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Invasive Pneumococcal Disease After Implementation of 13-Valent Conjugate Vaccine

Invasive pneumococcal disease causes enormous morbidity in children. The spectrum and severity of illness caused by pneumococcal serotypes not present in the current vaccine, and whether the clinical profile and severity of disease have changed, are largely unknown.

Initial data suggest that nonvaccine serotypes are more common in children with underlying conditions, who have greater morbidity from disease. In the post-PCV13 era, a larger proportion of patients are hospitalized, but mortality rates are unchanged.

Massachusetts Health Reform and Access for Children With Special Health Care Needs

Massachusetts implemented a major health reform in 2006 to reduce uninsurance, improve access to care, and increase financial protection for its citizens, but little is known about its effect on privately and publicly insured children with special health care needs.

Massachusetts health reform improved access to specialists for privately insured children with special health care needs but did not reduce uninsurance, increase access to primary care, or improve financial protection. National reform may produce similarly modest outcomes for these children.

Hookah Use Among US High School Seniors

Hookah use is increasing dramatically among US adolescents. Many consider it a safer alternative to cigarettes. Existing

studies often use nonrepresentative local populations to assess prevalence and correlates of hookah use.

This study used a nationally representative sample of US high school seniors. It confirmed some previously found correlates and determined that adolescents of higher socioeconomic status were at high risk for hookah use.

Cost-Benefit Analysis of a Medical Emergency Team in a Children's Hospital

Numerous studies have demonstrated clinical benefits of medical emergency team (MET) implementation, including reductions in mortality, cardiac arrests, and critical deterioration events. No studies have evaluated the financial costs and benefits of METs.

The costs of operating an MET can plausibly be recouped with a modest reduction in critical deterioration events. Hospitals reimbursed with bundled payments could see real financial savings by reducing critical deterioration events with a MET.

Sensitivity of the Limited View Follow-up Skeletal Survey

A previous study suggested that spine and pelvis views may be omitted from the follow-up skeletal survey protocol for suspected child abuse, when these views are normal on the initial skeletal survey, without limiting the sensitivity of the study.

This multicenter study provides estimates of the risk of missing occult fractures in the evaluation of suspected child abuse with omission of spine and pelvis views from the follow-up skeletal survey protocol. Results may be used to update practice recommendations.

Bowel Preparations for Colonoscopy: An RCT

Available bowel preparation solutions for colonoscopy continue to represent a challenge for children and their families due to poor taste, high volume, and dietary restrictions with subsequent poor compliance and need to place nasogastric tube for administration.

Low-volume polyethylene glycol (PEG) preparations and sodium picosulphate plus magnesium oxide and citric acid (NaPico+MgCit) are noninferior to PEG 4000 with simethicon for bowel preparation before colonoscopy in children. Given its higher tolerability and acceptability profile, NaPico+MgCit should be preferred in children.

The Timing of Cord Clamping and Oxidative Stress in Term Newborns

Clamping and cutting of the umbilical cord at birth is the most prevalent of all operations; however, the optimal timing of cord clamping is still a controversial issue, with different timings offering advantages and disadvantages.

Our findings suggest a protective effect of late cord clamping, increasing the antioxidant capacity and decreasing the inflammatory-mediated effects induced during delivery of term neonates.

Neonatal Outcome Following Cord Clamping After Onset of Spontaneous Respiration

Delaying cord clamping beyond 30 to 60 seconds after birth seems beneficial for all infants due to blood transfusion from placenta. Experimental data have demonstrated that ventilation implemented before cord clamping improved cardiovascular stability by increasing pulmonary blood flow.

Healthy self-breathing neonates in a low-resource setting are more likely to die if cord clamping occurs before or immediately after onset of spontaneous respirations. The risk of death/admission decreases by 20% for every 10-second delay in clamping after breathing.

Obstructive Sleep Apnea and Sickle Cell Anemia

Obstructive sleep apnea syndrome (OSAS) prevalence in children with sickle cell anemia is not well described. Although these children often experience nocturnal oxygen desaturation, it is unclear whether they are more likely to have OSAS.

Children with sickle cell anemia have a high prevalence of OSAS with typical symptoms, beyond just nocturnal oxyhemoglobin desaturation. This study supports the need for increased efforts to screen for, diagnose, and treat OSAS in this vulnerable population.

Growth After Adenotonsillectomy for Obstructive Sleep Apnea: An RCT

Growth failure has been frequently reported in children who have obstructive sleep apnea syndrome (OSAS) owing to adenotonsillar hypertrophy. Adenotonsillectomy (AT) has been reported to accelerate weight gain in children who have OSAS in nonrandomized uncontrolled studies.

This randomized controlled trial of AT for pediatric OSAS demonstrated significantly greater weight increases 7 months after AT in all weight categories. AT normalizes weight in children who have failure to thrive, but increases risk for obesity in overweight children.

Treatment Outcomes of Overweight Children and Parents in the Medical Home

Pediatricians need to treat overweight in early childhood. Family-based interventions in specialized clinics are efficacious in children age 8 years and older. Data regarding treatment of younger children are limited in specialty clinics and primary care.

This study shows that a 12-month family-based behavioral intervention in primary care is more efficacious compared with Control condition with a child-only focus. Weight outcome differences between Intervention and Control persist in children and parents after a 12-month follow-up.

Weighted Blankets and Sleep in Autistic Children—A Randomized Controlled Trial

Children with autism sleep poorly compared with their peers. Sensory integration, including use of weighted blankets, is proposed as a means to reduce arousal and stress. There is, however, no evidence that weighted blankets can improve sleep for these children.

This is the first robust study to evaluate the impact of weighted blankets and show that they do not improve sleep parameters in children with autism spectrum disorder.

The Association of Generation Status and Health Insurance Among US Children

Immigrant children are more likely to be uninsured versus nonimmigrant children. The extent to which immigrant families are aware of and interested in obtaining insurance is unclear. Obstacles to participation in insurance exchanges and public insurance programs are also unknown.

Barriers for children in immigrant families include awareness of and experience with various health insurance options, perceived costs and benefits of insurance, structural/policy

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restrictions on eligibility, and the likelihood of working organizations likely to offer employee insurance coverage.

Longitudinal Profiles of Adaptive Behavior in Fragile X Syndrome

To date, studies of adaptive behavior in fragile X syndrome have focused on particular age points, either longitudinally or cross-sectionally across a broad age spectrum. Studies have shown variable patterns in adaptive behavior among people with fragile X syndrome.

This study fills a critical gap in knowledge about the profile of adaptive behavior across childhood, adolescence, and young adulthood in fragile X syndrome. This study is the first to incorporate longitudinal data from an age-matched typically developing group.

Trends in Abdominal Obesity Among US Children and Adolescents

Previous studies showed that prevalence of abdominal obesity among US children and adolescents increased significantly between 1988–1994 and 2003–2004. However, little is known about recent time trends in abdominal obesity since 2003–2004.

In 2011–2012, 17.95% of children and adolescents aged 2 to 18 years were abdominally obese defined by waist circumference. The prevalence of abdominal obesity leveled off among US children and adolescents from 2003–2004 to 2011–2012.

The Natural History of Jaundice in Predominantly Breastfed Infants

Newborn infants who are predominantly breastfed are much more likely to develop prolonged hyperbilirubinemia than those fed formula, but the prevalence of prolonged hyperbilirubinemia in a largely white, North American, breastfed population is unknown.

Practitioners can be reassured that it is normal for 20% to 30% of predominantly breastfed infants to be jaundiced at age 3 to 4 weeks and for 30% to 40% of these infants to have bilirubin levels ≥ 5 mg/dL.

Increasing Provision of Adolescent Vaccines in Primary Care: A Randomized Controlled Trial

The Centers for Disease Control and Prevention recommends that health departments in all 50 states deliver AFIX (Assessment, Feedback, Incentives, and eXchange) consultations to 25% of federally funded vaccine providers each year. AFIX effectively raises vaccination coverage among young children.

AFIX consultations achieved short-term gains in coverage for 11- to 12-year-olds for vaccines in the adolescent platform. No gains occurred for older adolescents or over the long term. Consultations were equally effective when delivered in-person or by webinar.

Unit of Measurement Used and Parent Medication Dosing Errors

There is growing support for adopting the milliliter as the standard unit for liquid medication instruction; teaspoon and tablespoon units can be confusing and may endorse kitchen spoon use. There are concerns that parents may not understand milliliter-based instructions.

Parents who used milliliter-only units made fewer dosing errors than those who used teaspoon or tablespoon units. Moving to a milliliter-only standard could reduce confusion and decrease medication errors, especially for parents with low health literacy and non-English speakers.

Stool Microbiota and Vaccine Responses of Infants

Oral vaccine responses are low in children from less-developed countries perhaps as a result of intestinal dysbiosis. New high-throughput DNA-based methods allow characterization of intestinal microbiota as a predictor of vaccine responses.

High abundance of stool *Actinobacteria*, including *Bifidobacterium*, was associated with higher responses to oral and parenteral vaccines and a larger thymus in Bangladeshi infants. Conversely, high abundance of *Clostridiales*, *Enterobacteriales*, and *Pseudomonadales* was associated with neutrophilia and lower vaccine responses.

Delayed Diagnosis of Critical Congenital Heart Defects: Trends and Associated Factors

Delayed diagnosis of critical congenital heart defects (CCHDs) is associated with increased morbidity and mortality.

Despite increasing prenatal diagnosis rates, delayed diagnosis of CCHDs continues to occur, with rates highest among isolated cases and those delivered at nontertiary care hospitals. Better understanding of delayed diagnosis could help to improve screening efforts.

Parental Smoking During Pregnancy and ADHD in Children: The Danish National Birth Cohort

Prenatal maternal smoking has been associated with attention-deficit/hyperactivity disorder in children, but the causal nature of this association is unclear. Controlling for the association with paternal smoking has been inconsistent.

Women who used nicotine replacement also had children with a higher risk of attention-deficit/hyperactivity disorder. Mother's smoking behavior appears more important than father's, suggesting a possible causal effect of nicotine exposure or factors related to maternal nicotine dependence.

Successful Schools and Risky Behaviors Among Low-Income Adolescents

Graduating from high school is associated with better health and health behaviors. However, no rigorous studies have tested whether exposure to a high-performing school improves health or health behaviors, thus the causal relationship is unknown. Exposure to successful schools can reduce very risky health behaviors among low-income adolescents. The primary mechanism is mostly due to better school retention and also due to better academic achievement.

Atopic Dermatitis, Melatonin, and Sleep Disturbance

Sleep disturbance affects 47% to 60% of children with atopic dermatitis and is a leading cause of impaired quality of life for the patients and their family.

Sleep disturbance in children with atopic dermatitis can be predicted by a Scoring Atopic Dermatitis index of ≥ 48.7 , and lower nocturnal melatonin secretion might play a role in the pathophysiology.

Sleep Environment Risks for Younger and Older Infants

Sudden infant death syndrome and other sleep-related causes of infant mortality have several known risk factors. Less is known about the association of those risk factors at different times during infancy.

Risk factors for sleep-related infant deaths may be different for different age groups. The predominant risk factor for younger infants is bed-sharing, whereas rolling to prone, with objects in the sleep area, is the predominant risk factor for older infants.

A Clinical Prediction Rule for the Severity of Congenital Diaphragmatic Hernias in Newborns

Predicting high-risk populations in congenital diaphragmatic hernia (CDH) can help target care strategies. Prediction rules for infants with CDH often lack validation, are aimed at a prenatal population, and are of limited generalizability. We cannot currently discriminate the highest risk neonates during the crucial period shortly after birth.

This clinical prediction rule was developed and validated on an international database. It discriminates patients and high, intermediate, and low risk of mortality; is easy to apply; and is generalizable to most infants with CDH.

Inhaled Nitric Oxide Use in Neonates With Congenital Diaphragmatic Hernia

The role of inhaled nitric oxide (INO) in the treatment of newborns with congenital diaphragmatic hernia (CDH) is poorly defined and not rigorously proven. Contemporary rates of INO use for CDH have not been reported.

INO use in neonates with CDH is widespread, and has increased in many US tertiary pediatric hospitals without associated decrease in extracorporeal membrane oxygenation use or mortality.

Motor Performance After Neonatal Extracorporeal Membrane Oxygenation: A Longitudinal Evaluation

After neonatal extracorporeal membrane oxygenation treatment, children are at risk for neurodevelopmental problems including delayed motor function. So far this has only been studied cross-sectionally until age 7 years.

We describe, in a nationwide evaluation, the longitudinal course of motor function development after neonatal extracorporeal membrane oxygenation with persisting problems up to 12 years. At risk are children with congenital diaphragmatic hernia and those with chronic lung disease.

Pediatric Advance Directives: Parents' Knowledge, Experience, and Preferences

As the number of chronically ill children grows in the United States, end-of-life discussions and advance directives (AD) will become increasingly important. Although pediatric palliative care is gaining interest, little is known about parental preferences regarding ADs for chronically ill children.

Knowledge about ADs is limited among caregivers of children who have chronic illness. However, interest in creating ADs is high, suggesting an unmet need and opportunity for health care providers to improve the care of children who have chronic illness.

Brain Injury and Altered Brain Growth in Preterm Infants: Predictors and Prognosis

Term MRI can assist in identifying the nature and extent of brain injury in preterm infants. However, brain injury detected by MRI does not fully account for neurodevelopmental impairments, particularly cognitive and behavioral impairments, common in preterm survivors.

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In addition to brain injury, an assessment of brain growth by using one-dimensional measurements on MRI is helpful for predicting neurodevelopment. Two different patterns of impaired brain growth are observed that relate independently to early cognitive development in preterm infants.

Reducing Distress in Mothers of Children With Autism and Other Disabilities: A Randomized Trial

Mothers of children with neurodevelopmental disabilities often experience poor health, high stress, anxiety, and depression. Highly stressed parents are less effective in their parenting roles, risking their children's developmental progress.

Evidence-based interventions in mindfulness and positive psychology significantly reduce distress in mothers of children with disabilities. Well-trained peer-mentors are effective interventionists. Adult-oriented services are needed for these mothers to improve their mental health and sustain their caregiving over the long-term.

HIV and Child Mental Health: A Case-Control Study in Rwanda

Research has shown that HIV-affected children face considerable threats to health and mental health. Few studies have investigated the effects of HIV on the health and well-being of HIV-negative children living with HIV-positive caregivers.

By comparing the prevalence of mental health problems and protective and risk factors among HIV-positive, HIV-affected, and HIV-unaffected children in Rwanda, this study demonstrates that the mental health of HIV-affected children requires policy and programmatic responses comparable to HIV-positive children.

Gestational Age and Risk of Venous Thromboembolism From Birth Through Young Adulthood

Preterm birth has been associated with increased risk of venous thromboembolism (VTE) in infancy, but the longer-term risk is unknown.

In a large national cohort, low gestational age at birth was associated with increased risk of VTE in infancy, early childhood, and young adulthood. These findings call for better awareness of the long-term risk of VTE among preterm birth survivors.

Prevention of Traumatic Stress in Mothers of Preterms: 6-Month Outcomes

Interventions based on principles of trauma-focused cognitive behavior therapy have been shown to reduce symptoms of trauma and depression in mothers of premature infants. It is

not known whether these benefits are sustained at long-term follow-up.

A brief, cost-effective 6-session manualized intervention for parents of infants in the NICU was effective in reducing symptoms of parental trauma, anxiety, and depression at 6-month follow-up. There were no added benefits from a 9-session version of the treatment.

Targeted Program for Provision of Mother's Own Milk to Very Low Birth Weight Infants

Supplemented mother's own milk is the preferred nutrition for very low birth weight infants.

Through targeted encouragement and guidance, most mothers are able to provide milk to their very low birth weight infants, both for early and prolonged feeding, in an open-bay NICU.

Variability in IRBs Regarding Parental Acceptance of Passive Consent

Passive or opt-out consent has been successfully used to recruit subjects in several investigational studies. However, institutional review boards are often inconsistent in their application of federal regulations regarding passive consent.

This study documented the variability among 24 local institutional review boards in their application of federal regulations regarding passive consent and parental acceptance of a passive consent strategy in a multicenter pediatric study.

Socioeconomic Status and Wait Times for Pediatric Surgery in Canada

Socioeconomic status (SES) often influences timeliness of health care delivery, even in publicly funded systems. Children need prompt surgical care for a variety of time-sensitive developmental conditions, and children of lower SES may be especially vulnerable to delays in surgery.

It is unknown whether a publicly funded system's ability to provide timely pediatric surgical care is related to SES. In 39 327 consecutive surgical cases, we demonstrate that SES need not influence timeliness of surgical care in a publicly funded system.

Impact of Pediatric Exclusivity on Drug Labeling and Demonstrations of Efficacy

Most therapeutic products used in children have not been studied in that population. There is a need for special incentives and market protection (pediatric exclusivity) to compensate drug sponsors for studying these products in children.

Of 189 products studied under pediatric exclusivity, 173 (92%) received new labeling information. Pediatric efficacy was not established for 78 (42%), including 81% of oncology drugs. Probability of demonstrating efficacy was related to therapeutic area and year exclusivity was granted.

Mortality Associated With Pulmonary Hypertension in Congenital Rubella Syndrome

Few studies have performed precise cardiovascular assessments and regular follow-up of congenital rubella syndrome (CRS) patients' clinical courses. A few studies have reported mortalities among children who have CRS; however, the causes of death have not been precisely described.

A total of 38 CRS cases in Vietnam were studied after a rubella outbreak in 2011. The mortality associated with pulmonary hypertension was significantly high if untreated. Conducting

careful cardiologic assessments and providing continuous follow-up for each patient is required.

A Multicenter Cohort Study of Treatments and Hospital Outcomes in Neonatal Abstinence Syndrome

Neonatal narcotic abstinence syndrome (NAS) has become more prevalent in the United States. There is no strong evidence base for NAS treatment and thus no consensus regarding NAS management, including the best treatment drug or best taper strategy.

This study demonstrates that regardless of the initial treatment opioid chosen, use of a standard treatment protocol with stringent weaning guidelines reduces duration of opioid exposure and length of hospital stay for infants with NAS.

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