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1. Abbott ID NOW™ Influenza A&B 2 Clinical Assertion Data Held on File **2.** Merckx J, Wali R, Schiller I, et al. Diagnostic Accuracy of Novel and Traditional Rapid Tests for Influenza Infection Compared With Reverse Transcriptase Polymerase Chain Reaction: A Systematic Review and Meta-analysis.Ann Intern Med. 2017 Sep 19;167(6):394-409 **3.** Abbott. ID NOW™ Strep A 2 Clinical Assertion Data Held on File **4.** Chartrand, C. et al. Diagnostic Accuracy of Rapid Antigen Detection Tests for Respiratory Syncytial Virus Infection: Systematic Review and Meta-analysis. J Clin Microbiol. December 2015 vol. 53 no. 12 3738-3749

'As Little as Necessary...' – A Mantra for Urgent Care

"Do as little as necessary, not as much as possible."

This is the mantra I recite throughout every urgent care shift without fail—that's how mantras work after all. Hearing the word "mantra" might conjure images of a placid-faced yogi seated in the lotus position for some, but a mantra needn't serve only spiritual practice. A well-conceived mantra can also prove useful when deployed in any context where we might benefit from being reminded frequently to act differently than if left to the mercy of our habits or human nature. Clinical urgent care practice, in many ways, is certainly this sort of context.

Not only do I recite this mantra repeatedly on every shift, but I've also made a stylized version of the text my desktop background. This mantra is specifically important in urgent care (UC) because doing more can prove to be a constant temptation because *there's often little resistance to doing more*.

"Do as little as necessary, not as much as possible."

Patients want more testing because they believe that more data equates to better care. We can have shorter conversations with our patients if we just "run some tests" rather than explaining our clinical reasoning as to the pros and cons of getting a flu swab or a mono test. More testing is also usually more revenue, so it's rare for administrators to bring up any concerns about overtesting. Similarly, offering a prescription for every symptom and an antibiotic when we are on the fence takes less time and effort than counseling patients about nonpharmacologic management and unfavorable side effect profiles.

Indeed, this is the moment when we find ourselves at the metaphorical decision intersection, where "Do More Avenue" crosses "Do Less Lane." And if we look in the "Do Less" direction it's usually red lights all the way down the road. This is why the mantra serves as such a dutiful reminder: "Do as little as necessary, not as much as possible." Doing more may be alluring for UC clinicians, but it's usually a trap.

When It's Best Not to Test

Let's turn our attention first to test ordering and diagnostic uncertainty. Diagnostic uncertainty exists to varying degrees throughout all of medicine but is nearly ubiquitous in UC. This is why it's much better for us (and especially for our patients) to practice embracing this reality rather than ordering haphazard or non-specific laboratory testing. While it is tempting to believe that collecting more data must necessarily reduce uncertainty, this premise proves misguided in practice. At times, ordering every lab test for which there's a box to click may be simply futile, more commonly (and ironically) however, doing so results in a post-test situation in which more uncertainty exists than if we had obtained no lab data whatsoever.

Imagine a 28-year-old, otherwise healthy, woman comes into your UC because she's had 4 months of intermittent, non-menses related, diffuse abdominal cramping with some fatigue. She's eating well and hasn't had vomiting, urinary, or bowel habit changes. Her weight has been stable. Even more reassuring, her vital signs are normal, and her abdomen is completely non-tender. You even check a urine pregnancy test, which is negative. What are the chances that there is a dangerous condition causing this patient's symptoms? Probably somewhere between quite low and extremely low. But how can we be certain?

You might find yourself thinking, "some screening labs would be helpful here to make sure this isn't anything more serious than it seems." Because there are other patients waiting (as there always are), you make those 2 effortless clicks to obtain a complete blood count (CBC) and metabolic panel (CMP): "CBC, check; CMP, check." Perhaps you even throw in a urinalysis and a lipase for good measure—click, click—after all, it's tempting to believe that if you cast a wider net, you're more likely to catch a fish.

The Subtly Pivotal Decision Point

When we find ourselves at the point where we must decide which of the boxes (if any) to click, we have reached the imaginary intersection of the 2 roads: more or less? The problem is that this is an insidiously and unsuspectingly important moment. Many UC clinicians, myself included, have mistakenly thought it prudent, even conscientious, to order such "screening" laboratory work-ups for patients such as the one described above. We have done so often subconsciously considering that the results would yield 1 of 2 possible outcomes: A.) Tests will return normal, and we can both breathe a sigh of relief; or B.) Tests will be abnormal, and we will have an answer to the cause of the patient's symptoms (or at least a clear path forward for continued work-up). If this were true, casting a wide net would be of tremendous utility. However, for anyone who has practiced even a few months in UC, you will realize that what I've described does not correspond with how this scenario typically unfolds.

What more commonly occurs is a third possible scenario: 1 or more lab values will return just slightly outside the reference range. Now we are forced to act on this information. The ostensibly innocuous set of clicks we rushed through after first seeing the patient now have gathered momentum; they are beginning to show that they can produce some less-than-subtle implications on the subsequent conversations and the additional testing that we are compelled towards in response to the results. Encountering incidental findings in such a way is an experience we can all relate to. And I'd be surprised if many of you felt that following up on incidental lab abnormalities is a valuable or enjoyable part of the job.

Avoid Adding Ambiguity to Uncertainty

Now it's the next day. The young woman's labs are back, and the unexpected yet predictable has occurred: exclamation points and red flags sporadically dot the laboratory values. Now we find both ourselves and our patient in differently unfortunate yet similarly unenviable positions. Let's imagine the patient's white blood cell (WBC) count is slightly elevated at 11,000, or her AST is 85 IU/L, or her urine microscopy shows 10-50 WBC. Are we any closer to determining a clear cause of her abdominal pain? Have we ruled anything out beyond what we could've reasonably excluded with our history and exam alone? In truth, we ordered the lab tests not because we were concerned for an imminently dangerous condition but rather because we couldn't explain the cause of her symptoms. And the abundant data we collected hasn't altered that reality.

It's not surprising that the anxiety of diagnostic uncertainty compels us into less than rational workups. Feeling unsettled in cases of doubt is human nature of course. However, in UC, such diagnostic uncertainty is far more common than the converse: instances where we can arrive upon a definitive explanation for a patient's presentation. Getting a positive result on an influenza or gonorrhea test are a few of the rare exceptions. This means that our success as UC clinicians is largely determined by our ability to comfort ourselves and accept this uncertainty. Equally, however, our success also depends on our ability to communicate effectively about the inevitability of uncertainty with our patients, especially when they present with seemingly benign and vague presentations like the young woman mentioned above. When UC clinicians fail to embrace this reality in such instances, reflexive patterns of test ordering often result.

Furthermore, it turns out that non-specific presentations are rarely clarified by non-specific labs. In fact, more often we realize that we've actually made the situation worse. And it's at this point that we are forced to address the ambiguous, likely irrelevant, incidental lab abnormalities, which have been heaped onto the initial uncertainty, leaving us with greater complexity and confusion than when we began our assessment.

This is why it is critical for UC clinicians to develop a level of comfort in ourselves to cope with the common diagnostic uncertainties that arise on every shift and subsequently communicate this reality to our patients in a reassuring manner. Overcoming our reflexive discomfort resulting from not having an answer takes significant conscientiousness. This is where the mantra comes in handy: "Do as little as necessary, not as much as possible."

It's a calming reminder that ordering fewer tests does not equate to practicing reckless urgent care medicine. We must develop this awareness about the knee-jerk ordering of tests in the face of uncertainty first to allow for own apprehensions to be sufficiently quieted. Conversely, if we remain anxious about uncertainty, it is unlikely we will be able communicate with enough confidence to reassure our patients.

Ultimately, an approach that does not involve test ordering must feel comfortable to both the patient and us. If we can accept this uncertainty, we can more effectively assure our patients and their families that leaving UC without a clear diagnosis is normal, common, and preferable to the alternative: ordering a laundry list of non-specific labs, which more commonly will produce the opposite effect of what they're seeking. We will be serving our patients much better (as well as whichever of our poor colleagues would be forced to follow-up on the results)

to instead take this moment to provide education about the insidious dangers of the pervasive, yet flawed, premise that more data equals more certainty.

Changing the Target from Diagnosis to Disposition

I frequently observe clinicians who have recently transitioned to UC from primary care or specialty practices struggle with diagnostic uncertainty most. In primary or specialty care, the goal is almost universally arriving upon a diagnosis to explain the patient's symptoms. For that reason, the transition from school or postgraduate medical training into these practices is less jarring because in training, we are taught that diagnosis is the objective. Get the diagnosis right, get the treatment right, and the patient gets better. The problem is that this is a fairy tale version of medicine and reality is seldom this tidy, so we'll feel more comfortable in our practice if we are prepared for the more likely eventuality where not everyone lives happily ever after.

It took me nearly my entire residency in emergency medicine to develop comfort with the loss of this Panglossian vision of how medicine was "supposed to work." This ultimately occurred when I realized that my frequent frustrations were arising because I was unwittingly aiming for the wrong target. I didn't realize that what mattered most was *not* getting the diagnosis right (which was almost always impractical during an emergency department [ED] visit) but rather making the right decision about what should happen next for the patient. It was much more important, for example, that I made the right call to admit patients who were seriously ill to the intensive care unit than it was for me figure out exactly why they were so sick. Things worked out much better for everyone involved if the provisional diagnosis was wrong, but the disposition was right compared to the converse.

Urgent care, when it's practiced most effectively, must operate the same way: our priority should be determining the safest disposition for our patients. However, we have less time and fewer tools in our clinics than I had in the ED. Therefore, it's even less likely that we would be able to make a definitive and accurate diagnosis in UC. However, based on the patient's presentation and our ability to conceive of an appropriate list of differential diagnoses, we can certainly make safe and rational decisions about where the patient should go after they leave our UC. In other words, getting the disposition right is imminently possible so long as we make this our primary objective.

While changing our focus from diagnosis to disposition may feel like a major shift in mindset—and it is—it also allows us to practice with more peace of mind. As you've undoubtedly experienced, arriving at an accurate diagnosis with certainty in UC is uncommon. By shifting our mark to a much more achievable target, our practice will feel more rewarding. After all, it's not surprising that we would feel demoralized if we are expecting to reach a goal that borders on impossible in most cases. Disposition focused care, instead, is a much more sustainable headspace to practice from.

Also consider that for many patients with non-specific symptoms, a clear diagnosis will never be reached. For example, up to 80% of patients with dizziness never receive a specific diagnosis.[1] This is why we should be glad we work in UC and not in a specialty clinic where idiopathically dizzy patients are referred.

It also turns out that shifting our attention towards an appropriate disposition is the more effective way to practice in terms of ensuring patient safety. If we get seriously ill patients immediately to the ED, possibly ill patients provisionally to the ED if their condition deteriorates, and non-seriously ill patients to appropriate outpatient follow-up, we've done our job well. And if we do all this without ordering non-indicated tests—which often do not help the disposition decision but do beget unnecessary downstream testing and iatrogenesis—so much the better. In fact, by embracing the inevitability of diagnostic uncertainty and transitioning our focus to disposition, we'll naturally feel more comfortable ordering less testing in the lower-risk situations, such as a young woman with long-standing belly pain or a middle-aged man with chronic fatigue.

"Do as little as necessary, not as much as possible." The mantra pops into your head again after seeing the 28-year-old with abdominal cramps. You can feel a weight lifted and breathe a sigh of relief as you uncheck all the lab order boxes in the EMR. You realize that this patient can go home and follow-up with her primary care provider (PCP) or perhaps a gastroenterologist. So, instead of firing off the CBC and CMP, you ask the patient to keep a journal of her diet and symptoms and bring it to her next PCP appointment in a few weeks. For good measure, you review with her the unlikely red flags that might arise. Counterintuitively, by doing less, you've done more for the patient. The mantra has saved you and the patient from the ambiguous data that you might formerly have referred to as "screening labs." Remember this in the moments when you're ever accused of not doing enough. You're not doing nothing, just as little as necessary, and that's the foundation of how urgent care is best practiced. ■

Reference

1. Bosner S, Schwarm S, Grevenrath P, Schmidt L, Horner K, Beidatsch D, et al. Prevalence, aetiologies and prognosis of the symptom dizziness in primary care - a systematic review. *BMC Fam Pract.* (2018) 19:33. doi: 10.1186/s12875-017-0695-0,

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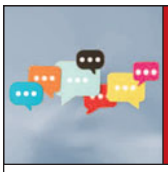

URGENT INTERACTIONS

"Be mindful. You can only do one thing at a time, no matter how much is going on. Multitasking is illusion, and you will mess something up."

— Joshua W. Russell, MD, MSc, ELS, FCUCM, FACEP
JUCM Editor in Chief

"Natural substances taken in pharmacologic doses are no longer natural. After all, poison ivy is 'natural.'"

— Michael Weinstock, MD
JUCM Senior Clinical Editor

"The College of Urgent Care Medicine has established a Specialty Task Force to spearhead the recognition of Urgent Care as a vital medical specialty. We've begun the process of fostering dialogue and collaboration across specialties and professional societies and are excited to be driving forward a unified vision for enhanced quality of care and professional recognition within Urgent Care."

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Lou Ellen Horwitz, MA

Amazon. Dollar General. Berkshire Hathaway. JPMorgan Chase. Walgreens. Walmart (*insert echo here*).

It's been an interesting few years watching these giants try to do what you do.

The biggest tragedy of all of this is the hundreds of millions of dollars that have been spent by these folks that could have been saved if someone on their end had simply picked up the phone and talked to one of us. No one called the Urgent Care Association (UCA), and if they did call one of you, they sure didn't listen to what you said.

What is it about hubris that makes people so willfully ignorant? I only have a bit of insider intelligence that hubris was a large part of these downfalls, but with incredible amounts of funding and otherwise smart and successful people involved, what else could it be? Urgent Care lived through the same set of circumstances and challenges with much less funding, and we are still here.

Becker's Health IT sought insights into the Walmart Health failure exclusively from hospital executives and no one else. These executives said that the reason Walmart exited is that the retail giant had a choice and health systems do not. Or that Walmart didn't understand the math, but I'm guessing they *did* take a look at that ahead of time. Or that they didn't have extensive enough relationships with the right partners who knew about medicine. And on and on.

What Makes Urgent Care Special?

The more interesting and important question for us is, what do we have that all of these otherwise successful companies do not? Perhaps it's that necessity is the mother of invention. Once you have more appropriate reimbursement that solves all of your problems will you stop innovating? Of course not. That's not how Urgent Care people seem to be made. You are really quite special.

The UCA Board has recently been having conversations about what makes UCA special. It's the last part of our multiyear deep dive on why UCA is here and what our role is in Urgent Care. We sorted out our core purpose several years ago: to ensure both the advancement and the long-term success of Urgent Care. Our strategic planning work (our "what") will always drive from that purpose. What we've been thinking about lately is who we all are and what makes us special—what is typically termed "the values conversation."

By the time you read this, we'll be close to wrapping that up and sharing it with you all polished and shiny via email and the website, but the messy middle we're in as I'm writing this now is a fascinating part of the work.

If you've ever been through a process like this, you know that it starts pretty generically with words like "excellence" and "passion," but when you poke at those words over and over and ask —very specifically—what they mean *here*, it's exciting to see what is discarded and what emerges. It starts to slowly reveal the heart of why Urgent Care is still in this very challenging sector of healthcare delivery when others have not been able to pull it off. It starts to reveal the things that we believe and embrace that seem to be making all the difference.

My hope, expectation, and belief is that when we get down to the few things that make UCA special, it will align almost perfectly with what makes Urgent Care special. After all, "we" are you. I can't wait to see how it turns out and to share it with you.

I want to close by teeing up a few happenings for the fall season! All of our Chapters are having their regional conferences this fall: September 22-24—the North East Regional Urgent Care Association (neruca.org); October 24-26—the Southeast Regional Urgent Care Association (seruca.org); and November 6-8—the California Urgent Care Association (for the whole Western region, caluca.org). Hope to see you there! ■

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

CONTINUING MEDICAL EDUCATION

Release Date: July 1, 2024
Expiration Date: June 30, 2025

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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1. To provide best practice recommendations for the diagnosis and treatment of common conditions seen in urgent care
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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Urgent Care Management of Scaphoid Fracture (page 13)

1. What percentage of scaphoid fractures are not visible on an initial plain x-ray?
a. 15%
b. 18%
c. 22%
d. 28%

2. Which of these tests would best help to confirm a suspected scaphoid fracture?
a. Tenderness with palpation at the anatomic snuffbox
b. Tenderness of the humerus
c. Tenderness of the distal phalanx
d. Lack of tenderness in hand and wrist

3. When a fracture is identified, stable fractures are defined by:
a. No displacement
b. Displacement of less than 1mm
c. Displacement greater 1mm
d. Displacement greater than 1.2mm

Fever of Unknown Origin: A Case Report of Babesiosis Infection (page 17)

1. What is babesiosis?
a. A tick-borne parasitic infection of the red blood cells
b. A disorder that causes red blood cells to become misshapen and break down
c. A rash over the cheeks and nose in the shape of a butterfly
d. All of the above

2. Per the Infectious Diseases Society of America, the treatment for babesiosis includes:
a. Rest and fluids
b. Doxycycline
c. Combinations of an antiparasitic agent and an antibiotic agent
d. Long-term sofosbuvir

3. Treatment for babesiosis is indicated for asymptomatic patients who have:
a. A positive blood smear with parasitemia for 24 hours
b. A positive blood smear with parasitemia for 3 days
c. A positive blood smear with parasitemia for more than a month
d. A negative blood smear without parasitemia

Escalating Back Pain Leading to a Diagnosis of ST-Elevation Myocardial Infarction (STEMI) in Urgent Care: A Case Report (page 50)

1. Which symptom(s) may be present in patients with acute coronary syndrome?
a. Back/neck pain
b. Fatigue
c. Dizziness/weakness/syncope
d. All of the above

2. What is the optimal course of action for patients presenting with ST-elevation myocardial infarction and ischemic symptoms?
a. Order an MRI
b. Immediate ambulance transport to an emergency department
c. Referral to cardiac specialist for follow-up
d. Referral to primary care provider for follow-up

3. Which patients with acute coronary syndrome are more likely to present with dyspnea or diaphoresis as opposed to chest discomfort?
a. Male patients and those ages 18-34 years old
b. Elderly patients and female patients
c. Children with asthma
d. Patients with multiple sclerosis

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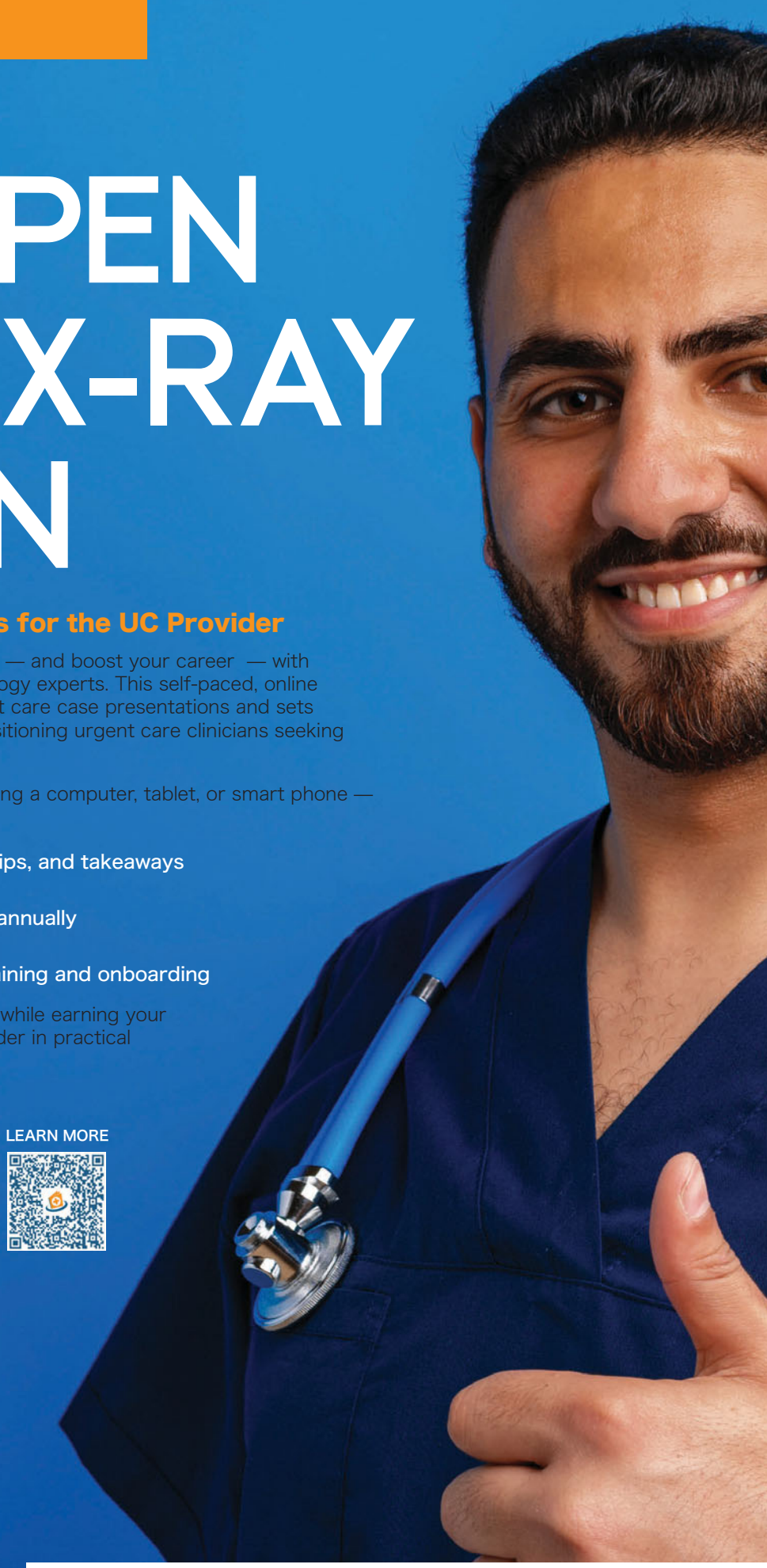

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Urgent Care Management of Scaphoid Fracture

Urgent Message: Scaphoid fractures most frequently occur at the mid aspect, or "waist" of the scaphoid, and require about 10 weeks of prolonged immobilization before slow return to normal function. Such fractures have high risk of complications and subsequent chronic pain and/or disability if not appropriately immobilized.

Naushair Hussain, DO; Shahmeer Hussain, DO; Clinton A. Hartz, MD

Citation: Hussain N, Hussain S, Hartz C. Urgent Care Management of Scaphoid Fracture. *J Urgent Care Med.* 2024; 18(10):13-16

Editor's Note: *While the images presented here are authentic, the patient case scenarios are hypothetical.*

Questions for the Clinician at the Bedside

1. What mechanisms of injury are most likely to produce a scaphoid fracture?
2. Why is it important to have a high index of suspicion for scaphoid fracture (even with negative wrist x-rays)?
3. Which history and exam findings are concerning for scaphoid fracture?
4. How should patients with 'negative' x-rays but concerning physical exam findings for scaphoid fracture be managed?

Clinical Scenario

A 56-year-old woman with no significant past medical history presents to the urgent care (UC) 3 hours after tripping and falling onto her outstretched hand (FOOSH). She complains of pain at the radial aspect of her left wrist, which is exacerbated with movement. She denies numbness or other injuries and has no neck, elbow, or shoulder pain.

On exam, the patient is noted to be holding her left hand in her lap in a guarded position. The left wrist is neither swollen nor showing deformity or bruising. However, there is tenderness to palpation that is most severe along the lateral aspect of the wrist and in the "anatomic snuffbox" and with axial loading of the thumb. The skin is intact and her neurovascular exam is normal.

A wrist x-ray is performed, which shows a transverse scaphoid fracture (**Image 1**).

The scaphoid fracture is the most common carpal fracture representing 90% of all cases.[1] This most commonly results from a FOOSH mechanism of injury, but can also occur in contact sports.[1] Scaphoid fractures more frequently occur at the mid aspect, or "waist," of the scaphoid, and require about 6-10 weeks of prolonged immobilization before slow return to normal function.[2] About 5-10% of cases occur at the proximal third, which takes 8-10 weeks to return to normal function, and 25% in the distal third with an average of 4-6 weeks of recovery.[2]

Up to one-quarter of patients presenting to an emergency department (ED) with wrist injuries where a scaphoid fracture is suspected (even with negative x-rays) will ultimately be diagnosed with scaphoid fractures.[3] About 15% of scaphoid fractures are not visible on an initial plain x-ray.[4] Due to the tenuous pattern of the bone's blood supply, scaphoid fractures, radiographically apparent or occult, are at increased risk of nonunion, avascular necrosis, carpal collapse, and osteoarthritis if not appropriately immobilized.[1,4]

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Relevant Anatomy

The 8 carpal bones of the wrist comprise 2 rows (distal and proximal), each consisting of 4 bones (**Image 2**). The scaphoid is the largest of the carpal bones in the proximal row. The majority of the scaphoid's blood supply is through the dorsal carpal branch of the radial artery, which supplies the proximal 80% of the scaphoid's blood supply through retrograde flow,[2,5] The distal 20% of the scaphoid's blood supply comes from the superficial palmar arch, which is a branch of the volar radial artery.[2,5] As the blood flow to the scaphoid is primarily retrograde, an injury leaves the proximal portion of the scaphoid at high risk for avascular necrosis (AVN).[1]

The anatomic snuffbox is a triangular depression evident on the dorsal radial aspect of the wrist with extension of the thumb. The 3 edges of the triangle are the radial styloid at the proximal base, the extensor pollicis brevis tendon on the radial side, and the extensor pollicis longus tendon on the ulnar side. The floor is the scaphoid bone (proximal) and the trapezium bone (distal). It is important to palpate and document the presence or absence of snuffbox tenderness in patients presenting with wrist injury.

"It is important to palpate and document the presence or absence of snuffbox tenderness in patients presenting with wrist injury."

History

The history should focus on the timing and mechanism of injury. If a FOOSH has occurred, a scaphoid fracture should be suspected specifically when there is a history of pain on the radial side of the wrist after a high impact injury, which may have occurred on a hyperextended wrist.[1] Pain with range of motion and other alleviating or exacerbating factors and the most precise location of the pain should be assessed as well as questions as to numbness, breaks in the skin, or other injuries.

Physical Exam

Examination begins with an inspection of the wrist for swelling. Gross deformity is rare with isolated scaphoid fracture and should raise suspicion of other wrist fractures. Neurovascular status should also be assessed, although gross derangements to neurovascular structures associated with scaphoid fracture are rare. Pain with resisted pronation and with circumduction of the wrist are concerning findings.[1] Three additional tests to evaluate for suspected scaphoid fracture include the following, and a finding that all 3 tests are positive has a 74% specificity for a scaphoid fracture.[2]

1. Tenderness with palpation at the anatomic snuffbox – Sensitivity: 96%, Specificity: 39%.[3]
2. Scaphoid tubercle tenderness (assessed by extending the patient's wrist and applying pressure to the tuberosity at the proximal wrist crease) – Sensitivity: 82-100%, Specificity: 17-57%.[6]
3. Scaphoid compression test/axial compression of thumb (assessed by compressing the patient's thumb along the axis of first metacarpal) – Sensitivity: 82%, Specificity: 58%.[3]

Image 1. Wrist X-ray Showing Lucency in Middle Third of Scaphoid

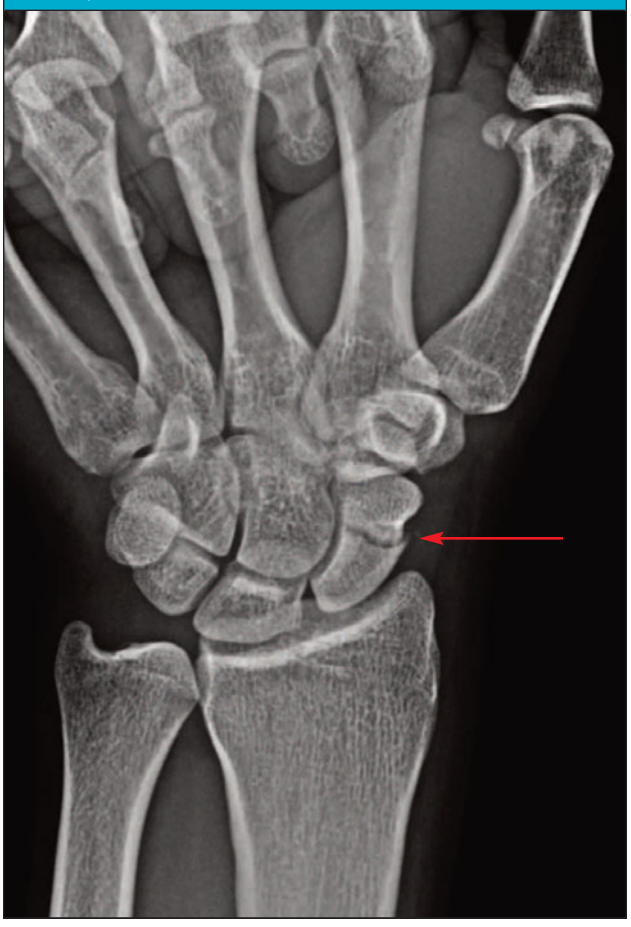
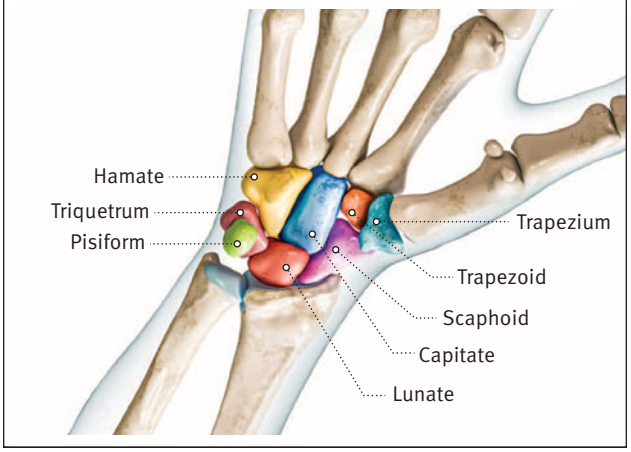


Image 2. Anatomy of the Wrist



Radiographic Assessment

A stepwise approach to evaluation of the wrist x-rays will avoid missing important findings. When a scaphoid fracture is suspected, radiographic views should include posteroanterior (PA), lateral, semipronated oblique with the wrist in 45 degrees of pronation, semisupinated oblique with the wrist in 45 degrees of supination, and scaphoid views. The scaphoid view is taken with the wrist in 30 degrees of extension and 20 degrees of ulnar deviation.[1]

Look specifically at the scaphoid for:

- Breaks in the cortex
- Disruption in the trabeculation patterns
- Lucencies within the bone
- Angulation or impaction
- A "fat pad" sign on the radial aspect of the scaphoid bone.[3]

When X-rays yield negative results, the recommended advanced imaging modality for suspected scaphoid fractures is magnetic resonance imaging (MRI) of the wrist, which has a sensitivity of 96% and specificity of 98% for scaphoid fracture.[3] When available, MRI during the initial assessment has been shown to be more cost-effective than immobilization followed by subsequent imaging.[1,7,8,9] In cases where same-day MRI is unavailable (ie, most UC settings), wrist splinting until reassessment or MRI can be conducted is reasonable and appropriate. In cases where an MRI does not reveal abnormalities, patients are unlikely to derive significant benefit from cast immobilization and can thus commence earlier mobilization.[2] It is recommended to conduct a follow-up clinical examination if symptoms persist without improvement within 3-4 weeks following initial injury.[2]

Management of Suspected Scaphoid Fracture in the Urgent Care

If no fracture is visible on radiographs of the wrist, but a fracture is clinically suspected, then the patient should be splinted in a rigid sugar tong with thumb spica.[1,8,10] Avascular necrosis leading to nonunion and chronic pain is more common if fracture is initially not completely immobilized.[1] Patients should follow up, ideally with an orthopedic specialist, and have repeat x-rays in 1-2 weeks to confirm whether evidence of fracture is apparent.[4]

When a fracture is identified on the initial radiographs, the next step involves determination of the pattern as stable or unstable then arrange rapid orthopedic follow-up. Stable fractures have a displacement of <1 mm, normal intercarpal alignment, and involve the distal pole. Unstable fractures are defined as >1 mm displacement, associated carpal bone angle instabilities, comminution, dorsal intercalated segmental instability, or involve the proximal pole. This classification is useful in determining whether patients will benefit from operative management.[1]

Nonoperative management is generally the preferred approach for fractures of the distal one-third and/or those that are minimally or nondisplaced (ie, stable).[1] Patients are generally immobilized in a cast of the orthopedist's choosing for 6-8 weeks. When operative management is pursued, percutaneous screw fixation or open reduction internal fixation are the common approaches orthopedists may implement.[1]

Return to sport needs to be individualized based on the type of activity and should be dictated by the orthopedist caring for the patient at follow-up. Patients can be given general guidance that at least 4 weeks, and up to 12 weeks, away from sport should be expected.[1]

Next Level Urgent Care Pearls

- Explore scaphoid fracture cases for other mechanisms of injury. If the injury occurred because of an altercation, consider injuries the patient may not be forthcoming about, including head or neck injury.
- When explaining the x-ray results to a patient, ensure they understand that a negative x-ray does not completely exclude a fracture.
- The advanced imaging test of choice for suspected scaphoid fractures with negative x-ray is an MRI scan of the wrist, which has a sensitivity of 96% and specificity of 98%.[3]

Red Flags and Legal Pitfalls

Data from 2 United Kingdom studies spanning roughly

1995-2012 on all litigation claims made as a result of wrist and scaphoid fractures found that reasons for litigation most commonly involved misinterpretation of x-rays, failure to immobilize, and delayed operative fixation.[11] Approximately 74% of these litigation claims were settled resulting in a total payout of roughly $13 million (US).[8] This highlights the importance of informing the patient that a negative x-ray does not exclude scaphoid fracture. Additionally, it is critical to examine the other carpal bones and their alignment for possible dislocation, as this represents a surgical emergency.

"It is critical to examine the other carpal bones and their alignment for possible dislocation, as this represents a surgical emergency."

Clinical Scenario Conclusion

The patient had a wrist x-ray series that demonstrated a lucency across the mid aspect of the scaphoid, confirming diagnosis of scaphoid fracture. The patient was splinted in slight dorsiflexion with radial deviation in a sugar tong with thumb spica, and referred to an orthopedic specialist for follow-up in 3 days. The patient did follow up as instructed and the splint was changed to a cast. She was treated nonsurgically and immobilized for an additional 6 weeks, at which point the cast was removed with a good functional outcome.

Takeaway Points

- Scaphoid fractures are radiographically occult in 15% of cases and commonly occur with other serious wrist and forearm injuries. Evaluate the PA, oblique, and lateral radiographs, looking for additional fractures and/or dislocations, specifically for a carpal-metacarpal dislocation.
- Due to the tenuous blood supply of the scaphoid bone, the incidence of malunion and associated chronic pain and disability associated with missed scaphoid fractures is common.
- MRI, where available, is the preferred initial imaging modality to evaluate for suspected scaphoid fracture.
- If MRI is not available and there is tenderness over the anatomic snuffbox, scaphoid tubercle, and/or with axial loading of the thumb, the patients should be splinted as if there were a fracture, even if none is evident on x-ray.
- Proximal scaphoid fractures and those with >1mm of displacement are more likely to require surgical fixation.

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Case Report

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Fever of Unknown Origin: A Case Report of Babesiosis Infection

Urgent Message: With the incidence of babesiosis rising, clinicians are encouraged to consider the totality of presentation including risk factors based on endemic region, recent travel or tick bite, and clinical signs and symptoms.

Batsheva R. Sholomson, DO; Danielle Langan, DO; Abbas Husain, MD; Shorok Hassan, DO

Citation: Sholomson BR, Langan D, Husain A, Hassan S. Fever of Unknown Origin: A Case Report of Babesiosis Infection. *J Urgent Care Med.* 2024; 18(10):17-21

Key Words: Babesiosis, parasites, ticks, hemolytic anemia, hemolysis, fevers

Abstract

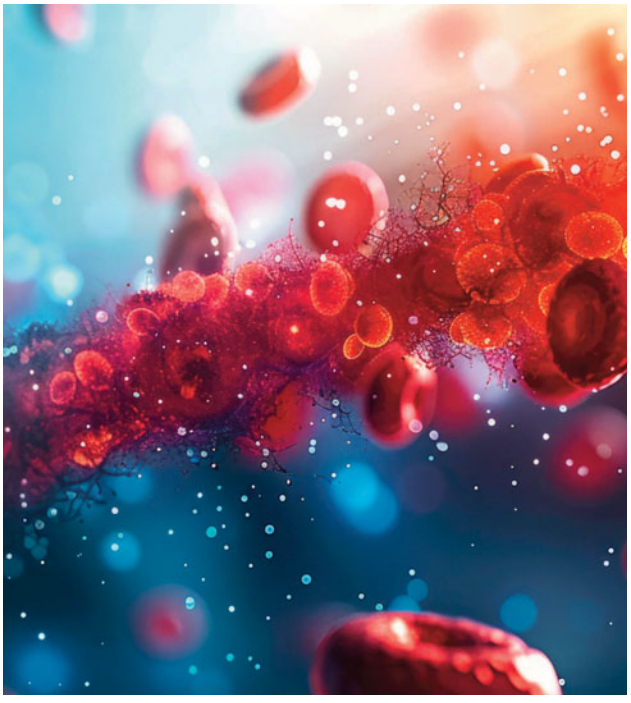
Introduction: Babesiosis is a tick-borne, zoonotic parasitic infection of the red blood cells that can present with a variety of non-specific signs and symptoms.

Clinical presentation: A 65-year-old man with a past medical history of diabetes and atrial fibrillation presented to an emergency department with a persistent fever for 10 days. The patient noted that he hiked frequently in the woods. On presentation, his vital signs were notable for a temperature of 102.6°F (39.2°C) and a heart rate of 120 beats per minute.

Work-Up and Diagnosis: On laboratory assessment, abnormalities identified by the treating clinicians included anemia, thrombocytopenia, and elevated liver enzymes. The pattern fit that of a hemolytic anemia. A *Babesia* polymerase chain reaction test was positive, and the peripheral blood smear showed intracellular red blood cell parasites consistent with *Babesia* infection.

Resolution: The patient was treated for a total of 10 days with oral atovaquone 750 mg twice daily and azithromycin 500 mg once daily. His parasitemia on peripheral blood smear subsided on repeat testing.

Conclusion: The incidence of babesiosis has been rising with the potential to manifest as a life-threatening illness. This case highlights the importance of considering the totality of presentation including risk factors based on endemic region, recent travel or tick bite, and clinical signs and symptoms.



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Introduction

Babesiosis is a zoonotic disease caused by many different *Babesia* species that infect a wide array of wild and domestic animals serving as vertebrate reservoirs. Humans are incidental hosts wherein only a few *Babesia* species are known to cause diseases in humans. Specifically, *Babesia microti* is the species most commonly found to affect people in the United States.[1] Babesiosis is a parasitic infection of the red blood cells, and the incidence of babesiosis has been rising with the potential to manifest as a life-threatening illness.[2] Being able to identify signs and symptoms in the urgent care (UC) or emergency department (ED) setting is crucial to making the diagnosis and starting appropriate and timely treatment. This article will focus on the key areas of recognition, evaluation, testing, management, and, ultimately, treatment of babesiosis.

Case Presentation

A 65-year-old man with a past medical history of diabetes mellitus and atrial fibrillation presented to an ED with a persistent fever for 10 days. The maximum recorded temperature at home was 103°F (39.4°C). Associated symptoms included chills, fatigue, nausea, and weight loss of 8lbs. The patient noted that he frequently hiked in the woods. He denied chest pain, cough, difficulty breathing, vomiting, diarrhea, abdominal pain, dysuria, recent travel, known tick bites, or sick contacts.

Physical Exam

On presentation, his vital signs were notable for a temperature of 102.6°F (39.2°C), heart rate of 120 beats per minute, blood pressure of 157/79 mmHg. His respiratory rate and oxygen saturation were normal. He was nontoxic appearing and in no distress. He had no conjunctival injection, rhinorrhea, pharyngeal erythema, or abnormalities of tympanic membranes. On cardiovascular exam, he had an irregular rate and rhythm with no murmurs. His abdominal exam and pulmonary exam were normal. He had no rash. On neurological assessment, he was alert and answered questions appropriately, and had no focal deficits.

The patient had extensive testing for undifferentiated fever of unknown origin including complete blood count (CBC) with differential, complete metabolic panel, blood cultures, urinalysis and urine culture, chest x-ray (CXR), inflammatory markers, lactate dehydrogenase (LDH), haptoglobin, and peripheral blood smears.

His laboratory results were significant for: 1) normocytic anemia with hemoglobin level of 13.6 g/dL, hematocrit of 39.5%, MCV of 87.8 fL; 2) thrombocytopenia with platelet count of 74 x 10^9/L; 3) a hemolysis patter with elevated LDH of 602 U/L and haptoglobin of <20 mg/dL and mild hyperbilirubinemia with total bilirubin of 1.5 mg/dL, indirect bilirubin of 1.2 mg/dL, and direct bilirubin of 0.3 mg/dL; 4) mildly elevated liver enzymes with AST of 43 U/L and ALT of 42 U/L; 5) lymphopenia with atypical lymphocytes and reactive lymphocytes. The CXR was unremarkable, and a *Babesia* polymerase chain reaction (PCR) was positive. The peripheral blood smear showed parasitemia of 4.9%. Blood culture and urine cultures showed no growth.

Medical Decision Making

Without a focal source, a broad laboratory evaluation is indicated in the setting of prolonged fever. Commonly available laboratory tests can aid in the diagnosis of babesiosis. Characteristic abnormalities include anemia, thrombocytopenia, and elevated liver enzymes. Patients can often present with a pattern of hemolysis (ie, elevated LDH, low haptoglobin, elevated bilirubin).[1]

Differential Diagnosis and Final Diagnosis

A differential diagnosis for the presentation of persistent fever of unknown origin for at least 10 days (as was the case with this patient) includes meningitis, encephalitis, bacterial or fungal pneumonia, intra-abdominal infection, urinary tract infection, skin or soft tissue infection, malaria, venous thromboembolism, autoimmune or oncologic processes, bacteremia, and other tick-borne illnesses (eg, Lyme disease, ehrlichiosis).[3]

The social history of hiking frequently and laboratory results demonstrating hemolytic anemia raised a strong suspicion for tick-borne illnesses, including babesiosis.

The presence of a single positive *Babesia*-specific antibody test is not sufficient to establish a diagnosis. *Babesia* antibodies can persist in the blood for years despite resolution of an infection, with or without treatment. Confirmatory testing includes peripheral blood smear showing intraerythrocytic rings and/or Maltese cross which represents *Babesia* parasites or positive detection of *Babesia* DNA on PCR.[1]

The patient had both a positive *Babesia* PCR and a peripheral blood smear that showed intracellular red blood cell parasites consistent with *Babesia* infection.

In cases of suspected babesiosis, testing for Lyme titers should also be performed. Lyme disease is also caused by ticks, and there is a likelihood of coinfection.[1] The patient had negative testing for Lyme PCR.

Discussion

Babesiosis is caused by microscopic parasites that infect

red blood cells and are most commonly spread by the bite of an infected *Ixodes scapularis*, also known as the black-legged tick or deer tick. Less common forms of transmission include blood transfusion, organ transplantation, or congenitally.[2] Babesiosis occurs via tick borne transmission and most commonly is associated with exposure to overgrown grassy fields and leaf piles. Protection against contracting babesiosis includes wearing long pants and long-sleeved shirts, applying tick repellants to skin and clothing, and performing tick checks after possible exposure.[5]

"In patients who are immunocompetent and asymptomatic for babesiosis, it is reasonable to defer treatment and closely monitor the patient."

Tick borne illnesses are most common in the Northeast and upper Midwest, with peak season during the warm months. Overall, U.S. tick borne disease cases have increased 25%, from 40,795 reported in 2011 to 50,856 in 2019. During 2011–2019, a total of 16,456 cases of babesiosis were reported to the Centers for Disease Control and Prevention (CDC) by 37 states. The CDC previously considered babesiosis to be endemic in the following 7 states: Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Minnesota, and Wisconsin. There has additionally been a large increase in incidence of babesiosis between 2011 and 2019 in Maine, New Hampshire, and Vermont, and the CDC now also considers babesiosis to be endemic in these states as well.[4] In 2020, the reportable cases of babesiosis to the CDC decreased by 24% compared to 2019. The impact of the COVID-19 pandemic could influence actual case numbers more than is reported.[5] The actual number of cases is difficult to quantify as it is thought that there is an underestimation due to asymptomatic infection, failure to report cases, and misdiagnosis.[6]

Babesiosis has been reported in North and South America, Europe, Asia, Africa, and Australia. Some of the countries affected are susceptible to different endemic species whereas others merely have sporadic cases. The predominant species to affect humans, *Babesia microti*, is endemic to the United States.[7]

Babesiosis has a range of presentation from asymptomatic to severe. Babesiosis will typically occur after an incubation period of 1 to 4 weeks after inoculation and can last several weeks.[2] Signs and symptoms include: fever, chills, sore throat, nonproductive cough, dyspnea, nausea, vomiting, abdominal pain, headache, myalgia, arthralgia, neck stiffness, emotional liability and depression, hyperesthesia, conjunctival injection, photophobia, fatigue, sweats, loss of appetite, and weight loss.[6]

Babesia protozoa invade and cause lysis of red blood cells (RBC) resulting in hemolytic anemia, which can present with jaundice, dark urine, and pallor.[5] The severity of symptoms often correlates with the parasitemia level. Parasitemia <4% will often present mild to moderate, and parasitemia ≥4% will often present with severe illness. Complications include acute respiratory distress syndrome, congestive heart failure, splenomegaly, hepatomegaly, renal failure, liver failure, disseminated intravascular coagulation, severe anemia, or even rarely death.[1] These complications can be devastating in immunocompromised populations including asplenia, HIV/AIDS, malignancy, immunosuppressive therapy, neonates, and elderly patients.[2]

The early diagnosis of symptomatic patients helps prevent delays in treatment and potential complications.

Babesiosis can be included in the differential of any patient who presents with typical signs and symptoms, expected laboratory abnormalities, and lives in or has traveled to a *Babesia* endemic region within the past month or received a blood transfusion within the past 6 months. If your suspicion is low and the individual has not recently traveled to an endemic area, further pursuit of testing for babesiosis is not warranted.[1] If there is clinical suspicion in primary care or urgent care settings where testing cannot be performed, then the patient should be referred to a facility with greater testing capabilities. In clinically stable patients without other suspicions for serious illness (eg, sepsis etc.), ED referral may be foregone if laboratory results can be expected within 24-48 hours. This approach is best reserved for lower risk patients and if discharging patients while laboratory results are pending, however, strict ED precautions for worsening symptoms are prudent to review.

In patients who are immunocompetent and asymptomatic for babesiosis, it is reasonable to defer treatment and closely monitor the patient. Treatment is indicated for asymptomatic patients who have a positive blood smear with parasitemia for more than a month.[1] If pa-

Table 1. Treatment of Babesiosis[a]

Preferred Treatment Regimen For Mild to Moderate Illness of Babesiosis		
Antimicrobials	**Dose**	**Frequency**
Atovaquone	Adult: 750 mg orally Child: 20 mg/kg (maximum 750 mg/dose) orally	Every 12 hours Every 12 hours
Azithromycin	Adult: 500 to 1000 mg orally 250 to 1000 mg orally Child: 10 mg/kg (maximum 500 mg/dose) orally 5 mg/kg (maximum 250 mg/dose) orally	On day 1 On subsequent days On day 1 On subsequent days
Alternative Treatment Regimen for Severe Illness of Babesiosis		
Antimicrobials	**Dose**	**Frequency**
Clindamycin	Adult: 600 mg orally Child: 7-10 mg/kg (maximum 600 mg/dose) orally Or Adult: 300-600 mg intravenously Child: 7-10 mg/kg (maximum 600 mg/dose) intravenously	Every 8 hours Every 6-8 hours Every 6 hours Every 6-8 hours
Quinine	Adult: 650 mg orally Child: 8 mg/kg (maximum 650 mg/dose) orally	Every 6-8 hours Every 8 hours

a. Krause PJ, et al. Clinical Practice Guidelines by the Infectious Diseases Society of America (IDSA): 2020 Guideline on Diagnosis and Management of Babesiosis. Clin Infect Dis. 2021 Jan 27;72(2):185-189. doi: 10.1093/cid/ciab050.

tients are mildly to moderately ill or are at a higher risk for severe or relapsing infection, providers should start medications in ambulatory care. If patients are severely ill, providers should refer the individual to an ED for further evaluation and treatment of the infection as well as possible secondary complications.[1] Treatment should ultimately be tailored to each individual patient.

Additional studies are needed to assess whether suggestive laboratory abnormities on CBC, liver enzymes, and markers of hemolysis are sufficiently sensitive to use for screening purposes prior to the decision to order babesiosis specific laboratory testing.[1] Confirmatory testing specific for babesiosis includes peripheral blood smear or PCR. It is important to request a manual review of the blood smear (nonautomated) and recognize that multiple smears may need to be examined.[5]

Further studies are also needed to determine whether peripheral blood smear or PCR serves as the better initial test used to diagnose babesiosis. Blood smear examination is rapid and inexpensive. In the event of low parasite burden or negative testing on blood smears, however, PCR testing is helpful.[1] Real-time PCR has been shown to be more sensitive and specific compared to the microscopic examination of blood smears.[8]

Many tick-borne illnesses are treated with doxycycline including: Lyme disease, Rocky Mountain spotted fever, anaplasmosis, ehrlichiosis, and southern tick-associated rash illness.[9] Unfortunately, doxycycline is not recommended for babesiosis. Hence, it is important to consider babesiosis and specific testing for this in the setting of fever and suspected tick-related illness as babesiosis may not adequately be treated if doxycycline is given empirically.[1]

Per the Infectious Diseases Society of America, the treatment for babesiosis includes varying combinations of an antiparasitic agent and an antibiotic agent. The preferred, first-line treatment is a combination of atovaquone and azithromycin for mild to moderate illness. The alternative treatment for severe illness is a combination of quinine and clindamycin. Treatment is typi-

cally for 7 to 10 days, but may be extended for immunocompromised populations (**Table 1**).[1]

If the patient is severely ill, other treatment options that may be indicated include blood transfusion, exchange transfusion, mechanical ventilation, and/or dialysis depending on the end-organ dysfunction and degree of anemia present. Exchange transfusion of blood cells is recommended for patients with parasitemia ≥10% or severe hemolytic anemia with a hemoglobin of <10 g/dL, or severe pulmonary, renal, or hepatic compromise. Exchange transfusion can rapidly decrease parasite levels in the blood, corrects anemia, and removes toxic byproducts of *Babesia*.[10]

Disposition

The patient was ultimately admitted to the hospital. The infectious disease specialist was consulted. The patient received 10 days of atovaquone 750 mg twice daily and azithromycin 500 mg once daily. Parasitemia on peripheral blood smear subsided with repeat testing 2 days after admission (2.6%) and further still by 5 days after admission (1.9%). The patient quickly defervesced, and the laboratory markers and clinical symptoms improved significantly. He was discharged home without complication.

Ethics Statement

Patient was unable to be contacted because he was lost to follow-up. Some patient demographics were changed to protect patient privacy and confidentiality.

Takeaway Points

- Human babesiosis is a tick-borne zoonotic illness caused by parasites transmitted primarily by ticks in grassy and wooded areas; the incidence and geographic distribution of the disease has been increasing.
- *Babesia* infections can range in severity from asymptomatic to fatal; immunocompromised and elderly populations are at the highest risk of complications.
- Prolonged fever of unknown origin and other symptoms may mimic many other infectious and non-infectious etiologies.
- Characteristic laboratory abnormalities include anemia, thrombocythemia, elevated liver enzymes, and markers of hemolysis.
- Totality of presentation with risk factors based on living or travel to endemic regions, risk of tick bite, and clinical signs and symptoms can raise concern for babesiosis.
- In the urgent care, immediate laboratory tests may not be available. If babesiosis is suspected, treat the patient appropriately by ordering appropriate screening and confirmatory laboratory testing with either peripheral blood smear or positive detection of *Babesia* DNA on PCR in stable patients. More seriously ill appearing and higher risk patients should be referred immediately to an ED. ■

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Case Report

Atypical Chest X-ray Appearance in a Patient with Cough: A Case Report

Urgent Message: The azygos lobe may be apparent on a chest x-ray and is a relatively uncommon, yet benign finding, that is important to distinguish from other etiologies. The azygos lobe is an embryological remnant and is usually incidental in nature.

Chad Richmond, DO, DAOBFP; Alison Mancuso, DO, FACOFP

Citation: Richmond C, Mancuso A. Atypical Chest X-ray Appearance in a Patient with Cough: A Case Report. *J Urgent Care Med.* 2024; 18(10):23-25

Keywords: azygos lobe, normal variant, chest x-ray

Abstract

Introduction: Recognition of normal variants seen on chest x-ray (CXR) imaging is an important skill for the urgent care (UC) clinician. The azygos lobe is a normal variant seen in only 0.4-1.2% of CXR images.

Clinical Presentation: A 50-year-old woman presented to UC with 2 weeks of a non-productive cough without other complaints.

Physical Exam: Her vitals were normal, and her lungs were clear to auscultation.

Case Resolution: A CXR was obtained, which showed an abnormal finding in the right hemithorax.

Conclusion: CXR is among the most commonly ordered imaging studies in UC. The patient's clinical presentation with cough was not related to the CXR finding of an azygos lobe, which was an incidental finding of this normal variant.

Case Presentation and Medical Decision Making

History of Present Illness: A 50-year-old woman presented to UC with a 2-week history of non-productive cough. She denied shortness of breath or any other systemic symptoms. She reported no history of trauma. She was a non-smoker with no significant past medical history and took no daily medications.

Physical Exam: The patient's vital signs were normal. The patient was in no distress. Her head, neck, eyes, ears, nose, and throat exams showed no significant findings. Her heart rate and rhythm were regular with no murmurs. Her lungs were clear bilaterally without

Author Affiliations: Chad Richmond DO, DAOBFP, Inspira Health Network, Mullica Hill, New Jersey. **Alison Mancuso DO, FACOFP,** Rowan-Virtua University School of Osteopathic Medicine, Stratford, New Jersey. Authors have no relevant financial relationships with any ineligible companies.

Image 1. Chest Radiograph, Anterior-Posterior View

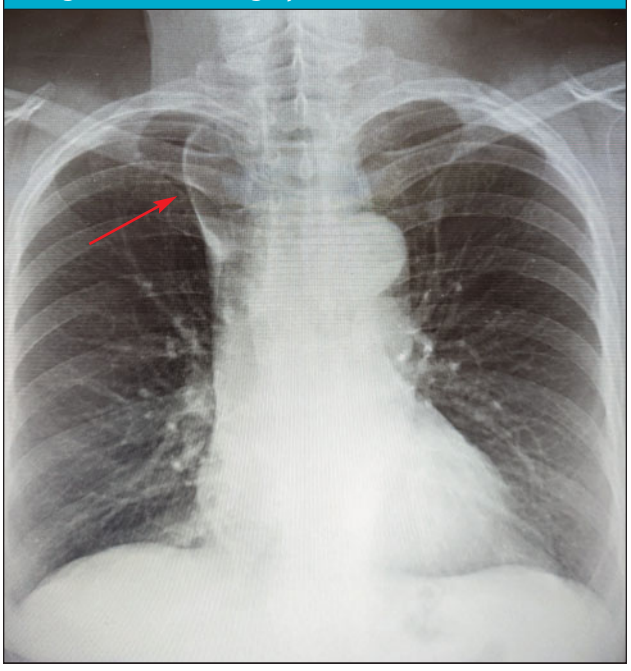
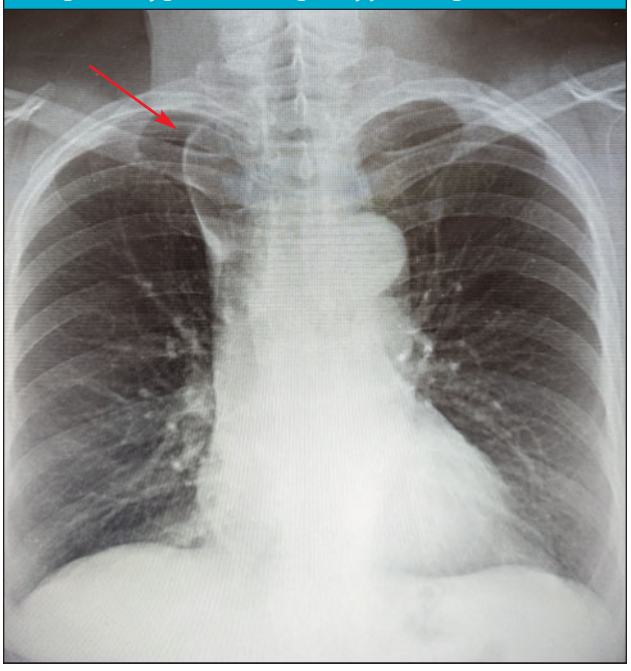


Image 2. Azygos Lobe, Right Upper Lung



"The right lung azygos lobe finding is more commonly seen in men than women, with a ratio of 2:1, which makes this patient's case even more unusual."

wheezes or rhonchi. The remainder of her general exam was unremarkable.

Test Results: The UC clinician evaluating the patient ordered a CXR to evaluate for etiologies of cough. The CXR demonstrated an irregularity in the right upper hemithorax.

Differential Diagnosis

The differential diagnosis of the demarcated area in the right upper hemithorax (**Image 1**) includes a pleural bleb (eg, such as related to chronic obstructive pulmonary disease [COPD]), cavitary lesion or abscess, mass, airspace disease or infiltrate, lymphadenopathy, aortoazygos fistula, superior vena cava obstruction, and embryologic or congenital variant.[1]

Discussion

The finding in this radiograph represents an azygos lobe. This finding was demonstrated to be present in 0.4 to 1.2% of CXR images from a recent meta-analysis and is considered a normal variant (**Image 2**).[2]

Embryologically, the right posterior cardinal vein (PCV) is the precursor to the azygos vein. The PCV penetrates the right lung apex, rather than migrating over it. The azygos lobe develops when the laterally displaced PCV/azygos vein creates a pleural fissure carrying both pleural layers into the apical segment of the right upper lobe during embryological development.[2] This is known as the "azygos fissure" and can appear as a vertical or oblique line on radiographs of the chest.[3] The right lung azygos lobe finding is more commonly seen in men than women, with a ratio of 2:1, which makes this patient's case even more unusual.[4]

The term "azygos lobe" is actually a misnomer because this embryological pattern of development does not actually create a new lobe of the lung, as there is no associated bronchopulmonary segment.[5] This does, however, lead to the appearance of what seems to be a new lobe on radiography.

There are 3 types of azygos fissures that have been described in the medical literature. All 3 lead to different appearances of the azygos lobe on CXR:

1. Type A is a more horizontal fissure that cuts from the lateral portion of the lung to the apex.

2. Type B is a vertical fissure dividing the apex into 2 halves.
3. Type C (the type identified in the patient in this case) is a vertical fissure, which starts from the mediastinal aspect of the lung and seems to bisect a small portion of the right upper lobe. It appears as fixed above the hilum of the lung.

"The term 'azygos lobe' is actually a misnomer because this embryological pattern of development does not actually create a new lobe of the lung, as there is no associated bronchopulmonary segment."

The appearance of an azygos "lobe" or vein does not usually correlate with any particular symptoms or disease process and is considered to be a benign incidental finding.[3] Deeper fissures may occasionally compress the underlying bronchus and lead to atelectasis and bronchiectasis. However, this is not believed to be common, and specialist evaluation is only indicated if patients develop chronic respiratory symptoms.[3,5]

The azygos vein is also evident in the image and appears as a tear-shaped opaque shadow. (**Image 3**).

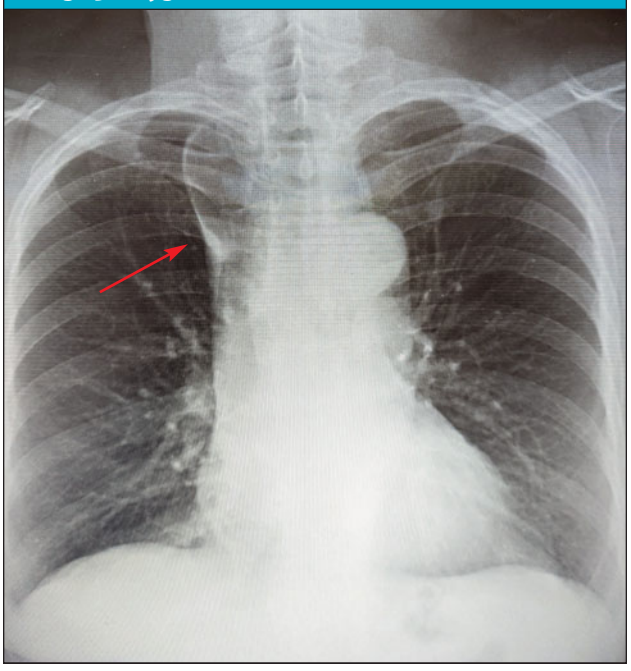
Case Conclusion

The patient was informed of the abnormality and the fact that it is typically a normal variant. This normal variant radiographic finding did not affect her evaluation otherwise and did not influence treatment decisions and disposition. Her clinical presentation of an acute cough was deemed to be unrelated by the treating clinician.

Ethics Statement

The patient was not able to be contacted further and was lost to follow-up. Personal details of the patient in this case were slightly modified to protect patient privacy and confidentiality.

Image 3. Azygos Vein



Takeaway Points

- The azygos lobe is a normal variant on CXR that UC clinicians should be aware of, which is seen in approximately 1% of the population.
- It is important for the UC clinician to recognize atypical findings on CXR, as CXR is among the most commonly ordered imaging tests in UC settings. ■

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Original Research

Fast Track Improves Patient Flow and Wait Times in the Pediatric Urgent Care: A Quality Improvement Project

Urgent Message: Fast track models aim to improve patient throughput metrics for low-acuity patients. In this quality improvement project, a process for fast track in the pediatric urgent care significantly improved patient flow.

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Abstract

Background: Pediatric urgent care (UC) centers have proliferated across the United States over recent decades. Many emergency departments (ED) use "fast track" models where patients with lower-acuity presentations and those who require fewer resources are triaged with the goal of improving appropriateness and efficiency of care in the ED as a whole. This fast track model, however, has not been widely implemented or studied in UC settings.

Objective: Children's Hospital Colorado operates a community site that serves urgent care and emergency patients. The hospital receives a high volume of low-acuity pediatric patient presentations, which are evaluated by

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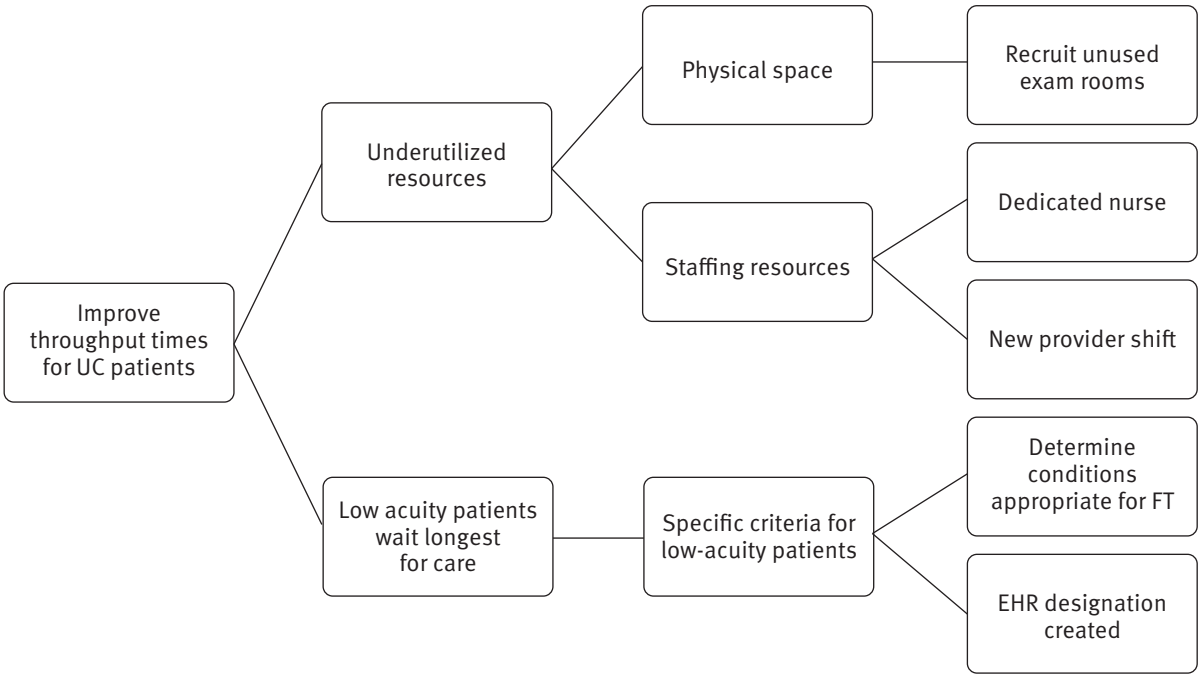
Figure 1. Key Driver Diagram



our urgent care team. With rising site volumes, the length of stay (LOS) and door-to-provider time for UC patients had been increasing at our facility. This quality improvement (QI) project aimed to improve both metrics and monitor for any adverse effects this change may have on ED patient throughput. To accomplish this, we implemented an UC fast track (FT) process.

Methods: A multidisciplinary QI team reviewed our existing process and designed interventions using the define, measure, analyze, improve, control (DMAIC) framework. The team focused on 4 distinct project interventions: repurposing physical space; reallocating staff resources; determining fast track patient criteria; and outlining patient flow through the facility and electronic medical record (EMR). The specific aims were to decrease mean door-to-provider time to <30 minutes and to decrease mean length of stay to <60 minutes.

Results: Following implementation of the FT system, mean UC door-to-provider time decreased from 83 minutes to 21 minutes (upper confidence limit [UCL] 42, lower confidence limit [LCL]) and the mean UC LOS decreased from 160 minutes to 102 minutes (UCL 146, LCL 58). ED patient door-to-provider times improved from 44 to 25 minutes (UCL 55, LCL 0).

Conclusion: Using QI methodology, we implemented an urgent care FT process. This decreased both LOS and door-to-provider time for low-acuity patients without negative impact on higher acuity ED patients. This project can serve as a model for other UCs that are struggling to meet goals for these metrics to improve throughput for low-acuity patients who can be rapidly evaluated and discharged.

Introduction

The expansion of dedicated pediatric urgent care (UC) services over the last 20 years has improved the delivery of quality, efficient care for acutely ill and injured children with lower-acuity concerns. Over 35 states now offer pediatric-specific UC facilities, and there are more than 350 discrete pediatric UC locations.[1] Though numerous factors contribute to this proliferation, patients and guardians seek UC services with the expectation that care will be cost sensitive and efficient and allow for avoiding more costly care and longer wait times commonly associated with seeking care in both general and pediatric-specific emergency departments (EDs).[2]

In response to this growth of pediatric UC facilities and in recognition of the developing field of UC medicine, providers and institutions have invested in ensur-

ing the delivery of high-quality care as well as programs to develop leadership and academic advancement in the new field.[3] The Society for Pediatric Urgent Care, formed in 2014, aims to further education, academic progression and leadership development within the field of pediatric UC. The American Academy of Pediatrics also has demonstrated concern over quality in pediatric UC and recently started a Section on Urgent Care Medicine.[4] Pediatric UC fellowships now exist as a response to the specific clinical competencies required in the field.[5] The growing number of care sites and the parallel scholarly development in the field has created a ripe environment for the improvement of care delivery to meet the expectations of families seeking UC services in pediatric centers.

The QI project institution's community-based hospitals offer ED and UC services that are co-located in the facility. Patients presenting for care undergo triage on arrival to receive either UC- or ED-level services based on guardian preference, medical complexity, chief complaint, and anticipated resource needs. UC patients and ED patients are cared for by 2 distinct provider groups who are intended to function as separate yet complementary teams. At the project institution, both levels of patients are evaluated in dedicated areas within the same department. As site volumes rapidly rose following the COVID-19 pandemic in 2021 and exceeded prior historical volumes, ED-level patients consumed a disproportionate amount of facility resources and impacted availability of dedicated UC space and services. Teams increasingly struggled with efficient delivery of UC services, leading to an increase in door-to-provider and LOS for UC patients. These metrics are worthy of attention as previous work has demonstrated that increased LOS can have negative impacts on patient safety at all acuity levels within a facility.[6]

A review of the literature shows that other groups have addressed similar issues by implementing low-acuity, fast track (FT) systems within the ED setting.[7] Prior studies have demonstrated that implementation of a FT model may improve LOS and door-to-provider times in both general and pediatric EDs.[8,9] These models may be particularly impactful in the pediatric setting as low acuity patients represent a disproportionate number all pediatric presentations to ED settings and, therefore, contribute to department overcrowding.[10] In addition, patients with low acuity concerns as determined by the Emergency Severity Index (ESI) are also likely to be discharged home and require relatively few resources.[11,12] As the project facilities' patient acuity levels are consistent with national data, it was expected that this FT model could help to meet the project aims without significantly increasing the cost of care or resources required.

Specific Aims

The group aimed to implement a FT model to provide timely care for low-acuity patients triaged to the UC area within our facility. Secondary aims included assessing the impacts of this model on patient throughput metrics. The project goals included decreasing mean UC door-to-provider time to <30 minutes and decreasing mean UC LOS to <60 minutes in the first 6 months of implementation.

Methods

The project site is a community-based satellite location for a quaternary care pediatric medical center. The ED and UC are located within the same physical space, and all patients access services through a single entrance. The clinical teams are assigned to distinct UC and ED shifts. Services available within the UC setting are clearly defined, and the scope is consistent among all institutional locations that offer UC services. The UC area is open from 11AM-8PM daily and serves patients ages 0-22 years of age. Patients presenting for care during hours when the UC is open are initially assessed upon arrival by a registered nurse (RN) and assigned to be evaluated within the UC or ED based on chief complaint, anticipated resources, medical complexity, and guardian request. In the project facility, normally >50% of patients presenting during UC hours are triaged to the UC area.

A quality improvement (QI) team was established; team members included UC facility leadership, nursing staff, advanced practice providers, and physicians. Using the define, measure, analyze, improve, control (DMAIC) framework, the group mapped the preintervention processes over a several month period.[13] The group identified 4 primary components of the project: physical space; staffing resources; determination of fast track patient criteria; and patient flow through the facility and EHR. A key driver diagram helped to aid in project implementation (**Figure 1**).

To address the physical space, the team identified and recruited 3 underutilized exam rooms. Their location at the front of the UC space, close to the waiting room, made them ideal for allowing easy movement for patients between the waiting area and triage space. In preparation for patient care, the team ensured these rooms had necessary equipment and supplies. We also included a second, underutilized waiting room located within the

Table 1. Fast Track Criteria and Example Conditions Appropriate for Inclusion or Exclusion

General Criteria for Fast Track	Sample Conditions Triaged to Fast Track	Sample Conditions Triaged to General Urgent Care
• Meets urgent care criteria • Emergency Severity Index level 4 or 5 • Anticipated length of stay <30 minutes	• Croup without respiratory distress • Ear pain • Rash • Simple fractures • Sore throat	• Breathing concerns requiring monitoring • Dysuria requiring catheterization for urinalysis • Incision and drainage • Lacerations • Vomiting requiring oral rehydration

"The group aimed to implement a FT model to provide timely care for low-acuity patients triaged to the UC area within our facility."

department as a space that could function as a dedicated waiting area for FT patients during their visit.

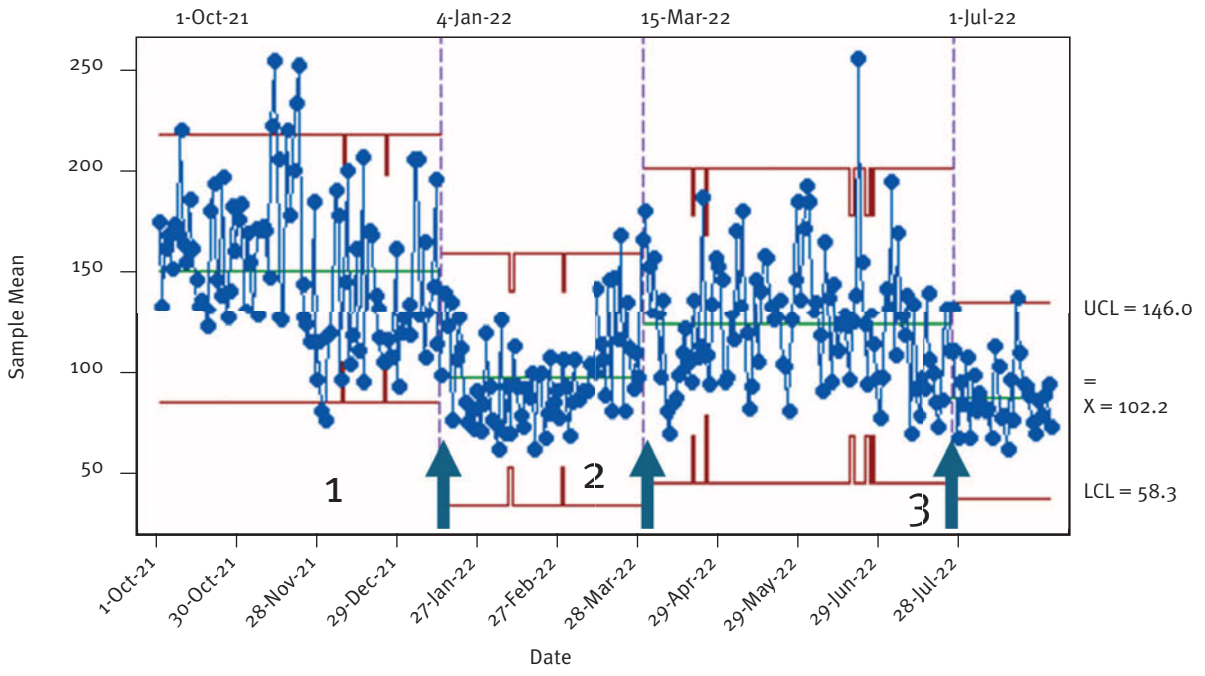
The QI group then focused on allocation of limited staffing resources. With the anticipated rapid patient throughput, the team determined that successful implementation required staff dedicated solely to FT patients. The were no budgetary allowances to add staff for the project, and therefore, plans required revision of the existing staffing model. During the initial intervention phase, the FT team staffed the area for 8 of the 9 hours of UC services because the typical clinician's shift is 8 hours. The group assigned 1 provider and 1 RN to be responsible for patients in the FT area. In response to staff and provider feedback during the "improve" phase of the DMAIC framework, provider coverage was ultimately expanded. This was accomplished by allocating 1 provider to FT during the first 5 hours of the day and then utilizing another provider scheduled for a previously existing UC shift to cover the remaining 4 hours, while also staying for the final hour to manage overflow patients waiting at the close of UC hours. RN coverage already spanned this timeframe and did not require adjustment. The intended workflow was for both RN and provider to physically evaluate new patients together to promote efficient completion of the triage process as well to rapidly establish a definitive care plan.

The group then considered a list of chief complaints already defined by our institution to meet criteria for UC level care. The group then determined if each complaint could be adequately and efficiently cared for by the FT team. Considering a patient's ESI level, chief complaint, and anticipated resources, we created a list of inclusion criteria for evaluation in the FT space (**Table 1**). We validated this list against previously published criteria from other FT projects in the literature.[9] We excluded chief complaints that involved a clinician-performed procedure, patient monitoring, or anticipated LOS >30 minutes. Throughout the project period, the multidisciplinary group met regularly and reviewed feedback from staff regarding the inclusion criteria.

The group then addressed virtual patient flow through the EMR. Using the original process and UC scope, an RN assigned a patient to "ED" or "UC" level of care in the EMR. With the new process, the RN would assign an additional designation "UC-FT" to denote patients to be seen by the FT team. This designation was added as a comment instead of a distinct class in the EMR. The nursing and clinician staff were also educated on this designation and the indication that such patients were to be seen by the FT team in the FT rooms.

Finally, the team considered patient flow through the physical space. After patients were identified in the EMR, they were called from the general waiting room to be placed in a FT-designated room for vital signs, completion of secondary triage questions, and clinician evaluation. At the completion of evaluation in the FT room, the patients exited the facility. During followup meetings, the group learned that on particularly high-volume days the general waiting room was crowded and began moving FT patients to the smaller, underutilized waiting room within the ED/UC space to await an open FT exam room.

Figure 2. Mean Length of Stay (LOS) for UC Patients (minutes)



Note: #1 arrow represents initial intervention; #2 arrow represents unexpected volume surge; #3 arrow represents second phase with expanded provider coverage and increased utilization of internal waiting space. UCL - upper confidence limit; LCL - lower confidence limit.

The primary study outcome measures were mean door-to-provider time for UC level patients and mean LOS for UC patients. The study group selected these measures as they are reported in other FT projects in the literature and reflect the study goal of improving efficient UC patient flow through the department.[9,14] Additional process measures included: left without being seen (LWBS) rates for all ED and UC patients; and UC patients still in the waiting room at the end of UC hours.

Balancing measures for this project were the mean LOS for ED patients and the mean door-to-provider time for ED patients, as it was the hope that improved efficiency on the UC side of the facility might positively impact ED throughput metrics. The study group selected these balancing measures due to the facility design and availability of both ED and UC services within the same space.

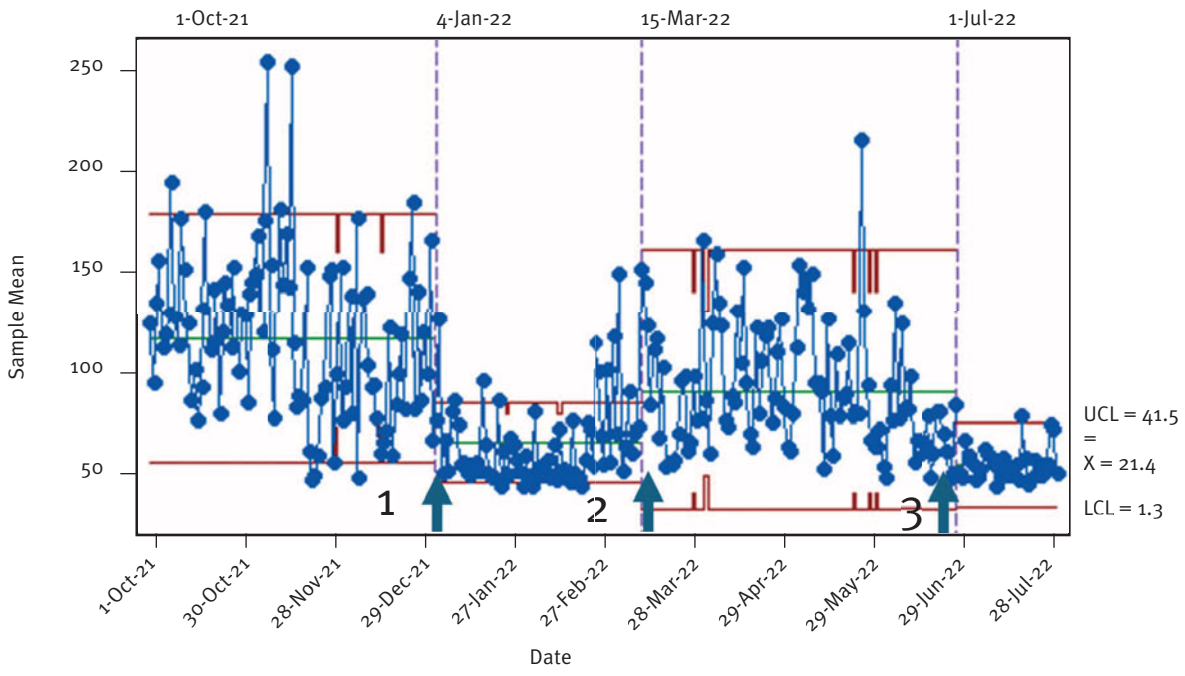
We assessed intervention effectiveness using x-bar and p statistical process control (SPC) charts. This allowed us to quickly evaluate the process, determine if modifications were required, and plan the next cycle of interventions. We obtained baseline data for the 12 weeks preceeding implementation of the intervention. Data obtained following the intervention was collected for a total of 31 weeks. Center lines were adjusted and data re-centered when there was special cause variation using established special cause rules.[15] Upper (UCL) and lower confidence limits (LCL) were established as 3 standard deviations from the mean.

Results

Over the course of the initial phase of the intervention, the mean LOS decreased from 159.8 minutes to 111.4 minutes (**Figure 2**). Control charts obtained during this time show a sustained decrease in LOS for the first 10 weeks of the intervention. In mid-March of 2022, the facility experienced an unanticipated volume surge. UC LOS again increased but did not reach the pre-intervention baseline. Once volumes returned to expected historical baseline levels, the UC LOS again improved to 102.2 minutes (UCL/LCL ± 44 minutes).

Our second outcome measure was door-to-provider time. During the initial intervention phase mean door-to-provider time decreased from 82.7 minutes to 32.5 minutes (**Figure 3**). As with the LOS, the improvements were sustained until the volume surge in March 2022. With normalization of volumes during the later phases of the intervention, door-to-provider time again improved below initial intervention mean to 21.4 minutes (UCL/LCL ± 20 minutes).

Figure 3. Mean Door to Provider Time for UC Patients (minutes)



Note: #1 arrow represents initial intervention; #2 arrow represents unexpected volume surge; #3 arrow represents second phase with expanded provider coverage and increased utilization of internal waiting space. UCL - upper confidence limit; LCL - lower confidence limit.

The team closely monitored process measures throughout the intervention. During the initial phase, LWBS rates also improved from a baseline of 5.9% to 3.5%. The mean number of UC patients in the waiting room at the end of UC hours improved from 6 to 1.13 patients.

Balancing measures obtained included mean LOS for ED patients and door-to-provider time for ED patients. Our data demonstrated an improvement in door-to-provider time for ED patients during the FT intervention period from 43.7 to 24.8 minutes (UCL +30 minutes, LCL 0 minutes) (**Figure 4**). With the opening of the FT space, there was also improvement in the mean LOS of ED level patients from 196.7 minutes to 164.8 minutes. This confirmed that the intervention did not adversely impact ED efficiency metrics.

Discussion

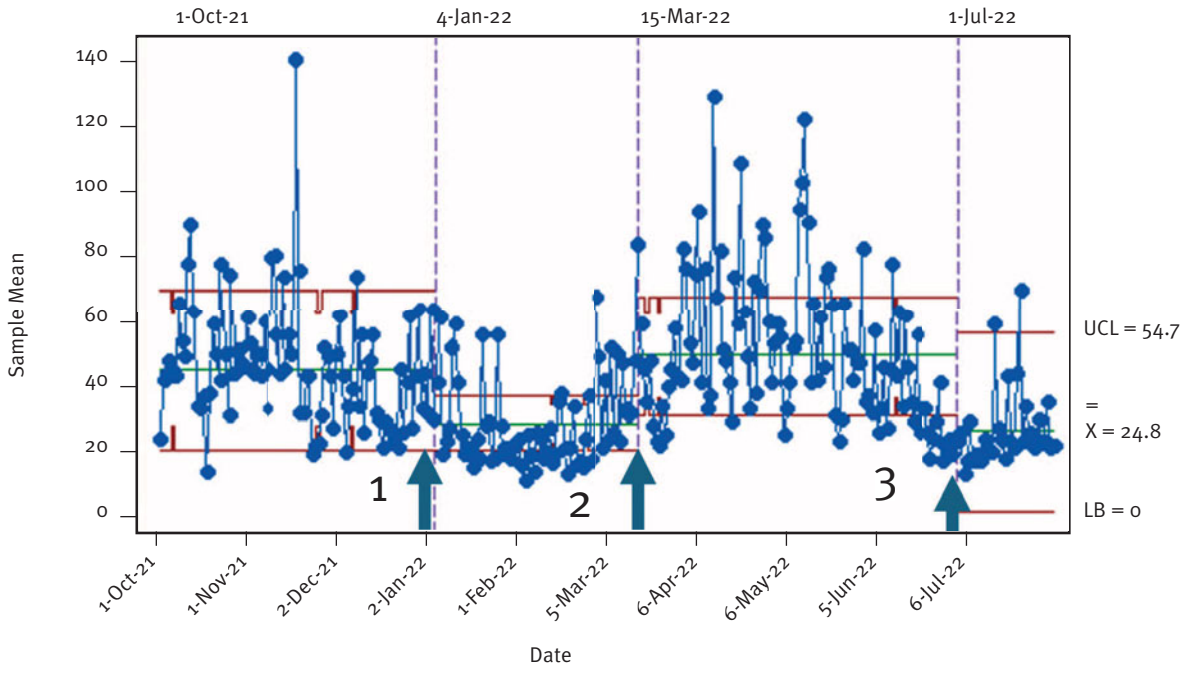
This QI project demonstrated the successful implementation of a FT system for UC patients. The project achieved the target outcomes by improving UC door-to-provider time and UC LOS while simultaneously improving these metrics for ED patients as well. The outcomes after the project interventions suggest that a FT model can improve patient throughput in a UC setting. This novel application of the FT model in a UC setting could prove useful considering the national expansion of pediatric UC currently unfolding.

Metric improvements were sustained during the intervention period from baseline in both patient LOS and door-to-provider time for UC patients. Though the improvements observed did not meet the initial pre-project targets in the initial implementation period, the goal for mean door-to-provider time during subsequent phases of the project was attained. Despite not achieving the initial goal for UC LOS, this metric did improve by 35%. Importantly, these improvements were sustained even during the time of unanticipated volume increases during March 2022, suggesting this model can mitigate the adverse effects of surges on throughput metrics.

A unique characteristic of the facility where the project was undertaken is that the care of both ED and UC patients occurs within the same physical space by complementary but distinct care teams. Not only were adverse impacts to throughput of ED patients avoided, but improvements in ED patient LOS and the mean door-to-provider time were also observed. These results suggest that this process may be useful in similar care models where UC and ED settings are co-located.

In creating this process, the group improved the target metrics with creative use of existing human resources

Figure 4. Mean Door to Provider Time for ED Patients (minutes)



Note: #1 arrow represents initial UC FT intervention; #2 arrow represents unexpected volume surge; #3 arrow represents second phase with expanded provider coverage and increased utilization of internal waiting space. UCL - upper confidence limit; LCL - lower confidence limit.

and physical space. An additional clinician dedicated to FT patients was added to daily staffing, however, existing nursing staff were simply reallocated to manage FT patients. Thus, the only additional costs related to implementation of the program were the slight increase in clinician hours to adequately staff the FT area of the UC space. As the interventions yielded faster door-to-provider times, shorter LOS, and fewer LWBS, it seems reasonable that these improvements could offset the limited increased expenses of increasing provider coverage. This makes such a plan an attractive option for leaders seeking to positively modify patient flow in the UC setting in a budget-conscious manner.

Although there were many aspects of the initial intervention that functioned as intended, the plan for tandem evaluation by the RN and provider for FT patients proved challenging. The rationale for this intervention was to limit redundancies by minimizing repetitive history taking and ensuring all care team members were aware of the plan simultaneously. However, as the group obtained feedback from providers and RN staff, it became clear that the asynchronous nature of the RN and provider workflows made this component of the intervention impractical to implement. Though tandem patient evaluation may be more achievable at the start of a shift, the individual clinical staff members had different responsibilities that would often preclude them from coming together easily to evaluate the next new FT patient.

This QI project ultimately concluded prematurely due to a nationwide respiratory virus surge of late 2022. During this time, UC and UC FT rooms were allocated to ED patients who were facing prolonged boarding while awaiting inpatient admission, further underscoring how increased inpatient LOS and occupancy portends increases in ED boarding and LOS and negatively affects ED thoughput. Future work exploring implementation of FT programs in UC should explore how to preserve FT workflows even in times of significant volume increases.

Limitations

This QI project was undertaken at a single community-based site associated within a quaternary academic medical center. The instution has experts in quality improvement project development and implementation that may not be available at smaller institutions. The project site cares for both ED and UC patients within the same physical space, though the UC patients are cared for in a distinct area. Therefore, it is certain that this UC func-

"The initiative resulted in a 74% reduction in door-to-provider time and 36% reduction in UC LOS."

tions somewhat differently than many freestanding UC locations. In this project, there was no control site for comparison, and therefore it is uncertain how these metrics may have changed without the intervention.

The implementation and success of the project were dependent on availability of unused physical space, specifically a waiting area and unused exam rooms. Not all centers may have sufficient unused, existing physical space to immediately implement this FT process. Additionally, many UC centers do not have RNs and may have only a single provider staffing them throughout the day. In settings such as these mentioned above, implementation may require more upfront financial investment and time to roll out.

Finally, due to constraints surrounding data extraction from the EMR, it was not possible to separate specific data for FT patients from all UC patients to compare these groups. Addition of a distinct patient class within the EMR to distinguish FT-UC patients from all UC patients would be advisable to those pursuing future work on this topic to permit more granular analysis of patient differences.

Conclusion

This quality improvement project involved developing and implementing a novel fast-track urgent care model. The initiative resulted in a 74% reduction in door-to-provider time and 36% reduction in UC LOS. Interestingly, improvements in these metrics for patients in the co-located ED were also observed. The FT process also continued to function and reduce door-to-provider and UC LOS times during a large volume surge. This work is the only project the authors are aware of involving the implementation of a FT model in a dedicated UC setting. The results of this QI project suggest that a FT model can improve efficiency in an appropriately selected UC setting.

Acknowledgements

The authors would like to acknowledge the work of the entire multidisciplinary group at Children's Hospital Colorado North Campus and thank the leadership that supported this project.

Ethics Statement

This was a quality improvement project conducted to evaluate and optimize operational processes. It did not involve the collection or analysis of private, identifiable data from human subjects. Therefore, this quality improvement project did not require Institutional Review Board approval and adhered to the ethics policies for Children's Hospital Colorado. ■

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2024 Urgent Care's Top 100
By Number of Locations

Alan Ayers, MBA, MAcc

The following table summarizes the 100 largest urgent care operators by number of locations as of May 2024, based on data provided by National Urgent Care Realty and Experity. Because of the significant number of private operators that also operate facilities with hospital partners, this year's list delineates the breakdown of health-system-affiliated locations. Data is reported by the parent entity as opposed to regional brands, partnerships, or affiliations.

Of the nation's 14,097 urgent care centers, 5,675 (38%) are operated by a top 100 entity. Additionally, 53% of the locations in Urgent Care's Top 100 are in a health system affiliation, compared to 39% of all centers. A health system affiliation may include majority or minority equity joint ventures, management-only contracts, clinical network integration, branding or cobranding agreements, or other engagement that is marketed to the public. To avoid duplication, affiliated centers are reported under the "private" entity, separate from centers operated by the health system directly.

Because there are several ties in the rankings—multiple operators with an equal number of locations—the total number of operators in Urgent Care's Top 100 is 105. ■

Ranking	Corporate Entity	Total	Health System Affiliated	Leading Operating Brands or Affiliations
1	American Family Care	369	15	
2	HCA Healthcare	356	356	CareNow, MD Now
3	GoHealth Urgent Care	269	269	Northwell Health, Mercy, Memorial Hermann, Dignity Health
4	Fast Pace Health	261		
5	WellNow Urgent Care	198	43	WellNow, Physicians Immediate Care
6	VillageMD	192		Summit Health, CityMD
7	Optum Care	188		MedExpress, Optum Urgent Care
8	NextCare	170	41	NextCare Urgent Care, Access Medical Centers
9	WellStreet Urgent Care	135	135	Piedmont Urgent Care, Beaumont UC, University Hospitals UC, Prisma UC
10	Advocate Health	119	119	Advocate Health Care, Aurora Health Care, Atrium Health
11	Carbon Health Urgent Care	116	1	
12	Community Care Partners	96		BestMed UC, SouthStar UC, Texas MedClinic, Coastal UC
13	CRH Healthcare	88	60	Peachtree Immediate Care, Patients First (FL), Patriot UC, AppleCare, Urgent MedCare
14	Premier Health	83	77	Lake UC, LCMC Urgent Care, Lourdes UC, MercyOne, Trinity Health UC
15	Urgent Team	82	63	Physicians Care, Ascension St. Thomas, Baptist, Huntsville Hospital
16	CommonSpirit Health	80	80	Catholic Health Initiatives, Dignity Health — *Excludes GoHealth locations*
17	PM Pediatrics	79	10	
18	Patient First	78		
19	Providence Health & Services	76	76	
20	PeaceHealth	60	60	ZoomCare, PeaceHealth
21 (Tie)	Access Medical Clinic	58		
21 (Tie)	Xpress Wellness	58		Xpress Wellness, Integrity Urgent Care

Author Affiliations: Alan Ayers, MBA, MAcc, is president of Experity Consulting and Senior Editor of *JUCM*.

Ranking	Corporate Entity	Total	Health System Affiliated	Leading Operating Brands or Affiliations
23 (Tie)	AdventHealth	56	56	Centra Care
23 (Tie)	Sanford Health	56	56	
25 (Tie)	Exer Urgent Care	55		
25 (Tie)	Urgent Care Group	55	10	Total Access, MEDCare, Medac, Health Choice, Covenant UC, ParkMed UC
27	MainStreet Family Urgent Care	53		MainStreet UC, KidsStreet UC
28 (Tie)	Banner Health	52	52	
28 (Tie)	Doctors Care	52	32	
30	Ascension Health	51	51	*Excludes Urgent Team and WellNow locations*
31	CareSpot Urgent Care	47	34	
32	MultiCare Health System	46	46	
33	Sutter Health	45	45	
34	Next Level Urgent Care	43		
35 (Tie)	Cleveland Clinic	42	42	
35 (Tie)	ConvenientMD	42		
35 (Tie)	Midwest Express Clinic	42		
38 (Tie)	CareFirst Urgent Care	40		
38 (Tie)	Community Health Systems	40	40	
38 (Tie)	OSF HealthCare	40	40	OnCall Urgent Care, PromptCare — *Excludes WellNow locations*
41	Endeavor Health	38	38	Edward-Elmhurst Immediate Care, NorthShore Immediate Care
42 (Tie)	Bon Secours Mercy Health	37	37	*Excludes American Family Care locations*
42 (Tie)	Intermountain Health	37	37	InstaCare, KidsCare
42 (Tie)	UPMC	37	37	
45 (Tie)	AllCare Family Medicine & Urgent Care	36		
45 (Tie)	Ochsner Rush Health	36	36	
45 (Tie)	UNC Health Care	36	36	
48 (Tie)	MedRite Urgent Care	34		
48 (Tie)	Rock Oak Capital Partners	34		Low Country UC, Carolina QuickCare, Stopwatch UC
50 (Tie)	MedStar Health	33	33	
50 (Tie)	UnityPoint Health	33	33	
52 (Tie)	Emergence Health Holdings	32	4	CareWell, ClearChoiceMD
52 (Tie)	SSM Health	32	32	
54	Doctor's Urgent Care Group	31		
55	Texas Health Resources	29	29	Breeze Urgent Care
56 (Tie)	Atlantic Health System	28	28	
56 (Tie)	Risant Health	28	28	Geisinger Convenient Care
58 (Tie)	Yale-New Haven Health	27	27	PhysicianOne Urgent Care
58 (Tie)	Northwestern Medicine	27	27	
58 (Tie)	Walk In Urgent Care (Ohio)	27		
61 (Tie)	Baptist Health South Florida	26	26	
61 (Tie)	ExpressCare Urgent Care	26	26	
61 (Tie)	HonorHealth	26	26	
61 (Tie)	Pediatrix Medical Group	26		Pediatrix Urgent Care

Ranking	Corporate Entity	Total	Health System Affiliated	Leading Operating Brands or Affiliations
61 (Tie)	Sentara Healthcare	26	26	Velocity Urgent Care
66 (Tie)	Adventist Health	25	25	
66 (Tie)	Baylor Scott & White Health	25	25	*Excludes NextCare partnership*
66 (Tie)	Excel Urgent Care	25		
66 (Tie)	St. Lukes University Health Network	25	25	
66 (Tie)	University of Colorado Health	25	25	
71 (Tie)	Baptist Health (Kentucky, Indiana)	24	24	
71(Tie)	WellStar	24	24	
73 (Tie)	Chai Urgent Care	23		
73 (Tie)	Mass General Brigham	23	23	
73 (Tie)	Med First Urgent Care & Family Practice	23		
76 (Tie)	Corewell Health	22	22	Spectrum Health Urgent Care — *Excludes WellStreet (Beaumont) locations*
76 (Tie)	LifePoint Health	22	22	
76 (Tie)	Perlman Clinic	22		
79 (Tie)	Aspirus Health Care	21	21	
79 (Tie)	CareConnect Urgent Care	21		
79 (Tie)	HealthPartners Urgent Care Linked	21	21	HealthPartners Urgent Care, Park Nicollet Urgent Care
79 (Tie)	Maxem Health Urgent Care	21		
79 (Tie)	Norton Healthcare	21	21	
84 (Tie)	Allina Health	20	20	
84 (Tie)	Docs Urgent Care	20		
84 (Tie)	University of Kansas Health System	20	20	
84 (Tie)	Lehigh Valley Health Network	20	20	
84 (Tie)	Little Spurs Pediatric Urgent Care	20		
84 (Tie)	Tampa General Hospital	20	20	
90 (Tie)	BayCare Health System	19	19	
90(Tie)	CHRISTUS Health	19	19	
90 (Tie)	Get Well Urgent Care	19		
90 (Tie)	Sterling Urgent Care	19		
94 (Tie)	Avera Health	18	18	
94 (Tie)	BJC HealthCare	18	18	
94 (Tie)	Essen Healthcare	18		
94 (Tie)	Essentia Health	18	18	
94 (Tie)	Georgia Clinic	18		
94 (Tie)	Instant Urgent Care	18		
94 (Tie)	Logan Health	18	18	
94 (Tie)	MedFast Urgent Care	18		
94 (Tie)	My Dr Now	18		
94 (Tie)	OhioHealth	18	18	
94 (Tie)	Prevea Health	18	18	
94 (Tie)	Vanderbilt Health	18	18	

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The Business Case for STI Testing in Urgent Care Centers

Urgent Message: With sexually transmitted infection (STI) rates rising, urgent care centers have a unique opportunity to address a pressing public health need and increase patient volumes and revenue by adding STI testing services.

Alan A. Ayers, MBA, MAcc

Citation: Ayers A. The Business Case for STI Testing in Urgent Care Centers. *J Urgent Care Med*. 2024; 18(10)39-42

Globally, the World Health Organization (WHO) estimates that more than 1 million sexually transmitted infections (STIs) are acquired every day.[1] Given that the majority of these infections are asymptomatic, STI testing is a crucial tool for not only detecting existing STIs but also preventing the spread to more individuals.

However, the persistent stigma surrounding STI testing creates an environment where many people feel uncomfortable getting tested—particularly at their primary care provider's office. This, along with improvements to rapid STI testing kits and reimbursement policies, presents a development opportunity for urgent care (UC).

Urgent care operators are well-positioned to give patients the peace of mind they seek with a quick diagnosis. Rapid STI testing offers diagnostic value as well as the potential for revenue generation. However, UCs will be most successful if they ensure there are mechanisms in place to notify patients of results and to manage treatment or referrals to treatment when necessary.

Who is Affected?

When considering the addition of STI testing in urgent care, it's important to have a clear picture of the patient demographic that will be served. A sample of data pulled from Experity's electronic medical record (EMR) from 2023, including over 23.3 million patient visits, sheds some light on this question. The data consists of the

ICD-10 codes Z20.2 (contact with and exposure to infections with a predominantly sexual mode of transmission) and Z11.3 (encounter for screening for infections with a predominantly sexual mode of transmission).

Data from this query reveals that the typical patient seeking STI testing at urgent care is male (**Figure 1**). When compared to the overall urgent care population, this trend is noteworthy given that urgent visits skew toward females, who present in 57% of visits for all conditions. Notably, male STI patients also tend to be slightly older than their female counterparts despite there being little age difference between genders for non-STI patients (**Figure 2**).

Author affiliations: Alan A. Ayers, MBA, MAcc, is President of Experity Consulting and Senior Editor of *The Journal of Urgent Care Medicine.*

Figure 1. Urgent Care STI Testing By Patient Sex at Birth

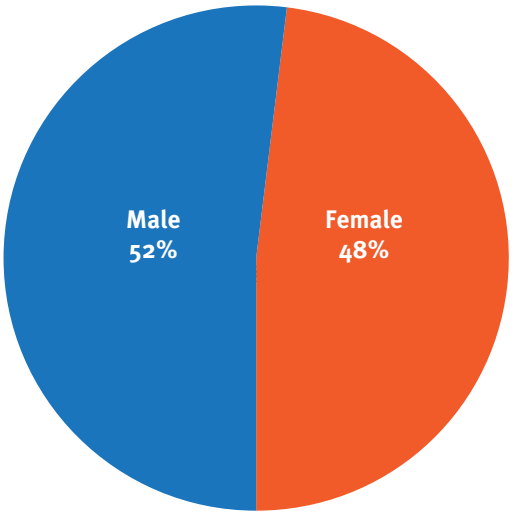
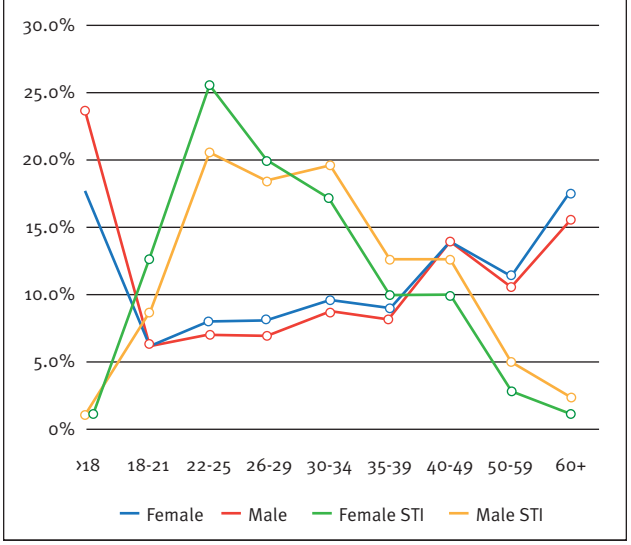
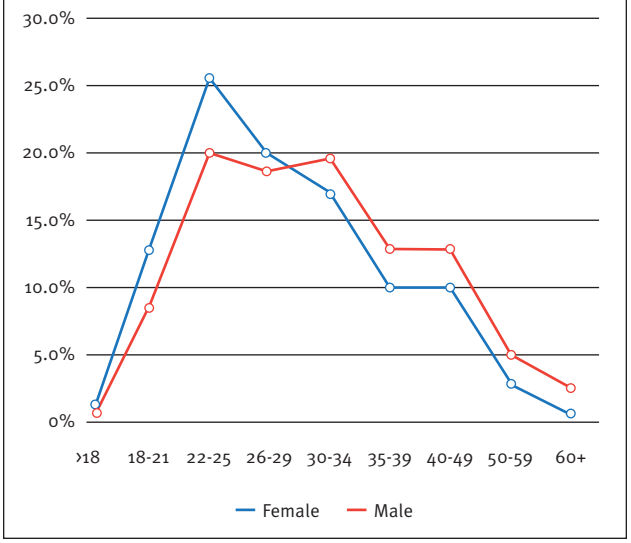


Figure 2. Average Age STI Patients vs Non-STI Patients



Among adult patients visiting UC, those seeking STI testing are most likely to fall between the ages of 22-34 years (**Figure 3**). The availability of STI testing could generate future loyalty and subsequent visits (including for non-STI care) by this population.

Figure 3. Age of STI Patients in Urgent Care



What is Tested?

While there are at least 30 known bacteria, viruses and parasites are known to be transmitted through sexual contact,[1] the scope of testing at urgent care is typically limited to the most frequently presenting infections. Primarily, clinics test for gonorrhea and chlamydia as these are usually of the greatest concern to male and female patients. These 2 STIs are also most conducive to rapid PCR tests. For female patients, providers must be able to differentiate between bacterial vaginosis, trichomoniasis, and a yeast infection to ensure appropriate treatment.

It is important to note that testing for hepatitis, HIV, and syphilis is typically not ideal for the practice model used by most urgent cares. For one, these tests are most often sent out to a third-party lab. Delays brought on by this process mean the patient won't know their results for some time after exposure and may not return for treatment after a positive result. Long wait times for results are a key contributor to patients lost to follow-up. Moreover, STIs like HIV and syphilis have a markedly larger impact on specific populations who may have access to community resources focused on preventing, diagnosing and treating these conditions.

Historic Challenges Limiting Urgent Care Testing

Surprisingly, despite urgent care's positioning to "test and treat" during the COVID-19 pandemic, data reveals current STI testing in urgent care is sparce. This trend underscores the respiratory-related nature of the UC business and the challenges of adding STI testing. Limited urgent care testing may also be attributed to operational difficulties related to sending out STI tests, as well as the different clinical protocols needed to collect samples from male and female patients. However, data

Figure 4. STI Visits Per Day in Urgent Care, Percentile			
Percentile	**Visits Per Day**	**STI Visits Per Day**	**Percent**
99-100	55	3.3	6%
95-99	52	1.7	3%
90-95	47	1.0	2%
85-90	46	0.7	2%
80-85	44	0.6	1%
75-80	38	0.5	1%
50-75	36	0.3	1%
25-50	29	0.1	0%
0-25	14	0.0	0%

suggests that adding STI testing services could be a beneficial move for centers seeking to increase their patient volumes.

According to Experity data, the top 1% of urgent care centers in the United States attribute 6% of their total visits to STI testing (**Figure 4**). Urgent cares falling in lower percentiles see fewer STI patients with a steep drop-off even in the 95-99th percentile. In other words, only the top 1% of urgent care centers see STI testing as a material part of their business.

Notably, the top 10% of urgent care centers in terms of volume also see the most STI patients. This begs the question: Are STI patients boosting these numbers, or do higher pre-existing patient volumes simply increase the number of STI patient visits? It may vary for each center location, but in either case, adding services that bring in STI patients could be a valuable way for lower-volume urgent cares to drive additional patient visits.

So why aren't more urgent care centers offering STI tests already?

Billing is one potential barrier. A send-out lab test on top of an urgent care visit can result in a cash bill well over $900 for uninsured patients, possibly driving patients to alternative testing locations. This strategy can still be viable—as demonstrated by the top percentile of clinics—especially when reference labs are willing to bill patients directly at a reasonable rate. However, the process becomes more complicated if the urgent care has to collect payment and remit reimbursement to the lab. The clinic also risks losing money if the staff does not accurately charge and collect patient out-of-pocket responsibility for lab services.

Meanwhile, historic limitations in rapid testing options have created a speed bump for operators to overcome. In order to add STI testing, some rapid lab equipment requires an upgrade from typical CLIA-waived (Clinical Laboratory Improvement Amendments) status to "moderately complex," creating the need to hire a lab director and participate in subsequent inspections. Reimbursement from insurance may not cover the cost of these tests, making STI testing a money-losing proposition for many clinics.

Fortunately, improvements in rapid tests, discussed in further detail below, are poised to drastically reduce both the financial and logistical challenges posed by avoiding send-out labs altogether.

Urgent care operators have plenty of other issues to manage with STI testing. The following are some oft-cited reasons for not offering testing services:

- UC operators don't believe they can get paid by insurance, especially for asymptomatic but exposed and concerned patients.
- They haven't invested time or money into rapid testing and thus rely on third-party labs with long turnarounds and billing complexity that neither patients nor staff understand.
- A lag in lab reporting leads to presumptive treatment, resulting in patients not returning for test results.
- The providers simply don't want to examine genitals or see patients from higher-risk cohorts.
- The providers don't want to have difficult discussions, deal with partner notification, pre- or post-exposure prophylaxis or public health reporting.
- The providers would rather refer patients to community resources, such as family planning clinics, county health departments, and HIV service agencies, believing they shouldn't "compete against free."

Unlike many other services offered by urgent care, STI testing isn't always straightforward to implement. However, operators cannot afford to ignore this business opportunity. Consider that federal sources recorded 2.5 million new cases of syphilis, chlamydia, and gonorrhea in 2022 alone. With the STI epidemic, and associated complications like antibiotic resistance advancing at an alarming rate, the need for testing is even more pressing. An extraordinary number of patients need STI care, and UCs are well-positioned to offer convenient, accessible, and confidential testing.

Why Would Patients Choose Urgent Care?

Patients who are concerned about an STI have several options for where to get tested. They may opt to visit a primary care provider. They may choose to utilize free resources provided by a non-profit community health center or public health department.

However, urgent care offers patients seeking STI testing unique benefits, including rapid service and discreet care. These factors give UC an advantage over traditional testing providers. Increased access to STI testing is a net benefit to both the urgent care and the community.

Benefit to Public Health

Despite the low- or no-cost testing options offered by community non-profits, family planning clinics, and public health departments, many people avoid getting tested at these locations as they tend to carry a stigma. Likewise, patients may be uncomfortable visiting their primary care provider for testing since they may be uncomfortable sharing details of their sexual behavior.

This positions urgent care as a strong alternative. Patients can walk in for testing at their convenience and receive confidential care from a provider without establishing an ongoing relationship. For many, this is a far more comfortable option. The ease and privacy of the UC model could improve overall STI testing rates and decrease overtreatment.

Improved Rapid Testing

Historically, limitations in the efficacy and profitability of STI testing have been attributed to the lack of available in-office testing options or the need to send out samples for third-party lab testing. Recent improvements in rapid testing, particularly through PCR tests and urine samples rather than traditional swabs, are helping change that narrative.

New PCR rapid test kits will make in-office testing for STIs as quick and easy as testing for influenza and strep—something urgent care centers already excel at. Moreover, the FDA will likely approve urine collection tests, making collecting samples even easier for urgent care staff in the near future.

Faster test results through new rapid testing kits could also lower the number of "lost" patients who never return to the clinic for treatment after a positive result. This could improve care for partners, who can be notified and begin their own treatment sooner.

Improved Reimbursement

In an effort to combat rising STI rates, the federal government has mandated reimbursement of STI testing for certain populations. Current regulations mainly focus on whether the patient is symptomatic. Urgent care operators must know these guidelines to ensure that STI testing services can remain profitable.

For instance, payers may consider post-exposure, asymptomatic testing a preventative service. While such tests are typically covered in a primary care office, they may be excluded from urgent care contracts because services are classified as episodic.

In the private sector, the Affordable Care Act (ACA) mandates that most health plans cover recommended preventative services, including HIV and other STI testing.[3] This includes testing for STIs like syphilis, chlamydia, and gonorrhea—prime candidates for UC services. However, plan coverage may vary. Notably, the ACA requires all plans to cover HIV testing for all individuals between the ages of 15 and 65, as well as other ages within high-risk populations.

Medicaid has also expanded its coverage of STI-related care, including testing, counseling, screenings, and preventive vaccinations.[4] Eligible populations may receive no-cost care for these services. Although most programs cover STI screenings, and all cover medically necessary HIV screenings, not all cover treatment if diagnosed. Medicare Part B, meanwhile, covers STI screenings once per year, or more often for individuals who are pregnant or at increased risk.

While the nuances of insurance reimbursement vary, operators should be aware that coverage is trending in a positive direction due to the growing rates of STIs and government initiatives to reverse this course. This is good news for urgent care, as adding these services with insurance reimbursement is a potentially profitable pathway that no longer relies on cash payments from patients.

Conclusion

The imperative need for urgent care centers to integrate STI testing into their service offerings is clear. With STI numbers reaching staggering new heights across the country, urgent care operators have a unique opportunity to help address this public health issue while also boosting patient volumes and revenue. Urgent care's convenience, accessibility, and confidentiality make it an ideal setting for reaching a broad and diverse patient population, while advancements in rapid testing and evolving reimbursement policies are poised to alleviate historic barriers. ■

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Use of NEXUS II Clinical Decision Tool for Blunt Head Injuries in Elderly Patients

Take Home Point: Older patients with blunt head-injury are at high risk of sustaining serious intracranial injuries even with low-risk mechanisms of injury, such as ground-level falls.

Citation: Mower W, Akie T, Morizadeh N, et. al. Blunt Head Injury in the Elderly: Analysis of the NEXUS II Injury Cohort. *Ann Emerg Med.* 2024 May;83(5):457-466. doi: 10.1016/j.annemergmed.2024.01.003

Relevance: Older adults are known to be at higher risk of serious injuries after trauma and specifically age has been used as an exclusion criterion in many clinical decision rules (CDR), including the NEXUS Head CT Rule.

Study Summary: This was a planned secondary analysis of all patients aged ≥65 years who were enrolled in the NEXUS head CT (computed tomography) decision instrument validation study. The primary goal of the NEXUS study was to validate the NEXUS head CT decision instrument compared to the performance of the Canadian CT head rule. This was a retrospective study conducted in 4 emergency departments (ED) in California and included patients from urban, suburban, and rural communities as well as community and academic hospitals. Participants recruited were patients with blunt head trauma that had a head CT performed.

The authors enrolled 11,770 patients and identified 1,352 with any intracranial injury. Of these, 767 had significant intracranial injuries (ICH), and 420 patients required neurosurgical intervention. Of all participants, 3,659 (31.1%) were ≥65 years old, and 500 (13.7%) elderly patients had evidence of injury on their head CT, including 325 patients who had significant intracranial injuries (8.9% of all elderly patients). Senescent changes to the brain likely explain many of these findings, and clinical judgment was found to be unreliable in identifying elderly patients who harbor serious injuries. Importantly, 15% of the older adults with ICH had no other high risk features other than age, based on the NEXUS Head CT criteria. 81 patients died and 45% of the deaths occurred in patients whose mechanism of injury was a simple fall from standing.

Editor's Comments: Although capturing a wider range of patients, this study's enrollment was limited to patients presenting to an ED setting and did not account for those who either didn't seek medical attention or presented to their primary care provider or urgent care (UC) setting. This likely represents spectrum bias as patients presenting to EDs tend to have more significant symptoms and mechanisms of injury. All patients enrolled had CT imaging of the head as well, which further contributes to spectrum bias. Despite the spectrum bias, it's important that UC clinicians consider and discuss the increased risk of significant intracranial injury with older patients and their families when determining if immediate ED referral is appropriate. ■

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Limitations of Pulse Oximetry in Patients with Darker Skin

Take Home Point: Pulse oximeter accuracy for diagnosing hypoxemia is impaired in patients with darker skin tones, especially if accompanied by poor perfusion.

Citation: Gudelunas M, Lipnick M, Hendrickson C, et. al. Low Perfusion and Missed Diagnosis of Hypoxemia by Pulse Oximetry in Darkly Pigmented Skin: A Prospective Study. *Anesth Analg.* 2024 Mar 1;138(3):552-561. doi: 10.1213/ANE.0000000000006755. PMID: 38109495.

Relevance: Pulse oximeters are universally used in UC centers in acquiring vital signs. The data is used to ascertain severity of illness, particularly in patients with respiratory symptoms. Inaccuracies in pulse oximetry could have a significant impact on patient safety and further impact racial disparities in outcomes.

Study Summary: This was a prospective study investigating the hypothesis that pulse oximeter measured functional saturation (SpO2) overestimates SaO2 more frequently in the presence of increased skin melanin and low perfusion than in the presence of either condition alone. Two pulse oximeters (Masimo and Nellcor) were used. Data from 146 consecutive, healthy, non-smoking volunteer participants

in pulse oximeter performance studies at the University of California at San Francisco Hypoxia Research Laboratory was used. Forty-three subjects were classified as Fitzpatrick skin type V or VI (dark), 78 as Fitzpatrick III or IV (medium), and 25 as Fitzpatrick I or II (light).

The authors found that low perfusion appeared to interact with both medium and dark skin pigment to substantially increase pulse oximeter bias. Subjects with darkly pigmented skin and low perfusion had hypoxemia in the SpO2 range of 92% to 96% missed in 30.2% of the readings from the Masimo™ pulse oximeter and 7.9% of the readings from the Nellcor. The area under the receiver operating characteristic curve for a diagnosis of hypoxemia was lowest for subjects with darkly pigmented skin and low perfusion and the rate of missed hypoxemia was almost twenty-fold higher for the darkest skinned patients with poor perfusion compared to the lightest skinned patients.

Editor's Comments: The use of healthy participants in this study cannot equate to real-world conditions when acutely ill patients are being assessed. The study also used only 2 models of oximeters, which limits generalizability when comparing their performance to newer models and other manufacturers. This study does identify the need for vigilance for UC clinicians particularly relying on pulse oximetry data without considering the clinical appearance of the patient. This adds to growing evidence that patients with darker skin tones may be at higher risk of inaccurate pulse oximeter readings. ■

Patient's Spoken Language and Decisions for Investigating Atraumatic Headache

Take Home Point: Patients who were Spanish speaking are more likely to undergo investigations than those proficient in English.

Citation: Preston-Suni K, Fleischman R, Garrett A, et. al. The Effect of Language on the Decision to Image in the Evaluation of Atraumatic Headache. *Journal of Emergency Medicine,* Vol. 66, No. 3, pp. e323–e330, 2024

Relevance: There are over 30 million people in the US, who have limited English proficiency (LEP), and these patients have worse outcomes, lower satisfaction, and less understanding of clinician discharge instructions.

Study Summary: This was a retrospective observational study of patients presenting to a public level-1 trauma ED, in Los Angeles County, California, with atraumatic headache. The authors performed a review of electronic health records of the study participants. The county had considerable linguistic diversity, with >50% of the population speaking a non-English language at home. Patients speaking a language other than English or Spanish were excluded due to low overall numbers (2.2% of the sample) and lack of any language-concordant patient–provider pairs among the 20 languages spoken in this group.

The authors reviewed 3,030 visits. These visits were seen by 286 residents, nurse practitioners, and attending physicians, of whom 54 (18.8%) had passed the Spanish proficiency test. They found Spanish-speaking patients had longer lengths of stay (49.4% vs 37.9% ≥600 minutes) and were significantly more likely to undergo head CT (adjusted odds ratio [aOR] 1.28; 95% CI [confidence interval] 1.08–1.52). In the stratified analysis examining only the subset of Spanish-speaking patients, evaluation by clinician who had passed the language test had no significant effect on the odds of undergoing head CT (aOR 0.95; 95% CI 0.75–1.20).

Editor's Comments: The study did not include assessment of historical features or physical examination findings for which CT was recommended. It was also unable to unable to assess whether certified health care interpretation was used during ED visits. This study does highlight the need for native language clinicians to be recruited to centers where patient populations have a large proportion of LEP to enable better provision of care. ■

Metoclopramide vs Other-Antimigraine Therapies: Which Is Best?

Take Home Point: 10 mg IV metoclopramide was effective in relieving migraine attacks with minimal side effects and could be one of the first-line treatments to decrease acute migraine attacks in ED/UC.

Citation: Abdelmonem H, Abdelhay H, Abdelwadoud G, et. al. The efficacy and safety of metoclopramide in relieving acute migraine attacks compared with other anti-migraine drugs: a systematic review and network meta-analysis of randomized controlled trials. *BMC Neurol*. 2023 Jun 8;23(1):221. doi: 10.1186/s12883-023-03259-7

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Relevance: Over 1 million patients annually present to ED suffering from acute migraine, the world's 7th leading cause of disability. Identifying effective treatment will help UC clinicians provide care for patients presenting with this condition.

Study Summary: This was as systematic review assessing metoclopramide, its efficacy, side effects, and recurrence compared to other described migraine drugs in literature. All randomized controlled trials that investigated the effect of metoclopramide alone without any combination with an active drug in relieving acute migraine attacks were reviewed. Efficacy of metoclopramide was compared with placebo or any other active antimigraine drugs like prochlorperazine, chlorpromazine, ketorolac, valproate, sumatriptan, bupivacaine, granisetron, dexketoprofen, dexamethasone, magnesium sulfate, pethidine, sumatriptan, and ibuprofen. Primary outcomes were headache change and complete headache relief while the secondary outcomes were the recurrence of attacks, use of rescue drugs, nausea relief, and side effects. Studies that combined metoclopramide with any other active drug, reviews, observational studies, case reports, case series, conference abstracts, and published articles in any language rather than English were excluded.

The authors identified 16 studies for review and found metoclopramide's efficacy was significantly higher than placebo and sumatriptan in decreasing headache scores and was significantly lower than only granisetron. Its ability to completely relieve headache and decrease the need for rescue medication was significantly higher than only placebo and valproate in only the need for rescue medication. The recurrence rates were similar between all antimigraine drugs and metoclopramide significantly decreased the incidence of nausea in patients.

Editor's Comments: There were limited number of studies available comparing metoclopramide to other drugs to perform direct meta-analysis. The study does support clinicians in choosing to consider metoclopramide as a first line option in treating acute migraine.

Should We Be Prescribing Antihypertensives at Discharge?

Take Home Point: Prescription antihypertensive therapy for discharged patients was associated with a 30-day decrease in severe adverse events and revisit rates to ED.

Citation: Todd B, Xing Y, Zhao L, et. al. Antihypertensive prescription is associated with improved 30-day outcomes for discharged hypertensive emergency department patients. *J Am Coll Emerg Physicians Open*. 2024 Mar 30;5(2): e13138. doi: 10.1002/emp2.13138.

Relevance: Up to 33% of patients presenting to ED with notable elevated blood pressure (BP) have no previous documented history of hypertension. Management of these patients with appropriate outpatient follow-up limits future morbidity and mortality.

Study Summary: This was a multicentered observational cohort study of discharged ED patients with elevated BP without concurrent treatment of hypertension, based in Detroit, Michigan. The study aimed to investigate whether emergency physician prescription of oral antihypertensive therapy on ED discharge for untreated hypertensive patients was associated with a decreased 30-day risk of the severe adverse events (AE), death, and revisits to ED.

The authors identified 93,512 patients for the study cohort. They found 9,442 (10.1%) of patients received antihypertensive treatment, while in the ED, a further 4,435 (4.7%) of patients received antihypertensive prescription upon ED discharge, and 4,458 (4.8%) patients were prescribed antihypertensive therapy from another medical professional within 30 days after ED. Patients receiving antihypertensive prescriptions at ED discharge were significantly more likely to be younger, male, Black, have higher systolic and diastolic BPs, have a lower burden of comorbidity (lower Elixhauser comorbidity indices), and have received antihypertensive treatment in the ED before discharge. 660 (0.7%) patients experienced one or more AEs within 30 days of ED discharge, which comprised of 13 (<0.1%) aortic catastrophes, 422 (0.5%), acute heart failure cases, 19 (<0.1% hypertensive encephalopathy cases, 42 hemorrhagic strokes (<0.1%), 111 ischemic strokes (0.1%), and 107 (0.1%) myocardial infarctions. Just 9 AEs were observed in the cohort prescribed antihypertensive therapy compared with 651 AEs in the nontreatment group. Antihypertensive therapy was associated with a decreased odds of acute heart failure (adjusted OR, 0.183, [95% CI, 0.056–0.441], $p < 0.001$).

Editor's Comments: The retrospective nature of the study, with its reliance on EMR, could introduce selection bias and limit the ability to assess causality. There was no data on the filing of the discharge prescriptions or patient compliance with the discharge prescription, which could affect the results. The study does suggest potential opportunistic initiation of treatment, with appropriate further

follow-up and safety netting could be considered by clinicians for these cohort of patients. ■

Facial Expression, Gender, and Virtual Background Affect Patients' Perceptions

Take Home Point: Hypothetical clinicians over telehealth with neutral facial features and novelty backgrounds were considered the least trustworthy and competent in this study.

Citation: Cook A, Thompson M, Ross P. Virtual first impressions: Zoom backgrounds affect judgements of trust and competence. PLoS ONE18(9): e0291444. https://doi.org/10.1371/journal.pone.0291444

Relevance: First impressions are powerful and subconscious. In the era of ubiquitous virtual meetings and telehealth consultations, it is important to understand what features of our virtual presentation affect rapport and trust.

Study Summary: This study recruited volunteers from sampling of various sites to view faces on virtual backgrounds. Some participants were paid to complete a 10-minute survey, while others were given academic credit. There were 3 independent variables; virtual meeting background with 6 levels: "Home," "Blurred Home," "Bookcase," "Plants," "Blank" and "Novelty." Facial expressions with 2 levels were included: "Happy" and "Neutral." Finally, hypothetical clinician gender: male or female. First impressions were measured by 2 dependent variables: evaluations of trustworthiness and competence. After viewing each photo, participants responded to 2 items "How trustworthy is this individual?" and "How competent is this individual?" which were both rated on a 7-point Likert scale.
The authors enrolled 167 participants (115 females, 50 males, 2 non-binary). They found faces presented on the "Bookcase" and "Plants" background were consistently rated as the most trustworthy and most competent, contrasting the "Home," "Blurred Home," and "Novelty" backgrounds, which received lower trustworthiness and competence rating. Happy faces are judged as more trustworthy and more competent than neutral faces. Females were rated as more trustworthy and competent regardless of background selection.

Editor's Comments: This study was limited to 6 backgrounds and did not consider other background variables, particularly those with corporate insignia or more typical clinical settings. There was also a lack of racial variability to the actors in the photos (all were Caucasian). The level of aesthetic pleasantness/attractiveness of the faces was not quantified nor controlled for, but studies demonstrating the "halo effect" have shown that attractiveness plays an important role in perceptions of intelligence and competence. Despite its limitations, the study does highlight that, unsurprisingly, how we present ourselves in virtual professional interactions has a measurable influence on how those we interact with perceive us. ■

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Escalating Back Pain Leading to a Diagnosis of ST-Elevation Myocardial Infarction (STEMI) in Urgent Care: A Case Report

Urgent Message: Acute coronary syndromes (ACS), including ST-elevation myocardial infarction (STEMI), may present with predominant back pain or other non-chest-pain symptoms. Additionally, electrocardiogram findings in cases of coronary occlusion may not always meet STEMI criteria. It is important to include myocardial ischemia and ACS in the differential for back pain presentations, especially when the pain is not reproducible.

Sarah Mannon OMS-3; Lauren Schuermann OMS-3; Michael B. Weinstock, MD

Citation: Mannon S, Schuermann L, Weinstock M. Escalating Back Pain Leading to a Diagnosis of ST-Elevation Myocardial Infarction (STEMI) in Urgent Care: A Case Report. *J Urgent Care Med*. 2024; 18 (10):50-54

Key Words: ST-elevation myocardial infarction, occlusive myocardial infarction, back pain, case report

Abstract

Introduction: ST-elevation myocardial infarction (STEMI) is a highly time sensitive diagnosis and can present with an array of symptoms. Patients with back pain may present to the urgent care (UC) for diagnosis and management without an understanding among clinicians that acute coronary syndrome (ACS) is in the differential.

Clinical Presentation: A 66-year-old man presented to the UC with complaints of increasing back pain over the previous month. Notably, the pain was worse with exertion and relieved with rest.

Physical Exam: The patient was alert and oriented. Lungs were clear with equal breath sounds, and regular heart rate and rhythm. Abdomen was soft and nontender without a pulsatile abdominal mass. Extremities had no pain or swelling. On palpation, mild cervical (C4-C7) trapezius and lumbar (L1-L4) paraspinal tenderness were noted bilaterally. Tenderness was not reproduced with range of motion.

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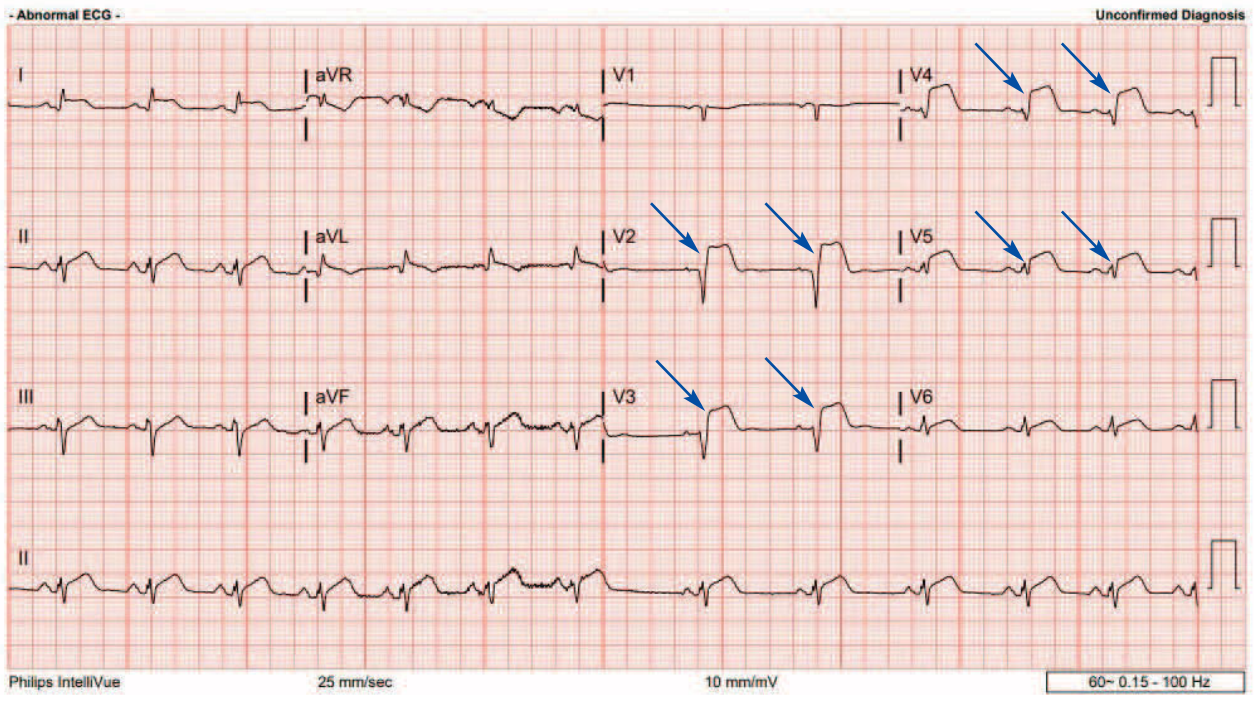
Figure 1. ECG



ECG shows abnormal findings including anterior ST elevation (arrows) and reciprocal changes in lead aVL

Case Resolution: An electrocardiogram (ECG) was performed that revealed a STEMI and the patient was transported to the local emergency department (ED) where percutaneous coronary intervention (PCI) was successful in opening the culprit vessel.

Conclusion: Patients may present in UC settings with ACS, including STEMI, but may not have typical symptoms such as chest pain. Neck or back pain that is worse with exertion should clue clinicians into the possibility of myocardial ischemia as a potential etiology.

Introduction

ACS defines a group of disorders, including unstable angina, non-ST elevation myocardial infarction (NSTEMI), and STEMI, involving acute ischemia due to coronary arterial obstruction.[1] A STEMI occurs when acute occlusion of 1 or more coronary arteries is sufficient to cause transmural myocardial ischemia, resulting in myocardia necrosis if unaddressed.[2] STEMI is defined as ACS with characteristic electrocardiogram changes of ST-elevations in more than one contiguous leads or new bundle branch block with ischemic repolarization patterns.[2] The most suggestive symptoms of ACS include chest pain (especially with radiation), dyspnea, diaphoresis, and vomiting.[3] However, previous studies have found that upper back pain and fatigue are also commonly reported symptoms related to ACS.[4] Up to 30% of patients do not present with or experience chest pain.[4,5] The objective of this case report is to shed light on an unusual presentation of STEMI to ensure that clinicians include this diagnosis in their differential.

Clinical Presentation

A 66-year-old male presented to the UC via private vehicle with a chief complaint of increased upper back and neck pain. His past medical history was significant for chronic back pain, basilar skull fracture, and prior lumbar spinal fracture. The patient did not take any daily medications. The patient was a smoker but denied alcohol or illicit drug use and lived at home with his wife.

The patient had acute on chronic neck and back pain for the last 4-6 weeks. He stated that it started with back discomfort every few days and had now progressed to severe back pain at least every day for 20-30 minutes. The patient's pain was not reproducible by any specific range of motion and there was no mechanism for musculoskeletal strain. For a few days prior to presentation, his back pain had been accompanied by cyclical bilateral upper extremity numbness. He reported rest as a reliev-

ing symptom. Over the last few weeks, he had been seen multiple times by a chiropractor who had made musculoskeletal adjustments with no relief. His wife and daughter were present for the encounter and the wife stated on the morning of the presentation he appeared uncomfortable and unable to walk around due to back pain, which lasted 20-30 minutes. At the time of the encounter, the patient denied chest pain, difficulty breathing, abdominal pain, nausea, vomiting, trauma, and bowel or urinary incontinence.

Physical Exam

- Blood pressure: 131/94
- Pulse: 91
- Temperature: 36.4°C
- Respiration: 12
- SpO2: 100%

On the physical exam, the patient was in no acute distress resting on the gurney. Normal cardiac and lung sounds were present on auscultation. Abdomen was soft and nontender without pulsatile abdominal mass. Cranial nerves II-XII were grossly intact with DTR +2, no sensory deficits, and motor strength 5/5 in flexion and extension of forearm. On palpation, mild cervical (C4-C7) trapezius and lumbar (L1-L4) paraspinal tenderness were noted bilaterally. Tenderness was not reproduced with range of motion. Extremities did not reveal any pain or swelling.

Problem List and Differential Diagnosis

The patient's problem list included exertional upper back pain, fatigue, and bilateral arm numbness. A differential diagnosis for such a presentation includes musculoskeletal etiologies including spinal disc pathology with radiculopathy or myelopathy, thoracic aortic dissection, abdominal aortic aneurysm, pathologic rib or spinal fracture, pulmonary embolism, pneumothorax, and ACS, among other etiologies.

Case Continuation and Timeline

After initially evaluating the patient, the UC clinician ordered an ECG in consideration of cardiac etiologies and a chest x-ray (CXR) considering the possibilities of pneumothorax, pneumonia, cardiomyogenic cause, and aortic dissection. The CXR did not show any concerning abnormality, but the ECG revealed ST elevations in the anterior leads concerning for STEMI in the context of his symptoms (**Figure 1**). The patient was given 325 mg of aspirin and transferred to the emergency department (ED) by ambulance.

Diagnostic Assessment and Case Conclusion: ED Course

In the ED, a repeat ECG on arrival revealed continued ST elevation in leads I and V2-V5 as well as T-wave inversion in aVL (reciprocal change). His initial troponin was significantly elevated at 3.04 ng/mL. He emergently underwent percutaneous coronary intervention with placement of 2 drug-eluting stents in the left anterior descending coronary artery with no complications and was discharged after an uneventful hospital stay.

Discussion

STEMI is a common, life-threatening occurrence in the United States with approximately 750,00 cases diagnosed annually.[6,7] Despite the symptoms most suggestive of STEMI being chest pain with radiation, dyspnea, diaphoresis, and vomiting, many patients present without these most specific features.[3,8] A retrospective study of 721 cases of ACS showed that 53% of patients presented with chest pain, 17% with shortness of breath, 7% with cardiac arrest, 4% with dizziness/weakness/syncope, 2% with abdominal pain, and 17% with another presentation.[9] In this group of patients, those at highest risk for an alternate set of symptoms, were those over 84 years old.[9]

Another study conducted on hospitalized patients with ACS showed that women were more likely to present without chest pain and had higher mortality rates than men within the same age group.[10] The sex differences in clinical presentation without chest pain and mortality were shown to increase with increasing age.[10]

Certain cardiology experts have highlighted problems with current nomenclature for various forms of ACS, including STEMI and NSTEMI, and have suggested that a more clinically relevant means of classification would be to divide ACS based on the pathophysiological nature of the event rather than ECG patterns.[11]

For example, a recent study by Meyer et al reviewed 467 patients with "high risk" ACS presentations. Of the patients included, 108 had occlusion myocardial infarction (OMI) on angiography. Among patients with OMI on angiography, 40% of the ECGs did not demonstrate ST-segment elevation, underscoring the peril in relying on electrocardiographic criteria alone. This also suggests that a large portion of OMI patients will not receive appropriate emergent revascularization.[12] Recent studies have shown that up to 25% of patients diagnosed with NSTEMI have had an acute coronary occlusion.[13,14] ST-depression or hyperacute T-waves can be early ECG changes suggesting impending OMI.[15] Prudent practice for UC clinicians, therefore, would be to refer any patients with exertional pain symptoms or

other concerning symptoms for ACS and new or dynamic ST-segment ECG changes to a PCI-capable ED immediately.

The American College of Cardiology and American Heart Association guidelines for the management of acute myocardial infarction have established the gold standard of door-to-balloon time of 90 minutes for primary PCI.[16] Aspirin therapy is also a cornerstone in the immediate treatment of STEMI. A study completed by the Second International Study of Infarct Survival demonstrated that 162.5 mg aspirin given immediately with or without fibrinolytic therapy for STEMI reduced 5-week vascular mortality by 23%.[17,18] Therefore, it is important for UC clinicians to be aware of the timely actions that are necessary in insuring patients with concerning presentations for OMI be managed and transferred to an ED where definitive care is possible. Patients with ischemic symptoms should always be urgently transported to the ED by 911 emergency medical service (EMS) along with stabilizing care such as oxygen and automated external defibrillator pads. A study showed that more than 1 in 20 patients with STEMI present prehospital with sudden cardiac arrest after EMS arrival, and another study showed that 1 in 300 patients not transported by EMS with just possible ischemic symptoms suffered cardiac arrest en route.[19,20]

Ethics Statement

Informed consent for publication of this case was not able to be obtained as the patient did not return any communication. The details and demographics of the case have been altered slightly to protect the patient's privacy.

Takeaway Points for Urgent Care Clinicians

- Elderly patients and female patients are more likely to present with atypical symptoms of ACS.
- Patients experiencing ACS can present with a wide variety of symptoms beyond chest pain, including dyspnea, cardiac arrest, dizziness/weakness/syncope, abdominal pain, neck pain, and back pain.
- Exertional symptoms including pain, nausea, dyspnea, and fatigue, should prompt an ECG.
- Patients can have acute coronary occlusion or OMI, commonly without ECG findings that meet criteria for STEMI. Therefore, any concerning new or dynamic ST-segment changes on ECG should prompt immediate ED referral. ■

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CLINICAL CHALLENGE: CASE 1

Challenge your diagnostic acumen: Study the following x-rays, electrocardiograms, and photographs and consider what your diagnosis might be in each case. While the images presented here are authentic, the patient cases are hypothetical. Readers are welcome to offer their own patient cases and images for consideration by contacting the editors at editor@jucm.com.

29-Year-Old With Chronic Hip Pain

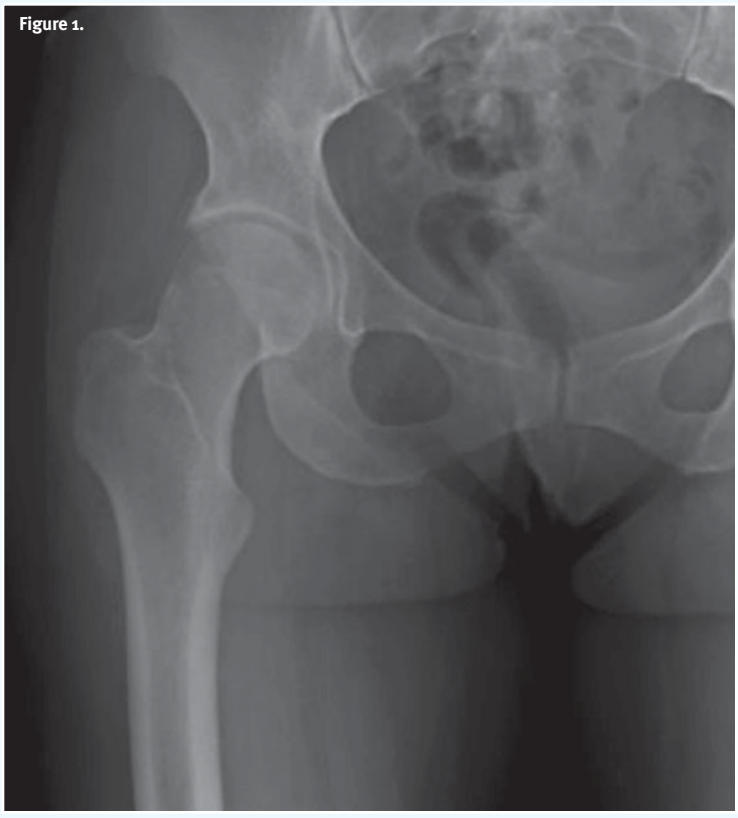

Figure 1.

A 29-year-old man presents to urgent care complaining of chronic right hip pain with movement and exercise. He's an avid mountain climber and used to play sports in college.

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

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

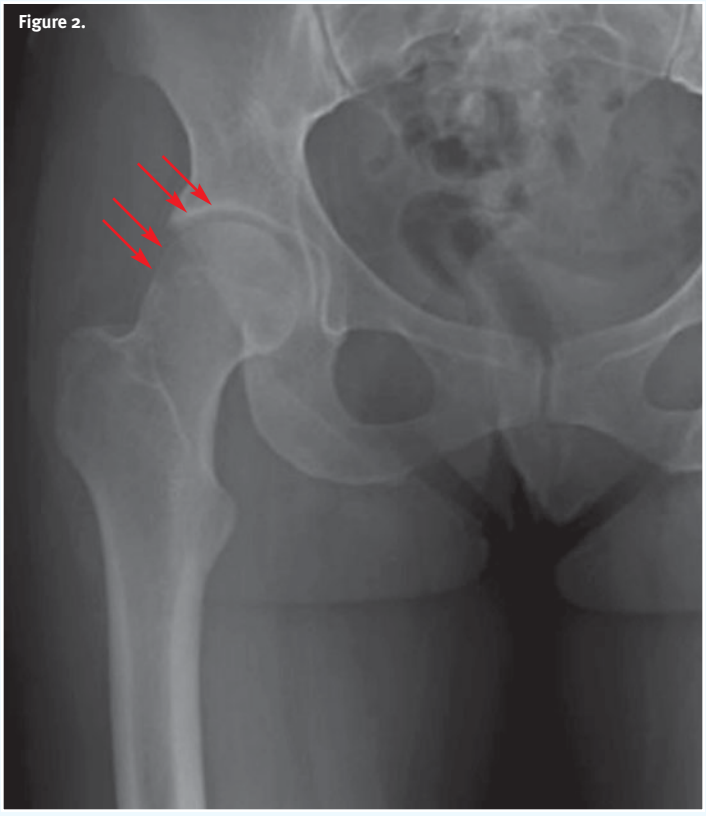
Figure 2.

Differential Diagnosis
- Osteoarthritis of the hip joint
- Femoroacetabular impingement syndrome
- Osteonecrosis of the hip joint
- Femoral head fracture

Diagnosis
The imaging above demonstrates a decreased offset and pistol grip deformity of the femoral head/neck junction. The correct diagnosis is femoroacetabular impingement (FAI) syndrome, cam morphology. There are two morphologies of FAI: cam and pincer. Cam is more common in young men, and pincer is more common in middle-aged women.

What to Look For
- Risk factors include high impact sports (especially in adolescents), overuse activity, previous slipped capital femoral epiphysis, and post-traumatic deformities
- The most common symptom is groin pain related to movement and/or position

Pearls for Urgent Care Management
- X-ray is the appropriate first line imaging modality, however, magnetic resonance imaging may be needed to make the diagnosis
- Treatment includes activity moderation, physical therapy, and non-steroidal anti-inflammatory drugs
- If symptoms do not improve with conservative management, surgery may be needed, and orthopedic referral is indicated

56-Year-Old With Cancer and Developing Rash


Figure 1.

A 56-year-old woman presents to urgent care for a rash that developed on her hands, ears, and nose over the last couple of months. She has a recent diagnosis of esophageal cancer. On examination, hyperkeratotic plaques were seen on the palm and fingers, and scaly papules were seen on her helices and nose. Her nails displayed subungual hyperkeratosis, onychodystrophy, and onycholysis along with erythema and edema on her nail folds.

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

Acknowledgment: Image and case presented by VisualDx (www.VisualDx.com/jucm).


Figure 2.

Differential Diagnosis
- Acrokeratosis paraneoplastica
- Dermatomyositis
- Palmoplantar keratoderma
- Psoriasis

Diagnosis
The correct diagnosis is acrokeratosis paraneoplastica. Also known as Bazex syndrome, it is a paraneoplastic dermatosis characterized by scaly, erythematous plaques that is commonly seen with squamous cell carcinomas of the upper aerodigestive tract and cervical lymphadenopathy from metastatic disease. Acrokeratosis paraneoplastica may appear prior to the diagnosis of an underlying malignancy.

What to Look For
- Findings of plaques like psoriasis located on the nose, ears, fingers and toes
- Associated alopecia, plantopalmar keratoderma, and nail changes may also be present

Pearls for Urgent Care Management
- If diagnosed, ensure the patient pursues malignancy work-up if current cancer diagnosis is not present
- Treatment of underlying malignancy may resolve cutaneous symptoms
- The most common direct treatment is oral acitretin

CLINICAL CHALLENGE: CASE 3

70-Year-Old With Fatigue and Edema

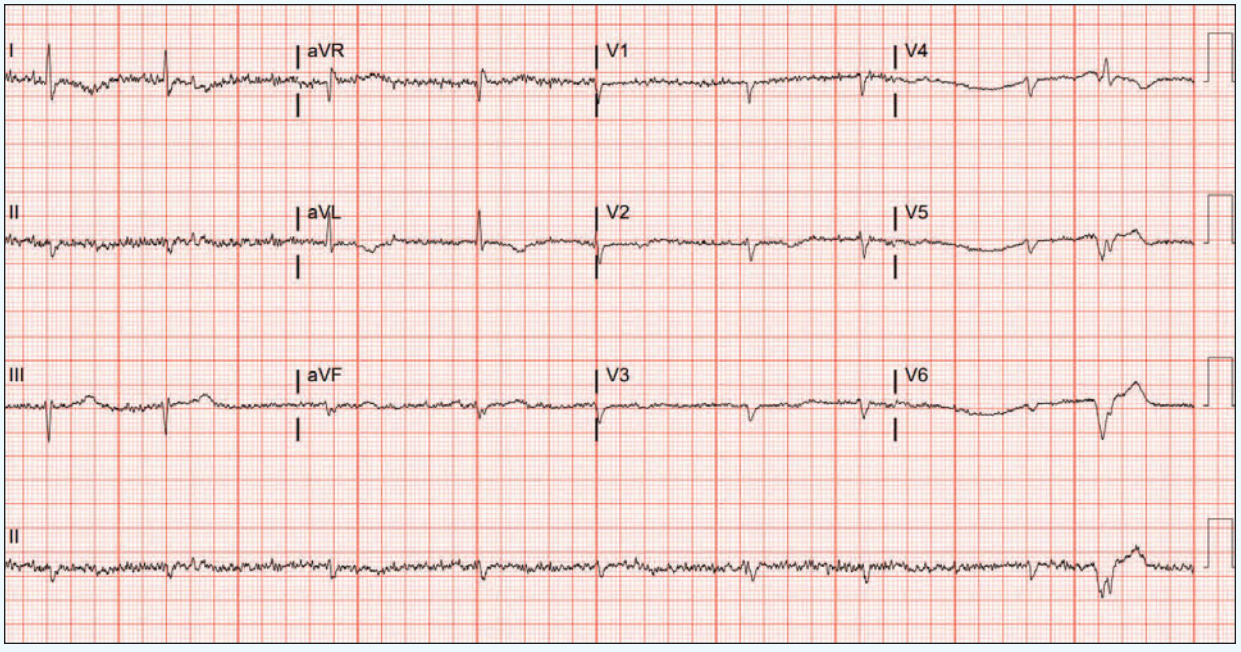

Figure 1: Initial ECG

A 70-year-old male with a history of atrial fibrillation presents to urgent care for 1 week of fatigue and edema of the lower extremities and face. An ECG is obtained.

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

Case presented by Joe Stockhausen, MD

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

ECG STAMPEDE

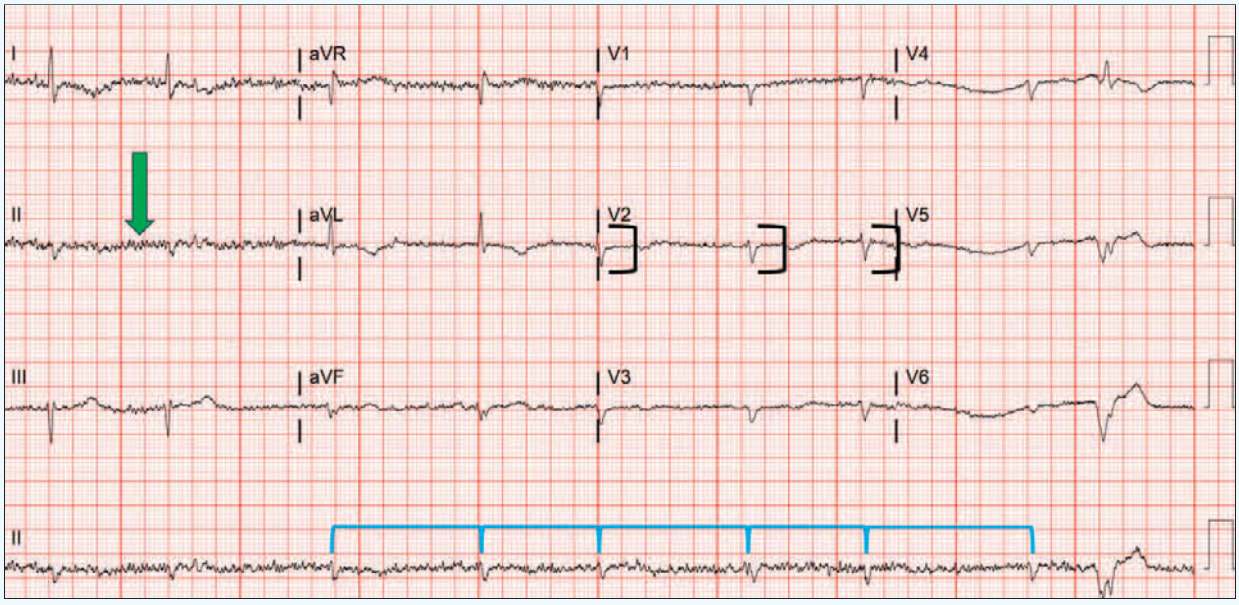

Figure 2: Atrial fibrillatory waves (green arrow), QRS complex in an irregularly irregular pattern (blue brackets), and low precordial voltage (‹ 10 mm of amplitude, black brackets).

Differential Diagnosis

- Complete heart block
- Digoxin toxicity
- Myxedema coma
- Hypothermia
- Beta blocker or calcium channel blocker toxicity

Diagnosis

The diagnosis is myxedema coma. The ECG reveals an irregularly irregular bradycardia with a rate of approximately 50 beats per minute and low voltage. Atrial activity shows fine fibrillations without discernible P waves consistent with atrial fibrillation.

Discussion

Atrial fibrillation is a condition where disorganized fibrillatory waves in the atria cause a lack of visible P waves on the surface ECG.[1] Only some signals are allowed through the atrioventricular (AV) node, which leads to an irregularly irregular ventricular rhythm (**Figure 2**). While atrial fibrillation typically involves ventricular rates ›100 beats per minute, slow ventricular response describes ventricular rates ‹60 beats per minute.[2]

The ECG in this case also has low voltage. Low voltage is defined as QRS amplitudes ‹5 mm in the limb leads or ‹10 mm in the precordial leads.[3] In this case, the patient had a QRS amplitude of ‹10 mm in all precordial leads.

When slow atrial fibrillation is encountered, the urgent care provider must consider a broad differential including, but not limited to, the 5 conditions listed above. The pathophysiology commonly involves slowed conduction through the atrioventricular node by a variety of causes, many of which can be ruled out with a comprehensive history and physical examination including medication use. Other conditions, such as hypothyroidism, require additional testing. The combination of low voltage and bradycardia is particularly concerning for hypothyroidism/myxedema.[4]

Thyroid hormones have multiple cardiac effects at the cellular level, including regulating the amount of beta-1 adrenergic receptors.[5] The sum of these effects leads to decreased rate and contractility. Hypothyroidism may also contribute to the presence of atrial fibrillation through the remodeling and fibrosis of the heart and its conduction system, leading to impaired atrial conduction.[6]

Hypothyroidism can cause low voltage through two mechanisms: the direct effects of hormonal deficiency on the generation of cardiac action potentials and the presence of a pericardial effusion (seen in up to one third of patients with hypothyroidism).[4,7] Patients with large effusions due to hypothyroidism will characteristically lack a compensatory tachycardic response, and will be bradycardic or normocardic.[8,9]

Digoxin toxicity can present with many different ECG manifestations including premature ventricular complexes, ventricular tachycardia, atrial fibrillation, and atrioventricular blocks.[1] Digoxin and other medication toxicities (eg, beta blockers or calcium channel blockers) can cause slow atrial fibrillation but are not associated with low amplitude. Complete heart block can occur in the setting of atrial fibrillation, but the rhythm is expected to be regular. Hypo-

thermia can also cause slow atrial fibrillation, but that was also not the case here.

What to Look For

- Slow atrial fibrillation is typically caused by slowed conduction through the atrioventricular node, which can be from a variety of different causes such as medications, ischemia, and myxedema
- Consider all causes of slow atrial fibrillation to avoid missing dangerous diagnoses, including performing a thorough medication reconciliation

Pearls for Initial Management, Considerations for Transfer

- Patients with severe hypothyroidism will require transfer to a higher level of care
- Hemodynamic instability could be caused by cardiac tamponade in patients with hypothyroidism, in which case fluid administration while preparing for immediate transfer is indicated

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What Did We Learn From the Change Healthcare Outage?

Phyllis Dobberstein, CPC, CPMA, CPCO, CEMC, CCC

Nearly all of us in the healthcare ecosystem were impacted by the cyberattack on Change Healthcare in February that caused widespread network disruptions. Change Healthcare processes 15 billion healthcare transactions annually and is connected to one-third of patient medical records in the United States. More than 100 Change Healthcare applications across pharmacy, medical, dental, patient engagement, and payment services were affected by the disruptions. Months later, United Health Group (UHG), Change Healthcare's parent company, said it had restored 30% of its products, while another 57% had only partial service available, and some remained unavailable.

The group that claimed responsibility for the cyberattack was able to exfiltrate 6 terabytes of "highly selective data" by stealing a password and entering through a portal that didn't have secondary authentication enabled. It's a huge amount of data that was compromised.

Fewer But Larger Healthcare Companies

The breach highlighted a security vulnerability against a backdrop of large-scale mergers that keep consolidating healthcare into the hands of fewer corporations. For example, some major payers deal exclusively with certain clearinghouses to process their claims, so even some of the practices that did not contract with Change Healthcare still lost their ability to files claims with certain payers and receive reimbursement.

Meanwhile, the financial impact has been widespread. According to the American Medical Association's survey results in April, some of its members are still encountering issues with real-time eligibility (60%), claim submission (75%), receipt of electronic remittance advice (79%), and claim payments (85%). The cyberattack put a financial strain on practices, not just those that use Change Healthcare as their clearinghouse. An estimated 62% of practice owners also had to use personal funds to cover expenses just to keep the lights on.

"An estimated 62% of practice owners also had to use personal funds to cover expenses just to keep the lights on."

Reporting the Breach

The HIPAA Privacy rule defines covered entities as healthcare providers, health plans, and clearinghouses that electronically transmit health information. Covered entities have up to 60 calendar days from the date of discovery of a breach of unsecured protected health information (PHI) to file breach reports to Office for Civil Rights (OCR) when it affects 500 or more individuals. Covered entities and their business associates are also required to notify affected individuals, and sometimes the media, for a breach of this size.

Recently we learned more about the reporting obligations for individual practices under HIPAA and state breach notification laws as they relate to the Change Healthcare incident. When there is a breach of PHI, it is ultimately the responsibility of the covered entity to notify the affected individuals about the breach of their PHI, although the covered entity may delegate that responsibility to a business associate.

Provider groups asked the federal government to clarify whether or not UHG should handle the breach notifications stemming from this incident. UHG had previously stated that it would handle reporting for "customers." But this left several unanswered questions regarding which stake-

Phyllis Dobberstein, CPC, CPMA, CPCO, CEMC, CCC, is RCM Revenue Integrity Manager at Experity.

holder group was responsible for sending out the required HIPAA breach notifications.

In early June, OCR confirmed that breach notification may be performed by UHG and Change Healthcare. As a result, the notifications to patients whose PHI was compromised will come from UHG and Change Healthcare, thus sparing the covered entities from the administrative task and from appearing to have culpability for the breach.

Negative RCM Impact

The negative impact to revenue cycle management operations is extensive for some urgent care operators that are still recovering from the claims processing chaos that occurred during the public health emergency. Workarounds, such as resorting to paper claims, do not often provide proof of timely filing or guarantee of reimbursement. While some payers have waived certain requirements to speed up processes, others prefer to wait and see what happens.

Without electronic means to post funds, staff may be required to follow up on claims manually. This means unpaid claims may not be addressed in a timely manner. Patient satisfaction will also be impacted as patients may not receive a billing statement for many months or may be billed the wrong amount. All of these delays cause an increase in inbound phone calls and extra administrative work that chips away at margins.

"Ultimately, healthcare business owners are the losers in this situation, and it will impact them financially for likely the entire year with lost revenue and increased practice expense."

Ultimately, healthcare business owners are the losers in this situation, and it will impact them financially for likely the entire year with lost revenue and increased practice expense. Let's hope we can learn from this event and make the necessary changes in our industry to prevent another disruption of this size. ■

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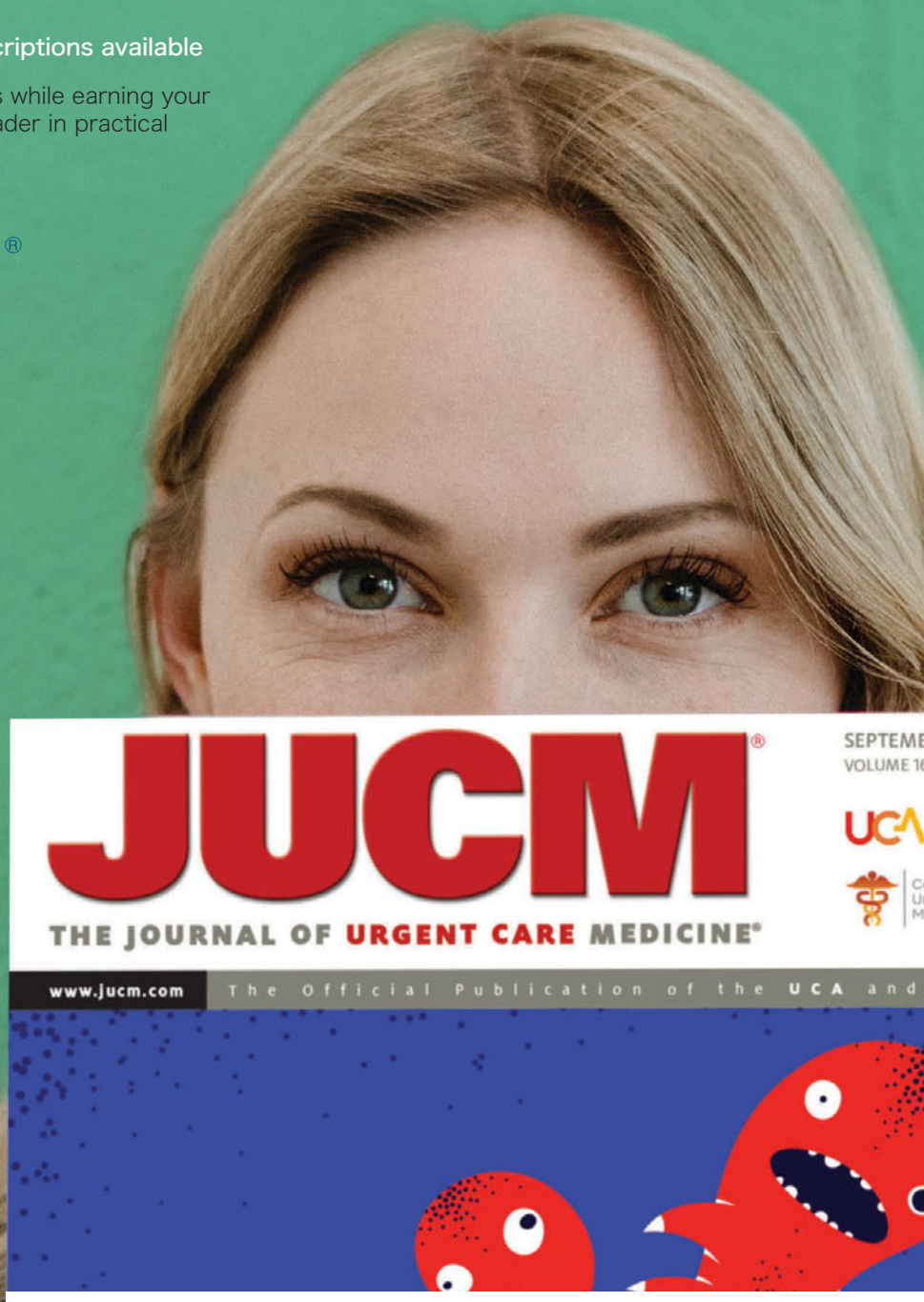

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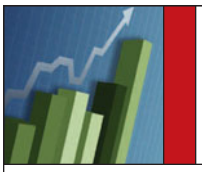
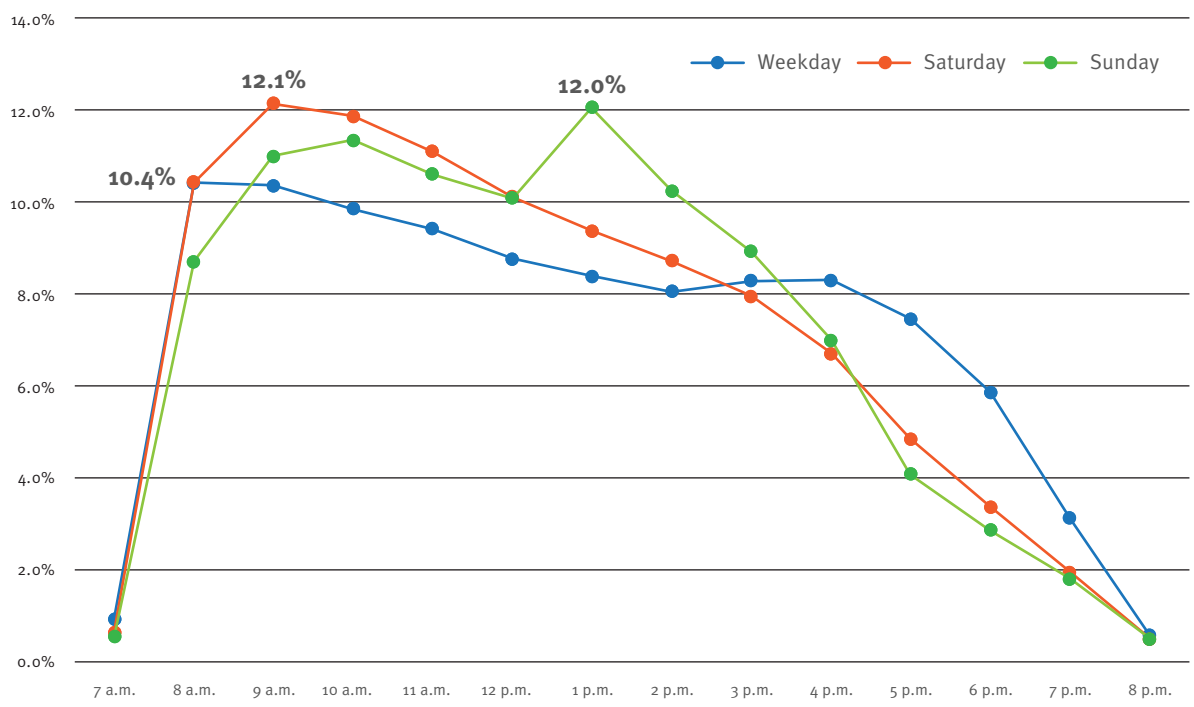


DEVELOPING DATA

Patient Arrival Times In Urgent Care

Alan A. Ayers, MBA, MAcc

PERCENT OF PATIENT ARRIVALS BY HOUR OF DAY AND DAY OF WEEK



The table above shows the percentage of patients within an average day who arrived during each hour of operations, based on more than 13,000,000 patient encounters from January 1 to March 31, 2024, recorded in the Experity EMR. A patient arriving anywhere between 7:00AM and 7:59AM, for example, is categorized as arriving during the 7:00AM hour.

This data is useful in determining staffing levels and opening hours. If the number of patient arrivals per hour exceeds the number of patients the clinical providers and staff can serve in an hour, longer patient wait times will result. Otherwise, if the number of patient arrivals falls short of provider and staff resources available, the result is costly unused capacity. Understanding patient arrival patterns can enable an urgent care operator to maximize productivity by expanding or shifting opening hours and/or adding to or reducing the number of staff at various times.

Less than 0.4% of urgent care visits arrived before 7:00AM or after 9:00PM. Thus, the distribution of arrivals reflects the fact that most urgent care centers are open from 8:00AM to 8:00PM daily. In the analysis, outliers do not materially change the visit distribution. ■

Alan A. Ayers, MBA, MAcc is President of Experity Consulting and Senior Editor of *The Journal of Urgent Care Medicine*.

Symptom:

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