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CLINICAL cme

Falls & Forgetfulness: Recognize Idiopathic Normal Pressure Hydrocephalus

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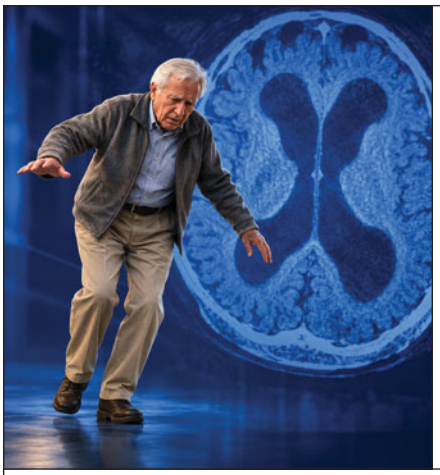
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CLINICAL TOPIC REVIEW

11 When to Consider Idiopathic Normal Pressure Hydrocephalus in the Older Urgent Care Patient

The features of idiopathic normal pressure hydrocephalus—gait disturbance, urinary incontinence, and cognitive slowing—are easily attributed to normal aging, so the diagnosis is frequently missed. Clinicians should know when to suspect the syndrome, how to evaluate for it, and how to refer to a specialist for diagnosis confirmation and management.

Kenneth V. Iserson, MD, MBA, FACEP, FAAEM

ORTHOPEDIC CASE SERIES

17 Urgent Care Evaluation and Management of Acromioclavicular Separation

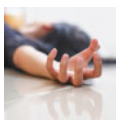


Management of acromioclavicular joint separation consists of patient education on immobilization and pain management with consideration for emergency department referral.

Jerome Walsh, BS; Clinton Hartz, MD; Michael B. Weinstock, MD

CASE REPORT

25 Psychogenic Nonepileptic Seizures in the Urgent Care Setting: A Case Report



Accurately identifying psychogenic nonepileptic seizures helps avoid unneeded interventions, such as aggressive antiepileptic drug treatment.

Jacob Welch, OMS-4; Logan Hurm, OMS-4; Akul Mitra, OMS-4; Cameron Shoemaker, PGY-2; Michael B. Weinstock, MD

ORIGINAL RESEARCH

31 Factors Associated With the Use of an Online Appointment Tool in Urgent Care Centers



Significant differences in the use of an online appointment tool based on age, race, insurance type, and setting underline the need for targeted strategies to increase adoption.

E. Melinda Mahabee-Gittens, MD, PhD; Parth Divekar, MS; Lara Stone, MA; David Schnadower, MD, MPH; Sinem Toraman Turk, PhD

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39 Urgent Care Refers 1 Patient in 50 to the ED



Many emergency department referrals involve symptoms that call for capabilities the urgent care cannot provide. Find out what else the data says about referrals.

Alan A. Ayers, MBA, MAcc

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Identifying the Limitations of Telehealth in Urgent Care

Kristin Boddu, DNP, APRN, FNP-C, CNE, COI

Telehealth has drastically improved access to urgent care, allowing patients to seek evaluation for acute complaints without travel, time away from work, or many of the operational obstacles of in-person care. Federal telehealth guidance recognizes improved access, reduced travel, and time savings as important benefits.[1] For clinicians practicing urgent care through telehealth, convenience comes with the responsibility of recognizing when the patient needs something a screen cannot provide.

Physical examination limitations, diagnostic uncertainty, and gaps in triage and workflow remain key considerations in urgent and acute telehealth practice.[2] Patient-safety risks associated with synchronous telehealth have also been identified in recent literature.[3] Examples include medication errors, communication failures, incomplete clinical information, and patient-identification concerns. These limitations do not make telehealth inappropriate for urgent care. They make identifying the limits of the modality an essential clinical skill.

Telehealth appropriateness is often considered before the encounter begins: This complaint is appropriate for telehealth; that complaint is not. Clinical practice is rarely that predictable. A recent systematic review found virtual care appropriateness is determined by multiple factors, including the patient, clinical presentation, point in the care process, provider, and available technology.[4] The chief complaint alone cannot always tell us whether a virtual encounter will be sufficient. One patient with cough may have an uncomplicated upper respiratory infection. Another with the same complaint may additionally describe dyspnea or chest discomfort and have no reliable vital signs available. Or a patient with abdominal symptoms may initially seem appropriate for virtual evaluation until the history raises concern for a condition warranting palpation, laboratory testing, or imaging. This matters in urgent care because starting a visit virtually does not obligate us to finish it virtually. As the history unfolds, the patient's needs may exceed what the virtual environment can safely provide.



Kristin Boddu, DNP, APRN, FNP-C, CNE, COI, is a nurse practitioner with Advocate Health, where she practices in virtual urgent care. She is also a clinical assistant professor in the Department of Advanced Nursing Practice and Education at East Carolina University College of Nursing.

The Stethoscope Rule

I use a simple clinical heuristic to recognize that transition: the stethoscope rule. It provides a practical way to identify the clinical boundary of a virtual urgent care encounter and determine when the patient needs hands-on evaluation. When the patient's next step depends on a hands-on physical examination, objective measurement, or a diagnostic test that cannot be adequately obtained virtually, the patient needs access to a setting that can provide it.

The "stethoscope" is figurative. Sometimes I need to know what the lungs sound like. Other times, the needed capability is abdominal palpation, reliable vital signs, an electrocardiogram, a fluorescein examination, point-of-care testing, laboratory studies, or imaging. The tool itself does not determine the need for in-person care; the patient's need for that clinical capability does. This does not mean every limitation of a virtual examination requires escalation of care. A systematic review comparing digital and in-person examination components found relatively good reliability for many virtual assessments, although performance varied across examination types and substantial heterogeneity limited broader conclusions.[5] Therefore, telehealth can provide clinically useful examination information.

The practical issue is recognizing when a patient requires a clinical capability not available through the virtual encounter. Trying to work around the limitation does not improve access. It only delays the care the patient needs.

In urgent care, this transition often becomes apparent

through the history rather than a predetermined list of "telehealth diagnoses." Consider the patient with throat pain. Many uncomplicated presentations can be evaluated virtually. However, drooling, inability to handle secretions, significant neck swelling, respiratory difficulty, or another concerning feature changes the encounter. These red-flag symptoms may require direct examination, testing, airway assessment, or emergency resources that are unavailable through a video visit.

The same principle applies across chief complaints. Mild ocular symptoms may be manageable virtually, while ocular pain, vision changes, trauma, or a suspected foreign body may require examination techniques unavailable through a screen. A straightforward urinary complaint may be reasonable for virtual management, whereas systemic symptoms, significant flank pain, pregnancy, recurrent treatment failure, or another complicating feature may require examination or testing.

These examples are not intended to create a list of complaints that are "allowed" or "not allowed" through telehealth. That approach misses the clinical issue. What matters is the capability the patient requires at that point in the encounter. Diagnostic safety depends on gathering and interpreting sufficient clinical information to guide appropriate decisions.[6] When the necessary examination, measurement, or testing is unavailable virtually, the modality needs to change. Recognizing that the patient needs hands-on care is only half of the decision. The next question is where that care should occur.

For many stable patients, an in-person urgent care center may provide what is missing from the virtual encounter: reliable vital signs, a focused physical examination, an electrocardiogram, radiography, point-of-care testing, or other basic diagnostic resources. A patient does not automatically need an emergency department simply because telehealth is no longer appropriate.

A patient with potential hemodynamic instability, respiratory compromise, a time-sensitive cardiovascular or neurologic process, or another condition calling for immediate intervention belongs in a setting equipped to provide those resources, such as an emergency department.

Still other patients may need neither urgent nor emergency evaluation. A stable problem requiring a nonurgent examination, longitudinal assessment, or monitoring may be better directed to primary or specialty care. The Agency for Healthcare Research and Quality noted that in higher-risk telehealth encounters, appropriate triage may be more important than establishing a definitive virtual diagnosis. Potential dispositions can range from remaining home, scheduling an in-person examination, going to an emergency department, or calling 911.[7] For the urgent care clinician, "go be seen" is not enough. A useful disposition should reflect what the patient needs, how quickly it is needed, and which setting can provide it.

Convenience Cannot Choose the Destination

Patients often choose telehealth for good reasons. Avoiding travel, time away from work, or the cost of childcare may make a virtual encounter appealing.[1] Those advantages are worth preserving whenever virtual care addresses the patient's clinical needs.

The challenge comes when convenience and clinical necessity point in different directions. A patient may prefer not to leave home to seek care, and the clinician may know that an in-person referral creates additional cost, travel, or inconvenience. Those realities deserve acknowledgment but cannot substitute for a required examination or diagnostic capability. When a virtual encounter identifies the need for hands-on evaluation, diagnostic testing, or a higher level of care, escalation should not be considered a failure of telehealth. It is an appropriate clinical outcome.

If a patient needs a resource I cannot provide virtually, my responsibility is to recognize that need and direct the patient to a setting capable of addressing it.

Telehealth has earned an important place in urgent care. Its ease of use and convenience allow clinicians to reach patients who might otherwise face delays or barriers to care. Preserving those advantages requires being comfortable in recognizing when the modality has reached its limit. When the patient's next step requires something that cannot be adequately examined, measured, or tested through telehealth, the patient needs access to a setting that can provide it. The skill is not simply knowing what belongs in telehealth. It is recognizing, during an evolving urgent care encounter, when the patient's needs no longer can be met in telehealth. ■

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URGENT INTERACTIONS



"Listening during the clinical encounter is the most important part. It is easy to let your mind go elsewhere—to charting, to ordering tests, to the next patient. However, listening is the secret to the relationship with the patient and the final diagnosis."

— Lindsey E. Fish, MD, FCUCM
JUCM Editor-in-Chief



"Always hard-stop your medical decision making to consider the can't-miss diagnoses."

— Michael Weinstock, MD
JUCM Senior Clinical Editor



"Paroxysmal seizure-like events challenge urgent care providers to balance rapid stabilization against the risk of acute overtreatment. Identifying nonepileptic seizures through clinical bedside indicators and accessible EMR documentation protects patients from invasive interventions while guiding them toward the long-term, multidisciplinary management they need."

— Jacob Welch, author of "Psychogenic Nonepileptic Seizures in the Urgent Care Setting: A Case Report" (read more on page 25).



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The Future Is Being Built. Be Part of It.

Steve Sellars

Over the past several weeks, I've had the opportunity to see our industry from several different perspectives. At the Patient Experience Symposium in Boston, Massachusetts, I joined healthcare leaders from across the country to discuss what I call "The Urgent Care Effect," which is how our industry helped change what consumers expect from healthcare. More recently, I spent time with Urgent Care leaders at the Northeast Urgent Care Association (NERUCA) meeting, and our colleagues in California gathered for California Urgent Care Association's (CalUCA) annual conference.

Different audiences. Different markets. But I keep coming away with the same conclusion: This is an important moment for Urgent Care.

For years, Urgent Care grew by responding to what consumers wanted: greater access, extended hours, convenience, transparency, and respect for their time. In doing so, we didn't simply create another healthcare setting. We helped reset expectations for how everyday healthcare should work.

Now the opportunity is bigger. Healthcare is struggling with affordability, primary care access, workforce shortages, and pressure on emergency departments. Employers are looking for better ways to connect their workforce with accessible, affordable care. Health systems and payers are reconsidering where care should be delivered.

Urgent Care belongs in those conversations. But simply believing that isn't enough. We have to show up. That means demonstrating our value through credible data. It means advancing clinical excellence and quality. It means engaging employers, payers, policymakers, and health systems. And it means coming together as an industry with enough scale and alignment to be heard.



Steve Sellars is Chief Executive Officer of the Urgent Care Association.

That is why I'm asking every Urgent Care organization to consider its role in what comes next.

If you are not currently a UCA member, I hope you will join us. Membership is about more than supporting an association. It strengthens the collective voice advocating for your organization and this industry. The more operators and clinicians we represent, the stronger our ability to influence the decisions affecting reimbursement, regulation, workforce, and the future of our care model. Membership also provides direct value to you and your team through industry-leading education, practical resources, networking opportunities, and the expertise needed to navigate a rapidly evolving healthcare landscape.

And as you build your 2027 budgets, I'm asking you to make one more investment: Plan to join us at UCA Convergence 2027 in West Palm Beach, Florida, next May.

We chose the name "Convergence" intentionally. The challenges and opportunities ahead require operators, clinicians, innovators, and healthcare partners to come together around where Urgent Care is going next. Our tagline, "Where Urgent Care Comes Together," reflects the purpose of UCA Convergence and the role this event plays in our field.

We'll explore the market forces reshaping Urgent Care, emerging care models, employer and payer relationships, workforce, technology and AI, clinical excellence, and the data and strategies organizations need to compete and grow. But perhaps most importantly, we will bring this community together at UCA Convergence.

I've been reminded repeatedly this fall how powerful community can be. Whether in conversations with leaders in Boston, the Northeast, California, or across the country, I see tremendous innovation and commitment to this field.

Our opportunity now is to connect it. The future of Urgent Care will be shaped by those who choose to participate.

Join UCA. Come to UCA Convergence 2027. Bring your experience, your ideas, your team, and your voice.

There is important work ahead. Let's lead the way together. ■

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When to Consider Idiopathic Normal Pressure Hydrocephalus in the Older Urgent Care Patient (page 11)

1. **What are the typical triad features of idiopathic normal pressure hydrocephalus?**
   a. Gait disturbance, urinary incontinence, cognitive slowing
   b. Fatigue, joint pain, butterfly-shaped rash across the face
   c. Vomiting, constipation, abdominal pain
   d. Fever, chills, sweating

2. **Why is the diagnosis of idiopathic normal pressure hydrocephalus often missed?**
   a. There are no diagnostic tests or protocols
   b. Symptoms may be mistakenly attributed to normal aging
   c. It is a newly discovered condition that clinicians have never heard of
   d. It only occurs after an elderly patient has experienced a traumatic fall

3. **Which analysis can confirm the final diagnosis of idiopathic normal pressure hydrocephalus in urgent care?**
   a. Smartphone gait analysis
   b. Gait speed
   c. Timed up and go
   d. None of these

Urgent Care Evaluation and Management of Acromioclavicular Separation (page 17)

1. **What percentage of shoulder injuries involve the acromioclavicular joint, according to the article?**
   a. ~9%
   b. ~18%
   c. ~22%
   d. ~67%

2. **What is the name of the classification system for acromioclavicular joint injuries?**
   a. Simon
   b. Herring
   c. Murphy
   d. Rockwood

3. **Which patients presenting with acromioclavicular joint separation should be referred to the emergency department?**
   a. Those with severe pain that cannot be controlled by analgesics
   b. Those with concern for open fracture, infection, or pneumothorax
   c. Those with neurovascular compromise
   d. All of the above

Psychogenic Nonepileptic Seizures in the Urgent Care Setting: A Case Report (page 25)

1. **What is another name for psychogenic nonepileptic seizures, according to the article?**
   a. Forced eye closure seizures
   b. Brain seizures
   c. Functional seizures
   d. Cognitive seizures

2. **What is the recommended modality for determining a definitive diagnosis of psychogenic nonepileptic seizures?**
   a. Physical exam findings
   b. Magnetic resonance imaging
   c. Video electroencephalogram monitoring
   d. Patient discussion of childhood trauma

3. **What is the primary treatment goal to manage psychogenic nonepileptic seizures in acute care settings?**
   a. Avoid iatrogenic harm
   b. Administer antiepileptic drugs immediately
   c. Administer antipsychotic drugs immediately
   d. Restrain the patient

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When to Consider Idiopathic Normal Pressure Hydrocephalus in the Older Urgent Care Patient

Urgent Message: The features of idiopathic normal pressure hydrocephalus are easily attributed to normal aging, so the diagnosis is frequently missed. Clinicians should know when to suspect the syndrome, how to evaluate for it, and how to refer to a specialist for diagnosis confirmation and management.

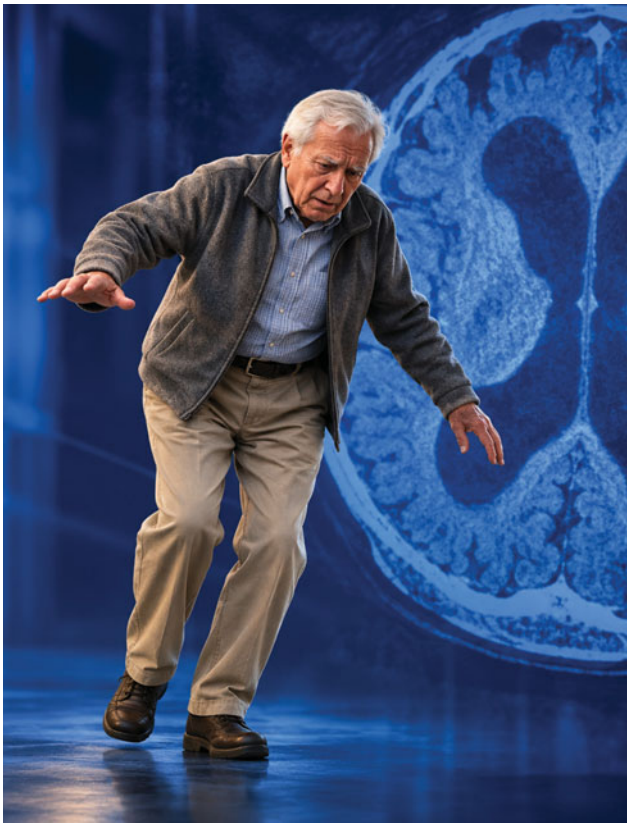
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Abstract

Idiopathic normal pressure hydrocephalus (iNPH) is one of the few reversible causes of dementia and gait decline in older adults, yet fewer than 20% of those affected are correctly diagnosed. Its cardinal features—gait disturbance, urinary incontinence, and cognitive slowing—are common, individually nonspecific, and easily attributed to normal aging. Thus, a diagnosis of iNPH is frequently missed. Because older adults so often present to urgent care with falls, unsteadiness, urinary symptoms, and confusion, clinicians are encouraged to recognize the constellation of iNPH symptoms and initiate evaluation. This article describes when to consider iNPH, how to take a focused history, how to perform a brief structured gait examination, when and how to use neuroimaging, and how to construct a referral that moves the patient efficiently toward specialist evaluation, diagnosis, and treatment.



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Introduction

Idiopathic normal pressure hydrocephalus (iNPH) is 1 of the few reversible causes of dementia in older adults. First described by Hakim and Adams in 1965,[1] it classically presents with a triad of gait disturbance, urinary incontinence, and cognitive decline, accompanied by ventriculomegaly on neuroimaging despite normal cerebrospinal fluid (CSF) opening pressure. Unlike neurodegenerative dementias such as Alzheimer disease, iNPH arises from a mechanical and hydrodynamic process—impaired CSF absorption and altered intracranial compliance.[2-3] Left untreated, patients experience progressive disability, dementia, and shortened survival.[4-5] CSF diversion by shunting improves outcomes in appropriately selected patients, with benefits most evident in gait and balance and secondary gains in urinary continence, cognition, and functional independence.[6-9] Early recognition can facilitate timely specialist evaluation and treatment; earlier shunt surgery has been associated with improved survival.[10]

The difficulty is not that iNPH is rare but that its features are common. Falls, unsteadiness, urinary incontinence, urinary urgency, and cognitive slowing are individually familiar and readily attributed to aging or to a comorbid condition. When each complaint is explained away on its own, the treatable syndrome that unites them is never considered—a pattern of premature closure that accounts for much diagnostic error.[11-13] Older adults increasingly seek care in urgent care settings,[14] where presentations with these complaints may be routine. This article describes when to suspect iNPH in the older patient, how to clinically evaluate it, and how to refer to a specialist.

Epidemiology

The Hydrocephalus Association estimates that iNPH affects approximately 700,000 Americans, yet fewer than 20% receive a correct diagnosis and treatment.[15] Population-based studies indicate that 2–5% of adults over age 65 harbor undiagnosed iNPH,[16] and community magnetic resonance imaging (MRI) studies suggest that the prevalence of the radiologic–clinical phenotype rises steeply with age.[17] The gap between how many people have the condition and how few are treated represents 1 of the largest opportunities to address potentially reversible disability in geriatric care.[18] The underrecognition is not chiefly a knowledge problem. The individual symptoms are well known, but their significance as a single treatable syndrome may be missed.

History

The clinical hallmark of iNPH is its triad—gait disturbance, urinary incontinence, and cognitive slowing—though the 3 seldom appear together at onset. Gait disturbance is the earliest, most prevalent, and most treatment-responsive feature, frequently preceding urinary and cognitive symptoms by months to years.[19-20] Clinicians may consider iNPH in any patient aged 65 years or older who presents with 1 or more of the following complaints: recurrent falls or near-falls; new or progressive gait unsteadiness; recent-onset urinary urgency or incontinence; cognitive complaints, particularly psychomotor slowing rather than prominent memory loss; or unexplained functional decline.[21] The most useful red flag is the patient whose chief complaint could be dismissed as aging but who, on directed ques-

Table 1. Urgent Care iNPH Screening Quick Reference

Who to Consider	Adults ≥65 with falls, gait change, confusion, new urinary incontinence, or functional decline
Gait Assessment	TUG test (>12 seconds abnormal; >20 seconds highly suggestive); 10MWT (<0.6 m/s abnormal); smartphone app; or video recording of walking
Key Gait Features	"Magnetic" gait: wide base, short shuffling steps, reduced foot clearance, difficulty initiating movement, multistep turning
History Red Flags	Progressive gait worsening; recurrent falls; urinary urgency/incontinence (recent onset); cognitive slowing; symptoms not explained by known conditions
Neuroimaging	Head CT (if obtainable): Evans Index >0.3 suggests ventriculomegaly; DESH pattern on MRI if available
Referral Trigger	Abnormal gait + ≥1 additional feature (cognitive, urinary), OR abnormal gait + ventriculomegaly on imaging
Referral Provider	Neurology (preferred initial referral) or neurosurgery; include gait video, quantitative parameters, symptom timeline
Considerations For ED Transfer	Acute neurologic changes, new-onset seizures, signs of elevated ICP, acute fall with significant injury

iNPH = idiopathic normal pressure hydrocephalus; TUG = Timed Up and Go; 10MWT = 10-Meter Walk Test; m/s = meters per second; CT = computed tomography; MRI = magnetic resonance imaging; DESH = disproportionately enlarged subarachnoid-space hydrocephalus; ICP = intracranial pressure; ED = emergency department.

tioning, reports 1 or more additional triad features **(Table 1)**.

A focused history clarifies the picture: the duration and progression of gait difficulty; the frequency, circumstances, and injuries of any falls; urinary symptoms, distinguishing iNPH-type urgency and incontinence from stress incontinence or prostatic disease; cognitive changes reported by the patient or family, emphasizing slowing over amnesia; and a medication review to exclude drugs that impair gait or cognition.

Two thresholds should be kept distinct. The threshold for urgent care *screening* is low. A concerning gait pattern in an older adult—with or without the other triad features—warrants a structured gait assessment. Referral is indicated when an abnormal gait is accompanied by at least 1 other triad feature or by ventriculomegaly on new or existing imaging. Formal *diagnostic* classification is a specialist task. Current criteria grade iNPH as possible or probable according to which triad elements are present, whether ventriculomegaly is confirmed, and whether another condition explains the findings,[22–24] and gait disturbance alone can satisfy the "possible" category. The urgent care clinician's job is to recognize the candidate, not to assign the label.

Physical Exam

The examination centers on gait. The characteristic pattern—often called "magnetic"—features short, shuffling steps, a widened base, reduced foot clearance as though the feet were glued to the floor, difficulty initiating movement, and turns completed through multiple small steps rather than a smooth pivot.[25] These features can be appreciated within seconds of direct observation. Several brief, low-cost tools can help quantify the impression:

- **Timed Up and Go (TUG).** The patient rises from a chair, walks 3 meters, turns, returns to the chair, and sits. A time over 12 seconds suggests impairment; patients with iNPH frequently exceed 20 seconds.[26-27] Demonstration videos are available from the Centers for Disease Control and Prevention (CDC) STEADI initiative[28] and the American Medical Association.[29]
- **Gait speed.** Timed over the middle 6 meters of a 10-meter walk at normal pace, velocity below 0.6 meters/second (m/s) indicates clear gait impairment in community-dwelling older adults.[30-31] A less stringent threshold near 0.8 m/s is not itself diagnostic of a gait disorder but identifies slower walkers at elevated risk of functional decline and shortened survival.[32] So the 2 cutoffs answer different questions: 0.6 m/s flags an abnormal gait worth evaluating; while 0.8 m/s stratifies prognosis.
- **Smartphone gait analysis.** Validated applications are available to compute gait velocity, stride length, and cadence from the phone's accelerometer with clinical-grade accuracy.[33-36]

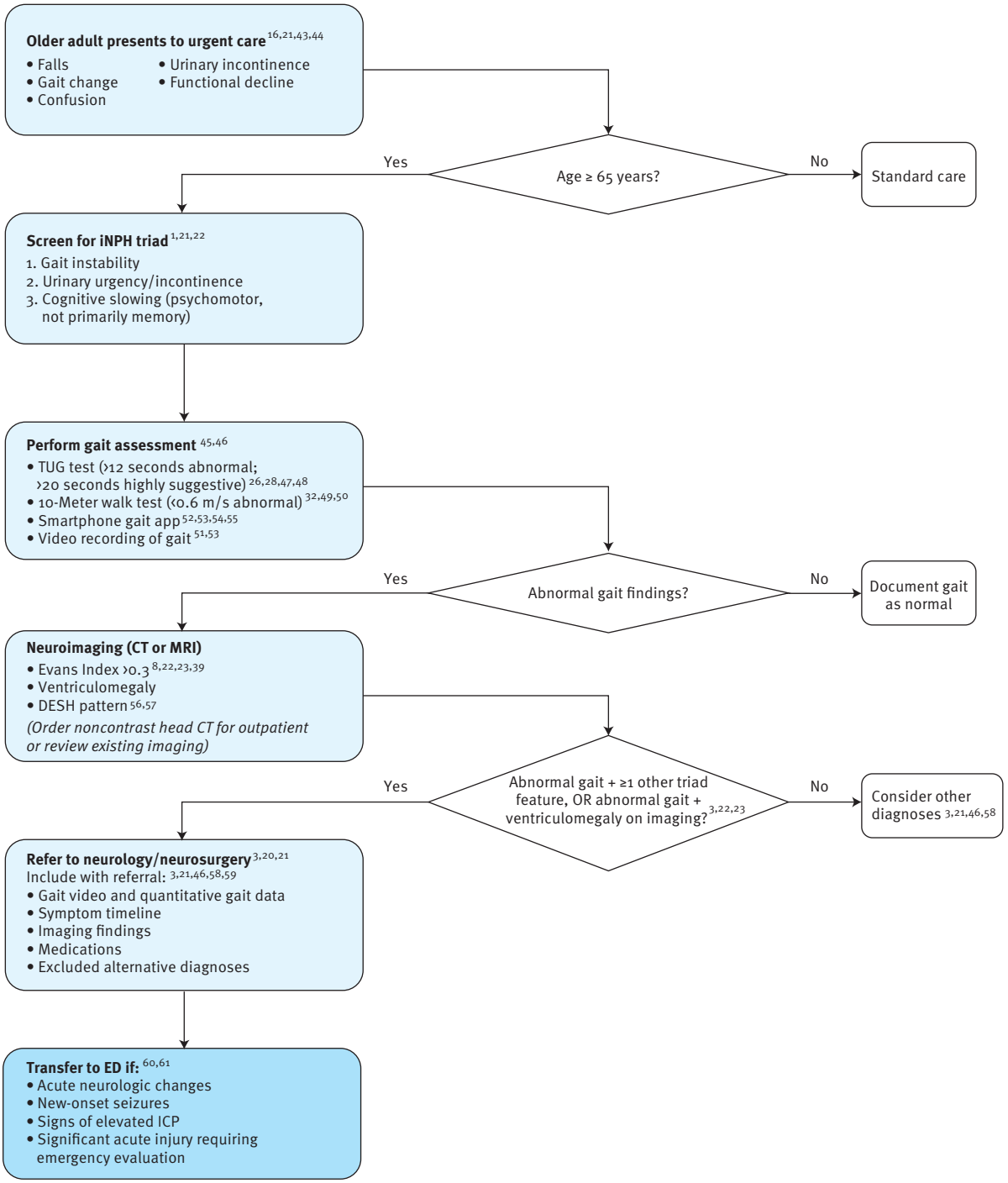
When quantitative tools are unavailable, observational gait analysis has value, and a brief smartphone video can capture the abnormality more faithfully than any written description while providing documentation a specialist can review.[25,33] Structured gait assessment also has value well beyond iNPH, contributing to fall-risk stratification, neurologic evaluation, and disposition decisions across a range of urgent care presentations.[37]

Evaluation and Diagnosis

One supportive investigation is neuroimaging, indicated once the history and gait examination raise suspicion of iNPH.[23] A noncontrast head computed tomography (CT) scan is widely accessible and reliably demonstrates the key finding: ventriculomegaly out of proportion to cortical atrophy. It is quantified by the Evans Index, the ratio of maximal frontal-horn width to maximal internal skull diameter, with values >0.3 indicating significant ventricular enlargement.[38] In older adults, that threshold is nonspecific as nearly one-third of healthy elderly exceed it.[39] As such, imaging supports rather than confirms the diagnosis, and CT findings must be interpreted alongside the clinical picture. MRI, which better characterizes the disproportionately enlarged subarachnoid-space hydrocephalus (DESH) pattern and excludes mimics, is generally obtained during specialist evaluation rather than at the urgent care visit.

Imaging may be warranted when a patient aged 65 years or older shows an abnormal gait, whether or not other triad features are present. Referral is indicated when an abnormal gait is accompanied by at least 1 other triad feature or when ventriculomegaly is found on imaging. Imaging need not precede referral, but when readily available, ordering a noncontrast head CT through outpatient channels accelerates the downstream assessment. In some cases, relevant imaging may already exist—obtained during a prior fall or headache evaluation. Reviewing those reports for mention of ventriculomegaly, hydrocephalus, or ventricular enlargement out of proportion to atrophy, and correlating such findings with the clinical picture, should prompt patient referral rather than dismissal of the complaint as an age-related change.

Figure 1. Urgent Care iNPH Screening Pathway



The pathway begins with the key presenting symptoms, followed by a brief gait assessment. If gait is abnormal, clinicians should order a noncontrast head CT or review existing head CT or MRI for ventriculomegaly (Evans Index >0.3) or a DESH pattern. Referral is indicated when the abnormal gait is accompanied by at least one other triad feature or by ventriculomegaly on imaging; transfer to the ED is indicated for acute neurologic change, new-onset seizures, signs of elevated ICP, or significant acute injury. iNPH = idiopathic normal pressure hydrocephalus; m/s = meters per second; TUG = Timed Up and Go; DESH = disproportionately enlarged subarachnoid-space hydrocephalus; ICP = intracranial pressure; ED = emergency department; CT = computed tomography; MRI = magnetic resonance imaging.

Management

The urgent care role in iNPH is to recognize the syndrome, document it, and refer—not to establish the definitive diagnosis or provide treatment. What makes timely referral worthwhile is the strength of the outcomes. Systematic reviews find that approximately 75% of appropriately selected patients improve meaningfully after shunt surgery.[19,40] A recent randomized trial supports gait-velocity gains beyond the threshold for functional benefit.[41] Delay also carries a survival cost. In a Swedish single-center cohort in which shunt surgery was postponed 6–24 months for administrative reasons, 4-year mortality was 39% among delayed patients vs 10% among those treated within 3 months (adjusted hazard ratio 2.6), an association that persisted after adjustment for confounders.[10]

An effective referral is specific. It should include:

- Quantified gait data (TUG time, gait speed) or a short video
- Symptom timeline with onset and progression
- Any neuroimaging findings, with the Evans Index if measurable
- Contributing medications
- Alternative diagnoses already considered and excluded

A neurologist is usually the appropriate initial referral, though a neurosurgeon may be preferred in some settings.[23] Structured, data-rich referrals are more readily accepted than vague consultation requests,[42] and they shorten the path to confirmatory steps performed during specialist workup.[4]

The message to the patient can be simple and honest: their walking pattern and associated symptoms may point to a condition—normal pressure hydrocephalus—that is sometimes treatable, and evaluation by a neurologist is the next step. The visit has identified a possibility worth pursuing, not a confirmed diagnosis.

Figure 1 summarizes the full recognition-to-referral pathway, including when to bypass outpatient referral for immediate transfer to the emergency department due to acute neurologic change, new-onset seizures, signs of elevated intracranial pressure, or a significant acute injury.

Takeaway Points

- When an older adult presents to urgent care with falls, unsteadiness, urinary incontinence, or confusion, the reflex to attribute each complaint to aging is precisely what causes clinicians to miss a potential iNPH diagnosis.
- Keeping the syndrome on the differential and spending the few minutes required for a structured gait assessment can be valuable.
- When an abnormal gait is paired with another triad feature or with ventriculomegaly on imaging, urgent care clinicians can redirect a patient toward specialized assessment and treatment that restores independence. ■

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Urgent Care Evaluation and Management of Acromioclavicular Separation

Urgent Message: Urgent care management of acromioclavicular joint separation consists of patient education on immobilization and pain management with consideration for emergency department referral when red flags are present.

Jerome Walsh, BS; Clinton Hartz, MD; Michael B. Weinstock, MD

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Keywords: acromioclavicular joint separation; ac joint injury; shoulder trauma; rockwood classification; shoulder injury; urgent care

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

Abstract

Acromioclavicular (AC) joint separation is a shoulder injury that involves the articulation between the acromion process of the scapula and the distal end of the clavicle. Separation occurs most frequently from direct trauma, such as a fall, often experienced while playing sports or cycling. As a result of this trauma, the acromioclavicular (AC) ligament and coracoclavicular (CC) ligament may become torn, resulting in joint instability.

Diagnosis is guided by a thorough history, physical examination, and plain radiograph films. The history likely identifies the mechanism of injury as well as other potential problems. Physical examination includes inspection and palpation of the AC joint to assess range of motion and strength and to identify potential neurovascular compromise. Plain films evaluate joint alignment and classify the injury according to the Rockwood classification system, which categorizes AC separations on a scale ranging from I-VI to determine the optimal treatment. Types I-II are treated conservatively, while IV-VI are treated surgically. Type III injuries are subject to provider and patient preference.

Urgent care management of AC separation should consist of patient education on recovery, immobilization, and pain management with acetaminophen and nonsteroidal anti-inflammatory medications. The provider must also rule out red flags, and if present, refer to the emergency department.

Questions for the Clinician at the Bedside

1. Which demographics are most likely to present with an acromioclavicular joint separation?
2. What is the name of the classification system for acromioclavicular joint injuries?
3. Which patients presenting with acromioclavicular joint separation should be referred to the emergency department?
4. When would a patient with a suspected acromioclavicular joint separation require surgery?

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Clinical Scenario

A 25-year-old male presented to urgent care for right-sided shoulder pain following a fall during an intramural soccer game earlier the same day. He reported sharp pain at the distal end of the clavicle that worsened with movement. He denied fever, vomiting, chest pain, shortness of breath, abdominal pain, and head trauma. On exam, the right shoulder was tender with palpation over the acromioclavicular (AC) joint, and he had full range of motion (ROM), despite feeling pain with articulatory motion. His lungs were clear to auscultation bilaterally. His heart had a regular rate and rhythm with no murmurs, gallops, or rubs. His neck had full range of motion with no pain on palpation and no swelling or discoloration.

Background and Epidemiology

Shoulder pain affects 5%–47% of adults.[1] In an epidemiologic analysis of emergency departments and athletes, shoulder injuries represented 4.35% of reported injuries.[2] Approximately 9% of shoulder injuries involve the AC joint.[3] The majority of AC injuries occur in individuals in their 20s and are 5 times more likely to happen to men than women. Nearly all of these injuries occur during contact sports such as hockey, soccer, American football, and high velocity/impact sports such as skiing/snowboarding or mountain biking.[4,5] A cohort study out of Oslo, Norway, found that among a patient population, 24% of AC injuries were due to soccer, 16% to cycling, 11% to martial arts, and 18% to skiing/snowboarding.[6]

Understanding the Anatomy

The shoulder joint is composed of 3 bones: the humerus; the scapula; and the clavicle. The insertion of the humerus into the glenoid cavity of the scapula is termed the glenohumeral joint (GH). The insertion of the clavicle onto a bony process of the scapula, termed the acromion, is known as the AC joint.

The acromion and clavicle are held together by the acromioclavicular and coracoclavicular ligaments. These provide horizontal and vertical stability, respectively. During shoulder injuries, adjacent structures may be damaged including:

- The axillary nerve, which supplies the deltoid and teres minor muscles
- The axillary artery, which helps supply the entire upper extremity
- The humeral head, which sits in the glenoid cavity and is stabilized by the muscles of the rotator cuff; the rotator cuff muscles are commonly termed "SITS," and include the supraspinatus, infraspinatus, teres minor, and subscapularis muscles[7]

History

An AC separation may occur from direct trauma, such as a mechanical fall, or a syncopal episode. The mechanism classically is a direct blow to the superior aspect of the joint with the arm adducted (at the patient's side) resulting in damage to the joint and surrounding ligaments.[1,4]

Obtaining a detailed history of the injury from the patient is vital in determining the management of the condition. It is important to determine the onset, mechanism, location of pain, and exacerbating and relieving factors. Assessment of neurovascular compromise includes inquiring about numbness and paresthesia.[4]

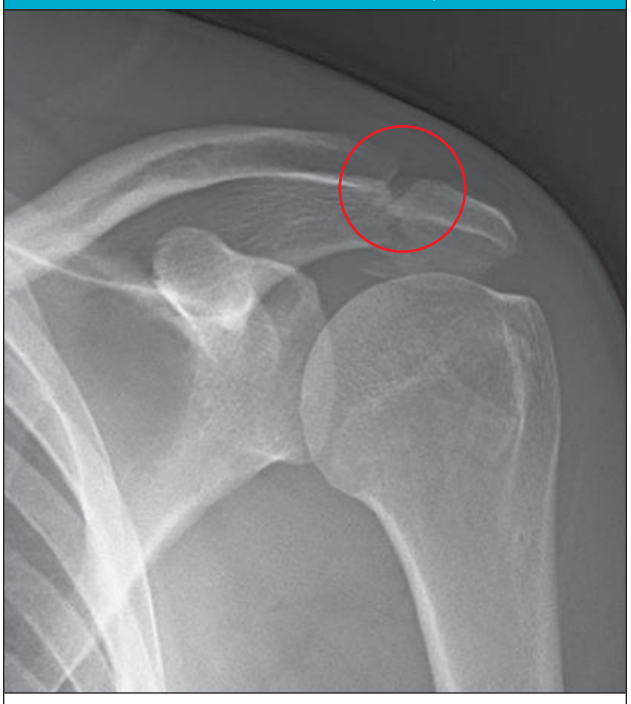
In the absence of a clear traumatic mechanism, a clinician should consider referred pain from cardiac or abdominal/diaphragmatic etiology and inquire about chest pain/discomfort, dyspnea, diaphoresis, fever, abdominal pain, or mental status changes.[8] In patients with risk factors for malignancy, targeted questions regarding history of cancer, unexplained weight loss, or other constitutional symptoms may be considered.[8] Additionally, a clinician should be encouraged to rule out arthritic and rheumatological causes of pain.[8]

Physical Examination

Examination may include inspection for visible deformities, erythema, swelling, ecchymosis, skin dimpling, and asymmetry of the shoulder girdle when compared to the contralateral side. Skin tenting may be present over the AC joint. Palpation typically reveals point tenderness at the AC joint and may demonstrate a palpable depression between acromion and humeral head indicating hyperlaxity of the glenohumeral joint, also known as an empty sulcus sign. Active and passive range of motion should be assessed, with attention to pain during shoulder abduction, adduction, flexion, extension, internal, and external rotation.

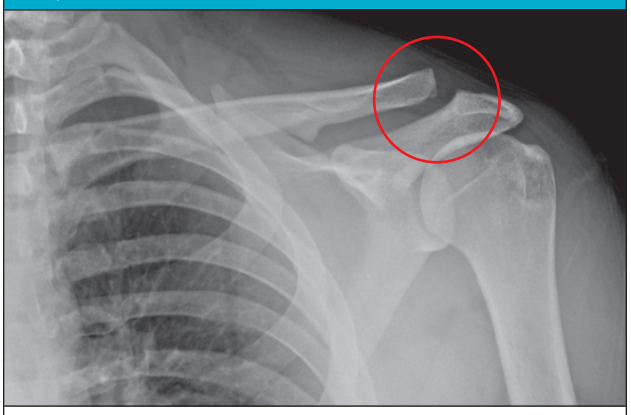
Examination may include the O'Brien test.[9] The O'Brien test is performed by flexing the shoulder to 90°, adducting it 10°–15°, and internally rotating the arm so the thumb points downward while the examiner applies a downward force to the forearm. The maneuver is then repeated with the arm in external rotation (thumb upward). If the patient feels pain with both external and internal rotation, it can indicate AC joint pathology. [9] A neurovascular examination should be performed including upper extremity distal pulses and sensation.[1,4] The resting position of the arm should be noted as patients with acromioclavicular joint separation often demonstrate protective posturing of the affected extremity.[4] Consideration of shoulder dislocation

Figure 2. Acromioclavicular Separation With Widening of Acromioclavicular Joint Space



X-ray indicating likely Rockwood type II acromioclavicular separation. Image courtesy of Experity Teleradiology.

Figure 3. Acromioclavicular Separation With Superior Displacement of Distal Clavicle Relative to Acromion



X-ray indicating likely Rockwood type II acromioclavicular separation. Image courtesy of Experity Teleradiology.

is also warranted; anterior dislocations present in abduction and external rotation, posterior dislocations in adduction and internal rotation, and inferior dislocations in abduction with the elbow flexed and hand behind the head.[1,10]

Diagnostic Testing

Radiography

The primary imaging modality for AC separation is a plain film x-ray including anteroposterior, Zanca, and axillary views of the affected shoulder. [1,4] Findings may include widening of the joint space **(Figures 2–3)** or displacement of the clavicle relative to the acromion. These findings are typically compared with the contralateral shoulder to more accurately assess the extent of the injury. [1,4]

The severity of the injury is commonly classified with the Rockwood classification system **(Table 1)**.[5]

Rockwood Classification and Its Limitations

Management of acromioclavicular joint injuries is guided by the Rockwood classification. Type I and II injuries are typically treated conservatively,[1,12] whereas management of type III injuries remains controversial and may involve either operative or nonoperative approaches. One study found that approximately 80% of patients with a type III injury have favorable outcomes with nonoperative treatment.[1,13] However, in a follow-up study, 18–20 years postinjury, patients with Rockwood type III injuries managed nonoperatively were found to have higher rates of bony prominence and joint instability than those treated surgically.[14] Surgical treatment may be appropriate in patients who require expedited return to high-demand activities such as athletes, military personnel, or manual laborers[1]. Type IV–VI injuries generally require surgical intervention.[15]

The Rockwood classification system remains the most widely used method for classifying AC joint injuries. However, alternative methods have been proposed such as the ISAKOS modified Rockwood classification and the circles measurement technique. The ISAKOS classification is used solely to further classify Rockwood type III injuries, breaking them down into 2 subtypes—type IIIA (stable) and IIIB (unstable)—to help address the controversy around management.[16] However, differentiating between the 2 subtypes does require additional imaging and follow-up limiting its clinical use in an urgent care setting. The circles measurement technique compares the center-to-center distance between 2 circles drawn at the lateral clavicle and anteromedial acromion on radiographic films, then measures this distance against the same measurement on the contralateral uninjured shoulder to generate a single value. This technique has been used to classify Rockwood types II-V and has demonstrated good reliability (intraclass correlation coefficient of 0.976). Given this reliability, the circles measurement may provide additional insight

Table 1. Rockwood Classification[5,11]

Type	AC Ligament	CC Ligament	AC Joint	Deltoid and Trapezius Muscles
I	Sprained	Intact	Normal alignment with tenderness over AC joint	Intact
II	Complete Tear	Sprained; interval widened <25%	Disrupted joint space widened in transverse plane	Partial detachment possible
III	Complete Tear	Complete tear; interval widened 25%–100%	Dislocated with clavicle displaced superiorly	Moderate likelihood of detachment from distal clavicle
IV	Complete Tear	Complete tear	Dislocated with clavicle displaced posteriorly	Severe likelihood of detachment from distal clavicle
V	Complete Tear	Complete tear; interval widened 100%–300%	Dislocated with clavicle displaced superiorly	Severe likelihood of detachment from distal clavicle
VI	Complete Tear	Intact with decreased or reversed interval	Dislocated with clavicle displaced inferiorly usually in the sub coracoid position	Intact, partial, or complete detachment from distal clavicle

AC = acromioclavicular; CC = coracoclavicular.

into managing Rockwood injuries and may help identify patients with a type III injury who would be a candidate for surgical intervention vs conservative treatment. Despite this technique's potential, it is not a mainstay in clinical practice.[17]

Advanced Modalities

If plain radiographs are inconclusive or there is concern for additional injury beyond the AC joint itself, clinicians may consider additional imaging from computed tomography (CT), ultrasound (US), or magnetic resonance imaging (MRI). US and MRI are effective at evaluating rotator cuff pathology including partial- or full-thickness tears of the rotator cuff tendons. In partial rotator cuff tears, MRI was found to be more sensitive than an ultrasound probe (74% vs 52%).[18] The American College of Radiology recommends the use of CT to identify scapular fractures that may have been missed on plain radiographs.[19]

Urgent Care Management

Management of AC joint separation in an urgent care setting is primarily focused on determining whether the injury can be managed conservatively or requires surgical intervention. Plain film radiographic imaging plays a large role in determining the severity of the injury with treatment recommendations stemming from the Rockwood criteria. [1,4]

Conservative Treatment

Conservative treatment can be both nonpharmacological and pharmacological depending on patient preference. Nonpharmacological methods include ice, activity modification, and temporary immobilization with a sling and swathe for comfort.[1,12] As symptoms improve, patients should begin gradual mobilization with progressive range-of-motion exercises to maintain function and facilitate recovery. Pharmacological management focuses on pain control and includes nonsteroidal anti-inflammatory medication and/or acetaminophen.[10]

Outpatient Referral

Most low-grade AC joint injuries have favorable outcomes with conservative management.[1] Patients who remain symptomatic after 7 days of nonoperative treatment may warrant further evaluation.[20] Injuries type III and higher warrant referral as they may require surgical intervention.

Indications for Referral to ED

If a patient presents with any of the following symptoms, consider referring them immediately to the nearest emergency department (ED):

- Severe pain that cannot be controlled by analgesics
- Hemodynamic instability
- Concern for open fracture, infection, or pneumothorax
- Neurovascular compromise
- Polytrauma

"Management of AC joint separation in an urgent care setting is primarily focused on determining whether the injury can be managed conservatively or requires surgical intervention."

Red Flags and Legal Pitfalls

- Document neurovascular status.
- Obtain multiple views of the shoulder to evaluate for shoulder dislocation.
- Include acute coronary syndrome, pulmonary embolism, pneumothorax, and aortic dissection on the differential if the patient's history, symptoms, risk factors, or mechanism of injury do not clearly support a musculoskeletal cause.
- Consider a posterior shoulder dislocation in patients whose mechanism of injury included falling onto a flexed and adducted arm, patients with seizure activity, and patients with a history of electrical shock or burn.

Clinical Scenario Conclusion

Plain radiographs at urgent care demonstrated AC joint separation consistent with a low-grade Rockwood type II injury. Given the absence of neurovascular compromise, polytrauma, or associated fracture, the injury was managed conservatively. The patient was placed in a sling and swathe and told to advance movement as tolerated. Acetaminophen and ibuprofen were recommended for pain control.

Takeaway Points

- Low-grade AC injuries diagnosed as Rockwood type I and II are managed conservatively. High-grade AC injuries diagnosed as Rockwood type IV-VI are treated surgically.
- Rockwood type III injuries are initially treated conservatively but may be considered for surgical treatment on a case-by-case basis.
- If symptoms persist for longer than 7 days, the patient may be a candidate for further evaluation. ■

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UCC27 GUEST KEYNOTE

Mike Varshavski, popularly know as internet personality, Doctor Mike, is a practicing board-certified family medicine physician and the most followed doctor on social media Doctor Mike creates videos debunking medical misinformation to an audience of over 30 million across platforms including YouTube and Instagram. His podcast, *The Checkup with Doctor Mike*, welcomes the biggest names in healthcare and pop culture, from Vice President Kamala Harris to Emmy-winner Noah Wyle. Doctor Mike lives in New York with his two Newfoundland dogs and indulges his hobby as a Ferrari racecar driver.

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Psychogenic Nonepileptic Seizures in the Urgent Care Setting: A Case Report

Urgent Message: Accurately identifying psychogenic nonepileptic seizures in the acute care setting helps avoid dangerous and costly medical interventions, such as aggressive antiepileptic drug treatment.

Jacob Welch, OMS-4; Logan Hurm, OMS-4; Akul Mitra, OMS-4; Cameron Shoemaker, PGY-2; Michael B. Weinstock, MD

Citation: Welch J, Hurm L, Mitra A, Shoemaker C, Weinstock MB. Psychogenic Nonepileptic Seizures in the Urgent Care Setting: A Case Report. *J Urgent Care Med*. 2026;21(2):25-29

Keywords: psychogenic nonepileptic seizures; functional seizure; functional neurological disorder

Abstract

Introduction: Psychogenic nonepileptic seizures (PNES) mimic epilepsy but lack epileptiform electrical brain activity. In the urgent care setting, prioritizing rapid stabilization often leads to a "treat first" mentality. This pressure increases the risk of iatrogenic harm from unnecessary and dangerous interventions.

Case Presentation: A 48-year-old female presented to urgent care with upper respiratory symptoms and experienced a 2-minute episode of unresponsiveness with generalized shaking. Bedside assessment revealed stable vital signs, normal blood glucose, no lateral tongue biting or urinary incontinence, and a rapid return to baseline cognition. The patient's husband identified the event as her known "pseudoseizures" triggered by stress or illness. Due to a lack of comprehensive medical records and monitoring capabilities, the clinic initiated a nonemergent transfer to the emergency department (ED).

Diagnosis: At the ED, an electronic medical record (EMR) chart review revealed a well-documented history of anxiety, depression, and functional neurological symptom disorder. A previous continuous video-electroencephalogram (EEG) monitoring admission had captured typical shaking events without correlating EEG changes, confirming the definitive diagnosis of PNES.



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Case Resolution: Given the confirmed diagnosis, the patient was safely discharged with supportive care, avoiding unnecessary neurological or pharmacological interventions.

Conclusion: This case illustrates the importance of utilizing clinical bedside indicators to support suspicion of PNES. Accessing comprehensive EMRs and establishing unified care plans are essential to correctly identify functional neurological disorders and prevent iatrogenic harm in acute care settings.

Introduction

Paroxysmal seizure-like activity may present diagnostic and management challenges in the urgent care (UC). Epileptic seizures result from abnormal hypersynchronous neuronal activity. A single unprovoked seizure or an acute symptomatic seizure does not, by itself, establish a diagnosis of epilepsy.[1,2] A significant subset of presentations include psychogenic nonepileptic seizures (PNES).

PNES is a functional neurological disorder characterized by sudden changes in behavior, motor function, or sensation that mimic epilepsy but lack accompanying epileptiform electroencephalogram (EEG) discharges.[3] The terminology surrounding this condition has evolved over time; while previously labeled with terms such as "pseudoseizures," modern literature strongly advocates for the use of "functional seizures" or "dissociative seizures" to reduce patient stigma and improve the therapeutic alliance.[4]

Identifying PNES in the acute UC setting may be inherently difficult, but identification is essential to coordinate proper psychiatric care and avoid iatrogenic harm.[3] The urgent care environment introduces unique barriers, especially the potential lack of immediate access to a patient's complete neurological history, prior diagnostic results, or collateral psychiatric records. Furthermore, care in the UC prioritizes rapid stabilization of the airway, breathing, and circulation, alongside the exclusion of immediate life-threatening conditions like status epilepticus.[5,6] This prioritization may lead to a "treat first" mentality, significantly increasing the risk of iatrogenic harm from unnecessary medical interventions.[7]

Case Presentation

History of Present Illness

A 48-year-old female presented to a UC facility complaining of a 3-day history of a productive cough, nasal congestion, and subjective fevers. While undergoing initial intake in the examination room, the patient suddenly became unresponsive and fell back against the examination table. She exhibited generalized shaking of all 4 extremities. The episode lasted approximately 2 minutes. The UC staff immediately prepared to call 911 to initiate an emergency transfer. However, the patient's husband intervened, requesting that the staff halt the ambulance call. He stated that these were his wife's known "pseudoseizures" and that she has them when she is stressed or sick. He initially declined the transfer.

Initial Assessment

A rapid bedside assessment revealed stable vital signs: blood pressure of 118/76 mmHg; heart rate of 88 beats per minute; respiratory rate of 16 breaths per minute; and oxygen saturation of 99% on room air. Point-of-care capillary blood glucose was 94 mg/dL. Physical examination during and immediately after the event revealed an absence of lateral tongue biting or urinary incontinence. The patient returned to her baseline cognitive status within 3 minutes, exhibiting no prolonged postictal confusion.

Medical Decision Making, Differential Diagnosis

The primary objective in evaluating a convulsive episode is stabilizing the airway, breathing, and circulation while considering immediate life-threatening etiologies.[5] The differential diagnosis in the UC setting is broad and was systematically evaluated as follows.

- **Hypoglycemia:** A common metabolic cause of altered mental status and seizure-like activity. This was rapidly ruled out via normal point-of-care fingerstick testing.[5]
- **Alcohol withdrawal:** Sudden cessation or reduction of chronic alcohol intake can provoke generalized withdrawal seizures, typically occurring 7–48 hours from the last drink.[5] This etiology was considered less likely given the patient's stable vital signs, absence of other signs of autonomic instability, and collateral history provided by the husband.
- **Epileptic seizure/status epilepticus:** This remains a primary and severe concern for any generalized shaking event as status epilepticus carries a high mortality rate and requires emergent pharmacological intervention.[6,7] Given the presentation, true epileptic seizure was considered but unlikely.
- **Syncope or arrhythmia:** Convulsive syncope secondary to a vasovagal response or underlying cardiac arrhythmias can closely mimic convulsive seizures. Patients may exhibit brief myoclonic jerks due to transient cerebral hypoperfusion.[8]
- **Psychogenic nonepileptic seizure:** PNES was strongly suspected based on the husband's collateral history,

the context of acute illness acting as a stressor, clinical examination findings, and the patient's rapid bedside recovery without a postictal state.[9]

- **Other:** Medication-induced seizures from lowered seizure thresholds (ie, new prescriptions for bupropion, tricyclic antidepressants, or tramadol),[10,11] intracranial pathology presenting with severe headaches or focal neurologic signs, or underlying malignancy presenting with unexplained weight loss.[5] Seizures can be the initial manifestation of a brain tumor, making it a critical consideration in new-onset adult seizures.[12]

Disposition

Managing a generalized convulsive event in the UC setting without immediate access to advanced resources may require a conservative approach. However, the patient in this case maintained stable vital signs and rapidly returned to her baseline cognitive status without prolonged confusion. Therefore, the decision was made that an emergent 911 response was no longer clinically indicated. Through shared decision-making, the family agreed to a nonemergent transfer via basic life support (BLS) transport. This balanced the patient's immediate clinical stability with the need for a higher level of care, as the UC lacked the prolonged monitoring capabilities, laboratory assessments, and neuroimaging needed to further evaluate for potentially serious alternative causes. The patient was therefore transferred to the local emergency department (ED) for continued evaluation and observation.

Arrival at the ED

The patient arrived at the ED hemodynamically stable with no recurrent paroxysmal events during transit.

Past Medical History and Chart Review

Because the ED was integrated into the broader regional health system, the attending physician was able to access the patient's comprehensive EMR which revealed a well-documented history of anxiety, depression, and functional neurological symptom disorder. The records detailed a thorough neurological workup completed 6 months prior at a specialized epilepsy center. During a 3-day admission for continuous video-EEG monitoring, the patient had multiple typical shaking events captured on video without any correlating EEG changes, confirming the diagnosis of PNES.[3,9,13]

Resolution

Given the identified EMR data, the patient was safely discharged with supportive care instructions.

"Managing a generalized convulsive event in the UC setting without immediate access to advanced resources may require a conservative approach."

Discussion

Epidemiology

PNES represents a widespread diagnostic challenge across medical disciplines. The incidence of PNES is approximately 1.5–3.0 per 100,000 annually.[14] While general unprovoked seizures have a broad population incidence, PNES is highly prevalent in neurological settings, representing up to 30% of cases seen in specialized epilepsy centers.[14,15] Demographic trends show a strong female predominance, with symptom onset typically occurring in the late teens to early 30s.[14] Recent population-based cohort studies highlight that the overall burden of PNES is severe; patients face a premature mortality rate up to 2.5 times higher than the general population, largely driven by comorbid psychiatric conditions and suicide.[16]

History

The etiology of PNES is best understood through an integrative biopsychosocial framework.[17] Patients with PNES exhibit multidimensional psychopathological traits and baseline cognitive features that differ significantly from patients with strictly epileptic disorders, characterized by high rates of dissociation, childhood trauma, and depression.[18] When gathering a patient history, clinicians should look for classic historical risk factors including a history of significant psychological trauma, physical or sexual abuse, and severe psychiatric comorbidities (ie, post-traumatic stress disorder, major depressive disorder, anxiety disorders, and borderline personality disorder).[19] Qualitative research indicates that the lived experience of PNES is uniquely burdensome, with patients reporting profound frustration with medical interactions, feelings of marginalization, and a heavily impacted quality of life.[20]

Physical Exam

Although definitive diagnosis relies on specialized testing, UC providers can use physical exam details to aid in the

differentiation of PNES from epilepsy at the bedside. Meta-analyses highlight key differentiating factors more frequently present in PNES, such as forced eye closure, asynchronous limb movements, side-to-side head shaking, weeping, and pelvic thrusting, with forced eye closure and asynchronous limb movements being the most predictive.[21] Severe lateral tongue biting and profound cyanosis are also generally absent in functional seizures.[9] While these features can aid in identifying PNES, no single physical exam finding is exclusive to either PNES or true epilepsy; therefore, clinical observation alone cannot establish a definitive diagnosis.[21] Furthermore, functional events frequently have a longer overall ictal duration but notably lack the prolonged, lethargic postictal confusion characteristic of true epilepsy.[9]

Testing

While computed tomography (CT) and magnetic resonance imaging (MRI) are heavily utilized in the acute setting to rule out structural pathology, they cannot diagnose functional seizures. Standardized structural MRI protocols remain essential solely for unveiling epileptogenic lesions in true epilepsy.[22] Serum biomarkers, such as prolactin, have been studied but often lack the reliability and specificity to act as standalone bedside diagnostic tools.[23]

Video-EEG remains the undisputed gold standard for definitively diagnosing PNES by capturing the clinical event in the absence of epileptiform electrical brain activity.[3,9,13] Additionally, research into combined automated physiological classifications using both EEG and electrocardiography (ECG) shows promise for future diagnostic pathways.[24]

Management

Acute*:* A primary PNES treatment goal in acute care is to avoid iatrogenic harm. Misdiagnosing prolonged PNES as status epilepticus frequently leads to dangerous and costly interventions.[6] With an established diagnosis of PNES, clinicians should avoid unnecessary endotracheal intubation, repeated radiation exposure from unnecessary imaging, and the administration of potent antiepileptic drugs, which carry their own severe side effect profiles and do not treat the underlying functional disorder.[6,7]

Chronic*:* Long-term management of PNES necessitates a multidisciplinary approach bridging neurology, psychology, and psychiatry.[3] Treatment is primarily centered on specific psychological interventions, notably cognitive behavioral therapy (CBT), which meta-analyses have shown to be effective in reducing seizure frequency, particularly in the setting of additional psychiatric comorbidities.[3] CBT is often coupled with targeted medication management for any underlying psychiatric conditions. Providers should also address lifestyle and safety limitations, utilizing established clinical guidelines to govern motor vehicle driving restrictions for patients with functional seizures.[25] Crucially, establishing a clear, unified care plan in the EMR is important to safely manage future ED and UC presentations. Detailed medical documentation allows acute care providers to recognize the established diagnosis, provide reassurance, and break the cycle of acute overtreatment.

Ethics Statement

The patient was lost to follow-up and was unable to be contacted, and therefore demographics and some details of the case were changed to protect patient anonymity and confidentiality.

Takeaway Points

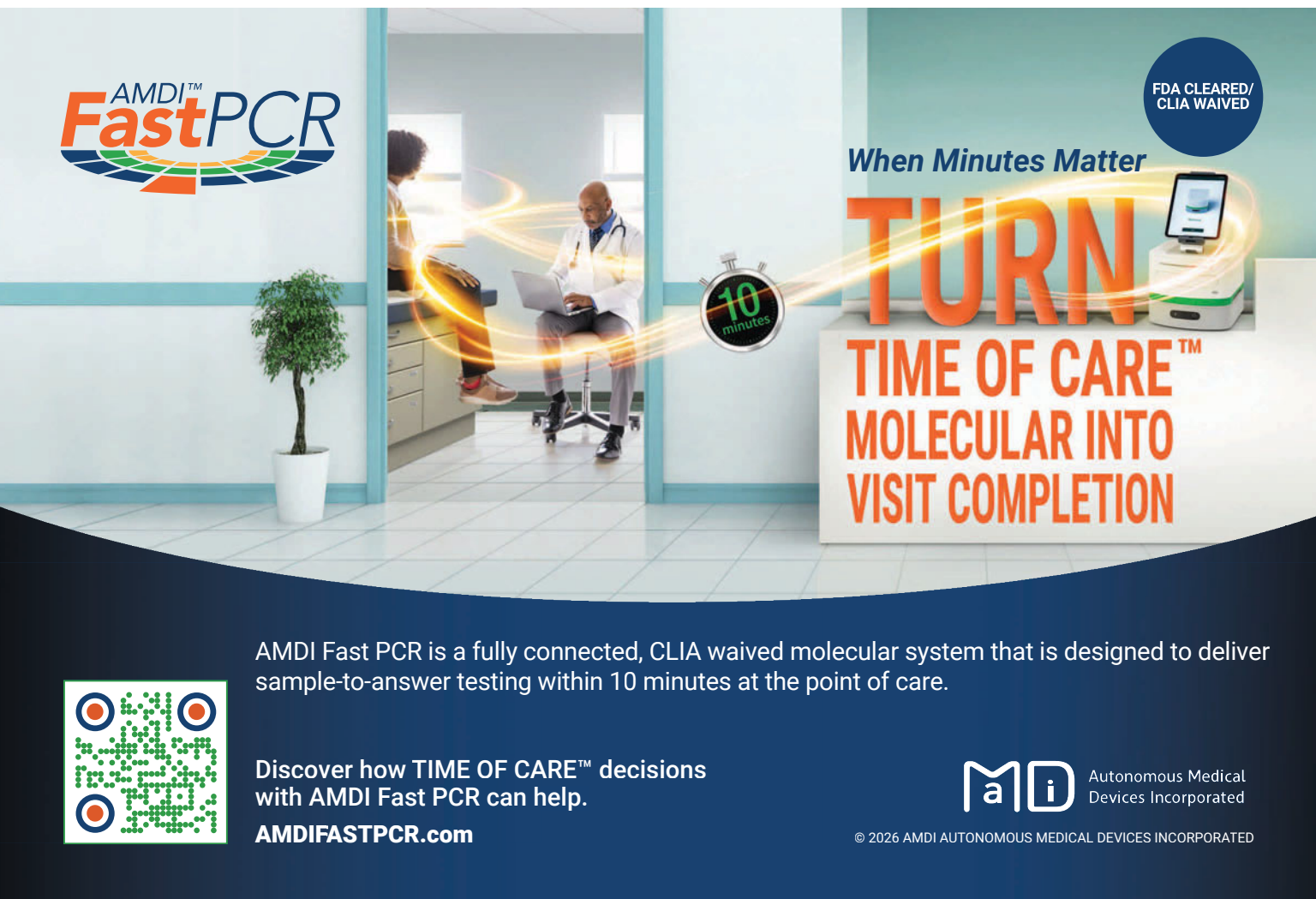
- **Exam Findings:** Key differentiating factors at the bedside (ie, forced eye closure, lack of incontinence, cyanosis, or tongue biting, asynchronous limb movements, and an immediate return to baseline cognition) help aid clinicians in suspecting PNES over epileptic seizures.[9]
- **The Value of Chart Review:** The EMR is a powerful diagnostic resource; accessing a history of extensive neurological testing (specifically prior video-EEG results) can rapidly identify an established diagnosis and alter the trajectory of acute care.
- **Avoid Iatrogenic Harm:** Accurately identifying PNES in the acute setting prevents dangerous and costly medical interventions, such as aggressive antiepileptic drug treatment.
- **Care Coordination:** Establishing a clear, unified care plan in the EMR helps bridge the gap between acute urgent and emergent care and long-term, multidisciplinary psychiatric management. ■

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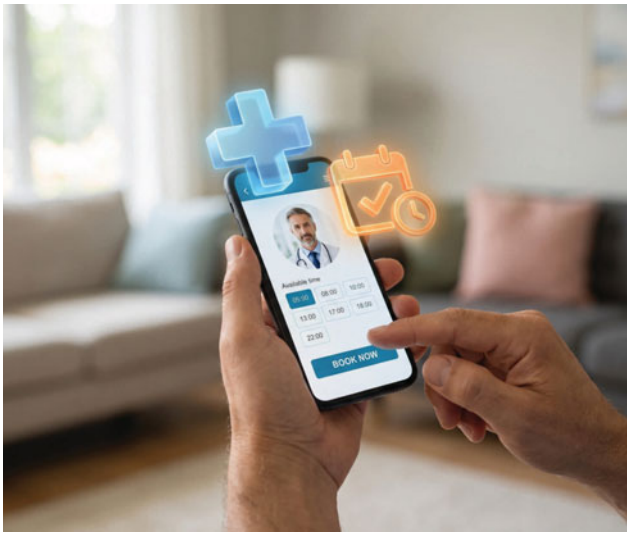
Factors Associated With the Use of an Online Appointment Tool in Urgent Care Centers

Urgent Message: Significant differences in the use of an online appointment tool based on age, race, insurance type, and urgent care setting underline the need for targeted strategies to address differences in adoption across patient groups.

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Keywords: online appointment scheduling; pediatric urgent care; virtual queueing; digital health; healthcare access; health disparities



Abstract

Aim: To keep up with increases in pediatric visits to urgent care (UC) centers, we used an online appointment tool called "Save my Spot" (SMS). The study objective was to examine the frequency of overall use of SMS to schedule UC visits and identify differences in use by sociodemographic characteristics and by UC setting locations.

Design/Method: We performed a retrospective analysis of pediatric UC visits to evaluate factors associated with use of the SMS virtual queueing feature using descriptive statistics, bivariate tests, and univariate logistic regression.

Results: Overall, 12,644/17,075 (74%) linked UC visits used SMS. In univariate logistic regression, visits involving younger children (0–2 years) had lower odds of SMS use compared with visits involving older children (3–17 years) (odds ratio [OR]=0.81; 95% confidence interval [CI]: 0.75–0.87; p<0.0001). Visits involving White patients had higher odds of SMS use compared

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with patients of other races (OR=1.72; 95% CI: 1.60–1.85; p<0.0001). Visits involving patients with public insurance had lower odds of SMS use compared with patients with all other insurance types (OR=0.56; 95% CI: 0.52–0.60; p<0.0001). SMS use also varied by UC setting, with the urban site having lower odds of SMS use compared with suburban sites (OR=0.51; 95% CI: 0.47–0.55; p<0.0001).

Conclusions: The results demonstrate significant differences between SMS tool use by age, race, insurance type, and UC setting, underlining the need for targeted strategies to address these disparities and enhance the SMS tool adoption across diverse patient demographic groups.

Introduction

Urgent care (UC) centers provide healthcare on a walk-in, no-appointment basis for acute illnesses or injuries that are not medical emergencies.[1] UCs may have advantages over emergency departments (ED) including lower visit costs, shorter wait times, and convenient locations.[1,2] These and other factors have increased the demand for UCs and associated services.[3] Consequently, the number of UCs in the United States has increased from 8,676 in 2016 to almost 15,000 in 2024 with the highest rates of growth in suburban regions.[1,4]

Although UCs are often created to address the demand for prompt care, UCs can experience flow issues and long wait times when patients arrive at the same time (eg, when the UC first opens for the day) or during times when there is a high prevalence of infectious illnesses (eg, during influenza season) or other illnesses in the community.[5] To decrease wait times and improve the efficiency of care in UCs, some UCs have developed or adapted online appointment tools designed to help patients and families schedule appointments for in-person UC visits.[6] However, the use of these tools requires that families have online access to these systems and the necessary level of healthcare information technology literacy required to navigate these systems.

Although online appointments are designed to benefit patients, they may also increase the digital divide in healthcare seen among certain patient groups including minorities, those with public insurance, those with lower educational levels, and those living in certain settings.[7-9] These same individuals may especially benefit from the use of pediatric UCs instead of EDs for their children's minor illnesses as individuals from these sociodemographic subgroups often have higher rates of ED utilization if their children do not have a regular pediatric primary care provider, if they have less stable insurance, or if they have financial insecurity.[10,11] However, the parent/guardian use patterns of online pediatric UC visit appointment scheduling among individuals with differing sociodemographic backgrounds are unknown. Such information could be used to provide education to these groups about the availability of convenient access to care to meet their children's urgent healthcare needs.

To bridge this gap, we examined the use of "Save My Spot" (SMS), an online UC appointment system used to improve the flow and decrease wait times in 5 UCs that were part of a tertiary care children's hospital. The primary study objectives were to examine and compare the frequency of use and nonuse of SMS overall, by sociodemographic characteristics of patients, and by UC center locations. The primary hypothesis was that overall use of SMS would be lower among racial minorities, among those who had public insurance, and in UC sites that were in urban regions compared to those in suburban regions.

Methods

Study Design and Setting

This study was part of a larger mixed-methods study involving a secondary data analysis of electronic medical records (EMR). It included 0-17-year-old patients who had UC visits at 1 of 5 UC sites at a large midwestern Children's Hospital, which has approximately 70,000 total annual UC visits. The location, setting (urban or suburban), and times of operation are: 1) main base hospital—urban location, open daily from 9 AM–12 AM; 2) satellite—suburban location, open daily 12 PM–11 PM; 3) 3 stand-alone UC sites in suburban locations, open Monday–Friday 6 PM–11 PM and Saturday and Sunday 12 PM–7 PM.

Save My Spot Online Appointment Tool System

To improve flow and decrease wait times and crowding, SMS was introduced in 2018 and is described in detail elsewhere.[12] Briefly, SMS is an app-based or webpage-enabled application that allows parents to view and select their preferred UC time as soon as that UC opens. A programmed algorithm based on the number of patients already being seen and available staffing dynamically adjusts the available appointment times that patients can select.

Inclusion and Exclusion Criteria and EMR Review

Data for this secondary analysis was obtained in 2 steps.

First, we identified all urgent care (UC) encounters among patients aged 0–17 years across 5 UC sites between January 1 and December 31, 2022. Second, encounters were included in the final analytic dataset only if the Epic EMR encounter could be reliably linked to a corresponding record in the SMS scheduling tool.

Epic EMR data and SMS scheduling data for 2022 were extracted, standardized (eg, name and date formatting), and deduplicated prior to linkage. Probabilistic record linkage was then performed using identifiers available in both systems. The probabilistic linkage variables were first name, last name, date of birth, and visit date; an additional unique identifier was incorporated as a comparison field when available but was not required. These variables were used to generate candidate Epic–SMS pairs and compute posterior match probabilities.

Record linkage was conducted in Splink (DuckDB backend) using "link-only" mode. To limit the number of candidate Epic–SMS pairs evaluated, we applied blocking rules requiring exact agreement on first name and allowing small differences in last name (Levenshtein distance ≤1). Comparison functions were specified for each linkage variable, including fuzzy string comparisons for names (Levenshtein distance ≤2), near-exact agreement for date of birth (distance ≤1), and approximate agreement for visit dates. High-confidence deterministic matches (exact agreement on first name, last name, date of birth, and visit date) were used to initialize m and u probabilities, after which Splink's expectation–maximization algorithm was used to refine parameter estimates and compute posterior match probabilities.

Final match predictions were generated using a posterior probability threshold of 0.6 and exported to a timestamped CSV file. To ensure accurate patient-level linkage for analysis, we applied a post-linkage verification step and retained only matched pairs with exact agreement on 4 required fields: first name, last name, date of birth, and sex (Sex was used for verification because it was reliably available in the Epic EMR and provides an additional safeguard against false matches). Matched pairs that did not meet this 4-field verification requirement were excluded. The resulting linked dataset represented unique patient encounters.

For all included encounters, sociodemographic and setting variables were extracted from the Epic EMR, including age (calculated at the time of visit), sex, race, insurance type, UC setting, and whether SMS was used (yes/no). Insurance type was collapsed into 3 categories: public (eg, Medicaid, Medicare, other state/federal programs), commercial (eg, employer-sponsored or individual private plans), and self-pay (uninsured/out-of-pocket). Visit setting was consolidated into urban (main base hospital UC) vs suburban (all other locations). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were followed.[13] The study protocol was approved by the hospital institutional review board (IRB# 2023-0143); a waiver of informed consent was granted.

Statistical Analysis

Descriptive and inferential analyses were conducted to examine factors associated with use of the SMS tool. Continuous variables (eg, patient age) were summarized using means and standard deviations and compared between SMS users and non-users using 2-sample t-tests. Categorical variables were summarized using counts and percentages and compared using chi-square tests of independence or Fisher's exact tests, as appropriate. Associations between patient and setting characteristics and SMS use were quantified using univariate logistic regression models, reporting odds ratios (ORs) with 95% confidence intervals (CI), with SMS use (yes/no) as the dependent variable. For regression analyses, categorical predictors were collapsed into a limited number of clinically meaningful groups to facilitate interpretation and maintain consistent contrasts across models. For example, insurance type was coded as public (eg, Medicaid) versus all other insurance types (commercial and self-pay). All statistical tests were 2-sided with statistical significance defined as $p<0.05$. Analyses were conducted in Python. We also note this as a limitation, as collapsing categories may mask heterogeneity within the all-other-insurance group.

Results

Table 1 shows the number and percentage of encounters with and without use of SMS by child sociodemographic characteristics and UC setting. In total, 17,075 UC encounters were successfully linked between the Epic EMR and SMS datasets (analytic sample); of these, 12,644 (74%) used SMS and 4,431 (26%) did not. Encounters not included in the analytic sample primarily reflect visits that could not be linked across datasets due to missing or inconsistent linkage fields (eg, name, date of birth, or visit date) or visits with no corresponding SMS record. In **Table 1**, patient sex was not meaningfully associated with SMS use when examined as the proportion of each sex using SMS: 74.06% of female patients used SMS (6,118/8,261) compared with 74.05% of male patients (6,526/8,814). This is consistent with the univariate logistic regression results showing no as-

Table 1. Sociodemographic and Setting Characteristics of Patient Encounters With and Without Save My Spot (SMS) Use

Patient Characteristics	Overall N (%)	Used SMS N (%)	Did Not Use SMS N (%)	P-value*
Patient Sex				
Female	8,261 (48.38%)	6,118 (74.06%)	2,143 (25.94%)	**0.99**
Male	8,814 (51.62%)	6,526 (74.05%)	2,288 (25.95%)	
Patient Age Groups (years)				
0-2	5,243 (30.71%)	3,734 (71.22%)	1,509 (28.78%)	**< 0.0001**
3-5	3,722 (21.80%)	2,794 (75.07%)	928 (24.93%)	**< 0.0001**
6-8	2,680 (15.70%)	2,015 (75.19%)	665 (24.81%)	**< 0.0001**
9-11	2,114 (12.38%)	1,607 (76.02%)	507 (23.98%)	**< 0.0001**
12-14	1,834 (10.74%)	1,405 (76.61%)	429 (23.39%)	**< 0.0001**
15-17	1,482 (8.68%)	1,089 (73.48%)	393 (26.52%)	**< 0.0001**
Patient Race				
American Indian and Alaska Native	32 (0.19%)	23 (71.88%)	9 (28.12%)	**0.04**
Asian	670 (3.92%)	536 (80.00%)	134 (20.00%)	**< 0.0001**
Black or African American	3,246 (19.01%)	2,029 (62.51%)	1,217 (37.49%)	**<0.0001**
Middle Eastern	63 (0.37%)	45 (71.43%)	18 (28.57%)	**0.0014**
Mixed Race	769 (4.50%)	572 (74.38%)	197 (25.62%)	**<0.0001**
Native Hawaiian and Other Pacific Islander	18 (0.11%)	10 (55.56%)	8 (44.44%)	1.00
Not Recorded	541 (3.17%)	342 (63.22%)	199 (36.78%)	**<0.0001**
White	11,736 (68.73%)	9,087 (77.42%)	2,649 (22.58%)	**<0.0001**
Patient Insurance				
Public (eg, Medicaid)	7,148 (41.86%)	4,819 (67.42%)	2,329 (32.58%)	**<0.0001**
All other	9,927 (58.14%)	7,825 (78.82%)	2,102 (21.18%)	**<0.0001**
Urgent Care Setting				
Main Urban Hospital	4,656 (27.27%)	2,978 (63.97%)	1,678 (36.03%)	**<0.0001**
Suburban Hospital	5,331 (31.22%)	4,337 (81.35%)	994 (18.65%)	**<0.0001**
Suburban Urgent Care 1	2,234 (13.08%)	2,014 (90.15%)	220 (9.85%)	**<0.0001**
Suburban Urgent Care 2	1,987 (11.64%)	1,846 (92.90%)	141 (7.10%)	**<0.0001**
Suburban Urgent Care 3	2,867 (16.79%)	1,469 (51.24%)	1,398 (48.76%)	0.18

** Bold faced print signifies p<0.05*

sociation between patient sex and SMS use (OR=1.00; 95% CI: 0.93–1.07; p=0.99). Examining patient age, the average age was 6.23 years, with children in the SMS parental users group being slightly older on average (6.32 years) compared to nonusers (5.96 years). Parents of younger children (aged 0–2 years) had lower SMS use than parents of children aged 3–17 years. SMS use differed by patient race; in the regression analysis, visits involving White patients had higher odds of SMS use than visits involving patients of other races. Furthermore, we observed differences in SMS use by insurance: the proportion of encounters using SMS was lower among those with public insurance (67.42%) than among those with all other insurance types (78.82%) (**Table 1**; p<0.0001). Lastly, use of SMS varied notably by UC setting with higher use among patients at suburban sites (except for 1 site) compared to the urban, main hospital UC.

Table 2. The Results of Univariate Logistic Regression Showing Variables Associated With Use of Save My Spot (SMS)

Characteristic	Used SMS N (%)	Did Not Use SMS N (%)	Odds Ratio (95% Confidence Interval)	P-value*
Patient Sex Female vs Male	6,118 (35.8%) 6,526 (38.2%)	2,143 (12.6%) 2,288 (13.4%)	1.00 (0.93–1.07)	0.99
Patient Age Group Age 0-2 vs 3-17 years	3,734 (21.9%) 8,910 (52.2%)	1,509 (8.8%) 2,922 (17.1%)	0.81 (0.75–0.87)	**<0.0001**
Patient Race White vs Others	9,087 (53.2%) 3,557 (20.8%)	2,649 (15.5%) 1,782 (10.4%)	1.72 (1.60–1.85)	**<0.0001**
Patient Insurance Public vs All Other Insurance	4,819 (28.2%) 7,825 (45.8%)	2,329 (13.6%) 2,102 (12.3%)	0.56 (0.52–0.60)	**<0.0001**
Urgent Care Site Main Urban Hospital vs 4 Suburban Urgent Care sites	2,978 (17.4%) 9,666 (56.6%)	1,678 (9.8%) 2,753 (16.1%)	0.51 (0.47–0.55)	**<0.0001**

** Bold faced print signifies p<0.05 Note: Odds ratios and 95% confidence intervals are from univariate logistic regression models with SMS use (yes/no) as the outcome. Predictors were coded as follows: sex=female vs male; age=0–2 vs 3–17 years; race=White vs all other race categories; insurance=public (eg, Medicaid) vs all other insurance types (commercial and self-pay); and urgent care site=main urban hospital vs the 4 suburban sites (suburban hospital and suburban urgent care #1–#3). Two-sided p-values are shown.*

Table 2 presents the association between various patient characteristics and the use of SMS, emphasizing the OR with 95% CI and p-values. For patient sex, there was no significant difference in SMS use between encounters involving female and male patients. Although the bivariate comparison showed a small difference in SMS use by patient sex, patient sex was not associated with SMS use in univariate logistic regression (OR=1.00; 95% CI: 0.93–1.07; p=0.99). When examining patient age, parents of younger children (0-2 years) were significantly less likely to use SMS compared to parents of older children and teenagers (3–17 years), with an OR of 0.81 (95% CI: 0.75–0.87; p<0.0001). Regarding patient race, parents of White patients were more likely to use SMS compared to parents of patients from other racial backgrounds (OR=1.72; 95% CI: 1.60–1.85; p<0.0001). For patient insurance type, parents whose children had public insurance (eg, Medicaid) had lower odds of using SMS compared to parents of children with other types of insurance (OR=0.56; 95% CI: 0.52–0.60; p<0.0001). Concerning UC setting, parents of patients visiting the urban site had significantly lower odds of using SMS compared to those at the suburban sites (OR=0.51; 95% CI: 0.47–0.55; p<0.0001).

Discussion

This study found sociodemographic and urban vs suburban setting differences in SMS use across pediatric UC visits. Because SMS is used by a parent/guardian but our dataset contained patient- and visit-level characteristics (not parent/guardian demographics), the associations reported here should be interpreted as differences in SMS use by patient characteristics. SMS use was higher for visits involving children aged 3–17 years compared with 0–2 years (OR, 0.81; 95% CI, 0.75–0.87, for 0–2 vs 3–17 years) and higher for White patients compared with non-White patients (OR, 1.72; 95% CI, 1.60–1.85). Visits involving children with public insurance had lower odds of SMS use compared with all other insurance types (OR, 0.56; 95% CI, 0.52–0.60). We did not observe a meaningful association between patient sex and SMS use (OR, 1.00; 95% CI, 0.93–1.07).

These age findings align with national patterns of pediatric UC utilization in 2022,[14] which show higher UC visit rates among older children, particularly ages 12–17 years (30.3%) and 6–11 years (26.6%). One possible explanation is opportunity and familiarity: Families who use UC more frequently may have more exposure to site communications and workflows (eg, signage, discharge instructions, portal messages) that advertise SMS, making them more likely to adopt it over time. In addition, visits for older children may be easier to schedule in advance (eg, fewer unpredictable infant/toddler presentations), and parents/guardians of school-aged children may have greater incentive to minimize time away from school and work by using a "save my spot" feature. These explanations are hypothesis-generating, as we did not measure prior UC use, SMS awareness, or reasons for choosing SMS.

The higher SMS use rates observed in this study

"The lower uptake of SMS among publicly insured visits is concerning as children with public insurance would benefit from the same appointment system that SMS offers."

among patients who were White or patients who did not have public insurance aligns with prior work which examined UC use rates in 2019.[15] This work reported that overall UC use rates were highest among non-Hispanic White children (29.2%) vs non-Hispanic Black or Hispanic children (24.9% and 22.6%, respectively) and highest among children with private insurance (27.6%), followed by children with public insurance (25.2%) and children who did not have insurance (19.3%).[15] We observed higher SMS use at the suburban sites than at the urban site. However, because we did not perform multivariable adjustment, this site-level difference may reflect differences in patient mix across sites (eg, insurance type, race/ethnicity, and age distribution) rather than an independent effect of site.

Rates of pediatric UC visits in the U.S. have increased from 21.6% in 2021 to 28.4% in 2022.[14] These increased rates are due to a number of reasons including the need for fast, convenient, and cost-effective care for acute illnesses that may not need to be evaluated in an ED setting.[16] Thus, hospitals and insurance companies may find UCs an alternative site for providing care due to these and other reasons. Some past research has reported higher UC usage among parents with higher educational levels and higher incomes.[15] Parent/guardian characteristics (eg, sex, education, income, language, and digital access) were not available in our data; therefore, we cannot directly attribute differences in SMS use to specific parental characteristics. However, we observed lower SMS use among children with public insurance, which is important as insurance type is often used as a proxy for socioeconomic status in health services research.[17] Accordingly, the lower rates of SMS usage observed among publicly insured patients may be associated with underlying social determinants of health, including differences in parent/guardian education, household income, health literacy, English proficiency,[17] and access to reliable broadband internet and internet-enabled devices.[18] The lower uptake of SMS among publicly insured visits is concerning as children with public insurance would benefit from the same appointment system that SMS offers. Further, children with public insurance may utilize EDs more often than those with private insurance,[19] and these ED visits may incur higher costs than UC visits for many nonemergent pediatric conditions.[20] This difference is concerning from both an equity and health-system perspective. If publicly insured families are less able to access or use SMS, they may be less likely to realize the time-saving and logistical benefits of scheduled UC visits. Further, differences in awareness of SMS, comfort with online scheduling, ability to plan ahead (eg, work schedule flexibility, transportation constraints), and prior experiences with the health system may also contribute. From an implementation perspective, these results suggest that outreach and enrollment support tailored for publicly insured families (eg, multilingual messaging, in-clinic assistance, simplified workflows) may help reduce barriers to using SMS. Thus, improving awareness of and access to SMS (eg, targeted communication, language-accessible materials, and in-clinic enrollment support) may be an important strategy to reduce barriers for publicly insured families.

Limitations

This study has several limitations. First, this was an observational analysis of routine operational data; therefore, the reported ORs reflect associations between patient/visit characteristics and SMS use and should not be interpreted as causal. Second, because analyses were limited to univariate logistic regression, we could not adjust for potential confounding among correlated predictors. In particular, UC site is likely associated with patient race/ethnicity and insurance (and other unmeasured socioeconomic factors), so the observed associations for site, race, and payer may not represent independent effects. Third, the analytic sample included only visits that could be linked between the Epic EMR and SMS datasets; visits that could not be matched were excluded, which may introduce selection bias if linkable encounters systematically differed from those not linkable. Fourth, the primary outcome was use of SMS, and we did not have the operational timestamps needed to evaluate whether SMS affected UC throughput (eg, appointment request time, arrival time, time to first provider, total length of stay) or to account for visit complexity and volume (eg, chief complaint, tests/procedures, diagnoses, disposition, site census). Fifth, SMS use is a parent/guardian decision, yet our analysis relied on child/patient demographics available in the EMR; therefore, these findings should be interpreted as associations with patient- and visit-level characteristics

"Overall, this analysis highlights differences in SMS use by patient age, race, insurance category, and UC setting. Targeted implementation and outreach strategies may help reduce disparities in SMS adoption across patient groups."

rather than direct measures of parent/guardian characteristics. This represents a key limitation and highlights the need for future work that includes parent-level measures (including education, income, health literacy, language/digital-access variables, awareness of SMS) to better understand and address barriers to SMS use. Finally, several predictors were collapsed for regression analyses (eg, race and payer groupings), which may mask heterogeneity within categories and should be considered when interpreting results. Future studies that include linkage to operational timestamps and parent/guardian characteristics could better assess the impact of SMS on wait times and equity in access to digital scheduling.

Conclusions

Overall, this analysis highlights differences in SMS use by patient age, race, insurance category, and UC setting. Targeted implementation and outreach strategies may help reduce disparities in SMS adoption across patient groups. Although this study did not measure wait times, throughput, or clinical quality or outcomes, future studies should assess whether broader and more equitable SMS uptake is associated with improvements in operational efficiency and care processes in pediatric UC.

Disclaimers

The views expressed in the submitted article are the authors' own and not an official position of the institution or the funder.

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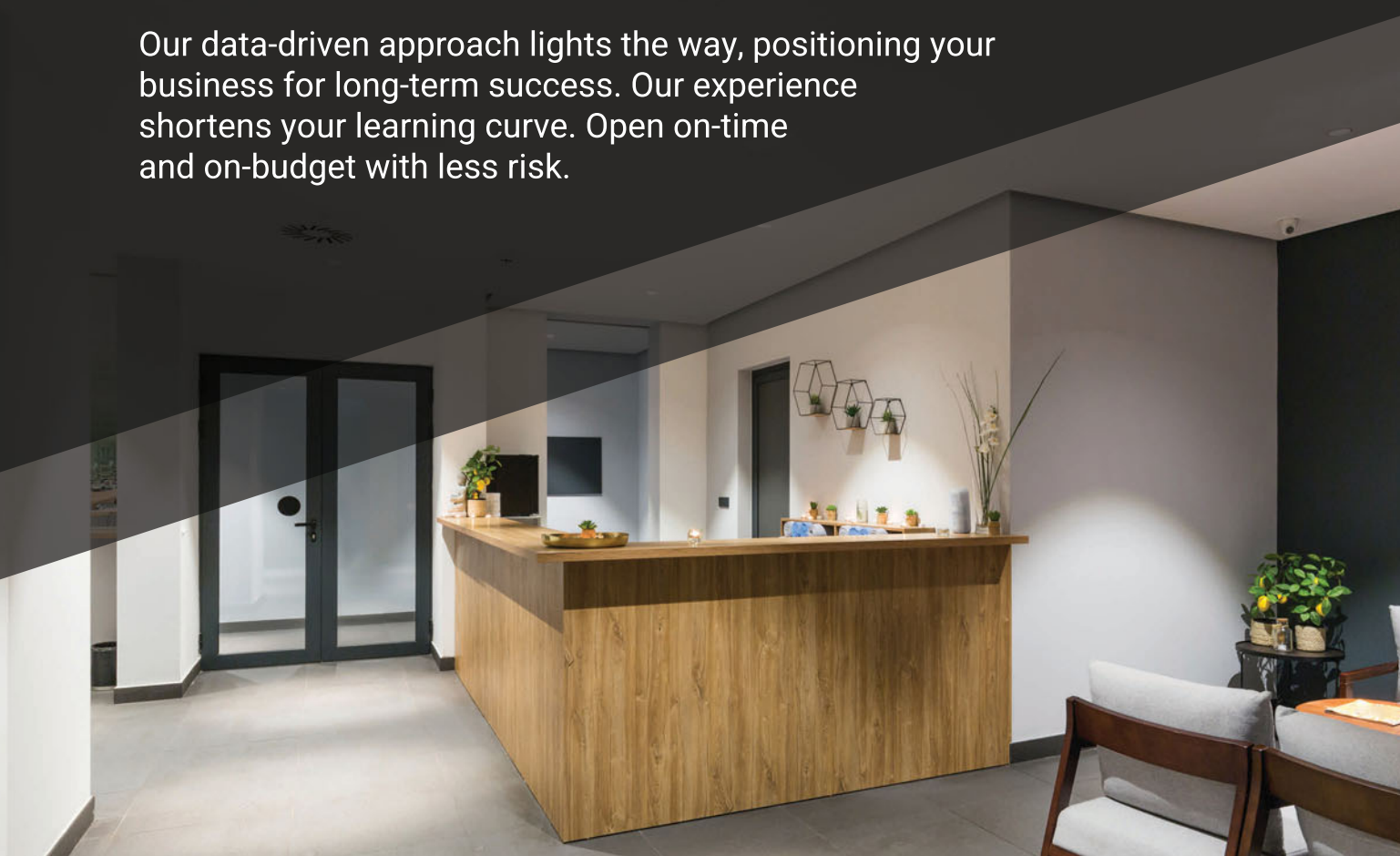
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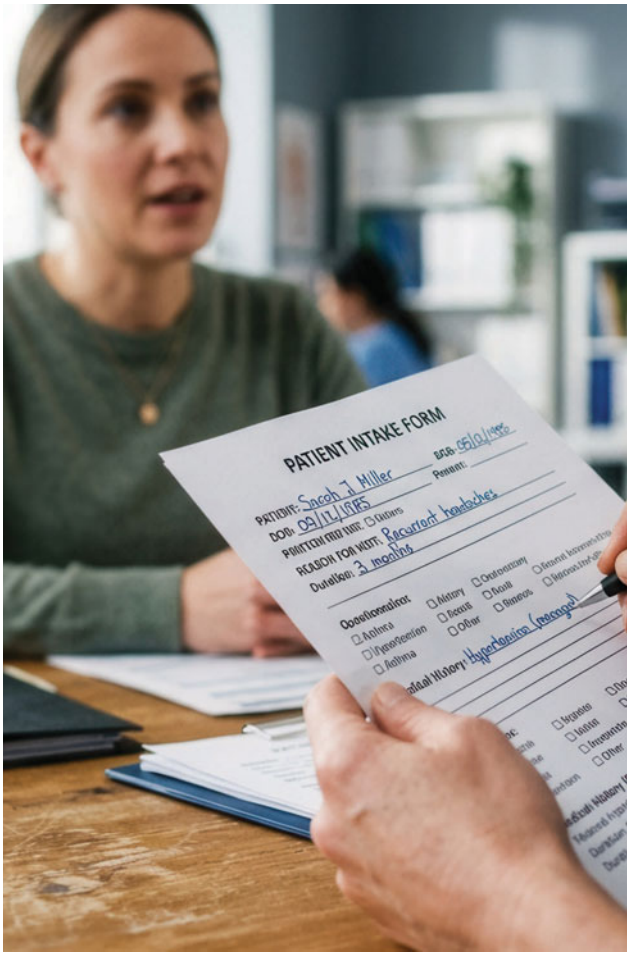
Urgent Care Refers 1 Patient in 50 to the ED

Urgent Message: Urgent care sends roughly 1 patient in 50 to the emergency department. Most of those referrals involve symptoms that call for imaging, laboratory testing, or monitoring that the clinic cannot provide. Some are emergencies identified during the visit for an ordinary complaint.

Alan A. Ayers, MBA, MAcc

Citation: Ayers AA. Urgent Care Refers 1 Patient in 50 to the ED. *J Urgent Care Med.* 2026;21(2):39-42

Keywords: emergency department referral; emergency department transfer; urgent care referral patterns; practice variation; clinical documentation; urgent care operations



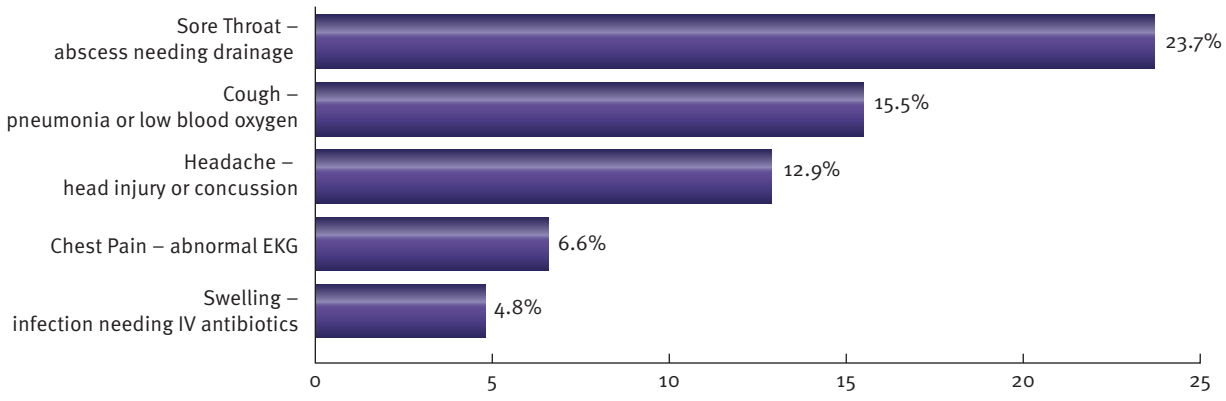
Consider a scenario in which a patient writes a scathing online review after paying his co-pay and waiting at an urgent care, only to have the clinician send him to the emergency department (ED) instead—making the patient feel as if his time and money were wasted. The emergency physician then objects to receiving a patient he believes urgent care should have handled. Meanwhile, the urgent care clinician never learns what happened to the patient in the ED. This disconnect can be explained and possibly improved upon by leveraging data.

An analysis of 14.2 million deidentified private urgent care visit records from the Experity network from the first half of 2026 found 218,585 visits ended in an ED referral. The big-picture analysis helps answer 3 questions operators have never been able to answer with their own data:

- How often does ED referral happen?
- What kind of patient experiences a referral?
- What did the urgent care do before the patient was referred?

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Figure 1. Routine Complaints Among ED-Referred Patients and Recorded Diagnosis in Urgent Care



Among referred patients, bars represent the share of patients with each complaint whose visit ended with each associated diagnosis recorded in the urgent care.

Source: Deidentified visit records from the Experity network, January 1–June 30, 2026, limited to private visits (excluding occupational medicine) rendered by approximately 13,000 providers. For referred visits, the dataset included all charge lines (Current Procedural Terminology and Healthcare Common Procedure Coding System), all charted diagnosis codes, the chief complaint recorded at registration, and the rendering provider's National Provider Identifier and credential. Visits billed under placeholder provider identifiers (roughly 158,000) were excluded. Service categories are not mutually exclusive; a referred visit may include more than 1 ancillary service.

How Often Does Urgent Care Refer Patients to the ED?

Between 1.5–2.6% of urgent care visits end with a referral to the ED, or roughly 1 patient in 50. The category is expressed as a range because visit disposition is captured inconsistently in the documentation. According to data from the analysis, about 40% of providers with at least 500 visits recorded no referrals over 6 months, which almost certainly means some referrals happened but were not recorded.

In many clinics, the disposition field represents extra documentation work in the EMR for the clinician. It is not required to close the chart, and it competes with other tasks that drive payment. Therefore, it may not be completed even when a referral is made. Meanwhile, a provider who sends a patient to the ED by phoning the charge nurse, printing records, and walking the family to their car on the way out has done the clinical work. But whether that work shows up as a coded disposition depends on whether it was built into the closing workflow.

Among the subset of providers who do record their ED referrals, the rate was found to be 2.56% of visits. Common sense would suggest—based on the reality of unrecorded referrals—that the true rate of ED referrals in urgent care overall is likely closer to the 2.6% end of the range.

Which Patients Are Referred and Why?

Most ED-referred patients leave with a symptom recorded, not a diagnosis. Abdominal pain in its various forms, for example, accounts for roughly 1 in 6 referrals, the largest symptom category, according to the analysis, and unspecified chest pain was found to be the top individual symptom code at 7.6%. These 2 categories represent patients who often need something ruled out, which may require, for example, computed tomography (CT) imaging, serial cardiac enzymes, monitoring, or surgical consultation, which are resources rarely available at an urgent care center.

Plotting the chief complaint recorded at registration against the services billed and the final outcome allows these visits to be sorted into 3 distinct groups, each with a different story behind it:

- **ED referral needed because a higher level of care was evident at arrival.** Chest pain or pressure, shortness of breath, and palpitations together make up about 11% of referrals. These patients look like emergency cases from the moment they check in, and the clinic is not deciding whether to send them to the ED so much as documenting what is happening before they go.
- **ED referral needed because the urgent care clinic could not treat the patient.** These are patients who are referred quickly with little testing. Among ED-referred patients who came to urgent care with a laceration, for example, only 25% had any test or treatment recorded in urgent care beyond the exam itself. Among those who came in with swelling, only 21% had any test or treatment recorded. The reasons for quick referral may include: wounds

Table 1. Services Rendered in Urgent Care Before ED Referral

Service Category	Share of referred visits N = 218,585	Common CPT or HCPCS Codes
Urinalysis / pregnancy testing	17.3%	81003, 81025, 81002
Electrocardiogram	15.2%	93000
Rapid infectious testing	11.9%	87804, 87811, 87880
Radiography (all)	10.0%	71046 and other 7xxxx
Point-of-care glucose	5.8%	82962, 82947
Injectable medications	4.2%	96372, J1885, J2405
Nebulizer / respiratory	2.2%	94640, J7620
Evaluation only, no ancillary services	47.2%	E/M codes alone

CPT = Current Procedural Terminology; HCPCS = Healthcare Common Procedure Coding System. Service categories are not mutually exclusive; a referred visit may include more than 1 ancillary service.

beyond what the clinic can repair; injuries needing a CT scan the urgent care isn't able to offer; or infections requiring intravenous antibiotics the urgent care isn't set up to administer.

- **ED referral needed because the higher level of care was identified as necessary during the urgent care visit.** The third group is the one that should change how operators talk about referrals. These are patients who walk in looking like they could be treated within typical urgent care capabilities but left with an emergency. Cough alone accounts for 5.5% of the 218,585 ED referrals in the dataset, roughly 12,000 visits, and 11% of those patients turned out to have pneumonia with another 4% showing low blood oxygen in the record, thanks to testing in the urgent care **(Figure 1)**. Sore throat ED referrals are rare, but when one happens, the analysis found nearly a quarter of the time, the patient had a throat abscess that needed to be drained, which warranted the ED referral.

What Happens in Urgent Care Before an ED Referral?

Just over half of all referred visits (52.8%) included at least 1 diagnostic or therapeutic service at the urgent care beyond the evaluation itself. Examples of the more common services provided in urgent care before ED referral are summarized in **Table 1**.

In the analysis, the remaining 47.2% of visits with ED referrals showed no billed ancillary services. History, physical examination, and medical decision making instead served as the urgent care evaluation in these cases, and the coding data indicate that clinical work was substantial: 83.8% of those visits were billed at E/M level 4 or 5, consistent with substantial medical decision-making complexity. Most of these visits without ancillary services involved head injuries or complex wounds, and testing would have delayed necessary care.

Three-quarters of ED referrals with chest pain included an electrocardiogram (ECG) at the urgent care, which means one-quarter in the dataset did not. Whether those decisions were clinically appropriate is a question for medical directors rather than administrators, but it is a question an operator can only ask if the data is being captured in the first place.

"Nurse practitioners, physician assistants, and physicians refer at nearly the same rates across the board."

Referral rates differ widely from one provider to the next. Out of every 1,000 patients seen, the lowest-referring individual clinicians send 3 to the ED, while the highest-referring clinicians send 56 patients to the ED. The clinician's credential explains almost none of that difference. Nurse practitioners, physician assistants, and physicians refer at nearly the same rates across the board. What the data cannot conclude is the "right" or "optimal" rate of ED referrals because the records analyzed here end at the urgent care clinic door and do not include the ED outcome.

What the Data Means for Operators

Before urgent care operators can draw conclusions about ED referrals, they have to clean up their workflows.

"Operators who review their own referral diagnoses each quarter will find patterns worth acting on, and most of the solutions cost less than adding a piece of equipment."

There is no way to manage a referral rate that is not accurately reported, and today about 40% of high-volume providers (at least 500 visits) show no referrals at all in their records. This is not because they never send anyone to the ED, but because, as noted above, the field that captures the referral was likely not completed. Whether the disposition field can be made mandatory in the record is often a logistical question, but whether the field is completed by clinicians is a workflow question within any operator's control. A daily or weekly audit of visits with no disposition recorded or a standing expectation that the team confirms the disposition before the chart is closed can help to capture the data.

The referral patterns also reveal what is missing. A center sending a steady stream of patients with abdominal pain to the ED may realize something about its capabilities and resources. Solutions may include, for example, adding a test the clinic already has the capability to run, building a relationship with a nearby imaging center that takes same-day walk-ins, or knowing which specialists in the area will see a patient the next morning so the ED is not the only option. Operators who review their own referral diagnoses each quarter will find patterns worth acting on, and most of the solutions cost less than adding a piece of equipment.

Finally, the discovered emergencies are worth talking about outside the clinic. A referral rate for pneumonia, for example, shows urgent care is doing real diagnostic work before the patient reaches the ED. That is the story operators should bring to payer negotiations and health system partnership discussions, backed by their own data. ■

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ABSTRACTS IN URGENT CARE

Editor's Note: *This month's Abstracts department focuses exclusively on research that examines artificial intelligence in healthcare.*

AI-Assisted Professional Development

Take Home Point: When paired with skilled facilitation, professional development programs supported by artificial intelligence (AI) can enhance engagement, foster reflective practice, and promote immediate application of interactive strategies in diverse teaching settings.

Citation: Hou S-I. Enhancing interactive teaching for the next generation of nurses: generative-AI-assisted design of a full-day professional development workshop. *Informatics*. 2026;13(1):11. doi:10.3390/informatics13010011

Relevance: Engaging the next generation of clinicians (Generation X, Y, and Z) can present a challenge for educators and clinical leaders, as today's learners may have shorter attention spans, extensive mobile phone use, and underdeveloped communication skills.

Study Summary: This study described the design, implementation, and participant outcomes of a full-day interactive teaching workshop for nursing faculty, senior clinical nurses, and nurse leaders in Taiwan. AI was used as a planning assistant emphasizing whole-class interactivity, with frequent short, focused activities to sustain energy and attention. The workshop aimed to develop participants' ability to: recognize generational differences in learning styles; engage in and practice interactive teaching methods; and apply these strategies in their instructional settings.

AI tools such as ChatGPT-5.2 were used during workshop planning to augment instructional creativity and efficiency. AI applications included developing an emoji introduction icebreaker, generating prompts for generational discussions, designing questions for a think–pair–share activity, designing questions for Socratic questioning (open-ended questions to stimulate critical thinking), drafting a realistic fishbowl group discussion (observe and analyze a structured group discussion), and role-play scenarios situated in clinical teaching contexts.

Participants (N=37) were predominantly female (95%) and represented multiple generations, including Generation X, Millennials (Generation Y), and Generation Z. The experiential and highly engaging strategies were perceived as particularly effective for sustaining attention, stimulating critical thinking, and fostering confidence in applying interactive teaching methods.

Editor's Comments: The single-center setting, small sample size, and nursing participants may limit the generalizability of the results to other settings. The study also lacked longitudinal follow-up data to determine whether learning from the session was retained and applied in practice. However, the findings indicate that using a variety of learning techniques and incorporating AI into the educational process may help improve engagement among the next generation of healthcare workers, potentially including urgent care clinicians. ■

Can AI Substitute the First Reader in Chest Radiograph Screening?

Take Home Point: AI could potentially assume the first-reader role in lung cancer screening with chest radiographs within a conventional double-reading workflow while maintaining diagnostic quality.

Citation: Yoshida K, Takamatsu A, Tanaka R, et al. Can AI substitute the first reader in chest radiograph screening? A retrospective non-inferiority evaluation. *Jpn J Radiol*. 2026;44:1168-1176. doi:10.1007/s11604-026-01973-z

Relevance: Chest radiography (CXR) is a simple and accessible screening and diagnostic tool for many thoracic diseases and is typically interpreted manually by clinicians.

Study Summary: This retrospective study evaluated whether AI software could substitute for the first reader within the conventional double-reading workflow used for chest radiograph-based cancer screening in a Japanese



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ting. Three AI models developed by LPIXEL Inc. (Tokyo, Japan) were assessed. Software A was trained specifically for pulmonary nodule detection, with particular emphasis on sensitivity. Software B was derived from Software A and retrained to reduce false-positive detections while preserving nodule sensitivity. Software C was trained to detect lung opacities, including nodules, interstitial changes, consolidations, atelectasis, granular opacities, and cavitary lesions. CXRs from an available database that had already been assessed by a screening physician followed by a board-certified radiologist were reviewed using the AI tools.

The study included 5,784 normal CXRs and 1,847 CXRs identified as positive for cancer. All 3 AI models demonstrated noninferior performance compared with the first readers, with all AI programs showing higher detection rates (AI, 62.5%–77.3%; first readers, 59.3%). The frequency of false-positive detections per examination was higher with AI (0.081 for Software A, 0.065 for Software B, 0.147 for Software C) compared with the screening physicians serving as first readers (0.002).

Editor's Comments: As with many current AI studies, the methodology has limitations for real-world, real-time implementation. Because some cases had already been identified as positive, the findings may not fully reflect screening performance across an entire routine-care population. In urgent care practice, validated similar AI systems could potentially support clinicians in rapidly diagnosing selected conditions, such as lung pathology and extremity fractures, thus improving clinical workflows. ■

Application of AI in Occupational Healthcare

Take Home Point: Clear, actionable guidance is needed on how to respond to AI outputs, such as predictions about future sick leave, when AI is used in occupational healthcare (OH).

Citation: Tijhuis MT, Bosma AR, van den Hoven M, et al. Attitudes, needs, and expectations regarding the application of AI in occupational healthcare: a multiple stakeholder perspective. *J Occup Environ Med*. 2026;68(5):353-360. doi:10.1097/JOM.0000000000003636

Relevance: The adoption of AI in healthcare is increasing. This study explored the current attitudes, needs, and expectations of employees, employers, and occupational healthcare practitioners (OHPs) regarding the application of AI in occupational healthcare.

Study Summary: This qualitative study used interviews to explore the perspectives of different stakeholder groups on the application of AI in occupational healthcare in the Netherlands. Participants included employees who were and were not on sick leave, human resources employees representing employers, and various OHPs. Semistructured interviews were conducted at an occupational healthcare service's office, through Microsoft Teams, or by telephone. Thematic analysis was used to analyze the collected data.

A total of 23 interviews were conducted with 8 employees (4 on sick leave and 4 not on sick leave), 7 employers, and 8 OHPs. Several themes were identified. Participants expressed skepticism about the feasibility of using AI because it lacks a human touch. Unfamiliarity with AI contributed to reserved attitudes and a perceived need for transparency and explainability, particularly regarding the use of personal data. Potential benefits included improved efficiency of OHPs and enhanced quality of care through more effective delivery of services to employees. Participants also emphasized the need for clarity about how AI-generated outcomes could be translated into actions for health-related purposes.

Editor's Comments: The study has the potential for selection bias because individuals with an interest in AI may have been more inclined to participate. The small number of participants from a single occupational healthcare service in the Netherlands may limit generalizability. The study highlights the potential use of AI in urgent care centers that serve occupational health clients, where AI tools may eventually help predict work-related illness/injury outcomes and associated impact. At present, such applications have ethical and legal implications that may need to be resolved before widespread use. ■

AI-Enhanced Auscultation for Valvular Heart Disease

Take Home Point: The AI-enhanced valvular heart disease (VHD) Detector shows promise as a screening tool for acquired VHD, potentially enabling timely referral of patients with moderate or severe VHD who warrant additional evaluation.

Citation: McDonald A, Gales M, Rana BS, et al. Development and validation of AI-enhanced auscultation for valvular heart disease screening through a multi-centre study. *NPJ Cardiovasc Health*. 2026;3:5. doi:10.1038/s44325-026-00103-y

Relevance: VHD is a common cause of heart failure but is often identified late because of delayed symptom onset, limited public awareness, and the low sensitivity of traditional stethoscope-based screening.

Study Summary: This was a prospective, single-arm, single-blinded cohort study investigating a novel AI algorithm that used electronic stethoscope recordings to detect clinically significant degenerative VHD. Participants were recruited consecutively from 3 primary care clinics in the United Kingdom and were at risk for or had known cardiovascular disease but had no prior diagnosis of VHD or known cardiac murmur. All patients underwent auscultation with an electronic stethoscope performed by a cardiologist, cardiac physiologist, or research nurse. Heart sounds were recorded at the 4 standard auscultation locations: aortic, pulmonary, tricuspid, and mitral sites. Recordings were analyzed by an AI algorithm trained using echocardiographic findings rather than conventional murmur labels. For comparison with human performance, family medicine doctors (general practitioners [GPs]) also assessed the recordings. Additionally, an independent expert panel reviewed the phonocardiogram recordings to confirm audible murmurs. For diagnosis, every participant underwent echocardiography by certified technicians.

A diverse dataset of 1,787 patients was developed combining stethoscope recordings and echocardiographic labels. The VHD Detector achieved an area under the receiver operating characteristic curve of 0.83 (95% confidence interval [CI], 0.79–0.88) for identifying clinically significant VHD. It had a sensitivity of 72% (95% CI, 65%–79%) and specificity of 82% (95% CI, 74%–89%). GPs achieved a sensitivity of 62% (95% CI, 55%–70%) and specificity of 64% (95% CI, 54%–73%). The VHD Detector significantly outperformed GP predictions in both sensitivity (p=0.01) and specificity (p=0.002), highlighting its potential as a screening tool.

Editor's Comments: The authors acknowledge that their selective dataset may limit generalizability. There was also intentional bias in the recruitment of cases to train the AI tool (selection from hospital settings, cardiology and valvular clinics). The lack of direct access to patients (use of recordings) by the GPs may also have influenced the performance comparison. This study may have several applications for urgent care clinicians. This or similar AI tools may potentially serve as rapid, noninvasive screening adjuncts and may help with timely identification of patients with moderate or severe VHD who need further evaluation. ■

Can AI Help Smokers Quit?

Take Home Point: AI chatbot responses about smoking cessation demonstrated high accuracy and moderate readability, suggesting AI may have a role as an adjunct to patient education in primary care.

Citation: Tuz C, Merder D, Unal BU, et al. Assessing AI-generated smoking cessation advice for patient education in primary care. *BMC Prim Care*. 2026;27(1):206. doi:10.1186/s12875-026-03360-z

Relevance: Clinicians can all play a role in smoking cessation education and counseling; however, clinician interventions remain underused due to inadequate education, limited resources, and time constraints during patient encounters. AI programs may help fill that gap.

Study Summary: This was a cross-sectional assessment of AI-generated responses related to smoking cessation conducted in Turkey using 10 common AI tools. The authors utilized 24 open-ended questions, which were asked in Turkish, using a standardized prompt to initiate conversations with AI search engines and chatbots. Researchers started a new session for each AI program to reduce potential bias from previous context. All 24 questions were entered into each AI system, and the responses were recorded. Responses were assessed using a rubric-based method across 4 areas: readability, reliability, accuracy, and communication abilities.

All AI programs understood and provided answers to the 24 open-ended questions. The internal consistency of the 24-question accuracy rubric was excellent (Cronbach's alpha=0.975; standardized alpha=0.980). Accuracy differed significantly across platforms (Friedman chi-square=155.92, p<0.001), with a large effect size (Kendall's W=0.72). All AI platforms provided at least partially correct answers to all questions.

Editor's Comments: The study was limited by the use of the Turkish language to collect responses from the AI programs, which may limit the generalizability to other languages and settings. Potential applications for urgent care clinicians include using AI tools to provide individualized smoking cessation guidance, integrating AI with other patient-centered tools to support behavior change, and providing educational support. These AI tools could be utilized during waiting periods at busy urgent care centers. ■

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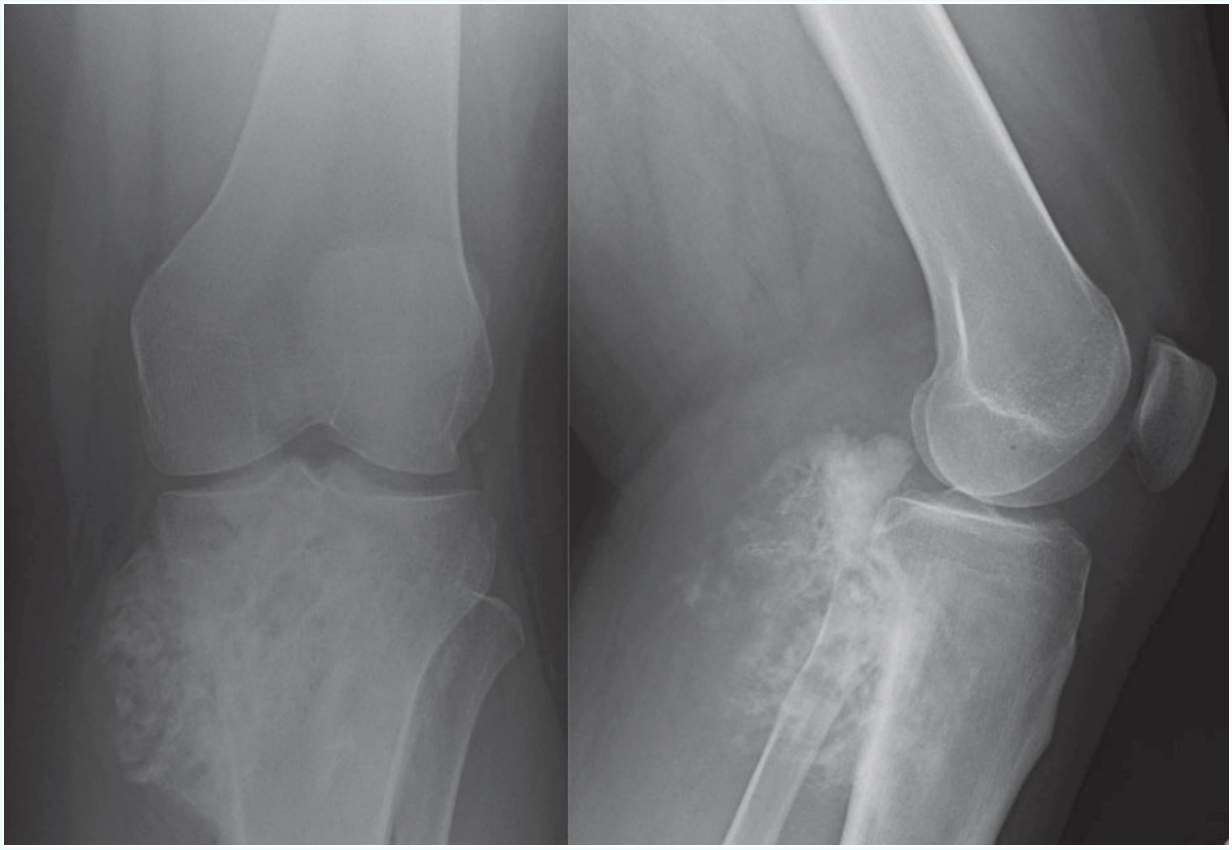
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CLINICAL IMAGE CHALLENGE
X-RAY

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

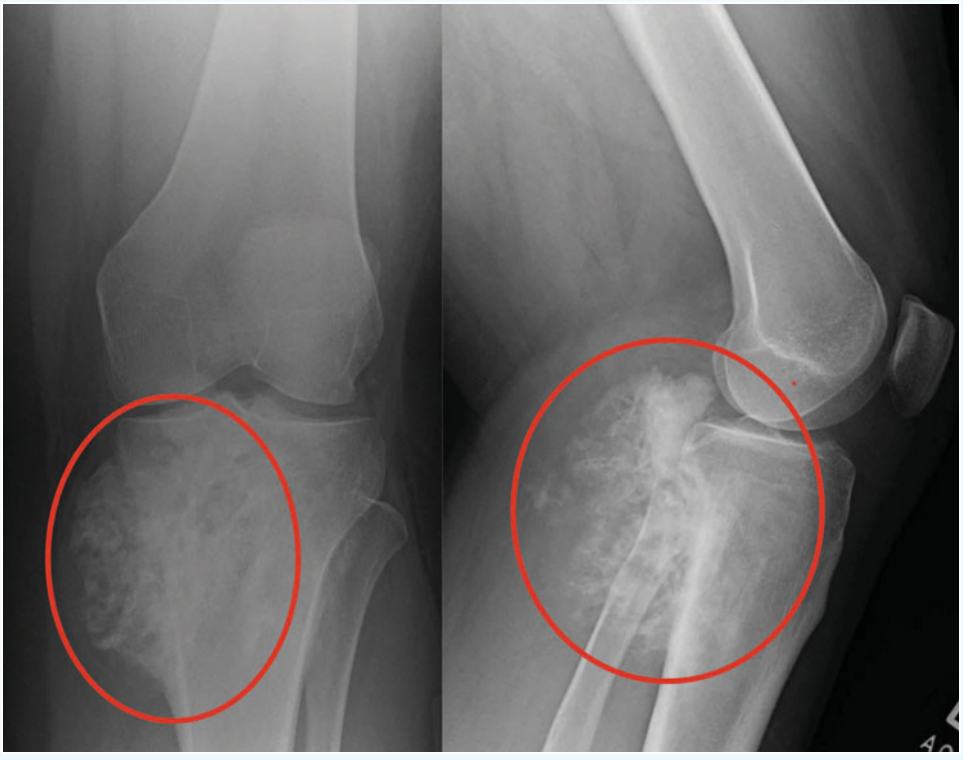
22-Year-Old With Growing, Painful Lump on Back of Knee



A 22-year-old male presents to urgent care complaining of a painful lump on the back of his left knee that developed roughly 3 years prior. It has gradually grown in size and discomfort since then. The lump has been growing more quickly and becoming more painful over the last month, to the point where it is difficult to play sports and exercise. Physical examination reveals normal vital signs and full range of motion and strength of the knee. A large, hard, bony, and immobile mass is visible and palpable in the popliteal fossa. It is diffusely tender to palpation. There is no erythema, induration, fluctuance, or warmth noted to the mass. There are no neurovascular deficits distal to the knee.

View the x-ray images 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).



Differential Diagnosis

- Secondary chondrosarcoma
- Myositis ossificans
- Osteochondroma
- Parosteal osteosarcoma
- Baker cyst

Diagnosis

The leading diagnosis is osteochondroma. This radiograph shows a large, lobulated, sessile surface lesion arising from the proximal tibia with extensive mineralized matrix, which is consistent with a cartilage-containing surface bone tumor. There is cortical and medullary continuity between the lesion and the parent bone seen on the anteroposterior (AP) view, which is a hallmark of osteochondroma. The lateral view demonstrates significant posterior extension, raising concern for possible complications, including bursa formation, fracture of the stalk, or malignant transformation.

Osteochondroma is the most common benign bone tumor, making up 20–50% of all benign bone tumors. Approximately 1% of solitary osteochondromas progress through malignant transformation to secondary peripheral chondrosarcoma. In this particular case, the large size of the mass, the history of chronic pain with acute exacerbation, and the context of the patient's age and skeletal maturity mandate further evaluation.

What to Look for

- Red flags for potential malignancy include new-onset or worsening pain after skeletal maturity, continued growth after growth plate closure, and a cartilage cap thickness of >1.5–2 cm on magnetic resonance imaging (MRI) or computed tomography (CT), if advanced imaging is available.
- Acute exacerbation of pain may represent a fracture through the osteochondroma stalk (particularly in athletes), bursa formation over the lesion, or neurovascular compression–all recognized complications that can cause sudden worsening of symptoms without malignant transformation.

Pearls for Urgent Care Management

- Concern for malignancy indicates a need for advanced imaging. MRI with contrast is indicated for further characterization.
- An urgent referral to orthopedics is warranted for further workup given the presentation.
- Counsel the patient that a biopsy will likely be performed by the orthopedic specialist. ■

43-Year-Old Male With Large Bump on Elbow



A 43-year-old man presents to urgent care reporting a soft lump that developed on his arm 3 months prior. He denies pain, itching, or systemic symptoms and feels well otherwise. Examination reveals normal vital signs and a 5 cm soft, mobile, nontender subcutaneous nodule on the proximal dorsal forearm. Range of motion for the elbow and wrist is normal. No erythema or induration is noted; circulation, strength, and sensation are intact distally.

View the image taken 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).



Differential Diagnosis

- Epidermoid inclusion cyst
- Lipoma
- Neurofibroma
- Sarcoma
- Pilar cyst
- Pilomatricoma

Diagnosis

The correct diagnosis is lipoma. Superficial subcutaneous lipomas are the most common benign soft-tissue neoplasms. They consist of collections of mature fat cells enclosed within thin fibrous capsules. Lipomas can occur on any part of the body and usually develop superficially within subcutaneous tissue. Rarely, they may involve fascia or deeper muscular planes. Malignant transformation of a lipoma into a liposarcoma is rare.

The diagnosis of lipoma is typically made clinically.

What to Look for

- Lipomas present as soft, painless subcutaneous nodules ranging in size from 1 to >10 cm.
- They occur most frequently on the trunk and upper extremities and can be round, oval, or multilobulated. Frequently, patients may have more than one lipoma.
- Ultrasound examination can be helpful to distinguish a lipoma from an epidermoid or ganglion cyst.

Pearls for Urgent Care Management

- Consider referral to surgery or dermatology for removal if the lipoma is bothersome to the patient.
- Definitive treatment of lipomas (if needed because of pain, cosmesis, or concerns over diagnosis) is surgical removal of the entire capsule. Recurrence of an excised lipoma is not common.
- If a suspected lipoma is firm rather than soft, is rapidly enlarging, or causes pain or restriction of movement, a biopsy is indicated to confirm the diagnosis and exclude malignancy. ■



CLINICAL IMAGE CHALLENGE
ECG

29-Year-Old With Muscle Weakness

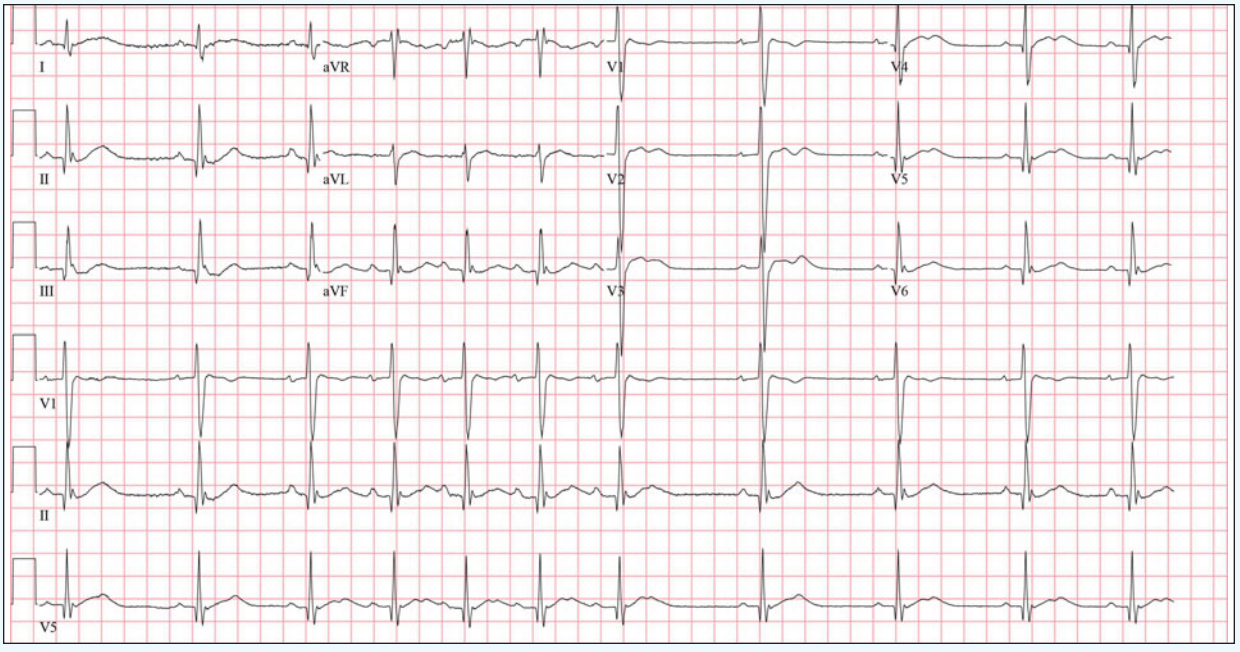


Figure 1: Initial ECG

A 29-year-old male presents to urgent care with generalized muscle weakness. His oxygenation is normal on room air, and his blood pressure is 117/72 mm Hg. He denies chest pain, palpitations, or shortness of breath. An ECG is obtained.

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

Case presented by Catherine Reynolds, MD, McGovern Medical School at UTHealth Houston.
Case courtesy of ECG Stampede (www.ecgstampede.com).

ECG STAMPEDE



Figure 2: Prominent U waves fuse with T waves to form a wavy repolarization complex in lead V2 (red). The repolarization complex creates a long QT (or QU) interval of 520 milliseconds (dashed line).

Differential Diagnosis

- Hypokalemia
- Hypocalcemia
- Brugada syndrome
- Left ventricular hypertrophy with strain
- Normal sinus rhythm

Diagnosis

The diagnosis in this case is hypokalemia. The ECG reveals a sinus rhythm with marked sinus arrhythmia and a ventricular rate of 64 beats per minute. There is marked prolongation of the QT interval due to the presence of prominent U waves that have fused with the T waves, creating a wide, wavy repolarization pattern across the precordial leads.

Discussion

Hypokalemia is a common and potentially life-threatening electrolyte abnormality that delays ventricular repolarization.[1] The characteristic ECG changes in hypokalemia include T wave flattening or inversion, ST-segment depression, and the development of prominent U waves. In severe cases such as this one, these U waves merge with the preceding T waves, creating a biphasic TU fusion complex that prolongs the QT (or QU) interval.[2] This is illustrated in **Figure 2**.

This QU pattern in hypokalemia is caused by a delay in the repolarization phase (phase 3) of the cardiac action potential. This patient's clinical presentation of generalized weakness combined with a QTc of >500 milliseconds and prominent precordial U waves is highly diagnostic of severe hypokalemia. Hypokalemia commonly occurs due to gastrointestinal losses (such as vomiting or diarrhea), renal losses (associated with diuretic use or hyperaldosteronism), alcohol abuse, or poor nutritional intake. It is estimated that approximately 3% of hospitalized patients have hypokalemia, and severe hypokalemia (potassium <2.5 milliequivalents per liter) is associated with a high incidence of cardiac arrhythmias.[3]

A long QT or QU interval increases the risk of a new electrical impulse firing before the heart has finished repolarizing – referred to as an early afterdepolarization. If premature depolarization occurs, it can trigger a life-threatening arrhythmia called torsades de pointes. Bradycardia exacerbates this risk by lengthening the repolarization phase, making overdrive pacing—either pharmacologic or electrical—a key strategy for preventing torsades de pointes in patients with acquired long QT states.

Urgent care management of suspected severe hypokalemia focuses on screening for complications, initiating replacement therapy, and immediate transfer. A thorough history should screen for symptoms of hypoperfusion, palpitations, or syncope. Initial steps include establishing intravenous access, placing the patient on continuous cardiac monitoring, and checking a basic metabolic panel to determine the potassium level. Since hypokalemia is frequently accompanied by hypomagnesemia, a magnesium level should also be checked and replaced as necessary. Patients with a severely prolonged QT or QU interval (>500 milliseconds) or who are symptomatic require immediate transfer via emergency medical services to a facility with telemetry monitoring for repletion and continuous cardiac monitoring.

Hypocalcemia prolongs the QT interval by extending the plateau phase (phase 2) of the cardiac action potential (lengthening the ST segment but with a normal T wave). In terms of the differential diagnoses, Brugada syndrome is

characterized by a pseudo-right bundle branch block and downsloping ST-segment elevation in leads V1 and V2, which are absent here. Left ventricular hypertrophy with strain shows high QRS voltages and asymmetric T wave inversions in the lateral leads, and a normal sinus rhythm would not feature these severe repolarization abnormalities.

What to Look for

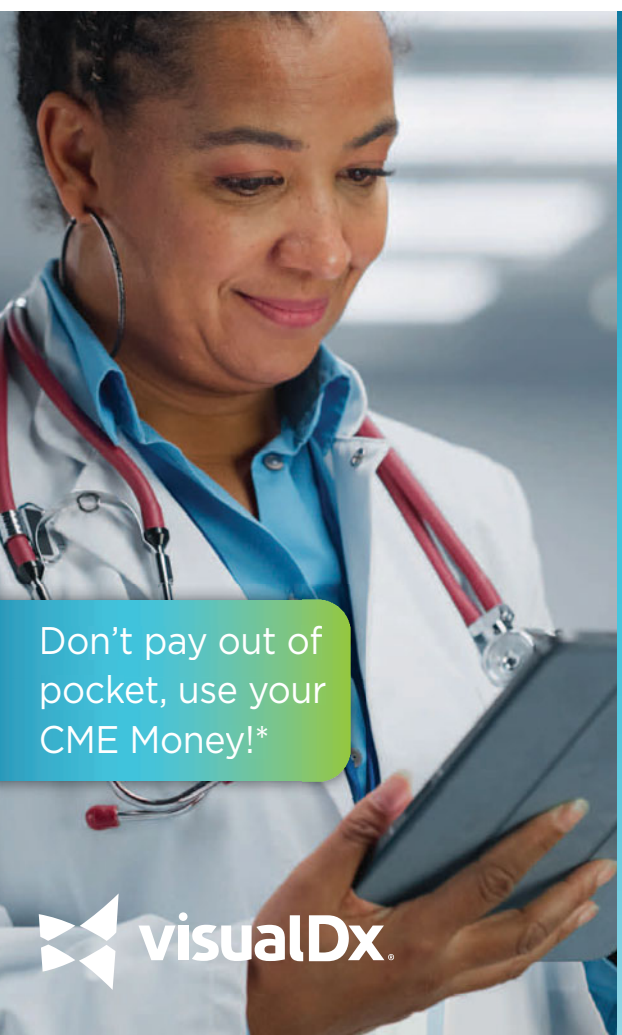
- Look for a wide, wavy repolarization pattern across the precordial leads, indicating the fusion of T waves and prominent U waves of severe hypokalemia.
- Bradycardia in the setting of a prolonged QT or QU interval (>500 milliseconds) increases the risk of triggering torsades de pointes.
- Hypokalemia and hypomagnesemia commonly coexist, and both require aggressive replacement to stabilize ventricular repolarization.

Pearls for Initial Management, Considerations for Transfer

- Establish intravenous access and initiate continuous cardiac monitoring.
- Obtain emergency laboratory testing, including a basic metabolic panel and magnesium level if available.
- Replenish both potassium and magnesium, using oral and parenteral routes depending on patient tolerance and severity.
- Transfer the patient immediately via telemetry-monitored transport to the nearest emergency department if the QT or QU interval is >500 milliseconds or if the patient is symptomatic. ■

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From Reactive to Predictive: The Future of Urgent Care RCM

Jennifer Guido

For years, revenue cycle management (RCM) has measured success largely by how efficiently we respond when something goes wrong. A claim rejects, someone fixes it. A claim denies, someone appeals it. A balance ages, someone follows up. Technology has made that work faster, but a revenue cycle that becomes exceptionally good at fixing preventable problems is still spending too much time fixing preventable problems.

The next evolution of RCM requires us to challenge that operating model. Reactive RCM asks, "What happened, and how do we fix it?" Proactive RCM asks, "What is happening, and where should we intervene?" Predictive RCM asks the more powerful question: "What is likely to happen next, and can we change the outcome?" For urgent care, where high transaction volumes can turn small issues into significant financial problems quickly, that shift is especially important. Volume also creates repetition, and repetition creates patterns. Technology can increasingly help us recognize those patterns sooner, prevent avoidable work, identify financial opportunities earlier, and focus human expertise where it can have the greatest impact. It is time to build the revenue cycle for where healthcare is going, not where it has been.

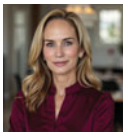
From Reporting to Intelligence

Urgent care organizations are not short on data. Every claim, rejection, denial, payer response, payment, and adjustment tells us something. The challenge is turning all of that activity into intelligence we can act on. Traditional key performance indicators (KPIs) remain essential, but most tell us what has already happened, and enterprise averages can hide meaningful changes. An overall denial rate may look stable while denials from one payer are quietly climbing. Days in accounts receivable may remain within target while a major payer is taking progressively longer to pay. By the time those changes materially affect a monthly KPI, the underlying problem may have been developing for weeks.

Advanced analytics give revenue cycle teams the ability to ask better questions. Instead of asking only, "What is our denial rate?" we can begin asking, "Where is denial behavior changing?" Rather than relying solely on accounts receivable (AR) deterioration to signal a problem, emerging capabilities can help teams look for changes in payment velocity, reimbursement patterns, or payer behavior that deserve attention earlier. Reporting tells us what happened. Intelligence gives us a chance to influence what happens next.

Consider a multisite urgent care organization that begins seeing a modest increase in denials for a frequently performed service. The increase is not yet large enough to move the enterprise denial rate, so in a traditional model those claims enter a work queue and are addressed one at a time. But the pattern itself may be far more important than any individual denial. Is the increase concentrated with one payer, market, or claim characteristic? Are similar claims beginning to show the same risk? As analytic capabilities become more sophisticated, comparing current activity with historical outcomes and payer behavior can help identify developing problems before they become widespread.

Predictive analytics is not about knowing with certainty that a particular claim will deny. It is about using patterns and probabilities to identify risk early enough to create an opportunity for intervention. Every preventable denial carries two costs: delayed revenue and the administrative expense of recovering it. Resolving one denied claim may recover one payment. Finding the root cause and preventing hundreds of similar claims from denying changes the economics entirely. We should not measure the sophistication of a revenue cycle only by how efficiently it works denials. Increasingly, we should measure it by how often it prevents them.



Jennifer Guido is Vice President of RCM Client Operations at Experity, where she leads client strategy, performance, and experience.

Turn Payer Activity Into Action

Payer changes rarely arrive with a flashing warning sign. Often, the first indication is buried in day-to-day revenue cycle activity. Requests for medical records increase. Claims that historically paid within a predictable timeframe start taking longer. A common urgent care service is suddenly adjudicated differently. A denial reason that rarely appeared begins showing up more often. One occurrence may mean very little. Repetition can reveal a signal.

At scale, analytics create the potential to distinguish normal variation from a meaningful shift in payer behavior. Strong enterprise performance can easily mask a developing issue within a single payer, market, location, or group of claims. As these capabilities mature, recognizing those shifts earlier can give an organization something incredibly valuable: time to investigate, adjust workflows, engage the payer, or correct an issue before it becomes a larger AR or cash problem.

The same intelligence can also point us toward opportunity. RCM has traditionally focused heavily on what went wrong: denials, aging AR, rejections, and underpayments. But the same data can help reveal unexpected reimbursement patterns, differences between expected and actual payment, accounts with greater recovery potential, and positive trends worth replicating. Not every outstanding dollar has the same likelihood of collection, and not every account deserves the same amount of human attention. The objective should not be to touch the most accounts or complete the most tasks. It should be to direct effort where it has the greatest potential to prevent revenue loss, accelerate reimbursement, or uncover financial opportunity.

Beyond the Work Queue

For years, work queues have been the backbone of revenue cycle operations. Technology has made those queues easier to organize and faster to process. But making an old process faster is not the same as redesigning it.

The better question is not, "How do we work the queue faster?" It is, "How much of this work should have reached the queue at all?"

Technology is increasingly capable of evaluating large populations of claims and accounts, automating predictable activity, identifying risk, and surfacing exceptions that warrant attention. As those capabilities expand, the opportunity is to move away from asking people to search through thousands of accounts to find the problem and toward bringing the right problems to them. That changes the role of the RCM professional. The value is no longer simply in finding and completing work. It is in solving complex reimbursement issues, identifying root causes, challenging payer behavior, uncovering revenue opportunities, and translating financial information into action.

This is also where the conversation about automation needs to evolve. Its value is not limited to reducing manual tasks or administrative cost. Done well, automation creates capacity and allows human expertise to be deployed more intentionally. The economic opportunity is not simply doing the same work with fewer resources. It is using technology to make every human touch more purposeful and, increasingly, more valuable.

The question is not whether technology or people should manage the revenue cycle. It is which work requires human judgment, and which work increasingly can be automated. Technology can identify, prioritize, and automate where appropriate. People interpret, solve, strategize, and build the relationships necessary to drive change. The future of RCM is not more people working more accounts. It is technology narrowing the field so skilled people can focus on the issues and opportunities where their expertise makes the greatest difference.

Build For Where We Are Going

Urgent care has always been built around speed, access, and efficiency, and its revenue cycle should reflect those same principles. But speed alone is no longer enough. Historical reporting tells us what happened. Real-time analytics can help us understand what is happening now. Predictive capabilities create the opportunity to understand what may happen next. The goal is not perfect prediction. It is earlier, smarter action.

Building the revenue cycle for where we are going, rather than where we have been, means expecting more from both technology and people. Technology should evolve beyond producing reports or helping teams process existing work faster. The opportunity is to identify risk before it becomes a denial, recognize shifts in payer behavior sooner, uncover financial opportunities, prioritize where intervention matters most, and automate routine activity whenever possible. As technology takes on more predictable work, human expertise becomes more valuable, not less.

We should not measure revenue cycle performance only by how quickly we respond once revenue is already at risk. We should also measure how early we recognize that risk, how often we prevent avoidable problems, and how effectively we identify opportunities hidden in the same data.

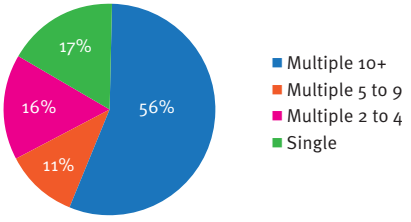
The organizations that lead the next era of RCM will not be the ones with the largest work queues, the most reports, or even the fastest follow-up. They will be the ones that recognize where revenue is at risk before it is lost, where opportunity exists before it is obvious, and where human expertise can make the greatest difference. That is what it means to build the revenue cycle for where we are going, not where we have been. ■

Size and Ownership of U.S. Urgent Care Centers, 2026

Alan A. Ayers, MBA, MAcc

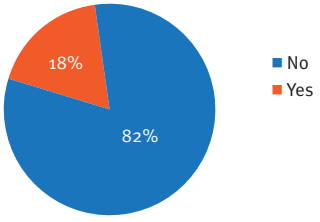
CHARACTERISTICS OF URGENT CARE CENTERS

Number of Urgent Care Locations by Operator



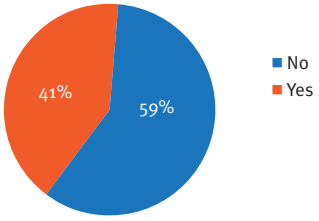
Source: National Urgent Care Realty database, July 1, 2026 (n = 14,495 centers).

Private Equity Ownership



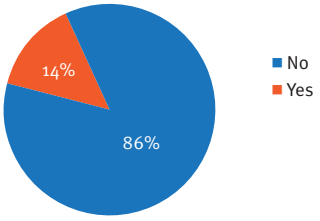
Source: National Urgent Care Realty database, July 1, 2026 (n = 14,495 centers). The 2,614 centers with private equity investment include the 866 health system joint venture centers.

Affiliated with Hospital or Health System



Source: National Urgent Care Realty database, July 1, 2026 (n = 14,495 centers).

Health System / Private Equity Joint Venture



Source: National Urgent Care Realty database, July 1, 2026. N = 5,984 hospital-affiliated centers. The 866 joint venture centers are also counted in the private equity total.

As of July 1, 2026, there were 14,495 urgent care centers in the United States, according to National Urgent Care Realty data. The charts above break down that footprint by the number of locations per operator, affiliation with a hospital or health system, private equity investment, and participation in a health system/private equity joint venture.

From the data:

- 56% of urgent care centers are operated by groups of 10 or more locations, up from 54% in September 2024. Another 11% belong to operators with 5–9 locations and 16% to operators with 2 to 4 locations.
- 17% of urgent care centers are single-unit operations, down from 18%. The number of single-unit centers fell to 2,427 even as the national total grew, so independents are leaving the market faster than new ones open.
- 41% of urgent care centers are affiliated with a hospital or health system, up from 39%. Health systems added roughly 400 centers over the period, more than the 250 centers the market gained on net.
- 18% of urgent care centers have received private equity investment, up from 17%, led by the growth of hospital-private equity joint ventures.
- 866 centers, or 14% of the hospital-affiliated total, operate as a joint venture between a health system and a private equity partner. Those centers sit in both the health system and private equity counts and account for 6% of all urgent care centers.
- The national count grew by 250 centers, or 1.8%, over 22 months. Ownership changed more over that period than the number of centers did. ■



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