Otolaryngology—Head and Neck Surgery is medical care for ear, nose, and throat conditions, including surgery on the head and neck. A diverse array of conditions treated by otolaryngologists afflicts both adults and children. These range from common conditions, such as pediatric tonsillitis, ear infections, and snoring, to more complex concerns such as sinusitis and thyroid and parathyroid disorders. Accounting for 3% of all cancers in the United States, head and neck cancers will be newly diagnosed in 52,000 Americans each year. Because the head and neck area houses most of our primary senses, diseases and disorders in this part of the body profoundly impact our experiences and quality of life.
The specialty of Otolaryngology—Head and Neck Surgery (OTO-HNS) at Johns Hopkins resulted from the perceptive vision of William Stewart Halsted, one of the four physicians who founded Johns Hopkins Hospital. In 1912, Dr. Halsted appointed Dr. Samuel Crowe to spearhead the effort which led to otolaryngology being recognized, first as a sub-specialty of surgery, and ultimately as a specialty in its own right.

In the Johns Hopkins Department of Otolaryngology—Head and Neck Surgery, we are driven by the power of collaboration, the excitement of research discovery, the possibilities for improving patient care, and the desire to train true leaders in our field. Our physicians, residents, and staff work with other specialists across Hopkins medical disciplines and with community physicians to provide excellent patient care; we conduct cutting-edge research that translates into new therapies for patients; and we teach next generations of OTO-HNS specialists who will provide patient care around the world.

Restoration of Hearing

Because it provides the basis for connection with others and to the world around us, hearing is arguably our most important sense. For individuals who suffer hearing loss due to age, disease, or medication side effects, hearing aids offer a gateway to re-engagement with people and the surrounding environment, but they fall short of restoring natural hearing. To certain people with complete hearing loss, and even some who are born deaf, the cochlear implant constitutes a miracle—allowing them to learn to hear.

Our Department started implanting cochlear devices more than 20 years ago; today our Listening Center performs more cochlear implant surgeries than any other institution.

Critical research in the Department continues. Our basic science researchers work daily to unlock the mysteries surrounding the function of the inner hair cells responsible for detecting sound and re-laying information to the brain. They have made advances in understanding how the ear protects itself from loud sounds, and how to by-pass damaged connections between hair cells and nerves. Additional research in sensory genetics and regenerative biology aims to uncover the reasons that damaged hair cells fail to regenerate, and to develop novel uses of stem cells to improve and restore hearing.

A RETURN TO BALANCE

The vestibular region of the inner ear controls the reflexes that keep our eyes steady and our vision clear when we quickly move our heads. Damage to delicate cells in the vestibule causes blurry vision and loss of balance. Our Vestibular NeuroEngineering Laboratory is developing a multichannel vestibular prosthesis (MVP). Similar to the cochlear implant, the MVP includes a series of sensors, a miniature computer, and wires that are implanted in the inner ear to transmit information about head movement to appropriate nerves. The MVP is now in preclinical testing, and we believe that it will ultimately restore the world for individuals with vestibular disorders, the way that the cochlear implant has for people who are deaf.

RISING TO THE CHALLENGE

A CALL TO ACTION

Rising to the Challenge: The Campaign for Johns Hopkins will raise unprecedented levels of support to attract, sustain, and further empower the people of Johns Hopkins—our students, faculty, and researchers—who through their work improve the lives of millions around the world. Together with our philanthropic partners we will:

ADVANCE DISCOVERY AND CREATIVITY

through support of our exceptional faculty and researchers. Their innovative work drives the development of new knowledge, new forms of expression, and new ways to save lives and improve health, and furthers progress across our core disciplines in science and technology, the humanities and arts, and public health and medicine.

ENRICH THE STUDENT EXPERIENCE

by investing in scholarships and fellowships, inspirational spaces for collaborative learning and social opportunities, and new programs that will enhance student-faculty interactions, ensure diversity on campus, link learning in the classroom to life after graduation, and strengthen connections between our students and our surrounding communities.

SOLVE GLOBAL PROBLEMS AS ONE UNIVERSITY

by creating new cross-disciplinary solutions in crucial areas such as sustaining global water resources, revitalizing America’s cities, advancing individualized health, understanding how we learn and teach, and attacking the root causes of global health problems.

The Johns Hopkins Department of Otolaryngology—Head and Neck Surgery is committed to playing a key role in the success of the campaign. Please join with us in this important mission.

DEPARTMENT OF OTOLARYNGOLOGY—HEAD AND NECK SURGERY
Head and neck cancer is a general term encompassing cancers that affect the nasal passages, sinuses, mouth, throat, larynx (voice box), swallowing passages, salivary glands, and thyroid gland, and some skin cancers that develop on the scalp, face, or neck. Treatment for head and neck cancer can be complex. Success entails not only eradication or forestalling of the cancer itself, but also protection of functions such as sight, smell, hearing, speech, and swallowing. Best outcomes for patients can only be achieved through a combination of: excellent clinical programs that employ state-of-the-art therapeutic methods; collaboration of diverse experts, including specialists in head and neck surgery, radiation oncology, medical oncology, endocrinology, and speech language pathology; education and training programs that prepare current and future clinicians to deliver the most effective care; and ongoing research to continuously improve both our scientific understanding of these diseases and our methods for treating them. The Department of OTO-HNS possesses these key ingredients.

We propose to establish a comprehensive, international Center for Head and Neck Cancer that will (1) offer an outstanding program for clinical care, with a unified approach to prevention, screening, and treatment, and (2) serve as a global resource for education and research in epidemiologic, public health, translational, and clinical sciences related to head and neck cancer.

The Center for Head and Neck Cancer will lend powerful support to collaborative research that yields better methods of patient care. For example, new surgical approaches are being developed for the tight and delicate confines of the head and neck region. Johns Hopkins is one of the early centers in the country to gain approval to use a surgical robot for minimally invasive transoral surgical procedures— with the goal of scarless operations.

In 2000, Hopkins OTO-HNS scientists were on the team that first proved a link between human papillomavirus (HPV) and head and neck cancers. They found that HPV-related tumors account for up to 80% of head and neck malignancies in the tonsils and/or base of the tongue. Armed with this knowledge, they developed a vaccine designed to boost the immune system’s ability to recognize and kill HPV-infected cancer cells. In conjunction with chemotherapy and radiation, the vaccine may increase the odds of eliminating tumor cells missed by chemoradiation and/or surgery. Rates of recurrence may also be reduced with immune cells’ “memory” of the cancer cells.
have underscored the critical risks to patient safety that arise when physicians, including residents, work long hours. Evolution of the culture of Medicine has shifted the philosophy of medical education; values such as work-life balance and competency-based learning and progression now demand legitimacy. The reduction in the maximum number of hours a resident can be involved in clinical care and education, and also in laboratory and clinical research that reaps discovery and brings innovation to their areas of interest: the auditory and vestibular system, cancer biology, immunology, neurophysiology, laryngology and neuro-laryngology, wound healing, and flap physiology. We have the largest full-time faculty of otolaryngologists-head and neck surgeons in the country.

Our patient care is as comprehensive as our research is focused. For example, the Division of Audiology provides care of hearing for patients of all ages that encompasses testing, hearing aid selection and fitting, and implantable hearing devices. The Division of Speech-Language Pathology provides rehabilitative services to patients learning to improve or restore their communication and swallowing abilities; care involves specialists in rehabilitation after head and neck cancer treatment, voice diagnostics and therapy, evaluation and treatment of swallowing difficulties, pediatric speech and language services, and neurorehabilitation. Speech-language pathologists within the Listening Center provide rehabilitation to individuals with hearing loss.

No institution has played a more pivotal role in the development of OTO-HNS, and no institution is better positioned to lead its further evolution—through cutting-edge research, innovation in education, and highest quality, compassionate, state-of-the-art, patient care.

WHAT ROLE DOES PHILANTHROPY PLAY?

In the 21st century healthcare environment, teaching hospitals face formidable financial challenges. Research grants have become increasingly competitive. The success rate for grants submitted to the National Institutes of Health (NIH) hit an all-time low of 17% in 2011, down dramatically from 32% in 1999–2003.¹ The reduction in funding poses a significant problem even for Johns Hopkins, though we continue to be one of the most successful institutions in securing NIH support. Simultaneously, changes in healthcare financing have resulted in reduced clinical revenues; whereas once clinical margins were sufficient to cross-subsidize activities related to education and training, and to support the pilot studies that are so critical but are not generally funded by research grants, now surgeons must perform more procedures to generate sufficient clinical revenues. As NIH support continues to decrease and clinical care no longer covers the costs of education and discovery, the pace and extent of our progress depends on significant philanthropic investment.

We need philanthropy now more than ever before—to enable us to make great strides in research, to provide patient care of unparalleled quality, and to transform surgical education.

<table>
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<tr>
<th>PRIORITY</th>
<th>SPECIFIC FUNDING NEEDS</th>
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<td>Hearing and balance</td>
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Rising to the Challenge:
The Campaign for Johns Hopkins
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