Simple physical interventions, such as hand washing and the use of gloves, gowns and masks, can reduce the spread of respiratory disease.

**Objective:** To assess the effectiveness of physical interventions to reduce the spread of respiratory viruses.

**Design:** Systematic review.

**Methods:** The authors looked at studies of any interventions to prevent or reduce transmission of respiratory viruses and found 58 studies that met their criteria. Interventions included hand washing, hand disinfection, virucide-impregnated tissues, masks, gloves, and gowns. Study designs included retrospective and prospective cohort studies, case-control studies, cluster randomized controlled trials, and randomized controlled trials. The authors calculated odds ratios when possible.

**Results:** Hand washing, for the most part, does work, but needs to be done frequently. Washing one’s hands >10 times daily reduced respiratory spread by 55%. Adding soap or other antiseptics increased effectiveness of hand washing in 3 of 5 studies. Alcohol-based sanitizer gels were effective in 3 randomized controlled trials, reducing respiratory spread by 20% to 50%. Among 4 studies of virucide-impregnated tissues, 2 showed a small, but statistically significant, decrease in virus transmission, while 2 other studies did not. Wearing face masks is effective. A meta-analysis of 5 case-control studies showed a decrease in disease transmission of 68% when masks were used. Two case-control studies using the N95 mask demonstrated a 90% decrease in disease transmission. However, 1 retrospective cohort study showed that wearing masks can cause facial rash and irritation. Four case control studies demonstrated a 57% decrease in transmission when gloves were used. However, gloves could also cause itching, irritation, and rash. Four case control studies also showed a 77% decrease in disease transmission when gowns were worn. When hand washing, masks, gloves, and gowns were all used simultaneously, disease spread decreased by 90%.

**Conclusions:** Physical interventions, particularly hand washing or use of alcohol-based gels, use of face masks, gloves and gowns, can work to decrease the spread of respiratory viruses.

**Reviewer’s Comments:** Because the studies all had different designs, inclusion criteria and outcome measures, it is difficult to make definitive conclusions. The authors frankly state their disappointment in the quality of many of the studies. In addition, the quality of any meta-analysis or systematic review is limited by the quality of the individual studies being analyzed; the effectiveness of any of these measures is limited by compliance. Masks are uncomfortable, gloves are unwieldy, and frequent hand washing is often impractical or inconvenient. Patients and health-care providers need to be educated on the importance of these inexpensive strategies that can reduce the spread of respiratory illness, especially in a pandemic or epidemic situation.

(Reviewer-Rachel Moon, MD).

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Keywords: Respiratory Viruses, Physical Interventions

Print Tag: Refer to original journal article
Use of Antipyretics After Immunization Lessens Fever, Immune Response

Effect of Prophylactic Paracetamol Administration at Time of Vaccination on Febrile Reactions and Antibody Responses in Children: Two Open-Label, Randomised Controlled Trials.

Prymula R, Siegrist C-A, et al:

Lancet 2009; 374 (October 17): 1339-1350

The use of paracetamol following immunization reduces the antibody response to several vaccine antigens.

Background: Although fever is a benign, self-limited side effect of vaccination, it often provokes concern and prompts use of prophylactic antipyretic medication. Few studies have assessed the effect of antipyretics on vaccine response.

Objective: To assess the effect of prophylactic paracetamol on febrile reactions and antibody responses following routine immunization.

Methods: This multicenter study enrolled infants starting a primary vaccine series at 9 to 16 weeks of age, with booster doses given at 12 to 15 months. Doses of pneumococcal conjugate, DTaP, IPV, Hep B, and Hib vaccines were administered per routine schedules. Children were randomly assigned to receive paracetamol every 6 to 8 hours for the first 24 hours after the vaccines or to receive no medication (including no placebo). Booster doses were given, with or without paracetamol, consistent with the original group assignment. Symptoms, including injection site reaction, irritability, somnolence and loss of appetite, were solicited from parents for 3 days following immunization. Temperature was measured at least twice daily. Antibody titers were obtained one month before and one month after the primary and booster doses.

Results: 459 subjects received primary vaccines; 414 received booster doses. Fever >39.5°C was not common in either the paracetamol or non-paracetamol group after the primary vaccine dose (<1% vs. 1%), or for the booster (2% vs. 1%). Fewer children in the paracetamol group had fever ≥38°C when compared to those untreated (42% vs 66% after primary vaccination and 36% vs 58% after booster). After primary vaccination, all solicited symptoms were less likely in the paracetamol group. The need for medical attention did not differ between groups, and was rare overall. Before receiving the first vaccine dose, the paracetamol-treated group showed significantly lower mean antibody concentrations against all 10 pneumococcal serotypes, Hib antigens, and tetanus, diphtheria, and pertussis antigens. Approximately 96% of children reached seroprotective antibody concentrations for Hib, diphtheria, tetanus, 3 pertussis antigens, all but 2 pneumococcal serotypes, Hep B, and polioviruses 1, 2, and 3. Within each study group, fever had little effect on vaccine response. Paracetamol use produced the same effect whether children ultimately did or did not have fever.

Conclusions: Independent of its effect on fever, use of the antipyretic, paracetamol, and (acetaminophen) substantially reduces the antibody responses to several vaccine antigens.

Reviewer's Comments: It seems that a direct effect of paracetamol, rather than a temperature-dependent factor, is responsible for the reduced antibody response. One theory, proposed by the authors, is a direct effect on the early cell-mediated response (signaling between dendritic, T-cells, and B-cells). Since most children did achieve seroprotective levels, the effect seems modest. But, considering the lack of protection afforded by antipyretics, it is reasonable to discourage prophylactic use of acetaminophen after vaccines until the implications for individuals and public health are clarified. (Reviewer-Alyssa Siegel, MD).

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Keywords: Antipyretics, Paracetamol, Vaccines, Antibody Response

Print Tag: Refer to original journal article
The majority of infants ≥3 months of age with fever and bulging fontanelles do not have bacterial meningitis.

Bulging Fontanelle in Febrile Infants: Is Lumbar Puncture Mandatory?
Shacham S, Kozer E, et al:
Arch Dis Child 2009; 94 (September): 690-692

In an infant at least 3 months old with fever and bulging fontanelle, bacterial meningitis is unlikely.

Objective: To determine the etiologies and clinical characteristics of infants 3 to 18 months of age with fever and bulging fontanelle.

Participants/Methods: The authors retrospectively reviewed the medical records of all 3- to 18-month-old infants who underwent a lumbar puncture over an 8-year period at an academic medical center in Israel. Infants at least 3 months old who presented with a fever >38°C and a bulging fontanelle were included in the analysis. A bulging fontanelle was defined as a bulge with the head positioned at 30° to 45° above the shoulder bones.

Results: 807 infants were identified, and the charts of 780 (96.6%) of these infants were available for review; 153 (19.6%) of these infants met the study's eligibility criteria. The age range was 3 to 11 months, with a mean age of 5.6 months. Among these 153 infants, 1 child (0.6%) was found to have bacterial meningitis. Cerebrospinal fluid (CSF) pleocytosis was found in 42 cases (27.3%). CSF results were normal in 103 cases (67.3%) and bloody without growth from CSF culture in 8 cases (5.2%). The general appearance was noted to be good in 113 (73.8%) of the patients, none of who had bacterial meningitis. Thirty-two of the infant patients had aseptic meningitis (defined as CSF leukocyte count >5 cells with negative culture), and 17 had other bacterial disease, such as acute otitis media, urinary tract infection (UTI), or pneumonia. The only identifiable statistically significant clinical difference between those with aseptic meningitis and those with normal CSF was vomiting (43% vs 23%; \( P =0.036 \)).

Conclusions: The authors note that the only patient in their series who had bacterial meningitis was not well appearing. They cautiously conclude that in an infant at least 3 months old who is well appearing, but febrile, with a bulging fontanelle and in whom there is no other indication for prompt antibiotic treatment (such as pneumonia or UTI), it is reasonable to observe the infant and withhold a lumbar puncture.

Reviewer's Comments: Wow! While it is helpful to learn that bacterial meningitis is highly unlikely in a well-appearing infant ≥3 months of age with a fever and bulging fontanelle, it seems to this reviewer that relying on a retrospective analysis from 1 medical center and on a relatively subjective finding of “well-appearance” to forego lumbar puncture is too risky. The relative safety of the procedure and the potentially drastic consequences of a delayed diagnosis of bacterial meningitis mean that the pretest probability must be indisputably infinitesimal to decide not to attempt a lumbar puncture. On the other hand, for the case where multiple attempts at a lumbar puncture are unsuccessful and the febrile infant with bulging fontanelle is well appearing without other clinical findings of bacterial infection, one may consider this study before empirically covering with antibiotics. (Reviewer-Daniel Coghlin, MD).

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Keywords: Bulging Fontanelles, Infants, Fever, Etiology

Print Tag: Refer to original journal article
Wet Mounts Miss 33% of Culture-Positive TV Infections

Diagnosis of Trichomonas vaginalis in Female Children and Adolescents Evaluated for Possible Sexual Abuse: A Comparison of the InPouch TV Culture Method and Wet Mount Microscopy.

Gallion HR, Dupree LJ, et al:

J Pediatr Adolesc Gynecol 2009; 22 (October): 300-305

In a study of adolescents referred for suspected sexual abuse, wet mount testing was falsely negative in one-third of cases of *Trichomonas vaginalis* compared to culture.

**Background:** Two techniques most commonly used for diagnosing *Trichomonas vaginalis* (TV) infections are wet mount microscopy and culture. The InPouch TV is a self-contained system in which the culture medium is selective for TV and inhibits the growth of contaminating microorganisms.

**Objective:** To compare the performances of each method in a cohort of female children and adolescents referred for possible sexual abuse.

**Design/Participants:** Prospective study from 2003 to 2007 at a regional university-affiliated sexual abuse center in Nashville, Tennessee, that involved patients referred for evaluation. Participants were females from ages 10 to 17 years who were felt to have a need for sexually-transmitted infection (STI) testing by history (such as a perpetrator with a suspected STI), physical evidence of sexual abuse, or vaginal discharge.

**Methods:** Demographic data were collected on each participant. Cotton swab samples were obtained from the vaginal vault and both wet mount and InPouch techniques were used to assess for TV.

**Results:** 271 children/adolescents participated. Their median age was 13.6 years, 88% were either Tanner 4 or 5, and 66% were white. Twelve cases of TV were identified by the InPouch TV culture method, which was 4% of total. Of these 12, wet mount testing identified 8 for a sensitivity of 67%. No positive wet mounts were culture negative (100% specificity).

**Conclusions:** When evaluating children and adolescents for possible sexual abuse, a culture methodology for TV, such as the InPouch TV, should be considered, as it is more reliable than wet mount.

**Reviewer's Comments:** The *Red Book* states that the presence of TV in a child indicates a likelihood of sexual abuse that, while not diagnostic, is "highly suspicious." Although rapid antigen tests are also becoming available for TV, they are not considered reliable enough to be evidentiary; it is culture or wet mount. As this study shows, the false-negative rate for wet mounts is significant. American Association of Pediatrician recommendations are that when testing for STIs in the setting of possible sexual abuse, the most specific and sensitive tests should be used. This paper makes a strong case for culture-based techniques in the diagnosis of TV. (Reviewer-Mark F. Ditmar, MD).

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Keywords: *Trichomonas vaginalis*, Diagnosis, Sexual Abuse

Print Tag: Refer to original journal article
Evidence suggests that there is not a strong relationship between Streptococcal infections and Tourette syndrome or obsessive-compulsive disorder.

**Background:** A relationship between Streptococcal infection (SI) and Sydenham chorea exists. It has been postulated that other neuropsychiatric disorders, such as Tourette syndrome (TS) or obsessive-compulsive disorder (OCD) have also been causally related to SI based on the hypothesis that antibodies directed against bacterial antigens cross react with targets in the brain. However, careful epidemiologic studies with sufficient patients have not been performed.

**Objective:** To determine if the rate of SI increased prior to the onset of neuropsychiatric disorders.

**Design:** Case control study.

**Participants:** Patients 2 to 25 years of age from a large primary care database between 1997 and 2005 were included.

**Methods:** Cases were defined as those diagnosed with tics, TS, or OCD. Patients had to be part of a registered practice for at least 2 years prior to the onset of the episode to permit the possible diagnosis of SI. There were 20 controls matched for age and sex for each case. Exposure to SI was defined as illnesses potentially caused within 2 years of the neuropsychiatric diagnosis. Subanalyses using different time periods and for those administered antibiotic prescriptions were also considered. Confounding variables, such as age, location and socioeconomic status, were considered.

**Results:** There were 255 cases identified including 129 (51%) with OCD, 108 (42%) with TS, and 18 (7%) with tics, which were combined with TS matched to 4519 controls. Cases of OCD were more likely to be male (57%) and older (55% ≥16 years of age). There was a trend ($P = 0.05$) for whites to have more TS or tics. Evidence of a prior SI was seen in 20 cases (15.5%) of OCD compared to 15.1% of controls ($P = 0.69$) although when cases without treatment with antibiotics were considered, the difference was statistically significant (OR, 2.59; 95% CI, 1.18 to 5.69; $P = 0.02$). Cases of TS or tics with SI in the preceding 2 years were seen in 13 cases (10.3%), with no increase seen in controls. There was no association when antibiotic treatment was analyzed or when a 5-year review for SI period was reviewed.

**Conclusions:** There does not appear to be a relationship between SI infections and neuropsychiatric disorders such as OCD, TS, or tics. A greater rate of TS or tics is seen in the white population.

**Reviewer's Comments:** Clearly, there are methodological issues with this study, including the lack of serologic evidence of a SI that a prospective study could rectify. However, this study places in doubt the condition termed pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) and the need for routine laboratory testing for group A SI to diagnose or to use prophylaxis treatment to prevent this disorder. (Reviewer-Seth L. Schulman, MD).

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Keywords: Neuropsychiatric Syndromes Streptococcal Infection, Neuropsychiatric Disorders

Print Tag: Refer to original journal article
Cardiac Dz Increases Child’s Risk for Hospitalization From RSV

Risk Factors for Respiratory Syncytial Virus Hospitalisation in Children With Heart Disease.
Kristensen K, Stensballe LG, et al:
Arch Dis Child 2009; 94 (October): 785-789

In children with cardiac disease, Down syndrome and cardiomyopathy increase the risk of RSV hospitalization more than the presence of hemodynamically significant heart disease.

Background: Respiratory syncytial virus (RSV) is a common lower respiratory tract disease in infants and leads to hospitalization in 1% to 2% of all infants. Infants with chronic disease are at increased risk for hospitalization. However, the risk factors for RSV hospitalization among children with cardiac disease are unknown.

Objective: To assess risk factors for hospitalization in children with cardiac disease.

Design/Participants: This was a matched case-control study. Cases and controls were identified from a registry containing information on patients from all 3 pediatric cardiac centers in Denmark from 1996 to 2003.

Methods: The authors used the Denmark RSV registry to determine which children had RSV (cases). Controls were drawn from the cardiac center registry and were matched on age. The authors also collected the following data on all children: gestational age; hemodynamically significant cardiac disease at last follow-up (by physician designation or physical findings); decompensation (eg, enlarged liver, tachypnea); anticoagulant therapy; left to right shunting; and the presence of other chronic conditions. The authors calculated the incidence of RSV hospitalization among children <2 years old. Multivariate analysis was conducted to predict factors associated with hospitalization and receipt of respiratory support.

Results: There were 313 children with cardiac disease and RSV during the study period. The incidence rate of RSV hospitalization among children 0 to 23 months with cardiac disease was 5.65 per 100 child-years. Of note, no child received RSV prophylaxis with palivizumab. No cases died, 27.5% of patients required supplemental oxygen, and 3.9% were mechanically ventilated. The only predictors of RSV hospitalization were Down syndrome (OR, 3.24; 95% CI, 1.80 to 5.80), cardiomyopathy (OR, 5.84, 95% CI, 1.26 to 27.16) and hemodynamically significant heart disease (OR, 1.53; 95% CI, 1.04 to 2.26). The need for respiratory support was associated with young age (RR, 0.47; 95% CI, 0.32 to 0.67 per additional year of age) and cardiac decompensation (RR, 1.81; 95% CI, 1.02 to 3.23).

Conclusions: The authors conclude that children with heart disease have a higher rate of RSV hospitalization, with Down syndrome and cardiomyopathy being stronger risk factors for admission than hemodynamically significant heart disease.

Reviewer’s Comments: While it seems to be widely accepted that a child with cardiac disease is at increased risk for hospitalization from RSV, this study does contribute important insights about particular risk factors among these children. Particularly, it challenges the widely held belief that hemodynamically significant heart disease is not a strong risk factor for RSV hospitalization, and points out that clinicians should be most concerned about children with cardiac disease who have Down's syndrome or cardiomyopathy. The fact that this is a population-based study that presents data over a 7-year period makes these findings all the more compelling. (Reviewer-Beth A. Tarini, MD).

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Keywords: RSV, Cardiac Disease, Down Syndrome, Cardiomyopathy

Print Tag: Refer to original journal article
Despite demonstrative pain symptoms, pediatric patients receive minimal pain medications in the postoperative period.

**Background:** While current research shows postoperative pediatric pain management to be insufficient, and the research has been methodologically flawed. Tonsillectomy and adenoidectomy surgeries are frequent procedures in pediatrics and are often followed by a painful, postoperative course making them an accessible example of postoperative pain management.

**Objective:** To systematically describe pediatric postoperative pain after tonsillectomy and adenoidectomy surgery.

**Design:** Descriptive study.

**Participants:** 261 participants from 2 to 12 years of age were included.

**Methods:** Participants were recruited prior to surgery and given questionnaires for baseline data concerning emotionality and other constitutional traits. During surgery, all participants received the same anesthesia regimen. Participants were then admitted to the hospital and given 10 mg/kg acetaminophen and 1 mg/kg codeine at 4-hour intervals as needed for Bieri Faces Scale ratings >2. Everyone was discharged home at 24 hours with the same pain regimen and indications for administration. Parents completed both the Parents’ Postoperative Pain Measure (PPPM) and the visual analog scale. They were also asked to give a numerical number to the pain they witnessed. Pain medication administration was recorded. Finally, the data were analyzed for associations between pain severity and medication use, and baseline parent and child characteristics were assessed prior to the surgery.

**Results:** 40% of participants experienced pain while hospitalized, and all but 2 received medication. At home on postoperative day (POD) 2, 75% of participants demonstrated pain, but 25% received either 0 or 1 dose of pain medication. On POD 3, 70% had pain, and 40% received 0 to 1 dose of medication. There were no statistically significant associations between pain severity and medication use and any of the baseline characteristics.

**Conclusions:** The majority of postoperative tonsillectomy and adenoidectomy patients in this study had significant pain scores, but was undermedicated. There was no association between baseline characteristics and pattern of pain medication administration.

**Reviewer's Comments:** It is striking that all but 2 participants received pain medication while hospitalized, but at least 25% of these participants received no or minimal amounts of the same pain medication regimen at home. What is not captured in this study is why the paradigm shift in pain management occurs. Is it inadequate anticipatory guidance by the discharging health care professionals? Is it a general distrust of pain medications that prevents parents from administering them? Likely, it is a combination of both, leading to inadequate at-home pain management, but this needs to be confirmed so that both public education and discharge instructions can better educate parents to adequately control postoperative pain at home. (Reviewer-Lisa Humphrey, MD).

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**Keywords:** Postoperative Pain, Management, Medications

**Print Tag:** Refer to original journal article
How to Discuss Developmental Delays in Primary Care

Sugar-Coaters and Straight Talkers: Communicating About Developmental Delays in Primary Care.

Sices L, Egbert L, Mercer MB:

Pediatrics 2009; 124 (October): e705-e713

In general, although most mothers prefer a style for communicating concerns of developmental delay in a nonalarmist manner, some prefer a more direct style.

**Background:** In the past, systematic developmental screening has not been performed as often as it should in pediatric offices. Recent recommendations have stressed the importance of this practice, making it likely that the rates of screening will increase. Little work has been done to examine the communication that occurs between providers and parents with respect to developmental concerns or delays. Moreover, we lack a comprehensive understanding of what providers need to perform this counseling as well.

**Objective:** To explore the beliefs and experiences of parents and providers regarding developmental concerns, along with barriers and opportunities for communication.

**Design:** Qualitative research study.

**Methods:** Focus groups were used as a means of data collection. A structured list of questions and follow-up probes were developed and reviewed by a multidisciplinary team. Groups were made up of mothers of children who had received developmental services, mothers of children who had not received developmental services, and developmental specialists. Seven focus groups were held, with at least 2 of each type. A trained facilitator conducted the groups, and all discussions were audio recorded. The recordings were later transcribed and analyzed using immersion/crystallization with later theme development. Data were coded into themes independently by 3 team members, and discrepancies were resolved by consensus.

**Results:** In general, although most mothers preferred a style for communicating concerns of developmental delay in a non-alarmist manner, some preferred a more direct style. Almost all, however, stressed the importance of preparation so that information could be properly processed. This information included expected developmental skills, suggestions on how to promote these skills, and the expected time until re-evaluation. Concerns from parents included worry that developmental delay could be seen as caused by neglect, guilt over the delay, and a need to be properly supported by providers. One concern of special note was that mothers, whose concerns were dismissed with reassurance of normalcy later, had difficulty accepting a diagnosis of developmental delay.

**Conclusions:** Mothers of children with developmental delays and developmental specialists have specific thoughts about communication regarding developmental delay. Providers need to talk to parents to determine the best way to address thoughts about potential developmental delay. Parents seem especially concerned about feelings of guilt and perceived blame for their child's delay. Providers must especially be conscious of not dismissing parental concerns incorrectly.

**Reviewer's Comments:** It is not easy to talk about developmental delay, especially since there are so many nuances to the diagnosis and outcomes. This study provides some much-needed guidance. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Developmental Delay, Testing, Communication

Print Tag: Refer to original journal article
**Objective:** To assess the value of ultrasound (US) as a primary test for the diagnosis of intussusception.

**Design/Methods:** Starting in 2001, US was used at the University of Michigan Health System in Ann Arbor as the first-line test for suspected intussusception. Examinations done from 2001 to 2007 on children <10 years of age for intussusception were reviewed both for clinical data and radiographic findings. Based on the ultimate outcomes, US results were classified as true positive, true negative, false positive, or false negative.

**Results:** 814 US studies for intussusception were performed; 112 studies (14%) were interpreted as positive for intussusception, of which 97 were subsequently confirmed by enema or surgery as true intussusception for a false-positive rate of 13%. Seven hundred studies were negative (86% of total); 698 were found to be true negatives, with only 2 false-negative results. The sensitivity and specificity of US for detecting intussusception were both approximately 98%. The positive predictive value of the test was 87%, and the negative predictive value was 99.7%.

**Conclusions:** Ultrasound is an excellent test for detecting ileocolic intussusception; it is both highly sensitive and specific, and should be the first-line study to diagnose the condition.

**Reviewer’s Comments:** The authors make a strong case that US should be the study of choice to rule out intussusception. It is an operator-dependent modality, and one might conjecture that the strong numbers are due solely to an institutional strength of pediatric radiologists at Michigan. The authors noted specifically that a large portion of studies were being interpreted on overnight and weekend shifts by residents and non-pediatric radiologists, meaning less-experienced radiologists. They also note that in 16% of cases, additional diagnostic findings were detected including patterns suggestive of necrotizing enterocolitis, appendicitis, or hydronephrosis. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Intussusception, Diagnostics, Ultrasound

Print Tag: Refer to original journal article
Infants born to male survivors of childhood cancer are not at significant risk for most complications, except for a slightly low birth weight.

Background: As with women, fertility is also a concern for men who have undergone treatment for cancer. As more and more boys survive childhood cancer, birth-related outcomes of those who do survive are a new consideration. How cancer therapy in childhood affects a boy’s reproductive ability is unknown.

Objective: To examine the risks of birth outcomes for male cancer survivors versus a health comparison group.

Participants/Methods: A cohort of men from 4 regions in the United States was created using data from the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute. Boys were eligible for this study if they were diagnosed with cancer before the age of 20 years. Tumor characteristics were gathered, along with the initial treatment course and demographic information. Some tumors were grouped together because of small numbers. Cases were matched to controls 10:1 in most regions and 4:1 in 1 region. All participants were linked to birth records. Outcomes of interest included female partner delivery data, infant birth weight, gestational age, malformations, 5-minute Apgar scores, and death in the first 12 months of life.

Results: Data were available on 470 cases and 4150 controls. Infants born to male cancer survivors were significantly more likely to have birth weights <2500 g (RR, 1.4) especially if they had received chemotherapy (RR, 2.0) or radiotherapy (RR, 2.0) at a young age. No other concerns, however, including prematurity, malformation, birth size or altered sex ratios, were associated with surviving childhood cancer. Nor were female partners of male cancer survivors more likely to have any complications of pregnancy or delivery. In subanalyses, though, female partners of male survivors of childhood central nervous system tumors were more likely to have pre-eclampsia (RR, 3.4).

Conclusions: Infants born to male survivors of childhood cancer were not at significant risk, except for a slightly low birth weight. There were fewer complications for infant born to male cancer survivors than in female cancer survivors, with the only significant risk being a slightly higher chance of being a bit below 2500 g. No increased risk of other potential complications was seen. Women impregnated by male survivors of central nervous system tumors had a higher risk of pre-eclampsia.

Reviewer’s Comments: As more and more boys survive childhood illnesses, long-term outcomes need to be explored. This study provides important information about how surviving childhood cancer affects a man’s ability to later have healthy children. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Childhood Cancer Survivors, Males, Fertility

Print Tag: Refer to original journal article
Although infants born to mothers who were childhood cancer survivors are not more likely to suffer from malformations and death, they are more likely to be small and preterm.

**Background:** Fertility is always a concern for women who have undergone treatment for cancer. With the increasing numbers of girls who are surviving childhood cancer, fertility as they reach adulthood is a new consideration.

**Objective:** To determine how treatment for cancer in childhood or adolescence affects birth outcomes in women compared to those who never had cancer.

**Design/Participants:** This was a retrospective cohort study of women from 4 regions in the United States, through data collected in the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. Girls were eligible for this study if they were diagnosed with cancer before the age of 20 in different years from different cities.

**Methods:** Data abstracted included the characteristics of the tumor, initial treatment modality, and demographic information. Some tumors, such as single embryonal tumors, were counted together because of small numbers. Cases were matched to controls 10:1 in most regions and 4:1 in 1 region. Outcomes of interest included infant birth weight, gestational age, size at birth, malformations, 5-minute APGAR scores, and infant death in the first year of life.

**Results:** Data were available for 1898 cancer survivors and 14,278 controls. Cancer survival rates ranged by region from 13.1% to 17.2%; the median time to later delivery of an infant was 7 years. Mothers who were childhood cancer survivors were significantly more likely to deliver a preterm baby (RR, 1.5) and babies who had a birth weight <2500 g (RR, 1.3). However, they were no more likely to have babies with malformations, altered sex ratios, or who died in the first year of life, suggesting that there were no increases in germ cell mutagenicity. Infants born to bone cancer survivors were more likely to have diabetes (RR, 4.9), and brain tumor survivors and those who underwent chemotherapy only were more likely to have infants with anemia (RR, 3.1).

**Conclusions:** Although infants born to mothers who were childhood cancer survivors are not more likely to suffer from malformations and death, they are more likely to be small and preterm. Infants born to mothers who were childhood cancer survivors should be monitored closely, as they are more likely to be born premature and small. They are not more likely, however, to have malformations or die in the first year of life. There are suggestions that certain types of cancer may lead to increased risks of diabetes or anemia.

**Reviewer’s Comments:** As we improve medical care so that more children survive childhood illnesses, we need to continue to investigate long-term outcomes. This study provides important information about how surviving childhood cancer affects a woman's later ability to bear healthy children. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Cancer, Pregnancy Outcomes, Females, Fertility

Print Tag: Refer to original journal article
Swaddling of Infants Decreases Arousability During Sleep

Minimizing the Risks of Sudden Infant Death Syndrome: To Swaddle or Not to Swaddle?

Richardson HL, Walker AM:

J Pediatr 2009; 155 (October): 475-481

The negative effect of swaddling on infant arousability is greatest in infants who are not swaddled in the first 3 months of life.

Background: Sudden infant death syndrome (SIDS) has been attributed to an impaired ability of infants to arouse from sleep. While many parents may swaddle their infants to help them asleep, the effects of swaddling on arousability are unknown.

Objective: To determine the effects of swaddling on infant arousability during sleep.

Participants/Methods: The study enrolled 27 full-term, normal weight, and healthy infants of nonsmoking mothers. All infants were breastfed and placed to sleep in the supine position. Daytime polysomnography was performed at 3 to 4 weeks and at 3 months in a sleep laboratory after the routine morning feed. Infants were randomized to being swaddled or being unwrapped at the first study point and then underwent the opposite intervention for the second study point. Sleep state categories were active sleep (AS), quiet sleep (QS) or indeterminate. Infant arousal in each stage was assessed in response to a pulsatile air-jet (mimics mild hypoxia) delivered to each nostril separately. After each stimulus, responses were recorded as nonarousal, subcortical activation (SCA), or cortical arousal (CA) and mean arousal thresholds were calculated. The investigators examined the effect of sleep state and swaddling on arousal thresholds and the frequency of arousal response.

Results: There were no significant differences in baseline heart rate, oxygen saturation, or abdominal skin temperature according to swaddling or sleep state. Swaddled infants had a 3- to 5-breath increase in respiratory rate in QS at both ages. At 3 to 4 weeks, swaddling did not significantly affect arousal thresholds during AS or QS, while at 3 months, infants were more difficult to arouse only during QS and had a decrease in CA during AS. At both age points, infants with lower baseline arousal thresholds (eg, more easily aroused) had greater increases in arousal thresholds with swaddling. Infants who were naïve to swaddling had the highest arousal thresholds and were also less arousable when swaddled compared to infants who were routinely swaddled. Infants who were routinely swaddled at home had similar arousal thresholds when swaddled and unwrapped, regardless of their sleep state or age.

Conclusions: The authors concluded that swaddling does reduce infant arousal, but is most apparent in infants who are easiest to arouse when unwrapped and who are naïve to swaddling at 3 months.

Reviewer's Comments: This study is chock full of technical terms and detailed sleep measurements that can be dizzying to one without expertise in this area. However, the take home message seems to be not that swaddling is generally bad, but that swaddling an infant who is not routinely swaddled can significantly impact their arousal from sleep, and this may put them at greater risk for SIDS. So it seems that if parents want to swaddle, then they should start early and be consistent. (Reviewer-Beth A. Tarini, MD).

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Keywords: SIDS, Swaddling

Print Tag: Refer to original journal article
Unrestricted Access to Tanning Facilities Common for U.S. Teens


Pichon LC, Mayer JA, et al:

Arch Dermatol 2009; 145 (September): 997-1002

In states with youth access laws to indoor tanning facilities, those facilities are more likely to require parental permission or accompaniment compared to states without such laws.

Background: UV radiation from tanning beds has been linked to both melanoma and squamous cell cancer, and a recent meta-analysis found that a first exposure to these facilities before age 35 years may increase that risk by as much as 75%. In 21 states, there are laws restricting youth access. The Food and Drug Administration (FDA) has recommended ≤3 sessions during the first week of tanning. Indoor tanning, however, remains very popular, particularly among adolescent girls.

Objective: To assess indoor facility practices regarding adolescent use across the United States.

Design/Participants: A cross-sectional study of tanning facilities in 116 cities representing all 50 states was conducted. Five college students posed as adolescents, telephoned selected facilities, and followed a scripted questionnaire. The student informed the facility that she was 15-years-old and planning to visit the facility on that day. She asked if her mother needed to sign permission, if her mother needed to accompany her, and how many times daily she could tan during the first week.

Results: 3647 tanning facilities were contacted, and 87% of these did require parental consent. Only 14% required parental accompaniment. Only 5% would not allow the self-stated 15-year-old to tan due to her age, while 71% would allow daily tanning during the first week and thus exceed the FDA recommendations. Facilities in states with youth access laws were more likely to require parental consent and parental accompaniment compared to those states without a youth access law. The law was not always followed. Of states requiring parental consent, facilities in Louisiana, Maine, New Hampshire, and South Carolina had 100% compliance, while approximately 70% of facilities in Georgia were in compliance.

Conclusions: The authors concluded that being in a state with any type of youth access law made it significantly more likely that a facility would require written parental consent. The authors recommended additional states pass access laws, including banning younger adolescents.

Reviewer's Comments: While the authors note that laws may limit access to some extent, the study reveals that compliance is less than ideal. To highlight the lack of punching power of health recommendations in the world of commerce, the FDA advisories against daily first-week tanning were overlooked by the vast majority of facilities. Many actually touted “unlimited tanning” discount price packages. An accompanying editorial notes that the World Health Organization has recommended that the use of indoor tanning facilities be banned for anyone <18 years because of the health risks. With commercial tanning an estimated $5 billion business in the United States, any efforts on that front are likely to be met by some heavy lobbying. (Reviewer-Mark F. Ditmar, MD).

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Keywords: Tanning Facilities, UV Radiation, Melanoma/Squamous Cell Cancer

Print Tag: Refer to original journal article
The N95 respirator has the same results in preventing influenza in nurses as standard surgical masks.

**Objective:** To compare the N95 respirator to the standard surgical mask in preventing confirmed influenza in nurses in a hospital setting.

**Methods:** Full-time nurses were enrolled in emergency department, medical units, and pediatric units in 8 tertiary hospitals in Ontario, Canada. Nurses were randomized to receive either the regular hospital-supplied surgical mask or N95 respirator when they were within 1 meter of contact with a febrile patient with cough or shortness of breath. Nurses were assessed via web questionnaires every 2 weeks concerning their health status. If new symptoms occurred, a nasal swab was obtained for culture, and blood testing was performed. N95 respirator masks were fitted for a majority of the nurses. The outcome was to determine the incidence of laboratory-confirmed influenza in these 2 groups. This study took place from September 23, 2008, to December 8, 2008.

**Results:** 446 nurses were enrolled, with 225 in the surgical mask group and 221 in the N95 respirator group. Influenza vaccination status was the same between groups with 30% in the surgical-mask group and 28% in the N95 respirator group with the 2008 to 2009 trivalent-inactivated influenza vaccine. Laboratory-confirmed influenza by PCR in serum occurred in 50 nurses (23.6%) in the surgical-mask group and 48 nurses (22.9%) in the N95 group. The study also noted that 8% in the surgical mask group had H1N1 versus 11.9% in the N95 group. Twenty-five percent of the surgical mask group reported an exposure to a spouse or roommate with influenza-like illness compared to 22% in the N95 group.

**Conclusions:** The N95 respirator had the same results in preventing influenza in nurses as did the standard surgical masks.

**Reviewer’s Comments:** This article shows that there were no significant differences between these 2 masks. Some of limitations include the lack of data on glove wearing, hand washing, and gown wearing. The authors commented that N95 respirators are superior to the mask and should be considered in highly infectious individuals; however, in an outpatient clinic setting, surgical masks may be just as protective in preventing influenza. The exposure to sick contacts outside the hospital may have had an effect on the infection rates in these 2 groups. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Protective Respiratory Masks, Surgical Masks, Influenza

Print Tag: Refer to original journal article
Children who have head trauma and meet specific criteria can be managed without CT scan.

**Background:** Traumatic brain injury (TBI) is an important cause of morbidity and mortality. Even apparently minor injury can result in trauma that is evident on CT scan, and this is seen in <10% of cases. Ionizing radiation from CT can promote malignancy, so minimizing CT radiation exposure is desirable.

**Objective:** To identify children at very low risk of clinically important TBI for whom CT may not be necessary.

**Design/Participants:** Prospective cohort study involving patients <18 years of age with head trauma presenting to the emergency department (ED).

**Methods:** Patient history, mechanism of injury, signs, and symptoms were recorded for all eligible patients before CT results were known. CT scans were obtained based on ED physician decision and were read by radiologists blinded to clinical data. Injury mechanism was defined as follows: severe (motor vehicle accident with patient ejection; death of other passenger; rollover; pedestrian or bicyclist hit by moving vehicle; fall >5 feet for children aged ≥2 years and >3 feet for children aged <2 years; or head hit by high velocity object); mild (ground-level fall; running into stationary object); or moderate (all other mechanisms). Altered mental status was defined as Glasgow Coma Scale score of <15, agitation, sleepiness, slow responses, or repetitive questioning. Clinically important TBI was defined as death, neurosurgery, tracheal intubation >24 hours, or hospital admission for ≥2 nights. To ensure that no TBI s were missed, patients received a follow-up phone call 7 to 90 days after the ED visit. Review of medical records, ED records, and morgue records was performed for patients who could not be contacted by phone.

**Results:** 42,412 patients were eligible for analysis. Mean age was 7.1 years, with 25% aged <2 years. CT scans were obtained in 35.3% of patients; 780 (5.2%) patients showed TBI, and 376 of these cases were clinically important. Sixty patients required neurosurgery, and 8 required tracheal intubation. For children aged <2 years, the combination of normal mental status, no scalp hematoma except for frontal, no loss of consciousness for >5 seconds, nonsevere mechanism of injury, no palpable skull fracture, and acting normally according to the parents had a negative predictive value for clinically important TBI of 100% and a sensitivity of 100%. For children aged ≥2 years, the combination of normal mental status, no loss of consciousness, no vomiting, nonsevere mechanism of injury, no signs of basilar fracture, and no severe headache had a negative predictive value of 99.95% and a sensitivity of 96.8%.

**Conclusions:** Children with head trauma who fit the clinical criteria for not having clinically important TBI can be managed without head CT.

**Reviewer’s Comments:** This is an important study that all of us can use in our practice. The clinical criteria are easily obtained. Using these criteria will help us assess these patients without unnecessarily exposing them to ionizing radiation. (Reviewer-Rachel Moon, MD).

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Keywords: Head Trauma, Injury

Print Tag: Refer to original journal article
Parental Participation in PICU Proven Popular

Parental Presence on Pediatric Intensive Care Unit Rounds.
Cameron MA, Schleien CL, Morris MC:

J Pediatr 2009; 155 (October): 522-528

Parental satisfaction with their child's care increases when they can remain present during rounds in the PICU.

**Background:** Controversy exists on the value of parents being present during rounds in the pediatric intensive care unit (PICU). Those in favor believe that permitting parents to be present will decrease parental anxiety and improve communication between caregivers. Others believe there could be a negative impact on discussion and trainee education.

**Objective:** To assess the impact of parental presence on PICU rounds to patients, parents, and the health-care team.

**Design:** Prospective, observational, and survey-based study.

**Participants:** 52 parents of children in a 32-bed PICU and 102 health-care professionals (HCPs), of whom 63 were nurses and 39 were physicians.

**Methods:** Parents were given the option to join bedside rounds with nurses and physicians. Subsequently, 52 parents were interviewed (36 who participated and 16 who did not) and asked questions about the experience. HCPs were asked to complete assessments asking if parental participation provided additional information and/or limited educational questions or discussion. A survey completed by 63 HCPs was obtained to assess the perceived positive and negative impact on parental presence on rounds.

**Results:** Overall, a parent participated in 48 of 130 (37%) rounding events; 30% were absent, and 33% preferred not to join. Demographic data between participants and nonparticipants were not different. Among the 36 parents who chose to be present, 27 (75%) reported that the experience allowed them to be more involved in treatment decisions; 89% felt it helped them better understand the treatment plan and their child's condition; and 83% believed it improved their satisfaction with their child's care. Among those not participating (n=16), 25% felt attending would provoke anxiety and stress to hear about options. Increased parental anxiety and confusion was thought to be a potential concern among 47% of parents participating and 88% not participating in rounds. Both parents and HCPs felt participation increased the exchange of information. Physicians (5 of 10 attendings, 14 of 43 housestaff) believed that housestaff education was negatively affected during rounds. Team discussions were thought to be limited by 21 of 63 nurses, 17 of 43 housestaff, and 2 of 10 attendings. A minority (23%) of the housestaff thought participation adversely eroded parents' confidence in the housestaff. Overall, a majority of parents (>80%), nurses (71%), and housestaff (79%) believed that parental participation should be routine.

**Conclusions:** In general, parental participation in PICU rounds is believed to be a positive experience because it increases parental satisfaction and provides more information, although it may negatively affect teaching.

**Reviewer's Comments:** It baffles me that ICU rounds routinely take place in front of adult patients but not in front of the parents of sick children. This study confirms that parents should be given the option of attending rounds. Some teaching points may be performed after rounds to ensure that patient care is not adversely affected. (Reviewer-Seth L. Schulman, MD).

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Keywords: Parents, Pediatric ICU

Print Tag: Refer to original journal article
SSRI Exposure In Utero Leads to ‘Depressed’ Neonates

Selective Serotonin Reuptake Inhibitor Exposure In Utero and Pregnancy Outcomes.

Lund N, Pedersen LH, Henriksen TB:


SSRI use during pregnancy increases the risk of preterm delivery, low Apgar score, and NICU admission for additional symptoms.

**Background:** Selective serotonin reuptake inhibitors (SSRIs) are often prescribed for the management of depression during pregnancy. SSRIs readily cross the placenta, and levels are found in the umbilical cord of exposed neonates. However, the potential for fetal effects by this class of medications has not been clearly determined.

**Objective:** To investigate the association between SSRI use during pregnancy and pregnancy outcome.

**Methods:** All women receiving prenatal care at a large university hospital in Denmark were asked to participate in a birth cohort study. Information was gathered during the second trimester through a self-administered questionnaire and included questions on maternal illnesses, medical treatments during pregnancy, and lifestyle factors (ie, substance abuse). At birth, the course of delivery, complications, and newborn characteristics were noted. For this study, 3 groups of pregnant women were evaluated: women treated with SSRIs during pregnancy; women with a history of depression but no SSRI use during pregnancy; and women with no history of psychiatric illness. Potential confounders were considered, such as parity, maternal age, body mass index, smoking, caffeine use, alcohol intake, marital status, previous preterm birth, and education.

**Results:** 329 women participating in the study used SSRIs during pregnancy, 4902 reported a psychiatric history but did not use SSRIs during pregnancy, and 51,770 pregnant women had no psychiatric history and no SSRI use. Among the women using SSRIs, 11.5% used another psychotropic drug during pregnancy. In women with psychiatric history/no SSRI use, most had no specific diagnosis, and very few (<2%) reported the use of psychotropic, antipsychotic, anxiolytic, or other antidepressants. Women treated with SSRIs were twice as likely as women with no psychiatric illness to experience a preterm delivery. The risk of low 5-minute Apgar score (≤7) was increased in women treated with SSRIs by 4- to 6-fold. The rate of admission to the NICU was also significantly higher in newborns with in utero SSRI exposure, even after adjusting for Apgar score and prematurity. Neither weight nor head circumference differed significantly among the groups.

**Conclusions:** In utero exposure to SSRIs is associated with significantly increased risk of preterm birth, low 5-minute Apgar score, and NICU admission.

**Reviewer's Comments:** The increased risk of NICU admission may have been related to adverse effects of the drug or withdrawal symptoms in many cases. Effects of SSRIs are of interest to pediatricians in the outpatient setting, as well as in the newborn nursery, as it is likely that pregnant women using SSRIs will continue the medication after delivery. According to the drug and lactation database of the National Institutes of Health, neonates exposed to SSRIs through breastfeeding should be monitored for behavioral side effects (such as colic, fussiness, or sedation) and adequate weight gain. (Reviewer-Alyssa Siegel, MD).

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Keywords: SSRI, Teratogens

Print Tag: Refer to original journal article
Psychotropic Drug Use in Breastfeeding and Risks to Infants--An Update

Fortinguerr F, Clavenna A, Bonati M:

Pediatrics 2009; 124 (October): e547-e556

Updated information concerning psychotropic drug use and breastfeeding helps elucidate which drugs may be better to prescribe to breastfeeding mothers.

**Background:** While breastfeeding is strongly encouraged for most mothers, there is hesitancy to recommend it for women taking psychotropic medications due to the paucity of safety information concerning the infant.

**Objective:** To review current literature pertaining to psychotropic medications and breastfeeding to provide updated information on exposure levels and risks to infants.

**Design:** Literature review.

**Participants:** Breastfeeding mothers and their infants. Mothers were taking 1 of 96 psychotropic medications.

**Methods:** Original articles and review articles were identified through MEDLINE, Embase, and PsychINFO. Additionally, secondary sources such as reference books were reviewed. Articles and texts included in the analysis had to address pharmacokinetic data and adverse effects in infants. Of the articles included, the following information was abstracted: maternal dosage, number of mother-infant dyads, milk-to-plasma drug ratio, relative infant dosage, and incidence of infant adverse events. Using this information, each drug was then categorized as compatible, to be used with caution, or contraindicated.

**Results:** 62 of 96 drugs had information available for review. Of these, the greatest amount of information existed for antiepileptic medications. Valproate and carbamazepine were found to be compatible because of their low excretion and adverse events rates. Similarly, sertraline, paroxetine, and fluvoxamine were considered compatible antidepressants, and chlorpromazine and olanzapine were compatible antipsychotics. Due to lack of information, all anti-anxiolytics were labeled as “use with caution,” but the investigators added that due to infants' slower metabolism, short-acting benzodiazepines were likely better because they were less likely to build up. Psychostimulants could not be categorized due to lack of information. With all medications reviewed, the investigators stressed that the risks of the drugs must be viewed in light of the benefits of breastfeeding as well as the mental health needs of the mother and the benefits gained by being properly medicated.

**Conclusions:** This study was able to update safety information on 62 of 96 psychotropic medications and provide some recommendations concerning which drugs are safer to use during breastfeeding.

**Reviewer's Comments:** This article provides a nice, clean summation of what is known about the risk to breastfed infants from exposure to psychotropic medications, thereby allowing pediatricians to better counsel breastfeeding mothers. As stressed by the investigators, this information is still incomplete, and more research is needed to best advise mothers as they balance the needs of their infants and their own mental health needs. (Reviewer-Lisa Humphrey, MD).

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**Keywords:** Psychotropic Drugs, Breastfeeding

**Print Tag:** Refer to original journal article
Celiac Disease in Children With CP--Is There a Correlation?

*Increased Prevalence of Anti-Gliadin Antibodies and Anti-Tissue Transglutaminase Antibodies in Children With Cerebral Palsy.*

Stenberg R, Dahle C, et al:

J Pediatr Gastroenterol Nutr 2009; 49 (July 8): 424-429

Many children with cerebral palsy have elevations in celiac panel antibodies, but there is no correlation to an increased risk of celiac disease.

**Background:** Children with cerebral palsy (CP) have had increased problems with nutritional status due to increased energy expenditure or poor intake. A recent study reported an increase in anti-gliadin antibodies (AGA) in children with CP.

**Objective:** To determine if there is an association between celiac disease and CP in children.

**Methods:** Children in Sweden with CP were recruited for this study. Body weights and heights were recorded. Blood samples were collected and tested for IgG and IgA against AGA, tissue transglutaminase (tTG), and endomysium (EMA). Small-bowel biopsy was performed in those who parents consented.

**Results:** 90 children with CP were included in the study; 39 of these children (43%) had elevation in 1 or more antibodies tested. None of the children had IgA or IgG deficiency; 36% had elevation in IgG-AGA and 10% of IgA-AGA. Thirty percent had positive IgG-tTG. There was no positive endomysium. Twenty-five children underwent small-bowel biopsy. One child had celiac disease, and 2 children had intraepithelial lymphocytosis.

**Conclusions:** Many children with CP have elevations in celiac panel antibodies, but there was no correlation with an increased risk of celiac disease.

**Reviewer's Comments:** Although celiac disease in children with CP is rare, it is reassuring that a positive titer may not correlate with celiac disease. As more parents get information on the Internet, studies such as this can help reduce the need for unnecessary tests in children with special needs if the parents request that testing be performed. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Celiac Disease, Cerebral Palsy

Print Tag: Refer to original journal article
Cow's milk allergy is the most prevalent type of food allergy in young adults.

**Background:** Many trials have examined the new onset of food allergy in children, yet very few studies have been published involving older children and young adults.

**Objective:** To evaluate the prevalence of food hypersensitivity in young adults.

**Methods:** The young adults were selected from an adolescent cohort in Denmark. Food allergy was divided into primary and secondary food hypersensitivity (FHS). Primary FHS was food-allergy independent of pollen sensitivity. Secondary FHS was defined as reaction to pollen-related vegetables and fruits. Allergic status was determined by questionnaire, skin prick testing, and food challenge.

**Results:** 843 young adults returned the survey; 26% has suspected FHS, 19.6% had primary FHS, and 16.7% had secondary FHS. Cow's milk, peanuts, shrimp, and additives were the most common causes of primary FHS. Those with history of rhinitis or conjunctivitis and food allergy were considered to have secondary FHS. Kiwi allergy was reported by 7.8%, followed by hazelnut (6.6%), pineapple (4%), apple (4%), orange (4%), tomato (3.8%), and peach (3%). The majority of those with secondary FHS had oral allergy to fruits and vegetables.

**Conclusions:** Food allergy is a common problem among young adults, and reducing exposure can help benefit these susceptible individuals.

**Reviewer's Comments:** Many pediatricians are careful with nuts, eggs, and shellfish exposure in the first 2 years of life. However, the allergy profiles of young adults do include nuts and some shellfish; egg allergy was not seen in high numbers in this cohort. Cow's milk was a common allergen, as were many fruits and vegetables. It is very important to take detailed histories of parents for food allergies and continue to try to avoid these foods in early childhood. (Reviewer-Charles I. Schwartz, MD).

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Keywords: Food Allergy, Young Adults

Print Tag: Refer to original journal article
Universal bilirubin screening leads to a lowering of the incidence of severe hyperbilirubinemia but increases the level of phototherapy.

**Background:** The 2004 guidelines of the American Academy of Pediatrics on the management of hyperbilirubinemia recommends universal screening of infants by either transcutaneous or serum measurement or an assessment of clinical risk factors. The effect of this practice on the actual incidence of severe hyperbilirubinemia or the use of phototherapy as treatment is unknown.

**Objective:** To determine how universal screening for hyperbilirubinemia affects the diagnosis of severe disease and the use of phototherapy for treatment.

**Design/Methods:** This was a retrospective cohort study of infants born in 11 hospitals born between 1995 and 2007. To be eligible for the study, infants had to be born at least 35 weeks' gestational age and weigh at least 2000 g. The protocol for screening required either subcutaneous or serum testing, with serum testing done if the transcutaneous level was at least 15 mg/dL. As of 2007, 4 of the 11 sites studied had universal transcutaneous screening, 5 had universal serum testing, and 2 had neither. Data were collected both before and after the initiation of universal screening in 2005. Outcomes of interest included measurements of severe hyperbilirubinemia and the use of phototherapy. Demographic and other data were also collected for use in analyses.

**Results:** In the time before universal screening was initiated, data were available on 319,904 infants; data were available on 38,182 infants after universal screening was begun. Infants received, on average, <1 bilirubin test before universal screening and almost 2 tests afterward. Infants born at facilities with universal screening had 62% less severe hyperbilirubinemia. They also received more than twice as much phototherapy and had a slightly longer length of stay on average. There were no significant differences in the odds of developing hyperbilirubinemia between those receiving transcutaneous measurements and serum measurements.

**Conclusions:** The use of universal screening significantly lowered the rates of severe hyperbilirubinemia. However, it also led to increased use of phototherapy, not all of it warranted. It appears that there was no significant difference in these outcomes by the method of screening.

**Reviewer's Comments:** Universal screening seems to have lowered the incidence of severe hyperbilirubinemia but at the cost of too much phototherapy. We need to be sure not to go too far in implementing guidelines. (Reviewer-Aaron E. Carroll, MD, MS).

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Keywords: Hyperbilirubinemia, Screening, Phototherapy

Print Tag: Refer to original journal article
Intussusception in Children--US vs X-Ray

The Role of Abdominal Radiography in the Diagnosis of Intussusception When Interpreted by Pediatric Emergency Physicians.

Morrison J, Lucas N, Gravel J:

J Pediatr 2009; 155 (October): 556-559

Abdominal radiographs should not be used to rule out intussusception in a child suspected of having it.

Background: Intussusception is a difficult diagnosis because most children do not present with the classic triad of symptoms of abdominal pain, vomiting, and bloody stool. While ultrasound (US) is the diagnostic test of choice, most emergency department (ED) physicians do not have access to US during the initial evaluation. They likely order an abdominal x-ray and use these results to guide future decision making.

Objective: To evaluate the sensitivity and specificity of abdominal x-rays for diagnosing intussusception.

Methods: The study was conducted at a Canadian tertiary care pediatric hospital with board-certified or eligible pediatric emergency physicians. Physicians viewed abdominal radiographs of children who had been diagnosed with intussusception (cases) as well as children who presented to the ED with abdominal pain but did not have intussusception (controls). The cases and controls were age and gender matched. For each x-ray, physicians blinded to the clinical history reported whether the radiograph increased, decreased, or did not affect their suspicion of intussusception. They were then asked their management decision after viewing x-rays under 2 clinical scenarios: high and low clinical suspicion for intussusception. The primary outcome was sensitivity (number of cases in which the x-ray increased suspicion). The authors also calculated the false-negative rate, interrater agreement, and the effect of x-rays on the actions in the 2 clinical scenarios.

Results: 12 physicians participated (mean experience, 7 years, except for 2 fellows) evaluated 50 cases each. There was a wide variability in radiograph performance: sensitivity (22% to 88%), specificity (0% to 80%), and false-negative rates (0% to 34%). For cases, x-rays appropriately increased suspicion in 48% and were inappropriately reassuring in 11%. For controls, x-rays appropriately decreased suspicion in 21% and inappropriately increased it in 21%. In 41% of cases and 58% of controls, the x-ray did not change suspicion. In terms of the effect on management plan, x-rays delayed diagnosis in 5% of cases but decreased US rates in 10% controls. When patients were low risk, physicians more often asked for US in cases than in controls (44.7% vs 19.2%).

Conclusions: The performance of abdominal x-rays in this study was poorer than in others. The authors attribute this to the presence of an "equivocal" choice in the interpretation, which they believe to be more realistic. Nonetheless, the authors conclude that abdominal radiographic assessments should influence clinical care only when they would increase the level of clinical suspicion and not when they would decrease it.

Reviewer's Comments: While the absence of clinical data makes the clinical scenarios less realistic, the conclusion of the study seems reasonable: abdominal x-rays should not be used by an ED physician to rule out intussusception when a child is suspected of having it. However, a finding on an abdominal x-ray should not be ignored even when the suspicion is low. (Reviewer-Beth A. Tarini, MD).

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Keywords: Intussusception, Radiograph, Sensitivity, Specificity

Print Tag: Refer to original journal article
In infants seen in an emergency department with acute life-threatening events, the likelihood of a serious bacterial infection is extremely low.

**Background:** An acute life-threatening event (ALTE), by definition, is an episode characterized by some combination of apnea, color change, marked change in muscle tone, or choking and is frightening to the observer. The evaluation of these children can be a challenge as the range of diagnostic possibilities is extensive, including gastroesophageal reflux, seizures, lower respiratory tract infection, and cardiac disorders. The physical examination is often nonrevealing.

**Objective:** To determine the incidence of serious bacterial infection (SBI) in infants presenting to an urban emergency department (ED) with ALTE.

**Design/Participants:** This prospective cohort study involved infants <1 year of age who met standard National Institutes of Health definitional criteria for ALTE during 2006 to 2007 at the Children's Hospital of Philadelphia (CHOP).

**Methods:** SBI was defined as any blood, urine, or CSF culture that was positive for bacteria. An abnormal chest x-ray was not considered an SBI because of the imprecise nature of the diagnosis of bacterial pneumonia. Clinical management was at the discretion of the ED attending physician. Patients who were admitted or discharged from the ED had a 4-week follow-up to determine whether the infants had been diagnosed with a bacterial infection or received antibiotics.

**Results:** 198 infants with ALTE were enrolled in the study. The median age was 49 days. Of these infants, 34% were born preterm, 4.5% had fever during their ED stay, 64% had laboratory testing done, 24% had an ECG, and 50% had a chest x-ray obtained as part of their ED evaluation. Seventy-six percent of infants were admitted to the hospital; 44 (22%) had some component of evaluation for an SBI, including a blood culture in 38%, a urine culture in 18%, and a CSF culture in 9%. None of the infants had bacteremia, urinary tract infection, or bacterial meningitis. No true-positive culture results were obtained in the 44 patients who were evaluated. Follow-up phone calls in 4 weeks did not identify any cases of SBI. Two infants had enteroviral meningitis.

**Conclusions:** The incidence of SBI in patients aged <1 year seen for ALTE was extremely low. A full SBI evaluation is not routinely indicated in infants presenting with an ALTE.

**Reviewer's Comments:** The study at CHOP adds more weight to the lack of utility for an extensive "septic workup" for patients with ALTE. Indeed, that message seems to have reached the CHOP staff even as the study was being done, as the majority of patients presenting with ALTE did not receive an extensive workup. Only 22% of infants received any cultures at all. The 4-week follow-up ensured that unrecognized cases were not missed. Therefore, put SBI way down the list of possible causes for ALTE. (Reviewer-Mark F. Ditmar, MD).
Can Hypothermia Treat Perinatal Asphyxial Encephalopathy?

Moderate Hypothermia to Treat Perinatal Asphyxial Encephalopathy.

Azzopardi DV, Strohm B, et al:


Moderate hypothermia for perinatal asphyxial encephalopathy increases the chances for survival without significant neurologic abnormality by 18 months of age.

**Objective:** To determine if hypothermia improves the mortality and morbidity of perinatal asphyxial encephalopathy.

**Design:** Randomized, controlled trial.

**Methods:** The authors recruited infants in the United Kingdom to compare intensive care plus total-body cooling for 72 hours with intensive care without cooling. Eligible infants needed to be at 36 weeks' gestational age, have an Apgar score of ≤5 at 10 minutes after birth or a continued need for resuscitation, or have acidosis (pH <7 or base deficit >16 mmol/L) within 60 minutes of birth. They also had to have lethargy, stupor, or coma as well as hypotonia or abnormal reflexes or clinical seizures. Furthermore, infants needed to have abnormal background activity of at least 30 minutes' duration or seizures on EEG. Infants were excluded if they had known major congenital abnormalities or could not be randomized within 6 hours of birth. Once randomized, infants in the hypothermia arm were cooled via gel packs and/or cooling blanket. The primary outcome was the composite of death or severe neurodevelopmental disability at 18 months of age. Secondary outcomes at 18 months were the score on the psychomotor development index of Bayley Scales of Infant Development-II, cerebral palsy, hearing loss, seizures treated with anticonvulsants, microcephaly, and/or multiple neurodevelopmental abnormalities.

**Results:** In the cooled group (n=163), 42 infants died, and 32 developed severe neurodevelopmental disability (45% in total). In the noncooled group (n=162), 44 infants died, and 42 had severe disability (53% total). The relative risk (RR) for either outcome was 0.86 (CI, 0.68 to 1.07; P =0.17). With regard to secondary outcomes, the rate of survival without a significant neurologic abnormality was significantly increased in the cooled group (44% vs 28%; CI, 1.16 to 2.12; P =0.003).

**Conclusions:** There was a significant increase in survival without neurologic abnormality in the cooled group. While the primary outcome of either death or severe neurologic impairment was not significantly improved, it did trend toward improvement (RR, 0.86), which is consistent with previous study results. The authors appropriately caution that neurodevelopmental assessments at 18 months of age may not reliably predict later outcomes.

**Reviewer's Comments:** While many a pediatrician has experienced firsthand the anguish of resuscitating an asphyxiated near-term or term newborn, it is encouraging to hear about a relatively simple intervention postresuscitation that may increase the chances for an improved neurologic outcome. It is important to remember that cooling occurred within 4 to 6 hours of birth. As in other cases, a study involving larger numbers is needed before cooling is made a standard practice. (Reviewer-Daniel Coghlin, MD).

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Keywords: Moderate Hypothermia, Perinatal Asphyxial Encephalopathy

Print Tag: Refer to original journal article