Can you hear what I am saying?

John Grant MD FRCPC

As hearing declines, many joyful sounds fade from our perception: crickets chirping on a summer evening, leaves rustling in a soft breeze, whispering with your loved ones, music and lyrics. The telephone goes from ally to angst. Television requires subtitles. Grandchildren's voices become impossible to decipher. And then there is work ….

Physicians use all senses when assessing patients. Hearing is essential to take a patient's history or to converse over the telephone. The sounds of a cough, respiratory noises, and quality of voice also impart important information about health and illness. The stethoscope, an icon for our profession, is an invaluable tool for auscultation of the lungs, heart, great vessels, and abdomen.

What about medical professionals who experience hearing loss? Are there stethoscopes that amplify hearing for persons with mild hearing loss who do not yet need hearing aids? For persons who wear hearing aids, how can they use a stethoscope? More importantly, what is the best way to maintain conversational understanding as hearing fades and technological dependence increases? Telephone conversations, meetings, conferences, and transfer of care discussions become more difficult. Ultimately, one must ask, "Is my hearing loss jeopardizing my patient care and medical management?" and, "Is it safe for me to continue in my medical practice?"

Hearing assessment

While sound waves between 20 and 20 000 Hz form the absolute borders of the human hearing range, hearing is most sensitive between 2000 and 5000 Hz, with conversational speech frequencies within the range of 500 to 3000 Hz. During a hearing evaluation, pure tone audiometry measures the hearing thresholds of different frequencies in each ear, defining the presence or absence of a deficit at any test frequency. *Hearing thresholds*[1] (**Table 1**) are defined as the lowest level sound can be heard 50% of the time at a certain loudness, measured in decibels.

Speech discrimination testing helps further define functional impairment by assessing the individual's understanding of spoken words. Together, these tests help audiologists determine whether a person needs a hearing amplification device.

Table 1. Hearing loss thresholds

HEARING LOSS	HEARING THRESHOLD
Mild	25 to 40 dB higher than normal
Moderate	40 to 55 dB higher than normal
Moderate to severe	55 to 70 dB higher than normal
Severe	70 to 90 dB higher than normal
Profound	90 dB or higher

Hearing loss statistics

Hearing loss is the third most prevalent chronic condition in older adults.[2] Its prevalence rises with age: 46% of people aged 45 to 87 have hearing loss.[3] In 2017, there were 86 644 physicians in Canada.[4] More than 60% of those physicians were 45 years or older,[5] suggesting that at least 43 000 Canadian physicians had some degree of hearing loss. This prevalence echoes the American data.[6]

While there are 3 basic types of hearing loss—sensorineural, conductive, and mixed—hearing loss in more than 90% of older people is sensorineural.[7] This is a gradual, symmetric loss of hearing (predominantly of high frequencies) that worsens in noisy environments.

Seeking aid as hearing worsens

Physicians, like others who develop hearing loss, are often reluctant to admit their declining sensory function. They will increasingly use excuses for hearing issues—"the room was noisy"; "your voice is too soft"; "sorry, I was distracted." Gradually, consciously or unconsciously, physicians will develop coping strategies[8]:

- depending on nonverbal, visual cues to give meaning to unclear words;
- wearing glasses to help with hearing;
- actively learning to lip read;
- increasing telephone and television volume levels;
- in noisy environments, finding a quiet corner to have conversations in; and
- in big meeting rooms, sitting close to the speaker to hear what is being said.

At some point, either as a conscious decision or one made in response to encouragement from a friend or partner, a hearing test is performed and hearing aids become a treatment option. In most circumstances this is more because of conversational difficulties (mid- and high-range frequencies) than trouble using a stethoscope (low- and mid-range frequencies). While wearing hearing aids is commonplace, it is much easier to accept them as fine for somebody else. For new users, there can be a feeling of embarrassment that they are now visibly different, much like first-time eyeglass users. To minimize this "visibility," most first-time wearers opt for small in-canal devices. Getting used to bilateral hearing aids can take time, as an occlusive hearing sensation often results. This tunnel effect not only feels odd, but it can cause headaches, moodiness, and fatigue (I can personally attest to these symptoms). Some novice users buy 2 in-canal devices but only wear 1 to avoid that tunnel effect and still boost hearing. This allows use of a normal stethoscope without having to remove the device.

Eventually, as hearing continues to fade, hearing aids with better amplification and programs become necessary.

Behind-the-ear devices are very sleek and actually quite discreet. These tiny computers have soft plastic domes that are placed in the external auditory canals. These can be fenestrated (open) or solid (closed). The closed system provides superior amplification but can cause the tunnel effect, and this can be difficult to adapt to if low- and mid-range frequency hearing is still good. A traditional stethoscope with soft-tip earpieces can be used with a fenestrated hearing aid, as gentle positioning can align the openings. Once hearing is at a level requiring a closed system, a traditional stethoscope can no longer be used. At this stage, newer digital Bluetooth stethoscopes can work very well with high-end Bluetooth hearing aids.

Further progression in tonal hearing loss, or substantial loss in speech discrimination, mandate assessment by an otolaryngology colleague (if this has not already happened) and consideration of cochlear implants.

Consequences of hearing loss at work

Even with a commitment to good communication, excellent hearing aids, and lip-reading lessons, hearing aid users (me included) can still have bad hearing days when repeat requests are too frequent. Maybe it is a mild head cold, or unsuspected wax partially blocking one or both external auditory canals, or just plain fatigue after a poor sleep. While hearing aids do help, they cannot bring hearing back to normal levels as sensory sensitivity progressively declines, especially in noisy environments.

As a physician, the functional deficit of the hearing loss depends somewhat on the type of practice that you have. In most settings one-on-one conversations can be accomplished with little difficulty. Patience and requests for clarification might still be needed, but the information is understood. It becomes more challenging in busy, noisy environments where decisions are needed quickly (eg, emergency departments) or when conversing with people who have heavy accents, soft voices, or high-pitched voices.

During the past 20 years, my work in the emergency department at IWK Health Centre in Halifax, NS, has become increasingly challenging as my hearing has worsened. It has taken an increased effort to focus on lip reading, facial expressions, body posture, gestures, and conversational context, which I will collectively call *hearing substitutes*. I have become more adept at controlling interviews to get at the pertinent information, but this level of continuous concentration to gather accurate information is tiring and efficiency suffers as a shift nears its end. Nursing staff and house staff have served as liaisons for unavoidable telephone conversations to radiology specialists, consultants, pharmacies, and parents—it is not ideal, but it does work. In addition to increasing reliance on technology and hearing substitutes, for the past year I have had to ask my colleagues for special work accommodations. In the pre-COVID-19 world, I reduced work to 2 shifts per week and no longer did solo or charge shifts, as telephones, accents, and noises in the trauma setting overtaxed my hearing, substantially raising the possibility of medical error. Now, with COVID-19 requiring all staff and family members to wear face masks (which I wholeheartedly endorse), my aforementioned hearing substitutes have vanished. Consequently, I have taken a leave of absence and will probably retire early.

Assistance

It is a lonely path at present for hearing-impaired physicians, with no guidelines or assistance in deciding whether it is safe for us to practice. This needs to change. Ideally, provincial medical associations, the Canadian Medical Association, and even the Canadian Medical Protective Association should be sources of information and support for physicians with hearing loss. Online advice on who to see and what type of hearing aid is best for your particular level of hearing impairment would be helpful. Professionals to assess your home and workplace needs, stethoscope advice, telephone and IT support (for Bluetooth devices), and information on lip-reading or sign-language classes would be very useful. Reassurance that it is still safe for you to practice or realistic advice to change or stop your practice, and advice about disability tax credits and disability insurance are also necessary.

Keeping skilled clinicians in the work force and protecting patient safety is a win-win scenario. A central point of information and help is not an unrealistic request. Such information would not only benefit hearing-impaired physicians, but also physicians who care for hearing-impaired patients. Without assessment, treatment, and social support, all people with substantial hearing loss—including physicians—are at risk of social isolation, depression, cognitive decline, and even dementia.[9]

Do you hear me?

Dr Grant is Assistant Professor at Dalhousie University in Halifax, NS, and a pediatric emergency physician at IWK Health Centre in Halifax.

Competing interests
None declared

Correspondence
Dr John Grant; e-mail **john.d.grant@outlook.com**

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