Rotavirus Vaccine, when given to a majority of the population, can significantly reduce mortality from rotavirus gastroenteritis.

**Objective:** To determine the reduction in mortality from deaths from diarrhea over the years before routine vaccination and after vaccination with live rotavirus immunization.

**Methods:** The authors examined the rates of death from all types of diarrhea. They also evaluated the rates of vaccination for rotavirus through 3 health care delivery systems in Mexico. The rates of death from diarrhea were compared from 2003-2006 (pre-routine vaccination era) to 2008 (the post-routine vaccination era). Particular attention was paid to the classic rotavirus season, from December to May of each of these years.

**Results:** >800,000 first doses and >500,000 second doses of rotavirus vaccine were given to infants born in Mexico. Based on studies for the infant populations (those aged ≤11 months), 74% of Mexican infants received vaccine coverage for the first dose and 51% for the second dose. Vaccine coverage was low for children aged 12 to 23 months, with only 4% getting the first dose and 2% getting the second dose. The death rates from diarrhea in children aged <5 years in the pre-vaccination period (2003-2006) showed that 67% of deaths occurred in children aged ≤11 months, 23% occurred in children aged 12 to 24 months, and 10% occurred in those aged 24 to 59 months. In 2008, the vaccine was introduced and there was a significant blunting of the number of cases in children aged ≤11 months and in those aged 12 to 24 months. From 2003-2006, the annual rates of diarrheal deaths were 15 to 19 deaths per 100,000 children. In 2008, the rates decreased to 11.8 per 100,000 children, which was a reduction of 35%. In children ≤11 months of age, the rates fell from 61.5 to 36 per 100,000 children, for a reduction of 41%. In the next age group (12 to 24 months), the rates decreased as well, from 21 to 15 per 100,000, a reduction of 29%.

**Conclusions:** Rotavirus vaccine, when given to a majority of the population, can significantly reduce mortality from rotavirus gastroenteritis.

**Reviewer's Comments:** Many parents do not see the need or are very concerned about the vaccine being a live vaccine. Deaths from rotavirus (the disease) are rare. Yet, a study such as this shows the significant reduction of deaths, especially in the infant population. Although the vaccine was given to only 2% of children aged 12 to 24 months, there was a reduction of 29% of deaths in this same age group. This was primarily attributed to a reduction of disease burden in a home from other siblings or close contacts in the infant age group. There have been many studies in the United States showing reduced trips to emergency departments from rotavirus since introduction of the vaccine. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Rotavirus Vaccination, Diarrhea, Death

Print Tag: Refer to original journal article
Recurrent Fevers, Pharyngitis -- Consider PFAPA

A Clinical Review of 105 Patients With PFAPA (a Periodic Fever Syndrome).
Feder HM, Salazar JC:
Acta Paediatr 2010; 99 (February): 178-184

In patients with periodic fevers and pharyngitis, think of the syndrome PFAPA. Fevers respond well to brief courses of oral steroids, and the long-term prognosis is excellent.

**Background:** In 1987, a new periodic fever syndrome was described using the acronym PFAPA (Periodic Fever, Aphthous lesions, Pharyngitis, and cervical Adenitis).

**Objective:** To describe the presentations and outcomes of a large group of patients diagnosed with PFAPA.

**Design/Methods:** This was a retrospective review of the records of 105 patients seen in Connecticut from 1998 to 2007 who met the Connecticut case definition for PFAPA: at least 6 episodes of fever >38.9°C lasting no more than 10 days, with the fever recurring at regular intervals of 2 to 8 weeks. The patient had to be well between episodes, and the fever was not associated with arthritis, neutropenia, or rash. At the time of fever, the patient had to have at least 1 of the 3 major clinical findings associated with PFAPA (aphthous stomatitis, pharyngitis, or cervical adenitis). In this series, clinical follow-up was performed on as many patients as possible.

**Results:** The mean age of the patients was a little over 3 years; 83% were aged <5 years at the time of onset. Approximately two-thirds of the patients were male. The mean duration of fever was 4 days, and the mean interval between fevers was 28 days. Pharyngitis was the most common accompanying symptom in 85% of patients, with cervical adenitis in 62%, headache in 44%, and aphthous stomatitis in 38%. Approximately 25% of patients vomited with fever spikes, which might further confuse the diagnosis, especially early in the course. When the patient was ill with fever, most family members remained well. Laboratory tests were nonspecific. When treated, individual episodes of fever resolved quickly with a single dose of 1 mg/kg of prednisolone. In 20% of patients with PFAPA, there was spontaneous resolution after 33 months. Only one-fourth of patients had resolution of the fevers with cimetidine (a treatment often used as a possible immunomodulator). However, in 11 patients who underwent tonsillectomy, all had resolution of the fevers.

**Conclusions:** PFAPA is an entity that is defined by clinical characteristics. Fever resolves dramatically with oral prednisolone, and the overall prognosis is excellent.

**Reviewer's Comments:** Recurrent fevers can be a source of great anxiety for families. Thinking about and making the diagnosis of PFAPA can be rewarding as the symptomatic treatment is effective and the long-term outlook good. However, until the periodicity is clearly established, the fevers can be confusing. What causes PFAPA—relapsing infection, immune dysregulation? The etiology is unclear, and antibiotics don't make a difference. No pattern indicative of a viral process has been identified. While febrile viral illnesses are common, they are not periodic. An immune modulator (much like that seen in cyclic neutropenia) may be responsible.

(Reviewer-Mark F. Ditmar, MD).

© 2010, Oakstone Medical Publishing

Keywords: Fever

Print Tag: Refer to original journal article
Palivizumab -- Limited Effectiveness in Preventing RSV Hospitalizations

Impact of Palivizumab on RSV Hospitalizations for Children With Hemodynamically Significant Congenital Heart Disease.

Chang R-KR, Chen AY:

Pediatr Cardiol 2010; 31 (January): 90-95

The rate of RSV hospitalization is insignificantly improved since the implementation of palivizumab in patients with hemodynamically stable congenital heart disease.

Background: In 2003, the maker of palivizumab released a study showing a 45% reduction in respiratory syncytial virus (RSV) hospitalization in children with hemodynamically significant congenital heart disease (HS-CHD) through monthly administration of palivizumab. Soon after, the American Academy of Pediatrics (AAP) revised its palivizumab administration recommendations to include patients <2 years old with HS-CHD (ie, patients with CHD requiring medications for congestive heart failure, cyanotic heart disease, or moderate to severe pulmonary hypertension).

Objective: To assess the impact of palivizumab on RSV hospitalization rates in children with HS-CHD.

Design: Observational study.

Participants: Children <24 months of age with HS-CHD and acute RSV infection.

Methods: Investigators utilized the California Office of Statewide Health Planning and Development discharge data to determine the rate of RSV hospitalization by ICD-9 codes. From these data, participants with HS-CHD were identified by co-diagnosis fields related to HS-CHD. The number of RSV hospitalizations in HS-CHD participants between 2000 and 2003 (pre-palivizumab era) was then compared to the number of cases between 2004 and 2006 (palivizumab era) to determine the percent reduction in RSV hospitalization since the implementation of AAP recommendations. Cost analysis for RSV hospitalization was also performed.

Results: The RSV hospitalization rates of HS-CHD participants in California dropped by almost 20% from 2000 to 2006. Specifically, this resulted in 118 RSV hospitalizations from 2000 to 2003 versus 96 between 2004 and 2006, or 22 fewer RSV hospitalizations in the 3 years after implementation of palivizumab administration. Of note, from 2000 to 2006, neither length of stay nor incidence of intubation changed; however, mortality did decrease. Additionally, the cost analysis revealed that nearly $300,000 per year was saved since the initiation of palivizumab in California.

Conclusions: The administration of palivizumab to patients with HS-CHD resulted in 7 less RSV hospitalizations per year in California, for a cost savings of $300,000 per year. The investigators concluded that sparing only 7 fewer hospitalizations per year diminishes the utility of including HS-CHD patients in the AAP palivizumab policy.

Reviewer’s Comments: I wonder about the impact of collecting data immediately after the AAP changed its recommendations as it can take time for recommendations to become standard of care. As a result, the study may have underestimated the true effect of palivizumab in this population. Moreover, while I agree that saving only $300,000 a year is surprisingly low considering the effort needed to sustain good palivizumab prophylaxis, I disagree with the investigators that sparing 7 hospitalizations per year is of limited value, especially since it is accompanied by both decreased cost and mortality. (Reviewer-Lisa Humphrey, MD).

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Keywords: Palivizumab, Congenital Heart Disease, RSV

Print Tag: Refer to original journal article
Nasal Mupirocin Can Decrease Hospital-Acquired S. aureus Infections

Preventing Surgical-Site Infections in Nasal Carriers of Staphylococcus aureus.

Bode LGM, Kluytmann JAJW, et al:


A 5-day course of intranasal mupirocin and chlorhexidine soap can decrease the incidence of hospital-acquired infections.

Background: Staphylococcus aureus (SA) is a major cause of bacterial infections in hospitalized patients, and >80% of these infections are due to the same strain that is present in the patient's nasal mucosa.

Objective: To determine the impact of intranasal mupirocin on SA infections in hospitalized patients.

Design: Randomized, double-blind, placebo-controlled trial.

Methods: Adult patients admitted to either an internal medicine or surgical ward with an anticipated hospital stay of at least 4 days were screened, either upon admission or during the week before admission, for nasal carriage of SA by real-time PCR. Patients with a positive PCR for SA were randomized to treatment with 2% mupirocin ointment intranasally and chlorhexidine soap, or placebo ointment and placebo soap. Nasal ointment was applied twice a day, and the soap was used during a daily entire body wash. Patients received treatment for 5 days. If patients were hospitalized for a prolonged period, the same study treatment was repeated every 3 weeks.

Results: 918 patients were randomized. Patients in the 2 groups were statistically similar with regard to age, gender, and hospital service. Patients in the mupirocin group had a significantly lower incidence of SA infection (3.4%), than did the control group (7.7%; RR, 0.42). Furthermore, surgical site infections were decreased by 79% in the mupirocin group. The mean length of hospital stay was 1.8 days shorter in the mupirocin group. All of the SA strains causing hospital-acquired infections were susceptible to both methicillin and mupirocin.

Conclusions: Rapid detection of SA carriage by real-time PCR and immediate decontamination with intranasal mupirocin and chlorhexidine soap can result in significant decreases in hospital-acquired infection with SA and decreased length of hospital stay.

Reviewer's Comments: This study was funded by companies that manufacture mupirocin and chlorhexidine soap. In addition, the key to success in this study was the detection of nasal carriage by real-time PCR, which is expensive and may not be available to most of us in practice. It would have been interesting to see a cost-effectiveness or cost-benefit analysis in this study. (Reviewer-Rachel Moon, MD).
High Fever and Febrile Seizure -- Consider Roseola

Febrile Seizures and Primary Human Herpesvirus 6 Infection.
Laina I, Syriopoulou VP, et al:

Pediatr Neurol 2010; 42 (January): 28-31

Roseola or HHV-6 infection represents a small but significant reason for high spiking fever leading to a febrile seizure.

**Background:** Febrile seizures are common in children and are terrifying for most parents. Many of these children arrive in the emergency department (ED) for a complete and sometimes invasive evaluation. Roseola, or human herpesvirus 6 (HHV-6) infection, is a common childhood illness. It usually involves high fever for a few days with the subsequent classic rash after the fever resolves; 70% of most children <2 years of age will acquire this virus.

**Methods:** In a tertiary hospital in Athens, Greece, children were recruited who had a febrile seizure without any known neurologic/metabolic condition over a 5-year period. Children were considered to have primary HHV-6 with the detection of viral DNA acute-phase PCR and a 4-fold increase in seroconversion HHV-6 IgG. Children who had a seroconversion only with a negative PCR were considered to have possible HHV-6 infection. A matched control group was used from the same hospital of children who were undergoing elective surgery during the same time period.

**Results:** 130 children met criteria; however, only 65 returned for the follow-up blood test looking for the seroconversion of HHV-6 IgG. There were 36 males and 29 females. Of the 65 patients, 15% had a positive primary HHV-6 infection. The mean age was 17 months. There were 3 cases with possible HHV-6 who had seroconversion but with a negative PCR. One of the cases was complicated with acute otitis media during the diagnosis.

**Conclusions:** Roseola or HHV-6 infection represents a small but significant reason for high spiking fever leading to a febrile seizure in children.

**Reviewer's Comments:** One of the problems with roseola or HHV-6 infection is that it is diagnosed only when the fever has resolved and the rash has appeared. The authors do not discuss if the PCR is a rapid test that has a practical use in the ED. The numbers were small in this study. Although 15% is a significant finding as a cause for many febrile seizures, it represents a minority of cases. It may not be necessary to order tests to prove the cause of a febrile seizure, but one should be aware of the possibility of roseola causing the fever; a look at the fever curve and skin may be enough. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Febrile Seizure, Human Herpes Virus 6 Infection, Roseola

Print Tag: Refer to original journal article
Labeling menus in restaurants may promote the selection of lower calorie choices for children.

**Background:** Over the past several years, the amount of food consumed in restaurants, particularly fast food, has increased as a proportion of total intake. In general, caloric intake is higher when food is consumed in restaurants compared to home. Some jurisdictions are now requiring restaurants to label their menus as well. **Objective:** To determine if menu labeling will have an impact on the choice of food parents make for their children. **Design:** Randomized, controlled trial. **Participants:** The parents of 99 children aged 3 to 6 years who eat fast food. **Methods:** Parents were recruited during visits to a pediatric primary care clinic and were eligible if their children ate fast food, spoke English, and were not very ill. Parents were given menus from McDonalds and asked to select what they would chose to eat under normal circumstances and, along with their children's help if appropriate, what their children would select. The menus were complete and included hamburgers, chicken sandwiches, salads, french fries, drinks, and desserts. Happy Meals were included as an option, and various quantities of chicken nuggets with sauces were included. All of the menus had prices under the choices. One group received this menu, and the other group received an identical menu plus calorie information for each product. Limited demographic information such as socioeconomic status, height and weight of parents, and behavior surrounding fast food (frequency, reasons for eating) were collected. **Results:** 99 families (of 121 eligible) completed the survey. Most respondents were mothers (77%), were white (75%), had more than a high school education (88%), and ate fast food 1 to 4 times per month (62%). Both groups were similar with regard to parent's race, gender, income, education, fast food behavior, and body mass index. A correlation between energy ordered for parents and children was present ($r=0.3$, $P=9.02$). Parents in the arm with calorie information ordered a mean of 102 fewer calories for their children compared to controls (567.1 cal vs 671.5 cal; $P=9.04$). When adjusted for parent's gender, race, education, and BMI, fast food frequency, and child's BMI z score, the nutrition-labeled menu, on average, reduced energy ordered by 20%. Parent food choices were not affected by this information. **Conclusions:** Nutritional labeling may have a positive effect on food choices parents make for their children. **Reviewer's Comments:** Despite the absence of a similar effect on parents' choices for themselves, it would seem the transparency that menu labeling provides could have an impact on the obesity epidemic. The interesting finding that parents do not alter their food selection when they have the calorie information does not bode well for children who often follow their parents' examples. There is no harm in telling parents and children exactly what they are ordering. (Reviewer-Seth L. Schulman, MD).

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Keywords: Menu Labeling, Childhood Obesity, Fast Food

Print Tag: Refer to original journal article
Fundoplication offers short-term benefits in limiting hospital admissions for reflux disease and aspiration pneumonia for those with neurologic impairments.

**Background**: 40% of pediatric fundoplications in the United States are done in children with significant neurologic impairment because aspiration pneumonia is a common cause of death. In cases of severe impairment, it may be the most common cause of death. These children are at risk for aspiration because of dysfunctional swallowing and gastroesophageal (GE) reflux disease. The literature has conflicting results regarding symptoms and the effectiveness of surgery.

**Objective**: To examine the impact of fundoplications on reflux-related hospital admissions in children with neurological impairment.

**Design/Methods**: This retrospective study encompassed 42 children's hospitals in 35 states in the United States. The participants were 3721 children with a variety of neurologic impairments who had hospital admissions prior to fundoplication. Two-thirds of these children had gastrostomy tubes placed at the time of fundoplication. The neurologic impairments included cerebral palsy, hydrocephalus, leukodystrophy, and epilepsy. The authors looked at admissions before and after surgery for 1 year for a variety of potential reflux-related conditions: esophagitis, GE reflux, aspiration pneumonia, pneumonia, or mechanical ventilation. Also studied were admissions for asthma in those previously diagnosed with this condition.

**Results**: Of the 3721 patients, approximately 50% were <1 year of age. The most common neurologic impairment was seizures in approximately 50% of the patients, with brain or spinal cord abnormalities in about one-third. There was a significant decrease in admissions for aspiration pneumonia, GE reflux disease, and mechanical ventilation, particularly for children aged <3 years. Decreased rates up to 70% to 80% were seen for young infants for aspiration pneumonia, reflux admissions, and mechanical ventilation. In infants aged ≥12 months, the rate decreased and was more modest in the 15% to 30% range. However, hospital admissions significantly increased for asthma and remained constant for pneumonia.

**Conclusions**: In this large multicenter cohort study, there was a short-term reduction in reflux-related hospital admissions in children with neurologic impairment and GE reflux disease who underwent fundoplication. However, admissions for asthma increased, and admissions for pneumonia remained constant.

**Reviewer's Comments**: Despite this being such a common procedure, the data on fundoplication remain hazy. This study offers a 1-year perspective with some encouraging results for decreased likelihoods of aspiration pneumonia and reflux admissions and the need for mechanical ventilation. However, the authors concede that many of the issues families wrestle with regarding the positives and negatives for surgery are unsettled. These would include longer-term outcomes and comparative data with another possible remedy for reflux—gastrojejunal feeding tubes. Perhaps the long-term data for fundoplication would not be as compelling, as the risks and benefits may change over time. Additionally, the authors have no comments on the apparent increases in asthma admissions. Is this a fundoplication complication or a statistical quirk in an area that clearly involves many factors? (Reviewer-Mark F. Ditmar, MD).

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Keywords: Fundoplication, Reflux, Neurological Impairment

Print Tag: Refer to original journal article
The use of extended-release metformin results in a significant, but small, decrease in BMI when added to a lifestyle intervention.

**Background:** Although few data exist on the long-term effects of metformin in children, some studies have offered it as therapy for adolescent obesity. Because obesity is prevalent and significantly linked with increased rates of type 2 diabetes, therapies are necessary for this condition. At this time, recommendations are usually limited to lifestyle modification, with changes in diets and exercise.

**Objective:** To determine if the use of metformin hydrochloride extended release (XR) would reduce the body mass index (BMI) of obese adolescents.

**Methods:** This was a randomized, controlled trial of children aged 13 to 18 years who had a BMI ≥95th percentile who were recruited from the Glaser Pediatric Research Network from 2003 to 2007. Those who entered the study were randomized to 1 of 2 groups. The intervention group received an increasing amount of metformin over the course of a year. The control group was given a placebo. All participants received a lifestyle intervention to increase physical activity and improve their diet. Visits occurred at baseline and then at 16, 28, 40, 52, 64, 76, 88, and 100 weeks. At each visit, height and weight were measured to calculate BMI. Abdominal CT scans were performed to determine the fat content of the abdomen, and DXA scans determined the percentage of body fat and lean body mass. The main outcome of interest was the change in BMI over a 48-week period, after adjusting for other characteristics.

**Results:** At the beginning of this study, 77 participants were enrolled to 1 of the 2 groups; by 52 weeks, 27 subjects in each group were available for analysis. By the 48-week measurement, the average adjusted BMI in the metformin XR group had decreased by 0.9. In the control group, the average adjusted BMI increased by 0.2. Metformin did not significantly affect any of the other laboratory or radiologic measurements. The effects seen in this study persisted for 12 to 24 weeks after therapy was discontinued.

**Conclusions:** Metformin XR did result in a significant, but small, decrease in BMI when added to a lifestyle intervention. Adolescents on metformin XR in addition to a lifestyle intervention had a larger reduction in BMI than those with just a lifestyle intervention. The difference was small, however, and the clinical implications need further clarification. The cost-effectiveness and true outcomes from therapy with metformin need to be explored.

**Reviewer’s Comments:** While the results were statistically significant, the clinical significance of this BMI reduction is not totally clear—especially when you add in the cost of metformin and the potential side effects it may cause. This needs further study. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Obesity, Metformin

Print Tag: Refer to original journal article
When random sampling interviews are done on a large group of adolescents, only about 20% of those with anxiety and depression have been previously detected or treated.

**Objective:** To examine factors associated with the detection of depression and anxiety in adolescents, along with the rate of recognition and management.

**Participants/Methods:** This was a study from a variety of clinics in Washington state affiliated with Group Health. From 2005 to 2006, families in the overall health system, both parents and youth, were randomly sampled for survey questions and interviews. The parent interview consisted of demographic information and the child's history of diagnoses or treatment for anxiety or depression. Parents also completed the Child Behavioral Checklist, which assesses a child's externalizing and internalizing symptoms. The youth interview included the depression and anxiety modules of the Diagnostic Interview Schedule for Children, a structured psychiatric interview, as well as other depression and anxiety inventories: the Moods and Feelings Questionnaire, the Anxiety Sensitivity Index, and a psychosocial functional impairment scale (the Columbia Impairment Scale). The authors used automated data to assess how frequently patients had been seen by primary care providers and to determine which patients had previously been assigned a mental health diagnosis and had actually received treatment. They then determined how many patients had actually been diagnosed with the condition, how many had received treatment, and what factors were associated with higher rates of identification and therapy.

**Results:** 581 youth (mean age, 14 years; range, 11 to 17 years) underwent interviews. Of these 581 subjects, 51 (8.5%) had an anxiety or depressive disorder as determined by psychiatric interviews. Only 11 of the 51 subjects (22%) had evidence of detection or treatment in the previous year. Youth diagnosed with mental illness were more likely to meet the following criteria: live in a neighborhood with a higher median household income; have more primary care visits; have higher scores on depressive symptoms measures; be more likely to meet criteria for major depression with or without anxiety; have higher levels of self-reported functional impairment; and have more parent-reported externalizing symptoms (including such items as aggressiveness, delinquency, and hyperactivity).

**Conclusions:** The detection or treatment of depression and anxiety among youth is very low (only 22% in this study). This suggests the need for increased focus on diagnostic recognition.

**Reviewer's Comments:** This study clearly shows that there are more adolescents living with anxiety and depression than are being identified. It also shows that patients are more likely to come to the attention of mental health services if families are wealthier, the patients are identified as more depressed and more impaired, and the patients have more externalizing behaviors. How, when, and who to screen for depression and anxiety, where and how to handle the results, and whether identification improves outcomes (such as lower suicide rates) remain important and unanswered questions in pediatric mental health care. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Depression, Anxiety, Youth

Print Tag: Refer to original journal article
A concerning number of children investigated by child protective services live in homes with caregivers who have physical or mental illness.

**Background:** Children who have been maltreated, especially those placed in foster care, have significantly more health and developmental problems than non-maltreated children. In general, research shows that foster parents have better mental health than the general population but provide less developmentally appropriate homes.

**Objective:** To examine the mental and physical health of foster caregivers who have been investigated by child protective services (CPS), and to evaluate the home environments they provide.

**Methods:** This was a cohort study using data from the National Survey of Child and Adolescent Well-being, a nationwide database of children investigated by CPS. The data set included 5501 children and oversampled infant cases, sexual abuse cases, and cases requiring ongoing services. The cohort for this study included all children <15 years of age who were living in a family home setting. Data collected included the Short-Form Health Survey to measure mental and physical health, and the Home Observation for Measurement of the Environment-Short Form total and cognitive stimulation subscales to measure developmentally appropriate characteristics of home environments. These measurements were compared among standard homes, foster homes of non-relatives (foster care), and foster homes of relatives (kin care).

**Results:** Although foster care and kin care providers had mental health better than that of the average population, 11% of kin caregivers, 13% of foster caregivers, and 24% of investigated-home caregivers had measurements that indicated untreated mental illnesses. All groups had worse-than-average physical health; moreover, about one-fourth of both kin and foster caregivers had serious physical illnesses. The developmental characteristics of the homes did not differ across groups, although kin care homes of 6 to 10 year olds were better than foster care homes or investigated standard homes.

**Conclusions:** A concerning number of children investigated by CPS live in homes with caregivers who have physical or mental illness. In this study, foster homes were no worse than investigated standard homes. Regardless of home situation, clinicians need to assess the physical and mental health of caregivers if they have been investigated by CPS and should help refer them to appropriate resources.

**Reviewer's Comments:** In general, there is an assumption that members of the health care team are generally healthy without significant mental health issues. This article alerts us that it may not be true. The disabilities of foster parents may influence the care of their children. We should not, however, treat foster parents any differently. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Foster Care, Child Protective Services

Print Tag: Refer to original journal article
Study Finds No Association Between Urinary Phthalate Levels, Precocious Puberty

Phthalate Exposure and Precocious Puberty in Females.
Lomenick JP, Calafat AM, et al:
J Pediatr 2010; 156 (February): 221-225

Background: Girls have been starting their pubertal development at increasingly younger ages over the past century. There is concern that, in recent years, this phenomenon could be attributable to synthetic chemicals called phthalates, which have been shown to have weak estrogenic activity in vitro. These chemicals are ubiquitous in the environment and are used in the production of flexible plastic.

Objective: To determine whether phthalate exposure is associated with precocious puberty in girls.

Design: Case control study.

Participants/Methods: Participants were recruited from a pediatric endocrine clinic from 2005 to 2008. Cases were girls with central precocious puberty (CPP). Controls were age- and race-matched prepubertal girls who were either healthy or had nonrelated medical conditions (eg, hypothyroidism on treatment, hypertrichosis, nonpathological short stature). Measured height, measured weight, and a urine sample were obtained from all children. The urine was measured for 9 phthalate metabolites. The analysts who evaluated the urine samples for phthalates were blinded to the child's group assignment. The phthalate concentration was corrected for the dilution of the urine by the use of creatinine measurement. The study outcome was the difference in phthalate levels between the 2 groups.

Results: There were 28 girls in each group (CPP vs controls). The girls in the CPP group had a higher body mass index. Eight of the 9 phthalate metabolites were detectable in the girls’ urine. There was no difference in urinary phthalate levels (absolute or creatinine adjusted) between the girls with CPP and prepubertal girls for any of the phthalate metabolites studied. Even when the analysis was stratified by race, no difference was found.

Conclusions: Urinary phthalate levels did not differ between prepubertal girls and those with CPP.

Reviewer’s Comments: Although this study found no association between urinary phthalate levels and precocious puberty, it is too early to rule out a possible link. The studies in this area, most of which are cross-sectional, are conflicting and a definitive prospective study is needed to shed better light on this issue. For now, the conservative action from physicians would be to advise their patients to limit their exposure to phthlate-containing products. (Reviewer-Beth A. Tarini, MD).

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Keywords: Phthalates, Central Premature Puberty

Print Tag: Refer to original journal article
Efficacy of a Theory-Based Abstinence-Only Intervention

Efficacy of a Theory-Based Abstinence-Only Intervention Over 24 Months: A Randomized Controlled Trial With Young Adolescents.

Jemmott JB III, Jemmott LS, Fong GT:

Arch Pediatr Adolesc Med 2010; 164 (February): 152-159

This theory-based abstinence-only intervention reduced sexual activity without decreasing condom use.

Background: In the past, many have advocated for the use of "abstinence-only" programs to educate youth about sexual activity, even though the evidence supporting those programs was weak if not nonexistent. Those opposed to such programs pointed out that not only did they not work to limit teenage pregnancy, but since they discouraged condom use, they actually sometimes increased the transmission of sexually transmitted infections.

Objective: To determine if a "theory-based" abstinence-only program could reduce sexual activity in young adolescents.

Design/Participants: Randomized controlled trial of African-American children in 6th and 7th grades.

Methods: Children were randomized to 1 of 4 groups. The abstinence-only group received an 8-hour intervention that encouraged adolescents to delay sexual activity until they were ready. If condoms were brought up, questions were answered honestly. Waiting until marriage was not stressed. The second group received an 8-hour safer-sex intervention to increase condom use. A third group got a combination of the 2, and a fourth received a control intervention unrelated to sexual activity. The primary outcome of interest was self-reported sexual intercourse 2 years later. Secondary outcomes included other sexual behaviors, including condom use.

Results: Overall, 662 adolescents participated in this study; just over half were female and the average age was just over 12 years old. The follow-up rate was almost 85%. The abstinence-only intervention significantly reduced the chance that adolescents would engage in sexual activity (relative risk, 0.67). Model-estimated probabilities that adolescents would engage in sexual activity were 34% in the abstinence-only group versus 49% in the control group. The difference between the other interventions and the control group was not significant. The comprehensive safer-sex interventions did reduce the likelihood of having multiple partners. The abstinence-only group did not significantly affect condom use compared to other groups.

Conclusions: This theory-based abstinence-only intervention did reduce sexual activity without decreasing condom use.

Reviewer’s Comments: Much political hay will likely be made out of this study, but it is of a very specific and different type of abstinence-only intervention and it should be generalized cautiously. One weakness is the self-reporting source of data. After publication, there were many opinions found in the press, including the authors caution that applying the findings to all groups is not possible. Moreover, its results must be weighed against those that preceded it, and they must be duplicated. Using abstinence is one marker for success; a better one is the number of pregnancies in the groups. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Abstinence Only, Sex Education

Print Tag: Refer to original journal article
Most children who test positive for peanut allergy without a history of reactions to peanuts are not truly allergic to peanuts upon exposure to them.

**Objective:** To determine the rate of clinical peanut allergy by use of oral food challenge (OFC) among children found to be peanut-sensitized by skin tests and/or IgE serum measurement. The authors also examined whether component-resolved diagnostics (CRD) were more accurate than skin tests or IgE serum measurements.

**Methods:** A birth cohort at 8 years of age underwent skin-testing and serum IgE levels for peanut sensitization. Patients with either a peanut skin test ≥8 mm or peanut serum IgE ≥15 kUA/L were deemed peanut-sensitized. Patients with a "convincing" history of peanut reaction and meeting the peanut-sensitized criteria were deemed peanut allergic and excluded. The rest of these peanut-sensitized children underwent OFC. CRD microarray of peanut antigens was run on the peanut-allergic patients and on the peanut-sensitized but not allergic children who had blood available.

**Results:** Starting from the birth cohort of 1,085 patients, 919 children (89.3%) were skin-tested, and 582 (48%) had blood drawn for IgE levels; 110 (11.8%) were determined to be peanut-sensitized. Twelve children (1.3%) were deemed peanut-allergic and excluded from the OFC. The OFC was normal in 66 children, positive in 7 children, and inconclusive in 6 (developing only 1 sign and/or subjective symptom). The authors then excluded the inconclusive cases. Among all sensitized children with unequivocal outcome, the rate of peanut allergy was 19 out of 85 (22.4%). Regarding the CRD microarray, the authors report that the overall misclassification rate improved when compared with serum IgE or skin testing (7.4%; 95% CI, 2.8% to 15.4% for CRD vs 17.3%; 95% CI, 9.8% to 27.3% for peanut IgE levels ≥15 kUA/L).

**Conclusions:** The authors conclude that current diagnostic testing for peanut allergy is not accurate. The general prevalence of peanut sensitivity was 11.8%, with clinical allergy in only 1.3%. Approximately 83% of children without a history of reaction to peanuts, but with testing demonstrating sensitization to peanuts, successfully passed an OFC. While limited by the study's small sample, the authors speculate that CRD microarrays for peanut antigens may improve the accuracy of diagnostic testing, limiting the need for oral food challenges that are time-consuming and potentially dangerous.

**Reviewer's Comments:** The study examines diagnostic testing for peanut allergy on a cohort of 8 year-olds, without regard for clinical concern for peanut allergy or atopy. This severely limits the utility of this study. Who orders RAST or skin tests on normal kids without any clinical concern for peanut allergy? A more useful study would examine the accuracy of diagnostic tests (skin tests, RAST, or CRD) on those with a clinical concern for peanut allergy, using the oral food challenge as the gold standard. However, such a study would, of course, involve much more risk to the participants than this one did. (Reviewer-Daniel Coghlin, MD).
Although a majority of caregivers report being "very worried" during a child's fever, Hispanic ethnicity most strongly predicts parental level of concern.

**Background:** Previous studies have noted ethnic disparities in beliefs regarding fever, although few have focused on the Hispanic population.

**Objective:** To assess perceptions of fever and ethnic disparities among a population with a large Hispanic component.

**Methods:** A 20-item questionnaire was administered to caregivers presenting to a pediatric clinic in an underserved area. Surveys were available in Spanish and English, containing equivalent information. Questions related to parental definition of fever/high fever, worry level during fever, temperature-taking techniques, consequences of fever, pharmacologic and non-pharmacologic treatments of fever, and threshold for seeking medical attention.

**Results:** 348 surveys were completed, with approximately 85% completed by mothers. Of these respondents, 37% were Caucasian, 35% were Hispanic, 23% were African American, and 5% were classified as "other." Approximately 67% had at least a high school education. On average, "fever" was defined as a temperature of 100.3°F, and "high fever" as 102.2°F. With regard to the effects of fever, caregivers (of all ethnic groups) were most concerned about child discomfort, but 66% worried about unlimited temperature rise without treatment, approximately 47% worried about brain damage, and approximately 40% worried about death. Child's age, caregiver's educational level, and ethnicity were all statistically significant factors related to the level of worry. When Hispanics were compared to all other respondents, adjusted for other factors, the odds ratio for Hispanics to be "very concerned" compared to "somewhat concerned" was >5. Hispanic ethnicity was the strongest predictor of a respondent's level of worry.

**Conclusions:** Fever phobia and incorrect beliefs regarding fever are still highly prevalent, especially among Hispanic caregivers.

**Reviewer's Comments:** It is remarkable that, in the 3 decades since fever phobia was first discussed in the literature, there has been no decline in the percentage of "very worried" parents during a child's fever (56% to 65% in the original study, 57% in this study). Where are we going wrong? Perhaps we should re-examine the prevalence of fever phobia in pediatric providers. Unfortunately, I have encountered many colleagues who recommend aggressive regimens of alternating acetaminophen and ibuprofen for treatment of fever. I have seen patients in follow-up who report a child receiving an ice bath during an emergency department visit. To minimize fever phobia, parental education is a key responsibility, especially in certain ethnic populations, as this study shows. However, this study also finds that parents' top source of information about fever (81%) is the doctor, reinforcing that we need to maintain and convey an appropriate level of anxiety regarding fever.

(Reviewer-Alyssa Siegel, MD).

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**Keywords:** Fever, Fever Phobia, Ethnicity

**Print Tag:** Refer to original journal article
A physical activity injury prevention program had a significant effect on injury rates, especially for children who were not very active; the effects seem small, however, and really do need further study to understand the clinical impact.

**Background:** Although the benefits of physical activity (PA) are well known and accepted, it is also associated with an increased risk of injury. Although most injuries due to PA in children are not very dangerous, they are associated with morbidity.

**Objective:** To determine how a school-based injury prevention program for PA affects the incidence and severity of such injuries.

**Design/Participants:** Randomized controlled trial of Dutch school children attending 40 schools in the Netherlands.

**Methods:** To be eligible, a school had to be a primary school and have twice weekly physical education classes. All children in the 5th and 6th grade were eligible to participate. Schools were randomized to 1 of 2 groups. The intervention group implemented the iPlay program, which focused on both children and parents. The program included exercises, newsletters, posters, and information disseminated to participants. The main outcome of interest included the incidence and severity of injuries occurring for every 1000 hours of PA. All other children were in a control group, which received the usual physical education classes.

**Results:** Overall, 2210 children between 10 and 12 years of age participated in this study. In all, there were 100 injuries in the intervention group and 104 injuries in the control group. A first analysis showed that the intervention had a small, but not significant, effect on total injuries (hazard ratio [HR], 0.8), sports club injuries (HR, 0.7), and leisure time injuries (HR, 0.8). There was a difference in the effect of the intervention based on how sedentary children were. Children who were less physically active had more benefit from the intervention. When adjusting for this, the intervention had a significant effect in the reduction of sports club injuries (HR, 0.2).

**Conclusions:** A PA injury prevention program did not affect the injury rate compared to the control group. For children who were not very active, there was a significant reduction of injuries. The effects seem small overall, however, and really do need further study to understand the clinical impact.

**Reviewer's Comments:** We spend so much time bemoaning the fact that kids are not active enough, that this was the first I have seen of concerns that increasing such activity should give one pause. It's good that the program decreased the number of injuries, but the actual effect seems small and needs further study. Maybe a closer look at the content of the prevention may show that the program does not connect with the students, thus yielding the final result of not much effect on the students. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Physical Activity, Injuries

Print Tag: Refer to original journal article
Rates of Childhood Obesity Remained Statistically Unchanged From 1999 to 2008

Ogden CL, Carroll MD, Curtin LR:

JAMA 2010; 303 (January 20): 242-249

There are no statistical differences in trends of higher BMI from 1999 to 2008 in children and adolescents.

Objective: To look at the prevalence of obesity using the body mass index (BMI) in children and adolescents. Methods: Using the National Health and Nutrition Examination Survey, which is a complex, multistage sample of the noninstitutionalized U.S. population, children were measured using standard protocols for height and weight. BMI was then calculated based on these measurements. Demographics about the children were also recorded, including sex, race, and age. This survey was based on the 2007-2008 population. The trends were compared to the previous years’ data from 1999-2000, 2001-2002, 2003-2004 and 2005-2006. Those who were above the 95th percentile for BMI were considered obese, and those from the 85th to 95th percentile were considered overweight. Results: 10% of infants and toddlers were at the 95th percentile for BMI. Nearly 12% of 2- to 19-year-olds were above the 97th percentile, 16.9% were above the 95th percentile, and 31% were above the 85th percentile. Adolescents aged 12 to 19 years had the highest percentage of obesity based on BMI at 18%. When looking at demographic, such as sex, there were no differences at the 3 BMI cutoff points. Among Mexican children, boys were more like to have a higher BMI at the 85th, 95th, and 97th percentiles. Preschool boys (age, 2 to 5 years) had significantly lower odds of having an elevated BMI. After comparing the trends over a 9-year period, the rates of obesity remained statistically unchanged from 1999-2008.

Conclusions: There are no statistical differences in trends with higher BMI from 1999-2008 in children and adolescents.

Reviewer’s Comments: The rates of obesity remain high compared to the 1980’s, but these rates have stabilized over the past decade. That may be a comforting fact to some, but having rates for being overweight as high as 30% in children and adolescents is still astounding. The recent push from the First Lady with her initiative to tackle childhood obesity is admirable. However, one of the proposals that the AAP has supported was to check the BMI at all well visits. This is an easy calculation to do in the office, but with reduced physical activity and poor eating habits, it is not clear what impact this will have other than identifying a problem that in most cases can be identified by the appearance of an overweight child. Parents need to be aware of their children's weight via a BMI and be given clear instructions to help control their child's weight. Recommending a healthy diet and increased activity is the first of many steps to hopefully reduce increases in obesity. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Obesity, Body Mass Index

Print Tag: Refer to original journal article
Despite high levels of knowledge about influenza vaccine, 15% of health-care workers in this hospital oppose mandatory influenza immunization for all employees.

**Background:** Despite the health impact of influenza every year, only 40% of health-care workers are immunized against influenza annually. More hospitals have implemented policies requiring that health-care workers either receive influenza immunization or decline in writing.

**Objective:** To examine attitudes of children's hospital health-care workers about mandatory influenza immunization policies.

**Design:** Self-administered, web-based survey.

**Methods:** In April 2009, a random sample of health-care workers (physicians, nurses, and other employees) at a large tertiary children's hospital was recruited for the study. Survey questions asked about opinions regarding the mandatory influenza vaccine policy at the hospital, along with knowledge, attitudes, and beliefs about influenza infection, influenza vaccine, and childhood vaccinations.

**Results:** 574 of the 946 (61%) surveys were completed; 54% of physicians, 57% of nurses, and 63% of other employees participated. Among the respondents, 82% were female, 83% were Caucasian, and 53% were aged 25 to 44 years. Eighty-five percent had received an influenza vaccination during the previous season, with physicians (96%) and nurses (93%) more likely than other employees (77%) to be immunized ($P=0.001$). Seventy percent of employees agreed or strongly agreed that the hospital should require influenza immunization, and 15% disagreed or strongly disagreed with the policy. Ninety-four percent of employees favoring the policy and 56% of those opposed to the policy had been vaccinated. Compared with those who opposed the policy, employees in favor of the policy were more likely to believe that the vaccine was safe, less likely to believe that parents should have the authority to authorize or decline vaccines for their children, more likely to believe that they were at high risk for contracting influenza, and more likely to have gotten their children immunized against influenza. There was no difference between the 2 groups with regard to the belief that influenza can be dangerous and fatal for children with chronic health conditions, that one can be infectious before developing symptoms of influenza, and that one cannot contract influenza from the vaccine.

**Conclusions:** Despite high levels of knowledge about influenza vaccine, 15% of health-care workers in this hospital oppose mandatory influenza immunization for all employees.

**Reviewer's Comments:** There are inherent biases in web-based surveys. You have no information about nonresponders, and respondents may decide to provide the answers they believe to be most socially desirable. However, I found the study to be helpful in that it demonstrates that there are likely 2 main groups of health-care workers opposed to mandatory immunization, those who have misconceptions or are misinformed about the vaccine and those who are opposed to the mandate for philosophical reasons. Improved education may help with the first group, while it is unclear that any intervention would be helpful with the second group. (Reviewer-Rachel Moon, MD).

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Keywords: Influenza Immunization

Print Tag: Refer to original journal article
Daily doses of vitamin C decrease the frequency and severity of MRAS.

**Background:** Minor recurrent aphthous stomatitis (MRAS) affects 15% to 20% of the general population. With onset in childhood, lesions typically last 4 to 5 days and may recur as often as every 3 months. Though not associated with systemic disease or immunodeficiency, these painful oral ulcers may interfere with eating, swallowing, and speaking. There is evidence that a prolonged lifespan of polymorphonuclear leukocytes (PMNs) may play a role in the pathogenesis of MRAS. Ascorbic acid, through an effect on neutrophil apoptosis, may control the lifespan of PMNs, thereby inducing regression of MRAS.

**Objective:** To assess the therapeutic effect of ascorbic acid for prevention of MRAS.

**Methods:** Patients with a history of MRAS, recurring at least every 2 months for 1 year, were enrolled for study. A 3-month pretreatment observation period was followed by a 3-month regimen of vitamin C (at a dose of 2000 mg/m2 per day). Therapy was discontinued for an additional 3-month observation, followed by resumed treatment at the same dose. The frequency of stomatitis outbreaks and severity of pain were evaluated for treatment effectiveness. Prior to treatment with ascorbic acid, blood samples were prepared to isolate and prime neutrophils and were analyzed for superoxide anion production.

**Results:** 16 patients (age range, 8 to 16 years) completed the study. Untreated, the average frequency of stomatitis episodes was approximately 4 per 3 months vs 0.63 episodes per 3 months while on vitamin C; 94% of patients had at least a 50% reduction in episode frequency while on treatment. Level of pain also decreased during the treatment period. Prior to ascorbic acid treatment, superoxide anion production in the MRAS patients was significantly increased compared to healthy individuals.

**Conclusions:** Patients with MRAS have a higher level of primed neutrophils, leading to superoxide production. Vitamin C, presumably through its antioxidant effect, effectively prevents MRAS.

**Reviewer's Comments:** For the general public, vitamin C has long been believed to benefit the immune response, specifically with regard to treatment of the common cold. While high-dose vitamin C has not been shown to reduce the incidence of the common cold, some studies have shown a slight reduction in the duration of symptoms. Despite the small sample size used for this study and the lack of randomized, placebo-controlled model, the decrease in frequency and severity of MRAS outbreaks in nearly all involved patients is impressive. The higher level of superoxide anion production in affected patients may further support theories regarding the role of vitamin C in neutrophil function. For perspective on dosing, this study would have used approximately 1700 mg/day for an average sized 12-year old subject, whereas the Recommended Daily Allowance for the same child is 50 mg/d, and treatment dose for scurvy is 300 mg/d. (Reviewer-Alyssa Siegel, MD).

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Keywords: Minor Recurrent Aphthous Stomatitis, Ascorbic Acid, Polymorphonuclear Leukocytes

Print Tag: Refer to original journal article
Very low birth weight premature infants with severe bronchopulmonary dysplasia have more frequent desaturations with feeds and delayed growth parameters.

**Background:** Previous studies have evaluated and determined a negative association between bronchopulmonary dysplasia (BPD) on feeding during and immediately following neonatal hospitalization of very low birth weight premature infants (VLBWP). However, no one has assessed the relationship later in infancy or the relationship between growth parameters and oxygen desaturation during feedings.

**Objective:** To examine the differences in oxygenation during feeding and growth parameters of VLBWP infants versus full-term infants (FT) at 2, 4, and 6 months corrected age after discharge.

**Design:** Prospective, cohort study

**Participants:** FT and VLBWP infants from Taiwan were included. Inclusion criteria for FT participants included: born at 38 to 42 weeks gestation; no maternal or perinatal complications; and no neurodevelopmental abnormalities. Inclusion criteria for the VLBWP participants were birth weight <1500 g, gestational age <32 weeks, and no congenital abnormalities.

**Methods:** VLBWP infants were delineated into 4 groups: none, mild, moderate, or severe BPD. All VLBWP infants followed a regimented feeding plan while hospitalized, were discharged home on fortified breast milk, and then gradually transitioned to regular formula when shown that they were gaining at least 20 grams per day. All participants were weighed and observed during a feeding at 2, 4 and 6 months corrected age and the following parameters were monitored: baseline pulse oxygenation saturation (SpO$_2$), mean feeding SpO$_2$, prevalence of desaturations <90%, and time in mild (85% to 90%), moderate (80% to 85%) or severe (<80%) desaturation.

**Results:** Baseline SpO$_2$ did not differ between any groups. The VLBWP severe BPD group had lower mean feeding SpO$_2$ than all other participants. The prevalence of SpO$_2$ <90% was also higher in this group. Additionally, VLBWP infants with moderate to severe BPD had longer mild (85% to 90% SpO$_2$) events with feeds than the other groups. Finally, VLBWP infants with severe BPD had lower growth parameters at term, 2, 4, and 6 months corrected age and were also more likely to have growth delay. Regression analysis revealed a significant negative association between severe BPD and growth outcomes at 6-months corrected age in VLBWP infants for mean SpO$_2$ and for duration of SpO$_2$ <90% during feeds and weight at 6-months corrected age.

**Conclusions:** The VLBWP group with severe BPD experienced more frequent and longer mild desaturations than VLBWP infants with more mild BPD and FT participants. This same group had lower growth parameters and was more likely to have growth delay at 2, 4, and 6 months corrected age.

**Reviewer's Comments:** This study did not address what I would consider the more important value: the rate of catch-up by VLBWP infants and if this seemed impacted by the severity of BPD or the presence or extent of desaturations during feeds, for we know they start off smaller but we need to know what impacts their velocity of growth after discharge. (Reviewer-Lisa Humphrey, MD).

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Keywords: Growth Parameters, Very Low Birth Weight Premature Infants, Bronchopulmonary Dysplasia

Print Tag: Refer to original journal article
**Objective:** To evaluate the effectiveness of topical intranasal corticosteroids in the treatment of otitis media with effusion.

**Design/Participants:** Double-blind randomized placebo-controlled trial of 217 children with a history of otitis media and bilateral otitis media with effusion confirmed by tympanometry.

**Methods:** Patients were randomly assigned to receive either mometasone nasal spray or placebo nasal spray. These were given once daily in each nostril for 3 months, with the primary outcome measures being the proportion of children cured of otitis media with effusion at 1 month, 3 months, and 9 months. Also studied were adverse events and symptoms over 3 months as noted by daily diaries.

**Results:** At 1 month, 39 of 96 children (41%) in the topical steroid group and 45 of 98 children (45%) in the placebo group were cured in one or both ears. There was a slight statistical difference favoring placebo. At 3 months, there was a slight statistical difference favoring the topical steroid group in terms of cure (58% vs 52%). Daily symptoms reported were not different between the 2 groups, and no significant adverse effects were noted from the sprays.

**Conclusions:** In the treatment of otitis media with effusion, topical steroids are unlikely to be an effective treatment. Natural resolution without therapy occurs at a high rate between 1 and 3 months.

**Reviewer's Comments:** In the acute phase, "watchful waiting" without the use of antibiotics has now become a leading mantra in AAP recommendations. In this study of chronic fluid, watchful waiting was also a worthy alternative, at least when compared to nasal corticosteroids. The ongoing studies from Pittsburgh have shown that if a child's hearing is monitored regularly and no untoward effects are noted, lengthy middle ear effusions can be tolerated for significant periods without any effect on long-term speech and language development. So, in the case of ongoing effusions, put down the prescription pad, pick up the tympanometer, and follow along. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Otitis Media, Corticosteroids

Print Tag: Refer to original journal article
Rotavirus vaccine can adversely affect infants with previously undiagnosed SCID.

**Background:** Live-virus rotavirus vaccine is recommended for routine vaccination in infancy. The authors describe the case reports of 3 infants who developed diarrhea and dehydration within 1 month after their first or second rotavirus vaccine administration and were subsequently diagnosed with severe combined immunodeficiency (SCID). These 3 patients suffered from severe diarrhea and dehydration within several days of administration of the rotavirus vaccine, with 1 infant presenting in shock. Diarrheal illness, poor feeding, and total parenteral nutrition (TPN)-dependence recurred until after stem cell transplant. Stool rotavirus in the 3 infants remained positive for 4, 5, and 12 months, respectively. One case occurred after the first vaccination at 2 months, and 2 cases occurred after the second vaccination at 4 months.

**Methods:** To examine the connection between the rotavirus vaccine and the 3 patients described in these case reports, the authors extracted viral RNA from 2 different lots of the rotavirus vaccine. They collected stool and serum samples from the 3 patients. RNA from each sample was extracted and amplified via reverse transcription followed by polymerase chain reaction (PCR), involving sequences of 2 of the 11 rotavirus genes. These 2 gene sequences were unique to the vaccine, not found in the wild type rotavirus.

**Results:** The stool samples from all 3 patients and the serum sample from 1 of the 3 patients showed identical genetic sequences to the rotavirus vaccines’ sequences for both genetic sequences examined, with 1 exception. For 2 patients' stool samples, there was a single-nucleotide difference in gene 6. The authors report that this different nucleotide is also present in 1 out of the 5 rotavirus strains in the vaccine, suggesting preferential growth of that strain.

**Conclusions:** The authors report 3 cases of significant morbidity linked to rotavirus vaccine in infants with previously undiagnosed SCID. They note that efforts to protect these infants from vaccine-acquired disease could include universal neonatal screening for SCID (currently under study).

**Reviewer’s Comments:** Given that the rotavirus vaccine is the only live virus administered routinely before 12 months of age, monitoring its impact on patients with previously undiagnosed SCID should be a priority. Obviously, if rotavirus vaccine does not infect these children, something else certainly will. Nonetheless, further study is warranted, perhaps including a retrospective review of children with SCID to determine the impact of the rotavirus vaccine on their health. While neither the authors of this study nor the Centers for Disease Control and Prevention make this claim, until a more comprehensive review of infants with SCID is completed, this reviewer concludes that children with a known diagnosis of SCID should not receive the rotavirus vaccine until immune reconstitution. In addition, if an infant presents with a severe diarrheal illness within days after rotavirus vaccine administration, one should consider the possibility of a severe immunodeficiency. (Reviewer- Daniel Coghlin, MD).

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**Keywords:** SCID, Rotavirus Vaccine, Infants

**Print Tag:** Refer to original journal article
Although toys in pediatric waiting rooms harbor viral RNA, surface-to-hand transmission of virus may be low.

**Background:** Toys in the waiting rooms of a pediatrician’s office have long been accused of being a germ source.

**Objective:** To determine whether viral RNA can be isolated from toys in pediatric waiting rooms.

**Methods:** The researchers collected samples from both well- and sick-child waiting rooms of a pediatric practice in northern Virginia. Samples were collected 1 day each in October, January, and March from hard surface toys previously in the waiting room, as well as from new toys, some of which were fabric based. A batch of samples was also collected before and after a standard biweekly cleaning regimen. All samples were tested for picornavirus. January samples were tested for respiratory syncytial virus (RSV) and March samples were tested for influenza A and B. During March, fingers of researchers that had touched the toys were tested to examine the transfer of viral RNA to fingers. All samples were tested for viruses using polymerase chain reaction (PCR).

**Results:** In this study, viral RNA was detected on 20% of samples (11 samples). Ten of these samples were positive for picornavirus and 1 for influenza. RSV was not detected from any of the samples. The proportion of contaminated samples was greatest from the new toy bag (30%) compared to the sick-child waiting room (20%) and the well-child waiting room (17%). Before the cleaning regimen, 6 samples were positive and after the cleaning, 4 were positive. However, 2 of these 4 samples had come from toys that previously tested negative. Finally, no viral RNA was transferred during the fingertip segment of the study, although 3 toys tested positive.

**Conclusions:** Viral RNA was detected on toys in pediatric waiting rooms and not eliminated after germicidal cleaning. However, viral RNA was not transmitted to fingers that had touched contaminated toys.

**Reviewer’s Comments:** This study failed to demonstrate the transfer of viral RNA from toys in pediatric office waiting rooms to hands. Still it does not seem like good sense for doctors to use this study to justify not cleaning the toys in their waiting rooms. At the very least, it seems that parents can be reassured that the toys do not seem to harbor as many germs as we might have guessed. However, even a few dirty toys are too many when you are going to the doctor’s office, presumably to get or stay well. (Reviewer-Beth A. Tarini, MD).

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Keywords: Viral RNA, Toys, Pediatric Offices

Print Tag: Refer to original journal article
Most physicians do not comply with acute gastroenteritis guidelines, despite their basis in evidence.

**Background:** Numerous studies have demonstrated that physicians, in large part, do not follow guidelines. It seems that guidelines for management of acute gastroenteritis (AGE) in children are no different.

**Objective:** To evaluate the applicability and efficacy of guidelines for management of AGE in children.

**Design/Participants:** In this prospective randomized controlled trial, primary care physicians in Italy were randomized to an intervention group and a control group.

**Methods:** The intervention group received a training course that included a 60-minute presentation on the AGE guidelines and instructions to adhere to 4 main points of the guideline: rapid oral rehydration; rapid refeeding after oral hydration; avoidance of unnecessary medications; and avoidance of microbiology studies. Each doctor in the intervention group enrolled 10 children for the study. Children were excluded if they had diarrhea >36 hours, had received any medications in the past 2 weeks, had chronic illness, or were acutely ill. Parents tracked stool frequency and consistency. The researchers tracked how well doctors complied with the recommendations, the duration of the child's diarrhea, and changes in the child's body weight.

**Results:** In total, 150 physicians were randomized and 1309 children were enrolled in the study. Both groups of physicians had similar years of work experience and geographic distribution. Children in both groups were similar with regard to age, sex, body weight, and clinical symptoms (eg, fever, vomiting, duration of diarrhea at enrollment). For physicians, 30% in the intervention group complied fully with the guidelines compared with 2% in the control group. For children, 65.5% in the intervention group and 3% in the control group were managed in complete compliance with the guidelines. Differences in management between groups were as follows (guideline violations, intervention vs control): anti-diarrheal medication, 23% vs 93%; dietary change, 17.5% vs 70%; antibiotics, 2.3% vs 6.6%; microbiology, 0.6% vs 7%. By intention-to-treat analysis, there was difference in the change in body weight between both groups. However, the intervention group had a shorter duration of diarrhea both after enrollment (88.3 ± 43.6 hours vs 90.9 ± 46.2 hours; P <0.01) and in total (103.58 ± 44.7 hours vs 112.8 ± 47.9 hours; P <0.01).

**Conclusions:** A training course on AGE guidelines improved physician compliance with guidelines and decreased the duration of diarrhea for children.

**Reviewer’s Comments:** While the authors found that their training course increased compliance with guidelines, only 30% of physicians were fully compliant with the guidelines. In addition, as the authors acknowledge, it is unclear to what extent physicians were compliant because they knew that they were being evaluated. The take home point from this paper is that compliance with guidelines is complicated, multifactorial, and unlikely to be solved, in most instances, by intensive training of individual physicians.

(Reviewer-Beth A. Tarini, MD)

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Keywords: Acute Gastroenteritis, Guidelines, Compliance

Print Tag: Refer to original journal article
Choking Game More Common Than You Think


Ramowski SK, Nystrom RJ, et al:

CDC MMWR 2010; 59 (January 15): 1-5

Participation in "choking games" is more common in teens with drug abuse and/or mental health issues.

Background: In the "choking game," participants choke themselves to achieve euphoria by experiencing brief hypoxia that may result in death or long-term disability. In 2008, the Centers for Disease Control and Prevention (CDC) reported 82 deaths attributed to the choking game and other strangulations for the period of 1995 to 2007; the majority of victims were adolescent males from 11 to 16 years of age.

Objective: To assess the awareness and prevalence of choking games in 8th grade students in Oregon by adding a question to the 2008 Oregon Healthy Teens survey.

Design: Survey based on the CDC Youth Risk Behavior Survey that includes 188 questions on physical and mental health, sexual activity, substance use, physical activity/nutrition, and community characteristics.

Participants: 10,642 students (average age, 13.7 years) responded to the survey, but only 7757 (73%) answered the question about choking. Those who did not respond to the question about choking were more likely to report higher levels of sexual activity, substance use, and mental health risk factors.

Results: 36% of 8th grade students heard of the activity, 30% heard of someone participating, and 6% had participated in the activity. Youths in rural areas (6.7%) were more likely to have participated than youths in urban areas (4.9%). Choking game participation was higher among students who reported mental health risk factors (4%), substance abuse (8%), or both (16%) compared to those who reported neither (2%). The group that participated in choking games was more likely to also report other unhealthy behaviors and mental health risk factors, particularly those who had used substances.

Conclusions: Approximately one-third of 8th grade students in Oregon were aware of the "choking game" and 6% admitted to participation in this dangerous activity that may lead to brain damage or death. Teens with mental health issues or substance abuse are more likely to have experienced choking as a means to attaining temporary euphoria.

Reviewer's Comments: Prior to this study, data were limited to small groups and case reports about the experiences and knowledge of "choking games." This study identifies those teens with mental health problems and substance abuse as those who are at risk for participation, and for some, the damage of the activity of strangulation. This linkage to poor mental health and strangulation differs from previous small studies. These results present a challenge to those dealing with adolescents with mental health problems to include inquiry about strangulation activities. It also opens the opportunity for education and prevention. Some clues to detect participation in strangulation activities include blood shot eyes, marks on the neck, frequent, severe headaches, disorientation after spending time alone, and ropes, scarves, and belts tied to bedroom furniture or doorknobs or found knotted on the floor. Many practitioners are not aware of this dangerous activity among teens. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Strangulation Activities, Mental Health, Risky Adolescent Behavior

Print Tag: Refer to original journal article