

# HeadWay

NEWS FOR PHYSICIANS FROM JOHNS HOPKINS  
 OTOLARYNGOLOGY-HEAD AND NECK SURGERY

## Smarter, Faster, Smaller

Devices to restore hearing are more sophisticated than ever before.

**T**reating everything from moderate hearing loss to profound deafness, faculty and staff at Johns Hopkins' Hearing and Listening Centers are tapping a wealth of resources, including digital hearing devices, implantable hearing aids and cochlear implants.

This, though, is an entirely new generation of devices. That's because the same electrified technologies that have revolutionized computers and brought us some of our favorite toys—cell phones, laptops and the like—are also transforming devices to restore hearing.

They're producing cleaner signals than they did even two years ago. They're smarter, faster and smaller. What's more, they look sharp, too.

**Traditional hearing aids** are less noticeable and resemble cell phone attachments. "With iPods and cells,

### TECHNOLOGIES THAT HAVE REVOLUTIONIZED COMPUTERS ARE TRANSFORMING HEARING DEVICES, TOO.

ear-level listening technologies are widely accepted these days," says John Niparko, director of the Listening Center, a program of deafness rehabilitation. "It's hip to have technology around the ear."

**Bone-anchored hearing aids** (BAHA) use an innovative strategy in which the skull is used to directly transfer sound to a functioning

cochlea with fidelity. A fairly recent development, the BAHA is now being implanted in patients with single-sided deafness.

In a minimally invasive, outpatient procedure, the surgeon implants a titanium fixture into the skull. Osseointegration allows living bone to grow tightly to the artificial implant. Then, a connector is attached to the implant. The sound processor snaps to the implanted system as if it were part of the bone.

Transmitting sounds from the bad side to the normal ear, the BAHA produces the sensation of hearing from a deaf ear. "It expands the sound field and has the effect of sampling the entire surround from both sides of the head," says Niparko. "Sampling the entire environment can aid speech perception, especially in challenging listening situations with background noise."

In 2003, Niparko published a study comparing BAHA to CROS (contralateral routing of offside signal) hearing aids showing that implantable devices deliver superior performance. The Hopkins team is currently implanting about 75 BAHAs annually.

**Cochlear implants** now are able to pick up more of the dynamic pitches of a human voice and separate the speaker from the background din that corrupts signals conveyed in speech.

The candidacy pool has expanded. "Before, you had to be almost totally



**Nine-year-old Mia Jeppsen, who has received two cochlear implants, one for each ear, with audiologist Jill Chinnici and surgeon John Niparko.**

deaf," says Niparko. "Now, we're no longer insisting that people struggle for years, waiting to become deaf enough for an implant." Some patients have even received two devices, one in each ear. The effects of the second intervention now are under investigation.

The implant operation itself is much less invasive and quicker. Last year, four surgeons here—Niparko, Howard Francis, Charles Della Santina and Charles Limb—implanted 182 devices in all, more than any other cochlear implant program in North America.

The revolution in technologies for hearing restoration is occurring at a time when hearing loss is becoming increasingly prevalent,

caused not so much by an aging society as by exposure to machine-generated noise and entertainment devices. "In general, regular exposure to motor-driven noise was unheard of before World War II, and now everyone in our generation has grown up with lawn mowers and landscaping equipment like leaf blowers. This, as well as entertainment devices like iPods and MP-3 players that provide constant sound stimulation, places a heavy burden on our ears. Fortunately," says Niparko, "we can now offer options to the isolation of hearing loss." ■

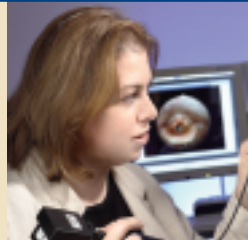
To refer a patient: 410-955-9397  
 Info: [hopkinsmedicine.org/hearing](http://hopkinsmedicine.org/hearing)

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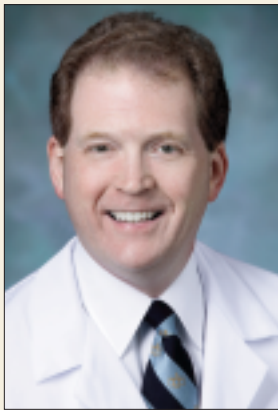


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## Welcome to *HeadWay*

In this inaugural issue of *HeadWay*, our newsletter for physicians, we highlight several key areas: Hearing loss and profound deafness, as treated by John Niparko. Endoscopic sinus surgery in the hands of one of our newest recruits,



Doug Reh. Experimental treatment of precancerous lesions of the mouth and throat by head and neck cancer surgeon Joe Califano.

These are some of the more difficult problems, to be sure, but we treat the common ailments as well. Sleep apnea, also highlighted in this issue, is extremely common—albeit quite serious—and Stacey Ishman and Matt Kashima are treating it both medically and surgically in adults as well as in children.

So while this newsletter presents but a snapshot, it reflects the broad spectrum of the work that we do, from the most common to the most complex cases, cases that often require the expertise of specialists.

To make referrals easier for you, we have established a referral line through Hopkins USA. By calling 443-287-6585, you will be placed in direct contact with a member of our staff who will help facilitate the referral to any one of our faculty.

And, we are working on ways to get our clinic notes and consultation reports back to you in a timely fashion. Once the doctor signs the note in the electronic patient record, it will be automatically faxed to you. This system, currently being piloted in several smaller clinics at The Johns Hopkins Hospital, should be up and running in our department by year's end.

We realize that when you refer a patient, you are placing tremendous trust in us. We are ready to work with you to ensure the best possible results, for every patient is our first priority.

Lloyd Minor, M.D.

Andelot Professor and Director  
Otolaryngology—Head and Neck Surgery

To refer a patient: 443-287-6585.

For urgent referrals and consultations:  
1-800-765-5447 (Hopkins Access Line).

# Taking on the Frontal Sinuses



**Doug Reh, the latest addition to the Sinus Center, is fellowship-trained in advanced endoscopic sinus surgery techniques.**

She'd had three sinus surgeries, and yet pressure and pain in her forehead persisted. When a CT scan showed her frontal sinuses were still blocked, Doug Reh took this patient to surgery.

Using angled scopes—curved instruments specially designed for the frontal sinus—he opened up the frontal recess and took down the sinus cells blocking the pathway, thereby allowing the frontal sinuses to adequately drain.

The procedure is technically challenging, in part because after multiple surgeries, the natural landmarks in the nose that sinus surgeons depend on have become altered. “It’s easy to lose your way,” says Reh. Also, the openings in the frontal sinus are quite narrow and difficult to visualize. And the risks—leakage of cerebrospinal fluid, for one—are considerable.

For these reasons, some surgeons are simply not comfortable opening up the frontal sinuses, says Reh. “Besides, just opening up the ethmoid and maxillary sinuses is often enough to improve frontal sinus drainage. Still,”

Reh continues, “some patients, like those with aspirin triad disease or cystic fibrosis, will have recurrent problems, regardless of the initial success of the surgery.”

Reh has recently completed a fellowship in advanced endoscopic sinus surgery and is bringing the latest techniques and instrumentation to bear on some of the most complex and technically demanding cases. He is the latest addition to the Sinus Center. Formally known as the Center of Excellence in Rhinology and Sinus Surgery, this enterprise provides a broad range of medical and surgical therapies for sinus-related problems. “What attracted me to Hopkins,” says Reh, “is the multidisciplinary approach and the ongoing research that will lead to new treatments.”

Reh has worked with eye surgeons to perform primary or revision surgery endoscopically through the nose in patients with nasal lacrimal duct obstruction and Graves’ orbitopathy, or bulging eyes. “In Graves patients, we remove the medial and inner wall of the eye to decompress the eye,” says Reh. “These procedures are safe and quick.”

With neurosurgeons, he has repaired CSF leaks in the nose. Historically, these leaks were repaired with craniotomy. “But now,” says Reh, “we can do it all endoscopically from below, through the nose. We find the CSF leak and then do a two-layered repair, using the cartilage and soft tissue, often from the lining from the turbinate to cover it.”

These more advanced cases—the revision frontal sinus surgery, as well as the procedures done with eye surgeons and neurosurgeons—are the kinds of cases that fellowship-trained endoscopic sinus surgeons like Reh can do.

But at the busy Sinus Center, he says, the more common disorders are treated as well. “We’re comfortable with every case—from the most common to the most complex.” ■

**REGARDLESS OF THE SUCCESS OF THE INITIAL SURGERY, SOME PATIENTS WILL CONTINUE TO HAVE RECURRENT PROBLEMS.**

To refer a patient: 443-28-SINUS (7-4687). Info: [hopkinsmedicine.org/sinus](http://hopkinsmedicine.org/sinus)



Stacey Ishman treats sleep disorders in children medically and surgically.

## Sleep Apnea—Not for Adults Only

**S**leep apnea, the disorder in which people repeatedly stop breathing during their sleep, was originally thought to affect primarily middle-aged, overweight adults. “But now,” says Stacey Ishman, “people are realizing that children can have sleep apnea, too.”

Ishman, a pediatric otolaryngologist who recently completed an informal fellowship in general sleep medicine in the pediatric pulmonary sleep clinic, is integrating the medical along with the surgical in a comprehensive approach to treating sleep disorders in children.

Kids with sleep apnea generally have one chief symptom: snoring—snoring that’s present every night, loud and interrupted by gasping noises. There is generally one culprit—well, make that two—tonsils and adenoids, enlarged and obstructing the airway.

While tonsillectomy/adenoidectomy cures about 80 percent of sleep apnea in children, it is but a first step in some young patients with

complex anatomies and craniofacial abnormalities of the jaw bones, tongue and associated structures. Some have Down syndrome and neurologic problems, and their palates collapse while sleeping. “Problems can exist at the back of the tongue or palate, so for them,” Ishman says, “treatment is often a stepwise thing.”

One young patient had a small mouth and jaw. “After her tonsils were taken out, she was still snoring, so we went back and took out some of the lingual tonsil. She was completely cured afterwards.”

In addition to trimming the back of the tongue, Ishman will sometimes move the tongue forward or perform uvulopalatopharyngoplasty, a procedure used less often in children than in adults. Adults with sleep apnea have many more surgical options than children, Ishman notes. ■

*To refer a patient: 410-502-3225.*

## Snore No More?

Two men, both snorers, had heard about pillar implants, the tiny polyester rods placed in the soft palate to stiffen and support it and reduce the vibration that causes snoring. Both hoped the implants would help them get a quiet night’s sleep—and so did their wives.

The first patient had one problem and one problem only: snoring. He received the implants in a quick office procedure. Within a month, his wife reported, he was snoring far less, and she was actually sleeping through the night.

The second patient had serious sleep apnea in addition to snoring. He was on continuous positive airway pressure (CPAP) and was not an appropriate candidate for the implants, determined Matthew Kashima, chairman of otolaryngology at Johns Hopkins Bayview Medical Center. “His sleep apnea was so severe that the implants would not cure it or get him off CPAP.”

The implants do not stop snoring altogether, Kashima stresses. “They can, though, reduce the snoring so that everyone, snorer and bed partner alike, can sleep through the night.” ■

*To refer a patient: 410-550-0460.*



Pillar implants, Matthew Kashima says, can reduce snoring, but they’re not panacea.

## Hair Restoration

**Lisa Earnest**, an assistant professor in facial plastics, is conducting a study comparing two different surgical instruments used in hair restoration. Men and women who haven’t already undergone hair restoration are eligible. Done in the clinic under local anesthesia, the two- to five-hour procedure involves relocating the patient’s own hair from the back of the scalp to areas of hair loss or thinning. Participants make three follow-up visits.

*Info: 410-550-0460.*

## Bedside Tracheostomy

As chief resident, **Nasir Bhatti** took a special interest in percutaneous dilatational tracheostomy, or PDT, the procedure in which the tracheostomy tube is placed at the bedside, usually in the ICU, with bronchoscopic guidance. Now, six years later, Bhatti is director of the PDT service, one that performs about 200 of these procedures a year.

His team of surgeons, a nurse practitioner, nurses and other health care professionals developed a protocol that standardizes criteria for candidates for the operation, how it is performed, and postoperative care.

It usually takes the team less than 15 minutes to perform PDT, considerably less than traditional surgical tracheostomy. Bhatti’s studies have shown that bedside tracheostomy in the hands of the Hopkins team is not only quicker but more efficient and cost-effective than open tracheostomy, mainly because it eliminates OR scheduling difficulties and costs.

Now, Bhatti says, because PDT is still not done as widely as might be expected, given that it was developed more than 20 years ago, “we want outside physicians, nurses and residents to come and learn to replicate our model at their institutions.”

Physicians and patients can learn more about, and watch, the surgical procedure at [www.hopkinsmedicine.org/tracheostomy](http://www.hopkinsmedicine.org/tracheostomy).

*Info: tracheostomysupport@jhmi.edu.*

## Sensorineural Hearing Loss

A randomized clinical study seeks to determine if injection steroids are as effective as high-dose oral steroids, the standard of care for sudden sensorineural hearing loss, a potentially serious condition that requires prompt care. Treatment takes place over a two-week period with follow-up at two and six months. Those in the injection arm of the study receive injections into the middle ear.

**John Carey, P.I.**

*Info: Nancy Smith, coordinator, 443-287-4983, nsmith2@jhmi.edu.*

# Put to the Test: A Biologic Agent for Premalignant Lesions

**P**recancerous lesions of the mouth and throat pose a particularly significant challenge for head and neck cancer surgeons. The lesions stand a 40 percent to 70 percent chance of becoming malignant over a period of five to 10 years, and interventions like surgery, radiation and chemotherapy have not improved outcomes.

Now, the Department of Otolaryngology–Head and Neck Surgery, along with the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, is coordinating the first clinical trial of cetuximab treatment in patients with high-risk, premalignant upper-aerodigestive tract lesions.

Cetuximab (Eribitux) is a novel therapeutic agent directed at a specific biologic pathway. It targets a natural protein called epidermal growth factor receptor (EGFR) on the surface of cancer cells, interfering with their growth. It

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## INTERVENTIONS LIKE SURGERY, RADIATION AND CHEMOTHERAPY HAVE NOT IMPROVED OUTCOMES.

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has none of the side effects of radiation and chemo and is currently being used to treat head and neck, lung, and colon cancer.

In patients with head and neck cancer, cetuximab has been shown in multicenter clinical trials to improve survival. “So now we want to see how this drug works in people

with precancerous conditions,” says Joseph Califano, the head and neck cancer surgeon who is principal investigator on the study.

The prospective, multi-arm, randomized phase II trial is enrolling three groups of patients: Those with high-grade precancerous lesions that are diffuse and thus unresectable; those previously treated for head and neck squamous cell cancer with recurrent high-grade dysplasia; and those with dysplastic lesions.

Study participants in the treatment arm will receive weekly cetuximab injections for eight weeks. At the end of the study period, patients in the recurrent and dysplastic groups will undergo lesion resection based on the extent of initial disease.

Participants in the control arm will be followed during the eight-week period and then have the option of moving to the treatment arm and receiving the study drug. “Everyone who enrolls can get the treatment if they want it,” says Califano.

In all, 60 patients will be enrolled in the trial, including 20 at Johns Hopkins, where enrollment began in the summer. The remaining 40 are being enrolled at 11 participating



**Joseph Califano is testing cetuximab in people with precancerous lesions of the mouth and throat.**

sites. All participants will be followed for two years after the study.

“This is a patient population that is not very common, but the problem is particularly vexing,” Califano says, noting his frustration at having to stand by and watch as the lesions become malignant. “There’s really not a whole lot you can do about it. That is why I’m doing this trial. If it works, it could be the start of a new therapy we’d be able to offer our patients.” ■

“Phase II Study of Single-Agent Cetuximab for Treatment of High-Risk Pre-malignant Upper Aerodigestive Lesions” is supported by a National Cancer Institute Specialized Program of Research Excellence (SPORE) grant and the National Institute of Dental and Craniofacial Research (NIDCR).

*Info: PI Joseph Califano, 410-955-6420; study coordinator Zubair Khan, 410-955-3157 (office), 410-283-6045 (pager), zkhan@jhmi.edu.*

# HeadWay

**Johns Hopkins Medicine**  
Referring Physician Services  
901 S. Bond Street/Suite 350  
Baltimore, Maryland 21231

This newsletter is published by the Department of Otolaryngology–Head and Neck Surgery  
Lloyd Minor, M.D., Andelot Professor and Director

Anne Bennett Swingle, *Editor/Writer*  
Keith Weller, *Photographer*  
Max Boam, *Designer*  
Mary Ann Ayd, *Copy Editor*

**Questions, comments:**  
[swingle@jhmi.edu](mailto:swingle@jhmi.edu), 410-614-5044

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