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Blue Collar Medicine

Ever hear the story of the eager Boy Scout who stood on the street corner helping little old ladies cross the street, whether it was their intention to cross the street or not? Sometimes I think organizational medicine (ACGME, JCAHO, CMS, and all the alphabet soup groups) are just like that Boy Scout—while well-intentioned, their rules and restrictions often create more detours and roadblocks than pave the way for those of us standing where the rubber meets the road, trying to deliver patient care.

Witness the resident work-hour restrictions, which went into effect July 1, 2003. We all know that on occasion we provided less-than-optimal care when, as residents, we were up and going for more than 24 hours at a time. No one disputes the common sense principles on which the duty-hour restrictions are based. But legislating and enforcing common sense is a tricky business, and once in writing, good ideas are often subjected to perversion and misinterpretation.

As a PEM physician in an academic hospital, the way in which I have been most immediately affected by these new rules is in my access to consultant physicians, particularly those in the surgical subspecialties. Because residents are limited regarding the number of consecutive hours of in-hospital duty, many services are having trainees, formerly on-site and available to see ED patients, take call from home. Interested in maximizing their operating room exposure while in the hospital, these trainees have all but abandoned physically attending to patients and are managing potential VP shunt malfunctions, appendicitis, or testicular torsions over the phone. They rely on costly MR or CT scans instead of good old histories and physical exams to make care determinations. One of my PEM colleagues at another academic institution lamented that he now must phone the attending physician and convince him that it is necessary to involve a resident in patient care. This is clearly a case of the tail wagging the dog.

In addition, probably due to the poor remuneration they receive for non-procedural care, but hiding behind the new resident work-hour restrictions, surgical subspecialties are foregoing their inpatient admitting services, admitting patients with post-operative complications and such to the general pediatrics service and "following along." This creates an additional burden for the ED physician who must now shop the patient around to find a willing admitting physician.

My concerns with this trend are several. First, the quality of residency education declines when the cornerstones of patient evaluation—the history and physical examination—are de-emphasized. The educational benefit of seeing critical illness in evolution is being lost, reliance on expensive technology is replacing clinical discernment, and ownership of patients and their care is rapidly disappearing. As medical care becomes more specialized and more "hands-off," we lay the groundwork for devaluation of what used to be a service-oriented profession into a shift-working trade. Surgeons, for instance, may risk becoming seen as mere technicians who cut and sew, not as managers of surgical disease.

More importantly, patient care must necessarily suffer as well—residents spend more time signing in and out than learning or caring; they monitor the clock on the wall instead of the patient in the bed. Critical information slips through the cracks as "continuity" becomes an empty slogan instead of a precept. It is no wonder that lack of continuity of care and impersonal care are becoming more prominent concerns as patient satisfaction scores fall.

It is ironic that these same regulatory agents of medical education are urging academic physicians to place greater emphasis on the teaching of ethics and professionalism, at a time when we are making our charges punch a time clock like dockworkers. As a society, we have lost respect for the value of hard work, and in American medicine, I'm afraid we are following suit.

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Snow Fun if You re Injured

As winter approaches, many Tennessee children will be looking forward to participating in some of the alpine sports activities offered in our region. Given our own majestic Smoky Mountains and Tennessee's proximity to both the Blue Ridge Mountains toward the East and Appalachian Mountains to the North, children in Tennessee will have numerous options to enjoy some time on the slopes this year.

Recent studies have shown a sobering increase in the rate of skiing and snowboarding-related head and spine injuries among children and adolescents. As a result of these studies along with the highly-publicized skiing-related deaths of Michael Kennedy and Sonny Bono, the American Medical Association and the National Ski Patrol have both publicly stated their support for the voluntary use of helmets by children and adolescents during recreational skiing and snowboarding.

Physicians caring for children this winter need to be aware that although availability of helmet rental has become increasingly prevalent at U.S. ski areas in recent years, only about 50% of all U.S. ski areas offer this service. Among the 19 ski areas in the Southeast in operation last year, only about 1 in 3 offered helmet rental at their facility. Specifically, among the 11 ski areas which lie either within the state of Tennessee or are within a 4 hours drive of one of its borders, only 3 of these offered helmet rental during the 2002-2003 ski season. For information on the protection offered by helmets, the various types of helmets, and tips on proper fit, please visit the National Ski Patrol and Professional Ski Instructors of America's website at www.lidsonkids.org

Healthcare professionals giving injury prevention anticipatory guidance this winter should encourage families to call the ski area that they will be visiting in advance of their trip to check on helmet rental availability. Until helmet rental availability becomes more universal at south-eastern ski areas, many Tennessee families who desire to wear protective headgear on the slopes will either have to purchase their ski helmets or arrange in advance of their trip for helmet rental from a local ski equipment shop.

Hopefully as the demand for ski helmet rental increases more ski areas will offer this service in our region. Until that time we should try our best to educate those interested in ski helmet wear as to their current options. ***Please note that bicycle helmets do not afford proper head protection while skiing and families should be discouraged from using them on the ski slopes.***

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All Terrain Vehicles and Children: Educate Yourself and Your Legislator

As physicians, we are well aware that ATVs are a problem and represent a serious risk to children. Heck, for some of us, this seems like common sense. But if that is the case then . . . why are ATVs more popular than ever? Why are sales increasing? Why do parents allow their children to operate these dangerous vehicles?

The fact is that ATVs are injuring and killing children in epidemic proportions all across our nation, and Tennessee is no exception. Tennessee ranks in the top 10 of deaths due to ATVs.

Although 3-wheeler ATVs are now no longer produced, the 4-wheelers have provided no more protection for children. National data on ATVs from 1995 to 1999 suggests a 33% annual increase in injuries among youth under age 16. Children represent about 10% of ATV riders and about 33% of ATV-related deaths. The majority of these deaths are related to head injuries but very few children report using a helmet. If you want more data, check out reports from 2002 and 2003 at http://www.naturaltrails.org/issues/ATVSafety.

These facts have led to a policy statement by the American Academy of Pediatrics recommending passage of state legislation prohibiting the use of 2- and 4-wheeled off-road vehicles by children younger than 16 years, as well as a ban on the sale of new and used 3-wheeled ATVs, with a recall of all used 3-wheeled ATVs. The American Academy of Orthopedic Surgeons supports this statement as well.

With ATVs as commonplace as they are in Tennessee, deaths in the top 10, and children among those deaths, then certainly we should try to reverse this trend. Believe it or not, the only legislation currently in Tennessee related to ATVs to my knowledge is a requirement for a one-time title fee, a muffler, and a fine if you ride on a public road. In other words, children of any age can ride ATVs of any size without protective gear and without any instruction or licensure.

In addition, a study was funded during the Sundquist Administration on the off highway vehicle industry in Tennessee. This study looked at all off highway vehicles, including ATVs, and concluded that these vehicles represented an opportunity

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Fellows Corner

The Pediatric Emergency Medicine fellows at Vanderbilt have started a journal club to keep up with all the latest literature, trying to encompass both general pediatric updates and emergency medicine advances. Two such articles are summarized.

The first article was in the *Annals of Emergency Medicine* in August 2003, and sought to answer how adult automated external defibrillators (AED's) would fare given pediatric rhythms. Pediatric patients were enrolled from the critical care unit, an electrophysiology laboratory, and a cardiac operating room. Selected 15 second rhythm samples were entered into a LIFEPAK 500 AED, and the AED's decision to "shock" or "no shock" was documented. This decision was then compared to a "shock" or "no shock" classification by three expert clinicians who were blinded to the AED decision. 1561 rhythms were recorded from 203 pediatric patients (52% under age 1). The results showed that the AED recommended a "shock" for 72 of 73 rhythm samples classified as coarse ventricular fibrillation by expert review (sensitivity 99%), and correctly reached a "no shock" decision for 1465 of 1472 rhythm samples classified as nonshockable by the experts (specificity 99.5%). Of interest in this study was the fact that 969 of the 1561 rhythm samples had heart rates within or above the range of 120-180 beats / min, where many AED's set a threshold for a possibly shockable rhythm. This study also compared the position of the pad placement, and found no difference in accuracy of the AED decision with sternal-apex versus anterior-posterior placement.

The second article was published in the *Annals of Emergency Medicine* in October 2003, and tried to identify a decision tree for children at low risk for brain injuries after blunt head trauma. They conducted a prospective observational cohort study, and enrolled 2043 children with blunt head trauma over a 3 year period, comparing clinical predictors of traumatic brain injury to CT scan evidence of such. Of the 2043 children, 1271 (62%) underwent CT scan on the basis of history of loss of consciousness, amnesia, seizure, vomiting, or headache, or due to physical examination findings of altered mental status, neurologic deficit, skull fracture, deep scalp lacerations, or scalp hematomas. Of these, 98 patients (7.7%) had traumatic brain injuries on CT. Of the 98 patients with traumatic brain injuries on CT, 97 were identified by at least one of 5 clinical predictors: the presence of abnormal mental status (GCS<15), clinical signs of skull fracture, history of vomiting, scalp hematoma in a child less than 2, or headache. Of the 304 children undergoing CT who had none of the 5 predictors, only 1 had traumatic brain injury on CT, and this patient was discharged from the ED without complications. In an attempt to reduce the number of head CT's done on children, and with their disadvantages (i.e. radiation exposure, transport away from supervision, frequent need for sedation, additional cost, and increased ED evaluation time), this study sought to identify children at low risk for traumatic brain injuries after blunt trauma. The absence of abnormal mental status, clinical signs of skull fracture, a history of vomiting, scalp hematoma in children less than 2, and / or headache had a high negative predictive value for childhood traumatic brain injury after blunt head trauma.

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How Do You Make Methamphetamines?

If one assesses the number of labs that have been discovered by police, it appears that this information is almost common knowledge.

Methamphetamines can be manufactured in illicit laboratories using over-the counter ingredients. The following is the list of ingredients found on the internet:

Ephedrine (cold / allergy medicine)
Pseudoephedrine (cold / allergy medicine)
Alcohol (Rubbing / gasoline additive)
Toluene (brake cleaner)
Ether (engine starter)
Sulfuric Acid (drain cleaner)
Methanol (gasoline additive)
Lithium (camera batteries)
Trichloroethane (gun scrubber)
Anhydrous Ammonia (farm fertilizer)
Sodium Hydroxide (lye)
Red Phosphorous (matches)
Iodine (Veterinarian products)
Sodium metal (can be made from lye)
Table / Rock salt
Kerosene
Gasoline
Muriatic Acid
Campfire fuel
Paint thinner
Acetone

The TN Dept of Health has questioned the health effects on children who are living in homes / trailers where methamphetamine is being manufactured. There is no data on which to base an answer. Because of exposure to solvents, lung, liver, and renal damage may occur. Whether long term CNS effects occur is unknown.

Pulmonary exposure is the main risk for first-responders at methamphetamine labs. The gases are irritating. Explosion due to the combination of combustible ingredients is another hazard.

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All Terrain Vehicles and Children, continued

for significant funds to flow into our state. This study identified 5 million dollars per year in revenue from trail fees, restaurant and hotel usage. Therefore, the study called for more public areas for people to ride. This study did not look at injury, loss of life or the dollars associated with this aspect of off highway vehicle use. To see the full report check out http://www.state.tn.us/environment/ohv/.

Based on this study, legislation was introduced in Tennessee during the last session to get ATVs off private lands by purchasing more land for public use. This increased public land would attract more off highway vehicle riders and dollars to our state. The bill would purchase lands through money raised by annual licensure and fines. Fortunately, it does contain a clause that children under 18 would be required to wear a helmet, and it discusses voluntary education classes. Senate Bill 0875 can be reviewed in its entirety by going to http://www.legislature.state.tn.us/. While the bill did not pass this year, it is very likely to be brought up again come January.

This issue represents an excellent opportunity for the medical community to get involved in legislative advocacy. We must raise our legislators' awareness about the epidemic of injuries and deaths related to ATVs. We must encourage them to consider this "cost" in their financial considerations of legislation involving ATV's, as these future "trauma patients" will roll into our hospitals. We must make them aware of the recommendations of the AAP and the tremendous risk to children when considering legislation related to children and ATVs. The funds raised should not go to just purchasing more lands for riding; some of these funds must go toward injury prevention, public awareness campaigns, and trauma care.

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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. Views expressed in the Pediatric Emergency Messenger are not necessarily endorsed by the Tennessee Chapter of the American Academy of Pediatrics. Reprint permission may be requested from the editor.