Cost-Effective Hearing Rehabilitation—: A Role for Self-Fitting Hearing Aids?

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Things change. In the last few years, Internet merchandising has seen some new distribution channels for hearing aids starting to gain traction. In some cases, the devices have been referred to as *self-fitting* though in reality, many have been indistinguishable from the complex devices that highly skilled clinicians fit. This special issue deals with some of the issues involved in creating a *truly* self-fitting hearing aid—one that requires no person other than the aid wearer, and no test equipment other than the hearing aid. The concept for such a device is described in the first article in this issue by Convery, Keidser, Dillon, and Hartley. Although a truly self-fitting hearing aid would unquestionably not be for everyone, the diversity of clients seen in any practice raises the question of whether such devices would be suitable for some clients, and whether for these clients, outcomes comparable with those achieved by highly skilled clinicians could be produced.

The role of simple-to-use, self-fitting devices in developing countries is, we think, beyond question, because, as pointed out in the article by McPherson, most people in developing countries do not have the luxury of receiving services from a clinician. It is worth reflecting on what the likely impact of self-fitting hearing aids will be in developed countries, from the perspective of those who might be affected by such a development, were it to be available.

Clients who are already motivated to obtain hearing aids, and who have the necessary cognitive and manipulative skills to self-fit these devices, will presumably favor self-fitting hearing aids if they provide the same outcome at a lower cost to them. A lower cost seems likely, as there will be no fitting and follow-up fees, which currently contributes at least half of the end cost of a professionally fitted hearing aid. As reported in the article by Convery, Keidser, and Hartley, however, a significant proportion of clients will consider that these products are not for them because they need, or prefer, the services of a clinician to assist them through the hearing aid fitting process and other aspects of hearing rehabilitation. In addition, people with a medical condition (e.g., acoustic neuroma, conductive hearing loss) that would have been detected by a clinician but which may not be detected by a self-fitting hearing aid will also be disadvantaged, perhaps fatally, by their obtaining a self-fitting hearing aid. Conversely, a self-fitting hearing aid would be equally advantageous if it could alert a wearer who otherwise would not obtain hearing aids to the possibility of a medical condition.

Manufacturers would likely welcome the opportunity to provide devices to emerging markets in underserved,

developing countries and directly to people in developed countries who otherwise would not obtain hearing aids. Their success would, however, encourage the growth of Internet distribution of hearing aids, substantially lowering the entry barriers for new competitors from outside the hearing aid industry who do not have physical distribution networks, including via chains of clinics staffed by clinicians.

Self-evidently, people who self-fit will not, at least in the first instance, contribute to the employment prospects of audiologists. Given the huge growth in demand for hearing aids that will occur due to population aging, whether self-fitting hearing aids appear, and the fact that not all potential hearing aid wearers will choose the self-fitting approach, it is unlikely that the introduction of a self-fitting hearing aid will significantly reduce the current high demand for audiologists. A further factor that is likely to markedly increase demand for services is that current developments in bilateral wireless and microphone technology will soon make hearing aids effective in noise for much milder losses than is currently the case. This will significantly increase the effective market size for hearing aids.

Governments in developed countries are facing a huge increase in health costs as their populations age. The U. S. federal government is actively seeking ways to deliver health services, particularly hearing aid provision, at lower cost. Governments will greatly welcome any initiative that provides quality outcomes at reduced cost, provided that the issue of medical/audiological contraindications can be appropriately managed.

The articles in this special edition of *Trends* cover some of the thorny issues that must adequately be dealt with if self-fitting hearing aids are to reliably produce high-quality outcomes for their wearers. One of the key issues is likely to be the instructions that accompany the self-fitting hearing aid, which in the absence of professional assistance, the hearing aid candidate will need to rely on to achieve a successful outcome. The article by Caposecco, Hickson, and Meyer presents the issues that should be considered when designing clear instructions for older adults, whereas the article by Convery, Keidser, Hartley, Caposecco, Hickson, and Meyer shows how well older adults in a developed country could follow written, illustrated instructions to select the recommended size tube and dome and assemble them to a hearing aid body, insert a battery, and insert the device into the ear. An important feature of the self-fitting hearing aid is that reliable and valid threshold measurements can be obtained by the device. As mentioned above, it would also be desirable if the self-fitting hearing aid could warn the wearer of

significant asymmetry of hearing thresholds and/or the presence of a significant conductive hearing loss. The feasibility and challenges in meeting these requirements are discussed in the article by Keidser, Dillon, Zhou, and Carter. Finally, Wong explores the evidence for various components of the self-fitting hearing aid, including management, in situ threshold measurements, and trainability. Examination of these issues is only the beginning in understanding the feasibility and potential of a truly self-fitting hearing aid. As pointed out across the articles, there are still many other issues that need to be addressed.

Although change is ever-present, this does not automatically mean that all change is good. The research that National Acoustic Laboratories and the Hearing Cooperative Research Centre are undertaking is aimed at causing future self-fitting hearing aids to be a change that helps some people, increases the overall efficiency of the provision of audiological services, and harms no one. We hope this special issue makes a contribution toward that goal.

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