



UNC

DEPARTMENT OF OTOLARYNGOLOGY/
HEAD AND NECK SURGERY

HEADS

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Making Waves IN THE OCEAN OF OBSTRUCTIVE SLEEP APNEA

Obstructive sleep apnea has become a prevalent health issue in the United States. With the rise in obesity and heart disease, awareness of obstructive sleep apnea as a major health concern has grown. With an incidence over 10% in the adult population, and catastrophic cardiopulmonary consequences when left untreated, obstructive sleep apnea represents a major health problem in need of therapy. In addition, pediatric obstructive sleep apnea (OSA) has become widely recognized only in the last few decades as a likely cause of significant morbidity among children. Not only are patients at risk, but a huge strain is placed on the healthcare system, as these patient, with the prevalence of heart disease and diabetes in this population, will inevitably consume significant healthcare dollars and resources

OSA has received national recognition, and many efforts have been made to eradicate this preventable and important health issue. Efforts in national and local weight loss campaigns are growing awareness and attempting to confront obesity. The availability and usage of positive pressure nocturnal devices, such as CPAP and BiPAP, continue to grow. The number of sleep centers has increased dramatically over the last decade, and new centers are opening sleep fellowships in multiple

disciplines, such as medicine and otolaryngology. New devices are being marketed for mild sleep apnea, and multiple surgical options have developed over the decades. With the plethora of treatment options available, patients with mild to moderately severe sleep apnea have many viable options, with weight reduction and positive pressure therapy being the mainstays of therapy.

| APNEA-HYPOPNEA INDEX (AHI) | | |
|----------------------------|-----------------------------------|---------------------|
| | Pre-Op | Year post-surgery |
| Events per hour | 135.6 events per hour | 0.7 events per hour |
| Minimum oxygen saturation | 73% | 88% |
| Average oxygen saturation | 93% | 96% |
| Wakes from sleep | 3 per night on CPAP | 0 |
| CPAP Setting | Bi-Flex 23/19 (AHI 31 on therapy) | Not needed |

However, patients with extremely severe sleep apnea (AHI >80), are at significantly increased risk of sudden life-threatening cardiopulmonary events, and also remain an extremely challenging population to treat. Often, the pressure setting

requirements for CPAP are so high, that patients either cannot tolerate wearing the mask, or complain of the embarrassing and uncomfortable side effects of increased belching and flatus. Even in patients tolerating CPAP, often the AHI is reduced significant, but rarely does it trend into the normal range. While not a popular option from the standpoint of patients, the one time-tested proven surgical cure for true obstructive sleep apnea has been tracheostomy, particularly in this high-risk group composed of patients with morbid obesity. With

SLEEP APNEA *continued on page 3*

IN THIS ISSUE

Sleep Apnea Breakthroughs • Baby Adam • New Faculty Announcement
Whatever Happened To Gregory Postma? • Farewell Messages • OHNS Announcements

New Faculty Announcement

The Division of Voice & Swallowing Disorders is pleased to announce the return of 2012 UNC-OHNS resident graduate, **Rupali N. Shah, MD**, as our newest Assistant Professor.

Dr. Shah graduated from the University of Georgia and obtained her M.D. degree from Emory University School of Medicine. She went on to complete her residency here at the Otolaryngology/Head & Neck Surgery at the University of North Carolina at Chapel Hill. After residency, Dr. Shah was accepted as a laryngology fellow at the Icahn School of Medicine at Mount Sinai in New York, NY. There, she was mentored by Dr. Peak Woo and Dr. Kenneth Altman. Her fellowship training included medical and surgical treatment of voice and throat disorders including vocal paralysis/paresis, laryngopharyngeal reflux,

laryngotracheal stenosis, benign and malignant neoplasms, and neurologic diseases including spasmodic dysphonia. She also gained expertise in office-based procedures including laryngeal botox, KTP laser, and injection laryngoplasty.

Distinctions

- Board-certified otolaryngologist specializing in laryngology
- Focus on diagnosis and treatment of voice, swallowing, and airway disorders
- Dedicated to a multidisciplinary approach to treat diseases affecting speaking, singing, breathing, and swallowing



RUPALI N. SHAH, MD

Assistant Professor of
Division of Voice &
Swallowing Disorders

Chair's Corner



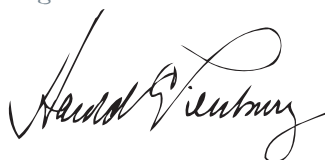
Harold C. Pillsbury, MD
Professor and Chair

This edition of Heads Up emphasizes both the Department's vision for incorporating the highest level of technology in our operative procedures and the humanitarian aspect of the individuals in our group. The story of Baby Adam is touching and a tremendous

testimony to the generosity of Brent Senior and his family. Brent has continuously given of himself to individuals locally, nationally, and internationally to improve the quality of their lives. This has been tremendous inspiration for every member of our group.

In the field of expanding technology, the utilization of the robot to treat sleep apnea is certainly not unique to us, but it has been used with increasing frequency in the management of refractory obstructive sleep apnea. Patients with the tongue reduction surgery offered by TORS are spared a tracheostomy and able to continue productive lives without threat of comorbidities.

Finally, I would like to mention how proud we are of Greg Postma and his accomplishments at the Georgia Regents University in Augusta. As proud as I am of all the things he has accomplished, I really wish that he would finish his Triological thesis so that he could be a candidate for the American Laryngological Association. That would be the capstone of his career.



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SLEEP APNEA *continued from cover*

severe advanced sleep apnea, patients often lack the ability to lose weight. Crippled by the inability to attain restful sleep, they often suffer from severe daytime fatigue and hence lack the energy and ability to engage in physical activity to achieve weight reduction. Their fatigue leads to sedentary lifestyles which advances their weight gain and apnea, resulting a deadly viscous cycle.

At UNC, **Dr. Trevor Hackman** has employed his expertise in transoral robotic surgery (TORS) for cancer in the treatment of these refractory advance sleep apnea patients. Patients are thoroughly counseled as to the risks and benefits of TORS for sleep apnea, including the need for tracheostomy at the time of surgery given the significant risks of post obstructive pulmonary edema. In addition, patients are clearly informed that TORS in the setting of advanced sleep apnea is by no means meant to be a curative procedure for their sleep apnea. Instead, the hope is that in the highly motivated patient, the relief of an oropharyngeal obstruction combined with the pulmonary benefit of a tracheostomy will provide the patient the “jump start” needed to eliminate his/her sleep apnea.

While some patients may benefit from tonsillectomy and UPPP at the time of surgery, the TORS approach focuses on reduction of the midline tongue base bulk reducing the prolapse of the epiglottis and tongue base onto the posterior pharyngeal wall when the patient is supine. The ideal TORS candidate has a large base of tongue, and otherwise normal supraglottic and glottic airway.

Patients are counseled that the surgery results in significant swallowing discomfort, and hence they sustain themselves on a liquid diet for 2-3 weeks. This often results in a beneficial 10-15 pound weight loss on average. In conjuncture with the weight loss, patients often marvel at the simply ability to sleep easily through the night due to the tracheostomy. Sadly, most of these patients have not experienced a restful night's sleep in over a decade. Typically the condition is so prolonged and insidious, most patients are not even aware of how much they are struggling. While at first apprehensive about the tracheostomy tube, they are universally ecstatic they can breath easily and sleep through the night without gasping for air. With restful sleep, and some initial weight loss, the motivated and

appropriately counseled patient has now been empowered to pursue a healthy lifestyle, including the ability to engage in physical activity. With continued support, patients can have significant reductions in their weight and hence their AHI.

Some patients choose to maintain their tracheostomy eliminating the need for CPAP, and are fitted with self retaining Montgomery tracheal cannulas. Others reduce their weight and AHI enough to achieve decannulation and are able to be placed back on CPAP at lower settings improving their tolerance of the therapy and minimizing side effects - and we would consider this a success. And still others are able to make such significant

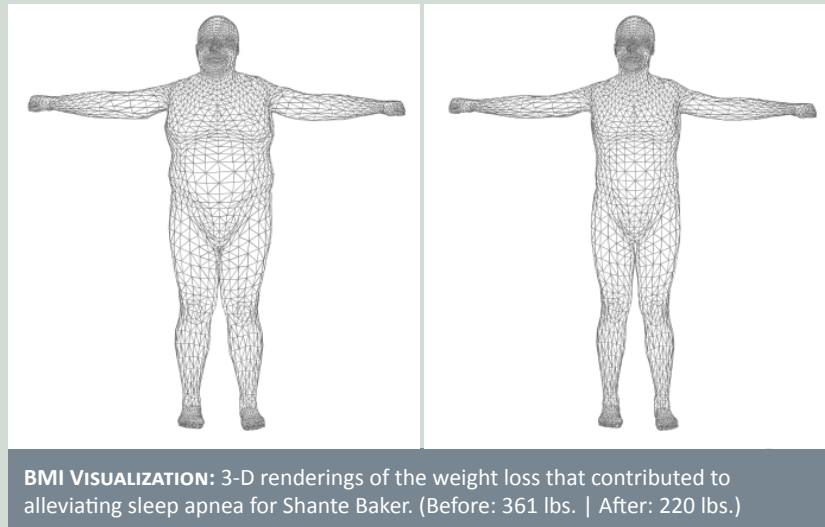
lifestyle changes that they ultimately eliminate their sleep apnea completely. Such achievements are worth celebrating, as they show the general population the reality of what is possible when one takes personal responsibility for his/her life and health.

This is the story of our patient Shante Baker, a true success story. Shante first presented to Dr. Hackman in 07/2011 in consultation for evaluation of surgical

therapy for his advanced sleep apnea. Weighing 360 pounds, his BMI was over 39. A sleep study documented an apnea-hypopnea index of 135.6, which was reduced down to 31 on Bi-Flex therapy of 23/19 cm of water. Patient expressed significant difficulty tolerating this therapy and was ready to consider surgical therapy, even if it meant having a prolonged tracheostomy.

He underwent UPPP, tonsillectomy and TORS base of tongue reduction with tracheostomy tube placement a month later, August 2011. While still in pain 2 weeks out from the surgery, Shante was already pleased with his decision, reporting “I did not realize how bad my breathing was. I feel like a new person,” and he was. Revitalized by the ability to breath without obstruction and a second chance to get healthy, Shante took a person mission to adopt a healthier lifestyle. He admits losing 20 pounds in the first few weeks after surgery helped his motivation to lose more. We fit him with a low profile Montgomery tracheal cannula and encouraged him to stay the course.

He changed his diet to fresh fruits and vegetables with fresh fish and meat, and cut everything else out. Soon he began to drop significant weight. He initially was eyeing gastric bypass



Bringing Back Baby Adam

By Jessica Paulraj

UNC.

Those are initials that I used to blur with my favorite baby blue color. My finite mind could have never comprehended the great depths of gratitude my family would have for those three letters. UNC became much more than the Tar

Heels. It became a home for my family in and out of seasons, it became the breeding ground for some dear relationships, and it became the hospital that provided the surgical care my son needed to get thru some difficult years of life. It became all of these things because of doctors who stepped out in faith. And we, my little family, are forever grateful. Let me back up a little bit. I will tell you a bit about our son, who is really our link to University of North Carolina.



Our son's name is *Adam*. But it wasn't his name for his first few days. In fact, he had no name for his first few days. He was abandoned in a baby warmer in a rural hospital in NE India after his birth. After a few days, the infant warmer bed was needed by another baby, so Adam was moved to a cardboard box. Not only did he not have a name, but he also had no eyelids or nose, a cleft lip and palate, severely malformed hands, and severe webbing of the legs. Though his outside were abnormal, his insides, they were all normal.

My husband and I met Adam while we were working at that hospital in which he was born. We heard the rumors and we knew what people were saying about this little boy. We knew that he was seen as a curse by many and that they thought his life was useless. But we serve a God who authored Life. And He gives and He takes away, as Job said in chapter 1 verse 21. We knew that Adam's life was not determined by man's opinion. We knew it was ordained by an infinite One. And that infinite One, He put a beat in our hearts for this little guy. It was as though He did a perfusion of His Holy blood through our hearts. He filled us with a divine love for Adam.

A deep love and a deep conviction permeated our young, newly married hearts. And through this perfusion and this Divine love, this little boy became our son, through adoption.

After being told palliative care was the only option in India, despite normally functioning organs, we began to research other possible options. Many people came together and doors opened within UNC Chapel Hill for the reconstructive surgeries Adam needed. We came as quickly as possible to North Carolina for reconstructive surgeries. The doctors who stepped out in faith have been with us from day one. They came alongside us and many others to care for our Adam. Dr. Van Aalst led the Reconstructive

Dr. Brent Senior, an ENT Surgeon, opened up his own home to our nomadic family, here indefinitely for Adam's surgeries. Nurses, doctors (including Dr. Amelia Drake), journalists, students, and churches amazed us with love and support from all around the world. Over \$300,000 was raised from hundreds of donors across nations. It has been a journey beyond what we could have imagined.



Adam with baby brother, Elliot.

Adam is so much more than an abandoned and unformed baby in a cardboard box. He has sight that has been strengthened with glasses. He has had his eyes and mouth reconstructed and is now learning to speak. He is interacting and growing alongside his new baby brother, Elliot. And he is leaving me and his father in utter awe of the beauty of life. His was a little life that many were quick to declare foolish and worthless, but that God declared precious. UNC will forever be etched in our hearts and minds as a place where we saw our Heavenly Father weave a story unimaginable in our family.

➤ Follow Adam and his journey at babyadamsjourney.com

PLEASE CONSIDER MAKING A GIFT TO THE DEPARTMENT!

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, Director of Development // The Medical Foundation of North Carolina
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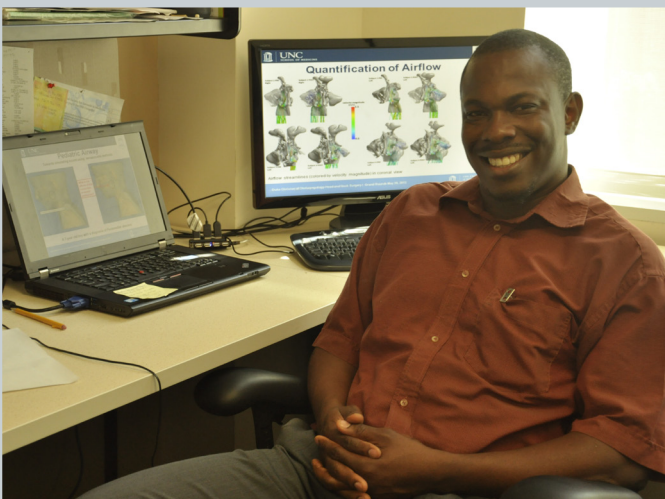
Farewell from Pat Perry, RN

I started working in the hospital's ENT clinic in 2003. In 2006, I moved to the ENT satellite clinic, Carolina Pointe, with Angel Jefferies, Sandy Yates, and Judy Miles. Carolina Pointe was a nice quiet clinic, and I met a lot of patients who became my friends. During my stay at Carolina Pointe we became a Top 5 Clinic, which was exciting. In 2012, our clinic moved to a much larger building, Carolina Crossing. With a larger building came more people and more challenges.

I will miss working for the ENT department. I will really miss the friends I've made over the years, patients and staff, especially Robin's and Mrs. Autry's goodies. I will also miss my favorite doctors. I would like to say thank you to the ladies in audio who were a great help to me during the years while I was pursuing a degree in social work. I graduated from Shaw University in 2011 with a Bachelor of Social Work (BSW). After a couple of weeks rest, I will look for a job and pay regular visits to the gym.



Dennis Frank, PhD Bids Adieu



As I look back on the three wonderful years of my postdoctoral training under the mentorship of Dr. Julia S. Kimbell, I am amazed at how much impact we have had on the field of Rhinology in the area of computational fluid dynamics (CFD) modeling of the sinonasal airways. Using computational methodology, we are able to investigate the effects of nasal airway obstruction (due to anatomic deformity) and refractory chronic rhinosinusitis on intranasal topical medication, study the biophysics of nasal airflow, identify CFD derived variables that have the ability to detect surgical changes, as well as quantify increased airflow and particle deposition in the maxillary sinuses following functional endoscopic sinus surgery (FESS).

The skills and expertise I gained working with Dr. Kimbell and the Rhinology clinical faculty, Drs. Senior, Ebert, and Zanation, have prepared me to function effectively in the next chapter of my career as a research faculty member at Duke University in the Department of Otolaryngology/Head and Neck Surgery. Though I am transitioning to Duke, my work with Dr. Kimbell and the Rhinology clinical faculty continues as we work towards developing a powerful bioengineering objective assessment tool that would aid Otolaryngologists in designing specific surgical techniques or interventions with the potential to maximize patient outcomes.

Whatever happened to...

Dr. Gregory Postma?

The year

resident. Toting three small children, my wife Kim and I were notified that due to earthquake safety and the usual federal budget games, the Naval Hospital in Oakland, CA was closing, and nearly everyone had to finish their training elsewhere. The process was fast and I was excited that one of my interviews was at UNC-Chapel Hill. To say the visit was interesting was an understatement: highlights include an intense first meeting with Dr. Pillsbury, an amusing hour interview with Dr. Newton Fischer, and I had a prosthetic leg thrown at me during dinner on Franklin Street.

My Chief residency at UNC was the hardest year of my training, but had an extraordinary impact on my future. I initially had no real interest in academics, but after working with **Drs. Pillsbury, Weissler, Shockley, and Drake** I realized that I wanted to teach and to learn more about otolaryngology, particularly laryngology.

During our time there we also celebrated the 1993 NCAA men's basketball championship, and I learned how to home-brew beer.

I trained for two years at the Naval Hospital in Portsmouth, VA as a junior attending. After having our fourth child we went to Vanderbilt for Laryngology fellowship training with Dr. Bob Ossoff (I think I got the position as part of a golf bet between Ossoff and Pillsbury which Dr. Ossoff lost). It was there that I ran into another Tar Heel alumnus, Dr. Gaelyn Garrett. Gaelyn had been a fourth year resident at UNC and was now one of MY bosses as a first year attending at the Vanderbilt Voice Center. I'm happy that I was nice to her at Carolina and she was good to me, and even years later I continue to learn from her.

I was fortunate to return to North Carolina, though not to

was 1992, and it was a time of significant anxiety as an otolaryngology

UNC but at Wake Forest University, where I joined Jamie Koufman at the Center for Voice Disorders. This was a great time of learning, surgery, research, and becoming a more proficient teacher of residents and fellows.

I even met my wife Kim at Wake Forest in the operating room. She is the finest OR nurse I have ever worked with although I do admit to a very slight bias. We have a blended "Brady Bunch" family:



- Our first son Luke is a Demon Deacon from Wake Forest who became a Marine Infantry officer serving a combat tour in Afghanistan. He is now 28 and living in San Diego after recently getting out of the USMC.
- Ryan is a fanatic of all things UNC having graduated from there in 2009 (yet another NCAA basketball championship), and still lives in Chapel Hill.
- Our oldest daughter Kaitlin has helped me to distribute our tuition dollars throughout the South East as a graduate last year from the University of Georgia (Go Dawgs!) and is leaning towards working in counselling.
- Nicole Broadway is an 18 year old talented artist in her sophomore year as an Art major at Lee University in Cleveland Tenn.
- Aubrey is a freshman here at Georgia Regents University where she is studying to be a Respiratory therapist.
- Our youngest girl Lauren Broadway just turned 17 and is a sophomore at Westminster high school here in Augusta. She has a strong interest in medicine.

Travel for various meetings has been a highlight in academic medicine. Kim and I have been blessed to travel together to meetings, and often bring our children with us to Paris, Australia, Philippines, Vienna, London, and Florida.

After a decade in Winston-Salem I was given a chance to develop a new laryngology center in Augusta Georgia with Dr. David Teris as our chairman at the Medical College of Georgia. This has been a very exciting time of growth here in a fun city although the name of our hospital has changed three times and we are now Georgia Regents University. The Center for Voice, Airway and Swallowing disorders now has two faculty, a research lab and a Laryngology fellowship here for the past six years. Our golf games have improved significantly while here and one of our biggest problems is explaining to people that Carolina is in Chapel Hill and that the real USC is in Los Angeles. What is wrong with South Carolina?

I will be forever thankful to God for my time at UNC. The influence "The Gang" there had upon me changed the course of my life and career. I cannot thank Dr. P enough for taking a chance on me and taking me into his program for my chief year. Over the years the assistance, personal examples and advice from my mentors at UNC has proven invaluable. Look at nearly any otolaryngology program in the nation and you will see the influence of a Carolina Tar Heel.

SLEEP APNEA

continued from page 3

surgery to hasten the process, but ultimately he did not undergo further surgery. Then came the day of his follow up sleep study in August of 2012, 1 year after his surgery. With his tracheostomy plugged during the study, Shante's AHI had reduced from 136 to 0.7 events, a miraculous response. He was decannulated on the next appointment spontaneously healing his tracheostomy site and he maintained his healthy lifestyle. At his last clinic visit, he weighed 239 pounds, still dropping weight and sleeping well.

Shante's story is a wonderful example of how an empowered and driven patient can be given the second chance to take responsibility for his health and life. He now has a chance at a normal healthy life, hopefully free of heart disease and diabetes.

OHNS Announcements

We are pleased to announce that funding for the **Harold C. Pillsbury III, MD** Professorship in Otolaryngology/Head and Neck Surgery is complete. Thanks to the unwavering leadership and continued generosity of professorship campaign co-chairs Dr. Doug Henrich (R-97) and Dr. Tom Logan (R-97) and many of our former residents, faculty and friends we reached our goal of \$667,000. The professorship now qualifies for matching funds from the State of North Carolina allowing us to endow this professorship at \$1 million.

The inaugural Pillsbury Professorship has been awarded to **Craig A. Buchman, MD, FACS**. Dr. Buchman has been at UNC for over 11 years and is currently serving the Department as Vice Chairman for Clinical Affairs, Chief of the Division of Otology/Neurotology and Skull Base Surgery and Director of the UNC W. Paul Biggers Carolina Children's Communicative Disorders Program (CCCDP). He is an exceptional teacher and researcher who is also beloved by his patients and their families.

Dr. Robert Buckmire was appointed the March Floyd Riddle Distinguished Research Professorship on August 1, 2013 by the UNC-Chapel Hill Board of Trustees.

The viral story about the auditory brainstem implant Grayson Clamp received from us this spring continues to make headlines. Our **CASTLE/CCCDP** facility was visited by two North Carolina politicians: Senator Kay Hagan on August 23, and Congressman David Price on November 18. The visits were shared nationally through social media.

Hannah Eskridge recieved the 2013 CARE Project Humanitarian Award. **ONLINE EXTRAS** thecareproject.me

Dr. Brent Senior was awarded the Golden Head Mirror by the American Rhinologic Society for meritorious teaching. This is the highest award of service that the society bestows, and the last was awarded in 2006.

Katherine Eng, Jen Woodard, and Deb Hatch ran the Bull City Run Fest half marathon on October 20, 2013.

Maxillary airflow research by **Drs. Julia Kimbell, Dennis Frank** and others from the department was selected as the cover illustration and article for the December issue of *International Forum of Allergy & Rhinology* journal.

Dr. Craig Buchman, Holly Teagle and **Hannah Eskridge** spoke at the American Cochlear Implant Alliance meeting in DC in October.

Dr. Craig Buchman, Kathryn Wilson, and Joni Alberg from UNC and Beginnings met with Senator Richard Burr (NC) and presented at the Hearing Health Caucus Briefing in Washington DC on the importance of Early Intervention and family choice of communication strategy for children born with Hearing Loss on November 14.

Dr. Mark Weissler was re-elected as Vice Chair of the Board of Regents of the American College of Surgeons. Dr. Weissler will also continue as Director of the American Board of Otolaryngology.

Drs. Grace Austin, Kibwei McKinney, Charles Ebert, and Adam Zanation's research paper "Image-guided robotic skull base surgery" was accepted for publication in the Journal of Neurological Surgery-Part B: Skull base.

CASTLE/CCCDP was well represented at the Hear 'N' Now Conference in Asheboro November 7th and 8th. Presentations were given by **Dr. Buchman, Hannah Eskridge, Corrine Macpherson, Sarah Martinho, Shuman He, and Jennifer Woodard.**

Dr. Gitanjali Fleischman's abstract submission to ARS, "Effects of Mucosal Healing after FESS on Sinonasal Airflow and Drug-Deposition Patterns: A Pilot Computational Fluid Dynamics Study," was one of the five highest ranked abstracts, and resulted in an oral presentation at the Annual Meeting of the American Rhinologic Association in September. She was also invited to give the same talk at American Academy of Otolaryngic Allergy.

Dr. Craig Buchman was on the radio program *Your Health* in October talking about "Major Innovations in Medicine: Surgery and Hearing Loss." WCHL and KKAG radio stations aired his talk four times. He was also on CBS Evening News with Scott Pelley regarding Pediatric Auditory brainstem Implant patient Grayson Clamp.

Dr. Buchman chaired the CI2013, the First Meeting of the American Cochlear Implant Alliance in Washington DC (Oct 24-26). There were over 700 attendees from all over the world. He chaired the Electroacoustic stimulation conference in Washington DC on Oct 23, and he was invited faculty at the Stryker and Anspach Skull base Surgery courses.



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Brent A. Senior, MD, FACS, Vice Chair for Academic Affairs, Sheila and Nathaniel T. & Sheila W. Harris Distinguished Professor
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