Parent-initiated oral corticosteroid therapy for exacerbations of asthma, if prescribed, must be monitored carefully to guard against the potential side effects of repeated short courses of oral steroids.

**Background:** Many international societies, as well as the National Education and Asthma Program in the United States, do not believe the evidence supporting parent-initiated oral steroids is adequate and as such is not a defined therapeutic option for asthma exacerbations.

**Objective:** To evaluate the efficacy of parent-initiated oral corticosteroid therapy for asthma exacerbations in school-age children.

**Participants:** Children aged 5 to 12 years with a history of asthma who had at least 4 episodes of acute asthma in the previous year.

**Methods:** Episodes of acute asthma, rather than participants, were randomized to 1 of 4 sequences of study medications, which were prednisolone (1 mg/kg per day) or placebo. Parents were given the following advice: if you suspect your child is having a more severe attack than usual, or if the symptoms are not getting better with regular use of reliever medication, give your child the study medication immediately. Seven days had to have elapsed before initiation of another course of therapy. Primary outcome measured was mean daytime symptom score over 7 days according to a pediatric asthma diary that families had to complete. Secondary outcomes included night symptoms score, health resource use, days of school missed, days of work missed by parents, and substitution of a placebo with prednisolone (if a physician deemed symptoms were worsening or persisting). Over a 3-year period, 131 children (mean age at study enrollment, 8 years) had 308 episodes of asthma that required parent-initiated treatment. About one half underwent treatment with prednisolone and one half with placebo.

**Results:** Mean daytime symptom score was 15% in patients treated with prednisolone rather than placebo. In addition, nighttime symptoms were reduced by about 16%, use of health resources was cut in half, and school absenteeism was diminished, but only by about one half day.

**Conclusions:** Parent-initiated oral corticosteroids for asthma exacerbations may reduce symptoms and school absenteeism to a modest degree, but this strategy must be balanced against potential side effects of repeated short courses of an oral steroid.

**Reviewer’s Comments:** Although not an outcome in this study, the authors believed that because of the modest benefits offered by the oral steroids in this group, a large number of episodes would need to be treated to prevent the need for a hospital admission. They have great concerns about the detrimental effects of recurrent short courses of oral steroids, particularly aspects of lessening growth, decreasing bone mineral accrual, and more immediate effects on behavior and adrenal function. If a physician does prescribe anticipatory oral corticosteroids, it is key to monitor how frequently these are being used. (Reviewer-Mark F. Ditmar, MD).

© 2010, Oakstone Medical Publishing

Keywords: Asthma

Print Tag: Refer to original journal article
Peanut Allergy Is a Risk Factor for Increased Asthma Morbidity

Association Between Peanut Allergy and Asthma Morbidity.

Simpson AB, Yousef E, et al:

J Pediatr 2010; 156 (May): 777-781

Peanut allergy is a risk factor for increased asthma morbidity in children aged >3 years.

**Background:** Nearly 9-million children aged <18 years have asthma. Many of these children require emergency department (ED) visits and hospitalizations. Asthma is a risk factor for food allergies. One third of children diagnosed with food allergies has asthma. Risk factors for increased asthma morbidity include presence of food allergy.

**Objective:** To assess the relationship between peanut allergy and asthma morbidity in children beyond age 3 years.

**Design:** Retrospective review of the records of 160 children from among 410 between ages 5 and 18 years with asthma and a food allergy receiving care at a tertiary care hospital.

**Methods:** Children were identified using a large database that included hospitalization, outpatient and ED visits, medications, laboratory testing, and radiographs. Children with ICD-9 codes for asthma were identified. Those with symptoms starting after age 3 years were included in the analysis. Asthma was defined as recurrent episodes of wheezing that reversed with bronchodilators. All patients received inhaled corticosteroids. Peanut allergy was defined as adverse reaction to food with an elevated food-specific IgE level and a positive skin test. Children were excluded from the study if they were noncompliant, had cystic fibrosis, or had immunodeficiency. Predictive data collected included race, sex, age, history of atopic dermatitis, gastroesophageal (GE) reflux, family history of asthma, exposure to passive smoking, and food allergy. Results of skin testing to multiple foods and aeroallergens were reviewed. Frequency of systemic corticosteroid use was the primary outcome.

**Results:** 46 of 160 children (28.8%) had asthma and a food allergy, and 71.3% had asthma and no food allergy. Males and Caucasians made up a majority of the cohort. Those with food allergy were more likely to have atopic dermatitis, demonstrate sensitivity to aeroallergens, and have other food allergies. After controlling for covariates, children with peanut allergy were significantly more likely to be hospitalized (risk ratio [RR], 2.32; 95% CI, 1.33-4.05; \( P = 0.003 \)). Systemic corticosteroid use was also significantly greater among those with peanut allergy (RR, 1.59; 95% CI, 1.24-2.04; \( P < 0.001 \)). African Americans, males, sensitization to aspergillus, and those with GE reflux were more likely to require hospitalization and systemic corticosteroids. There was no relationship seen with atopic dermatitis or egg or milk allergy.

**Conclusions:** School-aged children may have increased asthma morbidity if they have a peanut allergy. The quality of care could improve with early prevention and intervention.

**Reviewer’s Comments:** This was a well-designed study that used strict definitions for asthma and peanut allergy. Its retrospective nature could make it susceptible to bias, such as indications for steroid use. In addition, there were not many adolescents in the study. Nevertheless, advising parents of this relationship could benefit children by improving compliance and reducing hospitalization and the need for systemic corticosteroids. (Reviewer-Seth L. Schulman, MD).

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Keywords: Peanut Allergy, Asthma

Print Tag: Refer to original journal article
The New Bayley-III Scale May Underestimate Developmental Delay

Underestimation of Developmental Delay by the New Bayley-III Scale.
Anderson PJ, De Luca CR, et al:

The new Bayley-III Scale may underestimate developmental delay in both term and preterm 2-year-old children.

Background: In the past, the Bayley Scales of Infant Development have been one of the most widely used developmental tests. A third revision of the Bayley Scales (Bayley-III) has recently been released. It incorporates parent-report questionnaires to assess social-emotional and adaptive behavior. It calculates separate scores for expressive communication, receptive communication, and fine and gross motor development. There have been concerns that the Bayley-III may not accurately assess development.

Objective: To assess the ability of the Bayley-III to detect developmental delay in 2-year-old children.

Design: Prospective cohort study.
Participants/Methods: Enrolled were 211 children age 2 years who were born at <28 weeks’ gestation or who had a birth weight <1000 grams and 202 children age 2 years who were born at 37+ weeks’ gestation and who had a birth weight >2499 grams. Development was assessed by blinded psychologists using the Bayley-III scale. Blinded pediatricians assessed the participants for evidence of cerebral palsy, blindness, deafness, and other neurosensory impairments. Developmental delay was calculated by Bayley-III norms.

Results: Mean gestational age and birth weight for the premature group was 26.8 weeks and 868 grams, respectively. The controls had a mean gestational age of 39.7 weeks and a mean birth weight of 3586 grams. As expected, the means for all composite and subtest scores for the premature group were lower than that of the control group. When the mean scores of the children in these 2 cohorts were compared with mean scores from the population that was used to establish the Bayley-III norms, the mean scores for the premature group were consistent with the Bayley-III reference norms. The mean scores for the control group, however, were >0.5 standard deviation higher than would have been anticipated by the reference norms. When the Bayley-III was used to determine degree of developmental delay, the proportions of children in both the premature and control groups who were categorized as having mild, moderate, and severe developmental delay were much lower than what would have been anticipated by the reference norms. Only one half to one third of those identified as having delays according to the reference norms were categorized as having delays when using the Bayley-III scoring rubric.

Conclusions: The new Bayley-III Scale may vastly underestimate developmental delay in both term and preterm 2-year-old children.

Reviewer’s Comments: One limitation of the study is that the Bayley-III was normed using a population of American children. Although it is possible that differences in American and Australian children could explain the differences in these scores, it is an unlikely explanation. If the Bayley-III does underestimate developmental delay, this could have important implications for our patients, as scores on these standardized scales are used to determine eligibility for early intervention programs and to assess effectiveness of therapies. (Reviewer- Rachel Moon, MD).

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Keywords: Testing, Bayley-III Scale

Print Tag: Refer to original journal article
Stereotypies are prevalent in children in institutional care and are significantly reduced by placement in foster care.

**Background:** Stereotypies are tics, or repetitive motions with no goal or function, that are associated with some conditions, such as autism, mental retardation, or disorders of the central nervous system. They appear even in normal children, however, especially in those with psychological deprivation. Since institutional care is thought to sometimes involve psychological deprivation, it may be that stereotypies will be associated with stays in this environment.

**Objective:** To determine if stereotypies are more common in children with a history of institutional care, and to see if foster care interventions can change their occurrence.

**Design/Participants:** Randomized, controlled trial of children with a history of early institutional care living in Bucharest, Romania. To be eligible, children had to be age <31 months and free of genetic syndromes, fetal alcohol syndrome, and microcephaly.

**Methods:** Participants were randomly assigned to 1 of 2 groups. Group 1, an intervention group, was given foster care placement. Group 2, a control group, remained in institutional care. Stereotypies were measured by the Disturbances of Attachment Interview, a semistructured tool. Language was assessed with Reynell Developmental Language Scales. Cognition was measured at baseline and at 30 months and at 42 months using the Bayley Scales of Infant Development and at 54 months with the Wechsler Preschool and Primary Scale of Intelligence. Anxiety was assessed using the Preschool Age Psychiatric Assessment.

**Results:** After excluding ineligible children, 136 were randomized (68 to each group). At baseline, there were no differences in the prevalence of stereotypies between the groups, with >60% showing some. At each follow-up, however, the prevalence of stereotypies was significantly less in the foster care group. Participants who were placed in foster care earlier and longer showed greater reductions. Those in foster care who exhibited stereotypies were significantly more likely to have lower scores on measures of language and cognition.

**Conclusions:** Stereotypies are prevalent in children in institutional care and are significantly reduced by placement in foster care.

**Reviewer’s Comments:** This study confirms both the fact that institutional care is associated with psychological deprivation and that foster care can counteract it. Stereotypies are, in this case, both a symptom and a condition. People who had the opportunity to see children in Eastern European institutions will understand that the isolation and lack of stimulation of many of these children who are, in many cases, tied in their beds for most of the day will have multiple effects of the infant’s development. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Stereotypies, Institutional Care

Print Tag: Refer to original journal article
**Objective:** To examine the effect of prenatal and infancy home visits by nurses on 12-year-old, firstborn children's use of substances, behavioral adjustment, and academic achievement.

**Methods/Participants:** Subjects were enrolled in a public obstetric and pediatric clinic system in Memphis, Tennessee, over a 13-month period. Subjects were required to be <29 weeks pregnant, have no previous live births, and meet at least 2 of the following 3 criteria: unmarried, <12 years of education, and unemployed. Of the eligible subjects, 1139 (88.3%) consented and were randomized to 1 of 2 arms, the control arm and the treatment arm. Subjects in the control arm received routine prenatal care and developmental screening for the child at ages 6, 12, and 24 months, and those in the treatment arm additionally received an average of 33 home visits by a nurse from pregnancy through the first 2 years of the child's life. When the children turned age 12 years, mother and child were interviewed and tested for academic achievement and attention, school records were reviewed, and teachers rated the children's behavior.

**Results:** Nurse-visited children were less likely to have used cigarettes, alcohol, or marijuana (odds ratio, 0.31; \( P = 0.04 \)) and to have used fewer of those substances (incidence ratio, 0.22; \( P = 0.02 \)). They also had fewer internalizing disorders (odds ratio, 0.63; \( P = 0.04 \)). In addition, nurse-visited children born to low-psychological resource mothers (below the group's median in the researchers' assessments) had higher reading and math scores (\( P = 0.009 \)) and higher grade point averages in reading and math through grades 1 to 6 (\( P = 0.03 \)). There were no significant differences in conduct grades, externalizing behaviors, or attention.

**Conclusions:** Nurse visits in the first 2 years of life improved academic achievement at age 12 years in first-born children whose mothers were unmarried, unemployed, and/or had not completed high school when they became pregnant and had below-average psychological resources when compared with other mothers in the study group. In addition, these nurse visits reduced the likelihood of substance use and internalizing behaviors in the children at age 12 years.

**Reviewer's Comments:** This study is simultaneously heartening and discouraging. It is heartening to learn of an intervention that improved long-term substance use rates and internalizing behaviors in children of socioeconomically at-risk new mothers. It is discouraging, however, that improved academic performance was only found among the children of mothers with vaguely-defined low psychological resources, not among the entire cohort of unmarried, unemployed, new mothers who had not completed high school. The study's findings must also be tempered by the limitation that the investigators did not adjust the \( P \) values for multiple associations. (Reviewer-Daniel Coghlin, MD).

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Keywords: Home Nurse Visits, Behavioral Achievement, Academic Achievement

Print Tag: Refer to original journal article
A DVD specifically designed to teach words seems to have little effect on vocabulary acquisition.

Background: Children <2 years of age spend an average of about 2 hours a day watching screen media; they start at about 5 months of age. The American Academy of Pediatrics, on the other hand, recommends that parents avoid letting children age <2 years watch any TV. Other work has shown that children are less likely to learn words from TV than from a live model, but some research has failed to reproduce these findings.

Objective: To determine if children between ages 1 and 2 years can learn words from an infant DVD that was specifically designed to do so.

Design/Participants: Randomly controlled trial of children between ages 12 and 25 months.

Methods: Half of the children were assigned to an intervention group that made 4 visits to a laboratory 2 weeks apart to watch a DVD, specifically Baby Wordsworth (from The Baby Einstein Company, Glendale, California). In the 2 weeks in between visits, participants were instructed to watch the DVD an additional 5 times. Those in the control group were told to follow their normal home routines. All participants were given a variety of tests, including the Bayley Scales of Infant and Toddler Development III and the Communicative Development Inventory (CDI). At the last visit, children were assessed to see how many words they understood or could say. Main outcome of interest was the parent report and observation of vocabulary acquisition.

Results: 96 children participated in the study. Controlled analyses could not detect a significant association between CDI score and at what age or how often children watched the DVD. Both groups reported increased word use over the study, such that the DVD did not appear to have any significant effect on vocabulary acquisition. One analysis, however, found that children who had first watched a Baby Einstein DVD at a younger age had lower CDI scores.

Conclusions: A DVD specifically designed to teach words seemed to have little effect on vocabulary acquisition. Watching a Baby Einstein DVD at a younger age for the first time was, however, associated with a lower CDI score.

Reviewer's Comments: This study adds to the growing body of evidence that there is little educational value to Baby Einstein and other "learning" DVDs. While it is every parent's choice to use them or not, advertising them as educational is dubious. It seems that more effort should be directed to spend time with their infants instead of buying tapes that are no better than natural development. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Word Learning

Print Tag: Refer to original journal article
The decision to obtain herpes simplex polymerase chain reaction studies from cerebrospinal fluid in a febrile infant results in longer hospital stays and increased hospital costs.

Objective: To examine the effect of testing of cerebrospinal fluid (CSF) for herpes simplex virus (HSV) on hospital length of stay and hospital costs for febrile infants age ≤8 weeks.

Design/Methods: Retrospective review of the records of infants age ≤8 weeks who were seen in the emergency department (ED) at The Children's Hospital of Philadelphia (CHOP) over a 2-year period from 2005 to 2006 and who underwent lumbar puncture. Data were reviewed and included clinical findings, laboratory testing including HSV polymerase chain reaction (PCR), if sent, identification of serious bacterial infection, and hospital course. Main outcome measures were hospital length of stay and total hospital charges.

Results: Over this 2-year period, 889 infants age ≤8 weeks underwent lumbar puncture in the ED. CSF HSV PCR testing was done on 32% of all specimens. The test was performed in 52% of infants age <4 weeks and in 23% of infants age 4 to 8 weeks. Of the patients, 3 tested positive for HSV. No patient who did not have HSV PCR testing was subsequently diagnosed with the illness. Regarding the HSV PCR testing, the median turnaround time was 22 hours. Overall, the median length of stay was 2 days, and the median hospital charge was $10,166. Using multivariate linear regression to assess the independent impact of doing the HSV PCR test alone, the authors found that obtaining the test itself had a significant impact. Length of hospital stay was increased by 28% in infants age <4 weeks and 39% in those age 4 to 8 weeks. The testing itself was also ultimately associated with a 41% increase in hospital charges.

Conclusions: In infants evaluated by lumbar puncture in the ED, significantly longer hospital length of stay and higher hospital charges are associated with the obtaining of CSF for HSV PCR testing.

Reviewer's Comments: This study shows that there are associated consequences of empiric testing in terms of increased costs and length of stay. The authors also note that other potential negative aspects of the decision to treat include possible medication errors and exposure to potential toxicity from acyclovir. Even though the incidence of HSV in infants age <4 weeks ranges from only 1 in 3000 to 1 in 20,000, we are aware of the devastating consequences of the infection and, in the absence of clinical precision, obtaining HSV studies in an infant with CSF pleocytosis is often believed to be essential. (Reviewer-Mark F. Ditmar, MD).
According to a recent study, the measles-mumps-rubella vaccination is not associated with an increased incidence of autism.

**Objective:** To determine if the measles-mumps-rubella (MMR) vaccine increases the risk of developing autism.

**Methods:** The authors looked at the relationship of when the MMR vaccine was given and the incidence of autism. There were 2 matched normal controls for each child with autism studied. Other factors evaluated included maternal age, gestational age, medications used in pregnancy, Apgar scale score, and perinatal injury. The parents were asked when the diagnosis was made and when the first symptom of autism was detected. Some children received only the measles vaccine since initially in Poland the MMR vaccine was not covered; however, most children received the MMR vaccine in this study. There were a few patients who were not vaccinated with either vaccine in the 2 groups.

**Results:** 96 children with autism and 192 controls were enrolled in the study. Of these children, 81% were boys. About 13.0% of the autism group had mothers who were aged ≥35 years at time of delivery compared to 7.2% of mothers in the control group. The study group was more likely to have a premature gestational age and mothers who took drugs, such as antihypertensive drugs and antibiotics, during their pregnancy. Of the parents, 40% recognized symptoms before age 1 year in the autism group. This number increased to 69% by age 2 years. Almost half the children with autism were diagnosed by age 2 years, 22% were diagnosed by age 3 or 4 years, and 9% were diagnosed after age 4 years. Of the autism group, 64.6% was vaccinated at age 12 to 18 months (76.6% in the control group). A total of 44% of the autism group received the MMR vaccine and 55% of the control group. Statistical analysis did not show there was a positive association with the measles vaccine. There was even a lower risk with children who received the MMR vaccine. There was a very low risk for autism in the vaccinated versus the nonvaccinated children. When looking at the timing of vaccine given, there was a decreased probability of autism when the vaccine was given before the diagnosis. Children given the MMR vaccine had a lower risk of being diagnosed with autism than nonvaccinated children.

**Conclusions:** This study provides more evidence that there is no relationship between the MMR vaccine and onset of autism.

**Reviewer’s Comments:** Since MMR vaccine became common in the early 1970s, there was little research with autism and the MMR vaccine. This article confirms what many pediatricians concluded. This article provides scientific evidence to make that conclusion. The authors only studied the MMR vaccine and autism and did not include pervasive developmental delays. The paper also added information about the contribution of older parents and prematurity as risk factors for autism. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Autism, Measles-Mumps-Rubella Vaccination

Print Tag: Refer to original journal article
Where Do Infants Acquire Pertussis?

Pertussis Disease Burden in the Household: How to Protect Young Infants.

de Greeff SC, Mooi FR, et al:

Clin Infect Dis 2010; 50 (May 15): 1339-1345

Because young infants are at high risk for significant morbidity from pertussis and more than half with a known source acquire the infection from their parents, vaccination strategies advising immunizations for new parents should be considered.

**Objective:** To determine who introduced pertussis into the household of infants age ≤6 months.

**Design:** Population-based, nationwide, prospective study done in the Netherlands.

**Methods:** From early 2006 to the end of 2008, pediatricians, microbiologists, and local public health services reported any infant age <6 months hospitalized with *Bordetella pertussis* or *Bordetella parapertussis* to the Dutch equivalent of the Centers for Disease Control and Prevention. Upon agreement of the caretaker or parent of the infant, a home visit was conducted. In addition to a large amount of demographic, clinical, and family information, including recent symptoms, nasopharyngeal and buccal swab specimens for pertussis polymerase chain reaction (PCR) and culture were collected from all household contacts. Blood samples for pertussis serologic testing were also obtained from family members. Four to 6 weeks later, follow-up data on symptoms were obtained by phone on all participants. Immunization status was determined on the hospitalized infants and all children age <13 years participating in the study. If a PCR study, culture, or serologic tests yielded positive results, that household contact was regarded as having a confirmed case of pertussis. The family member with pertussis was considered the source if the onset of symptoms occurred >1 week before onset of symptoms in the infected infant.

**Results:** 164 hospitalized infants were studied, as well as 560 household contacts. Of those studied, 53% of household contacts (299 of 560) had laboratory-confirmed pertussis. Of these, 53% had symptoms compatible with pertussis and 14% had no symptoms. In 96 households (about 60% of those studied), a likely source of infection could be identified. Siblings were responsible in 41% of cases, followed by mothers in 38% and fathers in 17%. Of note, of the children who had been completely vaccinated with an acellular pertussis vaccine, 29% had typical pertussis 1 to 3 years after completion of the primary series.

**Conclusions:** If immunity to pertussis could be maintained or boosted in parents, 35% to 55% of infant cases of pertussis infection could be prevented. A significant percentage of children are again susceptible for pertussis 1 to 3 years after vaccination.

**Reviewer’s Comments:** The authors propose other options to lessen the burden, including beginning the vaccination schedule at an earlier age. Initiation of the pertussis vaccine at 6 weeks of age (and a single dose offers protection against severe disease) would have theoretically prevented severe disease in 40% of patients in this study. If proven safe, vaccination in the newborn period or vaccination during pregnancy could protect infants in the first weeks of life. Selective vaccination of new parents, advised by some pediatricians, would reduce transmission. It is something to consider with parents when having that discussion on what actions might be potentially beneficial for the new baby. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Pertussis

Print Tag: Refer to original journal article
How Safe Are Different Antidepressants for Use in Children and Adolescents?

Comparative Safety of Antidepressant Agents for Children and Adolescents Regarding Suicidal Acts.
Schneeweiss S, Patrick AR, et al:

Pediatrics 2010; 125 (May): 876-888

There are no significant differences between risk ratios for different antidepressant agents and the risk of suicidal acts in children and adolescents.

Background: In 2004, the Food and Drug Administration (FDA) warned that antidepressant use in adolescents and children might be associated with an increased risk of suicidal thoughts and actions. Evidence behind this warning was a meta-analysis of randomized, controlled trials of antidepressants in this age group. Unfortunately, this type of study has issues that warrant further consideration.

Objective: To determine the risk of suicide and suicide attempts after the initiation of individual antidepressant agents in children and adolescents.

Design/Participants: Cohort study of children ages 10 to 18 years in British Columbia who started an antidepressant agent between 1997 and 2005.

Methods: Data were abstracted from the PharmaNet database from the British Columbia Ministry of Health. Information included the drug name, dose, and dispensed quantity. Antidepressants were coded as one of the following: selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors, tricyclics, monoamine oxidase inhibitors, and atypical agents. Exposure ended 14 days after a patient would have run out of the drug. Outcomes of interest included attempted suicide, completed suicide, and suicidal acts. A number of International Classification of Diseases, Ninth Revision (ICD-9) and ICD-10 codes were used to identify these outcomes. Patient-level data were gathered at treatment initiation and included age, gender, year of cohort entry, family income, acute hospitalizations, and a co-morbidity score.

Results: Over the 7-year study, almost 21,000 children and adolescents qualified for entry into the cohort. Almost two thirds were girls. At baseline, about 7% had been previously hospitalized with a psychiatric condition, 2% had attempted suicide, and about 3% were using stimulants. Most (80%) had not been on an antidepressant in the last 3 years and were eligible for the full analysis. Over the first 3 years of use, there were 266 attempted suicides and 3 completed suicides, for a total of 27 suicidal acts per 1000 person-years. SSRIs were the most commonly used antidepressant (78%). There were no significant differences between rate ratios comparing different SSRIs with each other or tricyclics with SSRIs.

Conclusions: There were no significant differences between risk ratios for different antidepressant agents and the risk of suicidal acts. This supports the FDA's decision to include all antidepressants in the black box warning they issued. This reinforces the need to carefully monitor all children and adolescents who are placed on any antidepressant.

Reviewer's Comments: This is an excellent study using a large dataset to examine the relative safety of different antidepressants. It is interesting and should spur further study to see that there are no differences in classes with respect to risk of suicidal acts. The nonspecific black box warning is warranted. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Suicide, Antidepressants

Print Tag: Refer to original journal article
Children with persistent headaches are found to have abnormal biomarkers associated with vascular disease in adulthood.

**Background:** Adults with headaches have been found to have elevated C-reactive protein (CRP) and homocysteine levels as well as increased prevalence of obesity and dyslipidemia. It is also known that patients with migraine headaches with aura are at increased risk for cardiovascular disease and stroke. The association between vascular disease, its biochemical marker, and the presence of a headache disorder has not been studied in pediatrics.

**Objective:** To study the association of childhood headache with biomarkers of risk for cardiovascular and cerebrovascular disease.

**Design:** Cross-sectional survey.

**Participants:** 11,770 participants aged 4 to 19 years.

**Methods:** All data were obtained from the National Health and Nutrition Survey, which was conducted from 1999 to 2004. Demographics were tabulated. In the survey, all participants were asked, “During the past 12 months, have you had frequent or severe headaches including migraine?” In addition, the following laboratory measures were collected: triglyceride, high-density lipoprotein (HDL), low-density lipoprotein (LDL), total cholesterol, non-HDL cholesterol, CRP, homocysteine, folate, vitamin B\textsubscript{12}, uric acid, methylmalonic acid, and platelet count. Presence of asthma was also reviewed, because there is a known, strong association between headaches and asthma. Finally, quintiles of risk for each marker were assessed, and factor analysis for at-risk groups was performed.

**Results:** 20% of participants reported headaches. This subgroup was more likely to be older, a girl (if age >12 years), African American, and of lower socioeconomic status. They were also more likely to have an elevated body mass index (BMI), CRP, or homocysteine level and a lower vitamin B\textsubscript{12} and folate level. More participants with headaches were in the highest-risk quintile for CRP, BMI, homocysteine, and folate. If these characteristics were evaluated by presence or absence of asthma, twice as many participants with headaches had ≥3 of these biomarkers. Factor analysis defined 2 groups of children with headaches at risk: one was by folate and homocysteine levels and the other was by CRP level plus the presence of asthma.

**Conclusions:** Participants with recurrent or severe headaches were more likely to have abnormal values of biomarkers known to be predictive of cardiovascular and cerebrovascular disease in adulthood.

**Reviewer's Comments:** My favorite part of this study is the factor analysis findings that suggest 2 at-risk groups, because it may help me answer the forever-present question, “Which kid with the headache do I worry about?” It also broadens my assessment to consider not only short-term concerns, such as an oncologic process, but also to consider headache, in the context of asthma or some biomarkers, as a symptom for later cardiovascular or cerebrovascular disease. In these children, I am now pushed to ask more questions and be more assertive with my anticipatory guidance. (Reviewer-Lisa Humphrey, MD).
Acetaminophen is shown to be superior to placebo for the treatment of migraines in adults.

**Objective:** To determine the effectiveness of acetaminophen for reducing acute migraine headaches in adults.

**Design:** Double-blind, placebo-controlled trial with 10 investigators at 13 sites.

**Participants/Methods:** Patients age ≥18 years with a history of migraine headaches with or without aura were included in the study. They had at least 1 headache every 2 months but no more than 6 in a month. To be included in the study, patients needed to have a history of over-the-counter (OTC) use of medications, be able to differentiate tension from migraine headache, and, if female, be non-postmenopausal or using birth control for the previous 3 months. Exclusion criteria included 50% incapacitating migraine headaches, 20% vomiting associated with headache, renal or liver disease or history of head and neck trauma. Patients received either 1000 mg of acetaminophen or placebo. Headache questionnaires were given to determine if the headache was a migraine or other type. Pain scales were given to the patients with scoring details about the headache and relief given after the study medication or placebo was given. Other outcomes included reduction in photophobia, nausea, and phonophobia. Adverse events were recorded in both groups.

**Results:** 114 in the treatment group and 94 in the placebo group completed the study. There were no significant differences in characteristics of migraine headaches. A total of 29% had severe baseline pain and 22% had auras. Nausea was present in 57% of patients, and >90% were sensitive to noise and light. Of the patients, 52% who took acetaminophen reported no pain 2 hours after ingestion of the medication, as compared to 32% in the placebo group. The pain reduction was maintained over a 6-hour period. There was a significant reduction in the absence of symptoms such as nausea, photophobia, and phonophobia at 2 and 6 hours post-ingestion of acetaminophen. The majority of patients who withdrew from the study did so due to need of a rescue medication. There was a lower adverse-event profile in the study group than in the placebo group (33% in the treatment group and 45% in the placebo group).

**Conclusions:** In adults, the use of acetaminophen was superior to placebo for the treatment of migraines.

**Reviewer's Comments:** Encouraging patients to use a safe medication for headaches should be first line before using prescription medication. This study was in adults and it is quite clear a study may have a significant practical effect in children. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Migraine Headache

Print Tag: Refer to original journal article
**Background:** Cystic fibrosis (CF) screening in asymptomatic newborns can generate false-positive results, which can have lasting psychological effects on parents.

**Objective:** To evaluate the effect of false-positive CF newborn screening results on parental stress.

**Design/Participants:** Prospective, observational study involving children with false-positive screening results.

**Setting:** 11 French CF centers.

**Methods:** Parents were informed of the initial screening result by phone using a standardized script. CF was not mentioned during the phone call, and parents were told that additional testing was needed because of a technical problem with the test. Sweat tests were performed on children within 1 to 2 days, and the results were returned within an hour. One parent from each family (usually the mother) was interviewed by a psychologist and administered the Perceived Stress Scale (PSS) and the Vulnerable Child Scale (VCS) at 3 months, at 1 year, and at 2 years after the result. Stress outcomes were compared between children found to have 1 CF mutation (heterozygote [HZ]) and parents of children with no CF mutations.

**Results:** 62 parents had HZ children, and 24 had children with no mutations. There were no differences between groups with respect to parent age, socioeconomic status, and number of children. At 3 months, the only significant difference between groups was that 17% of parents of HZ children had residual anxiety compared to 0% of parents of children with no mutation ($P = 0.024$). Of note, 4 of these 10 HZ parents reported poor understanding of the test process and expressed doubt about the test's reliability. There was no significant difference in PSS or VCS scores between the groups at 3 months. There was notable loss to follow-up, with 40 subjects in the HZ group and 17 in the no-mutation group remaining at year 1 and 36 and 11, respectively, remaining at year 2. Parents lost to follow-up each year were significantly less stressed at their last follow-up than the remaining families. At years 1 and 2, there were no differences between the HZ group and the no-mutation group with respect to residual anxiety, PSS or VCS scores, or understanding of test results. Of note, at year 2, 11% of parents in the HZ group reported anxiety and 14% thought of CF when the child was ill compared with no parents in the no-mutations group.

**Conclusions:** Parents of children with false-positive results who were found to be CF HZ through newborn screening were more likely to have persistent anxiety about their child’s test result and health compared to parents of children who were found to have no mutations.

**Reviewer’s Comments:** This study demonstrates that it is important for physicians to be aware that even though newborn screening testing has been completed, a small proportion of parents may still ruminate about the findings and worry about their child’s health. (Reviewer-Beth A. Tarini, MD).

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**Keywords:** Cystic Fibrosis Screening, False-Positive Results, Parental Stress

**Print Tag:** Refer to original journal article
Use of Remote Echo Transmission Is Accurate and Cost-Effective

*Remote Diagnosis of Congenital Heart Disease: The Impact of Telemedicine.*
Grant B, Morgan GJ, et al:
Arch Dis Child 2010; 95 (April): 276-280

Congenital heart disease can be accurately diagnosed by electronic transmission of real-time echocardiography performed by a general pediatrician with cardiologist guidance.

**Background:** There is evidence of effective electronic transmission of remote echocardiographic images for the diagnosis of congenital heart disease, but there is a lack of long-term accuracy studies and cost-effectiveness analysis.

**Objective:** To assess accuracy of transmitted real-time echocardiographic images, cost implications, and impact on patient management.

**Design/Methods:** Prospective study performed between 1999 and 2006 using telemedicine links between a regional pediatric cardiology center and 3 remote district hospitals in Ireland. Patients were included if the attending pediatrician suspected a major congenital heart lesion requiring urgent consultation. The local pediatrician performed an echocardiogram to reach a provisional diagnosis. A second echo was transmitted in real time to a pediatric cardiologist to establish a working diagnosis and plan. Management options included urgent transfer to the cardiology center or continued care at the district hospital. Final diagnosis was determined following hands-on echocardiography after patient transfer or during a subsequent outpatient visit (for those not transferred). Diagnosis was considered major congenital heart disease if the defect was likely to require intervention in infancy and minor if the lesion was present but not expected to require intervention within the first year. All relevant costs were compared for each care pathway.

**Results:** 109 transmitted echocardiograms were suitable for analysis. Congenital heart disease was diagnosed in 84 cases (36% major, 41% minor). The echocardiogram performed by the general pediatrician was 58% accurate compared to the cardiologist's hands-on study, but this increased to 96% with the addition of real-time guidance. Of the patients, 75% were managed at the district hospital as a result of telemedicine. Interpretation of transmitted echocardiography led to clinically insignificant errors in 4 cases. Participating hospitals showed a per-patient cost savings as a result of telemedicine utilization.

**Conclusions:** Transmission of echocardiographic images by telemedicine yields high diagnostic accuracy if the study and interpretations are live-guided by a pediatric cardiologist. Cost savings are expected due to limited need for patient transfer to a specialty center.

**Reviewer's Comments:** To rely on this technology, general pediatricians must develop comfort and expertise in performing echocardiograms. In this study from Ireland, attempts without live cardiologist guidance were far inferior. In 5 cases that were excluded from the study, the pediatrician was unable to obtain adequate images for interpretation. The authors are optimistic that real-time transmission, and the regular feedback that this ensures, provides invaluable education to involved pediatricians. Though per-patient cost savings was demonstrated, reduction in costs of initial start-up and equipment maintenance are necessary for improved cost-effectiveness in the future. There is no discussion here of parental acceptance. Immediate off-site expert consultation, without transport to another facility, offers clear benefit. As with most new technology, trust of the system may not be as immediate, but a 96% accuracy rate certainly provides a convincing start. (Reviewer-Alyssa Siegel, MD).

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**Keywords:** Congenital Heart Disease, Echocardiography, Telemedicine

**Print Tag:** Refer to original journal article
Dysfunctional Uterine Bleeding—Endocrine & Metabolic Conditions Can Be the Cause

Dysfunctional Uterine Bleeding in Adolescent Females Associated With Endocrine Causes and Medical Conditions.


The most commonly identified cause of excessive menstrual bleeding is von Willebrand (vWB) disease, which occurs in 1% of the population; dysfunctional uterine bleeding is the presenting symptom in 35% of women with vWB disease.

**Background:** Dysfunctional uterine bleeding (DUB) is defined as abnormal uterine bleeding (larger, longer, fewer, or irregular menstrual periods) in the absence of organic disease.

**Objective:** To review the endocrine causes and metabolic conditions associated with DUB in the adolescent female.

**Design:** Clinical and literature review. **Review:** The authors advise the use of history and physical examination to direct evaluation into 3 potential diagnostic areas: severe bleeding or heavy bleeding with initial menarche, dysfunctional bleeding associated with hirsutism, or chronic anovulation and/or irregular menstrual cycles. Physical examination should particularly focus on dermatologic conditions (excessive acne, acanthosis nigricans, temporal balding, hirsutism, abdominal striae, pallor, or petechiae). Initial blood work should include a pregnancy test and a complete blood count. With larger-than-normal bleeding (>80 mL per cycle or cycles longer than 7 days), the evaluation should include studies for coagulation factor deficiencies and platelet disorders. The most commonly identified cause of DUB is von Willebrand (vWB) disease, which occurs in 1% of the population. DUB is the presenting symptom in 35% of women with excessively heavy menstrual periods. Thus, the laboratory evaluation should include vWB studies (vWB factor antigen, ristocetin C co-factor), as well as a partial thromboplastin time and prothrombin time. Depending on the results, additional hematologic studies may be needed. For those teenagers with features suggestive of excess androgens, the most common cause is polycystic ovary syndrome. Patients with hyperprolactinemia may also have features of hirsutism. Consequently, in settings of possible increased androgens, the authors suggest the screening lab tests consist of levels of follicle-stimulating hormone and prolactin. In patients with very irregular periods or oligomenorrhea, diabetes needs to be considered, because glycemic control appears to have a direct effect on abnormal menstrual bleeding via a central disruption of the hypothalamic-pituitary axis. Evaluations including fasting glucose or a 2-hour glucose tolerance test are recommended.

**Conclusions:** Although adolescents can have abnormal menstrual cycles from immaturity of the hypothalamic-pituitary-ovarian axis, endocrine and metabolic conditions can be the cause. History or physical examination features suggestive of these secondary causes should prompt additional evaluations.

**Reviewer's Comments:** The authors present a clear algorithmic approach to the diagnosis of DUB as well as a useful chart on the types of contraceptives that can be used in various medical conditions. Given the complexities of potential diagnoses in those with secondary DUB and variations in treatments, a multispecialty approach is often required for management of the underlying cause. So, be sure to consider secondary causes if you are faced with a teenager whose menstrual periods are significantly divergent from normal. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Dysfunctional Uterine Bleeding

Print Tag: Refer to original journal article
Inattention Symptoms May Change When Classrooms Change

Instability in Teacher Ratings of Children's Inattentive Symptoms: Implications for the Assessment of ADHD.

Rabiner DL, Murray DW, et al:

J Dev Behav Pediatr 2010; 31 (April): 175-180

Inattention symptoms are not permanent.

**Background:** The diagnostic criteria for attention-deficit hyperactivity disorder (ADHD) state that symptoms of hyperactivity or inattention last 6 months. This 6-month restriction may not require 2 independent observers in 2 classes or consider the possibility that children are hyperactive because they are facing short-lived stress or adjustments to new school or home environments.

**Objective:** To compare teacher ratings from successive classes of children suspected of having ADHD.

**Participants:** Data from students were obtained from 3 groups of ongoing studies of ADHD. Group 1 included 27 first-grade students diagnosed as having attention difficulties who were recruited for a study evaluating different computer interventions for enhancing attention and academic performance. Group 2 included 24 students who were in a study of social aggressive behavior. Group 3 included 28 students from a study of multimodal treatment of children with ADHD.

**Methods:** Teachers rated students' inattention symptoms, oppositional behavior, hyperactive/impulsive symptoms, and anxiety using standard testing.

**Results:** All 3 groups had elevated scores for hyperactivity/impulsive and oppositional symptoms. Ratings were above average in all 3 samples but within a standard deviation of the normative mean. Comparison of ratings of individual students in 2 successive years showed that between 37% and 36% remained elevated and 25% to 50% lessened to place them into the normative group. Even in the third group of children with ADHD in a treatment program, the scores decreased in almost 50% of students.

**Conclusions:** Hyperactivity symptoms are not stable over multiple observations. These behaviors may stem from many factors, such as the environment, reaction to teachers, and family situations. Annual assessments are important to detect changes in symptoms.

**Reviewer's Comments:** In this complicated study of a small number of students, the point that teacher observations of students' hyperactivity, distractibility, and oppositional behavior are not only the result of the individual child's characteristics but also the environment of school, home, and maturity status. This reminds me of the premier English pediatrician John Apley who wrote a book, "The Child and the Symptoms," reminding us to consider both the behavior and the situations in which the child lives. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Inattentive Symptoms, Teacher Rating Instability

Print Tag: Refer to original journal article
Is Tachypnea a Sensitive Indicator for the Presence of Pneumonia?

Lack of Predictive Value of Tachypnea in the Diagnosis of Pneumonia in Children.

Shah S, Bachur R, et al:

Pediatr Infect Dis J 2010; 29 (May): 406-409

Tachypnea is not a sensitive indicator for the presence of pneumonia when radiography is available.

Background: The World Health Organization (WHO) has criteria for the diagnosis of pneumonia in underdeveloped countries that are based on a child’s age and respiratory rate (RR). These criteria have been shown to detect >80% of children in resource-poor settings who require antibiotic treatment. Using tachypnea as an indicator of pneumonia in other settings is limited.

Objective: To determine the relationship between tachypnea and pneumonia in a pediatric emergency department.

Design: Prospective, observational study.

Participants: 1622 children age ≤5 years undergoing a chest x-ray (CXR) for presumed pneumonia. Median age of the enrolled population was 1.4 years (55.6% male). The age distribution was 6%, 32%, and 62% for <2 months, 2 to 12 months, and 1 to 5 years, respectively. Children with other indications for CXR, such as cardiac disease or trauma, or those with a known predisposition for pneumonia, such as sickle cell disease, were excluded.

Methods: There were 3 definitions of tachypnea, including (1) mean RR at triage by age group, (2) age-defined tachypnea based on WHO guidelines, and (3) physician-assessed tachypnea determined subjectively. Pneumonia was defined by CXR finding read by a pediatric radiologist. Equivocal findings (eg, atelectasis vs pneumonia) were considered to be positive.

Results: Fever was seen in 71%. Pneumonia diagnosed by CXR was found in 234 (14.5%) of 1622 eligible children. RR at triage was 39/min for those with pneumonia versus 38/min for those without pneumonia, although the subset of those ages 1 to 5 years showed a higher RR among those with pneumonia (37.6 vs 34.5; \( P =0.002 \)). Pneumonia was seen in 20.4% of those with WHO criteria for tachypnea compared to 12.1% without tachypnea (\( P <0.001 \)). This difference was not present among children aged <1 year. The sensitivity of these criteria was 40%, the specificity was 74%, the positive-predictive value was 20%, and the negative-predictive value was 88%. A positive physician assessment of tachypnea was seen in 17% of those with pneumonia versus 13% without pneumonia (\( P =0.07 \)).

Conclusions: Children with tachypnea based on WHO criteria are more likely to have pneumonia than children without tachypnea; however, the presence of tachypnea alone at triage or noted subjectively did not discriminate between children with and those without pneumonia on CXR.

Reviewer’s Comments: The authors found a slightly better relationship between RR and pneumonia when those with wheezing were eliminated from the analysis. It is important to note that the best age to distinguish tachypnea as an indicator for the presence of pneumonia is among children age >1 year, because children age <1 year can have other causes for tachypnea, such as bronchiolitis. Although helpful, the presence of tachypnea should not substitute a CXR if radiology services are available. (Reviewer-Seth L. Schulman, MD).

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Keywords: Pneumonia, Tachypnea

Print Tag: Refer to original journal article
Physical fitness is associated with higher standardized test scores.

**Background:** School systems increasingly de-emphasize the importance of physical fitness in favor of time spent in the classroom. Recent studies, however, suggest that obesity and lack of physical fitness may impact learning and academic achievement.

**Objective:** To investigate if aerobic fitness and body mass index (BMI) are associated with standardized test scores.

**Design:** Retrospective review of the records of 1989 students in 5th, 7th, and 9th grades in California public schools.

**Methods:** The authors reviewed school records for results of statewide mandated physical performance testing (including body fitness, height, and weight), standardized test scores for reading and math, and student demographics. Body fitness was determined by the time it took for the student to run/walk 1 mile. Height and weight were measured with a stadiometer and balance beam scale, and BMI was calculated. California Achievement Tests version 6 and California Standards Tests for reading and math were scored.

**Results:** This was an ethnically diverse group: 59% were non-Hispanic white, 27% were Hispanic, 7% were African American, and 6% were Asian/Pacific Islander. Of the students, 65% had a fitness level that was below recommended standards. African-American students were approximately half as likely as Asian-American or non-Hispanic white students to achieve fitness standards. A total of 31.8% of boys and 27.7% of girls were overweight or obese. African-American and Hispanic students were twice as likely as Asian or non-Hispanic white students to be overweight or obese. When standardized test scores were compared with physical fitness and BMI, there was a linear trend for both. Even after controlling for patient education, socioeconomic status, gender, and ethnicity, decreasing levels of physical fitness and increasing BMI were both associated with decreasing standardized test scores for both language and math. In fact, math and reading scores dropped 1.9 and 1.1 points (out of a possible 99.0), respectively, for each additional minute it took to complete the mile run/walk. When both BMI and physical fitness were included in the statistical calculations, BMI was no longer significant, suggesting that the effect of obesity on test score performance may be mediated by physical fitness.

**Conclusions:** Aerobic fitness is associated with improved performance on standardized achievement tests.

**Reviewer's Comments:** It is stunning, but perhaps not surprising, that two thirds of students had a fitness level below recommended standards and that one third of students were overweight or obese. While we don't yet know how body weight and fitness level impact academic achievement, educators should pay attention to this and similar studies. School systems, in their efforts to improve test scores, have, ironically, diminished or eliminated time spent in physical education and recess. This study indicates that this emphasis on academics to the exclusion of physical activity is misguided. (Reviewer-Rachel Moon, MD).

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**Keywords:** Physical Fitness, Test Scores, Obesity, Body Mass Index

**Print Tag:** Refer to original journal article
The presence of an intraluminal mass, non-visualized air-filled cecum, or an obscured liver margin found on abdominal radiograph are diagnostic of intussusception.

**Background:** It is a widely held belief that abdominal radiographs are far inferior to ultrasound in the detection of intussusception. Some studies report sensitivities as low as 29%, but no one has looked at the sensitivity of an intraluminal mass, non-visualized air-filled cecum (no air in the right colon), or an obscured liver margin on abdominal radiograph to detect intussusception.

**Objective:** To determine the sensitivity, specificity and accuracy of intraluminal mass, non-visualized air-filled cecum, or an obscured liver margin on abdominal radiograph to detect intussusception.

**Design:** Retrospective, case-control study of 73 known cases of intussusception and 73 matched controls.

**Methods:** Abdominal radiographs of all 146 participants were independently reviewed by 2 blinded radiologists. Their interpretation included the percent likelihood for intussusception. Sensitivity, specificity, and accuracy of diagnosis based on the presence of an intraluminal mass, non-visualized air-filled cecum, or an obscured liver margin was assessed. The frequency of each of these findings in the known cases versus controls was also determined. Finally, the sensitivity, specificity, and accuracy of any 1 of 3 of these findings for intussusception were also determined.

**Results:** For intraluminal mass, the sensitivity for intussusception was 35%, the specificity was 98%, and the accuracy was 67%. For non-visualization of the cecum, the sensitivity was 58%, and the specificity and accuracy were 84% and 71%, respectively. Obscured liver margin was 50%, 97%, and 73% for sensitivity, specificity, and accuracy, respectively. Sensitivity, specificity, and accuracy for any 1 of the 3 signs were 82% for each. In the control cases, 3% had an intraluminal mass, 27% had non-visualized air-filled cecum, and 6% had an obscured liver margin. In comparison, 47% of intussusception cases had an intraluminal mass, 78% had a non-visualized cecum, and 63% had an obscured border.

**Conclusions:** This study revealed that all 3 signs have good specificity for intussusception; however, sensitivities, or the ability to rule out intussusception, were poor. The presence of an intraluminal mass, in particular, had excellent specificity and was present in nearly half of all intussusception cases, suggesting that its presence could alleviate the need for an ultrasound prior to a therapeutic enema.

**Reviewer's Comments:** I suspect I am confessing youth when I state that I am excited and surprised to think there could be another, easier way to detect intussusception. Sure, I was trained to know that there are "soft signs" for intussusception on radiographs, but I did not realize the specificity and prevalence for an intraluminal mass were so high. It is great to consider that we could bypass an ultrasound for the therapeutic enema, thereby reducing the risk for complications secondary to intussusception. (Reviewer-Lisa Humphrey, MD).
Repairing or revising a circumcision is a common procedure, and adequate training must be done to help the reduction in complications from elective circumcisions.

**Objective:** To review the complications from newborn circumcisions and evaluate the types of procedures to correct the affecting complication.

**Design/Methods:** Retrospective review of all operative reports from the Department of Pediatric Surgery and the Section of Pediatric Urology at Massachusetts General Hospital over a 5-year period. The charts were reviewed for both surgical and clinical visits.

**Results:** There were 424 procedures to repair complications from circumcisions. The mean age for operation was at 9 months. These repaired circumcisions accounted for 4% of all pediatric surgeries in the 5-year time frame. The types of procedures included release of preputial adhesions, redo circumcision, repair of buried penis, correction of chordee or penile deviation, repair of paraphimosis, and meatotomy. The most common reason was revision of a circumcision due to incomplete circumcision, which was 40% of surgeries. A total of 185 boys had redundant foreskin with unsightly appearance. Penile rotation or deviation was repaired due to penile degloving. Meatotomy was the second most common procedure due to urine stream issues or urinary retention. The financial impact was significant. The cost was >$1600 per procedure, which would be estimated to an average of $137,122 annually.

**Conclusions:** Repairing or revising a circumcision is a common procedure, and adequate training must be done to help the reduction in complications from elective circumcisions.

**Reviewer's Comments:** There are many types of physicians who perform circumcisions. It is not surprising that redundant skin or adhesions are the most common reasons for repeat circumcisions; however, the increased need for a meatotomy was surprising. In another article, there was a hypothesis that the meatal stenosis might be due to ischemia from damage to the frenular artery. In that study by Dr Van Howe, meatal stenosis occurred in 7% of children age 3 and older who had a circumcision. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Circumcision

Print Tag: Refer to original journal article
Objective: To determine the clinical significance of extreme leukocytosis (>25,000/mm3) as a predictor of serious bacterial infection (SBI) in children ages 3 to 36 months.

Design: Retrospective, case-control study.

Methods: The investigators identified children ages 3 to 36 months admitted to an emergency department in Israel with fever who had a complete blood count (CBC) performed. Children at an increased risk for bacterial infections and those who had received a course of antibiotics within 48 hours prior to their arrival were excluded. Febrile children with white blood cell counts ≥25,000/mm3 (extreme leukocytosis) were eligible for inclusion. The next 2 consecutive febrile patients with WBC counts between 15,000 and 24,999/mm3 were placed in the control group. Primary outcome measure was the presence of an SBI. The authors considered bacteremia, urinary tract infection, meningitis, pneumonia (as diagnosed by consensus of 2 pediatricians' blinded reviews of chest x-rays), bacterial gastroenteritis, mastoiditis, osteomyelitis, septic arthritis, and lymphadenitis all to be SBIs.

Results: 593 children were initially identified and had full data available, and 155 (26%) were excluded (mostly due to either not having a fever [n=63], recently being on antibiotics [n=66], or being age <3 months [n=19]). The study examined 146 patients in the extreme leukocytosis group and 292 in the control group. SBIs occurred in 39.0% of patients with extreme leukocytosis and in 15.4% of patients in the control group (P <0.001). Pneumonia was the most commonly diagnosed SBI in both the extreme leukocytosis group (28%) and the control group (9%). The rates of other types of SBIs did not statistically differ between the extreme leukocytosis group and the control group. Children with extreme leukocytosis were more likely to be hospitalized (52.7% vs 27.7%; P <0.001) and more likely to be placed on antibiotics (98.6% vs 50.7%; P <0.001).

Conclusions: Extreme leukocytosis in children ages 3 to 36 months with fever is associated with a higher risk of SBIs, mainly due to pneumonia. The authors recommend evaluating for pneumonia for 3- to 36-month-old children with fever and extreme leukocytosis.

Reviewer's Comments: While it is clear that a thorough workup for SBIs, including pneumonia, should be pursued for children ages 3 to 36 months with extreme leukocytosis, it is much less clear that a CBC should be ordered in the first place (given its inadequate sensitivity for identifying SBIs in general). To confuse matters further, this study's findings contradict a similar study in 2005's *Pediatric Infectious Disease Journal* by Shah et al. In addition, the lack of a gold standard for diagnosis of pneumonia calls into question the accuracy of the diagnosis based exclusively (as in this study) on fever and the pediatricians' interpretations of chest x-ray findings, without regard to any other clinical signs or symptoms. (Reviewer-Daniel Coghlin, MD).
A framework for describing why parents of children with gastroenteritis bring them to the emergency department is multifactorial, involving community-level, family-level, and child-level factors.

**Background:** Children in the United States who are age <5 years have, on average, 2 episodes of viral gastroenteritis each year. These account for up to 3-million annual office visits and 10% of admissions to the hospital. Recent studies have suggested that there is limited, if any, benefit to hospitalization for children with viral gastroenteritis. This means that most cases can likely be managed at home.

**Objective:** To test an interview guide for assessing how well parents understood what they were told at an emergency department (ED) visit about caring for children with viral gastroenteritis, and to develop a framework for understanding why parents bring children with viral gastroenteritis to the ED.

**Design:** Mixed-methods study conducted using a structured phone questionnaire.

**Participants/Methods:** A convenience sample of 10 families was selected from those who visited the ED with children between ages 3 months and 4 years with vomiting, dehydration, or diarrhea lasting <10 days. Those with significant illnesses of complicated symptoms were excluded. Thematic analysis was performed to understand why parents brought children to the ED.

**Results:** Many factors are responsible in some way for a parent's decision to bring a child to the ED. Advice from others could play a significant role. Length of the illness was also a factor that could come into play. Parents who believed their children were suffering were more motivated to bring them in, as were parents who felt inexperienced in dealing with the illness. Some associated the visit as "curative" because their children improved not long after the visit.

**Conclusions:** A framework for describing why parents of children with gastroenteritis bring them to the ED is multifactorial, with components at the level of the community, family, and child. Factors involving access to care also seem to influence the decision of whether to go to the ED. The qualitative methodology raises more questions than it answers. More work is needed to test this framework.

**Reviewer's Comments:** I find it hard to accept information from a study that is based on 10 phone calls to parents who brought their child to the ED for vomiting and diarrhea. It is one more documentation of common sense. Many factors influence the seeking of medical care, including advice from parents' associates. Somehow the journals need to screen out these so-called studies of a few responders. It is important to develop a conceptual framework to design and test future interventions. This is such work. (Reviewer-Aaron E. Carroll, MD, MS).

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**Keywords:** Dehydration, Gastroenteritis
There is a significantly greater risk of intussusception in children with bacterial enteritis, especially in the first 30 days following infection.

**Background:** Multiple studies suggest an association between intussusception and various infections. Further, the revoked oral rotavirus vaccine was removed from the market because of its association with intussusception. It is speculated that lymphoid hyperplasia resulting from enteric infection may serve as a lead point and explain the association with intussusception.

**Objective:** To evaluate the risk of intussusception as related to preceding bacterial infection.

**Design/Methods:** The registry of a Department of Defense medical center was used for this retrospective cohort study. The database was searched for diagnosis codes related to *Yersinia enterocolitica*, *Escherichia coli*, *Shigella* species, *Salmonella* species, and *Campylobacter* infections in children ages 0 to 5 years. Identified cases were then evaluated for codes consistent with intussusception in the ensuing 6 months, as were total number of cases of intussusception in the designated age cohort. Age and sex of the patient and corresponding dates of presentation were noted.

**Results:** 293 cases of intussusception were identified from a total population of 387,514 children. Identified were 1412 cases of bacterial enteritis, 37 (12.6%) of which went on to intussusception. The overall relative risk for intussusception following bacterial enteritis was 40.6. Relative risk was higher in patients ages 1 to 5 years than in those age <1 year. All bacterial species listed above, except *Yersinia*, were associated with intussusception, although cases of *Yersinia* were low overall. The interval from enteritis to intussusception ranged from 1 to 175 days, although the relative risk was greatest in the first 30 days after infection.

**Conclusions:** There is a statistically significant increase in the risk of intussusception following bacterial enteritis in the preceding 6 months.

**Reviewer's Comments:** The findings in this study are consistent with population-based trends that have shown decreases in rates of intussusception over time, coinciding with improved sanitation and hospitalization for diarrheal disease. Whether or not we understand the etiology (theories include mechanical factors related to immune response and altered bowel motility), recognizing the increased risk associated with bacterial infection may allow for more timely diagnosis of intussusception and minimize resulting morbidity and mortality. (Reviewer-Alyssa Siegel, MD).

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Keywords: Intussusception, Bacterial Enteritis

Print Tag: Refer to original journal article
**Background:** *Helicobacter pylori* is a common chronic bacterial infection of the stomach but is poorly understood in children.

**Objective:** To examine the effect of exposure to an *H pylori*-infected sibling on the risk of developing *H pylori* in younger siblings.

**Methods:** Mother's *H pylori* status (using 13C urea breath test) was determined when the index child was in utero. Follow-up visits began 6 months after birth of the index child and occurred every 6 months and included any younger siblings. The authors used adjusted survival analysis to evaluate the effect of having an older sibling with *H pylori* on the rate of developing an incident and/or persistent infection in the younger sibling. Persistent infection was defined as 3 positive breath tests without any interval negative test.

**Results:** 472 subjects and 143 siblings had ≥1 *H pylori* breath test. On average, index children were followed up for 3.8 years and younger siblings for 2.5 years. At last follow-up, the average age of younger siblings was 5.6 years. Of the mothers, 63% had antibodies against *H pylori*, and 88% of these mothers were in a household with a persistently infected child. Of index children, 45% acquired *H pylori* at least once during follow-up and 7% became persistently infected. Of younger siblings, 36% acquired *H pylori* and 7% became persistently infected. Importantly, among those index subjects (older siblings) who acquired *H pylori*, the younger sibling never acquired the infection before the older child. Controlling for mother's *H pylori* status, mother's education, household size, number of antibiotic courses, and months breast-fed, a younger sibling's risk of incident *H pylori* infection was not related to having an older sibling with an incident infection but was related to having a sibling with a persistent *H pylori* infection (hazard ratio [HR], 2.8; 95% CI, 1.6 to 4.9). The risk was greater for children living in the United States (HR, 3.5; 95% CI, 1.4 to 9.1). In addition, a younger sibling's risk of persistent *H pylori* infection was increased if their older sibling had a persistent infection (HR, 7.6; 95% CI, 1.6 to 37); however, this effect was tempered in U.S. children (HR, 8.9; 95% CI, 0.74 to 107).

**Conclusions:** A younger sibling's risk of developing a persistent *H pylori* infection is increased when an older sibling is infected.

**Reviewer's Comments:** This study provides important clinical information on an infection that is poorly understood in children. The takeaway points from this study are that *H pylori* tends to cluster and be persistent in families when either mother or older siblings are infected. Understanding this will help the clinician to treat this infection as more of a household illness than that of an illness affecting a single individual. (Reviewer-Beth A. Tarini, MD).

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**Keywords:** *Helicobacter pylori*, Transmission, Household, Siblings

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