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URGENT CARE ASSOCIATION

COLLEGE OF URGENT CARE MEDICINE

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CLINICAL cme

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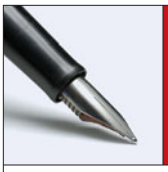
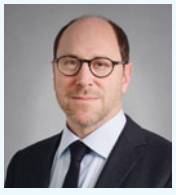


LETTER FROM THE EDITOR-IN-CHIEF

Slow Medicine: 'Unprescribing' America



#TimesUp; #NeverAgain; #Privacy; #OpioidCrisis; #BlackLivesMatter.... The last year has been a dramatic one for turning points in long-festering social issues. For decades, we turned our cultural cheek on problems we knew existed (misogyny and bias) or should have seen coming (opioids, mass killings, and privacy). But in 2017 and into 2018 we are witnessing a tidal wave of resistance and public denunciations against the ugly side of American life. A collective *enough is enough* echoes across most every city and small town. We are exasperated, frustrated, and increasingly skeptical of the marketing messages, the government oversight, and even the broader social order.

Multiple sentinel events preceded our awakening and the momentum grew with each societal failure exposed. Ironically, what many have seen as a "me first" political shift is colliding head-on with a cultural tilt toward broader societal ideals where safety supersedes freedom and equal rights trumps individual power (sorry, couldn't resist).

Healthcare has felt the full force of this shift, with the opioid epidemic leading the headlines. And perhaps that crisis is revealing a crack in the industrial healthcare complex. In particular, the behavior of doctors and pharmaceutical companies over the last few decades is giving some of us considerable pause.

While the total number of prescriptions has been skyrocketing for some time now, much of the recent growth has been fueled by the so-called lifestyle drugs and medications for pre-disease states.

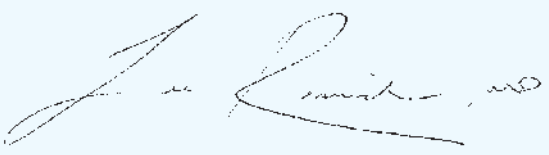
For every legitimate and life-saving prescription written for major depression or paralyzing anxiety disorders, several more are being doled out for situational distress, poor coping, and/or general mood enhancement. From energy to erections, it is no longer necessary to be satisfied with an underperforming life. The promise of enhancing our lives with more focus when we need it, and more sleep when we can't, is simply too tantalizing to avoid. With the long-term risk of this "life-hacking" unknown, we are diving head-first, throwing caution to the wind. And the entirety of healthcare has been complicit.

Yet, we are neither happier nor healthier for it. We ignored the negative feedback loops, receptor downregulation, and side effects we should have seen coming. With prolonged use our shortcuts to better sleep, better relationships, and better self predictably lost their effectiveness or upset the delicate neurohormonal balance that forms the foundation of homeostasis. Short-term fixes quickly gave rise to long-term struggles that has many of us, myself included, wondering what exactly we got ourselves into. We should have seen this coming.

"With each story of addiction, abuse, and failure, the relentless American pursuit of power and self-determination is humbled just a little bit."

But, with the ugly consequence of narcissism and hedonism on full display recently, a tremor of resistance and self-awareness just may be building. With each story of addiction, abuse, and failure, the relentless American pursuit of power and self-determination is humbled just a little bit. In fact, a new and growing movement is afoot to "unprescribe" America and refocus our priorities on addressing the bio-psycho-social roots of many of our health problems. Dubbed the "slow medicine" movement, these physicians are working to reverse the cultural belief that every symptom needs a drug, instead relying more on the body's natural healing process (and time) to support recovery and well-being.

To improve the lives of our patients, we must reverse course on overprescribing and slowly chip away at the marketing messages that encourage a medication-first culture in this country. It won't be easy or quick, but the path to a joyful and fulfilling life is never short and fast. Slow and steady wins this race. ■



Lee A. Resnick, MD, FAAFP
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JUNE 2018 | VOLUME 12, NUMBER 9

CLINICAL

IN THE NEXT ISSUE OF *JUCM*

Fever and drooling can be common in pediatric patients. Other times, they can be signs of serious illness. Being able to recognize drooling that could be due to dangerous infection or an allergic reaction, and the difference between an "average" high temperature and one that's a red flag is essential to keeping your youngest patients safe. Learn more in the July/August issue of JUCM.

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When a patient presents with a swollen knee that is clearly causing a great deal of pain, you can safely assume some sort of imaging will be in order. If that same patient presents after falling and bumping their head with no obvious trauma, however, what to do next may be less clear. Do they need any imaging at all—and if so, what kind?



Head Injuries and Cirrhosis: Does Everyone Need a CT Scan? (page 11), by **Capt. Brandon Godfrey, MD, USAF, MC, FS**; **Haylie Wiesner, BS**; and **John Shufeldt, MD, JD, MBA, FACEP** examines the process by which you can make such a critical choice. Dr. Godfrey is an active-duty member of the United States Air Force; Ms. Wiesner is chief medical scribe at the Children's Hospital of Wisconsin in Milwaukee; Dr. Shufeldt is the interim chief medical officer at San Carlos Apache Healthcare Center and chief executive officer of US Careways.


If patients with minor head injuries are children, they are often referred to the emergency room for evaluation as a matter of course. But couldn't some of them be assessed just as effectively in the urgent care center? That's the question **Cathleen DeLaney DNP, MSN-FNP, APRN** and **Kris Skalsky MSNEd, EdD, RN** had. Fortunately for us, they weren't satisfied to accept that as a rhetorical question and they set out to study whether applying evidence-based guidelines could lower the transfer rate safely. The result is, The Effect of PECARN Guidelines on Minor Head Injury Referrals from the Urgent Care Center to the Emergency Room (page 26). Dr. DeLaney practices at Cook Children's Urgent Care Clinic in Hurst, TX. Dr. Skalsky is a professor at American Sentinel University.

One absolute necessity when determining whether a patient of any age can be assessed for concussion in the urgent care setting is an appropriate screening tool. The problem is that some of those most commonly used may not be reliable enough. **Len Lecci, PhD, MA; John Hollander; Dale Key; and Julian Keith, MA, PhD** cover the relative merits in Concussion Management in Urgent Care: A Primer for Implementation (page 33). Three of the authors have ties to the University of North Carolina Wilmington: Dr. Lecci is a professor of psychology there, as well as the Director of Clinical Services for MARS Memory Health Network; Mr. Hollander is a graduate student; and Dr. Keith is the chair and a professor of psychology. Mr. Key is the CEO of Medac Health Services.




Turning away from head injuries, this month's Case Report focuses on a fairly common complaint—neck pain—that has a far-from-common cause. **Mark Richman, MD, MPH**, an emergency physician at Northwell Health Long Island Jewish Medical Center; **Brendan Appold, MS**, visiting scholar at Northwell Feinstein Institute for Medical Research; and **Jennie Soniega-Sherwood, MPH**, a part-time faculty member and research assistant who teaches biostatistics at California State University recognized the educational value of their case and shared the details in Cervical Fasciitis—An Unusual Cause of Neck Pain (page 23).



"Educational value" is a more concrete term in the practice setting. Continuing Medical Education is invaluable when it comes to keeping up with the standards and requirements of a clinician's licensure. That doesn't mean the cost can't be quantified, however. Having a clear policy on who's responsible for that cost, and others, can preclude a lot of turmoil. You can even get CME credit for reading Developing a Reimbursement Policy for CME and Other Employee Expenses (page 17), by **Alan A. Ayers, MBA, MAcc,** chief executive officer of Velocity Urgent Care and Practice Management Editor of *JUCM*.

Another workplace policy that bears discussion is use of the probation period for new staff. As Mr. Ayers explains in Effectively Utilizing 90-Day Probationary Periods for New Employees (page 30), it gives both the employer and the employee time to decide if they want to maintain a long-term relationship.

Also in this issue, **Glenn Harnett, MD** highlights new urgent care-relevant literature (page 38) and **David Stern, MD, CPC** updates us on the implications of the new Medicare cards and ID system that is just now making landfall. Staying up to date will help your practice make the transition without missing a step—or any revenue (page 47). Dr. Harnett is principal of the No Resistance Consulting Group; Dr. Stern is the CEO of Practice Velocity, LLC and PV Billing.

Thanks to Our Peer Reviewers

We appreciate the time and insights shared by the urgent care leaders who accepted our invitation to review content for this issue:

- **Cindy Golusin**
- **James B. Short, MD**
- **Janet Williams, MD, FACEP**

If you would like to help advance urgent care-relevant literature by serving as a peer reviewer, please email your CV to editor@jucm.com. ■

CONTINUING MEDICAL EDUCATION

Release Date: June 1, 2018
Expiration Date: May 31, 2019

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

Learning Objectives
1. To provide best practice recommendations for the diagnosis and treatment of common conditions seen in urgent care
2. To review clinical guidelines wherever applicable and discuss their relevancy and utility in the urgent care setting
3. To provide unbiased, expert advice regarding the management and operational success of urgent care practices
4. To support content and recommendations with evidence and literature references rather than personal opinion

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- **Michael B. Weinstock, MD**
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CONTINUING MEDICAL EDUCATION

***JUCM* CME subscribers can submit responses for CME credit at www.jucm.com/cme/. Quiz questions are featured below for your convenience. This issue is approved for up to *3 AMA PRA Category 1 Credits*™. Credits may be claimed for 1 year from the date of this issue.**

Head Injuries and Cirrhosis: Does Everyone Need a CT Scan? (p. 11)

1. **Why do patients with cirrhosis have a higher incidence of intracranial hemorrhage?**
   a. Hemosiderin deposits
   b. Coagulopathy which accompanies cirrhosis
   c. Weak bridging vessels
   d. Cirrhosis medications cause excessive bleeding
   e. Hepatitis B virus causes dizziness and increases risk of falls

2. **What is the most likely mechanism for TBI in cirrhosis?**
   a. Falls
   b. Motor vehicle accident
   c. Assault
   d. Self-inflicted trauma
   e. All of the above

3. **What treatment should be administered to a patient with an epidural hematoma and a coagulopathy?**
   a. Prothrombin complex concentrate (PCC)
   b. Whole blood
   c. Vitamin C
   d. Packed red blood cells (pRBC)
   e. None of the above

Developing a Reimbursement Policy for CME and Other Employee Expenses (p. 17)

1. **Why is CME an expense that should be covered by an employer?**
   a. It is an essential, job-related requirement
   b. CME is not covered by the employer
   c. CME is required annually for healthcare professionals
   d. a & c

2. **What are some recurring expenses that are also covered under business-related expenses?**
   a. Hotel/lodging
   b. Meals
   c. Transportation
   d. Client entertainment
   e. All of the above

3. **What are some other common healthcare employee reimbursements?**
   a. CME classes
   b. Travel expenses to conferences
   c. Textbooks
   d. All of the above

Cervical Fasciitis—An Unusual Cause of Neck Pain (p. 23)

1. **The differential diagnosis for neck pain includes:**
   a. Cervical muscle strain
   b. Cervical spine fracture
   c. Oropharyngeal infection
   d. Cervical fasciitis (inflammation of the facet joints)
   e. All of the above

2. **Cervical fasciitis should be suspected in a patient with:**
   a. Persistent or marked pain or limitation of neck movement despite pain medications
   b. Normal serum WBC
   c. Normal ESR and CRP
   d. Absence of fever
   e. Blunt neck trauma with midline posterior cervical spine tenderness

3. **High suspicion of cervical fasciitis should prompt definitive diagnosis by:**
   a. Plain-film x-rays of the cervical spine
   b. Bloodwork for inflammatory markers (eg, serum WBC, ESR, and CRP)
   c. Referral for MRI
   d. Blood cultures
   e. PPD

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DR. PAMELA SULLIVAN, IMMEDIATE PAST-PRESIDENT

A top of the line sports car. A rocket with cutting-edge design and technology. On-demand healthcare. Your business. The urgent care industry. What do these things have in common? They are all advancing quickly and striving to be the best in class. The Urgent Care Association of America (UCAOA) has heard your message. We strive to be the best, so we can support the industry and help drive your success. The Board of Directors and staff of UCAOA have spent the last year gauging the needs of our members and reviewing our strategic plan. Our goal is to broaden our scope of services and outreach, ensuring we are anticipating and exceeding the needs of the urgent care and on-demand industry. The Urgent Care Association of America (UCAOA) is now the Urgent Care Association (UCA) – ***your gateway to better***.

UCA connects the on-demand healthcare industry to better:

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Attendees at the Evolution 2.0 Urgent Care Convention & Expo last month received a first look at the association's own "evolution" to UCA during the member appreciation lunch. Those at the convention were also able to take advantage of the inaugural VIP (Value in Participation) program, which gave every attendee the chance to take home up to $5,000 in free products and services from UCA and program vendors, ensuring that event attendance pays for itself. If you missed it, don't snooze on registering for the 2018 Urgent Care Fall Conference in Houston October 12–14! The VIP program will continue there, so you too can walk away from the event with up to $5,000 in free products and services from the industry's best solution providers.

The VIP program is just one of many amazing resources and benefits that the association provides. I am in awe of the work accomplished by Laurel Stoimenoff, CEO and the UCA staff in my time as president of the board. The following is a *partial* list of those achievements:

- Specialty sections created as a free member benefit, including Pediatrics, Occupational Medicine, Telemedicine/eHealth, and Hospitals/Health Systems
- Addition of the Northeast Regional Urgent Care Association (NERUCA) and California Urgent Care Association (CalUCA) as state chapters
- 401k MEP (Multiple Employer Plan) member benefit
- Members-only payer and reimbursement toolkit available on UCA website
- Advocacy efforts including "Day on the Hill" and Veterans' Affairs bill
- Released *The Essential Role of the Urgent Care Center in Population Health* white paper
- 750 centers earning Accreditation, and 1,300 centers qualifying for Certification
- New certification types, including Rural, Seasonal, Orthopedic, Occupational Medicine / Health, and Pediatrics After-Hours
- College of Urgent Care Medicine (CUCM) restructured to welcome physician assistants and nurse practitioners
- Collaborated with Antibiotic Resistance Action Center (ARAC) at George Washington University on antibiotic stewardship
- Funded care for the uninsured offered by urgent care centers following hurricanes in Texas and Louisiana through the Urgent Care Foundation

As I reflect on my tenure as UCA president, I know that we will continue to strive to support you, our members, every day. I am humbled that I was given the opportunity to serve as your president. I wish success, happiness and good health to all of you. ■

Pamela C. Sullivan, MD, MBA, FACP, PT is Medical Director of Rochester Immediate Care, Team Health, Webster NY.

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Head Injuries and Cirrhosis: Does Everyone Need a CT Scan?

Urgent message: The decision of whether or not to image a patient with a head injury has significant implications—for the patient *and* the urgent care provider. Understanding which patients are at greatest risk for serious head injury, indications for testing, and options for management/disposition is essential.

BRANDON GODFREY, MD; HAYLIE WIESNER, BS; and JOHN SHUFELDT, MD, JD, MBA, FACEP

Case

A 47-year-old male with a history of alcohol abuse and cirrhosis presents to an urgent care center after hitting his head on a cement column during "a minor altercation" with a family member. When he developed a 3x3 cm hematoma on the posterior scalp, his family became concerned and transported him to your facility.

Per reports from the family, the patient was alert and oriented and maintained his cognition throughout the transport. He could recall the event without amnesia and denied any loss of consciousness (LOC). His Glasgow Coma Scale (GCS) score on arrival was 15. He stated that he did consume alcohol earlier in the morning, but denied being intoxicated on presentation to the urgent care. His level of alertness and ability to answer all questions appropriately during the history and physical exam corroborated this claim. His pupils were equal, round, and reactive to light and he had no evidence of basilar skull fracture. He had no lacerations on exam. His hematoma was not weeping, expanding, or bleeding. He was noted to have mild scleral icterus. His Canadian CT Head Rule (CCHR) score was 0 on arrival. He did not meet the standard for New Orleans Criteria (NOC) use due to the fact that he did not lose consciousness. He did not seek medical care for his cirrhosis routinely, though he was a daily alcohol drinker. His chronic medical conditions were not under control.

Shortly after initial evaluation, the patient was found to be "sleeping" and "snoring." His vital signs remained stable. The tech tried to wake the patient, but he was unarousable. The physician then entered the room and on exam the pupils were found to be unequal, with the left pupil larger than the right. His oxygen saturation was noted to be in the 70s. The staff began to assist his

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Capt. Brandon Godfrey, MD, USAF, MC, FS is an active-duty member of the United States Air Force. **Heylie Wiesner, BS** is Chief Medical Scribe at the Children's Hospital of Wisconsin in Milwaukee. **John Shufeldt, MD, JD, MBA, FACEP** is the Interim Chief Medical Officer at San Carlos Apache Healthcare Center and Chief Executive Officer of US Careways. The authors have no relevant financial relationships with any commercial interests.

ventilation and called 911.

Once in the ED, his airway was secured by endotracheal (ET) intubation and he was taken immediately to the computed tomography (CT) scanner, which revealed a large subdural hematoma (SDH) with a significant midline shift. In addition, he was found to have a significant coagulopathy. He was given fresh frozen plasma (FFP), platelets, and vitamin K.

Despite intervention, he died 3 days after the initial injury.

Here, we review the criteria for imaging in patients with head injuries, and discuss the major risks associated with even minor head injury mechanisms in cirrhotic patients.

"Cirrhotic patients are a higher risk subset of the population due to their propensity for falls and varying degrees of coagulopathy. In fact, ground-level falls are the most common injury mechanism among cirrhotic patients."

Traumatic Brain Injuries

Intracranial bleeding can be characterized as an epidural hematoma (EDH), intracerebral hemorrhage (ICH), subarachnoid hemorrhage (SAH), or SDH. They can be spontaneous or traumatic. Causes of nontraumatic intracranial bleeds are numerus and include hypertension, vascular malformation, and bleeding disorders. Traumatic brain injuries (TBI) can be caused by a blunt injury or penetrating injury and can result in any of the different types of intracranial bleeds.

TBIs can range from inconsequential to fatal. They are, however, one of the leading causes of mortality in the United States. Many of the deaths from TBI occur in the elderly population,[1] including approximately 50,000 deaths per year resulting from TBI.

Cirrhotic patients comprise a high-risk population within this group. They are a higher risk subset of the population due to their propensity for falls and varying degrees of coagulopathy.[1] In fact, ground-level falls are the most common injury mechanism among cirrhotic patients.[1-3] Following a ground-level fall in a cirrhotic patient, the risk for progression of an intracranial bleed is typically higher due to the coagulopathy that accompanies cirrhosis.[1,4] TBI in a cirrhotic patient is also associated with worse in-hospital outcomes. Cirrhotics with TBIs have been shown to have longer stays in the intensive care unit (ICU) and increased ventilator days.[5] They have also been found to have a nearly two-fold increased mortality (34% vs 18.1%).[5]

CCHR and NOC

Two decision rules currently exist to aid practitioners in deciding which adult patients with a head injury should or should not have a CT scan of their head. The CCHR and the NOC are validated clinical decision-making rules.

The CCHR rule was developed to assist providers in ruling out clinically significant brain injury on CT or the need for neurosurgical intervention in those who present with minor head injury.[6] High risk factors are as follows:

- GCS <15 at 2 hours postinjury
- suspected open or depressed skull fracture
- any sign of basilar skull fracture
- ≥two episodes of vomiting
- age >65 years[6]

If the patient is positive for any of these, the rule cannot be used to rule out the need for imaging. There are also medium risk criteria detailed in the CCHR, which include two additional points:[6]

- amnesia for events 30 minutes prior to impact
- dangerous mechanism

It is important to note that high-risk patients such as our patient with a bleeding diathesis were excluded from the study, meaning the CCHR should not be applied to these cases.

The NOC can also be used as a clinical decision-making aid. It should be applied to patients with a head injury and loss of consciousness who present with a GCS of 15 and a normal brief neurologic exam.[7] The criteria include:

- the presence of a headache
- vomiting
- age >60
- alcohol or drug intoxication
- persistent anterograde amnesia
- visible trauma above the clavicle
- seizure[7]

As with the CCHR, if all NOC are negative the guidelines would suggest that the patient not undergo a CT scan of the head. Cirrhotic patients were not excluded in the NOC. In this study, it was documented in the

Table 1. Canadian CT Head Rule vs New Orleans Criteria

Canadian CT Head Rule (CCHR)[6] CT imaging is only required for patients with minor head injury with any one of the following findings. The criteria apply to patients with minor head injury who present with a Glasgow Coma Scale score of 13–15 after witnessed loss of consciousness, amnesia, or confusion.	*High-risk for neurosurgical intervention* • Glasgow Coma Scale score <15 at 2 hours after injury • Suspected open or depressed skull fracture • Any sign of basilar skull fracture (hemotympanum, periorbital ecchymosis, otorrhea or rhinorrhea, Battle sign) • ≥2 episodes of vomiting • Age >65 years *Medium risk for brain injury detection by CT imagine* • Amnesia before impact of ≥30 minutes • Dangerous mechanism (eg, pedestrian vs motor vehicle, ejection from motor vehicle, or fall from an elevation of ≥3 feet or five stairs
New Orleans Criteria (NOC)[7] CT imaging is required for patients with minor head injury with any one of the following findings. The criteria only apply to patients who have a Glasgow Coma Scale score of 15.	• Headache • Vomiting • Age >60 years • Drug or alcohol intoxication • Persistent anterograde amnesia • Visible trauma above the clavicle • Seizure

phase one questionnaire if the patient had a bleeding disorder, but no labs were performed looking exclusively at the risk of bleeding. Childs class and MELD scores were not calculated for these patients either.

The sensitivities of both criteria have been found to be roughly equivalent. There have been studies where each of the two clinical decisions rules have outperformed the other in their sensitivity for predicting the need for neurosurgical intervention and for having positive CT findings. However, the specificity of the CCHR generally outperforms the NOC. One study found that the sensitivity and specificity for the need for neurosurgical intervention were 100% and 60%, respectively, for the CCHR.[8] In comparison, the sensitivity and specificity of the NOC were 82% and 26%, respectively.[8] Another recent study showed that the CCHR was significantly associated with important CT findings while the NOC were not.[9]

Based on this recent evidence it appears that the CCHR is better for predicting those with positive CT findings and those who require neurosurgical intervention.

Additional Factors in Determining Who to Scan

There are other factors, in addition to the CCHR and NOC, that can be used to determine which patients should receive a CT scan after sustaining a TBI. Patients <60 years of age have a decreased risk of mortality from TBI with SDH.[10] Patients >60 had a 25%-63% increase in mortality when compared with younger patients.[10] Mechanism of injury and type of trauma showed no influence in rate of mortality for younger or older patients.[10]

Another factor is the severity of the trauma. The less severe the trauma, the lower the risk of mortality from TBI with SDH.[10]

Finally, the length of time since the injury occurred should be considered. Patients with surgical management <4 hours after the time of injury reported only 30% mortality, vs 90% mortality in patients who did not have surgical management until >4 hours after the time of injury.[10,11] Neurological status of the patient upon arrival to the urgent care is another indicator for the necessity of a CT scan; the more neurologically intact, the less likely the risk of mortality due to TBI with SDH.[10]

Patients presenting with a history of coagulopathy such as cirrhosis should have a CT scan performed. If CT scan is unavailable at the location, the patient should be transferred emergently. Cirrhotic patients have a twofold increase in mortality compared with noncirrhotic counterparts with TBIs.[5]

Physical Examination

Neurological

A patient presenting with a chief complaint of head injury or suspicion for TBI should have a good neurological examination completed upon arrival to the urgent care. This exam should include testing of mental status,

cranial nerves (CN), sensation, strength, and motor function.

Mental status

The mental status can often be assessed simply upon walking into the room, based on the patient's level of consciousness. If the patient is alert, the mental status exam can be expanded to include attention, concentration, memory, language, mood, thought, etc.[12] A GCS should be administered to patients suspected of having a TBI. The GCS score is an independent value that allows one to confidently use both the CCHR and NOC prediction rules.

Cranial nerves

To assess the CNs, first examine the eyes. The pupils should be equal, round, and reactive to light. This will test CN II. Evidence of anisocoria should be acted on quickly, especially in a patient with a GCS <15 or signs of more severe TBI. If anisocoria is present and the patient is alert and oriented, ascertain whether this is their typical baseline. One approach is to coordinate with family members; another is to review the record for prior documentation of anisocoria.

CNs III, IV, and VI are evaluated with extraocular movements when the patient tracks a finger or object. CN V can be assessed by lightly touching the patient's face in the three distinct distributions of CN V. Facial strength and symmetry occur due to CN VII and should be tested by having the patient smile and raise their eyebrows. CN VIII is auditory function and can be assessed by rubbing one's fingers on either side of the patient's head near their ears. Examine the soft palate for symmetrical movement and the uvula for midline placement when assessing CN IX and X. To test the spinal accessory nerve, CN XI, have the patient shrug their shoulders and perform rotation of the neck to the left and right. To assess CN XII, have the patient protrude their tongue and move it side to side.

Sensory

A sensory examination should also be conducted; this may include testing of light touch, pain, temperature, vibration, stereognosis, graphesthesia, point localization, two-point discrimination, and extinction.[12] If TBI is present, the patient's own ability to cooperate with the examiner for all these tests may also be inhibited.

Motor

The motor exam includes gait, coordination, involuntary movements, pronator drift, strength, muscle bulk, muscle tone, and assessing upper vs lower motor neuron lesions.[12] Pronator drift is tested by having the patient close their eyes, extend their arms fully while keeping them supinated, and watching for 5-10 seconds for any signs of pronation of the extremities or downward drift of the arms.[12] Pronator drift may be a sign of an intracranial bleeding.

The deep tendon reflexes, plantar response, and superficial reflexes can all be evaluated.[12] Repeat neurological examinations may be performed to assess for decompensation if there is a notable delay between time of injury and initial exam.[13] A delayed bleed is thought to be related to the bleeding of microvessels that are damaged during the initial injury.[13] Changes in the neurological examinations are one key way that we can assess for changes that mandate advanced imaging.

"Only 12% of cirrhotics with TBI underwent neurosurgical intervention, compared with 25% of those without cirrhosis. This was a statistically significant difference."

Neurosurgical Interventions

As with the initial CT scan, timing is important with regard to neurosurgical intervention. Patients with earlier surgical interventions have markedly reduced mortality rates.[10] Even when the diagnosis is known and the patient has the opportunity to be operated on within the critical 4-hour window, improvement is not guaranteed.

A study by Langness, et al showed that only 12% of cirrhotics with TBI underwent neurosurgical intervention, compared with 25% of those without cirrhosis.[1] This was a statistically significant difference between the two groups. It was also observed that cirrhotics who underwent emergent neurosurgical decompression had mortality rates similar to noncirrhotics undergoing neurosurgical intervention, suggesting that the risk of operating on a cirrhotic is high.[1]

In the case described above, neurosurgical decompression was not performed as his Childs class score and MELD score made him a poor surgical candidate. The timing of the intervention would have been close to the 4-hour postinjury mark, but the patient had already herniated at this point and the outcome of surgery would have likely been poor.

Another limiting factor may be lack of medication and blood products for transfusion. Prothrombin concentrate complex (PCC) was requested by the receiving neurosurgery team, to be used for reversal of our patient's coagulopathy; the patient was treated with vitamin K, platelets, and FFP, but PCC was not available. There is one study showing PCC to be superior to FFP in normalizing the INR and decreasing hematoma expansion, but it did not report on its effect on meaningful clinical outcomes.[14]

"It is our recommendation to strongly consider CT scan of every patient with cirrhosis who presents to urgent care after any type of head trauma."

In a study that took place from 2004 to 2009, the most common cause for complication, and ultimately mortality, in TBI patients with a history of cirrhosis was hemorrhage during or after surgery.[15] Of the patients who underwent a procedure, 84.4% experienced a complication and 68.8% experienced rebleeding.[15] The complication rate, rebleeding rate, and mortality rate all increased from Childs class A to Childs class C cirrhotics.[15] In a separate study, preoperative and perioperative management and correction of coagulopathy improved survival rates of cirrhotics undergoing neurosurgical intervention.[16]

Conclusion

Patients with a head injury present extensive challenges regarding the decision to image, and disposition. Concern is for development of an EDH, SDH, ICH, or SAH. Hypocoagulable patients, due to an underlying process such as cirrhosis or medications, are at high risk for bleeding and poor outcomes.

Physicians in urgent care settings should be encouraged to use the validated clinical decision rules (CCHR and NOC) when evaluating a patient presenting with a chief complaint of head injury. However, they must use extreme caution if electing to use the NOC to rule out the need for CT scan in a hypocoagulable patient. Of note, the CCHR should not be applied to the cirrhotic patient since they were excluded from the study.

The physician in the urgent care setting must be thorough with neurological examinations and repeat them frequently when concern as to the severity of TBI exists.

If a CT scan is indicated, it should be done quickly; if it shows any type of intracranial bleed, the timing of neurosurgical intervention is critical.

Overall, trauma and hypocoagulable patients are a very deadly combination. Extreme care needs to be taken in any patient who presents to an urgent care center with the combination of these two diagnoses.

It is our recommendation to strongly consider CT scan of every patient with cirrhosis who presents to urgent care after any type of head trauma. This case illustrates how quickly these patients can deteriorate.

If the urgent care location does not have the ability to perform a CT scan, the patient should be transported quickly to a facility that can both perform a CT scan and has a neurosurgeon available to operate, if needed. ■

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Developing a Reimbursement Policy for CME and Other Employee Expenses

Urgent message: Every urgent care center should have a clear policy outlining which employee expenses, including CME-related expenses, it reimburses and how reimbursement occurs.

ALAN A. AYERS, MBA, MACC

Managers, owners, and supervisors in nearly every field need to be familiar with the process of reimbursing employees for costs incurred while doing company business. Whether those costs are travel related or for uniforms or meals, reimbursement is something that happens frequently, even daily for larger companies. However, owners and employers of urgent care and other healthcare facilities must take another aspect of employee reimbursement into consideration: Continuing Medical Education (CME). Just like every other expense, employees must submit a report that documents the expenses related to the training or education. All aspects of CME must be reviewed carefully by the employer for legitimacy and then reimbursed to the employee according to company policy.

CME is an essential, job-related requirement for healthcare employees. It ensures they stay current, competent, and up-to-date on new advances in the field and helps to refresh skills that may become stale over time.

Since CME is required annually for healthcare professionals, it's almost always considered an expense that should be covered by the employer. Therefore, it is important for urgent care owners and managers to have a policy outlining what should be reimbursed and what should not.

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Accountable Reimbursement Plan

Before examining the specifics of what falls into the category of reimbursable expenses, it's important to note that laws vary greatly from state to state. However, certain general guidelines must be met as outlined by the Internal Revenue Services and Department of Labor. It's crucial that employers have an "accountable plan" in place, for reimbursement money paid to the employee becomes taxable income. Having an accountable plan

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ensures that reimbursements are nontaxable, and thus much fairer to the employee.

So, what is an accountable plan? In essence, it is a check-and-balance system that ensures the employee is only reimbursed for expenses that are business related and can be substantiated as such. Expenses can be substantiated by providing receipts, documentation, and proof that the cost was required for the employee to perform services for the company. For example, a hotel room, rental car, and meal could be substantiated with receipts for an employee traveling to a business meeting in another state. The costs of lodging, travel, and food were necessary for him or her to participate in the business meeting.

"A per-diem allowance is intended to allow an appropriate and comfortable level of dining to replace meals the employee otherwise would have made at home, but to deter abuse of the policy."

A reimbursement plan is also considered accountable for employers that use a per-diem policy. This involves allotting a certain dollar amount per day for the employee to spend on travel and living expenses while doing business away from home. However, employees still must be able to properly document and demonstrate that the expenses occurred and were necessary for business. A popular use of per-diem reimbursement is the mileage rate for employees who use a personal vehicle as transportation to and from business activities, vs reimbursing actual car expenses such as gas, oil changes, car washes and depreciation. Amounts for reimbursement per mile may be set by the employer, or the standard IRS rate may be applied.

Common Business-Related Expenses

Employers should be familiar with some of the most common expenses for which employees should be reimbursed. Obviously, each report should be considered individually, but recognizing some reoccurring expenses is important.

- Hotel/lodging: Although this may be rather obvious, when traveling for business overnight, employees will need to stay in a hotel.
- Meals: Most employers have a written per-meal or per-day allowance for food, almost always excluding alcohol.
- Transportation: This can include airfare, taxi fees, Uber, train, subway, rental car, etc.
- Client entertainment: Often, business trips include taking a client out to eat or entertaining them in some way with the goal of getting or building the business relationship.

When a per-diem allowance is given, the intention is to allow an appropriate and comfortable level of dining to replace meals the employee otherwise would have made at home, but to deter employees from abusing the policy by going to a five-star restaurant, for example. Likewise, an employer may specify a specific hotel or rental car category, such as three-stars or "midsize."

Continuing Medical Education

In healthcare, there are other expenses considered work-related, and which should therefore be covered by the employer. These costs stem from the licensure and continuing education required of healthcare professionals.

Physicians, nurse practitioners, nurses, radiology technicians, and other clinicians all must be licensed by the state in order to practice. Typically, all expenses directly related to this licensure are covered by the employer. Furthermore, the cost of supplies and clothing required to perform the job are also considered expenses that the employer pays for. Knowing what falls into these categories and understanding the various licensure requirements for different professionals is essential knowledge for medical managers to possess.

CME is a process that is as repetitive as the name suggests. Every year (or every 2 years, depending on profession), healthcare workers are required to participate in various methods of education. This can take the form of classes, online courses, conferences, hands-on training, and several other forms of education. Courses may be mandatory and required by the healthcare institution for its employees, or the individual may have an option of which training to pursue. Regardless, each course or class is worth a specified number of credits as deemed appropriate by an overseeing agency such as the Accreditation Council for Continuing Medical Education (ACCME). Once the individual earns enough credits, they can fulfill state licensure requirements and earn specialty certifications, and are presumed to be more skilled and knowledgeable in their field.

Sample Urgent Care CME Reimbursement Policy

Policy Statement

Continuing Medical Education (CME) reimbursement is provided to encourage providers to maintain high professional standards through continuing education, participate in professional societies, and have access to current medical information. CME is the platform to ensure proper licensure and certification. To achieve these objectives while adhering to Internal Revenue Service requirements, this urgent care center will facilitate CME expense reimbursement as outlined below. Throughout this document, the acronym CME will refer to both physician and nonphysician provider continuing education in the medical field.

Policy

1. The annual CME allowance for providers is defined in the Allowances section below. The allowance is per full time equivalent.
   a. Providers employed for less than a full calendar year will have their allowance prorated by month based on start or termination date. Terminating providers who overspend their allowance will be required to reimburse amounts spent over their prorated allowance prior to date of termination.
   b. Part-time and flexi providers are not eligible for CME reimbursement.
2. The annual CME allowance is for the current year expenditures. There is no carry forward or carry back of funds (eg, a balance of $200 in December 2017 cannot be carried forward into 2018).
3. Courses must be accredited by the ACCME or other accreditation entity recognized by the entity requiring CME of the provider.
4. All CME reimbursement for live, in-person (as opposed to online) activities requires proof of CME completion; travel advances will, therefore, not be possible.
5. For travel to be reimbursed, a minimum of 4.0 CME credit hours must be completed for each travel day reimbursed.
6. All qualified expenses must be paid by the provider and submitted for reimbursement. Payments will not be made directly to a third party. Reimbursement subject to the annual CME allowance limit include (anything not listed below must be preapproved in writing by the appropriate VP & Chief Medical Officer):
   a. Course registration costs paid, net of any discounts received; courses will not be reimbursed if cancelled for any reason.
   b. Travel expenses related to the CME event including:
      i. airfare, train, or bus (participant only/coach)
      ii. lodging during the event (capped at $200/night)
      iii. maximum of $50 per day meal allowance with itemized receipt for participant only; alcoholic beverages will not be reimbursed. (**Note on Travel Days**: Travel day(s) may be required if both the location and start or end time of the CME event make it unreasonable to travel on the day of the event. When this is the case, lodging the night before/after the event and meal allowance for travel days are permitted.)
   c. Ground transportation expenses related to the CME event including:
      i. Maximum of $100 each way to/from the CME venue which may include rental car, taxi, Uber, shuttle service, or personal mileage at the standard rate
   d. Medical books, CDs, or DVDs, net of any discounts received
   e. Journals or subscriptions to medical professional publications/audio tapes, net of any discounts received
   f. Dues to medical professional organizations not to exceed 1 year in length
   g. Certification or recertification review courses with CME certification
   h. Expenses for clinical training opportunities as preapproved in writing by the Chief Medical Officer
   i. Stethoscopes and surgical loupes
   j. Phone/tablet applications as preapproved in writing by the Chief Medical Officer
   k. Maintenance of Certification (MOC) fees with associated earned CME credits
8. If the trip involves both personal and business activities, all or a portion of the travel may become taxable. It is recommended that you have the trip reviewed for potential tax consequences in advance of the trip.
9. Expenses not reimbursable as CME per IRS requirements include:
   a. Donations
   b. Political Action Committee contributions
   c. Travel for DVD or computer-based courses
   d. Travel which is primarily personal in nature, even when combined with business
   e. Family or guest travel and meals
   f. Family or guest lodging (if additional cost)
   g. Personal incidental expenses (cleaning, laundry, in-room video, child-care, health club or sports club fees, minibar service or miscellaneous entertainment)
   h. Extended lodging or meals
   i. Cancellation fees of any nature
   j. College or graduate courses that qualify for tuition reimbursement (paid under tuition reimbursement program to annual cap)
   k. Courses which do not award CME credit
   l. Computers or phones, including accessories (PDAs/Palm Pilot, cell phone, iPads, laptops, or similar devices)
   m. Computer software
   n. Nonprofessional subscriptions or books
   o. Framing or reframing artwork or documents
   p. Minor medical supplies, equipment, or accessories not otherwise specifically included
   q. Medical license renewals (paid under professional expenses)
   r. DEA license fees (paid under professional expenses)
   s. Hospital privileges
   t. Medical staff dues

Sample Urgent Care CME Reimbursement Policy (continued)

u. Board certification and recertification application and exam fees (paid under professional expenses based on the schedule outlined below in the Allowances for Professional Expenses section)
v. Maintenance of Certification (MOC) processing fees associated with the administrative component of the MOC cycle or stage (paid under professional expenses)
w. Certification and recertification review courses without CME certification
x. Lab coat cleaning
y. Birth-related injury fund (paid under professional expenses)
z. Insurance premiums (paid under insurance)
aa. Entertainment/social activities

These expenses may be strictly personal in nature or reimbursed as a business expense. Please consult with your practice manager and/or director for expenses that are not separately listed.

Procedure—Travel

1. Reimbursement can only be issued after completion of CME and when accompanied by the CME certificate from the accrediting body with CME credits earned, completed CME activity reimbursement form and itemized expense receipts.
2. All travel expense (including credit card) receipts must be itemized and include amount, date, place, and type of expense. If the receipt includes expenses for other individuals, you must circle the specific detailed business items you are requesting reimbursement for. You will only be reimbursed up to the limits listed, regardless of actual expense.
3. Business reason documentation is required by the Internal Revenue Service. The reason for the expense must be job-related educational expenses. For travel expenses, this includes the amount, date, place, and character of the expense (hotel, restaurant, etc.) and the completed training certificate. Any deviation from the policy could result in reduced reimbursement for the provider. Expenses will not be reimbursed without detailed back-up.
4. Requests for reimbursement must be made within 60 days of travel completion date. Expenses will not be reimbursed outside of 60 days.
5. If the trip involves both personal and business activities, all or a portion of the travel may not qualify for reimbursement. For domestic travel, more than 50% of the entire trip must be business related or the travel and personal days will not be reimbursed. It is recommended that you have the trip reviewed for potential tax consequences in advance of the trip.

CME Allowance

The total CME allowance per full-time equivalent physician and nonphysician provider is $2,500.

Allowances for Professional Expenses

The following professional expenses will be covered outside of the CME allowance:

Physician

- State Board of Medicine Licensure (paid every 2 years): $270
- Physician Board Certification: Paid incrementally on a yearly basis
- DEA License Fees (paid every 3 years): $731
- State Birth Injury Fund (paid yearly): $300

Physician Assistant

- State Licensure (paid every 2 years): $135
- National Commission of Certification for PAs (paid every 2 years): $150
- DEA License Fees (paid every 3 years): $731

Nurse Practitioner

- State Licensure

– Registered Nurse Endorsement (paid every 2 years): $140
– Licensed Nurse Practitioner (paid every 2 years): $80

DEA License Fees (paid every 3 years): $731
Prescriptive Authority (paid every 2 years): $35

References

- IRS Regulation 1.162-2
- IRS Regulation 1.274-4
- Revenue Ruling 2007-28

Supplies Reimbursement

Healthcare is different from many professions in that it requires each employee to have precise equipment and clothing for their job. For example, all nurses and physicians carry a stethoscope. This can be considered a business-related expense and is considered reimbursable by the employer. Some healthcare employees need other specialized instruments that can also be reimbursed or provided by the facility.

Scrubs are another example. For OSHA compliance, healthcare workers wear specifically designed garments that are manufactured with fibers that resist absorption of blood and other biohazards, rather than wear "street clothes." In addition, wearing the same "uniform" as coworkers builds camaraderie by identifying them as members of a patient-focused team, while providing clean, safe, and practical choice of clothing for an active job with long shifts. Scrubs are often provided by the

facility, but if the employee is required to purchase them on his or her own, many employers reimburse the cost for the necessary uniform pieces.

Healthcare Employee Reimbursement

As with employee reimbursement in other fields, healthcare professionals should accurately document and turn in reports with all business- or CME-related expenses. Some specific costs include:

- CME classes, tuition, etc.: Almost all CME classes have a registration fee or tuition attached. Since they are a requirement, employees can typically expect to be reimbursed for the cost of signing up.
- Travel expenses to conferences: Attending conferences is one of the more popular ways of earning CME credit. However, most of these are out of state or far enough away that they will require a hotel stay and meals. Just like other business travel discussed, these costs are generally covered by the employer.
- Textbooks: Often, CME courses require books or online subscriptions. These costs can be grouped with the other fees and should be reimbursed.
- State licensure fees: Healthcare professionals can expect to renew their license to practice annually. The employer will often reimburse this fee since it is mandatory to practice.
- Malpractice insurance: While not required to be reimbursed, some urgent care operators will reimburse or pay the malpractice premiums of its employees. This is often considered a "benefit" when a provider chooses to work for one facility over another.

"The specific things that are reimbursable and the process by which employees seek reimbursement varies from company to company and state to state."

Develop and Communicate a Policy

Ultimately, the specific things that are reimbursable and the process by which employees seek reimbursement varies from company to company and state to state. For urgent care operators, it is extremely important to know the details and procedure that accompanies this policy. This will help avoid discrepancies and confusion, and allow the manager to answer employee questions.

By reimbursing employees for the costs associated with practicing in healthcare, the facility can hire and retain the best talent while facilitating an excellent workplace. Although it may seem intimidating, having a simple understanding of how employees are reimbursed and what costs can be considered business-related in the medical field helps everyone succeed in the often-chaotic world of healthcare. ■

Summary

- CME expenses are often covered by the employer because they are by nature essential, job-related, annual requirements for clinicians.
- Recurring expenses that might be considered business-related—and reimbursable—include hotel/lodging, meals, transportation, and client entertainment while traveling on business.
- Common expenses related to CME often include course fees, travel expenses to conferences, and course materials (eg, textbooks).
- Some urgent care employers opt to reimburse clinical staff for fees for state licensure and for malpractice insurance (though the latter is more often considered a benefit designed to attract or retain talent).

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Cervical Fasciitis—An Unusual Cause of Neck Pain

Urgent message: Though neck pain is a common complaint among patients presenting to urgent care centers, cervical fasciitis is a relatively uncommon cause. Nonetheless, urgent care providers should consider it in the differential diagnosis for patients presenting with neck pain, even those who are afebrile.

MARK RICHMAN, MD, MPH; BRENDAN APPOLD, MS; AND JENNIE SONIEGA-SHERWOOD, MPH

Case Presentation

The patient is a 62-year-old-female with no significant past medical history who presented to a hospital-based urgent care center complaining of 1 week of worsening sharp, right-sided, nonradiating neck pain uncontrolled with acetaminophen or nonsteroidal antiinflammatory medications (NSAIDs). She described 2 days of subjective fevers and limited range of motion due to pain. She also reported occasional left-hand tingling. She denied neck trauma, heavy lifting, neck or spinal procedures or manipulations, steroid or intravenous drug abuse (IVDA), weight loss, rash, headache, neck rigidity, or photophobia. Her son had active tuberculosis (TB).

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Physical examination

The patient's initial vital signs were unremarkable. Physical examination was notable for pain with palpation of the right-sided neck muscles and 4/5 strength in the right triceps and biceps.

Differential diagnosis and approach to evaluation

Causes of neck pain range from benign (eg, muscle strain) to life-threatening (eg, cervical spine fracture, epidural abscess). Although the vast majority are not serious,[1] distinguishing between these entities is critical. Our patient denied trauma, so fracture was unlikely. Subjective fevers, objective weakness, and limited range of motion raised concern for an inflammatory (eg, rheumatologic, infectious) or malignant cause of the patient's symptoms.

As her son had active TB, osteomyelitis was a possibility; epidural abscess was less likely, as she denied IVDA or spinal procedures.

Muscle strain, ligament sprain, or fibromyalgia were also not likely, given subjective fevers, objective weakness, and no history of trauma or heavy lifting.

The patient's neck was not deviated in one direction,

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decreasing the likelihood of dystonia or torticollis.

Female gender, older age, and absence of lower back pain were not consistent with ankylosing spondylitis, which usually presents as low back pain affecting young men and can be identified through plain-film lumbar spine x-ray showing "bamboo" spine or sacroiliac joint sclerosis.

"Cervical fasciitis may be caused by rheumatologic conditions or bacterial (including mycobacteria) or fungal infections."

Without numbness or tingling in a dermatomal distribution, radiculopathy (such as due to osteophytes or disc herniation) was improbable; had that been suspected, outpatient nerve conduction studies would have been recommended.

The patient did not endorse odynophagia, had no stridor or lymphadenopathy, and had an unremarkable oropharyngeal examination, making lymphoma or oropharyngeal infectious etiologies such as epiglottitis or a peritonsillar, retropharyngeal, or parapharyngeal abscess unlikely (concern for these would have prompted transfer to an emergency room for IV contrast-enhanced CT scan).

Without tachycardia, tremor, or anterior neck tenderness, there was no suspicion for thyroiditis.

While neck pain is occasionally a manifestation of cardiovascular disease, she lacked cardiovascular risk factors and denied chest pain, shortness of breath, nausea, sweating, or dizziness, so myocardial infarction was not pursued via ECG or troponin. Likewise, carotid artery dissection was low on the differential diagnosis, as she had no vision loss, aphasia, or significant upper or lower extremity weakness; patients with such symptoms can be transferred to an ED for CT or MR angiography or Doppler ultrasound.

Though not necessary in most cases of neck pain, in this case bloodwork and a plain-film x-ray were performed to evaluate for infectious, rheumatologic, or malignant conditions, as this patient had subjective fevers and focal neurologic weakness without a viable alternative explanation for these symptoms.

Diagnostic Tests (Back to the Case)

Laboratory tests

Serum WBC was 11.3.

X-ray

A cervical-spine x-ray showed reversal of normal cervical spine lordosis, moderate severe, multilevel degenerative changes with narrow intervertebral discs, and neural foraminal encroachment by posterior osteophytes. There were no osteolytic lesions or bony erosions.

The patient's subjective fevers, elevated serum WBC, contact with active TB, and decreased right arm strength prompted admission to the hospital (where the urgent care resided) for an MRI to evaluate for osteomyelitis. A reasonable alternative would have been referral to an ED (or direct admission) for an MRI, even without prior bloodwork or plain film x-ray.

Magnetic resonance imaging

The MRI showed abnormal marrow edema, left C3-C4 facet joint enhancement with joint space fluid, adjacent left paravertebral enhancement, abnormal C1-C2 prevertebral soft tissue thickening with edema and enhancement in the longus colli muscles, and left paravertebral and prevertebral phlegmon.

This constellation of findings was worrisome for infectious fasciitis involving the left C3-C4 facet joint.

Diagnosis, Treatment, and Discharge

The patient was admitted to the Internal Medicine service. She received vancomycin and ceftriaxone until blood cultures returned negative. ESR was 66 and CRP 218. ANA, RF, anti-CCP were all negative; QuantiFERON-TB Gold and PPD tests were positive; chest x-ray was unremarkable. She underwent a CT-guided facet joint space drainage and biopsy; crystal examination, AFB smear, and bacterial cultures which were negative.

There were no predisposing factors indicating septic fasciitis. As such, this patient was diagnosed with cervical fasciitis most likely due to inflammatory (noninfectious) osteoarthritis.

Physical therapy resulted in significant improvement in the patient's pain and range of motion. She was set up for outpatient physical and occupational therapy for strength training and range-of-motion exercises before being discharged.

Discussion

Cervical fasciitis (inflammation of the cervical vertebrae facet joint) may be caused by rheumatologic conditions such as inflammatory osteoarthritis, or bacterial (including mycobacteria) or fungal infections.

Cervical fasciitis is an unusual cause of neck pain typically caused by either bacterial infection (*S aureus*, streptococcal species, mycobacterium tuberculosis) [3] or a rheumatologic condition, including osteoarthritis. Fasciitis should be considered if a patient presents with fever, elevated serum WBC, or persistent marked pain or limitation in neck range-of-motion despite pain medications.

"Without appropriate treatment, infection can [lead to] abscess formation, spinal cord/nerve root impingement, and sepsis."

Epidemiology

Facet joint septic arthritis is a rare source of neck pain that can cause significant morbidity due to local or systemic spread. Patients are typically between the ages of 55 to 59 years and approximately 90% of cases involve the lumbar spine.[4] Septic arthritis is most commonly secondary to a bacterial infection, arising from hematogenous spread, adjacent infections, and iatrogenic causes such as corticosteroid injection and epidural catheterization. Patients at increased risk include the elderly and immunosuppressed, such as those on chemotherapy or chronic steroids, or with diabetes mellitus or AIDS, as well as those with rheumatoid arthritis, skin infection, IV drug abuse, and/or previous joint issues.

Osteoarthritis of the spine involves the facet joints and is widely prevalent in older adults. Facet joint osteoarthritis is frequently associated with degenerative disc disease, but the two are distinct conditions. Prevalence is nearly 20% for adults aged 45 to 64, and nearly 60% for adults over the age of 65. While age is a strong risk factor of cervical osteoarthritis, the association with increased BMI is small, and there seems to be no gender association; occupational factors have not been examined.[5]

Conventional radiography (x-rays) are frequently negative for soft tissue mass, but can be helpful if positive.[2] They are most helpful when looking for unsuspected/forgotten metal, or for calcifications.

The imaging test of choice is the MRI scan, which did confirm the diagnosis in this case.

Management

Facet joint septic arthritis: Patients are treated with long-term (at least 6 weeks) parenteral antibiotics followed by oral antibiotics, or a combination of percutaneous drainage and long-term antibiotics. While there is often a delay in diagnosis, the majority of patients fully recover or experience mild residual pain/neurologic sequelae. Complications include chronic pain, joint/bony destruction, pyomyositis, abscess (epidural, psoas muscle, and paraspinal), neurologic sequelae (paresthesias, weakness), spondylodiscitis, endocarditis, meningitis, septic emboli, and, rarely, death. Open arthrotomy and surgical drainage/debridement are typically reserved for the patient with infection refractory to antibiotics or with acute neurological compromise. MRI is less helpful in assessing for treatment response, as soft tissue enhancement can persist following clearance of infection. Treatment response can be assessed using the patient's subjective improvement in symptoms and improvement in serum inflammatory markers.

In *osteoarthritis of the spine*, radiofrequency denervation is the standard treatment for facet joint pain, with some benefit for up to 1 year in approximately 60% of individuals. Medial branch blocks can serve a prognostic role to select patients who are likely to be responsive. Trials of intraarticular steroid injections for lumbar and cervical facet joint pain have yielded disappointing results, but a subpopulation of patients with acute inflammation derives intermediate-term benefit. While no studies have evaluated noninterventional treatments specifically for facetogenic pain, studies in nonspecific back pain suggest a modest, short-term beneficial effect for pharmacotherapy.[5]

Implications for Urgent Care Providers

Urgent care physicians should consider cervical fasciitis in the differential diagnosis for neck pain, even if the patient is afebrile. Clinical features that should prompt further investigation include fever, elevated serum WBC, or persistent marked pain or limitation in neck range-of-motion despite medications. In infectious facet arthritis, without appropriate diagnosis and treatment, infection can spread to adjacent structures, resulting in abscess formation, spinal cord/nerve root impingement, and sepsis. ■

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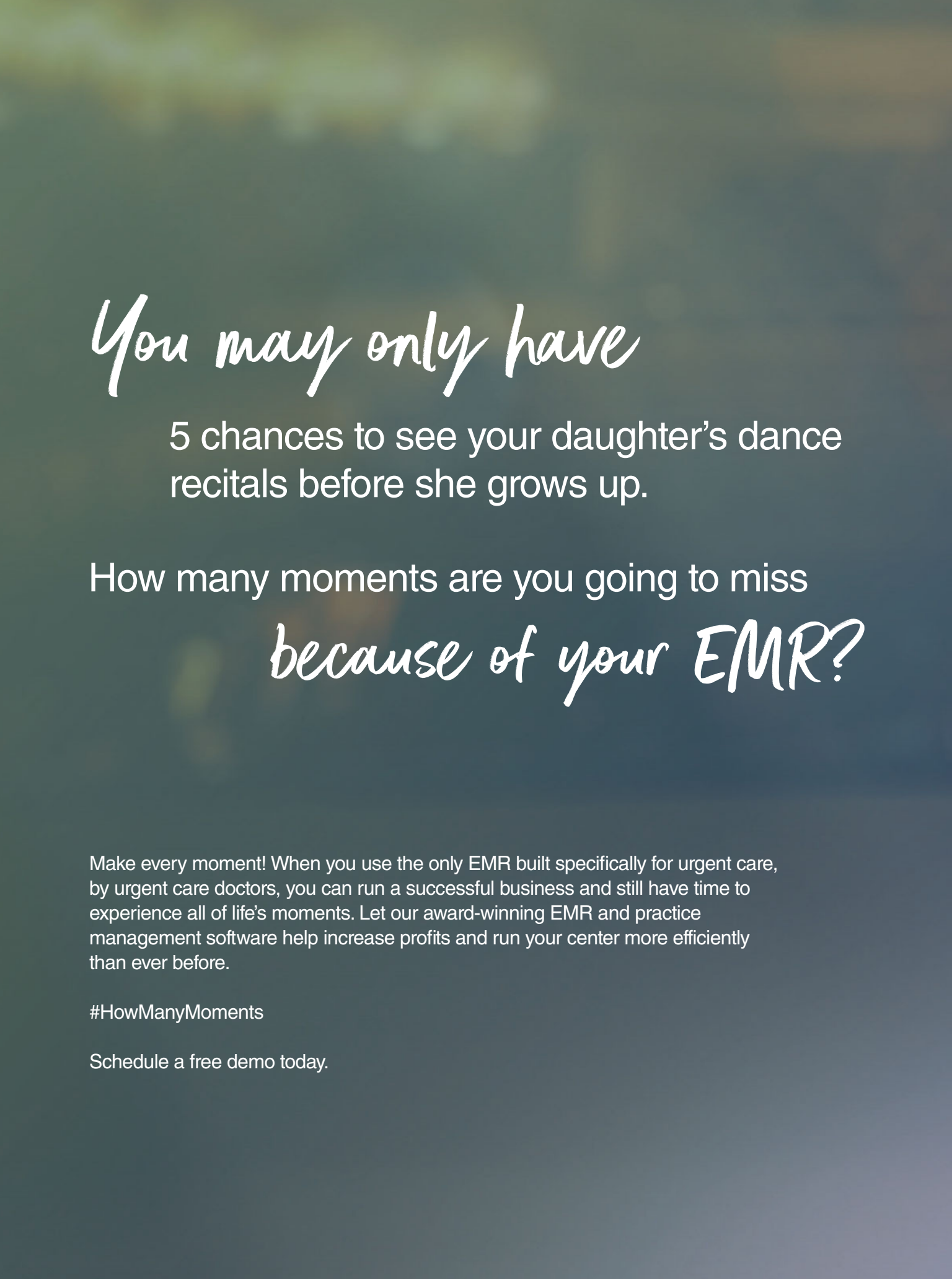
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The Effect of PECARN Guidelines on Minor Head Injury Referrals from the Urgent Care Center to the Emergency Room

CATHLEEN DELANEY DNP, MSN-FNP, APRN and KRIS SKALSKY MSNEd, EdD, RN

Abstract

Background and Purpose: The focus of this project was to determine if an evidence-based educational intervention had an impact on reducing the number of pediatric head injury referrals from the urgent care center to the emergency room. The urgent care center often makes referrals of pediatric head injury patients to the ED, contributing to the overutilization and overcrowding of an already taxed system.

Methods: This was a comparative retrospective pre- and postintervention study, utilizing historical data via retrospective chart review, from the urgent care center regarding pediatric patients with minor head injuries who were sent to the ED. An educational intervention utilizing the Pediatric Emergency Care Applied Research Network (PECARN) guidelines was conducted to improve the knowledge base of the providers within the urgent care center. Data collection during the 4 months prior-to and after the intervention determined if the intervention had an impact.

Findings: A chi-square test for independence (with Yates' Continuity Correction) indicated that an educational intervention on the PECARN guidelines given to healthcare providers in an urgent care center had no significant association with the number of referrals of pediatric minor head injury patients from the urgent care center to the ED, 2 (1, 464) = 2.90, $p = .09$, *phi* = -.09.

Conclusion: While the results of this study were not statistically significant, there was evidence of improved clinical judgment in referring patients to the ED. Further studies should examine the appropriateness of the referral, thereby demonstrating the effectiveness of an educational intervention utilizing the PECARN head injury guidelines.

Introduction

A common scenario that exists in both the primary and urgent care setting is sending minor head injuries to the ED to be evaluated. Many of these patients may leave

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the ED with nothing more than written and verbal precautions. These nonemergent visits might be avoided if the providers rely on evidence-based practices to make their clinical decisions.

Oman, et al noted that head injuries account for 1 million visits annually to the ED, generating charges from use of computed tomography (CT) of nearly $750 million.[1] In the pediatric population, the overuse of CT is more pronounced relative to the difficulty in assessing the neurological status in some age groups.

A 5-year retrospective study of 41 pediatric hospitals by Robertson, McConnel, and Green[2] examined charges associated with pediatric head injuries. The study acknowledged that head and brain injuries account for one-third of all injury deaths and are the most common cause of pediatric morbidity and mortality (nearly 90% of pediatric injury deaths). An examination of the records from 41 pediatric hospitals over a 5-year period indicated that these injuries accounted for almost $1 billion in total charges.[2]

The Centers for Disease Control and Prevention determined that the rates of traumatic brain injuries in the pediatric population increased for all age groups from 2001 to 2010. However, the largest increase was among children 4 years old and younger; the rate increased >50% from years 2007-2008 to 2009-2010 in those children—nearly twice that of the next largest group (15–24 years of age). This correlates to an increase from 1374.0 to 2193.8 per 100,000 visits to the ED for traumatic brain injury-related related injuries.[3]

Our study was prompted by the overutilization of the ED for nonemergent medical problems. In particular, the practice of sending minor head injury patients from the urgent care center to the ED for treatment, only to have these patients sent home without any interventions. The practice of sending them to the ED has resulted in increased "left without being seen" numbers, higher dissatisfaction with the hospital system and urgent care center, and increased patient complaints.

An estimated 20 million children seek medical care in pediatric EDs in the United States every year. Consequently, the pediatric ED has become a source of primary care for nonemergent visits.[4] Sending these patients from the urgent care center to the ED has only increased this problem.

There is little published literature on the number of referrals sent from urgent care centers to the ED in general, even less so when isolated to pediatric minor head injuries. One study by Canares, et al examined perceptions of urgent care providers and concerns when faced with common pediatric conditions. The three scenarios or concerns that challenged providers were: acutely ill infants, minor traumatic brain injury (mTBI), and uncooperative children needing minor procedures. Patients with these concerns were often transferred to the ED for care. The younger the child, the more likely a transfer or referral occurred. mTBI was particularly troublesome for providers due to the concern of missing an intracranial hemorrhage (ICH).[5] The study did not mention well-known published mTBI decision-making tools such as the Pediatric Emergency Care Applied Research Network (PECARN) algorithm for low-risk mTBI. Observing the child after injury for a prolonged period of time does not conform to the urgent care center model of "patients in and out quickly," so, the thinking goes, this is not a feasible option.[5]

Evidence-based practice guidelines or tools can be crucial in decision-making regarding the level of care that is necessary for patients. Utilizing evidence-based practice guidelines has the potential to improve patient outcomes.[6] Utilizing educational interventions to disseminate evidence-based practice guidelines may solve problems or concerns within a healthcare organization. By examining the rationale for the educational intervention and gaps in clinical practice, patient outcomes may be improved.[7]

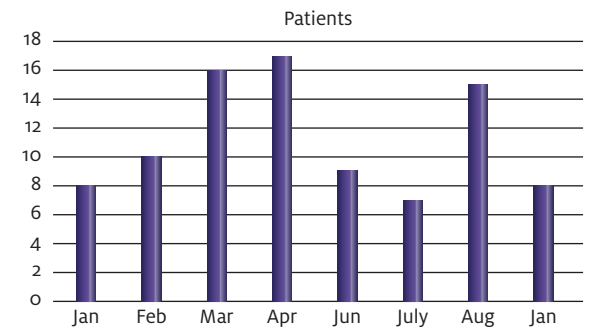
The PECARN has guidelines for minor head injuries in pediatric patients. These consist of two age-based algorithms to identify children at very low risk for ICH when presenting with mTBI.[8] Schonfeld, et al evaluated the performance of the PECARN guidelines in a two-center cross-sectional study with pediatric patients presenting to the ED with mTBI.[9] This study accurately identified those at clinically low risk who could safely avoid computerized tomography. Consistent application of the PECARN guidelines in children presenting to an urgent care center with mTBI may change the number of referrals sent to the ED from an urgent care center. Utilizing these guidelines may potentially decrease patient and parent dissatisfaction, overcrowding in the ED, and the number of patients who leave the urgent care center without being seen.

The purpose of this quantitative comparative before-and-after study using retrospective data was to determine the impact an educational intervention of the PECARN guidelines had on the number of referrals of pediatric minor head injury patients from the urgent care center to the ED.

Summary of Methods and Procedures

Permission to conduct the study at the urgent care center in Texas was received from the American Sentinel

Figure 1. Patients with diagnosis of head injury



University (ASU) Institutional Review Board (IRB). The study utilized a purposive sampling of records of the patients from birth to 18 years presenting with minor head injuries to the urgent care center over a 4-month period prior to an educational intervention (January, February, March, and April 2016) and a 4-month period after the educational intervention (June, July, August, and September 2016).

Evaluation of the ED records guided the necessary evidence-based practice intervention. Patient outcomes in the ED records included one of the two following scenarios:

1. The patient was sent home with no interventions.
2. There were interventions needed, such as CT scans, intravenous fluids, and medications or admission to the hospital.

After the authors reviewed the de-identified data for the months of January, February, March, and April 2016, an educational intervention utilizing evidence-based practice was provided to all providers, registered nurses, paramedics, and medical assistants at the urgent care center. The intervention was designed to effect a practice change regarding which head injury patients need to be sent to the ED.

Summary of Sample and Setting Characteristics

The setting for this study was a pediatric urgent care center associated with a pediatric hospital in a large urban center in Texas. This was a freestanding facility two blocks away from Children's Hospital in Texas, and the main pediatric ED. The facility operated between the hours of 7 AM until midnight, 7 days a week, with physician and advanced practice provider coverage. The facility has 19 patient rooms and averages 180 to 220 patients a day during the busy winter season and 130 to 150 patients in the off season/summer.

The total number of patients presenting to the urgent care center with head injuries in the 4-month period (January, February, March, April 2016) prior to the educational intervention was 223, with 51 patients (22%) sent to the ED for evaluation.

In the 4-month period (June, July, August, September 2016) after the educational intervention, a total of 241 patients with head injuries presented to the urgent care center; of those, 39 patients (16%) were sent to the ED for evaluation (**Figure 1**).

Major Findings

A chi-square test for independence (with Yates' Continuity Correction) was used to analyze the data in this study. Results showed no statistically significant change ($p > .05$) in the total number of ED referrals of pediatric minor head injury patients, the total number of ED referrals of pediatric minor head injury patients who did and did not require any interventions, or the total number of ED referrals of pediatric minor head injury patients aged <23 months and >24 who did and did not require any interventions after the educational intervention on the PECARN guidelines.

Implications

This study utilized evidence-based practice guidelines on pediatric head injuries in an educational intervention with providers; there was not a resultant statistical decrease in the number of patients sent to the ED for head injuries. This raises the question of evidence-based practice as the standard of care when there is no significant statistical improvement.

Chang and Crowe noted that evidence-based practice (EBP) has been utilized as an ideal method in providing cost-effective care and improving patient outcomes.[10] Kin, et al, in a descriptive study acknowledged the role of EBP in healthcare and the influence on the decision-making process and the achievement in quality patient outcomes.[11] While there was no significant *statistical* change in the number of patients referred to the ED in our study, there was a *clinical* change. Specifically, there was a decrease in the number of patients that had been referred to the ED and sent home without any further interventions or treatments. Thus, the use of EBP guidelines in these studies demonstrates that there can be changes in providers' behavior and practice norms, thereby improving the patient care experience.

Recommendations

With the rising number of urgent care centers across the

United States (in particular, those involving the pediatric population), more studies are needed to investigate the rate of referrals from these organizations to EDs. There is little published literature on the number of referrals sent from urgent care centers to the ED, even less when isolated to pediatric minor head injuries. One study by Canares, et al examined perceptions of urgent care center providers and concerns when faced with common pediatric conditions.[5] The most common referrals were head injury, acutely ill infants, and children requiring procedures—interestingly, the younger the child the more likely a referral was made. The paucity of studies regarding pediatric patients in urgent care centers is an area ripe for research and quality improvement.

Limitations

This project was limited by the access to data, inability of the researcher to obtain more specific data, and how the data were obtained. Data collection from the urgent care center relied on paper recording and evaluation by several advanced practice providers, all at different levels of comfort in evaluating data. The advanced practice providers examined the referrals and determined what was considered an ED intervention. An improvement in data collection and retrieval that relied on specific characteristics, rather than subjective criteria, would increase result credibility. The aggregate de-identified data received from the hospital had several errors noting other injuries as possible head injuries.

Another area problematic for this study is that scalp lacerations or facial lacerations were not included as head injuries, thereby affecting the data totals.

Discussion

While the results of this study were not statistically significant, there was evidence of improved clinical judgment in referring patients to the ED. When examining the number of patients recorded as referrals from the urgent care center to the ED, there appears to be a change in the number of patients sent that did not require ED interventions. In the 4-month period prior to educational intervention, 51 pateints were sent; in the 4-months posteducation intervention, a total of 39 patients were referred. Review of the data from the urgent care center referral log revealed that the number of patients in the age group of ≥24 months decreased, while there was an increase in the <23-months age group.

In this particular study, the use of aggregate data may have not allowed for a full picture in terms of the number of patients seen in the urgent care center for head injuries. There is the possibility the urgent care center kept a greater number of under the age of 23 months for evaluation, rather than sending to the ED. Another scenario may be that the head injuries that were sent to the ED needed to be sent in greater numbers, with influence from the PECARN guidelines in the manner based on the algorithm. This scenario would indicate that the PECARN guidelines were successful in that the head injuries that needed to go to the ED were referred and ones that did not need referral stayed in the urgent care center.

Future studies in this area would also need to evaluate the seasonal aspect of head injuries, as more pediatric head injuries may occur over the summer months due to different activities, thereby showing an increase in the proportion sent to the ED.

Conclusion

While this study did not show a statistically significant change in the number of head injury patients sent to the emergency department after the evidence-based intervention, it is unclear whether the findings are able to be generalized to all urgent cares. Since this study did not specifically evaluate "appropriateness" of referrals, we recommend further study. ■

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Effectively Utilizing 90-Day Probationary Periods for New Employees

ALAN A. AYERS, MBA, MAcc

Urgent message: A 90-day probationary period suspends the standard employment rules for new employees, enabling them to learn the position, but providing an "out" before the employee becomes too entrenched.

Introduction

Whenever a company hires a new employee, despite the most sound recruiting and interviewing processes, they're taking a risk that the individual could be a poor fit. The hiring process is time-consuming and expensive. To help increase the odds of hiring someone who is both skilled in their trade but who also aligns with the organization's culture and values, many companies institute a 90-day probationary period.

A probationary period of 30 or 90 or even 180 days provides time to give a new hire extra feedback while they become oriented to the position.[1-3] The primary rationale for instituting a probationary period is to have the ability to fire the employee for any or for no reason. Generally, once the probationary period has ended, an employee can only be fired for cause.[4]

However, in some circumstances, the actions of the employer may create a contractual relationship for continued employment. This is a critical concern of executives, human resources professionals, and legal departments that want to be certain that employment is indeed "at will."

Express or Implied Contract Obligations

Again, a company's 90-day probationary period may create an unintended legal consequence—an impact that would affect the employment-at-will doctrine that is the law of most states.[5] The doctrine permits an employer to terminate an employee at any time for a good reason, a wrong reason, or no reason at all.[6] However, the reason cannot be illegal, such as a form of protected employment discrimination.[7] An employer can lose this right to fire at-will if it makes a promise or creates some expectation of continued employment that is not consistent with at-will employment.[1]

"Despite public opinion to the contrary, a probationary status does not impact whether an employer must pay unemployment insurance."

Employers using probationary periods may have employees who believe that once they successfully complete a probationary period, they are no longer at risk for termination based upon their performance. This can lead to increased risk of wrongful termination lawsuits if the employer terminates the employee.[6] In light of these concerns, but for collective bargaining agreements or situations where the employer wants to enter into a contract with a particular employee, probationary periods are typically not recommended.[8]

Those in favor of doing away with probationary periods say that employees are subject to the same standards of performance and conduct *throughout* their employment. As a result, there's no reason to require a probationary period.[8]

Those labor experts who believe in keeping traditional probationary periods propose changing the outdated term, which has been interpreted unfavorably by the courts. They recommend terms such as *introductory, evaluation, training, initiation,*

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eligibility, or *orientation* periods.[8] While these descriptions may help eliminate some of the unwanted connotations and guarantees that the term *probation* has historically carried, a new hire may yet construe that these alternatives mean the employer has a policy of not discharging without good cause once the probationary period is over. The employer could thus land in a legal battle over an allegation that it had an obligation to provide due process once an employee passed probation.[9]

Company Policies and Procedures

Every company should create and maintain a personnel or employee handbook, which should be reviewed by an employment lawyer. The handbook must be clear that employment is *at will*.[4] To establish that the probationary period is the time at which a new hire's performance is evaluated before full benefits begin, an employer can create a written policy for its handbook that states something such as the following:

> "Completion of the trial period does not entitle you to remain employed by the company for any definite period of time. Both you and the company are free, at any time, with or without notice and with or without cause, to end the employment relationship. After completion of the trial period, eligible employees will receive the benefits described in this handbook."[8]

The company policy should be communicated to all new employees and referenced in the employee handbook at orientation.[10]

One court has explained that to become a binding promise, the language used in the handbook must be specific enough to constitute an actual offer rather than a mere general statement of policy.[11] However, the court went on to say that "whether a proposal is meant to be an offer for a unilateral contract is determined by the outward manifestations of the parties, rather than by their uncommunicated beliefs."[12]

Thus, if the employer doesn't want the policies contained in an employee handbook to be construed as an offer for a unilateral contract, they are free to say so in the handbook. In the case discussed above, the court refused to hold the provisions of a handbook enforceable against an employer where the handbook expressly stated: "This Handbook and the policies contained herein do not in any way constitute, and should not be construed as a contract of employment between the employer and the employee, or a promise of employment."[13]

Employee Termination During the Probation Period

Despite public opinion to the contrary, a probationary status does not impact whether an employer must pay unemployment insurance. The same rules on eligibility for unemployment still apply. Regardless of the employee duration of employment, the employer must pay unemployment insurance on that employee.[14] However, the length of the new hire's employment may be a component in calculating how much the employer will pay on the employee's unemployment claim.[8]

"If a company decides to use a probationary period, it should be certain that employees know and understand that they may still be fired at any time."

Other Legal Considerations

One other important note: In the U.S., employment relationships are typically presumed to be at-will everywhere except for the State of Montana. Montana enacted the Wrongful Discharge from Employment Act[15] (WDFEA). That Act is designed to balance the need to protect employees from wrongful terminations with an employer's need for protection from employee poor performance or bad behavior.[16] In that state, employers generally are permitted to terminate employees only for good cause after they have finished the probationary period,[8] unless they are probationary or employed pursuant to a written contract for a specified term.[17]

There may also be specific exceptions to the doctrine of employment at-will in a specific jurisdiction. For example, the Supreme Court of Ohio has recognized an exception to employment at-will doctrine where an employer who discharges an employee for reasons that contravene clear public policy is subject to an action for damages.[18] In that instance, to prevail on a claim for wrongful discharge in violation of public policy, a plaintiff must prove:

- a clear public policy exists and is manifested in a state or federal constitution, statute, or administrative regulation, or in the common law
- dismissing employees under circumstances like those involved in the plaintiff's dismissal would jeopardize the public policy
- the plaintiff's dismissal was motivated by conduct related to the public policy; and
- the employer lacked an overriding business justification for the dismissal[19]

Summary

If a company decides to use a probationary period, it should be certain that employees know and understand that they may still be fired at any time.

All employment documents should reference the probationary period. The employee handbook, performance appraisals,

performance improvement plans, hiring paperwork, and other forms should clearly state that the probationary period doesn't change the at-will employment relationship.

All these documents should clearly state that an employee may still be fired for any reason at any time, during the probationary period or after completing it.[1] ■

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Concussion Management in Urgent Care: A Primer for Implementation

Urgent message: Sports-related concussions are particularly dangerous injuries due to their complex nature and difficulties associated with diagnostic and return-to-play decisions. Some of the most commonly employed assessment tools have been shown to be unreliable, leading to misdiagnoses. Guidelines for selecting more effective concussion assessment instruments and the use of such tests in urgent care settings are here suggested as an optimal framework for improved care.

LEN LECCI, PhD, MA; JOHN HOLLANDER; DALE KEY; and JULIAN KEITH, MA, PhD

Introduction

Millions of adults, adolescents, and children participate in sport-related activities that place them at risk for concussion. Among those who are injured in this way, the majority experience mild symptoms. Currently, the instruments that are most commonly used to assess sport-related concussions have been shown to be highly problematic with respect to reliability and validity, resulting in inaccurate diagnostic and return-to-play decisions. Here, we present tests that may be more effective, along with basic guidelines for selecting better concussion assessment instruments.

Each year, an estimated 38 million children and adolescents participate in organized sports in the United States; an additional 170 million adults participate in physical activities including sports. Many of these activities are associated with an increased risk of injury. One form of sports-related injury that has been the target of increased scrutiny is concussion, sometimes referred to as a traumatic brain injury (TBI). Approximately 1.7 million people seek medical attention for TBI every year in the United States, and approximately 75% of these injuries are considered mild in nature. These figures are in keeping with CDC estimates that between 1.6 and 3.8 million concussions occur in sports and recreational activities annually. Moreover, among children, injuries associated with participation in sports and recreational activities account for 21% of all traumatic brain injuries.[1]

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Various guidelines that define the nature of a concussion have been published, with no single agreed-upon definition (eg, CDC; Veterans Affairs/Department of Defense Clinical Practice Guidelines; American Congress of Rehabilitation Medicine). However, what is common to all definitions is that the injury is induced from a direct or indirect impact to the head, face, neck, or elsewhere.

Concussed individuals can present with a wide range of clinical signs, including behavioral changes (eg, dizziness, change in gait, balance problems, loss of consciousness); cognitive changes (eg, slowed reaction times, amnesia, feeling "in a fog"); sleep disturbance (eg, drowsiness or inability to sleep); somatic symptoms (eg, headaches); and/or emotional symptoms (eg, irritability, emotional lability). In many instances, milder forms of concussion (also referred to as mild traumatic brain injuries, or mTBIs) result in normal or "unremarkable" brain imaging, despite the reporting of subjective symptoms. Consequently, the known incidence of mTBIs likely underestimates the actual incidence of mTBIs because many individuals fail to seek medical care. This may be especially true when the symptoms appear to resolve or are less pronounced. A particularly dangerous aspect of concussions is that they compound, meaning that mild concussions, if untreated or otherwise ignored, can quickly and suddenly escalate with reinjury into categorically more serious and threatening conditions.

Because of the nature of recreational sports, a significant number of these activities (and the resulting injuries) occur in the evenings and on weekends when doctors' offices are closed. This means that if the injured party chooses to seek medical attention, the viable options are the ED and urgent care. It is here proposed that a formal triage model is the best way to address concussions, such that the injured party or a third party can be used to determine when an ED visit is in order. ED visits are indicated when the more severe concussion symptoms are present, such as nausea, vomiting, loss of consciousness, balance problems/dizziness, confusion, light sensitivity, and pupil-size asymmetry. However, if a head injury occurs and the above-noted symptoms are not present, then there is still a need to evaluate the injured party for more subtle symptoms. The urgent care environment is best suited for this task.

The challenge is to establish best practices in urgent care that can detect subtle symptoms, increase the accuracy of return-to-play decisions, and interface with specialists (eg, neurology and neuropsychology) and general practitioners as needed. To accomplish this goal, urgent care facilities need to be equipped with the tools necessary to provide a thorough, sensitive, yet efficient screening assessment. In these next sections, we will outline what should constitute best practices.

Current Limitations

Concussions affect numerous brain functions, including both neurocognitive processes *and* motor control. Failure to assess either of these domains will weaken the sensitivity of any assessment. Therefore, it is important to measure neurocognitive and neuromotor functioning with the best instruments available.

To select the best measures to support diagnostic decisions, it is important to consider: 1) reliability, which is the consistency of a test, and 2) validity, meaning the extent to which the test measures what it is supposed to measure.

Reliability and validity are related because a test can only be valid if it is first shown to be reliable. As an illustration, imagine you have a blood pressure measure on a healthy patient that provides the following readings three times over the span of 10 minutes; 120/80, 90/40, and 175/145. Assuming the machine was used correctly, the data suggest that the machine is producing inconsistent (ie, unreliable) blood pressure readings. Importantly, when reliability is poor, the values do not accurately inform us of the individual's BP (ie, no validity). Moreover, when a test has low test-retest reliability, as would be the case in this illustration, knowing their score at one point in time (eg, 120/80) would not provide any information about what their score might be the next time it is measured (potentially ranging from 90/40 to 175/145). Thus, the measure is not clinically useful, as one would not intervene or make clinical decisions based on these unreliable estimates of blood pressure. The same is true for any test purporting to assess the consequences of a head injury.

ImPACT and SCAT

It is important to evaluate some of the most commonly used measures to assess sports concussions today. The two most prevalent tests used in recent years are the Immediate Post-Concussion Assessment and Cognitive Test (ImPACT) and the Sport Concussion Assessment Tool (SCAT). The ImPACT and SCAT test batteries have been instrumental in contributing to the greater standardization in concussion assessments, in that they introduced and proliferated methods for the measurement of multiple domains when concussions are suspected.

The cognitive and motor tests that are employed in these batteries are not fully appropriate for evaluating

the functions impaired in concussion; as a result, they have been shown to have disturbingly poor reliability and validity. For example, ImPACT is highly variable in terms of its reliability, as most studies found values well below 0.7, which is considered the minimum accepted value for an assessment instrument. (Reliability coefficients range from 0, meaning no association between the two scores, and 1.0, meaning a perfect correspondence between repeated measurements). Moreover, some reviews have found the test-retest reliability to be as low as .15 to .22,[2] indicating that an individual could take the test on two separate occasions and obtain widely differing scores. This would essentially make it impossible to know if the variation in scores reflects concussive symptoms in an injured individual or is simply due to the fluctuations of an unreliable measurement.

Poor reliability also undermines validity, which is likely why ImPACT scores do not effectively predict performance on other well-validated instruments assessing the same cognitive functions ImPACT is purported to measure.[3] Additionally, ImPACT scores have been shown to not relate to, indicate, or account for concussion history.[4] Critically, ImPACT has very high misclassification rates, as anywhere from 1 in 4 to almost 1 in 2 healthy individuals are misclassified as concussed.[5] Cases in which ImPACT shows concussed individuals to not have symptoms have also been documented, with even more problematic outcomes. Indeed, the danger of relying on insensitive, unreliable methods to monitor concussion and recovery was illustrated in the case of Kenny Bui,[6] who died in 2015 after being cleared to play football just weeks after suffering a concussion. The same *Wall Street Journal* article also highlights a recent large-scale, 3-year longitudinal study tracking 28,000 athletes showing that many individuals are similarly being returned to play prematurely based on what appears to be inaccurate information from ImPACT. Given these problems, it is not surprising that medical researchers have concluded that ImPACT is not sufficiently accurate to support important medical decisions, including timing for return-to-play.[7]

The SCAT is slightly better than ImPACT with respect to reliability, but even its values might be deemed unacceptable. In a recent study examining 164 healthy professional athletes, the Standardized Assessment of Concussion component of the SCAT3, which ostensibly measures orientation, immediate memory, concentration, and delayed recall, obtained an overall reliability score of .34, with some subcomponents yielding values as low as .03.[8]

In the same study, the motor control, balance, and gait tests of the SCAT3 were found to all exhibit reliability scores of less than .25. To understand the cost associated with having suboptimal reliability, consider that the SCAT3 is only sensitive enough to reliably detect concussion at 24 hours, but not after 8 and 15 days[9] (similar limitations have been documented for ImPACT[5]). Thus, sensitivity is limited to 24-hours postinjury, when symptoms are most pronounced, and much less so when symptoms are subtle. This questions SCAT's usefulness in cases of mild head injuries, which can be less pronounced symptomatically, but are nonetheless important to diagnose for reasons discussed already, as well as in the case of any return-to-play decisions made more than a few days after injury. Indeed, concussion symptoms and risk of re-injury are known to last weeks, and in some cases, months after the initial trauma, during which time the SCAT is ineffective in reliably assessing symptoms.

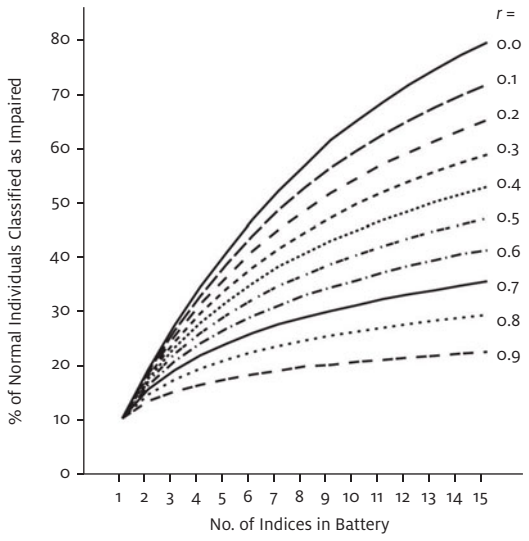
To the credit of their developers, ImPACT and SCAT were innovative in their inclusion of multiple domain testing. Unfortunately, this also compounds problems associated with assessment reliability. When reliability is low, increasing the number of domains tested actually increases the chance of a misdiagnosis. The reason for this is that including more indices in the battery with low reliability causes over-representation of poor quality (ie, inaccurate or irrelevant) tests and under-representation of good quality measures. Consider the data shown in **Figure 1**, which illustrates how low reliability results in increasing levels of misclassification with each additional test. As an example, when tests have reliability values of 0.2, then the use of just five tests will result in a false positive rate of approximately 40%. However, when reliability is high (eg, 0.9), then even the use of 10 tests results in false positive misclassifications of less than 20%.

Because research shows that some of the most commonly used tests are not sufficient for accurate concussion diagnoses, medical professionals should consider other more reliable and validated tests—and, ideally, tests that can also be used as reimbursable events in urgent care settings.

Best Practices

Precise measurements of executive abilities such as attention, distractibility, and mental stamina are critical to detecting signs of neurocognitive consequences of concussion. Some of the more useful types of tests are those that are sensitive to subtle cognitive symptoms, such as

Figure 1.



As reliability (r) decreases, including more indices increases the chance of a false positive diagnosis.[10]

sustained attention and concentration. For example, trail-making tasks can be used to assess attention and task-switching ability; the Wisconsin Card Sorting Test can examine impulsivity and feedback processing; and the Psychomotor Vigilance Task can measure sustained attention, alertness, and psychomotor skills.

Computerized continuous performance tests can be especially useful in that they not only assess similar cognitive domains, but they can do so in an automated manner to minimize the reliance on the test administration experience of the doctor. Such well-validated tools provide information regarding abilities and functions that are known to be impaired by mTBI. Importantly, research indicates that tests measuring these types of functions are extremely reliable, sensitive to the presence of a concussion, capture remediation curves in adolescents with TBI, and are associated with improved scores as a function of time following mild head trauma.[12] Thus, these tests can more reliably and accurately assess the cognitive aspects of concussion as part of a well-constructed assessment battery.

Although all concussed athletes face their own brain and body disruptions, concussions often impair visual-vestibular feedback and sensory-motor control (ie, neuromotor functioning). Neuromotor functioning that supports postural control can be assessed in the form of a balance test or a simple gait analysis. As an illustration, gait functioning is not only an important behavioral consequence of a concussion, but also sensitive for informing return-to-play decisions.

For example, the NIH 4-meter gait test consistently yields some of the highest reliability coefficients of any test, with values of 0.97.[13] Individuals with concussions have shorter stride length and slower gait velocity relative to normal controls, and gait effects have been shown to be remarkably reliable and durable over time.[14] The 4-meter gait test has proven to be remarkably reliable, and while it only measures one domain, gait speed is readily and demonstrably indicative of the impairment associated with concussion and mTBI. As a result, when paired with other reliable neurocognitive measures, the 4-meter gait test could prove to be an invaluable part of an updated, more accurate concussion protocol.

Conclusion

Concussions are among the most dangerous and functionally impactful types of traumatic injuries, and they are occurring with increased frequency. Concussions without major symptoms (mTBIs) often go undetected and will compound with reinjury. Importantly, urgent care facilities are uniquely positioned to contribute to the more effective management of concussions because they are accessible (long hours of operation), they have medical professionals who are in a better position to make such decisions (as opposed to parents or coaches), and they have access to professional-grade instruments (eg, neuropsychological tests) that can support decision making.

Indeed, this approach can reflect a favorable step forward for all parties involved, as the patients get a higher level of care and the doctors can be reimbursed (eg, billing code 96118 for neuropsychological testing by an MD) for conducting best practices.

Importantly, these best practices would serve to increase the likelihood that those experiencing subtle mTBI symptoms are identified, medically followed, and referred out to specialists when indicated. Indeed, doctors in urgent care setting can establish a referral network of neurologists and neuropsychologists that can be used when more extensive testing is indicated and/or when neurocognitive rehabilitation is needed. This can occur when a patient is shown to score in the problematic range on some of the neurobehavioral and/or neuromotor tests administered in the urgent care setting or when symptoms persist, suggesting the need for more proactive interventions.

Although some exemplars are herein reviewed, the most important implication of these guidelines is the value of considering the reliability of any selected assessment tool, especially when using multiple assessment tools. Moreover, by understanding the importance of multiple domain testing and selecting tests that are reliable within each domain, better assessment batteries can be selected to support diagnostic and return-to-play decisions. With this understanding of constructs such as reliability and validity, more accurate decisions can be made in the diagnosis and treatment of concussions, thereby creating a safer environment for those experiencing such injuries. ■

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ABSTRACTS IN URGENT CARE

- Oral Antibiotics and Kidney Stones
- A New Nonopioid Treatment for Opioid Withdrawal
- DRE and Screening for Prostate Cancer
- Assessing Treatments for Symptoms of Vulvovaginal Atrophy
- The Rise of Hearing Loss in the U.S.—What It Means
- Good News for Coffee Drinkers

GLENN HARNETT, MD

Each month the College of Urgent Care Medicine (CUCM) provides a handful of abstracts from or related to urgent care practices or practitioners. Glenn Harnett, MD leads this effort.

Some Oral Antibiotics Up Risk for Kidney Stones

Key point: Oral antibiotics are associated with an increased risk for nephrolithiasis in adults and children, with the risk highest in those exposed at a younger age.

Citation: Tasian GE, et al. Oral antibiotic exposure and kidney stone disease. *J Am Soc Nephrol*. 2018; May 10. [Epub ahead of print]

The prevalence of kidney stones has increased 70% during the last 30 years, with the most disproportionate increase in children, adolescents, and young women. This study, published in the *Journal of the American Society of Nephrology*, determined the association between 12 classes of oral antibiotics and nephrolithiasis in a population-based, case-control study from 641 general practices including >13 million children and adults from 1994 to 2015 in the United Kingdom. They used incidence density sampling to match 25,981 patients with nephrolithiasis to 259,797 controls by age, sex, and practice at date of diagnosis of the kidney stone(s). The results revealed that five classes of oral antibiotics were associated with a diagnosis of kidney stone disease: oral sulfas, cephalosporins, fluoroquinolones, nitrofurantoin, and broad-spectrum penicillins. The investigators found patients who received sulfa drugs were more than twice as likely as those not exposed to antibiotics to have kidney stones; exposure to cephalosporins, fluoroquinolones, and nitrofurantoin increased the risk by 60%-80%; for broad-spectrum penicillins, the increased risk was 27% greater. The magnitude of associations was greatest for exposure at younger ages and 3-6 months before diagnosis date, with all but broad-spectrum penicillins remaining statistically significant 3-5 years from exposure. In a press release, the lead author, Dr. Gregory Tasian, a pediatric urologist, stated "These findings demonstrate that exposure to certain antibiotics is a novel risk factor for kidney stones and that the risk may be greatest when exposure to these antibiotics occurs at younger ages. Consequently, these results suggest that the risk of nephrolithiasis may be decreased by reducing inappropriate antibiotic exposure and choosing alternative antibiotics, particularly for those patients who are at increased risk of stone formation." The authors also speculated that antibiotic-induced alteration of the gut microbiome could change macronutrient metabolism, thus leading to kidney stones. They noted that they couldn't exclude direct antibiotic crystallization in the kidney. ■

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A Nonopioid Approach to Treat Opioid Withdrawal

Key point: First new nonopioid drug approved by FDA to treat opioid withdrawal.

Citation: Food and Drug Administration. FDA approves the first non-opioid treatment for management of opioid withdrawal symptoms in adults. May 16, 2018. Available at: https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm607884.htm.

On May 16, 2018 the FDA approved Lucemyra (lofexidine), an

oral nonopioid, for the mitigation of withdrawal symptoms and to facilitate abrupt discontinuation of opioids in adults. While Lucemyra may lessen the severity of withdrawal symptoms, it may not completely prevent them and is only currently approved for treatment for up to 14 days. Lucemyra is not a treatment for opioid use disorder (OUD), but can be used as part of a broader, long-term treatment plan for managing OUD. Lucemyra is an oral, selective alpha 2-adrenergic receptor agonist that reduces the release of norepinephrine. The actions of norepinephrine in the autonomic nervous system are believed to play a role in many of the symptoms of opioid withdrawal. The manufacturer presented two randomized trials reflecting 866 adults with opioid dependence who were treated with lofexidine. The trials showed that patients receiving lofexidine had fewer opioid withdrawal symptoms than those taking placebo and that those taking lofexidine were more likely to complete their entire treatment. Side effects of the drug include cardiac arrhythmias, bradycardia, hypotension, sedation, and somnolence. Also of note, patients often developed a marked transient spike in their blood pressure upon discontinuation of treatment. The FDA is requiring 15 postmarketing safety studies, including both animal and human studies. Additional animal safety studies will be required to support longer-term use (such as during a gradual opioid taper in pain patients discontinuing opioid analgesics) and use in children. The FDA had previously granted the drug Priority Review and Fast Track designations due to the fact that the physical symptoms of opioid withdrawal can be among the biggest barriers for patients seeking help and ultimately overcoming addiction. They noted that the fear of experiencing withdrawal symptoms often discourages those suffering from opioid addiction from seeking help. ■

Where Are the Data Supporting DRE in Prostate Cancer Screening?

Key point: Although digital rectal examination is commonly performed to screen for prostate cancer, there are limited data to support its use.

Citation: Naji, L et al. Digital rectal examination for prostate cancer screening in primary care: a systematic review and meta-analysis. *Ann Fam Med*. 2018;16(2):149-154.

A meta-analysis published in the *Annals of Family Medicine* concluded that digital rectal examination (DRE) for prostate cancer screening in primary care should be discouraged, given the lack of evidence supporting its use. Previous studies have suggested DREs are associated with a high rate of false-positives and no reduction in prostate cancer mortality, while subjecting patients to unnecessary and invasive follow-up procedures and perhaps overdiagnosis and overtreatment of prostate cancer. Using a MEDLINE and Cochrane Database review, this analysis encompassed seven studies measuring the effectiveness of DRE in screening for prostate cancer in primary care settings. The studies included 9,241 patients who underwent a DRE by primary care clinicians and, based on the results, a subsequent biopsy. The studies showed a high risk for bias, and the overall quality of evidence for performing routine DRE screening was rated as "very low." In the analysis, pooled sensitivity of the DRE for prostate cancer among primary care physicians was 0.51 and pooled specificity was 0.59 with a positive predictive value of only 0.41. The researchers stated that, "On the basis of the lack of evidence supporting its use, we do not recommend routinely using DRE as a screening tool for prostate cancer in primary care, unless it is proven effective in future studies. Additionally, although we did not study possible harms of DRE, its invasiveness and potential to lead to unnecessary biopsy, overdiagnosis, and overtreatment argue against its routine use." ■

"The invasiveness and potential to lead to unnecessary biopsy, overdiagnosis, and overtreatment argue against using DRE as a screening tool for prostate cancer in primary care."

Another Look at Managing Postmenopausal Vulvovaginal Atrophy

Key point: Vaginal estradiol and moisturizing gel no better than placebo for menopausal vulvovaginal symptoms.

Citation: Mitchell, CM, et al. Efficacy of vaginal estradiol or moisturizer vs placebo for postmenopausal vulvovaginitis symptoms: a randomized clinical trial. *JAMA Intern Med*. 2018;178(5):681-690.

This study, published in *JAMA Internal Medicine*, was a randomized, double-blind, placebo-controlled, multisite trial of two existing, widely used treatments for postmenopausal vulvovaginal atrophy symptoms—a low-dose prescription vaginal estradiol tablet (Vagifem) and an OTC nonhormonal vaginal moisturizing gel (Replens). A little more than 300 postmenopausal women with at least one moderate-to-severe vulvovaginal symptom (eg, itching, pain, dryness, irritation, or pain with penetration) were randomized to use low-dose vaginal estradiol tablets plus a placebo gel, placebo tablets plus a nonhormonal vaginal moisturizer (containing the mucoadhesive polycarbophil), or double placebo for 12 weeks. At the end of treatment, symptoms had improved somewhat in all groups, but vaginal 10-µg estradiol tablet plus placebo gel and vaginal moisturizer plus placebo tablet were not more efficacious than

dual placebo at reducing symptom severity or improving sexual function. In an accompanying editorial, commenters wrote that, "Women and their physicians may want to conclude that postmenopausal women experiencing vulvovaginal symptoms should choose the cheapest moisturizer or lubricant available over the counter—at least until new evidence arises to suggest that there is any benefit to doing otherwise." ■

The Burden of Hearing Loss on Patients and the Healthcare System

Key point: Hearing loss is growing in prevalence and has implications beyond qualify of life.

Citation: Cunningham LL, et al. Hearing loss in adults. *N Engl J Med*. 2017;377(25):2465-2473.

This review article published in the *New England Journal of Medicine* addresses the high incidence of hearing loss, its burden on the U.S. healthcare system, the fact that hearing loss screening is still not routine, and that effective treatments are often inaccessible due to high costs or the perception that treatments are ineffective. The authors note that in the United States, the prevalence of hearing loss doubles with every 10-year increase in age and that approximately 50% of persons in their seventh decade (60 to 69 years of age) and 80% of those who are 85 years of age or older have hearing loss that is severe enough to affect daily communication. They express concern that because of the aging population in this and other developed countries, hearing loss is likely to become an increasingly prevalent disability. Untreated hearing loss in adults has been shown to have indirect health, psychosocial, and economic effects and can lead to social isolation and a reduced quality of life. As compared with age-matched adults with unimpaired hearing, older persons with hearing loss have higher rates of hospitalization, death, and falls and frailty, as well as higher rates of dementia and depression, even when known risks for these disorders are taken into account. Also, because of their hearing loss, those affected achieve significantly lower levels of education and have higher levels of unemployment or underemployment. Importantly, annual healthcare costs for middle-age U.S. adults with hearing loss are significantly higher than the costs of care for those without hearing loss. The frequency of use of hearing aids by adults with hearing loss remains very low, as the United States is one of the few developed countries that does not offer government assistance for the purchase of hearing devices. The good news on this front is that legislation has recently been signed into law requiring the FDA to create and regulate a category of over-the-counter hearing aids for adults who have mild-to-moderate hearing loss. Urgent care providers are in a unique position to recognize and identify this problem and should "keep their ears open" for the development and regulatory approval of OTC hearing-aids. ■

"Caffeinated coffee was linked to lower risks for cardiovascular disease, coronary heart disease, and stroke."

Coffee May Have Health Benefits

Key point: A new analysis of one of the country's largest and longest-running studies reveals that drinking coffee is linked to a lower risk of heart failure, stroke, and coronary heart disease.

Citation: Poole R, et al. Coffee consumption and health: umbrella review of meta-analyses of multiple health outcomes. *BMJ*. 2017;359:j5024.

Researchers found that every extra cup of coffee consumed per day reduced heart failure, stroke, and coronary heart disease by 8%, 7%, and 5%, respectively, up to at least six cups per day. This study, an umbrella review, published in the *British Medical Journal*, analyzed data from the Framingham Heart Study, which has tracked the eating patterns and cardiovascular health of more than 15,000 people since the 1940s. Machine learning, which is used to look for patterns in big data sets, contributed to their ability to parse the huge amount of data. The researchers then confirmed their findings with more traditional analyses of two additional large study groups: The Cardiovascular Heart Study and the Atherosclerosis Risk in Communities Study. They found that coffee consumption, several cups daily in particular, is associated with a wide range of health benefits. Results showed that daily consumption of three cups of coffee (regular or decaffeinated) was associated with a 17% lower risk for all-cause mortality, relative to no coffee consumption. Caffeinated coffee was also linked to lower risks for cardiovascular disease, coronary heart disease, and stroke, with benefits highest at three-to-five cups daily. Among the myriad of other findings, caffeinated coffee was associated with lower risks for cancer and liver conditions, and both regular and decaf coffee appeared to lower risk for type 2 diabetes. In an accompanying editorial, they stated that "The evidence is so robust and consistent...that we can be reassured that drinking coffee is generally safe." They did note that pregnant women should be educated about the possible adverse effects, including pregnancy loss, low birth weight, and preterm birth. High consumption was also associated with higher fracture risk in women, but not men. Because these studies simply observed people's health and coffee consumption over time, the analyses were only able to determine a link between the two, not a cause-and-effect relationship. Previous research has suggested that coffee's caffeine content, along with its antioxidant and anti-inflammatory properties, may be responsible for its presumed health benefits. ■

INSIGHTS IN IMAGES

CLINICAL CHALLENGE: CASE 1

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

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

A 17-Year-Old Male with Knee Pain After a Fall

Figure 1.

Case

The patient is a 17-year-old male who presents to urgent care with anterior knee pain after a fall while mountain biking. However, he states that he'd been experiencing pain for an indeterminate period of time before the incident that preceded his visit.

View the image taken (**Figure 1**) and consider what your diagnosis and next steps would be. Resolution of the case is described on the next page.

THE RESOLUTION

Figure 2.

Differential Diagnosis

- Achondroplasia
- Aseptic necrosis
- Meniscus tear
- Osteochondritis dissecans of the medial femoral condyle
- Punctate epiphyseal dysplasia

Diagnosis

The image shows osteochondritis dissecans of the medial femoral condyle, which occurs most typically in patients between 9 and 18 years of age.

Learnings

- Osteochondritis dissecans (OCD) of the medial femoral condyle is often the result of repetitive injury or growth disturbances
- The knee, talar domes, and elbows are common locations, though it can occur in other locations
- Typical OCD lesions appear as a semilunar bone fragment along the articular surface separated from the parent bone by a lucent zone
- The OCD lesion is caused by loss of blood supply to the subarticular bone leading to a focal bone necrosis. Absorption of the necrotic bone deprives the support to overlying articular cartilage, which becomes prone to trauma, tears and fissures
- Symptoms include pain, limited mobility of the joint, and locking

Pearls for Urgent Care Management and Consideration for Transfer

- Treatment and prognosis vary according to the age of the patient
- In children with nondisplaced fractures, initial treatment includes limitation of activity with the use of crutches and restricted range of motion
- Nonopioid pain medication and nonsteroidal anti-inflammatory drugs may control discomfort and swelling
- Normal activity may be resumed upon healing of the OCD lesion, and when quadriceps strength has returned to within normal limits
- If symptoms do not resolve in 6–12 months, surgical treatment may be required

Acknowledgment: Images courtesy of Teleradiology Specialists.

A 42-Year-Old Man with a 'Flipping' Sensation in his Heart

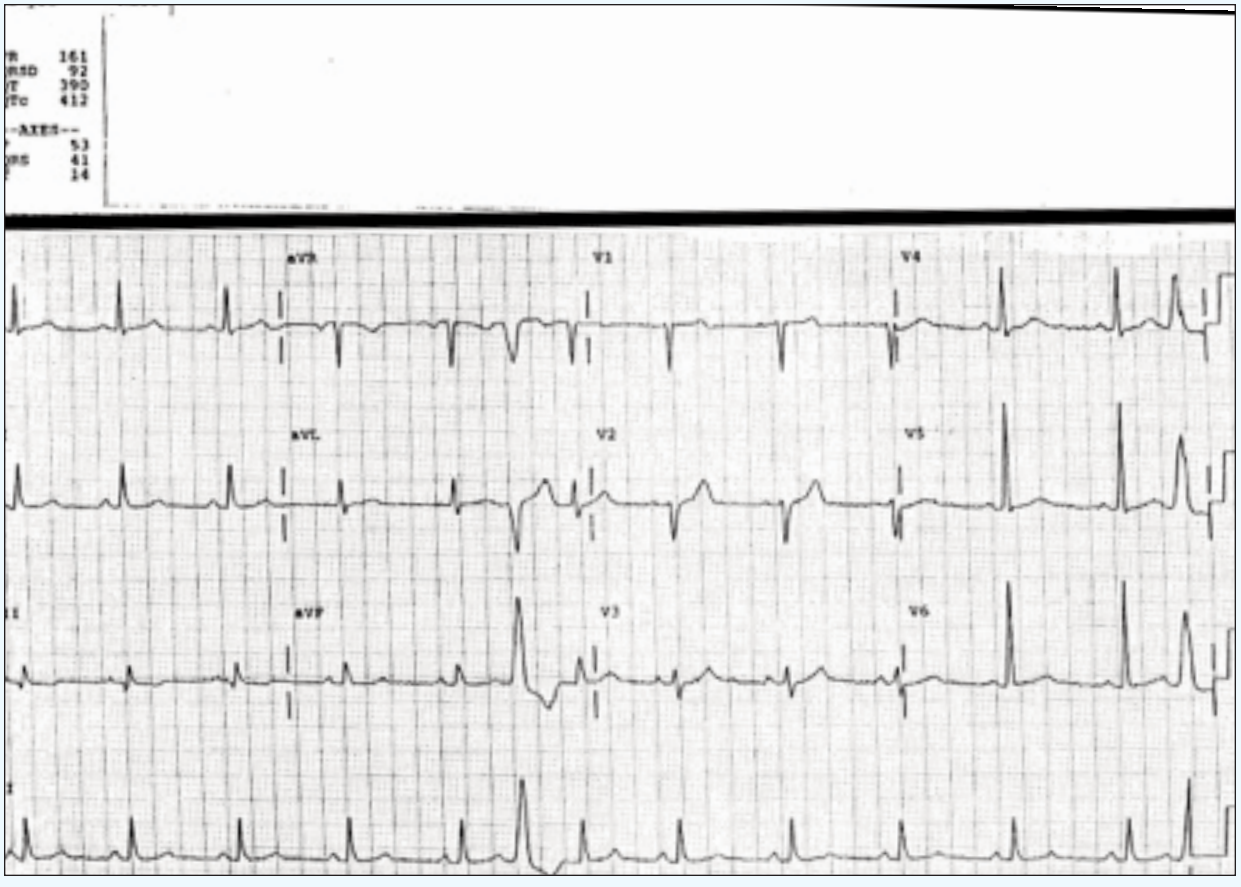

Figure 1.

Case

The patient is a 42-year-old man with a sensation he describes as his heart "flipping" intermittently for the last 3 days. He denies chest pain, shortness of breath, diaphoresis, or dizziness.

Upon exam, you find:

- **General:** Alert and oriented X 3, sitting comfortably in a chair
- **Lungs:** CTAB
- **Cardiovascular:** RRR without murmur, rub, or gallop
- **Abdomen:** Soft and NT

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

THE RESOLUTION

Figure 2.

Differential Diagnosis

- Multifocal atrial tachycardia (MAT)
- Wolff-Parkinson-White (WPW)
- Inferior ischemia
- Multiple premature ventricular contractions (PVCs)
- First-degree AV block

Diagnosis

The patient is experiencing multiple premature ventricular contractions (PVCs). The ECG reveals wide complex, intermittent, beats consistent with premature ventricular contractions.

The normal PR interval is 120-200 ms; in this ECG it is 161ms, so there is not a first-degree AV block. The underlying rhythm is a regular sinus rhythm, so MAT is not occurring. The inferior leads are II, III, and aVF, but they do not demonstrate ischemic changes such as T wave inversion or ST segment changes; the patient does not have inferior ischemia. WPW is characterized by a short PR interval and a delta wave; neither are present in this ECG.

Learnings/What to Look for

- A PVC is a wide complex beat, originating in the ventricle
- Patients with palpitations commonly have an ECG tracing performed, but it is difficult to correlate the presence of PVCs with palpitations, as many patients have asymptomatic PVCs
- If the history is not suggestive of ischemia or an electrolyte abnormality, no further evaluation is necessary for PVCs

Pearls for Urgent Care Management and Considerations for Transfer

- Compare to a previous ECG, if available
- Correlate the presence of PVCs with the patient's symptoms (if they are placed on a monitor). If there is suspicion of an electrolyte abnormality based on medications or GI losses (vomiting or diarrhea), then blood work can be considered. For isolated PVCs, no further evaluation is necessary
- Multiple PVCs occurring back to back may be from intermittent ventricular tachycardia (VT)—if a patient is symptomatic or having "runs" of VT, then emergent transfer to an ED is indicated

CLINICAL CHALLENGE: CASE 3

A 34-Year-Old Woman with an Unidentified Insect Sting

Figure 1.

Case

The patient is a 34-year-old woman who has just returned from the first camping trip of the year with her family. She relays that 2 days earlier, as she as she was setting up a tent, she "got stung" by something she didn't see. As she struggled to free herself of the tent fabric, she was stung several more times on her hand and arm. She never saw the culprit. Not long after, she began vomiting and saw that her skin was erythematous.

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

THE RESOLUTION

Figure 2.

Differential Diagnosis

A. Fire ants
B. Lyme disease
C. Spider bite
D. Wasp sting

Diagnosis

This woman suffered multiple stings from a wasp. Because their stingers do not have barbs, as a bee's stinger does, wasps are able to sting repeatedly. This is most likely to occur when they're trapped in clothing (or, in this case, a tent).

Learnings

- Wasp venom contains enzymes, small peptides, and amines. Allergens include phospholipases, hyaluronidases, and cholinesterases
- Some peptides cause histamine release by degranulating mast cells; histamine, along with serotonin and acetylcholine, contribute to the pain associated with wasp stings
- Anaphylactic reactions cause diffuse urticaria, pruritus, angioedema, bronchoconstriction, respiratory distress, hypotension, loss of consciousness, and cardiac arrhythmias

Pearls for Urgent Care Management and Considerations for Transfer

- Life-threatening, anaphylactic signs typically occur within 10 minutes of the sting. Patients who present days or even hours after a sting should receive symptomatic treatment geared toward reducing discomfort
- Wash the area of the sting with soap and water to remove as much venom as possible
- Apply cold packs to reduce swelling and pain
- Keep the wound clean and dry to prevent infection
- A bandage may be used to cover the wound

New Medicare Cards

DAVID E. STERN, MD, CPC

Q. The Centers for Medicare and Medicaid Services (CMS) started issuing new Medicare cards to beneficiaries in April of this year. What do I need to know about these changes to limit disruption to my patients and medical practice?

A. CMS is required to issue new Medicare cards as a part of the Medicare Access and CHIP Reauthorization Act (MACRA) of 2015, which mandates that CMS remove Social Security Numbers (SSN) from all Medicare cards by April of 2019. The primary reason behind the change is to combat identity theft by removing SSNs from the cards. CMS is replacing SSN-based health insurance claim numbers (HICN) with Medicare beneficiary identifiers (MBI) on the new Medicare cards, which is what medical practices will use moving forward for all Medicare transactions, such as billing and checking eligibility and claim statuses. Every Medicare beneficiary will receive a new Medicare card with a unique MBI that is confidential and protected personal information.

Like HICNs, which can have up to 11 characters, MBIs also have 11 characters. However, unlike HICNs, which are based on SSNs, they are randomly generated and nonintelligent, so they don't have any hidden or special meaning. MBIs include numbers and uppercase letters; however, if you enter the letters in as lowercase, CMS's system will automatically convert them to uppercase.

For example, MBI number 1EG4-TE5-MK73 is created using the following format:

MBI Format

Character Number	1	2	3	4	5	6	7	8	9	10	11
Type	C	A	AN	N	A	AN	N	A	A	N	N

C – numeric 1 through 9; N – numeric 0 through 9; AN – either A or N;
A – alphabetic character (A...Z); excluding (S, L, O, I, B, Z).

David E. Stern, MD, CPC, is a certified professional coder and is board-certified in internal medicine. He was a director on the founding board of UCA and has received the organization's Lifetime Membership Award. He is CEO of Practice Velocity, LLC (www.practicevelocity.com) and PV Billing (www.practicevelocity.com/urgent-care-billing/), providers of software, billing, and urgent care consulting services. Dr. Stern welcomes your questions about urgent care in general and about coding issues in particular.

Table 1: New Medicare Cards Mailing Schedule

Wave	States Included	Cards Mailing
Newly eligible people with Medicare	All–nationwide	April 2018–ongoing
1	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia	April–June 2018
2	Alaska, American Samoa, California, Guam, Hawaii, Northern Mariana Islands, Oregon	April–June 2018
3	Arkansas, Illinois, Indiana, Iowa, Kansas, Minnesota, Nebraska, North Dakota, Oklahoma, South Dakota, Wisconsin	After June 2018
4	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont	After June 2018
5	Alabama, Florida, Georgia, North Carolina, South Carolina	After June 2018
6	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Texas, Utah, Washington, Wyoming	After June 2018
7	Kentucky, Louisiana, Michigan, Mississippi, Missouri, Ohio, Puerto Rico, Tennessee, Virgin Islands	After June 2018

Source: Centers for Medicare and Medicaid Services. *New Medicare card mailing strategy.* Available at https://www.cms.gov/Medicare/New-Medicare-Card/NMC-Mailing-Strategy.pdf. Accessed May 2, 2018.

"Medical practices will use MBIs for all Medicare transactions, such as billing and checking eligibility and claim statuses."

The total number of possible SSNs is less than 30 billion, but the total number of possible MBI numbers will go to over 10 trillion.

CMS started mailing the new cards out to Medicare beneficiaries in April of 2018 and will continue to mail them out in waves through April 2019. See **Table 1** for the mailing schedule.

You can use either the HICN or the MBI during the transition period, which is April 1, 2018 through December 31, 2019. CMS

says it is monitoring the use of HICNs and MBIs during this time to see how many practices are ready to transition to only MBIs, by January 1, 2020. The plan is to have medical practices submit claims using only MBIs regardless of the date they performed services, by January 1, 2020. However, there are a few fee-for-service claim exceptions:

- **Appeals –** You can use either the HICN or MBI for claims appeals and related forms
- **Claim status queries –** You can use either the HICN or the MBI to check the status of a claim if the earliest date of service on the claim is before January 1, 2020. Use the MBI if you're checking on the status of a claim with a date of service after January 1, 2020

Nothing about your patients' Medicare benefits is changing, but to ensure there is minimal disruption of services, we recommend you train your front desk staff to ask patients if they have received their new Medicare cards if they present with the old ones. Work with your front desk to develop a process to track patients who present with old Medicare cards, including documentation of the discussion your front desk staff had with patients and a way to flag patient accounts so your front desk remembers to ask them for the new card again the next time the patient visits your center. Working closely with your staff and having a strong process in place will ensure both you and your patients experience minimal disruption through this transition. ■

"Having a strong process in place will ensure you and your patients experience minimal disruption through this transition."

Source: Centers for Medicare and Medicaid Services. (2018). *New Medicare cards.* Available at https://www.cms.gov/Medicare/New-Medicare-Card/index.html#target. Accessed May 2, 2018.

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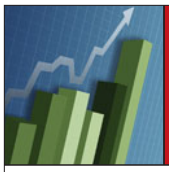


DEVELOPING DATA

One More Look at Head Injury Presentations in Urgent Care

In this issue, we've offered an urgent care perspective on which patients presenting with head injury are most likely to require a scan (page 11), and shared insights into one urgent care center's efforts to get a handle on which pediatric patients with head injury really need to be transferred to the emergency room (page 26).

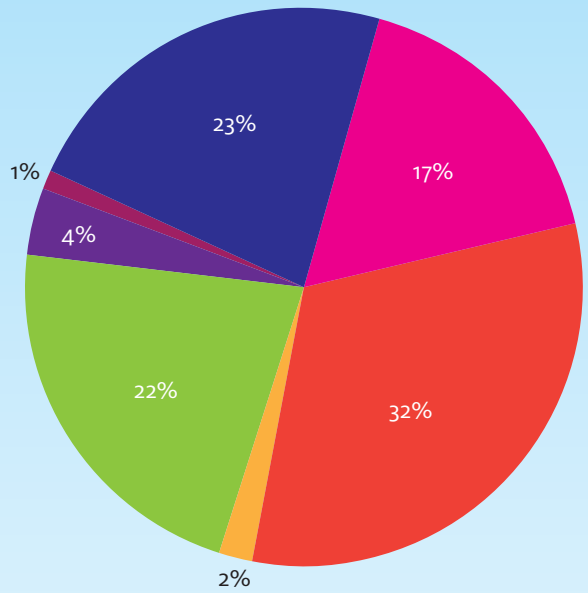
The fact is that the CT scan remains the standard for assessing for traumatic brain injury. The question that remains is, what's next?

A recent white paper, *Potential to Reduce Unnecessary Emergency Department Referrals By Up to 75% Through Objective, Actionable Information for Mildly-Presenting Head Injured Patients in Urgent Care Centers Using BrainScope One*, suggests that urgent care centers may have the capability to advance initial triage and assessment of mild head injured patients—and in doing so, reduce the number of patients who are transferred to the ED as a matter of protocol.

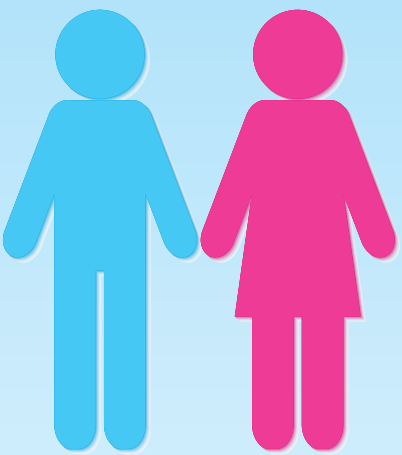
The researchers considered the cases of 196 patients evaluated at 12 U.S. urgent care centers between June 2017 and April 2018. In doing so, they turned up data that could be valuable to the urgent care clinician independent of the stated aim of the research. Here, we present new information on what mechanisms of injury are most likely to precede an urgent care presentation, along with "typical" characteristics of those patients.

PATIENTS PRESENTING TO URGENT CARE FOR EVALUATION OF BRAIN INJURY

Mechanism of Injury (N=196)



Data source: BrainScope



Glasgow Coma Scale
Mean: 14.9
Range: 13–15

Gender
60% female
40% male

Age
Mean: 27.6 years
Range: 18.5–45 years

Time since injury
Mean: 17.6 hours

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