ABSTRACTS IN URGENT CARE

- Antibiotics and middle ear effusion
- EMRs and ER productivity
- Predicting cellulitis treatment failure
- Ultrasound for detection of MRSA
- Clinical gestalt for PE and ACS

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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.

Antibiotics and middle ear effusion

Key point: Treatment with antibiotics seems to reduce the duration of middle ear effusion.

Citation: Tapiainen T, Kujala T, Renko M, et al. Effect of antimicrobial treatment of acute otitis media on the daily disappearance of middle ear effusion: A placebo-controlled trial. *JAMA Pediatr*. 2014;168(7):635-641.

Authors in this randomized, double blind, placebo-controlled trial compared 84 children aged 6 months to 15 years with acute otitis media who were either given amoxicillin clavulanate (40 mg/kg) or placebo for 7 days. The primary outcome observed was the length of time to resolution of middle ear effusion. Patients were examined by otoscopy and tympanometry on days 3, 7, and once weekly until effusion cleared. The results showed a 2-week difference between placebo and antibiotic groups (4 weeks versus 2 weeks, respectively). The data also showed a much smaller number of ear effusions at 60 days. The treatment group had no bilateral effusions at 60 days. From the acute care perspective, further research is needed to confirm these results as well as to decide if this is only present when amoxicillin is combined with clavulanic acid or if plain amoxicillin would suffice. The current recommendation for uncomplicated otitis media is amoxicillin 90 mg/kg. If this study is replicated on a larger scale and the decreased effusion time is found to be clinically relevant to patients, this may reverse the wait-and-see trend that is currently advised for many patients with mild otitis media. For now, the difference in resolution of effusion is interesting but based on the small number of patients, a change in current practices may be premature. ■

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EMRs and ER productivity

Key point: Surprisingly this study shows that electronic medical records (EMR) do not reduce productivity in the emergency room setting.

Citation: Ward MJ, Landman AB, Case K, Berthelot J, Pilgrim RL, Pines JM. The effect of electronic health record implementation on community emergency department operational measures of performance. *Ann Emerg Med*. 2014;63(6):723-730.

Authors in this study attempted to see if implementation of an electronic medical record (EMR) reduced efficiency. This study took place in a retrospective manner and compared several metrics including arrival to provider, admitted, discharged, and length of stay times. Although the timeframes 1 year after EMR implementation were slightly increased as much as 6 minutes due to the EMR, the authors felt that it was insignificant. The study reviewed the operation statistics before and 1 year after an EMR was implemented at 23 community hospitals. It produced a few interesting points that might benefit those who work in urgent care. First, the EMR was optimized for the emergency room (ER) setting. Although the time to efficiency was not specifically measured, 1 year is a long time to be potentially less

efficient in the competitive urgent care market. The shorter length of stay in an urgent care center compared with an ER makes a few minutes per patient, a more significant issue. Two extra minutes per patient in a center that sees 30 patients per day would potentially create 60 minutes of extra wait time for the last patient. Also, the difference from the mean performance was significant between the 23 sites. As the authors noted, understanding the factors that were different between those becoming more efficient and those becoming less efficient would be helpful information. ■

Predicting cellulitis treatment failure

Key point: Fever and historical information help predict cellulitis treatment failure.

Citation: Peterson D, McLeod S, Woolfrey K, McRae A. Predictors of failure of empiric outpatient antibiotic therapy in emergency department patients with uncomplicated cellulitis. *Acad Emerg Med*. 2014;21(5):526-531.

In this prospective cohort study of patients presenting to the emergency room with new onset of cellulitis and no previous antibiotics, the author looked for factors that predicted treatment failure. Treatment failure was defined as need for admission or change of antibiotics. Once cellulitis was diagnosed, patients were either admitted, given oral antibiotics, or given intravenous (IV) antibiotics and asked to return the following day. Multiple characteristics of patients were documented by a questionnaire. A total of 497 patients were reviewed in this study. Of those, 185 received oral antibiotics, 81 IV and then oral antibiotics and 231 just IV antibiotics. The number of patients failing treatment were 39 (21%), 22 (27%), and 41(18%), respectively. The most common treatment failure was a need to change oral antibiotic. Of the many potential risk factors for failure, fever at triage (odds ratio [OR] = 4.3), chronic leg ulcers (OR = 2.5), chronic edema (OR = 2.5), prior cellulitis in the same area (OR 2.1), and cellulitis at a wound site (OR = 1.9) were noted to be statistically significant. From an urgent care perspective, this preliminary study can at least point to a subgroup of patients who may need stronger antibiotics or consideration of IV antibiotics. Further research including prospective confirmation of these risk factors and inclusion of patients presenting to urgent care with cellulitis would be beneficial. ■

Ultrasound for detection of MRSA

Key point: Ultrasound differences may help predict presence of methicillin-resistant* Staph *infections.

Citation: Gaspari RJ, Blehar D, Polan D, Montoya A, Alsulaibikh A, Liteplo A. The Massachusetts abscess rule: A clinical decision rule using ultrasound to identify methicillin-resistant *Staphylococcus aureus* in skin abscesses. *Acad Emerg Med*. 2014;21(5):558-567.

The authors in this study noted that an increased failure rate for abscess treatment was likely due to increased community-acquired methicillin-resistant *Staphylococcus aureus* infections (CA-MRSA) and they attempted to differentiate CA-MRSA on ultrasound from other infections. A decision rule for likely presence of CA-MRSA was developed by looking at possible predictors of CA-MRSA on ultrasound and confirmation by culture. Ultrasound was performed on an abscess before incision and drainage (I&D) and abscess content was sent for culture. Two physicians blinded to the culture results reviewed the images with a focus on a list of predictors of CA-MRSA. The study included 605 patients, 50% of whom were found to be infected with CA-MRSA and 26% with methicillin-sensitive *S. aureus* infections. Three sonographic factors—well-defined edge, small volume, and irregular or indistinct shape—were found to predict CA-MRSA. Abscesses with these characteristics were 7 times more likely to grow CA-MRSA. Once again, this study is preliminary without prospective confirmation of these results. Although most urgent care centers do not have access to ultrasound, this study provides one more reason to consider adding this option. Obviously the uncertainty of reimbursement and whether a physician would choose a different antibiotic based on this information would also need to be considered. ■

Clinical gestalt for PE and ACS

Key point: Clinician gestalt is likely more accurate in pulmonary embolism pretest possibility than acute coronary syndrome.

Citation: Kline JA, Stubblefield WB. Clinician gestalt estimate of pretest probability for acute coronary syndrome and pulmonary embolism in patients with chest pain and dyspnea. *Ann Emerg Med*. 2014;63(3):275-280.

Many studies have shown that clinician gestalt may be as good as algorithms and computer models. In this study, patients with undifferentiated chest pain and dyspnea after exam and EKG were evaluated for risk of acute coronary syndrome (ACS) and pulmonary embolus (PE). This study took place in the emergency department and clinicians were faculty, third-year residents, and physician assistants. The clinicians' gestalt was compared to an attribute-matching computer program which included 8 attributes for ACS and 10 for myocardial infarction. A total of 840 patients were enrolled who had complete data including physician prediction using a visual analog scale. The final diagnosis was ACS in 23 patients and PE in 17 patients. When clinicians chose zero possibility of PE and ACS, no patient had an event in the following 90 days. Much better performance by physicians was noted with PE than ACS due to poor specificity. Overall clinicians had higher pretest possibility than attribute matching. From an urgent care perspective, clinical gestalt performs best with PE suspicion, but also overestimates chances of ACS, which would be preferred to underestimating. ■