

Theresa Cullen, doctor of audiology at the Cape Cod Hearing Center in Hyannis, knows that her generation is facing hearing problems earlier in life than her parents' generation did. All those rock concerts and the days of buzzing that followed took their toll. The good news is that the new digital hearing aids really work and the sooner you get one, the less time you'll need to retrain yourself to hear.



MERRILY LUNSFORD/CAPE COD TIMES

**That is why in the early stages of hearing loss, people find it more difficult to hear the voices of women and children, while the deeper voices of men may still be clear.**

# NOW HEAR THIS

Dr. Theresa Cullen talks about hearing loss

## About the author

Barbara Ravage moved to Cape Cod from her native New York City in 2000, after the youngest of her children went off to college. She considers heavy doses of ocean air and Cape light the best cure for empty nest syndrome. A graduate of Barnard College, she is the author of nine books, including a biography of Rachel Carson for middle-school students and "Burn Unit: Saving Lives After the Flames," which explores the history and science of burn treatment. She balances her writing life with yoga, karate, and pottery. After years of making do with two summer weeks on the Cape, her favorite part about living here is that she's already home.

BY BARBARA RAVAGE

**D**o you often ask people to repeat themselves? Do you have difficulty following conversations in a crowded restaurant? Does everyone around you seem to be mumbling? If so, Theresa Cullen, Au.D., says it's time for a hearing evaluation.

A doctor of audiology in Hyannis, Theresa has been treating people with hearing problems for 22 years. Although she sees patients of all ages, an increasing number of baby boomers come to her for help. Normal age-related hearing problems coupled with past exposure to loud music may explain why the generation that

put the "boom" into popular music is experiencing hearing problems at an earlier age than their parents did.

Theresa moved to the Cape 18 years ago, after earning her undergraduate degree in communication disorders and a masters in audiology from Central Michigan University. She lives in Marstons Mills with her two children, 16-year-old Conaire (pronounced Connery) and Kara, 17, who is a member of Barnstable High School's legendary volleyball team, which won the division one state championships for the past five seasons.

"I made every one of her games," Kara's proud mother says. "One of the great things about being in solo

practice is that my patients and my staff know that on game day I'm going to want to get out to make that game." Kara is off to Gannon University in Pennsylvania next year on a volleyball scholarship.

Athletics clearly runs in the family. Theresa has rowed in the Head of the Charles Regatta three times and was a member of a Wequaquet Lake rowing team until she was "shored lined" by a back injury. She's still healing a year and a half later, but says she's eager to take up the oars again.

In 1999, Theresa jumped at the chance to achieve the highest level in her profession by acquiring a doctorate in audiology through a distance

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learning program jointly run by Central Michigan and Vanderbilt universities. "My kids thought it was great that I had more homework than they did most nights," she says with a smile. "They would hang my report card on the refrigerator."

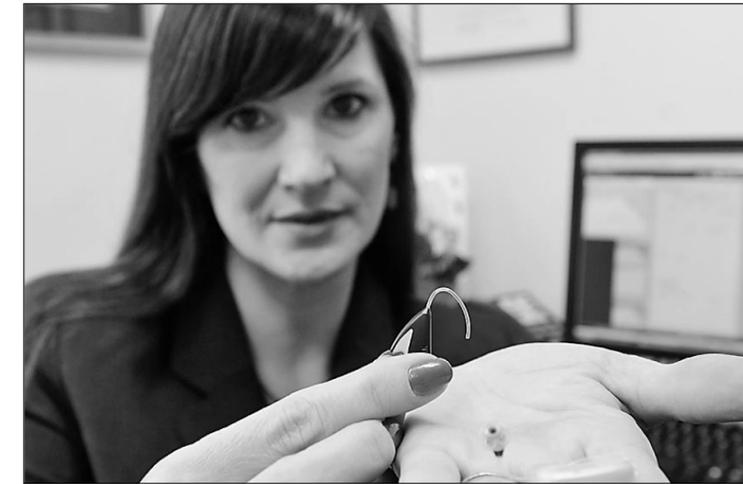
Statuesque and animated, the 45-year-old Michigan native brings both passion and a deep understanding to her work. She gestures with her hands and her dark eyes light up as she explains how hearing works and what goes wrong when it doesn't.

The most common type of hearing loss, referred to as sensorineural, is caused by damage to the cochlea (coke-lee-ah), the organ of hearing located in the inner ear. Shaped like a snail shell and no bigger than a pinky fingernail, the cochlea is filled with fluid, which washes over hundreds of delicate, hairlike nerve endings. The fluid conducts sound waves, which the nerves transmit to the brain. When the nerve endings are damaged or destroyed, the signal does not get to the brain as it should. At first, damage is confined to a small area, but over time, that area increases and hearing worsens.

"The cochlea is really a fine-tuned organ. Certain frequencies are encoded in certain areas," Theresa says. The area that picks up high frequencies tends to be damaged the earliest and the most. That is why in the early stages of hearing loss, people find it more difficult to hear the voices of women and children, while the deeper voices of men may still be clear.

An early sign of hearing loss is an inability to identify words, even though the perception of volume may be unchanged. Sounds come through loud, but not clear. "In speech, high-frequency sounds are the consonants, s, sh, th, f. The vowels are low frequency, which gives volume, power, energy to speech," Theresa explains. "The consonant sounds, especially at the beginning of words, are what give meaning. When you miss the beginning or ending consonant, you miss the word or you cannot distinguish between words," such as "fifty" and "sixty," for example. That's why it seems that people are mumbling.

"You may be able to hear the car in the driveway – a low-frequency sound – but you can't hear a voice asking a question, especially if the television is on or there is other background noise." It can be very frustrating for everyone concerned. Theresa shared some tips



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**Theresa Cullen, Au.D., holds samples of hearing aids. She works closely with patients to see which fits with their lifestyle. If you have arthritis, she won't torture you with the smallest unit with even smaller batteries. If you need to hear clearly in a noisy environment, she'll recommend a high-tech model.**

on how both speakers and hearers can reduce that frustration.

For speakers: Get the person's attention before you begin to talk. As much as possible, eliminate background noise – turn off running water, mute the TV. Although people tend to raise their voices and speak more quickly when asked to repeat something, the key is to speak "lower and slower."

If you have trouble hearing what's been said, don't just say, "What?" Instead, repeat what you did understand, identifying the part that got away: "What time did you say we are meeting the Johnsons for dinner?"

Another hearing problem common among boomers is tinnitus, a constant ringing in the ear. Pronounced either tin-nit-us or tin-eye-tiss, this maddening condition occurs when cochlear nerve endings misfire. It is possible to have hearing loss and tinnitus at the same time since the ringing is a faulty signal traveling between the cochlea and the brain, not a "real" noise coming from outside the ear. One of the worst things about tinnitus is that the quieter the surroundings, the more noticeable the ringing, so it may interfere with sleep.

Although long-term exposure to loud noises is usually implicated, tinnitus may be a side effect of aspirin and other medications, even caffeine and artificial sweeteners. A middle-ear infection and impacted ear wax are other possible causes. In some cases, tinnitus goes away after the cause is resolved or removed. In many cases, however, it

remains a constant annoyance.

If she suspects a medical cause for tinnitus, Theresa will refer a patient to an ear, nose, and throat specialist. If it results from permanent damage to cochlear nerves, however, she can fit the patient with a hearing aid programmed to emit a tone that cancels out the ringing. Some devices can mask tinnitus in that way as well as amplify sounds.

Theresa emphasizes the importance of early evaluation by a trained audiologist. Isolation and depression are common results of untreated hearing loss. Nonetheless, she says, people tend to be in denial, often waiting years before seeking help. Unfortunately, the longer the delay, the longer it takes to adjust to a hearing aid. It's not just that hearing has worsened. "It takes time to retrain yourself to hear those sounds after not hearing them for a number of years," she says.

She attributes the denial to the stigma attached to wearing a hearing aid and the conventional wisdom that they don't work very well anyway. The good news, she says, is that old-style aids have been replaced by high-tech digital "hearing instruments." The new devices are small enough to be virtually invisible at the same time as they offer a superior signal-to-noise ratio through directional microphones, noise-reduction circuitry, and programmable microprocessors that pick up sound frequencies selectively to maximize the hearing ability that remains. Some use

## Quickhits

### May is Better Hearing and Speech Month

- A Quick Hearing Check from the Better Hearing Institute [www.betterhearing.org/hearing\\_loss/quickHearingCheck.cfm](http://www.betterhearing.org/hearing_loss/quickHearingCheck.cfm)

- More about tinnitus, including a really annoying sample of what it sounds like, and how to protect your hearing from noise damage (How Loud is Too Loud?). [www.ata.org/abouttinnitus](http://www.ata.org/abouttinnitus)

- Useful info and links: National Institute on Deafness and Other Communication Disorders [www.nidcd.nih.gov/index.asp](http://www.nidcd.nih.gov/index.asp)

- Cape Cod Hearing Center Theresa Cullen, Au.D. 269 Barnstable Road, Hyannis 508-775-0959 <http://capehearing.com>

Bluetooth technology and are marketed as PCAs, personal communication assistants.

Although the most sophisticated hearing instruments are quite expensive – and covered neither by Medicare nor most private insurance – not everybody needs a top-of-the-line device. Theresa works with her patients to get a sense of their individual hearing needs, taking into account such factors as lifestyle, environment, and manual dexterity. For example, she will not choose the smallest aid with a minuscule battery that needs changing once a week for a patient with arthritic hands. But someone whose profession requires acute hearing in settings with a lot of ambient noise might need a high-end device. She also spends a lot of time helping people adjust to hearing again, repeatedly programming the instrument over time. She's not happy until her patient is happy. These days, more people are happy, including Theresa herself.

"I have been doing this for over 20 years and I'm not used to hearing the words 'love' and 'hearing aid' in the same sentence, but now I am," Theresa says. "It's really rewarding to think that it's changing the quality of someone's life."