

# FINDING YOUR

A team of UT Southwestern  
specialists restores once-vibrant  
voices lost due to overuse,  
neurological problems, age,  
trauma, and other conditions.

By Russell Rian

Whether you're considered "chatty" or not, the amount of time you spend in conversation in a day – conducting business, conversing with co-workers, or catching up with friends and family – can take a toll on your voice. Quantifying just how much people talk isn't an exact science, but studies estimate that the average person speaks 16,000 words per day. A study in the *Journal of Communication* estimated that 50 percent to 80 percent of the workday is spent communicating, two-thirds of it talking.

All of this chatter likely accounts for why nearly 30 percent of people will experience a voice problem during their lifetime. A National Institutes of Health study noted that while singers are on the top 10 list of those seeking help from health professionals at voice centers, the majority of patients are teachers, retirees, homemakers, factory workers, executives, students, and nurses.

This difficulty with vocal cords often comes without warning or apparent reason. Voices erode and degrade or suddenly sound raspy, breathy, or strained. The erosion leaves those afflicted suffering more than just frustrating moments of conversation. Teachers, for instance, are forced to take time off from work for voice difficulties, at a taxpayer cost of more than \$2 billion a year. Seniors silently drift out of circulation simply because speaking has become too difficult or embarrassing. The daily details, triumphs, and tribulations of friends and family that are the celebration of life go unspoken.

An appreciation for these struggles and the people who live with them evolved into UT Southwestern's Clinical Center for Voice Care, a place where a team of specialists dedicated to restoring the lost voices of everyone from operators to opera singers works toward a common goal.

"Voice difficulties have a far greater effect on people than just the loss of voice," said Dr. Ted Mau, Assistant Professor of Otolaryngology–Head and Neck Surgery and Director of the Clinical Center for Voice Care.



UT Southwestern's Clinical Center for Voice Care team includes (from left): Dr. Lesley Childs; Laura Toles, Speech-Language Pathologist; Dr. Ted Mau; Amy Hamilton, Speech-Language Pathologist; Dr. Barbara Schultz; Janis Deane, Speech-Language Pathologist

## 'No need to live with it'

The American Academy of Otolaryngology–Head and Neck Surgery recommends that anyone who experiences vocal changes for more than two weeks be examined by an otolaryngologist, commonly referred to as an ear/nose/throat (ENT) physician. Those who specialize through fellowship training specifically in throat disorders are known as laryngologists.

Dr. Mau, along with Dr. Lesley Childs, Assistant Professor of Otolaryngology–Head and Neck Surgery, and Dr. Barbara Schultz, Associate Professor of Otolaryngology–Head and Neck Surgery, are the physicians on the Clinical Center for Voice Care team. In addition, an experienced team of speech-language pathologists who have particular expertise in voice disorders, including therapy and training techniques for professional singers, works with patients. Interestingly, the speech pathologists are classically trained singers as well.

"I was fortunate to recruit speech pathologists who were not only gifted in the area of voice therapy but who also have extensive musical backgrounds," said Janis Deane, Faculty Associate of Otolaryngology–Head and Neck Surgery and head of the speech-language pathology section for the Center.

Amy Hamilton, also a Faculty Associate in the department, has 20 years of singing experience and holds a vocology certification. Faculty Associate Laura Toles has worked exclusively with the Clinical Center for Voice Care since she began her career. Assistant Instructor Cristina Duran has experience in acting as well as singing.

"Our team approach to voice care makes all the difference in the world," said Dr. Schultz. "Our nurses and assistants are an important part of our team; they understand the urgency of various voice problems and help to coordinate the office visits.

"The physicians can do an initial evaluation and examine the vocal folds with our specialized scopes, which allow us to show the patients any pathology or problems we may find. We also are able to share this with the other physicians in our practice and with our speech pathologists."

Vocal problems can be somewhat vague: vocal fatigue; soreness in the jaw, throat, or even shoulders; a prolonged warm-up time for singers; a tickling or choking sensation when singing; or decreased vocal range. Other times, the symptoms are more obvious: breathiness, frequent coughing or throat clearing, hoarseness, a pain or tightness in the throat while singing.





“A lot of times people live with problems with their voice because they don’t know what to do,” Ms. Deane said. “They get hoarse and think it’s just a sign of aging, or maybe they have a trauma and think their voice is just going to be raspy.”

Research from the American Academy of Otolaryngology–Head and Neck Surgery bears this out. Nearly three-quarters of seniors with voice problems do not seek help for problems that make it hard to talk, eat, or drink, and more than half do not realize that treatment is available.

“There’s no need to just live with it. We see many professionals who rely heavily on their voices, such as singers, teachers, and public speakers, but anyone with a voice problem can take advantage of our services,” Dr. Schultz explained.

## Calls for help

Finding the right help is important because, according to a 2006 survey, the quality-of-life impact from voice disorders compares to chronic diseases such as sciatica (back pain), congestive heart failure, or chronic obstructive pulmonary disease.

Barbara Valentin understands. As a receiving coordinator for a large toy company, she talks on the phone frequently. But it was people on the other end of the line who first noticed something was amiss.

“I had always received comments about what a nice voice I had, but I started hearing comments like, ‘What’s wrong with your voice?’ and ‘Oh my, are you sick?’ My oldest sister was the first to notice the choppiness in



Barbara Valentin

my voice even when I didn’t recognize anything was wrong,” she recalled. “Gradually, it got worse. Rarely a day went by that I didn’t have to explain to someone that no, I wasn’t sick.”

The slow erosion of her voice quickly turned into calls for help. Several MRIs and specialists later, the medical consensus was undecided.

“I went to one doctor after another trying to find answers because, by this time, having a conversation was difficult and extremely aggravating for me,” she said. “My words would come out of my mouth, but something was chopping them up, and I sounded a little as though I was being strangled while talking.

“I began to withdraw socially and wouldn’t – and most of the time couldn’t – engage in conversation. The look on people’s faces as they would pretend to understand me but really just wanted to turn around and walk away was hurting me almost as much as the struggle to speak.”

Eventually, a community ENT specialist referred her to the Clinical Center for Voice Care and Dr. Mau, who determined she had spasmodic dysphonia, a neurological problem in which muscles of the voice box spasm during speech. In Ms. Valentin’s case, the recommended treatment was Botox injections, which helped loosen the muscles.

“Dr. Mau came highly recommended, and my doctor had already heard such good things about what he was doing at UT Southwestern,” Ms. Valentin said. “When Dr. Mau saw me on my first visit, I felt comfortable and reassured that this was finally the right diagnosis.

“A couple of days after the Botox had settled into my vocal cords, I picked up the phone and called my sister. She was so excited that although she could barely hear the volume of my voice, she could understand every word I said. We were both in tears.”

Ms. Valentin has since regained both her voice and her confidence. “I have additional help and support from my wonderful voice therapist, Amy Hamilton. She has taught me valuable techniques and exercises to help me get the most benefit out of my Botox injections,” Ms. Valentin said.

A person’s participation in his or her own recovery is crucial in voice care.

“Barbara was very diligent in practicing assigned voice exercises, and due to her perseverance, we were able not only to determine the definitive diagnosis of spasmodic dysphonia but also to help her optimize her vocal output in the presence of this frustrating disorder,” Ms. Hamilton said.

## Difference makers

People’s emotions are very much tied to their voices, Dr. Mau noted.

“Especially for those who depend on their voices for their professions and their livelihood, we are able to help and really make a difference in their lives.”

For singers, the very mention of “nodule,” for example, strikes a chord of fear. Nodules are benign vocal fold growths that can occur after overuse, marring the pure, clear tones singers demand. It is one of the more common problems that bring singers into the Clinical Center for Voice Care.

“It’s your only set of vocal folds, so unlike a flute or guitar, you can’t trade it in or upgrade it 10 years down the road,” said Dr. Childs, a classically trained soprano who has recorded songs for Walt Disney Records. “People often think of nodules as a career-ending diagnosis, but it’s not. Nodules are reversible.”

Dallas-Fort Worth is home to a wide range of singers and serves as a popular concert stop for all genres of musicians who occasionally need expert care on the road.



Dr. Ted Mau, wearing protective glasses, demonstrates pulsed potassium titanyl phosphate (KTP) laser therapy, an innovative procedure that allows physicians to treat vocal cord lesions in a minimally invasive fashion.



“We see very high-level singers and performers who may be visiting Dallas and have an urgent voice issue, and we do our best to see these people rapidly so they may continue to perform,” said Dr. Schultz, a soprano with her church choir who has performed at the Morton H. Meyerson Symphony Center and with the Turtle Creek Chorale.

Even healthy singers and orators call on the Center to get an analysis of their voice while it is in good working order, for later tracking and comparison purposes.

To diagnose voice disorders, the team uses state-of-the-art videostroboscopy, which shows freeze frames of the vocal folds in action.

Overuse of the voice can cause polyps and cysts affecting voice quality, and some surgeries and viruses can lead to vocal fold paralysis. Muscle tension dysphonia can occur after a severe upper respiratory infection or as a result of allergies. The Clinical Center for Voice Care team also provides diagnosis and treatment for patients who develop a voice problem due to neurological disease, trauma, or other ailments.

Treatments may include microsurgery of the vocal folds, a minimally invasive procedure to remove polyps or cysts; Botox injections for problems such as spasmodic dysphonia; or laser surgery. Some of these can be done at the Center and don’t require a general anesthetic, so patients have much less downtime, Dr. Childs said. Thyroplasty and vocal fold injection augmentation also are available.

“We see many professionals who rely heavily on their voices, such as singers, teachers, and public speakers, but anyone with a voice problem can take advantage of our services.”

These procedures can strengthen weak vocal cords that are causing hoarseness or a breathy-sounding voice.

Regardless of the fix, voice therapy plays a critical role. Many voice problems can be resolved with therapy alone, and follow-up therapy is nearly always important after procedures, which makes coordination with voice therapists at the Center both crucial and convenient, Ms. Deane said.

Therapy can also be preventive, helping people optimize the efficiency of their voice production. For example, therapists can identify poor vocal habits, from excessive caffeine consumption to improper breathing techniques, which can lead to a recurrence of voice problems after surgery if not changed. Therapists also can identify preventive tactics such as proper nutrition and hydration, as well as offer practical tips such as vocal exercises to increase vocal endurance.

“Our mantra as laryngologists is to operate on the vocal cords as a last resort,” Dr. Childs said. “Even if the growth doesn’t go away with speech therapy, it will at least get smaller. This allows for a much less invasive surgical procedure, with less risk of permanent hoarseness from scarring.”



Dr. Barbara Schultz

## A ‘rich topic’ for research

While health care is at the heart of the Clinical Center for Voice Care, being part of an academic medical center means research is an integral component as well. Center members often team up with other researchers in otolaryngology to study vocal-fold biomechanics – how the folds move and are positioned to generate the wide range of sounds our voices produce.

“I started out as a scientist in biophysics, studying the atomic structure of proteins,” Dr. Mau said. “When I switched gears into medicine, I maintained the biophysics way of thinking about things. The voice box is fascinating because the human vocal fold tissue is unique. There’s nothing like it in other animals and nothing like it anywhere else on the body.”

Dr. Roger Chan, Associate Professor of Otolaryngology–Head and Neck Surgery, and Dr. Che Xu, Assistant Professor of Otolaryngology–Head and Neck Surgery, focus their research on studies of the human larynx.

Dr. Chan specializes in vocal-fold tissue mechanics and biorheology – the study of flow properties of biological systems – and their relationships with voice acoustics and laryngeal physiology. His current lab projects include quantification of key biomechanical characteristics of human laryngeal tissues, physical models, and computer models of the larynx.

Dr. Xu is working to unravel the anatomy and physiology of voice production and laryngeal biomechanics. His research includes development and testing of a vocal fold lamina propria tissue replacement for surgical applications. When the vocal fold is injured, whether from trauma, surgery, or resections due to vocal cord cancer, the scarring that occurs is often irreversible, creating the need for replacement tissue or an ability to regenerate healthy tissue.

“The complexity of the human vocal fold and the various possible tissue-engineering approaches make this a rich topic, but one with many challenges to solve,” Dr. Xu said.

In addition, the Clinical Center for Voice Care team is engaged in clinical studies, such as examining the effects of therapeutic injections,



the merits of different kinds of voice therapy, the care of the aging voice, and whether a device that helps patients communicate can improve their quality of life after voice surgery. Another study is assessing the impact of voice rest, which is sometimes prescribed to patients.

“Voice rest is much harder to do than you think,” Dr. Mau noted. Preliminary results suggest patient compliance with voice rest is much poorer than needed, yet the negative impact of failing to rest the voice is much greater than thought, he said.

That kind of understanding is critical to improving patient care, the ultimate goal for all of the Department of Otolaryngology’s research efforts.

“The voice is something that’s very precious,” Dr. Mau said. “With everyone on the team having a vocal background, I think we all share an appreciation of just how precious and valuable a clear voice is. That, in turn, provides a valuable understanding for where our patients are coming from so we can approach their challenges with that in mind and identify the best solution tailored particularly to them.”

Leading-edge technology and advanced expertise mean UT Southwestern’s Clinical Center for Voice Care can help with almost any type of voice problem, from minor irritations to major concerns.