ARTICLES OF INTEREST – February, 2016

**Oral propranolol in early stages of retinopathy of prematurity**

Due to the anti-angiogenic effects of propranolol, the authors chose to assess the impact of oral propranolol on the progression of early stages of ROP. In 20 VLBW infants stages 2-3 ROP, propranolol was administered until regression of ROP. A historic control group of 27 patients with equivalent ROP was used. In the treated group, 90.0% of patients did not require intervention with laser or bevacizumab, compared to 51.8% in controls. The authors conclude that propranolol in early stages of ROP might prevent disease progression and reduce the need for invasive rescue therapy.

**Caffeine prevents hyperoxia-induced functional and structural lung damage in preterm rabbits**

Although caffeine is a commonly used for apnea of prematurity, it also has potent anti-proliferative effects rendering it potentially beneficial in the treatment BPD. The authors studied the effect of caffeine on lung function, airway morphometry, vascular morphometry, and airway inflammation in the hyperoxia-treated preterm rabbits. They found that caffeine improved lung function, decreased alveolar size, increased radial alveolar count and reduced the acute inflammation score compared to placebo. The authors conclude that caffeine reduces the functional, architectural and inflammatory pulmonary changes induced by hyperoxia in the lung and may therefore may diminish the severity of BPD.

**Neurodevelopmental outcomes after neonatal surgery for major noncardiac anomalies**

In order to assess neurodevelopmental outcomes in neonates undergoing neonatal surgery for major noncardiac congenital anomalies (NCCA), metaanalysis was performed looking at PubMed, Cochrane and Embase databases. 23 studies and 511 children were included. NCCA were further divided into 3 subgroups – congenital diaphragmatic hernia, abdominal wall defects and esophageal atresia. Bayley scores of infant development at 12 and 24 months of age showed cognitive and motor development delay in 23% of patients with NCCAs. Metaanalysis further showed neurodevelopment outcome scores were 0.5 SD below that of the healthy population.
**Does breastmilk influence the development of bronchopulmonary dysplasia?**

A multicenter cohort study was undertaken to look at the influence of exclusive breast milk feedings on the development of bronchopulmonary dysplasia (BPD) compared to exclusive formula feedings. Secondary outcomes of necrotizing enterocolitis (NEC) and retinopathy of prematurity (ROP) were also assessed. A total of 1433 very low birth weight infants born at < 32 weeks and discharged in 2013 were analyzed. Exclusively breast fed infants demonstrated a lower growth rate and a reduced risk of BPD as well as NEC and ROP compared to formula fed infants.

**Reference values of regional cerebral oxygen saturation during the first 3 days of life in preterm neonates**

In this study, 999 infants born at less than 32 weeks gestational age were monitored during the first 72 hours of life for regional cerebral oxygen saturation via NIRS. The authors found that the average regional cerebral oxygen saturation was approximately 65% at admission and increased with gestational age (1% per week). In addition, the authors published reference curves for preterm infants for the first 72 hours of life.

**Long-term prostaglandin E1 infusion for newborns with critical congenital heart disease**

Prostaglandin E1 is crucial for maintaining ductal patency in newborns with critical congenital heart disease (CCHD). The medical records of 35 newborns diagnosed with CCHD were examined for prostaglandin E1 side effects (metabolic, gastric outlet obstruction, apnea), clinical status, and prognosis. Eighteen side effects were encountered in 11 of 35 patients (31 %). Discontinuation of prostaglandin E1 was never needed. Prostaglandin E1 is safe and has manageable side effects even in circumstances where long-term infusion is required.

**Cerebral hemodynamics in asphyxiated newborns undergoing hypothermia therapy: pilot findings using a multiple-time-scale analysis**

Improved quantitative assessment of cerebral hemodynamics in newborns might enable providers to optimize cerebral perfusion. The authors sought to develop an approach to assess cerebral hemodynamics across multiple time scales during the first 72 hours of life in 10 asphyxiated undergoing hypothermia therapy. In this pilot study, spontaneous oscillations in mean arterial pressure and regional cerebral tissue oxygen saturation were analyzed using a moving window correlation method with time scales ranging from 0.15 to 8 hours. Abnormal neurodevelopmental outcome was defined by Bayley III scores and/or cerebral palsy by age 24 months using receiver operating curve. Large noninduced fluctuations in the blood pressure were observed during cooling in all five infants with abnormal outcomes. The authors conclude that the time scale is an important factor that needs to be standardized in the assessment of neonatal cerebral hemodynamics.
OTHER NOTEWORTHY PUBLICATIONS – February, 2016

**Pediatrics**
In utero exposure to β-2-adrenergic receptor agonist drugs and risk for autism spectrum disorders  

The association of maternal obesity and diabetes with autism and other developmental disabilities  

Autism in toddlers born very preterm  

Perinatal risk factors for feeding and eating disorders in children aged 0 to 3 years  

Cranial ultrasound as a first-line imaging examination for craniosynostosis  

Stunting at 5 years among SGA newborns  

Outcomes from polyhydramnios with normal ultrasound  

Prevention and management of procedural pain in the neonate: an update  

Pharmacologic interventions for infantile hemangioma: a meta-analysis  

**Journal of Pediatrics**
Very early treatment for infantile-onset Pompe disease contributes to better outcomes  

Altered gray matter in adolescents with d-transposition of the great arteries  

Survival, hospitalization, and acute-care costs of very and moderate preterm infants in the first 6 years of life: a population-based study  

Hospital costs for neonates and children supported with extracorporeal membrane oxygenation  

Amount of antenatal care days in a context of effective regionalization of very preterm deliveries  

Preterm toddlers' inhibitory control abilities predict attention regulation and academic achievement at age 8 years  

The association among feeding mode, growth and developmental outcomes in infants with complex congenital heart disease at 6 and 12 months of age  

Gastrostomy tube feeding after neonatal complex cardiac surgery identifies the need for early developmental intervention  

Gabapentin use in the neonatal intensive care unit  

Symptomatic congenital cytomegalovirus infection is under diagnosed in British Columbia  
**Pediatric Research**
Respiratory adaptation and surfactant composition of unanesthetized male and female lambs differ for up to 8 h after preterm birth

High protein intake in neonatal period induces glomerular hypertrophy and sclerosis in adulthood in rats born with IUGR

A novel surfactant protein C L55F mutation associated with interstitial lung disease alters subcellular localization of proSP-C in A549 cells

Surfactant proteins in pediatric interstitial lung disease

Prevalence of anemia and associations between neonatal iron status, hepcidin, and maternal iron status among neonates born to pregnant adolescents

Serum concentrations of vascular endothelial growth factor in relation to retinopathy of prematurity

Assessing cerebrovascular autoregulation in infants with necrotizing enterocolitis using near-infrared spectroscopy

Regional white matter development in very preterm infants: perinatal predictors and early developmental outcomes

Influence of breastfeeding and postnatal nutrition on cardiovascular remodeling induced by fetal growth restriction

The effects of maternal stress and illness during pregnancy on infant temperament: Project Ice Storm

Fat intake and breast milk fatty acid composition in farming and nonfarming women and allergy development in the offspring

Review: Epigenetics: linking social and environmental exposures to preterm birth

Review: The role of social determinants in explaining racial/ethnic disparities in perinatal outcomes

**Archives of Disease in Childhood - Fetal & Neonatal Edition**
Potential for a paradigm change in the detection of retinopathy of prematurity requiring treatment

Estimating umbilical catheter insertion depth in newborns using weight or body measurement: a randomised trial

A randomised controlled trial of flow driver and bubble continuous positive airway pressure in preterm infants in a resource-limited setting

Neonatal drug withdrawal syndrome: cross-country comparison using hospital administrative data in England, the USA, Western Australia and Ontario, Canada
The attitudes of neonatologists towards extremely preterm infants: a Q methodological study (PDF)

http://fn.bmj.com/content/101/1/31.full.pdf+html
End-of-life decision-making for newborns: a 12-year experience in Hong Kong

Lower rate of selected congenital heart defects with better maternal diet quality: a population-based study

Postnatal growth failure in very low birthweight infants born between 2005 and 2012

Antenatal factors modulate hearing screen failure risk in preterm infants

Delivery room end tidal CO2 monitoring in preterm infants <32 weeks

Review: Prenatal therapy in transient abnormal myelopoiesis: a systematic review

Review: Outbreaks of extended spectrum beta-lactamase-producing Enterobacteriaceae in neonatal intensive care units: a systematic review

Journal of Perinatology
How to manage neonatal tuberculosis

Intensity of delivery room resuscitation and neonatal outcomes in infants born at 33 to 36 weeks’ gestation

Buccal administration of human colostrum: impact on the oral microbiota of premature infants

Failed endotracheal intubation and adverse outcomes among extremely low birth weight infants

Monitoring the respiratory rate by miniature motion sensors in premature infants: a comparative study

The complete blood cell count in a refined cohort of preterm NEC: the importance of gestational age and day of diagnosis when using the CBC to estimate mortality

Successful primary use of VVDL+V ECMO with cephalic drain in neonatal respiratory failure

Jaundice, phototherapy and DNA damage in full-term neonates

Sildenafil and retinopathy of prematurity risk in very low birth weight infants

Apnea of prematurity and caffeine pharmacokinetics: potential impact on hospital discharge

Diminished growth and lower adiposity in hyperglycemic very low birth weight neonates at 4 months corrected age

Neonatal airway simulators, how good are they? A comparative study of physical and functional fidelity

**Neonatology**
Reference ranges for neonatal basal ganglia perfusion as measured by fractional moving blood volume
Revisiting the criteria for exchange transfusion for severe neonatal hyperbilirubinemia in resource-limited settings (PDF)
http://www.karger.com/Article/Pdf/441324
Prophylactic probiotics for preterm infants: a systematic review and meta-analysis of observational studies (PDF)
http://www.karger.com/Article/Pdf/441274
Neurodevelopmental outcomes at 2 and 3.5 years for very preterm babies enrolled in a randomized trial of milking the umbilical cord versus delayed cord clamping
UGT1A1*28 genotypes and respiratory disease in very preterm infants: a cohort study
Heart rate assessment immediately after birth (PDF)
http://www.karger.com/Article/Pdf/441940
Neurodevelopmental outcome at 2 years of age according to patent ductus arteriosus management in very preterm infants
Increased urinary cystatin-c levels correlate with reduced renal volumes in neonates with intrauterine growth restriction

**American Journal of Perinatology**
Does haptoglobin phenotype influence postnatal morbidity in preterm neonates?
Effect of ventilation support on oxidative stress and ischemia-modified albumin in neonates
Low rate of perinatal sepsis in term infants of mothers with chorioamnionitis
Markers of glycemic control and neonatal morbidity in high-risk insulin-resistant pregnancies
Relationship between self-reported maternal substance abuse and adverse outcomes in the premature newborn
Tubular injury biomarkers to detect gentamicin-induced acute kidney injury in the neonatal intensive care unit
Newborns referred for therapeutic hypothermia: association between initial degree of encephalopathy and severity of brain injury (what about the newborns with mild encephalopathy on admission?)
Optimal criteria survey for preresuscitation delivery room checklists
Genomics of preterm birth—evidence of association and evolving investigations
Tocolysis for acute preterm labor: where have we been, where are we now, and where are we going?
The importance of clinical phenotype in understanding and preventing spontaneous preterm birth
Role of the placenta in preterm birth: a review
Optimizing subsequent pregnancy outcomes for women with a prior preterm birth
A worldwide epidemic: the problem and challenges of preterm birth in low- and middle-income countries
Perinatal neuroprotection for extremely preterm infants
Optimizing care of the preterm infant starting in the delivery room
Short- and long-term outcomes of moderate and late preterm infants
Short- and long-term outcomes for extremely preterm infants

Journal of Neonatal-Perinatal Medicine
Neonatal intensive care unit discharge of infants with cardiorespiratory events: tri-country comparison of academic centers
http://www.jnpm.org/content/neonatal-intensive-care-unit-discharge-infants-cardiorespiratory-events-tri-country
Pulmonary hypertension predicts mortality in infants with omphalocele
http://www.jnpm.org/content/pulmonary-hypertension-predicts-mortality-infants-omphalocele
Evaluation of caffeine and the development of necrotizing enterocolitis
http://www.jnpm.org/content/evaluation-caffeine-and-development-necrotizing-enterocolitis
Acute kidney injury in ELBW infants (< 750 grams) and its associated risk factors
Weight gain and hypertension at three years of age and older in extremely low birth weight infants
http://www.jnpm.org/content/weight-gain-and-hypertension-three-years-age-and-older-extremely-low-birth-weight-infants
Assessment of the severity of visible blood in the stool using a cluster of neonatal cases – a quality improvement study
Safety and efficacy of delayed umbilical cord clamping in multiple and singleton premature infants - A quality improvement study
Resting energy expenditure, macronutrient utilization, and body composition in term infants after corrective surgery of major congenital anomalies: a case-study

Maternal Health, Neonatology, and Perinatology
Neuroprotective potential of erythropoietin in neonates; design of a randomized trial (PDF)
JAMA Pediatrics
Antidepressant use during pregnancy and the risk of autism spectrum disorder in children
Outcomes of respiratory syncytial virus immunoprophylaxis in infants using an abbreviated dosing regimen of palivizumab
Endocrine effects of inhaled corticosteroids in children

BMC Pediatrics
Explanations and information-giving: clinician strategies used in talking to parents of preterm infants
(PDF)
Prediction of congenital hypothyroidism based on initial screening thyroid-stimulating-hormone
(PDF)
Repeatability of echocardiographic parameters to evaluate the hemodynamic relevance of patent ductus arteriosus in preterm infants: a prospective observational study
(PDF)
Randomized, controlled trial comparing laryngeal mask versus endotracheal intubation during neonatal resuscitation---a secondary publication
(PDF)

Pediatric Critical Care Medicine
Transvesical intra-abdominal pressure measurement in newborn: what is the optimal saline volume instillation?

NEJM (1/28, 2/4, 2/11, 2/18)
The residency application process — burden and consequences
Prevalence and characteristics of physicians prone to malpractice claims
Metformin versus placebo in obese pregnant women without diabetes mellitus
A randomized trial comparing skin antiseptic agents at cesarean delivery

Lancet
Breastfeeding: achieving the new normal
Late preterm rupture of membranes: it pays to wait
Spotlight on infant formula: coordinated global action needed
Breastfeeding: a smart investment in people and in economies
Immediate delivery compared with expectant management after preterm pre-labour rupture of the membranes close to term (PPROMT trial): a randomised controlled trial

Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group

Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect

Why invest, and what it will take to improve breastfeeding practices?

Interpregnancy weight gain—a modifiable cause of stillbirth?

Improving HIV pre-exposure prophylaxis for infants

Stillbirths: ending an epidemic of grief

Supporting women, families, and care providers after stillbirths

Reductions in stillbirths—more than a triple return on investment

Weight change between successive pregnancies and risks of stillbirth and infant mortality: a nationwide cohort study

Extended pre-exposure prophylaxis with lopinavir–ritonavir versus lamivudine to prevent HIV-1 transmission through breastfeeding up to 50 weeks in infants in Africa (ANRS 12174): a randomised controlled trial

Stillbirths: progress and unfinished business

Stillbirths: rates, risk factors, and acceleration towards 2030

Stillbirths: economic and psychosocial consequences

Microcephaly in Brazil: how to interpret reported numbers?

Not all probiotic strains prevent necrotising enterocolitis in premature infants

Bifidobacterium breve BBG-001 in very preterm infants: a randomised controlled phase 3 trial

Stillbirths: recall to action in high-income countries

Stillbirths: ending preventable deaths by 2030

Zika virus and microcephaly: why is this situation a PHEIC?

Hydrocephalus in children
JAMA (1/26, 2/2, 2/9, 2/16, 2/23)
Safety of propranolol therapy for severe infantile hemangioma
US infant mortality rate declines but still exceeds other developed countries
Changing the “working while sick” culture: promoting fitness for duty in health care

The Pediatric Infectious Disease Journal
Global burden of neonatal invasive pneumococcal disease: a systematic review and meta-analysis
Incidence and outcome of group b streptococcal sepsis in infants in Switzerland
Roll-plate alone does not demonstrate colonization in silicone neonatal catheters
Paenibacillus alvei sepsis in a neonate

Pediatric Cardiology
A literature review of the pharmacokinetics and pharmacodynamics of dobutamine in neonates
Fontan outcomes and pulmonary blood flow at birth
Overall hospital cost estimates in children with congenital heart disease: analysis of the 2012 Kid’s Inpatient Database
The natural history of atrioventricular valve regurgitation throughout fetal life in patients with atrioventricular canal defects
Risk factors for interstage mortality following the norwood procedure: impact of sociodemographic factors
Troponin T and NT ProBNP levels in gestational, type 1 and type 2 diabetic mothers and macrosomic infants
Progression of aortic regurgitation after different repair techniques for congenital aortic valve stenosis
Normal reference ranges for cardiac valve annulus in preterm infants
Congenital pulmonary vein stenosis: encouraging mid-term outcome
Assessments of coronary artery visibility and radiation dose in infants with congenital heart disease on cardiac 128-slice CT and on cardiac 64-slice CT
Impact of variability in echocardiographic interpretation on assessment of adequacy of repair following congenital heart surgery: a pilot study
Parental preferences regarding outpatient management of children with congenital heart disease

Pediatric Neurology
Correlation between white matter lesions and intelligence quotient in patients with congenital cytomegalovirus infection

Obstetrics & Gynecology
Maternal immunization to prevent neonatal group B streptococcal disease: new progress and promise
Maternal immunization with an investigational trivalent group B streptococcal vaccine: a randomized controlled trial (PDF)
Quantitative fetal fibronectin at 18 weeks of gestation to predict preterm birth in asymptomatic high-risk women
Pre-pregnancy body mass index and infant mortality in 38 U.S. States, 2012–2013

American Journal of Obstetrics and Gynecology
Cervical pessary to prevent preterm birth in women with twin gestation and sonographic short cervix: a multicenter randomized controlled trial (PECEP-Twins)
A review of the mechanisms and evidence for typical and atypical twinning
New development of the yolk sac theory in diabetic embryopathy: molecular mechanism and link to structural birth defects
Celiac disease and obstetric complications: a systematic review and metaanalysis
Vaginal progesterone to prevent preterm birth in pregnant women with a sonographic short cervix: clinical and public health implications
Long-term neurofunctional outcome, executive functioning, and behavioral adaptive skills following fetal myelomeningocele surgery
Accelerated acidosis in response to variable fetal heart rate decelerations in chronically hypoxic ovine fetuses
The impact of hydroxychloroquine treatment on pregnancy outcome in women with antiphospholipid antibodies
Sonographic markers associated with adverse neonatal outcomes among fetuses with gastroschisis: an 11-year, single-center review
Efficacy of midtrimester short cervix interventions is conditional on intraamniotic inflammation
Transvaginal cervical length scans to prevent prematurity in twins: a randomized controlled trial
Down-regulation of placental neuropilin-1 in fetal growth restriction (PDF)
http://www.ajog.org/article/S0002-9378(15)01119-9/pdf
Outside-in? Acute fetal systemic inflammation in very preterm chronically catheterized sheep fetuses is not driven by cells in the fetal blood
Effect of obesity on neonatal outcomes in pregnancies with preterm premature rupture of membranes

BASIC SCIENCE SELECTIONS
Iron is prioritized to red blood cells over the brain in phlebotomized anemic newborn lambs

Hydrogen-rich water ameliorates bronchopulmonary dysplasia (BPD) in newborn rats

Mesenchymal stem/stromal cells-a key mediator for regeneration after perinatal morbidity?

AR Target fortification of breast milk: predicting the final osmolality of the feeds.

Antenatal corticosteroids for reducing adverse maternal and child outcomes in special populations of women at risk of imminent preterm birth: a systematic review and meta-analysis

Insulin-like growth factor 1 has multisystem effects on fetal and preterm infant development

Retinal oximetry with scanning laser ophthalmoscope in infants

Development of the neonatal intestinal microbiome and its association with necrotizing enterocolitis