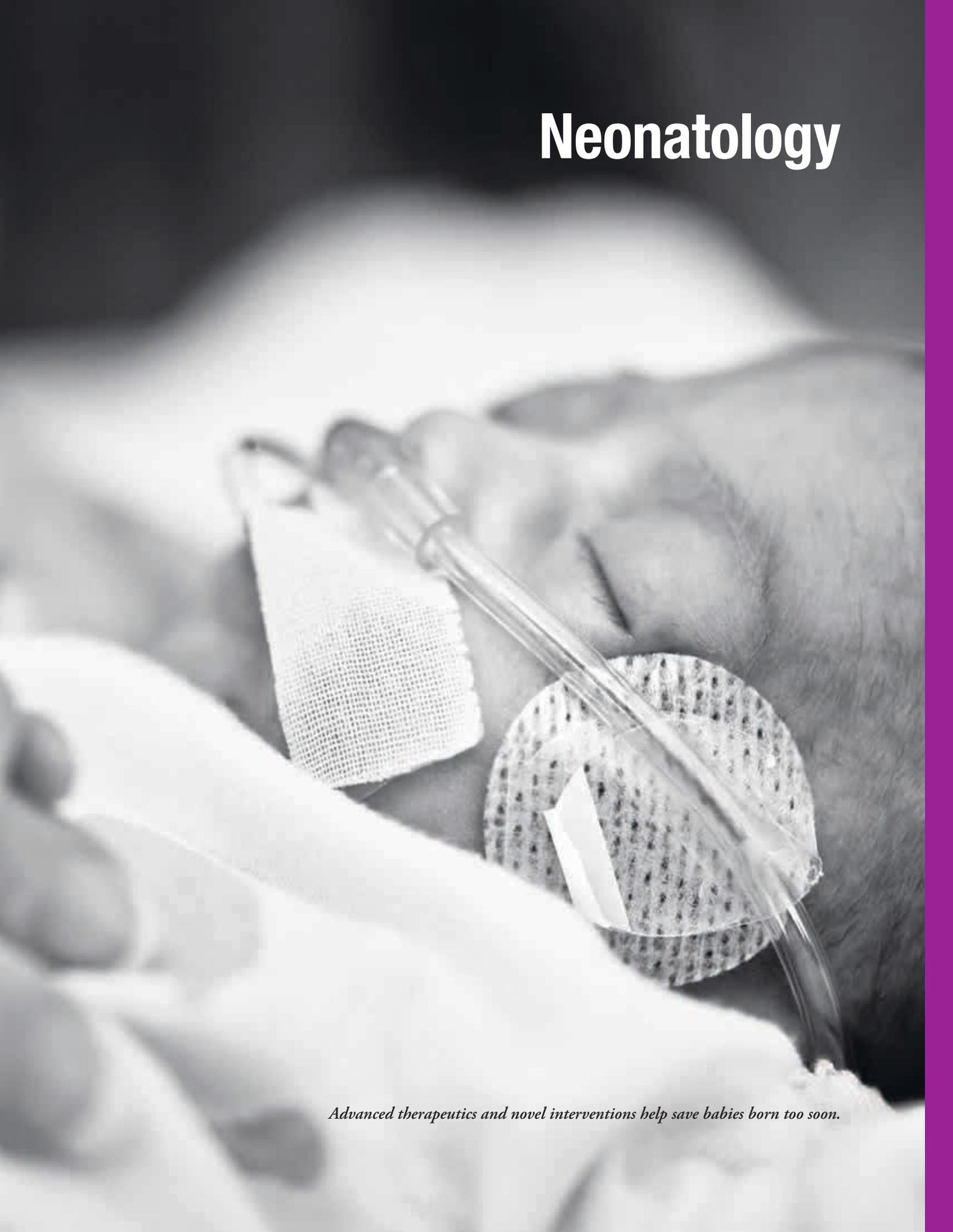


We have an obligation to never be satisfied, to continuously perfect the best ways to provide care to babies and their families. We're long past the days when a good outcome meant solely survival; now, we define best outcomes for these tiny infants as superior survival rates with exceptional quality of life as they grow through childhood and into adulthood.

– *Ed Shepherd, MD*
Section Chief, Neonatology



Neonatology



Advanced therapeutics and novel interventions help save babies born too soon.

NEONATOLOGY



Wide Variation in Diuretic Use Among Preterm Infants with Bronchopulmonary Dysplasia

Even though there is little data to support the extended use of diuretic medications to help reduce fluid build-up in the lungs of premature infants, researchers at Nationwide Children's Hospital have found significant variation in how babies receive these medications at hospitals across the nation.

"There are minimal data on the efficacy or side effects of the extended use of diuretics in preterm infants needing breathing support, yet long-term use is routine among the nation's neonatal intensive care units," says Jonathan Slaughter, MD, MPH, principal investigator in the Center for Perinatal Research and a neonatologist at Nationwide Children's Hospital.

Slaughter's study, published in the March 2013 issue of *Pediatrics*, evaluated data gathered during a 54-month period from 35 US children's hospitals involving 1429 infants with bronchopulmonary dysplasia, or BPD.

Overall, 86 percent of the infants in the study received a diuretic, with 84 percent of those infants receiving at least one course of the drug for five days or less, and 40 percent receiving courses of medication for longer than five consecutive days.

"We found that the length of time infants required mechanical ventilation was the greatest predictor of diuretic medication use," Dr. Slaughter explains. "On average, among infants that develop BPD, courses of diuretic use of five days or less predominate in the first month of life, with more than five days of diuretic use more common thereafter."

Investigators found that among hospitals with at least 15 BPD patients, the percentage of infants receiving a diuretic course of longer than five days ranged from 4 percent to 86 percent.

"Our baseline findings can serve as the foundation for a prospective comparative effectiveness study to determine whether long-term use of diuretics in BPD patients is truly beneficial," says Dr. Slaughter. "Additionally, the variations also indicate a real need for guidelines around the use of diuretics in this patient population."

Slaughter JL, Stenger MR, Reagan PB. Variation in the Use of Diuretic Therapy for Infants with Bronchopulmonary Dysplasia. *Pediatrics*. March, 2013;131(4):716-23.



Slaughter, MD
Neonatology



Department, Section, and Program Reports

NEONATOLOGY

Nationwide Children's Hospital is home to one of the largest networks of clinical neonatal care in the United States. The Section of Neonatology is an integral component of Nationwide Children's Hospital's neonatal program, which includes a full range of newborn care and innovative research programs.

STAFF PHYSICIANS AND FACULTY



Leif D. Nelin, MD
Division Chief
Professor of Pediatrics



Kristina M. Reber, MD
Associate Division Chief
Associate Professor of Clinical Pediatrics



Edward G. Shepherd, MD
Section Chief
Assistant Professor of Clinical Pediatrics

FULL-TIME NCH FACULTY

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Clinical Assistant Professor of Pediatrics
Carl H. Backes, MD
Assistant Professor of Pediatrics
Roopali V. Bapat, MD
Assistant Professor of Clinical Pediatrics
Thomas Bartman, MD, PhD
Associate Professor of Clinical Pediatrics
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Assistant Professor of Clinical Pediatrics
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Assistant Professor of Pediatrics
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Professor of Pediatrics, Emeritus Faculty
Julie R. Gooding, MD
Assistant Professor of Clinical Pediatrics
Amanda E. Graf, MD
Assistant Professor of Clinical Pediatrics
Ish Gulati, MD
Assistant Professor of Clinical Pediatrics

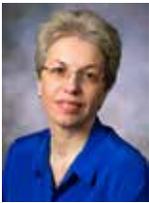
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Assistant Professor of Clinical Pediatrics
Sudarshan R. Jadcherla, MD
Professor of Pediatrics
John W. Logan, MD
Assistant Professor of Clinical Pediatrics
Susan K. Lynch, MD
Associate Professor of Clinical Pediatrics
Richard E. McClead, MD
Professor of Pediatrics
James A. Menke, MD
Associate Professor of Pediatrics
Mohannad Moallem, MD
Assistant Professor of Clinical Pediatrics
Craig A. Nankervis, MD
Associate Professor of Clinical Pediatrics
Nehal A. Parikh, DO, MS
Associate Professor of Pediatrics
Eneysis M. Pena, MD
Assistant Professor of Clinical Pediatrics
Ruth B. Seabrook, MD
Assistant Professor of Clinical Pediatrics
Jonathan L. Slaughter, MD
Assistant Professor of Pediatrics
Michael R. Stenger, MD
Assistant Professor of Clinical Pediatrics
Maria M. Talavera, DO
Assistant Professor of Pediatrics
Christopher J. Timan, MD
Clinical Associate Professor of Pediatrics
Trent E. Tipple, MD
Assistant Professor of Pediatrics
Jennifer K. Trittman, MD, MPH
Assistant Professor of Pediatrics
Nahla Saad Zaghoul, MD
Assistant Professor of Pediatrics

COMMUNITY-BASED FACULTY

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Sarah J. Corriveau, MD
Clinical Assistant Professor of Pediatrics
Christine M. Davis, MD
Clinical Associate Professor of Pediatrics

Margaret D. Davis, MD
Clinical Assistant Professor of Pediatrics
Joshua Goldberg, MD
Barry Halpern, MD
Nancy B. Hansen, MD
Angela L. Isbel, DO
Jeffrey Keyes, MD
Wendy Luce, MD
Randy R. Miller, MD
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Clinical Assistant Professor of Pediatrics
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Gary E. Snyder, MD
Clinical Assistant Professor of Pediatrics
Holly R. Strike, MD
Anthony R. Theile, DO
Patrick M. Wall, MD
Clinical Assistant Professor of Pediatrics

Yusen Liu, PhD
Professor of Pediatrics
Leif D. Nelin, MD
Professor of Pediatrics
Chief, Division of Neonatology
Reena B. Oza-Frank, PhD, RD
Assistant Professor of Pediatrics
Nehal A. Parikh, DO, MS
Associate Professor of Pediatrics
Lynette K. Rogers, PhD
Associate Professor of Pediatrics
Johnathan L. Slaughter, MD, MPH
Assistant Professor of Pediatrics
Maria M. Talavera, DO
Assistant Professor of Pediatrics
Trent E. Tipple, MD
Assistant Professor of Pediatrics
Jennifer K. Trittman, MD, MPH
Assistant Professor of Pediatrics
Nahla Saad Zaghoul, MD
Assistant Professor of Pediatrics



CENTER FOR PERINATAL RESEARCH

Irina A. Buhimschi, MD
Center Director
*Professor of Pediatrics and
Obstetrics/Gynecology*

Carl H. Backes, MD
Assistant Professor of Pediatrics
Gail E. Besner, MD
*Professor of Pediatrics and Surgery;
Chief, General Pediatric Surgery*
Robert Castile, MD
Professor of Pediatrics
Bernadette Chen, MD
Assistant Professor of Pediatrics
Antonette T. Dulay, MD
Assistant Professor of Obstetrics/Gynecology
Patricia T. Gabbe, MD
Professor of Pediatrics
Amanda E. Graf, MD
Assistant Professor of Pediatrics
Sudarshan R. Jadcherla, MD
Professor of Pediatrics
Mark A. Klebanoff, MD, MPH
Professor of Pediatrics

Our Center for Perinatal Research has a unique integrative approach to prematurity research that extends before and after birth. Principal investigators in the Center focus on research aimed at prevention of prematurity and prematurity complications that together achieve the best possible outcomes. Their laboratories use state of the art molecular, basic science and translational approaches to understand the causes, mechanisms and consequences of being born too soon. Several investigators study pregnancy conditions which cause preterm birth such as intra-uterine infection, shortened cervix, preterm premature rupture of the membranes, placental abruption (bleeding) and preeclampsia (a complication of pregnancy characterized by high blood pressure, proteins in urine and other symptoms and problems). Other laboratories focus on prevention and reduction of complications of prematurity especially infections, necrotizing enterocolitis (NEC), bronchopulmonary dysplasia (BPD) and pulmonary hypertension.

Center for Perinatal Research

Principal investigators in the Center for Perinatal Research use animal models of prematurity to develop biomarkers that identify gestations at risk. Other laboratories in the center focus on the prevention or reduction of complications of prematurity, especially infections, BPD, neonatal necrotizing enterocolitis (NEC), and pulmonary hypertension.

Carl Backes, MD, is working to develop sensitive and objective assessments of early alterations and progression of changes in the structure and function of the right ventricle among preterm infants. The primary goal is to take advantage of novel imaging techniques of the right ventricle to improve screening and recognition of cardiac dysfunction in the setting of a variety of pathologic states, including pulmonary hypertension.

Gail Besner, MD, is focused on novel therapeutic strategies to protect the intestines from various forms of injury, with particular emphasis on the disease process of necrotizing enterocolitis. Her work emphasizes the use of growth factor therapy and stem cell therapy as therapeutic interventions. Another major focus of the laboratory is the production of tissue-engineered intestine utilizing novel scaffolds impregnated with growth factors to produce structurally improved intestine.

Robert G. Castile, MD, MS, developed the method and patented the device for measuring standard adult-type pulmonary function tests in infants. With Dr. Frederick Long from radiology, he also developed a method for obtaining high-resolution images of the chest in infants. Initially, he exploited these methods to investigate lung function and structure and the effects of therapeutic interventions in infants with cystic fibrosis. Current investigations explore the factors impacting lung function and structure in infants with bronchopulmonary dysplasia, sickle cell, and interstitial lung disease.

Irina A. Buhimschi, M.D.'s laboratory focuses on understanding the determinants of preterm labor and preeclampsia syndromes, the two most important causes of premature birth and hence neonatal mortality and morbidity. One line of investigation is in developing proteomic algorithms for further sub-classification of preterm birth and preeclampsia syndromes. Such proteomic biomarkers can aid physicians in diagnosing patients earlier and in making personalized treatment and management decisions as opposed to the current "one size fits all" approach. Second, as such biomarkers are informative of the initiating cause and/or disease mechanism they may lead to novel therapeutic means to prevent preterm birth and preeclampsia from occurring in the first place. Dr. Irina Buhimschi's research program in the Center for Perinatal Research is closely integrated with the Maternal Fetal Medicine Laboratory at the Ohio State University Wexner Medical Center.

Bernadette Chen, MD, focuses on the cAMP-phosphodiesterase 3 pathway, its interaction with the L-arginine metabolic pathway and its relation to pulmonary hypertension, which may be seen in

term newborns or as a complication of prematurity. She utilizes both cell culture, specifically focusing on pulmonary artery smooth muscle cells, as well as murine models to elucidate the mechanisms involved in the pathogenesis of pulmonary hypertension, allowing for novel targets for potential therapies.

Antonette T. Dulay, MD, is a perinatologist with clinical research interests in amniocentesis, preterm birth, preterm premature rupture of membranes (PPROM), infectious disease in pregnancy, and immunologic disorders in pregnancy. At the Center for Perinatal Research, her research focus is on the innate immune response and intraamniotic infection. Specifically, she has interest in the role of infection and inflammation in inducing preterm birth/PPROM, intraamniotic infection and its role in complications of prematurity such as fetal/neonatal brain and intestinal injury, and the innate immune response with regard to myometrial contractility. Her work also investigates biomarkers related to intraamniotic infection.

Patricia Gabbe, MD, MPH, leads the Moms2B program, a community based group model to address the social determinants of maternal-child health through improving nutrition, social and clinical support for pregnant women living in high risk neighborhoods. Food security, dietary recall, prenatal hassles, depression, demographic and clinical information are integrated into a program that operates as a research, community service and teaching opportunity for health professional students. A CATCH planning grant supports a research project focused on breastfeeding intention and outcomes, infant food security and developmental assessment of the children of Moms2B.

Amanda E. Graf, MD's laboratory investigates mechanisms of perinatal brain injury with a long-term goal of decreasing the incidence and severity of neurodevelopmental impairment in very preterm infants. As many as 40% of babies born weighing less than 1500 grams will experience some degree of impairment despite decreases in severe intraventricular hemorrhage (IVH) and periventricular leukomalacia (PVL). Current preclinical studies are aimed at understanding the impact of maternal inflammation and neonatal oxidant stress on the developing brain, particularly with respect to the role of the nuclear receptor Nurr1. Future studies will examine the effects of inflammation due in the context of maternal obesity and metabolic syndrome on neurodevelopment of the offspring. Improved understanding of mechanisms of injury is necessary for the discovery of predictive biomarkers for early identification and subsequent

development of novel therapeutic strategies for those infants at greatest risk of neurodevelopmental impairment.

Sudarshan Jadcherla, MD, is investigating the neurosensory-motor mechanisms of normal and abnormal swallowing in health and disease. He has discovered several participating and complementary neural reflexes that facilitate safe swallowing and protect the airway from aspiration and choking in the vulnerable infant. Abnormal sensory-motor aspects of these reflexes are associated in conditions of dysphagia, GERD, and perpetuating chronic lung disease of infancy. Feeding problems, swallowing dysfunctions, and airway safety disorders are the most common problems in the convalescing NICU neonate, regardless of gestational maturation at birth. The Jadcherla Lab is utilizing these neuromotor markers to develop targeted feeding and swallowing therapies in high-risk NICU infants. His group is already translating these findings to high-risk infants with the development of personalized feeding strategies that ameliorate disease and also lower comorbidities. One of his goals is to prevent chronic tube-feeding strategies and develop safer oral-feeding strategies. His research is supported in part by the National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

Mark Klebanoff, MD, MPH, is a pediatrician and epidemiologist who studies the etiology of preterm birth and other pregnancy complications. His particular focus is on the etiology of the maternal genital tract microbiome, and on its association with pregnancy outcome. His work also focuses on racial disparities in preterm birth, and on the impact of public policies regarding tobacco on preterm birth. He also studies the impact of clinical management strategies on the short-term outcomes of infants with neonatal abstinence syndrome (neonatal narcotic withdrawal). Finally, he directs the Ohio Perinatal Research Repository, which collects data and biospecimens from pregnant women and from preterm infants in order to address questions of the etiology and consequences of preterm birth.

Yusen Liu, PhD, is working on signaling transduction pathways controlling inflammation, cytokine production, host antimicrobial activities, and generalized responses to stress with the ultimate goal of mapping the molecular connections between infection, inflammation, and stress responses. Since the signaling pathways regulating these processes have been implicated in preterm birth and many complications of prematurity, an integrated approach to study these signal transduction pathways is pivotal for the understanding of the pathophysiology of preterm delivery and many prematurity-associated illnesses.

Dr. Liu's group utilizes tissue culture and knockout mice models to study the host physiological responses following microbial infection, and to determine the roles of critical regulators such as a MAP kinase phosphatase-1 (MKP-1) and glutathione reductase in inflammation and oxidative stress in host defense. This approach may lead to the development of effective measures to avert excessive inflammation, while harnessing endogenous defense mechanisms to prevent preterm birth as well as complications of prematurity, including neonatal sepsis and septic shock.

Leif Nelin, MD's laboratory studies endothelial cell biology with particular attention to the effects of hyperoxia, hypoxia and inflammatory stimuli. A common pathogenic pathway in most pulmonary hypertensive disorders is decreased nitric oxide production and increased endothelial cell proliferation leading to vasoconstriction and vascular remodeling. A central focus is on genes and proteins that influence the handling of arginine (the precursor for nitric oxide) by the endothelial cell as well as pathways modulation their expression and/or activation. Recent work has demonstrated a role for the receptor tyrosine kinase, epidermal growth factor receptor, and for mitogen-activated protein kinase phosphate-1 in the regulation of many of these gene products in endothelial cells. The ultimate goal is to discover therapeutic targets that would increase endogenous nitric oxide production to prevent or treat pulmonary hypertensive disorders or that prevent apoptosis as means of treating or preventing bronchopulmonary dysplasia (BPD).

Reena Oza-Frank, PhD, RD, is working toward identifying early-life exposures related to maternal diabetes, during (and possibly prior to) pregnancy and infancy, that contribute to future risk of diabetes and obesity in both the mother and the offspring. She uses epidemiological and clinically-focused approaches to identify postnatal growth and nutrition factors, specifically related to the maternal environment during pregnancy and the offspring's future risk of diabetes and obesity over the life-course. The overall goal of her research is to develop nutrition and lifestyle interventions, leading to clinical practice recommendations, to improve health and quality of life and reduce future chronic disease risk among maternal and child health populations.

Nehal Parikh, DO, MS, is working to reduce the most common neurological complication of prematurity by investigating the etiology, pathogenesis, and prognosis of cognitive impairments. His team utilizes advanced technologies so that MRI scanning can be done much earlier in preterm infants' lives than currently possible.

They are also developing automated brain image processing algorithms to develop objective atlases and methods to distinguish normal from abnormal brain development/injury. These steps will facilitate development of accurate prognostic imaging biomarkers and randomized trials of preventive and therapeutic interventions in these highly vulnerable infants.

Lynette Rogers, PhD, is focused on understanding the role of maternal inflammation on development of morbidities in preterm infants. In her laboratory, mouse models have been developed to better understand the mechanisms involved in fetal and neonatal responses to inflammation, and to test therapies to lessen morbidities, with specific focus on deficits in lung development and injury associated with bronchopulmonary dysplasia. The lab is also investigating the antiinflammatory properties of long-chain fatty acids, specifically docosahexaenoic acid or DHA, and its efficacy in treating preterm infants. The ultimate goal is to develop therapies to lessen the complications of prematurity and improve the outcomes in prematurely born infants.

Jonathan Slaughter, MD, MPH, is working to improve neonatal care through rigorous comparative effectiveness research to evaluate the risks and benefits of medications that, despite limited evidence, are commonly used in the treatment of prematurity-related disorders. Such medications include diuretics, acid suppressants, antiepileptics, inhaled steroids, bronchodilators, and nonsteroidal antiinflammatory drugs (NSAIDs). It is currently estimated that up to 90% of neonatal medication use is unapproved or off-label, and clinicians caring for infants must depend upon potentially dangerous extrapolations of adult trial findings. His patient-centered research aims to improve the outcomes of preterm infants by informing clinical practice decisions regarding medication administration.

Maria M. Talavera, DO, has primarily focused her research on investigating the inflammatory response associated with NEC as an approach to develop predictive genetic biomarkers for this devastating disease of prematurity. Susceptibility to NEC and its variable severity may be due to abnormalities in the balance of proinflammatory and antiinflammatory mechanisms. Current research efforts are aimed at targeting suppressor inflammatory pathways as a mechanism to identify genetic susceptibilities.

Dr. Trent Tipple, MD's long-term research goal is to develop clinically useful therapies that prevent the development of bronchopulmonary dysplasia in prematurely born infants. Dr. Tipple's areas of research expertise include redox biology, oxidant lung injury,

and neonatal lung development. Robust local, national, and international collaborations have facilitated the use of state-of-the-art redox biochemistry techniques and transgenic animal models to delineate the role(s) of thioredoxin family proteins in neonatal lung disease. His current research is focused on determining the safety and efficacy of thioredoxin reductase inhibition as a novel therapeutic approach to attenuate neonatal lung injury.

Jennifer Trittman, MD, MPH, is a neonatologist with an interest in pulmonary hypertension (PH) among infants with BPD. PH occurs in approximately 30% of BPD patients and is associated with a dramatic increase in morbidity and mortality. There are currently no tests for accurately predicting which BPD patients will develop this life-threatening complication. Nitric oxide (NO) metabolism has been found to be altered in patients with severe BPD. Nitric oxide, an endogenous pulmonary vasodilator, is produced by NO synthase from L-arginine in endothelial cells. In patients with PH from causes other than BPD, circulating levels of L-arginine are decreased, due to decreased endogenous L-arginine production resulting in decreased NO production in the lung. Therefore, the overall hypothesis of this research is that there are single nucleotide polymorphisms (SNPs) and/or metabolites involving the L-arginine/NO pathway that predict the development of PH in BPD, such that effective therapies can be initiated prior to the onset of PH.

Nahla Zaghoul, MD, is working on the development of new prophylactic and therapeutic approaches for periventricular leukomalacia (PVL), which can significantly reduce brain injury after hypoxic-ischemic insults to the premature brain. Her study approach includes reducing inflammation and free radicals in the premature brain that will lead to the improvement in long-term motor and cognitive functions of the growing neonate. Key state-of-the-art clinical services include high frequency ventilation, extracorporeal membrane oxygenation (ECMO), nitric oxide therapy on protocol, body cooling for infants with hypoxic-ischemic encephalopathy, comprehensive outpatient developmental follow-up, pediatric and cardiovascular surgery, and management of infants with complex birth defects and metabolic disorders.

Innovative Programs

The section has developed a variety of innovative and unique programs, including the Comprehensive Center for Bronchopulmonary Dysplasia (CCBPD), a Small Baby Program, an Infant Feeding Disorders Program, and the Ohio Better Birth Outcomes initiative.

Comprehensive Center for Bronchopulmonary Dysplasia (CCBPD)

The Comprehensive Center for Bronchopulmonary Dysplasia (CCBPD) strives to foster relationships between the health care team and families of infants with BPD. This collaboration is intended to address the infant's and family's needs to improve long-term outcomes and to minimize emergency room visits and hospital readmissions. Involvement with the CCBPD begins while the infants are still hospitalized, continues during the transition to home, and through 2 to 3 years of life. The interdisciplinary BPD team consists of a core group of neonatologists, pulmonologists, nurse practitioners, nurses, nutritionists, occupational therapists, physical therapists, social workers, case managers, pharmacists, speech therapists, respiratory therapists, parent support staff, and pediatricians. The composition of the team is designed to address the individualized, and often highly complex, needs of the infant and family. The mission of the BPD team is two-fold. First, to serve each infant and family by using the latest evidence-based practice and research to continuously improve care. Second, to foster a physical and therapeutic environment that empowers the family to actively participate in the care of their child. The success of this program is evidenced by the dramatic decrease in postdischarge readmissions and excellent neurodevelopmental outcomes (Shepherd, et al. *Journal of Perinatology*. 2011;May 5 [Epub ahead of print.]).

Infant Feeding Disorders Program (IFDP)

Sudarshan R. Jadcherla, MD, leads the Infant Feeding Disorders Program, which consists of both a clinical component and an NIH-funded research component. The Infant Feeding Disorders Program is dedicated to improving the quality of life for all infants through the development of personalized feeding management strategies based on clinical and translational research. Our advanced care optimizes the outcomes for infants with feeding disorders, allowing them to go home sooner, while simultaneously lowering readmission rates. Our physician-scientists are using innovative approaches to find and treat the cause of feeding difficulty in developing infants. In fact, we have the only program in the United States studying esophageal sensation in premature infants during sleep. This year the Infant Feeding Disorders Program will start the only advanced fellowship program for neonatologists or gastroenterologists in infant feeding disorders available in the country.

Small Baby Program

Extreme prematurity is one of the leading causes of infant mortality. The Small Baby Program at Nationwide Children's Hospital is changing that for babies born at less

than 27-weeks gestation. At the heart of the Small Baby Program is a standardized protocol for care, developed by the neonatology team at Nationwide Children's and tested at the bedside, providing a uniform, interdisciplinary approach to the family-centered care of extremely premature babies. The guidelines outline care regarding development, nutrition, cardiovascular functioning, infection, and other potential health concerns throughout these infants' hospitalization.

Ohio Better Birth Outcomes (OBBO)

The Section of Neonatology is dedicated to the concept that to improve infant mortality, a concerted clinical and research effort must be undertaken to prevent prematurity, to prevent the complications of prematurity, and to excel at treating any complications that do occur. To achieve these goals, the section has worked in partnership with Franklin County, The Research Institute at Nationwide Children's, and the Division of Maternal-Fetal Medicine at The Ohio State University to develop a clinical program called Ohio Better Birth Outcomes (OBBO), which targets women at high risk for preterm delivery and provides them evidence-based services designed to reduce the incidence of prematurity. OBBO has already resulted in a measurable decrease in prematurity rates in our service area. This unique undertaking combines a partnership with all of the health care systems in Franklin County.

RESEARCH FUNDING (OVER \$50,000) AWARDED

July 2012 – June 2013

Besner, Gail

HB-EGF and Intestinal Ischemia/Reperfusion
National Institutes of Health (NIH)
National Institute of General Medical Sciences (NIGMS)
\$300,424

Chen, Bernadette

Regulation of Arginase in Models of Pulmonary Hypertension
National Institutes of Health (NIH)
National Heart, Lung, and Blood Institute (NHLBI)
\$126,630

Gabbe, Patricia

MEDTAPP Healthcare Access Initiative-MOMS2B
The Ohio State University Office of Sponsored Programs
Centers for Medicare & Medicaid Services
\$71,447

MOMS2B-Governor's Office (TANF)

Governor's Office of Faith-Based and Community Initiatives
Ohio Department of Job and Family Services (ODJFS)
\$50,000

Jadcherla, Sudarshan

Pathophysiology of Aerodigestive Reflexes in Infants
National Institutes of Health (NIH)
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)
\$423,823

Nelin, Leif

NICHD Neonatal Research Network
RTI International
National Institutes of Health (NIH)
\$275,105

NICHD Cooperative Multicenter Neonatal Research Network – Ohio State
National Institutes of Health (NIH)
National Institute of Child Health & Human Development (NICHD)
\$261,549

Oza-Frank, Reena

Translation of Preconception Care Guidelines Into Practice and Behavior Change During Pregnancy
Department of Health and Human Services
HRSA
\$68,092

Rogers, Lynette

DHA Attenuates Inflammatory Responses Through Altering RAGE Signaling
National Institutes of Health (NIH)
National Center for Complementary and Alternative Medicine (NCCAM)
\$345,708

Slaughter, Jonathan

The Comparative Effectiveness of Laparotomy Versus Drain Placement in ELBW Infants With NEC
The Ohio State University Office of Sponsored Programs
National Institutes of Health (NIH)
\$82,620

PUBLICATIONS

Ambalavanan N, Carlo WA, Tyson JE, Langer J, Walsh M, Parikh NA, Van Meurs KP, Shankaran S, Stoll BJ, Das A, Higgins RD, for the Generic Database and Follow-up Subcommittees of the NICHD Neonatal Research Network. "Outcome trajectories in the neonatal intensive care unit for extremely low birth weight infants." *Pediatrics*. 2012;130(1):e115-e125.

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Jadcherla SR, Parks VN, Peng J, Dzodzomenyo S, Fernandez SA, Shaker R, Splaingard M. "Esophageal sensation in premature human neonates: Temporal relationships and implications of aerodigestive reflexes and electro-cortical arousals." *American Journal of Physiology – Gastrointestinal and Liver Physiology*. 2012;302:G134-G144.

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FAST FACTS

July 2012 – June 2013

Main Campus

Total Discharges: 875

Inpatient Discharges: 870

Observation and Outpatient-in-a-Bed Discharges: 5

Total Patient Days*: 32,296

Average Length of Stay*: 37.1

Average Daily Census*: 88.5

Total Neonatology Clinic Visits: 4,697

BPD-Pulmonary Clinic Visits: 85

Dublin BPD Clinic Visits: 230

Fetal Medicine Collaborative Clinic Visits: 46

Neonatal Abstinence Syndrome Clinic Visits: 586

Neonatology Clinic Visits: 2,624

Neonatology BPD Clinic Visits: 919

Neonatology Mobile Unit Clinic Visits: 2

Neuro-Neo Clinic Clinic Visits: 205

SCN at Riverside Methodist Hospital

Total Discharges: 530

Inpatient Discharges: 528

Observation and Outpatient-in-a-Bed Discharges: 2

Total Patient Days*: 10,002

Average Length of Stay*: 18.9

Average Daily Census*: 27.4

SCN at Grant Medical Center

Total Discharges: 292

Inpatient Discharges: 292

Observation and Outpatient-in-a-Bed Discharges: 0

Total Patient Days*: 4,880

Average Length of Stay*: 16.7

Average Daily Census*: 13.4

SCN at Doctor's Hospital West

Total Discharges: 142

Inpatient Discharges: 142

Observation and Outpatient-in-a-Bed Discharges: 0

Total Patient Days*: 1,682

Average Length of Stay*: 11.8

Average Daily Census*: 4.6

SCN at Dublin Methodist Hospital

Total Discharges: 119

Inpatient Discharges: 119

Observation and Outpatient-in-a-Bed Discharges: 0

Total Patient Days*: 1,113

Average Length of Stay*: 9.4

Average Daily Census*: 3.0

SCN at St. Ann's Hospital

Total Discharges: 331

Inpatient Discharges: 330

Observation and Outpatient-in-a-Bed Discharges: 1

Total Patient Days*: 5,524

Average Length of Stay*: 16.7

Average Daily Census*: 17.4

**Excludes Observation and Outpatient-in-a-Bed Cases.*