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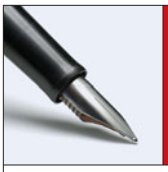


Making Antibiotic Resistance Awareness a Priority—A COVID-Created Opportunity

J.D. ZIPKIN, MD, MA

It's a conversation I've had endless times. One that I've honed and refined stepwise over time, and one that my patients often tell me they hadn't considered before: the appropriate use and overuse of antibiotics. And right now, with patients hyper-focused on healthy immune systems, medical providers are uniquely positioned to build antibiotic stewardship into our diagnostic process and significantly increase resistance awareness nationwide.

Process and Priorities

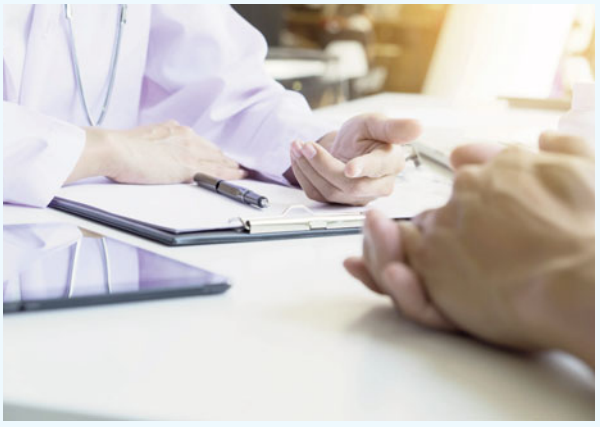
A year ago, my approach to sharing a diagnosis and conservative symptom management plan for an upper respiratory infection was offered in a calculated, evidence-based fashion.

First, I'd sit down, as studies have shown this increases patient perception of the time medical providers stay in the room. I want to feel connected to my patients, and not give the impression that I have somewhere more important to be. I want them to ask questions. Those conversations matter.

Next, I'd review the pertinent positive and negative exam findings, explaining how these findings define the diagnosis.

The treatment plan would then be broken into two parts. I would describe a "negative plan," citing common misconceptions of antibiotics or other medications that don't help. More specifically, we would have an important discussion about the difference between viral and bacterial infections,[1] and why the latter are effectively treated with antibiotics while the former are not. And this would naturally lead into the "positive treatment plan"—one that ultimately targeted the reason for the visit—getting my patient feeling better.

J.D. Zipkin, MD, MA is Chief Medical Officer, GoHealth Urgent Care.



Lastly, I would offer a strong follow-up support system, creating expectations on when to return for further care, and offering my card and email address. Both research and personal experience have shown this to be key in gaining patient trust and avoiding arguments about inappropriate antibiotic prescribing.

But today, patients aren't arguing much about antibiotic prescriptions anymore. Everything is viewed through the lens of COVID-19, and when patients find out they do not have it, their fears fall away. Little else matters at that moment. The struggle right now, therefore, is not only educating patients about antibiotic resistance, but cutting through the COVID-19 noise to establish a connection that makes this understanding resonate.

Stories Connect Us

Anecdotes and analogies feel folksy, unscientific, and largely unrelated to realistically weighing risk. This is a problem, as every decision and indecision in medicine carries risk. But being relatable is an underutilized option, and stories connect and persuade us.[2] They bring clarity to concepts, *including* inherent risk. And we need to dig deep to deploy every tool to communicate the exceptional risk patients face when it comes to antibiotic overprescribing.

For example, repeated wear and tear on tires results in no tread—no traction on a slippery road. Odds are, you'll encounter inclement weather and lose control of your car. The same is true for the body's defense against infection. Once antibiotics stop working and that tread is gone, there's no new tire shop for our immune system, and bacteria are always in the forecast.[3]

We can share that we treat the "right bug with the right drug" as strong proponents of evidence-based medicine, but we need to come at the issue from multiple angles. Sharing antibiotic resistance information as part of "healthy immune system maintenance" might be the way to approach it. A straightforward, "Have we talked about antibiotic resistance before?" could be another.

Whichever approach makes sense will depend on the patient and his/her overall medical profile, combined with concerns gathered during the visit. Regardless, the end goal is understanding, and we must find creative ways to arrive there with every patient.

Antibiotic stewardship *is* happening after all, but wide-scale awareness remains an urgent concern. And with the pandemic raging, we have a window right now to make meaningful strides in educating patients about the inutility of antibiotics for viral infections.

COVID-19 Water Cooler Conversations

In the era of COVID-19, antibiotic stewardship seems nearly effortless most of the time. Our collective exhaustion over demands for Z-Paks, overused to the point of impotence against sinus infections, has been replaced by other forms of exhaustion overnight.

Every moment of available time is dedicated to public health topics: discussions concerning, safety, time frames, and an array of medications patients have heard about on the news now occur "while we wait for the vaccine." During these "COVID water cooler conversations," I cover all possible testing outcomes because this is the moment in which I have a captive audience. And I've found it is also time well spent on stewardship.

The most valuable part of an urgent care visit, after all, has never been giving a patient test results, but rather anticipatory guidance on what to do with that knowledge.

The general public is hungry for this knowledge. Overall, the patients we see now have a much better understanding of true red flag signs, such as fever in adults, difficulty breathing, and low oxygen levels. For the first time in decades, the narrative on effective viral respiratory infection treatment, or lack thereof, has permeated the public's collective consciousness.

Despite this, the pervasive patient satisfaction myth among urgent care providers persists.

The Patient Satisfaction Myth

In my clinical experience and teaching on antibiotic stewardship,

"Satisfaction cannot be bought by 'giving the patient what they want.' Providers who employ this method are also dodging the underlying problems that create these scores while providing suboptimal care."

I have found the most commonly cited reason providers give for inappropriately prescribing antibiotics is patient satisfaction and lack of time to dissuade patients about their need for an antibiotic. The reality though, is that antibiotic prescriptions don't actually help to save time or increase patient satisfaction.

Prior studies have shown the amount of "extra" time it takes to educate a patient on the topic instead of sending a prescription is approximately 1 minute. For the average electronic medical record user, it may very well take the same time simply to order an antibiotic.

And isn't an extra minute worth doing the right thing? An educated patient is armed with a more comprehensive expectation of a disease's time course, which in turn saves us from answering unnecessary phone calls when the antibiotic, unsurprisingly, doesn't achieve the patient's goal.

As for patient satisfaction, it cannot be bought so simply as by "giving the patient what they want" (at least not reliably). Medical providers with poor satisfaction scores who employ this method are also dodging the underlying problems that create these scores while providing suboptimal care.

Patients do not want antibiotics anyway. Not if they don't need them. No one looks forward to taking extra pills and risking diarrhea. They just want to feel better.

Intuitively, we know that patient satisfaction actually *increases* when we invest in empathy, practice evidence-based communication techniques, convey clear expectations for the course of illness, and offer guidelines for when to seek additional care. It just makes sense on a variety of levels.

Improving patient satisfaction is a skill set like any other, strengthened by knowledge and practice. Practicing stewardship through the use of the communications strategies outlined above is the true formula for growth and providing care that both the patient and you can feel good about. ■

References

1. GoHealth. Get smart about antibiotics: when are antibiotics right for you? Available at: https://www.gohealthuc.com/library/how-decide-bacterial-or-viral. Accessed December 8, 2020.
2. NPR. How stories connect and persuade us: unleashing the brain power of narrative. Available at: https://www.npr.org/sections/health-shots/2020/04/11/815573198/how-stories-connect-and-persuade-us-unleashing-the-brain-power-of-narrative. Accessed December 8, 2020.
3. GoHealth Urgent Care. How antibiotic resistance happens. Available at: https://www.gohealthuc.com/library/how-antibiotic-resistance-happens. Accessed December 8, 2020.

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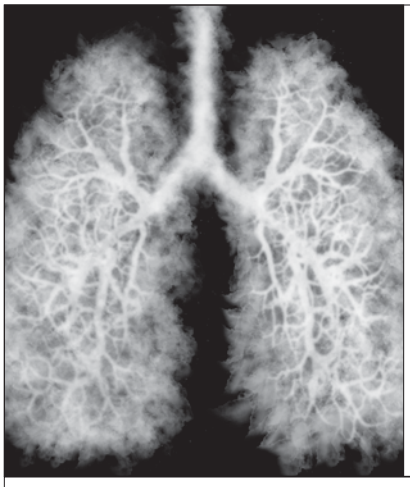

CLINICAL

NEXT MONTH IN *JUCM*

Despite the prospect of vaccination programs and more accessible testing than was possible at the outset of the COVID-19 pandemic, health officials at the national and state levels have been predicting that the winter months could the darkest days yet. One issue has been the fact that children seem to exhibit symptoms less frequently than adults, yet are still fully capable of transmitting the virus. This begs the question, just how long could a child with COVID-29 test positive? We'll get an answer in the form of a new original research paper in the February issue of *JUCM*.

DEPARTMENTS

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

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JUCM CONTRIBUTORS

Researchers at Stanford University discovered recently that teenagers who vape are at higher risk for contracting COVID-19. While that's a very timely piece of information, it doesn't diminish the overall risk for people who use e-cigarettes or similar devices, especially at this time of year.

It can be easy to forget this because of the pandemic, but we're smack dab in the middle of flu season. Patients are reporting with all kinds of respiratory complaints, possibly making it a little too easy to either assume the worst or dismiss the symptoms as a seasonal malady. That's why you should read Vaping-Associated Lung Injury Presenting to Urgent Care (page 13), in which authors **Marco Propersi, DO, FAAEM** and **Anand Swaminathan, MD, MPH** make the case for discussing vaping habits with every patient who presents with respiratory symptoms—and what steps to take next if vaping is suspected as the cause.

Dr. Propersi is clinical assistant professor in the Department of Emergency Medicine at St. Joseph's Regional Medical Center, where Dr. Swaminathan is an assistant professor of emergency medicine.

We don't have to tell you it's important to continue being vigilant for COVID-19. At press time, a vaccine has been approved and is in the early stages of distribution. It's going to be a while before immunization programs have an effect on the U.S. population, though, so testing and encouraging protective measures remain our best defense against spread. In Incidence of SARS-CoV-2 in Preoperative Patients Tested in an Urgent Care Setting (page 33), a team of authors shares some surprising results that lend credence to the belief that there could be a lot of people running around with undiagnosed COVID-19. It also emphasizes the important role urgent care can play in public health at this time. We're grateful to **Sarah Greenwood, PA** of Medstar Health Urgent Care/Medstar Ambulatory Services; **Bronson Elizabeth Delasobera, MD** of Medstar Health Urgent Care/Medstar Ambulatory Services and Georgetown University, School of Medicine; **Amanda Joy, PA**, of Medstar Health Urgent Care/Medstar Ambulatory Services; **Rita Malley, MS**, Georgetown University, School of Medicine; **Anisha Patel, MS**, Georgetown University, School of Medicine; and **Eshetu Tefera, MS**, MedStar Health Research Institute.

Just as important is the habit of keeping an open mind when assessing mysterious complaints. In Worsening, General Weakness and Immobility in an IV Drug User (page 29), **Savannah Chavez, MD**, **Jordan Miller, DO**, and **J. Chika Morah, MD** recount the actual case of a woman who presented with the complaints named in the article's title. Had the treating physicians not entertained every possibility as to the cause, the patient would likely have experienced a devastating outcome.

Devastation of a different type awaits urgent care operators who don't continually update their approaches to promoting their offerings. Adapting Urgent Care Marketing Strategies to Include Mobile and Voice Technologies (page 19) spells out why a robust digital marketing program is essential to your survival, and how you can get the ball rolling. It's authored by **Alan A. Ayers, MBA, MAcc,** chief executive officer of Velocity Urgent Care and senior editor, practice management content for *JUCM*.

Also in this issue, Experity Vice President of Revenue Cycle Management Monte Sandler updates us on the new E/M coding guidelines. Ensuring appropriate reimbursement starts with applying the correct codes for 2021. Reading the article on page 45 will be a good start.

Finally, in Abstracts in Urgent Care (page 23), Ivan Koay, MBChB, FRNZCUC, MD offers reviews of the latest literature concerning language barriers when treating children; the relative merits of ibuprofen in treating pediatric ankle sprains; the link between facial palsy and leukemia; and several new articles on COVID-19 that bear close attention. Dr. Koay is an urgent care physician based in Dublin, Ireland, as well as an Examiner and Trainee Supervisor for the Royal New Zealand College of Urgent Care Education Faculty for the Urgent Care Medicine Fellowship, Royal College of Surgeons Ireland.

Clarifications

There's a lot of room for interpretation in medical literature, but very little room for error. A nuanced phrase or the way a graph is laid out can heighten or impede the reader's understanding of the content. When the latter occurs, we want to make sure we do everything we can to make everything crystal clear.

In our November 2020 issue, in an article entitled Streptococcal Pharyngitis and Its Sidekicks: Common and Uncommon Etiologies, we included a table that could have been presented a bit more clearly. It could be read as suggesting that a Centor criteria of ≥4 should lead the medical provider to consider prescribing antibiotics. While that is the watermark for many clinicians, the source cited as the reference for the table as a whole does not actually advise routinely relying on scoring systems to diagnose pharyngitis. We thank reader **Charlotte Albinson MD**, medical director, Morris Hospital Immediate Care and Occupational Medicine for bringing this to our attention.

Also, we heard from an author who noted Table 3 of A Multicenter Study of the Rate of MACE in Chest Pain Patients with a Moderate HEART Risk Score Referred from Urgent Care for an Expedited Outpatient Cardiology Evaluation (September *JUCM*) listed a patient's age as 58-years-old instead of 68; his HEART score as 8 instead of 6; a patient's time to cardiology evaluation as 3 days instead of 2 days; and that a patient's age and risk had a value of 1 each, where it should have said 2 each.

Each of these articles has been updated on our website. ■

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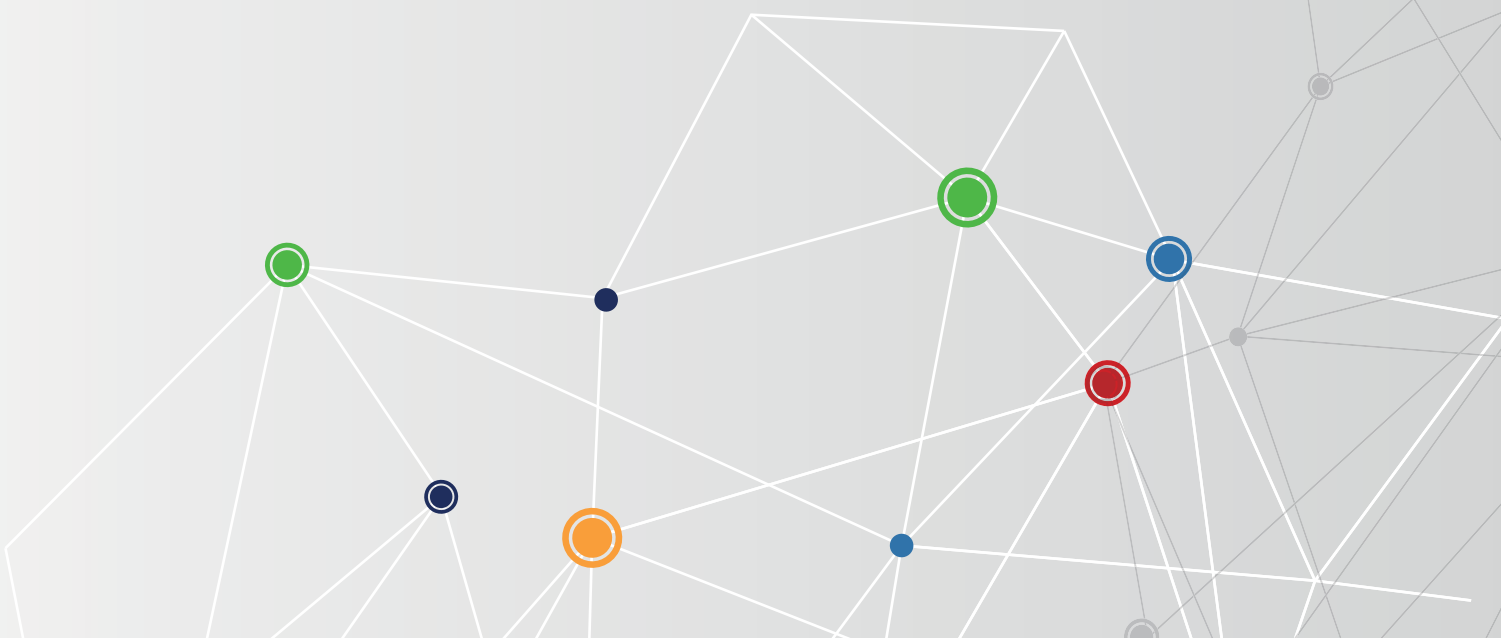

This Is Us

LOU ELLEN HORWITZ, MA

If the 2020 word of the year wasn't *unprecedented*, it should be. Most of the time that word was used to describe the next difficulty that 2020 brought, but in urgent care we saw something very different—we saw unprecedented connection with our communities. We also saw an unprecedented collaboration across UCA via not only staff and formal volunteers, but all members, and many vendor partners.

We realized early on with COVID testing that, once again, urgent care had been left out of the important conversations. We all know what happened next—you went and did testing anyway, and rocked it, and continue to be an example for your healthcare community on improvisation, creativity, service, and determination to this day. Hospitals and EDs have to be open, but urgent care *chose* to be open, and that garnered attention like never before. We all sensed it as a storytelling moment we could not miss and redoubled our efforts to get a voice in the rest of COVID planning.

Hundreds of us spent 2020 telling the urgent care COVID story to lawmakers, regulators, public health officials, suppliers, the media, strategic partners, and so on. It took some time for us to fully mobilize and break through longstanding barriers, but by the Fall we were not only sitting at the table, but being *asked* to speak.

Here are some highlights of what we did together:

- Worked with the CDC to help them *correctly* understand your capabilities and edit their final Vaccine Playbook to include urgent care. This is the first time federal guidance has formally included us. **Because of this, urgent care centers were included in many state vaccine playbooks from day 1.**
- Connected with state planners to get UCA members a seat on their vaccine task forces. **Because of this, urgent care centers have a seat at the table for ongoing planning in many states.**
- Ensured that state vaccination planners had comprehensive lists of their state's urgent care centers. **Because of this, urgent care centers are positioned to play key roles in vaccinating pivotal or underserved geographic areas.**
- Lobbied members of Congress and CMS to increase COVID-19 testing reimbursement alongside diagnostic industry partners and advocated for key public health issues related to testing. **Because of this, these members and UCA staff have gained new access to high-level decision makers** (though the reimbursement battle continues).
- Leveraged these and other connections with the Healthcare Resilience Working Group (a committee of Operation Warp Speed) to further our reach into federal agencies. The HRWG is made up of governmental agencies such as the CDC, FEMA, the FDA, CMS and others, and are tasked with understanding the challenges we've had with provider utilization through the pandemic, toward better utilization in future emergencies or pandemics. **Because of this, there is greater understanding at the federal level of the role we are playing and can play in healthcare.**
- Begun talks with Operation Warp Speed: Therapeutics and therapeutics manufacturers about urgent care's potential role in COVID-19 therapies for non-critical patients. **Because of this, urgent care will be included in rollout planning as these therapies evolve.**

It is easy to watch the news and get discouraged by all the talk about drugstores and their very visible testing or vaccine mobilizations—and feel that in spite of all of our efforts you're still not the healthcare celebrities you should be. I'll confess I've found myself yelling at the television on your behalf more than once!

It's then I have to remind myself how far we *have* come since March. All of these government agencies know who you are. They may not be able to turn on a dime like we'd like, *but they are turning*. Big pharma is calling us. The CDC is giving direct briefings to us and recommending utilization of urgent care. All because we came together, stood up and said, "This is us."

2021 brings a new administration and a new Congress, which means we will have to keep coming together and keep standing up. We all have to keep telling our story. Some of these people will be hearing it for the first time. Let's make it a good one. ■

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

CONTINUING MEDICAL EDUCATION

Release Date: January 1, 2021
Expiration Date: December 31, 2021

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

Accreditation Statement
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the Urgent Care Association and the Institute of Urgent Care Medicine. The Urgent Care Association is accredited by the ACCME to provide continuing medical education for physicians.

The Urgent Care Association designates this journal-based CME activity for a maximum of 3 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Planning Committee
- **Joshua W. Russell, MD, MSc, FACEP**
  Member reported no financial interest relevant to this activity.
- **Michael B. Weinstock, MD**
  Member reported no financial interest relevant to this activity.
- **Alan A. Ayers, MBA, MAcc**
  Member reported no financial interest relevant to this activity.

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CONTINUING MEDICAL EDUCATION

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Vaping-Associated Lung Injury (EVALI) Presenting to Urgent Care (page 13)

1. **While the age of patients diagnosed with EVALI has ranged from 13 to 85 years, 74% fall into what age category?**
   a. 35-50
   b. 50-65
   c. 34 and under
   d. over 65

2. **There is compelling evidence that the causative agent in EVALI is:**
   a. Vitamin E
   b. Nicotine
   c. Propylene glycol
   d. All of the above

3. **Symptoms associated with EVALI include which of the following?**
   a. Hypoxemia
   b. Nausea
   c. Shortness of breath
   d. Subjective fever
   e. All of the above

Adapting Urgent Care Marketing Strategies to Include Mobile and Voice Technologies (page 19)

1. **According to Pew Research, as of 2019 the percentage of U.S. adults who owned a smartphone was:**
   a. 63%
   b. 75%
   c. 81%
   d. 96%

2. **"Geofencing" is a valuable undertaking because it allows you to:**
   a. Establish filters that essentially block your nearest competitor from a device user's search
   b. Target consumers based on their current location
   c. Appeal to the consumer's key interests
   d. All of the above

3. **Google My Business has become an essential online marketing tool because:**
   a. It allows the business to manage how it is presented to searchers
   b. Its algorithms prioritize local businesses based on proximity
   c. Its algorithms prioritize local businesses based on how relevant the services are to what the user is searching for
   d. A properly organized profile can help you ensure your location appears among the top positions of search results
   e. All of the above

Worsening, General Weakness and Immobility in an IV Drug User (page 29)

1. **Spinal epidural abscesses most commonly occur due to:**
   a. *Actinomycosis*
   b. Gram-negative bacilli
   c. Fungi
   d. *Staphylococcus aureus*

2. **Most spinal epidural abscesses are located in which area?**
   a. The cervical spine
   b. The posterior aspect of the thoracic or lumbar spine
   c. The sacrum and coccyx
   d. Distribution is equally common among these

3. **The best choice for imaging in a patient suspicious for spinal epidural abscess is:**
   a. CT with IV contrast
   b. MRI
   c. Ultrasound
   d. X-ray

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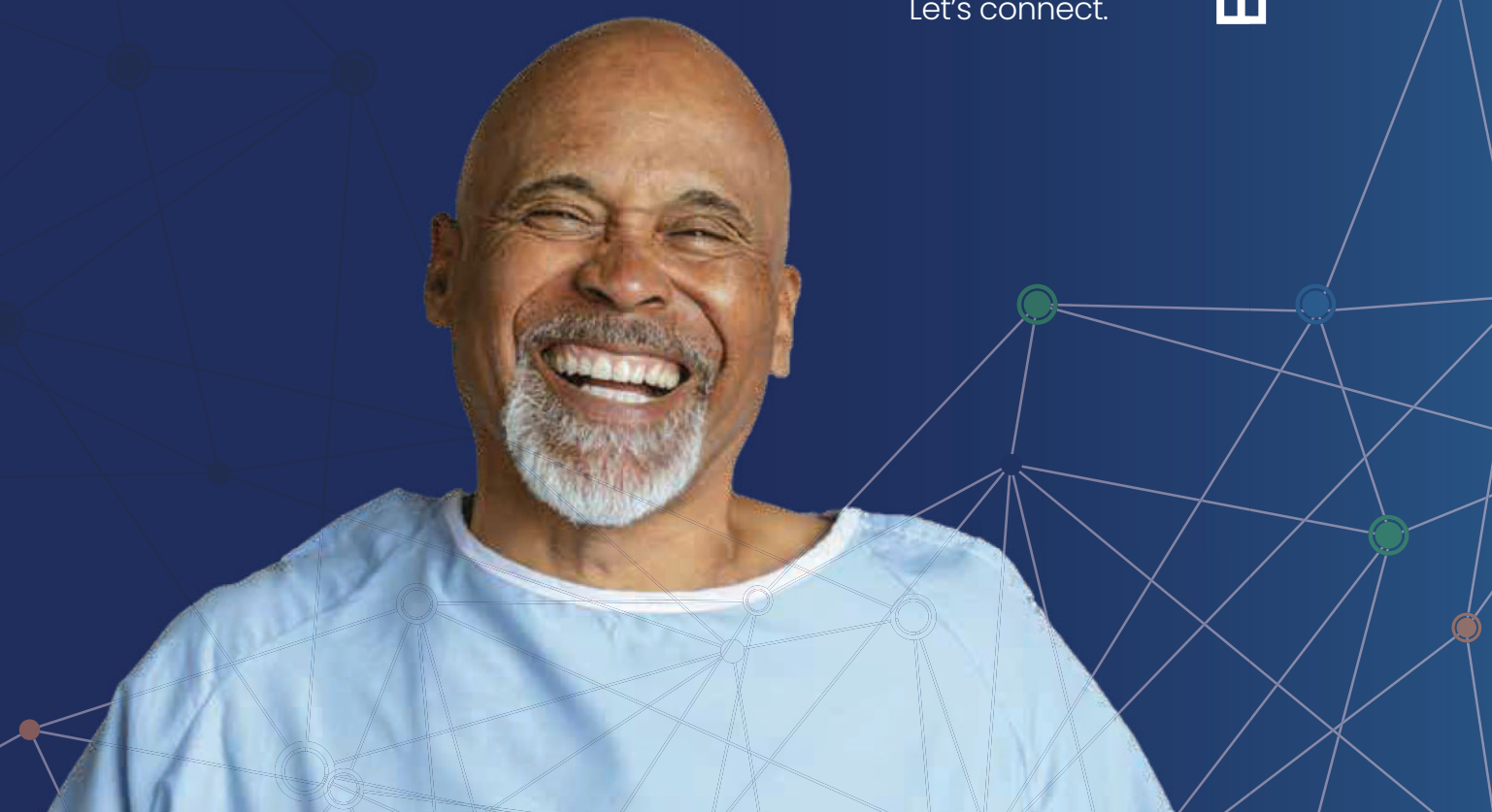

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See **CME Quiz Questions** on page 11.

Vaping-Associated Lung Injury (EVALI) Presenting to Urgent Care

Urgent message: Respiratory complaints due to use of e-cigarettes or vaping may be difficult to distinguish from those associated with influenza and other common respiratory illnesses. It is essential for the urgent care provider to ask patients who present with any respiratory complaint about vaping history, and to have a sound understanding of next steps for patients suspected of having e-cigarette or vaping-associated lung injury (EVALI).

MARCO PROPERSI, DO and ANAND SWAMINATHAN, MD, MPH

Citation: Propersi M, Swaminathan A. Vaping-associated lung injury (EVALI) presenting to urgent care. *J Urgent Care Med.* 2021;15(4):13-16.

Introduction

E-cigarette or vaping-associated lung injury (EVALI) disproportionately affects teenagers and younger adults due to increased incidence of vaping in these age groups.[1] While this article will focus on the link between EVALI and vaping with tetrahydrocannabinol (THC) containing products,[2] it is important to acknowledge that vaping with nicotine or other products is also linked to EVALI.

Illustrative Case

A 22-year-old man presents to an urgent care with 2 days of subjective fevers and chills, dry cough, and shortness of breath. He used over-the-counter cough and cold medications for fever and cough suppression with minimal relief. His vital signs are notable for temp of 100.1°, HR of 105 beats/min, RR of 20 breaths/min, blood pressure of 118/75 mmHg, pulse oximeter of 96% on room air. He is nontoxic appearing and has an occasional cough. His lungs are clear, there are no rales, rhonchi, or wheezes. There is no accessory muscle use or respiratory distress. He speaks in full sentences without dyspnea. There is mild tachypnea. A social history is not obtained.

Urgent Care Management

The patient was diagnosed with bronchitis and given azithromycin 5-day dose pack and an albuterol inhaler. Radiographic imaging was forgone at this time. Return precautions were given and the patient was advised to return in 7 days for reevaluation.

Author affiliations: **Marco Propersi, DO, FAAEM,** St. Joseph's Regional Medical Center. **Anand Swaminathan, MD, MPH,** St. Joseph's Regional Medical Center. The authors have no relevant financial relationships with any commercial interests.

Figure 1.

Figure 2.

Outcome

Over the next 24 hours the patient's condition worsened, prompting him to present to the emergency department. On reassessment in the ED, the patient now had markedly unstable vital signs. His temp was 103.5°, HR of 130 beats/min, RR of 30 breaths/min, blood pressure of 148/92 mmHg, and pulse oximeter of 88% on room air. On physical exam he was in obvious respiratory distress with moderate tachypnea and scattered rales and rhonchi throughout all lung fields. His pulse oximeter improved to 99% after being placed on a 15 L/min nonrebreather. A chest x-ray was performed but was unremarkable. A CT of the chest was then obtained, revealing revealed scattered ground glass opacities suspicious for inhalation injury. (See **Figure 1** and **Figure 2**.)

Upon questioning, the patient admitted to vaping with THC products. The patient was presumed to have EVALI. He was started on systemic glucocorticoids and antibiotics with coverage against community acquired pneumonia. He was admitted to the intensive care unit for supportive respiratory care.

Over the next week the patient's condition improved and his oxygen requirements returned to normal. Testing for other infectious processes was normal. He was counseled on smoking cessation behaviors and vaping with recreational substances and additives and was discharged with outpatient follow-up.

Discussion

E-cigarettes are battery-operated electronic devices which aerosolize a liquid solution containing nicotine for inhalation. The first U.S. patent appeared in 1963 as a "a form of smokeless tobacco" with the aim of providing "a safe and harmless means for smoking." The term "vaping" is a misnomer because the e-cigarette solution is actually aerosolized and not vaporized. There are multiple generations of devices but all have the same basic construction. The devices consist of a mouthpiece, a chamber which houses the e-cigarette solution, an atomizer which aerosolizes the solution, and a battery.[3]

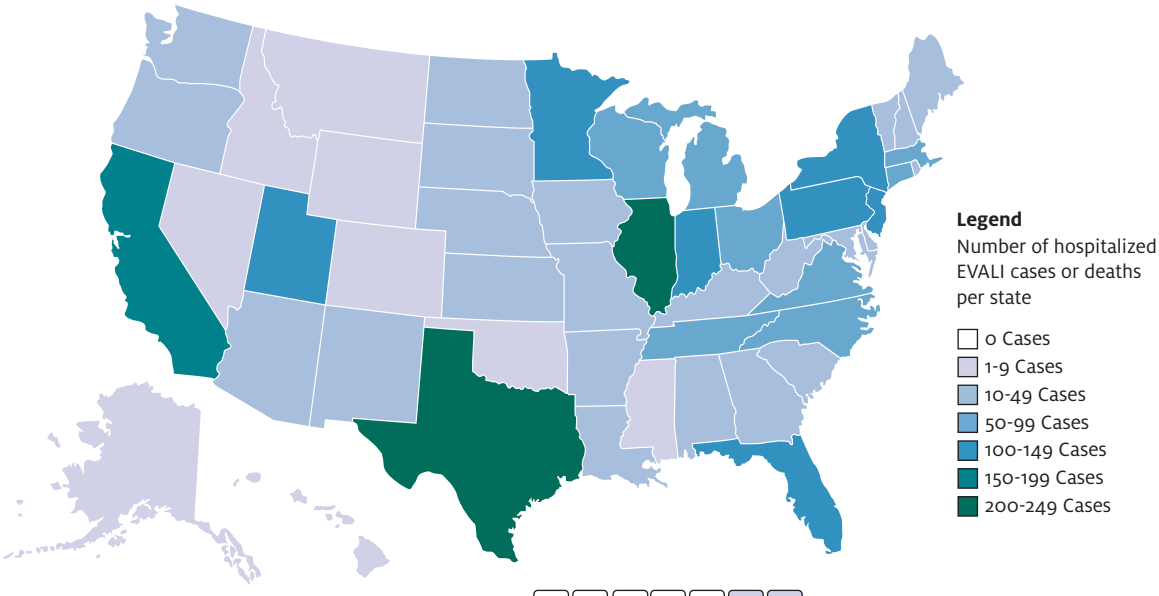
The e-cigarette solution can contain numerous potentially harmful compounds including nicotine, propylene glycol, heavy metals, formaldehyde, and one of more than 7,000 flavors.[3,4] Additionally, unintended compounds such as bacterial endotoxin and components of fungal cell walls have also been found in the solution.[5] E-cigarette devices are often modified to aerosolize THC containing solutions whose components may not be known.

Epidemiology

EVALI was first recognized in the summer of 2019. It peaked in August of 2019 and has steadily declined since. Prior to the decline, information was gleaned from a few published case reports.[12-15] As per the final CDC report on February 18, 2020, there have been more than 2,800 cases of EVALI and 68 deaths in the U.S.[6] (See **Figure 3**.)

The signs and symptoms can mimic many common respiratory conditions, making diagnosis difficult. As clinicians, there's less impetus to report and publish mild cases where the patient's condition improved without

Figure 3. Hospitalized EVALI Cases or Deaths Reported to CDC as of February 18, 2020.



Source: Centers for Disease Control and Prevention.

dramatic rescue efforts. There have likely been many more patients who were either misdiagnosed or did not seek medical treatment and symptoms improved without medical intervention. Among the cases reported to the CDC, 66% were male, and 74% were 34-years-old or younger. The age range was 13-85 and the median age was 24-years-old. Only 2% of cases, but nearly 25% of deaths, occurred in patients older than 65-years-of-age. The median age of deceased patients was 49.5-years-old.[6]

Among cases that had data on substance use, 82% reported use of THC-containing products. However, 14% reported exclusive use of nicotine products[6] (though it is possible some patients may have been apprehensive about reporting illegal substance use). Additionally, in some cases information on substance use was obtained from family or proxies who may not have been aware of the patient's full scope of substance use.

There is compelling evidence that vitamin E is the causative agent. Vitamin E acetate has been used as a dissolvent in THC-containing solutions.[7] Vitamin E acetate is found in many commercially available products, most notably foods and cosmetic products. It is safe when ingested or applied to the skin. However, recent evidence has linked inhalation of vitamin E acetate to EVALI. In one study, vitamin E acetate was identified in bronchoalveolar lavage specimens from 29 patients with EVALI in 10 different states.[8] In another study of 51 patients with EVALI across 16 states, vitamin E acetate was detected in 94% of BAL specimens.[9] The exact mechanism by which vitamin E causes pulmonary toxicity is unknown.

Clinical Symptoms and Physical Exam

The signs and symptoms of EVALI are nonspecific and vary considerably from one patient to the next. It may be impossible to clinically distinguish EVALI from other common respiratory conditions such as influenza, pneumonia or the common cold. Much of what we know comes from CDC reports and a few small case series, the largest of which contained just under 100 patients.[2,10,11] All patients (100%) experienced some constitutional symptoms with subjective fever (84%) and chills (60%) being the most common.[2] Nearly all patients (97%) had respiratory symptoms. Shortness of breath and cough were each present in 85% of patients.[2] Most patients (77%) experienced gastrointestinal symptoms; nausea (66%) and vomiting (61%) were the most common.[2]

On physical exam, fever (33%), tachycardia (63%), and tachypnea (43%) were seen to varying degrees.[2] More than half the patients were hypoxemic (58%) and one fourth had oxygen saturations <88% at presentation.[2] There is no single exam finding that is pathognomonic for EVALI.

"ICU patients received 125 mg IV methylprednisolone daily for 15 days; patients admitted to the medical ward received 125 mg IV methylprednisolone daily for 10 days; and those managed outpatient received 50 mg PO prednisone daily for 7 days."

Diagnostics

Labs

There is no single lab test that is indicative of EVALI; it remains a diagnosis of exclusion. Testing is directed towards ruling out other potential causes of disease such as cardiac, rheumatologic, neoplastic and infectious causes.[10]

Imaging

The CDC-proposed confirmed case definition requires use of e-cigarettes in preceding 90 days, pulmonary infiltrates on chest imaging, and absence of alternative plausible diagnosis. One hundred percent of patients with EVALI will have bilateral ground glass opacities on CT imaging,[2,10,11] but the chest x-ray is less sensitive, with only 83% demonstrating infiltrates.[2] In stable patients, with a clear story suggestive of EVALI and infiltrates on chest x-ray, a chest CT would not significantly alter management and is not required for diagnosis. EVALI has been linked to lipoid pneumonia but a variety of other radiographic patterns can be seen including diffuse alveolar hemorrhage, acute eosinophilic pneumonia, hypersensitivity pneumonitis, and organizing pneumonia.[12-15]

Treatment

There is no approved treatment for EVALI. Patients should receive antibiotics against bacterial pneumonia until infectious processes have been ruled out. Most patients with EVALI have received corticosteroids.[2,10,11] In one study, ICU patients received 125 mg IV methylprednisolone daily for 15 days; patients admitted to the medical ward received 125 mg IV methylprednisolone daily for 10 days; and those managed outpatient received 50 mg PO prednisone daily for 7 days.[11] However, the benefits of systemic steroid use are based on observation and have not been formally studied. In previous studies, most patients (95%) with EVALI required hospitalization for management of hypoxemia.[2] Supplemental oxygen should be given to maintain oxygen saturation >92%. Escalation of respiratory support may be required. Many patients may need mechanical ventilation and there are case reports of patients requiring ECMO.[13]

Teaching Points

- EVALI may be indistinguishable from influenza and other common respiratory complaints.
- Ask patients with respiratory complaints about vaping history, especially with THC products.
- Chest x-ray will often show bilateral opacities.
- Start patients on antibiotics until infection is ruled out.
  - Hospitalized patients should receive broad-spectrum antibiotics.
  - Those being managed outpatient should be treated for community-acquired pneumonia. Amoxicillin plus azithromycin or doxycycline, amoxicillin clavulanate, or cefpodoxime plus azithromycin or doxycycline are all appropriate regimens.
- Corticosteroids may be helpful.
- Many patients will require hospitalization and respiratory support. ■

References

1. Wang TW, Gentzke AS, Creamer MR, et al. Tobacco product use and associated factors among middle and high school students - United States, 2019. *MMWR Surveill Summ*. 2019;68(12):1–22.
2. Layden JE, Ghinai I, Pray I, et al. Pulmonary illness related to e-cigarette use in Illinois and Wisconsin - final report. *N Engl J Med*. 2020;382(10):903–916.
3. U.S. Department of Health and Human Services. E-cigarette use among youth and young adults: a report of the surgeon general. Available at: https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_ report_508.pdf. Accessed November 20, 2020.
4. Olmedo P, Goessler W, Tanda S, et al. Metal concentrations in e-cigarette liquid and aerosol samples: the contribution of metallic coils. *Environ Health Perspect*. 2018;126(2):027010.
5. Lee MS, Allen JG, Christiani DC. Endotoxin and (1[R]3)-b-D-glucan contamination in electronic cigarette products sold in the United States. *Environ Health Perspect*. 2019;127(4):47008.
6. Centers for Disease Control and Prevention. Outbreak of lung injury associated with the use of e-cigarette, or vaping, products. Available at: https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html. Accessed December 10, 2020.
7. Pray IW, Atti SK, Tomasallo C, Meiman JG. E-cigarette, or vaping, product use-associated lung injury among clusters of patients reporting shared product use - Wisconsin, 2019. *MMWR Morb Mortal Wkly Rep*. 2020;69(9):236–240.
8. Blount BC, Karwowski MP, Morel-Espinosa M, et al. Evaluation of bronchoalveolar lavage fluid from patients in an outbreak of e-cigarette, or vaping, product use-associated lung injury - 10 States, August-October 2019. *MMWR Morb Mortal Wkly Rep*. 2019;68(45):1040–1041. [Erratum: *MMWR Morb Mortal Wkly Rep*. 2020;69(4):116.]
9. Blount BC, Karwowski MP, Shields PG, et al. Vitamin E acetate in bronchoalveolar-lavage fluid associated with EVALI. *N Engl J Med*. 2020;382(8):697–705.
10. Kalininskiy A, Bach CT, Nacca NE, et al. E-cigarette, or vaping, product use associated lung injury (EVALI): case series and diagnostic approach. *Lancet Respir Med*. 2019;7(12):1017–1026.
11. Blagev DP, Harris D, Dunn AC, et al. Clinical presentation, treatment, and short-term outcomes of lung injury associated with e-cigarettes or vaping: a prospective observational cohort study. *Lancet*. 2019;394(10214):2073–2083.
12. Agustin M, Yamamoto M, Cabrera F, Eusebio R. Diffuse Alveolar Hemorrhage Induced by Vaping. *Case Rep Pulmonol*. 2018;2018:9724530.
13. Aokage T, Tsukahara K, Fukuda Y, et al. Heat-not-burn cigarettes induce fulminant acute eosinophilic pneumonia requiring extracorporeal membrane oxygenation. *Respir Med Case Rep*. 2018;26:87–90.
14. Davidson K, Brancato A, Heetderks P, et al. Outbreak of electronic-cigarette-associated acute lipoid pneumonia - North Carolina, July-August 2019. *MMWR Morb Mortal Wkly Rep*. 2019;68(36):784–786.
15. Khan MS, Khateeb F, Akhtar J, et al. Organizing pneumonia related to electronic cigarette use: A case report and review of literature. *Clin Respir J*. 2018;12(3):1295–1299.

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Adapting Urgent Care Marketing Strategies to Include Mobile and Voice Technologies

Urgent message: As consumers become more dependent on their internet-connected smartphones for health information, urgent care centers must adapt their marketing content to mobile devices and include greater use of voice-enabled search and GPS-enabled marketing tactics.

ALAN A. AYERS, MBA, MAcc

When personalized technology started to become widespread in the late 90s and early 2000s, it changed the way companies did business. They were forced to adapt to new marketing tactics and develop creative ways to fend off competitors. Customers found that they had more choices thanks to the internet and were no longer afraid to explore their options.

Today, the majority of marketing is done digitally. Websites are more valuable than mailers, and a Facebook ad can bring in more customers than a billboard.

However, things are still changing. Smartphones are an indispensable part of daily life for almost all Americans. That means that the mobile arena is quickly becoming the go-to space for digital marketing.

To take things further, artificial intelligence (AI) and digital helpers like Alexa, Siri, and Google Assistant are making voice-search technologies mainstream. Smartphones even make it possible for companies to target their marketing based on geographical location.

So, what does this mean for urgent care businesses? It's a signal that our customers are changing and that it is once again time to change with them. Urgent care owners need to consider the impact of mobile technologies when crafting their marketing strategies.

This will be a key area for any urgent care business that wants to thrive in the 2020s and beyond.

Starting Point: Widescale Adoption of Mobile Technology

It only takes one look around to see that smartphones are everywhere. Data from Pew Research found that 81% of U.S. adults owned a smartphone in 2019.[1] That number has been climbing for years and continues to do so. With the market nearly saturated, smartphones

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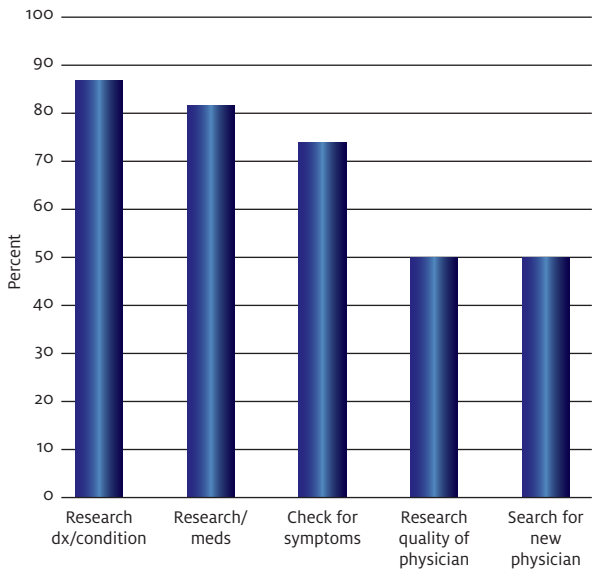
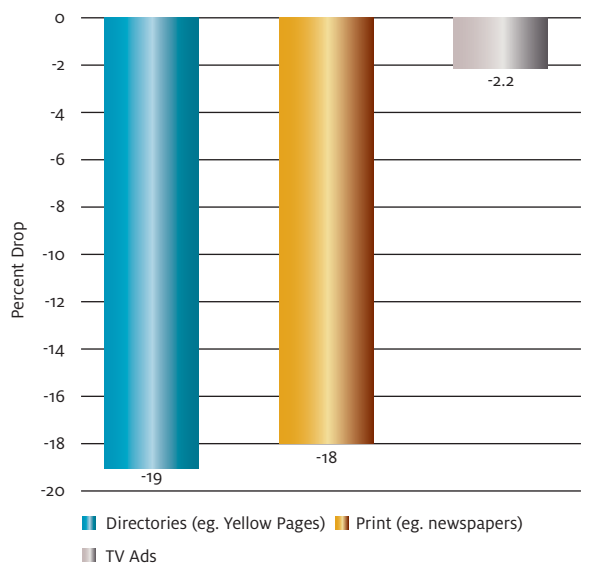
Figure 1. Top 5 Reasons Consumers Use the Internet for Healthcare Information



Data source: Cohen JK. 72% of consumers use the internet to find healthcare info: 6 survey findings. *Becker's Hospital Review*. May 31, 2017.

Figure 2. Declines in Traditional Advertising Media, 2018-2019



Data source: *Insider Intelligence.* U.S. digital ad spending will surpass traditional in 2019. Available at: https://www.emarketer.com/content/us-digital-ad-spending-will-surpass-traditionalin-2019. Accessed December 16, 2020.

can't be ignored when it comes to digital marketing.

In fact, some argue that the mobile space should be the center of all digital marketing—not just a component of it.

Of course, smartphones aren't the only devices that consumers use the internet on. Pew Research found that 92% of adults report being online daily and that 28% report being online "almost constantly."[2]

Those figures are less shocking than they probably should be. Almost everyone finds themselves in the 92% category while those who always have their smartphone on hand are likely part of the 28% statistic.

Thanks to the rise of smartphones, the internet, and affordable computers, consumers have access to unlimited information at their fingertips. That is especially true for those seeking healthcare services and information about their medical conditions. *Becker's Hospital Review* found that 72% of healthcare consumers use the internet to learn about their medical concerns.[3] (See **Figure 1**.)

With that in mind, it's easy to see how digital advertising needs to be a key component of every urgent care company's marketing strategy.

It goes even further, though. The prevalence of mobile technology opens the door for micro-moments. In the marketing world, this refers to an instance where consumers are seeking out information and intend to use it to make a decision. With a smartphone, people can search for something, get instant results, and make their choice in a matter of seconds.

Micro-moments are extremely valuable for urgent care clinics due the fact that they are fast and offer convenient services. We'll discuss this more later.

For now, it is important to remember that a mobile-friendly website is a must in today's world. In 2018, Google started using the mobile version of websites for indexing—where sites rank in the search engine. This means that sites optimized for smartphones and tablets are more likely to rank higher in organic search, ultimately leading to more customer views.[4]

Mobile Is the Foundation of All Digital Advertising

While optimizing your website for mobile is important, companies are also paying for smartphone traffic. Digital advertising is increasingly skewed toward mobile devices with more and more businesses throwing their dollars at smartphone users.

Data from eMarketer suggest that 70% of digital ad spending in the U.S. is dedicated to mobile devices. Smartphones account for 34% of all ad spending in the country.[5] **Figure 2** suggests which media are declining in ad spending as a result.

Micro-moments are at the core of this mobile-first ad approach. Urgent care businesses must be prepared to capitalize on the moments where smartphone users turn to their devices to make a healthcare decision. A well-placed mobile ad can be the turning point that ultimately brings them through the door as a paying customer.

However, mobile-first marketing comes with many challenges of its own. It requires that websites be built with a mobile-first mindset. This means pages should be attractive on small phone screens and desktop displays alike. Moreover, sites should be optimized to load quickly, thus preventing users from navigating away to find a faster alternative.

The messaging associated with mobile-first marketing is also unique. It should focus on things that are most relevant to consumers who are looking for information while they are on the go.

Emphasizing the speed and convenience of urgent care is a great way to attract busy smartphone users. Promoting urgent care offerings like walk-in visits and text message updates assures customers that their time won't be wasted.

Content Messaging Must Be Specific and Meaningful to End Users

As mentioned, the internet has put vast amounts of information at our fingertips. While that's great for getting your message out to consumers, it also means that your competitors can do the same thing. A search for a common medical concern brings up a host of different options.

People see results from your business, competing urgent care centers, and even info from primary care offices, alternative medicine practices, and private blogs. This means that your content needs to stand out and be meaningful if you want to attract customers.

What does this look like in today's age?

Again, your digital marketing efforts should put your company's strengths front and center. How does your clinic stand out from other urgent care locations? Why is urgent care a more convenient option than a primary care visit? How can consumers access your services?

These are all questions that need to be answered. Fortunately, you can do so in a number of ways. Mobile-friendly content should be shared across all of your channels. In other words, you should have content on your website, Facebook page, online reviews, and blog. These are just a few examples. Remember, the more content you put into the world, the more likely it is that a consumer will find it.

Still, the content can't just be "fluff." Google's algorithms excel at sorting out content that has been posted to check a box. Urgent care companies need to ensure that their content is well-written and helpful to the reader. This makes it stand out from a search perspective. Ensure that your content is helpful by focusing on the needs of patients and answering the questions they are asking.

Search Is Evolving to Be More Voice-Centric

The rise of mobile devices has also made another technology popular—voice search. It is an easy way for consumers to seek out information while they are on-the-go. Without even touching their device, people can find answers to almost any question.

Essentially, voice search can be broken down into two types. The first focuses solely on voice and takes screens out of the equation. For example, this occurs when a consumer asks Google Assistant a question while they are driving and it reads an answer out loud. The second area focuses on a voice-based search that leads a user to traditional content. This might happen if a user asks Google Assistant a question but then scrolls through the results on their smartphone.

Unsurprisingly, Google is leading the way for voice searching thanks to technologies like AI and natural language processing. The tech giant is responsible for 93% of all search engine traffic, according to StatCounter. As such, where Google goes, the world follows.[6]

Although some voice searches can occur in the consumer's home thanks to devices like Google Home and Amazon Echo, most take place when the consumer is on-the-go. This means that people almost always use voice search when they are looking for answers to a specific question.[7]

Urgent care companies should focus on answering those questions when writing content for voice search. To do this, it is a good idea to get inside the consumer's head. Think of how they would ask the question and then write content that is rich in natural language—the words and phrases that people use in everyday life.

This is different from focusing on keywords, which rank highly in search engines but might not be as helpful with voice searches. As a result of these trends, search engine marketing is evolving. By putting an emphasis on voice search, using natural language, and answering questions clearly, urgent care companies can get their brand in front of consumers in a very effective manner.

Geofencing and Location-Based Targeting

Much like voice searching, mobile devices have intro-

duced another technology into the world of marketing—geofencing. Since smartphones are equipped with location-tracking features, it's possible to know where a consumer is at any point in their day.

From a marketing standpoint, this allows companies to create targeted ads based not on a person's interests, but their current location. That is a key point for urgent care companies. Since it is pointless to reach users outside of your target market, geofencing and location-based targeting can be very helpful tools. They allow urgent care businesses to focus their marketing efforts on consumers who are within a certain radius of one of their clinics. For example, once the consumer drives into a predefined area, they will start to see ads for the urgent care center. When they leave, they'll no longer see the ads.

This strategy could be employed in the area directly around a clinic or around certain high-priority locations. Targeting ads that educate parents about urgent care services around a middle school could turn them into customers next time their child needs care. Using a busy grocery store as a reference point and serving ads to shoppers helps raise awareness for a nearby clinic.

Estimates from Single Grain suggest that marketers will spend $2 billion on location-based advertising by 2023. This area presents a huge opportunity for urgent care businesses thanks to the relatively small size of their markets. Thankfully, smartphones make it easier than ever to use geofenced advertising to target ideal consumers.[8]

Google My Business—Your Digital Address

It wouldn't be right to discuss digital marketing strategies without mentioning one of the most valuable tools of all. Google My Business is a free resource that gives your company the ability to manage how it is presented to searchers.[9] It consists of a single, streamlined dashboard and gives local businesses a huge boost in their target markets.

Of course, Google My Business needs to be set up properly before it can start delivering those benefits. Companies need to ensure that they upload the correct contact information, website address, and hours into the platform. Then when a user searches for something like "urgent care near me," the Google My Business profile is presented to them.

Google's algorithms prioritize local businesses based on factors like how close they are to the user and how relevant the services are. Companies with accurate, updated information stand a better chance of ranking highly in the local businesses category.[10]

When it comes to bringing in customers, that ranking is extremely important. Forbes estimates that businesses listed in the top five positions of a search account for nearly two-thirds of all clicks. In other words, creating a shining Google My Business profile can drive more traffic to your site and more traffic through your doors.

Another noteworthy feature of this tool is the fact that customers can post reviews about your company. After visiting, consumers leave a star rating along with a comment about their experience.

This can be both good and bad. Positive reviews help rank your business higher in the search index. Reviews that discuss a positive experience also impact consumer decision-making and help draw people in.[11] On the flipside, a multitude of negative reviews can scare potential customers away before they even experience your services for themselves.

In Conclusion

Digital marketing has changed dramatically in recent years thanks to the record popularity of smartphones and a shift toward mobile-first searching. Urgent care owner/operators need to be prepared to meet these challenges and respond with appropriate marketing campaigns.

Doing so early can get your business ahead of the competition and bring new consumers through the doors. Failing to jump on trends like voice search, geofencing, and mobile-friendly content will leave your business struggling to catch up in the coming years. ■

References

1. Pew Research Center. Mobile Fact Sheet. Available at: https://www.pewresearch.org/internet/fact-sheet/mobile. Accessed December 8, 2020.
2. Perrin A, Kumar M. About three-in-ten U.S. adults say they are 'almost constantly' online. Pew Research Center. Available at: https://www.pewresearch.org/fact-tank/2019/07/25/americans-going-online-almost-constantly/. Accessed December 8, 2020.
3. Cohen JK. 72% of consumers use the internet to find healthcare info: 6 survey findings. *Becker's Hospital Review*. Available at: https://www.beckershospitalreview.com/healthcare-information-technology/72-of-consumers-use-the-internet-to-find-healthcare-info-6-survey-findings.html.
4. Google Search Central Blog. Rolling out mobile-first indexing. Available at: https://developers.google.com/search/blog/2018/03/rolling-out-mobile-first-indexing. Accessed December 8, 2020.
5. Insider Intelligence. U.S. digital ad spending will surpass traditional in 2019. Available at: https://www.emarketer.com/content/us-digital-ad-spending-will-surpass-traditional-in-2019. Accessed December 8, 2020.
6. Statcounter GlobalStats. Search engine market share worldwide, Nov 2019–Nov 2020. Available at: https://gs.statcounter.com/search-engine-market-share. Accessed December 8, 2020.
7. Mutchler A. Voice assistant timeline: a short history of the voice revolution. voicebot.ai. Available at: https://voicebot.ai/2017/07/14/timeline-voice-assistants-short-history-voice-revolution/. Accessed December 8, 2020.
8. Dave N. 42 digital marketing trends you can't ignore in 2020. *Single Grain*. Available at: https://www.singlegrain.com/digital-marketing/digital-marketing-trends-2020/. Accessed December 8, 2020.
9. Google My Business. Available at https://www.google.com/business/go/businessprofile/. Accessed December 8, 2020.
10. Google. Improve your local ranking on Google. Available at: https://support.google.com/business/answer/7091?hl=en. Accessed December 8, 2020.
11. Podium. 5 powerful advantages of Google reviews. Available at: https://www.podium.com/article/advantages-of-google-reviews/. Accessed December 8, 2020.

ABSTRACTS IN URGENT CARE

- Language Barriers and Treating Children
- Ibuprofen and Pediatric Ankle Sprains
- Facial Palsy and Leukemia
- Fentanyl and Midazolam for Younger Patients
- Are Hypotonic Fluids Safer in Acutely Ill Children?
- Comparing Symptoms of COVID-19 and Flu
- Examining COVID-19 in Children
- Pandemic Resource Limitations—and Burnout

IVAN KOAY, MBChB, FRNZCUC, MD

Extra Care Needed when Dealing with Families where English Use Is Limited

- **Key point:** Children of parents with limited comfort with English (LCE) are twice as likely to suffer adverse medical events during interactions with medical teams. Understanding this issue will help clinicians take the steps necessary to avoid pitfalls and bridge any language barriers that may exist.
- **Citation:** Khan A, Yin HS, Brach C, et. al. Association between parent comfort with English and adverse events among hospitalized children. *JAMA Pediatr*. 2020;174(12):e203215.
- **Relevance:** Children with parents who have LCE have been noted to have an increased incidence of adverse events during hospitalization.
- **Study summary:** This was a multicentered prospective cohort study involving pediatric inpatient units of seven North American teaching hospitals between December 2014 and January 2017. Parents who primarily spoke Arabic, Chinese, English, or Spanish were included as they represented the most commonly spoken languages across the study sites. The authors analyzed 2,750 admissions during which 217 adverse events (13.0 per 100 admissions) were noted, including 142 preventable adverse events (8.5 per 100 admissions). Children of parents with LCE had twice the likelihood of experiencing an adverse event compared with children of parents comfortable with English, despite the availability of interpreter services. Other factors acknowledged by the authors contributing to the increased adverse event risk in children whose parents had LCE included systemic racism, implicit bias, microaggressions, immigration status, mistrust, and marginalization.
- **Limitation:** The study was conducted in academic teaching institutions, which may limit generalizability. The health literacy of the parents was not considered in this study. ■

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PRN Is as Good as Regular Ibuprofen in the Treatment of Acute Ankle Sprains in Children

- **Key point:** There is no additional benefit to administering ibuprofen on a schedule compared with as-needed (PRN) dosing in the treatment of acute ankle sprains in children.
- **Citation:** Lim R, Sangha G, Lepore N, et al. Comparison of regularly scheduled ibuprofen versus 'pro re nata' for ankle sprains in children treated in the emergency department: a randomized controlled trial. *Pediatr Emerg Care*. 2020;36(12): 559-563.
- **Relevance:** The knowledge of the best schedule for administering anti-inflammatory medication in children who sustain ankle sprains will help inform clinicians treating patients and parents with the condition.
- **Study summary:** This was a prospective, randomized, single-blinded trial involving a sample of children with acute ankle sprain presenting to a dedicated pediatric emergency department based in Ontario, Canada. Patients were taken through the initial pain scoring system and followed up on 4 days later via telephone to assess recovery and any ongoing pain and disability. The authors' findings were based on 99 patients who completed the 4-day follow-up. No significant difference was found in levels of ankle pain between

"Understanding the signs of childhood leukemia helps in the identification of the condition and allows for appropriate further management to be undertaken without delay."

groups (scheduled vs PRN ibuprofen). There was also no significant difference in the degree of disability between the groups assessed. There were more reports of adverse effects in the group receiving scheduled dosing, although this was not statistically significant, with the most common reported adverse effects being nausea and abdominal pain.

- **Limitation:** There was a potential for selection bias as recruitment was predicated on the availability of the research assistant. The short follow-up schedule of 4 days does not take into consideration potential longer-term benefits and return to full activities of the participants. ■

Consider Leukemia as a Potential Cause for Facial Palsy in Children

- **Key point:** Consider a complete blood count (CBC) as part of the routine work-up for children presenting with peripheral facial palsy as a method for screening for leukemia.
- **Citation:** Babl FE, Kochar A, Osborn M, et al. Risk of leukemia in children with peripheral facial palsy. *Ann Emerg Med*. 2020 Aug 9; S0196-0644(20)30491-1.
- **Relevance:** Understanding the signs of childhood leukemia helps in the identification of the condition and allows for appropriate further management to be undertaken without delay.
- **Study summary:** This is an early subset analysis from an ongoing study which is a triple-blinded, randomized, placebo-controlled trial of prednisolone for the treatment of Bell's palsy in children (Bell's Palsy in Children trial) at 11 EDs in Australia and New Zealand. In the initial study, a retrospective review of charts revealed that a CBC was only obtained in 16% of patients who presented to the ED with facial palsy without any other cause identified. The study protocol included a mandatory CBC as part of the work-up. Since the study began, five of the 644 patients presenting with isolated facial palsy were found to have leukemia. Of those, four did not have any prior history of leukemia. The authors therefore conclude, from this early subset analysis, that in children with acute-onset peripheral facial palsy leukemia should be considered in addition to ear pathology-related diagnoses.
- **Limitation:** Given this is a subset analysis of an ongoing research project, this finding may be related to random sampling error, but still merits notice. ■

Safe Use of Intranasal Fentanyl and Midazolam in UC

- **Key point:** Intranasal (IN) administration of fentanyl and midazolam can be given safely (at appropriate doses) to treat anxiety and pain in children in urgent care centers.
- **Citation:** Williams JM, Schuman S, Regen R, et al. Intranasal fentanyl and midazolam for procedural analgesia and anxiolysis in pediatric urgent care centers. *Pediatr Emerg Care*. 2020 Sep;36(9):e494-e499.
- **Relevance:** The use of IN analgesia and anxiolysis can allow clinicians to provide care for more children in urgent care, avoiding unnecessary referrals to the ED.
- **Study summary:** This was a retrospective study investigating the use of IN fentanyl and midazolam at an urgent care center located within Le Bonheur Children's Hospital (LBCH) and two affiliated off-site UC centers in Memphis, TN. The authors assessed 490 patients, with 143 patients receiving IN fentanyl alone, 92 receiving IN midazolam alone, and 255 receiving both. Lacerations and incision and drainage were the primary procedures that required IN medication use in this study. The majority of patients undergoing laceration repair were administered a combination of midazolam and fentanyl (69% of 191 patients). The other procedures where IN medication was administered included burn wound care; casting, splint, or sling placement; eye irrigation; foreign body removal; joint reduction; surgical dressing changes; suture or staple removal; and tooth extraction. There were no major adverse drug reactions noted with the administration of the IN medication or with the administration of IN midazolam in combination with an oral opioid at weight-appropriate dosing.

"Children with COVID-19 and influenza have similar presenting symptoms of fever and cough. However, patients with COVID-19 also report other symptoms such as diarrhea or vomiting, headache, myalgia, or chest pains."

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- **Limitation:** Minor adverse reactions were not routinely documented within the clinical system of the organization and therefore not able to be considered in this study. ■

Hypotonic Fluids Appear to Be Safer in Acutely Ill Children

- **Key point:** Isotonic intravenous (IV) fluid administration in acutely ill children may result in significantly higher risk of developing electrolyte disturbances. Care and ongoing monitoring should be taken when administering such fluids to patients.

- **Citation:** Lehtiranta S, Honkila M, Kallio M, et al. Risk of electrolyte disorders in acutely ill children receiving commercially available plasma-like isotonic fluids: a randomized clinical trial. *JAMA Pediatr*. Online ahead of print October 26, 2020.

- **Relevance:** There has been a recent shift in recommendations by the American Academy of Pediatrics regarding isotonic IV fluid administration in children. However, there is little evidence on the outcomes associated with this change. This is one of the first studies to address this question.

- **Study summary:** This prespecified, unblinded, randomized, pragmatic clinical trial was conducted at the pediatric ED of Oulu University Hospital in Finland. Participants were between 6 months and 12 years of age, requiring hospital admission and deemed to require IV fluids by the treating physician. Patients were randomly assigned in a 1:1 ratio to receive isotonic or moderately hypotonic fluid therapy. The isotonic fluid was a commercially available product containing contained 140 mmol/L of sodium in 5% dextrose, 5 mmol/L of potassium, 1.5 mmol/L of magnesium, 98 mmol/L of chloride, 23 mmol/L of acetate, and 23 mmol/L of gluconate while the moderately hypotonic solution contained 80 mmol/L of sodium chloride and 20 mmol/L of potassium chloride in 5% dextrose based on the existing recommendations in pediatric textbooks. The authors found that 61 out of 308 patients (20%) in the isotonic group had clinically significant electrolyte disorders compared with nine out of 304 (2.9%) patients in the hypotonic group. Likewise, there was a higher rate of severe hypokalemia in the isotonic group (2.6%) compared with the modified group (0.9%). Electrolyte disorders were not prevented by the open study design, which allowed physicians to change fluid therapy during hospitalization. The length of stay in hospital did not differ between the treatment groups.

- **Limitation:** This was a single-center study based in Finland, which may not have the same heterogeneous population base as elsewhere in the world. The statistical power of the study was insufficient to assess mortality and neurologic sequelae. ■

"Researchers noted an abrupt decrease in influenza cases during the study, corresponding with the government requirements for school closures and stay-at-home orders."

COVID-19 Literature Reviews

Comparing Symptoms of COVID-19 and Seasonal Influenza A and B in U.S. Children

- **Key point:** Children with COVID-19 and influenza do have similar presenting symptoms of fever and cough. However, patients with COVID-19 also report other symptoms such as diarrhea or vomiting, headache, myalgia, or chest pains.

- **Citation:** Song X, Delaney M, Shah RK, et al. Comparison of clinical features of COVID-19 vs seasonal influenza A and B in U.S. children. *JAMA Network Open*. 2020;3(9):e2020495.

- **Relevance:** Having the ability to distinguish between COVID-19 and seasonal influenza will enables better care and use of resources for patients with variations of viral syndromes.

- **Study summary:** This was a cohort study which compared symptomatic patients with laboratory-diagnosed COVID-19 between March and May 2020 and patients diagnosed with laboratory-confirmed influenza between October 2019 and June 2020 at the Children's National Hospital in Washington, DC. The authors compared data from 315 patients who had a positive COVID-19 test with data from 1,402 patients with influenza A or B. They found that children hospitalized with COVID-19 were generally older than those with influenza (median 9.2 vs 4.2 years of age). Patients with COVID-19 and those with seasonal influenza had similar hospitalization rates, ICU admission rates, and mechanical ventilator use. Compared with children hospitalized with seasonal influenza, a greater proportion of patients hospitalized with COVID-19 had underlying medical conditions and reported fever, diarrhea or vomiting, headache, body ache or myalgia, or chest pain. They also noted an abrupt decrease in influenza cases during the study, corresponding with the government requirements for school closures and stay-at-home orders to combat the spread of COVID-19.

- **Limitation:** This was a single-center study with small numbers of ICU admissions, which limits the ability to statistically identify risk factors for severity of disease. ■

"Clinicians went to great lengths to develop alternative treatment options in order to avoid treatment denial. This, in some cases, left clinicians to grapple with what constituted acceptable standards of care."

Epidemiological Review of COVID-19 Cases in the U.S. Pediatric Population

- **Key point:** There is a low incidence of COVID-19-related acute respiratory syndrome in children. However, special consideration should be given when assessing patients with complex medical conditions and those from underrepresented minority populations.

- **Citation:** Bailey LC, Razzaghi H, Burrows EK, et al. Assessment of 135,794 Pediatric Patients Tested for Severe Acute Respiratory Syndrome Coronavirus 2 Across the United States. *JAMA Pediatr*. Online ahead of print November 23, 2020.

- **Relevance:** Understanding the epidemiology of COVID-19-related acute respiratory illness in the pediatric population will help clinicians treat children presenting to urgent care and emergency rooms with viral illness during the COVID-19 pandemic.

- **Study summary:** This was a cohort study retrospectively assessing medical records of 135,794 patients presenting to seven large pediatric health systems within the PEDSnet network from sites across the U.S. Data were reviewed for patients <25 years of age with a positive COVID-19 PCR test between January and September 2020 within the network of hospitals. The authors found that 13% of the patients were under the age of 1 year, 25% were between 1 and 4 years old, 27% were between 5 and 11 years of age, 25% were 12 to 17 years old, and 10% were between 18 and 24 years of age. Four percent of all the patients tested positive for COVID-19. Patients who tested positive were more likely to be minorities (African-American, Hispanic or Asian), to be tested in the ED, and to have public health insurance (eg, Medicaid). Of the 5,374 patients that tested positive for COVID-19, 7% were diagnosed with severe illness involving cardiovascular, respiratory, or COVID-19-specific illness. The authors noted that pre-existing chronic disease such as diabetes (type 1 and 2) was associated with higher likelihood of seeking COVID-19 testing and that patients with these conditions were more likely to seek testing when symptomatic. They suggest that this may lead to higher rates of detection of COVID-19 within these patient groups, due to more tests being performed.

- **Limitation:** The data collection for the study was reliant on the input from the ICD-10 and SNOMED-CT computing systems which could potentially result in selection bias. ■

Clinicians' Perspectives of Resource Limitations in the COVID-19 Pandemic

- **Key point:** Expanding institutional planning beyond crisis capacity will help support clinicians in providing care and address moral distress/burnout during the present pandemic.

- **Citation:** Butler CA, Wong SPY, Wightman AG, O'Hare AM. U.S. clinicians' experiences and perspectives on resource limitation and patient care during the COVID-19 pandemic. *JAMA Netw Open*. 2020;3(11):e2027315.

- **Relevance:** Clinicians' perspectives regarding resource limitations in times of crisis is important for minimizing burnout.

- **Study summary:** This was a qualitative study using inductive analysis of interviews conducted among a group of U.S. clinicians involved in institutional planning with or without clinical care responsibilities during the COVID-19 pandemic. The interviews were conducted between March and April 2020 and involved physicians and nurses from a variety of roles in different clinical settings in 15 states throughout the U.S., with affiliations to 29 different hospitals or clinics. The authors discovered three distinct areas of concern which emerged from the clinicians' perspectives: inadequate planning for crisis capacity, challenges in adapting to resource limitations, and multiple unprecedented barriers to care delivery.

  Clinicians went to great lengths to develop alternative treatment options in order to avoid treatment denial. This practice, in some cases, left clinicians to grapple with what constituted acceptable standards of care, leading to some elements of moral distress and self-doubt.

- **Limitation:** The authors acknowledge that their study may not capture the perspectives of clinicians in other parts of the world or regions of the U.S. There was also a lack of perspective from pediatricians. There may be newer challenges with the dynamic nature of the pandemic that were not considered by this study. ■

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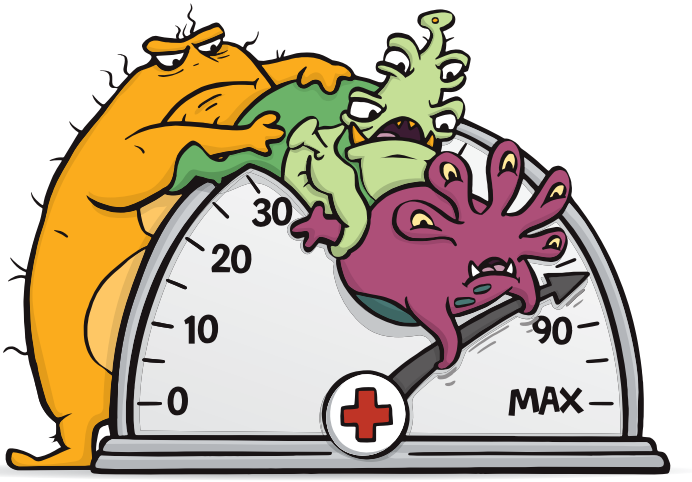

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1. 2016 JUCM Audit Chart research. **2.** Beal SG, et al. Pediatr Infect Dis J. 2020 Mar;39(3):188-191. **3.** The Pew Charitable Trusts; 2018 Retrieved from: https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2018/07/antibiotic-use-in-urgent-care-centers-shows-need-for-improvement. **4.** Chartrand C, et al. Ann Intern Med. 2012 Mar;156(7):500.

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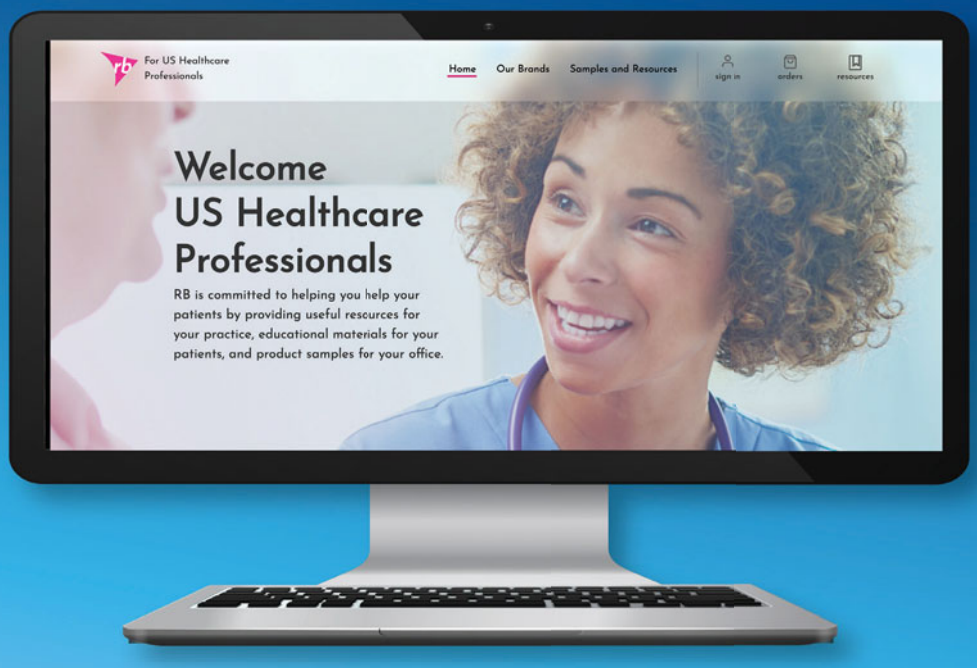

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See **CME Quiz Questions** on page 11.

Worsening, General Weakness and Immobility in an IV Drug User

Urgent message: Spinal epidural abscesses are a rare condition that can be fatal if untreated. Populations most at risk include the elderly, diabetics, and IV drug users. The most common cause of an epidural abscess is the bacteria *Staphylococcus aureus*.

SAVANNAH CHAVEZ, MD; JORDAN MILLER, DO; and J. CHIKA MORAH, MD

Introduction

Incidence of spinal epidural abscesses ranges from 0.2 to 2.8 cases per 10,000 per year, with a peak incidence occurring in patients between 60 to 70 years of age. The abscess is most commonly due to *Staphylococcus aureus* (63%), but may occur from *Actinomycosis*, gram-negative bacilli, and fungi and can cause spinal epidural abscesses (10%).[1,2]

Risk factors for spinal epidural abscesses include:

- Spinal trauma
- Spinal procedures or surgery
- IV drug use
- Diabetes mellitus
- Chronic renal failure
- Alcoholism
- AIDS
- Malignancy

Diabetes mellitus, IV drug use, and spinal manipulation (such as placement of an epidural catheter) are among the most common risk factors for spinal epidural abscess, though nearly a quarter of patients present with no risk factors. (See **Figure 1**.)

Patients classically present with the triad of back pain, fever, and neurologic deficits due to the compressive nature of the spinal abscess; however, only about 8% of patients will present as such. If spinal epidural abscess is a consideration, prompt diagnosis will minimize morbidity and mortality, although preoperative status predicts mortality rates.[6,7]

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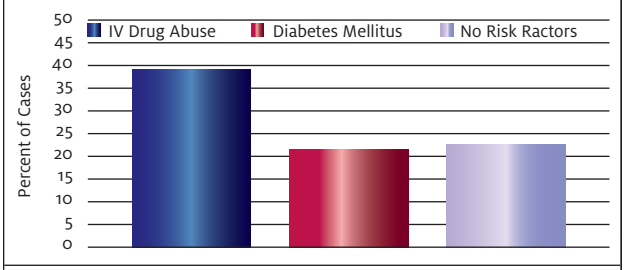
Case Report

History

A 37-year-old female presented to the urgent care clinic with complaints of generalized weakness and the inability to move her legs. She described having to crawl around for parts of the day, saying she felt too weak to move. She said she had basic labs performed at another facility 3 days prior, and that those labs were unremarkable. She continued to grow weaker over the next 24 hours, now presenting to an urgent care for another evaluation. She denied any chest pain, shortness of breath, nausea, vomiting, diarrhea, or skin changes. She admitted to a past history of IV drug use and hepatitis C. (The most com-

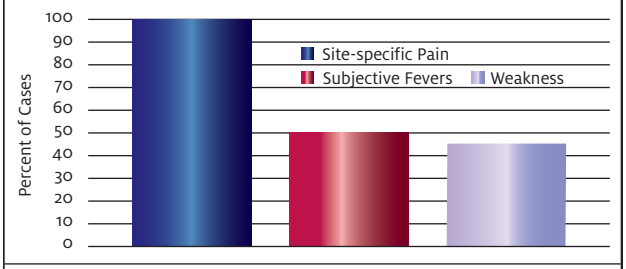
Author affiliations: Savannah Chavez, MD, Adena Regional Medical Center. **Jordan Miller, DO,** Adena Health System. **J. Chika Morah, MD,** Cleveland Clinic Akron General, University of Toledo College of Medicine. The authors have no relevant financial relationships with any commercial interests.

Figure 1. Three Most Common Risk Factors for Spinal Epidural Abscess



Data source: Patel AR, et al. Spinal epidural abscesses: risk factors, medical versus surgical management, a retrospective review of 128 cases. *Spine J.* 2014;14(2):326-330.

Figure 2. Three Most Common Chief Complaints in Patients with Spinal Epidural Abscesses



Data source: Patel AR, et al. Spinal epidural abscesses: risk factors, medical versus surgical management, a retrospective review of 128 cases. *Spine J.* 2014;14(2):326-330.

mon presenting complaints for patients diagnosed with spinal epidural abscesses are detailed in **Figure 2**.)

Exam

Physical exam revealed a disheveled female who appeared older than her stated age. Her vital signs were remarkable for a heart rate of 100 beats per minute. She otherwise was afebrile, had a normal blood pressure of 115/60, a respiratory rate of 16 breaths per minute, and an oxygen saturation of 100% on room air. Her cardiopulmonary exam was unremarkable. The patient had scabs in different stages of healing over her body, with evidence of track marks in the antecubital fossa of her bilateral arms. She had diminished strength, reflexes, and sensation in all four extremities and denied being able to feel pinpoint sensation. No rashes were seen throughout the integumentary examination and she had normal intact rectal tone.

Differential Diagnosis

The differential diagnosis for weakness in an IV drug user includes, but is not limited to:

- Infective endocarditis
- Septic pulmonary emboli
- Spinal epidural abscess
- Drug overdose
- Underlying infection (eg, pneumonia, urinary tract infection, bacteremia)
- Meningitis
- Rhabdomyolysis

Testing/Outcome

After the physical exam, the urgent care physician realized that the patient had symptoms consistent with a potentially catastrophic neurological process. The patient was transferred to an emergency department, where laboratory workup revealed a normal white blood cell count of 9.8 (normal 4-11), a hemoglobin of 10.8 (normal 12-16 for women), and a platelet count of 390 (normal 150-450). ESR was elevated at 89 mm/hour (normal 0-20 for women) and CRP was elevated at 62 mm/hour (normal 0-10). Metabolic profile was normal. Urinalysis showed no evidence of infection. Bedside echocardiogram showed no evidence of vegetative lesions on the valves and showed a normal ejection function. The patient had a normal postvoid residual urine volume. CT angiogram of the chest showed no evidence of pulmonary abscesses, pulmonary embolism, or pneumonia. MRI of the spinal cord showed discitis osteomyelitis with a large epidural abscess at C5-6 compressing the spinal cord and epidural phlegmon extending from C3-7 with prevertebral phlegmon extending from C2-T1. The patient was given broad-spectrum antibiotics including vancomycin and cefepime, and was transferred to a tertiary medical center for neurosurgical evaluation.

Discussion

Pathophysiology

Most spinal epidural abscesses are located at the posterior aspect of the thoracic or lumbar spine. Posterior abscesses are thought to originate from a distant focus, such as the skin, or from dental abscesses. Anterior abscesses are predominantly due to discitis or vertebral osteomyelitis and can be caused by direct extension from retropharyngeal or retroperitoneal abscesses.[8]

Vertebral hematomas due to trauma are seen in up to 35% of cases,[9] and a nidus of blood serves as a nutrient source for bacteria to breed. The pathophysiology of spinal epidural abscesses stems from the ability of bacteria to enter the epidural space and seed the areas between the vertebral wall and dura mater, with a suppurative infection forming in the confined area. Bacteria

have a few ways to enter this space, the most common being via hematogenous spread. Manipulation of the spinal column with epidural catheter placement, spinal surgeries, and via lumbar puncture are ways for bacteria to enter the central nervous system and spinal column via a direct inoculation.

Diagnosis

Diagnosis of a spinal epidural abscess via physical exam is difficult, as most patients don't present classically. Pain, which may be found on palpation of the spinous processes near or overlying the spinal epidural abscess, is one of the most common presenting symptoms. Another physical exam finding is pain with straight leg raise, which will cause compression of spinal nerve roots. Neurologic deficits can develop as the disease process progresses, with symptoms consistent with cauda equina such as urinary retention, bowel incontinence, and perianal/saddle anesthesia. Patients may also complain of weakness with walking, paralysis, and numbness.[7] Fever is present in 35% to 60% of patients; however, absence of fever cannot rule out spinal epidural abscess.[10]

Laboratory evaluation includes complete blood count, blood cultures, coagulation studies, and inflammatory markers. Often, erythrocyte sedimentation rate (ESR) is elevated; however, if it is not elevated, one cannot rule out the diagnosis of spinal epidural abscess. ESR sensitivity ranges from 68% to 100%, though only an ESR above 50 mm/hour was considered positive in one case series. In a meta-analysis of 915 patients with spinal epidural abscesses, the sensitivity of an ESR was noted to be 94%. C-reactive protein has a similar sensitivity to ESR at 84% to 100%; however, it is a more effective marker of early disease because it rises faster than an ESR and is influenced less by other plasma factors. Leukocytosis presence is extremely variable and doesn't predict severity of the disease. A leukocyte count is a nonspecific lab marker and should not be used to exclude the diagnosis of spinal epidural abscess. Magnetic resonance imaging is the test of choice for imaging. If unavailable, CT with IV contrast is another option, although it is less sensitive.[10]

The bottom line is, if spinal epidural abscess is suspected, do not order outpatient labs as the patient needs emergent imaging with an MRI.

Prompt diagnosis and management are important for patients with an underlying abscess, as delay in diagnosis can result in irreversible neurological damage. Around 4%–22% of patients diagnosed with spinal epidural abscess will have irreversible paraplegia. Around 5% of patients will die from sepsis. A prospective evaluation of clinical decision guidelines to diagnose spinal epidural abscesses in patients showed that 75% of patients diagnosed with spinal epidural abscess suffered delays in diagnosis. A permanent neurological deficit was nearly six times more likely in those who suffered a delay.[11]

Management

Management includes neurosurgical evaluation, which often requires emergency evacuation to decompress the spinal cord and nerve roots. Endoscopy-assisted surgery and percutaneous drainage have been reported to be successful in some cases. Patients who are deemed surgical candidates will need to undergo aspiration, surgical drainage, and antibiotic therapy for 4–6 weeks post-surgery. Repeat MRI should be obtained at 4–6 weeks of therapy or if there is evidence of worsening symptoms or deteriorating clinical examination. Nonsurgical candidates include those with minimal neurologic deficits or those who are generally poor surgical candidates.

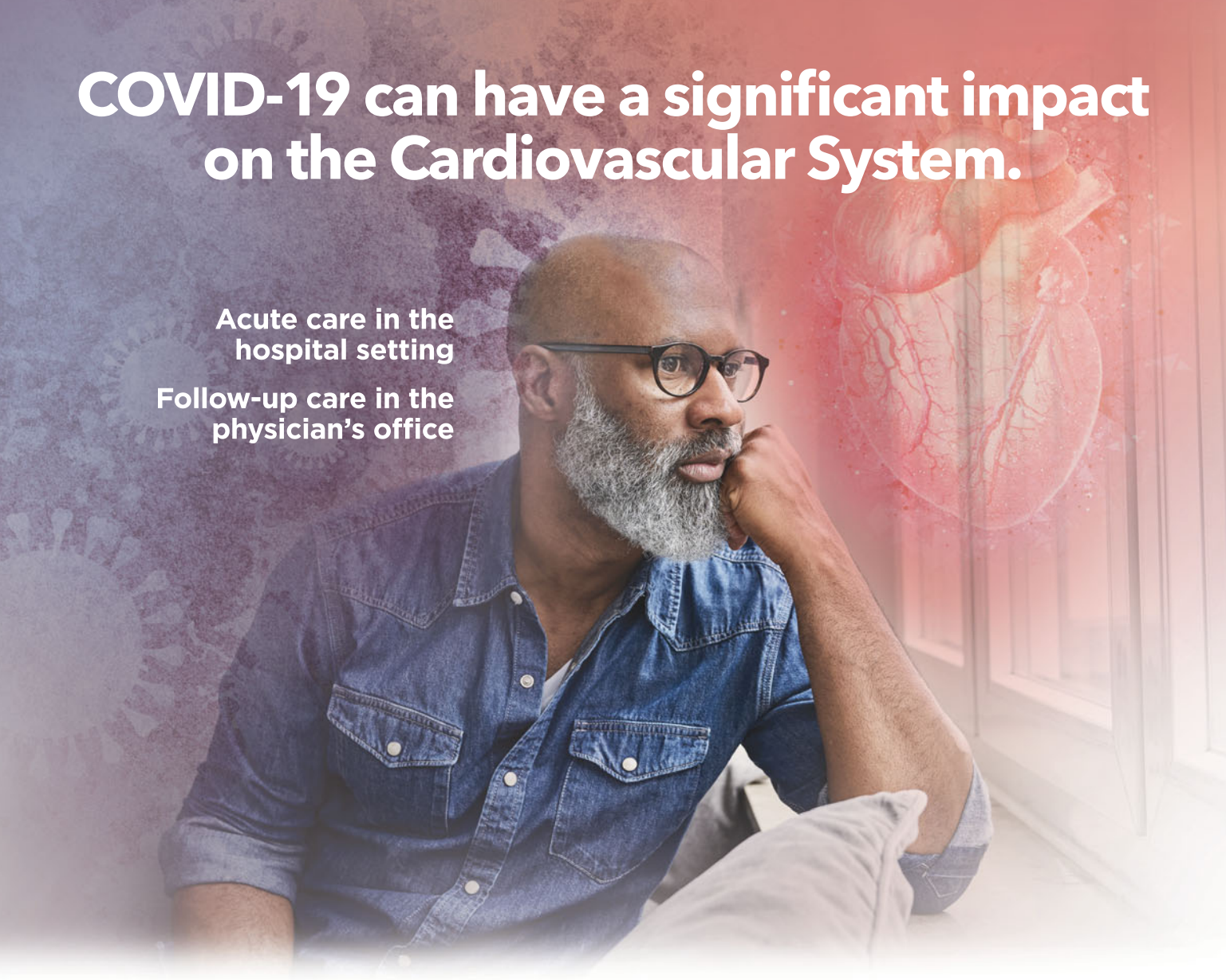
Teaching Points

- Spinal epidural abscess is a difficult diagnosis and should be considered with neurological complaints or back pain, especially those patients at increased risk, such as diabetics and IV drug users.
- Testing of choice is emergent MRI scan.
- Prompt diagnosis and treatment are important for epidural spinal abscesses in order to avoid permanent neurologic damage. ■

References

1. Mackenzie AR, Laing RB, Smith CC, et al. Spinal epidural abscess: the importance of early diagnosis and treatment. *J Neurol Neurosurg Psychiatry*. 1998;65(2):209–12.
2. Martin RJ, Yuan HA. Neurosurgical care of spinal epidural, subdural, and intramedullary abscesses and arachnoiditis. *Orthop Clin North Am*. 1996;27(1):125–136.
3. Fotaki A, Anatoliotaki M, Tritou I, et al. Review and case report demonstrate that spontaneous spinal epidural abscesses are rare but dangerous in childhood. *Acta Paediatr*. 2019;108(1):28-36.
4. Du JY, Schell AJ, Kim CY, et al. 30-day mortality following surgery for spinal epidural abscess: incidence, risk factors, predictive algorithm, and associated complications. *Spine*. 2019;44(8):E500-E509
5. Patel AR, Alton TB, Bransford RJ, et al. Spinal epidural abscesses: risk factors, medical versus surgical management, a retrospective review of 128 cases. *Spine*. 2014;14(2):326-330.
6. Ameer MA, Knorr TL, Mesfin FB. Spinal epidural abscess. [Updated 2020 Mar 31]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan. Available at: https://www.ncbi.nlm.nih.gov/books/NBK441890/.
7. Darouiche RO, Hamill RJ, Greenberg SB, et al. Bacterial spinal epidural abscess. Review of 43 cases and literature survey. *Medicine (Baltimore)*. 1992;71(6):369-385.
8. Jang YJ, Rhee CK. Retropharyngeal abscess associated with vertebral osteomyelitis and spinal epidural abscess. *Otolaryngol Head Neck Surg*. 1998;119(6):705–708.
9. Lee WS, Moussaoui SM, Moskowitz MA. Blockade by oral or parenteral RPR 100893 (a non-peptide NK1 receptor antagonist) of neurogenic plasma protein extravasation within guinea-pig dura mater and conjunctiva. *Br J Pharmacol*. 1994;112(3):920-924.
10. Chenoweth CE, Bassin BS, Mack MR, et al. Vertebral osteomyelitis, discitis, and spinal epidural abscess in adults [internet]. Ann Arbor (MI): Michigan Medicine University of Michigan; 2018 Dec. Available at: https://www.ncbi.nlm.nih.gov/books/NBK547443/.
11. Ghobrial GM, Beygi S, Viereck MJ, et al. Timing in the surgical evacuation of spinal epidural abscesses. *Neurosurg Focus*. 2014;37(2):E1.

COVID-19 can have a significant impact on the Cardiovascular System.



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AD1026600EN00 (08/20)

Incidence of SARS-CoV-2 in Preoperative Patients Tested in an Urgent Care Setting

Urgent message: The capability to identify patients with COVID-19 before they undergo a surgical procedure is essential to the safety of the patient, the surgical team, and post-operative staff. Given the fact that many patients with the virus never exhibit symptoms, proactive preoperative testing in the urgent care center may lower the risk of spread and help quantify the rate of asymptomatic infection.

SARAH GREENWOOD, PA; BRONSON ELIZABETH DELASOBERA, MD; AMANDA JOY, PA; RITA MALLEY, MS; ANISHA PATEL, MS; and ESHETU TEFERA, MS

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Introduction

The emergence of SARS-CoV-2 in late 2019 and its rapid spread across the world introduced new challenges to healthcare in the United States. With a predicted high demand in healthcare services due to a basic reproductive number of 2.2-2.7 and a case fatality rate of 1.38%,[1,2] hospitals and clinics around the country sought to maximize the availability of healthcare personnel and equipment as well as available beds.

One effort to conserve hospital resources and minimize patient and provider exposure to the novel 2019 coronavirus (COVID-19) was to suspend semi-elective and elective procedures at the onset of the pandemic. According to an article published in the *World Journal of Emergency Surgery* in early April, "When possible, all surgical procedures on all suspected COVID-19 patients should be postponed until confirmed infection clearance."[3] As operating rooms have reopened for nonemergent cases, healthcare systems have adopted various guidelines with respect to preoperative COVID-19 testing to ensure safety for the patients and providers.

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As part of the preoperative assessment, most patients are required to undergo COVID-19 testing prior to their

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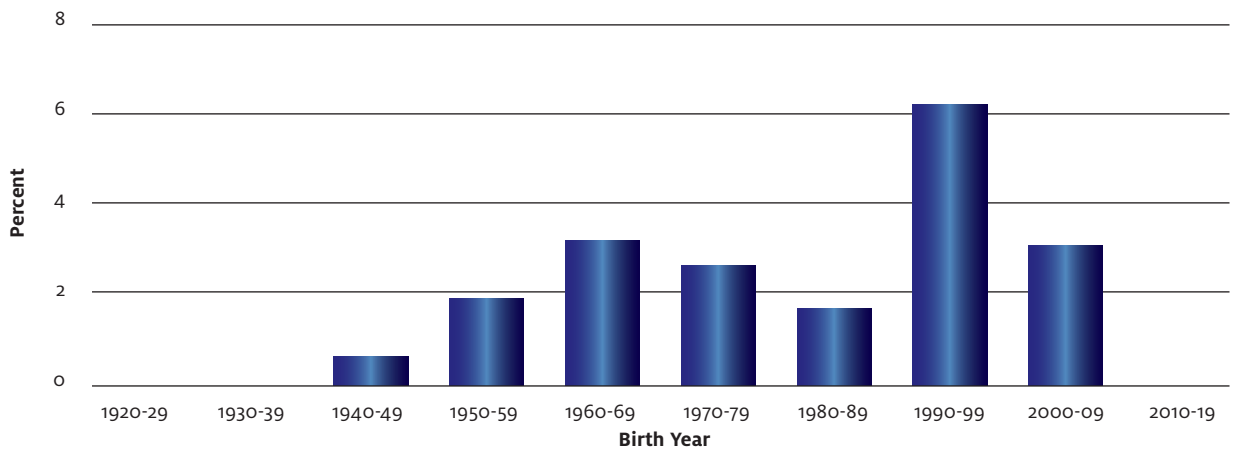
Figure 1. Percentage of Patients Testing Positive by Birth Year



procedure. This protocol was put in place, in part, in response to emerging studies that revealed a significant portion of the population may in fact have the virus without displaying symptoms. In fact, one study showed as many as 30% of exposed patients may remain asymptomatic but infected.[2]

When a nonemergent surgery candidate tests positive for the coronavirus, the surgeon has the opportunity to postpone the procedure depending on the urgency of the surgery. This mitigates unnecessary exposure of the surgical team to the virus and allows for the best post-surgical recovery for the patient. Without question, surgical trauma compromises immune function in the postoperative period. A retrospective study of patients in Wuhan, China revealed postoperative patients positive for COVID-19 received ICU care 44.1% of the time, while nonsurgical patients with the virus required intensive care at a much lower rate of 26.1%. This study suggests surgeries may magnify and exacerbate disease progression in COVID-19 patients.[1]

In this study, MedStar Health Urgent Care, a large urgent care system spanning Washington, DC, Northern Virginia, and Maryland sought to determine what percentage of preoperative asymptomatic patients tested positive for COVID-19 on a hospital-based PCR testing platform. A secondary objective was to determine if there were certain demographics (ie, gender, age) which led to a higher pretest probability of an asymptomatic positive test. This information can be used to guide best practices for surgical procedures during the SARS-CoV-2 pandemic. Additionally, it can provide insight into larger trends in the population regarding asymptomatic positive prevalence and direct clinical decision-making and use of personal protective equipment in an urgent care setting.

Methods

Patients scheduled to undergo surgery presented to a MedStar Health Urgent Care facility or urgent care testing tent for a nasopharyngeal (NP) PCR test 1–5 days prior to their scheduled surgery. Prior to testing, all patients had completed a simple set of vital signs and screening questions to ensure they were not displaying any signs or symptoms of COVID-19. Standardized collection procedures were outlined, and the staff was trained by nurse educators to ensure uniform and precise sampling techniques. After testing, all patients were advised to quarantine at home until their surgical date to minimize any new exposures to the COVID-19 virus.

The NP specimen was processed at either Georgetown University Hospital or LabCorp, both doing traditional, open PCR testing on similar platforms. Patients with a surgery scheduled within 72 hours had testing sent to Georgetown Hospital for expedited results, while preoperative candidates due for a procedure in a 3- to 5-day period had testing sent to LabCorp.

Summary statistics including means, medians, standard deviations, first quartiles, third quartiles, and proportions (if categorical) on patient characteristics were obtained. Wilcoxon rank sum test was used to examine differences in the averages of continuous variable between the two groups since normality assumption was not satisfied. Shapiro-Wilk test of normality was performed to inspect the distribution of the continuous

variable. The test showed that the data were not normally distributed. Accordingly, we used Wilcoxon rank sum test instead of T-test to examine differences in the averages between the two groups. Chi-square and Fisher exact tests as appropriate were used to investigate differences for categorical variables. Logistic regression analysis was used to examine the extent of association between age and COVID-19 positivity. Odds ratios with 95% confidence intervals were calculated. Statistical significance is defined as p-values ≤0.05. Statistical Analysis System software version 9.4 (SAS Institute Inc., Cary, NC, USA) was used to perform the analysis.

Results

A total of 1,262 patients scheduled to undergo an elective or semi-elective procedure were tested across eight Medstar Urgent Care facilities and three testing tents between April 28, 2020 and May 26, 2020. The age range of the patients was 6 months to 95 years (median: 58 years old). Females made up 52% of the patients.

Of this cohort, 29 patients tested positive for SARS-CoV-2 on PCR, and 1,233 patients tested negative. The percentage of patients who tested positive was 2.30%.

The 20- to 29-year-old age group had the highest rate of positive cases at 6.2%. Patients over 80 years old or less than 10 years old had no positive cases. (See **Figure 1** and **Table 1**.) However, the difference was not statistically significant (p value=0.24).

Female patients were found to be positive 2.89% of the time, while males were found to be positive 1.65% of the time. However, the difference was not statistically significant (p value=0.14)

Table 1. Number of Both Positive and Negative COVID-19 Results by Birth Year

Birth Year	Positive	Negative
1920-1929	0	5
1930-1939	0	44
1940-1949	1	205
1950-1959	6	305
1960-1969	9	269
1970-1979	5	170
1980-1989	2	117
1990-1999	5	76
2000-2009	1	33
2010-2019	0	9
Total	29	1233

"While disease severity may rise with age in those that display symptoms, our study demonstrates asymptomatic carriers of the disease are equally prevalent in all age groups."

Discussion

With a positivity rate of over 2% in asymptomatic patients, the findings from this study support the continued practice of testing for SARS-CoV-2 in all preoperative patients. This enables nonemergent surgeries to be postponed in the event a patient tests positive for COVID-19, thus decreasing unnecessary exposure of preoperative staff, the surgical team, and postoperative personnel to the virus. This testing process also optimizes the chance of a successful recovery for surgical patients, in that nonemergent procedures can be postponed in patients who test positive for SARS-CoV-2.

Due to early limitations in availability, testing in March and April was largely reserved for symptomatic and high-risk individuals. This cohort of asymptomatic preoperative patients was one of the first asymptomatic groups to undergo routine coronavirus testing in the Washington, DC and Baltimore regions. In addition to providing critical information regarding the advisability of surgery in a COVID-19 positive individual, these data can also be utilized to predict current community prevalence of the virus in asymptomatic individuals in the Virginia, Washington, DC, and Maryland region. At the time reflected in the data, Maryland had a 7-day SARS-CoV-2 positivity rate of 13.6%, and Washington, DC had a positivity rate close to 20%; however, these data do not differentiate what percentage of the population was symptomatic.[4,5]

Previous studies have concluded that a significant proportion, "between 5% and 80%,"[6] of patients testing positive are asymptomatic. The CDC estimate is 35%.[7] Our study demonstrates the instance of asymptomatic COVID-19 cases may actually be much lower, and asymptomatic spread may be less of a driving force behind the spread of the disease.

Regardless, care must be taken to not minimize risk of exposing surgical staff and patients to the novel coro-

navirus. However, all healthcare systems need to be aware of the possible limitations on testing supplies and prolonged turnaround times and should plan their pre-procedure COVID testing protocols accordingly.

"Urgent care providers should take precautions prior to all patient interactions, not just those with patients with COVID-19 symptoms. These safeguards should be upheld with all patients regardless of gender or age."

Our study reveals interesting demographic information on the asymptomatic patient population. Based on these data, even though the 20–29-year-old age group had the highest percentage of asymptomatic positive patients, this percentage was not clinically significant (p=0.24). While disease severity may rise with age in those that display symptoms, our study demonstrates asymptomatic carriers of the disease are equally prevalent in all age groups.

Contrarily, some previous studies have suggested age is a factor in the instance of asymptomatic cases.[8-11] One reason might be that our cohort of preoperative patients had a small sample size of patients under the age of 10 (nine patients) and over the age of 90 (five patients). Importantly, our study demonstrates asymptomatic infection across all age groups.

As with age, our study shows that gender is not a factor in rate of asymptomatic COVID-19 cases. While females had a higher rate of positive asymptomatic tests compared with males, this number is not statistically significant (p=0.14). While other studies have shown males have a more serious disease course and higher fatality rate,[10,11] our data suggest gender is not a variable in asymptomatic cases. An early study of patients in Wuhan, China shows demographic results similar to ours. In that study, "Symptoms and comorbidities were comparable between men and women…[and] men and women had the same susceptibility."[12]

Our data demonstrating that asymptomatic carriers of COVID-19 are prevalent across all age groups and both genders have important implications. Because asymptomatic transmission is an important factor in the spread of the virus, all individuals, regardless of age and gender, should remain diligent to decrease the potential of asymptomatic transmission of the virus. Urgent care providers should take precautions prior to *all* patient interactions, not just those with patients with COVID-19 symptoms. Furthermore, these safeguards should be upheld with all patients regardless of gender or age. Additionally, these data suggest there are variables independent of gender and age that influence expression of symptoms of COVID-19.

Limitations

Our study has several limitations. Our population of preoperative patients was not a random sampling; these patients may have decreased coronavirus exposure due to the nature of their illness or injury requiring surgical intervention. These patients tested were not asked to report if they had symptoms on intake screening on the day of testing. The patients were also not followed to determine if they began to develop symptoms after testing and were actually presymptomatic rather than asymptomatic. Furthermore, it was not ascertained if patients had a history of testing positive for SARS-CoV-2 in the past and remained positive on repeat PCR testing despite being asymptomatic. Lastly, there are false negative and false positive rates of any COVID-19 testing; repeat testing was not performed for any of the negatives or positives and results were deemed to be final. ■

References

1. Verity R, Okell LC, Dorigatti I, et al. Estimates of the severity of coronavirus disease 2019: a model-based analysis. 2020;20(6):669 677. [Erratum: *Lancet Infect Dis*, April 15, 2020 and *Lancet Infect Dis*, May 4, 2020.]
2. Sanche S, Lin YT, Xu C, et al. High contagiousness and rapid spread of severe acute respiratory syndrome coronavirus 2. *Emerg Infect Dis*. 2020;26(7):1470-1477.
3. Coccolini F, Perrone G, Chiarugi M, et al. Surgery in COVID-19 patients: operational directives. *World J Emerg Surg*. 2020;15(1):25.
4. Coronavirus.dc.gov. 2020. *COVID-19 Surveillance/Coronavirus*. Available at: https://coronavirus.dc.gov/data. Accessed July 10, 2020.
5. Coronavirus.maryland.gov. 2020. *Coronavirus - Maryland Department Of Health*. Available at: https://coronavirus.maryland.gov. Accessed 10 July 2020.
6. Heneghan C, Brassey J, Jefferson T. COVID-19: What proportion are asymptomatic? *The Centre for Evidence-Based Medicine*. April 6, 2020. Available at: https://www.cebm.net/covid-19/covid-19-what-proportion-are-asymptomatic. Accessed December 10, 2020.
7. COVID-19 Pandemic Planning Scenarios. Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases. July 10, 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html. Accessed December 10, 2020.
8. Davies NG, Klepac P, Liu Y, et al. Age-dependent effects in the transmission and control of COVID-19 epidemics. *Nat Med*. 2020;26(8):1205–1211.
9. Yang R, Gui X, Xiong Y. Comparison of clinical characteristics of patients with asymptomatic vs symptomatic coronavirus disease 2019 in Wuhan, China. *JAMA Netw Open*. 2020;3(5):e2010182.
10. Falahi S, Kenarkoohi A. Sex and gender differences in the outcome of patients with COVID-19. *J Med Virol*. 2020;10.1002/jmv.26243. Epub ahead of print. June 30, 2020.
11. Rabin RC. Why the coronavirus seems to hit men harder than women. *The New York Times*. March 2, 2020.
12. Jin J-M, Bai P, He W, et al. Gender differences in patients with covid-19: focus on severity and mortality. *Front Public Health*. 2020;8:152.

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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 28-Year-Old Man with Diarrhea and Abdominal Pain

Figure 1.

Figure 2.

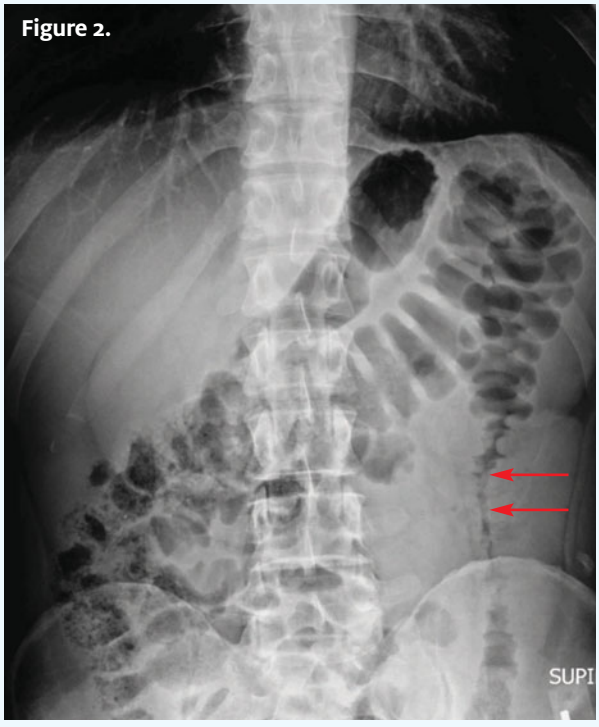
Case

The patient is a 28-year-old male who presents with a complaint of diarrhea and a 1-week history of abdominal pain. He reports no food allergies, recent travel, or known exposure to sick contacts.

View the images taken 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

- Appendicitis
- Diverticulitis
- Epiploic appendagitis
- Omental infarction
- Segmental colonic thickening

Diagnosis

This patient was diagnosed with segmental colonic thickening, with possible colitis. The 12 cm segment of persistent narrowing in the descending colon indicates this to be segmental disease. The information in **Table 1** may be helpful in delineating the extent of disease in patients with this diagnosis.

Learnings/What to Look for

- Almost any pathologic condition can affect any areas of the colon. However, some pathologic entities have a propensity to localize to certain areas:
  - Cecal region – amebiasis, typhlitis (neutropenic colitis), tuberculosis
  - Isolated splenic flexure and proximal descending colon – watershed area for low-flow intestinal ischemia
  - Rectum – early stages of ulcerative colitis, stercoral colitis
  - Multiple skip regions – Crohn's disease

Table 1. Differential Diagnosis of Colonic Thickening

Focal disease (2 to 10 cm)
- Neoplasm
- Diverticulitis
- Epiploic appendagitis
- Infection (tuberculosis/amebiasis)

Segmental disease (10 to 40 cm)
- Usually colitis
- Crohn's colitis
- Glutaraldehyde colitis
- Ischemia
- Infection
- Ulcerative colitis (typically begins in the rectum and spreads proximally)
- Rarely neoplasm (especially lymphoma)

Diffuse disease (most of the colon)
- Always benign
- Infection
- Ulcerative colitis
- Vasculitis (almost always involves the small bowel as well)

- There is significant overlap in the degree of colonic wall thickening among different colonic pathologic processes
  - Mild thickening – plaque-like tumors, mild colonic inflammation
  - Marked colonic thickening > 1.0 to 1.5 cm – pseudomembranous, tuberculous, cytomegalovirus colitis, colonic neoplasms, vasculitis

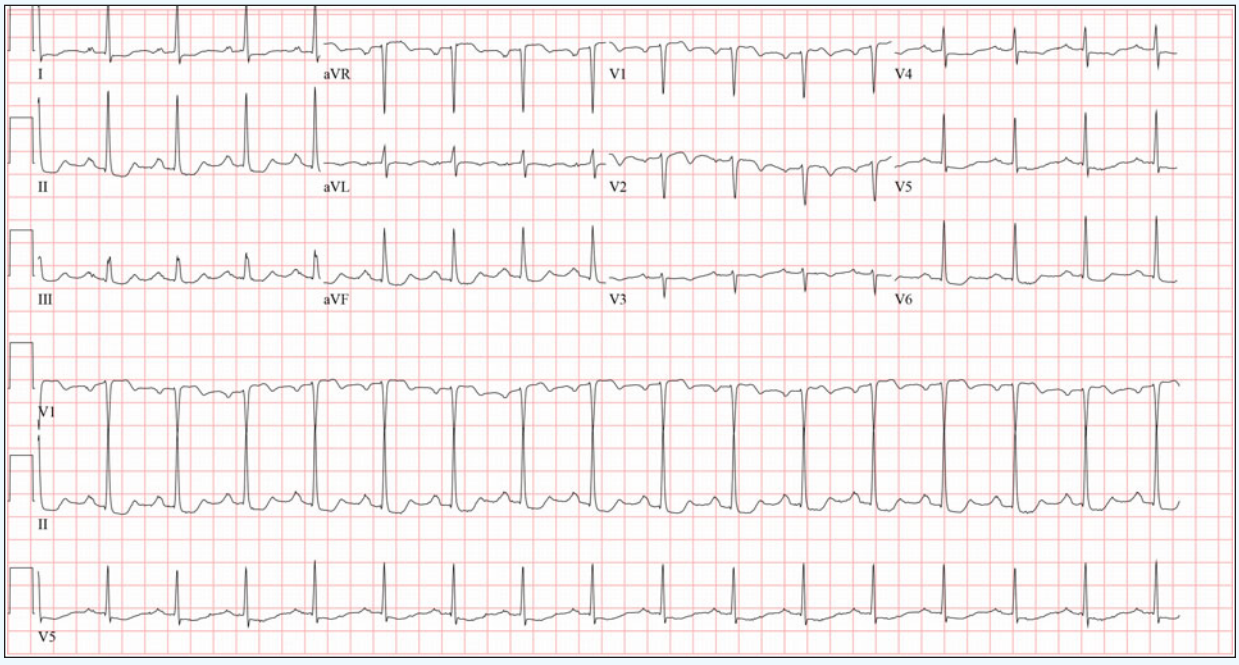
Pearls for Urgent Care Management and Considerations for Transfer

- CT is most helpful in assessing colon cancer vs focal/segmental diverticulitis. An acute abdominal series does not have the sensitivity to reliably diagnose serious urgent care conditions such as appendicitis, small bowel obstruction, or malignancy

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

CLINICAL CHALLENGE: CASE 2

A 74-Year-Old Female with Multiple Episodes of Chest Pain Over a 2-Day Period



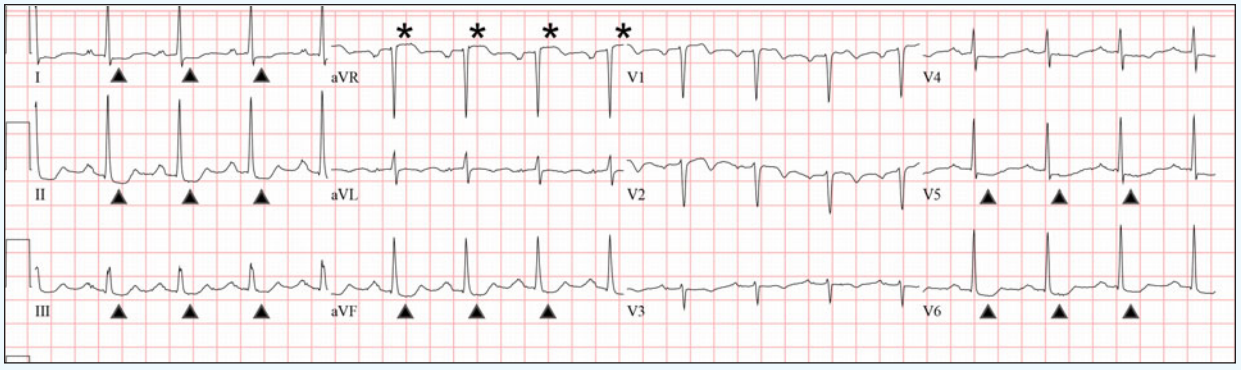
Case

A 74-year-old female presents to urgent care complaining of two episodes of chest pain in the past 2 days. The pain is midsternal, squeezing, does not radiate, and began at rest. The patient denies associated nausea, vomiting, diaphoresis, cough, lower extremity swelling or pain. Personal medical history is remarkable for hypertension, asthma, and diabetes.

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

(Case presented by Jonathan Giordano, DO, MS, MEd, The University of Texas Health Science Center at Houston McGovern Medical School.)

THE RESOLUTION



Differential Diagnosis

- Diffuse subendocardial ischemia
- Hypokalemia
- Left ventricular hypertrophy (LVH) with strain
- ST-Elevation myocardial infarction (STEMI)
- Ventricular tachycardia

Diagnosis

The ECG reveals a regular, narrow-complex, sinus rhythm at a rate of 96 beats per minute. There is a normal axis and normal intervals. There are diffuse ST-segment depressions (identified by the arrows) in the inferolateral leads and >1 mm ST-segment elevation (see asterisks) in aVR. This patient was diagnosed with ST-elevation myocardial infarction (STEMI).

The pattern of diffuse ST-segment depressions with ≥ 1 mm ST-segment elevation in aVR suggests left main coronary artery or triple-vessel disease.[1,2] The most recent European Society of Cardiology guidelines recommend emergent reperfusion strategies for these patients in the setting of symptoms consistent with acute coronary syndrome.[3]

The challenge with this ECG pattern is that it can also be seen in patients not presenting with symptoms of acute coronary syndrome. In one study, 142 ECGs with this pattern were collected and only 28% were associated with acute coronary syndrome.[4] Essentially any disease processes that lead to global subendocardial ischemia can present with ECG findings of diffuse ST-segment depressions with ≥ 1 mm ST-segment elevation in aVR, often secondary to supply/demand mismatch in the absence of acute coronary syndrome. Several can't-miss diagnoses can present with this pattern, including pulmonary embolism,[5] severe anemia, hypoxia, and shock.[4] This pattern can also be seen in tachydysrhythmias where resolution of the ST segment changes is expected after conversion. A similar pattern can also be seen with left ventricular hypertrophy and metabolic disorders, like hypokalemia.[6]

Learnings/What to Look for

- In the setting of acute coronary syndrome, diffuse ST-segment depressions with ≥1 mm ST-segment elevation in aVR are suggestive of left main coronary artery or significant multivessel disease
- Global subendocardial ischemia can result from any disease process that creates a supply/demand mismatch, including pulmonary embolism, severe anemia, hypoxia, and shock
- This pattern can also be caused by tachydysrhythmias, left ventricular hypertrophy, and hypokalemia
- Compare to a prior ECG when available

Pearls for Initial Management and Considerations for Transfer

- In the setting of acute coronary syndrome, diffuse ST-segment depressions with ≥1 mm ST-segment elevation in aVR warrant emergent transfer to percutaneous coronary intervention capable center
- Consider alternative diagnoses when the patient's complaint is not consistent with acute coronary syndrome

References

1. Wagner GS, Macfarlane P, Wellens H, et al. AHA/ACCF/HRS recommendations for the standardization and interpretation of the electrocardiogram. Part V: electrocardiogram changes associated with cardiac chamber hypertrophy. *Circulation*. 2009;53(11):1003-1011.
2. Kosuge M, Ebina T, Hibi K, et al. An early and simple predictor of severe left main and/or three-vessel disease in patients with non-st-segment elevation acute coronary syndrome. *Am J Cardiol*. 2011;107(4):495-500.
3. Ibanez B, James S, Agewall S, et al. 2017 ESC guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation. *Eur Heart J*. 2018;39(2):119-177.
4. Knotts RJ, Wilson JM, Kim E, et al. Diffuse ST depression with ST elevation in aVR: is this pattern specific for global ischemia due to left main coronary artery disease? *J Electrocardiol*. 2013;46(3):240-248.
5. Witkov RB, Cooper BL. An ominous ECG pattern. *Ann Emerg Med*. 2019;73(4):406-408.
6. Chua CE, Choi E, Khoo EYH. ECG changes of severe hypokalemia. *QJM*. 2018;111(8):581-582.

Acknowledgment: *JUCM appreciates the assistance of ECG Stampede (www.ecgstampede.com) in sourcing content for electrocardiogram-based cases for Insights in Images each month.*

ECG STAMPEDE

A 25-Year-Old Woman with Plaques on Her Elbows and Feet


Figure 1.

Case

The patients is a 25-year-old woman who presents with 1 month of smooth, red-brown plaques on her elbows and the tops of her feet which are pruritic. The lesions are round with a slightly darker ring on the outside, with no scaling or significant surface change to the skin. She has no systemic symptoms.

View the image taken 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

- Tinea corporis
- Granuloma annulare
- Necrobiosis lipoidica
- Lichen planus

Diagnosis

This patient was diagnosed with granuloma annulare (GA), a benign granulomatous inflammatory disorder of the dermis or subcutis. Its cause is unknown, but there are reports in the literature suggesting that GA is associated with certain triggers or systemic diseases, most commonly diabetes mellitus. Other diseases that may be associated include thyroid disease, dyslipidemia, malignancy, and infections. GA occurs in women twice as often as it does in men; two-thirds of patients with GA are under 30 years of age.

Learnings/What to Look for

- Small dermal papules may present in isolation or coalesce to form smooth annular plaques, often on extremities
- Lesions are typically asymptomatic or only mildly pruritic, but the appearance may cause distress for the patient
- There are three principal variants of GA: localized (75% of cases), disseminated (or generalized), and subcutaneous (also known as pseudo-rheumatoid nodules). Patch GA is a variant of localized GA in which the plaques are extremely thin and barely palpable. A fourth type—perforating GA—refers to rare lesions that demonstrate histologic evidence of transepidermal extrusion of degraded collagen

Pearls for Urgent Care Management and Considerations for Transfer

- GA usually resolves spontaneously with no adverse sequelae
- Some cases may be persistent or recurrent

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

FAQ: New E/M Guidelines

MONTE SANDLER

It's 2021, and the new E/M guidelines for office visit codes are here. Hopefully, providers will feel some relief in the amount they need to document and can spend more time treating their patients. This month I'll answer some of the questions I've received.

Q. Do all three elements of medical decision-making (MDM) need to be at the same level for the code selected?

A. No. Only the two highest elements need to be met for code selection. If the problem addressed is moderate, the data are straightforward and the risk is also moderate, the level would be moderate or 99204/99214.

Q. If I am billing by time, do I still need to meet that same level for the MDM elements?

A. No. You can select the level of E/M service by MDM *or* time. If the amount of time meets a level 4 but the MDM only meets a level 2, you would report a level 4. The converse is also true. Which method you use will vary depending on the circumstances of the visit.

Q. For "problems addressed," if there is a medical issue that is not evaluated or treated but affects your treatment (eg, pregnancy), does this count?

A. According to the definition in the guidelines, a problem is considered addressed when it is evaluated or treated at the encounter by the provider reporting the service. Conditions that contribute to the patient's medical management should be considered as one of the elements when selecting the level of MDM. An underlying disease that has no effect on the data reviewed or risk would not be counted.

Q. Can you clear up the definitions of "acute illness with systemic systems" and "undiagnosed problem with uncertain prognosis"?

A. Both definitions reference the patient having a high risk of morbidity without treatment. Systemic symptoms in a minor illness would be considered self-limited or acute, uncomplicated. "Undiagnosed new problem with uncertain prognosis" is when a differential diagnosis represents a condition likely to result in a high risk of morbidity without treatment.

Q. What is a unique test?

A. Unique tests are a unique CPT code. At the American Medical Association's CPT and RBRVS 2021 Annual Symposium, the speakers indicated that a unique CPT would be considered as one point regardless of the number of times it is billed. For example, CPT 87804 is billed twice if both an influenza A and B test are ordered. This would be counted as only one order.

Q. Does ordering a diagnostic test and reviewing that same test count as two points?

A. No. This was clarified in the November 2020 edition of the *CPT Assistant*. Ordering and reviewing a test are considered a single component for MDM, even if performed on different days. Per the guidelines, ordering a test is included in the category of test result(s) and the review of the test result is part of the encounter.

Q. Can you clarify the difference between review of results and independent interpretation?

A. An independent interpretation is when the provider documents their own interpretation of an image/tracing that was performed elsewhere. It would not be reported if the practice is also billing for the test. "Review of results" is when a provider reviews the test results from another practice. It would not be counted if the billing provider also orders the test.

Q. What is an independent historian?

A. An independent historian is an individual who provides history in addition to a patient who is unable to provide a complete or reliable history or because a confirmatory history

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is necessary. This may include a parent, spouse, or caregiver. It would not include a translator.

Q. When we send someone to the emergency room, we call the receiving doctor or nurse supervisor to let them know about the patient. Does this count as "appropriate source"?

A. Yes. This would count as discussion of management or test with an external provider. An appropriate source can also be a non-healthcare professional who is involved in the management of the patient.

Q. If a non-physician practitioner discusses the case with a supervising physician that is off-site, does that count for discussion of management with an external physician?

A. No. An external physician cannot be in the same group practice.

For more information about the new guidelines, including the definitions and the MDM matrix, go to https://www.ama-assn.org/practice-management/cpt/cpt-evaluation-and-management. ■

Primary Objectives of the CPT Editorial Panel Revisions

The CPT Editorial Panel took seriously the charge to create revisions to the E/M office visits and outlined four primary objectives to this important work:

1. To decrease administrative burden of documentation and coding
2. To decrease the need for audits, through the addition and expansion of key definitions and guidelines
3. To decrease unnecessary documentation in the medical record that is not needed for patient care
4. To ensure that payment for E/M is resource-based and that there is no direct goal for payment redistribution between specialties

Source: The American Medical Association. CPT Evaluation and Management. Available at: https://www.ama-assn.org/practice-management/cpt/cpt-evaluation-and-management. Accessed December 17, 2020. The entire text of the AMA's summary of the changes can be reviewed by accessing that same URL.

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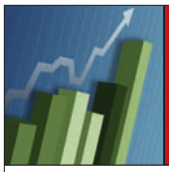


DEVELOPING DATA

Until the COVID-19 Vaccine Is Widely Distributed, Keep Testing—and Reporting

When the Centers for Disease Control and Prevention updated their running count of data related to COVID-19 on December 7, a couple of subtle messages highly relevant to the urgent care provider stood out. Yes, the headlines went to the dramatic spike in cases, hospitalizations, and ICU admissions. However, the data also reveal something that emerged in Incidence of SARS-CoV-2 in Preoperative Patients Tested in an Urgent Care Setting, the original research articles featured on page XX of this issue.

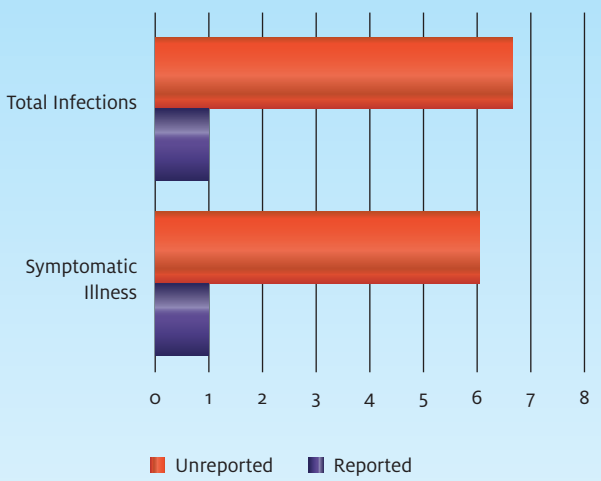
In that article, the researchers discovered just how many patients learn that they're sick with COVID-19 only because they were required to be tested before undergoing a procedure.

Similarly, as you'll see in the graphs below, amassing COVID-19 data is likely being hindered by the fact that many patients are asymptomatic (and, so, may be less inclined to get tested), and because too many known cases go unreported. According to the CDC, between February and September 2020, only 1 out of every 7.1 symptomatic cases of COVID-19 were reported. Overall, only one out of 7.7 cases are reported. And an estimated 8 million patients were asymptomatic (out of a total estimated case count of 53 million for that period).

The take-home, even as we await mass immunization, is that proactive testing and efficient reporting to public health agencies are essential and "doable" steps that urgent care operators can support. Given that our industry was largely ignored at the outset of the pandemic, this could be a timely opportunity to continue demonstrating our capabilities and our worth. ■

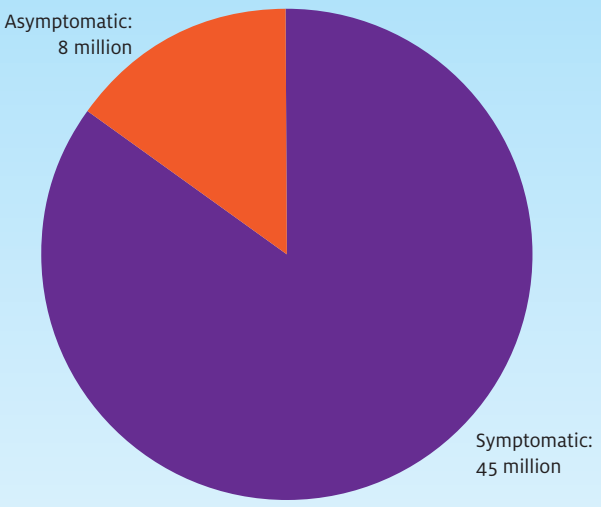
COVID-19: WHAT WE DON'T KNOW CAN (AND WILL) HURT US

Ratio of Estimated COVID-19 Cases Reported:Unreported



Data source: Centers for Disease Control and Prevention. Estimated Disease Burden of COVID-19. Updated December 7, 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/burden.html. Accessed December 13, 2020.

Total Infections, Estimated: 53 Million



Data source: Estimated Disease Burden of COVID-19. Updated Dec. 7, 2020. Available at: https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/burden.html. Accessed December 12, 2020. Accessed December 13, 2020.

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