Liar! What to Do When You Can’t Trust a ‘Negative’ X-Ray

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Our Readers Write—and Have a Lot to Say About ‘Toxic Positivity’

MATTHEW AJLUNI, DO and ARLENE ALIKIAN, MD

The January 2022 issue of JUCM led off with an editorial by Editor-in-Chief Joshua W. Russell, MD, MSc, FCUCM, FACEP about what he called “actually the epidemic that is decimating the healthcare workforce” and “a silent killer of healthcare careers.” He was referring to toxic positivity, or the practice of “encouraging” someone—in this case healthcare providers in the midst of the COVID-19 pandemic—to find and focus on the bright side rather than dwell on withering challenges and difficulties. The problem is, those challenges and difficulties need to be acknowledged and dealt with rather than overlooked in the service of soldiering on with a stiff upper lip. (Grief expert and author David Kessler defined toxic positivity in an article published by The Wall Street Journal as “positivity given in the wrong way, in the wrong dose, at the wrong time.”)

Dr. Russell’s take on the issue resonated with readers. Some wrote thoughtful (and forceful) responses. We found a couple especially insightful, and are happy to share them with you here.

Things Are Bad, but Urgent Care Administrators Aren’t the Problem

Matthew Ajluni, DO

After reading the editorial An Underrecognized Epidemic: Toxic Positivity in Medicine by Joshua W. Russell, MD, MSc, FAAEM, FACEP, with great interest as a physician-administrator leading 70+ urgent care providers at 14 urgent care locations, I felt compelled to share an alternate perspective.

Dr. Russell claims that “toxic positivity is actually the epidemic that is decimating the healthcare workforce, not COVID.” While I agree that provider burnout is in fact an epidemic, I am less inclined to hold administrators as the culprit.

The problems in healthcare are vast, and factors leading to burnout are many, including excessive patient loads, EMR frustrations and “click fatigue,” poor work-life balance, not working at the top of our license, compensation concerns, fear of litigation, underappreciation…the list goes on. Add in a once-in-a-lifetime pandemic, and now the fire is blazing. So, while toxic positivity could exacerbate this red-hot fire burning out our healthcare teams, it is just one relatively small part of the blaze.

The pandemic has stressed our healthcare system to the extreme, and especially our acute care teams, including our UC staff and providers. The going is tough, absolutely. At the time of this writing we have providers in some instances seeing 80–100 plus patients per day in our drive-through testing sites, in subzero temps, for 12 hours per day. It is undoubtedly brutal. Couple that with fears associated with contracting the disease, particularly in the pre-vaccination days, and those shifts truly became yeoman’s work.

With patient volumes surging and disease burden high, we faced the dilemma of how to serve our communities without burning out our teams. This continues to be a conundrum for all of us. Should we say thanks to our teams? Absolutely. Do we mean it when we say it? Your article suggests the gesture on the part of some administrators is vacuous and insidious in some ways.

The article prompted great introspection and we asked ourselves, “Are we guilty of toxic positivity?” The jury is out, but what we know is this: Our urgent care leadership team and our senior leaders spend hours thinking and considering how we can alleviate the burden on our teams. We say thank you often, in person, on virtual meetings and, yes, by email at times. We devoted an entire section of our monthly meetings called “Gratitude” where we deliberately, intently, and with a deep heartfelt reverence thank our team members. We practice empathy, discuss the hardships, and allow folks the opportunity to share. We’ve increased hourly pay, bonus pay, and reconciliation pay. We’ve brought in breakfasts and lunches intermittently, most recently for 2 weeks straight to all locations. We’ve added support staff where we can (though we aren’t immune to the staffing crisis). We’ve shuttered locations where we just
couldn’t find adequate support staff. We got our teams fashionable snow suits for those working in the cold drive-throughs. And the list does go on.

Is all that enough? Perhaps not. It is still rough, it is still busy as heck, and it is still grueling work. And so, are we guilty of toxic positivity because we send emails, saying, You are amazing, you are a hero, you are literally saving lives in our community? Are these token gestures, or genuine expressions of gratitude?

What is a genuine expression of gratitude? Do you have to really mean it, is it money, is it fewer patients per shift, is it fewer shifts? What we know is that we’ve all been dealt a tough hand with this pandemic, and it is tough for all, including the administrators. The frontline work is exhausting, but the behind-the-scenes work is staggering, too: constantly changing PPE protocols, testing protocols, monoclonal antibody treatment protocols, managing unpredictable surges in demand, figuring out drive-through testing, dealing with staff shortages due to frequent COVID absences, handling volatile patients and disgruntled providers, and more.

The question is this: Can’t it just be bad without pointing the finger at any one group? Or is it, This is terrible and it’s all the administrators’ fault?

The admins I know work until they drop. They care just as much as anyone, and they love their teams. They want to care simultaneously for their communities and keep their teams well supported and engaged. They aren’t sitting back on easy street firing off emails that say, C’mon guys, you’re the best, keep up the good work. They are tossing and turning at night because they worry for their teams and their ability to keep sites open. The admins I know took training courses as clinical support assistants (CSAs), pulled up their bootstraps, and helped out on the ground at our sites. We had our IT chief rooming and swabbing patients at our clinics, our VP of Strategic Planning doing vitals and intakes at our drive-through locations on nights and weekends, and our Division Directors prepping procedures in our Dermatology clinics and answering phones at our Oncology clinics.

Do they deserve special accolades for stepping up? Not necessarily. But do they deserve to be called callous and toxic because they offer praise? Certainly not.

I can’t speak for all administrators, but I do think they are a convenient scapegoat to pile on, when in reality we are just in a bad situation, and it’s just bad for everyone, no matter your role. So rather than point fingers, I think it is more fruitful to acknowledge the hard work of all members of our healthcare teams and show gratitude and appreciation for all of them and not question or impugn the motives of any one group. Where toxic positivity may exist, with hollow thank you’s and nothing else to back it up, then perhaps there is opportunity to push back—though what I see is struggling healthcare teams and all of us just trying to do the best job we can in the midst of a crisis. ■

Let’s Act Like We Are in This Together—Because We Are
Arlene Alikian, MD

After reading the recent editorial by Dr. Russell, An Underrecognized Epidemic: Toxic Positivity in Medicine, I felt compelled, for the first time in all my 50 years, to send a letter in response to a medical journal article. What I want to say most is thank you for putting into words the source of frustration that I have been trying to verbalize since the start of the pandemic.

I am a pediatrician and co-owner, with my husband, of a pediatric urgent care center in Southern California. We receive JUCM monthly, but honestly, I haven’t had time to read it much since the pandemic started. Sometimes my husband will see an article that he knows I should read. He subtly and strategically leaves the journal out and open to the page he thinks I should see. This morning I found the journal conspicuously next to the sink in the bathroom and open to the piece on toxic positivity.

My husband knows me well—it was exactly what I needed to hear.

I have witnessed this pandemic from both sides of the aisle. While I am an urgent care owner, employing a full medical staff, I also work as a staff member at another clinic. So, I see the problems from the administrative and employee perspectives. For almost 16 months, we kept our doors open, paid our staff, and never laid anyone off, thanks to the Paycheck Protection Program. During this time, as owners, we never made a dime, and actually lost money.

Then when schools resumed in-person, we went from seeing virtually no patients to being swarmed, all the while trying to balance pandemic complications and staff morale while delivering the best care we can to our patients. Throughout this whirlwind, I worked very, very hard not to treat my staff the way I was treated as a staff member. In fact, you may count me among the 20% of healthcare workers who quit because of pandemic-caused healthcare burnout and having enough of this sort of treatment.

Based on the hours of our urgent care, most of my staff work part-time for me and have full-time jobs during the day at other healthcare offices. In the past 6 months, more than half of them quit their day jobs because they burned out. These are medical assistants and front-office staff who really need the money. They told me they were at their wits’ end, mentioning supervisors who didn’t help and just kept pushing for them to do more. It doesn’t matter that this healthcare worker—the one who gets called a healthcare hero—cannot get any leeway from her supervisor to simply care for her children when they are sent home for the fifth time this year because of a COVID exposure at school.

These healthcare workers are quitting their jobs and taking jobs outside of the profession, where daily sacrifice is not asked of them. When I ask my staff why they stay with me, they say it’s because I’m “different”; I listen to them; I accom-
moderate their needs for time off whereas others simply make demands. Demands that are being made to those who have nothing left to give.

So we are clear, the healthcare field is losing the staff members who are the hardest working ones. The ones leaving have a full-time job on the weekdays but also put in 10-20 hours extra on nights and weekends to try to support their family. Some are single parents trying to provide. These are the individuals we want to keep in the healthcare field—and we are losing them.

At the same time, other younger pediatricians in my community are already talking about leaving healthcare for similar reasons: jam-packed schedules, constantly covering for staff members who are out due to COVID exposure, more paperwork, more regulations, and more pressure. And...the kicker is that we are expected to continue to do more while insurance reimbursement is less and less. Not to mention, these pediatricians have their own children sent home from school due to COVID exposure, and they have to figure out childcare for them, as well.

I write this because I am as worried as I have ever been in my 21-year career in medicine. Too much has been asked of us as a whole in the healthcare field (hospital workers in particular). The demands keep increasing with little appreciation for how much is already being asked of us. So, we leave. While it is true we are a motivated and resilient bunch, we are still human. We can only take so much. So, many leave. I don’t know what will happen to us as a country when we finally reach the point where there simply are not enough clinicians to do the job.

For my part, I continue to try to take care of those who I have the ability to help. I guess I have been adhering to the idea of “take care of your own.” However, in the grand scheme of things, I feel that “your own” is the entire healthcare field—all of us—and I do not know how to help healthcare workers on a larger scale.

Thank you to Dr. Russell for recognizing it. Thank you for listing the places* where help can be found, and thank you for taking the time to read my rambling response.

* The places Dr. Alikian refers to include the National Alliance on Mental Illness (NAMI) HelpLine, which can be reached between 10 AM and 8 PM (Eastern) at 1-800-950-6264 for confidential support, as well as a 24/7 service accessible by texting “SCRUBS” to 741741.

References
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Development test strip designs are for illustrative purposes only. Not an exhaustive list of pipeline assays.
When X-Rays Lie: Important Orthopedic Diagnoses to Consider with Normal Imaging

Even a tried-and-true method for uncovering orthopedic injuries for which a reliable history is obtained can't be trusted all the time. In the absence of certainty based on review of the x-rays, you have to rely on your own judgment and clinical acumen (and a few essential pointers for uncovering subtle red flags).

Arun Sayal, MD, CCFP(EM)

Implementation of a Rapid Chest Pain Protocol in a Walk-In Clinic

Standardized guidelines for evaluating and treating patients with chest pain in the urgent care setting simply don’t exist—yet. In the meantime, is it advisable to rely on a protocol grounded in the Marburg Heart Score for low-risk patients?

Lorilea Johnson, FNP-BC, DNP and Diane Smith, DNP, RN

Your Best Investment Is Growing Your Own Business

With the COVID-19 pandemic winding down—at least for now—this is an ideal time to assess the condition of your business and, if your analysis leaves you optimistic, expend resources on future growth and success.

Alan A. Ayers, MBA, MACc

A 20-Year-Old Female with Chest Pain and Shortness of Breath

“Chest pain” and “shortness of breath” conjure up images of older patients with any number of risk factors for acute coronary syndrome, pulmonary embolism, and thoracic aortic dissection. What to make, then, of a seemingly healthy 20-year-old young woman with those very complaints?

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A “negative” x-ray would probably, in most circumstances, be viewed as good news by the patient. If that negative x-ray fails to support what the provider suspected was going on with the patient, however, more questions than answers arise. When X-Rays Lie: Important Orthopedic Diagnoses to Consider with Normal Imaging (page 13), by Arun Sayal, MD, CCFP(EM), delves into this quandary in the context of patients presenting with musculoskeletal pain, a common occurrence in urgent care that is often followed by orders for on-site x-rays.

Dr. Sayal is a physician in the emergency department and fracture clinic at North York General Hospital and an associate professor in the Department of Family and Community Medicine, University of Toronto, Toronto, Canada. He is also the creator and director of CASTED, a series of hands-on orthopedic courses.

Another potentially confounding presentation is the patient with chest pain, especially when that patient appears to be low risk for a coronary event. Standard guidelines for evaluating such patients in the urgent care setting would go a long way toward ensuring patients are treated in the optimal setting as safely, quickly, and cost-effectively as possible—if they existed. This month’s original research article may constitute a good first step toward establishing commonly accepted procedures, however. In Implementation of a Rapid Chest Pain Protocol in a Walk-In Clinic (page 19), authors Lorilea Johnson, FNP-BC, DNP and Diane L. Smith, DNP, MSN, BS, RN describe a chest pain protocol using the Marburg Heart Score to assist providers in consistently assuring the appropriate level of care in treating low-risk chest pain patients.

The patient at the center of this month’s case report, and certainly the urgent care providers who treated her, could have benefited significantly from such a protocol. The article, A 20-Year-Old Female with Chest Pain and Shortness of Breath (page 29), illustrates that it’s essential to be vigilant for more than acute coronary syndrome, pulmonary embolism, and thoracic aortic dissection when patients present with chest pain. We thank Xiangyang Jiao, MD, of OhioHealth Urgent Care for writing this case up and submitting it to JUCM.

Reading about chest pain and orthopedic complaints may seem almost quaint when considering how laser-focused urgent care providers and operators have been on COVID-19 for more than 2 years now. Likewise, what appear to be the waning days of the pandemic mark a good time to look at where it makes the most sense to devote your resources. The very title of the latest contribution to JUCM from Alan A. Ayers, MBA, MAcc should give you a hint; Your Best Investment Is Growing Your Own Business starts on page 25. Mr. Ayers is president of Experity Networks and is senior editor, practice management of The Journal of Urgent Care Medicine.

Seeing as how 14 months have passed since the latest evaluation and management guidelines came out, this is also a good time to reflect on how the learning curve has been going for your team. Our resident revenue cycle management guru, Monte Sandler, has been accumulating questions about the guidelines along the way and is prepared to respond in Revenue Cycle Management, starting on page 42. Mr. Sandler is executive vice president of revenue cycle management for Experity.

We love it when readers respond to what they read in JUCM, too. The editorial that Editor-in-Chief Joshua W. Russell, MD, MSc, FCUCM, FACEP wrote for our January 2022 issue (An Unrecognized Epidemic: Toxic Positivity in Medicine) stirred responses in more than one reader, actually. Where Matthew Ajuni, DO took exception to some of what Dr. Russell had to say, however, Arlene Alikian, MD saw recognition of thoughts she’s had over the past couple of years. Their viewpoints can be found in Urgent Perspectives on page 1.

Dr. Russell is also one of a trio of physicians who offer valuable insights into the latest literature from across the medical publishing landscape in Abstracts in Urgent Care (page 34). He, along with Nathan M. Finnerty, MD FACEP and Brett C. Ebeling, MD, lay out the most urgent care-relevant aspect of new articles on pediatric pneumonia, cauda equina syndrome, the best way to remove rings stuck on a patient’s fingers, and more.

Thanks to Our Peer Reviewers

In every issue of JUCM, there are select articles on which we ask members of our peer review panel to comment. It’s one step we take in trying to ensure that all the content we publish is relevant, clearly communicated, and free of bias. For their contributions in reviewing content for the January, February, March, and April issues, we thank:

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“Do you know what the first question anyone gets asked at these things is nowadays?” asked a member at a recent industry event.

I didn’t know the answer, and when I heard it, I was speechless.

He said, “They ask you how many urgent cares you have.”

Who are we becoming when this is our measurement of worthiness? When did size become the first thing that matters in our getting to know one another?

There is a condition called Imposter Syndrome and we all have it. It tells us that we are not actually very good compared with others, and that we are going to be found out by those others as an imposter. If we used to be good, we aren’t good enough anymore. It’s that voice that tells us that we don’t belong, and that we’ll never belong.

Attempting to quantify our worth to one another by the number of centers we represent is driven by and reinforces imposter syndrome in the worst kind of way. For example:

Person One has a great background in scaling businesses and tons of funding—but doesn’t have a deep knowledge of urgent care operations. They suffer from imposter syndrome because they are working in an industry they don’t actually know much about because they are new to it, and they are embarrassed by their ignorance. No matter how successful they have been before, they are afraid someone/anyone/everyone is going to find out that they are winging it when they talk about the details of doing or delivering urgent care.

Person Two knows everything there is to know about urgent care. They have built a very successful small urgent care company serving an important role in their community. But all of the recent action is in mergers and acquisitions and multiples and scale, and Person Two hasn’t done any of that. They don’t want to do any of that, but it’s now the currency of the realm, so they feel they no longer belong in the industry that they themselves built. They are embarrassed by their answer to this question we now ask each other.

Person Three leaves a huge organization with lots of centers to join a startup to build from the ground up. They are worried that everyone else thinks they did something wrong and had to leave the huge organization. It’s much harder for them to talk about what they are doing now, even with tremendous success behind them.

Here’s the truth: Persons One and Two and Three are just versions of every one of us. What they are feeling…we are all feeling in our own way. That insidious voice talks to us all. It tells us that in the areas that matter to us most, we do not really belong and never will.

What struck me about the “how many urgent cares do you have” question is that it suggests that X many urgent cares is required for you to matter. Do five urgent cares make you count? Do 10? Over 100? Where is the line that lets us be tall enough to ride the ride? What is the number that indicates we might learn something from talking to a person?

I am not saying that the number of urgent cares someone is involved with isn’t interesting. It is. But so are all of the other facets of doing well in our very challenging field. Defaulting to this one metric as a conversation starter is beneath us. It belittles the importance of all of those other facets, stifies our ability to learn from each other, and diminishes the quality of our conversations.

Whether you have been in urgent care for 5 minutes or 2 decades, whether you have one center or 101, you belong here because you are doing the work it takes to stay here.
CONTINUING MEDICAL EDUCATION

Release Date: April 1, 2022
Expiration Date: March 31, 2023

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

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When X-Rays Lie: Important Orthopedic Diagnoses to Consider with Normal Imaging (page 13)

1. Combined with pretest probability that does not suggest serious pathology, negative imaging:
   a. May allow for expedient discharge
   b. Is sufficient to definitively rule out injury
   c. Should trigger a different mode of imaging to confirm
   d. Should prompt a recommendation to follow up with orthopedics

2. Among all fractures, about what percentage do not appear on initial x-rays?
   a. 1%
   b. 5%
   c. 27%
   d. 36%

3. Which of the following groups is at greatest risk for compartment syndrome?
   a. Children, due to their higher propensity for falls and incompetent risk assessment skills
   b. Young adult males, due to large muscle bulk and tight fascia
   c. Elderly patients, due to frailty
   d. Elderly women, due to osteoporosis

A 20-Year-Old Female with Chest Pain and Shortness of Breath (page 29)

1. Which of the following would be included in the differential diagnosis for a young patient who presents with shortness of breath and chest pain?
   a. Pulmonary embolism
   b. Gastroesophageal reflux
   c. Pneumomediastinum
   d. All of the above

2. The most common presenting symptom of spontaneous pneumomediastinum in an otherwise healthy patient is:
   a. Back pain
   b. Cough
   c. Retrosternal chest pressure
   d. Sore throat

3. Which of the following may be present in patients with pneumomediastinum?
   a. Anxiety
   b. Dysphagia
   c. Emesis
   d. Any or all of the above

Your Best Investment Is Growing Your Own Business (page 25)

1. Early in the COVID-19 pandemic, urgent care operators reported:
   a. An average 40% drop in volume
   b. An average 60% drop in volume
   c. An average 80% drop in volume
   d. An average 12% increase in volume

2. Endemic (as opposed to pandemic) COVID-19 is expected to:
   a. Further inhibit patients from visiting healthcare facilities, including urgent care centers
   b. Diminish the prospects for filling vacant positions with top talent
   c. Lift long-term urgent care volumes
   d. Boost patient volume in urban areas, but diminish volume in rural areas

3. The percentage of leased medical space in retail buildings:
   a. Has increased to 20% since 2010
   b. Has decreased to 16% since 2010
   c. Has been flat since 2010, but is expected to grow starting in 2024
   d. Is thought to be at its peak in 2022
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When X-Rays Lie: Important Orthopedic Diagnoses to Consider with Normal Imaging

**Urgent message:** Musculoskeletal pain is a common urgent care complaint, with x-rays very commonly ordered. However, a “normal” image does not necessarily support eliminating what could be a serious injury from the differential diagnosis.

ARUN SAYAL, MD, CCFP(EM)

**Citation:** Sayal A. When x-rays lie: important orthopedic diagnoses to consider with normal imaging. *J Urgent Care Med*. 2022;16(7):13-16.

Medical tests lie. Not intentionally, of course, but their result may not align with reality. A test may be positive in the absence of pathology (a false positive); conversely, a test may be negative in the presence of pathology (a false negative).

At the end of the day, the purpose of any test is not to make a diagnosis, but to add data to our pretest probability. All test results (positive or negative) must be placed in the clinical context of each particular patient.

One example of these principles is the ability of an electrocardiogram to diagnose disease. An ECG is a very good test—but it’s not enough to definitively rule out serious pathology, such as acute coronary syndrome; in fact, for an acute myocardial infarction the first ECG is diagnostic only 13% to 69% of the time,\(^1\) with 13% being diagnosed on serial ECGs.\(^2\)

Just as an ECG may “lie,” so can an x-ray.

A common orthopedic pitfall is using the x-ray as the sole tool to rule in or rule out a diagnosis. For emergency departments, one of the most common causes of medical error is misdiagnosis, and the most common misdiagnoses are orthopedic.\(^3\)

A typical approach for *any* chief complaint is to incorporate the possible diagnoses with the patient’s history of present illness, age, past medical history, physical exam, tests, and response to treatment to reach a reasonable conclusion about the presumptive diagnosis.

Yet, for some reason, urgent care and emergency medicine physicians tend to do things differently for orthopedic patients by over-relying on the radiograph: A positive x-ray equates to a fracture or dislocation; a negative x-ray may equate to a soft-tissue injury (unless...
the patient has snuffbox tenderness, in which case the diagnosis becomes a “clinical scaphoid” fracture).

Clearly, this commonly used algorithm is deeply flawed. With a normal x-ray, numerous important diagnoses remain possible.

The mnemonic to help us remember these important diagnoses is: SCAREd OF

S - Septic joint
C - Compartment syndrome
A - Abuse
R - REdferred pain/Report is false
D - Dislocation/subluxation
O - Operative soft-tissue injury
F - Fracture

Septic joint – Be cautious if this is an atraumatic joint pain and if there is swelling in an immunocompromised patient. Consider any immunosuppressive drugs (prednisone, antirheumatologic drugs, monoclonal antibody treatment, chemotherapy) or if the patient has had recent orthopedic surgery. Postoperative orthopedic wound infections often connect to a joint or to metal (a plate)—
and both are serious.

Refrain from administering antibiotics until the joint is tapped (unless the patient is systemically unwell), as pre-aspiration antibiotics significantly sterilize the culture. From an urgent care setting, suspected infected joints should be referred to the ED.

**Compartment syndrome** – This is a rare diagnosis, and one commonly missed. Seventy percent are associated with a fracture, but 30% are not. Other causes include a tight cast, anticoagulation, infections, crush injuries, high-pressure injection injuries, etc. Young adult males are at highest risk due to the large muscle bulk, tight fascia, and incompetent risk assessment skills. Comparing the compartment to the unaffected limb may help establish a baseline for “normal” in specific patients.

The 5Ps for compartment syndrome (pain, pallor, paresthesias, paralysis, pulselessness) may be present, but paralysis and pulselessness are very late signs, manifesting when the outcome may not be reversible. The 5Ps of compartment syndrome should be: pain, pain, pain, and pain. Then, look for progressive paresthesias.

Acute compartment syndrome is rare in the ED, and present even less commonly in urgent care. However, always suspect compartment syndrome when pain is out of proportion to what is expected.

**Abuse** – When we see a fracture in a child, consider nonaccidental trauma (NAT). Certain fractures, including spiral fractures and multiple rib fractures in infants or toddlers, heighten our suspicion. There is evidence that if we miss abuse as the cause, the violence tends to recur and escalate in both frequency and severity.

**Referred pain** – This is easily missed. One example is the child with hip pathology who presents with knee pain. Failure to examine the joint proximal and the joint distal will miss the actual diagnosis in this example; a slipped capital (upper) femoral epiphysis (SCFE/SUFE).

Another example is elbow pain that can come from a cervical radiculopathy. The clinical clue is an inability to reproduce the pain on physical exam.

Another classic example of this is referred shoulder pain from acute coronary syndrome. The purpose of the physical exam is to confirm what we suspect on history.

One important caveat is in patients with chronic pain, such as elderly patients with osteoarthritis. While they may present with acute knee pain, the pain repro-

---

**Case 3.**

A 12-year-old boy with knee pain upon jumping in a basketball game. High-riding patella consistent with a ruptured patellar tendon.

**Case 4.**

A 68-year-old female who fell playing tennis. Initial x-rays negative. Treated as possible occult fracture. Persistent pain at 1 week; further immobilized. X-rays at Week 4—healing, occult distal radius fracture.

“A patient with a clinically suspected scaphoid fracture may be immobilized and serially assessed and imaged.

A patient with a clinically suspected hip (or C-spine) fracture should have advanced imaging.”

---

**WHEN X-RAYS LIE: IMPORTANT ORTHOPEDIC DIAGNOSES TO CONSIDER WITH NORMAL IMAGING**

**Case 3.**

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WHEN X-RAYS LIE: IMPORTANT ORTHOPEDIC DIAGNOSES TO CONSIDER WITH NORMAL IMAGING

“In remembering to employ the SCARED OF mnemonic, one will be less likely to be fooled by a normal ED extremity x-ray.”

duced with palpation may represent their chronic pain, and not the acute source of pain.

Report is false – If there is an abnormality on a plain film, there is a chance for a radiology miss. By all means, look at the radiologist’s report if it is present, but also look at the plain films, especially if the report is not consistent with your suspicion. We have a history and a physical. We have a pretest probability of pathology. We know where they are tender. With that clinical information, we may have better eyes to find subtle abnormalities than our radiology colleagues.

Dislocation/subluxation – If a joint is dislocated, there is no contact between the articular surfaces. If a joint is nonanatomic, but there remains some contact of the articular surfaces, then this is termed a subluxation. (Essentially, a subluxation is a “partial dislocation,” but this is not a medically acceptable term). Subluxations, and less often dislocations, may spontaneously reduce.

On history, the patient often describes the joint as having “slipped out.” In these cases, the x-ray would be normal. While the diagnosis is suspected on history, it may be further confirmed on careful physical examination (ligament testing) of the joint.

Operative soft-tissue injury. Most soft-tissue injuries are treated nonoperatively, but certain soft-tissue injuries may be operative at a later time, such as with a tear of the anterior cruciate ligament (ACL) or a meniscus tear. A minority of soft-tissue injuries are definitely surgical, such as in a distal biceps rupture, patellar tendon rupture, or a quadriceps tear. These definitively surgical soft-tissue injuries need consideration at first assessment. They are joint-specific and clinical concern is based on the context of the case.

If the radiograph is negative for fracture but clinical concern remains for an operative soft-tissue injury, then management involves either early surgical referral, additional imaging, or immobilization and early reassessment for confirmation.

Fracture (radiographically occult) – About 20% to 30% of scaphoid fractures may not be seen on initial x-rays. It is often a clinical diagnosis; it is important to assess for appropriate signs and symptoms in a patient with normal x-rays.

Among all fractures, about 5% of acute fractures do not appear on initial x-rays. In addition to scaphoid fractures, this rate is higher for pediatric growth-plate fractures, for stress fractures, and for the elderly (whose inherent osteoporosis renders fractures more likely and often challenging to see radiographically); for example, 5% of hip fractures are radiographically occult. With a relatively high pretest probability for a fracture and normal x-rays, the possibility of a fracture remains.

Appropriate management for suspected fractures varies from more time (immobilization for the less serious suspected injury with ensured serial assessment) to more tests (advanced imaging for the more serious suspected injury). A patient with a clinically suspected scaphoid fracture may be immobilized and serially assessed and imaged. A patient with a clinically suspected hip (or C-spine) fracture, should have advanced imaging.

In conclusion, just as we use a reasonable approach with all chief complaints, we need to also use this same approach for the assessment of musculoskeletal injuries.

Take-Home Points
- Don’t let a normal x-ray be the sole indication to abandon clinical concern.
- Consider the history and physical before relinquishing concern.
- If the pretest probability is not suggestive of more serious pathology, then negative imaging may allow for expedient discharge and expectant management.
- If the pretest probability does suggest more serious pathology, then a negative x-ray should not definitively exclude the diagnosis.
- Remember the SCARED OF mnemonic; in doing so, one will be less likely to be fooled by a normal ED extremity x-ray.

References
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Original Research

Implementation of a Rapid Chest Pain Protocol in a Walk-In Clinic

Urgent message: There are no standardized guidelines for treating patients with chest pain in an urgent care clinic. Using a chest pain protocol with the Marburg Heart Score in a walk-in clinic can assist providers in assuring an appropriate level of care and support standardization in clinician decision-making for treating low-risk chest pain patients.

LORILEA JOHNSON, FNP-BC, DNP and DIANE L. SMITH, DNP, RN

Citation: Johnson L, Smith DL. Implementation of a rapid chest pain protocol in a walk-in clinic. J Urgent Care Med. 2022;16(7):19-23.

Abstract

Background
As the walk-in clinic industry has boomed, there are large variances in services provided. There are no guidelines established by regulating bodies to identify criteria for treating urgent care patients with chest pain.

Purpose
The purposes of this study were to examine the use of the Marburg Heart Score predictive tool in determining the level of risk for patients presenting to a walk-in clinic with chest pain and to quickly identify those at high risk for cardiovascular events.

Methods
A cross-sectional study was conducted in a rural walk-in clinic. Inclusion criteria consisted of persons aged 18 or older who presented with complaints of chest pain. Patients with chest pain were identified by front desk staff who initiated chest pain protocols and algorithms. Patient follow-up occurred at 30 and 60 days.

Results
Of the 26 participants, 14 thought their pain might be cardiac. Eight participants met criteria for electrocardiogram and four showed ECG changes. All four participants with ECG changes were sent to the emergency department. The remaining 22 patients were appropriately retained in the clinic where they were assessed, diagnosed, and treated for noncardiac related diagnosis.

Conclusion
The implementation of a rapid chest pain protocol at this walk-in clinic was successful in this study. There was a 100% negative predictive value for cardiac origin of chest pain that was safely retained and treated in clinic. This study provides evidence to standardize clinician decision-making in treating low-risk chest pain patients in an urgent care clinic.

Author affiliations: Lorilea Johnson, FNP-BC, DNP. Diane Smith, DNP, RN, Missouri State University, School of Nursing. The authors have no relevant financial relationships with any commercial interests.
**Introduction**

Because of the variability in services from walk-in clinics to urgent care clinics, it has been difficult to standardize protocols in the industry. Medical staff must be able to identify patients with serious conditions and determine if they need to be transferred to receive the appropriate level of care. It is also important to recognize that low-risk patients should be retained for treatment in the walk-in clinic for affordability and convenience of care. There is a need for clarification of the management of patients with chest pain that present at urgent care clinics. Providers within the same clinic may approach chest pain differently, which can be confusing to other staff members. Additionally, chest pain may often be deferred at the front desk with the thought that chest pain needs to be treated in the ED; thus, the patient is never evaluated by a provider at the clinic.

A chief complaint of chest pain can be heart-related, making it potentially life-threatening; however, non-cardiac causes are often low risk and are appropriate to be managed in urgent care. Examples of noncardiac causes of chest pain include musculoskeletal pain, gastric esophageal reflux, and lung issues such as pleurisy or bronchitis. Data reflect that over 50% of chest pain seen in the emergency room is not cardiac related.\(^1\)

The aim of this study was to risk-stratify chest pain patients using the Marburg Heart Score (MHS) and quickly identify high-risk patients who need to be triaged to the ED. The MHS was chosen as the clinic does not have the capability of doing a stat troponin level used in the HEART Score risk-stratification tool. An additional outcome was to standardize evaluation procedures by using the chest pain protocol algorithms developed for staff and providers at the clinic.

**Background**

Several predictive scoring tools are used to evaluate chest pain. A systematic review compared the Gencer Rule, MHS, INTERCHEST, Griesel's Rule, and Bruin's Slot Rule.\(^2\) This study concluded that the MHS was the only validated predictive tool that outperformed clinical judgement in outpatient settings.

Previous research has been done in this area using the MHS. A retrospective study done by Radecki, et al assessed the efficiency of four urgent care centers in evaluating patients for coronary artery syndrome. Of the 803 patients, 73 (9.1%) were sent to the ED with 10 patients (1.2%) ultimately diagnosed with acute coronary symptoms. The result was that 673 (83.9%) of the patients were safely managed without referral to the ED.\(^3\)

As previously mentioned, one of the most popular coronary predictive tools is the HEART score. The letters in the acronym stand for history, ECG, age, risk factors, and troponin levels. A study done by Stopyra, et al which evaluated the use of the HEART score concluded that it had a 100% negative predictive value for identifying patients without a coronary artery event from index visit through 1 year. Research has shown that emergency departments that risk stratify patients using the HEART score can decrease length of stay by discharging low-risk patients safely with low risk for a cardiac event.\(^5\) Patients with low-risk chest pain and negative diagnostic results that are admitted for observation are found to rarely have a cardiac event but are at increased risk of iatrogenic complications.\(^6\) As the HEART score requires a troponin level which is not available at the walk-in clinic, an alternative predictive tool was required.

---

**Table 1. The Marburg Heart Score Criteria**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Assigned Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age/sex (men aged 55 and older, women aged 65 and older)</td>
<td>1</td>
</tr>
<tr>
<td>Known vascular disease</td>
<td>1</td>
</tr>
<tr>
<td>Pain worse with exercise</td>
<td>1</td>
</tr>
<tr>
<td>Pain not reproducible with palpation</td>
<td>1</td>
</tr>
<tr>
<td>Patient thinks the pain could be cardiac in origin</td>
<td>1</td>
</tr>
</tbody>
</table>

**Points**

<table>
<thead>
<tr>
<th>Likelihood of Cardiac Origin</th>
<th>0-1</th>
<th>2</th>
<th>3</th>
<th>4-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1% (very low)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5% (low)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25% (intermediate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65% (high)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Patients with Chest Pain (N=26)**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>30-39</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>40-49</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>50-59</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>60-69</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>70-79</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>80-89</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>90-99</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
The Marburg Heart Score
The MHS calculates the risk of cardiac event in patients with chest pain. It was developed and validated by a German physician, Stefan Bosner, MD, to rule out coronary artery disease in patients with chest pain in primary care clinics without access to troponin levels or ECGs. The MHS is a simple five question tool with each question assigned a one-point value (Table 1). Scores of ≤2 have a negative predictive value of ~98% of a cardiac event and are considered appropriate to treat in outpatient settings. Scores of ≥3 stratify a higher level of risk but do not rule in a coronary heart event and require additional clinical assessment such as patient examination, vital signs, history, and ECG. In a study of patients in the family practice setting (n=258), the MHS was used to identify patients with acute coronary syndrome (ACS). Used in conjunction with the clinician’s assessment, MHS safely reduced ED referrals by 19%. For these reasons, it was determined that the MHS would be an appropriate tool to include in the rapid chest pain protocol for this study.

Methods
This cross-sectional study was conducted in a walk-in clinic in Southeast Missouri between the dates of November 1, 2020, and January 31, 2021. HIPAA and standard research ethical guidelines were observed. Front desk staff, nurses, and nurse practitioners received training in obtaining informed consent from patients and in the use of the algorithm relevant to their role in the study. Inclusion criteria consisted of persons aged 18 or older who presented to the clinic with complaints of chest discomfort. Patients with chest pain were identi-
fied by front desk staff who promptly notified nursing staff for evaluation prior to completing the check-in process (Figure 1). The nurses obtained basic history and assessed patients including obtaining vital signs and determining the Marburg Score. An ECG was obtained if the algorithm criteria was met (Figure 2). The provider reviewed the data, evaluated the patient, and determined the disposition of the patient (Figure 3). Patients deemed low risk returned to standard check-in process to be evaluated in clinic. Higher-risk patients as determined by the provider were transferred to the ED of the affiliated hospital. Phone follow-up and chart review was completed at 30 and 60 days on all 22 low-risk patients to assess their cardiac status and to validate the accuracy of the chest pain protocol.

**Results**

During the 3-month period, 26 participants met the criteria for the study. Four were male. Participant ages ranged from 22 to 94 with an average age of 38. (See Table 2.) Fourteen participants felt that their chest pain might be heart related. Twelve participants had a score of 1 point on the MHS, nine scored 2 points, three scored 3 points, and the remaining two scored 4 points (Figure 4). Eight out of the total group (n=26) had an ECG performed. Four of these were found to have ECG changes: two had ST segment changes and were diagnosed with myocardial infarction, and two had a new onset of rhythm changes, one with atrial fibrillation and one with supraventricular tachycardia with frequent premature atrial contractions, which were evaluated and treated. All four with ECG changes were sent to the ED. (See Table 3.)

The remaining 22 patients were appropriately retained in the clinic where they were assessed, diagnosed, and treated for non-cardiac-related diagnosis. Phone follow-up and chart review at 30 and 60 days revealed that none of these patients developed a cardiac-related issue in during that time frame.

**Discussion**

This study addressed the need for criteria which identifies the appropriateness of treatment for patients with chest pain in walk-in clinics and standardization of evaluation of chest pain among providers. The MHS was selected as the predictive tool for this study because it does not require a troponin level like other predictive tools such as the HEART score or the TIMI Risk Score. The site in which this study was conducted does not have access to rapid troponin levels. Unlike the original studies validating the MHS, this clinic does have access to ECG which was used in the protocol. It is important to note that the MHS is appropriate for urgent care clinics without access to troponin levels or ECG as diagnostic tools. Additionally, algorithms developed for front desk staff and the nurses allowed for standardization of assessment across all disciplines.

Schols (2019) reported that MHS could rule out ACS in patients estimated to be at low risk. In this study, there was 100% appropriate disposition of patients which indicates a 100% negative predictive value for cardiac event in the 22 patients kept and treated in the clinic using this protocol. The potential implications of treating low-risk patients in the urgent care rather than sending them to the ED include decreased utilization of resources, convenience for the patient, and less potential for over testing and false positive results. While the MHS stratifies levels of cardiac risk in chest pain patients, the results never override the clinician’s interpretation of the overall patient presentation but should be considered a tool to help guide the clinician’s decision-making. The importance of following the chest pain protocol and established algorithms cannot be underestimated. In this study, one of the four patients sent to the ED had an MHS of 2, which is categorized as low risk. However, this patient had a new onset of atrial fibrillation discovered on the ECG performed in the walk-in clinic which made ED evaluation appropriate. In this specific case, the provider did communicate with the ED physician for further direction on patient disposition and care. As well, two patients with MHS scores of 3 (medium risk) were appropriately kept in the clinic and treated for noncardiac chest pain after
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further evaluation by the provider. Thus, the additional assessments by the nurse and provider are credited for the appropriate disposition of these patients.

It should be noted that the original validation studies on the MHS included adults ages 35 and older. This study encompassed patients 18 and older; 14 of the 26 participants were under the age of 35. Younger patients can and do have rhythm changes or palpitations with true supraventricular tachycardia (SVT).

**Limitations**

Limitations of this study include a small sample size and single site design. Participants were determined based on presenting compliant of chest pain and this purposive sampling resulted in a population that was disproportionately female. There was no baseline for comparison as patients are often referred to the emergency department without being checked in when they mention chest pain.

When considering the MHS criteria, clinicians should recognize that patients with known vascular history and who are 55 or older for males, or 65 or older in females, will always start with a score of 2. Thus, provider evaluation is essential in scores over 3, especially recognizing that other questions have the potential to skew the score higher even when source is noncardiac.

**Conclusions**

The implementation of a rapid chest pain protocol was successful in this study and should be continued in the clinic. The algorithm provided consistency in evaluation of patients with a complaint of chest pain. It increased the confidence of providers in assessing heart-related chest pain. All patients were correctly directed to appropriate level of care for their condition. This gave a 100% negative predictive value for cardiac origin of chest pain that was safely retained and treated in the outpatient clinic. Evidence was provided to support clinician decision-making in treating low-risk chest pain patients in a walk-in clinic. Implementing this protocol increased the awareness of what can be considered low-risk cardiac pain among clinic providers.

**Recommendations**

Replication of this study using larger sample sizes and multicenter urgent care clinic locations is recommended. Additionally, further studies in patients below the age of 35 is recommended to validate the findings in this young population and explore the value of using the MHS in this population.

Use of the algorithms for clinic staff could provide consistency in future studies and increase continuity of care in other walk-in clinics. As MHS was initially developed for sites without access to ECG or troponin levels, clinics without these capacities may find the chest pain protocol particularly beneficial. Further research and validation of the chest pain protocol could provide data to address the question of whether all patients presenting to walk-in clinics deserve a basic medical examination and cardiac screening regardless of that clinic’s diagnostic capabilities.

**Table 3. The Marburg Heart Score Criteria**

<table>
<thead>
<tr>
<th>Marburg Score</th>
<th>Disposition</th>
<th>ECG Rhythm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Sent to ER</td>
<td>New onset atrial fibrillation</td>
</tr>
<tr>
<td>4</td>
<td>Sent to ER</td>
<td>Sinus rhythm frequent PVCs</td>
</tr>
<tr>
<td>4</td>
<td>Sent to ER/ active MI</td>
<td>Sinus rhythm with ST changes</td>
</tr>
<tr>
<td>3</td>
<td>Sent to ER/ active MI</td>
<td>Sinus rhythm with ST depression</td>
</tr>
</tbody>
</table>

**References**

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On March 11, 2020, the World Health Organization declared COVID-19 a pandemic, and within 2 weeks many states implemented stay-at-home orders which effectually restricted all elective and nonessential medical services. Coming off what had been a busy flu season, urgent care volumes crashed. Operators reported an average decrease in volume of 60% with the range being 40% to 80% depending on the market. By the first week of April when Paycheck Protection Program relief funds were announced and it was clear the “curve” wasn’t “flattening,” many centers furloughed staff and some shuttered locations.

But by mid-April something incredible happened. Urgent care stepped up to lead the national testing effort. It’s been estimated that one-third or more of COVID-19 test specimens have been gathered in urgent care and by late 2020, most centers had scaled their rapid testing. The average urgent care was seeing 150% of its usual volume in January 2021, a number that peaked at 180% by December 2021.

Urgent care is a volume-driven business, meaning that once fixed costs such as base staffing levels, rent, and advertising expenses are covered...each additional visit flows through to the bottom line. Additionally, because clinical labor is the greatest operating cost, the increase in provider “efficiencies” (measured in patients seen per hour) also contributed to increased profitability. As a result of 18 months of profitable operations, many urgent care operators are currently sitting on cash.

Macroeconomic Conundrum for Individual Investors
The overall economy is challenging. You could take profits out of your business, but they’d likely be taxed at the highest federal and state income tax rates...to then do what with the money?

Low interest rates mean bank accounts pay close to nil and bond values decrease when rates rise, resulting in a loss of investment principal. The stock market has retreated from all-time highs but is still subject to daily volatility and a decline in valuation. Real estate is likewise at all-time highs meaning cap-rates (income generated as a percent of the property price) are at all-time lows. As a result, rental properties no longer provide adequate cash flow to pay the mortgage and taxes.

This begs the question, What do I do with my cash? As the federal government has pumped trillions of stimulus dollars into the economy, all that money is likewise competing for a good place to “park,” which further limits your investment options.

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YOUR BEST INVESTMENT IS GROWING YOUR OWN BUSINESS

An Ideal Business Model for Ideal Investment Opportunities

But it’s not all bad news. On the contrary; as an urgent care owner, you have a significant advantage other industries and business models don’t have right now. Urgent care centers bring in reliable, steady cash flows. Paired with the current low-interest rates, urgent care is an extremely attractive investment opportunity.

All these macroeconomic factors point to investors who are now hungry for cash flow, and it marks a turning point in the way private equity firms view urgent care centers as investment opportunities.

In the past, the overarching thesis for investing in urgent care was an arbitrage involving buying individual centers at a low multiple of EBITDA and creating economies of scale, expanding into regional platforms trading at higher multiples. So, a result of adding new centers to an existing footprint is that the new centers will increase the value of the existing centers.

As investors now seek businesses that produce steady cash flows, new urgent care centers have a cash advantage that makes them ideal investment opportunities. Cash flows are one reason private equity investors have held on to urgent care assets for years.

Unlike Other Industries, People Will Always Need Healthcare Services

The current macroeconomic climate is one reason why investing in your urgent care practice right now is financially sound. Industry stability and resilience are two additional factors. Unlike other industries prone to economic volatility, such as the retail or services industries, healthcare—especially urgent care—remains largely resilient to macroeconomic fluctuations.

Here’s why: People will always get sick and will always need healthcare services. For much of the country, urgent care is the entry point into the broader U.S. healthcare ecosystem. Urgent care is the first place people go when they get sick. If the center can’t treat a particular ailment, such as a severe gastrointestinal illness or an issue requiring hospitalization, they’ll refer them to an appropriate healthcare specialist or hospital that can.

Convenient, accessible locations are one reason urgent care is the go-to point for large populations of people. According to data from Experity and the Urgent Care Association, 77% of Americans live within a 10-minute drive of an urgent care, with 66% of centers servicing impoverished communities. Ninety-five percent of locations also offer after-hours care, which gives communities larger windows of care than primary care clinics.

Easy access to locations with highly visible storefronts is attractive to patients, especially for younger generations who aren’t connected to primary care providers like older generations are. On average, a third of urgent care patients don’t have a primary care provider, according to UCA. Offering fast, convenient, and high-quality care, it’s not hard to see why urgent care continues to be the front door of healthcare consumerism.

Endemic COVID-19 Will Lift Long-Term Urgent Care Volumes

The spikes in demand for COVID-19 services created some challenges for urgent care providers over the past 2 years. At the peak of, say, Delta or Omicron, urgent care centers reached capacity and many patients had to wait hours in line—in some cases 2-3 days to get an online appointment—while many others were simply turned away. When volumes then fell, centers found themselves overstaffed yet hesitant to reduce a workforce that was so difficult to recruit in a tight labor market.

Nobody has a crystal ball, so it’s impossible to know if we’ve seen the last of these peaks and declines, but what we do know is that coronavirus is here to stay. Experts believe, like flu, variants of declining acuity will continue to circulate. The net effect for urgent care, in effect, is a second flu that’s year-round.

The other challenge has been that, to date, there’s no COVID-19 treatment offered by urgent care. COVID antivirals and monoclonal antibody infusions have been unavailable in many markets, leaving most positive patients to be told “quarantine and if your symptoms get worse, go to the emergency room.”
Endemic COVID will entail a holistic approach to upper respiratory conditions, including multipanel tests including COVID, influenza, and strep. Then, based on the results of testing, patients may be prescribed a COVID antiviral, Tamiflu, or an antibiotic.

Given that 85% of what urgent care sees is upper respiratory in nature and that the intensity of flu season has historically driven urgent care seasonality, a second circulating viral infection should lift the “floor” on urgent care volumes.

*The combination of macroeconomic factors, cash on hand, the resiliency of urgent care’s business model, and endemic COVID-19 mean there’s been no better time to invest in opening new urgent care centers.*

**Reduced Working Capital Needs**

Opening a new urgent care center requires capital. The capital of a business is the money it has available to pay for its day-to-day operations and to fund its future growth. The four major types of capital include working capital, debt, equity, and trading capital.

To open a new center you’ll need a physical space, which must be built-out to the specifications of your practice, as well as signage, equipment, and supplies. That space would normally be financed by debt but given that many urgent care operators have cash on-hand, it’s possible to open more new locations with less total borrowing. Even if interest rates rise, they’re still expected to remain at historic lows. Inflationary environments make borrowing cheaper since you can borrow “cheaper” dollars and pay them back with “more expensive” revenue. (However, most centers already have sufficient cash on hand, so borrowing is not a primary concern for most folks right now.)

**Availability of Desirable Retail Accelerates Urgent Care Growth**

Among the factors driving volume to urgent care, two of the biggest are traffic counts and building and signage visibility. Yet in the past, commercial landlords often prohibited “medical use” because they didn’t understand it. They thought urgent care wouldn’t drive traffic to adjacent retailers. They thought urgent care produced medical waste. They thought x-ray posed radiation danger. They thought urgent care would congest the parking lot. Even after convincing landlords that urgent care serves the same desirable demographic as Target, and we drive daytime traffic they wouldn’t otherwise have, urgent care would still have to deal with the veto power of some “master tenant” (like a PetSmart or Best Buy store) who would both have no reason to sign-off and would have nobody organizationally willing to sign off. One of the biggest changes over the past 15 years has been that retailers are now courting “credit tenants” who are resilient, and urgent care is seen as a desirable and sought-after tenant. Urgent care is an essential business that’s not subject to the “Amazon Effect” causing people to shop increasingly online. Urgent care operators are now frequently courted by real estate developers looking for highly regarded tenants to put in their strip centers. According to *The New York Times*, 20% of leased medical space is located in retail buildings, up from 16% in 2010. Landlords welcome so-called medtail renters, because “if we ever go through a crisis again, they want things that won’t close—grocery stores, pharmacies, and medical facilities."

Almost equal to the capital required to construct and set up the physical facility is the working capital to fund operations until break-even volumes are attained. Meaning, when a center opens there’s a lag in medical collections and it takes time for advertising to start drawing patients, so for the first 8 to 12 months, a center typically generates insufficient cash to pay for rent, utilities, salaries, and supplies.

Well, centers opened during the peak of COVID-19 demand were known to break even the first month, so with “endemic COVID” and a higher visit floor, we expect the ramp-up period to be cut in half. The net? It’s now possible to open urgent care centers with less capital required than ever before.

**Conclusion**

A beacon of industry stability, urgent care centers are convenient entry points to the broader U.S. healthcare ecosystem. Urgent care centers that have benefitted from COVID-19 testing services throughout the pandemic are now sitting on investible cash which is losing money to inflation. Today’s low interest rates, along with reliable, steady cash flows, make urgent care centers an extremely attractive investment opportunity. Reduced capital requirements also mean it has never been cheaper to scale an urgent care operation.

**References**

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A 20-Year-Old Female with Chest Pain and SOB

Urgent message: Urgent care providers need to be vigilant for more than acute coronary syndrome, pulmonary embolism, and thoracic aortic dissection when patients present with chest pain—such as this 20-year-old who developed pneumomediastinum while smoking marijuana.

XIANGYANG JIAO, MD

Case Presentation
A 20-year-old female presented to urgent care for pleuritic chest pain and shortness of breath for about 2 hours. The chest pain was located in the upper and mid chest, was dull, pressure like, mild, and radiated to the right side of the neck. It was not improved with acetaminophen. She worked as a server at a bar and denied any injury or any unusual mental stress. No cough, palpitations, nausea, diaphoresis. No recent travel or any illness, no known exposure to COVID. PMH negative except for anxiety. SH: Occasional tobacco use and smokes marijuana 3-4 times a week.

Vitals BP 120/76, HR 72, R 12, Pulse O₂ 98%. She appeared comfortable without distress, spoke long, full sentences. Heart and lung auscultation were normal, and no leg tenderness or any swelling.

Differential Diagnosis
The differential diagnoses include anxiety, gastroesophageal reflux, musculoskeletal strain, pulmonary embolism, and pneumothorax.

Testing
ECG was normal sinus rhythm, no ST-T changes. Chest x-ray showed a lucency along the right superior mediastinum and medial right upper lobe, as well as overlying the right lung apex and base of right neck (Figure 1 and Figure 2) consistent with spontaneous pneumomediastinum (SPM).

Urgent Care Disposition
The patient was sent to ED for further evaluation. CT of chest and esophagram with oral contrast confirmed moderate pneumomediastinum without pneumothorax or esophagus perforation (Figures 3 and 4). Detailed history suggested barotrauma from marijuana use (inhalation either through a high-resistance smoking apparatus or forced exhalation against a closed glottis). Patient was observed in hospital for 48 hours, pneumomediastinum was gradually resolving on repeat chest x-ray and patient was asymptomatic upon discharge.

Discussion
Pneumomediastinum, also called mediastinal emphysema, is a rare condition where free air is leaked into mediastinal...
space from either the respiratory or GI tract. It is usually associated with physical trauma (including excessive coughing, vomiting, mechanical ventilation) or underlying chronic conditions (asthma, interstitial lung disease, COPD, bronchiectasis, lung cysts, lung malignancy). SPM may occur in otherwise healthy subjects without identifiable causative factors,1 though after detail and careful history taking, many of initially diagnosed SPM are found to be caused by substance inhalation,1-3 as in this case.

Presenting symptoms of SPM may be acute or have a subacute onset presentation. Retrosternal chest pressure or pain and/or mild dyspnea are most common, followed by cough, neck pain, back pain, and sore throat. If a large amount of air is leaked in a rapid pace, or with concomitant pneumothorax (reportedly in 40% of all pneumomediastinum), palpitation, anxiety, emesis, dysphagia, or tachypnea can also occur. Physical exam is often normal, with crepitus in the shoulder region or chest wall identifiable in less than a quarter of cases, and the pathognomonic Hamman’s sign (a crunch or click sound on auscultation over the cardiac apex and the left sternal border synchronous with the heartbeat), indicating air leaked into pericardial space, rarely present.1

Diagnosis can be established with a plain chest x-ray. Positive up to 90% of the time, this may show lucent streaks, air bubbles outlining mediastinal structures, or visible mediastinal pleura.1 Subsequent chest CT is needed to assess the extent of pneumomediastinum, concomitant pneumothorax, pneumopericardium, as well as to identify causative factors. Unless there is underlying risk, other diagnostic tests, like bronchoscopy, endoscopy, mediastinal ultrasound, and extensive blood work are often not needed. Management of isolated SPM is generally supportive. In severe cases, needle or chest tube decompression may be needed.

References
### How Long Should Pediatric Pneumonia Be Treated?

**Take-home point:** Lower-dose and shorter-duration amoxicillin treatment was noninferior to standard regimens for outpatient treatment of community-acquired pneumonia (CAP) in this trial.


**Relevance:** CAP is a common reason for antibiotics to be prescribed in children, but the shortest and lowest dose and duration of therapy are not known.

**Study summary:** This was a multicenter, randomized controlled trial looking at children over 6 months of age diagnosed clinically with CAP and discharged from the ED or hospital on oral antibiotics. Patients were randomized to receive either 35-50 mg/kg/day or 70-90 mg/kg/day for 3 or 7 days. The primary outcome was clinical determination of need for retreatment within 28 days.

A total of 814 children were enrolled. Of the children in the low-dose amoxicillin group, 12.6% required retreatment, vs 12.4% in the higher-dose group. Retreatment was required in 12.5% in both the 3- and 7-day duration-of-treatment groups. Lower dose and shorter duration treatment were both noninferior for the primary outcome. There was no statistically significant difference in symptom severity or duration between the groups other than a median duration of cough of 12 days for the 3-day treatment group, compared with 10 days for the longer duration group.

Even among patients with more severe CAP, 17.3% of the low-dose patients required retreatment vs 13.5% of the higher dose; the same was true for 16% of the 3-day duration patients vs 14.8% of longer-duration patients.

**Editor’s comments:** The diagnosis of CAP and need for retreatment were both determined clinically and, therefore, are highly subjective. Because most pediatric CAP is viral in etiology, it is unsurprising in this large RCT that there was no difference in outcomes based on dose and duration of antibiotics. It is important to note that a 3-day course of antibiotics for CAP is not yet the standard of care. Shared decision-making and close follow-up are recommended if implementing this approach.

### Predicting Cauda Equina Clinically

**Take-home point:** This study found that bilateral leg pain, loss of bilateral lower extremity reflexes, and dermatomal sensory loss were independently associated with cauda equina syndrome (CES) diagnosed on MRI.


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With easing restrictions expect increasing respiratory infections.

TESTING BEYOND COVID:

QuickVue:
- Influenza A+B TEST
- RSV TEST
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Easy-to-use, visually read
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Results in minutes

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Instrument read, objective results
Automated tracking, data capture and reporting
Results in minutes
†This test runs on the Sofia 2 instrument only.
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Relevance: CES is a debilitating disorder that can be difficult to diagnose clinically. Understanding the concerning signs and symptoms that warrant further work-up is valuable to the urgent care clinician.

Study summary: This was a retrospective analysis of ED patients presenting with atraumatic back pain. Patients were >18 years of age and had undergone MRI of the lumbar spine due to a clinical suspicion of CES. Radiological compression of the cauda equina was used as the reference standard diagnosis.

Of the 996 patients included, 111 (11%) had radiologic evidence of CES. Patients with CES were more likely to present with bilateral leg pain (OR 2.2), dermatomal sensory loss (OR 1.8), and bilateral absent ankle and/or ankle and knee jerks (OR 2.9). The authors found no relationship between digital rectal examination findings and the ultimate diagnosis of CES.

Editor’s comments: This study’s results may not be generalizable to patients who are not otherwise healthy volunteers or apply to clinical settings where rings need to be cut (eg, very swollen fingers). Not all trauma shears have a ring cutting function, but it is worth exploring as an alternative to commercial ring cutting devices which are often more difficult to operate.

Differentiating Central and Peripheral Causes of Acute Vertigo

Take-home point: The HINTS and STANDING tests were both highly effective in ruling out central causes of vertigo and outperformed the ABCD2 score.


Relevance: Acute vertigo can be caused by central nervous system disorders. Given the challenges in getting a rapid MRI of the brain from urgent care, clinical tools that allow providers to exclude central causes of vertigo are highly valuable.

Study summary: This was a single-center, prospective cohort study of emergency room patients with isolated vertigo. Providers were trained to administer the HINTS and STANDING exams within 6 hours of actually performing the tests. Patients then underwent brain MRI after the scores were calculated. The primary outcome was the sensitivity and specificity of each exam for excluding CNS etiologies vertigo.

A total of 300 patients were included in the study and 62 had a central etiology confirmed by imaging—49 of which were acute strokes. Two hundred thirty-eight had a peripheral diagnosis; 40% were benign paroxysmal positional vertigo. The HINTS exam was found to have a sensitivity 97%/NPV 99% and specificity 67%. The STANDING exam was found to have a sensitivity 94%/NPV 98% and specificity 75%. However, the ABCD2 score performed significantly worse with a sensitivity of only 55%/NPV 87% and a PPV 44%.

Editor’s comments: This was a single-center study, but it was also prospective and well designed. The HINTS exam technically requires Frenzel lenses, which are rarely available in UC. This study population had 62 patients (21%) with CNS lesions on MRI causing vertigo, which is a relatively high proportion. This suggests the population may not be representative of an average ED and even less representative of an average UC center.

The Conundrum of Removing Stuck Rings

Take-home point: The use of trauma shears’ ring cutting function took significantly less time than the use of a motorized diamond disc ring cutter and demonstrated significantly better satisfaction for both the ring wearer and ring remover.


Relevance: Urgent care is the destination of choice for many patients with finger injuries. Removing a ring that is creating a tourniquet effect quickly is a priority for these patients.

Study summary: Emergency medicine providers were enrolled as volunteers and randomized to have rings, either silver or steel, removed using either motorized diamond disc ring cutter (MDDRC) or the ring cutter attachment on trauma shears. Each effort was timed from initiation to removal and the users and subjects rated their satisfaction with the devices and reported any complications.

Thirty subjects completed the study. The median time for ring removal was significantly less with the trauma shears compared with the MDDRC (2.7 vs 67.0 seconds). User satisfaction and participant satisfaction were significantly higher, and participant discomfort significantly lower with the trauma shears.
A 36-Year-Old Male with Chronic, Worsening Hip Pain

Case
The patient is a 36-year-old male who presents with left hip pain for “years.” The pain is motion- or position-related and over time there has been occasional pain in his buttock, back, and thigh. Additionally, he has stiffness, clicking, locking, and catching.

View the image taken and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.
Differential Diagnosis
- Cam deformity of the femoral head/neck
- Pincer deformity
- Mixed-type deformity

Diagnosis
This patient was diagnosed with a mixed-type deformity, as he has a cam deformity of the femoral head/neck with added pincer type deformity, predisposing to femoral acetabular impingement.

Learnings/What to Look for
- Acetabular impingement types can be distinguished as follows:
  - Cam type (prominence of bone at junction of femoral head and neck reducing offset)
  - Pincer type (increased acetabular coverage most commonly due to osteophytopsis)
  - Mixed type (as in this case)
- Cam-type bone build-up at the femoral head and neck can be seen (red arrow)
- Pincer-type increased acetabular coverage can also be seen. There is spurring of the superolateral acetabular margin with a well-corticated ossicle (yellow arrow), as well as a rounded prominence of the anterolateral margin (green arrow)

Pearls for Urgent Care Management
- Conservative treatment includes rest, activity modification, anti-inflammatory medications, and sometimes physical therapy
- If symptoms do not resolve or are severe at presentation, referral to an orthopedist for surgical consideration is warranted

A 6-Year-Old Girl with Papules on Her Abdomen

Case
A 6-year-old girl presents to urgent care for vaccinations at the start of the school year. Her father asks the pediatric provider to look at bumps that developed on her abdomen about 4 weeks ago. They consist of tiny papules, some scattered and some in linear configurations. The patient is asymptomatic without pain or itching. Her father is concerned because they have not resolved.

View the image in this context and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.
Differential Diagnosis
- Keratosis pilaris
- Lichen nitidus
- Lichen planus
- Atopic dermatitis

Diagnosis
This patient was diagnosed with lichen nitidus, a rare, benign, chronic, cutaneous eruption characterized by the presence of small, discrete, uniform, often skin-colored or glistening papules that present in clusters or linear arrays. It most commonly affects children and young adults, although it can be found in patients of any age.

Learnings/What to Look for
- Lichen nitidus may be generalized or focal, but it is commonly found on the chest, abdomen, flexor surfaces of the upper extremities, dorsal hands, and anogenital region (including the shaft and glans of the penis)
- Patients may complain of pruritus over affected areas, although these micropapules are typically asymptomatic
- It is typically not associated with laboratory abnormalities
- While the etiology of lichen nitidus is inflammatory, the cause is unknown
- Medication-related cases (following administration of nivolumab, tremelimumab, mogamulizumab, and interferon alpha) and familial forms have been reported

Pearls for Urgent Care Management
- Lichen nitidus is chronic and persistent, but most patients ultimately clear spontaneously over the course of several months without residual skin changes or medical complications

A 57-Year-Old Female with Shortness of Breath and Weeks of Chest Pain

The patient is a 57-year-old female who presents to urgent care with progressive shortness of breath and chest pain of “several weeks” duration. On exam, she is nonobese, normotensive, slightly tachycardic, and tachypneic with clear lungs and distant heart sounds.

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

(Case presented by Archana Reddy, MD, PGY3 in the McGovern Medical School Department of Emergency Medicine, The University of Texas Health Sciences Center of Houston.)
The ECG shows sinus rhythm with a rate of 102 bpm and low-voltage QRS complexes. Low voltage is defined as either 1) all limb lead amplitudes less than 5 mm or 2) all precordial lead amplitudes less than 10 mm. This ECG meets the precordial low voltage criteria, as the largest amplitude precordial QRS complex is 7 mm (in V2 and V3). Additionally, the QRS amplitudes in the rhythm strip of lead II can be seen to alternate between larger and smaller complexes, a phenomenon known as electrical alternans. The presence of electrical alternans suggest a pericardial effusion.

The differential diagnosis of low-voltage QRS can be separated into two categories: increased impedance and decreased impulse generation (Table 1). Careful consideration of this patient’s presentation and analysis of the ECG can secure the diagnosis.

The presence of clear lungs makes thoracic diagnoses like pulmonary edema, COPD, and pleural effusion unlikely. The presence of electrical alternans (Figure 2) secures the diagnosis of cardiac tamponade. Electrical alternans is defined as alternating QRS amplitude, often resulting from the pendulous-like swinging of the heart inside a fluid-filled pericardium. Other pathologies associated with electrical alternans include Wolff-Parkinson-White, accelerated idioventricular rhythm, and supraventricular tachycardia. Cardiac tamponade occurs when fluid accumulates in the pericardial space, causing impaired right ventricular filling, and leading to hemodynamic compromise. Signs of tamponade include distended neck veins, muffled heart sounds, and hypotension (Beck’s triad).

While this patient was normotensive, the presence of tachycardia and tachypnea suggests she is at high risk for hemodynamic collapse and warrants immediate transfer. If the patient is hemodynamically unstable, the urgent care provider should immediately obtain intravenous access and fluid resuscitate, as these patients are preload dependent. Cardiac tamponade is an emergency and patients with suspected tamponade should be immediately transferred to a higher level of care.

Table 1. Causes of Low Voltage

<table>
<thead>
<tr>
<th>Increased Impedance</th>
<th>Decreased Impulse Generation</th>
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<tbody>
<tr>
<td>Pericardial</td>
<td>Prior myocardial infarction</td>
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<tr>
<td>Effusion</td>
<td>Infiltrative cardiomyopathy (amyloidosis, sarcoidosis)</td>
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<td>Constrictive pericarditis</td>
<td>Myocarditis</td>
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<td>Pneumopericardium</td>
<td>Hypothyroidism</td>
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<td>Thoracic</td>
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<td>Intrapleural</td>
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<td>– Pneumothorax</td>
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<td>– Pleural effusion</td>
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<td>Pulmonary</td>
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<td>– COPD</td>
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<td>– Pulmonary edema</td>
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<td>– Mediastinum</td>
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<td>– Pneumomediastinum</td>
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<tr>
<td>Soft tissue</td>
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<td>Peripheral edema</td>
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INSIGHTS IN IMAGES: CLINICAL CHALLENGE

THE RESOLUTION

“If ultrasound is available, tamponade physiology is diagnosed by observing right ventricle collapse during diastole.”

Learnings/What to Look for
- **Low voltage** is defined as either 1) all limb lead amplitudes less than 5 mm, or 2) all precordial lead amplitudes less than 10 mm
- Electrical alternans is a phenomenon seen when the heart moves rhythmically inside a fluid-filled pericardium, predictably altering the electrocardiographic voltage
- Exam findings include clear lungs, jugular venous distension, and muffled heart sounds (Beck’s triad)

Pearls for Urgent Care Management
- If ultrasound is available, tamponade physiology is diagnosed by observing right ventricle collapse during diastole
- If cardiac tamponade is considered, immediately obtain intravenous access
- Intravenous fluids may be used to promote right ventricular filling
- Initiate immediate transfer to a facility capable of performing a pericardiocentesis and/or surgical pericardial window

References
It’s been 14 months since the new evaluation and management guidelines took effect. Many providers struggled to modify their documentation after 25 years with the 1995 guidelines. Urgent care practices stepped up with training programs to get through the learning curve with some new concepts. This month, I’ll address some of the common questions that we receive.

Q. Do I have to meet the level in all the elements to bill a code?

A. No, the level is based on two out of three of these elements: problems addressed, risk of management options, and data reviewed. If the problem and the risk are moderate yet no data were reviewed, this would still be a level 4 visit based on the two highest levels.

Q. Do I need to document a history and exam?

A. Yes and no. A history or an exam is required for the visit to be billable. However, what you document is up to the provider and what they feel is appropriate for that patient. The volume of documentation has no impact on the level of the final code.

Q. What if the visit level based on medical decision-making (MDM) is lower than the level based on time?

A. You can base your code on either MDM or time. So, if the MDM for an established patient is a 99212 yet you spent 35 minutes on their visit on that date, you would report 99214.

Q. What tests count in data?

A. All tests that do not have a professional component count toward your level of visit. If you are not billing the professional component of a test, that also counts. So, mainly in the urgent care setting, you are counting your labs whether they are performed in-house or sent out. Count these labs only once per unique CPT code. Don’t count them again on subsequent visits.

Q. Why can’t I count x-rays performed in-house?

A. If you are billing for the professional component of an x-ray, you are getting paid for the interpretation. Counting the tests toward your level of visit would constitute “double-dipping.”

Q. Can I count my independent interpretation?

A. No. Independent interpretation is for tests performed elsewhere that have a professional component. This is rare in most urgent care settings.

Q. Is prescription drug management always a moderate risk?

A. No. There are no “always” for the risk of complications and/or morbidity or mortality of patient management option. Management options listed in the Level of MDM table are simply examples. The level of risk is a clinical decision by the provider.

Monte Sandler is Executive Vice President, Revenue Cycle Management of Experity (formerly DocuTAP and Practice Velocity).
<table>
<thead>
<tr>
<th>Q.</th>
<th>Should I always use a differential diagnosis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>No. Use a differential diagnosis when you are considering multiple diagnoses. This supports your level of problem addressed and what tests were ordered.</td>
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<table>
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<tr>
<th>Q.</th>
<th>When is an illness considered chronic?</th>
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<tbody>
<tr>
<td>A.</td>
<td>Chronic problems have an “expected duration of at least 1 year or until the death of the patient.”</td>
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<tr>
<th>Q.</th>
<th>When is a chronic illness considered stable?</th>
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<tbody>
<tr>
<td>A.</td>
<td>A chronic condition is stable when the patient has met their specific treatment goals. Treatment goals are unique to the patient.</td>
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<tr>
<th>Q.</th>
<th>When can I count chronic illnesses if they are not the presenting problem?</th>
</tr>
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<tbody>
<tr>
<td>A.</td>
<td>Chronic conditions are considered in your level of problem addressed when “their presence increases the amount and/or complexity of data to be reviewed and analyzed or the risk of complications.” Include the diagnoses of these chronic illnesses in your treatment plan.</td>
</tr>
</tbody>
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<tr>
<th>Q.</th>
<th>What is the difference between an exacerbation or a severe exacerbation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>An exacerbation does not require consideration of a hospital level of care while a severe exacerbation usually does.</td>
</tr>
</tbody>
</table>

Now that you’ve completed a year of training, my suggestion is to consider an external audit. You will learn whether your clinical opinion of the level is supported by the documentation and find problem areas on which to focus your training. For internal audits, I would focus on outliers by either overall acuity or diagnosis groups. The 2021 E/M guidelines are a major shift, and it is not black-and-white. The more you understand the guidelines, the more confident you will be. Remember, providers must “show their work” and thought process for medical decision-making under the new guidelines.

References
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In the article Your Best Investment Is Growing Your Own Business (page 25), Alan A. Ayers, MBA, MAcc makes the case that this could be an ideal time for urgent care operators to bet on their own future growth and success by investing back into their business. For one thing, the COVID-19 pandemic appears to be winding down in the U.S., with our industry having made tremendous progress in earning what Urgent Care Association CEO Lou Ellen Horwitz calls “a seat at the table.”

There’s evidence that the fundamental factors that set urgent care apart from the beginning continue to resonate with healthcare consumers today, however. Besides providing excellent, cost-effective care, those would include multiple factors that add up to ready accessibility. View the graph below to learn what they are.

**Elements of Convenient Care**

- Americans who live within a 10-minute drive of an urgent care center: 77%
- Urgent care centers serving impoverished areas: 66%
- Locations offering after-hours care: 95%

Data source: The Urgent Care Association and Experity.
Be Heard!

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