



DR. ANNETTE PEREZ-DELBOY (RIGHT), CO-DIRECTOR OF THE MOTHERS CENTER, CARES FOR WOMEN WHOSE HEALTH RISKS ESCALATE DURING PREGNANCY.



DR. CYNTHIA GYAMFI-BANNERMAN LED A 14-CENTER STUDY OF STEROID USE IN PRETERM PREGNANCIES.

NYP/CUMC's Mothers Center

Caring for Women through the Most Stressful of Joyful Times

At the beginning of the 20th century it was not uncommon for women to die during childbirth or from pregnancy-related complications. But by the end of the century, because of public health measures and medical advances, the maternal death rate had plunged by 99 percent (from 7.2 to 0.1 per 1,000 live births). That number is on the rise again, though—over the past 30 years the number of maternal deaths in the US has doubled. Maternal-fetal medicine (MFM) specialist Annette Perez-Delboy, MD attributes part of this increase to the growth in the number of women getting pregnant who are older and have more chronic medical conditions—congenital heart disease, obesity, chronic hypertension, diabetes, autoimmune conditions, for example.

NYP/CUMC's recently created Mothers Center, the only center of its kind in the country, is geared to care for women with conditions that put them at risk during pregnancy. "For the past several years maternal-fetal medicine has been focused mostly on the fetus, and we felt strongly that the mother's care had become secondary to the care of the unborn fetus. We're now working to bring the 'maternal' back to MFM," says Dr. Perez-Delboy, who co-directs the Center with MFM specialist Kirsten Lawrence Cleary, MD, MSc.

Since its inception in 2013 Drs. Lawrence Cleary and Perez-Delboy have focused the Center's efforts on caring for women whose health issues were most complicated—"mothers who had the kinds of issues that a lot of other doctors felt unprepared to care for," says Dr. Perez-Delboy. Currently women with congenital heart disease account for about a third

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Breathing Easier at Birth

CUMC-Led Study Improves Standard of Care for Late Preterm Babies

When she was a medical student more than 20 years ago Cynthia Gyamfi-Bannerman, MD, MSc began wondering about the logic behind the guidelines for a mainstay of prenatal care: the administration of steroids to women likely to have a preterm delivery. Steroids rapidly prepare the fetus's lungs for delivery, but are given only to women whose pregnancies are less than 34 weeks. "It didn't make sense to me that a woman who could come in at 33 weeks and 6 days would get steroids, while a woman at 34 weeks and a day would come in 2 hours later and not get steroids," Dr. Gyamfi-Bannerman says.

So when the National Institute of Child Health and Human Development (NICHD) held a consensus workshop in 2005 to focus research on late preterm infants—who were increasingly recognized as needing extra care—she jumped at the chance to lead a study to explore this question. "A lot of research had come out showing that late preterm babies don't do quite as well, particularly with breathing, as those born closer to term," she recalls, "so as a group we decided that it would be a good idea to study steroid use in that population."

Over the next several years Dr. Gyamfi-Bannerman, who is co-director of the CUMC Preterm Birth Prevention Center and Medical Director of Perinatal Clinics, designed a study with collaborators at 14 other medical centers. The research group enrolled more than 2,800 women who arrived at the hospital with active preterm labor, had broken their water in the late preterm period, or had severe preeclampsia or another reason for early delivery. These women were randomly assigned to receive either

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Message from the Editors

As providers of advanced tertiary care in the biggest city and busiest region in the US, CUMC faculty treat a large—and increasing—number of patients with complicated, challenging conditions. In this issue of *Connections* we feature two new programs that build on our expertise in caring for women and children with these types of complex medical problems. Through both programs—the Mothers Center in OBGYN for women with complicated pregnancies (page 1), and the Complex Care Program in Pediatrics for children with multiple health problems (page 8)—women, children, and their families benefit both from our ability to coordinate their care, and from the depth and breadth of our subspecialty colleagues here at CUMC and NYP. We also profile two Pediatrics faculty members who have taken two very different roads to improving the health of children and families throughout the US. Newly appointed Professor Dr. Richard Besser, ABC news medical correspondent, uses his media platform to convey clear, direct messages about measures like prevention, timely vaccinations, and diet to improve health (page 9), while longtime faculty Dr. Irwin Redlener, president of the Children’s Health Fund, continues his efforts to make better healthcare more widely available to the one in five children growing up in poverty in the US (page 7). We also highlight the accomplishments of OBGYN faculty member Cynthia Gyamfi-Bannerman, whose curiosity and doggedness led to a key study that has changed the standard of care of pregnant women who deliver their babies early, and possibly the longterm health of their children (page 1). And our Department Chairs Dr. Lawrence Stanberry and Dr. Mary D’Alton bring their expertise to bear on the Zika virus and its possible implications for women, children, and families in the US and elsewhere (page 3). Look for the next issue of *Connections* in late fall, as we move to a new three-times-per-year publication schedule.

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Zika: What do we and don't we know?

Mary D'Alton, MD, Chair of Obstetrics and Gynecology, and Lawrence Stanberry, MD, PhD, Chair of Pediatrics and an expert on vaccine development, spoke recently about the Zika virus and the challenges it poses.

What is Zika, and how dangerous is it?

Dr. Stanberry: Zika is one of a group of viruses called flaviviruses, which includes dengue, yellow fever, and many other viruses. It was first isolated in Uganda in a chimpanzee, and then showed up in a human in the 1950s in Nigeria. It has spread globally exclusively where the mosquito habitat is suitable. We've known about Zika for 30 years, and we've not seen it cause microcephaly before, so it's absolutely intriguing whether it has changed in some way or there is some other cofactor. But we do know that its spread is a result of the changing climate and environment, and of international travel.

With most flaviviruses, once you've been infected you don't get reinfected with the same virus. We don't know if this is the case with Zika. If every child gets infected, has a mild illness, and cannot be reinfected, then Zika would be a problem only for pregnant women who have not already been exposed, and for others with occasional cases of Guillain-Barre.

Recent reports indicate that the virus can be sexually transmitted. The virus RNA is detectable in semen; it could be transient but currently—its duration there is unclear. But this does bring a whole new dimension to the disease.

I don't think Zika is going away, and we're not going to get drugs or vaccines quickly enough to have an impact, so the two things we need most urgently are good diagnostics and a major focus on mosquito abatement.

What is microcephaly? How is it related to Zika?

Dr. Stanberry: Microcephaly is a rare condition in which a baby has a small head circumference. It is usually associated with poor brain development *in utero*—babies have a small head because their brains are not developing normally. We see microcephaly with a number of infectious diseases. The most common infectious cause worldwide is cytomegalovirus,

which dwarfs the incidence of microcephaly related to Zika.

The outcome for these babies is generally not good; they usually are developmentally delayed. Many of them have mental retardation, and can have problems with hearing and vision, and they often become a real challenge for their families. The vast majority are going to have special needs.

Dr. D'Alton: Microcephaly is quite rare in the general population—there are 6 cases per 10,000—but we have experience diagnosing it because we have a superb prenatal ultrasound facility, and we're frequently sent pregnant women who've had a history of microcephaly in a previous pregnancy. We confirm a diagnosis of microcephaly when the head size is three standard deviations lower than the expected head circumference for that gestational age. It's very difficult to confirm a diagnosis before the third trimester because babies' brains usually grow more in the third trimester, so the prenatal diagnosis of microcephaly is rare before 26 weeks.

Dr. Stanberry: There's a lot of evidence suggesting that the damage in the brain is linked to Zika, but not everybody is convinced. Among the many other flaviviruses including dengue and West Nile, we've just not seen this kind of problem. But all of these viruses are capable of causing infection in nervous tissue, so the assumption is that it's doing something in the brain itself—that the virus's replication is causing the problem.

From a public health standpoint how has this outbreak been handled?

Dr. D'Alton: Local, federal, and international agencies have all handled the Zika outbreak very, very well. After it came to attention first in November in Brazil, the World Health Organization (WHO) declared a state of emergency and that needed investigation, then the CDC issued travel alerts in December and January, and within two months, our professional societies acknowledged that providers and patients all over would be very nervous about this, and did everything possible to give as sound a recommendation as they could within a very short period of time. Also, our two departments enjoy a very good relationship with the New York City Department of Health, and they have been extremely helpful in giving us directions about how to get blood from mothers, getting results back in as timely a fashion as possible, and in decreasing their anxiety.



Dr. Stanberry: Every year public health programs in New York trap and test mosquitoes in the region looking for evidence of West Nile. Given their success in containing West Nile and other mosquito flaviviruses, I'm sure they'll be adding Zika to the screening. If it pops up, there are sure to be alerts about it, but they'll also do what they do with West Nile—work on mosquito abatement. As Dr. D'Alton said, the response by government agencies has been absolutely exemplary, far better than it was for the Ebola outbreak.

Will a vaccine or anti-viral drug be effective against Zika?

Dr. Stanberry: I'm not optimistic that an anti-viral drug will be useful for this, because by the time a pregnant woman is symptomatic and seeks treatment, the virus will likely already have reached the placenta, assuming that that's actually the cause of the microcephaly.

It's not clear whether this will be a vaccine preventable illness; it takes a long time to make a vaccine, so that's not going to happen quickly. People have been working on a vaccine for dengue, a related virus, for a very long time, but it's been problematic because there are four different types of dengue, and that's the kind of thing we don't know about this virus. The first time you get dengue it can be bad; the second time you get it—by a different related virus—it can be worse. So the companies that are working on a Zika virus need to make sure that the vaccine they're trying to develop doesn't actually make infection worse if you happen to acquire it. Then once they have a potential vaccine they have to do safety testing, then design a clinical trial. It turns out to be really a challenge to do these things in a rush, especially when a disease is epidemic.

Advances in Research



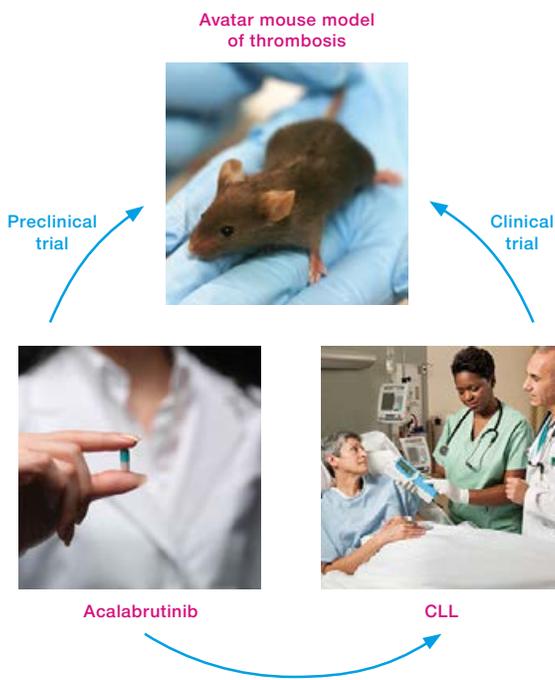
PEDIATRIC ONCOLOGISTS FACE A UNIQUE SET OF CHALLENGES IN THEIR QUEST TO ADOPT PRECISION MEDICINE.

Precision Medicine in Pediatric Cancer

Molecularly targeted therapies have improved the outcomes and reduced treatment-related toxic effects for adults with many types of cancer. But oncologists who treat children face a different set of challenges in their quest to adopt precision medicine. Genetic mutations are infrequent in children's cancers, so there are fewer targets for molecular therapies. Pediatric cancer is also comparatively rare and most patients are cured with standard therapies, so researchers must put together multicenter studies to enroll enough subjects for a study. And finally, regulations governing research in children make it difficult to obtain biopsy samples for research purposes. To evaluate the feasibility of a precision cancer medicine approach in children with advanced

solid tumors, a collaborative group that included pediatric oncologist Julia Glade Bender, MD, Medical Director for the Precision in Pediatric Cancer at CUMC, conducted a multicenter molecular profiling study. They sought to determine whether it is feasible to identify actionable alterations and make an individualized cancer therapy (iCat) recommendation in children using currently available clinical genomic technologies. In the study of 100 patients at four medical centers, the group found potentially actionable alterations in 43% of children with high-risk, relapsed, or refractory pediatric solid tumors; 31 of these patients received an iCat recommendation—but only 3 of them received matched targeted therapy. Oncologists surveyed about the barriers to prescribing therapy matched to the iCat recommendation cited lack of an available clinical trial or inability to enroll a patient in a clinical trial. Many oncologists treating children in the study who received an iCat recommendation cited the patient's clinical status (either disease too advanced or well controlled) as a reason for not administering matched targeted therapy.

Harris MH, DuBois SG, **Glade Bender JL**, Kim A, Crompton BD, Parker E, Dumont IP, Hong AL, Guo D, Church A, Stegmaier K, Roberts CW, Shusterman S, London WB, MacConaill LE, Lindeman NI, Diller L, Rodriguez-Galindo C, Janeway KA. Multicenter Feasibility Study of Tumor Molecular Profiling to Inform Therapeutic Decisions in Advanced Pediatric Solid Tumors: The Individualized Cancer Therapy (iCat) Study. *JAMA Oncol*. 2016 Jan 28.



MICE AVATARS ARE AMONG THE LATEST DEVELOPMENTS IN PERSONALIZED MEDICINE.

New Technology Enlarges the Potential of Personalized Medicine

The targeted cancer drug ibrutinib has recently transformed the treatment of chronic lymphocytic leukemia (CLL), adding years to the lives of patients with hard-to-treat disease who were told they had just months to live. But there are risks with its use; it alters the activity of blood cells known as platelets whose function is to prevent bleeding. In what could be the ultimate partnership in drug discovery and clinical testing, Thomas Diacovo, MD, a neonatologist and pathologist, and his colleagues at Acerta Pharma teamed up to test a new cancer drug acalabrutinib that was designed to have less effects on platelets but still retain the anti-leukemic properties of ibrutinib. This was accomplished by evaluating the function of platelets isolated from drug treated CLL patients in a novel, genetically modified animal model that serves as an avatar mouse (a technology developed by Dr. Diacovo). Using mice avatars is one of the latest developments in personal-

ized medicine. By literally pairing CLL patients with his mice, Dr. Diacovo was able to demonstrate that platelets from individuals taking acalabrutinib retained their normal clotting ability, while platelets from patients on ibrutinib did not. "Acalabrutinib appears to achieve the anti-cancer benefits of ibrutinib without significant drawbacks such as an increased risk of bleeding," says Dr. Diacovo. Based on the study's clinical and laboratory results, a phase III trial comparing the two drugs head-to-head is now underway. Dr. Diacovo is also using these mice as avatars for neonates with congenital heart disease in order to develop new therapies aimed at preventing or reducing life-threatening blood clots.

Byrd JC, Harrington B, O'Brien S, Jones JA, Schuh A, Devereux S, Chaves J, Wierda WG, Awan FT, Brown JR, Hillmen P, Stephens DM, Ghia P, Barrientos JC, Pagel JM, Woyach J, Johnson D, Huang J, Wang X, Kaptein A, Lannutti BJ, Covey T, Fardis M, McGreivy J, Hamdy A, Rothbaum W, Izumi R, **Diacovo TG**, Johnson AJ, Furman RR. Acalabrutinib (ACP-196) in Relapsed Chronic Lymphocytic Leukemia. *N Engl J Med*. 2016 Jan 28;374(4):323-32. doi: 10.1056/NEJMoa1509981.

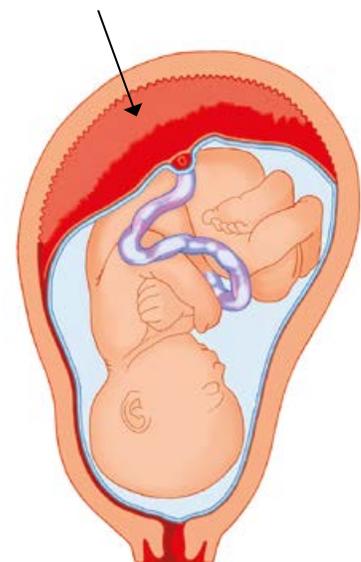
Placental Abruption Linked to Later Cardiovascular Disease

Women who develop obstetrical complications including preeclampsia, who deliver growth restricted infants, or have preterm deliveries are increasingly recognized as being at heightened risk of premature death from cardiovascular disease later in life. Women who suffer from placental abruption (in which the placenta partially or completely detaches from the inner wall of the uterus before delivery) also have an increased risk of dying from cardiovascular disease. To further characterize the impact of abruption, Cande V. Ananth, PhD, MPH, Professor in the departments of OBGYN and Epidemiology, along with colleagues at Harvard School of Public Health and in Denmark, examined mortality and morbidity rates from selected cardiovascular diseases in a large population-based prospective cohort of over 850,000 women who delivered a singleton birth over three decades in Denmark. They reported their results at the 36th Annual Meeting of the Society for Maternal Fetal Medicine:

The Pregnancy Meeting. More than 15,000 women in the study (1.9%) had a pregnancy complicated by abruption. These women had a heightened risk of death and complications from ischemic heart disease, myocardial infarction, and heart failure, and the risks were particularly elevated when the abruption was associated with a preterm delivery and or was accompanied by preeclampsia, small for gestational age, or with perinatal death, suggesting a common condition or causal pathway underlying abruption and cardiovascular disease later in life. This research adds to the accumulating data suggesting that pregnancy in general, and obstetrical complications of ischemic underpinnings in particular, may serve as a marker of future health and also point toward a shared etiologic underpinning of abruption and future cardiovascular complications.

Ananth CV, Hansen AV, Williams MA, Andersen AN. Cardiovascular disease in relation to placental abruption: a population-based prospective cohort study from Denmark. Oral Presentation at 36th Annual Meeting of the Society for Maternal Fetal Medicine. *American Journal of Obstetrics and Gynecology* 2016; 214 (Supplement 1):S1-S454.

PLACENTA



PLACENTAL ABRUPTION (ABOVE) MAY SHARE A CAUSAL PATHWAY WITH HEART DISEASE.



A SIMPLE SWAB TEST, FETAL FIBRONECTIN (FFN), IS AMONG THE BEST PREDICTORS OF PRETERM DELIVERY.

Simple Test for Preterm Labor Should be More Widely Used

Obstetricians often use a simple swab test called fetal fibronectin (fFN) testing to evaluate women at risk of preterm birth. Fetal fibronectin, a protein found at the interface between the fetal membranes and uterine lining, is normally detectable in vaginal secretions at both the very beginning and the end of pregnancy, after 35 weeks. In women undergoing preterm labor, fFN can often be detected before other symptoms such as contractions and changes in cervical length, and has been shown to be a better predictor of preterm delivery than clinical history, cervical dilation, and contraction frequency. The test, however, is discouraged when a woman has had vaginal bleeding, ruptured membranes, or vaginal manipulation, including sterile vaginal examination and transvaginal ultrasound, within the preceding 24 hours. Because the use of fFN testing regardless of prior vaginal manipulation could prevent unnecessary hospital admissions, reduce the burden on physician and nurse resources, decrease health care costs, and moderate patient inconvenience and anxiety, researchers here at CUMC led by Amy L. Turitz, MD, Clinical Fellow in Maternal Fetal Medicine, set out to determine if there are differences between fetal fibronectin results before and after vaginal manipulation. They evaluated fFN specimens in 237 women and found a high level of agreement between tests collected before and after vaginal manipulation with similar ability to predict spontaneous preterm birth. The research group presented their findings at the Annual Meeting of the Society of Maternal Fetal Medicine. They conclude, "Restrictions limiting the use of fFN should be questioned to make it a more widely and applicable test to appropriately treat patients at the highest risk of preterm birth and decrease intervention, health care costs, and patient anxiety for those patients at reduced risk."

Turitz AL, Ackerman CM, Johnson DL, Bank TC, Duong JK, Lee SM, Gyamfi-Bannerman C. A comparison of pre- and post-vaginal manipulation fetal fibronectin. Oral Presentation at 36th Annual Meeting of the Society for Maternal Fetal Medicine. American Journal of Obstetrics and Gynecology 2016; 214 (Supplement 1):S1-S454.

Programs



A Call to Action:

Pediatricians, Children Need You in the Fight Against Poverty

Irwin Redlener's first job as a practicing doctor, in 1971, was as medical director of a community health center in Lee County, Arkansas. In a region that was and is among the very poorest in the United States, he had a front row seat to the devastating impacts of extreme poverty on children, families, and the community. "I felt like we were at the frontlines of the war on poverty, but I had no doubt that we would solve the issues of access to healthcare and child poverty in 10 or 15 years maximum," he says. In the 45 years since his first job, though, poverty rates in the US have not budged—1 in 5 to 6 children still lives in poverty (an income of \$24,000 or less a year for a family of four), and a third of them, 7 to 9 million, live in extreme poverty, in families with incomes half or less of that.

By almost every factor that can be measured, including a child's well-being, longevity, and life success, poverty has extraordinarily negative effects, Dr. Redlener says. "It is the biggest threat to the health and well-being of children in the United States." Children who live in poverty are unlikely to be immunized on time, are more likely to have chronic illnesses resulting in complications and hospitalizations, dental problems that lead to persistent dental pain, emotional and behavioral problems, exposure to lead, and vulnerability during disasters and to infectious diseases.

Poor health care is also intertwined with education, and when their health issues are not addressed children in poor communities often do poorly in school and don't graduate on time from high school, links in a chain of health and social consequences that can include incarceration and a lack of lifetime income opportunities. "Almost every major social problem has roots in childhood," says Dr. Redlener.

In a call to action to pediatricians, Dr. Redlener and the group he helped establish in 1987, The Children's Health Fund (CHF), has developed an initiative called "Healthy and Ready to Learn." Through this program CHF is urging pediatricians and primary care providers to assess children for seven childhood health conditions known to interfere with learning in school: hearing and visual deficits, persistent dental pain, psychological and behavioral problems, hunger, asthma, and lead

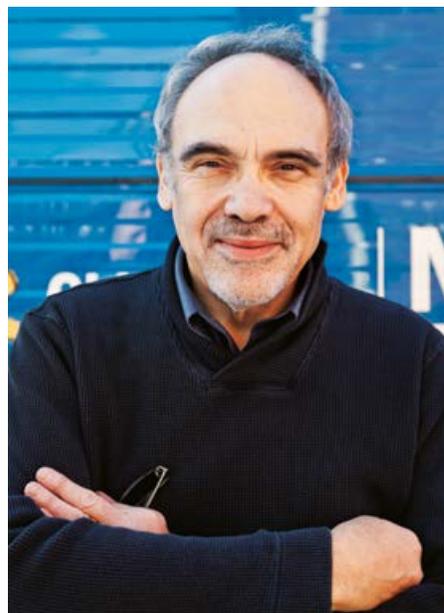
exposure. "If any of these conditions is unrecognized or untreated it can be devastating for a child's academic experience," he says. CHF has developed a [standardized health assessment form](#) to help healthcare providers track and treat these conditions throughout childhood.

Dr. Redlener's agenda recently got a boost from the American Academy of Pediatrics, which, in March recommended that pediatricians and primary care providers screen for poverty indicators as part of their routine interactions with families. The AAP recommends that healthcare providers probe a bit into a family's circumstances: "A single question, 'Do you have difficulty making ends meet at the end of the month?' may be enough to alert the pediatrician ... to a need for linking families to community resources," states the *AAP Policy Statement on Poverty and Child Health in the United States*. Pediatricians and other primary care doctors should feel comfortable bringing this question up, says Dr. Redlener, since it provides a window into many other important aspects of a child's life.

Dr. Redlener and his colleagues at CHF are clear that things need to change: "We need a revolution in the pediatric primary care encounter," he says. "I tell pediatricians you're not there just to get the physical done, check the boxes, and give some shots. You are, in fact, an essential player in a life trajectory, in a child's success or failure. You and teachers and parents are the team that are going to put kids successfully over the finish line and allow them to become well educated, healthy, and have successful lives."

Despite everything he's seen in his career, Dr. Redlener says he's optimistic that "Americans will come to realize that we can't afford to let a fifth of our children fend for themselves and deal with these massive barriers to success in a world that's become far more competitive and threatening to American influence. We need everybody to be working, productive, and fulfilling their aspirations, and that's a practical and concrete goal," he says, adding, "I think we may see a time soon when everybody from every corner of the political universe comes to that understanding."

— *Beth Hanson*



DR. IRWIN REDLENER BELIEVES THAT PEDIATRICIANS ARE ESSENTIAL PLAYERS IN A CHILD'S LIFE TRAJECTORY.

Complex Care Program

New Initiative Addresses Children with Multisystem Illnesses

Chronic conditions like asthma, allergies, and obesity now affect one of three American children, a trend that is accelerating the burden and cost of health care. But a tiny fraction (0.5%) of children with often poorly understood, complicated illnesses that significantly impact their and their families' lives are generating a disproportionate share of pediatric medical needs and costs, says Patricia Hametz, MD, MPH, Associate Director of the Division of Child and Adolescent Health. This growing number of children has multisystem illnesses that don't neatly fit into a diagnostic category, and because their care involves multiple subspecialists, doctors' visits, hospital admissions, and technologies, it accounts for 30% of all pediatric health care spending.

CUMC is piloting a medical care coordination program for these children, funded by the Children's Board at Columbia and overseen by Dr. Hametz, to not only organize and streamline their care, but also improve their quality of life. Children enrolled in the Complex Care Program have conditions ranging from genetic disorders to neurological impairment, respiratory issues, congenital heart disease, endocrinopathies, and gastrointestinal issues that often require feeding through G-tubes and special diets. "The numbers of these kids are growing because we now have the technologies and medical ability to take care of them, but we don't have the systems in place to really organize that care well," says Dr. Hametz.

During a family's initial visit, the team—led by Marc Foca, MD, Medical Director of the program and Ellen Shaw, Pediatric Nurse Practitioner—reviews the child's medical history. With the family's input they then create a comprehensive care-plan detailing each of the child's medical problems, care providers, and medications; services needed; preventive care such as dental visits and immunizations.

The plan also details the family's goals and priorities. These might include ensuring that the child doesn't have pain, or is as functional as possible, or has a good quality of life and can spend a lot of time with the family. If the child is verbal, the team asks what the child wants. The finalized care plan is then distributed to all of the child's providers and serves as an ongoing framework for his or her care. "Any time the child is in a medical setting, his or her caretakers can assess the current problem in the context of the goals laid out in the document," Dr. Foca says.



COMPLEX CARE PROGRAM TEAM MEMBERS INCLUDE DRS. PATRICIA HAMETZ AND MARC FOCA (LEFT AND CENTER), PEDIATRIC NURSE PRACTITIONER ELLEN SHAW, AND CARE COORDINATION ASSISTANT ROSA MADERA-REESE (NOT PICTURED).

Team members are involved in coordinating each patient's care depending on the patient's and family's needs. Dr. Hametz says, "We want to make sure we add value—we don't want to be just another cook in the kitchen." A major goal of the program is to ensure that all of a child's care providers are communicating with each other, wherever they are. Another is to give them access to the best care. She adds, "If their primary care provider is not part of the CUMC system, we can add a lot of value because they don't have easy access to the specialists, the appointments, the information. And we can help them get that."

Some families are less medically sophisticated, and have a hard time communicating information from one of the child's specialists to another. Ms. Shaw often accompanies these families on visits to their child's specialists to help them with communication. For families that need more daily help, the Care Coordination Assistant Rosa Madera-Reese keeps a calendar of all of their appointments. "If we know they are seeing their primary care provider on Tuesday, a member of our team will call them on Monday and remind them that they want to ask about certain issues," Dr. Hametz says. "Then we'll call after the appointment and ask how it went, and our team often reaches out to the provider to ask if there are any changes in the child's care."

One of the major benefits of the program is that the process and plan help the family and other providers think about each child's medical care in the context of the rest of their life. "Any time these kids come in contact with the

medical system you have to weigh the pros, the cons, the benefits, the risks of every procedure, and make sure it really is in line with the family's goals for this child," Dr. Hametz says. Asking, "is this the right thing to do?" will lead to not only better use of medical resources, but better care—and better quality of life—for these kids and their families, she adds. "Because we're not going to cure these kids, but we can make them more comfortable and healthier."

— *Beth Hanson*

"The numbers of these kids are growing because we now have the technologies and medical ability to take care of them, but we don't have the systems in place to really organize that care well," says Dr. Hametz.

Exploring The Science of Nurture

CUMC Researchers Bolster Mother-Child Emotional Connection in the NICU

The emotional connection between a mother and her infant is normally present at birth, and vocal soothing, touching, comforting, holding, and making eye contact—behaviors commonly associated with “nurture”—have a profound impact on development and behavior. Studies have shown that they can help a child become more resilient to a broad range of mental, behavioral, and physical disorders, and that they play a role in the mother’s wellbeing, too.

For the past several years CUMC’s Nurture Science Program, a team of basic, translational, and clinical scientists under the direction of Martha G. Welch, MD, Associate Professor of Psychiatry in Pediatrics and Pathology & Cell Biology and Michael M. Myers, PhD, Professor of Clinical Behavioral Biology in Psychiatry and Pediatrics and Research Chief, Developmental Neuroscience, has been combining insights from cell biology and neurobiology and behavioral physiology to explore the scientific underpinnings of nurture.

Preterm infants are separated from their mothers for life-saving care just when a mother and infant’s calming physical interactions ensure an emotional connection and inoculate both against stress. Thus, preterm infants are at a higher risk of developing emotional, behavioral, and developmental disorders. The Nurture Science team has been conducting randomized controlled trials of Family Nurture Intervention (FNI), a multi-generational prevention model in the very first days of infants’ lives in the neonatal intensive care unit (NICU) at New York Presbyterian/Morgan Stanley Children’s Hospital.

The primary goal of FNI is to establish an emotional connection between mother and infant. Through repeated calming sessions, a nurture specialist facilitates the emotional connection through various mutual activities that include emotional expression, exchange of scent cloths, vocal soothing, comforting touch, eye contact, clothed and skin-to-skin holding and cuddling. As the two establish a Calming Cycle routine they become mutually attuned to one another’s emotional, physiological, and behavioral cues and needs. This in turn bolsters the mother’s confidence in the viability of her infant and increases her motivation to care for her infant.



MOTHER AND INFANT ESTABLISH AN EMOTIONAL CONNECTION THROUGH TOUCHING AND HOLDING.

Other family members including the father and grandparents are also encouraged to do calming sessions whenever possible. “We believe that parents can be helped to create and sustain optimal nurturing interactions and family connectedness that can prevent and even overcome emotional, behavioral and developmental problems,” says Dr. Welch.

Since 2012 the researchers have published eight publications reporting results of the FNI NICU study. Significant among their findings:

- When they reached full-term age, preterm babies who had received FNI showed robust increases in brain activity (as much as 36% in the frontal polar region by electroencephalographic power) compared to babies in the standard care control group.
- Mothers of preterm infants are at high risk of postpartum depression (between 28 and 70%). Mothers in the intervention group showed enhanced maternal care giving behavior while in the NICU and lower levels of anxiety and depressive symptoms four months after their infants were discharged.
- At 18 months, FNI infants had better

cognition, language, attention, as well as decreased risk for autism. These findings are highly noteworthy because other researchers have reported that preterm infants have deficits related to frontal polar function, and that infants with greater power in this region have improved neurodevelopment, and ability to regulate and manage emotions at older ages.

The research team has showed that a small dose (about six hours per week) of Family Nurture Intervention can lead to relatively large effects that are sustained throughout the critical 18-month period after discharge from the NICU. Their findings show that the negative effects of the stress and trauma of preterm birth are not necessarily permanent.

Current research studies include testing a model of FNI for preschool children and their mothers. Pilot data suggests that FNI is effective in this age group. According to Dr. Welch, “Our research holds the promise that infants and mothers can benefit from early intervention, and additionally that mother/child pairs who are having problems later in development may also benefit from these new treatments.”

Giving

Wendy Chung Appointed to Kennedy Family Professorship of Pediatrics

Wendy K. Chung, MD, PhD is an experienced pediatrician with expertise in the care of children and adolescents with obesity and diabetes, but she is probably best known for her work as a geneticist. As Director of the DISCOVER Program for Undiagnosed Diseases, Dr. Chung is leading major efforts to identify genes that cause disease and find new ways to effectively diagnose and treat patients. Her work holds particular promise for patients whose conditions are so rare, they do not have a diagnosis.

Now, with support from the Kennedy Family Professorship of Pediatrics, a newly endowed chair to which she was recently appointed, Dr. Chung has added flexibility to expand her groundbreaking research.

"The support of an endowed professorship is a tremendous privilege, and an unparalleled asset when it comes to academic research," says

Dr. Chung. "The current funding climate presents a number of challenges to investigators that make philanthropy more important than ever."

The professorship was made possible by a gift to the Department of Pediatrics from Karen A. Kennedy, MD, and her husband, Kevin Kennedy. The Kennedys have been members of the CUMC community for three decades, and Dr. Kennedy is the founding chair of the Children's Board at Columbia. Recently, Dr. Kennedy and members of the Children's Board have prioritized supporting a number of new initiatives including those dedicated to precision medicine and undiagnosed disease that are creating new opportunities for Dr. Chung and other investigators across CUMC.

"Dr. Kennedy is remarkably ambitious, and has a clear vision for strengthening Columbia's programs in children's health," says Dr. Chung. "I am tremendously grateful to her and Kevin

KEVIN AND KAREN KENNEDY WITH DR. WENDY K. CHUNG AND DEAN LEE GOLDMAN.



for establishing the professorship, and for their dedication to the field of pediatrics."

This generosity will ensure that Dr. Chung continues to build the medical community's understanding of what causes diseases like autism, neurodevelopmental disorders, breast cancer, and congenital heart disease, with a goal of translating this knowledge into improved treatment and even cures. — *John Uhl*



ELLEN LEVINE



CYNTHIA GYAMFI-BANNERMAN, MD

Department of OBGYN Establishes Ellen Jacobson Levine and Eugene Jacobson Professorship of Women's Health

There is a national need to improve and upgrade health care for women and the Department of Obstetrics and Gynecology has risen to this challenge. For the past two years Columbia's Department of OBGYN has published almost 220 peer-reviewed articles that range from breakthroughs in research about human genetics to significant shifts in gynecologic surgical practices that now improve outcomes in women's health. "Communicating this information to colleagues and the public is a priority for the Department," says Richard U. Levine, MD, Professor of Obstetrics and Gynecology and Vice Chair of Development for the Department.

At the top of Dr. Levine's list is building a support system that will underwrite these essential goals. One road to success has been to increase the number of endowed professorships in the Department. Thanks to his initiative, five professorships have been funded. The most recent recognizes Eugene Jacobson, a longstanding supporter of Columbia's OBGYN and surgery departments and Ellen Jacobson Levine, his daughter, who was recently recognized by *min*, an organization of media leaders, as one of the most outstanding magazine editors of the past 30 years. Mr. Jacobson played a major role in establishing Bergen Community College, one of New Jersey's largest. Mrs.

Levine, the Editorial Director of Hearst Magazines, conceived and helped launch *O*, *The Oprah Magazine*, *The Food Network Magazine*, and most recently *HGTV Magazine*.

Thanks to generosity of many donors, Mary D'Alton, MD, Willard C. Rappleye Professor and Chair of the Department of OBGYN, announced the appointment of Cynthia Gyamfi-Bannerman, MD as the first Ellen Jacobson Levine and Eugene Jacobson Associate Professor of Women's Health. Dr. Gyamfi-Bannerman is a talented clinician, a dedicated teacher, and a NIH-funded researcher who has published extensively on subjects related to preterm birth. In February, the *New England Journal of Medicine* published the results of a multi-center, randomized trial led by Dr. Gyamfi-Bannerman. This study established new guidelines for administering the steroid betamethasone in preterm delivery. These guidelines help to reduce respiratory and other complications associated with preterm birth.

Mrs. Levine has agreed to coach and collaborate with Dr. Gyamfi-Bannerman to improve the Department's ability to get important news about breakthroughs in women's health to the mainstream press. Dr. Gyamfi-Bannerman has formed a department communication's committee that will include faculty members from each division. — *John Uhl*

Profile



WHEN DR. BESSER IS ON THE AIR HE PICTURES HIMSELF TALKING TO THE PARENTS OF ONE OF HIS PATIENTS. "THAT'S KIND OF THE TONE, THE RESPECT, THE LANGUAGE THAT I USE."

Dr. Richard Besser

*ABC Chief Medical Correspondent
Joins Pediatrics Faculty*

Hidden dangers for toddlers around the home. Heart attack symptoms in women. Spanking, yes or no? Adderall abuse in young adults. In time slots that range from 30 seconds to two minutes, ABC Chief medical correspondent Richard Besser, MD, is able to take topics like these and create strong, succinct health messages for the network's millions of viewers. During his seven years at ABC, and before that as acting director of the Centers for Disease Control and Prevention and head of the CDC's Coordinating Office for Terrorism Preparedness and Emergency Response, Dr. Besser has become a trusted source of information about everything from children's screen time to Ebola. He was recently appointed Professor of Clinical Pediatrics at CUMC.

The stories Dr. Besser creates for Good Morning America, World News, Nightline, WABC local, and through Twitter chats and Facebook town halls, give him a way to practice public health through media, he says, and he is always on the lookout for new angles on topics like exercise and activity, healthy eating, sleep, smoking cessation, healthcare reform,

and access to care and cost of medications. "I see my work as a way to give people information they can use to make health decisions. I don't hype things—I try to convey a sense of what's real and what viewers should really take action on," he says.

Whether it's on TV, Twitter, in a lecture hall or exam room, public information is absolutely critical to the practice of medicine, says Dr. Besser. "When you look at the major health problems that people face throughout their lives, so many of them have to do with behavior and behavior choices." Doctors are in a unique position to promote healthy habits among their patients, he says. And they are most likely to succeed if they convey that guidance in words patients can understand.

Dr. Besser advises doctors he works with to reach back to the language that they used before medical school. "Doctors go through years of training, and learn a language that's very effective for communicating with other health professionals. But the words that work well in that setting can totally cut off all communication when you're talking to a patient," he says. When he is on the air, he adds, he pictures himself talking to the parents of one of his patients. "That's kind of the tone, the respect, the language that I use."

Because the balance of power in the exam room rests with the doctor, patients are often reluctant to tell their doctor they don't under-

"So often communication between doctor and patient gets shortchanged, even though this is where we can have the most impact on our patients' health."

stand what he or she is saying, Dr. Besser points out. "They'll look at you, nod, walk out, and think, 'I have no idea what's going on.'" Computers and other technologies are also making it harder for doctors to pick up on patients' non-verbal cues, he adds, which are really important indicators of whether a patient understands his or her health situation. "So often communication between doctor and patient gets shortchanged, even though this is where we can have the most impact on our patients' health."

Dr. Besser has residents, including those from CUMC Pediatrics, work with him at ABC News for a month at a time to learn about medical journalism and how to disseminate health information. He hopes to bring more residents to ABC through his new CUMC role.

Throughout his career Dr. Besser has worked a half-day each week seeing patients. He currently sees children at the Milbank Center in Harlem, a community clinic run by the Children's Aid Society, and he worked in a similar clinic in Atlanta for 13 years. "That's enough to keep me grounded and maintain my identity as a general pediatrician," he says, "and it informs the other things I do to affect improvements in people's health on a bigger scale." — *Beth Hanson*

NewYork-Presbyterian News



THE CARDIAC NICU WILL BE STAFFED BY SUBSPECIALISTS WHO NOT ONLY HAVE EXPERIENCE IN CARDIAC CARE, BUT IN THE CARE OF FRAIL NEWBORNS.

Specialized Critical Care for the Tiniest Hearts

NYP to open the nation's first cardiac NICU

NewYork-Presbyterian/Morgan Stanley Children's Hospital is one of the world's leading centers for the care of neonatal congenital heart disease, treating some 200 newborn infants each year. Infants born with serious heart disorders have special needs. To meet those needs, NewYork-Presbyterian/Morgan Stanley Children's is creating a cardiac neonatal intensive care unit (NICU) to provide subspecialty critical care to its smallest patients with congenital heart disease. The 17-bed unit, scheduled to open on the ninth floor of the hospital in late 2016 or early 2017, will be the first of its kind in the nation.

Traditionally, hospitals have treated children with heart disease who need intensive care together in one ICU, regardless of their age. "Although they all suffer from heart disease, there's nothing else they have in common," said Ganga Krishnamurthy, MD, Director of Neonatal Cardiac Care at NewYork-Presbyterian/Morgan Stanley Children's and Garrett Isaac Neubauer Associate Professor of Pediatrics at Columbia University College of Physicians and Surgeons. "A baby is different from an older child, who is very different from an adult. Newborns with heart disease are best cared for by team members who are uniquely equipped to care for them."

Newborns are especially fragile. "They've just emerged from the womb and their organ systems are still maturing — not just their hearts and lungs, but all of their organs," added Dr.

Krishnamurthy. "Babies are not just smaller versions of adults, so we can't take the same critical care approaches we use in adults and use them on a smaller scale for infants. An entirely different approach is needed." The cardiac NICU will be staffed by subspecialists who not only have expertise in cardiac care, but in the care of these frail newborns.

The types of conditions observed in newborns with heart disease can be severe and require complex care. The most common types of newborn heart surgery (typically performed within the first 30 days of life) are:

- **Hypoplastic left heart syndrome**, in which a baby is born with an incompletely formed left ventricle. Infants with this heart defect typically need three surgeries to correct it, with the first one — the "Norwood procedure" — performed in the first weeks of life.
- **Transposition of the great arteries**, a condition in which the anatomical positions of the pulmonary artery and the aorta are switched, so that the aorta rises from the right ventricle and the pulmonary artery arises from the left ventricle. This life-threatening condition is corrected very early in life using an "arterial switch operation," which was pioneered by NewYork-Presbyterian's Jan Quaegebeur, MD.
- **Tetralogy of Fallot**, a hole between the right and left ventricles plus an obstruction between the right ventricle and the pulmonary artery. Most children with this defect have open heart surgery to close the hole and remove the obstructing muscle.

While some children born with heart disease don't require surgery right away, many do. "A significant portion need surgery during the neonatal period before they can leave the hospital so they can survive," said Dr. Krishnamurthy.

Newborns with heart disease may also need specialized monitoring while in the NICU. For example, a premature infant with congenital heart disease has a higher risk for bleeding in the brain than a three-year-old with a heart defect, so cardiac NICU specialists are extra careful to look for the earliest signs of potential complications.

Dr. Krishnamurthy noted that the emergence of the cardiac NICU reflects the development of new fields as medicine becomes increasingly subspecialized. "Intensive care units became further specialized into adult and pediatric ICUs. Then pediatric ICUs became further specialized into NICUs and pediatric cardiac ICUs," she said. "Now the field has evolved even further. Our cardiac NICU is indicative of that evolution and will offer the most subspecialized care available for our smallest patients with heart disease." — *Rosie Foster*

Media Mentions

NPR

Zika Reminds Some of 1960s Rubella Outbreak

For doctors who were caring for women and children in the 1960s, today's headlines about Zika are a potent reminder of the fear inspired decades ago by the Rubella virus. If a woman contracted Rubella during her first trimester of pregnancy, her child would have an 85 percent chance of severe permanent defects of the ears, eyes, and heart, and, as with Zika, a heightened risk of microcephaly. The outbreak was also a force behind major social changes, such as the legalization of abortion. **Louis Cooper, MD**, pediatrician, researcher, and professor emeritus of pediatrics, told *NPR*. "At the moment we have no way to stop the Zika infection," he says, "and it doesn't look as if we have any way to reduce the risk to the developing babies." The size of that risk, he notes, remains to be quantified.

<http://n.pr/22AqsD1>

NPR

Genetics Research Given a Yellow Light

Would it be ethical for scientists to try to create babies that have genetic material from three different people? A panel of experts assembled by the National Academies of Sciences, Engineering and Medicine has concluded that such experiments *are* ethically permissible, but the panel's report detailed a long list of caveats, cautions, and conditions to be met before such research begins. "I think it's a great step in the right direction," **Mark Sauer, MD**, Program Director, Center for Women's Reproductive Care, and a member of the panel, told *NPR*. The report is more of a "yellow light" than a "green light," he added, but that's "better than a red light. Most importantly, it allows the work to continue to hopefully produce children without [a range of genetic] disorders."

<http://n.pr/209eGJj>

PIX11

Bootleg Antibiotics on Sale at the Corner Bodega

Americans fill more than four billion prescriptions a year in pharmacies—but some people are acquiring medicine illegally, in delis or bodegas, where they are stashed under the counter and traded for cash. Using undercover cameras reporters for *PIX11* TV bought antibiotics at several New York City delis simply by telling the clerk that they had a sore throat and needed something for pain. This type of "misuse and overuse of antibiotics is contributing to what really is an epidemic of antibiotic resistance," **Lisa Saiman, MD, MPH**, a pediatrician and infectious disease specialist, told *PIX*. "We're running out of antibiotics and it's very difficult to make new antibiotics that will actually kill these superbugs," Dr. Saiman said. "It's what keeps me awake at night."

<http://bit.ly/1Rd9Wx4>

QUARTZ

Patient Education Needed on New Genetic Tests

Newly available non-invasive pregnancy testing (NIPT) has significant benefits, but its introduction into current practice and use "has been chaotic and outside how other technologies get introduced," **Ronald Wapner, MD**, Director of Reproductive Genetics, told *Quartz*, adding, "NIPT was basically offered to the world by salespeople." NIPT is fairly successful at picking up some potential problems such as trisomy-13 (91% average accuracy in a 35-year-old woman), but also has a very high false positive rate (79%)—but many women are not aware of this when they undergo testing. "If there's one thing I'd say, it's that we need to educate patients [about NIPT] and give them the autonomy to decide what they want to do," says Dr. Wapner.

<http://bit.ly/25oBSJc>

U.S. NEWS & WORLD REPORT

Condom Use Low Among Teen Girls Using IUDs and Implants

High-school girls who use long-acting contraception such as IUDs or implants are less likely to focus on condom use than girls who are on the Pill, a new study in *JAMA Pediatrics* finds—evidence that many young women aren't paying enough attention to the dangers of sexually transmitted infections (STIs), which condoms help prevent. "We need to work on crafting a clear message about pregnancy prevention and STI prevention," **Karen Soren, MD**, Director of Adolescent Medicine at the NewYork-Presbyterian Morgan Stanley Children's Hospital and a colleague wrote in a related editorial. "Dual protection for sexually active adolescents should be encouraged, so that adolescents are not exposed to the risk of pregnancy or the risk of STIs as a result of selecting condom use vs. effective contraception use."

<http://bit.ly/25du9zX>

LIVE SCIENCE

Losing Weight, and Keeping it Off

People who lose 10 percent of their body weight actually need to eat 20 percent fewer calories once they reach their new weight, compared with other people with the same weight, to maintain their weight loss, **Michael Rosenbaum, MD**, a pediatrician and endocrinologist who has studied weight-loss maintenance, told *Live Science*. "It's a disproportionately lower number of calories to stay right where you are," he said. Multiple systems in the body change: people's appetite increases, they need more food to reach satiety, they prefer higher calorie foods, and the parts of the brain that control eating are less active, Dr. Rosenbaum said. "You've created the best possible scenario to regain the weight you've lost," he said.

<http://bit.ly/24wlq83>

Honors & Awards

Anne Armstrong-Coben, MD (Child and Adolescent Health) has been appointed as a member of the Lesbian, Gay, Bisexual, Transgender and Questioning Advisory Committee for a two-year term by the Bergen County, New Jersey Board of Chosen Freeholders, the county legislative body.

Tamar Baer, MD (First year Endocrine Fellow) received the Pfizer 2016 ASPIRE Young Investigator Research Award in Endocrinology.

Joel Berezow, MD (Emergency Medicine) received a grant from the R Baby Foundation to continue his work with the PEP Network (Pediatrics for Emergency Physicians). Dr. Berezow was also honored with the 2016 Medical Hero Award from the R Baby Foundation for his work through the PEP Network.

Gary Brittenham, MD (Hematology, Oncology and Stem Cell Transplantation) received funding from the Institut Mérieux for research on "Non-invasive detection of iron deficiency for targeted iron supplementation in regions with malaria and other infections." He also received funding from the Swiss Federal Institute of Technology (ETH Zürich) for his project, "A novel, high-precision stable iron isotope method for objective evaluation of iron metabolism in humans and its application to monitor the effectiveness of programs to improve iron nutrition."

Sudeshna Chatterjee-Paer, MD (GYN-Oncology) was awarded the SGO Buck and Betsy Peters Award for Best Scientific Poster for her abstract, "Uterine leiomyosarcomas exhibit distinct drug resistance molecular profiles compared to extrauterine leiomyosarcomas: A comprehensive analysis of 1023 leiomyosarcomas."

Dieter Egli, PhD (Molecular Genetics) received the Harold and Golden Lampert Award for Excellence in Clinical Science Research, initiated in 1983 to recognize outstanding young researchers in the basic and clinical sciences.

Joji Fujisaki, MD (Hematology, Oncology and Stem Cell Transplantation) has received an American Society of Hematology (ASH) Junior Faculty Scholar Award, one of the society's most prestigious honors, designed for hematologists who have chosen a career in research.

Nancy Green, MD (Hematology, Oncology and Stem Cell Transplantation) received a Fogarty (international) R21 grant from NICHD for her research, "Neurologic and Cognitive Impairment in Children with Sickle Cell Disease in Uganda."

Philip Grieve, PhD (Neonatology and Perinatology) was promoted to Associate Professor of Developmental Neurophysiology (in Pediatrics) at CUMC.

Cara Grimes, MD (GYN Surgery) was invited to join the Society of Gynecologic Surgeons, and named Section Director of Female Pelvic Medicine and Reconstructive Surgery.

David Kessler, MD and John Babinéau, MD (Emergency Medicine) received an MCIC Risk Reduction Award for their Quality Improvement Project, "Stress-testing the System for Sepsis Recognition."

Jin Hee (Jeannie) Kim, MD (GYN Surgery) was named Fellowship Director, Minimally Invasive Gynecologic Surgery.

Esi Lamouse-Smith, MD (GI, Hepatology & Nutrition) was appointed to the American Gastroenterological Association Diversity Committee.

Joel Lavine, MD (GI, Hepatology & Nutrition) was appointed as the sole pediatrician to the Guidelines Committee for Nonalcoholic Fatty Liver Disease for the American Gastroenterological Association, the American Association for the Study of Liver Diseases and the American College of Gastroenterology.

Jennifer Levine, MD (Hematology, Oncology and Stem Cell Transplantation) has been invited to sit on the board of the Alliance for Fertility Preservation.

Mercedes Martinez, MD (Gastroenterology, Hepatology, and Nutrition) was promoted to Associate Professor of Pediatrics at CUMC.

Steve Paik, MD, EdM (Child and Adolescent Health) was promoted to Associate Professor of Pediatrics at CUMC.

Dane Parker, PhD (Infectious Diseases) received a grant from the Columbia University Diabetes Research Center for his project, "The Diabetic Environment Perpetuates Staphylococcus aureus infection."

Michael Pitter, MD (GYN Surgery) was named Director of Robotic Surgery, New York Presbyterian Lawrence Hospital.

Beth Rackow, MD (Child and Adolescent Health) was elected to the North American Society for Pediatric and Adolescent Gynecology Board of Directors as a Member-at-Large.

Meenakshi Rao, MD (GI, Hepatology & Nutrition) received a second year of funding from GlaxoSmithKline for her work on "Ret Receptor Tyrosine Kinase Signaling in the Postnatal and Enteric Nervous System."

Rini Ratan, MD (OB/GYN) was appointed to the governance board of the National Board of Medical Examiners.

Marc Richmond, MD (Cardiology) was promoted to Associate Professor of Pediatrics at CUMC.

Erika Berman Rosenzweig, MD and Matthew Bacchetta, MD (Cardiology) received funding from the Richard M. Bartlett, Jr., Memorial Foundation for the Cardio-Pulmonary Vascular Disease Program within the Pulmonary Hypertension Comprehensive Care Center at Columbia University Medical Center toward research on artificial heart-lung technology.

Devon Rupley, MD (OB/GYN) received the Gold Humanism teaching award from the P&S Class of 2018 for her qualities as teacher and role model.

Hossein Sadeghi, MD (Pulmonology) was promoted to Associate Professor of Pediatrics at CUMC. Dr. Sadeghi also received an ARC (Additional Research Coordinator) award.

Devin Smith, MD and Soledad Jorge, MD (OB/GYN) were named Administrative Chief Residents for 2016-2017.

Lawrence Stanberry, MD, PhD (Chairman, Pediatrics) was elected to the American Pediatric Society.

Melissa Stockwell, MD (Child and Adolescent Health) was appointed as a standing member to the Healthcare Information Technology Research study section of the Agency for Healthcare Research and Quality (AHRQ).

Maria Luisa Sulis, MD (Hematology, Oncology and Stem Cell Transplantation) has been promoted to Associate Professor of Pediatrics.

Shiu-Lin Tsai, MD (Emergency Medicine) was Guest Editor of a special pediatric edition for the Medical Acupuncture journal.

Patricia Vuguin, MD (Endocrinology) was appointed Associate Professor of Pediatrics at CUMC.

Jennifer Woo Baidal, MD's (GI, Hepatology & Nutrition) research was the basis for a new issue brief, "The Impact of the First 1,000 Days on Childhood Obesity," from the Robert Wood Johnson Foundation's Healthy Eating Research.

Two Pediatrics Faculty Named 2016 Gerstner Scholars

Each year, the Louis V. Gerstner, Jr. Scholars Program provides four young CUMC physician-scientists with stipends of \$70,000 for up to three years to conduct translational research. This year's awardees include two Pediatrics faculty. **Teresa Lee, MD**, Assistant Professor in Cardiology, has merged her interest in genetics and pediatric cardiology into research related to the genetics of infantile cardiomyopathy. Dr. Lee's award will fund her research project, "Identification and validation of novel genetic causes of infantile cardiomyopathy." **Thomas Connors, MD**, first-year Instructor in Critical Care, has based his research on the question of why some children have a much more complicated course of viral bronchiolitis than do others. His award will fund a research project entitled, "Immune Dysregulation in the Airways of Children with Viral Respiratory Tract Infection."

NYP/CUMC's Mothers Center

CONTINUED FROM PAGE 1

of the Center's patients. Other patients have placental attachment issues, a history of pregnancy loss, or conditions ranging from cancer to lupus to preeclampsia, says Dr. Lawrence Cleary.

Following a woman's initial visit, the Center's MFM doctors meet with a multidisciplinary group to discuss her care and create a plan for her throughout the pregnancy. In her third trimester the multidisciplinary group meets again to coordinate the delivery, detailing issues such as where she should deliver, specific needs at the time of the delivery, potential risks, and medications to avoid. Women who are at low risk and can be delivered by their general OBGYN will get specific recommendations for delivering locally, while those who face a more complicated delivery might stay and deliver at CUMC.

Pregnancy is a peak moment of need for these women, but many continue to have medical issues after pregnancy ends. "There's a growing sense that pregnancy itself is a kind of stress test for later long-term health, and that women who have adverse pregnancy outcomes are at a much higher long-term risk for cardiovascular disease and stroke than women who have a healthy pregnancy," Dr. Lawrence Cleary says. "That's something that the larger medical community is just starting to get a handle on. Given that we're going to be seeing the highest risk patients, we are hopeful that we can develop a long-term plan for them through our center, and involve the greater NYP community in their care."

The Mothers Center recently received a \$10 million donation from Carmen and John Thain to construct an innovative new space where many services that are currently available at different locations at NYP/CUMC can be centralized. The new location, slated to open in 2017, will enable the Mothers Center to expand care to other at-risk patients—women with obesity, diabetes, and psychiatric issues, who are also at major risk during pregnancy.

Drs. Lawrence Cleary and Perez-Delboy envision the new site as an outpatient base where patients will receive coordinated care. "Patients will be able to have antenatal testing, then meet with all of the specialists and subspecialists—their maternal-fetal medicine doctor, cardiologist, oncologist, anesthesiologist, nutritionist, for example, all at one site," Dr. Lawrence Cleary says. "The ultimate goal is to both centralize the care for these women so they don't have to navigate their way around the medical center, as well as optimize outcomes both for the mothers and their babies, taking advantage of the extensive expertise and commitment to great care within the Columbia/NYP community." The Co-Directors also plan to do virtual consults with women from elsewhere in the US or abroad, and their doctors, through telemedicine.

"We've taken care of several women who were told that, because of the risk to them, they would never be able to have a pregnancy or deliver a baby, or that they would have to deliver very preterm or via C-section, or even have to terminate the pregnancy," Dr. Lawrence Cleary says. Adds Dr. Perez-Delboy, "Our response was, you don't have to go through that, we can take care of you here."

— **Beth Hanson**

CUMC-Led Study

CONTINUED FROM PAGE 1

two doses of the steroid betamethasone 24 hours apart, or to receive an identical placebo of two doses. The investigators then followed the newborns for the first 28 days of their lives and were able to determine whether there was a difference in the level of respiratory complications between the two groups.

This past February the researchers published their results in the *New England Journal of Medicine*, and Dr. Gyamfi-Bannerman and her colleagues showed that steroid therapy did have an impact. Babies whose mothers had received betamethasone were 20 percent less likely to need respiratory support, and 33 percent less likely to develop even more severe respiratory complications. They were also less likely to need treatment with surfactant, a lipid-protein complex that stabilizes the alveoli (tiny air sacs in the lungs); spent less time in the NICU; and had lower rates of bronchopulmonary dysplasia (BPD), an indicator of long-term childhood lung disease, she says.

Based on the research collaborative's conclusions, the Society for Maternal Fetal Medicine (SMFM) has published new recommendations for the care of the 8 percent of pregnant women—300,000 women in the US—who have late preterm deliveries every year.

As Dr. Gyamfi-Bannerman suspected early in her career, fetal lung development continues well beyond 34 weeks. During that last major stage of development lung cells are active, evolving, and clearing fluid from the lungs to ensure that the infant can breathe, once born. To clear the lungs, cells are producing surfactant and activating sodium channels—proteins that transport sodium to and from the cell surface. Steroids are known to promote and speed these changes, and through this study Dr. Gyamfi-Bannerman and her colleagues showed their importance in the care of women in this group. She's planning additional follow up studies to determine whether the short-term improvement in lung function translate into lower levels of asthma and chronic lung disease as the babies grow, and to see if the benefits of steroids may also extend to improved neurological development, she says.

— **Beth Hanson**

Babies whose mothers had received betamethasone were 20 percent less likely to need respiratory support, and 33 percent less likely to develop even more severe respiratory complications

Connections
