



ABSTRACTS IN URGENT CARE

- Pulse oximetry and need for hospitalization
- Electronics and nickel allergy
- The best test for nephrolithiasis
- The value of urine dipstick
- Therapy for shoulder impingement syndrome
- Jet injection vs standard needle infiltration for anesthesia
- Tips for the art of medicine
- Visits for return-to-childcare notes
- Chest compression in CPR

■ SEAN M. MCNEELEY, MD

Each month the Urgent Care College of Physicians (UCCOP) provides a handful of abstracts from or related to urgent care practices or practitioners. Sean McNeeley, MD, leads this effort.

Pulse oximetry and decision-making on hospitalization

Key point: Use of pulse oximetry to decide on necessity of hospitalization may need to be reconsidered.

Citation: Schuh, S, Freedman S, Coates A. et al. Effect of oximetry on hospitalization in bronchiolitis, *JAMA*. 2014; 312(7):712-718.

Pulse oximetry has been used to help decide when an infant with bronchiolitis should be hospitalized. The authors of this study postulated that providers may be relying too heavily on it, resulting in more hospitalizations than may be necessary. Because bronchiolitis is the leading cause of admission in infants, changing the criteria for admission for bronchiolitis may significantly reduce the burden on parents and the cost of health care.

In this randomized, blinded study, physicians were told that their patients had a 50% chance of having an altered pulse oximetry value, but not the direction or the level. Otherwise healthy children with bronchiolitis and pulse oximetry 88% or higher were randomized to either addition

of 3% or no change in pulse oximetry value. In order to blind providers, two pulse oximetry machines were used, one of which automatically added 3% to the score. Randomization to one of the two machines was done by an outside company. The authors note that the 3% difference in pulse oximetry reading was considered small and that great effort was taken to ensure the safety of the study participants. Their efforts in that regard are explained in detail in the study but beyond the scope of this synopsis.

A total of 213 patients met the eligibility criteria for the study. The admission rate was 41% among the patients whose pulse oximetry results were true compared with 25% in the altered group. There was no noted difference in outcomes for the two groups.

From an acute care perspective, the small size of this study should give us pause in regard to changing our treatment pattern. However, these results do remind us that reliance on a single test rather than taking into consideration a patient's presentation as a whole may lead us to unnecessarily change our treatment plan. ■

Electronics and nickel allergy

Key point: Watch out for those tablets because you may become allergic.

Citation: Jacob SE and Admani S. iPad — increasing nickel exposure in children. *Pediatrics*. 2014 Aug 1; 134:e580

In this case study, a patient with atopic dermatitis presented with what seemed to be a different rash unresponsive to topical



Sean M. McNeeley, MD, is an urgent care practitioner and Network Medical Director at University Hospitals of Cleveland, home of the first fellowship in urgent care medicine. Dr. McNeeley is a founding board member of UCCOP and vice chair of the Board of Certification of Urgent Care Medicine. He also sits on the *JUCM* editorial board.

steroids. Skin testing revealed a nickel allergy. Nickel allergies from buttons, snaps, and jewelry are becoming more frequent. However, this patient's exposure was unusual. The family was noted to have a first-generation iPad that the patient used with just a cover and the iPad tested positive for nickel. Laptops also have been found culpable in nickel allergies.

From the acute care provider perspective, considering nickel allergy from computers and tablets may be helpful in diagnosis of an unusual rash. Because of the cost of computers and tablets, the authors suggest use of a case rather than a cover to avoid exposure. ■

The best first study for suspected nephrolithiasis

Key point: Consider ultrasound before CT for suspected kidney stone.

Citation: Smith-Bindman R, Aubin C, Bailitz A, et al. Ultrasonography versus computed tomography for suspected nephrolithiasis. *N Engl J Med.* 2014;371(12):1100-1110.

The authors of this study noted that there is some controversy as to the best first study to perform in patients with a suspected kidney stone. In this study, 2,759 patients were randomized to either bedside ultrasound, radiology-based ultrasound, or computed tomography (CT) scan. Once the test selected was performed, other necessary tests were up to a patient's provider to decide. Outcomes included serious adverse events and total radiation dose. Patients in each group were similar and to ensure that no late adverse outcome occurred, they were followed for 6 months.

Adverse outcomes included abdominal aortic aneurysm rupture, pneumonia with sepsis, appendicitis with rupture, diverticulitis with abscess or sepsis, bowel ischemia or rupture, pyelonephritis with urosepsis, aortic dissection with ischemia, and ovarian torsion. Outcomes were compared among the three groups (ultrasound, radiology-based ultrasound, and CT) and found to be similar. At first glance, this study may seem interesting to those of us who have the option of using ultrasound or CT, however, considering the severity of the adverse outcomes among the patients, further study is needed before ultrasound becomes the default first study for suspected nephrolithiasis. ■

Urine dipstick still a valuable test

Key point: Automated urinalysis machines perform well, but urine dipstick is still useful.

Citation: Kanegaye JT, Jacob M, Maliciki D, et al. Automated urinalysis and urine dipstick in the emergency evaluation of young febrile children. *Pediatrics.* 2014;134(3): 523-529.

The authors note that urinary tract infections are the most

common cause of fever in young infants. Although use of automated urinalysis machines has become more common, their application in children has not been well studied.

In this study, the researchers attempted to find a cutoff number for bacteria and white blood cells counts and compare the results of automated urinalysis with that for urine dipsticks. Patients younger than age 48 months who were seen in a pediatric emergency room with fever and from whom urine was taken via catheterization were enrolled in this study. Urine samples were evaluated by urine dipstick and with automated urinalysis and culture. Automated bacterial counts performed best, with sensitivity of 1.0 and specificity of 0.95 at 100/microliter. At 250/microliter, sensitivity and specificity were both 0.98. Dipstick urinalysis with 1+ leukocytes esterase (LE) and positive nitrate had similar sensitivity and specificity. As was the case in previous studies, LE had high sensitivity and nitrates had high specificity.

From an urgent care perspective, the old standard urine dipstick performs almost as well as the new machines. ■

Therapy for shoulder impingement syndrome

Key point: Injection and manual physical therapy appear to be equivalent for shoulder impingement syndrome.

Citation: Rhon DI, Boyles RB, Cleland JA. One-year outcome of subacromial corticosteroid injection compared with manual physical therapy for the management of the unilateral shoulder impingement syndrome. A pragmatic randomized trial. *Ann Intern Med.* 2014;161:161-169.

Both physical therapy and steroid injection are common treatments for shoulder impingement syndrome. The authors of this study compared the effectiveness of the treatments in a randomized single-blind manner. A total of 101 patients ages 18 to 64 were enrolled. Patients received either six manual physical therapy sessions or 40 mg triamcinolone. When evaluated by pain and function scores, the two groups were similar at 1 month and 1 year. Further study might focus on the question of whether having both types of treatment is an improvement over a singular modality.

From an urgent care perspective, this small study may be comforting to patients who can only receive one modality for shoulder impingement. ■

Jet injection vs standard needle infiltration for anesthesia

Key point: Jet injection may be better than standard needle infiltration for anesthesia in certain wounds.

Citation: Saghi B, Momeni M, Saeedi M, Ghane M. Efficacy of the jet injector in local anaesthesia for small wound sutures: A randomised clinical trial compared with the needle infiltration technique. *Emerg Med J.* 2014;Jul 22. pii: emermed-2013-203135.

The authors of this study compared jet injection and standard needle infiltration. A total of 53 patients were assigned to one or the other form of local anesthesia delivery and pain from anesthesia, pain during suturing, and time to anesthesia were measured. All of the wounds were facial and not grossly contaminated.

Pain rating during anesthesia was 4.4 for needles compared to 1.1 for the jet injector, however, it took longer to get adequate anesthesia in the jet injector group. Quality of anesthesia during suturing was similar in both groups.

From an urgent care perspective, this study is likely too small to be generalizable. The cost and availability of the injectors in the United States also were not considered because the research was performed in Iran. Further study may help identify the correct role for the jet injector. ■

Tips for the art of medicine

Key point: *Seven skills may improve the art of medicine.*

Citation: Egnew TR. The art of medicine: Seven skills that promote mastery. *Fam Pract Manag.* 2014;21(4):25-30.

This article is slightly different than the ones typically chosen for this column in that much attention to the science of medicine can be found and less information has been written about the art of medicine. The author mentions that despite all the advances in medicine, the interaction of the patient and provider still remains a keystone of medical care. Seven important behaviors are suggested, which seem to be applicable to urgent care as well primary care:

- Focus on the patient before entering the room.
- Establish a connection.
- Assess the patient's response to illness and suffering.
- Communicate to foster healing.
- Use the power of touch.
- Laugh a little.
- Show some empathy.

As acute care providers, our biggest challenge can be establishing trust in the brief encounters with new patients. These suggestions should help. ■

Rethinking visits for return-to-childcare notes

Key point: *Visits for return-to-childcare notes are an unnecessary burden on acute care providers and should be reconsidered by childcare facilities.*

Citation: Hashikawa AN, Brousseau DC, Singer DC, et al. Emergency department and urgent care for children excluded from child care. *Pediatrics.* 2014;134:e120.

The authors of this study looked at parents of children ages 0 to 5 who used childcare outside the home. This article focused on the answer to five questions related to childcare in a 51-question

“From an urgent care perspective, the old standard urine dipstick performs almost as well as the new machines.”

survey. The American Academy of Pediatrics (AAP) has national recommendations about when a child should be excluded from childcare. Overall 38% of parents in this study needed a note for either their employer or their childcare provider. Analysis of the results indicated that parents who needed a note sought care at a higher percentage and more frequently at an emergency room or urgent care center rather than their pediatrician's office. Although availability is an important selling point for urgent care centers, having to seek care just to get a note is a burden our over-taxed medical system should not have to bear.

For those of us in acute care, providing information for parents and childcare providers about the AAP's guidelines makes sense. That may lower the number of patients who present seeking a note rather than because of concern about their child's illness. ■

Chest compression in CPR

Key point: *Push hard and push deep is the best advice to follow in cardiac arrest, however, the best depth may be less than in the 2010 guidelines.*

Citation: Stiell IG, Brown SP, Nichol G, et al. What is the optimal chest compression depth during out-of-hospital cardiac arrest resuscitation of adult patients? *Circulation.* 2014 Sep 24. pii: CIRCULATIONAHA.114.008671. [Epub ahead of print]

It has been hypothesized that a minimum depth of 50 mm (2 inches) and no upper number limit is the best advice during outpatient CPR. This was updated with the 2010 CPR guidelines. The authors note that good quality CPR is an important link in the survival chain and hoped to better define optimal chest compression depth. This retrospective study looked at 9,136 treatment records for patients with out-of-hospital arrests and CPR. The authors found that a depth of 40 to 55 mm provided the maximal survival to discharge. They also noted improved survival as depth increased to the maximal survival depth.

For the urgent care provider, there are several points to take away from this study. Survival continues to be low (between 3% and 16%). Good quality CPR is a key to survival and optimal compression depth may be slightly less than suggested in the 2010 guidelines. ■