ARTICLES OF INTEREST – January, 2018

**Low-dose betamethasone-acetate for fetal lung maturation in preterm sheep**

The authors hypothesized that the slowly released betamethasone-acetate (BA) component induces similar lung maturation to betamethasone-phosphate (BP)+BA with decreased dose and fetal exposure. Treatment with 1 dose of intramuscular BA 0.125mg/kg improved dynamic and static lung compliance, gas exchange, and ventilation efficiency similarly to the standard treatment of 2 doses of 0.25 m/kg of BA+BP. The authors conclude that a lower dose of BA may be an effective alternative to induce fetal lung maturation with less risk to the fetus.

**Impact of delivered tidal volume on the occurrence of intraventricular haemorrhage in preterm infants during positive pressure ventilation in the delivery room**

Because high tidal volume (VT) delivery during PPV has been associated with brain injury in animal models, the authors examined if VT delivery during PPV at birth is associated with brain injury in preterm infants <29 weeks' gestation. In a group of 165 preterm infants, 124 (75%) had high VT and 41 (25%) normal VT. IVH in the high VT group was diagnosed in 63 (51%) infants compared with 5 (13%) infants in the normal VT group, with severe IVH 3.5x greater than in the normal VT group. These findings suggest that strategies to limit VT delivery during mask PPV should be used to prevent high VT delivery.

**Randomised trial of cord clamping and initial stabilisation at very preterm birth (PDF)**

In 8 UK tertiary maternity units, a parallel group randomized trial was undertaken in 276 very preterm infants, comparing cord clamping after 2 mins and immediate neonatal care with cord intact, or clamping within 20 secs, and immediate neonatal care after clamping. Of the live births, 32% were noted to have IVH in the group with clamping done after 2 mins vs 36% in the group with cord clamping done within 20 secs, and a risk difference of 3.5%. No difference in any other outcome was observed.
The impact of neurally adjusted ventilatory assist mode on respiratory severity score and energy expenditure in infants: a randomized crossover trial

A randomized crossover trial was conducted, in which 24 patients were ventilated with NAVA or SIMV PC (PS) for 12 h and then crossed over to the alternative mode for 12 h. Respiratory severity scores and resting energy expenditure were not different between modes. Although respiratory rates were higher, these were offset by lower peak inspiratory pressures and work of breathing in NAVA.

Prospective research on infants with mild encephalopathy: the PRIME study

A multicenter prospective trial was conducted looking at short term outcomes of infants with hypoxia-ischemia at birth and evidence of mild neonatal encephalopathy at < 6 hrs of age. 52% of the infants were noted to have abnormal outcomes, of which abnormal tone and and/or incomplete Moro was the most common finding. MRI abnormalities were also noted in the cerebral cortex, basal ganglia and thalamus.

Neurodevelopmental and behavioral outcomes in extremely premature neonates with ventriculomegaly in the absence of periventricular-intraventricular hemorrhage

This longitudinal observational study evaluated infants born prior to 27 weeks’ gestational age with a cranial ultrasonogram completed prior to 36 weeks’ postmenstrual age at 16 centers of the NICHD Neonatal Research Network between 2013 and 2017. Three hundred infants (7%) had nonhemorrhagic ventriculomegaly. After adjustment, neonates with ventriculomegaly had higher odds of neurodevelopmental impairment (odds ratio [OR], 3.07; 95% CI, 2.13-4.43), cognitive impairment (OR, 3.23; 95% CI, 2.09-4.99), moderate/severe cerebral palsy (OR, 3.68; 95% CI, 2.08-6.51), death/neurodevelopmental impairment (OR, 2.17; 95% CI, 1.62-2.91), but not death alone (OR, 1.09; 95% CI, 0.76-1.57).

Long-term effects of inhaled budesonide for bronchopulmonary dysplasia

In a follow-up study of the use of inhaled budesonide for the prevention of bronchopulmonary dysplasia in infants 23 to 27 weeks’ GA, participants were evaluated for neurodevelopmental disability at 18-22 months of age using the Bayley Scales of Infant Development, 2nd edition. Among 629 infants with data (of 863 initially assigned), there was no difference in neurodevelopmental disability between infants assigned to inhaled budesonide compared to placebo (48.1% vs. 51.4%; RR 0.93; 95% CI 0.80-1.09, P=0.40). Mortality was higher among infants in the inhaled budesonide group, compared to placebo group (19.9% vs. 14.5%; RR 1.37; 95% CI 1.01-1.86; P=0.04).

OTHER NOTEWORTHY PUBLICATIONS – January, 2018

Pediatrics
Exemptions from mandatory immunization after legally mandated parental counseling
The missing siblings of infants born preterm
Prenatal paternal selective serotonin reuptake inhibitors use and risk of ADHD in offspring
Risk of rotavirus nosocomial spread after inpatient pentavalent rotavirus vaccination


Preterm birth, poverty, and cognitive development


Trends in regionalization of hospital care for common pediatric conditions


Cerebral palsy in extremely preterm infants


Retrospective consent in a neonatal randomized controlled trial


Lactobacillus reuteri to treat infant colic: a meta-analysis


Attention-deficit/hyperactivity disorder and very preterm/very low birth weight: a meta-analysis

https://www.ncbi.nlm.nih.gov/pubmed/29255083

Maternal smoking and attention-deficit/hyperactivity disorder in offspring: a meta-analysis


Considering family resources when making medical recommendations


Committee On Infectious Diseases: Recommendations for prevention and control of influenza in children, 2017 – 2018


**Journal of Pediatrics**

Neuroprotective strategies in neonatal brain injury


A novel magnetic resonance imaging score predicts neurodevelopmental outcome after perinatal asphyxia and therapeutic hypothermia


Catch-up growth and neurobehavioral development among full-term, small-for-gestational-age children: a nationwide Japanese population-based study


Bilirubin albumin binding and unbound unconjugated hyperbilirubinemia in premature infants


Admission temperature and associated mortality and morbidity among moderately and extremely preterm infants


A time-based analysis of inflammation in infants at risk of bronchopulmonary dysplasia


Neonatal and infant mortality risk associated with preterm and small for gestational age births in Tanzania: individual level pooled analysis using the intergrowth standard


Regional variation in neonatal intensive care admissions and the relationship to bed supply


The association of breastfeeding duration and early childhood cardiometabolic risk


Assessment of carina position antenatally and postnatally in infants with congenital diaphragmatic hernia


Impact of objective echocardiographic criteria for timing of congenital diaphragmatic hernia repair

Hearing loss after cardiac surgery in infancy: an unintended consequence of life-saving care
Fetal overnutrition and adolescent hepatic fat fraction: the exploring perinatal outcomes in children study
Newborn screening in the US may miss mild persistent hypothyroidism
Effectiveness of a pediatric primary care intervention to increase maternal folate use: results from a cluster randomized controlled trial
Early-onset sepsis risk calculator reduces empiric antibiotic use

Pediatric Research
“Pressure” to feed the preterm newborn: associated with “positive” outcomes?
Controversies in the identification and management of acute pulmonary hypertension in preterm neonates
Nasal continuous positive airway pressure influences bottle-feeding in preterm lambs
Gestational age-dependent relationship between cerebral oxygen extraction and blood pressure
The relationship between infancy growth rate and the onset of puberty in both genders
The impact of hemoglobin on the efficacy of phototherapy in hyperbilirubinemic infants
N-terminal B-type natriuretic peptide urinary concentrations and retinopathy of prematurity
Effect of red blood cell storage time on markers of hemolysis and inflammation in transfused very low birth weight infants
Neonatal basal ganglia and thalamic volumes: very preterm birth and 7-year neurodevelopmental outcomes
Kidneys in 5-year-old preterm-born children: a longitudinal cohort monitoring of renal function
Effect of frequency on pressure cost of ventilation and gas exchange in newborns receiving high-frequency oscillatory ventilation
Term vs. preterm cord blood cells for the prevention of preterm brain injury
Loss of CD73-mediated extracellular adenosine production exacerbates inflammation and abnormal alveolar development in newborn mice exposed to prolonged hyperoxia
Inhibition of IκBβ/NFκB signaling prevents LPS-induced IL1β expression without increasing apoptosis in the developing mouse lung
Archives of Disease in Childhood - Fetal & Neonatal Edition

Effect of MRI on preterm infants and their families: a randomised trial with nested diagnostic and economic evaluation (PDF)
http://fn.bmj.com/content/fetalneonatal/103/1/F15.full.pdf

Estimating global burden of disease due to congenital anomaly: an analysis of European data (PDF)
http://fn.bmj.com/content/fetalneonatal/103/1/F22.full.pdf

Nasal injury in preterm infants receiving non-invasive respiratory support: a systematic review

Antenatal consultations for preterm labour: how are future mothers reassured?

T-piece versus self-inflating bag ventilation in preterm neonates at birth

Neonatal ethanol exposure from ethanol-based hand sanitisers in isolettes

Differences in subependymal vein anatomy may predispose preterm infants to GMH–IVH

Devices used for stabilisation of newborn infants at birth

Objective cardiovascular assessment in the neonatal intensive care unit

Growth and morbidity of extremely preterm infants after early full enteral nutrition

Analysis of neonatal resuscitation using eye tracking: a pilot study

Journal of Perinatology

Discharge without alarm(s)!

Trauma-informed care in the newborn intensive care unit: promoting safety, security and connectedness (PDF)
https://www.nature.com/articles/jp2017124.pdf

Neonatal lung ultrasound exam guidelines
https://www.ncbi.nlm.nih.gov/pubmed/29144490

How does high-flow nasal cannulae compare to nasal CPAP for treatment of early respiratory distress?

Listeriosis in pregnancy: under-diagnosis despite over-treatment

Prenatal factors associated with neonatal survival of infants with congenital chylothorax

Disparity in fetal growth between twin and singleton gestation: the role of adipokines


Pregnancy-induced hypertension and neonatal outcomes: a systematic review and meta-analysis

Cooling in neonatal hypoxic-ischemic encephalopathy: practices and opinions on minimum standards in the state of California

Indicators of skin barrier integrity among newborns massaged with mustard oil in rural Nepal
Maternal milk feedings reduce sepsis, necrotizing enterocolitis and improve outcomes of premature infants [https://www.ncbi.nlm.nih.gov/pubmed/29048409]

Antenatal methadone vs buprenorphine exposure and length of hospital stay in infants admitted to the intensive care unit with neonatal abstinence syndrome [https://www.ncbi.nlm.nih.gov/pubmed/29048415]

Apnea, bradycardia and desaturation spells in premature infants: impact of a protocol for the duration of ‘spell-free’ observation on interprovider variability and readmission rates [https://www.ncbi.nlm.nih.gov/pubmed/29120450]

Vascular aging and cardiac maladaptation in growth-restricted preterm infants [https://www.ncbi.nlm.nih.gov/pubmed/29120452]


**Neonatology**


Influence of PCO2 control on clinical and neurodevelopmental outcomes of extremely low birth weight infants [https://www.ncbi.nlm.nih.gov/pubmed/29298438]

Cyanosis and stroke due to functional cor triatriatum dexter in a neonate [https://www.ncbi.nlm.nih.gov/pubmed/29316539]

High-flow nasal cannula versus nasal continuous positive airway pressure for primary respiratory support in preterm infants with respiratory distress: a randomized controlled trial (PDF) [https://www.karger.com/Article/Abstract/484400]

Body composition following necrotising enterocolitis in preterm infants (PDF) [https://www.karger.com/Article/Abstract/485827]

Dose-response effects of early vitamin d supplementation on neurodevelopmental and respiratory outcomes of extremely preterm infants at 2 years of age: a randomized trial (PDF) [https://www.karger.com/Article/Abstract/484399]

Vitamin d intake in preterm infants: too little, too much, or just the right amount? (PDF) [https://www.karger.com/Article/Pdf/486125]

**American Journal of Perinatology**


How do obstetric and neonatology teams communicate prior to high-risk deliveries? [https://www.ncbi.nlm.nih.gov/pubmed/28728204]

Prenatal maternal hyperoxygenation testing and implications for critical care delivery planning among fetuses with congenital heart disease: early experience [https://www.ncbi.nlm.nih.gov/pubmed/28746973]

Acute kidney injury impairs postnatal renal adaptation and increases morbidity and mortality in very low-birth-weight infants

Tale of two patent ductus arteriosus severity scores: similarities and differences

Spontaneous labor onset and outcomes in obese women at term

Supplemental oxygen study: a randomized controlled study on the effect of maternal oxygen supplementation during planned cesarean delivery on umbilical cord gases

Maternal and neonatal outcomes of induction of labor compared with planned cesarean delivery in women with preeclampsia at 34 weeks' gestation or longer

Journal of Neonatal-Perinatal Medicine

Isolated neonatal MRI punctate white matter lesions in very preterm neonates and quality of life at school age

Intestinal perforation in the premature infant

The effect of meconium exposure on the expression and differentiation of amniotic fluid mesenchymal stem cells

Risk of morbidity following catheter removal among neonates with catheter associated bloodstream infection

Intravenous immunoglobulin in the management of a rare cause of hemolytic disease of the newborn: anti-SARA antibodies

Reduction in necrotizing enterocolitis and improved outcomes in preterm infants following routine supplementation with lactobacillus GG in combination with bovine lactoferrin

Preoperative metabolic acidosis in infants with gastrochisis

Cerebral oxygenation and desaturations in preterm infants - a longitudinal data analysis

Neonatal complex arrhythmias possibly related to a TTN mutation

Troponin-T as a biomarker in neonates with perinatal asphyxia

The influence of the built environment on adverse birth outcomes

Improving handover between the transport team and neonatal intensive care unit staff in neonatal transports using the plan-do-study-act tool

Transfusion-related acute lung injury following PDA ligation in a preterm neonate

Impact of prenatal diagnosis of fetus-in-fetu
**Maternal Health, Neonatology and Perinatology**
Evaluation of transcutaneous bilirubinometer (DRAEGER JM 103) use in Zimbabwean newborn babies (PDF)
https://mhnjournal.biomedcentral.com/articles/10.1186/s40748-017-0070-0

Bacteriological profile and antibiotic susceptibility pattern of common isolates of neonatal sepsis, Ho Municipality, Ghana-2016 (PDF)
https://mhnjournal.biomedcentral.com/articles/10.1186/s40748-017-0071-z

**Neoreviews**
Placental transfusion: current practices and future directions
http://neoreviews.aappublications.org/content/19/1/e1
Coagulation disorders in the newborn
http://neoreviews.aappublications.org/content/19/1/e11
Neonatal neutropenia
http://neoreviews.aappublications.org/content/19/1/e22
Hematologic changes in newborns with neonatal encephalopathy
http://neoreviews.aappublications.org/content/19/1/e29
Thrombocytopenia in the newborn
http://neoreviews.aappublications.org/content/19/1/e34
Case 1: A well-growing neonate with features of intestinal obstruction
http://neoreviews.aappublications.org/content/19/1/e42
Case 2: A patient with trisomy 21, transient abnormal myelopoiesis, and pneumoperitoneum
http://neoreviews.aappublications.org/content/19/1/e45
Case 3: An infant with severe dehydration, weight loss, and abnormal newborn screening test Results.
http://neoreviews.aappublications.org/content/19/1/e48
Strip of the Month: Marked variability: to worry or not?
http://neoreviews.aappublications.org/content/19/1/e53
Vernix caseosa—like hyperkeratotic plaques in a French Canadian infant
http://neoreviews.aappublications.org/content/19/1/e64

**JAMA Pediatrics**
Mild neonatal encephalopathy—how, when, and how much to treat?
Data deficiency in an era of expanding neonatal intensive care unit care
Association between neonatal intensive care unit admission rates and illness acuity
Association of maternal obesity with longitudinal ultrasonographic measures of fetal growth: findings from the NICHD fetal growth studies—singletons
Perinatal diagnosis, management, and follow-up of cystic renal diseases: a clinical practice recommendation with systematic literature reviews
**BMC Pediatrics**
Caffeine is a risk factor for osteopenia of prematurity in preterm infants: a cohort study
No effect of adding dairy lipids or long chain polyunsaturated fatty acids on formula tolerance and growth in full term infants: a randomized controlled trial

**Pediatric Critical Care Medicine**
Neural breathing pattern and patient-ventilator interaction during neurally adjusted ventilatory assist and conventional ventilation in newborns
Intraventricular hemorrhage in moderate to severe congenital heart disease
Short-term neurodevelopmental outcome in congenital diaphragmatic hernia: the impact of extracorporeal membrane oxygenation and timing of repair

**New England Journal of Medicine**
History of childhood kidney disease and risk of adult end-stage renal disease
Case 3-2018: A 5-month-old boy with hypoglycemia

**Lancet**
Mapping under-5 and neonatal mortality in Africa, 2000–15: a baseline analysis for the sustainable development goals
An update on Zika virus infection
Changes in cause-specific neonatal and 1–59-month child mortality in India from 2000 to 2015: a nationally representative survey

**JAMA**
Birth defects potentially related to Zika virus infection during pregnancy in the United States
Possible racial disparities in NICU breast milk use
Effect of hydrolyzed infant formula vs conventional formula on risk of type 1 diabetes: the TRIGR randomized clinical trial
**BMJ**
Experts urge addition of folic acid to flour to halt "avoidable tragedy" of birth defects
Doctors can stop ventilating 11 month old boy brain damaged at birth
Healthcare professionals must demand action on the social determinants of preventable low fetal growth and preterm birth
The role of the gut microbiome in systemic inflammatory disease

**Pediatric Infectious Disease Journal**
Is late-onset gram-negative bloodstream infection associated with gastrointestinal pathology in infants hospitalized in neonatal units?
Variation in visiting and isolation policies in neonatal Units: a U.K. nationwide survey
Virologic response to early antiretroviral therapy in HIV-infected infants: evaluation after 2 years of treatment in the Pediacam study, Cameroon
Predictors of infant hepatitis B immunization in Cameroon: data to inform implementation of a hepatitis B birth dose
Rotavirus infection in the Auckland region after the implementation of universal infant rotavirus vaccination: impact on hospitalizations and laboratory implications
Perinatal HIV infection and exposure and their association with dental caries in Nigerian children
Perinatal Chikungunya virus-associated encephalitis leading to postnatal-onset microcephaly and optic atrophy
Prevalence of persistent renal dysfunction in perinatally HIV-infected Thai adolescents

**Pediatric Cardiology**
Chromosomal abnormalities affect the surgical outcome in infants with hypoplastic left heart syndrome: a large cohort analysis
Incidence of fever and positive bacterial cultures in neonates receiving prostaglandin
Long-standing cyanosis in congenital heart disease does not cause diffuse myocardial fibrosis
Factors influencing outcomes after cardiac intervention in infants with trisomy 13 and 18
Identification of novel congenital heart disease candidate genes using chromosome microarray
**Pediatric Neurology**
Neuroimaging findings in normocephalic newborns with intrauterine Zika virus exposure  

**Obstetrics and Gynecology**
ACOG practice bulletin no. 188: Prelabor rupture of membranes  
Committee opinion no. 722: Marijuana use during pregnancy and lactation  
Long-term trends in singleton preterm birth in South Australia from 1986 to 2014  
Low-fidelity simulator for the standardized training of fetoscopic meningomyelocele repair  
Ethical considerations concerning amnioinfusions for treating fetal bilateral renal agenesis  
Term elective induction of labor and pregnancy outcomes among obese women and their offspring  

**American Journal of Obstetrics & Gynecology**
Defining failed induction of labor  
Comparison of conventional 2D ultrasound to magnetic resonance imaging for prenatal estimation of birthweight in twin pregnancy  
Mortality and pulmonary outcomes of extremely preterm infants exposed to antenatal corticosteroids  
Risk of operative delivery for intrapartum fetal compromise in small-for-gestational-age fetuses at term: an internally validated prediction model  
Oxidative stress-induced miR-27a targets the redox gene nuclear factor erythroid 2-related factor 2 in diabetic embryopathy  

**Seminars in Pediatric Surgery**
Preface: The NEC Society  
Necrotizing enterocolitis: pathophysiology from a historical context  
Enhancing NICU parent engagement and empowerment  
Changing the paradigm of defining, detecting, and diagnosing NEC: perspectives on Bell's stages and biomarkers for NEC  
The science and necessity of using animal models in the study of necrotizing enterocolitis  
Development of the necrotizing enterocolitis society registry and biorepository  
Human milk and necrotizing enterocolitis  
Probiotics and necrotizing enterocolitis
Anemia, red blood cell transfusions, and necrotizing enterocolitis
Neurodevelopmental considerations in surgical necrotizing enterocolitis
Stem cell therapy in necrotizing enterocolitis: current state and future directions

BASIC SCIENCE SELECTIONS
Early microbial colonization affects DNA methylation of genes related to intestinal immunity and metabolism in preterm pigs

Serotonin 2A receptor inhibition protects against the development of pulmonary hypertension and pulmonary vascular remodeling in neonatal mice

Neonatal hyperoxia depletes pulmonary vein cardiomyocytes in adult mice via mitochondrial oxidation

Magnesium sulphate induces preconditioning in preterm rodent models of cerebral hypoxia-ischemia

ADDITIONAL JOURNAL SELECTIONS
Early postnatal hyperglycaemia is a risk factor for treatment-demanding retinopathy of prematurity

Anti-vascular endothelial growth factor (VEGF) drugs for treatment of retinopathy of prematurity
Sankar MJ, Sankar J, & Chandra P. *Cochrane Database Syst Rev.*

From early stress to 12-month development in very preterm infants: preliminary findings on epigenetic mechanisms and brain growth

Delayed vs early umbilical cord clamping for preterm infants: a systematic review and meta-analysis

Selenium: implications for outcomes in extremely preterm infants
Tindell R & Tipple T. *J Perinatol.*
Early procedural pain is associated with regionally-specific alterations in thalamic development in preterm neonates