A Career Worthy of Recognition
Mary D’Alton Elected to the Institute of Medicine

Mary D’Alton, MD, Willard C. Rappleye Professor of Obstetrics & Gynecology and chair of the Department of OBGYN, was inducted into the Institute of Medicine (IOM) at the organization’s 44th annual meeting in October. She joins the ranks of more than 2,000 physicians and other healthcare providers elected to the IOM in recognition of their contributions to medical science, health care, and public health, as well as their commitment to service.

Dr. D’Alton, a specialist in high-risk maternal fetal medicine, performs prenatal diagnostic procedures and manages maternal...
Message from the Editors

This issue marks the beginning of Connections’ third year of publication. Over the past two years, we’ve focused on some big themes like technology, community care, and global health. We’ve introduced many new faculty members, and have highlighted several of the productive research and clinical care collaborations between our two departments. This issue includes more examples of the impact of technology on care. Our cover story is about how heart surgeons are using 3D printing to help them plan complicated surgeries for babies with congenital heart disease, greatly lessening the chance of complications. Technology is also at the heart of improvements in the care of children with cystic fibrosis, as drugs specifically targeting the range of genetic mutations linked to CF are beginning to transform the lives of people with the disease (page 11). We also highlight the benefits of traditional medical skills like connecting with patients and getting them to open up about their health problems in a profile of the Young Men’s Clinic and its director, David Bell, MD (page 7). Hand washing may also sound old-fashioned but it’s the cornerstone of preventing hospital-acquired infections, the job of hospital epidemiologist Lisa Saiman, MD (page 9). On page 14, read about how specialists at the Center for Women’s Reproductive Care (CWRC) are helping same-sex couples conceive babies. And we honor Mary D’Alton, MD, chair of OB/GYN, whose many achievements led to her induction this year to the prestigious Institute of Medicine (page 1). Congratulations Mary! Thanks for your comments, suggestions, and support over the last two years, and thank you for reading!

Michael Weiner, MD
Department of Pediatrics

Cande Ananth, PhD, MPH
Department of Obstetrics and Gynecology

Co-Editors-in-Chief
Connections
Medical Societies Provide a Platform for Collaboration

A Conversation Between Mary D’Alton, MD & Lawrence Stanberry, MD, PhD

Mary D’Alton, MD, chair of obstetrics and gynecology, and Lawrence Stanberry, MD, PhD, chair of pediatrics, spoke recently about medical societies and their importance in establishing guidelines, developing leaders, and enabling collaborations.

Dr. Stanberry: Professional societies are made up of individuals who are experts in their areas and who have shared educational, research, or clinical interests, and who come together to help set agendas for new discovery, to help develop guidelines, and to set standards. In pediatrics, the largest organization is the American Academy of Pediatrics, which represents all pediatricians, not just academic physicians. The American Pediatric Society has more of an academic focus, and then there are a number of smaller pediatric specialty societies that come together at an annual umbrella meeting called the Pediatric Academic Societies, which focuses on research on pediatric illnesses conducted by pediatricians and other scientists.

Dr. D’Alton: In our specialty, the major society is the American College of Obstetricians and Gynecologists, or ACOG as it’s commonly known, which represents the 40,000 obstetricians in the United States. Each of our subspecialties has its own society, and they work with ACOG so that no policies or procedures are done in isolation; they have the support of the major group.

ACOG has an extremely close collaborative relationship with the American Academy of Pediatrics, and there are a number of joint publications between ACOG and the AAP. Similar to the relationship between our own departments and neonatology departments, we have a number of joint publications and collaborations. These collaborations have resulted in many shared practice guidelines and task forces, including those concerning APGAR scores (the test given immediately after birth to assess a newborn’s physical condition), neonatal encephalopathy, and cerebral palsy.

The guidelines from these groups are called educational guidelines, and they definitely inform care. ACOG is very clear that its educational guidelines do not represent standard of care, but they assist in establishing the standard of care. It’s very hard for any document to define all kinds of situations, and educational guidelines can help with those standards.

Dr. Stanberry: Not every specialist in any given field is going to be a member of a society, but non-members may rely upon the information that comes from the society to inform their practice or to help guide their research agendas. The first step in becoming involved in a society is the desire to participate in the discussions that go on in these important forums. If a doctor has leadership capabilities or aspirations, then he or she begins by serving on the society’s committees. Over time, if these specialists’ interests align with the mission of the society, they will find opportunities to be considered for chair of committees on up through top leadership of a society. The positions are elected, so candidates need to have the confidence of the rank and file members of the society in order to be elected. We train people in medical school and in residency to become very competent clinicians, but we don’t have a particular focus upon developing leaders. Some people seem to be naturally drawn to taking leadership roles. Both Dr. D’Alton’s department and mine are very interested in developing leaders and we have created a year-long leadership academy led by Dr. Susan Rosenthal to help those we recognize as having the potential to understand that they could play leadership roles.

When faculty in our departments become involved in these groups, it enables the entire department to be at the cutting edge. We’re aware of works in progress before the society releases reports to the general public. Our own faculty are helping to craft those reports and those agendas. So it really does keep us at the forefront.

Dr. D’Alton: When one of our faculty is appointed to a board position or a leadership role by their peers in one of the major national societies, it brings enormous prestige to our departments and institutions. It also informs the department of some of the controversial issues that are happening nationally, and we can be part of the conversation before the results become public knowledge. We can actually help frame the national position.

We also both feel that our involvement nationally in our various organizations has led to very interesting collaborations with colleagues—in many cases these have become lifelong collaborations, which would not have happened if we weren’t on those committees. Our involvement also gives us more knowledge of what’s happening with other peer institutions across the country. So the benefits to us personally and departmentally have been enormous. I believe the departments of OB/GYN and Pediatrics at Columbia need to be informing the national stage at multiple levels. I think it’s good for the national stage, but also very good for our departments.

“When faculty in our departments become involved in these groups, it enables the whole department to be at the cutting edge.”

— Dr. Stanberry.
Renewing the Brain

The brain has a reservoir of neural stem cells capable of transforming into new neurons; this process is called neurogenesis. In adults, neurogenesis occurs only in two regions: the hippocampus, which is key to memory and spatial navigation, and the subventricular zone, whose function is less well understood. The hormone and neurotransmitter norepinephrine plays a key role in neurogenesis by regulating the activity of latent neural stem cells and their transformation into new neurons. To better understand how receptors for norepinephrine (noradrenergic receptors) help regulate neurogenesis, a research group led by Steve Kernie, MD, director of Pediatric Critical Care Medicine, investigated three different adrenergic receptors, α1, α2, and β. In the recent study, published in PLoS One, the researchers showed that stimulation of two of these receptors directly affected the population of neural stem cells. When researchers stimulated adrenergic receptors called α2, activation and proliferation of precursor cells decreased, as did the number of immature neurons. Stimulation of the β-adrenergic receptors had the opposite effect: proliferation of the latent stem cell pool was enhanced. When the third receptor, α1, was stimulated, there was no effect on hippocampal precursor cells. The researchers concluded that the balance between α2- and β-adrenergic receptor activity regulates precursor cell activity and hippocampal neurogenesis.


Whole-exome sequencing in routine care

Unlike genetic tests that analyze one gene or small groups of related genes at a time, a recently developed test, called whole-exome sequencing (WES), analyzes the portion of the genome made up of exons—functionally important regions of DNA that direct the production of proteins. Collectively, these regions are called the exome. The human genome contains about 180,000 exons arranged in about 20,000 genes. Most single gene disorders arise from errors in the exome. Since clinical laboratories began offering WES in the last two years, clinicians have increased their use of it significantly. Many patients with rare disorders who spent years on uninformative diagnostic odysseys enduring costly, time consuming, and sometimes invasive procedures have now received definitive diagnoses through WES. A group of pediatric researchers and clinical geneticists at CUMC evaluated the feasibility and clinical usefulness of whole-exome sequencing in 115 patients, most of them children. Their report, published in the journal Genetics in Medicine, shows that the most common indications for WES were birth defects (24.3 percent) and developmental delay (25.2 percent). Once they established a diagnosis with WES, they were able to discontinue additional planned testing in all patients. WES enabled clinicians to screen for additional manifestations in eight patients, to alter the management of 14 patients, provide novel therapy to two, identify other familial mutation carriers in five, and provide reproductive planning to six patients. They concluded that “whole-exome sequencing is feasible, significantly improves our diagnostic ability, and allows timely medical interventions, informed reproductive choices, and avoidance of additional testing.”

Clinical outcomes in pediatric patients admitted with myocarditis

Myocarditis, an inflammation of the heart muscle (the myocardium), is typically caused by viral infections. When children develop myocarditis, they are at a significantly increased risk of medical complications and death. Yet few studies have identified predictors of clinical outcomes, and there are no data on the link between myocarditis and the length of a hospital stay or costs. Columbia researchers, including pediatric cardiologist Brett Anderson, MD, MBA, conducted a multi-centered, retrospective database study to determine whether outcomes are worse and use of resources greater among pediatric patients who develop arrhythmias during hospitalization for acute myocarditis. Their study, published recently in The American Journal of Cardiology, analyzed information on 2,041 children with acute myocarditis admitted to 44 pediatric centers. The study examined the effects of clinically significant arrhythmias (irregular heart rhythms)—which they showed to be common in this group—on in-hospital mortality, length of stay, and costs per day. They showed that 11.5 percent of children admitted with acute myocarditis had clinically significant tachyarrhythmias (abnormally fast heart rhythms requiring medication or electrical cardioversion), and that this group had a 2.3 times increase in the odds of mortality, a 58 percent increase in length of stay, and a 28 percent increase in costs per day. They found no association between bradycardia (abnormally slow heart rhythms requiring pacemaker placement, reported in 1.1 percent of the study population) and mortality, length of stay, or costs per day.


Bacterial toxins shown to cause a new kind of death in red blood cells

Human red blood cells (erythrocytes) are different from most other cells in the body—they lack nuclei and mitochondria, which play an important role in programmed cell death (apoptosis), the natural process by which cells die. Red blood cells (RBCs) have typically been thought to possess limited capacity to undergo apoptosis; they age, die, and are absorbed through different processes. Adam Ratner, MD, MPH, whose lab focuses on bacterial diseases affecting children, recently described a new form of programmed cell death in erythrocytes (RBC programmed necrosis) that occurs when RBCs are attacked by human-specific bacterial toxins. He and his colleagues recently published their research in mBio, the open access journal published by the American Society of Microbiology. Several organisms that inhabit human mucosal surfaces, including Gardnerella vaginalis and Streptococcus intermedius, can act as pathogens and produce a type of toxin that can only bind to a regulatory molecule found on human RBCs (hCD59). The researchers showed that when these toxins bind to hCD59, they trigger a previously unrecognized pathway for programmed necrosis in red blood cells from humans and transgenic mice expressing hCD59. They also show that RBC programmed necrosis may play a role in promoting the growth of the bacteria that produce these toxins, which may provide the bacteria with a selective advantage. By defining a new RBC death pathway, Dr. Ratner and colleagues are expanding the understanding of RBC biology and RBC-pathogen interactions.


Unlike most other cells in the body, red blood cells lack nuclei and mitochondria.
Is Morcellation for Hysterectomies Safe?

The use of morcellators for minimally invasive hysterectomy has been under heavy scrutiny since April 2014, when the FDA issued a warning that the instrument—which grinds uterine tissue into tiny pieces so that it can be easily removed through a small incision on the lower body—could spread uterine sarcoma, a strain of cancer, if it is present within a woman’s body. Since statistics about such occurrences are lacking, a team of researchers from the Department of Obstetrics and Gynecology at CUMC used “a large insurance database to investigate the prevalence of underlying cancer in women who underwent uterine morcellation” from 2006-2012. The results, which were published in The Journal of the American Medical Association, found that one in 368 women who underwent morcellation had occult malignancies present. This is in stark contrast to previous estimates that suggested the rates were much lower—one in 500 to one in 10,000 women. The study, which did not examine the long-term effects for morcellation, states, “Prevalence information is the first step in determining the risk of spreading cancer with morcellation. Although data are limited, women with apparent uterine-confined neoplasms at the time of morcellation have been found to have intraperitoneal tumor dissemination at the time of re-exploration.” The study’s lead author, Dr. Jason D. Wright, concluded that, “Patients considering morcellation should be adequately counseled about the prevalence of cancerous and precancerous conditions prior to undergoing the procedure.”

Profiles

A Man’s World

Young Men’s Clinic Treats Patients with Care and Understanding

The two adjoining waiting areas in NewYork-Presbyterian Hospital’s Audubon Practice are identical—with gray-green benches and linoleum floors—but the patient groups that use them are not. On one side, the Family Planning Practice provides gynecologic, obstetric, and wellness visits to adolescent girls and women, while the Young Men’s Clinic on the opposite side provides care to boys and men aged 14 to 35. Both clinics’ main missions are sexual and reproductive health, but because men don’t think of family planning as welcoming, says Young Men’s Clinic Medical Director David Bell, MD, it’s important to have a practice that’s dedicated to them and includes “men” in the name of the service. “It says, ‘We are for you,’” Dr. Bell explains. Once men walk through the doors, he and his colleagues—Silvia Amesty, MD, a family medicine doctor, and nurse practitioner Melba Perry, NP—can usually engage male patients in discussions not only about their sexual health, but about their overall health as well, an important step for men who may not have visited a primary care doctor in years.

The clinic offers a varied menu of services: general health care and treatment for minor injuries and illness; physical exams for sports, school, and work; counseling for stress, relationship issues, and other health concerns; referrals for educational and vocational services; and sexual and reproductive health care, including counseling and testing for sexually transmitted infections and HIV.

The clinic’s patients are mostly Dominican and from Washington Heights, but men also come from Queens, Brooklyn, the Bronx, occasionally from Staten Island, and even Connecticut for care. “We know that guys stop going to the primary care doctor after the age of 15 as a whole, while females increase their primary care visits at that age. But at a certain point, men become concerned about their health, particularly their sexual and reproductive health,” says Dr. Bell. Many patients’ initial visit is about a sexually transmitted infection (STI). At the older end of the age range, Dr. Bell and his colleagues also see men who are beginning to worry about their fertility. “They are trying to have kids and they can’t,” he says.

In the primary care and public health community, there’s a growing focus on young men and their healthcare needs, Dr. Bell says, and the clinic, part of NYP’s Ambulatory Care Network, is looked at as a model. “More and more people, particularly those involved in sexual and reproductive health, are talking about young men,” he says. “There is much more interest in engaging them in taking a proactive role in their health, but there aren’t many healthcare programs that really know how to connect to them.”

In August, members of the Centers for Disease Control and Prevention’s (CDC) Teen Pregnancy Prevention Program visited the clinic to learn about its practices and programs. “The CDC is really on board and is trying to elevate the inclusion of males in sexual and reproductive health,” Dr. Bell says. “They recognized the value of the overall, comprehensive model of care. I also told them the clinic space isn’t what matters; it is really about how you engage with the guys.”

While there’s a general conception that men are uncomfortable talking about intimate matters, “there is no such thing as a young man who won’t open up,” Dr. Bell asserts. “It’s just that the place and time need to be right.”
Profiles

and behaviors regarding condoms, being safe, and maintaining positive healthy relationships. We can’t just preach condom use.

One of the major reasons there aren’t more programs geared to young men is a lack of funding. “Adolescents and young adults in under-served communities are the group least likely to have insurance, so funding has to come from some other entity,” Dr. Bell says.

The Young Men’s Clinic is part of NYP’s family planning program, which is federally funded through Title X, a family planning program, and through a grant from the Robin Hood Foundation. The Affordable Care Act also has helped boost the number of young men with insurance from about 24 to 32 percent, he says.

Current sexual and reproductive health guidelines don’t support overall screening of men—another reason for the scarcity of care directed to them. “We have clinical guidelines to screen all women under the age of 26 for chlamydia wherever they are treated. But the only supported guidelines for males, despite that it takes a couple to pass on an infection, are venue based,” he says. They get tested in jails, through job corps, and adolescent services in general, or when they specifically request STI testing.

“Many of the clinic’s patients have a relationship to the justice system in some way, shape, or form,” Dr. Bell says. “They may be suspicious of how we are all connected together, and some assume that when they get urine testing for STIs, they are also being tested for drugs. We can usually allay their fears on that.”

Providing sexual and reproductive health and primary care together adds value to both, says Dr. Bell. “If we can make a connection with guys who first come in about their sexual health, they trust us and open up about their other health concerns. When we make that connection, it’s great.”

Those connections may make a difference for the health and wellbeing of these patients just a few years later. Rates of chronic illnesses—diabetes, hypertension, and heart disease—are on the rise among young men between 30 and 35, particularly young men of color. “We need to figure out a better way to provide primary care to the young men in our communities, especially those who are getting sick and dying early,” Dr. Bells says. “My hope is that if we can get the word out that we are here, we might have the opportunity to change that and get young men involved earlier in their own care.”

— Beth Hanson

“If we can make a connection with guys who first come in about their sexual health, they trust us and open up about their other health concerns. When we make that connection, it’s great,” says Dr. Bell.
Taking the Risk Out of Hospital Stays
Lisa Saiman Aims to Prevent Healthcare-Associated Infections

Patients are often admitted to the hospital for treatment and care when they are acutely sick, but, paradoxically, they sometimes encounter pathogens during their hospital stay that make them even sicker. About 2 million patients acquire a healthcare-associated infection (HAI) in the United States every year, and about 90,000 of them die from these infections, according to the Centers for Disease Control. Hospital epidemiologists, infectious disease specialists with specific training in “nosocomial” or healthcare-associated infections, are at the vanguard of preventing and controlling the spread of HAIs among patients, staff, and visitors. Morgan Stanley Children’s Hospital’s Epidemiologist Lisa Saiman, MD, MPH, says, “Given the complex patient populations that we serve, the majority of patients at our children’s hospital are at an increased risk for HAIs.”

Alcohol hand sanitizer dispensers mounted on walls throughout the hospital—in corridors, exam rooms, offices, and in patient rooms—promote the simplest and most effective tool: hand hygiene, which is the cornerstone of infection prevention, says Dr. Saiman. “We have done a huge amount of work and training about the importance of hand hygiene, when to do it, how to do it, and how to hard-wire yourself to do it.” Over the past five years, hand hygiene rates among healthcare providers at the hospital have increased from 60 percent to 95 percent, but there are still opportunities to improve the quantity and quality of hand hygiene, she adds.

The treatment of very sick children often requires the use of devices such as urinary catheters, central lines, and ventilators—which are not only life-saving devices, but also avenues for pathogens to enter the body. Dr. Saiman, along with her team of nurse epidemiologists and data managers, has adopted policies and procedures to prevent device-related infections called bundle strategies, which are groups of practices that, when used together, are very effective at preventing these infections, she says. Adherence to the bundle strategies for inserting a central line (a catheter placed into a large vein in the neck, chest, or groin) includes wearing personal protective equipment—a full sterile gown, head covering, face mask, and sterile gloves in the operating room; covering the child with a sterile drape; and carefully cleaning and disinfecting the skin at the site of insertion to prevent introduction of skin flora such as Staphylococcus aureus or S. epidermis. “The principle is that you do all of those things—you can’t pick and choose. You have to be very, very meticulous and get comfortable doing the same thing in an organized fashion each and every time,” Dr. Saiman explains.

To ensure that these practices become habits, “we ingrain them in the staff through a lot of education and checklists. We also bring people together so they can watch each other and teach each other,” she says. Educational efforts by the hospital’s Department of Infection Prevention & Control (IP&C) are ongoing. “At a teaching center like Columbia Children’s Health, the residents graduate, the attendings may change, and the nurses move on or move up. So it is really important to develop not only initial education for new practitioners, but also booster education for advanced practitioners.”

Dr. Saiman’s and her team’s prevention efforts are paying off. Hospital epidemiologists are continuously monitoring for HAIs and reporting them to the state through New York’s mandatory reporting program. The resulting data allow epidemiologists to benchmark their hospitals’ infection rates over time, and to compare them to their peers. “We have seen a real decline in central line associated bloodstream infections (CLABSI),” Dr. Saiman notes. “Everybody has. It is a really beautiful thing.”

IP&C is responsible not only for hospital-acquired infections, but also for preparing Columbia Children’s Hospital for outbreaks of diseases such as measles, which appeared in the community around the hospital this past spring, and for emerging diseases like enterovirus D-68, which showed up this past summer in many hospital emergency departments around the country, including in New York City.

To ensure that these practices become habits, “we ingrain them in the staff through a lot of education and checklists. We also bring people together so they can watch each other and teach each other,” she says. Educational efforts by the hospital’s Department of Infection Prevention & Control (IP&C) are ongoing. “At a teaching center like Columbia Children’s Health, the residents graduate, the attendings may change, and the nurses move on or move up. So it is really important to develop not only initial education for new practitioners, but also booster education for advanced practitioners.”

To ensure that these practices become habits, “we ingrain them in the staff through a lot of education and checklists. We also bring people together so they can watch each other and teach each other,” she says. Educational efforts by the hospital’s Department of Infection Prevention & Control (IP&C) are ongoing. “At a teaching center like Columbia Children’s Health, the residents graduate, the attendings may change, and the nurses move on or move up. So it is really important to develop not only initial education for new practitioners, but also booster education for advanced practitioners.”

Dr. Saiman and her colleagues maintain a very active web page on the hospital infonet, an internal website that reaches every single staff member. During the recent measles outbreak, IP&C posted algorithms to the infonet describing how to diagnose and care for patients with potential symptoms of measles in the emergency department, in the clinic, or who are pregnant. Communicating this kind of information to staff members is crucial. Dr. Saiman says, because, “We have hundreds of doctors and nurses on staff who have never seen a case of measles before, thanks to the success of the measles vaccination.”

Hospital epidemiologists also have to prepare their centers for diseases that emerge on another part of the globe and that have the potential to become a pandemic, like Influenza A H1N1, and, most recently, Ebola. National and global surveillance efforts and communication among epidemiologists enable them to stay abreast of emerging and evolving diseases. “We have a global influenza network that’s working to get a jump on evolving viruses,” Dr. Saiman says. “This kind of communication allows us to learn from each other and stay on top of things.”

Dr. Saiman was recently honored by the Society for Healthcare Epidemiology of America (SHEA); she was selected to give the 2014 SHEA lectureship at IDWeek in October. Dr. Saiman spoke about her work over the past two decades, including a successful effort to reduce infections in the neonatal intensive care unit (NICU), the development of consensus recommendations for preventing surgical site infections in children following scoliosis repair, and the challenges of translating infection prevention and control principles for the cystic fibrosis population. “I felt quite honored to be asked to give the lecture, given my role in the world of pediatric infection prevention control. It was also quite an honor for the university and hospital.” — Beth Hanson

“We have seen a real decline in central line associated bloodstream infections. Everybody has. It is a really beautiful thing,” Dr. Saiman says.
Quality Care, One Patient at a Time

Division of Gynecologic Oncology Implements Programs, Services to Improve Treatment

“Since I was a child, I’d always wanted to become a physician,” recalls Jason D. Wright, MD, Sol Goldman Associate Professor of Obstetrics and Gynecology at CUMC. Like most who enter the medical field, he was attracted to the profession because of its opportunity to help and improve people’s lives.

But as the chief of the Division of Gynecologic Oncology, Dr. Wright is more than just a doctor. He and his team of four gynecologic oncologists and three mid-level providers offer direct patient care to women with gynecologic cancers, as well as to women with benign conditions who require complex pelvic surgery. “A unique aspect of our Division is that we provide comprehensive care to women with these cancers, including surgery, chemotherapy, and supportive care services,” says Dr. Wright. But what sets this Division apart from other gynecologic oncology providers within the area is the fact that Dr. Wright and his team have implemented a number of unique programs and services to improve their patients’ treatment outcomes.

Over the last year alone, the Division has implemented a number of initiatives to help improve patient experiences and maximize the potential of their treatment. Dr. Wright states, “For women undergoing surgery, we provide access to innovative surgical techniques and have a multidisciplinary team of providers that are available; for women receiving chemotherapy, we offer a wide range of clinical trials that offer women access to promising new agents. Many of these trials are based on individualized genetic profiling, a new and emerging concept known as personalized medicine.”

Cancer treatments are often complex and rely on a range of therapies, including surgery, radiation, chemotherapy, and, less commonly, hormonal therapy. Patients have one doctor throughout the course of their treatment—from diagnosis through surgery, and adjuvant therapy and follow-up treatment. Because of this, Dr. Wright and members in his Division get to know patients on a personal level. “Women who are receiving treatment for gynecologic cancers, particularly chemotherapy, are seen frequently in the office and a strong relationship often develops with these women,” Dr. Wright says. “I’m fortunate in that I get to know a patient’s family and hear about what is happening in their lives, whether it’s a graduation, family trip, or a child’s wedding. I feel incredibly lucky that I can help these women as they go through treatment.”

Because of this individualized care, a comprehensive, personalized medicine program is developed for patients with gynecologic cancers. “This program is based on the growing understanding that every patient’s cancer is genetically different, and these differences can be harnessed to develop individualized therapeutic strategies for each patient,” states Dr. Wright. “Traditionally, all women with a given tumor received relatively similar treatments. For women with newly diagnosed gynecologic cancers, we’re now performing DNA sequencing of the tumor to identify specific genetic abnormalities that may be targets for specific drugs.”

He adds, “We’ve also developed partnerships to implant individual patient tumors in mice, a concept known as a patient derived xenograft, or a PDX model. Once developed, we can test drugs and drug combinations in a given patient’s PDX model to determine if a drug will work in patients without exposing the woman to the treatments.”

An integrative care program has also been developed for patients who are receiving chemotherapy, which includes nutritional counseling, massage, and acupuncture. Dr. Wright adds, “We’ve also implemented a number of support services for patients, such as the ‘Woman to Woman’ program, which pairs women who’ve received treatment for gynecologic cancers with newly diagnosed patients. This has been an extremely popular and successful program.”

For those who complete treatment, a survivorship program has been established within the Division, as well. Specifically, this program provides an infrastructure to coordinate care among a patient’s physicians, assesses toxicity of treatment, tailors cancer surveillance, and promotes wellness and screening strategies for other types of cancer. “As cancer care and outcomes improve, there are increasing numbers of patients who are survivors,” says Dr. Wright. “Our multifaceted survivorship program evaluates the needs of gynecologic cancer survivors and tailors a plan once treatment is completed.”

In addition to all of the work they’ve done within CUMC, Dr. Wright and his team routinely participate in community-based gynecologic oncology events to spread awareness about different types of cancer, such as cervical, ovarian, uterine, vaginal, and vulvar. Recently, the Division continued this mission by participating in the Sixth Annual T.E.A.L. Walk/Run, as well as the Pap Rally and 5K Walk/Run.

“Raising awareness for gynecologic cancers is one of the most important things we can do,” says Dr. Wright. “Cervical cancer is highly preventable with vaccination against the human papillomavirus (HPV) and screening with pap tests. Most women who develop cervical cancer have not had a pap smear for more than five years. Ovarian cancer is harder to detect, but still often associated with symptoms. That is why gynecologic oncology events are so important.”

At the events, members from the Division hand out information about ovarian cancer, including facts and tips on prevention. In addition, Drs. Wright, June Hou, William Burke, and Ana Tergas, gynecologic oncologists at CUMC, regularly speak at cancer awareness events, providing vital information to the community on gynecologic cancer symptoms, services, and treatment.

The Division of Gynecologic Oncology plays an integral part in CUMC’s academic and clinical community. Physicians work with researchers at the Herbert Irving Comprehensive Cancer Center (HICCC) to translate advances in research into clinical practice and investigate new treatments to improve patient outcomes.

For more information on the Division of Gynecological Cancer, please visit columbiaoncology.org. — Cecilia Martinez
Breathing Easier

New Medications are on the Horizon for Cystic Fibrosis

Most of us perform the simple act of breathing 20,000 times every day without a thought. For people with diseases that affect the lungs, though, breathing can become a labored or even desperate act. In cystic fibrosis (CF), the bronchi become blanketed with thick, sticky mucus, narrowing the passageway for air. One young woman with CF said she feels as though she’s always breathing through a small straw. The mucus also creates a welcoming setting for bacteria like Pseudomonas aeruginosa and Staphylococcus aureus. CF patients develop frequent infections requiring hospitalization. “This becomes a vicious cycle,” says Hossein Sadeghi, MD, pediatric pulmonologist and director of the Sue and John L. Weinberg Cystic Fibrosis Center. Infection and inflammation lead to scarring, and lung function generally declines by 2 percent a year over the lifespan of a CF patient.

While CF’s effects on the lungs are the most life-threatening, its symptoms are multi-systemic. Mucus accumulates in the pancreatic duct, blocking enzymes needed to digest fat and protein, so CF patients must take pancreatic enzyme supplementation with their meals. People with CF are also prone to developing diabetes, and most men with CF are infertile.

Families spend about three to four hours a day caring for a child with CF, between chest physical therapy to loosen the mucus, a strict schedule of inhaled medicines, antibiotics and other drugs, and special dietary considerations. “Dealing with CF requires teamwork, and the whole family needs to be involved,” Dr. Sadeghi says. “I have a lot of respect for these families, particularly those who have more than one child with CF.”

Because CF is a hereditary disease, affected families sometimes do have more than one child with the illness. CF has its roots in some combination of 1,700 possible mutations in the gene encoding the protein cystic fibrosis transmembrane conductance regulator (CFTR). Only five of these mutations occur in more than 1 percent of people with CF, and the most common mutation (F508del) accounts for approximately 70 percent of CFTR genes in patients with CF worldwide. When functioning normally, CFTR regulates the flow of chloride in and out of cells, and helps to balance salt concentrations between cells and their surroundings. When chloride builds up inside cells, water is sucked in from the mucus that lines the airways and digestive tract, making the mucus sticky and thick.

While the disease is challenging to live with, the outlook for CF patients has improved tremendously over the past decades. In the 1960s, life expectancy was only a few months. In the 1980s it rose to 18 years, and in the United States it’s now 40 years. The future looks even brighter as a number of new medications are in development and are likely to become available to patients in the next several years. Because of these advances, CF is becoming an adult disease, Dr. Sadeghi says.

The Cystic Fibrosis Foundation, a non-profit organization established to provide the means to cure and control CF, has raised hundreds of millions of dollars to fund new drug developments for CF. In 2012, the FDA approved a medication funded by the CF Foundation called Ivacaftor (Kalydeco) for patients with a specific mutation called G551D, which affects 4 percent of people with CF. Ivacaftor improves the transport of chloride in and out of cells, reducing the clinical symptoms and the need for other medications. “It has made an enormous difference,” says Dr. Sadeghi. The FDA is soon expected to approve Ivacaftor for patients with several other CFTR mutations, increasing the number of treat-

“In the pediatric setting, we are dealing with the whole family: the child, the caregiver, parents, sometimes even grandparents. As children age, they begin to play a bigger role,” Dr. Sadeghi explains.

CONTINUED ON PAGE 12
able patients to 15 percent.

Within a decade, Dr. Sadeghi expects that every patient with CF, no matter what mutations they carry, will benefit from one or more of the other medications in development. “It’s an exciting time to be working with cystic fibrosis,” he adds.

Because CF survival has improved, half of patients are now adults (over 18), a shift that affects how care is delivered at clinics like CUMC’s. “In the pediatric setting, we are dealing with the whole family: the child, the caregiver, parents, sometimes even grandparents. As children age, they begin to play a bigger role,” Dr. Sadeghi explains. When patients reach adulthood, they become responsible for themselves “and you need to respect their opinions. In an adult clinic, the whole treatment approach is different.” To provide care specifically geared to the growing adult CF population, CUMC established the Gunnar Esiason Adult Cystic Fibrosis and Lung Program, directed by Emily DiMango, MD, in 2009.

Dr. Sadeghi’s team is developing a program for patients between the ages of 17 to 21 to ease their transition from the pediatric to adult CF program. “We are developing a module that assesses patients’ understanding of their disease and gets them prepared for this transition,” he says, “so we will have an easier handoff.”

Dr. Sadeghi joined the Weinberg Center as director this past summer, and heads up a team that includes eight physicians, a nurse coordinator, dietician, social worker, research coordinator, physical therapist, genetic counselor, and alternative medicine practitioner. The team also collaborates on care with pediatric gastroenterologists, infectious disease, and ear, nose, and throat specialists. The Weinberg Center was recently selected by the Cystic Fibrosis Foundation to participate in the “OneCF Learning and Leadership Collaborative.” The aim of this initiative is to improve CF centers’ capabilities and patient outcomes.

With the prospect of new medications that will reduce or eliminate CF symptoms for every patient with the disease, the future of CF care is likely to be very different. “Treatment for CF is becoming very individualized,” Dr. Sadeghi says, “because the medications for the different CF mutations are likely to be approved at different times. Our goal now is to prevent patients from developing significant lung damage before their medication is available. Until we find a cure, our approach to CF is more about managing the disease.” — Beth Hanson

Backstory: The Sweat Test

During a sweltering week in late August 1948, temperatures hovered around 100° Fahrenheit in New York City. Thirty-three people died, and our Babies Hospital admitted 12 children with severe dehydration and fever, seven of them known to have cystic fibrosis.

CF had first been first described in 1938 at Babies Hospital by Pathologist Dorothy Andersen, MD. Pediatrician Paul di Sant’Agnese, MD, who worked with Dr. Andersen and had taken care of some of the first children diagnosed with the disease, decided to find out why infants with CF were particularly susceptible to heat prostration. Over the next few years, he devised studies comparing sweating in children with CF to controls and found their rate of sweating was similar, but that the level of electrolytes, particularly chloride, was much higher in the sweat of children with CF.

Recognizing the significance of this abnormality—that CF is a generalized metabolic disorder—in 1953, he created a diagnostic test for CF that measures levels of electrolytes in sweat. In early sweat tests, patients were placed inside plastic bags tied loosely around their necks and were covered with three or four blankets; sweat was collected on filters applied to their backs. With input from Dr. di Sant’Agnese, over the next several years, researchers Lewis Gibson and Robert Cooke developed a more practicable, accurate, and safer approach called pilocarpine iontophoresis. This technique induces sweating on a small area of the arm. The sweat is collected and analyzed for electrolyte content. All newborns are now screened for CF using a test called blood immunoreactive trypsin. If this test is positive, infants are referred for the sweat test, which remains the cornerstone of CF diagnosis. Dr. di Sant’Agnese’s initial findings not only led to the sweat test, but opened up areas of research that ultimately led to the identification of the genetic defects underlying CF.
Above and Beyond the Call of Duty

CPP Assists Expectant Parents with Difficult Pregnanacies

“Every day, I have the opportunity to interact with and learn from amazing people at CUMC,” Russ Miller, MD says. “It is very reassuring to know that my patients will be taken care of by excellent doctors and nurses when they go to the hospital for care, no matter what their needs may be.”

And he should know: Dr. Miller was trained by the very same doctors he practices with today. Born and bred in New York, he has been a Columbian for more than two decades: he is a graduate of Columbia College (class of 1997) and Columbia University College of Physicians and Surgeons (class of 2001), completed his residency at CUMC in 2005, and completed a Maternal-Fetal Medicine (MFM) fellowship in 2008, after which he was employed as member of that division.

Now as the medical director of the Carmen and John Thain Center for Prenatal Pediatrics (CPP) at CUMC, a position he was appointed to in April 2014, Dr. Miller is furthering what was originally the vision of Drs. Mary D’Alton, chair of the Department of OB/GYN, and Lynn Simpson, director of the MFM division and chief of obstetrics at CUMC.

CPP – a multidisciplinary fetal diagnosis and therapy center – recently celebrated its 10-year anniversary, and in that time has grown into a high-volume referral center that cares for patients from across the tri-state area and beyond. “Since the Center opened, we have seen more than 5,000 new referrals to date,” says Dr. Miller. “CPP originated as a virtual center intended to coordinate care across multiple disciplines – from diagnosis through delivery for patients with pregnancies complicated by fetal anomalies.” Ultrasounds, fetal echocardiograms, diagnostic and therapeutic procedures, consultations, and office practice visits are all now provided within the same space, which optimizes the experience for patients who may be dealing with stressful pregnancies.

Individualized patient care and education is a critical part of the mission of CPP, especially when pregnancies are complicated. “When meeting a patient, it is crucial that we make sure that she understands what is happening with her pregnancy and the options available to her so that she can make the decision that is going to be best for her and her family,” states Dr. Miller. He continues to explain that at CPP, the priority is a patient-centered experience. “Everybody understands that patients referred to us are often dealing with stressful situations, and that our job to support them extends beyond purely medical care,” he says.

At CPP, Dr. Miller and the team concentrate on pregnancies complicated by fetal structural anomalies, genetic abnormalities, and other antenatal concerns, as well as complicated multiple gestations. An area of particular interest for Dr. Miller is complicated monochorionic twins, or twins that share a single placenta.

In 2009, CPP began offering fetoscopic laser therapy for the treatment of early-onset advanced stage Twin-Twin Transfusion Syndrome (TTTS). “Since that time, we have witnessed a dramatic increase in referral volume to our complicated multiples program,” says Dr. Miller. “These pregnancies require frequent and careful attention through delivery, and so the combination of continual care with state-of-the-art fetal therapies is very appealing.”

While Dr. Miller “has been fortunate to be a part of many wonderful deliveries” during his obstetrical career, one TTTS case particularly stands out in his mind – the center’s first laser case. “The patient presented at 19 weeks with stage III TTTS,” says Dr. Miller. “Dr. Simpson and I were very concerned about her twins, so much so that we stayed late on the night of therapy to perform the procedure without delay. The twins responded wonderfully to treatment, the TTTS resolved, and the patient ultimately delivered healthy twins at 34 weeks.”

“IT is a great feeling to know that our teamwork enabled an excellent outcome that would have been very unlikely without therapy,” he adds. “In addition to being a positive outcome for this family, this case also validated the years of training, preparation, and team-building that were necessary for us to get our laser program off the ground.”

This teamwork is apparent throughout CPP. To manage each patient’s condition, an interdisciplinary meeting – attended by representatives from MFM, CPP, neonatology, pediatric cardiology, pediatric surgery, genetics, and multiple other pediatric subspecialty groups – is held each week. The goal of the meeting is to coordinate patient management plans and promote communication between services.

“As a matter of practice, all new CPP referrals are presented at this meeting, and care plans are agreed upon,” says Dr. Miller. “We also discuss outcomes of recently delivered patients in order for everybody to collectively learn from our experiences.”

Having a sense of humor while dealing with difficult patient situations also assists in patient care at CPP. “When counseling patients, I like testing new ways to explain complicated medical concepts,” says Dr. Miller. “In addition to the use of slides, I have found handmade drawings to be particularly useful, although a patient’s husband recently told me that I am a terrible artist. I told him that great artists are never fully appreciated during their lifetimes!” he jokes. — Cecilia Martinez

“Since the Center opened, we have seen more than 5,000 new referrals to date,” says Dr. Miller.
Two Moms, Two Dads: Introducing the Modern Family

CWRC Helps Same Sex Female Couples Conceive

Love knows no color, religion, and—especially—sexual orientation. As the director of the Fertility Program for Female Same Sex Couples at the Center for Women's Reproductive Care (CWRC), part of the Department of OB/GYN at CUMC—one of the largest, longest-standing, and most successful fertility centers in the United States—she helps female same sex couples realize their dream of having a baby. "Female couples are one of my biggest demographics in terms of patients," Dr. Rudick says. "But I would say multiple couples are coming in every day."

About 10 percent of all children being raised by same-sex couples are adopted, compared with just 2 percent of those in different-sex couples, according to a 2013 analysis of the 2010 Census by the Williams Institute. Yet, some same sex female couples prefer to experience parenthood the same as we do any other patient: we individualize care," says Dr. Rudick. "Some want more, and to help them figure out some of the initial stages of their family building process."

While the decision and process to have a baby may be relatively straightforward for heterosexual couples, for same sex couples the path to parenthood is quite different. But knowledge is power, and the decision to start a family—especially for same sex couples—is a personal one. At CUMC, Briana Rudick, MD, helps this demographic on a daily basis. As the director of the Fertility Program for Female Same Sex Couples and to help them figure out some of the initial intervention, some want less. Our job is to figure out when more medical intervention is needed, and to help them figure out some of the initial stages of their family building process."

"The CWRC serves the LGBT community the same as we do any other patient: we individualize care," says Dr. Rudick. "We call this a 'natural cycle with intravaginal insemination (IUI)." Utilizing this technique can also bring a sense of personalization to the process, which many female same sex couples say is lacking while dealing with medical treatments. "I think these couples still want getting pregnant to be as 'natural' as possible, but because they have to deal with the medical and financial aspects of treatment, they worry that it won't be a special process," says Dr. Rudick.

While easier, there are still disadvantages to this method. "Even though it sounds simple, there is still a lot of testing that goes into starting treatment, and there is the decision about how to choose donor sperm," states Dr. Rudick. "You can use anonymous versus non-anonymous donor sperm (using someone who you know). Lots of people are under the misconception that using someone who you know is easier. It's actually much, much harder. It requires legal clearance, as well as a six-month quarantine of the sperm. Very complicated, and it is much riskier legally."

A consultation is the first step for same sex couples who come to the CWRC for treatment. "I review intravaginal, intracervical, and intrauterine insemination," Dr. Rudick says. "In general, the higher up in the female reproductive tract you go with the catheter, the higher the chance of success. We only do intracervical insemination unless there's some reason to do intracervical (which is rare). We don't do intravaginal insemination, but some couples do try this at home."

Dr. Rudick adds, "These are just the methods of insemination. There is always IVF treatment (if need be), and something called co-maternity, in which one female partner donates her eggs for the other female partner to carry."

For the latter, couples usually have already initiated this conversation before coming into the CWRC for treatment since one of them has to decide to be the "patient" and the other the "partner." Usually, it's the "patient" who will ultimately carry the child. "I do obtain a medical and gynecological history on both partners, and I inquire about the desire of one partner to carry since we can include that in the family planning discussion," Dr. Rudick states. "Sometimes there will be medical problems in one partner that will make it either harder for her to carry, or more dangerous. This is stuff we really should discuss, since they have more options than your average couple (two uteri, two sets of ovaries)."

There are also simpler ways for female same sex couples to conceive, such as donor sperm intrauterine insemination, which doesn't require any medication. "We call this a 'natural cycle with intravaginal insemination (IUI)." Utilizing this technique can also bring a sense of personalization to the process, which many female same sex couples say is lacking while dealing with medical treatments. "I think these couples still want getting pregnant to be as 'natural' as possible, but because they have to deal with the medical and financial aspects of treatment, they worry that it won't be a special process," says Dr. Rudick.

"The CWRC serves the LGBT community the same as we do any other patient: we individualize care," says Dr. Rudick. "We call this a 'natural cycle with intravaginal insemination (IUI)." Utilizing this technique can also bring a sense of personalization to the process, which many female same sex couples say is lacking while dealing with medical treatments. "I think these couples still want getting pregnant to be as 'natural' as possible, but because they have to deal with the medical and financial aspects of treatment, they worry that it won't be a special process," says Dr. Rudick.

While easier, there are still disadvantages to this method. "Even though it sounds simple, there is still a lot of testing that goes into starting treatment, and there is the decision about how to choose donor sperm," states Dr. Rudick. "You can use anonymous versus non-anonymous donor sperm (using someone who you know). Lots of people are under the misconception that using someone who you know is easier. It's actually much, much harder. It requires legal clearance, as well as a six-month quarantine of the sperm. Very complicated, and it is much riskier legally."

CONTINUED ON PAGE 15
While same sex couples must go through an arduous process to have a child of their own, the end result—a healthy, bouncing baby boy or girl—is well worth the trouble.

For same sex male couples who want a child, the process is much more complex, unfortunately. “We rarely see same sex male couples because they need a surrogate, and surrogacy is not contract enforceable in the State of New York,” Dr. Rudick says. “So for legal reasons, we usually recommend that they seek treatment in New Jersey or Connecticut, or in a state in which surrogacy contracts are enforceable. New York state law is a little behind in this respect.”

While same sex couples must go through an arduous process to have a child of their own, the end result—a healthy, bouncing baby boy or girl—is well worth the trouble. According to Dr. Rudick, “I admire same sex couples who embark on this journey because it’s clear that it costs them so much more in the beginning stages just to get pregnant, from both a medical and legal perspective. And with the medical treatments come a lot of ups and downs. They don’t have the luxury of just ‘letting things happen.’ They really do have to be a bit more pro-active and analytic about everything. But it’s this same level of devotion to making things happen that will serve them in good stead when there’s a little one around.”

And the love and attention children receive is ultimately more important for their psychological well-being than the presence of a mother and a father. “For any couple having children, including same sex couples, it’s an amazing adventure. It’s the single hardest, yet most rewarding, experience they will ever have. That makes all the treatment worth it!” — Cecilia Martinez

Transgender Care: Becoming the Person Within

Same sex couples looking to have children are not the only LGBT demographic treated at CUMC. A gynecologist in the Department of OBGYN at CUMC, Dr. Timothy Ryntz’s clinical interests include, among other conditions, transgender healthcare.

“I see patients who are referred from their therapist who are interested in initiating hormone therapy for transition,” says Dr. Ryntz. “These patients are either trans-male or trans-female identified. They are people who were assigned a male sex at birth, realize that they identify as the opposite gender, and want to change their appearance so that it is more consistent with their female identity. This is done with estrogen and anti-androgen medications. I also see patients who were assigned a female sex at birth, and want to transition to their male identity by receiving testosterone therapy.”

And while he does not perform all procedures himself, Dr. Ryntz also advises patients who are contemplating gender reassignment surgery (GRS), a surgical procedure by which a person’s physical appearance and function of their existing sexual characteristics are altered to resemble that of the other sex. Surgery of this kind can include removal of internal sex organs, such as hysterectomy (removal of the uterus), oophorectomy (removal of the ovaries), and vaginectomy/colpectomy (removal of the vagina) for women. In the case of men, genital reconstruction includes testicle removal and inversion of the foreskin and penis to a flap that preserves blood and nerve supplies to form a fully sensitive vagina (vaginoplasty).

In addition to consulting patients who are interested in initiating hormone therapy, Dr. Ryntz also continues to see transgender patients once they begin treatment. “Once someone establishes their therapeutic method, they want to maintain whichever hormones they are prescribed. Routine gynecologic health maintenance is an important part of ongoing care for many trans-men and trans-women.” Dr. Ryntz, a graduate of Saint Louis University School of Medicine, completed his residency at Columbia University College of Physicians and Surgeons and is certified by the American Board of Obstetrics and Gynecology. He also completed training at the Philadelphia Transgender Clinical Care and Health Training Program to further his knowledge of transgender gynecological treatment. — Cecilia Martinez
A trip to the doctor’s office can bring undue anxiety to patients with cerebral palsy (CP)—they may be apprehensive about everything from a lack of adequate facilities to providers who are unfamiliar with their disability. For young women with CP, these challenges are even more daunting when it comes time for a gynecological appointment.

With this in mind, Columbia’s Weinberg Family Cerebral Palsy Center is working with the Department of Obstetrics and Gynecology to give OB/GYN healthcare providers the tools they need to ensure that patients with CP receive appropriate care, as well as to educate and empower women with CP to actively manage and advocate for their medical needs.

The collaboration is part of a multi-centered program supported by a fundraising gala held recently in New York. Hosted by the nonprofit group 100 Women in Hedge Funds, the gala raised nearly $2 million to improve gynecological care for women with CP through the Cerebral Palsy International Research Foundation. Columbia will lead a group of medical centers in Boston, Chicago, and Los Angeles in an effort to improve adolescent, reproductive, breast, and general gynecological care for young women with cerebral palsy.

“People in medical schools across this country don’t have exposure to patients with intellectual and physical disabilities,” says David P. Roye Jr., MD, director of the Weinberg Center. “So if we can shed light on the challenges these young women face, we will be making a difference every time they visit a doctor.”

Because of the current gap in training, some providers struggle to meet the needs of women with CP. A matter as basic as how to help a patient onto an examination table, if not handled smoothly and respectfully, can pose a physical, as well as a psychological, obstacle that ultimately prevents patients from receiving the necessary standard of care, including regular check-ups, routine screenings, and breast exams.

“For many cerebral palsy patients, access to quality gynecological care is a real issue,” says Beth Rackow, MD, a specialist in pediatric and adolescent gynecology who is spearheading the OB/GYN department’s participation in the program.

“Our goal has always been to provide compassionate, high-level care to each of our patients,” says OB/GYN Chair Mary D’Alton, MD. “We are very fortunate to partner with the Weinberg Center in this effort to ensure that a disability never interferes with patients receiving the treatment they need and deserve.”

Right now, program objectives include developing a “best practices” manual for OB/GYN providers that is specific to CP patients, as well as educational webinars and materials to help patients successfully communicate their needs to physicians.

The new program is the culmination of an effort that began several months ago, when the Weinberg Center conducted a survey of female CP patients to assess potential areas of improvement. Patients rated OB/GYN care as their most pressing need. In the short-term, the goal of Columbia and its partners is to build on these survey results and formulate a targeted plan of action.

“Part of what we hope to achieve is a better sense of the challenges that are out there—both from the patient’s and the physician’s point of view,” says Dr. Rackow. “Once we understand this, we can devise interventions to help providers and their patients work together for the benefit of the patient’s health.”

Dr. Roye sees the program as a bridge between women with CP and their physicians, and credits the fundraising gala for laying the foundation. “The Cerebral Palsy International Research Foundation and 100 Women in Hedge Funds have made an admirable commitment to transforming healthcare for women with disabilities,” he says. “This initiative is an important step toward reaching that goal.” — John Uhl
Enhancing Comfort and Care from Day One

When many people hear the words “palliative care,” they equate the term with hospice care to ease the transition to end of life. And certainly in years past, that was largely the case. But there has been a sea change in the palliative care field. Today it means assessing and attending to the emotional, social, spiritual, and physical comfort of patients and their families dealing with a serious illness from the moment of diagnosis and throughout their entire journey.

“Palliative care can mean different things for different people, depending on what they need,” explains Elisha Waldman, MD, who joined NewYork-Presbyterian Morgan Stanley Children’s Hospital/Columbia University Medical Center in October as the director of pediatric palliative care. “We use a team approach to provide support for children and families dealing with potentially life-threatening diagnoses, regardless of the stage of their disease or their prognosis.”

Dr. Waldman leads a team that includes Social Worker Jennifer Greenman, LSW, and Dana Kramer, NP, a nurse practitioner who is dedicated to the Division of Hematology/Oncology/Stem Cell Transplantation. The recruitment of another nurse practitioner is planned. It is the first time that a hospital in the greater New York area has assembled such a comprehensive, interdisciplinary palliative care team under the leadership of a physician with fellowship training in palliative care.

Palliative care services range from relieving physical symptoms (such as pain, nausea, fatigue, constipation, itching, sleep problems, and any other physical problems impairing quality of life) to nutritional, psychosocial, and spiritual support. A palliative care consultation typically begins with the team assessing a family’s goals and preferences.

“When we enter the child’s hospital room, the family quickly learns we are there for a reason other than to hear about the child’s medical situation,” says Dr. Waldman. “We may begin by saying, ‘I’ve read your child’s medical history and I’d like you to tell me about your child. What’s a good day or a hard day? What makes your child laugh?’ Parents learn in the first 30 seconds that they’re sitting across from a different type of team.” The team also asks parents questions such as, “What keeps...
you up at night? What is your understanding of your child’s illness? What are your goals for your child? What are you hoping for?”

“We may assume they’re going to answer, ‘I want my child to be cured,’ but often the answer is more specific—such as ‘I’d like to see my child sit on our back porch again and enjoy the sunlight’ or ‘We’d like to have him spend another Thanksgiving with us at home,’” adds Dr. Waldman. “Once we understand their goals, future choices affecting the patient’s clinical care become much clearer.”

That kind of support is critical for families dealing with serious, chronic illnesses that are challenging to treat successfully. “Their clinical course is complex and variable. It may be marked by huge drops in their condition followed by short periods of recovery, with an overall physical decline,” notes Dr. Waldman. “These families live with the grayness of uncertainty about the child’s future, which can exact an enormous emotional, psychological, and financial toll on the entire family.”

Of course, the child’s input is just as important. “Children facing the prospect of death may worry about dying alone or feeling scared that it’s going to hurt,” says Dr. Waldman. “I tell the medical team that these are issues we can fix.” The palliative care team also asks families where they seek support. This question can help them determine if there may be a role for chaplaincy in the family’s care, or if there are issues about family structure and finances that could be helped with the expertise of a social worker.

Children with cancer typically make up 20 percent of palliative care referrals, meaning that 80 percent of other referrals are expected to be distributed across the many divisions and services of Morgan Stanley Children’s Hospital. The goal of the pediatric palliative care team is to introduce the principles of palliative care to each service so that team members in each area can learn to integrate those principles into the care of their patients. “The other clinical services are our clients as much as the families we work with and they can turn to us for guidance,” Dr. Waldman adds. “We work with teams to help them speak with families about what’s happening, and to explore what their goals are for the child.” The palliative care team also supports staff who are experiencing bereavement issues after the loss of a child who was in their care.

Since his arrival at Morgan Stanley Children’s Hospital, Dr. Waldman has been meeting with other hospital staff. “They’ve been telling us, ‘We’ve been waiting for you!’” he notes. “Everyone is starting to embrace the broader concept of palliative care and the added value we bring for patients, families, and staff.” — Rosie Foster

---

**Meet Elisha Waldman**

Elisha Waldman thought his future included divinity school. Growing up in Fairfield, Connecticut as the son of a rabbi, he earned his undergraduate degree in religious studies. A detour took him to the Sackler School of Medicine in Tel Aviv, Israel, followed by a residency in pediatrics at Mount Sinai Medical Center in New York and a pediatric hematology/oncology fellowship at Memorial Sloan Kettering Cancer Center, also in New York. He worked for several years as an oncologist at Hadassah Medical Center in Jerusalem, but after a brief course in palliative care at Harvard Medical School, he “was hooked” on the field. He returned to the United States to complete a pediatric hospice and palliative care fellowship at Children’s Hospital Boston.

He comes to Morgan Stanley Children’s Hospital from Hadassah Medical Center, where he had developed a pediatric palliative care program. In addition to attending to the needs of patients and their families, he will guide the hospital toward a leadership role in advancing the impact of palliative care in pediatrics. “This is an enormous opportunity,” Dr. Waldman concludes. “More institutions are recognizing the importance of the palliative care team and its critical role in children’s hospitals.”
BOSTON GLOBE

Obesity Epidemic: Lose Now, Save Later

The health consequences of our inattentiveness to the decades-old obesity epidemic are now becoming clear. Pediatrician and Diabetes Researcher Michael Rosenbaum, MD, wrote in a recent op-ed piece in the Boston Globe. Dr. Rosenbaum noted that, “In June of 2013, the American Medical Association finally recognized obesity as a disease affecting more than one-third of U.S. adults.” To make a dent in the approximately $200 billion per year, or 21 percent of healthcare costs, that are attributable to obesity and its complications, Dr. Rosenbaum writes, “Insurance mandates need to include coverage for referrals to nutritionists, exercise programs, and obesity specialists to provide care before there are complications.” And that will only be possible if members of Congress, the insurance companies, and Medicare (neither of the latter two usually reimburse for obesity therapy) take this problem more seriously. Physicians also need to change their approach, he writes. “Only 25 percent of doctors are comfortable even discussing nutrition with their patients, and almost 30 percent say that no one in their practice is trained to deal with weight-related issues.”


MANHATTAN TIMES

WIN Program Reduces Asthma Rates in the Community

More than 100 local families recently “graduated” from the Pediatric Asthma and Adult Diabetes Management Program, a Washington Heights-Inwood Network (WIN) program for health founded at NewYork-Presbyterian Hospital in 2005. During the year-long program, community health workers provide local families with the tools they need to control their asthma and diabetes, preventing episodes that can lead to emergency room visits and missed school days. “The program is a wonderful asset,” CUMC Pediatrician Laura Robbins-Milne, MD, told the Manhattan Times. “The community health workers can go into homes, identify potential triggers, and work with families to find ways that work for them to overcome the barriers in controlling their children’s asthma.”

http://bit.ly/1yIswcx

WALL STREET JOURNAL

Robotic Surgery Has Higher Costs and More Complications

Jason D. Wright, MD, chief of the Division of Gynecologic Oncology, and his colleagues have been investigating the costs and benefits of robotic surgery for the past several years. In his latest study of the value of robotic surgery, he found that the technology costs significantly more and has a higher rate of complications than regular minimally invasive surgery for removing ovaries and ovarian cysts. “People need to stop and critically analyze whether using this expensive technology will really add any benefit for patients,” Dr. Wright told the Wall Street Journal. “There’s a widespread belief that newer is better, but our findings question that.”

http://on.wsj.com/1yGKMhz

BIOSPACE.COM

Intranasal Vaccine May Protect Against Genital Herpes

Genital herpes is transmitted primarily through sexual contact, entering the body through the genital mucosa, so a vaccine that induces both mucosal and systemic immunity is critical to minimizing the spread of this disease. With funding from the National Institute of Allergy and Infectious Diseases’ Division of Microbiology and Infectious Diseases, the NanoBio Corporation is studying the potential of an intranasal vaccine in an animal model. When applied intranasally, the company’s “nano-emulsion” vaccines elicit mucosal immunity as well as systemic immunity. “Genital herpes is a serious health issue globally. Once infected, the virus establishes latency in the nervous system causing chronic recurrences and the potential for transmission through sexual contact,” Lawrence Stanberry, MD, chairman of pediatrics, told Biospace.com. “Historically, vaccines have focused on preventing infection and/or recurrence by boosting systemic immunity. To date, this approach has not proved to be effective. HSV-2 enters the body through the genital mucosa. Therefore, a vaccine that induces both systemic and mucosal immune responses has significant potential to impact the spread of this disease.”

http://bit.ly/1z0Dlpo

THE NEWS TIMES

3D printing helps correct baby’s heart defect

A baby’s heart beats more strongly today, thanks to a new printing technique. The baby was born with congenital heart disease (CHD) and surgeons were able to examine an exact model of the baby’s heart before surgery to correct the abnormalities. Technicians created the model by running data from an MRI through a 3D printer. Emile Bacha, MD, chief of cardiac surgery, told the News Times that, “The baby’s heart had holes, which are not uncommon with congenital heart disease, but the heart chambers were also in an unusual formation, rather like a maze. In the past, we had to stop the heart and look inside to decide what to do. With this technique, it was like we had a road map to guide us. We were able to repair the baby’s heart with one operation.”

(For more information on 3D printing for CHD, see our story on page 1.)

http://bit.ly/1uw01eM

WALL STREET JOURNAL

Researchers Shed Light on Asthma’s Mysteries

Asthma researchers increasingly are recognizing that as many as half of asthma sufferers have a form of the lung disease known as non-allergic asthma, which does not respond as well to medications that help control symptoms of the more familiar allergic asthma. Environmental exposures are among the most studied causes for both types of asthma. In a recent study of phthalates (substances added to plastics to increase their flexibility and durability), Rachel Miller, MD, chief of allergy, immunology and rheumatology, and colleagues studied 300 women and their children living in New York’s inner city, where asthma rates are relatively high. The study was recently published in Environmental Health Perspectives (Environ Health Perspect. 2014 Oct;122(10):1141-6). The researchers measured phthalate levels in the women’s urine during pregnancy and in the children at three, five, and seven years old. They found significantly higher rates of asthma among the children whose mothers had the greatest levels of phthalates during pregnancy, Dr. Miller told the Wall Street Journal. They did not find a correlation between asthma and the children’s own exposure to phthalates in the early years after birth. She cautioned that while the study found an association between prenatal phthalate levels and asthma, like any epidemiological study, it didn’t prove causation.

http://on.wsj.com/1wnflut

REUTERS HEALTH

Young Men Often Denied Access to Emergency Contraception

Young men often run into difficulties when they attempt to buy the morning-after pill for their partners, a new study in the journal Contraception suggests (Contraception. 2014 Oct;90(4):413-5). In one of five attempts to buy...
In the News

the drug that can prevent pregnancy for up to five days after unprotected sex, young men in New York City were not able to do so. “We give a significant amount of lip service for men to be responsible in the couple and there are a number of ways for them to do that,” David Bell, MD, the study’s lead author and medical director of NewYork-Presbyterian Hospital’s Young Men’s Clinic, told Reuters Health. “In this case, if the condom breaks, they can do that by getting emergency contraception for their partner.” We should not put up additional barriers that prevent men from taking a responsible role in their relationships, Dr. Bell said. (For more information on Dr. Bell and the Young Men’s Clinic, see our story on page 7.)

http://reut.rs/1zfzinW

NPR/TED

Could Genetics Hold the Answer to Curing Autism?

Medical Geneticist and Pediatrician Wendy Chung, MD, describes herself as something of a zebra hunter. “When people hear hoof beats, we say in medicine, you should usually think of horses rather than thinking of zebras. But many times, families come to me after they’ve been to a lot of doctors for horses and haven’t come up with the answers. And so they think there might be something more unusual or more esoteric.” Dr. Chung told Guy Raz, host of NPR’s TED Radio Hour. She describes what it’s like to chip away at the mysteries of autism, and the excitement of uncovering tiny but critical clues. “The first gene we identified for human disease took me eight years. The last gene that we identified for human disease took eight days, and it’s really remarkable in terms of how quickly we can move forward. I think it’s that puzzle that I’m so obsessed with, at least from the genetic point of view, trying to crack that code about what those genes are and trying to put that into a massive, you know, puzzle in terms of how those genes fit together, how those proteins fit together, how those neurons fit together, what the different parts of the brain do, and why they’re different in some individuals.”

http://n.pr/1wxmo2V

Upcoming Events

FEBRUARY 5, 2015

Department of Pediatrics Mid-Winter Workshop
8:00 AM—9:30 AM OR 12:00 PM—1:30 PM, MCINTOSH CONFERENCE ROOM, CHC-113
R. Kevin Grigsby, PhD, Senior Director of Member Organization Development at the Association of American Medical Colleges, will be giving a workshop at 8:00 a.m. and noon titled “Expand your leadership by tapping the inner genius of others.” Please contact Elizabeth Omondi at elo2110@columbia.edu to reserve a space.

MARCH 5, 2015

28th Annual Babies Heart Fund Gala
THE PIERRE, TWO EAST 61ST STREET, NEW YORK, NY
The Babies Heart Fund Gala is a longstanding event that raises funds for the Division of Pediatric Cardiology. This year’s event will honor Dr. Linda Addonizio, Director of the Program for Pediatric Cardiomyopathy, Heart Failure, and Transplantation at CUMC. In addition, Barbara Walters will be the distinguished guest. For more information, please contact Whitney Potter at whitney.potter@columbia.edu.

APRIL 1, 2015

2nd Annual Hope & Heroes Luncheon
BRASSERIE 8½, 9 WEST 57TH STREET, NEW YORK, NY
Join Hope & Heroes for its Second Annual Luncheon and support children with cancer and blood disorders at Columbia University Medical Center. The event will include silent and Chinese auctions, speakers, and entertainment. For more information, please contact Kathryn Leiby at kl2601@columbia.edu or call 212-305-5010.

APRIL 11, 2015

Minimally Invasive Gynecologic Surgery (MIGS) CME Conference
COLUMBIA UNIVERSITY MEDICAL CENTER, 622 168TH STREET, NEW YORK, NY
Learn from the experts, who will discuss controversial topics in MIGS in a highly interactive venue. Hosted by Arnold P. Advincula, MD, and Roseanne M. Kho, MD. For more information, visit columbiaCME.org.


Miller RL and Peden D. Environmental impacts on immune responses in atopy and asthma. Journal of Allergy and Clinical Immunology 2014; 134(5):1001-1008.


Langston AM, Joslin-Roher, SL, Westhoff CL. Immediate post abortion access to IUDs, implants and DMPA reduces repeat pregnancy within 1 year in a New York City practice. Contraception 2014;89(2):103-108.

Westhoff CL, Reinecke I, Bangerter K, Merz M. Impact of body mass index on suppression of follicular development and ovulation using a transferal patch containing 0.55-mg ethinyl estradiol/2.1-mg gestodene; a multicenter, open-label, uncontrolled study over three treatment cycles. Contraception 2014;90(3):272-279.


Arnold P. Advincula, MD, (Gynecologic Surgery & Urogynecology) was installed as president of the AAAGL at the society’s 43rd Global Congress, where he was the scientific program chair for the event. Dr. Advincula was also a course director at the SSS 23rd Annual Postgraduate Course in Advanced Gynecologic Surgery.

Cande Ananth, PhD, MPH, (OB/GYN) has been named one of two statistical consultants for the American Journal of Obstetrics and Gynecology (AJOG) or the “grey journal”). He is the editor-in-chief for Pediatric and Perinatal Epidemiology, chief statistical editor for the British Journal of Obstetrics and Gynecology, and associate editor for the Journal of Medicine and the International Journal of Molecular Epidemiology and Genetics.

David E. Bank, MD, (Emergency Medicine) was promoted to associate professor of pediatrics.

David Bell, MD, (Child & Adolescent Health) was promoted to associate professor of pediatrics and population & family health.

Katherine Biagas, MD, (Critical Care Medicine) was elected to the Virginia Agar Academy of Medical Educators.

Thomas Biancanello, MD, (Pediatric Cardiology) was promoted to professor of pediatrics.

CUMC faculty comprised 17 of the 20 inaugural fellows in the Columbia Public Voices Fellowship program. The program, a collaboration between the Department of Medicine and the QEd Project, created through the support of Robert L. Burch, aims to cultivate national thought leaders among scholars, scientists, and clinicians who can influence public opinion. The CUMC fellows chosen for 2014–15 include

- Joan Bregstein, MD, (Pediatrics)
- Robert Forman, MD, (Obstetrics/Gynecology)
- Michael Rosenbaum, MD, (Pediatrics and Medicine)
- Anne R. Davis, MD, (OB/GYN)
- Nancy Green, MD, (Hematology/Oncology/Stem Cell Transplantation)
- Andrew Kung, MD, PhD, (Hematology/Oncology/Slim Cell Transplantation)
- Andrew Lederer, MD, (Pulmonary Medicine)
- Luz Adriana Matiz-Zanoni, MD, (Child and Adolescent Health)
- Adriana Matiz, MD
- Andrew Mutnick, MD, (Children and Adolescent Health) were invited to the dinner in Chicago for the presentation of the award.
- Cynthia Gyamfi-Bannerman, MD, (Obstetrics/Gynecology and Maternal-Fetal Medicine) was elected to the board of directors of the Society for Maternal Fetal Medicine.

Nancy Green, MD, (Hematology/Oncology/Stem Cell Transplantation) was awarded a Columbia Global Policy Initiative planning grant for her work, “Reducing under-6 mortality in Sub-Saharan Africa: A scalable model of newborn screening and treatment for sickle cell disease in Uganda.” Dr. Green was also promoted to professor of pediatrics.

Kara Kelly, MD, (Hematology/Oncology/Genetics) received a five-year grant from the National Cancer Institute for the Columbia University Minority/Underserved Site NCI Community Oncology Research Program.

David Kessler, MD, (Pediatric Emergency Medicine) is the recipient of a 2014 Irving Institute/Clinical Trial Office (CTO) Pilot Award for his proposal, “improving lumbar puncture success in infants using bedside ultrasound: A pilot randomized clinical trial.”

Andrew Kung, MD, PhD, (Hematology/Oncology/Stem Cell Transplantation) was promoted to professor of pediatrics.

Lena Lasadas, MD, (Hematology/Onco/Genetics/Genetics) was selected to be one of the inaugural Fellows of the CUMC/NYP Obstetrical Quality Collaborative (NYSPQC) Obstetrical Improvement Project’s 2013 Quality Improvement Award. This award supports the project’s mission of reducing scheduled deliveries without a medical indication between 36 and 39 weeks gestation through the translation of evidence-based guidelines into clinical practice.

This award is given to facilities whose project teams have reported fewer than three scheduled deliveries without a medical indication for either all of 2013, or for the six-month period of July through December 2013. CUMC reported zero scheduled deliveries without a medical indication in 2013. This is the highest level of achievement possible for this project, and the NYSPQC commends CUMC’s entire team for their exemplary work and commitment to this important issue. The NYSPQC, an initiative of the New York State Department of Health, aims to provide the best and safest care for women and infants in New York. Since September 2010, the Department has been collaborating with Regional Perinatal Centers (RPC) to improve and ensure the quality of obstetrical care related to preterm birth. Early in 2012, the project aligned with the New York State Partnership for Patients to expand the NYSPQC from RPC to all birthing hospitals in New York State. Ninety-seven NYS birthing hospitals are currently participating in the project.

John Rausch, MD, (Child and Adolescent Health) was selected to serve in the inaugural class of the American Academy of Pediatrics (AAP) Section on Obesity COACH Network. The Network aims to create a cadre of pediatric care providers well-versed in childhood obesity who can serve as mentors, speakers, and advisors.

Katherine Rivlin, MD, (OB/GYN) received a $70,000 grant for her study, “Using Narrative Medicine in Options Counseling Education: A Randomized Controlled Trial.”

Timothy Ryntz, MD, (Gynecologic Surgery & Urogynecology) received an Irving Institute Imaging Pilot Award for his study “Can Dynamic MRI Offer Insight Into Underlying Pathophysiology of Idiopathic Menorrhagia?”

Rakesh Sahni, MD, Richard Polin, MD, David Bateman, MD, Joseph Isler, MD, and Philip Grieve, MD (Neonatology) received a Collaborative NIH R01 award for their project, “Predictive Informatics Monitoring in the Neonatal Intensive Care Unit.” Dr. Sahni also received an award from the bio therapeutics company Iliara to evaluate “Non-invasive inhaled nitric oxide in the treatment of hypoxic respiratory failure in term and preterm infants.” Drs. Sahni and Polin received a grant from the respiratory therapy company Fisher and Paykel to evaluate “Respiratory and hemodynamic effects of varying bubble NCPAP in VLBW infants.”

Lisa Saiman, MD, Adam Ratner, MD, MPH, received a five-year grant in a competitive renewal from the National Institute of Allergy and Infectious Diseases for “Training in Pediatric Infectious Diseases.”

Julie Vincent, MD, (Pediatric Cardiology) was awarded the “2014 Cardiovascular Disease in the Young Visiting Professor for Career Development Award.” Dr. Vincent received the award on behalf of the Early Career and Mentoring Committee of the American Heart Association’s Council on Cardiovascular Disease in the Young.

Ronald Wagner, MD, (Maternal Fetal Medicine) received a five-year award from the National Institute of Child Health and Human Development for his research project, “The Maternal Fetal Medicine Unit Network.”

Martha Weich, MD, (Neonatology) was promoted to associate professor of medicine and epidemiology in pediatrics.
2014 Physician of the Year Awards

The Physician of the Year Award is the Nursing Department’s annual celebration of collegiality, collaboration, and physicians’ contributions to nursing practice across the various campuses of CUMC. The award recognizes physicians, fellows, house staff, and medical students who show competence and caring in the clinical setting and work together with the nurses to attain the highest standards of quality patient care.

Dr. Steve Caddle
Assistant Professor of Pediatrics at CUMC
Division of Child and Adolescent Health
Pediatrician, Washington Heights Family Health Center
Ambulatory Care Network

Steve Cuddle, MD, is a dedicated physician and an invaluable asset to his colleagues at the Washington Heights Family Health Center. He is actively involved in the teaching of nursing students, in addition to his work with residents, fellows, and medical students. He is always open to new ideas and suggestions, and regularly asks nurses for their input and opinion on how to enhance patient care and satisfaction.

Dr. Caddle always goes the extra mile for his patients, and his compassion extends beyond his work at the health center. In the past, he has visited patients at their homes when they were in need of immediate treatment, and has even gone to visit patients on weekends to make sure they are treated in a timely and efficient manner. Dr. Caddle is also an active member of the National Organization for the Advancement of Haitians, and makes annual trips to Haiti to provide clinical support for the country’s doctors and nurses.

Dr. Rakesh Sahni
Professor of Pediatrics at CUMC
Division of Neonatology

Rakesh Sahni, MD, is an extremely accomplished physician and mentor who instills a passion for improving patient care in others. As director of the Infant Physiology Laboratory at NYP Morgan Stanley Children’s Hospital, Dr. Sahni is always happy to teach his colleagues about the latest medical advances and asks for input as to how these advances can be incorporated into patient care. He takes time to promote studies that are run by his colleagues, and even offered his office as a space for new research assistants to practice performing electroencephalograms (EEGs). Dr. Sahni is deeply devoted to providing outstanding care. He empathizes with patients’ families, and will go out of his way to help them even if he is not directly involved in caring for their child. He continues to stay in touch with many of the patients and families that he has treated over the years. Recently, he brought on a former patient, now a high school senior, to work with him on clinical research. Dr. Sahni’s impact on patient care will continue to be felt for years to come.

Teaching Day Doubles as Birthday Celebration

Four of the pioneers in the field of pediatric cardiology gathered in early October and reminisced about their early years in practice and the evolution of their specialty. What was especially remarkable about the gathering was not that three of the four doctors were at least 85 years and older—but that those three were women. The gathering was part of this year’s Sylvia P. Griffiths, MD, Lectureship and Teaching Day, which was also a surprise celebration of Dr. Griffiths’s 90th birthday. Jacqueline Noonan, MD, professor emeritus of pediatrics at the University of Kentucky and the original describer of hypoplastic left heart syndrome, was the speaker for the event; Dr. Noonan turned 86 in October. Another pioneer was Eugenie Doyle, MD, former chief of pediatric cardiology at New York University. Welton Gersony, MD, professor emeritus and former chief of pediatric cardiology at CUMC, was the master of ceremonies for the event.

Dr. Griffiths has been a member of the faculty since 1955; she founded CUMC’s pediatric cardiology service along with Sidney Blumenthal, MD. In 1990 Dr. Griffiths was appointed professor emeritus of clinical pediatrics, and in 1996 the Division honored her by establishing the lectureship and teaching day in her name. The annual event recognizes the many pediatric cardiologists Dr. Griffiths has mentored during her long and productive career. “She has taught all of the fellows in our fellowship program since the start of the program, and she still teaches every Thursday,” Julie Vincent, MD, current chief of the division, says.

“No many women went to medical school when these women did, and fewer went into specialties like pediatric cardiology. These women all went on to become big names in the field, and they had a lot of stories to tell,” Dr. Vincent adds. Drs. Griffiths, Noonan, and Doyle all spoke about the importance of an even earlier role model, Helen Taussig, MD, who developed the concept for a procedure to extend the lives of children born with Tetralogy of Fallot (the most common cause of blue baby syndrome) in the early 1940s. “There weren’t many male medical students who wanted a woman as a mentor, but women going into medicine did,” Dr. Vincent explains. “Dr. Taussig is one of the reasons why so many women went into pediatric cardiology in their era. The big names in the field are some really strong women.”

Members of Dr. Griffiths’s family, several former colleagues, and more than 20 former fellows attended the surprise birthday celebration. Dr. Vincent told those assembled that, “Dr. Griffith is a very strong, smart, wonderful teacher and a great mentor.”
Oliver Barry, MD, a third-year resident in pediatrics, is passionate about global health and committed to incorporating this interest into his career in pediatric cardiology. As a medical student at the Yale School of Medicine, Dr. Barry conducted clinical research on pediatric HIV in South Africa and Ghana. His experiences there sparked a long-term interest in international health and clinical research. During his residency at Columbia, Dr. Barry shifted his focus to cardiology, and he works actively on cardiomyopathy research with Rakesh Singh, MD, and Marc Richmond, MD. He recently initiated new research avenues merging his interests in cardiology and global health. Last spring, Dr. Barry worked at Red Cross War Memorial Children’s Hospital in Cape Town, South Africa, researching the morbidity and mortality among children on waiting lists for cardiac surgery. He hopes this work will lead to system-based improvements in this resource-limited setting. In July 2015, Dr. Barry will start a fellowship in pediatric cardiology at Boston Children’s Hospital.

Regina Myers, MD, a second-year pediatrics resident, is conducting clinical research in bone marrow transplantation. With her mentors, Jennifer Levine, MD, and Prakash Satwani, MD, Dr. Myers is studying long-term outcomes in children and young adults who underwent bone marrow transplants for nonmalignant disorders. The toxic treatments children receive as part of their transplant place them at risk for developing a myriad of chronic health conditions. However, the burden of these late effects is unknown in patients who have had transplants for noncancerous disorders such as sickle cell disease, aplastic anemia, and immunodeficiencies. Dr. Myers will be conducting comprehensive health assessments, including a number of screening tests, on patients who had bone marrow transplants at Morgan Stanley Children’s Hospital between 2000 and 2012. Dr. Myers has been awarded an American Academy of Pediatrics Resident Research Grant to help fund the project. She received her undergraduate degree from Cornell University and her medical degree from Yale University. After residency, she is planning to pursue a fellowship in hematology/oncology/bone marrow transplantation.

Randi Teplow-Phipps, MD, a fellow in adolescent medicine, was invited to speak at the New York City Department of Health and Mental Hygiene (DOHMH) at the NYC Coalition for Childhood Immunization Initiatives. She spoke about her research, titled “Factors Associated with Early Uptake and Series Completion of HPV Vaccination in Male and Female Adolescents.” The Coalition is dedicated to improving immunization coverage levels among NYC’s children and adolescents. At the Coalition’s quarterly meetings, the DOHMH Bureau of Immunization recognizes providers with high coverage, presents updates on new vaccine recommendations, discusses vaccine supply in NYC, presents on vaccine-preventable disease outbreaks, and details initiatives of the NYC Citywide Immunization Registry, the Vaccines for Children program, and other Bureau of Immunization programs. Coalition meetings also offer a forum for other organizations to present their work on immunization issues and for providers to share best practices and discuss current challenges, such as vaccine hesitancy. Dr. Teplow-Phipps completed her fellowship in October and is practicing at SUNY Purchase College of Student Health Services.
Mending a Broken Heart
CONTINUED FROM PAGE 1

Morgan Stanley Children’s Hospital, faced in the spring of 2013 when a then expecting and soon-to-be mother and father arrived at her practice for a fetal consultation.

“The fetus had been diagnosed at 20 weeks with a very complex congenital heart defect,” says Dr. Chelliah. “The family had gone to multiple other major pediatric cardiology centers in the Northeast seeking second opinions.” At other institutions, because the unborn baby’s heart was still in development—and about the size of a walnut—locating the exact source of the holes in the heart was extremely difficult, making the task of formulating a course of action painstaking. “Ultimately, the family decided to come to Columbia.”

The fetus’s heart defect was a rare variant of a deformity called a double outlet right ventricle. Normally, the two ventricles, which are the pumping chambers of the heart, work so that the right ventricle is responsible for pumping blood to the lungs through the pulmonary artery, and the left ventricle pumps blood to the body through the aorta. But such was not the case for Dr. Chelliah’s fetal patient.

“With this case, both vessels came from the right side and were only connected to the left ventricle through a little hole,” says Dr. Chelliah, a severe defect with the potential for numerous surgeries, abnormal blood circulation throughout the body, and even death.

But Dr. Chelliah had a simpler solution. Through her previous work at Children’s National and the National Institutes of Health (NIH), Dr. Chelliah was introduced to the technique of 3D printing for medical purposes. “3D printing is something that I’ve always been interested in, especially after reading about it in the media,” she says. “When I was in DC, there were some people using 3D printing for CHD. So I was very interested in introducing it here at Columbia.”

3D printing is new technology where instead of printing paper, the machine prints layer upon layer of essentially liquefied plastic that hardens into a three-dimensional object. It’s guided in terms of what to print by a qualified technician. “We can take 3D images that we obtain from cardiac MRIs and cat scans, even three-dimensional echoes, and convert that to a file that is capable of being printed in a tangible form,” says Dr. Chelliah.

Realizing that this approach would lead to the best outcomes for her fetal patient and that time was of the essence, Dr. Chelliah and Hannah Fraint, MD, a third-year pediatric cardiology fellow at CUMC whose primary area of study is cardiac intervention and imagery, sprang into action. Since the 3D printing procedure is not covered by health insurance, Drs. Chelliah and Fraint utilized a grant awarded to Dr. Fraint from Matthew’s Hearts of Hope—a nonprofit organization founded by Marie Hatcher, mother of a CHD survivor—that is conferred to advanced research in CHD.

“Dr. Chelliah had the idea of utilizing this 3D technology in a number of ways—for families, for trainees, for doctors really at every level,” says Dr. Fraint. “Once we got the grant money, we had to figure out who was the best candidate for this surgery. We decided to focus on babies who need work done inside of the heart, where it is really complex, and where you need to know the 3D relationship between all of the different parts of the heart. So, this was the perfect case.”

In July, just one day after the child was born, a low-dose computerized tomography (CT) scan was performed to produce an image of the baby’s heart. Now having the necessary funds, Drs. Chelliah and Fraint reached out to Materialise, a company that specializes in 3D printing for healthcare purposes by using its Mimics Innovation software which used the baby’s CT scan to create the model heart. Two days later, the team at CUMC received the 3D heart, an exact replica that contained the same defects found in the baby’s organ. The model was created out of pliable material that could be surgically cut into and studied before the child’s surgery actually took place.

The model allowed a team of surgeons, led by Emile Bacha, MD, director of congenital and pediatric cardiac surgery at NewYork-Presbyterian Morgan Stanley Children’s Hospital, time to develop a plan of action for the baby’s surgery.

“We studied the 3D model heart to pre-plan the surgery instead of making decisions about which type of surgery (multi-stage or one-step) in the operating room with the heart open, on the clock,” says Dr. Bacha. “Usually, babies with this complex form of CHD need a series of three to four typically life-threatening surgeries. Utilizing the model heart, we were able to repair all of the heart’s defects in a single procedure.”

“Our team initially took on this project because we are interested in challenging cases,” adds Dr. Bacha. “Plus, it gave us a chance to work with a 3D heart, which basically gave us a mold of the inside of the baby boy’s heart, with great detail.” And because of the model, the child’s surgery was a success. Dr. Chelliah regularly sees him during follow up exams, and reports that he is doing “phenomenally.”

But that is just one case. Here is a statistic every parent should know: heart defects, which affect blood flow to the heart and its surrounding vessels, are among the most common birth defects—affecting approximately 9 out of every 1,000 newborns according to the American Heart Association—and are the leading cause of birth defect-related deaths. In a recent study, cytogeneticist Dorothy Warburton, PhD, epidemiologist Jennifer Kline, PhD, and other contributors from Columbia University Medical Center’s Department of Pediatrics analyzed data gathered from 223 families, each with at least one child affected by CHD. The study concluded that genetic anomalies—conditions caused by abnormalities in parental genes—contribute to CHD.

Early detection can assist in the treatment of CHD. Some types of CHD can be diagnosed during pregnancy through an ultrasound or a fetal echo-cardiogram, while others may only become apparent after birth. If a baby is born with cyanotic heart disease or a group of many different heart defects that result in a low blood oxygen level, the diagnosis is usually made shortly after birth by the bluish color of their skin, a condition called cyanosis—whereas, if a baby is born with a septal defect or an obstruction defect, the symptoms may only be noticeable several months or even

CONTINUED ON PAGE 26
A Career Worthy of Recognition

CONTINUED FROM PAGE 1

"ELECTION TO THE IOM IS ONE OF THE BIGGEST HONORS OF MY CAREER," SAYS DR. D’ALTON (PICTURED SECOND FROM RIGHT).

Mending a Broken Heart

CONTINUED FROM PAGE 25

Dr. Bacha believes this 3D printing technique for CHD “will become mainstream.”

years later. Such statistics make the use of 3D printed model hearts for CHD surgery that much more vital. And Dr. Bacha believes this 3D printing technique for CHD “will become mainstream.”

Drs. Chelliah and Bacha are currently using a new 3D printed heart on another case. But, according to Dr. Chelliah, this assignment is more challenging as the child is older (two years old), has already had multiple surgeries for her CHD, and the abnormalities are significantly more severe than in the first case.

“Sometimes, it can be very difficult because when you have an abnormally shaped heart—especially a very tiny one—all bets are off,” says Dr. Chelliah. “There are infinitely many ways that a heart can be deformed. Our goal is to try to figure it out before we get into the operating room. I have no doubt that the current case with the two-year-old child will turn out just as successful as our first case.”

— Cecilia Martinez

health complications. She has implemented a multidisciplinary approach to treating the highest-risk pregnancies and diagnosing and treating fetal complications. For her work in advancing maternal fetal medicine research, policy development, and clinical practice, Dr. D’Alton has already won national recognition. She received a Lifetime Achievement Award in 2006 from the Society for Maternal Fetal Medicine (SMFM) and has served as SMFM president. She has also held key positions in the American College of Obstetricians and Gynecologists’ Neonatal Encephalopathy and Cerebral Palsy Task Force and the American Gynecological and Obstetrical Society.

“Election to the IOM is one of the biggest honors of my career,” says Dr. D’Alton. “It’s extremely gratifying on a number of levels. I was very privileged to be nominated by two of my national colleagues, Dr. Norman Gant and Dr. Roberto Romero. CUMC Dean Dr. Lee Goldman and Dr. Mike Sholanski, our chair of pathology, were also both extremely supportive of my membership. And it was an even bigger privilege to be hosted by Dr. Carolyn Westhoff, a member of our own department, at the induction ceremony.”

The IOM, established in 1970, is the health arm of the National Academy of Sciences. It is both an honorific membership and advisory organization whose members and staff produce independent, scientifically-informed analysis and recommendations on health issues. “One of the major accomplishments of the IOM was the publication of the report Crossing the Quality Chasm: A New Health System for the 21st Century, which has led to significant changes in how we provide safer care for patients,” says Dr. D’Alton. “Because of the quality of the organization, its publications have enormous influence. I will be privileged to be involved with so many smart people framing the national issues facing healthcare.”

Dr. Westhoff, director of the Division of Family Planning & Preventive Services, has been a member of the IOM since 2007. “Mary’s nomination and election to the IOM reflects the great accomplishments of her entire career,” she says. “This is exemplified by her leadership of the FaSTER trial, which has dramatically improved the algorithms for prenatal screening.” Dr. D’Alton was the principal investigator of the NIH-funded First and Second Trimester Estimation of Risk (FaSTER) Study, an intervention trial involving more than 38,000 pregnancies that compared first and second trimester markers in the same women. One of the main outcomes of the trials was a verification of the accuracy of a first trimester screening tool for fetal abnormalities. The trial also revealed a wealth of information on other obstetric issues.

In addition to Dr. Westhoff, Dr. D’Alton joins several faculty members in Pediatrics and OB-GYN who are IOM members. Current members include Robert Goldenberg, MD, of obstetrics and gynecology, a global expert in stillbirth who served as chairman of the IOM Pediatrics/OB/GYN section from 1998-2002; Margaret Heagarty, MD, professor of pediatrics emerita and former director of pediatrics at Harlem Hospital Center; Rudolph Leibel, MD, director of the Division of Molecular Genetics and co-director of the Naomi Berrie Diabetes Center; and Mary Lake Polan, MD, PhD, MPH, a reproductive endocrinologist and former member of the IOM Governing Council. More than 50 Columbia University Medical Center faculty are members of the IOM. “Speaking for both Dr. Westhoff and myself, we are very proud to be among the just 38 obstetrician-gynecologists nationally who have been elected to the IOM.”

— Beth Hanson