Eliminating childhood AIDS in the Dominican Republic

The epicenter of mother-to-child HIV transmission in the US in the late 1980s was central Harlem; as Coordinator of Pediatric AIDS at both Babies Hospital and Harlem Hospital, Stephen Nicholas, MD’s energies were focused right there—he never really thought about international health. “I had imagined that my life’s work would be in Harlem,” he says. But over the next few years treatment for HIV improved. One of the major improvements was an aggressive intervention to prevent pregnant women from passing the virus to their children that includes anti-HIV medication for both mother and child, delivery by cesarean, and bottle- rather than breast-feeding. These improvements in care paid off. Once the leading cause of childhood death in Harlem, childhood AIDS disappeared by 1999. “We were well on our way to eliminating pe-

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Global health is a changing field: more and more young doctors want to both provide and improve medical care around the world, while the health problems that people face globally are evolving as western lifestyles become more widespread. In this issue of Connections, the quarterly newsletter published jointly by Columbia University Medical Center’s Pediatrics and OB/GYN Departments, we bring you news about the many ways that doctors in both departments are promoting women’s and children’s health around the globe. On page 1 you can read about Steve Nicholas’s work in the Dominican Republic, where he has established a clinic to combat mother-to-child transmission of HIV, and Robert Goldenberg’s efforts to track and reduce the incidence of stillbirths around the world. Neonatologist Richard Polin has been educating Eastern European doctors through the American Austrian Foundation (page 5), while Richard Deckelbaum’s long involvement in global health led him to help establish the Medical School for International Health in Israel (page 4). OB/GYN resident Margo Harrison is helping evaluate technologies to decrease infant and maternal mortality and morbidity (page 14) and gynecologist Joshua Holden is improving care for women with fistula in Rwanda. We also feature a collaborative initiative between NewYork-Presbyterian/Morgan Stanley Children’s Hospital, the Morgan Stanley Foundation and Beijing Children’s Hospital (page 15). And lastly, we introduce faculty members, Steve Kernie, Chief of Pediatric Critical Care, and Fangming Lin, Chief of Pediatric Nephrology. In our next issue we will focus on programs and outreach efforts closer to home—those geared to the unique urban community surrounding Columbia University Medical Center.

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Co-Editors-in-Chief
Connections
Global Health Initiatives and Their Impact at Home and Abroad

A Conversation Between the Chairs

Mary D’Alton, Chair of Obstetrics and Gynecology, and Larry Stanberry, Chair of Pediatrics, sat down together recently to talk about what draws doctors to global health, and the many ways that both patients and doctors benefit from these initiatives.

Dr. D’Alton: Most doctors go into medicine to help people, and doctors who have an interest in global health are the same—they just want to help people on a larger scale.

Dr. Stanberry: I’d add that people who end up in a university are interested in education. We educate students, residents, fellows, and each other. Extending that impulse to educate to helping our resource-challenged colleagues abroad is a logical extension of our passion—and it’s a two-way street. I certainly don’t think working in global health is just a “feel good” exercise; we benefit from these interactions in many ways that are very tangible. In our Win for Asthma Program, for example, trained non-medical people from the Washington Heights community go into homes to assess asthma triggers and educate families about asthma. This program is designed very much like community-based healthcare programs in Asia and in Africa. By working abroad one sees models of care that can be adapted for application in our country.

Dr. D’Alton: We have learned so many lessons here in the US and have so much to offer, and we practice in such a different environment that it’s very important to open the eyes of members of our department to the enormous challenges in delivering obstetrical care to women’s health around the globe. It’s our responsibility to get involved in global health. We benefit from the energy that our young residents, fellows, and faculty generate when they participate in programs abroad and can help address the overwhelming needs in developing countries.

Dr. Stanberry: One of our challenges has been to organize the global health efforts that have existed in the pediatrics department for many years. We now have a number of faculty who are real champions in global health: Dr. Phil LaRussa, an infectious disease specialist spends a lot of time in HIV prevention and treatment of children in Africa and in Asia (see page 6); Richard Polin, head of neonatology and one of our vice chairs, organizes the neonatology seminars for the American Austrian Foundation (see page 5); Richard Deckelbaum, professor of gastroenterology in our department, who co-founded The Medical School for International Health in Israel (see page 4); Gary Brittenham, a senior hematologist and one of the world’s leading authorities on iron metabolism, who is researching iron absorption in patients with malaria (see page 7), and Steve Nicholas, a professor of pediatrics who has established a program in the Dominican Republic to reduce mother-to-baby transmission of HIV (see page 1).

Dr. D’Alton: Our department recently recruited Dr. Robert Goldenberg, a world-class leader in global health, to head our global health initiatives (see page 1). He has the experience, track record, and mentorship to bring this new area to our department and to make it sustainable. Over the past several years Dr. Josh Holden (see page 11) and a number of our doctors have gone to Niger, Rwanda, and Eritrea to do fistula repairs, and have helped women who so seriously needed surgery. Dr. Fadi Mirza, an adjunct faculty, is trying to build our profile in the Middle East and he is working to develop a maternal fetal medicine program in Beirut, Lebanon and to train students and fellows from that area. We’ve also had, and currently do have, fellows from Israel and Ireland.

Dr. Stanberry: To ensure the quality of our doctors’ experience we’ve worked to limit the number of sites where they will spend time. Last year we signed a five-year agreement with the department of pediatrics at Makerere University in Kampala, Uganda. The goal is to provide an environment where our residents, fellows and students can really learn well and safely, and by the same token, bring our Ugandan colleagues back here where they can gain additional training. We’re very excited about that collaboration.

Dr. D’Alton: I agree with Larry—we need to focus our efforts in a few areas for more intense collaborations.

Dr. Stanberry: Yes, trying to be everything to everyone is a ticket to failure. At Makerere we’ve got a single site where we can do many different things and have a larger impact, rather than trying to invest small amounts in many, many locations. So targeted investment and focusing on a few problems are really key to successful global health initiatives.

Funding is a real challenge in global health. Physicians often make these trips during their vacations, which speaks to their commitment and passion for global health medicine. But you also need people who can spend longer periods of time on these projects, and that requires funding—but there’s no reliable source of it. Funding may come from the NIH or foundations such as Fogarty International, GE Healthcare, the Bill and Melinda Gates Foundation, and occasionally small foundations or individual donors. As economy weakens there’s always the question: shouldn’t we be more focused domestically rather than internationally? And the answer is that we have to focus our efforts domestically, but we cannot neglect the rest of the world. From my perspective, it’s not right to be so inwardly focused. People in the developing world are going to have an impact on us one way or the other. Helping them take care of their own is a way to help, in the end, to make the world a safer place.

Please click here to view videos on global health initiatives.
When Richard Deckelbaum, MD joined the Zambia Flying Doctor Service as a young medical school graduate in 1969, infectious diseases like tuberculosis, malaria, cholera, and dysentery were the scourges of the developing world. But over the past few decades developing countries have experienced an explosion of “first-world” health problems: non-communicable diseases such as type 2 diabetes and cardiovascular disease now top the list of health threats around the globe, Dr. Deckelbaum says, and stem from the overweight and obesity epidemic. “This epidemic is happening in Harlem, in Washington Heights, it’s happening in Africa, in the Middle East; it’s both a local and global issue,” he adds.

At the root of this change is an increase in the global food supply and westernization of people’s lifestyles around the world. More and more people are eating poor foods, snack foods, and more food, and they are less physically active as television sets have become commonplace in Africa, Asia, and elsewhere, says Dr. Deckelbaum. “In South Africa, India, and Brazil more people between the ages of 35 and 64 now die from cardiovascular disease than do people in the US in the same age group,” he says, “and by 2030 non-communicable diseases are going to contribute much more to overall mortality in developing countries than tuberculosis, malaria, and HIV combined. There’s a huge paradigm shift here.”

To address these evolving challenges doctors active in global health need new tools, says Dr. Deckelbaum, from an understanding of agriculture to epidemiology to health economics to disaster relief. As co-founder of The Medical School for International Health (MSIH) at Ben-Gurion University of the Negev in Israel, a four-year medical school established in 1996 in collaboration with Columbia University Medical Center, and as former president of the Global Health Education Consortium (GHEC), a non-profit organization that promotes global health education in medical schools, he’s working to ensure that young doctors learn those skills.

Doctors graduating from MSIH focus on primary care and community—preventive—and population-based medicine, and through their coursework come to understand the political, environmental, economic, and cultural factors that affect the health of people and populations. And they don’t focus just on abstract and theoretical courses. “From the first year students work with underserved populations such as the Bedouins or new immigrant populations like the Ethiopians through migrant worker clinics,” Dr. Deckelbaum explains.

Their training will help doctors collaborate with people who work in other fields in “multi-sectoral” ways, he says. “You shouldn’t just come in to a community to start a health clinic. Along with the health program you also need to improve agriculture in the region, food availability, and improve water hygiene,” he says. Successful global health initiatives also depend on “doing a lot of bottom up work, getting people involved early in planning the programs having them understand what’s going on, why you’re doing it, and really being available and involved with the local populations.”

MSIH and other medical schools with an emphasis on global health are capitalizing on a wave of interest among young people. “Over the past several years, there has been a huge increase in the numbers of young people interested in global health. They have developed a big interest in what’s happening globally, which may be driven, in part, by the media, but it’s reflected in the growing number of people who feel a sense of social responsibility,” Dr. Deckelbaum says. “People want to get into global health not because they pity people in resource poor areas but because they really want to help and make a difference.”

As a nutrition specialist and as head of the Institute of Human Nutrition (IHN), a center for scientific and translational research on nutrition, Dr. Deckelbaum is working on other aspects of global health. Through a project in the Middle East he has promoted the fortification of flour with vitamins. “We’re finding big decreases in anemia compared to five years ago, and almost no folate deficiency,” he says. In the West Bank, Gaza, and Egypt he has established malnutrition screening programs and screening for celiac disease and other treatable causes of malnutrition, and he works closely with groups that set nutrition policy for Palestine and other areas in the Middle East.

One of the main benefits of global health work is learning how to be a “real doctor,” says Dr. Deckelbaum. “When you work in settings without X-rays, CT scans, and labs, and have to learn to take a careful history, understand the patient’s social setting and what types of disease are associated with different groups, and perform a thorough physical exam, you learn so much about being a doctor. It takes you back to real medicine,” he says. “To really understand the importance of patients’ backgrounds and histories applies here in New York and everywhere else, and it’s not stressed as much as it used to be.” —Beth Hanson

Richard J. Deckelbaum, MD, is a Professor of Pediatrics and Epidemiology, Robert R. Williams Professor of Nutrition (in Pediatrics), and Director of the Institute of Human Nutrition.

To learn more about Dr. Deckelbaum’s global health work in Burundi click here, in Palestine click here, and in Kenya click here.
Global Initiatives

Bridging the divide: educational seminars train doctors from resource-poor areas

Mountainous Austria straddles eastern and western Europe and has historically served as a gateway between the two parts of the continent. So it was a logical location for George Soros’s Open Society Institute to establish the American Austrian Foundation (AAF) with the goal of bringing doctors from the West together with those in the former Soviet republics to foster “brain gain” in Eastern Europe. Since its inception in 1993 the AAF’s seminar series has educated almost 14,000 young doctors from the former Eastern European countries, and more recently from China, Africa, and central America, through seminars in a host of subspecialty areas.

Richard Polin, MD, Director, Division of Neonatology and a Professor of Pediatrics, has directed the AAF’s courses in neonatology for the past two decades. “The AAF’s goal is capacity building—helping our fellows develop the tools to become better educators and to improve care in their own countries,” Dr. Polin says. “Over the years the sophistication in a lot of those countries has increased dramatically, and the fellows who came to the seminars in the beginning are now leaders in their subspecialty areas.”

AAF fellows are invited to the foundation’s state-of-the-art conference center, Schloss Arenberg, in Salzburg for one-week seminars that take place throughout the year in specialty areas ranging from pediatric emergency medicine to cardiac imaging and neonatal medicine. Interactions between the 40 or so participants and five faculty at each seminar are intense, and the lectures, discussions, case presentations and simulations allow for rich exchanges, which has led to friendships that have lasted for years. Fellows return home after the seminars with information and slides from every lecture, and many stay in contact with the faculty members. “We have a year-round communications with the fellows,” says Dr. Polin. “I get lots of e-mails from fellows I’ve met over the years saying things like, ‘I have a difficult case—can you help me?’.”

The goal of the seminars is not just knowledge transfer, says Dr. Polin. It is also to teach the fellows the American style of education. “In the traditional European educational system, the professor whispers something to his associate, who whispers something to another associate, and finally it gets transmitted to the medical student,” he says. “We try to break the barriers between the professor and the student and teach them not only the content of their subspecialty area but our style of education as well.”

The AAF also holds satellite seminars, where faculty members visit a fellow in his or her country to lecture and teach. Dr. Polin has participated in satellite seminars in about 10 former Soviet bloc countries. Almost 2,000 fellows have also participated in one-month observer- shipships in Austrian and American hospitals, where they can observe new treatment protocols and technology and experience a different style of health care and hospital management. “I think we really are having an impact on quality of care through these seminars,” he says.

More recently Dr. Polin has developed another global health interest: he is collaborating with students in Columbia’s School of Biomedical Engineering to develop inexpensive technologies for the Special Care Baby Unit at Mulago Hospital in Kampala, Uganda. For students working toward their master’s degrees in biomedical engineering this collaboration is a major source of student projects, he says.

So far students have developed four devices that are fairly far along in production: a vital signs monitor to continuously measure heart rate, respiratory rate, and temperature; a phototherapy unit to treat neonatal jaundice; an infant transport unit to prevent hypothermia during transport from rural settings to higher level hospitals; and a vein transilluminator to help visualize the veins in infants’ hands for insertion of venous lines or drawing blood.

“We came up with these devices by looking at their nursery and asking, ‘what are some of the simple technologies that are missing for your NICU that would have an immediate impact on the quality of care?’ These inexpensive technologies have been quite successful in preliminary testing in Uganda,” Dr. Polin says, “and will have applicability in other parts of the world. They’re not quite ready for manufacturing and distribution, but all four are fairly far along in development.” The group hopes to find a manufacturer for the devices in Kampala.

Both Dr. Polin’s global health initiatives are central to his work as a caregiver and educator. “Doctors in the US provide great care for critically ill babies in very sophisticated newborn ICUs, but it would be short-sighted for us to just put all of our energies into our centers here,” he says. “The needs of many other centers throughout the world are significant. I think we all have a responsibility to try and improve quality of care in the places where those needs are greatest.” —Beth Hanson

Richard A. Polin, MD is a Professor of Pediatrics, Director of the Division of Neonatology, and Vice Chairman for Pediatrics.

To learn more about Dr. Polin’s work with the American Austrian Foundation click here.

“The AAF’s goal is capacity building—helping our fellows develop the tools to become better educators and to improve care in their own countries.”
Antenatal steroids have little effect on respiratory outcomes in late-preterm neonates

About three-quarters of preterm births in the US occur in the “late-preterm” period, between 34 and 36 weeks of gestation, and doctors are increasingly aware of the higher risk of short- and long-term disorders and diseases, including respiratory compromise, in this group compared with neonates born at full term. To estimate whether exposure to corticosteroids during pregnancy decreased the rate of respiratory problems in late-preterm neonates, Cynthia Gyamfi-Bannerman, MD, Associate Professor of OB/GYN at Columbia University and Investigator with the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Maternal-Fetal Medicine Units Network (MFMU) examined information collected about 5,924 women who were enrolled in the Cesarean Registry. They compared data from women who delivered a late-preterm neonate and had received one course of antenatal corticosteroids with women who had not, and evaluated the respiratory outcomes of their infants. Their study, published in Obstetrics & Gynecology, showed no significant differences between the two groups: that exposure to antenatal corticosteroids does not significantly affect the neonates’ respiratory outcomes.

Improving HIV Therapy in Malnourished Children

Severe malnutrition is a common first presentation of pediatric HIV in resource-poor areas of the world, and timely initiation of antiretroviral therapy is critical for short- and long-term survival. HIV-infected children may not be able to fully absorb antiretroviral therapy while they are recovering from severe acute malnutrition, potentially leading to lower antiretroviral drug levels and increased risk of drug resistance and poor response to therapy. Researchers at the University of KwaZulu Natal in Durban, South Africa, in collaboration with Philip Larussa, MD, Professor of Clinical Pediatrics, will compare growth response to nutritional rehabilitation, HIV-related morbidity and mortality, and immunological and virological responses to antiretroviral therapy in malnourished HIV-infected children who are randomized to either immediately start antiretroviral therapy or whose antiretroviral therapy is delayed 10-21 DAYS until they recover from the acute phase of malnutrition. Columbia University medical students, supported by a Doris Duke fellowship, will also conduct a sub-study on bone health and vitamin D levels in these severely malnourished, HIV-infected children.

To learn more about Dr. LaRussa’s work in South Africa click here.
Understanding Malaria’s Deleterious Effects

A quarter of the world’s clinical attacks of malaria occur in Southeast Asia, where nearly a billion people have been exposed to malaria. Acute infection with the protozoan Plasmodium falciparum, the form of malaria with the highest rates of complications and mortality, affects the absorption, pharmacokinetics, and metabolism of iron. Gary Brittenham, MD, James A. Wolff Professor of Pediatrics, Division of Pediatric Hematology, Oncology and Stem Cell Transplantation, is undertaking research with colleagues in Switzerland and Thailand to measure iron absorption during and after successful treatment of acute uncomplicated falciparum malaria. The research will assess the effects of the disease on iron metabolism, and determine its effect on absorption of iron from iron supplements and other iron interventions. Dr. Brittenham is also working with Thai colleagues to investigate the neuropathological consequences of falciparum malaria. Using high-field (3 tesla) MRI, their studies will help determine if axonal injury is responsible for neurological dysfunction in severe and cerebral malaria, and if the degree of axonal injury is greater in patients with cerebral malaria than in those with other severe forms of the disease. The results of this project could suggest new neuroprotective strategies to prevent persistent neurological disorders.

To learn more about Dr. Brittenham’s global health research click here.

Contraceptive vaginal rings have similar effects in normal-weight and obese women

Studies suggest the contraceptive patch is less effective in obese than normal weight women. An alternative approach is the contraceptive vaginal ring, which releases the hormones estrogen and progestin in the vagina. Physiological studies can help to predict effectiveness. To determine whether there are differences in pharmacokinetics (the extent and rate of absorption, distribution, metabolism, and excretion) and ovarian suppression in normal weight and obese women who use the vaginal ring, Carolyn Westhoff, MD, Professor of Obstetrics and Gynecology, and colleagues compared the pharmacokinetics of ethinyl estradiol (EE2) and etonorgestrel and the development of the ovarian follicles, endometrial thickness, and bleeding patterns in 20 normal-weight and 20 obese women. The results of their study, published in the American Journal of Obstetrics & Gynecology, showed that obese women who used the contraceptive vaginal ring had excellent suppression of ovarian follicle development, similar to normal weight women, predicting that the contraceptive vaginal ring will be similarly effective in women with a body mass index (BMI) up to 39.9. Dr. Westhoff and colleagues previously showed that the oral contraceptive also provides similar ovarian suppression in normal weight and obese women. Excellent ovarian suppression should predict contraceptive effectiveness.

Examining the signaling pathway Notch in vascular biology

Dysfunctional macrophages (immune system cells) and pericytes (cells associated with capillaries or small blood vessels) are linked to diverse disease conditions such as diabetes, chronic inflammatory disease, and tumor growth because of their role in sprouting angiogenesis—the formation of new blood vessels. Jan K. Kitajewski, PhD, a Professor of OB/GYN and Pathology, and colleagues in his laboratory are studying the Notch signaling pathway in perivascular cells, which helps govern the regulation of gene mechanisms that control many cell differentiation processes. Their goal is to understand how macrophages and pericytes regulate angiogenesis in tissues such as the ovary and retina. Recent data from the lab demonstrate that Notch signaling may play a role in the crosstalk between pericytes and endothelial cells during sprouting angiogenesis, and that Notch function in pericytes is critical for capillary and vein formation. To determine the consequences of the modulation of Notch signaling in macrophages and pericytes, the researchers will combine genetic mouse modeling and in vitro angiogenesis assays. Their research, which may be provide a key to understanding and treating a variety of vascular diseases and reproductive disorders, is funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health.

Smoothing the transition to prenatal cytogenetic diagnosis

Prenatal diagnostic testing using chromosomal microarray (CMA) provides more information in 2% of cases about conditions that can be life-threatening to a newborn baby or that can signal a possible treatable health threat than conventional testing using karyotyping. CMA is likely to become an important part of prenatal diagnoses; to assure a smooth transition to this new method, researchers must develop a better understanding of the specific genetic variants detected by CMA. In one study with this goal, Ronald Wapner, MD, Vice Chairman for Research and Professor of Obstetrics and Gynecology, and colleagues will enroll 650 mothers whose fetuses receive a prenatal diagnosis using CMA. They will conduct detailed developmental evaluations, including those of neurocognitive abnormalities, when the children reach age 3. Their data will be collected in a national registry, which will be available for clinical and research use. This study, supported by the Eunice Kennedy Shriver National Institute Of Child Health & Human Development of the National Institutes of Health, will also lay the groundwork for the development of appropriate pre- and post-test guidelines and educational materials.
Acute Respiratory Distress in Ghana

Young children in Ghana who suffered from non-specific acute respiratory distress had dramatically improved respiratory rates when their treatment included ventilation therapy with continuous positive airway pressure (CPAP), research by Patrick T. Wilson, MD, MPH, and Rachel Moresky, MD, MPH, showed. Following up on this research, Dr. Wilson, Assistant Professor of Clinical Pediatrics, and Dr. Moresky, Assistant Clinical Professor of Population and Family Health, are now conducting a clinical trial comparing mortality rates in Ghanaian children one month to five years of age with acute respiratory distress who receive either CPAP and standard therapy or standard therapy alone. In this study, funded by the GE Foundation, about 2,000 Ghanaian children who present to the emergency wards of two district hospitals will be enrolled over the three-year study period. The goal of the study is to determine if a relatively low cost, low technology, which can be used by mid-level providers in low-income areas of the world, improves children’s survival from respiratory illness.

Learning More About the Uses of Traditional Medicine in Children with Cancer

More than 80% of the children with cancer around the globe reside in developing countries where survival rates are estimated to be around 35%, a stark contrast to the overall 70% survival rate of children with cancer in developed countries. While children with cancer in both high- and low-income countries often use traditional complementary/alternative medicine (TCAM) including acupuncture, massage, energy medicine, and herbal remedies, the types and applications of TCAM vary by geographic region, ethnicity, and culture. Global efforts are under way to increase children’s access to conventional cancer care, but TCAM may increase the potential for harmful interactions, and influence how quickly children present with symptoms and whether they adhere to or abandon therapy. To document the use, reasons, and predictors of TCAM among children with cancer, Kara Kelly, MD, Professor of Pediatrics and Medical Director of The Integrative Therapies Program for Children with Cancer, and colleagues have developed a culturally adapted survey whose results will help investigators provide guidelines to recommend TCAM, support the development of education and research priorities, and identify region specific-variables associated with TCAM.

To learn more about Dr. Kelly’s global health research click here.
Defying the Odds: Fertility Patient Gives Birth at 56

Eve has a history of single-handedly overcoming odds that would discourage most. A gynecology nurse and aspiring screenwriter who is a breast cancer survivor, this single mother gave birth to a healthy daughter, who grew from a donated embryo. Her daughter Emme was born this summer, on July 24th, just after her 56th birthday. “Emme is a miracle in so many ways,” Eve said.

Eve is a patient at the Center for Women’s Reproductive Care’s (CWRC), over age 50, who chose to use a donated frozen embryo which resulted in a successful pregnancy and a healthy baby. Weighing in at 4 lbs., 9 oz., Emme was delivered by cesarean 3 weeks before her due date. She spent her first week in the NICU for observation until she gained enough weight to be safely discharged.

Eve’s journey towards motherhood began more than a decade ago when she underwent egg retrieval at age 40, before starting chemotherapy for breast cancer. She attempted embryo transfer, using these frozen embryos created with her eggs, but did not become pregnant. Later she attempted IVF with donor eggs, again without success. Like many fertility patients, Eve’s biggest challenges were financial and emotional. Though Assisted Reproductive Technique (ART) procedures are costly, most CWRC patients are covered by in-network, managed care plans or qualify for NY state financial support programs; however, donor egg attempts are rarely, if ever, covered by insurance. Eve found CWRC’s support groups and educational programs beneficial.

When Eve’s final attempt with egg donation failed, Dr. Sauer, Professor of Obstetrics and Gynecology and Director of the Center for Women’s Reproductive Care, offered her an embryo donated by another CWRC patient. The embryo that became her daughter, Emme, was created from donated sperm and a donated egg. “We see patients like Eve, who are menopausal but still wish to become mothers, about once a month,” Dr. Sauer noted. “Embryo donation is a unique opportunity to realize the dream of achieving pregnancy without incurring the high cost associated with conventional egg donation;” he explained. Ms. Aszodi, LMSW, a social worker at CWRC noted that “CWRC is getting ready to launch an embryo donation program on a larger scale,” to meet this growing need.

Once her pregnancy was confirmed, Eve saw an obstetrician for regular prenatal care. Though not a high-risk specialist, her obstetrician consulted with Maternal-Fetal Medicine (MFM) specialists throughout her pregnancy. “CWRC maintains close relationships with world-class experts in Columbia University Medical Center’s (CUMC) OB/GYN and Pediatric Departments, who coordinate services for fertility patients “from preconception through delivery and beyond,” Dr. Sauer noted. “Many of our patients who conceive fall into the high risk category. Collaborative care links CUMC’s services for prenatal and postnatal care, from fetal screening to genetic counseling, and management of maternal complications or pre-existing conditions. MFM specialists support patients with multiple gestations, where a genetic illness or anomaly is found or other complications develop for the mother or the fetus,” he explained.

Though Eve gave birth to a healthy daughter, pregnancy is never without risk to the mother and baby. A recent study found that older women who conceived through egg donation were at no greater risk for complications than younger women aged 42-50 who conceived the same way. The study, conducted by Ds. Daniel Kort, Mark Sauer, and other CUMC physicians, published earlier this year, also found primary neonatal outcomes similar related to gestational age at delivery and birthweight for babies born in both groups. The study was published in the American Journal of Perinatology in 2012. https://www.thieme-connect.com/ejournals/pdf/apj/doi/10.1055/s-0031-1285101.pdf

Dr. Sauer emphasized that CWRC caters to a population that includes many non-traditional patients, from older perimenopausal and menopausal women like Eve, to cancer survivors, pediatric cancer patients who wish to preserve future fertility, and couples who are discordant for HIV or Hepatitis C. With “20% of our patients self-identifying as lesbian or gay,” CWRC also has one of the largest single-sex couples program in the metro area, according to Dr. Sauer. The CUMC faculty who practice at CWRC also teach medical students, residents and fellows and engage in cutting edge research. Current investigations also focus on using egg donation for stem cell research. http://www.nature.com/nature/journal/v478/n7367/full/nature10397.html

Eve made a quick and complete recovery following Emme’s birth, supported by a strong network of family and friends. She expressed her appreciation of CWRC’s doctors, nurses and staff for their years of good advice and support, and her gratitude for the unexpected offer of the donated embryo. “I have never experienced such joy; Emme’s birth fulfills a lifelong desire. It is a blessing to have been able to bring this little girl into the world. With God’s grace at every turn, the journey continues to be amazing with every passing day,” she said. —Ellen Kahn
Profiles

JOSHUA HOLDEN, MD
General OB/GYN Physician

Two million women around the world suffer from disabling symptoms of obstetric fistula, a result of obstructed labor. Prolonged labor can erode tissues between the vagina and rectum or the vagina and bladder, leaving a fistula, or hole. Without surgical repair, fistula often leads to lifelong incontinence, infections and social ostracism. Joshua Holden, MD, a general OB/GYN physician at CUMC, volunteers yearly for two-week missions in Rwanda through a private charity, organized to prevent and treat obstetric fistula. For the past three years, he has trained Rwandan medical students, residents and doctors in labor and delivery management and surgical procedures to prevent obstructed labor.

The International Organization for Women and Development (IOWD) a private, non-profit was organized in 2003 to treat fistulas in Africa and to train doctors in techniques to prevent the injury. The IOWD’s fistula program grew out of one woman’s determination to make a difference for African women with this condition. Barbara Margolies, IOWD’s Director, was first introduced to the problem by Madam Aicha Foumako, Niger’s Minister of Social Development in 2003. Her response was to set up the non-profit organization to help. That year, she raised funds, collected donated medical supplies and equipment, and mobilized teams of volunteer medical professionals from the US. Surgeons participating in the two-week missions set up by the IOWD, which runs up to six missions a year, have repaired nearly 2,000 fistulas since 2003.

Attending a CUMC Grand Rounds presentation about the program spurred Dr. Holden’s interest. A former CUMC physician put him in touch with the Director, who recruited him to develop the IOWD’s OB/GYN educational mission. Word of mouth keeps the program going, and attracts seven to eight new recruits each year. Volunteers who are urogynecological surgeons, anesthesiologists, midwives, nurses, and other medical personnel sign up for each two-week mission; many return year after year.

IOWD’s Fistula Repair Program reports a 90 percent success rate for women who are eligible for surgery. For six years, IOWD sponsored missions in Niger. In 2009, the year before Niger’s coup, IOWD moved its operations to Rwanda, when the government invited the group to work with the Rwandan hospital system. “The opportunity to witness IOWD’s continuous impact on the healthcare of women in Rwanda is incredibly rewarding. The spirit of the Rwandan doctors and nurses inspires me to return year after year,” said Dr. Holden. He is optimistic that the IOWD’s education training program can help Rwanda to eradicate new fistula cases in 10 to 15 years.

Dr. Holden’s optimism is based on his assessment of Rwanda’s political stability, its existing medical infrastructure, and the government’s support of healthcare services. Rwanda offers universal health care and has built a system of local clinics and district hospitals in addition to three regional hospitals and one medical school with two campuses. Every pregnant woman is entitled to four prenatal visits and if her doctor suspects she may develop a complication, a woman is referred to a hospital equipped with ultrasound. Nearly all babies are delivered in a medical facility with trained birth attendants.

Looking Beyond Fistula

“Before I was involved, IOWD’s primary focus was fistula repair; it has expanded to include training in labor and delivery management with an emphasis on fistula prevention and continuing education in general obstetrics,” Dr. Holden explained. “Now, as the program has matured, we have set up daily didactics with the Rwandan physicians and lectures for the attending staff in addition to the team’s surgical work and daily management of cases,” he said. Dr. Holden is now an IOWD board member, responsible for designing the OB/GYN educational mission.

Broadening the program’s focus has attracted a greater diversity of volunteer physicians and medical staff with expertise in pathology, plastic surgery, laparoscopy, pediatrics, neonatology, ophthalmology, neurology, physical therapy and anesthesiology. Ms. Margolies has built relationships with Rwanda’s Ministry of Health, with its hospitals and medical school enabling volunteer specialists to link up with Rwandan counterparts who are interested in new techniques. IOWD’s small size solidifies the personal relationships that drive the program and “makes it easier to control quality and program outcomes,” Dr. Holden said.

IOWD’s relationships with physicians who volunteer and with Rwanda’s government and healthcare system led to a collaboration between CUMC pathologists and Rwanda’s Medical School to meet the country’s dire need for pathologists and pathology training programs. Dr. Holden contacted Anjali Saqi, MD, MBA, and an Associate Professor of Pathology & Cell Biology at CUMC, who enlisted Charles Marboe, MD, a Columbia pathologist. Dr. Marboe worked with the Rwandan National Medical School and Dr. Justin Wane, Director of Pathology at King Faisal Hospital in Kigali, Rwanda, to create a curriculum for the new pathology program. Set to begin in January, 2013, the program will send Columbia pathologists to Rwanda to teach and will bring Rwandan medical students to train in pathology at Columbia.

Dr. Holden believes that political stability is the most important factor that will help countries like Niger and Rwanda improve health care services. “I think that the biggest hurdle for the Rwandan experience will be to continue to work hard to improve access to care and to improve the quality of the providers in the country.” IOWD’s education programs aim to help fill the gap in provider quality.

—Ellen Kuhn

Visit http://www.iowd.org or contact Dr. Holden at jh2051@columbia.edu for more information about IOWD Programs. To view a video of the April 2011 mission, visit: http://www.iowd.org/wn_video2011.htm
Profiles

STEVEN G. KERNIE, MD
Associate Professor of Pediatrics, Pathology and Cell Biology and Director, Pediatric Critical Care Medicine

"I sn’t caring for the very sick children in the pediatric critical care unit terribly depressing?,” people ask Steven Kernie, MD. Since the kids he and his colleagues care for in the intensive care unit usually have really good outcomes with really productive lives ahead of them, his answer is, “not at all,” Dr. Kernie said. And he should know: he has headed up CUMC’s Critical Care Division for the past year after a 20-year career as a pediatric critical care specialist in Texas. “The mortality rate in pediatric critical care is quite low,” he added “—under 5 percent in general and in our unit it’s just 2 to 3 percent, compared to 15 to 20 percent on an adult unit.”

Kids end up in the ICU for a variety of reasons: problems arising from congenital heart disease, organ transplantation, spine surgery, pneumonia, asthma, seizures, meningitis, or encephalitis. In addition, “probably about half of the kids in the ICU have some neurologic issue that’s going to impair how they recover from their underlying disease, and up to a quarter of them have a primary brain injury, meaning that’s the reason they’re in the ICU,” Dr. Kernie said.

Because improvements in the care of brain injuries could help a lot of children in ICU Dr. Kernie has directed his basic science research at understanding how the brain recovers after an injury. “Twenty years ago we didn’t really know what was going on in brain injuries and we could only offer supportive care,” he said, which consisted of providing nutrition and maintaining normal oxygen and blood pressure. But neuroscientists have learned more about the brain since then. “During my training in a neuroscience lab I got interested in a very particular part of the mouse brain, the hippocampus, where memory and learning reside,” Dr. Kernie said. “It has a population of stem cells that regenerate throughout life, and we’ve learned that the human brain also has this population of cells. People with brain injuries recover spontaneously, and we determined that if we could learn how the brain self-recovers we should be able to manipulate the process and make it more robust.”

Research by Dr. Kernie and colleagues has showed that some of that self-recovery happens because neural stem cells in the hippocampus can regenerate neurons, and he is now working on ways to enhance that response, he says. FDA-approved drugs including antidepressants and the diabetes drug metformin are known to enhance neurogenesis. “Antidepressants rev up the stem cell population in animals, and metformin has been shown to increase neurogenesis and to make the animal smarter. I think we know enough about how some of the self-repair occurs that we can start testing various drugs in our animal models.”

In addition to the basic science research he conducts in his lab, his job as division chief includes patient care and administrative duties in the academic division. As an administrator Dr. Kernie is charged with ensuring that the three distinct pediatric ICUs all run smoothly and provide great care, and that all of the subspecialists involved in a child’s care communicate well with each other. “Intensivists are a little bit like air traffic controllers,” he said. “The kids in the ICU are really sick and they always have a number of medical subspecialists and surgeons helping take care of them. Ultimately we’re the ones who are responsible for coordinating all of the aspects of their care. So overseeing that is a major piece of what I do.” Dr. Kernie is helped in this job by Art Smerling, MD, medical director of the cardiac unit, and Katherine Biagas, MD, who directs the other two mixed medical/surgical units, which each have 5 to 14 patients on any given day.

Another part of Dr. Kernie’s job is managing the division’s educational program that includes medical students, residents, and nine pediatric critical care fellows. “We’ve got far and away the most robust pediatric critical care fellowship program in the New York area, and one of the most robust in the country. I’ve been extremely impressed by the quality of the fellows and the depth of number of applicants we get for very few positions – it’s really pretty spectacular,” he said. Fellows are there to learn, but because they are fairly far along in their careers and have a fair amount of experience, “they can add a lot to helping how the patients are cared for providing novel perspectives and challenging us about our managements styles and things like that” Dr. Kernie added. “It’s a two-way street.” – Beth Hanson

PHOTO BY CHARLES MANLEY

Connections FALL 2012

COLUMBIA WOMEN'S AND CHILDREN'S HEALTH
Profiles

Even before birth the kidneys play a key role in human health, filling the amniotic sac with fluid and creating a watery cushion around the fetus. Kidney problems that develop before birth because of urinary tract obstructions not only complicate pregnancies, they are also one of the leading causes of kidney failure in children and in turn for kidney transplantation in very young children, says Fangming Lin, MD, chief of the Pediatric Nephrology Division. “Adults might have diabetes or hypertension, and then later on their kidneys fail,” she says. “But children who have kidney problems are born with them or develop them very soon after.” To prepare newborns with kidney failure for transplantation, Dr. Lin performs dialysis to help babies grow to the point that they’re ready for the procedure. “Our surgeons who perform these transplantations really go out of the way to do the impossible here, and basically, what I do is to assist them.”

After birth children can also develop kidney problems from acute ischemic injury, which is an infrequent occurrence during surgery to repair congenital heart defects. Kidney problems can also arise when children develop sepsis, an overwhelming infection that causes the blood pressure to drop thereby compromising blood flow to the kidneys; or if key parts of the kidney called the renal tubules are injured when kids get treatments such as chemotherapy for other cancer.

Dr. Lin’s research is directed toward ways to repair the damage caused by kidney injury and other acute kidney problems that can happen to newborns and to very young children. “As a pediatric nephrology fellow I encountered lots of patients with acute kidney injury, and we did not have good options to treat them. If the kidney failed, we tried to keep their electrolyte and fluid in balance and waited for kidney function and structures to recover, but that recovery can be prolonged and difficult,” she added. “I figured that if I can accelerate a repair, patients will have a better time in the ICU, they’ll get out of the hospital sooner, and we’ll reduce the morbidity and mortality.” During her fellowship at the University of Washington Dr. Lin joined a group interested in stem cell research, then decided to apply it to the kidneys to see if stem cells could be used to accelerate renal repair. This approach is promising in mouse models, she said, but before moving it to humans the safety and efficacy must be tested.

Another area of research for Dr. Lin is to understand what happens during kidney development when a urinary tract obstruction arises in utero—during fetal development—and affects the kidney structure and function. “I would like to understand how the kidneys’ tubule epithelial cells become atrophic if there is obstruction, and to design strategies to prevent and/or slow down the progression of renal tubular atrophy,” she says.

Dr. Lin joined CUMC as the Division Director of Pediatric Nephrology in 2011, with a mandate to build the division, and is very passionate about fulfilling her multifaceted mission. “One of my goals is to build a dedicated pediatric dialysis unit. We don’t need a big dialysis unit since we are going to use it as a transient bridge to kidney transplantation, which is better treatment for children with kidney disease,” she added. She is also working toward recruiting new members of the team, and to increase patient referrals for kidney transplantations as well as ensure good quality of kidney transplantation. “We not only wanted to develop our own division, but we’re here also to assist other divisions and be able to treat their patients.”

Dr. Lin is also working to establish a pediatric nephrology fellowship program. “Without nephrology fellowship training the program is just not complete, and we also want to provide a lot more teaching to the residents. They are a fantastic group of people; they are hungry for knowledge.”

Dr. Lin attended medical school at Fujian Medical University in Fuzhou, the capital city of China’s Fujian Province, followed by a pediatric residency at NYU, a pediatric nephrology fellowship at Seattle Children’s Hospital, and a Pharmacology PhD at New York Medical College. Dr. Lin maintains ties to her colleagues in China as a board member of the Chinese American Society of Nephrology, an international association whose members, kidney researchers and clinical nephrologists of Chinese descent, exchange research, clinical guidelines, and practices. She visits the Shanghai Kidney Hospital, which has a state-of-the-art facility and a very large patient population, yearly, providing research guidance and giving talks.

Over the years as her patients grow Dr. Lin has ongoing relationships with many of them. “I have long-term patients whom I see as outpatients, and I provide continuing care. When my patients are critically ill, I work with intensive care physicians to save their lives. Pediatric nephrology combines continuity of care with the action in the ICU and is the right profession for me. Nephrology requires a lot of thinking,” she says. “It’s an interesting field.”

—Beth Hanson

FANGMING LIN, MD, PHD

Director of the Division of Pediatric Nephrology

Associate Professor of Pediatrics and Pathology and Cell Biology

PHOTO BY CHARLES MANLEY
Profiles

Third year OB/GYN resident Margo Harrison has followed an unusual path to medicine and is planning a non-traditional career in global health. She wants “to reduce maternal mortality, by working where OB/GYN meets public health,” she explained. She first travelled to Africa as a high school student through the Experiment in International Living. The program placed her with a family in rural Kenya, an experience that “dramatized the issues of access to health care, of the inequities in work and educational opportunities for women, the marginalization of women, and their lack of reproductive choices,” she said. She remembers walking two kilometers back and forth every day with the family’s young daughter, who carried the baby to a clinic for malaria medication. This experience left a deep impression, feeding her growing interest in global women’s health.

As an undergraduate at Yale studying liberal arts, Dr. Harrison developed an interest in bioethics, which led her to attend courses at Yale’s School of Public Health. She was captivated by the issues at the intersection of health, politics, and economics explored in these courses. After college, she continued to seek opportunities to explore global health. Before medical school, she traveled to Haiti where she worked in a maternal child health center providing prenatal care, assisting with gynecologic surgery, and monitoring women with high-risk pregnancies. During medical school she worked in Guatemala at the first comprehensive HIV/AIDS care clinic for children in the country. She co-authored a paper, “Experience of a pediatric HIV clinic in Guatemala City,” describing her experience, published in the Pan American Journal of Public Health, in 2009. [http://www.scielo.org/pdf/rpsp/v25n1/08.pdf](http://www.scielo.org/pdf/rpsp/v25n1/08.pdf)

Dr. Harrison is currently working on a research project using a computer model called MANDATE, under the direction of her mentor, Robert Goldenberg, MD, (see page 1). The collaborators are developing a computer model to evaluate different technologies to decrease infant and maternal mortality and morbidity. They are examining three conditions: obstructed labor, hypertension, and hemorrhage. Dr. Harrison is reviewing the literature on obstructed labor to better inform the model. The project is supported by the Bill and Melinda Gates Foundation and the Research Triangle International Organization (RTI). The computer model will give healthcare providers tools to evaluate various technologies and interventions, which will help to guide decisions, and set guidelines for care. “Applications for the model are growing as the project gains momentum, because the lack of data surrounding these issues is profound, and the modelers are constantly being asked to consider new populations and additional technologies,” she noted.

Dr. Harrison is headed to Africa this January, where she plans to spend her month-long elective in Burundi working with Village Health Works (VHW) to develop a center to deliver first-world quality healthcare services to the community. A US-based, non-governmental organization (NGO), VHW’s primary focus is on improving maternal health. Burundi is one of the five poorest countries in the world, and lacks the human and material resources to meet basic standards of care for maternal health. Over the past four years, the NGO developed a clinic in Kigutu that has treated than 50,000 patients. In partnership with the community, the VHW built a potable water system, a staff and volunteer residence for the clinic, and a children’s malnutrition ward and in-patient facility with a waiting area, lab, and IT room. VHW has also built a community center and set up a program for agricultural training. Construction began this year on a 50-bed Women’s Health Pavilion, which will double inpatient capacity and offer critical surgical services such as cesarean sections for the first time. Dr. Harrison anticipates that she will be working in the operating rooms, which should be up and running by January, to train clinical staff to perform cesarean sections and emergency obstetrical care procedures.

Dr. Harrison plans to apply for a women’s global health fellowship next year after completing her residency. Her commitment to social justice issues—a woman’s right to life and to reproductive health—supports and informs her clinical work. “What I find rewarding about clinical work in low-income countries is the stark gravity and clarity of the needs. There is no confusion about what you need to do when faced with a case of obstructed labor—you are trying to save a woman’s life,” she explained. “I also hope to work on a systems-based level to improve delivery of emergency obstetrical care in low-resource settings, to promote women’s value to society, and to empower them as women, wives, and mothers.” —Ellen Kuhn

Margo Harrison
3rd year OB/GYN Resident
Global Partnership
Advances Care for Children in China

In September 2012, five physicians from Beijing Children’s Hospital traveled more than 7,000 miles to NewYork-Presbyterian/Morgan Stanley Children’s Hospital to continue an international collaboration designed to address China’s shortage of pediatric specialists. The collaboration, called the Morgan Stanley Global Alliance Pediatric Specialties Initiative, is made possible by a grant from the Morgan Stanley Foundation and builds on a relationship established in 2009 between Morgan Stanley and Beijing Children’s Hospital.
At that time, the Morgan Stanley’s Global Alliance for Children’s Health provided support for Beijing Children’s Hospital’s new hematology and oncology wing as part of a five-year cooperation project to expand the Hospital’s capacity and ability to treat the most serious illnesses, including leukemia and cancer. The new wing will house 10 specialized units and three state-of-the-art treatment centers, focusing on surgery, chemotherapy, and radiotherapy, and will enable the hospital’s oncology and hematology departments to treat an estimated 400,000 more children a year. However, while Beijing Children’s Hospital now has the latest diagnostic and treatment equipment, demand for the equipment has made it difficult for the hospital to fully train all the staff it needs to operate these state-of-the-art tools.

Enter the Morgan Stanley Global Alliance Pediatric Specialties Initiative, which will ultimately provide training for some 80 physicians from Beijing Children’s Hospital—four each quarter over five years—at Morgan Stanley Children’s Hospital. The physicians will rotate through a number of specialties, notably hematology/oncology, as well as endocrinology/diabetes, cardiovascular, pulmonology, radiology, infectious diseases, intensive care, and surgical subspecialties. Their three-month visits will include clinical observation, training in the use of state-of-the-art diagnostic and treatment technology, participation in conferences, and immersion in the hospital’s best practices in clinical care.

Three million children under the age of 16 live in Beijing, and The Beijing Children’s Hospital, one of only two level-three children’s hospitals in the city, treats nearly two million patients a year. Pediatricians are in short supply in China, where every 1,000 children share 0.25 physicians. By comparison, in the U.S., every 1,000 children share 1.45 pediatricians. The shortage of pediatric doctors has led to overcrowding in China’s 60 pediatric training hospitals, making it extremely difficult for parents to access care for their children.

“For nearly 40 years, Morgan Stanley has invested in innovations in pediatric care, so that more children can get the healthy start they need for consistent and meaningful achievement in life,” says Joan Steinberg, Executive Director, Morgan Stanley Foundation. “The Global Alliance for Children’s Health has specifically focused on creating centers of excellence and delivering impactful, direct care for underserved children. The new collaboration with Morgan Stanley Children’s Hospital will help to advance the level of care available to children in China.”

“We are extremely pleased that Morgan Stanley has designated our hospital as one of its centers of excellence in the firm’s global health initiative on behalf of children,” says Lawrence R. Stanberry, MD, PhD, Chairman, Department of Pediatrics, Columbia University College of Physicians and Surgeons, and Pediatrician-in-Chief, Morgan Stanley Children’s Hospital. “This program will not only afford specialty training for physicians from China, but also provide opportunities for our two hospitals to explore collaborative research, particularly in population-based studies.” —Linda Errante

“The Global Alliance for Children’s Health has specifically focused on creating centers of excellence and delivering impactful, direct care for underserved children.”
New named professorship gives department a boost

When Michael Weiner, MD, came to Columbia in 1995 as the Division Chief of Pediatric Oncology, he knew philanthropy would play an important role in the center’s success. With the help of a group of dedicated friends and partners, he founded the Hope & Heroes Children’s Cancer Fund, a non-profit group dedicated to raising money to support the pediatric cancer programs at CUMC.

Nearly two decades later, one of those friends, Robert Kapito, is collaborating with Dr. Weiner again to create the Robert and Ellen Kapito Professorship in Pediatrics. This fully endowed professorship will support the work of a specialist in pediatric oncology, expanding the division’s ability to provide the best care for children and adolescents with cancer.

Endowed professorships are an essential component of the Medical Center’s mission. They strengthen and expand the faculty roster, and empower the recipients to conduct significant new research. They also convey a prestige that helps departments boost recruitment and create new opportunities.

Mr. Kapito is president of the Hope & Heroes board, and the professorship is a product of his dedication to the Hope & Heroes mission—supporting cutting-edge cancer research and training for the next generation of pediatric oncologists. Mr. Kapito, president and a director at the financial investment firm, BlackRock, Inc., has also supported causes for other organizations including the UJA-Federation and the American Cancer Society.

“Rob is a giving, caring, honest man of great integrity, and he’s been a wonderful partner,” says Dr. Weiner. Not everyone who is capable of making a gift has a philanthropic drive with such focus. “One of the things that we, as development people, need to do is to mentor and nurture potential donors and guide them through the process of making a gift,” Dr. Weiner adds.

Dr. Weiner will continue his fundraising efforts in a new appointment. As the Vice Chair for External Affairs in the Department of Pediatrics, he is looking to bolster efforts in research and education by recruiting new faculty, expanding endowment, and developing new pediatric programs. He is currently working to form a Columbia Children’s Council composed of leaders from within the department, as well as friends, advocates, and volunteers from the community who will work to maintain Columbia’s position as one of the best pediatric centers in the country. “I don’t view these efforts as supplementary,” says Dr. Weiner. “I think they are necessary for the department to have a successful future. And I hope to be able to take the successes I have had with Hope & Heroes and pediatric oncology and translate them to my fundraising efforts for the department.” —John Uhl
FALL 2012 Connections

Dr. Stockwell answers common questions about vaccines

“Vaccines are one of the 10 greatest public health achievements of all time, but not all diseases are completely gone, and that’s why it remains critical for parents to vaccinate their children and themselves,” Melissa Stockwell, MD, Assistant Professor of Pediatrics and Population and Family Health, told Real Simple readers in an article about the importance of vaccines. To answer to the question, “If most children receive vaccinations, do I need to vaccinate my child?” she described the concept of herd immunity—that it is possible to eliminate a disease by vaccinating most but not all of the people in a group. “The problem,” says Stockwell, “is that coverage has to be really high for herd immunity to work, and we know that coverage is not high enough, especially in this age of global travel and as vaccination rates drop.” The best way to protect your child from communicable diseases “is to have him or her vaccinated,” she concluded.


Dr. Chung discusses a new, rapid system to diagnose genetic disorders

A new rapid method of gene mapping that can pinpoint disease-causing mutations in just days rather than weeks might make genome sequencing practical for neonatal intensive care units and enable doctors to diagnose mysterious genetic diseases more quickly. But currently super-fast gene scans will lead to life-saving treatments in only a minority of cases, cautioned geneticist Wendy Chung, MD, PhD, Assistant Professor of Pediatrics. There are no good treatments for most severe genetic diseases, she said, and the treatable diseases can often be diagnosed by other methods that don’t require every gene to be scanned. The very rapid, two-day turnaround for results represents “a best-case scenario,” said Dr. Chung, adding that a week would be a more realistic time for genome results, given practical considerations such as the fact that most hospital labs close over the weekend, she said. “This still would be a big improvement over current methods.”


Even slightly early birth may hurt later academic performance, says Dr. Noble

Infants born even a few weeks early have significantly lower reading and math scores when they reach third grade, according to research conducted by Kimberly Noble, MD, Assistant Professor of Pediatrics. Dr. Noble’s study assessed about 130,000 children who were born within a “normal” gestational range of 37 to 41 weeks. She found that those born at 37 weeks and 38 weeks had lower scores compared to children born at 39, 40 or 41 weeks. The study joins a growing body of evidence showing that purely elective induction of birth may be a bad idea, and should give parents-to-be pause before opting for early birth for non-medical reasons. “The evidence from this study would suggest that elective induction of birth should be approached cautiously,” Dr. Noble told ABC News. “The data suggest that children born at 37 or 38 weeks may have problems with reduced school achievement later on.”


THE NEW YORK TIMES

Dr. Westhoff comments on drug label warnings

Drug labels that focus solely on a drug’s dangers and don’t mention its benefits mislead the public and present a distorted picture of the balance between the two, Carolyn Westhoff, MD, Professor of Obstetrics and Gynecology, wrote in a Letter to the Editor of The New York Times. While the Food and Drug Administration must maintain strict independence from profit-minded drug companies, “it shouldn’t be so fervent that it neglects public health,” she wrote. The labels for birth control pills, for example, “are dominated by warnings, contraindications, precautions, adverse reactions, and risks. But these labels are grossly misleading.” They fail to mention that oral contraceptives prevent unwanted pregnancy, cancer, treat acne and endometriosis, and relieve menstrual disorders, Dr. Westhoff asserted. “The science is incontestable: the benefits of these drugs overwhelmingly outweigh their risks. The labels distort this balance. Accordingly, many women are scared of the pill, and they needlessly suffer real harm as a result. The FDA should be encouraged—indeed, required—to highlight vital positive information at every opportunity.”

http://www.nytimes.com/2012/05/07/opinion/warnings-on-drug-labels.html

Dr. Warren on the safety of hormone replacement therapy

Over the past decade hormone replacement therapy (HRT) has proved to be much safer—particularly for younger women—than the results of the 2002 Women’s Health Initiative (WHI) study suggested, Michelle Warren, MD, Professor of Medicine and Obstetrics & Gynecology, told ABC-TV. Many of the women enrolled in the WHI study started hormone therapy ten, twenty, or even thirty years after menopause, and the reported side effects in this group created wariness among both doctors and their patients about the use of HRT. A consortium of fifteen medical and women’s groups, using results of more recent research, now states that HRT is a safe treatment for menopause symptoms, especially in younger women. Because the results of the WHI study were skewed, “doctors just gave up and patients were made to feel that they should just suffer,” Dr. Warren said. The new recommendation, “is an answer to a prayer, as far as I’m concerned,” she said.

QPStar Award Recognizes OB Team’s Simulations to Improve Safety

The Allen Hospital OB Simulation Team received NewYork Presbyterian’s QPStar Award, for a series of four-hour simulation programs focused on safe management of postpartum hemorrhage and shoulder dystocia that may occur during any delivery, even in a low-risk pregnancy. The award recognizes how the program has strengthened teamwork in a multidisciplinary group, promoted patient safety and quality of care. Participants included OB/GYN Attending physicians, midwives, nurses and residents. Anna Burgansky, MD, organized and led a multidisciplinary simulation team, which included OB Safety Nurses Ingrid Spears and Stacey Richards, and Dr. Kara Gross Margolis, MD, a pediatric gastroenterology fellow, received both a three-year, $1,500,000 grant from Children’s Hospital Boston and the National Heart, Lung, and Blood Institute to participate in the multi-center study of a treatment for stress hyperglycemia in critically ill patients. The trial is called, “HALFPINT: Heart and Lung Failure—Pediatric Insulin Titration Trial.”

Wendy Chung, MD, PhD, a molecular geneticist and pediatrician, was appointed to the National Advisory Council for Human Genome Research (NACHGR) Genomics & Society Work- ing Group (GSWG).

Filemon Dela Cruz, MD, a pediatric oncologist, received both a three-year St. Baldrick’s Scholar Award and a Hyundai Hope Award.

Dana Goldner, MD, a pediatric gastroenterology fellow, received a three-year, Pediatric Scientist Development Award from the American Medical School Pediatric Scientist Development Award (AMSPDC) to collaborate on research with geneticist Gerard Karsenty, MD, PhD.

Kara Gross Margolis, MD, a pediatric gastroenterologist, received a Research Scholar Award from The American Gastroenterological Association Research Foundation to further her research on the role of enteric neuronal density in intestinal inflammation.

Philip LaRussa, MD, a pediatric infectious disease specialist, was appointed to the World Health Organization Strategic Advisory Group of Experts on Immunization Working Group on varicella and zoster vaccines.

Teressa Lee MD, and Brett Anderson, MD, pediatric cardiology fellows, received the first Andrew King Research Awards from Colin’s Kids, a foundation dedicated to clinical research in pediatric cardiology.

Dara Matseoane-Peterssen, MD, a general OB/GYN, received the Annual Physician of the Year Award at NewYork-Presbyterian’s Allen Hospital. NYP’s Nursing Department annually honors physicians whose collegiality and collaboration with nurses make significant contributions to nursing practice.

Rachel Miller, MD, a pediatric immunologist, received a two-year award from the National Institute of Allergy and Infectious Diseases for her research on the genes that regulate the immune response in asthma.

Kimberly Noble, MD, PhD, a developmental cognitive neuroscientist, and Helena Duch, PhD, a developmental psychologist, have received a $1.5 million, three-year grant from the Department of Education for their program, “Getting Ready for School: An Integrat-ed Curriculum to Help Teachers and Parents Support Preschool Children’s Early Literacy, Math and Self-regulation Skills.” Dr. Noble has also been named a Rising Star by the Association for Psychological Science.

Sharon Oberfield, MD, a pediatric endocrinologist, has been invited to speak on polycystic ovary syndrome at the NIH Office of Disease Prevention Evidence-based Methodology Workshop (December 3-5, 2012).

Paul J. Planet MD, PhD, a pediatric infectious disease specialist, was one of 16 physician scientists to receive a Clinical Scientist Development Award from the Doris Duke Charitable Foundation. The award will allow him to conduct a study on pulmonary exacerbation in cystic fibrosis. Dr. Planet also received an award from the National Institutes of Health to study the role of Staphylococcus aureus SpA in microbial competition and host colonization.

Marc Richmond, MD, a pediatric cardiologist, is the first recipient of the Colin Mollo Research Award for clinical research in pediatric cardiology from Colin’s Kids, a foundation dedicated to clinical research in pediatric cardiology.

Michael Rosen, MD, a pediatrician and pharmacologist, has received a two-year grant from the Research Foundation of the State University of New York and the National Heart, Lung, and Blood Institute for his research study, “Novel Ion Channel Approaches to Reentrant Arrhythmias.”

Melissa Stockwell, MD, MPH, a pediatrician and epidemiologist, and co-investigators Lisa Saiman, MD, MPH, a pediatric infectious disease specialist, and Elaine Larson, PhD, Director, Center for Interdisciplinary Research on Antimicrobial Resistance, were awarded a grant from the Centers for Disease Control for their study, “MOSAIC: Mobile surveillance for acute respiratory infection and influenza-like illness in the community.”

John Santelli, MD, MPH, a pediatrician and epidemiologist, has received a five-year award from the Institute of Child Health and Human Development to study fertility desires, intentions, and behaviors among HIV positive and HIV negative men and women in rural Uganda.

Three members of the Department of Pediatrics, neonatologist Elvira Parravicini, MD, hematologist Monica Bahtia, MD, and emergency physician Maria Ieni, MD, received 2012 Physician of the Year Awards from the Hospital Recruitment, Retention and Recognition Council. (The awards ceremony will be held on December 4th at 3 pm in The Winter Garden.)

Katherine Biagas, MD, a pediatric intensivist, has received a one-year grant from the National Heart, Lung, and Blood Institute to participate in the multi-center study of a treatment for stress hyperglycemia in critically ill patients. The trial is called, “HALFPINT: Heart and Lung Failure—Pediatric Insulin Titration Trial.”

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NOVEMBER 16, 2012
The Max Robbin Memorial Lecture and Teaching Day
11:00 AM – 5:00 PM – LOCATION TBD
Professor Ziyad M. Hijazi, MD, Director of the Rush Center for Congenital and Structural Heart Disease at Rush University Medical Center in Chicago, will speak about “Therapeutic Options for Adults with Congenital Heart Disease.” For more information about the event contact Kate Krug at lck2110@columbia.edu.

DECEMBER 6, 2012
Residency Scholarly Project Forum
THE WINTERGARDEN, NEW YORK-PRESBYTERIAN MORGAN STANLEY CHILDREN’S HOSPITAL 4:00 PM – 6:00 PM
The Department of Pediatrics’ 3rd Annual Residency Scholarly Project Forum will feature poster presentations of ongoing and completed scholarly work by residents in collaboration with faculty mentors. Projects range from bench and clinical research to community advocacy projects. The meeting provides an opportunity for faculty to learn about our resident trainees’ scholarly work.

DECEMBER 17, 2012
Department of Pediatrics Holiday Party
THE CLASSIC CAR CLUB OF MANHATTAN, 6:00 – 10:00 PM
Please save the date for the Department of Pediatrics’ annual holiday party.

DECEMBER 19, 2012
Department of OB/GYN Holiday Party
COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS & SURGEONS, THE FACULTY CLUB, 4TH FLOOR, 5:30 – 9:30 PM
Please save the date for the Department of OB/GYN’s annual holiday party.

Residents & Fellows News

Stephanie Lovinsky-Desir, third-year pediatric pulmonary fellow, presented research at the Children’s Environmental Health Network 2012 research conference in San Francisco in June. The focus of the conference was “The Contribution of Epigenetics in Pediatric Environmental Health.” Dr. Lovinsky-Desir received a Junior Investigator Award from the CEHN for her abstract, Epigenetic regulation of interferon (IFN)-gamma following a multifaceted environmental intervention in a pediatric and adult cohort of asthmatics.

Gina Coscia, second-year pediatric pulmonology fellow, presented research on Non-ABPA Aspergillus infection in a six-year old with cystic fibrosis at the Fellows Case Conference at the North American Cystic Fibrosis Conference (NACFC) and on Interstitial lung disease in an adolescent with scleromyositis overlap syndrome at the Fellows Case Conference at the American Thoracic Society (ATS).
Dr. Nicholas quickly became invested in the nuns and their patients. He did a study to determine the prevalence of HIV around La Romana, the third largest city in the Dominican Republic, and was surprised by the findings. HIV is thought to have originated in Haiti, which shares the island with the Dominican Republic. Haitian workers often migrate across the border into the DR, the wealthier side of the island, so “you would think there would be a gradient where the highest rates of HIV would be closest to the border.” Instead they found the highest rates in the Dominican Republic were in La Romana, one of the farthest cities from Haiti, Dr. Nicholas says. “It’s all sugar cane on that end of the island, so very large numbers of Haitians migrate there to work. And nearly 3 percent—that’s a really high rate—of pregnant women in La Romana had HIV.”

In 1999, Dr. Nicholas founded the Columbia University International Family AIDS Program (IFAP) and under its umbrella created the Clínica de Familia La Romana to provide care for women with HIV in that city. Over the past 14 years the clinic has grown and now employs more than 70 doctors, nurses, psychologists, social workers, laboratory technicians, a pharmacy technician, counselors, community outreach workers, data collectors, and support staff. Since then the mother to child HIV transmission rate dropped in La Romana from 40 percent to less than 1 percent, and infection rates among adults have fallen to about 2.6 percent. “We’d like to believe that it’s because of our program, and I suspect we’ve had an influence,” says Dr. Nicholas.

The clinic’s offerings have also expanded. “The mother-baby piece of this is where we started; that was our core set of activities. As the years have gone by, we’ve added several more components: we took over the nuns’ high-risk clinic for the commercial sex workers, we added a treatment program, and we’re doing a lot of work with pregnant teenagers,” he adds.

Haiti and the Dominican Republic continue to have the highest rate of HIV infection outside of sub-Saharan Africa, where rates in some countries are extremely high. But three things set the Dominican Republic apart from these areas, says Dr. Nicholas: The country has enough trained physicians and a good enough healthcare structure that the clinic was able to do C-sections from the start. Breastfeeding—a major factor in transmission between mother and child—is not a big deal in the Dominican Republic. “In fact, Dominican women have the perception that modern women don’t breastfeed,” he says. And the clinic began treating patients with a combination of three antiretrovirals, showed that it worked, and that it’s far cheaper to use this upfront and have fewer HIV-infected babies who need treatment. “The variables that have allowed us to jump way ahead in the Dominican Republic are the same ones that are keeping a lot of poor countries from making as much progress as they might,” he adds.

Before getting involved in the CFLR Dr. Nicholas had lived in Washington Heights for many years, which is about 74 percent Dominican. “I’d taken care of lots of Dominican kids, but I didn’t know anything about the Dominican Republic,” he says. “Afterward I began to discover all sorts of wonderful things about Dominican politics, history, and culture, and then I came back to Washington Heights and it all started to click. My relationships with my patients and their families were completely transformed.” Realizing the power of this kind of experience, Dr. Nicholas helped establish a program for medical students and residents to work and train in the DR, “because I knew it would make them better doctors for Dominican immigrants here in Washington Heights.”

Outside of his work in the Dominican Republic Dr. Nicholas juggles his role as Associate Dean for Admissions and Chairman of the Admissions Committee for CUMC, director of the Global Health Track for medical student scholarly projects, and his appointment in the Heilbrunn Department of Population and Family Health of the Mailman School of Public Health, where he teaches and serves as a faculty mentor.

Through Dr. Nicholas’s experiences in La Romana and other areas around the world where he has worked, he’s learned the importance of respect in global health work. “Our system of care is so resource-rich that it’s not always easy for us to apply what we’ve learned in places with poor resources,” he says. “We’re handicapped by our dependence upon technology. But if we’re able to withhold judgment, slow down, and listen to local solutions and see what we can do to support their vision, then we can be really helpful.” — Beth Hanson

Stephen W. Nicholas is a Professor of Clinical of Pediatrics and of Clinical of Population and Family Health; Associate Dean for Admissions, College of Physicians and Surgeons; and Director, Columbia University International Family AIDS Program

Eliminating Childhood AIDS

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menting strategies to improve healthcare for mothers and babies, and investigating the connections between stillbirth and maternal mortality. “We don’t want to build a separate stillbirth silo,” cautioned Dr. Goldenberg. “Pregnancy and newborn care is a continuum—all related to the mother’s and baby’s health,” he said, stressing how the issues interconnected.

Throughout his career, Dr. Goldenberg has been working to understand these connections through clinical investigation and data analysis. He played a key role in setting up the Global Network for Women’s Health Research, whose objectives are to identify and address maternal and child health needs in developing countries by testing cost-effective, sustainable interventions to guide evidence-based medicine. The network also develops protocols to study related problems affecting women’s and children’s health.

Eleven years ago, Dr. Goldenberg answered an RFP from the National Institutes of Health (NIH), to develop a system of research networks in low resource countries modeled on the NIH’s Maternal Fetal Medicine Units (MFMU) research network in the U.S. “The MFMU made the advantages of multi-center trials, randomized by both design and geography, apparent,” noted Dr. Goldenberg. “The advantage of a network is power—the results from multiple sites are generalizable,” he explained.

Partnership with a low-resource country was a requirement for participation in the program. At the University of Alabama, Birmingham, (UAB) where he spent the majority of his career, Dr. Goldenberg had built a strong relationship with Aga Khan University in Pakistan to study pregnancy outcomes there; the partnership continued to thrive through participation in Global Network programs. Dr. Goldenberg worked with the National Institute of Child Health and Development (NICHD) to expand the Global Network research program from initial studies at single centers to a network of 110 clusters across seven sites. Each U.S. site partners with a site in a developing country; 24 of the clusters are in Pakistan, which has the worst perinatal outcomes, “worse even than sites in Africa and India,” Dr. Goldenberg said. “Most women in Pakistan are illiterate and have little access to care,” he explained.

Some of the Global Network protocols include a maternal newborn health registry study to collect data on stillbirths and neonatal mortality, and a program to train health workers to improve health care delivery infrastructure for mothers and babies through community mobilization and training. New programs include trials for antenatal corticosteroid administration for women at risk for preterm birth, neonatal resuscitation training programs to prevent birth asphyxia, and a nutrition program to combat under-nutrition.

The Lancet invited Dr. Goldenberg to join the journal’s Stillbirths Series Steering Committee. Funded by the Bill and Melinda Gates Foundation, the journal’s Series aims called attention to the problem of stillbirth which brought together a group of experts to evaluate the issues, prioritize action for prevention, and to effect policy change. Dr. Goldenberg wrote the sixth and final paper in the Series, summarizing the results of the preceding papers and recommending the strategies and programs necessary to reduce stillbirths worldwide. (http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2810%2962235-0/fulltext)

Dr. Goldenberg is also part of a group commissioned by the Bill and Melinda Gates Foundation to build a computerized model to help the Foundation and other funders guide decisions about investing in technologies to reduce maternal, fetal, and neonatal deaths in developing countries. The group has created a computerized model to help health care providers in developing countries evaluate success rates of technologies and treatments. Dr. Goldenberg considers his opportunity to explain the computer model to Bill and Melinda Gates one of the highlights of his career.

Joining Columbia’s OB/GYN’s research faculty brings Dr. Goldenberg full circle; he earned a B.S. from Columbia College in 1964 and completed his first year as an OB/GYN resident at CUMC in 1969. Over the course of a long career as a professor and researcher at UAB in the department of OB/GYN, the School of Public Health, and Department of Medicine, he had also established close ties with faculty and students at Columbia’s Mailman School of Public Health, through the Maternal Fetal Medicine Units network study, and during his tenure at Drexel University as Director of the Division of Research.

Department Chair, Mary D’Alton MD, and Vice Chair for Research, Ron Wapner MD, persuaded Dr. Goldenberg to join Columbia’s OB/GYN faculty to help build a global research program. “Global health programs are relatively rare in OB/GYN; OB/GYNs usually have to work through schools of public health to participate in international programs,” Dr. Goldenberg noted. He welcomed the opportunity to develop a global health research fellowship at Columbia, similar to the one he initiated at UAB, to meet demand from fellows and residents who are looking to build careers in international health. His goal is to establish a fellowship for OB/GYNs at Columbia, patterned after the UAB program, which has trained three OB/GYN fellows in global health. —Ellen Kahn