cutaneous reactions are commonly observed after viral infections and immunizations.[5] Here, we present

Author affiliations: Amanda dos Santos, MD, Summa Health System. **Michael Pallaci, DO, FACEP, FACOEP,** Summa Health System; Northeast Ohio Medical University; Ohio University Heritage College of Osteopathic Medicine. The authors have no relevant financial relationships with any commercial interests.

Figure 1. Bullous pemphigoid rash at ED presentation.

an uncommon case of bullous pemphigoid (BP) associated with the second dose of the Pfizer-BioNTech vaccine.

Case Report

A 79-year-old man with history of insulin-dependent type II diabetes, end-stage renal disease on hemodialysis, hypertension, and coronary artery disease presented with a 4-week history of rash. It began on his right arm the day after receiving the second dose of the Pfizer-BioNTech vaccine, and then quickly became generalized. He described it as itchy but nontender "sores filled with water." Beside the COVID-19 vaccine, he denied any new medications, triggers, or exposures and had never had a similar rash. He had seen a dermatologist for the rash and despite adherence to prescribed doxycycline, prednisone, niacinamide, hydroxyzine and topical triamcinolone for the preceding 4 weeks, the blisters continued to grow and spread, impairing his ability to perform basic activities such as dressing, bathing, sitting, or lying down.

Physical exam revealed a chronically ill appearing gentleman with diffuse firm and flaccid bullae throughout his trunk, upper and lower extremities, head, face, feet but sparing the palms, soles, and mucous membranes (**Figure 1**).

Blood work did not show leukocytosis or elevated inflammatory markers. He was treated with 10 mg IV dexamethasone and admitted for a rituximab infusion. After one infusion of 1,000 mg of rituximab, he reported almost instantaneous symptomatic relief as the blisters began to subside.

A punch biopsy revealed pathological evidence of subepidermal blisters with eosinophils, immunoreactivity against C3 complement, and immunoglobulin IgG in a linear fashion along the basement membrane; thus, he was diagnosed with BP due to a drug eruption. He was discharged home on hospital day 2 with recommendation to continue prior treatments and outpatient follow-up.

However, the initial improvement was temporary and the blisters restarted days later. He underwent a second infusion of the monoclonal antibody 1 month later, and over the following 3 months the patient completed multiple courses of oral steroids, doxycycline, niacinamide, hydroxyzine, and triamcinolone ointment with significant improvement.

Unfortunately, 6 months after his initial symptoms (4 months after his first rituximab treatment) the patient died of refractory septic shock secondary to pneumonia.

Discussion

The SARS-CoV-2 pandemic has most severely impacted the elderly and those with medical comorbidities, who also experienced more vaccine reactions, albeit at lower rates and severity than COVID itself.

BP is an autoimmune cutaneous reaction characterized by tense pruritic blisters secondary to hemidesmosomes destruction. The autoimmune dysregulation of T cells, IgG and IgE autoantibodies against hemidesmosome proteins in the epidermal-dermal junction leads to neutrophil chemotaxis and destruction of the basement membrane.[6] Diagnosis is made by histologic evidence of eosinophilic spongiosis or subepidermal detachment, IgG, and/or C3 deposition along the basement membrane, and evidence of autoantibodies against basement membrane proteins (BP180 and/or BP230). Treatment usually involves high-dose topical and systemic steroids, as well as antibiotics and immunosuppressants for severe or refractory cases.[6]

Postimmunization BP has been reported after influenza, tetanus, diphtheria, hepatitis B, varicella-zoster, human papillomavirus, pertussis, poliomyelitis, rabies, *Haemophilus influenzae* B, typhoid, measles, pneu-

mococcus, swine flu, and anthrax vaccines.[5]

The pathogenesis of the correlation of vaccines with BP is unknown. Immunization-induced pro-inflammatory cytokines and the release of proteolytic enzymes leading to hemidesmosome disruption,[7] and immunological predisposition by means of CD25 deficiency or T helper cell dysfunction, have been postulated.[7]

To date, VAERS has received reports of 276 cases of BP following COVID vaccines.[3] Several cases have been published throughout the world.

In Malta, Young, et al reported a 68-year-old male who developed blisters 3 days after the first Pfizer BioNTech vaccine, which worsened after its second dose and resolved after 3 months of steroids.[8]

In Spain, Perez-Lopez, et al described a 78-year-old woman with blisters first noted 3 days after the first Comirnaty (Pfizer–BioNTech) vaccine *that initially self-resolved, then restarted* after the second dose and resolved after a short course of oral steroids.[9]

In Japan, Nakamura et al reported an 83-year-old woman with eczema (on topical steroids) who 3 days after the second dose of tozinameran (Pfizer–BioNTech) developed a diffuse BP rash that required oral steroids and high-dose intravenous immunoglobulin therapy with gradual improvement.[10]

In Italy, there were two accounts after the first dose of the Comirnaty vaccine: Dell'Antonia, et al described an 83-year-old man with mild pruritic blisters 1 week after the first dose that worsened after the second dose and resolved after 3 weeks of oral prednisone.[11] Pauluzzi and colleagues described the youngest case thus far, involving a 46-year-old man with noted BP blisters 15 days after his first injection who required 4 weeks of intramuscular methylprednisolone and oral azathioprine prior to improvement (he did not receive the second dose).[12]

In the United States, Kong, et al described a 66-year-old patient whose rash developed within 24 hours of the second dose of the Moderna vaccine after an uneventful first injection and who was also treated with high-dose oral steroids (outcome unknown).[13] Khalid, et al likewise reported a severe case of blistery rash on a 62-year-old male 2 weeks after the first dose of the Moderna vaccine, which initially self-resolved but had a severe recurrence after the second dose requiring ICU admission (treatment and outcome not reported).[14]

There is also one report of BP following the carrier vaccine AstraZeneca from Morocco by Agharbi, et al in which a 77-year-old patient developed a diffuse pruritic bullous eruption 24 hours after the first injection and was treated with topical propionate of clobetasol 0.05% cream and doxycycline with improvement.[15]

Conclusion

This case highlights a rare severe immunogenic skin reaction that required multiple courses of treatment. Sadly, our patient who was already immunocompromised from his ESRD and diabetes expired 4 months after his presentation following rituximab infusions and multiple courses of steroids.

We will likely be treating the cascade effects of COVID for years to come. Though many vaccine reactions are mild and can be managed without medical care, it is important to consider the timeline of immunizations and possible reactions, particularly in the chronically ill and elderly presenting with new symptoms.

Potential vaccine reactions are often benign and short-lived and vaccination against SARS-CoV-2 should continue to be encouraged, as it far outweighs the risks of the disease. Severe immunological reactions such as in this case are rare but should be accurately reported for scientific advancement and academic progress. ■

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DOT Physicals and Urine Drug Testing Represent a Growth Opportunity for Urgent Care Centers

Urgent message: Demand for DOT-related services for truck drivers is soaring. Urgent care centers can augment traditional insurance-paid visits with B2B relationships while serving a historically unhealthy population.

ALAN A. AYERS, MBA, MAcc

The commercial trucking industry in the United States is massive (**Table 1**). The U.S. Department of Transportation (DOT) requires that all commercial motor vehicle drivers receive a physical every 24 months, though some employers require them even more frequently.

This is a major opportunity for urgent care centers across the country.

Adding services targeting truck drivers, including DOT physicals and urine drug screening, represents a source of potential revenue. At the same time, urgent care centers are well-positioned to provide much-needed healthcare services to a traditionally unhealthy and underserved population.

If you aren't offering DOT services at your urgent care clinic yet, you should be.

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What Is a DOT Physical?

As described, the DOT requires commercial vehicle drivers to go through a physical every 2 years. Unlike a generic physical, DOT physicals have specific requirements related to the work being done.

To pass a DOT physical, drivers need to:

- Have at least 20/40 correctable vision in both eyes (glasses/contacts are allowed)
- Be able to distinguish colors on traffic signals
- Pass a forced whisper hearing test
- Have controlled blood pressure under 140/90 (with or without prescription medications)
- Not have diabetes requiring insulin (except with an exemption from the Federal Motor Carrier Safety Administration [FMCSA][1])
- Have a hemoglobin A1C level of 8 or less
- Pass a urine drug test

This physical applies to drivers behind the wheel of trucks that weigh more than 10,000 pounds, vehicles

Alan A. Ayers, MBA, MAcc is President of Experity Networks and is Practice Management Editor of *The Journal of Urgent Care Medicine*. The author has no relevant financial relationships with any commercial interests.

Table 1. Commercial Trucking in the United States

- There are approximately 3.5 million commercial drivers in the U.S.
  - 1.9 million Class A (heavy trucks and tractor-trailers)
    - 91% of Class A drivers are male; 9% are female.
    - Average age is 48 years old
    - 110,000 new drivers per year needed to keep up with demand
  - Additional licensure of Class B, C including:
    - 1.4 million delivery truck drivers
    - 145,000 transit/intercity bus drivers
    - 168,000 school bus drivers
- 996,000 for-hire motor carriers in the United States
  - Highly fragmented: 90% of carriers have >6 trucks
  - Almost 40 million trucks are registered for business (excluding farm and government use)
  - Only one in nine drivers is an independent owner-operator
- Many trucking companies require a DOT examination upon hire
  - 89% annual turnover rate for long-haul drivers

Source: U.S. Department of Transportation

with more than eight passengers (or vehicles capable of holding more than 15 passengers), as well as HAZMAT vehicles.

DOT Physical Provider Training

Due to the specialized nature of DOT physicals, providers administering them need to be listed on the National Registry of Certified Medical Examiners (NRCME). This certifies providers are specifically trained to determine if a driver meets the physical standards of the FMCSA.

Providers who are part of the National Registry can perform DOT physicals and are a tremendous asset to any urgent care clinic.

To become certified, providers (MDs, DOs, PAs and/or NPs) must:

- Be licensed to perform physical exams in accordance with state and local laws
- Register on the National Registry website (https://nationalregistry.fmcsa.dog.gov/home)
- Complete FMCSA training to prepare for the NRCME exam
- Pass the National Registry Medical Examiner Certification Test

Education courses for providers seeking to join the National Registry are available for around $250-$500 and take place both online and in person. Most courses also include CME or CE credit upon completion.

Table 2 lists the subjects an NRCME Exam prep course typically covers.

Table 2. Curriculum Topics for NRCME Exam Preparation

FMCSA & The Job of Commercial Driving
Medical Examination Guidelines
Vision & Hearing
Cardiovascular
Hypertension
Respiratory Disorders
Neurological Disorders
Musculoskeletal Disorders
Diabetes
Psychological Disorders
Drug & Alcohol Abuse
Medication Use
Medical Exam Report Form Summary
Questions Asked on the NRCME Exam
The 2022 Vision Regulation

While there has been some reduction in non-safety sensitive testing due to state decriminalization of marijuana, state marijuana laws do not override federally regulated occupations like trucking, airline, and rail employees. The increase in opioid-related overdose deaths and rising workplace injury rates when testing is not in place indicate that companies should continue drug testing, even in a recessed economy and/or when facing high turnover.

Source: https://www.safetyandhealthmagazine.com/articles/22600-trends-in-drug-testing

DOT Urine Drug Screening

Urgent care clinics offering DOT physicals should strongly consider adding urine drug testing services if they aren't already being offered. A major component of the DOT physical, urine drug screening is also utilized outside of these appointments and represents another source of revenue.

In the U.S., the drug testing industry generates approximately $6.3 billion annually. Urgent care clinics are well-positioned to get a cut.

For the trucking industry, drug screenings take place frequently, including at the time of:

- DOT physicals (every 2 years)
- New-hire onboarding

Commercial motor vehicle drivers are required to get a physical every 24 months

- Drivers of trucks weighing >10,000 pounds
- Drivers by hire of >8 passengers (or a vehicle capable of holding >15 passengers)
- Drivers of HAZMAT materials

More than half of long-haul truck drivers reported having two or more health conditions or unhealthy behaviors: high blood pressure, obesity, smoking, limited physical activity, high cholesterol, or fewer than 6 hours of sleep.

Source: https://blogs.cdc.gov/niosh-science-blog/2015/03/03/truck-driver-health/

- Randomly (50% of a company's employee workforce annually)
- Post-accident/post-incident
- Fit-for-duty (return to work) exam after absence or leave

Of course, urine drug screening isn't just utilized by the trucking industry. It has been adopted by many industries where employee safety is paramount and workplace safety hazards are amplified for those not operating at their best.

For instance, DOT-specific drug testing applies to those working in occupations such as:

- Non-DOT Commercial Drivers Licenses
- FAA flight crews
- Railroad
- Maritime
- Pipeline
- HAZMAT

Meanwhile, an additional 16% of non-DOT employers require drug testing for their employees. The range is from 25% of all employees in West Virginia to only 10% in California, according to the U.S. Bureau of Labor Statistics.[2] Industries like healthcare, utilities, energy, and manufacturing are a few of the most notable.

Incentives for required drug testing are numerous. Workers' compensation discounts and "Drug-Free Workplace" program credits require testing. Meanwhile, data show that on-the-job injury rates are higher when drug testing programs are not in place. This incentivizes companies to institute testing policies as part of employee safety programs.

Where random drug screens are required, companies with fewer than 49 employees "pool" their employees in a consortium with other companies. An urgent care operator can assist employers in the management of their consortium processes.

How Urgent Care Clinics Can Implement DOT Physicals

The nature of DOT exams and urine drug testing makes these services an ideal addition to your urgent care center. Your facilities are likely already set up to accommodate both services. Meanwhile, the cost of getting providers certified for the National Registry is a minor investment compared to the potential revenue that can be generated.

While DOT services can be added quietly, it may be advantageous to make them a focal point of your center. Whereas walk-in urgent care volume is greatest early in the week, early in the morning, and late afternoon/early evening after school lets out, DOT physicals can be scheduled to occupy the afternoon "lull" faced by most centers. This levels the ebb and flow of urgent care visits and creates a steady flow of patients throughout the day, thus maximizing provider and staff patient per hour efficiencies.

Additionally, employers tend to hire most during the summer months, when urgent care is historically slow, thus flattening the impact of cold and flu seasonality on urgent care revenue.

In addition to marketing to truck drivers directly through point-of-sale displays, search engine and Internet marketing, a center should seek to develop relationships with trucking, logistics, and distribution companies in your area.

Many employers want a one-stop shop for services like physicals, respiratory fit testing, TB testing/x-ray exams, functional capacity testing, audiology, and spirometry. If your urgent care center can offer these services, you can take advantage of B2B marketing channels to drive repeat traffic. This is a great way to acquire patients outside of your traditional "urgent care" demographic.

It's worth noting that many DOT-related services can be provided by nonlicensed staff, such as medical assistants. This allows your center to reap the benefits of offering these services without bogging down providers who are already juggling high throughput.

Why DOT Physicals Are a Ready Opportunity

Urgent care operators would be wise to take note of the enormous demand for DOT physicals and drug testing services.

Take-Home Points

- Where random drug screens are required, companies with fewer than 49 employees "pool" their employees in a consortium with other companies. An urgent care operator can assist employers in the management of their consortium processes.
- In addition to workers who are required to undergo drug screening at the behest of the United States Department of Transportation, another 16% nationwide are required to do so by their employers.
- Drug screening services are a cornerstone of DOT requirements. As such, they must be conducted:
  - Every 2 years during the DOT physical
  - During new-hire onboarding
  - Randomly)50% of a company's workforce annually
  - Post-accident/post-incident
  - During fit-for-duty exams after an absence or leave from the job
- In addition to truckers, DOT-specific drug testing applies to workers in the airline, railroad, maritime, and pipeline industries, as well as HAZMAT workers and anyone in need of a non-DOT Commercial Driver's License.

While there is revenue to generate from these services alone, they also open the door for further opportunities given the notoriously unhealthy truck driver population.

If nothing else, offering DOT physicals helps diversify your urgent care center's revenue stream away from typical insurance reimbursement.

When a driver comes to your clinic for their DOT exam, it is usually billed to their employer as a cash (Net/15) invoice. This brings quick and direct revenue into your clinic. It also gives you flexibility to adjust the pricing of your services, allowing your center to stay competitive and turn the biggest profit.

However, this is far from being the only benefit.

The addition of DOT physicals and urine drug screening paves the way for additional downstream revenue. It's no secret that truck divers struggle with health problems like obesity, sleep apnea, and hypertension. Most of these issues are propagated by the unhealthy lifestyle inherent in trucking as an occupation. Often, this includes factors like smoking and poor diet.

Ultimately, the trucker population is in desperate need of high-quality preventative care, medical treatment, and health education.

Urgent care centers have a fantastic opportunity to provide these services.

"By offering DOT physicals and urine drug screen services to the millions of truckers who are required to seek them every day, you open the door to additional revenue from B2B relationships and can address the healthcare needs of a traditionally unhealthy population."

If truckers are already coming through your doors for a DOT physical or urine drug test, they are more likely to seek other injury/illness services. This gives them a chance to take care of their health problems conveniently and cost-effectively. Moreover, since many trucking companies offer health insurance for their employees, those visiting your clinic are more likely to take advantage of those benefits.

Truck drivers also require frequent documentation for conditions like sleep apnea and hypertension to pass their DOT physical. Your urgent care center is the perfect place to get this documentation signed by a provider. With many urgent care companies adding primary care services, the trucker demographic is likely to utilize these services for convenience and stability. Meanwhile, your clinic can also make referrals to specialists when necessary.

Conclusion

Millions of truck drivers are required to seek DOT physicals and urine drug screening services every day. By offering them at your urgent care center, you open the door to additional revenue from B2B relationships and can address the healthcare needs of a traditionally unhealthy population. Moreover, DOT-related services help normalize the daily traffic your center sees and generate reliable noninsurance revenue. This opportunity is one that urgent care owner/operators should incorporate into their strategy. ■

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ABSTRACTS IN URGENT CARE

- Achilles Tendon Rupture
- Predictive Value of Seamen's Sign
- PT and Meniscus Tears
- Managing ACS in Rural Areas
- Following Up on Radiology Recommendations
- Syncope and Motor Vehicle Accidents

IVAN KOAY, MBCHB, FRNZCUC, MD

Surgical vs Nonoperative Management of Achilles Tendon Rupture

Take-home point: Surgery at 12 months postinjury was not associated with better outcomes compared with nonoperative treatment of Achilles tendon rupture.

Citation: Myhrvold S, Brouwer E, Andersen T, et al. Nonoperative or surgical treatment of acute Achilles tendon rupture. *N Engl J Med*. 2022;386(15):1409-1420.

Relevance: Nonoperative approaches to treatment of ruptured Achilles tendon have been described previously. Given risks and the cost of surgery, it is worthwhile to determine if patients benefit from this intervention.

Study summary: This randomized controlled trial at four centers in Norway compared two surgical treatments (open and minimally invasive) with nonoperative measures for Achilles tendon rupture in adult patients. Patients were randomly assigned in a 1:1:1 ratio. Equinus casting was used for the treatment of nonoperative patients for 6 weeks, followed by sequential heel-wedged walking boot.

The authors enrolled 532 patients. They found no significant differences among patients assigned to receive nonoperative treatment or undergo open repair or minimally invasive surgery. Nonoperative treatment was associated with a higher risk of re-rupture (6.2%) compared with surgical treatment (0.6% for both surgical approaches). Nerve injuries were more common with minimally invasive surgery (0.6% vs 5.2%). The re-rupture rate in this study was lower than that previously reported in other similar trials. At 12 months there was no significant difference in the physical performance of patients as measured by the Achilles tendon Total Rupture Score –17.0 points (95% confidence interval [CI], –20.0 to –14.0) in the nonoperative group; –16.0 points (95% CI, –19.0 to –12.9) in the open-repair group; and –14.7 points (95% CI, –17.9 to –11.6) in the minimally invasive surgery group (p=0.57).

Editor's comments: Patients with history of recent glucocorticoid injections, quinolone use, prior rupture, and age >60 were excluded. Therefore, the results of this study cannot be extrapolated to such patients. Ultimately, decision-making around operative risks vs benefits will be made by an orthopedic specialist, so patients with concern for Achilles tendon rupture all still warrant urgent referral. ■

Ivan Koay, MBChB, FRNZCUC, MD is an urgent care physician based in Dublin, Ireland, as well as an Examiner and Trainee Supervisor for the Royal New Zealand College of Urgent Care Education Faculty for the Urgent Care Medicine Fellowship, Royal College of Surgeons Ireland.

Seamens' Sign in Predicting Left Ventricular Hypertrophy on ECG

Take-home point: Seamens' Sign was noninferior in diagnosing left ventricular hypertrophy (LVH) on ECG when compared with both Sokolow-Lyon and Cornell criteria.

Citation: Walker P, Jenkins CA, Hatcher J, et al. Seamens' Sign: a novel electrocardiogram prediction tool for left ventricular hypertrophy. *Peer J*. 2022; 10:e13548.

Relevance: LVH can be a harbinger of more significant cardiac disease, most notably diastolic dysfunction. ECG is among the least invasive and expensive means of cardiac evaluation and can provide clues about structural heart disease. However, diagnosing LVH on ECGs can be tricky.

Study summary: This was a retrospective emergency department-based chart review at a quaternary care academic medical center in the United States. The study recruited consecutive patients with both an ECG and a transthoracic echocardiogram

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(TTE) performed within 90 days of each other. It evaluated the test characteristics of the proposed Seamens' Sign and compared its ability to confirm an LVH diagnosis against the Sokolow-Lyon and Cornell voltage criteria. The authors identified 2,184 patients for analysis. Tests assessing noninferiority indicated Seamens' Sign was noninferior to all criteria ($p < 0.001$) except for the Cornell criterion for women ($p=0.98$). Seamens' Sign had 90% (0.81–1.00) inter-rater agreement, the highest of all criteria (attributed to its quick application and ease of use). This compared with Sokolow-Lyon 1 and Sokolow-Lyon 2 had inter-rater agreement of 65% (0.40–0.91) and 87% (0.75–1.00), respectively, while Cornell criteria for men and women had inter-rater agreements of 76% (0.56–0.96) and 79% (0.62–0.97), respectively. Seamans' Sign also had excellent specificity for confirming LVH (92%).

Editor's comments: This was a retrospective study at a single center, limiting its generalizability. Further studies are warranted to confirm the test characteristics of Seamans' Sign in other populations. ■

Physical Therapy for Degenerative Meniscal Tears

Take-home point: Physical therapy (PT) was noninferior to arthroscopic partial meniscectomy (APM) for patient-reported knee function in this 5-year follow-up series.

Citation: Noorduyn JCA, van de Graaf VA, Willigenburg NW, et al. Effect of physical therapy vs arthroscopic partial meniscectomy in people with degenerative meniscal tears: five-year follow-up of the ESCAPE randomized clinical trial. *JAMA Netw Open*. 2022;5(7):e2220394.

Relevance: Surgical intervention for orthopedic issues involves considerable risk and expense. It's important to verify that the benefits of operative intervention justify these risks.

Study summary: This was a 5-year follow-up assessment of patients in the ESCAPE (Early Surgery versus Conservative Treatment with Optional Delayed Meniscectomy for Patients over 45 years with nonobstructive meniscal tears) study, a multicenter RCT comparing arthroscopic partial meniscectomy with exercise-based physical therapy (16 x 30-minute sessions). The initial ESCAPE trial compared PT with APM, with both initiated within 2 weeks of randomization in a 1:1 ratio, reported in 2017. Those results indicated PT was noninferior to APM at 2 years.

The authors reviewed the initial patient set. After 5 years, 278 of the original participants (87.1%) completed the follow-up (139 in each group). They found that PT is noninferior to APM with respect to knee function during 5 years of follow-up in patients with a degenerative meniscal tear. They found comparable rates of progression of radiographic and symptomatic OA between both treatments. Patients maintained the improvements in knee function experience in the initial study at the 5-year follow-up.

Editor's comments: Thirty-two percent of the conservatively managed patients from the original study underwent APM within the first year of follow-up. COVID-19 hindered aspects of the review process for the present study, accounting for the loss to follow-up numbers. It is important to note that subjects of the study had degenerative meniscal defects and that patients with traumatic tears were not included. ■

ST Elevation MI and ACS Treatment in Rural Settings

Take-home point: The management of rural acute coronary syndromes [MORACS] intervention reduced the proportion of missed ST elevation MI (STEMI) and improved the rates of primary reperfusion therapy.

Citation: Dee F, Savage L, Leitch J, et al. Management of acute coronary syndromes in patients in rural Australia – The MORACS Randomized Clinical Trial. *JAMA Cardiol*. 2022;7(7):690-698.

Relevance: "Time is muscle" in the setting of myocardial infarction. For practitioners in rural settings where the full array of definitive treatments may not be available, timely identification of STEMI (and other forms of acute coronary syndrome [ACS]) is critical to ensuring patients are transferred to centers with capabilities for percutaneous intervention (PCI).

Study summary: This prospective multisite cluster randomized clinical trial aimed to evaluate the effectiveness of a centralized ACS diagnostic support system (MORACS) in rural Australia. The MORACS team comprised three specialist clinical nurses with expertise in ECG interpretation. They were contacted when patients presented with suspected ACS via text, initiating real-time review of ECGs and troponin to diagnose STEMI and decisions regarding patient transfers for angiography.

The investigators included 7,474 ED patients with suspected ACS over the study period. Missed STEMI occurred in 27 of 77 patients (35%) in the usual care hospitals and 0 of 46 (0%) in MORACS hospitals ($p < .001$). Among patients eligible for primary reperfusion, 48 of 75 (64%) in the usual care group and 36 of 36 (100%) in the MORACS group received reperfusion therapy ($p < .001$). Within the usual care group, patients with a missed STEMI diagnosis had a mortality of 25.9% (n=7 of 27) compared with 2.0% (n=1 of 51) with a correct diagnosis (relative risk, 13.2; 95% CI, 1.71-102.00; $p = .001$).

Editor's comments: Generalization of patient population is limited, as the study was set in rural Australia. However, these dramatic results strongly suggest that rural centers with limited expertise and capability for managing STEMI benefit (as do their patients) from assistance from remote specialists. To ensure more uniform care for patients with coronary occlusion presentations, rural acute care facilities should consider leveraging technology for real-time collaboration with their affiliated referral centers. ■

Do You Routinely Follow Up on Radiology Report Recommendations?

Take-home point: Following up on radiology report recommendations is important for ensuring patient safety and reducing malpractice risk.

Citation: White T, Arronson M, Sternberg S, et. al. Analysis of radiology report recommendation characteristics and rate of recommended action performance. *JAMA Network Open*. 2022;5(7): e2222549.

Relevance: Radiology reports often contain detailed comments that can be easily overlooked and disregarded. Doing so, however, may increase risks for patients and clinicians alike.

Study summary: This was a quality improvement study examining radiology reports generated from investigations performed on patients at a large primary care practice based in Massachusetts. Twenty common radiology examinations were identified, including CT, plain radiography, and MRI scans. Only radiology reports with a radiologist's recommendation (ie, recommendations field was not blank) were included in the final analysis. The authors divided the response to the follow-up recommendations into three categories: 1) recommended action was performed; 2) there was documented disagreement by the referring physician with the recommended action, in which case the action was classified as closed; and 3) the patient had died or there was documented patient refusal.

The authors found 4,911 eligible imaging studies with 532 reports (10.8%) generated by the radiology department, containing a specific recommendation. Recommendations were taken into consideration and acted upon accordingly 87.4% of the time. In 67.6% of all cases, the referring clinician felt that the recommended follow-up was unnecessary in the clinical context and the referring clinician took alternative actions (eg, referred patient to an endocrinologist in lieu of ordering an ultrasound to further characterize a thyroid nodule).

Loop closure on recommendations was less likely when the recommendations were not indicated separately (ie, recommendations were included in the body of the radiology report).

Editor's comments: As this was a hospital-based study, many radiology reports were for advanced imaging studies (eg, MRI, CT) that are unlikely to be ordered by urgent care clinicians. Nevertheless, ensuring that radiology recommendations are acknowledged and acted upon appropriately remains an important strategy to mitigate risk to patients and providers. ■

Subsequent Motor Vehicle Crash After a Syncopal Episode

Take-home point: Patients visiting the ED with a first episode of syncope had similar risks for a motor-vehicle crash (MVC) as matched control ED patients.

Citation: Staples J, Erdelyi S, Merchant K, et al. Syncope and the risk of subsequent motor vehicle crash: a population-based retrospective cohort study. *AMA Intern Med*. 2022 Aug 1:e222865.

Relevance: Practices for counseling patients about driving—and restricting driving—after a syncopal incident are variable and not based on extensive evidence.

Study summary: This was a population-based retrospective observational cohort study from British Columbia, Canada. The study cohort was based on administrative data of patients with one or more ED visits with a discharge diagnosis of syncope vs a control group of all patients who visited the ED. For patients with recurrent presentations, only the first visit was included in order to avoid oversampling.

The authors included 43,589 individuals (9,223 syncope patients and 34,366 age- and sex-matched controls) in the study. Most patients in the syncope group were judged to have definite or likely syncope, with the most common causes being vasovagal and orthostatic. There was no significant difference in MVC risk between the groups during the 30-day follow-up period (9.2% vs 10.1%). Among drivers with a commercial driver's license, vehicle crashes were no more common among the syncope group than among the control group. The hazard of MVC was similar between syncope and control groups in all examined time intervals. Crash risks among patients with syncope and control patients both exceeded rates of MVC of the general population.

Editor's comments: The authors' identification of syncope did not include more specific diagnoses that have the potential to cause syncope (eg, ventricular tachycardia, cardiac arrest, and others). Patients were followed for only 30 days after their ED visit. The authors also lacked data regarding levels of road use by subjects. The results should be considered with the caveat that there may be multifactorial reasons for MVCs in patients that are discharged from the ED. ■

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Where Should I Refer My Spinal Patient?
Outcomes with Orthopedic and Neurosurgeons for Common Neck and Back Procedures

Urgent message: Neck and back pain are common issues preceding surgical intervention. Given differences in care plans, outcomes, cost, and length of stay associated with spinal surgeries, the option of referring urgent care patients to either neurosurgeons or orthopedic spine surgeons requires careful consideration.

RAMI MUSLEH, PA-C; ANGELA BLAGOJEVSKI, MPAS, PA-C; RANDY BRUSH, MS, PA-C; and JESSICA BRUSKOSKI, MS, PA-C

Introduction

Neck and back pain are two of the most common reasons for people to miss work; back pain is the leading cause of disability, preventing many from performing activities of daily living.[1] Up to 80% of the population will experience back pain, and 54% will have some degree of neck pain at some time in their lives.[1,2]

Most episodes of low back pain are short lived and require little or no treatment.[3] However, those who have recurrent episodes or have structural deformities may require a surgical procedure.

An estimated 650,000 to 700,000 neck and back surgeries are performed annually in the United States.[4] Those who need surgery typically choose to have it performed by either by a neurosurgeon (NS) or an orthopedic spine surgeon (OS). Most patients may not know the difference between the two, and usually elect to go where they are referred to by their primary care provider.[5] Similarly, urgent care providers are in a position to refer patients presenting with neck or back pain for surgical consideration.

This paper will compare the direct medical costs, length of stay, complications rates, and plan of care as they pertain to neurosurgeons and orthopedic spine surgeons.

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Etiology and Pathophysiology

There are a variety of surgical approaches available for the treatment of spine diseases.[9] Neurosurgeons, and

Author affiliations: Rami Musleh, MSPA, PA-C, Valparaiso University PA Program. **Angela Blagojevski, MPAS, PA-C,** Valparaiso University PA Program. **Randy Brush, MS, PA-C,** Valparaiso University PA Program. **Jessica Bruskoski, MS, PA-C,** Valparaiso University PA Program. The authors have no relevant financial relationships with any commercial interests.

Table 1. Comparison of Intermediary Payment Between Orthopedic Surgeons and Neurosurgeons

	Anterior Cervical Fusion		Lumbar Laminectomy		Lumbar Fusion	
	OS	NS	OS	NS	OS	NS
Physician payment (median)	$5,508	$5,414	$1,884	$1,884	$6,071	$6,282
Total payment(median)	$23,951	$24,888	$10,828	$11,242	$41,894	$48,355

"While spine surgeon specialty was not a risk factor for postoperative complications for a single level ADCF, and there was no significant association between the two surgeon types of any particular complications in ACDF procedures in general, there was a higher revisional surgery rate noted with neurosurgery as compared to orthopedic spine surgery."

orthopedic spine surgeons both perform spinal surgery, and there are significant overlaps in the different procedures that are performed. However, there are differences between the two specialties in clinical decision-making regarding spinal disorders.[6]

Procedures

Anterior cervical discectomies and fusions (ACDF) are the most common cervical procedures performed and utilized for the treatment of multiple cervical pathologies.[2] A majority of spine surgeons utilize similar techniques in performing anterior cervical discectomies and fusions.[2] A small minority of procedures are done posteriorly. Posterior cervical fusion (PCDF) is usually reserved for patients who have multiple level disease and have a higher rate of complications compared to an anterior approach.[2]

There are a variety of lumbar spine procedures for diseases affecting the lumbar spine, of which the most common is a spondylolisthesis.[7]

The treatment plan can be different between the two specialties, depending on whether the patient with spondylolisthesis has pain.[7] The most common procedures performed for lumbar spine issues include anterior lumbar interbody fusion (ALIF), posterior lumbar interbody fusions (PLIF), laminectomies, and discectomies.[5,7]

Complications

Surgical complications play a significant role in postoperative outcomes. These complications include adverse intraoperative complications, postoperative complications, readmissions, surgical revisions, and prolonged hospital stays.[5]

Surgical complications associated with cervical procedures can include, but are not limited to, esophageal perforation, epidural hematoma, C5 nerve palsy, recurrent laryngeal nerve palsy, superior laryngeal nerve palsy, dural tears, brachial plexopathies, graft extrusion, hardware migration, infection, vascular injury, Horner syndrome, and psuedomeningeocele.[2]

Postoperative complications for lumbar procedures can include but are not limited to wound infections and dehiscence, hematomas, pulmonary complications, surgical revisions, incidental dural tears, and hospital readmissions.[5,8-13]

Economic Impact

Low back pain accounts for at least $50 billion in healthcare costs to Americans each year.[14] When adding the cost of lost wages and decreased productivity, the figure rises to more than $100 billion.[14]

The cost of low back pain and the procedures that are associated with treatment are generally reported as direct medical costs and indirect (productivity and absenteeism) costs.[15] These costs include transportation, cost of nonprescription medications, and visits to complementary and alternative practitioners.[15]

The major direct medical costs that are seen and studied most frequently are the cost of procedures, length of stay, wound complications (infections and dehiscence), urinary tract infections, reoperations, and unplanned readmissions.[5,6] Any complications increase the total cost of the treatment and significantly raise the chance of prolonging hospital length of stay and time off of work.[5,6,15]

Consider the cost of the procedures each specialty performs. The median cost of physician payments for an anterior cervical discectomy and fusion are almost identical between orthopedic spine surgeons and neurosurgeons. The same holds true for total costs. (See **Table 1**.)[5] Even though the payment analysis showed that the median total intermediary payments were higher for neurosurgery procedures for all three treatment groups, there were no statistically significant differences.[5]

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Table 2. Comparison of Complications with Anterior Cervical Discectomy and Fusions

Complication	OS	NS
Wound infection	0.7%	0.8%
Chronic pain	1.0%	1.2%
Dysphagia	3.3%	3.2%
30-day readmissions	3.1%	2.8%
Surgery revision*	5.7%	6.8%
Any complication	9.9%	10.5%
Length of stay (mean)	1.7 days	1.8 days

*Only significant difference statistically

Table 3. Comparison of Complications with Lumbar Fusions

Complication	OS	NS
Wound infection	2.9%	2.9%
Chronic pain	2.5%	2.7%
30-day readmissions	6.1%	6.7%
Surgery revision*	10.4%	10.8%
Any complication	14.5%	16.2%
Length of stay (mean)	3.5 days	3.7 days

*Only significant difference statistically

Malpractice Litigation

Medical malpractice is an important issue to consider due to concerns of increased healthcare costs and medical decision-making for the sole purpose of reducing legal liability. Agarwal, et al conducted a descriptive analysis of state and federal spine surgery malpractice litigation in the United States and found that there were no differences in the frequency of plaintiff verdicts in those cases where an OS was cited as a defendant compared to those case where an NS was cited as a defendant.[16]

Surgical Treatment Option Comparisons

Anterior Cervical Discectomy and Fusion

An anterior cervical discectomy and fusion (ACDF) is a technique commonly utilized on patients with underlying degenerative disc disease, cervical radiculopathy, and cervical myelopathy.[2] Patient selection to perform an ACDF with comorbidities has been shown to be almost the same between the two specialties. Neurosurgeons were a little more willing to perform the procedure with patients that have more complex comorbidities.[5,17] The only comorbidity that neurosurgeons were statistically more likely to treat was patients with osteoporosis.[5]

No significant differences were observed in median length of stay postoperatively after an ACDF between the two specialties.[5,17] The average postoperative length of stay is 1.7 days for OS and 1.8 days for neurosurgery.[5]

Numerous complications can occur postoperatively after an ACDF. The most common are wound infections, continued pain, dysphagia, 30-day readmission, and revisional surgery.[2]

Spine surgeon specialty was not a risk factor for any of the prementioned postoperative complications for a single level ADCF, [17] and there was no significant association between the two surgeon types of any particular complications in ACDF procedures in general.[5] There was a higher revisional surgery rate noted with neurosurgery as compared to orthopedic spine surgery.[5] (See **Table 2**.)

Lumbar Fusions

Lumbar spine fusions are the most common procedure performed to correct degenerative spondylolisthesis.[7] Most insurance companies will only approve lumbar fusions if there is a spondylolisthesis documented in the patient's record.[7] As a result, most researchers used that diagnosis of spondylolisthesis as a search tool to study how the presence or absence of back pain, along with spondylolisthesis, would be addressed by each specialty.[7]

When presented with a patient with spondylolisthesis and back pain, there were no significant differences between NS and OS on the treatment plan.[7] Of the neurosurgeons given the scenario, 85% stated they would perform some kind of fusion; 15% stated they would only perform a laminectomy.[7] Orthopedic surgeons responded similarly, where 80% would choose to perform a fusion, and 20% would only perform the more conservative laminectomy.[7]

The second scenario was a spondylolisthesis without back pain, with significant differences between the two groups.[7] Neurosurgeons had 3.4 times greater odds of performing simpler laminectomies and 2.1 times greater odds of performing interbody fusions.[7] Orthopedic surgeons preferred to treat this scenario with a laminectomy with posterolateral fusion and pedicle screws.[7] In this scenario, 73% of orthopedic surgeons would perform some kind of fusion, where only 61% of neurosurgeons would.[7]

Anterior Lumbar Interbody Fusion

Anterior lumbar interbody fusion surgery (ALIF) is a common fusion procedure that has been researched extensively

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Table 4. Comparison of Complications with Lumbar Laminectomy

Complication	OS	NS
Wound infection	1.9%	2.5%
Chronic pain	1.1%	1.1%
30-day readmissions	3.9%	4.3%
Surgery revision	11.6%	10.7%
Any complication	12.2%	12.8%
Length of stay (mean)	2.3 days	2.5 days

with regard to surgical subspecialties. It is used to treat degenerative spine disorders and spinal deformities.[6]

One study that looked at patient selection found that neurosurgeons were more likely to perform an ALIF on more complex patient populations with higher American Society of Anesthesiology (ASA) classifications (III) (41% for NS, 33.1% for OS).[6] They found no other significant differences in the remaining comorbidities and patient selection.

Postoperative complications were similar between the two specialties. Length of stay, wound complication, unplanned readmissions, and mortality were all insignificant.[6] The only complications that were found to be statistically significant were the risk of 30-day reoperation (3.1% for NS and 2.0% for OS) and postoperative urinary tract infections (1.8% for NS, and 1.0% for OS).[6]

One potential explanation for these findings is that NS may tend to be more willing to operate on patients who have more medical comorbidities.[6]

Research by Mabud, et al showed that lumbar fusions as a whole had no significant differences in length of stay (3.5 days for orthopedic surgeons, 3.7 days for neurosurgeons),[5] wound infection, continued pain, and 30-day readmission.[5,8,11,12] It was also shown that surgeon specialty is not a risk factor for any complications at the 30-day postoperative mark after undergoing a single level fusion.[8] There was only a slightly higher incidence of surgery revisions and total complications with neurosurgeons compared with orthopedic surgeons.[5] (See **Table 3**.)

Lumbar Laminectomy

Lumbar laminectomies are the most common low back procedure performed for back pain.[15] This procedure can be performed as a single procedure for lumbar stenosis without a spondylolisthesis, or with a fusion when there is instability within the spine.[15] The risks of surgical complications, all-cause readmission, and revisional surgery were very similar for neurosurgeons and orthopedic surgeons.[5,9,18] (See **Table 4**.)

No significant differences were found in the average length of stay (2.3 days for orthopedic surgeons, and 2.5 days for neurosurgeons).[5] One study did note that laminectomies performed by OS have double the odds for undergoing perioperative transfusion compared with those performed by NS.[9]

Conclusion

Findings suggest that both neurosurgeons and orthopedic surgeons training backgrounds produce similar outcomes in cervical and lumbar spine surgery for most parameters, including postoperative length of stay, readmission rates, direct medical costs, and most complications. Few significant associations between surgeon type and complications exist, and those that do are quite small and unlikely to be clinically meaningful. Finally, there was no difference in the frequency of plaintiff verdicts between the two specialties in studies on malpractice outcomes. ■

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A 16-Year-Old Boy with Arm Pain After a Baseball Game


Figure 1.


Figure 2.

Case

The patient is a 16-year-old male who presents to urgent care with pain in the humerus area hours after finishing a baseball game.

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

THE RESOLUTION

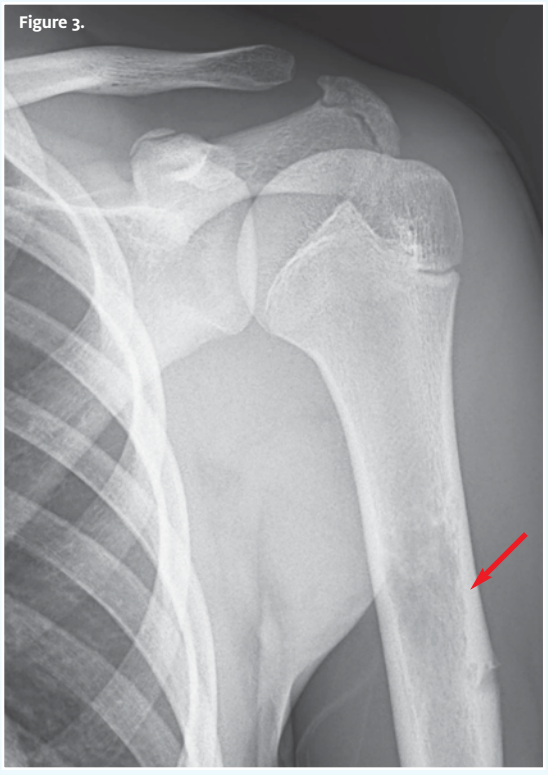
Figure 3.


Figure 4.

Differential Diagnosis

- Fibrous dysplasia
- Enchondroma
- Lytic diaphyseal lesion
- Osteomyelitis

Diagnosis

The x-ray reveals an area of mottled lucency mid-diaphysis with endosteal scalloping and cortical breakthrough of the lateral humeral margin. This area corresponded to the site of the patient's pain. Ill-defined margins were noted (wide zone of transition).

This patient was diagnosed with lytic diaphyseal lesion of the humerus with some aggressive features.

Learnings/What to Look for

- Bony lesions such as osteochondromas and bone cysts can be lead-points for pathologic fractures or injury
- X-ray is often sufficient to differentiate different bony lesions, but sometimes further imaging studies are required. On a simple radiograph, an ill-defined border with a broad zone of transition is a sign of aggressive growth that is suggestive of either osteomyelitis, eosinophilic granuloma, or a malignant bone tumor

Pearls for Urgent Care Management

- The acute management for pain/injury to bony lesions is similar to fracture management of the same sites, in this case requiring immobilization with a sling similar to a proximal humerus fracture
- It's critical for the urgent care provider to refer these cases for further evaluation to differentiate a benign lesion from either an infection or malignancy that requires acute management. If the patient is having systemic features (eg, fever, weight loss, etc.), they should be referred immediately to the ED. Without systemic features, the patient can follow-up with an orthopedic specialist as an outpatient.

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

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A 43-Year-Old with a New Rash on the Trunk


Figure 1.

Case

A 43-year-old man presents to urgent care with a rash that he noticed a couple of days ago on his trunk. On exam, there is skin atrophy and multiple smooth papules and hypopigmented oval macules. Upon palpation of the lesions, you find that the examining finger "sinks" into a pit with distinct edges, like the ring of a hernia.

The patient is immunocompetent, and his medical history is unremarkable except for lichen planus. He appears well, denies systemic symptoms, and does not take any medications.

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

THE RESOLUTION

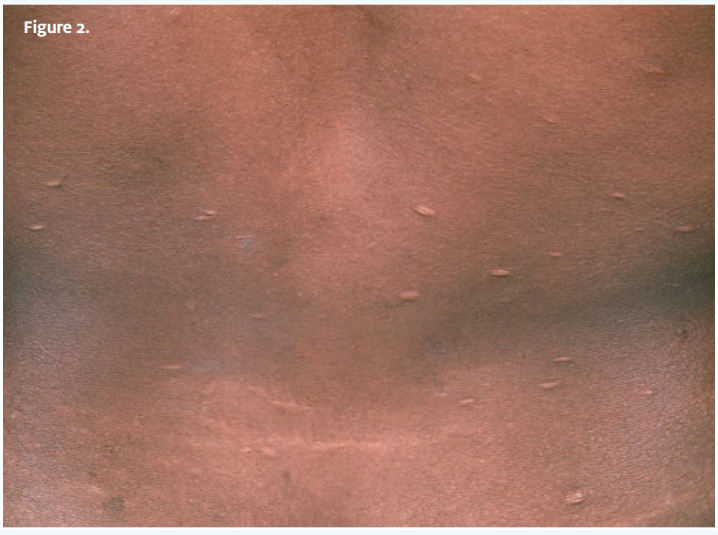
Figure 2.

Differential Diagnosis

- Atrophoderma
- Lichen sclerosus
- Anetoderma
- Steatocystoma multiplex

Diagnosis

This patient was diagnosed with anetoderma, a disorder of focal loss of dermal elastic tissue characterized by small areas of flaccid skin. These present clinically as skin-colored wrinkled macules or patches that may or may not form bulging sac-like protrusions.

Anetoderma may be primary or secondary. Primary anetoderma occurs in normal skin whereas secondary occurs in areas of previous skin eruptions. The condition is benign, and the pathogenesis is not well understood. It is most common in adults in their 20s to 40s and is slightly more prevalent in women. Rarely, it is seen in children.

Learnings/What to Look for

- Primary anetoderma is associated with various autoimmune diseases and infectious diseases, and may be associated with cardiac, ocular, bony, and other abnormalities
- The lesions of secondary anetoderma are identical to those of primary anetoderma but appear at the same sites as a preceding dermatosis
- A multitude of conditions are associated with the development of secondary anetoderma. Some common examples include varicella, folliculitis, acne vulgaris and lichen planus

Pearls for Urgent Care Management

- There is no effective treatment for anetoderma; patient reassurance is recommended
- Treatment of the underlying cause of secondary anetoderma can help prevent new lesions from forming

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

INSIGHTS IN IMAGES

CLINICAL CHALLENGE: CASE 3

A 45-Year-Old Male with Palpitations

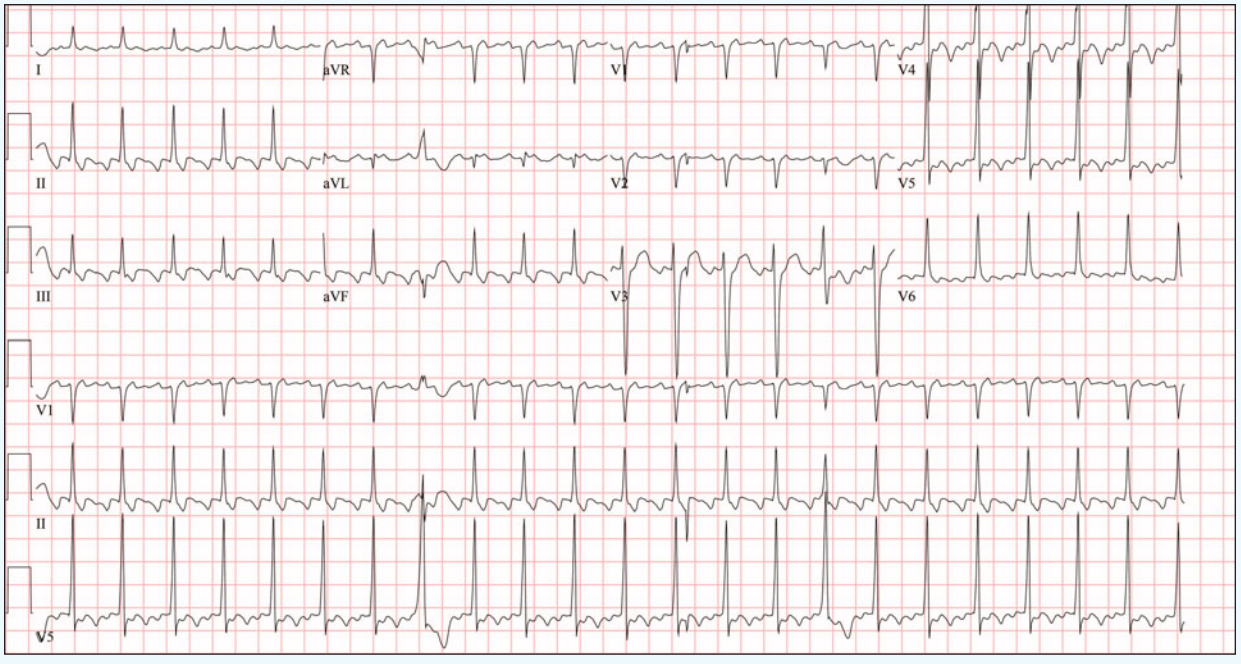

Figure 1. Initial ECG

The patient is a 45-year-old male who presents with palpitations for the past 30 minutes. He denies chest pain, dizziness, or syncope. His vital signs are normal aside from tachycardia and he appears to be in no acute distress.

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

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

THE RESOLUTION

Figure 2. Asterisks mark P waves with an atrial rate of approximately 300 bpm. Note the characteristic "sawtooth" pattern.

Differential Diagnosis

- Sinus tachycardia
- AV nodal reentrant tachycardia (AVNRT)
- AV reentrant tachycardia (AVRT)
- Atrial tachycardia
- Atrial flutter with fixed conduction block

Diagnosis

This patient was diagnosed with atrial flutter, 2:1 conduction. The ECG illustrates a regular, narrow-complex tachycardia at a rate of 150 bpm. There are P waves preceding every QRS complex, most clearly identified in the anterior precordial leads (V1-V3). The intervals are normal and there are no obvious signs of ischemia. There are occasional premature ventricular contractions.

Following identification of a narrow-complex tachycardia and a determination of clinical stability (absence of hypotension or signs/symptoms suggestive of poor perfusion), a detailed evaluation of the ECG can narrow the differential.

First, a regular rhythm as seen in our patient can quickly exclude atrial fibrillation, multifocal atrial tachycardia, and atrial flutter with variable conduction block.

Next, proceed with a careful inspection for the presence of P waves and, if identified, the atrial rate. Accelerated atrial rates (>250 bpm) are associated with atrial flutter or atrial tachycardia. For our patient, we noted initially that P waves were visible preceding every QRS complex in V1-V3; however, there is an atypical appearance to P waves in the limb leads (specifically II, III and aVF) where the expected isoelectric baseline is replaced by identical-appearing "sawtooth" waves (**Figure 2**). These atrial flutter waves occur at a rate of approximately 300 bpm, complemented by a ventricular rate of 150 bpm, suggesting 2:1 AV conduction.

The morphology of the P wave can offer additional information regarding the origin of tachycardia. P waves suspected to arise from the sinus node are suggested by sharing a similar morphology to a historical ECG in sinus rhythm when available, or having a normal axis (upright in lateral, inferior leads, inverted in aVR). In these cases, sinus tachycardia (appropriate or otherwise), atrial tachycardia, or sinoatrial nodal reentrant tachycardia (SANRT) should be suspected.

The same evaluation of P wave morphology may identify retrograde P waves, where atrial activity originates at the AV node and proceeds backwards (inferior-to-superior), producing inverted P waves in inferior leads. Narrow-complex tachycardias originating at the AV node (producing retrograde P waves) include AVRT and AVNRT.

If P waves are difficult to identify, vagal maneuvers (eg, Valsalva, carotid sinus massage) or adenosine administration and resultant slowing of SA nodal activity and delayed AV nodal conduction may help unmask atrial activity, terminate the arrhythmia, or otherwise offer diagnostic clarity (eg, temporary slowing of sinus tachycardia).

Learnings/What to Look for

- For stable patients with narrow complex tachycardia, begin by determining if the rhythm is regular or irregular. The latter suggests atrial fibrillation, multifocal atrial tachycardia, or atrial flutter with variable conduction block
- When P waves are identifiable:
  - Atrial rates greater than 250 bpm suggest atrial flutter or atrial tachycardia
  - Look for retrograde P waves; these indicate AVRT or AVNRT
- If P waves are not identifiable, vagal maneuvers or adenosine can aid with diagnosis or terminate certain tachyarrhythmias

Pearls for Initial Management and Considerations for Transfer

- Assess for stability; hypotension or signs/symptoms suggestive of poor perfusion (eg, altered mental status, dyspnea, chest pain) require stabilization and transfer

Resources

- Link MS. Clinical practice. Evaluation and initial treatment of supraventricular tachycardia. *N Engl J Med.* 2012;367(15):1438-1448.
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New ICD-10-CM Codes in Effect as of October 1

MONTE SANDLER

It's time for the major release of ICD-10-CM that occurs on October 1 every year. For 2023, this update reflects 1,468 new codes, 251 deleted codes, 35 revised codes, and 36 codes converted to parent.

Like the last few updates, Social Determinants of Health (SDOH) are front and center. SDOH are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. The U.S. Department of Health and Human Services groups these into: Economic Stability, Education Access and Quality, Health Care Access and Quality, Neighborhood and Built Environment, and Social and Community Context.[1]

From a coding perspective, SDOH may increase the level for the element Risk of Complications and/or Morbidity or Mortality of Patient Management. According to the 2021 revisions to the office/outpatient E/M guidelines, SDOH are included as a moderate risk level of medical decision-making, but only when it's clear that SDOH have a significantly limiting impact on the treatment. In ICD-10-CM, SDOH-related codes are in the Z55-Z65 range:

- Z55 – Problem related to education and literacy
- Z56 – Problems related to employment and unemployment
- Z57 – Occupational exposure to risk factors
- Z58 – Problems related to physical environment
- Z59 – Problems related to housing and economic circumstances
- Z60 – Problems related to social environment
- Z62 – Problems related to upbringing
- Z63 – Other problems related to primary support group, including family circumstances
- Z64 – Problems related to certain psychosocial circumstances
- Z65 – Problems related to other psychosocial circumstances

Monte Sandler is Chief Operating Officer of Experity (formerly DocuTAP and Practice Velocity).

In 2023, code set Z59.8- (Other problems related to housing and economic circumstances) is expanded to capture ways in which a patient's health is affected by their social circumstances in much greater detail. This expansion allows providers to be more specific when coding for other problems related to housing and economic circumstances. The addition of a fifth digit allows you to document transportation insecurity, financial insecurity, and material hardship.

The three new codes and their inclusion terms are:

- Z59.82 (Transportation insecurity) – Includes excessive transportation time along with inaccessible, inadequate, lack of, unaffordable, unreliable, and unsafe transportation
- Z59.86 (Financial insecurity) – Includes bankruptcy, burdensome debt, economic strain, financial strain, money problems, running out of money, unable to make ends meet
- Z59.87 (Material hardship) – Includes material deprivation and inability to obtain adequate childcare, adequate clothing, adequate utilities, and basic needs

Language was added to the ICD-10 guideline instructing that as many SDOH codes as are necessary to describe all of the problems or risk factors should be assigned. However, they should only be assigned when the documentation specifies that the patient has an associated problem or risk factor. The example given is that ICD Z60.2 (Problems related to living alone) would not be applied to every individual that lives alone.

An ICD can be added for SDOH based on clinical staff documentation.

ICD-10 2023 also expands the patient noncompliance codes. You'll now be able to report various reasons for a patient's inability or unwillingness to follow medical treatment with the following new codes:

- Z91.110 (Patient's noncompliance with dietary regimen due to financial hardship)
- Z91.118 (Patient's noncompliance with dietary regimen for

other reason)
- Z91.119 (Patient's noncompliance with dietary regimen due to unspecified reason)
- Z91.190 (Patient's noncompliance with other medical treatment and regimen due to financial hardship)
- Z91.198 (Patient's noncompliance with other medical treatment and regimen for other reason)
- Z91.199 (Patient's noncompliance with other medical treatment and regimen due to unspecified reason)

In addition, another new category of codes allows for the assignment of caregiver noncompliance and reasons for such compliance. Under this new category, Z91.A- (Caregiver's noncompliance with patient's medical treatment and regimen), codes are similar to the patient noncompliance codes above:
- Z91.A10 (Caregiver's noncompliance with patient's dietary regimen due to financial hardship)
- Z91.A20 (Caregiver's intentional underdosing of patient's medication regimen due to financial hardship)
- Z91.A28 (Caregiver's intentional underdosing of medication regimen for other reason)
- Z91.A3 (Caregiver's unintentional underdosing of patient's medication regimen)
- Z91.A4 (Caregiver's other noncompliance with patient's medication regimen)
- Z91. A9 (Caregiver's noncompliance with patient's other medical treatment and regimen)

Wording was added to the underdosing guidelines, stating that "documentation of a change in the patient's condition is not required in order to assign an underdosing code. Documentation that the patient is taking less of a medication than is prescribed or discontinued the prescribed medication is sufficient for code assignment."[2] Therefore, the medical record simply needs to show the patient is not taking the prescribed dose of a medication, not that underdosing is adversely affecting the patient's condition. Code T36-T50 for the underdosing, along with the appropriate noncompliance (Z91.12-, Z91.13-, and Z91.14) or complication of care (Y63.6- Y63.9) code(s) per the updated guideline.

Other ICD updates apply to head injuries. Code set S06.0X (Concussion) was expanded with new code S06.0XA- (Concussion with loss of consciousness status unknown). The seventh digit will then identify the encounter, similar to other injuries.
- S06.0XAA (Concussion with loss of consciousness status unknown, initial encounter)
- S06.0XAD (Concussion with loss of consciousness status unknown, subsequent encounter)
- S06.0XAS (Concussion with loss of consciousness status unknown, sequela)

Previously, there was no option if loss of consciousness was unknown.

In 2023 there will be new additions to the current code sets for substance use by adding a fifth digit:
- F10.90 (Alcohol use, unspecified, uncomplicated)
- F10.91 (Alcohol use, unspecified, in remission)
- F11.91 (Opioid use, unspecified, in remission)
- F12.91 (Cannabis use, unspecified, in remission)
- F13.91 (Sedative, hypnotic, or anxiolytic use, unspecified, in remission)
- F14.91 (Cocaine use, unspecified, in remission)
- F15.91 (Other stimulant use, unspecified, in remission)
- F16.91 (Hallucinogen use, unspecified, in remission)
- F18.91 (Inhalant use, unspecified, in remission)
- F19.91 (Other psychoactive substance use, unspecified, in remission)

Finally, code set T43.6- (Poisoning by, adverse effect of and underdosing of psychostimulants) will have a new section solely for methamphetamine use. The new codes you'll have for this condition in ICD-10 2023 are:
- T43.65 (Poisoning by, adverse effect of and underdosing of methamphetamines)
- T43.651 (Poisoning by methamphetamines accidental (unintentional))
- T43.651A (Poisoning by methamphetamines accidental (unintentional), initial encounter)
- T43.652 (Poisoning by methamphetamines intentional self-harm)
- T43.652A (Poisoning by methamphetamines intentional self-harm, initial encounter)
- T43.653 (Poisoning by methamphetamines, assault)
- T43.653A (Poisoning by methamphetamines, assault, initial encounter)
- T43.654 (Poisoning by methamphetamines, undetermined)
- T43.654A (Poisoning by methamphetamines, undetermined, initial encounter)
- T43.655 (Adverse effect of methamphetamines)
- T43.655A (Adverse effect of methamphetamines, initial encounter)
- T43.656 (Underdosing of methamphetamines)
- T43.656A (Underdosing of methamphetamines, initial encounter)

All of these changes are effective as of October 1, 2022. ■

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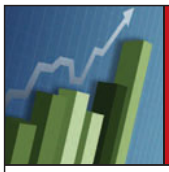


The Data Are Clear: Urgent Care Visits Almost Always Suffice for Low-Acuity Cervical Trauma

Reducing the need for patients to visit hospital emergency rooms (as well as the associated cost) is an essential attribute and key selling point of the urgent care industry. Remarkably few studies have been conducted to confirm this in practice, however. But when they are undertaken, they tend to prove that this isn't just hype; proper utilization of urgent care really can preclude the need for many patients to go to the ED, and that really does save money.

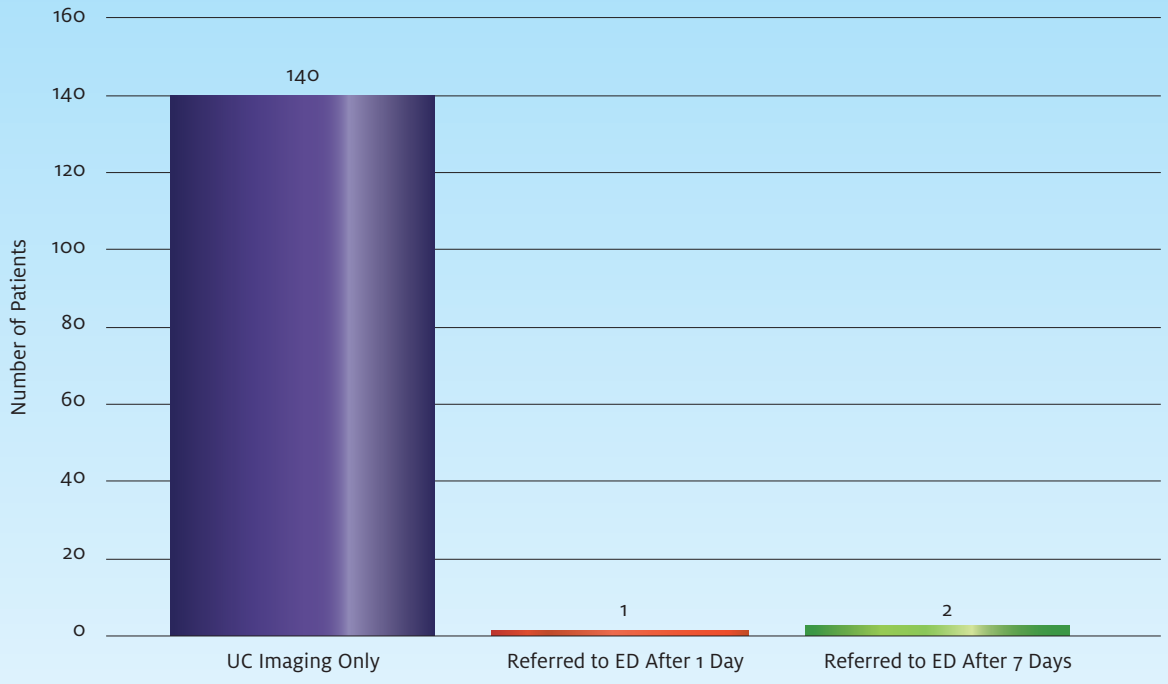
Case in point: A recent study concerning patients who presented to an urgent care center with what was ultimately deemed to be minor cervical trauma showed that only 1.4% of patients who received initial imaging for their injuries in the urgent care center had to be referred to the emergency room for further imaging (see the graph below).[1]

Actual savings associated with the 4-month study period amounted to $3,696.25. The authors extrapolated that figure to project that annual savings would be $11,088.74. In addition, using average cost of an urgent care visit compared with an emergency visit, they predicted that proper utilization of urgent care could produce savings of $437,928 per year. ■

References

1. Virji AZ, Cheloff AZ, Ghoshal S, et al. Analysis of self-initiated visits for cervical trauma at urgent care centers and subsequent emergency department referral. *Clin Imaging*. 2022;91:14–18.

PATIENTS REFERRED—AND NOT REFERRED—TO THE ED FOR CERVICAL TRAUMA IMAGING AFTER UC IMAGING DURING THE 4-MONTH STUDY PERIOD



Data source: Virji AZ, et al. *Clin Imaging*. 2022;91:14–18.

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