

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 Otolaryngology/Head and Neck Surgery 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 new and innovative therapies for adult and pediatric patients. Our faculties bring the highest level of expertise in the full spectrum of patient care – from hearing, swallowing, and voice disorders to cancers of the head and neck. Our jointly sponsored residency training program provides residents with comprehensive experience through rotations at NewYork-Presbyterian/Columbia, NewYork-Presbyterian/Weill Cornell, and Memorial Sloan-Kettering Cancer Center. And our Annual Update in Otolaryngology CME course is now in its sixth year, attracting more than 100 participants from around the country.

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Head and Neck Cancer. The use of robotic surgery is greatly expanding in the Division of Otolaryngology/Head and Neck Surgery at NewYork-Presbyterian/Weill Cornell, where its applications for tonsil and oral pharyngeal cancer have been underway for nearly four years. “Robotic procedures are replacing the major surgeries, which included mandibular resection in order to reach the back of the tonsil to remove these tumors,” says David I. Kutler, MD. “With the robot, we can access these tumors through the mouth, without any incisions made to the face, and still do an oncologic procedure to remove these cancers. The time in surgery has been reduced from upwards of 10 hours to about two hours; hospitalization has been reduced from two weeks to four days. Robotic surgery also circumvents the need for chemotherapy and high-dose radiation therapy.”

Dr. Kutler also pursues research on the causes of head and neck cancer in the general population, with a particular focus on Fanconi's anemia. Patients with this genetic disease have a DNA repair instability predisposing them to head and neck cancer. “These patients get head and neck cancer at almost a 700-fold increase over the general population,” says Dr. Kutler, who is studying the genetic underpinnings of that high rate, with a goal of using Fanconi's anemia as a model for the genetics of head and neck cancer development.

In October 2011, Dr. Michael G. Stewart was appointed by the American Laryngological, Rhinological and Otological Society (The Triological Society) as the Editor-in-Chief of The Laryngoscope – the prestigious academic journal that has been the forum for many groundbreaking advances in the specialty of otolaryngology – head and neck surgery.



Hearing Loss. The Department of Otolaryngology/Head and Neck Surgery at NewYork-Presbyterian/Columbia recently welcomed clinician-scientist Anil K. Lalwani, MD, as Vice Chair of Research, and Director, Division of Otology, Neurotology, and Skull Base Surgery and its Cochlear Implantation Program. Dr. Lalwani joins Erik H. Waldman, MD, Clinical Director of Pediatric Cochlear Implants, and together they apply cochlear implant technology for patients from as young as nine months to those in their 90s. “With newborns now tested for hearing, we're identifying hearing loss earlier,” says Dr. Lalwani. “The earlier we implant them, the better their outcomes.”

The Cochlear Implant Program has a comprehensive research effort focusing on identifying genes that are critical for hearing through the use of molecular genetics and molecular biologic methods, and gene

transfer technology for the treatment of hearing disorders. “We are trying to figure out genetic predictors of hearing loss in children and adults, and use that information to predict how well they might do with cochlear implantation,” says Dr. Lalwani, whose lab was one of the first to demonstrate gene transfer in the cochlea. “Our research is at the cutting edge of candidacy and criteria selection, looking at outcomes after cochlear implantation; how to minimize surgical morbidity of cochlear implantation; and designing the next generation therapeutics, including devices that will be inserted atraumatically to preserve any residual hearing.

Additional research is addressing:

- single-sided deafness – assessing patients who might achieve benefit from a cochlear implantation, with early experience indicating excellent results
- inner ear deafness – developing nanoneedle technology in animal models to deliver medications into the inner ear without injuring the round window membrane
- music appreciation – defining the characteristics of music that are most important for music comprehension and appreciation following cochlear implantation

At NewYork-Presbyterian/Weill Cornell, Kevin D. Brown, MD, PhD, is pursuing exciting basic science research on a compound that might be protective against hearing loss. Dr. Brown is looking at a class of molecules called sirtuins that have been found to extend life in certain organ systems typically affected by aging. “Researchers found that if an animal is calorie restricted, which activates this particular class of enzymes, they could actually prevent age-associated hearing loss,” says Dr. Brown.

Dr. Brown began to look at ways to activate these sirtuins independent of calorie restriction. “By increasing levels of a particular energetic coenzyme called NAD, you can actually activate these enzymes,” says Dr. Brown. Using genetically modified mouse models, Dr. Brown and his colleagues found that animals that either had an increased capacity for producing NAD or an increased level of sirtuin-3 were found to be protected against noise-induced hearing loss. The researchers then synthesized a compound that could increase NAD and administered it to the

Dr. Joseph Haddad, Jr., Vice Chairman of Clinical Otolaryngology/Head and Neck Surgery, and Chief of Pediatric Otolaryngology/Head and Neck Surgery at NewYork-Presbyterian/Morgan Stanley Children’s Hospital, oversees a comprehensive medical and surgical program for the treatment of ear, nose, throat, and head and neck disorders in children.



animals before they received a noise exposure that would typically cause injury to the cochlea.

“We found that this drug effectively prevented them from having both the short-term transient loss and the long-term loss of hearing that occurs with noise exposure.” Dr. Brown is now determining which of the structures within the cochlea are being protected against injury by noise with the goal of genetically identifying individuals that are predisposed to accelerated age-associated hearing loss and prevent that hearing loss by administering a drug.

Laryngology Disorders. With improved microscopic options, developments in cameras and digital chip technology, and the availability of new lasers, NewYork-Presbyterian’s Divisions of Otolaryngology/Head and Neck Surgery continue to see an increase in office-based, minimally invasive laryngeal procedures with about half of the surgical caseload now managed in the office setting. These procedures, which are performed under a local anesthetic, include evaluations, injections for neurologic voice disorders and vocal cord paralysis, biopsies, and selected removal of lesions.

“By using local anesthetic, you can treat a broader spectrum of patients, including those who are too sick for general anesthesia,” says Lucian Sulica, MD, a specialist in voice disorders at NewYork-Presbyterian/Weill Cornell who notes that many voice disorders are mistaken for acid reflux. “The same tools that have allowed us to do these procedures in the office have also allowed us to get a much better look at the vocal cords. I believe that every patient who has been treated unsuccessfully for acid reflux should be re-evaluated with these newer tools for a voice or throat problem.”

“Laryngology is a specialty well-suited for in-office care,” agrees Chandra M. Ivey, MD, Director, Division of Laryngology at NewYork-Presbyterian/Columbia.

“In-office evaluations enable us to diagnose dysplasia or another pre-cancerous condition and provide patients with options of how to treat without delay.” Dr. Ivey specializes in swallowing disorders, helping people become fully functional who have neurologic conditions or postsurgical problems, as well as voice disorders of teachers, singers, lawyers, and others who use their voice professionally.

Otolaryngic Allergies. At NewYork-Presbyterian/Weill Cornell, William R. Reisacher, MD, is developing a diagnostic strategy for rhinitis in which individuals appear to have classic allergic symptoms but whose skin and blood tests are negative. “What’s been known for years is that the lining of the nose, and some of the other tissues inside the mouth and throat, are able to produce all of the allergy antibodies that they need right in that area,” says Dr. Reisacher. “Many people who have those antibodies in a local environment are not going to have any evidence for it in the blood or in the skin. These patients look like they have allergies, but some estimates suggest that 45 to 50 percent of those patients who test negative will have allergy antibodies in their nose. So the ability to test for these antigen-specific antibodies is of primary importance not only for establishing the correct diagnosis, but also to open up other avenues of treatment.”

To date, testing for local antibodies has involved invasive and difficult procedures. The thrust of Dr. Reisacher’s research was to find a less invasive way of testing for local antibodies. Using a cytology brush to collect both mucus and surface epithelial cells of the nasal lining, he then processed those cells in a salt water solution, testing them for antibodies using the blood serum testing equipment recalibrated for saline. That first study was a landmark proof of concept that antigen-specific antibodies inside the nose could be measured using the mucosal brush biopsy. Dr. Reisacher’s invention of the mucosal brush biopsy also has implications in sinonasal research and any research where patients are categorized based on their allergic status.

Salivary Gland Disease. Head and neck surgeon Rahmatullah W. Rahmati, MD, has brought sialendoscopy – a minimally invasive procedure to manage obstructive salivary gland disease – to NewYork-Presbyterian/Columbia. Made possible by advances in endoscopy technology and the development of miniaturized rigid telescopes, sialendoscopy allows endoscopic evaluation of the

salivary ducts, removal of stones, and dilatation of strictures with preservation of the gland and its salivary function. “Traditional open surgical approaches carry the risk of nerve injury, infections, scarring, and salivary fistulas,” says Dr. Rahmati.

Dr. Rahmati joins colleagues at NewYork-Presbyterian/Weill Cornell, who are among the few surgeons in New York City to offer this minimally invasive gland-sparing approach. “Just five or six years ago, the gland would be removed if the stone was inaccessible inside the mouth,” says Dr. Rahmati. “Now, with this technique, if the stone is small, round, and mobile, it could basically be removed right through the duct.”

Sleep Apnea and Snoring. At NewYork-Presbyterian/Weill Cornell, Joshua I. Levinger, MD, offers an all inclusive approach to the diagnosis and management of patients with sleep apnea. This includes a complete head and neck exam to determine the site of the obstruction, coordinating a sleep study in the Hospital’s Sleep Center, supervising CPAP or Bi-PAP treatment, and referrals to nutritionists for diet and weight loss. “Sleep apnea could be related to the nose, palate, or back of the tongue,” says Dr. Levinger. “We evaluate each of those areas to determine the benefits and risks of addressing each area with surgery if patients are not compliant with or unable to tolerate their CPAP machine, or if they are not benefiting from its use.”

According to Ashutosh Kacker, MBBS, snoring is becoming a more challenging issue with increasing obesity, and the more overweight a person is, the worse the snoring becomes. Anatomical features, such as a deviated septum, a large uvula, or large tonsils, can also cause severe snoring. “Once you have a diagnosis for snoring, a sleep study is necessary to plan appropriate treatment,” says Dr. Kacker. “Treatment can be as diverse as counseling for weight loss, exercise, alcohol avoidance, or surgery to fix the nasal septum or address the palate in many ways – from implants, to radiofrequency treatment, and sometimes, trimming of the uvula.”

Facial Plastic and Reconstructive Surgery. Facial plastic surgeons Kate E. McCarn, MD, at NewYork-Presbyterian/Weill Cornell, and Monica Tadros, MD, at NewYork-Presbyterian/Columbia, are members of the otolaryngology teams working closely with head and neck cancer surgeons, oncologists, pathologists, and other medical and surgical specialists throughout

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the Hospital to optimize functional and aesthetic outcomes for patients with cancer and other potentially disfiguring conditions.

Dr. McCarn is collaborating with colleagues in head and neck surgery, dermatology, oncology, and other specialists in an initiative devoted to patients with skin cancer, especially those with complex defects, who receive seamless care within the same facility on the same day. For example, the dermatologist will perform MOHS surgery and, depending on the extent of cancerous tissue removed, Dr. McCarn will then address any facial restoration or reconstruction that is needed. In addition, the coordinated effort includes same-day visits with the head and neck oncologist if necessary. The skin cancer team's researchers have begun investigating a new subset of skin cancers that are more aggressive than the typical skin cancer to identify what makes these tumors different, and which patients may need adjuvant treatments.

In collaboration with Joseph Haddad, Jr., MD, Chief of Pediatric Otolaryngology/Head and Neck Surgery at NewYork-Presbyterian/Morgan Stanley Children's Hospital, Dr. Tadros provides expertise in nasal repair in the pediatric population. "There are a lot of misconceptions about when to do nasal repairs and rhinoplasty in children," says Dr. Tadros. "In fact, very few times is it warranted to wait, and more often than not early intervention can help improve the development of the nose. Surgical criteria, most importantly, involves whether the child is going to be able to breathe through the nose." Facial development will be flawed if breathing is exclusively through the mouth. "As long as I don't manipulate the bony part of the septum, which is on the growth plate," explains Dr. Tadros, "I can reconstruct the cartilaginous septum and allow that nose to continue to develop and grow as it should have and avoid future sinus issues and other progressive problems."

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