

Division Introduction

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.

In 2021, the COVID-19 pandemic continued to provide extreme challenges to the Division and to our obstetric colleagues. Through highly collaborative establishment of protocols and procedures, we have attended and managed over 2000 deliveries of SARS-CoV-2 positive mothers in our four hospitals. We kept abreast of the latest information from the CDC and the literature and provided education on a local, regional, and statewide basis to help other hospitals cope with the crisis. The effectiveness of these specific protocols is borne out by the fact that not a single member of the team contracted the disease while providing care on our units.

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:

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, medical students and advanced practice providers. 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.



Rashmin C. Savani, M.B.Ch.B.
Professor, Division Chief
William Buchanan Chair in Pediatrics

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 and advanced practice trainees. The 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.

We were thrilled to welcome six new faculty members to the Neonatal-Perinatal Medicine team in 2021.

Maryam Ali, M.D.

Assistant Professor



M.D.

Geisel School of Medicine at Dartmouth, Hanover, NH, 2013

Postdoctoral Training

Residency, Pediatrics

University of Massachusetts Memorial Medical Center, Worcester, MA, 2013 - 2016

Interests

Newborn pediatrics

Jesse Banales, M.D.

Assistant Professor



M.D.

UT Southwestern, 2015

Postdoctoral Training

Residency, Pediatrics

Baylor College of Medicine/Children's Hospital of San Antonio, TX, 2015-2018

Fellowship, Neonatal-Perinatal Medicine

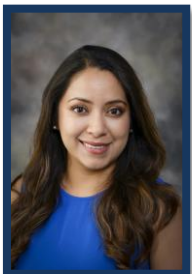
UT Southwestern, 2018– 2021

Interests

Medical education

Lorraine E. Bautista, M.D., M.P.H.

Assistant Professor



M.D.

Universidad Autónoma de Guadalajara, Zapopan, Mexico 2015

M.P.H.

University of Texas Health Science Center - School of Public Health, Houston, TX, 2009

Postdoctoral Training

Residency, Pediatrics

Texas Tech University Health Science Center El Paso, TX, 2015-2018

Fellowship, Neonatal-Perinatal Medicine

UT Southwestern, 2018 – 2021

Interests

Neonatal abstinence syndrome

Chelseá Johnson, M.D.
Assistant Professor



M.D.

UT Medical Branch, Galveston, TX, 2015

Postdoctoral Training

Residency, Pediatrics

University of Texas Medical Branch at Galveston, TX, 2015 - 2018

Fellowship, Neonatal-Perinatal Medicine

University of Pittsburgh Medical Center/Children's Hospital, Pittsburgh, PA, 2018 - 2021

Interests

Quality improvement

Aparna Patra, M.D.
Associate Professor



M.D.

Nilratan Sircar Medical College, Kolkata, India, 2005

Postdoctoral Training

Residency, Pediatrics; Chief Resident, Pediatrics

Crozer - Chester Medical Center, Upland, PA, 2008-2011

Fellowship, Neonatal-Perinatal Medicine

Brown University/Women and Infants Hospital of Rhode Island, Providence, RI, 2011 – 2014

Interests

ECMO, BPD, Level IV care

Christine Pazandak, M.D., M.S.C.I., M.P.H.
Assistant Professor



M.D.

University of Texas Health Science Center at San Antonio, TX, 2014

M.P.H.

University of Texas Health Science Center – School of Public Health Houston, TX, 2014

M.S.C.I.

Washington University School of Medicine, St. Louis, MO, 2021

Postdoctoral Training

Residency, Pediatrics

UT Southwestern, 2014 – 2017

Fellowship, Neonatal-Perinatal Medicine

Washington University/B-JH//SLCH Consortium Program, St. Louis, MO, 2018 - 2021

Interests

Advocacy

Honors / Awards

Kikelomo Babata

- UTSW Developing Bias Reduction in Medicine – Program for Pediatrics

Lina Chalak

- Leaders in Clinical Excellence Award – UT Southwestern

Christina Chan

- Rising Star – Dallas Best

Becky Ennis

- Leaders in Clinical Excellence Award – UT Southwestern

Jawahar Jagarapu

- Texas Super Doctors – Texas Monthly Magazine

Chelseá Johnson

- Keystone Symposia Scholarship
- ELSO ECMO Training Scholarship – University of Pittsburgh Medical Center

Christoph Lehmann

- Physician Innovator of the Year – Physicians in American Medical Informatics Association
- Willis C. Maddrey, MD Distinguished Professor in Clinical Science

Imran N. Mir

- Promoted to Associate Professor

Julie Mirpuri-Hathiramani

- Promoted to Associate Professor

Eric B. Ortigoza

- Society for Pediatric Research (SPR) Award to Enhance Diversity in Research Workforce

Shalini Ramachandran

- Member, AAP International NRP Instructor and Mentor

Rashmin Savani

- Texas Super Doctors – Texas Monthly Magazine

Jack Seidel

- Texas Super Doctors – Texas Monthly Magazine

Sushmita G. Yallapragada

- Rising Star – Dallas Best

Invited Lectures

Lina Chalak

- Center of Neurosciences Research, Washington DC, Virtual, January 2021
 - *"Intellectual and Developmental Disabilities Research Center (DC-IDDRC)"*

Christina Chan

- Collin College Respiratory Therapy, Texas, February 2021
 - *"Surfactant, Good for Everyone?"*
- THR THD Neonatal Grand Rounds – Dallas, TX, March 2021
 - *"Resuscitation of the Periviable Infant"*

Vedanta S. Dariya

- CareFlite Emergency Care Update Conference, May 2021
 - *"Special Considerations in Neonatal Resuscitation"*

June Hu

- North Texas Association of Neonatal Nurses, Virtual, October 2021
 - *"Introduction of the FETAL Program"*

Jawahar Jagarapu

- American Telemedicine Association, Pediatric Special Interest Group, (Virtual), February 2021
 - *"TeleNICU & TeleTransport"*
- SPROUT Telehealth Transport working Group,(Virtual), December 2021
 - *"TeleTransport in NICU"*
- National Telehealth Summit, Virtual, October 2021
 - TeleNICU: Current Applications in Neonatology and Single Center Experience
- National Association of Neonatal Nurses, Virtual, September 2021
 - Teleneonatology: Current Applications in Neonatology

Vishal Kapadia

- Australia and New Zealand Neonatal Network (ANZNN) Resuscitation Webinar: Improving Outcomes, Virtual, March 2021
 - *"Developing ILCOR consensus on science and treatment recommendations (CoSTR) for Sustained Inflation"*
- Union of European Neonatal and Perinatal Societies (UENPS) Ipokrates Weibinar: Special Chapter on Oxygen, Virtual, February 2021
 - *"Bradycardia and SpO2 in the delivery room as prognostic factors"*
- Avoiding Lung Injury Conference, Baylor, Houston, TX, Virtual, February 2021
 - *"Getting the Beginning Right: Resuscitation and Avoiding Lung Injury"*
- Neonatal Summit: Resuscitation and Transition of Extremely Preterm Neonates, Virtual, September 2021
 - *"What is new with NRP and ILCOR in 2021? Evidence to Practice"*
- AAP National Conference, Current Issues Seminar NRP, Virtual, October 2021
 - *"NRP Live: Ask the Experts-Panel Discussion"*
- Annual Collin College Symposium, Virtual, February 2021
 - *"Top 10 strategies for avoiding lung injury in the delivery room"*
- North Texas National Association of Neonatal Nurses, Virtual, October 2021
 - *"What is new with resuscitation of newborns?"*

Imran Mir

- Perinatal Research Group at University of Colorado School of Medicine, Aurora, CO, May 2021
 - *“Fetal-Placental Crosstalk Through Cytokine Synthesis and Placental Clearance”*
- North Texas Association of Neonatal Nurses, Arlington, TX, April 2021
 - *“Placenta and Neonatal Morbidities”*

Julie Mirpuri

- Keystone Symposia: From Mother to Child, (Virtual), January 2021
 - *“Exposure to maternal high fat diet is associated with altered prenatal offspring intestinal innate immunity that is dependent on the maternal microbiome”*

Eric B. Ortigoza

- Grand Rounds, Texas Health Presbyterian Hospital, Dallas, TX August 2021
 - *“Management of Neonatal Reflux”*

Shalini Ramachandran

- International Conference on Pediatrics and Neonatology, Frankfurt, Germany, June 2021
 - Invited Plenary Speaker

Rashmin Savani

- TCHMB Annual Summit, UT Systems, Virtual, February 2021
 - *“Implementing newborn admission temperature QI initiative at a local level”*
- Division of Pulmonary & Critical Care Medicine, Duke University Medical Center, Durham, NC, Virtual, April 2021
 - *“RHAMM as a target in COVID-19”*
- CardioVascular Pulmonary Center of Biomedical Research Excellence, Brown University, Virtual, May 2021
 - *“RHAMM and Hyaluronan as targets in COVID-19”*
- 6th Annual Scientific Congress of the Asian Pediatric Pulmonology Society, Taiwan, Virtual, September 2021
 - *“Novel Strategies to Prevent Bronchopulmonary Dysplasia”*

Myra Wyckoff

- 12th Dresden Symposium of the European Society for Pediatric Research Spring School, Germany, (Virtual) March 2021
 - *“Update from the International Liaison Committee on Resuscitation Neonatal Life Support Task Force- What the Science can Tell Us . . . or Not”*
- University of Oklahoma Health Sciences Center Visiting Professorship of Department of Pediatrics, Division of Neonatal-Perinatal Medicine, Oklahoma City, OK, (Virtual) March 2021
 - *“State of the Art: Neonatal Resuscitation Today – What a Highly-Performing Team Looks Like”*
- Academy of Neonatology, Israel, (Virtual) June 2021
 - *“Neonatal Resuscitation Around the World: 2020 Guidelines of the United States based on ILCOR Consensus Science.”*

Conference Presentations

Pediatric Academic Societies, Virtual, April/May, 2021

Chalak L.

- Scholarly Session, *“A Tribute to Dr. Maria Delivoria-Papadopoulos: From Basic Science to Clinical Trials - Physician-Researcher Journeys and Collaborations in Hypoxic Ischemic Encephalopathy. Chalak- Rigor in clinical translational HIE trials?”*

Chalak L, Pappas A, Laptook A, Das A, Tan S, Shankaren S, **Heyne R**, Higgins RD.

- Oral Poster Symposium, *“Systematic monitoring of aEEG in asphyxiated newborns during rewarming after hypothermia therapy (SMaRT)”*.

Chawla S, **Wyckoff MH**, Natarajan G, Laptook AR, Lakshminrusimha S, Shankaran S, Chowdhury D, Bell EF, Rysavy MA, Patel RM, Van Meurs KP, Ambalavanan N, Greenberg RG, Younge NE, Werner EF, Das A, Carlo WA.

- Platform Presentation, *“Association of Antenatal Steroid Exposure at ≤ 22 Weeks of Gestation with Neonatal Survival and Survival Without Neonatal Morbidities.”*

Chawla S, Laptook AR, Smith EA, Tan S, Natarajan G, **Wyckoff MH**, Greenberg RG, Ambalavanan N, Bell EF, Van Meurs K, Hintz S, Vohr B, Das A, Werner EF, SShankaran S.

- Poster Presentation, *“Association of Maternal Pre-Pregnancy Body Mass Index with Neurodevelopmental Outcome in Extremely Low Gestational Age Neonates (ELGANs).”*

Handley SC, Kumbhat N, Eggleston B, Foglia EF, Davis AS, Van Meurs KP, Lakshminrusimha, S, Walsh MC, Watterberg KL, **Wyckoff MH**, Das A, DeMauro SB.

- Platform Presentation, *“Umbilical Cord Management Practices and Neurodevelopmental Outcomes at 22-26 months Corrected Age after Extremely Preterm Birth.”*

Hoge M, **Heyne R**, **Chalak L**.

- Poster Presentation, *“Novel Therapy for Preventing Vulnerable Child Syndrome in NICU Families.”*

Huff K, **Nayak SP**, Ahmad I, Brozanski B, DiGeronimo R, Hair AB, Kim JH, Markel T, Piazza A, Reber K, Roberts J, Sharma J, Sullivan KM, DuPont A, Yanowitz TD, Premkumar MH.

- Poster Presentation, *“Current Patterns of Intravenous Lipid Emulsion Use in Neonatal Intensive Care Units: A Multi-Institution Survey.”*

Lair CS, **Brion LB**, Brown SL, Edwards A, Jacob T, Brammer E, Du C; Desai S; **Jaleel MA**.

- Abstract, *“Reducing Hypophosphatemia in Preterm Infants: a Quality Improvement (QI) Project.”*

Laptook A, **Weydig H**, **Brion LP**, **Wyckoff M**, Arnautovic T, Younge N, Oh W, Chowdhury D, Keszler M, Das A.

- Platform Presentation, *“Are Antenatal Steroids and early Postnatal Indomethacin Associated?”*

Nayak SP, Channabasappa N, Pipper H.

- Poster Presentation, *“Comparison of liberal vs gradual feeding protocols in neonates after intestinal surgery.”*

Nayak SP, Huff K, Zaniletti I, Hair AB, Piazza A, Reber K, DiGeronimo R, Kim JH, Roberts J, Markel T, Sharma J, Brozanski B, Sullivan KM, Ahmad I, Premkumar MH, Yanowitz T.

- Poster Presentation, *“Cholestasis is associated with higher rate of complications in infants with Necrotizing Enterocolitis.”*

Price M, Brown S, **Kapadia V**, **Yalapragada S**, **Savani R**.

- Poster Presentation, *“The ratio of respiratory severity score to the partial pressure of carbon dioxide as an early predictor of moderate to severe bronchopulmonary dysplasia in preterm infants.”*

Sanchez Rosado MO, Reis JD, **Jaleel MA**, Mangona KLM, Burchfield P, Mathai D, Moore V, Lair CS, Petrosyan E, Pedroza A, Boren M, Clipp KD, **Brion, LP**.

- Abstract, *“A Quality Improvement (QI) Project to Decrease Necrotizing Enterocolitis (NEC) by Increasing Administration of Breastmilk (BM) Among Very Low Birth Weight (VLBW) and/or ≤ 32 weeks Gestational Age (GA) Infants:”*

Sankaran D, Vali P, Chen P, Lesneski AL, Hardie ME, Alhassen Z, Wedgwood S, **Wyckoff MH**, Lakshminrusimha S.

- Platform Presentation, *“Randomized Trial of Oxygen Weaning Strategies Following Neonatal Chest Compressions Evaluating Oxidative Stress After Recovery.”*

Sisman J, Kwon J, **Mir I**, Weakley D, **Heyne R**, Brown S, **Kapadia V**.

- Poster Presentation, *“Periventricular Echogenicity (PVE) persists on cranial ultrasound (cUS) at discharge is associated with adverse developmental outcomes in preterm infants.”*

Sivarajan M, **Biron LP**, **Schneider JH**, Bai S, El Hassan NO, Kaiser JR, Nelson D, Brown LS, Burchfield P, Johnson K.

- Poster Presentation, *“Decreasing Early Hypoglycemia Frequency in At-Risk Newborns by Implementing a New Hypoglycemia Screening Algorithm.”*

Stocks EF, **Jaleel M**, Smithhart W, Burchfield P, Thomas A, Mangona KLM, **Kapadia VS**, **Wyckoff MH**, **Kakkilaya V**, Brenan S, Weaver J, Brown LS, Clark C, Nelson DB, **Brion LP**.

- Poster Presentation, *“Reduction of Delivery Room CPAP-Associated Pneumothorax in ≥ 35 -Week Gestational Age Neonates.”*

Sullivan K, Rose R, Jackson L, **Nayak SP**, Zaniletti I, Coghill CH, DiGeronimo R, Ling CY, Wojcik M, Williams H, Fry JT.

- Poster Presentation, *“The NICU of Last Resort. Late Mortality at Children’s Hospital NICUs.”*

Sullivan K, Rose R, Jackson L, **Nayak SP**, Zaniletti I.

- Poster Presentation, *“Peritoneal drain vs open laparotomy as the initial surgery for spontaneous intestinal perforation in a large multicenter cohort of very low birth weight infants.”*

Szotek J, Noltemeyer A, **Ramachandran S, Wyckoff M, Kapadia V.**

- Poster Presentation, *“Optimal intravenous epinephrine dose during neonatal cardiopulmonary resuscitation in the delivery room.”*

Hershey Conference on Newborn Brain Injury, Virtual, June 2021

León RL, Sharma K, Anton CM, Mir IN, Chalak LF

- Abstract, *“Placental pathology in congenital heart disease and neurodevelopmental outcomes”*

Machie M, Clarke R, Mir I, Wisnowski J, Chalak L

- Poster Presentation, *“Reliability of the Kidokoro Score in an Ethnically and Socioeconomically Diverse Population.”*

Other Conferences

León RL, Sharma K, Mir IN, Chalak LF

Society for Reproductive Investigations, Boston, MA, (Virtual) July, 2021

Abstract, *“Pathologic lesions in placentas of fetuses with left ventricular outflow tract obstruction.”*

Niu X, Lu D, Montalbano A, Mahendroo M, Mirpuri J.

Immunology

Poster Presentation, *“Maternal high fat diet interacts with the maternal microbiome to expand IL-17 producing group 3 innate lymphoid cells in offspring.”*

Sisman J, Kwon J, Mir I, Weakley D, Heyne R, Brown S, Kapadia V.

Pediatric Society of Research Conference 2021

“Periventricular Echogenicity (PVE) persists on cranial ultrasound (cUS) at discharge is associated with adverse developmental outcomes in preterm infants.”

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
- Texas Health Dallas Presbyterian Hospital NICU
- 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.

Clinical Research

- **NIH Neonatal Network for Clinical Trials:** The Division of Neonatal-Perinatal Medicine is an active participant in the Neonatal Network clinical studies and has been since its inception in 1986.
- **Treatment of chorioamnionitis-exposed neonates:** Several alternative diagnostic tests and therapies have been promoted for the neonate whose mother is diagnosed with chorioamnionitis.

The faculty and fellows of the Division of Neonatal-Perinatal Medicine published 50 peer-reviewed papers in 2021

- **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 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 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
- The roles of hyaluronan (hyaluronic acid) and its receptors in inflammation, endothelial function, and COVID-19
- Gut microbiome and its effects on immune responses in the developing gut and risks for NEC

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 45 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, advanced practice providers, 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 some of the lowest mortality and morbidity rates in the country. This unit achieved Level III designation by the State in 2018 and again in 2021.

- **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 advanced practice providers 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 800 infants in 2021. This NICU achieved Level IV designation by the State in 2016 and re-designation as a Level IV NICU in 2020.
- US News & World Report ranked the Neonatal Program at Children’s Health in the top 50 of all programs in the United States in 2021*
- **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 was the first 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. We have since established TeleTransport, where our transport teams have telemedicine capabilities to allow neonatologists direct ability to examine and manage patients with the transport team, TeleFETAL, which allows fetal consultations to be done remotely, as well as TeleCooling for infants that have suffered HIE at outside hospitals.

William P. Clements Jr. University Hospital

- Level III NICU:** The William P. Clements Jr. University Hospital features 30 single patient NICU rooms. 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. This NICU received Level III designation from the State in 2018 and redesignation in 2021. The quality improvement work in the unit has received several awards for innovation and excellent outcomes.
- 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 Dallas (Presbyterian) Hospital (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 and again in 2021.
- 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 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) 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

Parkland Health & Hospital System

	2016	2017	2018	2019	2020	2021
Births	12,441	12,424	12,563	12,574	12,600	12,600
NICU Admissions	1,639	1,822	1,960	1,803	1,813	1,647
Average Length of Stay (days)	20.1	21.0	18.8	17.6	14.0	15

William P. Clements Jr. University Hospital

	2016	2017	2018	2019	2020	2021
Births	1,899	2,122	1,941	2,055	1,978	2,000
NICU Admissions	450	479	430	461	410	372
Average Length of Stay (days)	12.6	15.6	16.6	15.7	11.6	10.6

Children's Medical Center

	2016	2017	2018	2019	2020	2021
Admissions	642	706	669	736	560	691
Average Length of Stay (days)	21.7	20.6	21.3	19.7	21.3	21.2

Texas Health (Presbyterian) Dallas – NICU & Special Care Nursery

	2016	2017	2018	2019	2020	2021
Births	5,144	5,008	4,859	4,496	4,977	5,125
NICU Admissions	688	728	833	842	705	711
Average Length of Stay (days)	22.6	21.8	17.3	20.3	23.2	17.8

FETAL Program

	2016	2017	2018	2019	2020	2021
CMC Referrals	219	174	238	219	311	342
THD Referrals	--	--	30	38	37	298

Current Grant Support

Noorjahan Ali

Grantor: The International Network for Simulation-based Pediatric Innovation, Research and Education

Title of Project: Implementation of a resuscitation bundle for neonatal resuscitation

Role: Principal Investigator

Dates: 07/2020 – 12/2022

Luc Brion

Grantor: Children's Health Foundation

Title of Project: Optimizing Individual Nutrition in Preterm Very Low Birth Weight Infants

Role: Principal Investigator

Dates: 11/2014 – 11/2022

Lina Chalak

Grantor: University of California, San Francisco – U01

Title of Project: HEAL – High Dose Erythropoietin for Asphyxia and Encephalopathy – Year 6

Role: Principal Investigator

Dates: 07/2018 – 06/2022

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

Grantor: Washington University in St. Louis

Title of Project: NIRS Monitoring to Stop Injury

Role: Principal Investigator

Dates: 04/2021 – 03/2023

Venkatakrishna Kakkilaya

Grantor: Chiesi Farmaceutici, Italy

Title of Project: Prophylactic vs EARly Rescue Less invasive SURfactant for extremely preterm neonates (PEARLSURF): A Randomized Controlled Trial

Role: Principal Investigator

Dates: December 2020 – December 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: 05/16 – 11/22

Rachel León

Grantor: Children’s Health Foundation

Title of Project: Mechanisms of Placental Dysfunction in Fetal Congenital Heart Disease

Role: Principal Investigator

Dates: 09/2021 – 12/2026

Imran Mir

Grantor: Children’s Health Foundation

Title of Project: Brain Injury in Extremely Preterm Infants – Role of Exposure to Intrauterine Inflammation

Role: Principal Investigator

Dates: 08/2020 – 12/2022

Julie Mirpuri

Grantor: NIH-National Institute of DDK Diseases R01

Title of Project: Mechanisms of maternal high fat diet induced susceptibility to gut inflammation in offspring

Role: Principle Investigator

Dates: 4/2020 – 3/2025

Grantor: Children’s Health Foundation

Title of Project: Mechanisms of maternal high fat diet induced susceptibility to gut

Role: Principal Investigator

Dates: 12/2019 – 12/2022

Grantor: American Association for the Advancement of Science
Title of Project: Walls can Talk: Creation of the IF/THEN Female Leaders Advancing Medicine, Education and Science (FLAMES)
Role: Principal Investigator
Dates: 10/2020 – 12/2022

Eric Ortigoza

Grantor: Children’s Foundation
Title of Project: Gut Motility and the Microbiome in Preterm Infants
Role: Principal Investigator
Dates: 09/2018 – 11/30/2022

Rashmin Savani

Grantor: Mallinckrodt Pharmaceuticals
Title of Project: RHAMM-Based Peptides to Block NFκB and NLRP3 Inflammasome Activation
Role: Principal Investigator
Dates: 09/2020 – 08/2022

Myra Wyckoff

Grantor: RTI International
Title of Project: NICHD Neonatal Research Network Capitation Funding
Role: Principle Investigator
Dates: 04/2011 – 03/2022

Grantor: NIH – National Institute of Child Health & Human Development
Title of Project: NICHD Cooperative Multicenter Neonatal Research Network
Role: Principle Investigator
Dates: 04/2016 – 03/2022

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. Acharya K, Leuthner SR, Zaniletti I, Niehaus JZ, Bishop CE, Coghill CH, Datta A, Dereddy N, DiGeronimo R, Jackson L, Ling CY, Matoba N, Natarajan G, **Nayak SP**, Schlegel AB, Seale J, Shah A, Weiner J, Williams HO, Wojcik MH, Fry JT, Sullivan K, Palliative Care and Ethics Focus Group of the Children’s Hospital Neonatal Consortium (CHNC).. [Medical and surgical interventions and outcomes for infants with trisomy 18 \(T18\) or trisomy 13 \(T13\) at children's hospitals neonatal intensive care units \(NICUs\)](#). *J Perinatol*. 2021 Jul;41(7):1745-1754. PMID:34112961
2. Acun C, Baker A, Brown LS, Iglesia KA, **Sisman J**. [Peripherally inserted central catheter migration in neonates: Incidence, timing and risk factors](#). *J Neonatal Perinatal Med*. 2021;14(3):411-417. PMID:33459671

3. Adams-Chapman I, Watterberg KL, Nolen TL, Hirsch S, Cole CA, Cotten CM, Oh W, Poindexter BB, Zaterka-Baxter KM, Das A, Lacy CB, Scorsone AM, Duncan AF, DeMauro SB, Goldstein RF, Colaizy TT, Wilson-Costello DE, Purdy IB, Hintz SR, **Heyne RJ**, Myers GJ, Fuller J, Merhar S, Harmon HM, Peralta-Carcelen M, Kilbride HW, Maitre NL, Vohr BR, Natarajan G, Mintz-Hittner H, Quinn GE, Wallace DK, Olson RJ, Orge FH, Tsui I, Gaynon M, Hutchinson AK, He YG, Winter TW, Yang MB, Haider KM, Cogen MS, Hug D, Bremer DL, Donahue JP, Lucas WR, Phelps DL, Higgins RD, Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network.. [Neurodevelopmental outcome of preterm infants enrolled in myo-inositol randomized controlled trial.](#) *J Perinatol.* 2021 Aug;41(8):2072-2087. PMID:33758387
4. Agarwal P, Shankaran S, Laptook AR, Chowdhury D, Lakshminrusimha S, Bonifacio SL, Natarajan G, Chawla S, Keszler M, **Heyne RJ**, Ambalavanan N, Walsh MC, Das A, Van Meurs KP, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neonatal Research Network.. [Outcomes of infants with hypoxic ischemic encephalopathy and persistent pulmonary hypertension of the newborn: results from three NICHD studies.](#) *J Perinatol.* 2021 Mar;41(3):502-511. PMID:33402707
5. **Ali N**, Lam T, Gray MM, Clausen D, Riley M, Grover TR, Sawyer T. [Cardiopulmonary resuscitation in quaternary neonatal intensive care units: a multicenter study.](#) *Resuscitation.* 2021 Feb;159():77-84. PMID:33359416
6. **Angelis D, Savani R, Chalak L.** [Nitric oxide and the brain. Part 2: Effects following neonatal brain injury-friend or foe?](#) *Pediatr Res.* 2021 Mar;89(4):746-752. PMID:32563184
7. **Angelis D, Savani R, Chalak L.** [Nitric oxide and the brain. Part 1: Mechanisms of regulation, transport and effects on the developing brain.](#) *Pediatr Res.* 2021 Mar;89(4):738-745. PMID:32563183
8. **Angelis D, Savani RC, Jagarapu J, Hu J, Wan-Huen P, Chalak L.** [Part I. Mechanisms of actions and metabolism of acetaminophen related to the neonatal brain.](#) *Early Hum Dev.* 2021 Aug;159():105406. PMID:34147307
9. **Angelis D, Jagarapu J, Wan-Huen P, Savani RC, Jaleel M.** [Part II. Acetaminophen and closure of ductus arteriosus in the newborns: Mechanisms of action, clinical studies, safety and efficacy.](#) *Early Hum Dev.* 2021 Aug;159():105407. PMID:34147306
10. **Angelis D, León RL, Chalak L.** [Part III. Neuronal biochemical effects of acetaminophen and neurodevelopmental outcomes: Friend or foe?](#) *Early Hum Dev.* 2021 Aug;159():105408. PMID:34158208
11. Arvais-Anhalt S, McDonald S, Park JY, Kapinos K, **Lehmann CU**, Basit M. [Survey of Hospital Chargemaster Transparency.](#) *Appl Clin Inform.* 2021 Mar;12(2):391-398. PMID:33951742
12. Arvais-Anhalt S, **Lehmann CU**, Park JY, Araj E, Holcomb M, Jamieson AR, McDonald S, Medford RJ, Perl TM, Toomay SM, Hughes AE, McPheeters ML, Basit M. [What the Coronavirus Disease 2019 \(COVID-19\) Pandemic Has Reinforced: The Need for Accurate Data.](#) *Clin Infect Dis.* 2021 Mar 15;72(6):920-923. PMID:33146707
13. Aziz K, Lee CHC, Escobedo MB, Hoover AV, Kamath-Rayne BD, **Kapadia VS**, Magid DJ, Niermeyer S, Schmölzer GM, Szyld E, Weiner GM, **Wyckoff MH**, Yamada NK, Zaichkin J. [Part 5: Neonatal Resuscitation 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.](#) *Pediatrics.* 2021 Jan;147(Suppl 1):. PMID:33087555

14. Basit MA, **Lehmann CU**, Medford RJ. [Managing Pandemics with Health Informatics: Successes and Challenges.](#) *Yearb Med Inform.* 2021 Aug;30(1):17-25. PMID:33882594
15. Blakely ML, Tyson JE, Lally KP, Hintz SR, Eggleston B, Stevenson DK, Besner GE, Das A, Ohls RK, Truog WE, Nelin LD, Poindexter BB, Pedroza C, Walsh MC, Stoll BJ, Geller R, Kennedy KA, Dimmitt RA, Carlo WA, Cotten CM, Laptook AR, Van Meurs KP, Calkins KL, Sokol GM, Sanchez PJ, **Wyckoff MH**, Patel RM, Frantz ID 3rd, Shankaran S, D'Angio CT, Yoder BA, Bell EF, Watterberg KL, Martin CA, Harmon CM, Rice H, Kurkchubasche AG, Sylvester K, Dunn JCY, Markel TA, Diesen DL, Bhatia AM, Flake A, Chwals WJ, Brown R, Bass KD, St Peter SD, Shanti CM, Pegoli W Jr, Skarda D, Shilyansky J, Lemon DG, Mosquera RA, Peralta-Carcelen M, Goldstein RF, Vohr BR, Purdy IB, Hines AC, Maitre NL, **Heyne RJ**, DeMauro SB, McGowan EC, Yolton K, Kilbride HW, Natarajan G, Yost K, Winter S, Colaizy TT, Laughon MM, Lakshminrusimha S, Higgins RD, Eunice Kennedy Shriver National Institute of Child Health, Human Development Neonatal Research Network.. [Initial Laparotomy Versus Peritoneal Drainage in Extremely Low Birthweight Infants With Surgical Necrotizing Enterocolitis or Isolated Intestinal Perforation: A Multicenter Randomized Clinical Trial.](#) *Ann Surg.* 2021 Oct 1;274(4):e370-e380. PMID:34506326
16. **Brion LP**, Phelps DL, Ward RM, Nolen TL, Hallman NMK, Das A, Zaccaro DJ, Ball MB, Watterberg KL, Frantz ID 3rd, Cotten CM, Poindexter BB, Oh W, Lugo RA, Van Meurs KP, O'Shea TM, Zaterka-Baxter KM, Higgins RD, Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network.. [Blood myo-inositol concentrations in preterm and term infants.](#) *J Perinatol.* 2021 Feb;41(2):247-254. PMID:32934363
17. **Brion LP**, **Heyne R**, Lair CS. [Role of zinc in neonatal growth and brain growth: review and scoping review.](#) *Pediatr Res.* 2021 May;89(7):1627-1640. PMID:33010794
18. **Chalak LF**, Pappas A, Tan S, Das A, Sánchez PJ, Laptook AR, Van Meurs KP, Shankaran S, Bell EF, Davis AS, **Heyne RJ**, Pedroza C, Poindexter BB, Schibler K, Tyson JE, Ball MB, Bara R, Grisby C, Sokol GM, D'Angio CT, Hamrick SEG, Dysart KC, Cotten CM, Truog WE, Watterberg KL, Timan CJ, Garg M, Carlo WA, Higgins RD, Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network.. [Association Between Increased Seizures During Rewarming After Hypothermia for Neonatal Hypoxic Ischemic Encephalopathy and Abnormal Neurodevelopmental Outcomes at 2-Year Follow-up: A Nested Multisite Cohort Study.](#) *JAMA Neurol.* 2021 Dec 1;78(12):1484-1493. PMID:34882200
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20. Daniel S, Phillippi D, Schneider LJ, Nguyen KN, **Mirpuri J**, Lund AK. [Exposure to diesel exhaust particles results in altered lung microbial profiles, associated with increased reactive oxygen species/reactive nitrogen species and inflammation, in C57Bl/6 wildtype mice on a high-fat diet.](#) *Part Fibre Toxicol.* 2021 Jan 8;18(1):3. PMID:33419468
21. Daniel S, Pusadkar V, McDonald J, **Mirpuri J**, Azad RK, Goven A, Lund AK. [Traffic generated emissions alter the lung microbiota by promoting the expansion of Proteobacteria in C57Bl/6 mice placed on a high-fat diet.](#) *Ecotoxicol Environ Saf.* 2021 Apr 15;213():112035. PMID:33581487

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25. **Jagarapu J**, **Savani RC**. [A brief history of telemedicine and the evolution of teleneonatology](#). *Semin Perinatol*. 2021 Aug;45(5):151416. PMID:34006382
26. **Jagarapu J**, **Savani RC**. [Development and implementation of a teleneonatology program: Opportunities and challenges](#). *Semin Perinatol*. 2021 Aug;45(5):151428. PMID:34176650
27. **Kakkilaya V**, Tang A, Wagner S, Ridpath J, Ibrahim J, Brown LS, Rosenfeld CR. [Discontinuing Nasal Continuous Positive Airway Pressure in Infants \$\leq\$ 32 Weeks of Gestational Age: A Randomized Control Trial](#). *J Pediatr*. 2021 Mar;230():93-99.e3. PMID:33127365
28. **Kakkilaya VB**, **Weydig HM**, Smithhart WE, Renfro SD, Garcia KM, Brown CM, He H, Wagner SA, Metoyer GC, Brown LS, **Kapadia VS**, **Savani RC**, **Jaleel MA**. [Decreasing Continuous Positive Airway Pressure Failure in Preterm Infants](#). *Pediatrics*. 2021 Oct;148(4):. PMID:34552000
29. **Kapadia VS**, Urlesberger B, Soraisham A, Liley HG, Schmölder GM, Rabi Y, Wyllie J, **Wyckoff MH**, International Liaison Committee on Resuscitation Neonatal Life Support Task Force.. [Sustained Lung Inflations During Neonatal Resuscitation at Birth: A Meta-analysis](#). *Pediatrics*. 2021 Jan;147(1):. PMID:33361356
30. Khan S, Shafiei M, Longoria C, Schoggins JW, **Savani R**, Zaki H. [SARS-CoV-2 spike protein induces inflammation via TLR2-dependent activation of the NF- \$\kappa\$ B pathway](#). *Elife*. 2021 Dec 6;10():. PMID:34866574
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32. Kumbhat N, Eggleston B, Davis AS, Van Meurs KP, DeMauro SB, Foglia EE, Lakshminrusimha S, Walsh MC, Watterberg KL, **Wyckoff MH**, Das A, Handley SC, Generic Database Subcommittee of the NICHD Neonatal Research Network., undefined.. [Placental transfusion and short-term outcomes among extremely preterm infants](#). *Arch Dis Child Fetal Neonatal Ed*. 2021 Jan;106(1):62-68. PMID:32732380
33. **León RL**, Brown BP, Persohn SA, Norris CD, Steinhardt NP, Lin C, Territo PR. [Intravoxel incoherent motion MR imaging analysis for diagnosis of placenta accrete spectrum disorders: A pilot feasibility study](#). *Magn Reson Imaging*. 2021 Jul;80():26-32. PMID:33766730

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39. Pryor GE, Marble K, Velasco FT, **Lehmann CU**, Basit MA. [COVID-19 Mass Vaccination Resource Calculator.](#) *Appl Clin Inform.* 2021 Aug;12(4):774-777. PMID:34407560
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