Near Elimination of Varicella Deaths in the US After Implementation of the Vaccination Program

The impact of the 1-dose varicella vaccination program on varicella deaths has been documented for the early stages of program implementation. During the first 6 years of the program, deaths for which varicella was listed as the underlying cause declined 66% overall and ≥74% for people younger than 50 years.

Our study documents the impressive impact on varicella mortality of the 1-dose US vaccination program: a decline of 88% overall and 96% among subjects younger than 50 years. With the current 2-dose program, there is potential that these most severe outcomes could be eliminated.

Development of a Screening Tool for Pediatric Sexual Assault May Reduce Emergency-Department Visits

Few recommendations exist regarding the timing and characteristics of patients who require emergent evaluation after an alleged sexual assault. Children seen in a child advocacy center receive a more comprehensive evaluation than those seen in an emergency-department setting.

This study introduces a newly developed medical screening tool for determining which prepubescent patients require emergent evaluation after an alleged sexual assault.

Forensic Evidence Collection and DNA Identification in Acute Child Sexual Assault

The American Academy of Pediatrics in 2005 recommended that body swabs collected in prepubertal children >24 hours after a sexual assault are unlikely to yield forensic evidence. Since that time, additional studies have supported this recommendation.

This study addresses the identification of DNA in acute child sexual assault. Failing to conduct evidence collection on prepubertal children beyond 24 hours will result in missed opportunities to identify additional forensic evidence, including identification of DNA.

Collection of Forensic Evidence From Pediatric Victims of Sexual Assault

The American Academy of Pediatrics recommends that forensic evidence collection be considered for up to 72 hours after sexual assault. Data on child victims reveal that the yield is low beyond 24 hours, particularly for specimens collected from children’s bodies.

Review of forensic laboratory results including DNA amplification indicates that collection of body swabs from children beyond 24 hours after assault may yield evidence. Most children with positive laboratory evidence have normal or nonspecific physical findings.
Management of Pediatric Chest Pain Using a Standardized Assessment and Management Plan

Chest pain is common in children and is a frequent reason for referral to pediatric cardiologists. Despite the benign nature of the vast majority of pediatric chest pain, extensive and costly cardiac evaluation is common in these patients. Described here is an approach to pediatric chest pain that will reduce unnecessary resource use while maintaining high-quality care.

Prediction of Pneumonia in a Pediatric Emergency Department

Use of chest radiography in the evaluation of children with possible pneumonia varies widely. Although studies have identified certain historical features and physical examination findings associated with pneumonia, none have specifically addressed the criteria for obtaining a chest radiograph. Clinical data can stratify children for pneumonia risk. Children with hypoxia and focal lung findings are high risk whereas those without hypoxia, fever, and auscultatory findings are low risk. For low-risk patients, clinical follow-up should be considered over obtaining a radiograph.

Sensitivity to Secondhand Smoke Exposure Predicts Future Smoking Susceptibility

Passive exposure to cigarette smoke in children is toxic and associated with susceptibility to cigarette smoking. In turn, smoking susceptibility predicts smoking initiation. These relationships suggest that exposure to cigarette smoke in childhood contributes to risk for future cigarette smoking. Sensitivity to exposure to cigarette smoke may be a mechanism that helps explain the relationship between passive exposure and smoking susceptibility. Tobacco-naïve preteens who report cigarette smoke as “unpleasant or gross” have substantially reduced susceptibility to smoking.

Secondhand Smoke Exposure and Neurobehavioral Disorders Among Children in the United States

Physical health consequences of secondhand smoke exposure in children include respiratory diseases, sudden infant death syndrome, and asthma exacerbation. Approximately 5.5 million US children live in households in which someone smokes. Evidence is emerging of the etiologic contribution to childhood neurobehavioral disorders.

This is the first study to examine common child neurobehavioral disorders in relation to secondhand smoke exposure in the home. Odds of 2 or 3 parent-reported child neurobehavioral disorders increased by 50%, and need for treatment or counseling also increased.

A Randomized Study of a Monoclonal Antibody (Pagibaximab) to Prevent Staphylococcal Sepsis

Premature infants are at risk for staphylococcal sepsis with its increased morbidity, hospitalization, antibiotics, and costs. Pagibaximab, an antilipoteichoic acid monoclonal antibody, promotes staphylococcal killing, inhibits cytokines, improves staphylococcal-challenged animal survival, and seemed safe and tolerated in phase 1 studies. Three once-a-week pagibaximab infusions in high-risk neonates seemed safe and well tolerated. No staphylococcal sepsis occurred in infants who received 90 mg/kg per dose. Target levels were only consistently achieved after 2 to 3 doses. Dose optimization should enhance protection.

Efficacy of Neonatal Release of Ankyloglossia: A Randomized Trial

Ankyloglossia affects 1.7% to 4.8% of all infants. There is evidence that poor latch and maternal nipple pain are more common in infants with ankyloglossia. Some studies have shown that frenotomy benefits these infants; however, significant controversy regarding frenotomy still exists. When frenotomy is performed for clinically significant ankyloglossia, there is a clear and immediate improvement in reported maternal nipple pain and infant breastfeeding scores. This study also provides compelling evidence to seek frenotomy when indicated.

Grandparents Driving Grandchildren: An Evaluation of Child Passenger Safety and Injuries

Appropriate child-restraint and seating practices reduce child-passenger injury risk, and child-passenger safety education typically targets parent drivers. Grandparents also drive with their grandchildren, yet little is known about their child-passenger safety practices or injuries after crashes. In this study, grandparents represented nearly 10% of drivers in crashes involving child occupants. The adjusted risk of child injury for grandparent drivers was 50% lower than that for parent drivers, despite less optimal use of child restraint in grandparent-driver crashes.
**Mediating Factors Associated With Pedestrian Injury in Children With Attention-Deficit/Hyperactivity Disorder**

Epidemiological data suggest that children diagnosed with attention-deficit/hyperactivity disorder—combined type (ADHD-C) have higher pedestrian injury rates than their typically developing peers and children with other developmental disabilities. This study, among the first to investigate why children with ADHD-C are at increased risk for pedestrian injury, suggests that executive function might mediate the relationship between ADHD-C and pedestrian injury risk.

**School Outcomes of Children with Special Health Care Needs**

Using a noncategorical approach to identifying children with special health care needs, previous research has shown that these individuals are at increased risk for poor health and high health care resource use. Children who screen positive for a special health care need because of functional limitations or behavioral health problems are at risk for low student engagement, disruptive behaviors, poor grades, and below-average performance on standardized achievement tests.

**Evidence for Catch-up in Cognition and Receptive Vocabulary Among Adolescents Born Very Preterm**

Very preterm children display neuropsychological deficits that persist into adolescence. By adolescence, very preterm children show catch-up gains in receptive vocabulary. The absence of significant neurosensory impairment and a favorable socioeconomic milieu are associated with better cognitive developmental trajectories across school years.

**Accuracy of Administrative Billing Codes to Detect Urinary Tract Infection Hospitalizations**

Hospital billing data are frequently used for quality measures and research, but the accuracy of identification of urinary tract infections on the basis of International Classification of Diseases, 9th revision, discharge codes is unknown. The accuracy of the International Classification of Diseases, 9th revision, discharge codes as a basis for identification of children hospitalized with a urinary tract infection was assessed. The results can be used by investigators to identify study patients and monitor their outcomes.

**Mercury Content of Blood Transfusions for Infants With Extremely Low Birth Weight**

No currently available literature characterizes the levels of mercury in packed red blood cell transfusions and the safety of using them in transfusions for extremely low birth weight infants. Blood transfusions are a source of mercury for infants with extremely low birth weight. However, the current intake amounts are likely to be safe.

**Simulation in Pediatrics: The Reliability and Validity of a Multiscenario Assessment**

The availability of pediatric and neonatal electromechanical mannequins allows pediatric health care professionals to rehearse critical events. A number of simulation studies have demonstrated the variable adherence of pediatric trainees to American Heart Association resuscitation protocols. Residents’ scores were reliable and valid measures of their ability to diagnose and manage simulated acute pediatric conditions. Using an inventory of simulated scenarios, residents could develop the experience to manage a range of pediatric events.

**A Randomized Controlled Trial of Propranolol for Infantile Hemangiomas**

Propranolol is a novel treatment for infantile hemangiomas that has shown great promise in case series and is rapidly becoming a first-line treatment. This randomized controlled trial revealed that propranolol is a well-tolerated and effective treatment for infantile hemangiomas.

**Effectiveness of Pentavalent Rotavirus Vaccine Against Severe Disease**

The pentavalent rotavirus vaccine RV5 was licensed and recommended for routine immunization in US infants in 2006. Results of studies performed before licensure demonstrated this vaccine to be highly efficacious against rotavirus-associated hospitalizations and emergency department visits. In this case-control study the effectiveness of RV5 under field conditions was examined. Both full and partial immunization with RV5 were found to be highly effective against rotavirus-associated hospitalizations and emergency department visits, and effectiveness in children persisted during the second year of life.
Randomized Controlled Trial of Dose Response to Influenza Vaccine in Children Aged 6 to 23 Months

Infants and toddlers aged 6 to 23 months experience high rates of influenza hospitalization, highest in those younger than 1 year. In North America, they are recommended to receive influenza vaccine annually at a per-injection dose half that recommended for older children and adults.

This randomized controlled trial in infants and toddlers shows that compared with 0.25-mL half-dosing, administration of 2 full 0.5-mL doses of trivalent inactivated influenza vaccine can increase antibody response without increasing reactogenicity in previously unimmunized infants aged 6 to 11 months.

Immunization of Preterm Infants With 10-Valent Pneumococcal Conjugate Vaccine

Preterm infants are at increased risk for pneumococcal infections, and there are few published studies on pneumococcal vaccine. Reports of decreased immunogenicity with some vaccines in this infant group warranted research on use of 10-valent pneumococcal vaccine (PHiD-CV) in preterm infants.

PHiD-CV was well tolerated and generally as immunogenic in preterm infants as in term infants when given as a 3-dose primary vaccination followed by a booster dose. These results reveal that preterm infants would benefit from PHiD-CV vaccination.

Low Weight, Morbidity, and Mortality in Children With Cerebral Palsy: New Clinical Growth Charts

Weight-for-age percentiles of children with cerebral palsy are lower than in the general population. This is especially true in children with more severe motor dysfunction. Poor growth, loosely defined, is associated with increased hospitalization and school absences.

This article reports evidence-based thresholds for low weight and provides estimates of associated increases in mortality risk. These estimates are illustrated on new clinical growth charts for children with cerebral palsy, stratified according to gender and Gross Motor Function Classification System levels.

Composite Measures Quantify Households’ Obesogenic Potential and Adolescents’ Risk Behaviors

The home environment and parents are important influences on the modifiable risk factors for child obesity. Risk factors tend to cluster together in the home; however, the collective influence or obesogenic potential of the home environment has not been adequately explored.

Two composite measures quantifying household obesogenic risk and control were generated. Unlike previous research, risk and control were not at opposite ends of a unidimensional scale, and both showed strong and complex associations with adolescents’ obesogenic behaviors.

The Association of BMI Status With Adolescent Preventive Screening

Guidelines ask providers to target adolescent diet and physical activity counseling by BMI status, but providers do not consistently provide this service and often rely on inspection alone versus calculating BMI percentile.

This study investigated whether providers target adolescent preventive screening on the basis of BMI status, with a focus on overweight adolescents, given recent guidelines. The study is strengthened by the use of adolescent self-report versus relying on provider or parent report.

Late Talking and the Risk for Psychosocial Problems During Childhood and Adolescence

School-age language impairment is associated with behavioral and emotional problems. However, it remains unknown whether toddlers who are late to start talking (“late talkers”), many of whom resolve their language difficulties, are at greater risk for psychosocial problems.

Using a large longitudinal cohort, we found that late talkers have mild levels of behavioral and emotional problems at the age of 2 years but are at no greater risk for these difficulties during childhood or adolescence.
**Hepatitis A Infection in Recent International Adoptees and Their Contacts in Minnesota, 2007–2009**

Infectious disease transmission from international adoptees to their contacts is well established. Transmission of hepatitis A from recent international adoptees to their contacts has been reported, but descriptions of infected adoptees and associated cases are limited.

A retrospective review found 10 adoptee-associated hepatitis A cases and 21 infected adoptees in a 3-year period. These findings highlight the need for hepatitis A prevention through immunization of those adopting internationally and consideration of screening of recent international adoptees.

**Mother-Child Bed-sharing in Toddlerhood and Cognitive and Behavioral Outcomes**

In 2005, the American Academy of Pediatrics recommended against bed-sharing during infancy because of its association with sudden infant death syndrome. However, little is known about the consequences of bed-sharing after infancy. A dearth of longitudinal research limits our understanding of the cognitive and behavioral consequences of bed-sharing.

Negative associations between bed-sharing in toddlerhood and behavioral and cognitive outcomes at age 5 years are probably not due to bed-sharing itself but rather to the sociodemographic characteristics of US families who share a bed.

**Impact of Sepsis on Neurodevelopmental Outcome in a Swiss National Cohort of Extremely Premature Infants**

Neonatal sepsis is responsible for high mortality and morbidity in extremely preterm infants. Infections may harm the developing brain, leading to sequelae such as periventricular leukomalacia. In an earlier study, neonatal infections were associated with poor neurodevelopmental outcomes.

The results of this study, based on a contemporary cohort, confirm that proven sepsis has a major impact on neurodevelopmental outcome, independent of other risk factors. Better strategies are needed to reduce sepsis incidence in this highly vulnerable population.

**High Folate Intake Is Related to Better Academic Achievement in Swedish Adolescents**

Fetal neurocognitive development can be compromised by insufficient intake of folate and other nutrients, but it is not known whether folate intake during adolescence affects cognitive development and academic achievements of adolescents.

Results of this study reveal a positive link between folate intake and academic achievement, independent of socioeconomic status and income of parents. Optimizing folate intake of adolescents is a public health concern across the socioeconomic status spectrum.

**Epidemiology of Apnea and Bradycardia Resolution in Premature Infants**

The maturation of respiratory control, as measured by the resolution of apnea and bradycardia events, is important for the safe management of prematurely born infants. There is little epidemiologic evidence to assess the maturation of respiratory control in premature infants.

Many premature infants do not have an apnea or bradycardia event once they are otherwise ready for discharge. The risk of recurrence for apnea or bradycardia depends on gestational age and the time of the last event.

**Room-Air Versus Oxygen Administration for Resuscitation of Preterm Infants: The ROAR Study**

The superiority of room air over 100% oxygen for resuscitating asphyxiated term and near-term newborns has been demonstrated. However, results of studies of preterm infants have indicated that room-air resuscitation may not be appropriate for this population.

Resuscitation of preterm infants starting with 100% oxygen followed by frequent titration was most effective at achieving a target oxygen saturation while avoiding hyperoxemia. Treatment-failure rates were highest for those resuscitated with room air despite rapid titration of oxygen.
Accuracy of a Novel System for Oxygen Delivery to Small Children
Oxygen is an effective treatment, but its availability is limited in some settings, particularly in developing countries. Entrainment devices offer promise for simplifying oxygen delivery, decreasing the cost of oxygen therapy, and increasing its availability.
Entrainment devices can be used to deliver specific oxygen concentrations to infants and small children. With appropriate delivery systems, these devices can deliver blended gas with accuracy and precision at the low flows required by infants and small children.

Outcome and Prognostic Features in Opsoclonus-Myoclonus Syndrome From Infancy to Adult Life
Opsoclonus-myoclonus syndrome (OMS) is a chronic-relapsing and debilitating illness of early childhood that often has an atypical presentation. There is a paucity of data on prognostic factors and long-term outcome of people with OMS beyond childhood into adolescence and adult life.
Children with severe initial symptoms and those who are very young at disease onset are at particular risk of developing long-term neurologic sequelae. It is important for those affected to be identified early, because they might benefit from new advances in immunomodulating therapy.

Well-Being of Children With Neurologic Impairment After Fundoplication and Gastrojejunostomy Tube Feeding
Studies on the effectiveness of fundoplication and gastrojejunostomy tube feeding in children with neurologic impairment have focused on procedural complications and the physical health of the child. There is a limited understanding of their impact on well-being and quality of life. This qualitative study provides a rich understanding of the multidimensional effects of the underlying condition and interventions on child, parent, and family well-being. Health services delivery and future studies should support and address these perspectives.

Longitudinal Changes in Active Transportation to School in Canadian Youth Aged 6 Through 16 Years
Recent evidence points to secular declines in physical activity among children. Active transportation, such as walking, is an opportunity for children to be physically active. Findings from cross-sectional studies have identified sociodemographic correlates of active transportation to school.
This is one of the first large, population-based longitudinal investigations to identify determinants of active transportation to school across time. Distinct patterns of participation of active transportation to school as children age were observed.

Airway Expression of the Epithelial Sodium Channel α-Subunit Correlates With Cortisol in Term Newborns
Glucocorticoids are important in perinatal adaptation of the newborn. In vitro and in animals they induce gene expression of the airway epithelial sodium channel, which is rate limiting for perinatal lung fluid absorption.
In term newborns, a significant correlation existed between cortisol concentrations and expression of the epithelial sodium channel α-subunit in the airways. Induction of the epithelial sodium channel may contribute to the beneficial effects of glucocorticoids on perinatal pulmonary adaptation.

Automated Dose-Rounding Recommendations for Pediatric Medications
Pediatric electronic-prescribing systems improve care by providing weight-based dose calculations. However, they often generate liquid medication doses that are difficult for families or caregivers to measure and administer accurately and do not consider dosing guidelines of the prescribed drug. This study provides evidence-based and expert-validated rounding recommendations. These data are usable by commercial vendors to improve the rounding capabilities of electronic-prescribing systems. This process should continue with infrequently prescribed medications to improve pediatric prescribing safety.
Sagittal Sinus Compression Is Associated With Neonatal Cerebral Sinovenous Thrombosis

Cerebral sinovenous thrombosis causes neonatal brain damage and long-term morbidity. Pathophysiology is poorly understood, and treatment options are limited. Mechanical compression of the superior sagittal sinus is common in neonates, but its role in cerebral sinovenous thrombosis has not been studied.

Superior sagittal sinus compression is associated with neonatal cerebral sinovenous thrombosis. Head positioning may also influence mechanical superior sagittal sinus compression. This novel risk factor represents a potentially modifiable target for interventions to improve outcomes from neonatal cerebral sinovenous thrombosis.

See the table of contents of this issue to learn more about these articles.