ARTICLES OF INTEREST – February 2019

**Effects of feedback on chest compression quality: a randomized simulation study**

In a randomized simulation study with 653 third year medical students as subjects, the authors compared visual and verbal feedback with instructor led feedback on the quality of pediatric CPR. The feedback devices included the Resusci Baby QCPR manikin or the Resusci Anne manikin, which have integrated sensors measuring chest compression parameters and the SimPad touchscreen with the SkillReporter software (Laerdal), a palm-sized device that provides real-time visual feedback. The authors concluded that chest compression performance significantly improved with both visual and verbal feedback compared with instructor-led feedback and recommend implementation of feedback devices for resuscitation simulation training.

**Cord milking versus immediate clamping in preterm infants: a randomized controlled trial**

The authors sought to investigate whether umbilical cord milking (UCM) at birth improves systemic blood flow and short-term outcomes, as compared with immediate cord clamping (ICC). Primary outcome included systemic blood flow as represented by echo-derived superior vena cava (SVC) flow at 4-6 hours after birth. A total of 73 infants with a mean (SD) gestational age of 27 (2) weeks and mean (SD) birth weight of 1040 (283) g were randomized (37 to UCM and 36 to ICC). Cord milking was not shown to improve functional cardiac outcomes, neonatal morbidity or mortality.

**Neurodevelopmental outcomes among extremely premature infants with linear growth restriction**

The authors sought to compare neurodevelopmental outcomes in linear growth-restricted (LGR) infants born <29 weeks with and without weight gain out of proportion to linear growth. Outcomes were Bayley-III cognitive, motor, and language scores, cerebral palsy, Gross Motor Function Classification System (GMFCS) level ≥ 2, and neurodevelopmental impairment. Among infants with LGR, weight gain out of proportion to linear growth was associated with poorer neurodevelopmental outcomes.

**New generation fish oil and olive oil lipid on prevention of oxidative damage in preterm infants**

Given that lipid solutions are associated with oxidative stress, the authors chose to compare the effectiveness of new generation lipid emulsion (SMOFLipid) and olive-oil based lipid emulsion (Clionoleic) for prevention of oxidative damage. In 89 < 32 wk infants, total antioxidant capacity was
higher in SMOFlipid group compared to Clinoleic group. BPD was also lower in the SMOFlipid group (14.1%) compared to Clinoleic group (31.2%). This study illustrates SMOFlipid may decrease oxidative damage and oxidative-stress associated morbidities compared with olive oil based emulsion in preterm infants.

Withdrawal of life-support in neonatal hypoxic-ischemic encephalopathy  

The authors used the Children’s Hospital Neonatal Database to identify 1925 neonates treated with therapeutic hypothermia from 2010-2015. 14% died during the hospitalization, 87.6% due to withdrawal of life support. 234 neonates who died after withdrawal of support were compared to 74 severe HIE patients who survived with tube feeding at discharge. While the use of aEEG/EEG and MRI was inconsistent, severely abnormal aEEG/EEG and global injury on MRI were more common in the withdrawal group. Multivariable analysis shows private insurance was associated with withdrawal while birth in the Midwest or Northeast compared to the South was less associated with withdrawal.

Neurodevelopmental outcome at 5 years of age after general anesthesia or awake-regional anesthesia in infancy (GAS): an international, multicenter, randomized, controlled equivalence trial  

In this multi-center study, 722 infants (born at more than 26 weeks’ gestation and less than 60 weeks’ postmenstrual age) were randomized to receive either awake-regional anesthesia or sevoflurane-based general anesthesia while undergoing inguinal herniorrhaphy. The median duration of general anesthesia was 54 min. The authors found that there was no significant difference in neurodevelopment outcome (as measured by the FSIQ on WPPSI-III) between the two groups at age 5 years.

Effect of hydrocortisone therapy initiated 7 to 14 days after birth on mortality or bronchopulmonary dysplasia among very preterm infants receiving mechanical ventilation: a randomized clinical trial  

This double-blind, placebo-controlled, multi-center trial randomized 372 infants (gestational age less than 30 weeks and/or birth weight of less than 1250g who were ventilator dependent between 7 and 14 days of life). Infants received either a 22-day course of systemic hydrocortisone or placebo. The authors found that among mechanically ventilated very preterm infants, administration of hydrocortisone between 7 and 14 days after birth, compared with placebo, did not improve the composite outcome of death or BPD at 36 weeks' postmenstrual age.

PDA-tolerate trial: an exploratory randomized controlled trial of treatment of moderate-to-large patent ductus arteriosus at 1 week of age  

An exploratory randomized controlled trial was conducted in which preterm infants <28 weeks of age with moderate to large PDAs and receiving respiratory support after the first week of life were included. Early routine treatment of PDA was not found to significantly reduce PDA ligations or the presence of a PDA at discharge compared to the conservative approach of treating PDA only if clinically indicated. It also did not improve any of the pre-specified secondary outcomes such as NEC, BPD, BPD/Death.

Predictors of respiratory improvement 1 week after ligation of patent ductus arteriosus in preterm infants  

Authors performed a 2-phase study of preterm infants <1500 gms, which included retrospective analysis followed by a case – control study comparing a ligation group with infants matched by gestational age,
postnatal age and pre-ligation respiratory condition. Among infants undergoing PDA ligation, those on HFV were more likely to have respiratory improvement in the first week, possibly because of the prevention of further respiratory deterioration. For infants on conventional ventilation, ligation was associated with higher respiratory support in the immediate postligation period without respiratory benefits at 7 days.

OTHER NOTEWORTHY PUBLICATIONS – February, 2019

**Pediatrics**
Newborn risk factors for subsequent physical abuse hospitalizations  
Newborn screening for severe combined immunodeficiency and t-cell lymphopenia in California, 2010-2017  
Patterns of prenatal alcohol use that predict infant growth and development  
Continuous versus intermittent vancomycin infusions in infants: a randomized controlled trial  
Effects of feedback on chest compression quality: a randomized simulation study  
Survival and impairment of extremely premature infants: a meta-analysis  
Addressing racial inequities in breastfeeding in the southern United States  

**Journal of Pediatrics**
Umbilical cord tissue vs meconium for neonatal toxicology testing (PDF)  
Hepatitis b virus infection and the progress toward its elimination  
Sildenafil use in children with pulmonary hypertension  
PDA-tolerate trial: an exploratory randomized controlled trial of treatment of moderate-to-large patent ductus arteriosus at 1 week of age  
Predictors of respiratory improvement 1 week after ligation of patent ductus arteriosus in preterm infants  
Obesity is associated with higher blood pressure and higher levels of angiotensin ii but lower angiotensin-(1-7) in adolescents born preterm  
Variability of tidal breathing parameters in preterm infants and associations with respiratory morbidity during infancy: a cohort study  
The impact of time interval between extubation and reintubation on death or bronchopulmonary dysplasia in extremely preterm infants  
Optimal timing of repeat newborn screening for congenital hypothyroidism in preterm infants to detect delayed thyroid-stimulating hormone elevation  
50 years ago in the journal of pediatrics: maternal and congenital rubella before 1964: frequency, clinical features, and search for isoimmune phenomena (PDF)
https://www.jpeds.com/article/S0022-3476(18)31219-8/pdf

Plasma mir-1290 is a novel and specific biomarker for early diagnosis of necrotizing enterocolitis—biomarker discovery with prospective cohort evaluation

Sustained neonatal inflammation is associated with poor growth in infants born very preterm during the first year of life

Parent perspectives on readiness for discharge home after neonatal intensive care unit admission

Screening and serial neutrophil counts do not contribute to the recognition or diagnosis of late-onset neonatal sepsis
https://www.ncbi.nlm.nih.gov/pubmed/30318373

Taiwan national newborn screening program by tandem mass spectrometry for mucopolysaccharidoses types i, ii, and vi

Influence of fathers’ early parenting on the development of children born very preterm and full term

Predicting successful neonatal retro-transfer to a lower level of care

Umbilical cord tissue and meconium may not be equivalent for confirming in utero substance exposure

**Pediatric Research**

Early-life growth of preterm infants and its impact on neurodevelopment

Ventricular shape evaluation on early ultrasound predicts post-hemorrhagic hydrocephalus

Plasma cholesterol levels and brain development in preterm newborns

Surfactant status and respiratory outcome in premature infants receiving late surfactant treatment (PDF)

Oscillatory respiratory mechanics on the first day of life improves prediction of respiratory outcomes in extremely preterm newborns

Neonatal intermittent hypoxemia events are associated with diagnosis of bronchopulmonary dysplasia at 36 weeks postmenstrual age
https://www.ncbi.nlm.nih.gov/pubmed/30538265

Optimizing the AKI definition during first postnatal week using Assessment of Worldwide Acute Kidney Injury Epidemiology in Neonates (AWAKEN) cohort

Late onset neonatal acute kidney injury: results from the AWAKEN Study

Differentiation of esophageal pH-impedance characteristics classified by the mucosal integrity marker in human neonates

Enteric dysbiosis and fecal calprotectin expression in premature infants

Maternal obesity and gestational diabetes mellitus affect body composition through infancy: the PONCH study
Susceptibility to congenital heart defects associated with a polymorphism in TBX2 3′ untranslated region in the Han Chinese population

TNFα-stimulated protein 6 (TSG-6) reduces lung inflammation in an experimental model of bronchopulmonary dysplasia

Immature megalin expression in the preterm neonatal kidney is associated with urinary loss of vitamin carrier proteins

Neonatologist Performed Echocardiography (NPE) Special Edition
Education, training, and accreditation of neonatologist performed echocardiography in Europe-framework for practice
Introduction to neonatologist-performed echocardiography
The role of neonatologist performed echocardiography in the assessment and management of neonatal shock
Tissue doppler velocity imaging and event timings in neonates: a guide to image acquisition, measurement, interpretation, and reference values
Application of neonatologist performed echocardiography in the assessment and management of persistent pulmonary hypertension of the newborn
Deformation imaging and rotational mechanics in neonates: a guide to image acquisition, measurement, interpretation, and reference values
Application of NPE in the assessment of a patent ductus arteriosus
Application of neonatologist performed echocardiography in the assessment and management of neonatal heart failure unrelated to congenital heart disease
Role of neonatologist-performed echocardiography in the assessment and management of patent ductus arteriosus physiology in the newborn

Archives of Disease in Childhood - Fetal & Neonatal Edition
T-piece resuscitators: a warning sign
Family integrated care: what’s all the fuss about?
How should we chart the growth of very preterm babies?
T-piece resuscitators: how do they compare?
Human milk as a protective factor for bronchopulmonary dysplasia: a systematic review and meta-analysis
Efficacy and safety of pulmonary application of corticosteroids in preterm infants with respiratory distress syndrome: a systematic review and meta-analysis

Cord milking versus immediate clamping in preterm infants: a randomised controlled trial

Breastfeeding outcomes in European NICUs: impact of parental visiting policies

Dose-interval study of a dual probiotic in preterm infants

Accuracy of five formulae to determine the insertion length of umbilical venous catheters

Safety of meningococcal group B vaccination in hospitalised premature infants

Evaluation of the congenital hypothyroidism screening programme in Iran: a 3-year retrospective cohort study

Estimating neonatal length of stay for babies born very preterm

Detection of exhaled carbon dioxide following intubation during resuscitation at delivery

Adverse effects of small for gestational age differ by gestational week among very preterm infants

Nutritional role of amniotic fluid: clues from infants with congenital obstruction of the digestive tract

Learning from claims: hyperbilirubinaemia and kernicterus

Safe and effective glycaemic control in premature infants: observational clinical results from the computerised STAR-GRYPHON protocol

Does the use of an iodine-containing contrast agent to visualise the PICC tip in preterm babies cause hypothyroidism? A randomised controlled trial

Pulseless electrical activity: a misdiagnosed entity during asphyxia in newborn infants?

Time interval for preterm infant weight gain velocity calculation precision

Postnatal cardiovascular adaptation

Caput medusa in a newborn infant

Meconial hydrocele as first sign of acute intestinal perforation in a preterm baby

Neonatal cutaneous lupus erythematosus

“STEP”, an early developmental screening tool that predicts one-year outcomes

NICU infant health severity and family outcomes: a systematic review of assessments and findings in psychosocial research

Journal of Perinatology

NICU infant health severity and family outcomes: a systematic review of assessments and findings in psychosocial research
Supraglottic airway devices for surfactant treatment: systematic review and meta-analysis
Early developmental assessment with a short screening test, the STEP, predicts one-year outcomes
Neurodevelopmental outcomes among extremely premature infants with linear growth restriction
Early inspired oxygen and intermittent hypoxemic events in extremely premature infants are associated with asthma medication use at 2 years of age
Diagnostic challenge of the newborn patients with heritable protein C deficiency
Planned home deliveries in Finland, 1996–2013
Lowest PaCO2 on the first day of life predicts mortality and morbidity among infants with congenital diaphragmatic hernia
Neurocognitive function of 10-year-old multiples born less than 28 weeks of gestational age
Agreement of an echocardiogram-based diagnosis of pulmonary hypertension in infants at risk for bronchopulmonary dysplasia among masked reviewers
Survey of preterm neuro-centric care practices in California neonatal intensive care units
Bronchoscopy in neonates with severe bronchopulmonary dysplasia in the NICU
A population-based study of cystic white matter injury on ultrasound in very preterm infants born over two decades in Nova Scotia, Canada
The complexity of physicians’ understanding and management of prognostic uncertainty in neonatal hypoxic-ischemic encephalopathy
Risk of preterm and early term birth by maternal drug use
Drivers of referrals to a children’s hospital neonatal–infant intensive care unit
Preconception insurance and initiation of prenatal care
The impact of parental primary language on communication in the neonatal intensive care unit
Second trimester inflammatory and metabolic markers in women delivering preterm with and without preeclampsia
Histological chorioamnionitis and developmental outcomes in very preterm infants
While waiting for a vaccine: opportunities for optimization of neonatal group B streptococcal (GBS) disease prevention in Israel
Can nasal continuous positive airway pressure be used as primary respiratory support for infants with meconium aspiration syndrome?
**Neonatology**
Pulseless electrical activity complicating neonatal resuscitation
Accelerated small-world property of structural brain networks in preterm infants at term-equivalent age
Prescription drug shortages: impact on neonatal intensive care
Neonatal glycaemia and neurodevelopmental outcomes: a systematic review and meta-analysis
Outcome of infants with therapeutic hypothermia after perinatal asphyxia and early-onset sepsis
Disulphide bridges in surfactant protein b analogues affect their activity in synthetic surfactant preparations
Ophthalmic insert versus eye drops for mydriasis in neonates: a randomized clinical trial
Platelet-neutrophil interactions are lower in cord blood of premature newborns
A randomized controlled trial of immediate versus delayed umbilical cord clamping in multiple-birth infants born preterm
The impact of late onset arterial hypotension on respiratory outcome in extremely premature infants
The tubular damage markers: neutrophil gelatinase-associated lipocalin and kidney injury molecule-1 in newborns with intrauterine growth restriction
Nasal high-flow therapy as primary respiratory support for preterm infants without the need for rescue with nasal continuous positive airway pressure
Early-stage translational research in perinatal medicine

**American Journal of Perinatology**
Fetal congenital pulmonary airway malformation: the role of an objective measurement of cardiomiastinal shift
Implementation and outcomes of universal delayed umbilical cord clamping at term journal of neonatal-perinatal medicine
Antibiotic use in pregnancy, abnormal fetal growth, and development of gestational diabetes mellitus
Side effects of phototherapy on neonates
Premature infants conceived with assisted reproductive technology: an analysis of infant morbidity, compared with infants conceived naturally
Sildenafil exposure in the neonatal intensive care unit
Non-nutritive sucking in the preterm infant
Risk factors linked to central catheter-associated thrombosis in critically ill infants in the neonatal intensive care unit
Implementation of updated hearing screen guidelines in a level IV NICU—a quality improvement project
Reference echocardiographic measurements in very low birth weight preterm infants
Association of fetal fraction of cell-free DNA and hypertensive disorders of pregnancy
Is cord blood bilirubin level a reliable predictor for developing significant hyperbilirubinemia?
Antenatal magnesium sulfate exposure and ponderal index in preterm infants

**Journal of Neonatal-Perinatal Medicine**
The relationship of cervical microbiota diversity with race and disparities in preterm birth

**Maternal Health, Neonatology and Perinatology**
Successful treatment of severe arterial hypotension and anuria in a preterm infant with renal tubular dysgenesis— a case report
Predictors of early initiation of breastfeeding among Zimbabwean women: secondary analysis of ZDHS 2015

**Neoreviews**
Historical perspectives: lessons from the Better Birth trial: a practical roadmap for complex Intervention Studies
https://neoreviews.aappublications.org/content/20/2/e62
Primary immunodeficiency in the NICU
https://neoreviews.aappublications.org/content/20/2/e67
Perinatal HIV transmission: missed opportunities and proposed solutions
https://neoreviews.aappublications.org/content/20/2/e79
Case 1: An infant with arm swelling and nodules
https://neoreviews.aappublications.org/content/20/2/e86
Case 2: Severe hyperammonemia in a neonate: an alternate ending
Case 3: The hypothermic newborn
https://neoreviews.aappublications.org/content/20/2/e93
Strip of the month: recognizing the progression to category iii tracing: late decelerations
https://neoreviews.aappublications.org/content/20/2/e96
Legal Briefs: tachysystole, uterine rupture, and a bad outcome
https://neoreviews.aappublications.org/content/20/2/e110
An Unusual Late Presentation of Swelling over the Head
https://neoreviews.aappublications.org/content/20/2/e105

**JAMA Pediatrics**
Association of long-term child growth and developmental outcomes with metformin vs insulin treatment for gestational diabetes
Comparison of cerebral palsy severity between 2 eras of antenatal magnesium use
BMC Pediatrics
Macronutrient content of pooled donor human milk before and after Holder pasteurization (PDF)

First experience with Tolvaptan for the treatment of neonates and infants with capillary leak syndrome after cardiac surgery (PDF)

Prevalence and burden of illness of treated hemolytic neonatal hyperbilirubinemia in a privately insured population in the United States (PDF)


Sail sign in neonatal pneumomediastinum: a case report (PDF)

Cognitive and motor outcomes in children born low birth weight: a systematic review and meta-analysis of studies from South Asia (PDF)

A health systems strengthening intervention to improve quality of care for sick and small newborn infants: results from an evaluation in district hospitals in KwaZulu-Natal, South Africa (PDF)

Pediatric Critical Care Medicine
Positive airway pressure versus high-flow nasal cannula for prevention of extubation failure in infants after congenital heart surgery

Monitoring gas exchange during hypothermia for hypoxic-ischemic encephalopathy

Cerebrovascular physiology during pediatric extracorporeal membrane oxygenation: a multicenter study using transcranial doppler ultrasonography

New England Journal of Medicine
Correspondence: Neonatal organ donation

Lancet
Prenatal exome sequencing analysis in fetal structural anomalies detected by ultrasonography (PAGE): a cohort study
https://www.ncbi.nlm.nih.gov/pubmed/30712880

Whole-exome sequencing in the evaluation of fetal structural anomalies: a prospective cohort study
https://www.ncbi.nlm.nih.gov/pubmed/30712878

Neurodevelopmental outcome at 5 years of age after general anaesthesia or awake-regional anaesthesia in infancy (GAS): an international, multicentre, randomised, controlled equivalence trial

Prepregnancy and early pregnancy calcium supplementation among women at high risk of pre-eclampsia: a multicentre, double-blind, randomised, placebo-controlled trial
**JAMA**

Why are mothers still passing syphilis to their babies?

Measuring breast milk nutrients to support optimal infant growth

Perinatal depression: recommendations for prevention and the challenges of implementation

A fussy infant with a generalized papulovesicular rash

Structural factors shape the effects of the opioid epidemic on pregnant women and infants

Effect of hydrocortisone therapy initiated 7 to 14 days after birth on mortality or bronchopulmonary dysplasia among very preterm infants receiving mechanical ventilation: a randomized clinical trial

Association among county-level economic factors, clinician supply, metropolitan or rural location, and neonatal abstinence syndrome

Ocular prophylaxis for gonococcal ophthalmia neonatorum: US Preventive Services Task Force reaffirmation recommendation statement

Ocular prophylaxis for gonococcal ophthalmia neonatorum: updated evidence report and systematic review for the US Preventive Services Task Force

**BMJ**

Induction of labour at 41 weeks versus expectant management until 42 weeks (INDEX): multicentre, randomised non-inferiority trial

Universal antenatal screening for group B streptococcus may cause more harm than good

Neonatal sepsis in South Asia: huge burden and spiralling antimicrobial resistance

**Pediatric Infectious Disease Journal**

Safety, effectiveness and exposure-response of micafungin in infants: application of an established pharmacokinetics model to electronic health records

Hematologic adverse events associated with prolonged valganciclovir treatment in congenital cytomegalovirus infection

Reactivity of routine HIV antibody tests in children with perinatally acquired HIV-1 in England: cross-sectional analysis

Nevirapine concentrations during the first month of life and maternal efavirenz washout in high-risk HIV-exposed infants receiving triple antiretroviral prophylaxis
**Pediatric Cardiology**
Incidence, risk factors, and comorbidities of vocal cord paralysis after surgical closure of a patent ductus arteriosus: a meta-analysis
Blalock–Taussig shunt size: should it be based on body weight or target branch pulmonary artery size?
Variation in anticoagulation practices in the congenital cardiac catheterization lab: results of a multinational PICES survey
Prenatal diagnosis of single ventricle physiology impacts on cardiac morbidity and mortality
Immediate postnatal ventricular performance is associated with mortality in hypoplastic left heart syndrome

**Pediatric Neurology**
Neurological complications of congenital Zika virus infection
Withdrawal of life-support in neonatal hypoxic-ischemic encephalopathy
Rhythmic sawtooth electroencephalograph waveforms in neonatal hypoxic-ischemic/hypoglycemic encephalopathy

**Obstetrics and Gynecology**
Point-of-care intrapartum group B streptococcus molecular screening: effectiveness and costs
Short-term effects and long-term cost-effectiveness of universal hepatitis C testing in prenatal care
Association of gestational diabetes mellitus with neonatal respiratory morbidity
Best mode of delivery for fetal life-limiting conditions
ACOG practice bulletin No. 204 summary: Fetal growth restriction
ACOG practice bulletin No. 205 summary: Vaginal birth after cesarean delivery
ACOG committee opinion No. 764 summary: Medically indicated late-preterm and early-term deliveries
ACOG committee opinion No. 765 summary: Avoidance of nonmedically indicated early-term deliveries and associated neonatal morbidities
ACOG committee opinion No. 766 summary: Approaches to limit intervention during labor and birth

**American Journal of Obstetrics & Gynecology**
The impact of extending the second stage of labor to prevent primary cesarean delivery on maternal and neonatal outcomes
A simple model to predict the complicated operative vaginal deliveries using vacuum or forceps
Risk of severe maternal morbidity by maternal fertility status: a US study in 8 states
Childbirth-specific patient-reported outcomes as predictors of hospital satisfaction

BASIC SCIENCE SELECTIONS
Lung recruitment strategies during high frequency oscillatory ventilation in preterm lambs

Targeting miR-34a/Pdgfra interactions partially corrects alveologenesis in experimental bronchopulmonary dysplasia

Pilot testing a robot for reducing pain in hospitalized preterm infants
Williams N, MacLean K, Guan L, et al. OTJR (Thorofare N J).

ADDITIONAL JOURNAL SELECTIONS
Morphine biotransformation genes and neonatal clinical factors predicted behavior problems in very preterm children at 18months

Three-hourly feeding intervals are associated with faster advancement in very preterm infants

Digital subtraction pulmonary angiography in children with pulmonary hypertension due to bronchopulmonary dysplasia

Perinatal risk factors for visuospatial attention and processing dysfunctions at 1 year of age in children born between 26 and 32 weeks

Patent ductus arteriosus is associated with acute kidney injury in the preterm infant

Comparison of two respiratory support strategies for stabilization of very preterm infants at birth: a matched-pairs analysis

Individual variations in fentanyl pharmacokinetics and pharmacodynamics in preterm infants
New generation fish oil and olive oil lipid on prevention of oxidative damage in preterm infants

The effect of deep freezing on human milk macronutrients content

Impact of different stages of intrauterine inflammation on outcome of preterm neonates: Gestational age-dependent and -independent effect

Renal consequences of therapeutic interventions in premature neonates
Fryer HJ, Welsh GI. Nephron.

Antioxidants & bronchopulmonary dysplasia: Beating the system or beating a dead horse?