Hearing loss is often accepted as simply an inconvenience—an inevitable, if annoying, part of life. But recent research has revealed that this condition is far more serious: Besides diminishing quality of life, hearing loss leads to tremendous damage to economic well-being, with an estimated annual cost in the United States of $122 to $186 billion in lost productivity and tax revenues. It’s associated with a long list of negative health consequences, including increased risk of dementia, falls and hospitalizations, and diminished physical and mental health overall.

Hearing loss is also incredibly common. According to the National Institutes of Health, almost 25 percent of Americans ages 65 to 74 and 50 percent of those who are 75 and older have a disabling form of hearing loss. About 15 percent of Americans between 20 and 69 have high-frequency hearing loss due to noise exposure.

Taken together, these factors add up to a high need for research to find new ways to prevent hearing loss and to provide even better patient care for those who suffer from this condition, says David M. Rubenstein, co-founder and co-CEO of The Carlyle Group, a global investment firm. A Johns Hopkins University and Johns Hopkins Medicine trustee and well-known national philanthropist based in Washington, D.C., Rubenstein recently pledged to donate $15 million to Johns Hopkins’ Department of Otolaryngology-Head and Neck Surgery to create a new hearing center.

The new center will integrate clinical care and research to restore functional hearing to people with congenital and acquired hearing loss. A key research area for the center will be “system-based” hearing restoration. Researchers will explore novel approaches to protect and repair the inner ear and to ensure effective connectivity with the brain.

“These promising areas of research will hopefully get us closer to helping people with hearing loss and deafness,” says Rubenstein. “The sense of hearing is a precious gift, and we need to step up our efforts to ensure that we address and help those in need.”

This research will proceed in parallel with clinical care that provides a wealth of patient resources, from care coordination, to patient and family education, to trials of new hearing devices, to enhanced patient access and outreach. To acknowledge this generous gift, the patient care clinical space for the otology clinic on the sixth floor of the Johns Hopkins Outpatient Center will be renamed the David M. Rubenstein Hearing Center. The center will include the Division of Otolaryngology and Neurotology, the Division of Audiology, and the Listening Center.

“PROMISING AREAS OF RESEARCH WILL HOPEFULLY GET US CLOSER TO HELPING PEOPLE WITH HEARING LOSS AND DEAFNESS.”
—David M. Rubenstein

(continued on back page)
Resident Spotlight: Nyall London

Nyall London performed his first medical research as an undergraduate at Brigham Young University primarily to strengthen his applications to medical school. But in the course of this seemingly obligatory work, he made a surprise finding: he liked it. His passion for research resulted in him not just pursuing an M.D. but also a Ph.D. concurrently from the University of Utah.

“I wanted to make a difference not only in the patients I saw clinically but in those I’d never meet,” he says. It’s a passion that London is still pursuing as a third year resident at Johns Hopkins.

While he was still at the University of Utah, London’s work, under the mentorship of cardiologist Dean Li, focused on proteins known as Arf6 and ARNO. These proteins, present in the cells that line blood vessels, cavities, and surfaces throughout the body, play a major role in allowing these cells to gap and let inflammation-producing chemicals and cells into the surrounding tissues. While this type of response is necessary and critical for fighting infections, it’s not regulated well in a variety of diseases, leading to unwanted and runaway inflammatory effects when an infection isn’t present.

As an intern at Johns Hopkins, and already intrigued by the field of otolaryngology-head and neck surgery, London wondered whether he might take his research in another direction: to determine whether these proteins act in the sinus epithelium and if they play a role in inflammatory diseases there, such as chronic rhinosinusitis (CRS).

Passionate about pursuing this line of research, London reached out to Andrew Lane, director of the rhinology and sinus surgery division and a physician-researcher who has made CRS a focal point of his own clinic and lab. Though Lane had pursued many different avenues to better understand CRS and eventually improve the treatment of his patients, he had not explored the role of barrier leakiness.

Lane invited London to join his lab, where London was soon designing experiments on patient tissue samples and animal models to determine whether the Arf6-ARNO pathway was present in the nasal and sinus epithelium and whether it might play a role in CRS. To fund this research, Lane and London wrote two grants—one to the American Academy of Otolaryngology and the other to the National Institutes of Health—and had both funded.

“It took an amazing and unusual amount of initiative for a busy resident to do that,” Lane says. “He is the model of a future star in academic otolaryngology.”

London continues to pursue this area of research while seeing patients in the clinic, building his career as a physician-scientist.

“ ‘This is the culmination,’” he says, “of what I idealized things to be like when I decided to do an M.D./Ph.D.”

Nyall London is working to understand whether proteins Arf6 and ARNO play a role in inflammatory diseases of the sinus epithelium.

Meet the Team

Shaun Desai, Nicole Schmitt and Wojtek Mydlarz now perform surgeries at Suburban Hospital and The Johns Hopkins Hospital.

A Growing Department

The Department of Otolaryngology–Head and Neck Surgery continues to grow and is pleased to announce that Wojtek Mydlarz, Shaun Desai and Nicole Schmitt have joined our practice at our Bethesda, Maryland, location. Mydlarz and Schmitt are conducting intramural research at the National Institutes of Health. All three physicians now provide head and neck cancer surgery services in Bethesda, with surgeries to be performed at Suburban Hospital or The Johns Hopkins Hospital.

Mydlarz, an assistant professor in the Division of Head and Neck Cancer Surgery, specializes in the treatment of benign and malignant tumors of...
the head and neck, including the upper aerodigestive tract, salivary glands, thyroid, skin and soft tissue. His research interests include evaluating both surgical and non-surgical treatment outcomes in head and neck cancer patients.

Desmit, an assistant professor in the Division of Facial Plastic and Reconstructive Surgery, offers a broad spectrum of both cosmetic and reconstructive surgery. Reconstructive procedures include facial trauma management, microvascular or "free-flap" reconstruction of major head and neck defects after cancer or trauma, skin cancer reconstruction after Moh's surgery, as well as the management of skin cancer such as malignant melanoma.

Schmitt, an assistant professor in the division of Division of Head and Neck Cancer Surgery, has clinical interests in surgical treatment and surveillance of patients with benign and malignant tumors of the head and neck, robotic surgery, benign and malignant thyroid and parathyroid disease, and skin cancers of the head and neck. Her research interests include the use of platinum-based chemotherapy drugs and immunotherapy for the treatment of head and neck cancer.

Heather Weinreich, Jonathan Walsh and Leah Leinbach have joined the department.

Weinreich, an assistant professor in the Division of Otolaryngology and Neurotology, focuses on caring for patients with chronic otitis media, cholesteatoma, hearing loss, vertigo and vestibular disorders. Her surgical expertise includes osseointegrated implants, cochlear implants and skull base surgery. She is practicing at The Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center.

Walsh, an assistant professor in the Division of Pediatric Otolaryngology, has clinical interests including head and neck masses, aerodigestive disorders, sinus disease chronic ear disease, hearing loss, sleep apnea, laryngeal cleft, as well as the full spectrum of pediatric head and neck disorders. His research interests are in novel ultrasound technology applications to head and neck disorders, trans-oral robotic surgery, and airway imaging and modeling. He is practicing at the Johns Hopkins Health Care and Surgery Center in Lutherville, Maryland and the Johns Hopkins Outpatient Center.

Leinbach, an assistant professor in the Division of Oral and Maxillofacial Surgery and Dentistry, has expertise in restorative dentistry, fixed and removable prosthodontics, routine endodontics and oral surgery, and preventative dentistry. Her research interests include oral health considerations for patients receiving radiation/chemotherapy, the relationship between oral infection and systemic inflammatory processes, and prevention of emergency room visits for dental complaints. She is practicing at the East Baltimore location.

For information, call 443-287-2124.
ThosE Who GivE

Transformative Gift (continued from page 1)

“The generosity of individuals like David Rubenstein helps keep Johns Hopkins as the premier institution for cutting-edge research,” says Paul B. Rothman, M.D., dean of the medical faculty and CEO of Johns Hopkins Medicine. “This gift represents a continued commitment to improve the health and well-being of our community and, ultimately, the world.”

The new funding will allow Hopkins’ hearing researchers to devote their time to vital research, says Paul Fuchs, director of research for Johns Hopkins’ Department of Otolaryngology-Head and Neck Surgery.

“One of the challenges for anyone doing research in a biomedical environment is to sustain adequate funding so programs can grow over the course of years, but researchers often find themselves running from grant application to grant application instead of being creative and diving deeply into research,” he says. “Now we have a situation where we can look five years down the road and know that we have a secure nest egg to fund promising projects.”

This research and other facets of Rubenstein’s gift will lead to significant advances for hearing loss patients at Johns Hopkins and elsewhere, says John Carey, director of Hopkins’ Division of Otolaryngology, Neurotology, and Skull Base Surgery.

“We feel very fortunate that Mr. Rubenstein, an investor, has decided to invest in us and the field of hearing loss,” Carey says. “This gift is an incredible opportunity for Johns Hopkins to make a difference.”

For information, call 443-287-2124.
Visit hopkinsmedicine.org/otolaryngology.