the
Pediatric Emergency Messenger

NEWSLETTER OF THE
PEDIATRIC EMERGENCY MEDICINE COMMITTEE,
TENNESSEE CHAPTER, AMERICAN ACADEMY OF PEDIATRICS

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Introducing the New Chair!

TNAAP's Committee on Pediatric Emergency Medicine

With Mick Connors' ascension to Chair of the state's Committee on Pediatric Emergency Care (CoPEC), a void was created in the leadership of TNAAP's Committee on Pediatric Emergency Medicine (CoPEM). My reputation for filling voids notwithstanding, I was asked to fill Mick's shoes. My work is indeed cut out for me. Mick is an energetic and persuasive advocate for children in the state of Tennessee (he was instrumental in getting the recent child passenger safety restraint legislation passed, among other things), and I am confident he will continue to do great things with CoPEC.

I am both new and old to the state of Tennessee. I graduated from Vanderbilt in 1983 and Vandy med school in 1987. After pediatrics residency and emergency medicine fellowship at Cincinnati Children's, I served on the faculty at UAB from 1992-96 and the University of Louisville from 1996-2001 before coming home to Vanderbilt. I am an Associate Professor in Emergency Medicine and Pediatrics, Associate Director of Pediatric Emergency Medicine, and Director of the PEM Fellowship training program at Vandy. I am looking forward to moving into our new children's hospital later this year and working to support and expand the scope of activities related to promoting the health of the children of Tennessee.

I look forward to meeting and working with you, my colleagues and friends, as I assume this new and challenging role. Please contact me with any issues or concerns related to pediatric emergency medicine in Tennessee at any time; my email address is: tim.givens@vanderbilt.edu

Tim Givens, MD
Pediatric Emergency Medicine, Nashville

Call Your Legislator!

This battle cry is something we often hear as physicians but seldom act on. I am no different and felt that contacting my legislators or becoming involved in the political process sounded like a waste of my time. Well, this spring I learned that this attitude was not only wrong but was potentially dangerous.

I was invited to testify before both the Senate and the House in the Tennessee General Assembly on the car seat bill. This bill, if you are unaware, clarified and brought Tennessee's law current with the recommendations of the National Highway Traffic Safety Administration. A few of the key changes included having infants rear facing, all children in the back seat if available, and booster seats for children up to 4 feet 9 inches and less than 9 years old.

The opportunity to testify opened my eyes to the political process. Prior to my testimony, I assisted in developing handouts that would go to each legislator and researched what I would say. During my testimony, I had the opportunity to present my views, listen to differing viewpoints, and answer questions. Following my testimony, I witnessed the "behind the scenes" discussion, clarification and compromise of the bill's details by the many interested parties and organizations which would be affected by this legislation.

As I discussed this bill, I was shocked that many legislators had limited understanding about it. The reason for this quickly became

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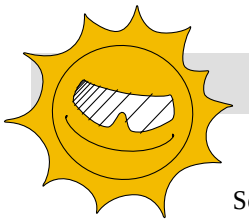
Do you have any pediatric emergency issues you would like to see addressed in this newsletter? We welcome your comments and suggestions. Please email the editor at: rlembersky@pol.net



Heat Related Illness

Summer in the South can be a glorious adventure. It can also be deadly—the heat and humidity can overwhelm even healthy young people if they aren't careful. Emergency physicians caring for children need to be aware of the signs and symptoms of heat illness; prompt intervention is critical to good outcome. The common presentations include:

HEAT CRAMPS: painful muscle contractions due to inadequate blood flow to exercising muscle. Treatment involves:

1. stopping exercise;
2. rehydration;
3. massage and stretching of the affected muscles.

HEAT EXHAUSTION: significant volume depletion due to excessive sweating. Symptoms include elevated temperature (up to 105°F), nausea and vomiting, weakness, dizziness or syncope, and mental status changes. Treatment consists of:

1. removal from the hot environment;
2. rehydration with oral/IV fluids;
3. cooling measures (ice packs, cool towels, fanning).

HEAT STROKE: an acute medical emergency due to failure of usual thermoregulatory mechanisms. Patients have very high core temperatures (> 105°F), circulatory compromise, DIC, dysrhythmias, seizures, and/or rhabdomyolysis. Mortality is around 10% even with excellent management. Intensive monitoring, rapid cooling, and rehydration are the cornerstones of management. Seizures are treated with benzodiazepines.

As with most illnesses, prevention is the key. Particularly for those of you who are coaches or trainers for athletic teams, there are several steps you can take to minimize the likelihood of heat injury. They are:

- ✔ Schedule activities during cooler parts of the day (before 10 am or after 4 pm).
- ✔ Allow gradual acclimation to exercise (intensify practices slowly over two weeks).
- ✔ Avoid excessive clothing or equipment.
- ✔ Schedule frequent breaks (at least every 30 minutes).
- ✔ Weigh athletes before & after activity (shouldn't lose more than 3% of weight).
- ✔ Make cold water (better than athletic drinks) accessible and plentiful.
- ✔ Encourage a balanced diet (so they get adequate salts, minerals & vitamins).
- ✔ Identify high-risk persons (obese, acute/chronically ill, medicated).
- ✔ Plan for emergencies.

By following these few simple guidelines for preventing heat-related illnesses, everyone can enjoy summer activities in a safe and responsible manner.

Tim Givens, MD
Pediatric Emergency Medicine, Nashville

ADHD Medication/Street Drug Interactions

Children on ADHD Medication Who Use Street Drugs May Suffer From Drug Interactions

There are many factors (low self-esteem, impulsivity, poor school performance, peer pressure) that push children with ADHD to use street drugs. I suspect that the long-term effects of the combination of prescribed drugs and street drugs are as significant (if not more so) than the immediate interaction.

To varying degrees, most of the drugs administered for ADHD effect the serotonin, dopamine, and norepinephrine receptors. The long-term effects of therapeutic concentrations of these drugs on these receptors are still unknown. We know that methamphetamine (similar structure to the drugs used for ADHD) causes loss of dopamine axonal receptors and that MDMA (ecstasy) leads to decreases in the density of brain serotonin receptors. Most of these effects are dose-related and cumulative. The child on medications for ADHD will be at increased risk of suffering long-term and permanent neurotoxic effects when using the popular street drugs such as methamphetamine and ecstasy. Loss of dopamine receptors could predispose the individual to Parkinson's disease. Long-term clinical effects of serotonin receptor loss are less understood, but depression would be one expected outcome.

The Middle Tennessee Poison Center produces a "Question of the Week" to highlight a toxicology topic. If you would like to receive the previous questions, and be added to our weekly email service, please send an email to donna.seger@Vanderbilt.edu

Donna Seger, MD
Medical Director,
Middle Tennessee Poison Center

Acute Knee Hemarthrosis

One of the most important physical signs in establishing a diagnosis in an acute knee injury is the presence or absence of an effusion. An acute effusion after trauma is blood (hemarthrosis) and signifies intraarticular injury – anterior cruciate ligament tear, meniscus tear, intraarticular fracture, patellar dislocation or bone bruise. The medial (MCL) and lateral collateral ligaments (LCL) are extraarticular and can be injured without causing an effusion. Effusions are graded on a scale from 1-4+ and may not be present immediately after injury (i.e. ACL).

To check for a knee effusion the knee must be in full extension. [An effusion will prevent knee flexion but not extension, and if full extension cannot be achieved (MCL tear, bucket handle meniscus tear, extensor mechanism injury) an effusion cannot be ruled out.] First, the dimple on the medial side of the knee should be visually assessed for fullness. Second, palpation is performed by sliding both hands in the direction of the knee, one from above and one from below. The suprapatellar pouch (superior and posterior to the patella) is then palpated with the thumb and index finger of the superior hand. A 1-2+ effusion can be palpated using this method but a trace effusion may still be missed. The "milking test" can then be performed to elicit a trace effusion. With the heel of one hand a sweeping motion is made from caudal to cephalad multiple times on the medial side of the knee (to push fluid into the suprapatellar pouch).

Then quickly the same motion is performed with the opposite hand on the lateral knee from cephalad to caudal (pushing the fluid back into the medial dimple). This will cause a fluid wave in the medial dimple and confirm a trace effusion. Please note that a ballottable patella is present only with a tense effusion (4+) and therefore its absence does not rule out a more subtle effusion.

When an effusion is present the differential diagnosis is known and definitive diagnosis can for the most part be made clinically.

Andrew Gregory, MD
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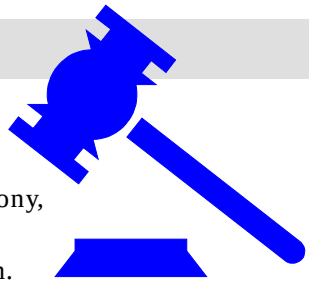
Legislator, continued from page 1



apparent to me when I saw the numerous and varied topics on their agenda for the day. The fact was the legislators were relying on my testimony, the prepared handouts and several lobbyists to become "educated" to the impact of this legislation. The legislators had interesting viewpoints and questions; some had their minds made up, while others were simply trying to make sense of the bill and how it would affect their constituents.

I received many positive comments on my testimony. The most surprising comment I received was the positive impact that a physician taking his time coming to Nashville and testifying could have on this legislation. I was somewhat amazed that a physician's testimony was not commonplace.

To be honest, my role was very minor. Two trips to Nashville, testifying for about fifteen minutes, and answering questions was my contribution. The bulk of the work (and it is a lot of work) was an effort by many people, including but not limited to David Mills and Rhonda Phillippi from Vanderbilt and Catherine Fenner from the Tennessee Chapter of the American Academy of Pediatrics. I also learned that key collaborative partnerships such as these are critical to successfully passing a bill.

I followed this bill as it went through committees, amendments, more committees, the House, the Senate and was finally signed into law by the Governor. I felt a great sense of pride in the passage of this legislation and was happy to play a role in its passage. I am most thankful for the opportunity to witness the impact we, as physicians, can have on the political process. It is especially rewarding when it is, after all, for the betterment of the children of Tennessee.

I would strongly encourage you to get involved, call your senator or representative, and let them know what issues you are concerned about and educate them on why you feel this way. They want and need to hear from you. The danger in this process is having your legislator vote without fully understanding what they are voting on and being unaware of what their constituency feels about an issue. As a physician advocating for children, you CAN make a difference in this process.

Mick Connors, MD
Knoxville

American Academy of Pediatrics

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Pediatric Dental Trauma

Primary and Permanent Teeth

Injuries to primary teeth occur most commonly between the ages of two and three years, due to lack of coordination when learning to walk. Depending on the angle and force of the traumatic injury, there may potentially be harm to the underlying permanent teeth.

Tooth color change is a possible sequelae to primary tooth trauma. This color change often is a precursor to further pathologic change. Fractured or luxated teeth should be carefully examined for root damage to help minimize any future negative outcome such as abscess formation due to compromised blood and nerve supply to the tooth. Avulsed primary teeth should not be re-implanted. Lips, cheeks and tongue should always be examined for any tooth fragments. Prompt referral of children with dental injuries greatly improves the prognosis of injured teeth. Pediatric dentists are uniquely trained to evaluate and treat these patients.

Children ages nine to twelve years have the highest frequency of dental trauma to their permanent incisors, especially maxillary incisors that are protrusive. The most common injuries to permanent teeth occur as a result of falls, traffic accidents, violence and sports. For most team sports mouth guards should be an integral part of an athletes gear.

Fractured permanent teeth can usually be repaired, with nerve exposures sometimes requiring endodontic treatment. Luxated incisors may require stabilization with an orthodontic arch wire. Avulsed incisors can be re-implanted and stabilized, but almost always require endodontic therapy. Again, timely referral to a pediatric dentist, who is uniquely trained to deal with the mixed dentition of early adolescence, is a key step in improving the prognosis of traumatized permanent teeth.

Ed Perdue, DDS
Pediatric Dentist, Nashville