Second-Dose VZV Reduces Risk of Varicella During School Outbreak


Nguyen MD, Perella D, et al:

Pediatr Infect Dis J 2010; 29 (August): 685-689

During a school outbreak of varicella, physicians can reduce a child's risk of developing varicella by giving him or her a second dose of the varicella vaccine.

**Background:** Although varicella vaccine (VZV) has decreased the incidence of disease, outbreaks still occur. However, most of these outbreaks occur in settings with large proportions of children vaccinated with a single dose of VZV.

**Objective:** To determine the incremental effectiveness of a second dose of VZV to reduce varicella transmission during a school outbreak.

**Methods:** The Pennsylvania Department of Public Health investigated an outbreak of varicella at a private elementary school in 2006. The outbreak lasted from October 13 to December 16. Parents received a letter notifying them about the outbreak and recommending that students without a history of varicella disease and without 2 doses of VZV receive VZV from their primary care physician. A child was considered to have varicella if he or she was not vaccinated against varicella and developed an acute maculopapular rash after the first day of school without any other obvious cause. A child was considered a second-dose VZV recipient 4 days after receipt of a second varicella vaccine.

**Results:** 86% (n=296) of the student body participated in the study; 97% (n=286) of children received 1 dose of VZV before the outbreak. Of these children, 65% (n=187) went on to receive a second dose of VZV. The attack rates were as follows: 83% among unvaccinated children, 43% among 1-dose VZV recipients, and 5% among second-dose VZV recipients. There were no hospitalizations or complications due to illness. The authors did find that there was an association between classroom exposure and incidence. In other words, children with no classroom exposure were less likely to benefit from VZV. The exact number of classroom exposures did not have an effect on incremental effectiveness of second-dose VZV. For children who had classroom exposure, the incremental effectiveness of second-dose VZV was 76% (95% CI, 44% to 90%).

**Conclusions:** A second-dose of VZV is effective in reducing a child's risk of developing varicella during a school outbreak.

**Reviewer's Comments:** This article reminds the practicing physician that it is never too late to vaccinate a child against varicella to prevent him or her from developing the disease during a school outbreak. We know that vaccination against varicella is effective; this study documents this fact and confirms the present recommendations. (Reviewer-Beth A. Tarini, MD).

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Keywords: Varicella, Outbreak, School, Vaccination

Print Tag: Refer to original journal article
Hospital readmissions are rare even when infants with pyelonephritis are treated with IV antibiotics for only 3 days.

Background: Approximately 60% of children with febrile urinary tract infections (UTIs) have pyelonephritis based on radiographic studies. Pyelonephritis is a disease associated with renal scarring. Recent studies have shown oral antibiotics to be as effective as parental treatment in young children, although infants aged <2 months were usually excluded in these trials. Little is known about the optimal treatment duration in young infants.

Objective: To determine if there is a relationship between treatment duration and treatment failure in a cohort of young infants hospitalized with pyelonephritis.

Design: Retrospective cohort study.

Participants: 12,133 infants identified in a large database.

Methods: The Pediatric Health Information System provides clinical data from several children's hospitals. Between 1999 and 2004, infants <6 months of age hospitalized with a primary or secondary diagnosis of UTI or acute pyelonephritis were selected. Children with a secondary diagnosis suggesting a comorbid condition such as malignancy, diabetes mellitus, or HIV infection, as well as those requiring >14 days of antibiotic treatment, were excluded. Treatment duration was categorically defined as short course (≤3 days) or long course (>3 days). The cut-off of 3 days was selected because it was the median duration of treatment. The primary outcome was treatment failure, defined as re-hospitalization within 30 days of discharge related to UTI.

Results: Male children, neonates, black race, Hispanic ethnicity, non-private insurance, known bacteremia, and known anatomic disorders of the urinary tract were related to a higher likelihood of receiving a long course of antibiotic treatment. Considerable variation was found between hospitals, with rates of long-course treatment ranging from 15% to 87% (P <0.001). Of the 12,133 eligible children, 240 (1.9%) had a treatment failure; of these, 143 children (59.6%) were readmitted within 15 days. The treatment failure rate among children treated with a short course was 1.6% compared to 2.2% for those receiving a long course (P <0.02). The only covariate associated with treatment failure was a history of known genitourinary abnormalities (4.1% vs 1.5%; P <0.001; OR, 1.83; 95% CI, 1.20 to 2.79). On multivariate analysis, there was no association between long or short treatment and failure (OR, 1.02; 95% CI, 0.77 to 1.35).

Conclusions: The rate of re-hospitalization among infants hospitalized for UTI is low. Both short-course and long-course treatment are equally effective in preventing treatment failure.

Reviewer's Comments: The authors were careful to exclude infants who received venous catheterization during hospitalization in order to eliminate patients who received catheterization and parenteral antibiotics at home. This study suggests that even the youngest infants can receive a short course of IV treatment, followed by oral antibiotics after discharge, to reduce the cost of care and risk of hospital-acquired illness. It would have been very interesting if the authors had been able to evaluate nonhospitalized children to determine the risk of failure. (Reviewer-Seth L. Schulman, MD).
Although most adolescents use over-the-counter analgesics, many have relatively little knowledge about them.

**Background:** Over-the-counter (OTC) analgesics are commonly used by adolescents and may, in fact, be one of the first opportunities for self-care for many children in this age group. Yet these medications are not completely benign. There are numerous overdoses of acetaminophen each year, with a high mortality, but many of these cases are accidental. Because these medications are packaged and combined in various ways, proper use can be confusing. Studies of parents and OTC medications have shown significant gaps in knowledge about their use.

**Objective:** To determine the knowledge gaps and misconceptions of adolescents on the side effects, risks, and interactions of OTC analgesics.

**Participants:** Adolescents between the ages of 14 and 20 years who were attending a clinic in New York State were evaluated.

**Methods:** Subjects accessed a survey on a desktop computer in exam rooms. The survey gathered information on OTC medications, including how often the adolescents carried them, and how often they purchased them (for themselves). They were also asked about the product content, risks, side effects, and interactions. Demographic data were gathered for analyses.

**Results:** Over the course of the study, 96 adolescents completed surveys; nearly three-fourths of the subjects were girls. Many adolescents (78%) reported using OTC medications in the last month. Analgesics were the most often used OTC medications and included ibuprofen (46%) and Tylenol (45%). Even though 35% of respondents claimed to know what acetaminophen was, 37% did not know that Tylenol and acetaminophen were the same thing. The overall knowledge score was 44%. On the whole, adolescents who were older had a higher knowledge level, and Hispanic adolescents had lower use of and knowledge about OTC analgesics.

**Conclusions:** Many adolescents use OTC analgesics on their own. They have significant gaps in their knowledge, however, about the proper use, side effects, risks, and interactions of these medications. Providing better information to adolescents in these areas is something that clinicians should consider in the future.

**Reviewer's Comments:** Self medication in the correct dosage for pain is, in general, safe. The variety of forms, regular dose, extra strength, and combination with antihistamines, open up problems of potential overdoses. This study pointed out the potential problem with mixing generics with familiar names of analgesics. Better labeling may help decrease the duplication of medications, but I doubt if drug stores will make a statement saying that one pill is the same as another company’s pill. We've seen this before in studies about parents. We need to do a much better job educating adolescents about OTC analgesics. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Adolescents, Analgesics, OTC

Print Tag: Refer to original journal article
Intranasal midazolam is just as effective and is easier to use than rectal diazepam for home rescue of prolonged seizures.

Objective: To compare the efficacy of intranasal midazolam with rectal diazepam for the treatment of seizures at home.

Methods: Participants were recruited from a pediatric neurology clinic at a freestanding children's hospital in Utah. Once verbal consent was obtained, caretakers were randomized to either the intranasal midazolam group or the rectal diazepam group. Next, they viewed an instructional video for the medication that applied to them. They were instructed to give the medication for a seizure lasting >5 minutes, to give only one dose, and to call 9-1-1 once the medication was administered. The intranasal medication was given via a syringe attached to a $4 Mucosal Atomization Device that sprayed the midazolam in a 30-μ particle size onto the nasal mucosa. Caretakers tracked the medication's use via a stopwatch and timing sheets.

Results: Of the 358 subjects who were prospectively enrolled, 92 caretakers administered medication for a seizure. Both groups were demographically similar, and both groups indicated a similar level of satisfaction with rectal diazepam used prior to this study. The average dose of intranasal midazolam was 0.2 mg/kg; the average dose of rectal diazepam was 0.41 mg/kg (range, 0.3 to 0.5 mg/kg). For the primary outcome (time to cessation of seizure after administration of medication), there was no statistically significant difference, with seizures stopping in the intranasal midazolam group in an average of 3 minutes and stopping in the rectal diazepam group in an average of 4.3 minutes ($P=0.09$). No differences were found in repeated seizures, the need for emergency services, respiratory depression, emergency department visits, or admissions. According to caretaker surveys, intranasal midazolam was significantly easier to use than rectal diazepam ($P=0.02$), as was the caretakers' overall satisfaction with the medication ($P=0.02$).

Conclusions: The authors found no difference in efficacy or adverse effects between intranasal midazolam and rectal diazepam for home-based administration to treat a seizure lasting >5 minutes. Overall, caretakers were more satisfied with intranasal midazolam and found it easier to use than rectal diazepam. The authors also note that rectal diazepam costs an average of $212 per dose in the United States versus $12 a dose for intranasal midazolam.

Reviewer's Comments: Although previous studies have demonstrated the superiority of intranasal midazolam to rectal diazepam in the inpatient setting, this is the first trial to demonstrate that this superiority extends to in-home use as well. While the small sample size of the study limits its power to detect smaller differences between the 2 medications, I would strongly consider replacing rectal diazepam with intranasal midazolam for home rescue of seizures lasting >5 minutes. Intranasal midazolam appears to be just as safe, easier to use, and cheaper than rectal diazepam. Just be sure to remember the Mucosal Atomization Device for the application of intranasal midazolam. (Reviewer-Daniel Coghlin, MD).

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Keywords: Midazolam, Intranasal, Rectal Home-Rescue, Prolonged Seizures

Print Tag: Refer to original journal article
Iron deficiency occurs with greatest frequency at two age peaks, with inadequate intake posing the greatest risk in children <2 years, and menstrual blood loss contributing in girls >10 years.

**Background:** Iron deficiency is likely the most frequent nutritional deficiency in the world, affecting a wide age range. Even without anemia, iron deficiency may lead to neurocognitive impairment in children and adolescents. Iron-deficiency anemia contributes to infection susceptibility and increases mortality rates in children.

**Objective:** To evaluate the etiologic diversity of iron deficiency and to assess treatment outcomes in children.

**Design/Methods:** A retrospective review of the charts of patients diagnosed with iron deficiency or iron-deficiency anemia was conducted at a tertiary care center. In addition to demographic and anthropometric characteristics, hematologic parameters were recorded (including hemoglobin level, mean corpuscular volume, total iron binding capacity, and iron and ferritin levels). Information regarding diet and medication use was obtained. Intestinal blood loss was determined by fecal occult blood testing. Patients were divided into groups based on age and gender. Mechanisms of iron deficiency were generalized as inadequate intake, malabsorption, and blood loss, with more specific diagnoses delineated within each category.

**Results:** 116 children were diagnosed with iron deficiency, with 86.2% also manifesting anemia. While patients ranged in age from 0.3 to 18 years, 38.8% of patients were aged <2 years, and 11.2% were aged 2 to 10 years; 15.5% were boys aged >10 years, and 34.5% were girls aged >10 years. Inadequate intake was identified in the majority of younger children with iron deficiency (>55%). Within this group, breastfeeding without sufficient supplementary foods posed a significant risk. In girls aged >10 years, blood loss due to polymenorrhea was the most common mechanism. Malabsorption, generally due to *Helicobacter pylori* infection, occurred primarily in girls and boys aged >10 years. Nearly half of patients were available for 6-month follow-up. Treatment with oral iron supplements (4 to 6 mg/kg per day) for 3 months led to the recovery of iron status in 78.9%. The highest failure rate was found among patients with blood loss as the etiology.

**Conclusions:** The incidence of iron deficiency peaks at age <2 years (mixed gender) and at age >10 years (in females). Etiology is generally age and gender specific. Treatment of the underlying cause, in addition to iron supplementation, affords favorable outcomes in most cases.

**Reviewer's Comments:** The Taiwanese population examined in this study may demonstrate significantly different lifestyle habits than those in Western countries. Yet, the biphasic age peaks for iron deficiency, and the contributing etiologic factors within each group remain consistent with what we might expect in the United States. Information was extracted from inpatient records, with limited details regarding the primary reason for admission. In some cases, iron deficiency was likely found incidentally; however, in other cases, we would expect to find low iron parameters consistent with underlying disease processes. Perhaps a larger set of combined inpatient and outpatient data would be less likely to skew results and lend itself to greater generalizability. (Reviewer-Alyssa Siegel, MD).

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Keywords: Iron Deficiency, Anemia, Etiology, Treatment

Print Tag: Refer to original journal article
Shorter, Combination Tx for Abnormal TB Skin Tests May Prevent Disease

Effectiveness of 3 Months of Rifampicin and Isoniazid Chemoprophylaxis for the Treatment of Latent Tuberculosis Infection in Children.

Bright-Thomas R, Nandwani S, et al:

Arch Dis Child 2010; 95 (August): 600-602

While not yet recommended in the United States, a treatment regimen used in England for latent tuberculosis infection that uses shorter durations of combination therapy has been shown to be safe and efficacious.

**Background:** AAP Red Book guidelines call for daily isoniazid (INH) for 9 months for suspected INH-susceptible tuberculosis (TB) and rifampin daily for 6 months for suspected INH-resistant TB in patients with abnormal TB screening.

**Objective:** To study the effectiveness of a 3-month course of combination therapy for latent TB infection (LTBI),

**Design/Methods:** Data were analyzed from a chest clinic in a high TB incidence district of East Lancashire. LTBI was defined as an inappropriately positive tuberculin skin test with no clinical or x-ray evidence of tuberculosis. The aim of the study was to determine how many children with positive latent TB testing, treated between 1989 and 2004, went on to develop active disease. At this clinic, the regimen used was called 3RH—3 months of daily rifampin and INH.

**Results:** 334 patients were identified; 82 were lost to follow-up, and 252 patients were able to be followed up. In 3 of the 252 cases (approximately 1%), clinical TB developed. The mean observation period for all patients was just over 12 years, so there was good longer-term follow-up. Over the 15-year period at the clinic during which the treatment regimen was given, no patient developed hepatitis. Taking into account the possibilities that the group lost to follow-up might theoretically have developed TB in 0%, 5%, and 10% of cases, the authors concluded that the derived protective effect had at least the 60% protective efficacy found in adult studies and probably >80% efficacy. For the actual patients followed up, involving >3000 patient-years, the rate of development of active TB was <1 per 1000 patient-years, indicating a very high efficacy.

**Conclusions:** As a regimen to treat latent TB infection, 3 months of daily rifampin and INH appear to have a very high efficacy with no cases of hepatitis reported.

**Reviewer’s Comments:** The British authors undertook the study because many guidelines of preventive therapy in children are derived from adult data. In the United Kingdom, the treatment of latent infection can involve 6 months of INH or 3 months of this combination therapy. The authors quote the literature indicating that the predicted rate of clinical TB developing in untreated children after an initial positive tuberculin test over a 10-year period as being between 5% and 10%. In this study, with a mean observation period of >12 years, it was <1%. Could this shorter combination regimen be recommended in the United States? Stay tuned, but the authors stake a claim for its value based on efficacy, possible better compliance, and a low incidence of severe side effects compared to a longer single-dose regimen. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Tuberculosis, Rifampicin, Isoniazid

Print Tag: Refer to original journal article
Sensor-augmented insulin pumps have been shown to be superior to multiple injections of insulin in patients with type 1 diabetes.

**Background:** Sensor-Augmented Pump Therapy for A1C Reduction (STAR) 3, a device that has a wireless transmitter, sends information from a glucose sensor to the glucose monitor for readings every 5 minutes, 24 hours a day. Users specify the amount of insulin they want the pump to deliver based on the readings and their meals.

**Objective:** To compare the effect of a sensory-augmented insulin pump for type 1 diabetes with multiple injections of insulin in children and adults.

**Methods:** Patients were eligible if they were between the age of 7 and 70 years with type 1 diabetes. They needed to be on multiple injections including long-acting insulin in the previous 3 months and had to have a hemoglobin A1C (HgA1C) level between 7.4% and 9.5%. Patients needed to test their glucose at least 4 times a day for at least a month before the study. Patients were randomly assigned to receive a sensory-augmented insulin pump or a regimen of multiple injections. Diabetic patients who qualified were trained on using the insulin pump initially, and then the glucose monitor was added after 2 weeks of training. Follow-up examinations and laboratory testing were performed, and glucose monitoring from the pump sensor and finger stick glucose were studied. Hemoglobin A1C levels were rechecked while patients were on the selected type of therapy.

**Results:** There were 443 patients in the analysis. After 1 year, the mean HgA1c level, which was 8.3% for both groups at the beginning of the study, dropped to 7.5% on the pump therapy. The mean HgA1c for the injection group was 8.1%. In children aged 7 to 17 years, there was an absolute reduction of 0.4% in the pump group and 0.2% in the standard injection group. Of the patients who had HgA1c levels <7% at 1 year, 27% were in the pump group and 10% were in the injection group. As for adverse events, the rates for ketoacidosis and hypoglycemia were the same between groups. There were 2 cases of admissions to the hospital for cellulitis from the pump needle insertion.

**Conclusions:** Sensor-augmented insulin pumps were shown to be superior to patients with multiple injections of insulin with type 1 diabetes.

**Reviewer's Comments:** These next generations of insulin pumps are getting close to an almost artificial pancreas with regard to insulin production. The improvement in the reduction of HgA1C in children was smaller than in the overall group. Any improvement is a benefit. The data of having continuous glucose monitoring could help endocrinologists create better schedules for insulin delivery. Many children have different requirements, especially as they relate to sports and seasonal activities. One may hope if a child is playing an aerobic sport, a specific program of insulin flow rate might be used. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Insulin Pump, Type 1 Diabetes

Print Tag: Refer to original journal article
Cervical Culture Alone May Miss Many Cases of Gonorrhea

Culture of Non-Genital Sites Increases the Detection of Gonorrhea in Women.

Giannini CM, Kim HK, et al:

J Pediatr Adolesc Gynecol 2010; 23 (August): 246-252

In a study in Cincinnati, obtaining pharyngeal and rectal cultures, in addition to cervical cultures, significantly increased the likelihood of detecting gonorrheal infection in adolescents.

**Objective:** To compare gonorrhea rates (rectal and pharyngeal) in adolescents and adult women, and to calculate the percentage of these cases that would be missed by cervical culturing alone.

**Design/Methods:** A retrospective study of the records of patients seen at a local Cincinnati sexually transmitted disease (STD) clinic in 2006 and 2007, during which time culture for *Neisseria gonorrhea*, rather than nucleic acid amplification testing, was primarily used. Additional data from the tertiary children's hospital adolescent (and not STD) clinic were also extracted. Data included gender, age, race, source of the gonorrhea culture, and the culture result. Participants were divided into adolescent women (aged 14 to 21 years; approximately 16,000 patients) in the hospital database; adolescents aged <21 years (525 participants) in the STD clinic; and women aged >21 years (1424 patients) in the STD clinic.

**Results:** Cervical plus additional cultures were performed in three-fourths of the adult samples, one-half of the adolescent STD samples, and 2% of the adolescent hospital samples. The prevalence of pharyngeal gonorrhea was statistically similar among the 3 groups (ranging from 2.5% to 6.8%), but adolescent STD patients had a much higher rate of rectal gonorrhea (13.4%) compared to adult STD and hospital adolescents (2.9% to 5.2%). Overall, in women who had a negative cervical culture but who had other cultures performed, up to 3.4% had pharyngeal gonorrhea and up to 2.7% had rectal gonorrhea. The authors found that culturing only the cervix would have missed 20% to 40% of adult gonorrheal infections, 14% to 26% of adolescent STD clinic infections, and 11% of adolescent hospital infected cases.

**Conclusions:** Pharyngeal gonorrhea rates were as high in adolescent women seen at a children's hospital adolescent clinic as in adult women seen at an STD clinic in Cincinnati. Without additional pharyngeal cultures, 11% to 26% of infections in adolescent women would have been missed. The use of increased pharyngeal testing may be of value in limiting the epidemic of gonorrheal infections among adolescent women.

**Reviewer's Comments:** The authors use the word “epidemic” because the current national prevalence of genital gonorrheal infections is nearly 10 times what national health initiatives had set as goals; in Cincinnati, the rates increased by nearly 40% from 2004 to 2007. In this paper, women with cervical gonorrhea had significant coinfection rates. Currently, there are no guidelines recommending gonorrheal screening of non-genital sites for adolescents. The authors argue that perhaps there should be, given the high rate of non-genital infections in this study. Obviously, other factors in your geographic area are involved, including prevalence rates and costs of screening, but we know that adolescents, despite the best attempts at history taking, are often not forthcoming. The most thorough screening for gonococcal infections may involve the testing of multiple sites. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Gonorrhea, Culture

Print Tag: Refer to original journal article
Children with inflammatory bowel disease are at increased risk of developing an extra-intestinal manifestation, with arthralgia being the most common.

Background: While it is known that inflammatory bowel disease (IBD) has extraintestinal manifestations (EIM) in pediatric patients, the prevalence and severity of these symptoms are unknown.

Objective: To determine the prevalence and severity of extraintestinal symptoms in children.

Methods: The study population consisted of children from a multicenter prospective pediatric IBD registry diagnosed with IBD before 16 years of age by pediatric gastroenterologists. Diagnoses were based on standard radiographic, histologic, clinical, and endoscopic criteria. The following EIMs were evaluated: ankylosing spondylitis, “chronic active hepatitis” (intended to reflect autoimmune hepatitis), aphthous stomatitis (AS), primary sclerosing cholangitis, arthralgia, erythema nodosum (EN), pyoderma gangrenosum, arthritis, iritis/uveitis, and pancreatitis. The authors calculated the prevalence of EIM for IBD overall and by disease type (Crohn's disease [CD] and ulcerative colitis [UC]), as well as the association between disease characteristics and EIM.

Results: 1009 children met inclusion criteria and had follow-up data for an average of 2 years ± 1.5 years; 28% of children experienced ≥1 EIM, 17% at diagnosis and 11% after diagnosis. By 51 months after follow-up, children had a 34% chance of developing an EIM. Moderate/severe illness at baseline was associated with the presence of any EIM (compared to mild illness). Overall, arthralgia was the most common EIM, with a prevalence of 17%, followed by AS (8%) and arthritis (4%). There were associations between disease type and EIM. Any patient with CD was 3x more likely to have AS (10% vs 3%) and 5x more likely to have EN (3.6% vs 0.7%). Patients with UC were 3x more likely to develop primary sclerosing cholangitis (3% vs 1%). Steroids did not protect unaffected patients from developing subsequent EIMs, while immunomodulators did.

Conclusions: At least 25% of children with IBD are likely to develop an extraintestinal manifestation of their disease.

Reviewer's Comments: Although children can be diagnosed with inflammatory bowel disease, the pediatric provider should be aware that approximately 25% of children are likely to develop another symptom of the disease that manifests itself outside of the bowel. The type of symptom varies according to whether the child has CD or UC, but arthralgia is among the most common extraintestinal symptom seen. Nonetheless, it is important for providers to consider whether a new symptom in a child with IBD could be related to the IBD. (Reviewer-Beth A. Tarini, MD).

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Keywords: Inflammatory Bowel Disease, Children, Extraintestinal Symptoms

Print Tag: Refer to original journal article
How Often Are Thyroid Nodules Malignant?

Diagnostic Features of Thyroid Nodules in Pediatrics.

Corrias A, Mussa A, et al:

Arch Pediatr Adolesc Med 2010; 164 (August): 714-719

There is no simple way to diagnose thyroid nodules; they require clinical, laboratory, and radiologic input.

Background: Thyroid nodules are not common in children (<1.8%), but since up to 25% of these nodules may be malignant, they can be of great concern. While thyroid pathology has been described in great detail in adults, the amount of information available in children is nowhere near as robust.

Objective: To describe a cohort of children with thyroid nodules, specifically the histology, as well as differences between hyperthyroidism and euthyroidism and between benign and malignant nodules.

Design/Methods: This was a retrospective cohort study of patients with thyroid nodules collected from 9 pediatric endocrinology centers in Italy. Data collected for each cohort member included age, sex, the presence of palpable nodes, the reasons for consultation, and symptoms. Laboratory information collected included serum thyrotropin, free thyroxine, free triiodothyronine, and serum calcitonin. All patients underwent a thyroid ultrasound. Technetium Tc 99m scintiscans and fine-needle aspirations were performed on some patients. Approximately 50% of these patients underwent surgery. The main outcomes of interest were the differences between clinical, laboratory, and ultrasonographic presentations between patients with euthyroidism and hyperthyroidism and between benign and malignant disease.

Results: Of the 120 patients in this study, 114 had euthyroidism and 6 had hyperthyroidism. Patients with hyperthyroidism were more likely to have compressive signs, larger nodules, intranodular vascular patterns, and positive scintiscan results. Of the nodules that underwent fine-needle aspiration, 74% were benign, 8% were undefined, and 18% were malignant. Of those with hyperthyroidism (n=6), 1 case was Hurthle cell and 5 cases were follicular adenomas. Of those with euthyroidism, 33 of cases were hyperplastic nodules, 19 were carcinomas, 3 were follicular adenomas, 1 was Hurthle cell adenoma, and 1 was a teratoma. Of those with euthyroidism, malignancy was more often found with compressive signs, microcalcifications, intranodular vascularization, and lymph node changes.

Conclusions: There is no simple way to diagnose thyroid nodules; they require clinical, laboratory, and radiologic input. Ultrasonography is helpful in identifying nodules without clinical appearance and can help characterize suspected malignancies. Patients with hyperthyroidism likely warrant a scintiscan, and those with euthyroidism warrant a fine-needle aspiration to complete a work-up.

Reviewer’s Comments: Although thyroid nodules are rare in children, the high incidence of malignancy in this group should put us on alert to carefully examine the thyroid in routine physicals. How to fully evaluate the nodule is in the purview of the endocrinologists. Since the condition is so rare, this article serves as a welcome reminder about the potential problems underlying the nodule. This study is dense, but the take-home message is that a thorough workup of thyroid nodules involves all clinical, laboratory, and radiologic input. There are no shortcuts. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Thyroid Nodules, Diagnosis

Print Tag: Refer to original journal article
Respiratory Complications Can Occur in Late Preterm Neonates

Respiratory Morbidity in Late Preterm Births.
Consortium on Safe Labor:

JAMA 2010; 304 (July 28): 419-425

There is an increased morbidity in the late preterm infant, particularly respiratory distress syndrome.

**Background:** The majority of preterm births are considered late preterm, which is considered 34 to 36 weeks of gestation. Many of these infants are seen in the well-baby nursery but may need extra care than term infants.

**Objective:** To determine the postnatal outcomes of late preterm and term infants with special attention to the respiratory status.

**Methods:** Infants were selected from many centers for data collection. Electronic medical records from 2002 to 2008 were used to review all histories. Information collected included prenatal complications, labor and delivery information, neonatal outcomes, and NICU stay information. Late preterm infants were considered 34 0/7 weeks to 36 6/7 weeks' gestational age. Term infants were infants 37 0/7 to 40 6/7 weeks' gestational age. Respiratory history was specifically examined during this study.

**Results:** During the study period, 233,844 infants were born at 12 centers; 9% were late preterm, and 78% were term. Woman who delivered late preterm infants had more significant medical histories such as chronic hypertension, pregnancy-related hypertension, pre-existing diabetes, and renal disease. Late preterm infants were also more likely to be small for gestational age or have an anomaly. Thirty-six percent of the preterm infants went to the NICU compared to 7% of term infants. Of the infants who went to the NICU, late preterm infants required more oxygen supplementation and more chest compressions than did term infants. Respiratory distress syndrome was seen in 10% of 34-week neonates and 0.3% in term infants. The rate of respiratory distress syndrome decreased for each week of older gestational age. Transient tachypnea of the newborn occurred in 6% of 34-week infants and 0.3% of term infants. This also decreased in occurrences with older preterm and term infants. Pulmonary hypertension and pneumothorax were more likely in the late preterm infant.

**Conclusions:** There is increased morbidity in the late preterm infant, especially for respiratory distress syndrome.

**Reviewer's Comments:** Many people view late preterm as an "almost" term infant. It is quite clear that extra attention must be given to these babies. Many infants who are late preterm infants will spend long periods of time in the parent's room on the postpartum floor, which in many hospitals is called "couplet care." Checking in on these young babies should be a priority for nursing and medical staff, with specific concerns for their respiratory status. (Reviewer-Charles I. Schwartz, MD).

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**Keywords:** Respiratory Distress, Transient Tachypnea, Newborn, Prematurity

**Print Tag:** Refer to original journal article
Phototherapy -- Is Repositioning Infant Necessary?

Effect of Infants’ Position on Serum Bilirubin Level During Conventional Phototherapy.
Donneborg ML, Knudsen KB, Ebbesen F:

Acta Paediatr 2010; 99 (August): 1131-1134

Alternating the position of an infant during phototherapy, while widely practiced, does not result in any significant benefit in decreasing total serum bilirubin compared to conventional supine positioning only.

Background: One survey found that, worldwide, in about one-half of neonatal units, the position of the infants was changed during phototherapy. In Europe, it was a particularly common practice, seen in two-thirds of units, with rotation of the infant every 3 hours.

Objective: To compare decreases in total serum bilirubin (TSB) in infants treated with supine positioning to those alternated between exposure in supine and prone positioning.

Methods/Participants: The authors studied a group of 112 consecutive infants in 2008 and 2009 who had nonhemolytic hyperbilirubinemia and were otherwise healthy with a gestational age of ≥33 weeks. The infants were randomized to undergo either an alternating position during phototherapy (ie, they were changed every third hour from supine to prone and vice versa), or treatment exclusively in the supine position. Guidelines for the initiation of phototherapy followed indications set by the Danish Paediatric Society. Phototherapy was continuous for 24 hours except for feeding and nursing for 30 minutes every third hour. A neoBLUE phototherapy instrument was used on all babies from a standard distance. TSB was measured from capillary blood at the beginning of phototherapy and at 12 and 24 hours.

Results: No significant differences in bilirubin reduction were observed between the 2 treatment groups at 12 and 24 hours. At 12 hours, each group had decreases of bilirubin by 32%; at 24 hours, the decreases were also nearly identical, 49% and 50%.

Conclusions: Decreases in serum bilirubin from conventional phototherapy were not significantly affected by changes in the positioning of the infant.

Reviewer's Comments: Dr. Thor Hansen, a neonatologist from Norway, comments in an accompanying editorial that, while the classic thought has been that bilirubin changes have occurred at an extravascular level (tissues of the skin) and thus blanching of the skin has been observed during phototherapy, there is growing evidence that significant changes may be occurring in the capillary beds themselves (ie, intravascular). Green and turquoise lights appear to have increased efficacy in lowering bilirubin because of a deeper penetration into the skin at those wavelengths. Skin blood flow has been found to increase by up to 70% during phototherapy, which may also foster changes. While some extravascular conversion does occur and results in skin color changes, the intravascular component may be more important; therefore, "flipping" the baby would not result in any added benefit as observed in this study. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Hyperbilirubinemia, Phototherapy

Print Tag: Refer to original journal article
FeNO Levels Reduced in Acute RSV Bronchiolitis

Exhaled Nitric Oxide in Acute Respiratory Syncytial Virus Bronchiolitis.

Gadish T, Soferman R, et al:
Arch Pediatr Adolesc Med 2010; 164 (August): 727-731

It appears that exhaled nitric oxide levels are reduced by acute respiratory syncytial virus bronchiolitis.

Background: Respiratory syncytial virus (RSV) is the most common cause of lower respiratory tract infections in children <1 year of age. RSV acts on the respiratory epithelium in such a way as to stimulate an inflammatory response. Cell studies have further shown that RSV increases nitric oxide (NO) synthase messenger RNA and affects NO production. Some have hypothesized that NO may be responsible for some of the symptoms of RSV bronchiolitis, but no studies have examined exhaled NO levels in infants with bronchiolitis.

Objective: To examine the fractional exhaled NO (FeNO) levels in infants with acute RSV bronchiolitis.

Design/Participants: Prospective cohort study of infants in an emergency department (ED) of a children's hospital in Israel.

Methods: Children with laboratory-confirmed RSV bronchiolitis were enrolled. The FeNO level was measured within 24 hours of referral to the ED and then again if infants returned to the pulmonary clinic after discharge. A healthy control group consisted of infants with no respiratory symptoms who were recruited from families of hospital employees. Another control group consisted of children with recurrent wheezing who were recruited from the pulmonary clinic. FeNO was measured at least 3 times in every infant to assure acceptable readings. The main outcome of interest was FeNO level while acutely infected versus during follow-up.

Results: Overall, 42 infants with RSV bronchiolitis comprised the study group; the control groups were made up of 32 healthy controls matched on age, and 21 infants with recurrent wheezing. The average FeNO levels in infants who had RSV bronchiolitis (1.9 parts per billion [ppb]) was lower than the healthy control group (7.3 ppb) and the recurrent wheezing group (4.9 ppb). However, by 2-month follow-up, the FeNO of the RSV bronchiolitis group had risen to 7.7 ppb, and by 4 months it was 11.4 ppb.

Conclusions: It appears that FeNO levels are reduced by acute RSV bronchiolitis. Acute RSV bronchiolitis appears to reduce the FeNO of infected patients, although this returns to normal months after infection. The mechanisms by which FeNO is suppressed are not known, nor is its relationship with future wheezing and the potential development of asthma. Further work is needed to understand both the mechanisms and the implications of this finding.

Reviewer's Comments: This study appears to link FeNO to acute bronchiolitis. How this occurs and why it is important, however, is not clear. The authors have made some observations that potentially may explain some of the pathophysiology of this clinical problem. Since our treatments are now mainly supportive, awaiting the slow healing process to occur, additional investigation into these observations about NO levels may be potentially beneficial. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Bronchiolitis, Respiratory Syncytial Virus Bronchiolitis

Print Tag: Refer to original journal article
High Mortality for Patients With Myelomeningocele Continues Throughout Adulthood

Expectation of Life and Unexpected Death in Open Spina Bifida: A 40-Year Complete, Non-Selective, Longitudinal Cohort Study.

Oakeshott P, Hunt GM, et al:

Dev Med Child Neurol 2010; 52 (August): 749-753

In a long-term follow-up of patients treated for myelomeningocele, mortality rates for older pediatric patients and adults were found to be significantly higher than the general population and many of these deaths were unexpected.

**Objective:** To investigate survival and causes of death in a cohort of children born with myelomeningocele (open spina bifida) at a mean age of 40 years.

**Design/Participants:** This U.K. study involved 113 patients born with myelomeningocele from 1963 to 1971 who were treated non-selectively with back closure within 48 hours of birth and followed prospectively.

**Methods:** 89% had a ventriculoatrial shunt placed at some point in their lives. None have been lost to follow-up. The cohort has been classified according to the neurologic deficit in terms of sensory level to pinprick recorded in infancy. In 2007, all survivors and/or caregivers of nonsurvivors were surveyed by telephone interview. For those who had died, the cause of death was obtained from an office of national statistics, medical records, caregiver reports, and autopsy results when performed. "Unexpected deaths" were those that occurred after age 5 years and referred to the local coroner. For patients <5 years, unexpected deaths were defined as sudden death, not anticipated by clinician or parent, as these were typically not referred (in England) for coroner evaluation.

**Results:** Of the original cohort of 117 patients, 46 patients (39%) had survived. Of the 71 deaths, slightly >50% occurred before the 5th birthday. The death rate for those between the age of 5 and 40 years was 26%, which was over 10 times that for the total U.K. population born in 1967, which was 2%. Of the 71 deaths, approximately one-third were unexpected and sudden. Unexpected deaths were 3 times more likely after, compared to before, age 5 years, occurring in 52%. The most frequent causes of unexpected deaths were seizures, pulmonary embolus, acute hydrocephalus, and acute renal sepsis.

**Conclusions:** The authors concluded that there is a continuing high mortality throughout adult life in individuals with myelomeningocele and a large proportion of these deaths are unexpected.

**Reviewer's Comments:** The authors had noted that the literature suggested that, after the initial hazardous years, survival in patients with spina bifida was felt to be near normal. These numbers, at least for patients born in the 1960's, dispute that. Particularly revealing was the high percentage of unexpected deaths that occurred. Ventricular shunts can become blocked or infected, motor deficits can predispose to thrombosis and/or embolism, and neuropathic bladders and bowels can lead to renal infections or intestinal obstruction. With improvements in the management of neurologic and urinary tract complications in this century, perhaps more current cohorts will demonstrate better numbers. However, as we hand our pediatric patients with myelomeningocele off to internists, this paper offers a sobering word of caution. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Spina Bifida, Life Expectancy, Unexpected Death

Print Tag: Refer to original journal article
Despite equal access to those who need cochlear implants, there is a significant disparity of postoperative complications and missed follow up appointments with patients who have Medicaid insurance.

**Objective:** To look at whether socioeconomic status influences access to obtaining cochlear implants and if there is an effect on outcomes of cochlear implantation.

**Participants/Methods:** Children were selected from a database of patients referred to a cochlear implant center at University Hospitals Case Medical Center and Rainbow Babies and Children’s Hospital. Those patients who had cochlear implants prior to 2008 were selected. Children’s access to implantation through Medicaid and private insurance was recorded. The children were also looked at regarding postoperative complications and attendance to follow up appointments.

**Results:** 133 pediatric patients (mean age at implantation, 5 years) were in this study, with an equal number of boys to girls. Ninety-four percent of the patients were pre-lingually deaf; 64 patients had Medicaid insurance, and 69 had private insurance. Children with Medicaid were just as likely to undergo implantation as children with private insurance. The age for implantation in Medicaid patients was 4.5 years and 4.9 year for private insurance. There was a trend to for children with private insurance to have bilateral implantation (34% vs 20%). Nineteen percent of the Medicaid patients had postoperative complications versus 4% of private insurance patients. The follow-up was the same for both groups for the first month after implantation. However, after this 1-month period, nearly one-third of the follow-up visits were missed in the Medicaid group versus 25% for private insurance patients. This trend was also seen with consecutive back-to-back follow-up visits as well.

**Conclusions:** Despite equal access to those who need cochlear implants, there is a significant disparity of postoperative complications and missed follow-up appointments with patients who have Medicaid insurance.

**Reviewer’s Comments:** Primary care doctors should be aware of the increased complications and missed follow-up appointments with patients who have Medicaid insurance. Implant centers need to review these data to set up new pathways to help address the increased post-surgical complications. The cost of removing and re-implanting is extremely costly. Many patients miss appointments, but having multiple ways of contacting patients can reduce the phenomenon of missed appointments. Implementing ways to improve follow-up appointments and better postoperative care will benefit not only patients with Medicaid, but will also help children with private insurance. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Cochlear Implants, Socioeconomics, Access, Outcomes

Print Tag: Refer to original journal article
Children prefer the taste of sucralose-sweetened oral electrolyte solutions more than the unsweetened kind.

**Objective:** To compare the palatability of 3 brands of oral rehydration solutions (ORS).

**Participants/Methods:** The author recruited subjects aged 5 to 10 years old who presented to an emergency department (ED) in Canada for complaints unrelated to gastroenteritis. Exclusion criteria included vomiting, diarrhea, head trauma, upper respiratory symptoms, and abdominal pain. Enrolled participants were asked to drink, in random sequential order, 3 different ORS within 15 minutes for each drink. During a "washout" period of 5 minutes between ORS, the children were given 2 unsalted crackers and water to remove residual taste. After each ORS, participants filled out an analog taste scale. Upon completion, the total volume consumed of each ORS was measured, and participants were asked which one tasted best and how willing they would be to consume each one again.

**Results:** 210 children were screened; 83 met the criteria and 66 participated. For the primary outcome, the taste score, the sucralose-containing ORS drinks (Pedialyte and Pediatric Electrolyte) were ranked significantly higher than the unsweetened rice-based ORS (Enfalyte) ($P < 0.001$). Regarding secondary outcomes, there was no significant difference in volumes consumed, but Enfalyte was significantly less likely to be considered the best tasting (53% for Pedialyte, 39% for Pediatric Electrolyte, and 8% for Enfalyte; $P < 0.001$).

**Conclusions:** The authors conclude that artificially sweetened ORS drinks were significantly better tasting than unsweetened rice-based ORS drinks. While rice-based ORS drinks may have some benefits for cholera (improved glucose digestion), these benefits are insignificant for non-cholera gastroenteritis. The authors also note that while small amounts of sweetening can be done at home to improve the taste of unsweetened ORS drinks, the palatability is no better than commercially flavored ORS drinks.

**Reviewer's Comments:** This study is not very useful. Most families try the sweetened version of ORS without success and quickly give up on the idea. Proving that unsweetened ORS do not taste as good to 5- to 10-year-olds without gastroenteritis is not clinically compelling. A more intriguing study would compare the outcomes of ORS for children given different flavors of ORS versus Gatorade or juice. The authors note several limitations to their study. One obvious issue is their selection of relatively older children without gastroenteritis for the study. This choice was made because there was no validated taste score for younger children and out of concern that the taste scoring system was not validated with children suffering from gastroenteritis. The study of outcomes of gastroenteritis, an alternative and much more clinically useful approach, would have required a much larger sample size. (Reviewer-Daniel Coghlin, MD).

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Keywords: Oral Rehydration Solutions, Palatability

Print Tag: Refer to original journal article
Abdominal X-Rays -- Low Specificity, Sensitivity for Diagnosing FC in Children


Pensabene L, Buonomo C, et al:

J Pediatr Gastroenterol Nutr 2010; 51 (August): 155-159

Neither scoring systems nor subjective assessments of abdominal radiographs are helpful in making a diagnosis of functional constipation in children.

Background: Functional constipation (FC) is one of the most common yet challenging diagnoses in pediatrics. In many cases, physicians turn to radiographs to help make the diagnosis. However, the accuracy of different scoring systems for radiographs has not been determined.

Objective: To determine the accuracy of different scoring methods of abdominal radiographs for the diagnosis of FC in children.

Methods: The study focused on children evaluated in a pediatric gastroenterology specialty clinic at a tertiary care children's hospital from 2000 to 2004. Patients with organic etiologies for their constipation (eg, Hirschsprung disease) were excluded. Eligible participants were children who had undergone an abdominal CT and met ≥2 of the following conditions: <3 bowel movements/week; ≥1 episode of fecal incontinence/week; large stools in the rectum or palpable on abdominal examination; large stools that obstruct the toilet; display of retentive posturing and withholding behaviors; and painful defecation. Additionally, children ≥4 years were diagnosed as having nonretentive fecal incontinence (NRFI) based on passage of stools in an inappropriate place for ≥8 weeks without evidence of constipation on history. Radiographs of children with FC and NRFI were scored independently by pediatric gastroenterologists and a radiologist using the Barr and Leech scoring systems. They also gave a subjective assessment of the amount of stool present or fecal loading (mild, moderate, or severe). These scoring systems were examined for reproducibility and accuracy of distinguishing children with FC (with and without fecal incontinence [FI]) and those with NRFI.

Results: Children with NRFI were more likely to be male, have more stools/week, and less likely to have abdominal pain. Scores and fecal loading were more likely to be abnormal in children with FC compared to those with NRFI. However, the scoring systems had poor sensitivity and specificity in differentiating FC from NRFI (sensitivity range, 45% to 75%; specificity range: 48% to 80%). Of note, the subjective assessment of fecal loading by experienced gastroenterologists had the poorest sensitivity (37%). While there was good intraobserver reliability for the different scoring systems, there was poor interobserver reliability (Barr κ=0.3, Leech κ=0.25, fecal loading κ=0.3).

Conclusions: Scoring systems for abdominal radiographs have poor sensitivity and specificity for diagnosing FC in children.

Reviewer's Comments: Medical practice seems to be fascinated with the newest and shiniest diagnostic test. However, according to this study, when it comes to diagnosing constipation, doctors should just throw out the x-ray machine and take a good history. It will get them closer to the diagnosis with few dollars and less radiation. (Reviewer-Beth A. Tarini, MD).

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Keywords: Constipation, Radiographs, Medical Decision-Making

Print Tag: Refer to original journal article
There is not a significant difference in the prevalence of overweight/obesity in children who attend schools that have a comprehensive health program versus children who attend schools without such a program.

**Background:** There are many programs that help identify children/adolescents who are at risk for diabetes and obesity. However, there are very few studies that look at the role and the influence of school-based programs to confront these problems.

**Objective:** To see if a school-based program can help reduce the risk of diabetes and obesity.

**Design/Participants:** 42 schools were enrolled in this randomized, cluster-designed study.

**Methods:** The schools had to have at least 50% of the students eligible for federal assisted school meals or have at least 50% in a lower socioeconomic class, which in many cases are the groups highest in risk for diabetes. Children in 6th grade were studied until the 8th grade. The program integrated nutrition, physical activity, behavioral knowledge, and communication. The nutritional component included information about the food served in and out of the cafeteria. There was an increase of aerobic activity, especially activities that increased heart rate above 130 beats per minute. There was a learning activity that targeted self awareness, knowledge, and behavioral skills. Children's weight, height, waist size, fasting glucose, and insulin levels were recorded and rechecked after the completion of the study. The outcome was to determine the effect of this program on the obese population. There were 21 intervention schools and 21 control schools. Children were reassessed in 8th grade.

**Results:** Children at both the intervention and control schools had a reduction in weight/obesity, but there were no significant differences between the groups. Waist circumferences at the 90% or higher were lower at the interventional school than those in the control schools. There was no significant difference in fasting glucose levels between the 2 groups. Students who were overweight had significantly lower fasting mean insulin levels in the control schools in 8th grade.

**Conclusions:** There was not a significant difference in the prevalence of overweight/obesity between the schools that had a comprehensive health program versus the schools that did not.

**Reviewer's Comments:** This study did show some promise that a multicomponent program can reduce some factors, such as waist size and insulin levels, in select groups. One variable not addressed is the content of the educational material; maybe these materials can be improved. The authors did not discuss the cost of the program, but if the cost is minimal, it is not unreasonable to use this program on a larger scale to see if this can help those children who are at risk for obesity with better nutrition, aerobic activity, and education. (Reviewer—Charles I. Schwartz, MD).

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Keywords: Diabetes, Risk Reduction, School-Based Intervention

Print Tag: Refer to original journal article
Factors Associated With Post-Circumcision Bleeding

Bleeding at Circumcision: Patient or Operator Issue?

Feinberg AN, Brust RA, Walker TA:

Clin Pediatr 2010; 49 (August): 760-763

Post-circumcision bleeding is more likely related to current operator experience than to operator's years in practice or patient characteristics.

Background: Circumcision and complications thereafter have been documented since biblical times. Though multiple studies have examined the incidence and/or severity of bleeding after circumcision, there is limited information regarding patient or physician factors that may influence outcome.

Objective: To assess the relationship between patient characteristics, operator experience, and bleeding after circumcision.

Design/Participants: This prospective observational cohort study included healthy, full-term newborn males with no known problems or family history of bleeding disorders.

Methods: The surgical method of circumcision utilized a Gomco clamp. Bleeding was considered mild if oozing occurred immediately after the procedure or a blood-filled 2-by-4 gauze was retrieved at a routine 1 hour postoperative check. Moderate bleeding was defined as needing anticoagulants, and severe bleeding was defined as needing sutures. At the study institution, all circumcisions were performed by pediatricians and family practitioners. Current operator experience was categorized by the number of procedures done during the study period, while long-term experience reflected the number of years since graduation from medical school. Patient-related variables included race, insurance status, birth weight, gestational age, weight percentile, APGAR score, and age (in hours) at time of circumcision.

Results: 537 circumcisions were performed by 46 different practitioners, including supervised residents. Twenty-four of the patients (4.47%) experienced bleeding (22 mild and 2 moderate). Eighteen of the 46 operators were responsible for the bleeding patients. There was no significant association between long-term operator experience and bleeding. Bleeding was, however, significantly associated with less current operator experience. There were no patient variables or demographics that distinguished bleeders from non-bleeders.

Conclusions: Post-circumcision bleeding is more likely related to current operator experience than to the degree of long-term operator experience or patient characteristics.

Reviewer's Comments: Twenty-three of the 24 children who bled after circumcision had no obvious error during the procedure that caused the bleed, which suggests that subtle differences in technique may have a great impact on outcome. Residents did not show a greater number of complications, consistent with the conclusion that adequate ongoing volume to maintain technique is more important than duration of experience. Because some operator dependence was determined to affect risk for bleeding, it would be interesting to see whether circumcision performance by general pediatricians (as studied here) bears comparable risk to that done by a surgical specialist, such as an obstetrician. (Reviewer-Alyssa Siegel, MD).

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Keywords: Circumcision, Bleeding, Operator Experience

Print Tag: Refer to original journal article
A brief therapeutic intervention in the emergency department significantly decreases aggression and alcohol abuse among adolescents.

**Background:** Little is known about the value of interventions in the emergency department (ED) that could reduce adolescent risk-taking behavior in this vulnerable population.

**Objective:** To determine the efficacy of brief interventions, either computer-generated or through a therapist, on violence and alcohol-related outcomes in high-risk adolescents in the ED setting.

**Design:** Prospective, randomized clinical trial.

**Participants:** 3338 adolescents presenting to an urban ED.

**Methods:** To be eligible, patients seen in the ED had to be between 14 and 18 years of age and in the absence of suicidal ideation, sexual assault, mental status changes, or medical instability. Patients were administered an electronic survey lasting 15 minutes that confirmed eligibility by confirming the presence of aggressive behavior and alcohol consumption over the previous year. After a baseline assessment, patients were randomized to receive either a computer session, counselor session, or a brochure. The computerized and personal interventions lasted 35 minutes and were similar except for the mode of presentation; they focused on establishing goals, tailored feedback, active participation, and role playing to limit drinking and fighting. Follow-up assessments were performed at 3 and 6 months after the ED visit. Outcome measures included validated assessments of alcohol consumption and peer or dating aggression.

**Results:** Of the 3338 patients who were approached, 726 were randomized into the 3 groups. Most were females (56.5%) and African American (55.9%). Follow-up was achieved in 85% of patients. Patients receiving computerized intervention reported significantly greater reduction from baseline (−29.1%) of consequences at 6 months due to alcohol consumption compared to controls (−17.7%). Those receiving counseling reported significantly greater reductions in baseline of the occurrences of peer aggression (−21.3% vs −16.6%), experiences of peer violence (−10.4% vs +4.7%), and violence consequences (−30.4% vs 13.0%) at 3 months as well as reductions in alcohol consequences (−32.2% vs −17.7%) at 6 months compared to controls.

**Conclusions:** Among adolescents, a brief intervention in an urban ED setting can significantly reduce peer violence and consequences due to alcohol consumption.

**Reviewer's Comments:** As violence is a leading cause of morbidity and mortality in this age group, this study demonstrates that an ounce of prevention is clearly worth a pound of cure. The authors estimate 1 less victimized adolescent for every 6 at-risk teens provided with this brief intervention. In time, the computerized approach could be an efficient manner to assist adolescents prone to high-risk behavior in a busy ED setting where counseling is not readily available. However, to expect much change in these behaviors from a brief session and then relying on self-reporting may have clouded the results. Possibly the subjects were telling the evaluators what they wanted to hear. (Reviewer-Seth L. Schulman, MD).

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Keywords: Violence, Alcohol Abuse, Brief Intervention, Emergency Department

Print Tag: Refer to original journal article
In addition to genetic components, a number of environmental and social factors appear to be related to the development of type 1 diabetes.

**Background:** The incidence of type 1 diabetes is increasing. This is significant, because the cost of caring for diabetes in the U.S. in 2007 was >$115 billion dollars (approximately 10% of all health-care spending). The hygiene hypothesis implicated living conditions and infection rates as having contributed to a dysfunctional immune system that attacks the pancreas. The overload or accelerator hypothesis implicates some stressor early in life that forces your pancreas to work too hard, increasing the likelihood of failure later in life.

**Objective:** To examine the association between maternal and infant characteristics and the risk of developing type 1 diabetes.

**Design:** Population-based, case-control study.

**Methods:** Cases were patients with type 1 diabetes identified through hospital discharges and linked to birth certificate data from 1987 to 2005. Controls were selected in a 4 to 1 ratio, matched on the year of birth. Exposures in this study were obtained from birth records. Hygiene hypothesis exposures included the mothers’ age, race, educational status, marital status, type of delivery, prenatal smoking, the number of prior pregnancies, births, siblings, and prenatal care. Overload hypothesis exposures included maternal age, diabetes status, body mass index, pre-pregnancy weight, type of delivery, and prenatal smoking; infant factors included gestational length, birth weight, and size for gestational age. Statistical analyses were adjusted for variables that changed odds ratios (ORs) by >10% in unadjusted analyses.

**Results:** After matching, there were 1852 cases and 7408 controls. A number of variables were aligned with the hygiene hypotheses. Children were significantly less likely to develop type 1 diabetes if they had older siblings (OR, 0.6), an unmarried mother (OR, 0.8), inadequate prenatal care (OR, 0.5), or Medicaid insurance (OR, 0.7). A number of variables were also aligned with the overload hypotheses. Infants were at increased risk of type 1 diabetes if their mothers had a body mass index ≥30 (OR, 1.3).

**Conclusions:** In addition to genetic components, a number of environmental and social factors appear to be related to the development of type 1 diabetes.

**Reviewer's Comments:** This study is one more attempt to find the causes of the increase in diabetes cases. Most likely, in the future, the gene defect will be identified to explain many of the cases. Although these risk factors were statistically significant, their actual import is still unclear. Factors that are associated do not prove cause and effect, but obesity is no doubt a major contributor. More work is definitely needed. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Diabetes, Environment, Risk Factors, Hygiene Hypothesis, Overload Hypothesis

Print Tag: Refer to original journal article
The accuracy of health-related information on the internet is very variable, depending on the question asked and the site utilized. Government-sponsored sites are most reliable.

**Background:** Parents are known to utilize internet resources to research health-related information, prior to and in place of conversations with physicians. The validity and quality of pediatric internet information have not been well-documented.

**Objective:** To assess the reliability of internet information when used to answer common pediatric questions.

**Methods:** The Google search engine was selected to simulate patient experience. Five questions with clear, evidence-based answers were chosen to reflect commonly asked questions in practice: (1) Is there a link between mumps, measles, and rubella (MMR) and autism? (2) Should an HIV-positive mother breast feed? (3) Should a mother with mastitis breast feed? (4) Should a baby sleep supine or prone? (5) What action should be taken for a baby with green vomit? A pilot Google search was performed, and the first 100 sites encountered for each of the 5 questions were reviewed. Sites encountered were categorized as governmental, news site, educational or interest group, individual person's site, and sponsored link. Strict guidelines regarding the "correct" answer were followed. Quality of information was rated as consistent with current recommendations, against current recommendations, or did not answer the question.

**Results:** Of the 500 sites reviewed, 197 (39%) offered correct information, 11% gave incorrect information, and 49% failed to answer the question. Questions 1 and 2 were answered correctly 65% and 51% of the time, respectively. The remaining questions were answered correctly 94% to 100% of the time. Governmental sites always answered questions accurately, educational establishments/individual/interest group sites performed with accuracy of approximately 80%, while news outlets provided correct advice in 55%. No sponsored site was found that gave accurate information.

**Conclusions:** Reliability of pediatric advice found by internet search is very variable. Government sponsored sites are most accurate and can be recommended to patients for their independent research.

**Reviewer's Comments:** Of note, this study was conducted in the U.K., and the authors aimed to target U.K.-specific sites by utilizing “pages from the UK” option. It is unlikely that gold-standard advice to the questions selected and the range of website quality would differ greatly in the U.S. Clearly, the governmental websites that provided very accurate information reviewed in this study would not be utilized by American patients. But, those posted by the National Institutes of Health should be comparable. Choosing a Google search result with nih.gov in the web address or direct access at the home address (http://health.nih.gov/category/ChildTeenHealth) offers health topics A-Z for children and teens, and may represent a desirable option to recommend to our patients. (Reviewer-Alyssa Siegel, MD).

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**Keywords:** Internet, Health Information, Reliability, Parent Education, Web Searches

**Print Tag:** Refer to original journal article
Objective: To evaluate whether patients with physician-diagnosed asthma are more likely to have anxiety as a comorbid condition.

Design/Participants: Population-based, cross-sectional study of children, ages 5 to 13 years, with and without asthma in Australia. All were diagnosed with asthma and had anxiety symptoms assessed by survey.

Methods: Patients with possible asthma were identified by questionnaire and parental interview. Pediatricians were then contacted to determine if a diagnosis of asthma was in accordance with international standards. Survey respondents without asthma were also included. Anxiety symptoms in each group were assessed using the Spence Children’s Anxiety Scale (SCAS), which is a 44-item written questionnaire with scores ranging as high as 114. Subscales included such items as social anxiety, separation anxiety, obsessions/compulsions, fear of physical injury, and panic/agoraphobia. Scales were completed by both participants and parents. SCAS scores were compared in both groups.

Results: 158 patients with asthma and 410 controls without asthma completed the questionnaire. SCAS scores were significantly higher in asthmatics compared to controls ($P<0.001$) and were more likely to be in a range consistent with a clinical diagnosis of an anxiety-related disorder. No known confounding factors were identified.

Conclusions: Compared to children without asthma, children with asthma are substantially more likely to suffer from anxiety.

Reviewer’s Comments: The authors note some previous studies in which asthmatics with comorbid anxiety disorders have had increased numbers of asthma-related medical visits and increased use of asthma medications. It is unclear how much of this psychiatric component contributes to the actual pathophysiology of asthma. Does increased anxiety act in some way to stimulate airway inflammation and hyper-responsiveness and does effective anxiety therapy result in improved pulmonary function? Because internalizing disorders such as anxiety are easy to overlook during a medical visit and can have profound psychological consequences, be wary of the increased association between asthma and anxiety and consider an anxiety screening tool if you have high clinical concerns. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Asthma, Anxiety

Print Tag: Refer to original journal article
Children with autism spectrum disorder have more food selectivity, which may be associated with nutritional deficiencies.

**Background:** Children with autism are often noted to have a limited selection of foods or single food preferences. However, since there is no standard definition for food selectivity, it is difficult to study this problem in a consistent way. Most reports are derived from parental reports or brief questionnaires.

**Objectives:** To develop a definition of food selectivity and to compare food choices of children with ASD versus those of normally developing children.

**Methods:** A definition of food selectivity was developed to include food refusal, limited food choices, and high frequency single food intake. Parents then completed a short questionnaire and a 3-day food diary. **Subjects:** The activities of 63 children with ASD were compared with 58 normally developing children (age range, 3 to 11 years).

**Results:** Both groups demonstrated food refusal, but the ASD group objected to 45 foods compared with 21 in the control group. Both groups had similar limited food repertoires (22.5 vs 19). The common deficient nutrients in both groups were fiber, vitamins D and E, and calcium. Special diets did not affect the results of deficiencies. These deficiencies were correlated with the limited diets but not with food refusal. **Discussion:** The major accomplishments of this report are the establishment of a definition of food selectivity and the possible detection of nutrient deficiencies in both groups of children. In this study, both the study and control group had limited food choices and food refusal. The authors feel that the gluten-free and lactose-free diets did not influence the results.

**Conclusions:** Children with ASD have more food selectivity. A limited choice of foods may be associated with nutritional deficiencies.

**Reviewer's Comments:** One of my father's favorite expressions is "don't serve an uncooked dinner." Sadly, the authors of this paper did not follow this advice. This paper includes only 63 children from a group of centers across the U.S. Certainly, it would not have been difficult to recruit more subjects to add to the power of the assessment. The authors noted in the discussion of limitations of this report that the questionnaire asked about food refusal, but did not address the obvious confounder of parents' knowledge of their children food dislikes and, therefore, did not offer the unwanted food. Obviously, if all foods were offered, the refusal rate would be higher in the children with ASD. The search for possible nutrient deficiencies was another good aim. However, the conclusion stated that these were possible deficiencies. Inclusion of several markers, such as iron and calcium levels, would strengthen their conclusions. Next, another grant to repeat this study to include more subjects and to include laboratory documentation to determine if the children were deficient in these minerals and vitamins. (Reviewer-Charles I. Schwartz, MD).

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**Keywords:** Autism Spectrum Disorder, Food Selectivity, Food Refusal, Nutrient Deficiency

**Print Tag:** Refer to original journal article