



Heads Up

The following stories were written by two young patients who, despite the obstacles due to their medical conditions, share a desire to experience and enjoy life to the fullest. Kristen was born with a potentially life-threatening laryngoesophageal cleft, and Ben had hearing loss that progressed to profound deafness by age 7. Now living normal and healthy lives, the future looks bright for Kristen and Ben.

Behind the Scars

by Kristen Chavis

My name is Kristen Chavis and I was born with missing cartilage between my trachea and my esophagus. Anything that went into my mouth would also go into my lungs. This prevented me from being fed by mouth as a child. I was sent to Chapel Hill eleven days after I was born. Once there, the doctors used a bronchoscope and were able to clearly see the cleft between my trachea and esophagus. It was finally determined that I had a congenital birth defect called a laryngoesophageal cleft.



Kristen Chavis, member of Campbell University's women's swim team.

I went through a series of operations to allow me to be fed. In all, I had thirteen major surgeries before I was four years old. In those earlier years, I was too young to realize how strong my parents had to be for me. They always let me believe I was capable of doing anything, that I did not have a handicap, but would gain strength because of this experience. I did not know at that time what a profound effect this would have on me for the rest of my life.

I have grown curious through the years to learn about my disorder. As I researched information on my unique beginning, a few facts stuck out. First, I realized how strong my parents had to be; I could not have been blessed with more passionate parents. They stuck through it, never losing hope and staying optimistic despite close calls, late sleepless nights, complications, and intensive surgeries. My parents had conceived a child before me, but unfortunately, she did not make it to term and died prematurely. Staying optimistic was not just an option; it was a necessity. Second, my parents were faced with the disappointment of knowing that even after I had healed from all the surgeries, there was still the possibility of my graduating high school or even college with a permanent feeding tube and/or trach. It was not just hard on my parents, but also on my surgeon, Dr. Amelia Drake. Her

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My Cochlear Implants

by Benjamin Smith



Ben Smith shows the external processors of his cochlear implants.

My name is Benjamin Smith and I am a straight A student in the 7th grade at A.L. Stanback Middle School in Hillsborough, North Carolina. I am the first chair French horn player in the school band. This year, I ran cross country, played guard on the JV basketball team, and right now I am on the track team. In my free time, I like playing sports, listening to music on my MP3 player,

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main goal was to get me healthy fast enough for me to have a normal childhood. According to Dr. Drake, my case was not hopeless but a challenge she felt well prepared to tackle. Third, the odds my parents faced did not leave them with much room for hope. I was the fifth child in North Carolina to be diagnosed with this rare congenital disorder. The first three children died and the fourth one had a permanent trach. The sixth and seventh children, two baby boys, were born when I was around six years old. Due to the clinical information and helpful experience Dr. Drake stated that she was able to gain from my unique case, these baby boys never had to receive a trach. She was able to find another way to handle the repairs for this particular birth defect.

Dr. Drake told me an interesting story as to how she first learned about me. She was in the hospital at UNC as a patient herself, having just had a baby. A fellow doctor, Dr. Wood, told Dr. Drake about me and my rare diagnosis. Dr. Drake had already seen about three cases before mine. One case was a baby girl that had a much more extensive cleft that went from her larynx to her stomach. She believed that with her training she felt confident in my success. I asked her what she felt was the hardest part of my particular case. She answered that she does not remember it



Amelia F. Drake, MD, performed Kristen's surgeries. She specializes in pediatric airway disease.



Chair's Corner

Harold C. Pillsbury, MD
Department Chair

Spring is a very exciting time of the year for us in Otolaryngology/Head and Neck Surgery. The programs that we have nurtured through the years have continued to succeed, including our cochlear implant program, our outstanding residency, and our research.

The story of Benjamin Smith is heartening and shows the incredible difference a surgical procedure such as a cochlear implant can make in the life of a child. Further discussions of the interaction between our otologists and our pediatric otolaryngologists make this story even more interesting.

Dr. Amelia Drake has certainly worked magic on Kristen Chavis. This operation for a laryngoesophageal cleft is a miraculous undertaking which certainly changed Kristen's life!

Dr. Emily Buss is truly a leader in the field of psychoacoustics. Her tremendous drive coupled with her nurturing personality has led many of our students and residents to successful careers in research, which would not have occurred without her support. She continues to make substantive advances in the field of psychoacoustics and has been awarded several NIH grants with continuous funding through all the years that she has been at UNC. She is a treasured member of our faculty.

The work by Dr. Ebert concerning his rotation at the Georgia Nasal and Sinus Institute is really well done and attests to the opportunities created by Drs. Kuhn and Melroy to help hone the talents of many of our residents into outstanding rhinologists.

One cannot say enough nice things about Mrs. Elaine Hinkle. She is truly the cornerstone of our clinical endeavors. She has distinguished herself over the years as a compassionate nurse and wonderful leader of our nursing core in the clinic.

Finally, we have just completed our match and we were extremely successful in recruiting four outstanding individuals to our residency program who will be discussed significantly in the summer issue. Their names are Baishakhi Choudhury from State of New York at Buffalo School of Medicine, Alexander Farag from The University of Toledo College of Medicine, Brian Thorp from Eastern Virginia Medical School, and John Dahl from Jefferson Medical College of Thomas Jefferson University. We are most gratified that these outstanding individuals have chosen our program to receive their advanced training in our specialty.

ever really being difficult but more of a welcomed challenge. Her only concern was to get me healthy quick enough for me to have a normal life.

I am here today defeating the odds that I may not have been able to talk, that I do not have to live with a permanent trach or feeding tube, and that I have been blessed not to have any other complications associated with my birth defect. I am a

student at Campbell University where I am not only dedicated in my studies to become involved in the medical field, but I am also on Campbell's women's swim team coached by Pascal Molinard. I feel I have grown through this experience by gaining newfound confidence in my ability of making it this far in life, and I have found more respect and amazement at what Dr. Drake and my parents have done for me.

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playing video games, using the computer, and attending church youth activities and dances. I became a Cub Scout at 8 years old and have progressed through the Boy Scout program, achieving the rank of Life Scout. Currently, I am working on earning the rank of Eagle Scout. My life is very busy, but lots of fun. I am deaf, but that does not keep me from doing anything I want to do. Thanks to Dr. Buchman, Holly Teagle, Lillian Henderson, and all the people at CCCDP and CASTLE, I have bilateral cochlear implants that allow me to function like a hearing person.

When I was a toddler, my parents were worried about me because I could not remember my ABC's or numbers. Sometimes, I did not seem to be aware of what was going on. When I got older, I could not tell that words rhymed. Finally, when I was five and a half years old, my parents found out that I had a mild to moderate hearing loss. I got my first hearing aids when I was six years old. I remember hearing many things for the first time, such as my Mom's kiss, water running, and a clock ticking. Unfortunately, that did not last long. My hearing continued to get worse and by the time I was seven and a half years old, I was profoundly deaf.

I received my right cochlear implant when I was eight years old. I went to the hospital at about eight o'clock in the morning and got back home by five o'clock that night. Dr. Buchman implanted the internal part of the cochlear implant and put the electrode into my cochlea. I was tired, dizzy, and had a little pain, but it was not bad at all. The worst part about the surgery was not getting to eat that morning and smelling the gas they used to put me to sleep. I had a big bandage on over my ear, but within a few days, I felt fine. About a month later, I received the external part, called the speech processor. It looks like a hearing aid, but instead of having tubing that goes into my ear, it has a wire with a magnet on the end that sticks to another magnet that is in the internal part in my head. Holly Teagle, my audiologist, worked with me to program the processor. At first, all I heard were strange noises that sounded like beeps and computer sounds. My brain needed time to learn what the cochlear implant was sending it. By that night, I could understand a few words. Three days later, I was able to understand almost anything. To help me learn to hear better using my cochlear implant, I went to auditory-verbal therapy at CASTLE with Lillian Henderson. She helped me learn to listen to sounds, people, and myself so I could learn to hear and speak better.

The problems with only having one implant were that I could not locate sounds, I could



Speech Pathologist Lillian Henderson, CCCDP Director Holly Teagle, Ben Smith, and his surgeon Dr. Craig Buchman.

not hear people if they were on my left side, and my hearing just did not seem balanced. It was particularly hard to hear in noisy places. My insurance company would not pay for a second implant, but my Mom and CCCDP kept asking and finally the insurance company agreed to pay for it. When I was twelve and a half years old, I received my left cochlear implant. My brain knew what to do with the signals from the cochlear implant this time and I could hear and understand people and music immediately. Finally, I could locate sounds, hear people better, and hear all the sounds around me. Now, when the batteries in one processor die, I can still hear with the other processor while I change the batteries.

I am very grateful for my cochlear implants and take very good care of them. Every night, I put them in a special box that removes moisture from them and I put the batteries in the charger. I always have to be sure to take extra batteries, wherever I go. Sometimes, some of my external parts or accessories break, but my Mom calls the company and they send us the parts the next day. When I play sports, I use wig tape to help hold the processors behind my ears. As I grow and my hearing changes, I have to have them reprogrammed, but that does not happen very often.

My processors are water resistant, but not water proof. While I can wear them in the rain or around water, they cannot be submerged. Therefore, I do not wear them in the pool or at the beach. I also cannot wear them at night when I am asleep. The processors need to dry out well and the skin that is between the magnets all day needs a break. I still have fun at the beach and the pool and I sleep very well because noises do not wake me, but these times when I have to be deaf make me even more thankful for my cochlear implants.

My cochlear implants have a lot of accessories and different programming options that I use in different situations. I can use headphones, but I prefer to use my telecoil wire that plugs into the headphone jack and transmits the sounds right to my processors wirelessly. When I listen to music, I use a special program made just for listening to music. It makes the music sound more detailed; I can hear the voices and the instruments better. I can also use the telecoil wire with assisted listening devices at movie theaters, plays, and amusement parks. I can talk on regular phones, but I hear much better if the phone is telecoil capable. If it is telecoil capable, I switch my processor to the telecoil program and it syncs with the phone and transmits the sounds straight to my processor. In school, I use a personal FM system. My teacher wears a microphone and I put small FM receiver boots on my processors. Everything the teacher says is sent right to my auditory nerve and then to my brain!

I am looking forward to going to high school, getting my driver's license, and participating in lots of extracurricular activities. My goals are to go to college at Duke University or Brigham Young University and to go on a two-year mission for my church. I do not know yet what I want to major in, but I have a lot of time to figure that out. I know that having cochlear implants will make it easier for me to accomplish my goals.

I will always be thankful for my cochlear implants and all the people who have helped me get them, program them, and learn to hear with them. I would not be who I am or where I am today without them!

The Rewards of Research Education

by Emily Buss, PhD

As a basic scientist in a medical school, I frequently work with medical students and residents who opt to do research in the psychoacoustics laboratory. In most cases, the first step is actually explaining what psychoacoustics is – study of the relationship between perception of sound (that’s the “psycho” part) and the physical stimulus (acoustics). Most of us take perception for granted, but the transformation from stimulus to perception is quite complex, involving basic mechanics of the middle ear, neural encoding of the stimulus at the auditory periphery, and increasingly complex central processing that can best be described as “cognitive.” Whereas psychoacoustics can be applied to increase our understanding of a wide range of hearing problems, like understanding speech in noise and cochlear hearing loss, many research programs in psychoacoustics focus on the limits of auditory processing in normal-hearing listeners. Study of the normal auditory system helps forge connections between physiology and perception, which ultimately broadens our understanding of hearing loss and auditory processing disorders.

Early in my graduate education, I focused exclusively on auditory processing in normal-hearing listeners. This all changed when I attended my first meeting of the Association for Research in Otolaryngology (ARO), where I was exposed for the first time to the full gamut of hearing research, ranging from genetics and hair-cell physiology, to middle ear mechanics and auditory prostheses. I learned a lot about how psychophysics fits into the broader context of hearing science, but one experience from that meeting stands out in particular. I had the opportunity to talk with a senior researcher about his work on a mouse model of hearing loss, and about 20 minutes into our conversation I asked him to explain the dependent measure of his study – the auditory brainstem response (ABR). When he heard that question he looked so disappointed and quickly ended our conversation. I guess he assumed that



Angela Yarnell Bonino (3rd year PhD student, Speech & Hearing Sciences), Dr. Emily Buss, and Stefan Mlot (4th year medical student) discuss data from a recent experiment.

this fundamental gap in my knowledge meant he had wasted time talking with me about the details of his study! In fact, that wasn’t the case at all, and once I found someone to explain basic ABR, it all made sense. I find myself going back to this memory frequently when I work with students and residents. In part that’s because it fosters humility and patience (plus some embarrassment). But remembering that experience also reminds me that teaching involves figuring out knowledge gaps and filling in the blanks. Sometimes all it takes is one missing piece of information, but the trick is just discovering what the missing piece is.

The primary goal of a lab experience is to teach the next generation of physician scientists some of the skills they will need to launch their academic careers: how to formulate a question that can be rigorously tested; how to use experimental design or statistics to control variables that might cloud the interpretation of an experiment; how to identify and critically evaluate the relevant literature. Although helping young investigators to develop these skills is serious business, working with medical students and residents also has

its fun side. As a group, they tend to be a motivated and spirited bunch, with a wide and well-stocked knowledge base. Frequently it just takes just a few details for them to understand a new experimental method or theory, and, as with any willing student, the “ah-ha” phenomenon is well worth the time and occasional misstep. I have found that the process of working with students has pushed me to think about the applications of psychoacoustic to clinical problems and to pay more attention to the “so what” of the laboratory studies that make up the bulk of our NIH-funded research program. In the long run, this strengthens the significance of the work in our lab and brings the basic and clinical aspects of our work closer together.

Some students who come through our labs go on to flourish in their own independent research careers. Others cultivate collaborations with fulltime researchers, or use their training to help develop clinical approaches that are based upon critical assessments of emerging research trends. In every case, positive rewards spring from the research training process – for both the trainee and the mentor.

Report from Savannah: The Research Track at Work

by Charles ("Carlos") S. Ebert, MD, MPH

In June of 2002, I became the first UNC Otolaryngology resident to begin the research track. At that time, I could not possibly imagine where this road would take me. Just over six and one-half years later, I find myself in Savannah, Georgia, working at the Georgia Nasal and Sinus Institute under the direction of Drs. Frederick A. Kuhn and Christopher T. Melroy. Many of you are probably asking yourself: How does that work?

Let me explain how *this* is possible. The residents on the research track engage in two consecutive years of research after the PGY-1 year. The clinical track residents have six months of dedicated research time during the PGY-2 year. When the research residents re-enter the clinical track, they have already completed their research time. Therefore, the research track residents stay clinically active and are able to finish with the clinical requirements six months prior to the end of the academic year. During these six months, research residents are allowed to pursue clinical or research activities away from UNC, even a mini-fellowship.

Dr. Kuhn and the Georgia Nasal and Sinus Institute (GNSI) have a long tradition of training otolaryngologists in advanced clinical and surgical management of sinonasal disease. Several former UNC residents (Marc Dubin, Chris Melroy, and Karen Bednarski) have done rhinology fellowships at GNSI, and the fellow for next year is Jeff LaCour. With the excellent training reputation and a well-paved path from Chapel Hill to Savannah, it was not a hard decision to propose to spend my six months at the GNSI. After a lot of begging, Drs. Kuhn and Melroy agreed to give me the opportunity to learn from their expertise.

The experience, thus far, has been incredible. GNSI provides an ideal atmosphere to enhance clinical and surgical development. Whether in clinic or the OR, there is always time to explain

nuances of management of allergic fungal sinusitis or explain the approach to dissect the frontal recess. In addition, a focal point for all fellows is to engage in research. We have recently completed an anatomic study, and I am working on an IRB to collect specimens from AFS patients for a future collaborative project.

Despite all the great opportunities to learn and grow professionally, it is difficult

being away from my family. With my wife and one-year-old son in Durham, NC, it can be tough. But in the long run, we know the challenges are greatly outweighed by the advantages.

Overall, I cannot imagine a better training experience than my time at GNSI. I am eager to build on the concepts and principles I have learned over the last two months.



Dr. Ebert performing sinus surgery at the Georgia Nasal and Sinus Institute.



Surgeons at the Georgia Nasal and Sinus Institute: Drs. Karen Bednarski (Rhinology Fellow), Fred Kuhn (Director), Chris Melroy (Associate), and Carlos Ebert. Drs. Bednarski and Melroy also completed their residency training in Otolaryngology at UNC (2008 and 2006, respectively).

5 questions for Elaine Hinkle, RN

1 Why did you choose a career in nursing?

I decided at a very young age that I wanted to be a nurse because of my own personal experience as a patient. Between the ages of 5 and 7, I was hospitalized for four surgeries. I was very frightened, but the nurses made me feel comfortable. My mother tells me that after the first surgery, I drew a picture of the operating room and told my parents that I was going to be a nurse when I grew up. I never deviated from that plan even though no one in my farming family had ever gone to college. Only two people tried to talk me out of nursing. My father worried about the sadness that I would see. My advanced math teacher really wanted me to major in math. I was able to convince them that I really wanted to offer others the comfort that I remembered receiving as a child.

2 You've been working with Dr. Shockley for over 13 years. What's that like?

Working with Dr. Shockley has been one of the highlights of my nursing career. He genuinely cares about his patients and is one of the best surgeons in the country. I can't say enough nice things about him. I am constantly amazed by the results of his reconstructive surgeries. His patients love him. He is also an excellent teacher as evidenced by his teaching awards. He and I have a great working relationship. Working with him is also fun because he has a great sense of humor (which balances out my "nose to the grindstone" personality).

3 You're also the nurse manager and educator. What kind of work does that involve?

I came into the nurse manager/educator role mainly because I have been here for so long! Nurse management would not have been my first choice of a nursing



Elaine Hinkle is always smiling! Her cheerful manner and caring nature, combined with the highest level of professionalism, make her an outstanding nurse. "Elaine is the cornerstone of our clinical endeavors," Dr. Shockley says, "She is adored by patients and is one of the most respected and dedicated nurses at UNC Hospitals."

job, but I do it because I love working here. It involves managing schedules for nursing coverage for vacations and illnesses, making sure that our clinic is in compliance with hospital and JCAHO policies, ordering and maintaining supplies and equipment, yearly evaluations, etc. The nurse educator role involves orienting new employees, yearly competency training, training with new procedures, etc. It can be challenging when I need to deal with a management issue while I am working with Dr. Shockley's clinic or if I have to share an unpopular policy (such as prior authorizations for scans), but I truly enjoy working with all of our staff here. The goals and values of this Department are the basis of the work that I do. At the end of the day, I can feel that I have done something worthwhile.

4 Have there been patients who have made an impression on you?

There have been so many patients over the years that have made an impression on me. I am always amazed at the strength, determination, and faith of our patients. One of Dr. Pillsbury's patients comes to mind. She has dealt with so many problems over the years, but she keeps a positive attitude and always brings us goodies even when she is sick! There are quite a number of Dr. Shockley's patients that come to mind. Ricky, Ann, and Tom battled recurrent cancers with such bravery, continuing to work and do all the things that they loved until the end. And of course, I could not leave out his facial reconstructive surgery patients. They come in so frightened and devastated by their defects. It is so rewarding to see them when they come back after their surgeries have been completed, happy and back to their normal lives.

5 What do you enjoy most about nursing?

What I enjoy most about nursing is helping patients in any way that I can. It may be a simple thing like holding their hand during a procedure or answering a frantic phone call from a worried patient. I worked in inpatient cardiothoracic surgery and renal transplant, outpatient orthopedics and surgery clinics before I found my calling in ENT. Drs. Fischer, Biggers and Pillsbury taught me about ENT and really made me feel like a member of the team. I have thoroughly enjoyed my years in the ENT Clinic and am very thankful for the opportunity to work in this Department. I enjoy giving back to the patients of North Carolina and sharing the comfort that I received so many, many years ago.

Announcements



Dr. Greg Basura tries out the new CT scanner at Carolina Pointe. The Xoran MiniCAT allows immediate access to temporal bone and sinus CT scans for patients.

UNC Healthcare named the **ENT Allergy Clinic at Carolina Pointe** as a “Top Five” Clinic in January. In February, both the **ENT Clinic** and **Speech & Audiology** were designated as “Top Five” clinics. The “Top Five” clinics are selected each month based on the results of patient satisfaction surveys.

Paul B. Manis, PhD, reports that his R01 grant, “Cellular Mechanisms of Auditory Information Processing,” was competitively renewed for 5 years, starting April 1, 2009. The grant studies the inhibitory circuits in the ventral cochlear nucleus both in normal and hearing-impaired mice. Dr. Manis and his colleagues are studying how the properties of inhibitory connections vary among different cochlear nucleus neuron populations, how inhibition shapes the responses of cochlear nucleus neurons to sound, and the consequences of hearing loss on these inhibitory circuits. Dr. Manis is the Principal Investigator, and **Ruili Xie, PhD**, **Luke Campagnola**, and **Heather O’Donohue** are also on the grant.

Craig A. Buchman, MD, has been invited to give a talk at the 7th Meeting on Binaural Hearing Implants, which will take place in Bordeaux, France, April 16-19, 2009. His topic is “Stability of Binaural Benefits in Bilateral Cochlear Implant Users.” Dr. Buchman was also recently appointed Chairman of the Early Hearing Detection Intervention Advisory Board of the Department of Public Health of the State of North Carolina, as well as the Chairman-Elect of the William House Cochlear Implant Study Group.

Charles C. Finley, PhD, has been invited by conference organizers to be a platform presenter at the 2009 Conference on Implantable Auditory Prostheses in July at Lake Tahoe, California. He was also invited to be the keynote speaker at the 2009 Conference of the British Cochlear Implant Group in Cambridge, England in June.

Brent A. Senior, MD, was the keynote faculty and lecturer at the 15th Annual Conference of the Egyptian ORL Society at Cairo University, February 25-27. In March, he made his yearly humanitarian mission trip to Vietnam (for the 12th time!), organized by Resource Exchange International. He is going back to Egypt in April, this time to Alexandria University, where he will be faculty for the 27th International Alexandria ORL Conference.

Mark C. Weessler, MD, was elected to the Central Judiciary Committee of the American College of Surgeons, as well as to the Editorial Board of Otolaryngology-Head and Neck Surgery.

Mihir R. Patel, MD, won the Lloyd Storrs Resident Research Award given by the Triological Society at the Southern Section Meeting in January. The title of the project is “A Novel Endoscopic Reconstruction for Anterior Skull Base Defects: The Endoscopic Pericranial Flap Usage in the First Three Patients.” Co-authors are **Drs. Rupali Shah and Adam Zanation**, as well as three from Pittsburgh, Pennsylvania: Drs. Carl Snyderman, Ricardo Carrau, and Amin Kassam.

Michael O. Ferguson, MD, was recently promoted to Associate Professor and was named the Associate Director of the UNC Otolaryngology/Head and Neck Surgery Residency Program. He was also recently appointed as an at-large member of WakeMed’s Medical Executive Committee.

Carol G. Shores, MD, PhD, received a UNC Center for AIDS Research/Lineberger Comprehensive Cancer Center Grant for \$30,000 to set up a clinical cancer database at Kamuzu Central Hospital in Lilongwe, Malawi. In addition, she and her colleagues will set up tissue procurement and studies to examine how co-morbid infections affect the presentation, treatment and outcomes of Malawian cancer patients. Dr. Elizabeth Bigger, an Internal Medicine resident at Vanderbilt University, has received an NIH Fogarty International Clinical Research Fellowship to work on this project, and Dr. Shores will serve as her US advisor.

Maher N. Younes, MD, received a \$5,000 grant from the North Carolina Medical Foundation for head and neck research. The title of the project is “Targeting Cervical Neck Node Metastases in a Mouse Model for Oral Cancer.” The aim of the project is to establish a real time in vivo model, whereby after injecting cancer cells in the tongue of mice, it grows and emits a signal that can be picked up by a machine. As the tumor starts metastasizing, we can detect its growth in the neck nodes. Afterwards, we will be using molecular targeted therapies like antibodies to see if we can stop these tumors from going to the neck nodes or to see if those new therapies can cure already established lymph nodes metastases.

Adam M. Zanation, MD, won the 2008 North American Skull Base Society Research Award for a project and presentation in Vancouver, Canada, entitled “Outcomes in Patients Treated with Endoscopic Resection of Sinonasal Cancers.”

Questions, comments, or suggestions about Heads Up? Contact Elizabeth Perry, eaperry@med.unc.edu, or 919-260-9002.

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