



On ED Crowding, Blunt Abdominal Trauma in Children, Suspicion of Child Abuse, Nontraditional Pets, and Hand Hygiene

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Each month, Dr. Nahum Kovalski reviews a handful of abstracts from, or relevant to, urgent care practices and practitioners. For the full reports, go to the source cited under each title.

ED Crowding Adversely Affects Patient Satisfaction

Key point: *Dissatisfaction lasts throughout entire hospital stay.*

Citation: Pines JM, Iyer S, Disbot M, et al. The effect of emergency department crowding on patient satisfaction for admitted patients. *Acad Emerg Med.* 2008;15:825-831.

Recent studies on emergency department overcrowding have shown adverse patient outcomes when patients are boarded in the emergency department. To address how patient satisfaction relates to ED overcrowding, these authors retrospectively reviewed Press Ganey satisfaction surveys that were completed by patients who were admitted through the ED at a single urban academic medical center during a two-year period. The authors correlated satisfaction data with validated ED crowding factors, such as hallway placement, boarding time, and waiting time.

Data were available for 1,501 hospitalizations—approximately 15% of all patients admitted through the ED during the study period.

In logistic regression analysis, both ED hallway placement and prolonged ED boarding time (>4.7 hours) were associated with lower satisfaction with ED care and lower satisfaction with overall hospital care.



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[Published in *J Watch Emerg Med*, October 3, 2008—Diane M. Birnbaumer, MD, FACEP.] ■

Normal CT in Kids with Blunt Abdominal Trauma? Send Them Home

Key point: *The negative predictive value of a normal CT scan with newer-generation 16-slice scanners is 99.8%.*

Citation: Awasthi S, Mao A, Wootton-Gorges SL, et al. Is hospital admission and observation required after a normal abdominal computed tomography scan in children with blunt abdominal trauma? *Acad Emerg Med.* 2008;15(10):895-899.

The practice of admitting children with blunt abdominal trauma for 24 hours of observation was established in the era of early-generation computed tomography (CT). These authors assessed the value of this practice in children with normal findings on scans obtained with newer-generation 16-slice CT scanners.

In a prospective, observational cohort study at a level I trauma center, the authors evaluated 1,085 children (age <18 years) with blunt abdominal trauma and no evidence of pre-defined intra-abdominal injury on CT.

Of these patients, 737 (68%) were admitted for observation and 348 were discharged to home. All patients' medical records were reviewed to identify return visits within 30 days of initial presentation. None of the discharged patients and two of the admitted patients developed delayed intra-abdominal injury. The negative predictive value of a normal abdominal CT scan was 99.8%.

Although this study was conducted in a high-volume trauma center with board-certified radiologists, the results likely can be generalized to non-trauma centers where radiologists who do not see many pediatric trauma patients and who might or might not be board certified interpret the CT scans. Good discharge instructions and follow-up are important to identify the few cases of low-grade intra-abdominal injury that might be missed.

[Published in *J Watch Emerg Med*, October 24, 2008—Diane M. Birnbaumer, MD, FACEP.] ■

When to Suspect Abuse in Children with Fractures

Key point: No single fracture type or location is specific for abuse.

Citation: Kemp AM, Dunstan F, Harrison S, et al. Patterns of skeletal fractures in child abuse: Systematic review. *BMJ*. 2008;337:a1518. (Comment in *BMJ* 2008;337:a1398.)

Deciding whether to initiate an investigation for suspected child abuse can be difficult. Underreporting might expose children to greater injury, but investigations disrupt families, regardless of the final determination.

Researchers systematically reviewed published studies that compared fractures resulting from physical abuse and from other causes in children <18 years. Review articles, consensus statements, expert opinion, and other methodologically weak studies were excluded; 32 studies were included.

Overall, fractures resulting from abuse were most common in infants and toddlers. Among femoral fractures, the mid-shaft of the femur was the most common fracture location in both abused and non-abused children. Metaphyseal femoral fractures were more common in abused than non-abused children. In children <15 months, spiral fractures were the most common type of abusive femoral and humeral fractures. Supracondylar humeral fractures were less likely to result from abuse than non-abuse.

After exclusion of children who were involved in motor vehicle crashes or violent trauma, the probability that a fracture was caused by abuse was 71% for rib fractures, 48% for humeral fractures, 30% for skull fractures, 28% for femoral fractures, and 25% for radial and ulnar fractures.

In all cases of suspected abuse, a skeletal survey should be performed, including oblique views of the chest to assess for rib fractures. The bottom line is that no single fracture type or location is specific for abuse. Clinicians must perform a careful assessment to determine whether the story fits the situation, particularly in children <18 months and in those who are not ambulatory.

[Published in *J Watch Emerg Med*, October 24, 2008—Kristi L. Koenig, MD, FACEP.] ■

Exposure to Nontraditional Pets: It's a Jungle Out There

Key point: Education about home pets can reduce the risk of many infections.

Citation: Pickering LK, Marano N, Bocchini JA, et al. Exposure to nontraditional pets at home and to animals in public settings: Risks to children. *Pediatrics*. 2008;122(4): 876-886.

Ownership of exotic nontraditional pets is on the rise in the U.S. Although families might not consult pediatricians before getting such pets, there is an opportunity to teach parents about potential risks.

In conjunction with the American Academy of Pediatrics' Committee on Infectious Diseases, these authors examined original research and review publications to identify and summarize illnesses and injuries associated with exposure to nontraditional pets at home and to animals in public settings.

The article is packed with information, but the most important medical points are as follows:

- Reptiles, amphibians, rodents, and baby poultry can be sources of *Salmonella*.
- Rodents (e.g., hamsters) can carry lymphocytic choriomeningitis virus, *Yersinia pestis*, *Yersinia pseudotuberculosis*, and *Mycobacterium marinum* and can cause many skin infections.
- Animals at petting zoos and other public locations (malls, schools, fairs) can be sources of infection, particularly gastrointestinal infections (e.g., from *Escherichia coli* 0157, *Campylobacter*, *Giardia*).
- Aggressive animal behavior can lead to bites, scratches, falls, and crush injuries, exposing children to infectious organisms ranging from *Pasteurella* and *Capnocytophaga* to fatal infections such as herpes B virus.
- The degree to which nontraditional animals cause allergies is unclear, but allergy can be caused by sensitization to dander, scales, fur, feathers, excrement, and saliva as well as by flea bites.

The information in this article makes a compelling case for discussing animal exposure during healthcare evaluations. The authors provide informative Web-based resources for families and references for guidelines for prevention of disease transmission from exposure to animals, including hand hygiene, adult supervision, teaching children about safety near animals, and extra precautions for young children, immunosuppressed people, elders, and pregnant women.

[Published in *J Watch Pediatr and Adolesc Med*, October 29, 2008—Peggy Sue Weintrub, MD.] ■

A Little Hand Hygiene Goes a Long Way

Key point: Meta-analysis results of community-based intervention studies indicate that use of non-antibacterial soap and hand-hygiene education significantly reduce respiratory and GI illnesses.

Citation: Aiello AE, Coulborn RM, Perez V, et al. Effect of hand hygiene on infectious disease risk in the community setting: A meta-analysis. *Am J Public Health.* 2008;98(8):1372-1381.

Does hand washing really reduce the incidence of gastrointestinal and respiratory illnesses in the community, and, if so, by how much? Which is better: alcohol-based hand sanitizers, non-antibacterial (i.e., plain) soap, or antibacterial soap?

To answer these questions, investigators from the University of Michigan and Columbia University identified more than 5,000 relevant studies published from 1960 to 2007 and pooled results from 30 community-based intervention studies (conducted in developed and developing countries) that met criteria for review; 19 of the 30 studies focused on children aged 5 years and younger.

Compared with no education, hand-hygiene education alone significantly reduced the risk for GI illness (seven studies) by 31% and for respiratory illness (four studies) by 14%. Education plus use of non-antibacterial soap significantly reduced the risk for GI illness by 39% (six studies) and for respiratory illness by 51% (one study), compared with control conditions, but had no significant effect in the two studies that combined the two outcomes. In two studies, use of antibacterial soaps did not offer an advantage over plain soap for either illness. Although alcohol-based hand sanitizer plus education did not reduce the risk for either illness alone, this strategy showed a protective effect in the three studies that combined the two outcomes (21% reduction). In two studies, benzalkonium chloride-based hand sanitizer significantly reduced the risk for GI and respiratory illnesses alone and the two outcomes combined by about 40%.

This meta-analysis provides solid community-based (vs. hospital-based) research to use when educating patients about the virtues of hand washing.

Education is essential: The authors cite results from a U.S. study of 7,800 participants indicating that only 67% (75% of women and 58% of men) washed their hands after using a public restroom. The finding that plain soap works as well as antibacterial soaps is reassuring, given concerns that use of antibacterial soaps might actually promote emergence of antibiotic-resistant bacteria.

[Published in *J Watch Pediatr and Adolesc Med*, September 10, 2008—Alain Joffe, MD, MPH, FAAP.] ■

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