ABSTRACTS IN URGENT CARE

- CPR Guidelines During the COVID-19 Pandemic
- Characteristics of COVID-19 in the Pediatric Population
- A Clinical Decision Rule for Predicting True Penicillin Allergy
- The Role of Antibiotics in Community-Acquired Pneumonia
- POCUS Overview: A Primary Care Perspective
- POCUS in Skin and Soft Tissue Infections

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Prioritizing Protecting Healthcare Workers During Resuscitation of COVID-19 Patients

Key Point: Priorities should be given to reducing provider exposure and lowering aerosolization risk while oxygenating/ventilating, and considering whether or not resuscitation is appropriate.

Citation: Edelson DP, Sasson C, Chan PS, et al. Interim guidance for basic and advanced life support in adults, children, and neonates with suspected or confirmed COVID-19. *Circulation*. April 9, 2020. [Epub ahead of print]

Relevance: Healthcare providers are already at increased risk of exposure during this time. It is important to take additional steps during resuscitation to minimize risk.

Study Summary: General principles of this article include:

1. Reduce provider exposure
   a. Patient's COVID status should be clearly stated
   b. All providers should don PPE
   c. Limit number of personnel in room
      – Consider mechanical compression vs manual compression
2. Lower aerosolization risk while oxygenating/ventilating
   a. Securely attach HEPA filter prior to administering breaths
   b. After defibrillation, intubate with cuffed tube ASAP
   c. Use provider and intubation approach most likely to succeed at first attempt
   d. Pause chest compressions to intubate
3. Consider whether or not resuscitation is appropriate
   a. Address goals of care early with patient or proxy ■

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COVID-19 Tends to Be Clinically Less Severe in the Pediatric Population

Key Point: Clinical manifestation in children were generally less severe than in adults; however, disease severity was inversely proportional to age.

Citation: Dong Y, Mo X, Hu Y, et al. Epidemiology of COVID-19 among children in China. *Pediatrics*. March 16, 2020. [Epub ahead of print]

Relevance: Numerous studies characterize the adult population with COVID-19. This study aims to characterize the disease in a pediatric population.

Study Summary: This study summarizes characteristics of 2,135 pediatric patients with confirmed or suspected COVID-19. The median age of patients was 7 and there was no difference in susceptibility between male and female patients. Of the cases studied, 94% were asymptomatic or of mild/moderate severity; 6% were severe/critical (in comparison to 18.5% in adults cited in this study). The highest proportion of severe/critical illness was found in age group <1 year (10%), which decreased with increasing age. For this study, the definitions were:

1. Asymptomatic: positive COVID-19 test with no symptoms
2. Mild: URI symptoms or isolated GI symptoms
3. Moderate: pneumonia without hypoxemia
4. Severe: dyspnea, PaO_2 <92%
5. Critical: ARDS with shock or other organ failure ■

Identifying Patients at Low Risk for True Penicillin Allergy

Key Point: Using a clinical decision rule, providers can identify patients at low risk for true penicillin allergy who do not need alternative antibiotics.

Citation: Trubiano JA, Vogrin S, Chua KYL, et al. Development and validation of a penicillin allergy clinical decision rule. *JAMA Intern Med*. March 16, 2020. [Epub ahead of print]

Relevance: Many patients report having a penicillin allergy—which often results in prescription of a broader spectrum or less effective antibiotic. A clinical decision rule which allows identification of patients at low risk for true penicillin allergy would allow them to use this family of antibiotic without need for formal allergy testing.

"In a feasibility study, family medicine residents and attending physicians received 16 hours of POCUS training, resulting in sufficient knowledge and skill to improve diagnostic efficiency and accuracy."

Study Summary: Six hundred twenty-two patients with a self-reported penicillin allergy underwent formal allergy testing. The authors then identified clinical variables that were associated with a true allergy and created the mnemonic **PEN-FAST**. In patients reporting a **PEN**icillin allergy:

- 2 points for <**f**ast years since last reaction
- 2 points for **a**naphylaxis/angioedema or **s**evere cutaneous reaction
- 1 point for reaction requiring **t**reatment

Add up the points for each risk factor and:
0 points: <1% risk of positive allergy test (very low)
1-2 points: 5% risk of positive allergy test (low)
3 points: 20% risk of positive allergy test (moderate)
4 points: 50% risk of positive allergy test (high)
The negative predictive value for the low-risk group was 96.3%. The PEN-FAST decision rule was externally validated in a retrospective cohort study of 945 patients. ■

A Second Look at Antibiotic Prescription for Community-Acquired Pneumonia

Key Point: Prescription of antibiotics did not result in statistically significant difference in treatment failure, return visits, or quality of life in the pediatric population.

Citation: Lipshaw MJ, Eckerle M, Florin TA, et al. Antibiotic use and outcomes in children in the emergency department with suspected pneumonia. *Pediatrics*. 2020 Apr;145(4).

Relevance: There is a high prevalence of viral pneumonia in the pediatric population, and low rates of treatment failure have previously been shown in children with CAP treated with placebo vs amoxicillin. However, antibiotic prescription remains commonplace in the acute care setting.

Study Summary: The authors studied the outcomes of 294 propensity score-matched pediatric patients with suspected CAP who did or did not receive antibiotics. The primary outcome was treatment failure as defined by 1) a return visit for CAP with hospitalization within 30 days of discharge, 2) a return visit with change in antibiotics within 30 days of discharge, or 3) change in antibiotics over the phone 7-15 days after discharge. The secondary outcome was quality of life, which included reported return-to-normal activity and presence/length of symptoms. The authors found that there was no statistically significant difference in treatment failure and quality of life between the two groups. ■

[Editor's note: Point-of-care ultrasound (POCUS) has become an extension of the physical exam in many acute care settings. We will be including abstracts that cover its many uses, contributed by Chelsea Burgin, MD in Abstracts in Urgent Care over the course of the next few issues of* JUCM.*]

POCUS Overview, a Primary Care Perspective

Key Point: Clinician-performed bedside ultrasound plays a valuable role answering specific questions regarding many different body systems in primary care.

Citation: Bornemann P, Barreto T. Point-of-care ultrasonography in family medicine. *Am Fam Physician*. 2018;98(4):200-202.

Relevance: Family medicine, like many specialties, is addressing POCUS like an extension of the physical exam. Ultrasound is an effective way to evaluate for disease processes like abscess, aortic aneurysm, cardiac failure, cholelithiasis, deep vein thrombosis, fractures, free fluid in the peritoneum, pericardial effusion, pneumothorax, pulmonary effusions, and retinal detachment.

Study Summary: The value and utilization of POCUS are rapidly expanding. POCUS increases patient satisfaction while decreasing time to diagnosis and reducing radiation exposure and cost. In a feasibility study, family medicine residents and attending physicians received 16 hours of POCUS training, resulting in sufficient knowledge and skill to improve diagnostic efficiency and accuracy. Ultrasound-guided procedures such as arthrocentesis,

thoracentesis, and venous access have shown to reduce rates of complications. In 2016, the American Academy of Family Physicians (AAFP) made a formal statement encouraging family medicine residency programs to incorporate POCUS as part of their graduate curriculum while the AAFP committed to providing more POCUS CME for clinicians at all levels. ■

POCUS in Skin and Soft Tissue Infections

Key Point: Ultrasound improves the accuracy of abscess identification in skin and soft tissue infections, frequently leading to changes in medical management.

Citation: Barbic D, Chenkin J, Cho DD, et al. In patients presenting to the emergency department with skin and soft tissue infections what is the diagnostic accuracy of point-of-care ultrasonography for the diagnosis of abscess compared to the current standard of care? A systematic review and meta-analysis. *BMJ Open*. 2017;7(1).

Relevance: Individuals with skin and soft tissue infections (SSTI) present frequently to urgent care centers, and at times it is challenging to identify the presence or absence of an abscess. POCUS is effective in identifying a pocket of fluid and improving medical decision-making.

"POCUS is an effective tool to rule out a pocket of fluid and prevent unnecessary incision and drainage in an SSTI presentation, when the clinician is uncertain about abscess vs cellulitis by history and physical examination."

Article Summary: In the greater majority of presentations for SSTIs, cellulitis and/or abscess is the clinical diagnosis. There is substantial overlap in abscess and cellulitis; however, the treatment paths differ. In this systematic review, 3,028 studies were evaluated; eight conducted from 1997 to 2016 were identified as good-to-excellent quality for inclusion criteria. A total of 747 patients underwent POCUS with a sensitivity of 96.2% and a specificity of 82.9% for the identification of an abscess. In an SSTI presentation, when the clinician is uncertain about abscess vs cellulitis by history and physical examination, POCUS is an effective tool to rule out a pocket of fluid and prevent unnecessary incision and drainage. ■