

Dear Colleague,

We would like to take this opportunity to update you on some of the exciting clinical and research endeavors of the past year within the obstetrics and gynecology programs at NewYork-Presbyterian Hospital. The Hospital's affiliations with Columbia University College of Physicians and Surgeons and Weill Cornell Medical College continue to provide our physicians and researchers with important opportunities for the development of technologies and therapies that will produce new ways of preventing, diagnosing, and treating the health issues that face women throughout their lifetime.

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## Clinical and Research Highlights



*Dr. Frank A. Chervenak, Chair of Obstetrics and Gynecology at NewYork-Presbyterian/Weill Cornell, is an international leader in obstetrics and gynecology. Dr. Chervenak is Vice President of the International Academy of Perinatal Medicine and has been elected to the Institute of Medicine.*

The Departments of Obstetrics and Gynecology at NewYork-Presbyterian are led by renowned maternal-fetal medicine specialists – Dr. Frank A. Chervenak and Dr. Mary E. D'Alton – who have established premier centers for fetal evaluation and diagnosis at their respective campuses. The Departments provide a wide range of comprehensive services, from routine well-woman care to the most advanced diagnostic and treatment programs for disorders of the cervix, vagina, vulva, ovaries, and fallopian tubes, as well as urologic disorders. The Hospital's gynecologists offer nonsurgical and surgical expertise in areas that include pelvic pain, endometriosis, and symptoms and conditions related to menopause. Minimally invasive approaches involve the use of robotics and performing surgery either through the vagina or laparoscopically to achieve maximum success and minimal discomfort.

*The work of Dr. Mary E. D'Alton, Chair, Obstetrics and Gynecology at NewYork-Presbyterian/Columbia, to advance research, policy development, and clinical practice has earned her national recognition, including the Lifetime Achievement Award by the Society for Maternal Fetal Medicine.*



As the following initiatives and programs will illustrate, the physicians and researchers in the Departments of Obstetrics and Gynecology are leaders in their respective specialties. From adolescent gynecology to infertility issues and prenatal care, and pregnancy concerns to gynecological malignancies, these specialists continue to make important contributions to the field of women's health as advocates and as health professionals.

**Benign Gynecology.** The Hospital's gynecologists manage a range of benign gynecological conditions – routine and complex. These include endometriosis, fibroids, ovarian cysts, pelvic pain, symptoms related to menopause, bleeding disorders, fistulas, and conditions of the cervix, such as cervical dysplasia. Over the past several years, the Hospital's



*Dr. Kevin Holcomb, newly named Director of Gynecologic Oncology in the Department of Obstetrics and Gynecology at NewYork-Presbyterian/Weill Cornell, has contributed significantly to research in the management of cervical cancer and the treatment of pre-invasive cervical lesions in HIV-positive women.*

gynecologists have transitioned to an increased use of minimally invasive procedures and laparoscopic surgeries for conditions that previously required open surgery. Today, robotics surgery is routinely used for most major gynecologic and urogynecological procedures, including hysterectomy and sacral colpopexy. “Our service continues to push the envelope in minimally invasive approaches, removing larger masses and reducing the number of open surgeries that were formerly the norm,” says Barry D. Shaktman, MD, who specializes in gynecological surgery at NewYork-Presbyterian/Weill Cornell.

John C. Evanko, MD, MBA, Division Chief of Gynecologic Surgery at NewYork-Presbyterian/Columbia, agrees. Dr. Evanko and his colleagues are experts in the least invasive surgical options, including vaginal approaches and laparoscopic or robotic techniques. “We can provide patients with less invasive alternatives to hysterectomy and myomectomy,” says Dr. Evanko. “We also can perform hysteroscopy and sterilization procedures in the office setting. And robotically, we cross over to OB. We are one of the few places in the country doing robotic cerclages followed by successful pregnancy outcomes.”

**Gynecologic Oncology.** NewYork-Presbyterian’s gynecologic oncologists provide expertise in laparoscopic and robotic surgery, advanced reconstructive and complex pelvic surgery, intraoperative radiation therapy, and chemotherapy – including clinical trials for promising chemotherapeutic treatments and targeted biological therapies – to treat cancer of the reproductive organs. This complements major programs in basic science and translational research also underway. The Divisions of Gynecologic Oncology at both NewYork-Presbyterian/Columbia and NewYork-Presbyterian/Weill Cornell are participating in a number of innovative national and international clinical trials, including a Phase III trial of paclitaxel plus AMG 386

in women with recurrent partially platinum sensitive or resistant epithelial ovarian, primary peritoneal, or fallopian tube cancers. Additionally a front-line trial is available that examines this novel targeted biologic in conjunction with standard chemotherapy.

Kevin Holcomb, MD, recently was named Director of Gynecologic Oncology and Director of Minimally Invasive Surgery at NewYork-Presbyterian/Weill Cornell. Under his leadership, the gynecologic oncology program continues to develop more effective techniques in chemical, radiological, and surgical treatments for challenging conditions. Dr. Holcomb and his colleagues are also pursuing the development of robotic and laparoscopic surgical techniques for gynecologic cancers.

Researchers at Weill Cornell are investigating various biomarkers as indicators for malignancies in gynecology. Current translational research studies include examining whether the HE4 marker is a better indicator for ovarian cancer recurrence than the current standard of care test, CA-125, and whether biomarkers in vaginal fluid can determine malignancy. There are also active collaborations underway with colleagues in basic science to study the molecular characterizations of endometrial and ovarian carcinomas.

*Dr. Jason D. Wright, an expert in gynecologic cancers and gynecologic surgery at NewYork-Presbyterian/Columbia, cares for a large number of women with hereditary cancer syndromes, women who require complex gynecologic procedures, as well as women with placenta accreta.*



A study by researchers at the Herbert Irving Comprehensive Cancer Center (HICCC) at NewYork-Presbyterian/Columbia, published in the *Journal of Clinical Oncology*, suggests that women who have surgery for ovarian cancer at high-volume hospitals have superior outcomes than similar patients at low-volume hospitals. The improved survival rate is not dependent on a lower rate of complications following surgery, but on the treatment of the complications. Under the direction of lead author Jason D. Wright, MD, a gynecologic oncologist at NewYork-Presbyterian/Columbia, and a member of the HICCC, the researchers examined the influence of hospital volume on complications, failure to

rescue from complications, and inpatient mortality in ovarian cancer patients aged 18 to 90 who underwent oophorectomy using National Inpatient Sample data from 1998 to 2009 – a total of more than 36,000 patients treated at 1,166 hospitals. The study concluded that more effective treatment of complications at high volume centers resulted in superior outcomes.

**Urogynecology.** The Departments offer expertise in pelvic floor disorders, including urinary incontinence, stress incontinence, vaginal prolapse, uterine prolapse, rectal prolapse, cystocele, rectocele, and vesicovaginal and rectovaginal fistulas.

In 2012, NewYork-Presbyterian/Weill Cornell welcomed Tirsit S. Asfaw, MD, a urogynecologist who specializes in pelvic floor therapy. Dr. Asfaw's expertise includes robotic, abdominal, and vaginal reconstructive surgery. She completed a residency in obstetrics and gynecology at New York University and a fellowship in urogynecology and reconstructive pelvic surgery at the University of Pennsylvania.

NewYork-Presbyterian/Columbia welcomed Cara L. Grimes, MD, a urogynecologist who manages the full spectrum of female pelvic floor disorders, including pelvic organ prolapse, urinary incontinence, recurrent urinary tract infections, and fistula and urethral diverticulum.

Dr. Grimes pursued residency training in obstetrics and gynecology at Johns Hopkins Hospital, and a fellowship in female pelvic medicine and reconstructive surgery at the University of California, San Diego.

**Pediatric and Adolescent Gynecology.** Gynecologic problems in children and adolescents can be hormonal, structural, or functional. "Children and adolescents with gynecologic problems have unique needs and benefit from specialized evaluation, treatment, and follow-up by a gynecologist with expertise in these disorders," notes Beth W. Rackow, MD, Director of the new Pediatric and Adolescent Gynecology Service at NewYork-Presbyterian/Morgan Stanley Children's Hospital, established in 2012. The Service provides evaluation and management of gynecologic disorders, often in consultation with other pediatric specialists, with a focus on preserving normal reproductive function and fertility. Dr. Rackow has a particular expertise in reproductive surgery, including advanced laparoscopy and hysteroscopy, management of congenital anomalies of the female reproductive tract, and polycystic ovarian syndrome.

**Reproductive Medicine.** NewYork-Presbyterian/Columbia and NewYork-Presbyterian/Weill Cornell offer comprehensive, hospital-based reproductive medicine programs with the expertise required to treat medically complex patients and challenging cases where the prognosis for success is low. Both programs specialize in basic treatment methods, such as Clomid cycles, intracytoplasmic sperm injection, and artificial insemination, as well as more advanced approaches, including in vitro fertilization and frozen embryo transfer. Physicians also care for newly diagnosed cancer patients who are seeking to preserve fertility potential prior to intervention and treatment.

At NewYork-Presbyterian/Columbia, the Department of Obstetrics and Gynecology works in close collaboration with the Department of Maternal-Fetal Medicine, the Carmen and John Thain Center for Prenatal Pediatrics, and the Reproductive Medicine Program at the Columbia Center for Women's Reproductive Care. Under the direction of Mark V. Sauer, MD, the Columbia Center for Women's Reproductive Care provides patients with advanced infertility care through an interdisciplinary team of physicians, nurses, nursing assistants, social workers, and embryologists. The Center's team approach allows for consistent high quality care, as well as the benefits of collaboration and shared research. Dr. Sauer, a specialist in reproductive medicine since 1986, is known internationally for his innovative research in assisted reproduction and is recognized as one of the pioneers of egg and embryo donation.

Most recently, a joint team of scientists from The New York Stem Cell Foundation (NYSCF) Laboratory and Columbia University Medical Center has developed a technique that may prevent the inheritance of mitochondrial diseases in children. The study, published in the December 19, 2012 online edition of *Nature* and led by Dr. Sauer and Michio Hirano, MD, at NewYork-Presbyterian/Columbia and their colleagues at NYSCF Laboratory, demonstrated how the nucleus of a cell can be transferred successfully between human egg cells. This landmark achievement carries significant implications for those children who have the potential to inherit mitochondrial disease. "This technique may allow us to provide women with a therapeutic option that will prevent these disorders," says Dr. Sauer. The scientists plan to move toward clinical application using this technique. Next steps include the production of more mitochondrial

disease-free egg cells and the generation of healthy progeny in an animal model.

The Ronald O. Perelman and Claudia Cohen Center for Reproductive Medicine and Infertility (CRMI) at Weill Cornell Medical College and NewYork-Presbyterian Hospital, led by Zev Rosenwaks, MD, works closely with faculty in the Department of Obstetrics and Gynecology and maternal-fetal medicine specialists, providing patients with the most effective new procedures and technologies available in infertility treatment. Dr. Rosenwaks and his colleagues from CRMI were members of the medical team that successfully used *in vitro* fertilization for the first time in the United States in 1981, and Dr. Rosenwaks was also the first physician in this country to use donor eggs in the treatment of infertility. More recently, he and his colleagues have developed capabilities in genetic testing that have made possible pre-implantation diagnosis to determine whether an embryo carries certain inherited traits.

In a study published in the January 3, 2013 edition of *Fertility and Sterility*, Dr. Rosenwaks and his co-authors – Pak H. Chung, MD; Owen K. Davis, MD; Eleni Greenwood, MD, MSc; and David E. Reichman, MD – investigated whether patients who failed an IVF cycle can proceed with a subsequent IVF cycle after waiting only one menstrual cycle, or whether there is a benefit to allowing two or more menstrual cycles to elapse before proceeding. IVF outcomes were compared for 164 patients who waited only one menstrual cycle versus 557 patients who waited two or more menstrual cycles. The study revealed that delaying successive IVF cycle start for two or more menstrual cycles likely offers no advantage over pursuing repeated IVF after one menstrual cycle.

**Family Planning.** For more than a decade, Columbia researchers have participated in the NIH Clinical Trials Network on Phase I, II, and III trials of new contraceptive methods. Current research focuses on a dose finding trial for a new vaginal ring with ethanediol rather than ethinyl estradiol and early phase trials to discriminate women at high versus low risk of contraceptive-associated venous thromboembolism.

In 2012, Kathleen Morrell, MD, MSc, a specialist in reproductive health services with expertise in contraception, joined NewYork-Presbyterian/Columbia. Dr. Morrell completed residency training in obstetrics and gynecology at Albert Einstein College of Medicine/

Montefiore Medical Center, and a fellowship in family planning at Columbia University Medical Center. Her research addresses contraception and obesity and procedural pain control.

**Obstetrics.** The Perinatal Center at Weill Cornell and the Carmen and John Thain Center for Prenatal Pediatrics at NewYork-Presbyterian/Morgan Stanley Children’s Hospital provide multidisciplinary care – from prenatal diagnostic testing and genetic counseling to consultations, management, and follow-up of high risk pregnancies by a team of maternal-fetal and pediatric experts. Both centers are designated sites of the North American Fetal Therapy Network, an association of medical centers with established expertise in fetal surgery and care for complex disorders of the fetus. This network enables NewYork-Presbyterian to offer patients access to the latest clinical studies.

“About a third of cases referred to the Carmen and John Thain Center for Prenatal Pediatrics involves congenital heart disease, followed by chest issues, including diaphragmatic hernia and lung lesions, and multiple gestations,” says Lynn L. Simpson, MD, Medical Director of the Carmen and John Thain Center for Prenatal Pediatrics. “As the number of women having twins has increased, so have the odds of developing a serious pregnancy complication called twin-to-twin transfusion syndrome.” This disorder affects as many as 15 percent of identical twin pregnancies and results from uneven blood flow between the fetuses. Until recently the outcome was usually death or disabilities for the surviving babies. The Carmen and John Thain Center is the only program in New York to offer a new minimally invasive laser treatment for this syndrome, which involves coagulating unnecessary and harmful blood connections between the two fetuses.

At NewYork-Presbyterian/Columbia, the newly established innovative Mothers’ Center centralizes services to give pregnant women with complications a single point of access to any subspecialty or specialty for treatment, leveraging the breadth and depth of NewYork-Presbyterian/Columbia’s clinical faculty. NewYork-Presbyterian/Columbia is a major referral center in the country for placenta accreta and is currently involved in a major research study to determine how to prevent and treat this life-threatening complication involving an abnormally deep attachment of the placenta.

A new genetic test has resulted in significantly more clinically relevant information than the current standard method of prenatal testing – the result of a large, multicenter clinical trial led by Ronald J. Wapner, MD, Vice Chairman for Research for the Department of Obstetrics and Gynecology and Director of Reproductive Genetics at NewYork-Presbyterian/Columbia. The test uses microarray analysis to conduct a more comprehensive examination of a fetus's DNA than is possible with the current standard method, karyotyping, which is a visual analysis of the fetus's chromosomes. The first-of-its-kind study was published in the December 6, 2012, issue of *The New England Journal of Medicine*. “Based on our findings, we believe that microarray will and should replace karyotyping as the standard for evaluating chromosomal abnormalities in fetuses,” says Dr. Wapner.

The Division of Maternal Fetal Medicine at NewYork-Presbyterian/Columbia participates in a number of nationally competitive studies sponsored by the National Institute of Child Health and Human Development (NICHD). Among these are:

**Maternal Fetal Medicine Unit Network** – The Division is one of only 14 centers in this leading collaborative group responsible for cutting-edge findings that change the way obstetrics is practiced. A member for 20 years, the Division is among a select number of centers who are leaders in conducting high quality perinatal research.

**The Nulliparous Pregnancy Outcomes Study: Monitoring Mothers-to-be (nuMoM2b)** – The Division is one of only eight sites across the county selected competitively to participate in this longitudinal first-time study of 10,000 patients who will undergo evaluations to identify causes for a bad outcome during a first pregnancy.

**National Standard for Fetal Growth: Fetal Growth Study** – As one of only five institutions chosen to participate in this study of more than 3,300 Caucasian, African-American, Hispanic, and Asian women, the Division will help to identify longitudinally how fetuses grow through frequent serial ultrasounds and develop a reliable growth standard to distinguish the difference between normal and abnormal growth in pregnancy.

Dr. Mary E. D’Alton is a co-author of *Fetology: Diagnosis and Management of the Fetal Patient* – now in its second edition. The comprehensive, highly regarded reference book has become an important

resource for perinatal healthcare providers. The book provides guidelines on effectively diagnosing and treating fetal patients, counseling parents faced with a diagnosis of a fetal abnormality, and providing thorough information on managing antepartum, peripartum, and postpartum care.

Shari Gelber, MD, PhD, Director of Perinatal Research at NewYork-Presbyterian/Weill Cornell, has a primary research focus on innate immune system activation at the maternal-fetal interface in animal models of adverse pregnancy outcome. Dr. Gelber also pursues translational research to identify biomarkers of both infectious and immune mediated adverse pregnancy outcome. The goal is to identify at-risk populations and design novel treatments.

Stephen T. Chasen, MD, Director of High Risk Obstetrics at Weill Cornell, conducts research on the early detection of genetic anomalies. The research of Dr. Chasen and his colleagues has resulted in the decrease of invasive procedures for diagnosing anomalies and the ability to offer patients more options during their pregnancy.

Amos Grunebaum, MD, Director of Obstetrics, and his team launched a comprehensive obstetrics safety program. In a landmark study published in the February 2011 issue of the *American Journal of Obstetrics & Gynecology*, Dr. Grunebaum, who is also Director of Patient Safety for the Department, reported that the obstetric safety initiatives begun in 2003 reduced sentinel events, such as avoidable deaths and serious injuries, to zero in 2008-2009. Among the changes implemented were an online status board to communicate patient progress; hiring a patient safety nurse to educate staff on new emergency protocols, and training for fetal monitoring certification.

At NewYork-Presbyterian/Weill Cornell, the Obstetric Anesthesiology Division is actively involved in quality improvement efforts, such as The Joint Commission’s Culture of Safety initiative, to encourage communication between team members, drive improvements in policies and procedures, and maximize behaviors that improve patient safety. Obstetric anesthesiologists participate in team briefings at the start of shifts and team huddles throughout the day. The Division also pursues research aimed at improving patient care and comfort, including a study examining means for decreasing side effects during elective Cesarean sections and examining temperature regulation

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during labor epidural analgesia to determine if low-dose local anesthetic concentrations cause a rise in maternal temperature.

At NewYork-Presbyterian/Columbia, Richard L. Berkowitz, MD, an internationally recognized expert in invasive fetal therapy, and co-recipient of the King Faisal Award for Medicine in 2012, heads the Division of Quality Assurance for Obstetrical and Gynecological services. Dr. Berkowitz also co-chairs the Committee for Patient Safety for the American Congress of Obstetrics and Gynecology (ACOG) District II and is a founding member of ACOG's national Patient Safety Council. In addition to implementing departmental protocols, team training, and simulation training and testing, the QA Division has reorganized the triage operation on the obstetrical service and reviews every clinical case involving suboptimal outcomes or "near-misses" with a view to correcting any systems issues that are uncovered.

Anna Burgansky, MD, Chief of the Obstetrics and Gynecology Division at NewYork-Presbyterian/The Allen Hospital, implemented a multidisciplinary simulation training program for Labor and Delivery staff designed to improve team response in the diagnosis and treatment of obstetrical complications. The simulation drills enhanced teamwork, clinical assessment, and communication skills. In August 2012, Dr. Burgansky and the Labor and Delivery staff were presented with NewYork-

Presbyterian's Quality and Patient Safety Star Award, recognizing their role in improving patient outcomes.

At NewYork-Presbyterian/Weill Cornell, Dr. Chervenak and his colleague, Laurence B. McCullough, PhD, Baylor College of Medicine and Adjunct Professor of Ethics in Obstetrics and Gynecology at Weill Cornell, have collaborated for 30 years – the longest association of a physician and ethicist in the history of ethics in obstetrics and gynecology and bioethics. Drs. Chervenak and McCullough published the first book on ethics in obstetrics and gynecology (*Ethics in Obstetrics and Gynecology*, Oxford University Press, 1994). Their recent work, appearing in such journals as the *American Journal of Obstetrics and Gynecology* and the *American Journal of Bioethics*, calls for a clinically comprehensive, practical approach to ethics in obstetrics and gynecology based on the Professional Responsibility Model. This model of obstetric ethics rejects simplistic, clinically inadequate approaches in favor of a more complex, clinically appropriate approach based on the physician's ethical obligations to pregnant, fetal, and neonatal patients and the professional integrity of clinical practice, research, and education. Using the Professional Responsibility Model, Drs. Chervenak and McCullough have provided practical, ethically justified guidance for controversial clinical topics, such as patient-choice cesarean delivery and home birth, and for physician leadership of healthcare organizations.