



UNC

DEPARTMENT OF OTOLARYNGOLOGY/
HEAD AND NECK SURGERY

HEADS

Up

SPRING 2013 • VOL. 16 • ISSUE 1

Tar Heels Team Up

By Craig Buchman, Meg Dillon, and Joseph Templeton



IT TAKES A VILLAGE: The EAS Investigative Team - English King, AuD, Meg Dillon, AuD, Oliver Adunka, MD, Joseph Templeton, PhD, Craig Buchman, MD and Harold Pillsbury, MD. Not pictured, Marcia Clark Adunka, AuD and Ellen Pearce, AuD.

UNC-Chapel Hill Professor of Chemistry, Joseph Templeton, PhD, writes:

"It's spring of 2008, a time when the prospect of boisterous committee meetings, chatty receptions, and stimulating dinner parties fills me with dread. As chair of the faculty at UNC-Chapel Hill such events are splattered all over my calendar. Only those who can't hear understand the debilitating awkwardness of profound hearing loss.

In the early summer of that same year, Dr. Craig Buchman surgically implanted an EAS cochlear device in my skull; he did an admirable job. After I awoke from the anesthesia, he quipped, "Joe, I never had so much room to work before in my life."

The first months were sequentially quiet, disappointing, and challenging before I realized dramatically improved hearing. Ultimately the investment of time, money and emotional energy was tremendously

rewarding for both Claudia and me. My ability to hear and to function in a variety of environments both at work and at home improved every month as my device was tuned and my brain was trained. From the first quiet month as the device was settling in to its new home in my head to the second month of racket that was disturbing and strange to the third month when I was encouraged by an awareness of the sound

of an "s" for the first time in years, the monthly visits to find the correct settings for my processor were always steps toward improved hearing. Within six months I was functioning better than I had done for years. The improvement was evident to the people I saw often,



TINY WORLD: An electrode used for a simulated cochlear implantation was fixed in place in this whole-mount preparation of a gerbil cochlea.

TEAM continued on page 3

IN THIS ISSUE

Tar Heels Team Up • UNC Temporal Bone Lab • ENT Kaizen Event
Triological Society Meeting 2013 • OHNS Announcements

Upcoming EVENTS



Great Human Race

SATURDAY, APRIL 6, 2013

7:00 a.m. for runners

8:00 a.m. for walkers

Northgate Mall, Durham

Donate, see course map & register at go.unc.edu/Sj25X



Sounds of Celebration: UNC Cochlear Implant Patient Picnic

SATURDAY, APRIL 27, 2013

11:00 a.m.-2:00 p.m.

UNC-CH Campus, Kenan-Flagler
Business School Courtyard

Please register at go.unc.edu/n3PZz



First Annual CASTLE Golf Tournament

MONDAY, MAY 13, 2013

9:30 a.m. - Arrival/Set-Up/Registration

11:00 a.m. - Tournament Shotgun

3:30 p.m. - Awards Reception

Cardinal Country Club, Greensboro

Please register at go.unc.edu/m5FSw



Newton D. Fischer Society Meeting

SATURDAY, JUNE 1, 2013

Registration 7:30 a.m.

Meeting begins at 8:00 a.m.

CHIEF'S RESIDENT DINNER
SATURDAY, JUNE 1, 2013 6:30 p.m.

GOLF OUTING
SUNDAY, JUNE 2, 2013

Chair's Corner



Harold C. Pillsbury, MD
Professor and Chair

This issue of Heads Up really solidifies the concept of team effort in our department. Specifically in the hearing care management and research agendas, we have totally integrated our efforts in terms of Otolaryngology, Speech & Hearing, and Auditory Research. The article on Joe Templeton is the end stage of all of our efforts in that we aspire to deliver the best results of our research and clinical organization to the care of the patient. We can see

where we discussed the clinical trial of electroacoustic stimulation which was the investigation that led to the opportunity to implant a cochlear implant in Joe Templeton. Ultimately, this optimized his potential for hearing both with his natural hearing and his cochlear implant.

In addition, we have the piece of the multidisciplinary surgical dissection lab which has been a tremendous asset to not only our department but in the departments of Ophthalmology and Neurosurgery.

The Kaizen project which presents a reorganization of our clinic space was really a tremendous project to operationalize our clinic's opportunity to be efficient in the management of the patient.

Finally, there is no better exemplification of our outreach than Dr. Carol Shores' efforts in Malawi where she has helped to train and certify surgeons in a country which so desperately needs them.

I hope you enjoy this issue and I hope to hear from you if you would like to visit us at any point.

Department of Otolaryngology/ Head & Neck Surgery

Campus Box 7070

Chapel Hill, NC 27599-7070

Appointments: (919) 966.6483 or 966.3325

OHNS Clinic, UNC Hospitals: (919) 966.6484

OHNS Clinic, Carolina Crossing: (919) 490.3280

Administrative Office: (919) 966.3342

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med.unc.edu/ent

Spring 2013 Heads Up is designed and edited by Nicolette DeGroot.
Images on cover and page 3 by Nicolette. Images on page 5 by Tom Fuldner.

TEAM *continued from cover*

and perhaps more importantly, new acquaintances were not aware of my decades of hearing difficulties.

Today I continue to work as a faculty member at the University of North Carolina, teaching, guiding graduate student research projects, and serving in various administrative roles. Every day I recognize that I am fortunate to be a battery-powered automaton, at least in all the arenas where sound is important. My cochlear implant makes it possible for me to perform my duties as a lecturer or a committee member normally, capabilities that I had lost before the surgery four years ago. Verbal communications fix our comfort level in most social settings, and the same is true in most work environments. The range of sounds that my processor passes along to my brain every day has reawakened me to opportunities that had been lost to me."

HEARING LOSS: THE PROBLEM

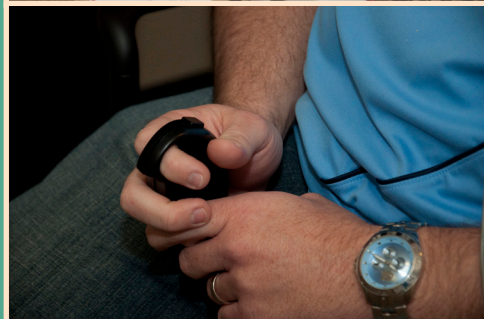
Joe Templeton is a Tar Heel and is one of our own.

Before being treated for his hearing loss, the "dread" he recounts is an emotion that resonates well with others

afflicted with the condition and is all too familiar to those of us that treat hearing loss patients every day. Loss of hearing, while invisible, severely affects a person's ability to detect environmental sounds, thereby resulting in impaired speech understanding and communication abilities. For patients like Joe, untreated hearing loss negatively impacts upon daily performance in education, employment and social functioning. This can lead to frustration, anxiety, depression, and in the worst of cases social isolation and loss of employment.

THIS IS NOT JUST A TEST:

Audiologist Meg Dillon tests the hearing of an auditory research patient in the soundbooth at the new ENT clinic, Carolina Crossing.



THE PROGRAM

At UNC, the Ear & Hearing Programs have the mission of preserving or restoring hearing for all of those in need. Teams of physicians, audiologists, speech pathologists and scientists have partnered with motivated patients like Joe in an attempt to solve or alleviate hearing disorders and its detrimental effects. Innovation through research into normal hearing mechanisms, inner ear disorders, hearing aids, and auditory implants including cochlear and brainstem implants is ongoing at UNC every day to meet our goals.

THE SOLUTION

Hearing restoration through cochlear implantation is a passion for us at UNC; one of the largest centers of its kind in the world. Last year alone, 250 cochlear implants were placed in both adults and children at UNC. Following a 60-90 minute outpatient surgical procedure to place a device that provides electrical stimulation to the auditory nerve, an external speech processor is provided to detect and code the sound for the internal device. For deaf patients, the cochlear implant can provide sound detection that is good enough to talk on the phone for nearly 75% of recipients.

THE RESEARCH

More recently, cochlear implants are being tested in patients that have more native hearing (i.e. hard of hearing). These patients use the combination of a hearing aid and a cochlear implant in the same ear to potentially gain even greater benefits like improved hearing in noise and music appreciation. A variety of the laboratories at UNC are working hard to understand the many processes needed to optimize the combined stimulation.

TEAM *continued on next page*

TEAM *continued*

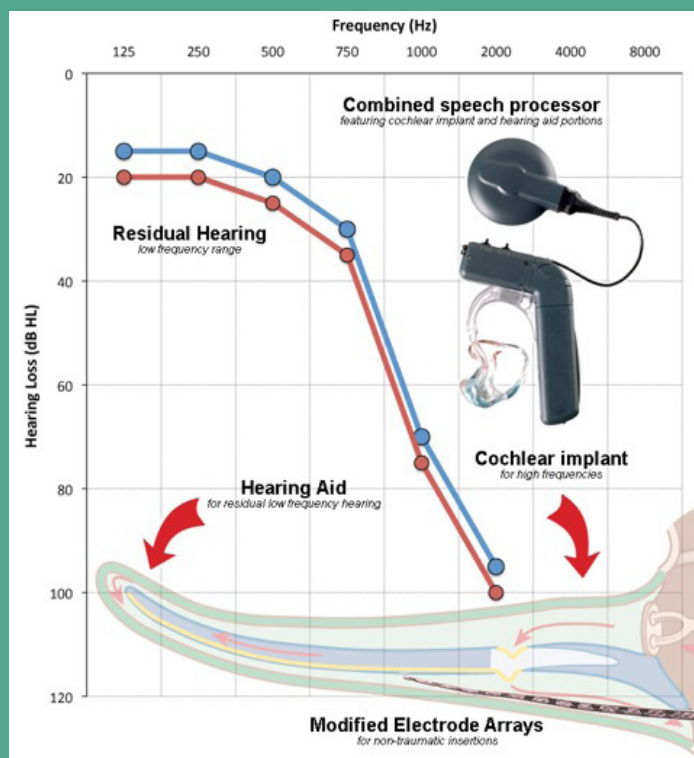
The Technology and Clinical Trial

To maintain the native hearing in a cochlear implant ear requires special surgery and special devices. In 2006, UNC partnered with Med EL Corporation in Durham to initiate a clinical trial to investigate the feasibility and effectiveness of combining a cochlear implant and a hearing aid for use in the same ear. This was termed Electric-Acoustic Stimulation (EAS). In this trial, a short electrode is inserted into the high frequency region of the cochlea using special surgical techniques. An external speech processor containing both a hearing aid and cochlear implant is programmed to provide acoustic stimulation in the low-to-mid pitches and electric stimulation in the mid-to-high frequency areas.

Since 2006, over 30 patients have undergone EAS implantation at UNC and have experienced higher levels of performance in both quiet and noise than those previously seen in our cochlear implant population. Recipients also report improvements in quality of life such as communication with loved ones, ability to understand speech in noisy situations and better phone understanding and music appreciation. These results have been truly remarkable for us to see.

The Success

Joe's story and our research results are validating for those of us at the UNC Ear & Hearing Center. It provides us with a glimpse into the success of our concerted effort to solve the problems of hearing loss through the combination of science, technology and people. Because medical research comes without guarantees, we at UNC owe a debt of gratitude to the many brave clinical trial patients like Joe Templeton who have put their trust in our team in hopes of improving their quality of life. We feel privileged to have been a part of their journey.



UNC Ear & Hearing Center

Director: Craig Buchman MD

Department of Otolaryngology-Head & Neck Surgery

Surgeons Craig Buchman, Oliver Adunka, Harold Pillsbury, Carlton Zdanski; **Audiologists** Meg Dillon, Deborah Hatch, Lisa Park, Ellen Pearce, Patricia Roush, Holly FB Teagle, Jennifer Woodard; **Speech Pathologists** Hannah Eskridge, Maegan Evans, Sandra Hancock, Lillian Henderson, Erin Thompson; **Auditory Research** Emily Buss, Doug Fitzpatrick, Joseph Hall, Shuman He, John Grose, Paul Manis.

UNC Health Care

Audiologists Marcia Adunka, Angela Byrd, Genevieve Davitt, Nissele Franco, Mark Haythorn, English King, Corinne Macpherson, Sarah Martinho, Ellen Pearce, Patricia S. Reitz, Jill Ritch.

PLEASE CONSIDER MAKING A GIFT TO THE DEPARTMENT!



Leslie H. Nelson
Director of Development

In the present health care environment, clinical income and federal grants are no longer adequate to meet the overall mission of our Department. Additional private and corporate funds are needed to ensure our future growth. Private gifts allow us to continue making research breakthroughs that form the foundation of new and improved methods of patient care. They also make it possible for us to attract and retain the best teachers, clinicians and promising scientists to train future surgeons.

There are many giving options available to support the efforts of our Department. Please contact our Director of Development for more information on how you can help.

Leslie H. Nelson

The Medical Foundation of North Carolina
880 MLK Jr. Boulevard, Chapel Hill, NC 27514
(919) 843.5734 | Leslie_Nelson@med.unc.edu

UNC School of Medicine RECEIVES GIFT

By Stephanie Crayton, MS

Media Relations/Broadcast Manager, UNC Health Care

The University of North Carolina School of Medicine received a \$1 million gift from The North Carolina Eye Bank (NCEB) to establish a unique and innovative multidisciplinary surgical skills lab.

The gift to the Department of Ophthalmology will be shared among three neurosciences departments: Ophthalmology, Neurosurgery, and Otolaryngology/Head and Neck Surgery. The newly created laboratory, the only of its kind in the region, provides state-of-the-art surgical training opportunities to medical students, residents, fellows and physicians across the state.

"Training future generations of eye surgeons to serve the people of North Carolina is one of our top priorities at UNC Eye," said Donald L. Budenz, MD, MPH, Professor and Chair of Ophthalmology. "The new surgical training center will greatly enhance our educational mission by providing our residents with a state of the art facility where they can practice and learn from our world-class surgeons."

On January 16, 2013, chairs of the departments officially opened The North Carolina Eye Bank Multidisciplinary Surgical Skills Laboratory at UNC with a ribbon-cutting ceremony. "This laboratory is dedicated to the thousands of North Carolinians who unselfishly provided the gift of sight that others may see again. We are proud to partner with The University of North Carolina School of Medicine in this endeavor," said Dean Vavra, MS, CEBT, Executive Director of The North Carolina Eye Bank, Inc.

The multidisciplinary surgical skills and biometrics laboratory, located on the UNC campus, occupies 3,500 square feet

with 19 stations; a 50-person conference room; and an 800-square foot simulation lab with access to high fidelity simulators such as robotic stations and anatomic computer based simulators. The simulators allow controlled proctoring and progressive educational scoring of surgical skills.

"The extremely generous gift from the North Carolina Eye Bank to fund the laboratory is a huge shot in the arm for the UNC Health Care System," said Harold C. Pillsbury III, MD, Thomas J. Dark Distinguished Professor and Chair of the Department of Otolaryngology/Head and Neck Surgery. "The opportunity to educate residents, faculty, and community physicians in this facility will create a state of the art opportunity for all students and physicians in North Carolina."

The lab also houses three full body surgical stations and 16 cadaveric head or skull surgical stations that will allow didactic, simulation and cadaveric based surgical education in eye, ear and neurosurgery. "This (gift) is a transformative investment in the training of ophthalmologists, neurosurgeons, and ENT surgeons," said Matthew Ewend, MD, Van

L. Weatherspoon, Jr. Eminent Distinguished Professor and Chair of the UNC Department of Neurosurgery. "Patients can expect that the physicians of North Carolina who take advantage of this training lab will be armed with the best and newest techniques. Surgeons-in-training can expect to practice and master their crafts in the lab prior to entering the operating room. This lab is the future of ophthalmologic and surgical training."



NOW OPEN: UNC Health Care Dean, William Roper, MD; UNC Ophthalmology Chair, Donald Budenz, MD; UNC Neurosurgery Chair, Matthew Ewend, MD; UNC Otolaryngology Chair, Harold Pillsbury, MD; UNC Ophthalmology Associate Professor, Craig Fowler, MD; NC Eye Bank Board Chairman, Bailey Liipfert, JD; and NC Eye Bank Executive Director, Dean Vavra, MS, CEBT.

The entire facility is wired for telecommunications with both high definition video and audio, operative microscopes, powered instrumentation, operating rooms and distance education and web-based sources. This telecommunication will provide both distance based and surgical simulation based learning to medical students, residents, fellows and current physicians of North Carolina.



The Team That Scraps Together STICKS TOGETHER!

The ENT Department participated in a Lean Six Sigma Kaizen project during January 23-28. The UNC Health Care Department of Operational Efficiency deploys these projects, and ENT now has two leaner and cleaner utility spaces in its Neurosciences Clinic.

What is Lean Six Sigma?

The vision at UNC Health Care is to be the Nation's leading public academic health care system. Lean Six Sigma (LSS) is set of complementary methodologies to improve how we lead, teach and care.

While Lean focuses on speed, elimination of waste, standardization, and flexibility/responsiveness, Six Sigma seeks to verify root causes of current performance and to examine and eliminate variation. Both seek to continually improve the quality of care we deliver to our patients. In a phrase, Get rid of what you don't need and improve what's left!

The goal of the LSS deployment at UNC Health Care is to have all employees trained as Yellow Belts – those who can assist with improvement projects. All employees with interest and aptitude are encouraged to pursue further training to become Purple Belts (who focus on Lean projects), Green Belts (who focus on Six Sigma projects) and Blue Belts (manager-level and above who sponsor projects). An LSS organization should have approximately one Black Belt (improvement coach) for every 100 employees.

Over the course of three days, and the event being interrupted by adverse weather, the Yellow and Blue Teams rolled up their sleeves and pitched in together to upgrade and standardize two outmoded and under-utilized utility rooms in the clinic.



Before and After of Medication Room (Blue Team)

Yellow Team

- Team Yellow successfully satisfied the initial game plan for the Clean Utility Room:
- Removed all un-needed supplies
- Re-located carts to more appropriate location

- Removed superfluous equipment: broken equipment, 2 full size refrigerators, scope box to room location (closer to provider and patient)
- Installed lock on allergy room door to store COWs as needed (closer for residents to access)
- Identified Red Tag categories
- Finalized organizational method and set
- Determined labeling methodology
- 5S (Sort, Shine, Set, Standardize, Sustain) Area
- Visual Management

Blue Team

- Team Blue successfully satisfied the initial game plan for the Medication Room:
- Removed all un-needed items
- Moved regular meds to right of room (easier access)
- Moved samples to left
- Moved oral meds above sink
- Removed file cabinet/and added med refrigerator
- Removed 2 bulletin boards
- Labeled/Color coded cabinets
- Removed coat hooks (unneeded)
- Removed IV poles
- Discarded un-needed binders
- Removed thermometer
- Removed Large Sharps container and replaced with smaller sharps container
- Moved Key (closer location for RNs)
- 5S (Sort, Shine, Set, Standardize, Sustain) Area
- Visual Management

Before & After Clean Utility Supply Room (Yellow Team)



45 Day Plan

- Reorganize surgical supplies with resident assistance
- Store stock cart under shelving under inject and collection
- Organize & store tray kits (Biopsy, Ear, INA, etc.)
- Revisit labeling for surgical supplies/organization
- Create resident 'tackle box' for quickly needed items
- Move Lead mirrors and tuning forks to another location
- Refill a throwaway pamphlets that were in file cabinet
- Order clear trays for Meds for visibility
- Train staff on new layout

LEAN SIX SIGMA MEASURABLE RESULTS	
Space (work surface)	
Med Prep Area	Added 6.5 square feet of counter space
Space (Occupy able)	
Clean Supply Room	Added 30 square feet
Medication Room	Added 7 square feet
Cost Savings	
Cost Center Credit	\$1100 of inventory returned from Clean Supply Room
PAR Level Adjustments	Item PAR reduced for decrease cost on hand (future)
Time Studies	
Clean Supply Room Layout	Average -76 seconds per occasion to find needed supplies
Medication Room Layout	Average -30 seconds per occasion to find needed medications



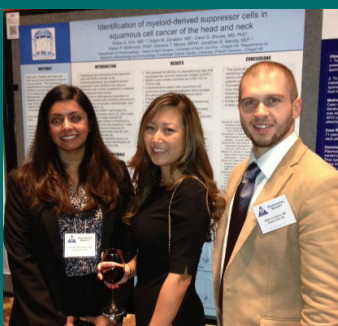
TRIOLOGICAL SOCIETY MEETING 2013

The 2013 Triological Society Meeting in Scottsdale, Arizona was attended by residents **Drs. Grace Kim** and **Gita Madan**, and attendings **Drs. Harold Pillsbury, William Shockley, Brent Senior, and Adam Zanation**. Dr. Shockley serves on the Triological Program Planning and Advisory Committee. Dr. Pillsbury serves as Assistant Executive Secretary as an Executive Officer of the Council.

Dr. Shockley was also a panelist for the Functional Rhinoplasty in the 21st Century session, "Functional Implications of the Tension Non-Deformity."

Dr. Brent Senior served as moderator, and **Dr. Adam Zanation** as a panelist for the Sinonasal Malignancies: State of the Art in Management Session.

Dr. Adam Zanation moderated the Nasoseptal Flap for Endoscopic Skull Base Surgery talk under the "How I Do It: Not When and Why, Just How" video session.



by **Drs. Gita Madan, Grace Kim, Charles Ebert, and Adam Zanation**, and *Identification of Myeloid Derived Suppressor Cells in Squamous Cell Cancer of the Head and Neck* by **Drs. Grace Kim, Adam Zanation, and Carol Shores**.

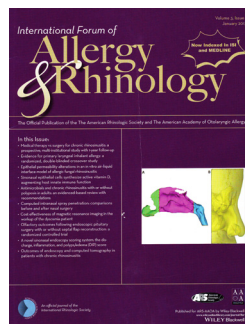
Two posters were presented by the department: *Hybrid Balloon Frontal Sinus Surgery in the Endoscopic Treatment of CRS with Variant Frontal Sinus Anatomy*

OHNS Announcements

The department was well represented at the North American Skull Base Society Meeting held February 15-17, 2013 Miami, Florida. Oral presentations were presented by **Drs. Adam Zanation, Mihir Patel, Cristine Klatt-Cromwell** and **Grace Kim**.

Poster presentations were presented by **Dr. Gita Madan** and medical students including **Emily Cohn** and **Vishal Dhandha**.

An image created for a manuscript by rhinology post-doctoral fellow, **Dennis Frank, PhD** and his team graced the front page of the January 2013 issue of *Allergy and Rhinology*. The illustration represents a sagittal view of a computer reconstruction in an obstructed nasal airway demonstrating different zones identified for particle deposition.



Dr. Shuman He was awarded an NIH R03 grant. The grant will start from April 1 and will be \$456,000 with \$300,000 for the direct cost and \$156,000 for the indirect cost. The R03 grant is for three years.

Dr. Craig Buchman was a Visiting Professor at the Department of Otorhinolaryngology, University of Pennsylvania, Philadelphia, PA, Nov 28-29, 2012.

Dr. Buchman was also Visiting Professor at the Department of Otolaryngology, University of Virginia, Charlottesville, VA Nov 14-15, 2012.

Dr. Buchman was elected Chair of Implantable Devices Committee for the AAO-HNS.

Malawi Surgical Initiative Kamuzu Central Hospital surgery residents passed the oral Membership of the College of Surgeons (MCS) exams at the College of Surgeons of East, Central and Southern Africa (COSECSA) meeting in Addis Ababa in December. Twenty-

one candidates from the 9 country area took the MCS exam and 18 passed, so that our program represented one third of the examinees who completed COSECSA MCS requirements this year. (Left to right: Boston Munthali, Chifundo Kajombo, Judith Mkwaila, Gift Mulima, Enock Ludzu and Kumbukani Manda.)



Dr. Carlton Zdanski was selected to be a Castle Connolly Medical Ltd "Top Doctor for Clinical Excellence" in Central Carolina.

Dr. Zdanski was also selected by his peers to be in the Best Doctors in America 2013.



A TRUE EAR NERD: *Dr. Meg Dillon created a fun way to remember cochlear implant technology terms using magnetic Scrabble letters in her new Carolina Crossing office.*



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HEAD AND NECK SURGERY

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Craig A. Buchman, MD, FACS, Vice Chair for Clinical Affairs, Harold C. Pillsbury Distinguished Professor of Otolaryngology/Head and Neck Surgery
Brent A. Senior, MD, FACS, Vice Chair for Academic Affairs, Sheila and Nathaniel Harris Distinguished Professor of Otolaryngology/Head and Neck Surgery
Carolyn Hamby, Clinical Academic Departmental Administrator

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Adam M. Zanation, MD, Assistant Professor

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Margaret T. Dillon, AuD, CCC-A, Audiologist
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