

HeadLines

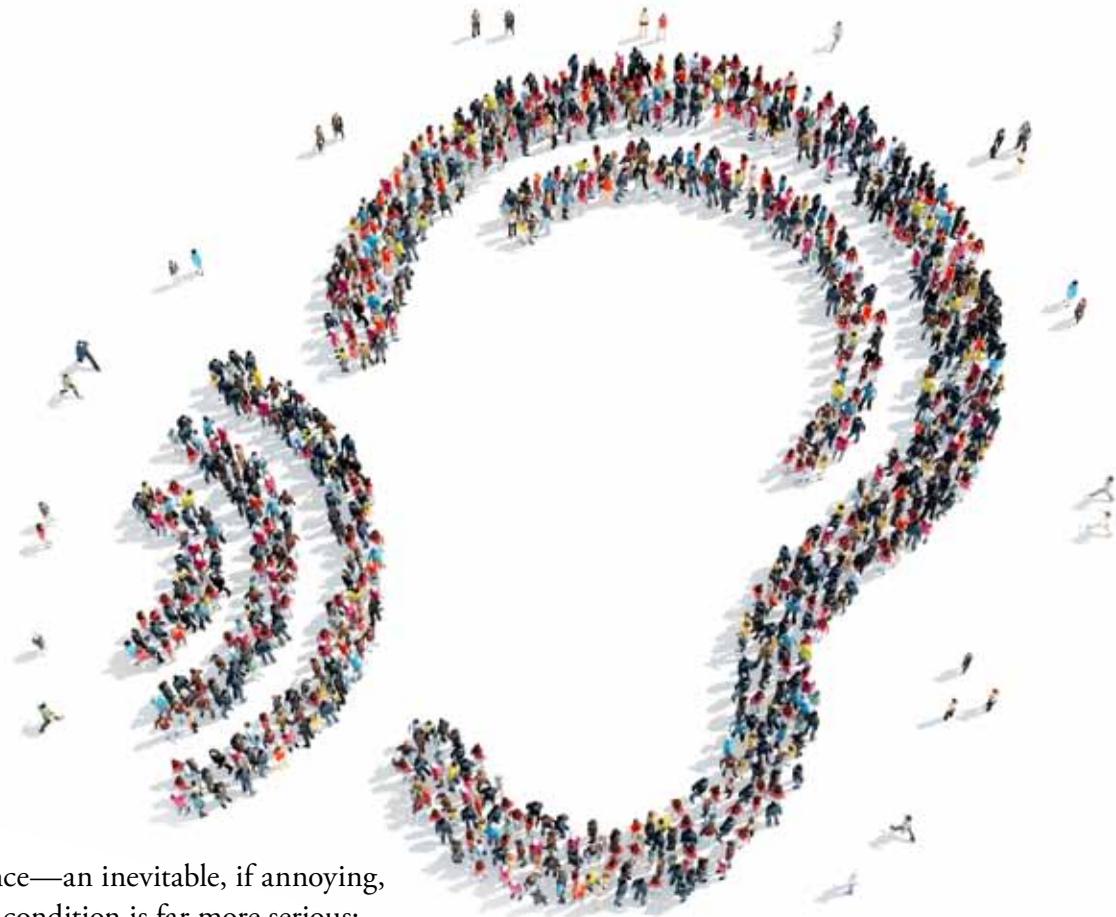


JOHNS HOPKINS
MEDICINE

NEWS FROM JOHNS HOPKINS OTOLARYNGOLOGY-HEAD AND NECK SURGERY

FALL 2015

Transformative Gift Creates a New Hearing Center



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 Otology 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)



Serving Patients at Hopkins and Beyond

As I've served for the last three years as Director of Johns Hopkins' Otolaryngology-Head and Neck Surgery Department, I've witnessed tremendous growth—a trend that continues with each passing season.

Our department was the recipient of a very generous donation from David Rubenstein, featured on this issue's cover. The funds will allow us to offer expanded resources for our patients, as well as fund research efforts to treat hearing loss that will benefit patients everywhere.

One example is our expansion into the National Capitol Region highlighted in this issue of *HeadLines* on this page. We recently established a head and neck cancer program in Bethesda with three new faculty members, Drs. Wojtek Mydlarz, Nicole Schmitt and Shaun Desai. This care is comprehensive with speech-language pathologists also serving patients at this location.

We were also recently ranked as the top residency program in otolaryngology-head and neck surgery by Doximity, the leading online medical network for U.S. physicians. This high ranking will help drive the most talented medical students to train here, helping our specialty grow as we treat patients from across the country.

Finding more and better ways to serve patients continues to be the heart of our department's mission.

David W. Eisele, M.D., F.A.C.S.
*Andelot Professor and Director
 Otolaryngology-Head and Neck Surgery*

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

Helping Deaf and Hard of Hearing Students Succeed in STEM

In 1991, when **Tilak Ratnanather** began his postdoctoral fellowship at Johns Hopkins in the Departments of Otolaryngology-Head and Neck Surgery and Biomedical Engineering, there were only two individuals with hearing loss pursuing a graduate degree in auditory sciences in the world. Now, there are at least 15 pursuing graduate degrees and 10 faculty members in the auditory sciences, along with many others who have completed or are training for a medical degree or receiving special training in otolaryngology-head and neck surgery—a significant leap forward due, in no small part, to Ratnanather’s efforts to mentor promising students with hearing loss.

“The benefits to society of mentoring these students can’t be overstated,” says Ratnanather, now an associate research professor of biomedical engineering at Johns Hopkins whose lab focuses on brain mapping to better understand conditions including schizophrenia, Alzheimer’s disease, and speech and language disorders. “These individuals provide a unique perspective for the field that can’t be found anywhere else.”

Ratnanather himself was born with profound, bilateral hearing loss. Despite this challenge, he became

the first congenitally deaf person to pursue an undergraduate degree in mathematics at University College London and graduated among the top of his class. Several years later, he graduated with a doctoral degree from the University of Oxford, becoming the first congenitally deaf person in the world to receive a Ph.D. in mathematics.

The year after starting his postdoc at Hopkins, Ratnanather began attending the Association for Research in Otolaryngology (ARO) meeting. There, he discovered a few colleagues with hearing loss. But, reasoned Ratnanather, even more might be encouraged to study auditory sciences or practice medicine in this field with the right mentorship.

Soon, he and likeminded colleagues began organizing the Hearing Impaired- Association for Research in Otolaryngology (HI-ARO) dinner, which quickly turned into a networking opportunity for young researchers and students with hearing loss eager to rise within this field. Over the following years, Ratnanather expanded mentorship opportunities for this community through a network he’s helped develop with scientists across the country and Europe as well as a National Institute of Deafness and Other Communication Disorders database, linking promising students and early-career researchers with internships and jobs. His mentees now include deaf and hard of hearing graduate students and faculty members at large research institutions, medical



President Barack Obama and Tilak Ratnanather when he received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

students and physicians, and even one at NASA. As these individuals climb in their own careers, they themselves become mentors to the next generation.

In 2015, these efforts earned Ratnanather the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring—recognition truly deserved that itself is furthering his mission, says Hopkins colleague **Howard Francis**, vice director for the Department of Otolaryngology-Head and Neck Surgery, who served as a resident while Ratnanather was a postdoctoral fellow.

“The power of his personality, his vision, and his sense of mission as a teacher and role model,” he says, “are helping students with hearing loss find their voice in this field.” ■



There’s An App for That: Speech Banana

Three years ago, Ratnanather received a cochlear implant at Johns Hopkins. To gain the best functional hearing with this device, recipients must spend years receiving auditory training by a skilled speech-language pathologist. While Ratnanather has benefited from regular sessions with Hopkins auditory rehabilitation specialist **Kristin Ceh**, not everyone has the time or money to receive training on a regular basis. That’s why he’s guiding undergraduates in his lab to develop Speech Banana, an app that provides auditory training for adults after cochlear implant surgery. The app is currently available free on iTunes and continues to be improved.

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.

Desai, 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.



Heather Weinreich

Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center.



Jonathan Walsh

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.



Leah Leinbach

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.
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HeadLines

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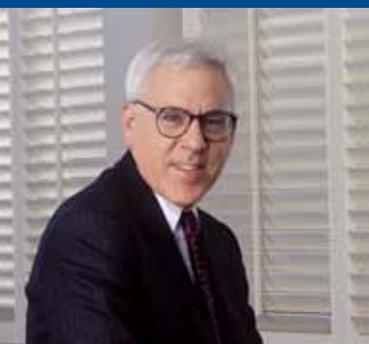
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