



SAVING LIVES - REDUCING RISK

From The Editor

With school sports in full swing, it does not have to be hot outside for children and teens to succumb to heat-related illnesses during an activity. Heat-related illnesses are not uncommon when dealing with kids and sports. Therefore, we begin this issue of Peds EM News with an overview on heat-related illnesses in Pediatrics. We



also provide some interesting “pearls” in Pediatrics for you to keep in mind when dealing with and talking to parents. Sometimes a few simple words can go a long way. In addition, we will take a look at the initial treatment for RSV in the ED; should it be suction, oxygen, albuterol, steroids, epi? This quick update will reinforce some of the questions you may have when taking care of your little patients with RSV-type symptoms. Finally, we will take a look at some of the inconsistencies you may see

in laboratory values when taking blood samples from the intraosseous access. Until I investigated this, I never knew there could be such a difference in laboratory values between the peripheral access and the intraosseous access!

I hope you enjoy this issue of Peds EM News. ■

Regards, Dr. Todd Zimmerman

A Review of Heat-Related Illness in Pediatrics

It's that time of year again; school sports are in full swing with many long practices in all kinds of weather. People can lose up to 1.5 liters of fluid per hour with sweating during intense exercise. This is prime time for pediatric patients to sustain heat-related illnesses, and these patients may

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Patient Satisfaction Is Here

What's Your Plan?

present to the Emergency Department in some distress. We often hear about heat-related illnesses, but defining the components of heat-related illnesses is quite important, particularly heat cramps, heat exhaustion and heat stroke. It is important to understand the difference between these 3 illnesses; only heat stroke is actually a true medical emergency.

Heat Cramps

Heat Cramps are characterized by sudden and intense cramping in the muscles, usually in conditioned athletes, that occurs after the exercise is completed. Typically these patients have supplemented their water losses but not their salt losses, so the cramping is likely due to electrolyte imbalances. Laboratory data may reveal hyponatremia and hypochloremia with a normal to mildly elevated BUN.

Treatment for Heat Cramps: These cases are usually not severe, and giving fluids and salted foods will typically help resolve the symptoms. Occasionally, a fluid bolus with normal saline may be indicated with severe cramping.

Heat Exhaustion

Heat Exhaustion usually occurs in less conditioned athletes and during times of hot weather and after vigorous and/or pro-

It has been a common belief that "Happy patients don't sue" and some organizations have relied on this as their risk management strategy. Furthermore, now that reimbursements have been tied to patient satisfaction scores, physician groups and hospitals have become even more invested in finding solutions that truly make a difference in their patient satisfaction metrics.



TSG has responded by developing a new Patient Satisfaction program called *PatientSET™* "Satisfaction Every Time." Championed by Dr. Doug Finefrock, *PatientSET™* looks to the literature to identify certain elements of behavior that patients would like to see displayed during the

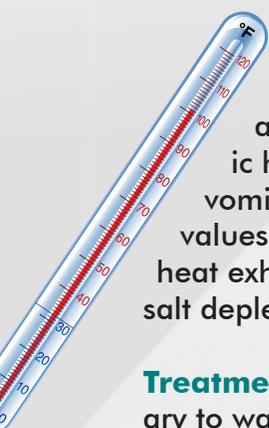
physician /patient encounter. Delivered through an online course series, Dr. Finefrock uses multimedia videos to provide concrete examples that will help improve the patient experience.

In true TSG fashion, *PatientSET™* extends beyond online education to include a real-time 'checklist' for the provider (*PatientSET™* List) as well as an observational assessment tool (*PatientSET™* Assessment) to be used by a case manager to analyze the clinician's compliance with key behavior elements of the visit.

If you are interested in learning more about the new *PatientSET™* Program, please contact: Brant Roth at broth@thesullivangroup.com



longed exercise. It may be due to either poor water OR poor salt replacement. The patient's temperature will usually be below 102.2°F (39°C), and he or she will usually exhibit significant weakness, headache and tachycardia along with hypotension or orthostatic hypotension. You may also see vomiting and/or GI disturbances. Lab values will be dependent on whether the heat exhaustion is from a predominance of salt depletion vs. water depletion.



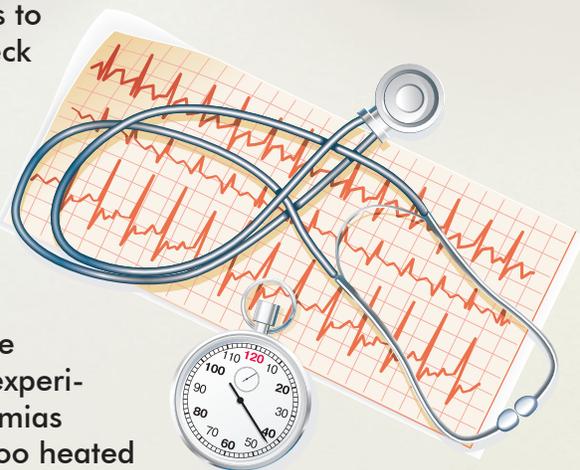
Treatment for Heat Exhaustion: If secondary to water depletion, treatment is rest in a cool environment and fluid. If secondary to salt depletion, in addition to resting in a cool environment, the patient should be given fluids with sufficient sodium. In patients with more severe symptoms, IV fluids with normal saline or lactated ringers may be indicated. Hypotonic fluids should be avoided.

Heat Stroke

Heat Stroke usually occurs in patients who are either very old or very young. We typically hear about the infant left in the closed car. Heat stroke can also occur with vigorous exercise, especially during heat waves. This is considered to be a **true medical emergency**, as these patients have profound hyperthermia; sweating may have already stopped. These patients will have varying degrees of CNS dysfunction, ranging from

headache, to confusion to loss of consciousness. The patient's skin will characteristically be hot and he or she will exhibit varying degrees of circulatory decompensation.

Treatment for Heat Stroke: Treatment should be directed at lowering the body temperature with vigorous supportive care that may range from seizure control, to airway control, to addressing rhabdomyolysis and renal damage. The patient will likely need IVF, but severe dehydration is not mandatory for the patient to have suffered from heat stroke. As noted, the body temperature should be lowered actively; in addition to placing the patient in a cool environment, use ice packs to the groin, neck and axilla. Monitoring of cardiac function and circulatory compromise is critical, as the patient can experience arrhythmias from being too heated as well as arrhythmias during the cooling process. ■



Fleisher; Ludwig. *Textbook of Pediatric Emergency Medicine*, 4th Edition. Lippincott Williams and Wilkins. 2000;953-955.

A Review of Intraosseous Blood and Laboratory Analysis

Using intraosseous access for obtaining blood and giving IVF and medications con-

tinue to gain traction; even EMS systems are adopting this technique. It is important to keep in mind that there are some variations in certain blood tests when you compare venous blood sampling with intraosseous blood sampling:



 Consistent with venous blood



 Consistent with venous blood



 Consistent with venous blood



 Consistent with venous blood



 Consistent with venous blood



 Consistent with venous blood



 Consistent with venous blood



 Typically lower than venous blood, but some studies say it does correlate adequately



 Typically lower than venous blood



 Typically lower than venous blood

Miller LJ, Philbeck TE, Montez D, Spadaccini CJ. A new study of intraosseous blood for laboratory analysis. *Arch Pathol Lab Med.* 2010 Sep;134(9):1253-60. doi: 10.1043/2009-0381-OA.1

An Update on Initial RSV/Bronchiolitis Treatment

We have probably all treated children with RSV bronchiolitis. Do you give albuterol or do you not give albuterol? Then we heard about racemic epinephrine, which seemed promising. We also have steroids; where do they fit in the treatment of these patients, if anywhere? Is there anything that works?

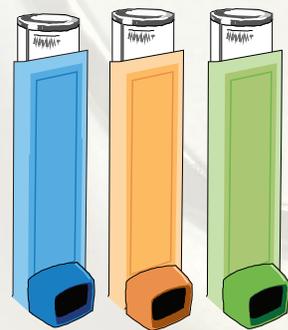
Let's take a brief look at the current recommendations:

- Assure that the patient is adequately hydrated. If the patient is not adequately hydrated or is significantly tachypneic or ill appearing, strongly consider IVF.
- Suction the nose to clear some of the secretions.
- Oxygen therapy should be initiated via nasal cannula for infants with bronchiolitis that have an O₂ saturation below 92%.

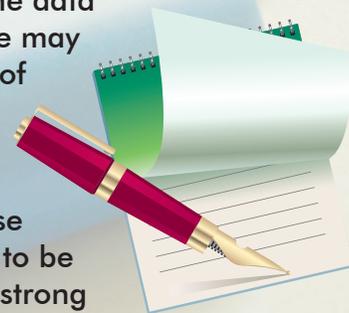


- For sicker patients with bronchiolitis, a trial of albuterol is not unreasonable. If the albuterol appears to significantly help the patient's respiratory status, it can be continued.

- Racemic epinephrine has not shown to be significantly superior to inhaled albuterol. There are many studies out there, but the consensus is that if a bronchodilator is to be used, your first choice should be albuterol.



- Steroids have a very limited role, if any, in the management of bronchiolitis. In fact, it is officially recommended that we do not use steroids routinely for bronchiolitis. There is some data that suggests there may be a small subset of bronchiolitis patients who could benefit from steroids; these patients are likely to be individuals with a strong history of asthma who have responded very well to a trial of albuterol. ■



92%
O₂



Pediatric “Pearls” for Parents

The following are some “pearls” that will only take you a moment to communicate to parents and may offer them some insight that could avoid a complaint and/or the need for them to return to the ED unnecessarily.

Additionally, it may help with patient satisfaction because it shows the parents that you really care. One should strongly consider always leaving the parent with a “pearl” to take home.

“Ms. Daniels, this is the medication that will give your daughter relief from the burning sensation when she urinates. It may cause her urine and possibly her tears to turn an orange color. This is from the medication and it is not a cause for concern.”

“Dad, I wanted to let you know that as the broken clavicle is healing, your son may get a little bump in that area. If so, that is usually not a cause for alarm; in fact, that is usually a normal part of the healing process. As always, if you are worried, we are always here for you.”

“Mrs. Smith, I wanted to remind you that when your child takes this drug, it may turn the stool a reddish color. This is not a cause for concern. If you have any worries, give your pediatrician a call or you can always return to the ED if you are worried. But again, this is not a cause for concern.”

“Another thing I wanted to discuss with you, Mr. Jones. When we went over Cindy’s labs, I told you that the mono test that we did in the ED today showed that she does not have mono. These quick mono test results can indicate normal for up to a week, so it’s possible that she does have mono. This is another reason why it is important to follow up with your primary doctor. If Cindy is not feeling better in a couple of days, your doctor may want to repeat that test.”

“One more thing I wanted to let you know about your son’s nasal bone fracture - it would not be unusual for him to develop some bruising around the eyes. This is some blood settling from the initial injury, so if this happens, don’t be alarmed.”

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Pediatric "Pearls" for Parents

"Mrs. James, I also wrote you a prescription for a "spacer" to be used with your son's inhaler. The medication will work much better if you use the spacer because it allows for more of the albuterol to get into the lungs. Without the spacer, the medication will not be as effective."

"Mrs. Alvarez, I want to let you know that I wrote on John's prescription for the pharmacist to mix the antibiotic we prescribed with a watermelon flavoring. The plain liquid tastes pretty bad."

"Mrs. Jones, the good news is that Michael's ears look good today and there does not appear to be an ear infection at this point. But ear infections can come on relatively quickly, so please, if your son's ears are still hurting tomorrow, give your doctor a call. She may want to recheck the ears."

"Mr. Bryant, start Jennifer's antibiotics today. Also give her acetaminophen for the fever and the ear pain. Keep in mind that it takes some time for the antibiotics to kick in, so Jennifer may have fever for another day or two. If she has a fever after starting the antibiotic, that is not necessarily a cause for concern. But if you are worried about something, we are always here for you."

"Ms. Smith, I want to make sure I inform you that by placing these stitches, this will help minimize the scar, but any time there is a laceration there will be some scarring."



RSQ® Peds e-Learning Topics



- Appendicitis in Children
- Cognitive Errors in Medicine Part 1
- Cognitive Errors in Medicine Part 2
- Community-Acquired MRSA
- Head Injury
- Neonatal Emergencies
- Optimizing Communication in the Emergency Department
- Orthopedic Injuries
- Pediatric Abdominal Emergencies
- Pediatric Infections
- Pediatric Medical-Legal Documentation
Setting The Record Straight
- Pediatric Meningitis
- Pediatric Meningitis Case Studies
- Pediatric Meningitis Case Study:
A 14-Month-Old Child with a Fever
- Pediatric Meningitis Case Study:
A 23-Month-Old Child with a Fever
- Pediatric Respiratory Emergencies
- Testicular Torsion
- Testicular Torsion Case Study:
A 15-Year-Old Male with Abdominal Pain
- Wound Care

Click on course name to see course description.

As always, all thoughtful comments and questions are more than welcome!

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Thank you

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