



 Washington
University in St. Louis
SCHOOL OF MEDICINE

National Leaders

*Improving Lives Through Innovation,
Education and Advanced Care*

DEPARTMENT OF OTOLARYNGOLOGY— HEAD & NECK SURGERY ►



Improving patients' lives

Dedicated to excellence and innovation, the Department of Otolaryngology at Washington University School of Medicine is recognized as a national leader in cutting-edge research, while training the future leaders of otolaryngology, and providing the most advanced, personalized patient care possible.

We are privileged to

- › rank #10 Ear, Nose, & Throat Hospitals by US News
- › rank #2 in the number of NIH RO1 Awards.
- › draw patients from around the world.
- › attract the best and brightest trainees and physician-scientists across the



Craig Buchman, Lindburg Professor and Chair
Department of Otolaryngology—Head and Neck Surgery

DEPARTMENT OF OTOLARYNGOLOGY— Washington University School of Medicine



Research to improve lives today and tomorrow

Improving patients' lives requires dedicated research to identify and translate drugs, devices and other approaches into promising therapies to help people. This is what our department is all about.

Engaging experts across disciplines drives the most effective care

Intentional collaboration among experts produces the best results for patients. To treat people affected by the most challenging diseases and disorders, we are uniquely structured to engage the deep experience and innovative ideas of multiple doctors

across disciplines—as many as 40 experts at once—to bring forth the best care for each patient.

Training the next generation of leaders in otolaryngology

With a long history of producing academic leaders, including nearly two dozen department chairs around the world, our program provides rigorous training in clinical care and research in one of the country's largest academic medical centers. Importantly, our program develops leaders across the breadth of our field.



Leading-edge, individualized treatment

We are leaders across the spectrum of otolaryngology care, providing our patients with life-changing clinical trials and therapies that are among the most advanced, enabling faster recoveries and better quality of life.

Clinical trials to advance care

We are committed to discovering the most advanced and effective treatments for our patients. Clinical trials enable us to open the door to innovations that would otherwise be unavailable to patients dealing with debilitating conditions.

OUR CLINICAL TRIALS include studies to:

- › Identify the drivers and best treatments for cancers of the head, neck and throat
- › Restore hearing for patients with a variety of disorders
- › Assess and restore smell for patients with anosmia
- › Prevent noise-induced hearing loss
- › Improve fine motor control and balance associated with neurological disorders



Historic firsts

Our teams manage the most complex cases and introduce some of the most impactful surgeries and treatments available in the world.

Our surgeons recently made history when they completed the first monitored case to restore hearing in patients with acoustic neuromas, or benign tumors on the auditory nerve. This clinical trial is only available at Washington University.

Personalized multidisciplinary care

Our unique approach is efficient for patients and empowers us to provide the best care:

- › Instead of meeting with each expert at different times and places, patients discuss treatment options with a team of physicians at one time, in one location.
- › Weekly tumor board meetings, with up to 40 Washington University specialists, determine each individual patient's optimal treatment plan.



Most advanced technologies, treatments and approaches

OUR PHYSICIANS are among the first in the country to introduce and offer new life-changing technologies:

- › Historic first: restoring hearing in patients with acoustic neuromas
- › Use of a single port robotic surgery for tumors of the throat
- › CareOrbit, an online platform for patients and caregivers to navigate their cancer care
- › Inspire hypoglossal nerve stimulator to treat sleep apnea
- › Clinical trial for innovative drug treatments for recurrent respiratory papillomatosis
- › Expanded indications for cochlear implantation in adults
- › New surgery to treat chronic cough
- › Sialoendoscopy, a minimally invasive treatment for salivary gland stones and disorders
- › Expanded endonasal surgery for minimally invasive removal of skull base tumors through the nose

Specialties

HEAD & NECK CANCER

Personalized, advanced care for a variety of malignancies arising from the mouth, throat, sinuses, thyroid, salivary glands and skin of the face and neck. We have been treating patients with cancer for more than 60 years.



EAR, HEARING AND BALANCE

Offering the latest technologies to treat disorders of the ear, hearing and balance. Among many complex procedures, our department completes more than 300 cochlear implants annually.



SKULL BASE SURGERY

Multidisciplinary approach to removing tumors such as acoustic neuromas and pituitary tumors. Using the most advanced techniques and tools, our program focuses on restorative interventions and technologies to minimize patient morbidity and improve quality of life.



The care has been 100% on target, and the best anyone could get.

— Joe Koenig, head and neck cancer survivor and president World Wide Technology, St. Louis.

FACIAL PLASTIC & RECONSTRUCTIVE SURGERY

Offering a full range of cosmetic procedures as well as advanced reconstructive options that include tissue transfers for cancers, trauma, and congenital conditions.



VOICE, AIRWAY & SWALLOWING

Providing tailored treatments for patients with laryngeal diseases including awake procedures, microsurgical approaches, and neural restoration for laryngeal paralysis.



NOSE & SINUS DISEASE

Offering a full range of medical and surgical treatments for the diagnosis and management of common and complex sinonasal diseases.



PEDIATRIC ENT

Providing state-of-the-art, multidisciplinary care for children with a variety of disorders of the ear, nose, throat, head and neck.



GENERAL OTOLARYNGOLOGY

Providing care for patients with a variety of conditions including tinnitus, vertigo, nasal disease, salivary and thyroid disorders.



SLEEP

Care for sleep apnea and other sleep disorders.



Improving lives through world-class research

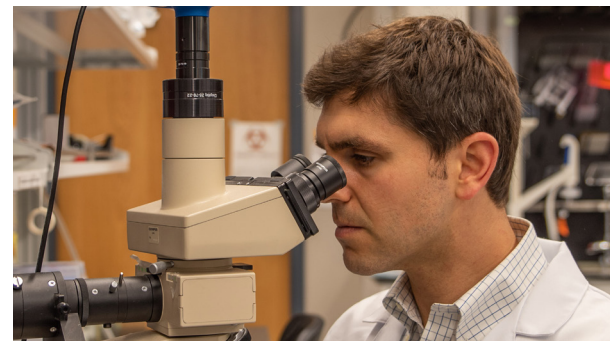
The Department of Otolaryngology is among the largest and most heavily funded otolaryngology research groups in the country, consistently ranking among the top five nationally in NIH funding.

We continue to produce medical breakthroughs in the treatment of ear, nose and throat disorders and head and neck cancer care. With some of the world's most talented researchers, clinician-scientists and research administrators, and NIH funding that places us among the top nine ENT departments across the U.S., we continue to be in a position to lead research innovation for many years to come.

Bringing therapies from research bench to bedside requires our coordination and strong relationships

with partners including including the U.S. Food and Drug Administration (FDA), the National Institutes of Health (NIH), the Department of Defense (DOD), and experts in multiple disciplines at Washington University and other leading institutions around the globe.

With the support of our own Clinical Outcomes Research office, we are currently managing more than 150 human research projects to improve patient care.



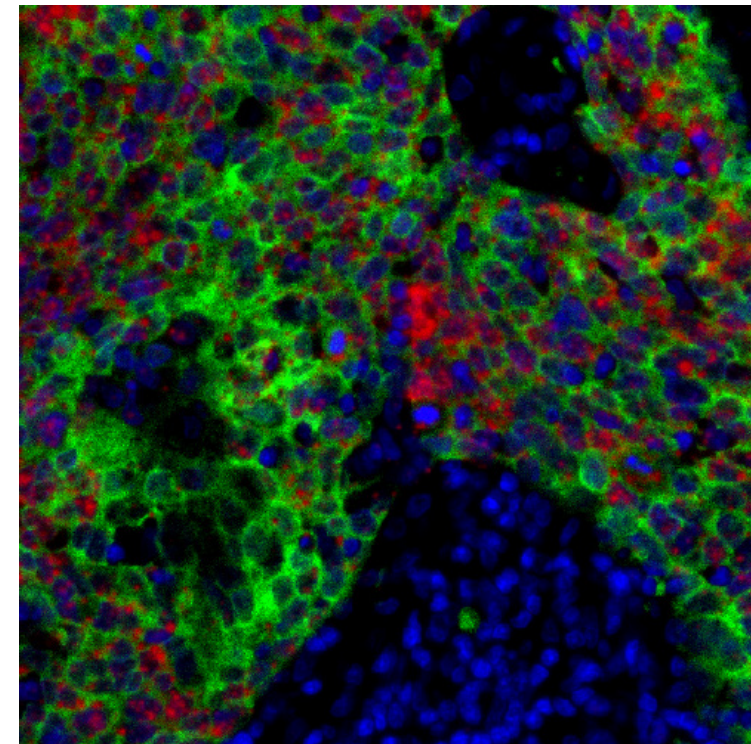
\$10.5 M
in RESEARCH
funding



federally funded
PROJECTS



22 projects funded
by FOUNDATIONS and INDUSTRY



The volume and quality of research being conducted in our department is a real source of pride for all of us. Our efforts are helping to advance the field of otolaryngology while improving patient care now and into the future.

—Craig Buchman, MD, Lindburg Professor and Chair,
Department of Otolaryngology



NEW RESEARCH IN THE LAB of Sid Puram, MD, PhD, specifically focuses on head and tumors driven by Human Papilloma Virus (HPV). Decades of research has confirmed that these HPV+ head and neck cancers, which typically arise in non-smokers and non-drinkers, are driven by a distinct series of biological pathways compared to HPV- tumors which are associated with smoking and drinking. Although HPV+ tumors have more favorable outcomes, a subset of patients still experience recurrence and metastasis. Using single cell sequencing, Puram and his team uncovered remarkable heterogeneity in HPV+ tumors that might explain this mystery:

- › Within an individual tumor, HPV+ malignant cells have some cells that express viral genes, (termed HPVon), while other do not (called HPVoff).
- › HPV on cells are more responsive to chemotherapy and radiation, while HPVoff cells are more invasive. **repairing damaged hair cells.**
- › HPV+ tumors with more HPVoff cells are more likely to recur, resulting in poor outcomes.
- › Epigenetic drugs may provide a switch to move cells between HPVon and HPVoff, thereby making tumors more responsive to existing treatment.

Research powerhouse

Ours is one of the most comprehensive otolaryngology research programs in the country.

COCHLEAR IMPLANTS

in asymmetric and single-sided hearing loss

(Jill Firszt, PhD & Matt Shew, MD.)

QUALITY OF LIFE

related to hearing loss

(Judith Lieu, MD, MSPH)

FIRST-EVER DRUG

for the prevention of hearing loss and tinnitus

(Mark Rutherford, PhD)

ELECTROPHYSIOLOGIC

signatures of cochlear health and disease

(Craig Buchman, MD, Amanda Ortmann, PhD, & Cameron Wick, MD)

CEREBELLUM

in vestibular control

(Tatyana Yakusheva, PhD)

HEARING AID

experience in cochlear implant performance

(Lisa Davidson, PhD)

CANCER PROTEOMICS

efforts to identify protein signatures specific to different types of cancers

(Paul Zolkind, MD & Ben Major, PhD)

TUMOR GENETIC

underpinnings of head and neck cancer

(Sid Puram, MD, PhD)

LISTENING THERAPY

for people with hearing loss

(Nancy Tye-Murray, PhD)

FUNGAL SINUSITIS

underpinnings of head and neck cancer

(Sid Puram, MD, PhD & Paul Zolkind, MD & Lauren Roland, MD)

TUMOR IMMUNOLOGY

(Guangyong Peng, MD, PhD & Alex Harbison, MD, & Xia Liu, PhD)

MEDICAL THERAPY

medical therapy for anosmia recovery

(Jay Piccirillo, MD & Nyssa Farrell, MD & Lauren Roland, MD)

INNER EAR

regeneration for hearing restoration

(Jinkyung Kim, PhD)

INFLAMMATORY

responses of inner ear to surgery

(Keiko Hirose, MD)

LINKS BETWEEN

inner ear disorders and Alzheimers

(Mark Warchol, PhD)

STEM CELL IMPLANTS

to restore vocal cords

(Randal Paniello, MD, PhD)

Changing the landscape of head and neck cancer through paradigm shifting research

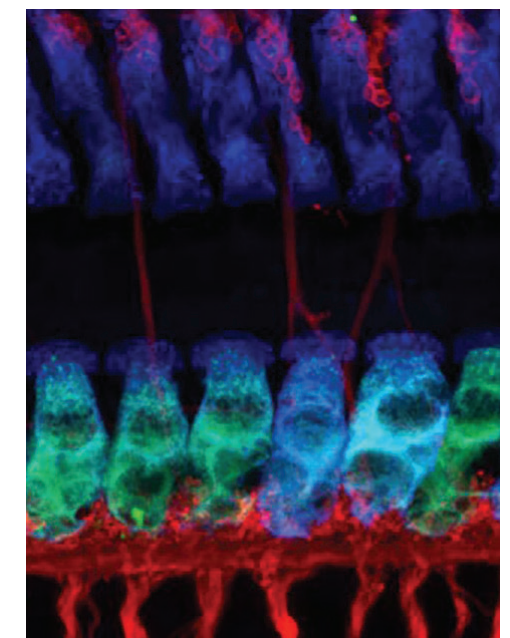
The Head and Neck Surgery Division in the Department of Otolaryngology, consisting of eight investigators, is among the most comprehensive and well-funded research groups in the country, consistently producing numerous contributions to basic, translational, and clinical research.

“The sheer diversity of our interests in head and neck research ranges from the individual single cells of a tumor up to societal disparities in cancer treatment, representing an incredible array of transformative research efforts. We are trying to cure head and neck cancer, plain and simple, but it requires the enthusiasm of our physicians and researchers paired with community engagement and philanthropic support to achieve this vision.”

Chemical “ earmuffs ” to prevent hearing loss

Once you start to lose your hearing, you can’t get it back. But what if you could prevent hearing loss by blocking, in advance, the effects of loud noises?

The lab of Mark Rutherford, PhD, has contributed to innovative studies that show noise-induced hearing loss can be prevented, if a unique receptor is blocked. Compared with “putting earmuffs on” to protect the ear, a drug, when injected into the cochlea, can prevent hearing damage caused by loud noises.

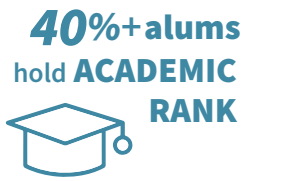
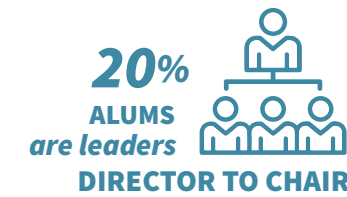


We are on a mission to cure head and neck cancer.

— Sid Puram, MD, PHD

The highlight of my residency has been working with a such a dedicated and talented group of residents and faculty and the relationships I've formed with all these mentors and colleagues.

— Zachary Douglas, MD



Nationally recognized residency programs

With a long history of producing academic leaders, our program provides rigorous training in a collegial, supportive environment. We offer a balance of clinical and research training, enhanced by a large diverse patient population, leading-edge technology and an accessible faculty dedicated to trainees' success.

This five-year program prepares highly skilled physicians with mastery in clinical and surgical patient care across every subspecialty within otolaryngology. In addition, research experience provides exposure to scientific principles of investigation as a foundation to the practice of evidence-based medicine.

Preparing physician-scientists to advance the future of medicine

Ours is one of *only few programs in the country* that offers the R25 grant & T32 grant support for interdisciplinary research training in otolaryngology. This gives select residents an additional two years of dedicated research training, above and beyond their five years of clinical training.

Why do we draw the best?

- › Comprehensive clinical training in a department with deep expertise in every subspecialty
- › High-volume, cutting-edge clinical care including complex surgeries (free flaps, endoscopic skull base, cochlear implants, and more)
- › Technology-rich environment
- › Multidisciplinary teams solving difficult, multifaceted treatment decisions
- › Well-funded research programs to improve patients' lives
- › State-of-the-art surgical simulation facility for learning with our world-class faculty
- › Early autonomy in clinical decision-making with supportive oversight

- › Translatable experience in rotations outside of the specialty
- › Warm, collegial and inclusive culture



There are routinely scheduled anatomy courses, early operative opportunities, and a wealth of faculty support. We provide care for a diverse patient population and a variety of diseases.

— Ethan Craig, MD, MPH

Alumni become leaders in the field

Our mission to *Improve Patients' Lives by Leading our Advancing Field* starts with training the next generation of leaders. Here are just a few of our many alumni leaders.



NICHOLAS CASSISI ('71), MD, DDS,
Chairman Emeritus, Head and Neck
Oncologic Surgery, University of Florida



MARVIN P. FRIED ('75), MD,
Professor, University Chairman Emeritus,
Department of Otorhinolaryngology-Head
and Neck Surgery, Montefiore Medical
Center/Albert Einstein College of Medicine



ELLIS M. ARJMAND ('93), MD, PhD,
Surgeon-in-Chief, Children's Hospital
of New Orleans



ERIC M. GENDEN ('98), MD, MHCA, FACS,
Professor & Chair, Otolaryngology,
Icahn School of Medicine at Mount Sinai



JUDITH E.C. LIEU ('98), MD, MPHS,
Professor and Director of Resident
Education Program, Otolaryngology-Head
and Neck Surgery, Washington University



RAVINDRA UPPALURI ('00), MD, PhD, FACS
Chief, Division of Otolaryngology,
Distinguished Chair in Otolaryngology,
Brigham and Women's Hospital; Chief,
Head and Neck Surgical Oncology,
Associate Professor of Otolaryngology,
Harvard Medical School



JOSEPH PAYDARFAR ('01), MD,
Chief, Otolaryngology, Audiology,
Maxillofacial Surgery at Dartmouth-
Hitchcock; Adjunct Associate Professor
of Engineering, Dartmouth



URJEET A. PATEL ('02), MD,
Associate Professor, Feinberg School
of Medicine, Northwestern University;
Chairman, Division of Otolaryngology-
Head and Neck, Cook County Health
and Hospitals System



JOHN B. SUNWOO ('03), MD,
Sewall Professor, Director of Head
and Neck Cancer Research, Stanford
University



M. ALLISON OGDEN ('07), MD, FACS,
Associate Professor and Vice Chair for
Clinical Operations, Otolaryngology-Head
& Neck Surgery, Washington University



CLINT T. ALLEN ('12), MD,
Principal Investigator, Section on
Translational Tumor Immunology at the
National Institute on Deafness and Other
Communication Disorders at the National
Institutes of Health.



EVAN GRABOYES, ('16), MD, MPH, FACS
Associate Professor in the Departments
of Otolaryngology-Head & Neck Surgery
and Public Health Sciences at the Medical
University of South Carolina.





 **Washington**
University in St. Louis
SCHOOL OF MEDICINE

ADMINISTRATION

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