The MACEP Pediatric Section developed 2 community based carepaths this past year: **Febrile Seizure** and **Croup**. If you have not yet seen them, they are available [HERE](#).

The concept is that while there are many carepaths available that focus on pediatric care, they are generally not specifically geared towards care in smaller, community EDs, where the vast majority of children are cared for.

These carepaths have now been available to members for a few months, and we just completed a survey to determine their utility, and to see if there is interest in further community based carepath development.

While we did not have a great response to the survey (n=30), we want to share with you some summary responses as follows:

- About 90% of respondents are general ED providers seeing patients in a general (non-pediatric) ED.
- About 90% have been practicing emergency medicine for more than 10 years.
- The areas that providers felt LEAST comfortable with in children included bronchiolitis, the febrile infant, sepsis, and status epilepticus.
- Only about 60% of respondents were aware that we had put out these guidelines.
- Of those using the new guidelines, over 80% found the Croup guidelines useful, and 90% found the Febrile Seizure guideline useful.
- Of the proposed future guidelines, the most requested one was bronchiolitis (60%).
- More than 80% answered that they would like to see additional guidelines developed.

Based on these responses, we are going forward with further development of community based guidelines. We will be working on a Fever Carepath next, and will put out an email to MACEP membership once it is finalized.

Let us know if you would like to be involved with this ongoing project!
Pediatric Pearl of the Season:

- Everything that wheezes is not asthma
- Elicit history of recent viral infections/ prior medical visits
- Clinical Findings: Persistent tachypnea, persistent resting tachycardia with normal or poor perfusion despite therapy (fever or pain control, fluids), wheezing, crackles, hepatomegaly, respiratory distress
- Jugular venous distention is not prominent in infants or children
- Remember reassessment is a key tool in pediatric patients

National ACEP Pediatric Section Update

The ACEP national Pediatric Section met in October at the national meeting in Las Vegas. There is a tremendous amount of work going on in the section; highlights of activities include:

- Continued work on pediatric quality measures for CEDR (Clinical Emergency Data Registry). The ACEP CEDR quality team has initially approved the following measures for further development in 2017, hopefully to be finalized at the 2017 annual meeting:
  - Weighing all pediatric patients in kilograms
  - Ensuring asthmatics requiring 2nd aerosol get oral steroid
- Update on national pediatric readiness project, with pilot projects in several states
- Improved collaboration with Quality Transformation Committee of American Academy of Pediatrics
- Input into planning for 2018 SAEM Consensus Conference: Aligning the Pediatric Emergency Medicine Research Agenda to Reduce Health Outcome Gaps

Upcoming Events

- ACEP Advanced Pediatric Emergency Assembly, April 25-27, Las Vegas
- MACEP Annual Meeting, May 3, MMS Conference Center, 860 Winter Street, Waltham
- Pediatric Academic Societies Meeting, May 6-9, San Francisco
- AAP National Conference, Pediatric Emergency Section, Sept 16-19, Chicago
- ACEP Annual Meeting, Oct 30- Nov 2, Washington, DC

Worldwide Community Emergency Medical Services Resources/ Toolkit to improve pediatric readiness in your ED:

EMSC Resources/ Toolkit to improve pediatric readiness in your ED: link

EMS-C Webinars: link

National Pediatric Readiness Project: link

PEM Playbook (excellent and lively podcast on PEM topics): link

Weekly Flu Update: link

Pediatric Pearl of the Season: Myocarditis Pearls (see article next page)
You are in the middle of a regular weekend shift when you see a 12 month old male child with wheezing and mild respiratory distress. You find out after talking with mom that he has had a few colds over the last few months and was seen last at a nearby ED a week ago, was wheezing at the time, given albuterol nebs and a course of steroids. Mom states he had minimal improvement over the last week with albuterol every 4 to 6 hours. The baby is still having some trouble feeding, difficulty sleeping, and maybe less diapers.

You ask about past history, family hx of asthma, and mom states her baby was full term, no prior issues, and an older sibling has asthma and has battled a cold recently. You ask your regular screening questions: No recent fever. No vomiting or diarrhea. Vaccines are up to date including influenza. Quickly thinking about that old adage “all that wheezes is not asthma” you ask about reflux symptoms, foreign body aspiration or choking episodes. Mom states no to any of those.

You examine a male child in some distress, mild tachypnea and nasal flaring, with some tears. There is no congestion. You auscultate wheezes throughout and you’re not sure if you are hear an occasional crackle. The abdomen seems soft and looks prominent like any other baby at this age. Femoral pulses are palpable and symmetric. His extremities are warm and his capillary refill time is 2-3 seconds. He seems tired but mentating normally. His vital signs are remarkable for HR of 155, RR 36 and Temp 99.6. Sats are 95% on RA. Your nurse has attempted a BP but the kid is moving too much and it is not recording.

You are summarizing all the information in your head and formulating a plan of care. The nurses are asking for an albuterol neb because he is wheezing and they seem not too keen about IV access and lab work with no history of fever. Perhaps this makes sense, as wheezing would warrant albuterol, and mild dehydration with delayed cap refill might benefit from a bolus of fluids.

The nurse places an IV, you give the standard 20ml/kg of 0.9NS and 2.5mg of albuterol via neb. While the child is receiving his meds, you go about your business taking care of the patient with chest pain next door, the syncopal old lady and the intoxicated gentleman with a facial laceration.

After an hour, you get called by the nurses “hey Doc, remember that child in the back? He doesn’t look so good”

You glance at the vitals, his HR is now 165, maybe albuterol effect? His RR is now in the 60’s and his sats still 95%. On auscultation his wheezing still persists, and you are pretty sure you can auscultate some crackles now. He seems more uncomfortable, with increase retractions and grunting, and his perfusion is now 4-5 seconds.

What is going on, you think to yourself? He
Myocarditis is an inflammatory disease of the myocardium than can be caused by infections (viral etiology most common in USA), medications and toxins, autoimmune, and hypersensitivity reactions. The diagnosis might be elusive and requires a high index of suspicion, as the presentation might mimic other common disorders, and children might present with a range of non-specific signs and symptoms.

Myocarditis is a challenging diagnosis, and sometimes difficult to ascertain. Classification and diagnostic tests vary. Myocarditis can be divided into possible, probable and definitive, based on various findings in biomarkers, electrocardiography (ECG), cardiac imaging and function measured by ECHO or MRI, and histological or immunohistological testing.

ECGs are usually abnormal, but a normal ECG does not rule out the possibility of myocarditis. Findings are widely variable, and there is not one specific abnormality that is specific to the disease.

Biomarkers such as white blood cell count, CRP, ESR, troponin, and BNP may be elevated in myocarditis, but normal studies are common, and do not exclude a myocardial inflammatory process. Viral testing is of limited use due to the common prevalence in the community and the fact that the development of myocarditis usually occurs days to weeks after the acute phase of a viral infection has subsided.

Echocardiography remains the most common imaging study to assess cardiac structure and function in children, with various findings in ejection fraction, motion abnormalities, pericardial effusion, and echogenicity of the myocardium. Cardiac MRI with contrast may be the most helpful tool for the diagnosis of myocarditis and has been found to have some correlation with histopathologic findings. Cardiac biopsy continues to be required for definitive diagnosis, although it is plagued with difficulty in sampling and interpretation, and is not routinely clinically used to diagnose the disease.

Cardiovascular syndromes associated with myocarditis can include sudden death, arrhythmias, infarction, heart failure and dilation. The classic triad of full recovery, fulminant myocarditis, or progression to cardiac failure, and the need for transplant, remain the natural history of the disease.

Treatment includes activity limitation, medical therapy for heart failure and ventricular dysfunction, and immunomodulation and immunotherapy. Cardiac transplant remains the last resource in a limited number of these patients.

References: