Excess Weight During Pregnancy Raises Risk of Offspring Obesity

Obesity statistics are staggering—more than two thirds of American adults are now overweight or obese and a projected 20 percent more will be obese by 2030, while obesity rates will increase from 20 to 30 percent among children during that time. The risk of becoming obese is believed to result from a complex interplay between genetics and environmental factors such as lack of exercise, poor diet, and social and economic issues. Recent research has added a new risk factor: the uterine environment in which a fetus develops. Studies of humans and animals both suggest that a mother’s weight during pregnancy influences the likelihood that her offspring will be overweight later in life, as well as their risk of diabetes. Rudolph Leibel, MD, co-director of the Naomi Berrie Diabetes Center, and members of his lab study the molecular physiology of the control of body weight. The team recently conducted research showing that the uterine environment can affect the cellular makeup of the part of the brain that controls body weight regulation, setting the stage for weight problems in childhood and beyond.

Research on the influence of maternal nutrition on a child’s subsequent risk of obesity and diabetes grew out of observations made during and after World War II of infants born to women who had been malnourished during pregnancy. The “Dutch Winter Hunger studies” followed the progeny of Dutch women who were pregnant during the Nazi-imposed food embargoes during the last year-and-a-half or so of the war. Years later the offspring of the women who had been going to their protocol almost invariably deliver healthy infants. Their research earned them the 2012 King Faisal International Prize for Medicine—an award sometimes called the Arab Nobel Prize.

AIT is the platelet equivalent of Rh disease, explains Dr. Berkowitz. In Rh disease women make antibodies to antigens on their fetus’ red blood cells. “In this disease, the mother makes antibodies to antigens on her fetus’s platelets that come from the father and are not present on hers.” Because these components of the clotting cascade are much smaller than red blood cells, fetal platelets easily enter the maternal circulatory system and women can become severely sensitized to this antigen very early in the pregnancy.

Rh disease is typically very mild when it first occurs and tends to get worse with subsequent pregnancies, but alloimmune thrombocytopenia can be very severe the first time a woman conceives, with no indication that this is occurring. There is currently no program to screen for the disorder.
Welcome to the inaugural issue of Connections, a quarterly newsletter published jointly by Columbia University Medical Center’s Pediatrics and Obstetrics and Gynecology Departments. In each issue we will bring you news about how our programs, people, and cutting-edge research are furthering our mission: providing extraordinary care to women and children. Each issue will also feature highlights of our joint programs with NewYork-Presbyterian Morgan Stanley Children’s Hospital and Sloane Hospital for Women.

This first issue looks at the many ways the two departments are collaborating to advance patient care and expand our educational mission. Some highlights include a conversation between Department Chairs Drs. Larry Stanberry and Mary D’Alton about collaboration (page 3), articles about OB/GYN’s new Pediatric and Adolescent Gynecology Program (page 4), the Center for Prenatal Pediatrics (page 14), and fertility preservation techniques offered to young patients with cancer through the Center for Survivor Wellness (page 5). Upcoming issues will focus on our work to promote women’s and children’s health around the globe, programs and outreach efforts geared to the unique urban community surrounding Columbia University Medical Center, and the many clinical trials currently under way to improve the treatments we offer and patient outcomes. We are excited about this new joint venture, and we welcome your suggestions and comments.

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Co-Editors-in-Chief,
Connections
Collaborations that transform patient care:

A CONVERSATION BETWEEN
MARY D’ALTON, MD & LARRY STANBERRY, MD

Mary D’Alton, Chair of Obstetrics and Gynecology, and Larry Stanberry, Chair of Pediatrics, sat down together recently to talk about the many ways the two departments collaborate in patient care and research.

Dr. D’Alton: Among the families we see for prenatal care at the Center for Prenatal Pediatrics, there’s tremendous anxiety around the chances of delivering a baby “ahead of schedule” (having a preterm delivery). The seamless interaction between our obstetricians, maternal-fetal medicine specialists, and neonatologists is enormously reassuring both to the family and the providers. Many of our physicians have devoted a significant amount of time to being able to accurately identify congenital abnormalities. The most common abnormality we see is congenital heart disease, and when babies are diagnosed with congenital heart disease in our center, they need to see pediatric cardiology, and in addition, they may also need to see a pediatric cardiac surgery, and a geneticist. All of those disciplines work together here to come up with the appropriate plan for the patient.

Some patients have very unusual medical problems during pregnancy and are at risk for delivering babies prematurely. We see women with rare cardiac abnormalities or who are older or bigger when they become pregnant and have a higher incidence of comorbidities like diabetes and hypertension. So we combine our clinical programs for mother at risk. That collaboration is key for those mothers who are ill.

Dr. Stanberry: What Mary just described is actually unique. You think about high-risk pregnancies—they can be high risk to the mother, high risk to the baby, or to both. If the child requires urgent or emergent management at time of delivery, then delivering the mother in a children’s hospital is ideal because everything is there for the baby. We have a unusual situation here in that the woman’s and children’s hospital occupy the same building, and that’s almost unheard in the United States. What you find at other children’s hospitals is that they’re really not equipped to do deliveries, and may not have all of the expertise needed to care for the mother if something should happen to her. So we have expertise both on the child’s side and the mother’s side—we think that makes ours a very exceptional program.

An area of research that’s at the moment largely focused in pediatrics but will really impact the mother is to look at strategies that can reduce the risk of premature onset of labor and delivery. So our infectious disease division is focused on controlling microorganisms that we know can cause inflammation in the genital tract of pregnant women and increase the risk of premature onset of labor, which is epidemic in this country. Anything that we can do from a biomedical perspective to reduce that risk is going to have an enormous impact not only financially but for mothers’ and babies’ outcomes. This is evolving into a collaborative effort.

Dr. D’Alton: The advantage to patients in the collaboration between our departments is that we provide a highly structured, coordinated care. Our patients’ families know what to expect, and they don’t have to go to multiple places throughout our organization to get this care. And we can avoid the errors in medicine and patient dissatisfaction that happen when there’s a lack of this kind of coordinated care.

Dr. Stanberry: The kinds of patients that we care for here are remarkably complex and fragile. Because we’re caring for patients who often have multiple problems, they need a team that has breadth as well as depth. The team’s success depends on people who have incredible depth of expertise. To make care for patients with complex problems work, multiple physicians and support personnel have to be able to function in a coordinated fashion. And we do that very, very well.

Both Mary and I are convinced that in the future the focus is shifting to ways to improve neurodevelopmental outcomes. For the first several decades in neonatology the principle focus was on making sure that the babies survived. Later, when we were good at keeping them alive, we concentrated on making sure babies’ lung function was healthy. We’ve gotten very good at keeping them alive and at minimizing the risk of lung injury. Now the focus is moving to making sure they can grow and develop normally so that we have the brightest, high-functioning babies possible. So Ronald Wapner’s efforts to look at the things that occur genetically during pregnancy that might influence just how the child develops neurologically may help to reduce the risk of autism, cerebral palsy, or other neurologic injuries.

Dr. D’Alton: Another area that we have been able to take advantage of in the OB/GYN department is the Faculty Leadership Program developed by Dr. Susan Rosenthal in pediatrics. Each year two faculty from OB/GYN participate in the program. Feedback from the young faculty who have been through those leadership courses has been nothing short of spectacular. One thing participants all comment on is the value of the interactions and the relationships they develop, which will be career lasting. Building those connections has been a terrific advance for both of our departments. This program is an example where we did not have the bench strength in OB/GYN to put together a course to foster faculty development, and Larry recruited someone specifically with that mission and we were able to piggyback onto that.

Dr. Stanberry: Mary’s support of the leadership program was really critical, and the two departments felt it would really be worthwhile. We’re really looking to break down any silos between faculty members involved in women’s and children’s health to allow people to really get to know each other so their relationships aren’t simply developed either at the laboratory or at the bedside—they really flourish through long-term relationships.
Columbia Opens New Gynecology Program for Girls

Girls with congenital anomalies of the reproductive tract and other gynecologic problems fall outside the expertise of both pediatricians and most gynecologists, who are trained to treat women who have reached their child-bearing years. Specialists in pediatric and adolescent gynecology (PAG) are filling that gap. This small but important subset of OB/GYN is growing in both prominence and number of specialists. “Gynecologic problems can occur in infants, children, and adolescents, and are often very different from the conditions that affect adult women,” says Beth W. Rackow, MD, Director of the new Pediatric and Adolescent Gynecology Service.

Though relatively few patients need the services of a PAG specialist, their need is often urgent, says Mary D’Alton, MD, Chair of Columbia’s OB/GYN Department, who adds, “There are so few pediatric gynecologists in the country and a serious lack of physicians in this specialty in the New York area.” Dr. D’Alton’s clear articulation of the importance of PAG to the university and hospital community and her work to enlist their support convinced Dr. Rackow to join Columbia’s faculty in 2011. She came to Columbia after seven years at Yale University, where she initiated a PAG program. She has developed particular expertise in reproductive surgery, including advanced laparoscopy and hysteroscopy, management of congenital anomalies of the female reproductive tract, and the diagnosis and management of polycystic ovarian syndrome in adolescents. Dr. Rackow is working to establish a PAG program unique to Manhattan.

Karen Soren, MD, Director of Adolescent Medicine, agrees that the PAG program answers a real need and is a welcome opportunity for collaboration. “Pediatricians need to consult a PAG specialist for ‘tricky’ evaluations, when symptoms are confusing and for surgical interventions. Before Dr. Rackow’s appointment, we had no specialist in pediatric gynecology to consult for congenital abnormalities,” she explains. The majority of patients treated in her division have complex health needs, Dr. Soren notes, from congenital syndromes, diabetes, cancer, to sickle cell disease, and rheumatoid disorders. Reproductive issues can exacerbate these patients’ conditions.

Dr. Rackow has found colleagues in OB/GYN, pediatrics, and MSCHONY receptive and eager to collaborate. “We are already exchanging information and sharing patients,” she says. In addition to working with Dr. Soren in Adolescent Medicine, Dr. Rackow is consulting on care, treatment, and management plans for pediatric patients with complex issues that involve genetic, endocrinologic, hematologic, and oncologic disorders. She is also focusing on areas including fertility preservation for adolescent oncology patients (see story on page 4).

“One of the biggest challenges is that gynecologic issues in young females are handled with special sensitivity and care.” – Beth W. Rackow

Strengthening education in PAG is critical to training the next generation of practitioners and fostering collaboration. “The challenge is to spend enough time with residents to expose them to the specialty so that they achieve a degree of hands-on proficiency adequate to assess young females,” notes Dr. Rackow. Sensitivity is an important part of their training. Young patients ranging in age from newborns to young children to adolescents with varying degrees of maturity are more vulnerable, she says. “It’s so important that gynecologic issues in young females are handled with special sensitivity and care.” Dr. Rackow has already presented grand rounds lectures to both the pediatrics and OB/GYN departments, tailoring a lecture on congenital anomalies of the female reproductive tract to each audience. She regularly lectures and demonstrates surgical techniques to fellows, residents, and medical students.

Dr. Rackow’s vision for the PAG program’s future includes establishing an OB/GYN resident rotation in PAG, providing PAG education and experience for residents and fellows in pediatrics, launching a website to provide patient information and resources, and growing the program by adding another clinician, a nutritionist, and a psychologist. – Ellen Kuhn

Beth W. Rackow, MD, is Director of Pediatric and Adolescent Gynecology and an Assistant Professor of Clinical Obstetrics and Gynecology.
Looking Ahead: Preserving Fertility in Children and Adolescents Treated for Cancer

Most people think about starting a family when they reach adulthood and are in a committed relationship. But for children and adolescents diagnosed with cancer the issue can arise much earlier—often at the same time that they and their families are confronting the devastating news of a cancer diagnosis. Because cancer treatment can increase the risk of infertility, it’s vital that patients, their parents, and their doctors discuss this emotionally and physically complicated issue before treatment begins, says Jennifer Levine, MD, a pediatrician and clinical director of CUMC’s Center for Survivor Wellness (CSW), which provides long-term follow up care to survivors of childhood cancers.

The risk of infertility is highest among young cancer patients who undergo total-body irradiation, radiation to the testes or ovaries, or chemotherapy regimens containing high-dose alkylators. These treatments can place young women at risk for acute ovarian failure or premature menopause and young men at risk for temporary or permanent azoospermia (a loss of the ability to produce sperm). When young patients are diagnosed with diseases like Hodgkin’s disease, which is treated with an alkylating agent, “we need to get everybody on board with the decision about fertility preservation quickly,” says Dr. Levine.

Fertility preservation techniques are simplest in boys who have reached puberty and are able to produce sperm through ejaculation, says Dr. Levine. The CSW scans new patient admissions at CUMC for adolescent boys diagnosed with cancer, and tries to arrange a conversation with them and their parents. “Our policy is that post-pubertal males should be given the opportunity to bank sperm,” says Dr. Levine. Fertility preservation techniques can be quite costly and even though sperm collection and preservation is the least costly measure it is still out of the reach for some patients. “It helps that we partner with a sperm bank that provides services on a sliding scale.” Other fertility preservation techniques for young men are experimental.

Fertility preservation is more complicated for girls and young women, because many of the measures available may not make sense for them, are very costly, and can delay the start of treatment. “Each female’s situation needs to be carefully considered. For certain patients interventions such as surgical relocation of the ovaries is a reasonable option, but procedures such as egg and ovarian tissue freezing are experimental at present.”

Girls may remain fertile after treatment but they are likely to enter menopause and become infertile at a much younger age than other women. “Girls are born with all the egg follicles they will ever have, and chemotherapy diminishes that number,” says Dr. Levine. The CSW team advises women over the decades after their cancer treatment ends, and can refer them to a fertility specialist if they wish. —Beth Hanson

Jennifer Levine, MD, is an Assistant Professor of Clinical Pediatrics and Director of the Center for Survivor Wellness.
Brain tumor survivors report high quality of life despite deficits

Brain tumors are now diagnosed earlier and more accurately and treated increasingly aggressively, so more than 60% of children diagnosed with brain tumors today will survive into adulthood. To gauge the impact of treatment on survivors of childhood brain tumors, Stephen Sands, MD and colleagues conducted the first study of the late effects of treatment on patients’ neuropsychological state, quality-of-life, and social-emotional and behavioral factors, published in the Journal of Clinical Oncology. They found that, despite frank limitations, most patients reported that they were able to perform many of their daily activities without problems, and that their quality of life is within or above normal limits. Females and children treated at a younger age suffer more long-term effects of multimodality treatment for CNS tumors, though. Among these two groups, executive functioning and verbal learning and memory were between the low-average and borderline ranges, while visual learning and memory and psychomotor processing speed were below normal limits.


Study identifies potential targeted treatment for T-ALL

T-cell acute lymphoblastic leukemia (T-ALL), an aggressive leukemia, is highly resistant to chemotherapy, with a relapse rate of 25 percent among children. Recent research led by Thomas Diacovo, MD, associate professor of pediatrics, pathology, and cell biology, shows that two related enzymes (phosphoinositide-3 kinase [PI3K] gamma and delta) play a key role in the development of this disease. The study, published in Cancer Cell, also showed that an agent that inhibits both PI3K gamma and delta (CAL-130) can significantly prolong survival in a mouse model of the disease. CAL-130 also prevented proliferation and reduced the survival rate of human T-ALL cells in laboratory cultures, setting the stage for clinical trials of the inhibitor among children with T-ALL. If studies show that CAL-130 safely and selectively targets the activity of these enzymes, it could replace conventional chemotherapies that more broadly affect proliferating cells, including those in healthy tissues. Since young patients can develop secondary cancers and other complications of treatment with standard chemotherapies, an effective targeted therapy for T-ALL would be a major advance.

Columbia’s first zebrafish facility opens

Zebrafish, a tropical freshwater fish belonging to the minnow family, share genes governing heart formation with humans, and lifecycles that make them particularly useful for genetic studies, so they are good subjects for research of the physiological consequences of gene alterations. Columbia University Medical Center recently opened a 3,000-litre aquatics facility with the capacity to house 30,000 zebrafish, where researchers can investigate areas like the effects of environmental toxins and genetic development. Pediatric cardiologist Kimara Targoff, MD will use the facility to understand the genes and molecules that orchestrate heart development and to dissect the mechanisms that go awry. She is focusing her research on how mutations in Nkx genes, which are commonly found in patients with congenital heart disease, cause structural abnormalities. By understanding how Nkx genes function in zebrafish, Targoff hopes to develop new therapies to help patients with congenital cardiac anomalies.

Long-term antiviral therapy protects neonates with HSV

Infants born with herpes simplex virus (HSV) and who received the antiviral drug acyclovir daily for six months had significantly better neurologic outcomes and developed fewer skin lesions than the infants who received a placebo, a study published in the October 26, 2011 *New England Journal of Medicine*, showed. Commenting on the study in the same issue of NEJM, Anne Gershon, MD, Director of the Division of Pediatric Infectious Disease, compared our defenses against viral pathogens—specific and nonspecific antiviral therapy, passive immunization, and active immunization—to the Three Musketeers plus D’Artagnan, the fourth Musketeer. Passive immunization to HSV was never developed, “nor is there a vaccine that could be a D’Artagnan to take on this virus,” she writes. The study (by Kimberlin et al) “reports an exciting advance in the treatment of babies with neonatal HSV, an unusual but devastating disease. Medical practice may be changed as a result of these studies.”

Surgical experience in laparoscopic hysterectomy leads to fewer patient complications

Women develop fewer complications during and after laparoscopic hysterectomy when their surgeons have a great deal of experience with the procedure, a study in Obstetrics and Gynecology found. Dr. Michelle Wallenstein, a minimally invasive gynecologic surgery fellow, and colleagues analyzed the records of 124,615 women who underwent laparoscopic hysterectomy at several centers around the country between 2000 and 2010. They analyzed the influence of surgeon as well as hospital volume on intraoperative, surgical-site, and medical complications; prolonged hospitalization; and transfusion rates. Patients treated by surgeons who performed many procedures were 25% less likely to experience a complication than those treated by surgeons with less experience (6.2% v. 4.2%), and patients at high-volume centers were 18% less likely to experience a complication. The cost of the procedure was also an average of $867 lower for high-volume than low-volume surgeons, while the cost of treatment was $966 lower at high-volume centers.


Protein identified that increases risk of preterm labor

A protein called Anthrax Toxin Receptor 2 (ANTXR2) promotes cervical softening and dilation—a process called ripening—and is necessary for successful labor and birth, a recent study in PLoS One shows. The study, led by Jan Kitajewski, PhD, a clinical pathologist in OB/GYN, showed that female mice lacking the protein were able to get pregnant but unable to deliver. The team discovered that ANTXR2 regulates enzymes called matrix metalloproteinases (MMPs), which promote cervical remodeling or ripening. Dysregulation of the MMPs by ANTXR2 could lead to prematurely ripening of the cervix—a condition called cervical insufficiency—and result in preterm labor and premature birth, the group concluded. These findings led to the formation of the multidisciplinary Collaborative Cervical Research Group at Columbia, which is working to develop a test to determine the risk of preterm labor in humans.


Innovations in Research
New prenatal genetic test is much more powerful than standard chromosome test

A genetic test called chromosomal microarray (CMA) provides more information about a developing fetus’s DNA and potential disorders than the standard method of prenatal testing, karyotyping, which is a visual examination of the chromosomes. CMA allows researchers to detect sub-microscopic deletions or duplications of DNA sequences, known as copy-number variants. Ronald Wapner, MD, Vice-Chair for Research in Obstetrics and Gynecology, led a 34-center NIH-funded study to compare the two types of tests and presented the study results at the 2012 Society for Maternal-Fetal Medicine meeting. In women who had routine prenatal diagnostic testing, CMA detected additional genetic abnormalities in about one of every 70 fetal samples that had a normal karyotype. Among the 683 women whose data was obtained, 64% of those who received the text messages were still OCP users compared with 54% of those who did not receive texts. The researchers found that OCP continuation declined after the study ended and the study group no longer received the texts.

When a higher than expected number of children started showing up at Boston Children’s Hospital with elevated liver enzymes in the early ‘90s, pediatric gastroenterologist Joel Lavine, MD became intrigued. His focus at the time was hepatitis B. But the elevated enzymes were a sign of fatty liver disease, then a rare problem. “I didn’t know much about the disease and I started digging into it,” says Dr. Lavine, Chief of Gastroenterology, Hepatology, and Nutrition.

When he moved to the University of California, San Diego in 1995, Dr. Lavine unwittingly moved into an epicenter of fatty liver disease. A combination of genetics and a diet high in fructose, refined carbohydrates, and animal fat seems to particularly predispose indigenous Americans to the disease, he says, and about a quarter of the population of San Diego is Mexican American. “Many more kids were coming in with elevated liver enzymes and ultimately I was getting five to 10 referrals a week,” he says. “What I saw in Boston paled in comparison to San Diego.” Over time Dr. Lavine’s interest evolved into expertise, and he is now a leader in research and treatment for the disease.

Nonalcoholic fatty liver disease (also called nonalcoholic steatohepatitis or NASH) has become the most common cause of chronic liver disease in children and adults in the US. The disease starts when food intake overwhelms the body’s normal fat storage mechanisms, and fat accumulates in the liver, causing oxidative stress and mitochondrial damage. Over time the liver can become scarred and hardened, leading to liver failure, cancer, and death. As obesity rates have risen so has the incidence of the disease, which now affects 9 to 10% of all American kids. Among those with the highest number of risk factors—16- to 18-year-old Mexican-American boys who are obese—the prevalence is astounding: 80% have fatty liver disease, he says.

Since the problem originates from oxidative stress, it occurred to Dr. Lavine that treatment with an antioxidant might be effective, so he conducted two studies of vitamin E (alpha-tocopherol). “It turns out that vitamin E lowered enzyme levels considerably in a short amount of time,” he says, and, based on this research, doctors now advise people with fatty liver disease to take vitamin E. Dr. Lavine was one of the founding members of the NIH’s NASH Clinical Research Network, established in 2002, which opened up opportunities for clinical trials related to the epidemiology, pathology, noninvasive biomarkers, genetics, and treatment of fatty liver disease in children.

Dr. Lavine joined the faculty at Columbia in 2010, and has launched many new studies in the past two years. One project is looking at the prevalence of fatty liver disease among kids in New York City. He anticipates that the study will show a very high prevalence, but less liver injury than he saw in San Diego. “Hispanics in New York City are from the Dominican Republic and Puerto Rico and have a different diet from Mexican Americans,” he says, “and Hispanics here are more African American, which is protective for reasons we don’t know yet.”

Dr. Lavine’s other current research projects touch on the natural history, progression, and genetics of fatty liver disease. At the root of the disease is obesity, “by far the most important medical problem we have now and will have for years into the future,” Dr. Lavine says. Weight loss is thought to be the most effective approach to treating the disease, he says, but public health efforts to promote weight loss have had little effect. “As doctors, we can only treat the complications of obesity. If we could find ways to make people comply with instructions about exercise and eating better, that would have huge repercussions for this disease, probably more than any pharmacologic therapy.” —Beth Hanson
The connection between technology and health care fascinates Paula Castaño, MD. She suspected that a daily text reminder would encourage young women to adhere to their oral contraceptive pill (OCP) regimen, for example, and designed a study to test the hypothesis. Her research, published in the January 2012 issue of Obstetrics & Gynecology, concluded that texting does work: young women who received daily educational text messages showed improved OCP adherence at six months, over routine care alone.

Young women lead the way in cell phone use, she notes. “Text messages are a good way to reach young women, and the strategy works across all social and economic levels.” Dr. Castaño’s study is in sync with others confirming similar findings, and she is joining manufacturers, public health programs, and clinics who have adopted digital tools such as apps, text messaging, social networking, and on-line information to reach teens and young adults who have grown up in a digital world.

Dr. Castaño, an OB/GYN and family planning specialist, joined Columbia’s faculty in 2005 after completing a research fellowship here. She went on to earn a Master of Public Health at Columbia’s Mailman School of Public Health, where she specialized in epidemiology and investigated the nutritional status of women in Columbia University Medical Center (CUMC)’s neighborhood. The focus of her research was her subjects’ intake of folic acid, which protects fetuses from neural tube birth defects such as spina bifida. Though Dr. Castaño found women in this neighborhood are “not good supplement takers,” she discovered that their diets provide adequate levels of the vitamin, because folic acid is added to grain products and rice.

Dr. Castaño then developed a short folate food frequency questionnaire, which was used in a nationwide clinical trial to determine the benefits of adding folic acid to OCP. Even if women stop using the pill to become pregnant, she explains, the body stores folate for months, protecting the fetus from birth defects.

Dr. Castaño’s current research explores ways to increase access to contraception for patients who do not receive regular health care. She has obtained funding for a one-year study of “Quick Start IUD,” a program in which gynecologists insert the contraceptive device at the patient’s initial visit. Research has shown that providing contraception to patients during their first visit significantly increases contraceptive success, as many patients do not return after an imposed waiting period.

In addition to research, Dr. Castaño is involved in clinical care. She has qualified as a preceptor to train residents in Essure™, a minimally invasive, permanent sterilization procedure, which requires no abdominal incisions. “This is a very good solution for poor surgical candidates,” Dr. Castaño notes. She also lectures occasionally, mentors one to two fellows per year, and is responsible for clinical supervision of medical students and residents.

The Essure™ project became Dr. Castaño’s year-long focus in 2010-2011 when she participated in the first Faculty Leadership Academy class led by Susan Rosenthal, PhD, Director of the Division of Child and Adolescent Health in Pediatrics. The Pediatrics Department initiated this program to foster leadership skills and peer mentoring among junior faculty. The program is designed to enhance the participants’ understanding of and effectiveness in CUMC’s institutional environment. Ten junior faculty members participate in each session. Because Pediatrics and OB/GYN physicians work closely to deliver women’s and children’s health services, two slots are set aside for members of the OB/GYN department.

Participants in the leadership program choose a clinically-focused project, attend training workshops, develop goals, incorporate peer feedback, and present their work to the group at year’s end. “This program has fostered relationships between physicians who otherwise wouldn’t meet,” notes Dr. Rosenthal. She was surprised and pleased to find the first year’s OB/GYN and Pediatrics participants very enthusiastic about the peer mentoring component, and says that Dr. Castaño’s group continues to meet regularly, a full year after completing the program. —Ellen Kuhn
Gynecologic oncology combines complex medical problems, surgical treatments, and the chance to develop strong connections with patients—all qualities that attracted Jason Wright, MD, when he was selecting a specialty during his OB/GYN residency at Barnes Jewish Hospital in St. Louis. “The opportunity to manage all aspects of a woman’s care is relatively unique,” says Dr. Wright, “and makes my work rewarding and engaging.” Throughout treatment and follow up, “I can develop lifelong relationships with patients and their families, share in their achievements and celebrations like graduations, weddings, and retirement,” he adds.

Dr. Wright joined CUMC in 2006, and now devotes a little more than half his time caring for patients with gynecologic cancers and hereditary cancer syndromes, and performing minimally invasive and traditional surgeries. His two main research interests—health services research and a condition called placenta accreta—take up the rest of his time. As a member of the relatively new field of health services research, he examines large databases to explore the comparative effectiveness of new procedures, quality of care and adherence to best practice guidelines, racial disparities in access to care and outcomes, and how novel technologies are used.

Economics and a sense of social responsibility are driving the growth of comparative effectiveness analysis, he says. “Among doctors, surgeons in particular are faced with so many new developments in technology and technological equipment, and have a relatively poor understanding of which patients can benefit and how best to use these advances,” he says. “The benefits of comparative effectiveness analysis apply to all areas of medicine, and gynecologic oncology surgeons have taken the lead, becoming one of the first groups to undertake this kind of analysis.”

In his clinical and translational research, Dr. Wright focuses on the biology and management of placenta accreta, a complication of pregnancy in which the placenta attaches abnormally deeply to the uterine wall. “Accreta is related to and behaves almost like cancer,” he says. “Both are caused by an unregulated proliferation of cells.” Women with placenta accreta are at very high risk of hemorrhaging during delivery, and usually require surgery to stem the bleeding and remove the placenta. Severe cases can lead to a hysterectomy or can be fatal. Dr. Wright is building one of the only tissue banks in the world to study molecular factors that predict the outcomes of women with accreta, and he is collaborating with Jan Kitajewski, PhD, a basic scientist in pathology and OB/GYN, to investigate ways to block new blood vessel formation (angiogenesis) in accreta, which may be relevant to treatment for gynecologic cancers, as these can also develop a network of blood vessels to fuel their growth. He is also engaged in research for novel chemotherapeutic drugs for ovarian and endometrial cancer.

Dr. Wright teaches surgical techniques and patient care to residents and medical students, and mentors three or four residents each year. This year he received a Mentor of the Year by the American Congress of Obstetricians and Gynecologists (ACOG). —Beth Hanson

Profiles

JASON WRIGHT, MD
Levine Family Assistant Professor
Florence Irving Assistant Professor of OB/GYN
More than ten years ago pediatric cardiologist Richard Friedman, MD, looked ahead and realized that while medicine was becoming more of a business, leadership in medicine at that time was not particularly business minded. In addition, he believed that some of the best business practices were transferrable to medicine. So Dr. Friedman took a leave from his post at Baylor College of Medicine in Houston, attended the University of Chicago Booth School of Business, and graduated in 2002 with an MBA. “Within a year of coming back to Baylor I was essentially the vice chair of finance and clinical operations. It really showed a lot of the physicians I worked with the value of an MBA.”

Dr. Friedman left Texas last summer to become co-director of NewYork-Presbyterian’s Congenital Heart Center, which offered him the opportunity to “work with one of the greatest surgeons in the world,” Emile Bacha, MD, a pediatric cardiac surgeon and Dr. Friedman’s co-director at the Center. “There’s not another surgeon that I’d rather work with. He’s an amazing partner, and in an era where a lot of people have problems with collaborations he embraces it.” Dr. Friedman was also drawn by the chance to bring his business acumen to CUMC’s Division of Pediatric Cardiology, a group that includes many very talented physicians, he says.

“One of the values of an MBA is learning how to be better organized and more profitable with the same people but different processes,” according to Dr. Friedman. He is applying this vision to the new pediatric cardiology clinic that’s [just opened]. “We’re changing the clinical process model in our clinic. We’ve added nurses, linked our echocardiography laboratory to the clinical sched-
Comprehensive and Coordinated Care for High-Risk Pregnancies: Carmen and John Thain Center for Prenatal Pediatrics

For a very small percentage of women, the happy news of a pregnancy is undercut in the following months by test results that suggest that the fetus has a physical anomaly or genetic syndrome. The news is not only distressing, but can be the start of weeks of ultrasounds and other tests and consultations with subspecialists at many different locations.
Almost a decade ago, Mary D’Alton, MD, Chair of the Department of OB/GYN, envisioned a collaborative center bringing together the technology and expertise required to care for women with these complex pregnancies; a gift from the Thain family enabled her department to realize this vision. At the Carmen and John Thain Center for Prenatal Pedi-

A
ductives patients have access in one location to prenatal diagnostic testing, physician consultations, genetic counseling, and pregnancy management. Often consultations can be arranged with several specialists during the same visit. The specialized care offered by the Center progresses from diagnosis, to birth, to fetal therapy if needed, and pediatric follow-up.

The Center for Prenatal Pediatrics (CPP) cares for about 550 families a year, and the most common fetal anomalies specialists at the Center see are heart problems. “About a third of our cases involve congenital heart disease, followed by chest issues including diaphragmatic hernia and lung lesions, and multiple gestations,” says Lynn L. Simpson, MD, the Center’s Medical Director. As the number of women having twins has increased, so have the odds of developing a serious pregnancy complication called twin-to-twin transfusion syndrome, she says. This disorder affects as many as 15 percent of identical twin pregnancies and results from uneven blood flow between the fetuses. “Until recently the outcome was usually death or disabilities for the surviving babies,” she says.

The CPP, located in the Morgan Stanley Children’s Hospital, is one of the only centers in New York to offer a new minimally invasive laser treatment for this syndrome, which involves coagulating unnecessary and harmful blood connections between the two fetuses. “This laser treatment has saved the lives of many twins with this syndrome, giving them the chance to grow up healthy and strong,” says Dr. Simpson.

Women seen at the CPP may also be at risk for a premature or complicated delivery that requires close coordination with pediatric specialists. The 10,000 square foot Center is just two floors above the Labor and Delivery Suite and near the Neonatal Intensive Care Unit, making it easier for patients to access the multidisciplinary care provided by one of the largest and most experienced maternal-fetal medicine teams. “We’re in an extremely convenient place for patients,” Dr. Simpson says. “We can do all the tests and procedures in one day, and patients and their families can get all they need in one place including delivery, which makes it easier if complications arise.”

Major improvements in imaging technology over the past decade mean that few fetal anomalies now go undetected, says Dr. Simpson. “The 3-D and 4-D ultrasound capabilities have revolutionized ways to view, define, and diagnose abnormalities,” she says. “Some technologies—Doppler velocimetry studies, for example—have changed the way we manage conditions like anemia.” Now the standard of care, Doppler uses sound waves to reflect off the blood flow in the vessels, enabling doctors to look at the velocity of the blood and make predictions and prognosis. “We can also use Doppler studies in growth-restricted babies to identify fetuses at risk for stillbirth that may need to be delivered early. We also have an ultrafast fetal MRI, which is especially helpful in identifying brain anomalies and their subtleties,” adds Dr. Simpson.

Central to the success of the Center and its treatment outcomes is a weekly multidisciplinary prenatal pediatrics conference in which a plan for the best management of the patients’ pregnancy and newborn period is developed.

The Center for Prenatal Pediatrics is a designated site of the North American Fetal Therapy Network (NAFTNet). Funded, in part, by the National Institutes of Health, this association of 20 medical centers that perform advanced in-utero fetal therapeutic procedures, fosters collaborative research in the field. This network enables the Center to offer patients with complicated conditions access to the latest clinical studies.

— Linda Errante

Lynn L. Simpson, MD, is Medical Director of the Carmen and John Thain Center for Prenatal Pediatrics and an Associate Professor of Obstetrics and Gynecology.

We can do all the tests and procedures in one day, and patients and their families can get all they need in one place including delivery, which makes it easier if complications arise.
New Faculty

Pasquale (Pat) Casale, MD, has been appointed the new Chief of Pediatric Urology. Dr. Casale comes from Children’s Hospital of Philadelphia, where he served as Director of Minimally Invasive Surgery, developing CHOP’s Endourology/ Laparoscopic Urology Program and Robotic Surgery Program.

Steven G. Kernie, MD, has come on board as Chief of Pediatric Critical Care Medicine. Dr. Kernie was Medical Director of Research and Director of the Perot Family Center for Brain and Nerve Injuries at Children’s Medical Center in Dallas. Dr. Kernie is leading research on neural stem and progenitor cells that may contribute to recovery following brain injury.

Andrew L. Kung, MD, PhD, has been named Chief of Pediatric Hematology/Oncology. Dr. Kung was most recently with the Dana-Farber Cancer Institute in Boston, where his clinical focus was on hematopoietic stem cell transplantation.

Fangming Lin, MD, new Chief of Pediatric Nephrology, joins the Hospital from Children’s Medical Center in Dallas. A leading authority in renal regeneration using stem cell-based therapy to treat acute kidney injury, Dr. Lin is conducting NIH-funded studies in animal models. She is also interested in pediatric hypertension related to kidney damage.

Heakyung Kim, MD, has joined NewYork-Presbyterian Hospital as Chief of the new cross-campus Pediatric Physical Medicine and Rehabilitation Service. Previously, Dr. Kim served as Director of Pediatric Rehabilitation at the Children’s Hospital of Philadelphia. One of the country’s leading pediatric physiatrists, Dr. Kim has helped pioneer several new therapies, including combined therapy of Botox and phenol with a spinal drug-delivery system called Intrathecal Baclofen Pump for spasticity and dystonia.

Training faculty to be 21st century leaders

Nine Faculty Leadership Program graduates presented final projects to an audience of faculty advisors, instructors and mentors on June 5th. NYP President Robert Kelly, MD, congratulated the group, commending their acquisition of new skills which equip them to act as leaders rather than followers. This group is the second class to complete the Leadership Program led by Susan Rosenthal, PhD, ABPP, and Vice Chair for Faculty Development in Pediatrics, CUMC and MSCHONY.

The Leadership Program originated when Dr. Stanberry, Pediatrics Chair, asked Dr. Rosenthal to develop the initiative. Dr. D’Alton, OB/GYN Department Chair, was an early advocate of the year-long program, which accepts up to 10 participants. Faculty who already hold leadership roles and responsibilities are invited to participate. Pediatrics faculty make up the majority of each class; other members come from OB/GYN, Psychiatry, and Rehab Medicine. Participants choose a specific project related to their roles to develop during the program. This year’s topics included investigating ways to use electronic media to enhance visibility for Pediatric programs, implementing an OB-specific rapid response team, and development of a pediatric-resident-as-teacher program.

The Leadership Program objectives include developing a leadership style that draws on personal strengths to work effectively in leadership and mentoring roles. The group learns to increase their negotiating and conflict management skills, and to broaden their understanding of academic health centers’ structural complexities, including the basics of financing and operational challenges. Participants also build relationships with a peer group which provides peer-mentoring to address challenges.

“Leadership is a skill that can and should be taught,” noted Dr. Stanberry.
When Andrea Hsu and her husband Leo Clark first came to Columbia University Medical Center (CUMC) for fertility treatment at the Center for Women’s Reproductive Care in 2009, they were fortunate and Andrea became pregnant quickly with identical twins. Early on, though, they discovered that their babies shared the same placenta. This condition carries a risk of twin to twin transfusion, which can lead to fetal demise.

As Andrea says, “We’re the type of people who do a lot of research. We were concerned about the shared placenta. We learned that Mary D’Alton, MD (Chair of the Department of Obstetrics and Gynecology) is a leading doctor for monochorionic pregnancies, and there was no question of where we wanted to be for care during the pregnancy.”

In the second trimester of her pregnancy, Andrea visited her doctor for a routine check up and learned that she was at risk for delivering her babies at 20 weeks. She consulted Dr. D’Alton and had a procedure to try to continue the pregnancy, then went on full bed rest at home. Unfortunately, Andrea was admitted to Columbia University Medical Center two weeks later with symptoms of premature labor.

Andrea’s medical team wanted to prepare for the strong chance she might deliver prematurely, so she received a series of steroid shots to help speed up the development of the babies’ lungs, thereby increasing their chances of survival. On March 27, 2009, Lily and Zoe were delivered. “We feel that if these children were not born here they would not have made it. They are 23-weekers.”

Lily and Zoe were fairly strong babies considering that they were so premature. “They are here because we’re really lucky. There’s less than a five percent chance they would both survive without significant impairments. It was a combination of good medicine and science and a lot of love.”

The family’s involvement with CUMC did not end with the birth of the twins. They had a series of medical challenges to overcome: prolonged intubation, multiple bouts of sepsis, and damage to their retinas; complications not unusual for premature babies. The twins had extensive stays in the Neonatal Intensive Care Unit (NICU), Zoe for five months and Lily for six months. Neonatologist Helen Towers, LRCP followed them throughout their stay and was an invaluable partner, says Andrea.

Andrea explains that the NICU at CUMC is very family-centered and ideal for acutely ill babies. “During family rounds the team talks to the parents. It’s a terrible situation to be thrown into but they give a tremendous amount of support. They talk about their concerns and
come up with a solid plan and write it down, so the parents always know what the plan is. That’s the difference between care at Columbia and care at other medical centers.” During Lily’s time in the NICU, the team was unable to successfully extubate her due to severe acquired subglottic stenosis. Therefore, in consultation with Eli Grunstein, MD, Assistant Director of Pediatric Otolaryngology, and the NICU team, Andrea and Leo made the difficult decision to give Lily a tracheostomy. Training with the NICU nurses, nurse practitioners, neonatologists and ENT physicians, Andrea and Leo learned to care for Lily and her tracheostomy and she was discharged home.

The family continued to rely on the pediatric experts at CUMC after the twins’ NICU stays. “For a child with a trach, the Pediatric ENT Department at Columbia is excellent,” said Andrea. A year after being trached, Lily underwent a double-stage laryngotraceo-plasty—an upper airway reconstructive procedure performed by Dr. Grunstein. He completed the surgery using two rib grafts from Lily to widen and strengthen her trachea. Less than five months later, Lily was successfully decannulated.

This continuity of care has had an incredible impact. Lily and Zoe are now three years old, developing well with speech, occupational, and physical therapy, and they will be going to a mainstream pre-school in the fall.

In recognition of the tremendous care Lily and Zoe received, the family decided to give back by supporting both Obstetrics and Pediatrics—their first gift went to the NICU to help train fellows, and the second gift funded research in the Center for Prenatal Pediatrics.

Andrea says, “My family all visited the NICU and they feel the same. Had Lily and Zoe not landed in the NICU at CUMC they would not be here. We’re extremely grateful. It is an exceptional place.” — Klancy Miller
In the News

DR. OZ

Dr. Westhoff on using the birth control pill to prevent cancer

Taking birth control pills over the course of several years at any point in a woman’s life can reduce her risk of developing cancer of the uterus, ovaries, and colon, Dr. Carolyn Westhoff, Professor of Obstetrics and Gynecology, explained on the Dr. Oz Show. Taking the pill for at least five years may reduce the risk of endometrial cancer and ovarian cancer by 50% and also reduce colorectal cancer risk by 20%, Dr. Westhoff said. Women most commonly take the pill during their 20s, but women into their 40s may also need protection from pregnancy and support for the hormonal changes that occur during peri-menopause and menopause. The cancer preventing benefits can accrue when women take the pill at anytime during their lives, she said. While the hormones and copper released from a medicated IUD could reduce the risk of endometrial cancer, they do not provide any protection against ovarian cancer, she explained. Dr. Westhoff concluded that in healthy women, the benefits of taking the birth control pill outweigh any risks.


CBS SAN FRANCISCO

Dr. Hametz describes toddlers’ breath-holding spells

When toddlers have a breath-holding spell it can be shocking and upsetting for a parent. During a spell, children “often start crying very hard and then they’re silent,” Dr. Patricia Hametz, an Associate Clinical Professor in Pediatrics, explained in a recent report on CBS San Francisco. “They essentially stop breathing, can turn either purple or blue, and they may pass out.” After a brief period of unconsciousness children start breathing normally again and their color quickly improves. About 5 percent of children have at least one breath-holding spell. They can start in children as young as two months old, are most common in kids between the ages of one and three years, and almost always stop by the time the child reaches age 6-8. Breath-holding spells are usually benign, but it’s a good idea to speak with a pediatrician when breath holding happens.


HBO: WEIGHT OF THE NATION

Drs. Leibel and Rosenbaum

Dr. Leibel says during “Consequences,” the first part of the series, “Children in Crisis,” the third of HBO’s four-part documentary series, “The Weight of the Nation,” interviews with public health and medical experts, and individuals and their families who are struggling with obesity. “Obesity is a classic of what we call a gene by environment interaction and an individual’s body weight is the result of an interaction of their genetic makeup with the environment that they happen to be living in.” Dr. Rudy Leibel says during “Consequences,” the first part of the series.

http://theweightofthenation.hbo.com

CBS NEWS

Dr. Lewin responds to new cervical cancer screening guidelines

New screening recommendations from the United States Preventive Services Task Force (USPSTF) and published in the Annals of Internal Medicine recommend that healthy women ages 21 to 65 get screened for cervical cancer with a pap smear test every three years. These new recommendations use more decisive language to advise women to undergo screening less often than those published in 2003. According to the new recommendations, women ages 30 to 65 can prolong screening to every five years if they get a HPV test with it. Commenting on the recommendations, Dr. Sharyn Lewin, Assistant Professor of Gynecologic Oncology, told CBS News that, “To blanketly say in these low risks patients five years is appropriate might be a stretch too far.” Women should not skip their annual checkups, she added, because the visit includes other important facets such as discussions about contraception, STDs, breast health, bone health, and sexual health.


THE NEW YORK TIMES

Dr. Santelli on the decline in teenage birth rates

Contraception is the most significant factor in the continuing drop in teen birth rates, Dr. John Santelli, a Professor of Clinical Population, Family Health, and Pediatrics, told The New York Times in an article on falling teen birth rates. “In the ’90s, it was the big increase in condom use; most recently it looks like it’s an increase in the use of oral contraceptives, the patch and perhaps even the IUD,” he said. Researchers at the National Center for Health Statistics (NCHS) reported that fewer teenagers gave birth in 2010 than in any other year since 1946. Today’s teenagers are initiating sex later and using birth control more consistently than previous generations did, evidence suggests. According to the NCHS report, birth rates among young women ages 15 to 19 fell in all but three states and in all racial, ethnic, and age groups between 2009 to 2010, the rate of teenage births fell by 9 percent, to 34.9 per thousand, the lowest rate ever reported in the 65 years for which data is available. “I think the current generation of youth are perhaps more conscientious and cautious,” said Dr. Santelli.

Honors & Awards

Pediatrics
Staci Arnold, MD, a pediatric hematologist, was invited to participate in the American Society of Hematology’s Clinical Research Training Institute, a workshop on key issues in clinical and translational hematologic research.

David Bell, MD, a pediatrician and Medical Director of the CUMC’s Young Men’s Clinic, was named “Hematologist of the Year” by the Black and Latino Student Organization.

Katherine Biagas, MD, Associate Director of the Division of Pediatric Critical Care Medicine, received a 2012 presidential citation award from the Society of Critical Care Medicine (SCCM) for research into non-invasive techniques to treat respiratory distress syndrome in infants in Ghana.

Marisa Cansani, MD, a pediatric endocrinology post-doc fellow, received a Fellowship Award from Genentech for clinical research in endocrinology.

Community Health Partnership of The Heights, a partnership between the Division of Child and Adolescent Health at Columbia University, the Ambulatory Care Network of New York Presbyterian Hospital, and the communities of Washington Heights and Inwood, received the 11th annual CCPH from the Community-Campus Partnerships for Health (CCPH).

Community Pediatrics’ Healthy Schools Healthy Families “Just Move” program was chosen as one of eleven winners nationwide of the ChildObesity 180 Active Schools Acceleration Project competition.

Gina Coscia, MD, a pediatric pulmonology fellow, received the First/Second Year clinical fellowship grant award from the Cystic Fibrosis Foundation for specialized training in diagnosing and treating CF, and for CF-related research.

The Division of Pediatric Dermatology received an award from The Leroy Schrechter Foundation to support fellowship training, and to advance Maria Garzon, MD’s research.

The Division of Pediatric Oncology received an award from the Irsohn Foundation for Integrative Therapies.

Julia Glade-Bender, MD, a pediatric oncologist, received NCi funding to continue the Phase I Experimental Therapeutics Program, which treats children with cancer who have exhausted most therapies. She also received a Hyundai Scholar Award, enabling her to study a personalized medicine model for children with cancer.

Neera Gupta, MD, a pediatric gastroenterologist, was this year’s winner of The John M. Discoli, Jr. MD Children’s Fund competition. The award will support her research into gender differences in children with Crohn’s disease.

Obstetrics & Gynecology
Cande Ananth, PhD, MPH, an epidemiologist in the Department of OB/GYN, was appointed Editor-in-Chief of Paediatric and Perinatal Epidemiology—the only specialty journal that caters to the fields of pediatric and perinatal epidemiology.

Columbia University Medical Center was ranked #5 for Best Medical Schools Women’s Health 2013 by US News and World Report for women’s health programs, including obstetrics and gynecology, endocrinology, and maternal-fetal medicine.

Columbia University Medical Center/NewYork-Presbyterian’s Gynecology Department was ranked #1 in the NYC metro area and #10 of almost 1,500 hospitals’ gynecology departments nationwide in US News & World Report’s 2012 listing of best hospitals in the US.

Mary D’Alton, MD, Chair, Department of OB/GYN, was named President-elect of the New York Obstetrical Society (NYOB), and President-Elect of the American Gynecological and Obstetrical Society (AGOS).

Anne Davis, MD, an obstetrician/gynecologist and family planning specialist, received the 2011 National Physician Advocacy Merit Award from the Institute on Medicine as a Profession.

Monica Dragoman, MD, an OB/GYN and family planning specialist, was named President-elect of the Society of Family Planning, and Senior Medical Advisor to Planned Parenthood Federation of America.

Jason Wright was named Florence Irving Assistant Professor of Obstetrics & Gynecology.

David Kessler, MD, Director of Clinical Operations for Pediatric Emergency Medicine, received a core pilot award from the Irving Institute for Clinical and Translational Research for research into the use of ultrasound in lumbar puncture in infants.

Ritwik Kulkarni, PhD, a pediatrics infectious disease fellow, received a one-year, $50,000 Columbia NIEHS Pilot Award for his research project on environmental tobacco smoke and its promotion of antibiotic resistance among respiratory pathogens.

Joel Lavine, MD, PhD, Chief of Gastroenterology, Hepatology and Nutrition, presented the State of the Art lecture for the International Liver Summit in Chandigarh, India in March 2012. Dr. Lavine has also been awarded a grant from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) as part of the clinical trial “Predicting Response to Standardized Pediatric Collitis Therapy (PROJECT).” He has also been invited to serve on the U.S. Food and Drug Administration (FDA) Advisory Committee for the Endocrinology and Metabolic Section.

Rudolph Leibel, MD, a molecular geneticist and Co-Director of the Naomi Berrie Diabetes Center, received an Honorary Doctorate from Louisiana State University.

Natalie Neu, MD, pediatric infectious disease specialist, and medical student Alexandra Cornilas, received the David E. Rogers Fellowship from the New York Academy of Medicine.

Kerice Pinkney, MD, received a two-year St. Baldrick’s Fellowship Award, to fund her research into the lymphoid malignancies.

Adam Ratner, MD, MPH, a pediatric infectious disease specialist, received a grant from The National Institute of Allergy and Infectious Diseases (NIAID) to further his research on reproductive tract infections that affect children.

Dr. Rakesh Sahni, MD, a neonatologist, received a National Institute of Health award for collaborative research with investigators at the General Electric Global Research Center into a non-invasive monitoring system for pulmonary function.

Lisa Saiman, MD, MPH, a pediatric infectious disease specialist, was the co-recipient of a T32 Grant from the National Institute of Nursing Research and National Institutes of Health for interdisciplinary research to prevent hospital-acquired infections.

Adam Ratner, MD, MPH, a pediatric infectious disease specialist, received a grant from The National Institute of Allergy and Infectious Diseases (NIAID) to further his research on reproductive tract infections that affect children.

Monica Dragoman, MD, an OB/GYN and family planning specialist, received the Society of Family Planning Award for Top Oral Presentation Fellowship Research Results presented at the 2012 annual meeting.

Thomas Herzog, MD, a gynecologic oncologist, was named to the American College of Surgeons (ACS) Board of Governors, and to the editorial board of HemOnc Today.

Brian Levine was selected for the ACOG-JSOG Resident Exchange Program, and received the International Scientific Award from the Japan Society for an oral presentation.

Sharyn Lewin, MD, a gynecologic oncologist, was named to the board of directors of Gilda’s Club, New York City, and medical director for the Women to Women Program by the Ovarian Cancer Research Foundation (OCRF). She also received the Clinical Award for Ovarian Cancer Research from the American Society of Clinical Oncology (ASCO) and The Susan G. Komen for the Cure.

Erica Mahany, MD, and Hemashi Perera, MD, both third-year OB/GYN residents, received the Arnold P. Gold Humanism and Excellence in Teaching Award.

Rini Ratan, MD, an obstetrician/gynecologist, received the Charles W. Bohnfalk Award for Distinguished Contributions to Teaching in the Clinical Years.

Briana Rudick, MD, an obstetrician/gynecologist and reproductive endocrinologist, received the Val Davajan Award for the Best Fellow Presentation at the Pacific Coast Reproductive Society 2011 Annual Meeting. She also was awarded Second Place Prize for her poster at the Annual Meeting for the American Society for Reproductive Medicine, Orlando, Florida.

Joy Vink, MD, a maternal fetal medicine specialist, received the Society for Maternal Fetal Medicine/American Association of Obstetricians and Gynecologists Foundation Award Scholarship to support her research on the causes of cerebal insufficiency and preterm birth.

Ron Wapner, MD, Vice-Chair for Research in Obstetrics and Gynecology, received the Dru Carlson Memorial Award for research by the Prenatal Microarray Study Group, which he presented at the 2012 annual meeting of the Society for Maternal-Fetal Medicine.

Carolyn Westhoff, MD, Director, Division of Family Planning and Reproductive Services, was named President-elect of the Society of Family Planning, and Senior Medical Advisor to Planned Parenthood Federation of America.

Jason Wright was named Florence Irving Assistant Professor of Obstetrics & Gynecology.
SEPTEMBER 2012— (DATE TO BE DETERMINED)

The Max Robbin Memorial
Lecture and Teaching Day
MSCHONY TOWER 103 AND
WINTERGARDEN, 7:30 AM—5:30 PM.

The Division of Pediatric Cardiology will hold The Max Robbin Memorial Lecture and Teaching Day to honor the memory of Max Robbin. Max was born with tricuspid atresia, and was treated by Dr. Allan Hordof at Babies Hospital, where he eventually underwent many surgeries. Max was applying to film schools when he died in November, 2006 from complications of emergency abdominal surgery. He was 29 years old. For more information about the event contact Kate Krug at lck2110@columbia.edu.

SEPTEMBER 23, 2012

The Neonatal Intensive Care Unit Alumni Day
ALUMNI AUDITORIUM, THE COLLEGE OF PHYSICIANS & SURGEONS (630 W. 168TH STREET) 12:00 PM—3:00 PM.

Please join our doctors, nurses, and staff for light refreshments, games, music, and much more. Parents, grandparents, brothers, and sisters of NICU alumni are all welcome to help celebrate Alumni Day 2012 with the NICU graduates. We welcome donations of new and barely used premie or newborn items for the clothing exchange.

OCTOBER 10, 2012

Sylvia Griffiths Lecture-ship and Teaching Day
MSCHONY TOWER 103 AND WINTERGARDEN, 7:30 AM—5:30 PM.

The Division of Pediatric Cardiology will hold The Sylvia P. Griffiths Lecture and Teaching Day, an event that has been endowed by generous contributions honoring Dr. Griffiths, her outstanding humanistic qualities, and her dedication to teaching. This year’s keynote speaker will be Roberta Williams, MD, Professor of Pediatrics, Children’s Hospital, Los Angeles. For more information about the event contact Kate Krug at lck2110@columbia.edu.

OCTOBER 14, 2012

Neonatal Intensive Care Unit Memorial Service
BARD HALL, 50 HAVEN AVENUE, 1:00—4:00 PM

Please join our doctors, nurses and staff for light refreshments and a memorial service for the Neonatal Intensive Care Unit. For more information contact Kate Krug at lck2110@columbia.edu.

OCTOBER 18, 2012

The Babies Heart Fund Presents
An Evening at Avenue
AVENUE, 116 10TH AVENUE
NEW YORK, NY 10010
7:00 PM—11:00 PM

The Babies Heart Fund Young Professional Society presents An Evening at Avenue to support the Division of Pediatric Cardiology. Since its inception in 1986, The Babies Heart Fund has raised more than $8 million dollars towards its mission: providing state-of-the-art patient care, groundbreaking research, and educating the next generations of pediatric cardiologists. For more information contact Kate Krug at lck2110@columbia.edu.

OCTOBER 19, 2012

The 34th Stephanie Lynn Kossoff Memorial Lecture
THE MYRNA DANIELS AUDITORIUM, MILSTEIN HEART CENTER, 11:00 AM—12:00 PM.

Dr. Thomas F. Boat, Christian Holmes Professor and Dean, College of Medicine, and Vice President for Health Affairs, University of Cincinnati, will present this year’s Stephanie Lynn Kossoff Memorial Lecture, “Cystic Fibrosis: A Model for Rare Disease Management.” The lecture series was established in 1979 to stimulate studies on the pathogenesis and treatment of cystic fibrosis, and is dedicated to the memory of Stephanie Lynn Kossoff, daughter of Mr. and Mrs. Burton Kossoff, who died of cystic fibrosis.

OCTOBER 26, 2012

Steve Miller Medical Education Day
MSCHONY TOWER 103 AND WINTERGARDEN, 8:00 AM—1:30 PM

The Steve Miller Medical Education Day celebrates Dr. Steve Miller’s humanism and educational excellence with lectures, workshops, and mini-grants for student projects. The highlight will be the keynote address, The Steven Z. Miller Lecture on Humanism in Medicine, which is sponsored by the New York Academy of Medicine and The Arnold P. Gold Foundation. This year’s esteemed lecturer will be Janet Serwint, MD, Professor of Pediatrics, Johns Hopkins University. Her topic will be “Humanism in Pediatric Death and Bereavement.”
Connections

SUMMER 2012

Residents & Fellows News

Rakhee Bowker, MD, (3rd-year pediatrics resident) undertook research into neurodevelopmental outcomes of infants of drug-abusing mothers with mentor Tove Rosen, MD, during her clinical research rotation at the Irving Institute. Dr. Bowker also recently became interested in the effects of age of transfused blood on adverse clinical outcomes in neonates. Working with Drs. Sudha Kashyap, Eldad Hod and Steven Spitalnik, she has received IRB approval for a prospective study evaluating the relationship between age of stored red blood cells, inflammatory cytokines, and non-transferrin bound iron levels in very low birth weight neonates.

Jaclyn Coletta, MD (3rd-year fellow, now Asst. Clinical Professor of OB/GYN, MFM Division) and Zachary Rubbo, (4th-year OB/GYN resident) collaborated with other department colleagues on research comparing a 3-tier versus a 5-tier system to identify fetuses at risk of acidemia. The retrospective case-controlled study, published in the American Journal of Obstetrics and Gynecology (2012 Mar;206(3):226.e1-5), included 24 cases with a fetal arterial pH <7 matched to those a pH >7.2. “The 5-tier classification system performed better than the 3-tier classification in characterizing fetuses with acidemia who required subsequent admission to the NICU and respiratory support,” the authors conclude. “While the 5-tier system may be cumbersome due to its complexity, it may be a worthy undertaking to better characterize abnormal tracings that subsequently result in fetal acidemia.”

Cassandra Duffy, MD, MPH, (first-year OB/GYN resident) and colleagues undertook a study to estimate the association between number of cervical examinations and risk of maternal fever during term labor and delivery. The authors of the four-year retrospective cohort study, published in Obstetrics and Gynecology (2012 Jun;119(6):1096-101), found no significant association between increasing number of examinations and risk of fever.

Teresa Lee, MD (post-doctoral fellow in pediatric cardiology), and colleagues studied genetic mutations in patients with heterotaxy syndrome, a birth defect caused by left-right asymmetry disturbances. Heterotaxy is associated with abnormal lateralization of the abdominal and thoracic organs, including, frequently, the heart. The group sequenced the genes Zinc Finger Protein of the Cerebellum 3 (ZIC3), Left–Right Determination Factor 2, Activin A Receptor Type IIb (ACVR2B), and Cryptic. (ZIC3 and ACVR2B are known to cause heterotaxy and associated cardiovascular anomalies.) Their research, published in Cardiology in the Young (2012; 22, 194–201), identified two novel genetic changes in ZIC3. “Our results expand the mutation spectrum of monogenic heterotaxy syndrome with associated cardiac anomalies and suggest that there are other causes of heterotaxy yet to be identified,” they write.

Brian Levine, MD, MS, (graduated OB/GYN resident), was selected for the ACOG/JSOG Resident Exchange Program and received the International Scientific Award from the Japan Society for an oral presentation. Dr. Levine was also lead author on an article on ovarian ectopic pregnancy, published in the Journal of Gynecologic Surgery (December 2011, 27(4): 267-269). Dr. Levine and co-authors describe a case report of an ovarian ectopic pregnancy that occurred after clomiphene citrate and intrauterine insemination, which was eventually treated with laparoscopic resection of a trophoblastic mass. “Ovarian ectopic pregnancies are extremely rare but must be considered... in patients undergoing assisted reproductive care with an appropriately rising hCG or an adnexal mass noted on pelvic ultrasonography,” they conclude.

Stephanie Lovinsky-Desir, MD (2nd year fellow, pediatric pulmonary), along with Rachel Miller, MD, surveyed experimental and translational studies in environmental epigenetic regulation in asthma and allergic disease published over the past year in an article in Current Allergy and Asthma Reports (2012, 12:211–220). The advances they review include the characterization of both environmental asthma triggers that induce epigenetic changes and allergic immune and regulatory pathways important to asthma that undergo epigenetic regulation. They also reviewed evidence of active epigenetic regulation in asthma experimental models and the suggestion of an emerging field related to “pharmaco-epigenetics.” “The field has certainly advanced significantly in the past year,” the authors conclude.

Ted Macnow, MD, (3rd-year pediatric resident) has been involved in two research projects. Dr. Macnow and colleagues presented their study “Testing for Syphilis in Adolescents: How Useful Is It?” at this years Pediatric Academic Society meeting in Boston. The research also won first place at the 2012 Annual Resident Scholarly Project Forum at Morgan Stanley Children’s Hospital. He presented his work on “Yield of Surveillance Cultures for Infants Transferred to the NICU” at the Eastern Society for Pediatric Research meeting in Philadelphia and at the Pediatric Academic Society meeting in Denver.

Erica Mahany, MD (4th-year OB/GYN resident) collaborated with her mentor Nataki Douglas, MD PhD on research on the role of the gene Tbx4 in the embryonic and postnatal reproductive systems of the mouse. Tbx4 is important in the development of other non-reproductive organ systems, and Drs. Mahany and Douglas found it in the reproductive germ cells of embryonic and postnatal mice. They went on to characterize its expression pattern in the developing internal and external genitalia, and showed that it is present at various points embryonically in males and females, as well as in postnatal females. They are currently initiating experiments to study its function. Dr. Mahany presented abstracts on this work at the 2011 ACOG District II Annual Meeting (New York, NY), the 2012 Society for Gynecologic Investigation Annual Meeting, and the 2012 New York OB Resident Research Day.

Jason Price (3rd-year fellow, pediatric pulmonary) and colleagues studied antibodies to bed bugs allergens among adults with a report of bed bug bites. Bed bugs (C. lectularius), have had a resurgence in New York City, and “the potential health implications of this increase in exposure are unknown,” Dr. Price and co-authors write in a letter to the editors of Journal of Allergy and Clinical Immunology (2012 Mar;129(3):863-865). The researchers set out to develop assays to measure IgE antibodies against crude C. lectularius extract and a salivary protein Cimex nitrophorin (cNP) to determine the prevalence of sensitization to bed bug allergens among adults with a report of bed bug bites. They write, “Given the large increase in human exposure to bed bugs in NYC and elsewhere and the demonstrated IgE response to allergens from C. lectularius, it is clear that future studies need to examine the clinical relevance of IgE responses to bed bug allergens on allergic symptoms.”

Maria Schiavone, MD, (chief resident applying for fellowship in Gyn Oncology), was interviewed by several medical news outlets following a controversial talk about robotic surgery that she gave at this spring’s Society of Gynecologic Oncology meeting. As many as 90% of hospitals that promote robotic surgery rarely use it, she said. “Our findings reveal that marketing by hospitals of robotic gynecologic surgery is widespread, and that web-based content is frequently not supported by high-level data and is strongly influenced by industry,” she said.
malnourished during the second trimester of their pregnancies had a slightly increased risk of obesity, Dr. Leibel said. “The mothers had been underfed, and the offspring ended up being obese or a little bit plumper when they were screened for military service 20 some odd years later.”

Researchers looking at the effects of a more recent phenomenon—bariatric surgery for weight loss—found that children born to women when they were obese had about twice the risk of becoming obese themselves as children born to the same women after they had slimmed down as a result of bariatric surgery. "There may be a variety of reasons for this—the women may have been more interested in their infant's nutrition after they had the bypass, for example," Dr. Leibel said. "But this study suggests that the gestational metabolic environment can have an impact on the infant.”

Obesity is accompanied by many biochemical changes, particularly a heightened resistance to the action of the hormone insulin, which regulates carbohydrate and fat metabolism, and insulin resistance is believed to influence the biochemistry of the placenta and to affect the development of the fetus, said Dr. Leibel. To isolate the effect of insulin resistance, he and his associates studied mice that lacked one of the insulin receptor genes, making the mice quite resistant to insulin, but not obese. The pups of these mice, which had normal insulin receptor genes and were not insulin resistant, had a more rapid increase in body weight during the early part of their postnatal lives, and fewer brain cells related to the regulation of body weight than the control animals, demonstrating the effect of maternal insulin resistance on the brain development of a fetus.

This research parallels comparable findings on diabetes risk among the progeny of obese mothers, who show a striking susceptibility to the disease, Dr. Leibel said. “We know that if you make an individual obese his or her risk of diabetes increases, so part of the risk of diabetes is conveyed by increased body fat. But it’s also pretty clear that intrauterine gestational influences affect not only the brain’s control of food intake but also the development of the beta cells, which store and release insulin. And the combination of these two factors is very likely to make the risk of diabetes even greater.”

Even very mild degrees of obesity can increase the risk of diabetes two- or three-fold, Dr. Leibel said, “and as you become more obese the risk goes up 10- to 30-fold.” Children are now developing type 2 diabetes at younger and younger ages, probably because they’re getting obese earlier, said Dr. Leibel, and if they have a genetic predisposition to diabetes, they’re showing it earlier. “If we could control body weight better, we probably could prevent somewhere in the neighborhood of 50 or 60 percent of cases of diabetes,” he added.

The influence of the intrauterine environment on the obesity epidemic may be difficult to break. "If women who are genetically predisposed to become obese, then pass on the genes they themselves inherited—while their obesity influences the intrauterine development of their offspring’s brain cells that play a role in food intake and energy expenditure," Dr. Leibel said, “then this can become a forward-feed kind of system in which the risk of obesity among members of a population accelerates.”

—Beth Hanson

Rudolph Leibel, MD, is a Professor of Pediatrics and Medicine, Christopher J. Murphy Memorial Professor of Diabetes Research, Director of the Division of Molecular Genetics, and Co-Director, Naomi Berrie Diabetes Center.

or to evaluate how bad it will be in the first pregnancy, but Drs. Berkowitz and Bussel have developed a way to determine how severe it will be in a woman’s subsequent pregnancies based on whether the first fetus developed an intracranial hemorrhage, and if so, how early it occurred.

“That’s the single best indicator of how bad it’s likely to be in the next pregnancy,” Dr. Berkowitz said.

Drs. Bussel and Berkowitz’s collaboration began in the early 1980s when Dr. Bussel, a specialist in platelet disorders of children, recognized that, to be most effective treatment for alloimmune thrombocytopenia had to begin in utero, and that the most effective treatment was likely to be a combination of intravenous gammaglobulin (IVIG) and steroids. He enlisted Dr. Berkowitz, a high-risk obstetrician with experience in fetal blood sampling, a potentially risky procedure for the fetus. "We decided to work together to try to figure out a number of things," Dr. Berkowitz said. “Number one, the very best way to diagnose this disease. Two, understand its natural history. And three, determine the safest and most effective therapeutic regimen to offer women at risk of having a fetus affected by this condition.” They divided their responsibilities: Dr. Bussel was primarily responsible for the IVIG treatment and Dr. Berkowitz for fetal blood sampling and any other necessary invasive procedures, following the women with serial ultrasound exams, and helping to manage their pregnancy and delivery issues.

Because AIT is a relatively rare disorder and they needed data on a large number of cases to come up with meaningful answers to these questions, the researchers sent multiple letters to Maternal-Fetal Medicine specialists throughout North America asking them to participate in a series of study protocols, and they persuaded the manufacturers of IVIG, an extremely expensive drug ($1,000-$2,000 per infusion), to provide the drug at the price that patients’ insurance companies were willing to pay. "It was really quite extraordinary that we were able to perform these studies over all this time with really very little in the way of outside financial support," Dr. Berkowitz says.

Using the data they accumulated over many years, they developed an essentially noninvasive treatment approach that no longer requires fetal blood sampling. The timing of treatment and the dosage of medication depends on the history of intracranial hemorrhage in a prior pregnancy, Dr. Berkowitz explains. If the fetus developed an intracranial hemorrhage in utero earlier than 28 weeks, they start treatment at 12 weeks with a high dose of intravenous gammaglobulin (IVIG), and add steroids at 20 weeks. If the hemorrhage occurred after 28 weeks, treatment begins at 12 weeks with a lower dose of gammaglobulin. Alternatively, if a patient has had an affected child but no intracranial hemorrhage, treatment begins at 20 weeks. In all cases, at 32 weeks they advance to full therapy for the remainder of the pregnancy, "because, at that point, we want to maximize the protection given to the fetus. In virtually all cases, the fetuses of women following our regimen will not have an intracranial hemorrhage prior to, or during the delivery," Dr. Berkowitz says.

The treatment approach developed by Drs. Bussel and Berkowitz is the first successful minimally invasive therapy for a disease in utero, he adds. "The best thing about this disease is that once the baby is out of the mother the antibodies that cause the problem will disappear from it’s circulation after a couple of weeks, and you have a totally normal infant who will never again be affected by the disorder. So, in effect, this is a disease we can cure—not just ameliorate.”

—Beth Hanson

Richard Berkowitz, MD, is a Professor of Obstetrics and Gynecology and Director of Resident Education.