

UT Southwestern Medical Center is widely recognized as one of the nation’s leading centers for neonatal–perinatal care, teaching, and research. The Division is dedicated to providing exceptional care for the most critically ill patients and is committed to the training of outstanding physicians and scientists. Through the continued discovery of new knowledge, division faculty and staff strive to help tomorrow’s patients as well as improve outcomes for the vulnerable population for whom we care.

Directed by Rashmin C. Savani, M.B.Ch.B., the [Division of Neonatal-Perinatal Medicine](#) is comprised of a large group of nationally and internationally recognized faculty members with expertise in virtually all aspects of modern neonatal-perinatal care and state-of-the-art research.

The Division’s mission is to positively impact the health of neonates in our community, our nation, and worldwide through excellence in patient care, research, and education. That mission is three-fold:



Rashmin C. Savani, M.B.Ch.B.
Professor, Division Chief

Excellence in Neonatal Care

Through multidisciplinary and family-centered care, we will strive to improve the standard of practice and ensure the highest quality of care to neonates in our hospitals and around the world. We will care for neonates with the highest respect for their precious lives in a compassionate and caring environment and will utilize evidence-based approaches to clinical care that are regularly evaluated and updated.

Leadership in Research

We will pursue new knowledge through high-quality research that explores unanswered questions, as well as tests and refines previously established ideas in neonatal-perinatal care. As global leaders in research, we will work collaboratively inside and outside our institution in order to generate important discoveries that will lead to improvements in the care that is provided for neonates worldwide.

Education of Future Leaders

We will impart knowledge, instill excitement for learning, and translate these into focused areas of research for our neonatal medicine trainees, pediatric residents, and medical students. We will train future leaders in neonatal medicine who will in turn impart the knowledge and values obtained during their training to those with whom they interact during their careers.

Faculty

The Division consists of neonatologists and pediatricians who are committed to providing the highest level of clinical care to the infants they treat, to conducting cutting-edge research, and to the education of postdoctoral trainees. Division faculty’s research interests span a wide range of topics, including pulmonary and vascular biology, neonatal resuscitation, hypoxic ischemic encephalopathy, clinical informatics and long-term follow-up care. The faculty are also involved in extensive quality improvement projects that aim to improve care and efficiency. In addition to its own databases, the Division participates in both The Vermont Oxford Network and The Children’s Hospital Neonatal Consortium, as well as the databases for the NICHD Neonatal Research Network.

Eight new faculty members joined the Neonatal-Perinatal Medicine team in 2019.

Dimitrios Angelis, M.D.

Assistant Professor



M.D.

University of Athens, Greece, 2003

Postdoctoral Training

Residency, Pediatrics

Children’s Hospital at Monmouth Medical Center, Long Branch, NJ, 2008 – 2010

Chief Resident, Pediatrics

Children’s Hospital at Monmouth Medical Center, Long Branch, NJ, 2010 – 2011

Fellowship, Neonatal-Perinatal Medicine

St. Christopher’s Hospital for Children, Philadelphia, PA, 2011 – 2014

Interests

Neonatal brain injury

Neeta M. Goli, M.D.

Assistant Professor



B.S., Chemistry

University of North Carolina at Chapel Hill, 2007

M.D.

Eastern Virginia Medical School, Norfolk, 2013

Postdoctoral Training

Residency, Pediatrics

Cincinnati Children’s Hospital Medical Center, Cincinnati, OH, 2013 – 2016

Interests

Health Literacy; quality improvement; Newborn News Podcast

June Hu, M.D.

Assistant Professor



B.A., English Literature; B.S., Biochemistry and Cell Biology

Rice University, Houston, TX, 2009

M.D.

Washington University, St. Louis, MO, 2013

Postdoctoral Training

Residency, Pediatrics

St. Louis Children’s Hospital, St. Louis, MO, 2013 – 2016

Fellowship, Neonatal-Perinatal Medicine

Washington University, St. Louis, MO, 2016 – 2019

Interests

FETAL - antenatal consults and coordination for families with antenatal diagnosed anomalies requiring multidisciplinary care; organizing the FETAL Program at Texas Health Dallas.

Christoph U. Lehmann, M.D.

Professor



M.D.

Westfälische Wilhelms Universität, Münster, Germany, 1990

Postdoctoral Training

Residency, Pediatrics

Marshall University School of Medicine, Huntington, WV, 1992 – 1995

Fellowship, Neonatology

Johns Hopkins University School of Medicine, Baltimore, MD, 1995 – 1998

NIH-sponsored Fellowship, Applied Informatics

Johns Hopkins University School of Medicine, Baltimore, MD, 1998 – 2000

Interests

Clinical informatics; clinical decision support

Rachel L. León, M.D., Ph.D.

Instructor



B.S., Biology and Chemistry

Guilford College, Greensboro, NC, 2005

M.D., Ph.D.

West Virginia University, Morgantown, WV, 2013

Postdoctoral Training

Residency, Pediatrics

Indiana University/Riley Children's Health, Indianapolis, IN, 2013 – 2016

Fellowship, Neonatal-Perinatal Medicine

Indiana University/Riley Children's Health, Indianapolis, IN, 2016 – 2019

Interests

Effects of placental hemodynamics on brain development in fetuses with congenital heart disease

Kelly M. Mazzarella, D.O.

Assistant Professor



B.S., Biology

St. Bonaventure University, St. Bonaventure, NY, 2008

D.O.

Lake Erie College of Osteopathic Medicine, Erie, PA, 2012

Postdoctoral Training

Residency, Pediatrics

San Antonio Uniformed Services Health Education Consortium, Fort Sam Houston, TX, 2012 – 2015

Interests

Newborn pediatrics

Sara Muñoz-Blanco, M.D.

Assistant Professor



B.S., Science, *magna cum laude*

University of Puerto Rico, Rio Piedras, PR, 2007

M.D., *with honors*

University of Puerto Rico, San Juan, PR, 2012

Postdoctoral Training

Residency, Pediatrics

New York Presbyterian Hospital, Weill-Cornell Medical Center, 2012 – 2015

Fellowship, Neonatal-Perinatal Medicine

Johns Hopkins University School of Medicine, Baltimore, MD, 2015 – 2018

Fellowship, Pediatric Hospice and Palliative Medicine

Johns Hopkins University School of Medicine, Baltimore, MD, 2018 – 2019

Interests

Communication with families; neonatal/perinatal palliative care; pediatric palliative care in the Latino population

Stephanie Nguyen, M.D.

Assistant Professor



B.S., Biology, *summa cum laude*

Baylor University, Waco, TX, 2011

M.D.

UT Medical Branch, Galveston, 2016

Postdoctoral Training

Residency, Pediatrics

UT Southwestern/Children's, 2016 – 2019

Interests

Newborn pediatrics

Honors / Awards

Professor Emeritus

- Charles Rosenfeld

Julide Sisman

- Promotion to Associate Professor

Venkat Kakkilaya

- John Haven Emerson Award – 36th Annual Advances in Therapeutics and Technology Conference, Snowbird, Utah, sponsored by Perinatal Advisory Council- Leadership, Advocacy, Consultation, Glendale, CA

Julie Mirpuri

- AAI Early Career Faculty Travel Grant – American Association of Immunologists
- AAAS IF/THEN Ambassador

Rashmin Savani

- Lifetime Achievement Award – Marquis Who's Who

Jack Seidel

- Best Pediatric Specialists – D Magazine
- Texas Super Doctors – Texas Monthly Magazine

Invited Lectures

Lina Chalak

- The 11th International Conference on Brain Monitoring Neuroprotection in Newborn, Clearwater, Florida, February 2019
 - *“Advanced Neuromonitoring in HIE”*
- Mild HIE What is the Consensus, Bogota, Columbia, May 2019
 - *“Mild HIE What is the Consensus”*
- NeuroNICU Perinatal Asphyxia, San Paolo, Brazil, November 2019
 - *“New Horizon of HIE Biomarkers”*
 - *“The saga of mild HIE”*

Becky Ennis

- Texas Health Presbyterian OB Grand Rounds, Dallas, TX, January 2019
 - *“Neonatal Organ Donation”*

Mackenzie Frost

- Association of Pediatric Program Directors Spring Meeting, New Orleans, LA, March 2019
 - *“Validation of the Mayo Evaluation of Reflection on Improvement Tool (MERIT) for use in a Pediatric Residency Program”*
 - *“Do I HAVE to? Examining the Debate about Mandatory Scholarly Activity during Residency Training”*

June Hu

- American Academy of Pediatrics Central Conference on Perinatal Research, Louisville, KY, March 2019
 - Oral Presentation: *“Functional Characterization of Novel ABCA3 Variants”*
- Department of Pediatrics Research Retreat, Washington University, St. Louis, MO, April 2019
 - Oral Presentation: *“Functional Characterization of Novel ABCA3 Variants”*
- Fetal Care Center Conference, Washington University, St. Louis, MO, May 2019
 - *“Fetal Care Conference Postnatal Follow-up”*
- Lecture for St. Louis Children’s Hospital Transport Team, St. Louis, MO, May 2019
 - *“Cyanotic Congenital Heart Disease”*

Christoph Lehmann

- Legacy of Life event honoring R Scot Evans, PhD, Salt Lake City, UT, March 2019
 - *“International Status of Medical Informatics”*

Vishal Kapadia

- Visiting professor and speaker at “Trend in Neonatology”: Conference at Pramukhswami Medical College, Karamsad, Anand, Gujarat, India, June 2019
 - *“Neonatal Resuscitation: Physiology and Evidence”*
- American Academy of Pediatrics Webinar, May 2019
 - *“NRP Live: Quality Improvement in Delivery Room”*

Julie Mirpuri

- University of Connecticut, Neonatal-Perinatal Grand Rounds, June 2019
 - *“Pre- and Postnatal Factors Affecting the Neonatal Gut Microbiome”*

Sara Muñoz-Blanco

- American Academy of Hospice and Palliative Medicine Annual Assembly, Orlando, Florida, March 2019
 - *“Tear Down the Wall and Build a Bridge: Understanding Latino Cultural Values and Spiritual Values to Enhance the Delivery of Palliative Care in the Latino Population”*
 - *“Improving the Quality of Care – A Practical Quality Improvement Skill-Building Workshop”*

Pritha Nayak

- American Pediatric Surgery Association, May 2019
 - *“SMOF versus Intralipids in Neonates with Intestinal Failure”*

Rashmin Savani

- Rainbow Babies Hospital, Case Western University, February 2019
 - *“Translational Studies for the prevention of BPD”*
 - *“TeleNICU: Extending the reach of Level IV care and optimizing the triage of patients”*
- Federation of European Biochemistry Societies, 7th Advanced Lecture Course, Porto Hellis, Greece, April 2019
 - *“Matrix Pathobiology, Signaling & Molecular Targets”*
- International Perinatal Collegium, Porto Carras, Greece, June 2019
 - *“Hyaluronan binding peptide treatment to block inflammasome activation and prevent systemic sepsis and Bronchopulmonary Dysplasia”*
- 36th Annual Advances in Therapeutics and Technology: Critical Care of Neonates, Children and Adults Snowbird, Utah, March 2019
 - *“Robert DeLemos Memorial Lecture: BPD: New Concepts in Pathogenesis and Prevention”*
- Innovations in Neonatal Care and BPD in the 21st Century, Austin, TX, August 2019
 - *“Innovative Treatments to Prevent Bronchopulmonary Dysplasia”*
- Telehealth Summit, UT System, Austin TX, September 2019
 - *“TeleNICU: Leveraging Technology for Neonatal Care”*
- 11th International Conference on Proteoglycans, Kanazawa, Japan, September 2019
 - *“RHAMM-derived peptide treatment to block inflammasome activation and prevent systemic sepsis and bronchopulmonary dysplasia”*
- Universidade Federal de Rio de Janeiro, Rio de Janeiro, Brazil, October 2019
 - *“Hyaluronan in Immune Responses: A complexing balancing act of structure, function, location & context”*
 - *“BPD in the 21st Century”*
- Trinity College, Dublin, Ireland, November 2019
 - *“Hyaluronan receptors and the NLRP3 inflammasome”* (Translational Medicine Institute)
 - *“Inflammasome blockade for the prevention of BPD”* (10th Annual National Neonatal Research Symposium)
- 11th Annual Meeting of the Children’s Hospitals Neonatal Consortium
 - *“The NICU Verification Program and its implementation in the State of Texas”*

Conference Presentations

Pediatric Academic Societies Meeting, Baltimore, MD, April 2019

Ali N, Herrick H, Yang K, Handley S, et al.

- Workshop, *“Complex Resuscitations in Neonates and Infants – Managing High Acuity, Low Occurrence (HALO) Events”*

Frost M, Asghar A, Chow T, **Weydig H**, Yu A, **Rosenfeld C**

- Platform, *“Validation of the Mayo Evaluation of Reflection on Improvement Tool (MERIT) for use in a Pediatric Residency Program”*

Ambalavanan N, Shankaran S, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Platform, *“Prognosis in Infants Diagnosed with Hypoxic-Ischemic Encephalopathy”*

Stoll B, Hansen N, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Platform, *“Early-onset Sepsis (EOS): Recent Experience from the NICHD Neonatal Research Network (NRN)”*

Mahaffey B, Brown LS, **Brion L, Chalak L**, Gelphman S, **Heyne R**

- Poster, *“Bayley Language Development in Preterm Infants with Oral Feeding Difficulty”*

Greenberg R, McDonald S, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Platform, *“Prediction of an Outcome-driven Definition of Bronchopulmonary Dysplasia in Extremely Premature Infants”*

Brion L, Rosenfeld C, Heyne R, Brown LS, Lair C, Caraig M

- Platform, *“Optimizing Individual Nutrition in Preterm Infants: Randomized Clinical Trial (RCT)”*

Brion L, Rosenfeld C, Heyne R, Brown LS, Lair C, Burchfield P, Caraig M

- Poster, *“Adjustable Feedings Plus Accurate Serial Length Measurements Can Decrease Weight-Length Disproportion in Very Preterm Infants”*

Gray K, Saha S, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Poster, *“Outcomes of Infants of Insulin-Dependent Diabetic Mothers among the Moderately Preterm Infant Population”*

Chandrasekharan P, Lakshminrusimha S, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Platform, *“Early Hypoxemic Respiratory Failure in Extremely Preterm Neonates: Characteristics, Mortality, and Neurodevelopmental Outcomes”*

Lowe J, Bann C, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Poster, *“Early Working Memory as a Predictor of Verbal and Processing Skills at 6-7 Years in Children Born Extremely Preterm”*

Chandrasekharan P, Higgins R, et al, NICHD Neonatal Research Network (**Wyckoff M, Chalak L, Brion L**)

- Poster, *“Factors Associated with Use, Survival and Neurodevelopment Outcome Following Inhaled Nitric Oxide Exposure in Extremely Preterm Infants”*

Chalak L, Sant Anna G

- Poster, *“Moving Past The Mild Encephalopathy Conundrum: Can Total Sarnat Score within the First 6 Hours Discriminate Those at Higher Risk of Impairment?”*

Chock V, Kwon SH, Ambalavanan N, Batton B, Nelin L, **Chalak L**, Tian L, Van Meurs K

- Platform, *“Cerebral Oxygenation and Autoregulation in Preterm Infants (Early NIRS Study)”*

Mir I, White S, Brown LS, Kapadia V, Heyne R, Rosenfeld C, Chalak L

- Poster, *“Complex Placental Histopathology is associated with Autism Spectrum Disorders in Preterm Infants: A Matched Case-Control Study”*

Laptook A, **Chalak L**, Pappas A, Davis A, et al.

- Platform, *“Amplitude Integrated EEG (aEEG) Among Late Preterm Infants in the Antenatal Betamethasone for Women at Risk for Late Preterm Delivery (ALPS) Trial”*

Mir I, Chalak L, Savani R, Rosenfeld C

- Poster, *“Placental Clearance not Synthesis Modulates Increases in Circulating Fetal Pro-inflammatory Cytokines in Neonates with Maternal Chorioamnionitis (Chorio) With and Without Birth Asphyxia (BA)”*

Shah K, Brown LS, Chalak L, Mirpuri J

- Poster, *“Development of Anemia in Preterm Infants Alters the Microbiome”*

Frost M

- Poster, *“Improving Pediatric Resident Preparation for Fellowship Interviews with a Fellowship Preparation Curriculum and Interview Website”*

Brumbaugh J, Bell E, Grey S, et al, NICHD Neonatal Research Network (**Heyne R**)

- Poster, *“Behavioral Profiles at 2 Years for Extremely Preterm Infants with Bronchopulmonary Dysplasia”*

Agarwal P, Shankaran S, Laptook A, et al, **Heyne R**, et al.

- Poster, *“Association of Pulmonary Hypertension with Death or Disability Among Infants with Hypoxic Ischemic Encephalopathy”*

Gentle S, Carlo W, Tan S, Gargano M, et al, **Heyne R**

- Platform, *“Association of Antenatal Corticosteroids and Magnesium Therapy with Neurodevelopmental Outcome in Extreme Prematurity”*

Jagarapu J, Kapadia V, Mir I, Kakkilaya V, Carlton K, Fokken M, Brown LS, Hall-Barrow J, Savani R

- Poster, *“TeleNICU: Extending the Reach of Level IV Care and Optimizing the Triage of Patient Transfers”*

Kakkilaya V, Tang A, Wagner S, Goodwin, Ibrahim J, Jubran I, Brown LS, Rosenfeld C

- Poster, *“Determining an Optimal Weaning Method of Continuous Positive Airway Pressure (CPAP) in Preterm Neonates”*

Maple B, Wyckoff M, Kapadia V

- Poster, *“Impact of the 7th Edition NRP Guideline Changes on Outcomes of Meconium-Exposed Newborns”*

Ahmad I, Brozanski B, Sullivan K, et al, **Nayak P**, et al.

- Poster, *“Longer Time to Full Enteral Feeds Following Longer Courses of Antibiotics for Medical Necrotizing Enterocolitis”*

Yanowitz, T, Ahmad I, Brozanski B, et al, **Nayak P**, et al.

- Poster, *“Antibiotic Duration and Predictors of Time to Full Enteral Feedings after Surgical NEC”*

Gray M, Umoren R, Josephson J, Chitkara R, Strand M, **Ramachandran S**, et al.

- Poster, *“Gaps in NRP Provider Performance on Standardized Simulations: A report from the NRP eSim™ Study”*

Umoren R, Gray M, Chitkara R, Josephson J, Lee H, Strand M, Sawyer T, **Ramachandran S**, et al.

- Poster, *“Pre-Course Preparation with eSim™ Computer-based Simulation Improves NRP Provider Performance on Standardized Simulations”*

Murthy K, **Savani R**, Grover T, Logan JW, **Yallapragada S**, et al, **Ibrahim J**, Lagatta J

- Platform, *“Nasogastric Versus Gastrostomy Tube Feedings in Regional NICU Graduates: Inter-Center Variation and 30-Day Readmission Risks”*

Wan-Huen P, Nedrelow J, Miao D, et al, **Savani R**

- Poster, *“Regional Collaborative Efforts to Implement Best Practice Guidelines Improve Newborn Admission Temperatures in Multi-level NICUs and Mother Baby Units (MBUs) in North Texas”*

Savani R, Longoria C, **Ibrahim J**, Liao J, Cheong N, Nozik-Grayck

- Poster, *“Neonatal Extracellular Superoxide Dismutase (EC-SOD) Knockout Mice Have NLRP3 Inflammasome Activation, Increased Inflammation and Worse Alveolarization in Room Air that is Exaggerated with Hyperoxia Exposure”*

Savani R, Longoria C, Cheong N, Liao J, Toelg C, Luyt L, Turley E

- Poster, *“Hyaluronan Binding Peptide Treatment to Block Inflammasome Activation and Prevent Bronchopulmonary Dysplasia”*

Vyas-Read S, Cuna A, et al, **Savani R**, Touch S, Truog W, Wymore E, **Yallapragada S**, et al.

- Poster, *“Short-Term Outcomes in the Newly Re-Defined BPD: Findings from The Children's Hospitals Neonatal Consortium”*

Sivarajan M, **Schneider J**, Johnson K

- Poster, *“Implementing an Improved Neonatal Hypoglycemia Algorithm”*

Acun C, Baker A, Brown LS, Iglesia K, **Sisman J**

- Poster, *“Peripherally Inserted Central Catheter Migration in Neonates: Incidence, Timing and Risk Factors”*

Chawla S, Laptook A, Smith E, Natarajan G, **Wyckoff M**, et al.

- Poster, *“Neonatal Morbidities and Mortality in Relation to Maternal Overweight and Obesity Status among Extremely Preterm Infants”*

Mukhopadhyay S, Puopolo K, Hansen N, DeMauro S, Flannery D, et al, **Wyckoff M**, Stoll B

- Poster, *“Death or Neurodevelopmental Impairment at 2 years in Extremely Premature Infants with Group B Streptococcus Late-Onset Sepsis”*

Puopolo K, Mukhopadhyay S, Hansen N, et al, **Wyckoff M**

- Platform, “*Death or Neurodevelopmental Impairment at 2 Years in Extremely Premature Infants with Group B Streptococcus Early-Onset Sepsis*”

Kumbhat N, Eggleston B, Davis A, Foglia E, et al, **Wyckoff M**

- Platform, “*Delayed Cord Clamping or Umbilical Cord Milking and Outcomes in Extremely Preterm Infants*”

Other Conferences

Cameron C, **Nayak SP**, Nyugen V, Channabassappa N, Piper H

- Platform presentation at American Pediatric Surgical Association, May 2019
 - Platform Presentation, “*A comparison of Smoflipid and Intralipid in the early management of infants with intestinal failure*”

Frost M, **Asghar A**, Chow T, **Weydig H**, Yu A, **Rosenfeld C**

- AAPD Conference, Chicago IL, March 2019
 - Poster Presentation: “*Validation of Mayo Evaluation of Reflection on Improvement Tool (MERIT) for use in a Pediatric Residency Program*”

Hu J, Yang P, Heins H, Wegner D, White F, Wambach J, Cole FS

- American Academy of Pediatrics Central Conference on Perinatal Research, Louisville, KY, March 2019
 - “*Functional Characterization of Novel ABCA3 Variants*”

Hu J, Yang P, Heins H, Wegner D, White F, Wambach J, Cole FS

- Department of Pediatrics Research Retreat, Washington University in St. Louis. April 2019
 - “*Functional Characterization of Novel ABCA3 Variants*”

Reed S, Frey-Vogel A, **Frost MS**

- American Pediatrics, May 2019
 - “*Look Who's Talking: A Survey of Pediatric Program Directors on Communication Skills Education in Pediatric Residency Program*”

Education and Training

The Neonatal–Perinatal Medicine Division provides educational opportunities for medical students and pediatric residents in addition to our fully accredited fellowship program. Our goal is to impart knowledge, instill excitement for learning, and translate questions into focused areas of research.

Third-Year Medical Students

During their pediatrics rotation at UT Southwestern, third-year medical students spend time in the Newborn Nursery at Parkland Hospital.

Fourth-Year Medical Students

Students in their fourth year at UT Southwestern may elect to spend time in the Newborn Nursery or the Neonatal Intensive Care Units at Parkland Hospital and Children’s Medical Center.

Residents

The design of the Pediatric Residency Program at UT Southwestern and Children’s Medical Center allows for exposure to Neonatal-Perinatal Medicine at Parkland Hospital and elective exposure at Children's throughout the three-year training program.

Elective Rotations for Pediatric Residents from External Programs

The Division offers the following elective rotations to residents from other programs:

- Children’s Neonatal Intensive Care Unit
- Parkland Neonatal Intensive Care Unit
- Parkland Newborn Nursery
- Children’s Thrive Clinic
- Research

Fellows

Vision - We envision that our graduates will positively impact the health of neonates through their leadership, research, and excellence in patient care.

Mission - We have three missions:

- **Patient Care:** We will strive to improve the standard of practice and ensure the highest quality of care to neonates in our hospitals and around the world. We will care for neonates with the highest respect for their precious lives in a family-centered, compassionate, and caring environment, and utilizing evidence-based approaches to treatments that are regularly evaluated and updated.
- **Research:** We will pursue new knowledge through high-quality research that explores unanswered questions and tests and refines previously established ideas in developmental biology and neonatal-perinatal care. We will engage in world class clinical, translational, and basic science research, aimed at improving babies’ lives throughout their lifespan. We will work collaboratively within and outside our institution in order to generate important discoveries that will enhance medical practice and inform the medical community and the public of evidence-based approaches to neonatal-perinatal medicine.
- **Education:** We will impart knowledge, instill excitement for learning, and translate and refine questions into focused areas of research for our trainees. We will train future leaders in neonatal medicine, who will work in an academic or private setting and deliver the highest quality care to their patients. We will accomplish this by:
 - Allowing fellows to pursue their interests in a structured manner in order to produce quality research, addressing significant questions in neonatal-perinatal medicine.
 - Promoting a collegial environment that provides ample opportunity for fellows to grow and learn from their own and others’ experiences.

Research Activities

The following are representative of various research activities occurring in the Division of Neonatal-Perinatal Medicine at UT Southwestern. The division held \$4,238,354 in direct funding in 2019.

Clinical Research

- **NIH Neonatal Network for Clinical Trials:** The Division of Neonatal-Perinatal Medicine is an active participant in the Neonatal Network clinical studies.
- **Treatment of chorioamnionitis-exposed neonates:** Several alternative diagnostic tests and therapies have been promoted for the neonate whose mother is diagnosed with chorioamnionitis.
- **Follow-up care** for very low birth weight and high-risk infants, including neurodevelopment, chronic disease, and nutrition is part of our ongoing study of these babies.
- **Neonatal resuscitation:** Randomized trials (e.g., temperature control, oxygen delivery, resuscitation educational interventions), observational studies (ETCO₂ guidance of CPR, effectiveness of epinephrine dosing), as well as

The faculty and fellows of the Division of Neonatal-Perinatal Medicine published 48 peer-reviewed papers and 1 book chapter in 2019.

other observational studies using the resuscitation database, which includes detailed information about all resuscitation team calls since 2003.

- **Hypoxic-ischemic encephalopathy:** Mechanism of injury; assessment of new recognition tools such as the amplitude EEG; translational research utilizing a piglet model of asphyxia; optimizing neuro-protection offered by hypothermia; rewarming after hypothermia; cerebrovascular hemodynamic modulation of asphyxiated infants; neuroimaging; neurodevelopment.
- **Studies in the newborn nursery:** Late preterm infants, hypoglycemia, transcutaneous bilirubin
- **Observational studies using available databases:** Several research studies and quality improvement projects use information from available databases, including: the neonatal resuscitation database (Parkland, see above), the neonatal intensive care unit (NICU) databases at Parkland or Children's Medical Center (CMC), the NICHD Neonatal Research Network Databases (Generic Database, Follow-up Database, and Moderate Preterm Registry), the Vermont-Oxford Network (Parkland NICU) and the Child Health Neonatal Consortium Database (CMC NICU).
- **Early evidence suggesting potential risk of metabolic syndrome in infancy among very low birth weight infants:** Evidence for abnormal weight-to-length ratio, increased adiposity, glomerular hyperfiltration and high blood pressure in very low birth weight infants followed at the low birth weight clinic.
- **Nutritional and growth studies:** Optimizing Individual Nutrition in Preterm Very Low Birth Weight Infants: Randomized Clinical Trial comparing individualized versus optimized supplementation of human milk; Quality improvement in nutrient administration and linear growth assessment.
- **Weaning CPAP in preterm infants:** randomized study comparing two modes of weaning CPAP: from 5 cm vs. decreasing from 5 to 4 and 3 cm.
- **Optimization of CPAP in the delivery room and decreasing CPAP failure in the NICU**
- **Less Invasive Surfactant Administration**

Laboratory Research

- Maternal and fetal cardiovascular physiology and development
- Animal models relating to neonatal resuscitation and gestational hypertension
- Pathogenesis of bronchopulmonary dysplasia/chronic lung disease, and novel therapies
- Molecular basis of vascular disease
- Pulmonary endothelial function, nitric oxide, persistent pulmonary hypertension, and calcium metabolism
- Hyaluronan (Hyaluronic acid) and its role in inflammation and endothelial function
- Probiotics/Commensal organisms and their effects on immune mediators in the developing gut

Clinical Activities

The Division of Neonatal–Perinatal Medicine has provided care for normal newborns and newborns with complex medical and surgical problems for more than 40 years. Faculty offer clinical services at four distinct institutions with a total of 18,000-20,000 births and 250 NICU beds.

Parkland Health and Hospital System

- **Neonatal Intensive Care Unit:** Since 1974, the Neonatal Intensive Care Unit (NICU) at Parkland Memorial Hospital has been providing exceptional and comprehensive care to critically ill newborns. This was the first NICU in Dallas County and is the largest Level III unit in the region. The 96-bed unit averages ~1,800 admissions annually, about 150 admissions a month. Our staff consists of a collaborative team of physicians, nurse practitioners, nurses and support staff who are all highly experienced in caring for a wide array of neonatal disorders both medical and surgical. Working closely with our highly skilled colleagues in the maternal-fetal medicine department, we are able to provide exceptional care both before and after birth. This teamwork has resulted in one of the lowest mortality rates in the country. This unit achieved Level III designation by the State in 2018.
- **Newborn Nursery:** With more than 12,000 deliveries a year, the newborn nursery at Parkland Hospital is one of the busiest in the country. Under the supervision of pediatric faculty from the Neonatal-Perinatal Division, pediatric residents and pediatric nurse practitioners provide comprehensive care for both term and near-term infants from birth through discharge.

- **Labor and Delivery:** We provide a unique and highly trained neonatal resuscitation team that attends more than 300 high-risk deliveries a month and have the capability to deliver cutting-edge delivery room care in even the most complex cases, including EXIT (Ex Utero Intrapartum Treatment) procedures. Under the direction of Myra Wyckoff, M.D., an internationally acclaimed physician in neonatal resuscitation research, the labor and delivery faculty provide a very unique resuscitation rotation for fellows, residents, and medical students, which includes exposure to a computerized patient simulator, participation in resuscitation research, review of the literature, and attendance at high risk deliveries.

Children’s Health System of Texas

- **Level IV Neonatal Intensive Care Unit:** The NICU at Children’s combines advanced technology with highly trained healthcare professionals to provide comprehensive care for critically ill newborns. This state of the art, 47-bed NICU opened in 2007 as the premiere referral unit in North Texas. The NICU staff, under the supervision of faculty members from the Division of Neonatal–Perinatal, is experienced in caring for a wide-array of neonatal disorders, both medical and surgical. Through an integrated collaboration between Children’s and an extensive network of pediatric subspecialists from UT Southwestern, this NICU is able to provide exceptional care tailored to the specific needs of each individual patient, serving over 750 infants in 2019. This NICU achieved Level IV designation by the State in 2016 and will achieve re-designation as a Level IV NICU in 2020.
- **Thrive at Children’s:** The Thrive Clinic provides comprehensive medical and psychosocial treatment through intensive intervention, education, social services, and developmental testing for high-risk infants from birth to age five.
- **The Fetal Evaluation and Treatment Alliance (FETAL) and The Fetal Center:** Established in 2008, this program has grown substantially and culminated in the opening of a dedicated Fetal Center in 2014. FETAL is the only program in North Texas offering a full continuum of specialized care for pregnant women diagnosed with a fetal anomaly. Patient families and their referring providers receive prenatal conferences with a highly specialized multidisciplinary team, all in one location, that brings the expertise of UTSW subspecialists to the affected baby at risk. A personalized approach addresses each in utero diagnosis to determine the best strategy for pregnancy, delivery and continuity of care after birth. Receiving care through the FETAL Center provides access to maternal fetal medicine specialists, a world-renowned neonatal resuscitation team as well as a complete range of pediatric and surgical subspecialists who work together to deliver the highest level of comprehensive care.
- **TeleNICU:** In 2013, in collaboration with Children’s Health, we launched TeleNICU, the state’s first dedicated neonatal telemedicine service and one of the most sophisticated systems of its kind in the US. TeleNICU links specially trained, board-certified UT Southwestern neonatologists at Children’s Health to physicians at other hospitals’ NICUs to consult and assist in the management of the sickest and most fragile infants. Using specialized equipment and secure broadband transmission, our dedicated neonatologists are able to communicate with doctors at other facilities, 24/7. Using two-way, real-time interactive communication, virtual examination of newborns at distant-site NICUs is achieved. Participating hospitals connect with UTSW neonatologists using a mobile equipment cart with medical-quality videoconferencing capabilities, secure data transfer, and digital equipment that permits diagnostic testing. Our physicians are able to use specialized cameras to perform high-definition visual examinations and a high-tech stethoscope to listen to the baby’s heart, lungs and abdomen. Information Week named TeleNICU as one of the Elite 100 Information Technology Innovations in 2015.

US News & World Report ranked the Neonatal Program at Children’s Health in the top 20 of all programs in the United States in 2019

William P. Clements Jr. University Hospital

- **Level III NICU:** The William P. Clements Jr. University Hospital features 30 NICU rooms, giving each baby his or her own room, in a space sized to easily accommodate both hospital staff and parents. State of the art neonatal care including mechanical ventilation both conventional and high frequency, inhaled nitric oxide therapy and outstanding nursing care are provided to fragile infants. Parents can sleep in the room overnight with their newborns – enabling parents to focus on their infant and build bonds that will help the

baby grow stronger. Research shows that more parental involvement helps babies with weight gain, breastfeeding, and earlier release from the hospital. This NICU received Level III designation from the State in 2018.

- **Newborn Nursery:** The Labor, Delivery and Recovery rooms combine modern technology with a warm, home-like environment to provide a safe and comfortable experience for mothers and families. Our highly experienced newborn physicians provide state-of-the-art care for the newborn infant. We also have lactation consultants to provide breastfeeding assistance. UT Southwestern is a member of the Texas Ten Step Program to improve maternity care practices. Policy development, education of staff, and provision of discharge resources for breastfeeding mothers are key initiatives of the program.

Southwestern Health Resources – Texas Health Presbyterian Hospital Dallas (THD)

The UT Southwestern Division of Neonatal-Perinatal Medicine assumed care of the newborn infants in the NICU and Special Care Nursery at THD in September 2015, marking the beginning of Southwestern Health Resources, a close affiliation between UT Southwestern and Texas Health Resources.

- **Level III NICU:** Located on the third floor of the Margo Perot Center at Texas Health Dallas, a 47-bed Level III NICU provides 24-hour comprehensive care to premature, high-risk and ill infants. The self-contained program offers therapies, equipment and an experienced multidisciplinary specialist team that includes UTSW neonatologists, medical subspecialists and surgeons as well as excellent neonatal nurses, respiratory therapists, pharmacists and occupational therapists. This NICU received Level III designation from the State in 2018.
- **Special Care Nursery:** The Special Care Nursery provides specialized services and medical monitoring for infants who have graduated from the NICU but still require additional care. The nursery is staffed by board-certified UT Southwestern neonatologists who and provide around-the-clock expert care for premature and special-needs infants. This 44-bed nursery is the only Level II nursery in the Dallas area that offers private rooms. Parents are able to room with their infants in hotel-like surroundings that include a refrigerator, granite countertops, a flat-screen TV and a private bath, thereby encouraging parents to spend as much time with their babies as possible.
- **Thrive at THD:** As an extension of the Thrive program at Children’s, Thrive at THD has skilled developmental specialists and pediatricians to provide comprehensive developmental testing for high-risk infants that have graduated from THD and surrounding NICUs.
- **FETAL at THD:** The Fetal Evaluation and Treatment Alliance (FETAL) now provides fetal consultations at the Children’s Health Specialty Center Park Cities located in the Margot Perot Center for Women & Infants at THD. Staffed by UT Southwestern neonatologists, pediatric subspecialists and surgical specialists, this program extends the continuum of specialized care for pregnant women diagnosed with a fetal anomaly.

Patient Statistics

2016 2017 2018 2019

Parkland Health & Hospital System

Births	12,441	12,424	12,563	12,574
NICU Admissions	1639	1822	1960	1803
Average Length of Stay (days)	20.1	21.0	18.8	17.6

Children’s Medical Center

Admissions	642	706	709	765
Average Length of Stay (days)	16.7	25.0	21.3	18.5

William P. Clements Jr. University Hospital

Births	1,899	2,122	1941	2055
Admissions	450	479	430	461
Average Length of Stay (days)	12.6	15.6	16.6	15.7

Texas Health (Presbyterian) Dallas - NICU

Births	5144	5008	4859	4496
Admissions	688	728	221	842
Average Length of Stay (days)	22.6	21.8	8.48	9.56

Texas Health (Presbyterian) Dallas – Special Care Nursery (SCN)

Admissions	688	728	595	673
Average Length of Stay (days)	22.6	21.8	9.15	10.72

FETAL Program

CMC Referrals	219	174	238	219
THD Referrals			30	38

Current Grant Support

Luc Brion

Grantor: University of Rochester

Title of Project: Facilitation of IRB Review for Multi-Site Clinical Research

Role: Principal Investigator

Dates: 09/2017 – 05/2019

Grantor: Gerber Foundation

Title of Project: Individualizing and Optimizing Nutrition to Prevent Metabolic Syndrome and to Improve Neurodevelopment in Preterm and Small for Gestational Age Infants

Role: Principal Investigator

Dates: 07/2015 – 07/2019

Lina Chalak

Grantor: University of California, San Francisco – U01

Title of Project: HEAL – High Dose Erythropoietin for Asphyxia and Encephalopathy – Year 3

Role: Principal Investigator

Dates: 07/2018 – 06/2019

Grantor: NIH-NINDS – R01

Title of Project: A Novel Wavelet Neurovascular Bundle for Real Time Detection of Injury in Neonatal Encephalopathy

Role: Principal Investigator

Dates: 07/2017 – 06/2022

Vishal Kapadia

Grantor: NIH – National Institute of Child Health & Human Development – K23

Title of Project: Low versus High Transitional Oxygen Saturation Targets for Preterm Resuscitation in the Delivery Room: A Randomized Controlled Trial

Role: Principal Investigator

Dates: 05/2016 – 04/2020

Myra Wyckoff

Grantor: American Academy of Pediatrics

Title of Project: Impact of the 7th Edition NRP Guideline Changes on Outcomes of Meconium-Exposed Newborns

Role: Principle Investigator

Dates: 12/2018 – 12/2019

Grantor: RTI International

Title of Project: NICHD Neonatal Research Network Capitation Funding

Role: Principle Investigator

Dates: 04/2011 – 03/2020

Grantor: NIH – National Institute of Child Health & Human Development

Title of Project: NICHD Cooperative Multicenter Neonatal Research Network

Role: Principle Investigator

Dates: 04/2016 – 03/2021

Sushmita Yallapragada

Grantor: Mallinckrodt Pharmaceuticals

Title of Project: Multicenter, Prospectively defined observational registry with retrospective data collection, evaluating premature and term-near-term neonates with pulmonary hypertension receiving inhaled nitric oxide via invasive or noninvasive ventilator support at US

Role: Principal Investigator

Dates: 04/2018 – 04/2023

Peer-Reviewed Publications

1. Boyce JO, Reilly S, Skeat J, Cahir P; Academy of Breastfeeding Medicine (**Stehel EK**). [ABM Clinical Protocol #17: Guidelines for Breastfeeding Infants with Cleft Lip, Cleft Palate, or Cleft Lip and Palate-Revised 2019](#). *Breastfeed Med*. 2019 Sep;14(7):437-444. PMID: 31408356
2. **Brion LP, Rosenfeld CR, Heyne R**, Brown SL, Lair CS, Burchfield PJ, Caraig M. [Adjustable feedings plus accurate serial length measurements decrease discharge weight-length disproportion in very preterm infants: quality improvement project](#). *J Perinatol*. 2019 Aug;39(8):1131-1139. PMID: 31263201
3. **Brion LP, Rosenfeld CR, Heyne R**, Brown SL, Lair CS, Burchfield PJ, Caraig M. [Correction to: Adjustable feedings plus accurate serial length measurements decrease discharge weight-length disproportion in very preterm infants: quality improvement project](#). *J Perinatol*. 2019 Dec;39(12):1694. PMID: 31601949
4. Brumbaugh JE, Hansen NI, Bell EF, et al, **Wyckoff MH**, et al; National Institute of Child Health and Human Development Neonatal Research Network. [Outcomes of Extremely Preterm Infants With Birth Weight Less Than 400 g](#). *JAMA Pediatr*. 2019 May 1;173(5):434-445. PMID: 30907941
5. Bundy DG, Singh H, Stein RE, Brady TM, **Lehmann CU**, et al. [The design and conduct of Project RedDE: A cluster-randomized trial to reduce diagnostic errors in pediatric primary care](#). *Clin Trials*. 2019 Apr;16(2):154-164. PMID: 30720339
6. **Chalak L**, Ferriero DM, Gressens P, Molloy E, Bearer C. [A 20 years conundrum of neonatal encephalopathy and hypoxic ischemic encephalopathy: are we closer to a consensus guideline?](#) *Pediatr Res*. 2019 Nov;86(5):548-549. PMID: 31450231

7. **Chalak LF**, Adams-Huet B, Sant'Anna G. [A Total Sarnat Score in Mild Hypoxic-ischemic Encephalopathy Can Detect Infants at Higher Risk of Disability.](#) *J Pediatr.* 2019 Nov;214:217-221.e1. PMID: 31301853
8. Cui Z, Liao J, Cheong N, Longoria C, Cao G, DeLisser HM, **Savani RC.** [The Receptor for Hyaluronan-Mediated Motility \(CD168\) promotes inflammation and fibrosis after acute lung injury.](#) *Matrix Biol.* 2019 May;78-79:255-271. PMID: 30098420
9. Duncan AF, Bann CM, Dempsey AG, Adams-Chapman I, **Heyne R**, Hintz SR; Eunice Kennedy Shriver National Institute of Child Health and Development Neonatal Research Network (**Rosenfeld CR**). [Neuroimaging and Bayley-III correlates of early hand function in extremely preterm children.](#) *J Perinatol.* 2019 Mar;39(3):488-496. PMID: 30692613
10. Duncan AF, Bann CM, Dempsey A, Peralta-Carcelen M, Hintz S; Eunice Kennedy Shriver National Institute of Child Health and Development Neonatal Research Network (**Heyne R**). [Behavioral Deficits at 18-22 Months of Age Are Associated with Early Cerebellar Injury and Cognitive and Language Performance in Children Born Extremely Preterm.](#) *J Pediatr.* 2019 Jan;204:148-156.e4. PMID: 30292492
11. El-Dib M, Inder TE, **Chalak LF**, Massaro AN, Thoresen M, Gunn AJ. [Should therapeutic hypothermia be offered to babies with mild neonatal encephalopathy in the first 6 h after birth?](#) *Pediatr Res.* 2019 Mar;85(4):442-448. PMID: 30733613
12. Escobedo MB, Aziz K, **Kapadia VS**, Lee HC, Niermeyer S, Schmölder GM, Szyld E, Weiner GM, **Wyckoff MH**, Yamada NK, Zaichkin JG. [2019 American Heart Association Focused Update on Neonatal Resuscitation: An Update to the American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.](#) *Circulation.* 2019 Dec 10;140(24):e922-e930. PMID: 31724451
13. Feng L, Li H, Oishi K, et al, **Heyne R, Chalak L**, Peng Y, Liu S, Huang H. [Age-specific gray and white matter DTI atlas for human brain at 33, 36 and 39 postmenstrual weeks.](#) *Neuroimage.* 2019 Jan 15;185:685-698. PMID: 29959046
14. Foglia EE, Carper B, Gantz M, et al; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network (**Brian LP, Wyckoff MH, Rosenfeld CR**). [Association between Policy Changes for Oxygen Saturation Alarm Settings and Neonatal Morbidity and Mortality in Infants Born Very Preterm.](#) *J Pediatr.* 2019 Jun;209:17-22.e2.PMID: 30961990
15. France DJ, Slagle J, Schremp E, Moroz S, Hatch LD, Grubb P, Lorinc A, **Lehmann CU**, et al. [Impact of patient handover structure on neonatal perioperative safety.](#) *J Perinatol.* 2019 Mar;39(3):453-467. PMID: 30655594
16. Garantziotis S, **Savani RC.** [Hyaluronan biology: A complex balancing act of structure, function, location and context.](#) *Matrix Biol.* 2019 May;78-79:1-10. PMID: 30802498
17. Ghoneim N, **Dariya V**, Guffey D, et al. [Teaching NICU Fellows How to Relay Difficult News Using a Simulation-Based Curriculum: Does Comfort Lead to Competence?](#) *Teach Learn Med.* 2019 Apr-May;31(2):207-221. PMID: 30428732
18. Hoge MK, Thomas JM, Hanners NW, Castro DP, **Ali N.** [Case 1: Apnea and Hypotonia in a 1-month-old Infant.](#) *Neoreviews.* 2019 Oct;20(10):e592-e593. PMID: 31575781
19. **Kakkilaya V**, Jubran I, Mashruwala V, Ramon E, Simcik VN, Marshall M, Brown LS, **Jaleel MA, Kapadia VS.** [Quality Improvement Project to Decrease Delivery Room Intubations in Preterm Infants.](#) *Pediatrics.* 2019 Feb;143(2). PMID: 30602545
20. **Kakkilaya V**, Wagner S, Mangona KLM, Steven Brown L, Jubran I, He H, **Savani RC, Kapadia VS.** [Early predictors of continuous positive airway pressure failure in preterm neonates.](#) *J Perinatol.* 2019 Aug;39(8):1081-1088. PMID: 31089256

21. Kurepa D, Perveen S, Lipener Y, **Kakkilaya V**. [The use of less invasive surfactant administration \(LISA\) in the United States with review of the literature](#). *J Perinatol*. 2019 Mar;39(3):426-432. PMID: 30635595
22. **Lehmann CU**, Petersen C, Bhatia H, Berner ES, Goodman KW. [Advance Directives and Code Status Information Exchange: A Consensus Proposal for a Minimum Set of Attributes](#). *Camb Q Healthc Ethics*. 2019 Jan;28(1):178-185. PMID: 30570474
23. Mandell EW, **Savani RC**. [Ceramide, Autophagy, and Apoptosis Mechanisms of Ventilator-induced Lung Injury and Potential Therapeutic Targets](#). *Am J Respir Crit Care Med*. 2019 Mar 15;199(6):687-689. PMID: 30372122
24. Matoba N, **Yallapragada S**, Davis MM, Ernst LM, Collins JW, Mestan KK. [Racial differences in placental pathology among very preterm births](#). *Placenta*. 2019 Aug;83:37-42. PMID: 31477205
25. McClain LE, **Mir IN**, **Kapadia VS**, Murphy JT, Diesen DL. [In Utero Gunshot Wound to the Left Upper Extremity in a Preterm Infant](#). *Am Surg*. 2019 Jun 1;85(6):e282-e283. PMID: 31267914
26. McGowan EC, Laptook AR, et al; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network (**Brion LP**, **Heyne R**, **Rosenfeld CR**). [Developmental Outcomes of Extremely Preterm Infants with a Need for Child Protective Services Supervision](#). *J Pediatr*. 2019 Dec;215:41-49.e4. PMID: 31500860
27. **Mir IN**. [October ECI biocommentary](#). *Pediatr Res*. 2019 Oct;86(4):419. PMID: 31234197
28. **Mir IN**, Steven Brown L, **Rosenfeld CR**, **Chalak LF**. [Placental clearance/synthesis of neurobiomarkers GFAP and UCH-L1 in healthy term neonates and those with moderate-severe neonatal encephalopathy](#). *Pediatr Res*. 2019 Oct;86(4):500-504. PMID: 31132788
29. Mitchell KB, Fleming MM, Anderson PO, Giesbrandt JG; Academy of Breastfeeding Medicine (**Stehel EK**). [ABM Clinical Protocol #30: Radiology and Nuclear Medicine Studies in Lactating Women](#). *Breastfeed Med*. 2019 Jun;14(5):290-294. PMID: 31107104
30. Mitchell KB, Johnson HM, Eglash A; Academy of Breastfeeding Medicine (**Stehel EK**). [ABM Clinical Protocol #30: Breast Masses, Breast Complaints, and Diagnostic Breast Imaging in the Lactating Woman](#). *Breastfeed Med*. 2019 May;14(4):208-214. PMID: 30892931
31. Natarajan G, Shankaran S, Nolen TL, et al, **Wyckoff MH**, Bell EF, Vohr BR, Higgins RD. [Neurodevelopmental Outcomes of Preterm Infants With Retinopathy of Prematurity by Treatment](#). *Pediatrics*. 2019 Aug;144(2). PMID: 31337693
32. Nelson SD, Rector HH, Brashear D, Mathe JL, Wen H, English SL, Hedges W, **Lehmann CU**, Ozdas-Weitkamp A, Stenner SP. [Rebuilding the Standing Prescription Renewal Orders](#). *Appl Clin Inform*. 2019 Jan;10(1):77-86. PMID: 30699459
33. Ouyang M, Jeon T, Sotiras A, Peng Q, Mishra V, Halovanic C, Chen M, **Chalak L**, Rollins N, Roberts TPL, Davatzikos C, Huang H. [Differential cortical microstructural maturation in the preterm human brain with diffusion kurtosis and tensor imaging](#). *Proc Natl Acad Sci U S A*. 2019 Mar 5;116(10):4681-4688. PMID: 30782802
34. Pavageau L, **Brion LP**, **Rosenfeld CR**, Brown LS, Ramaciotti C, Burchfield PJ, **Jaleel MA**. [Decrease in the frequency of treatment for patent ductus arteriosus after implementation of consensus guidelines: a 15-year experience](#). *J Perinatol*. 2019 Nov;39(11):1569-1576. PMID: 31337852
35. **Ramachandran S**, **Wyckoff M**. [Drugs in the delivery room](#). *Semin Fetal Neonatal Med*. 2019 Dec;24(6):101032. PMID: 31588028
36. **Rosenfeld CR**, Shafer G, Scheid LM, Brown LS. [Screening and Serial Neutrophil Counts Do Not Contribute to the Recognition or Diagnosis of Late-Onset Neonatal Sepsis](#). *J Pediatr*. 2019 Feb;205:105-111.e2. PMID: 30318373

37. Scheid LM, Brown LS, Clark C, **Rosenfeld CR**. [Data electronically extracted from the electronic health record require validation.](#) *J Perinatol*. 2019 Mar;39(3):468-474. PMID: 30679823
38. Shankaran S, Bell EF, Laptook AR, et al; Eunice Kennedy Shriver National Institute of Child Health, and Human Development Neonatal Research Network (**Brion LP, Wyckoff MH**). [Weaning of Moderately Preterm Infants from the Incubator to the Crib: A Randomized Clinical Trial.](#) *J Pediatr*. 2019 Jan;204:96-102.e4. PMID: 30337189
39. Smithhart W, **Wyckoff MH, Kapadia V, Jaleel M, Kakkilaya V**, Brown LS, Nelson DB, **Brion LP**. [Delivery Room Continuous Positive Airway Pressure and Pneumothorax.](#) *Pediatrics*. 2019 Sep;144(3). PMID: 31399490
40. Soar J, Maconochie I, **Wyckoff MH**, et al, **Kapadia V**, et al. [2019 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations.](#) *Resuscitation*. 2019 Dec;145:95-150. PMID: 31734223
41. Soar J, Maconochie I, **Wyckoff MH**, et al, **Kapadia V**, et al. [2019 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces.](#) *Circulation*. 2019 Dec 10;140(24):e826-e880. PMID: 31722543
42. Stine CN, Koch J, Brown LS, **Chalak L, Kapadia V, Wyckoff MH**. [Quantitative end-tidal CO₂ can predict increase in heart rate during infant cardiopulmonary resuscitation.](#) *Heliyon*. 2019 Jun 12;5(6):e01871. PMID: 31245640
43. Tang A, **Rosenfeld CR**, Mikhael M, McPhaul MJ, Koch JD. [Adrenal insufficiency in neonates undergoing cardiopulmonary bypass and postoperative hypothalamic-pituitary-adrenal function after prophylactic glucocorticoids.](#) *J Perinatol*. 2019 May;39(5):640-647. PMID: 30867544
44. Welsford M, Nishiyama C, Shortt C, Isayama T, Dawson JA, Weiner G, Roehr CC, **Wyckoff MH**, Rabi Y; International Liaison Committee on Resuscitation Neonatal Life Support Task Force. [Room Air for Initiating Term Newborn Resuscitation: A Systematic Review With Meta-analysis.](#) *Pediatrics*. 2019 Jan;143(1). PMID: 30578325
45. Welsford M, Nishiyama C, Shortt C, Weiner G, Roehr CC, Isayama T, Dawson JA, **Wyckoff MH**, Rabi Y; International Liaison Committee on Resuscitation Neonatal Life Support Task Force. [Initial Oxygen Use for Preterm Newborn Resuscitation: A Systematic Review With Meta-analysis.](#) *Pediatrics*. 2019 Jan;143(1). PMID: 30578326
46. **Weydig H, Ali N, Kakkilaya V**. [Noninvasive Ventilation in the Delivery Room for the Preterm Infant.](#) *Neoreviews*. 2019 Sep;20(9):e489-e499. PMID: 31477597
47. Yanowitz TD, Sullivan KM, Piazza AJ, et al, **Nayak SP**, et al; CHND Surgical NEC Focus Group. [Does the initial surgery for necrotizing enterocolitis matter? Comparative outcomes for laparotomy vs. peritoneal drain as initial surgery for necrotizing enterocolitis in infants <1000 g birth weight.](#) *J Pediatr Surg*. 2019 Apr;54(4):712-717. PMID: 30765157
48. Zhao T, Mishra V, Jeon T, Ouyang M, Peng Q, **Chalak L**, Wisnowski JL, **Heyne R**, Rollins N, Shu N, Huang H. [Structural network maturation of the preterm human brain.](#) *Neuroimage*. 2019 Jan 15;185:699-710. PMID: 29913282

Book Sections

1. **Kapadia VS, Wyckoff MH** (2019). [Delivery Room Resuscitation of the Newborn: Chest Compression, Medications, and Special Problems.](#) In: Martin RJ, Fanaroff AA, Walsh MC (Eds.), *Fanaroff & Martin's Neonatal-Perinatal Medicine* (11th ed.) Philadelphia, PA. Elsevier; 2019.