

Defining a Paradigm Shift

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ABSTRACT

This article is a personal reflection on a paradigm shift from a focus on the technological aspects of hearing health care to a more person-centered approach to rehabilitation. Patient-centeredness and encouraging patients to more effectively self-manage their hearing loss is central to similar changes that have occurred in other areas of health care for people with chronic health conditions. Four sources of evidence for a paradigm shift in rehabilitative audiology are presented in this article: (1) the development and use of programs that extend rehabilitation beyond technology alone, (2) increasing emphasis in the academic audiology literature on patient-centered rehabilitation, (3) changes in the education of audiology students, and (4) the participation and engagement of hearing health care professionals in the work of the Ida Institute to foster greater understanding of the human dynamics of hearing loss.

KEYWORDS: Audiological rehabilitation, aural rehabilitation, hearing impairment, patient centered care

Learning Outcomes: As a result of this activity, the participant will be able to (1) explain the meaning of a paradigm shift in rehabilitative audiology and (2) describe evidence of a paradigm shift in rehabilitative audiology.

WHAT IS A PARADIGM SHIFT?

The Oxford English Dictionary defines a *paradigm shift* as “a fundamental change in approach or underlying assumptions.” This article is a personal reflection on observed changes in audiology in recent times and how this may be considered to be a paradigm shift in the field of audiological rehabilitation. Bearing in mind the dictionary definition, it seems that

there have been changes in *approaches* in the rehabilitation field and that these have been underpinned by some fundamental changes to underlying *assumptions*. For many years, one of the major assumptions that governed clinical practice was that technology was so good that it would solve all the problems of people with hearing impairment. Indeed, there were significant improvements in technology, such as

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the move from analogue to digital hearing aids, and each new milestone, such as multiple listening programs in the one hearing aid, was greeted with enthusiasm by audiologists. Each time, we were excited by the amazing potential of these changes and the assumption clearly was that this new technology was going to dramatically improve outcomes for people with hearing impairment. So much so that they would be knocking at the doors of audiology practices in the same way people are when the latest Apple device appears on the market. The dream also was that once patients had the latest technology they would thank us, wave good-bye with a smile, and we would only see them again when the next new “i-hearing-device” arrived.

WHAT STARTED THE SHIFT?

But something happened or, should I say, something did not happen. First, people with hearing impairment did not come knocking on our doors. Research indicates that fewer than 20% of adults with hearing impairment have hearing aids, and Kochkin¹ wrote, “Over the last 20 years, hearing aid adoption has remained stubbornly at about one in five adults with an admitted hearing loss.” Likewise in the United Kingdom, Davis et al² reported that 29% of people aged 55 to 74 years have a hearing impairment, defined as a better ear pure-tone average >25 dB hearing level (HL), yet only 6% currently have hearing aids.

Second, people who did come knocking at our doors and were fitted with new technology did not achieve outcomes that were significantly better than what they had been in the past. Kochkin¹ reported that 26% of adults with hearing aids were wearing them less than 4 hours a day, and 11% wore hearing aids less than once a year; Davis et al² found that 22% of people fitted with hearing aids discontinued using them. There are numerous examples of the failure to improve outcomes. One example is evident in our research using the International Outcome Inventory–Hearing Aids³ in 2010.⁴ Results with this measure were not significantly different from those reported by Cox and Alexander³ in 2002 using the same measure. In addition, 78%

of 1653 older Australians were either satisfied or very satisfied with their hearing aids; however, only 34% of participants were either satisfied or very satisfied with listening in large groups. This finding is very similar to an earlier result of 37% of 1511 participants reported by Kochkin,⁵ which is disappointing as it was 5 years after Kochkin’s research. It is also an example of technological improvements not leading to expected improvements in patient satisfaction. The vast majority of the people fitted with hearing aids in our Australian study had received amplification designed to assist them in challenging environments such as listening in large groups: bilateral digital hearing aids with multiple microphone technology and more than one listening program. In Kochkin’s⁵ study, only 47% had digital devices (compared with 81% in our study) and only 25% had directional microphones (compared with 72% here).

Another example of the mismatch between technological advances and patient outcomes can be found in the program of research conducted by Professor Larry Humes at Indiana University in the United States. He has been collecting hearing aid outcomes in adults over many years using a common battery of outcome measures. Comparisons of different hearing aid technologies in matched groups of at least 50 hearing aid wearers have failed to reveal significant group differences in outcome.^{6,7} Most recently, outcomes for 35 adults fitted with new open-fit, six-channel, directional behind-the-ear devices were examined.⁸ With this latest technology, there was some improvement in aided speech recognition performance but no differences in other outcomes such as self-reported benefit, hearing aid usage, and satisfaction.

Such evidence challenges fundamental assumptions about what it takes to improve rehabilitation for people with hearing impairment and stakeholders in the field of rehabilitative audiology (audiologists, patients and their communication partners, researchers, educators, hearing aid companies, etc.) have begun to consider the need for new approaches. This shift is similar to paradigm shifts that have occurred in other areas of health care that serve people with chronic health conditions. A health condition is considered chronic when a person has to cope with it for extended periods

of time, that is, for more than 6 months. The vast majority of hearing impairments could therefore be classified as chronic in nature. Diabetes is another chronic health condition and, in a recent article, Anderson and Funnell⁹ wrote of a paradigm shift in diabetes education. The change they wrote of is from a traditional clinical approach, in which something is done to patients, to an empowerment approach, in which patients are encouraged to take control and self-manage their diabetes. Similarly, this change is at the core of the paradigm shift that I have observed in rehabilitation for people with hearing loss in recent years.

WHAT IS THE EVIDENCE OF A PARADIGM SHIFT IN REHABILITATIVE AUDIOLOGY?

Evidence for a paradigm shift comes from several areas: (1) the development and use of programs that extend rehabilitation beyond hearing aid fitting alone, (2) increasing emphasis in the academic literature on patient-centered aspects of rehabilitation, (3) changes in the education of audiology students, and (4) the emergence of continuing professional development opportunities, such as those provided by the Ida Institute, that highlight the human dynamics of hearing loss.

Treatment beyond Hearing Aid Fitting

Several programs have been developed and evaluated that extend hearing rehabilitation to more than the fitting of amplification. The programs differ in scope and application but have the same aim, that is, to address the ongoing communication needs of people with hearing impairment. They focus on communication and they encourage self-management of the chronic health condition that is acquired hearing impairment in adults. Two examples of such programs, both with a clear emphasis on communication in their titles, are LACE (Listening and Communication Enhancement)¹⁰ and ACE (Active Communication Education).¹¹ LACE is a home-based, interactive, adaptive computer program focusing on improving communication skills and confidence levels. The content is multifaceted with

exercises to enhance auditory memory, speed of processing, executive function, and the use of communication strategies. There are specific modules on auditory training and the development of listening skills and strategies. ACE, on the other hand, is a face-to-face interactive group communication education program that runs for 2 hours per week for 5 weeks. It is designed for people with hearing impairment (with or without amplification) and their significant others. ACE focuses on developing communication problem-solving skills in participants. Although definitive use rates of programs are difficult to quantify, it does seem that such programs are actually being applied in rehabilitative audiology. Sweetow and Sabes¹² report on the use of LACE and, from personal communication, I am aware that the ACE program is active in Australia in a range of clinics and has been translated into Swedish and is being used by Marie Oberg and colleagues at the Hearing Clinic, University Hospital, Linköping, Sweden.

In Australia, the realization of the need for rehabilitation beyond hearing aid fitting also has led to a major change in government policy in relation to funded services for adults eligible for free hearing services. In the past, reimbursement to clinicians for service to such clients was based on the fitting of hearing aids, and funding was provided for a hearing test, hearing aid fitting, and a follow-up appointment. There was little scope to provide additional support to patients to assist them with their communication needs. The new scheme introduced in 2008 is called "RehabPlus," and each new patient is now eligible for two additional appointments (either individually or in a group setting) to assist them to acquire and apply skills to maximize their communication abilities and better manage their hearing impairment. This policy initiative is evidence of a paradigm shift in thinking about what is needed for the successful rehabilitation of adults with hearing impairment.

Patient-Centered Care in Audiology Literature

In my opinion, having "tracked" the literature in this field for many years, there has been an

increase in publications focusing on patient-centered care in audiology in recent times and this issue of *Seminars in Hearing* is a perfect example. There are, however, many other examples, and it is clear that new qualitative and quantitative research is emerging that focuses on the patient's perspective and the perspective of their communication partners. Tye-Murray and colleagues¹³ conducted focus groups to examine how hearing impairment affected the self-perceived job performance and psychoemotional status of professionals in the workforce and to develop a profile of their rehabilitation needs. Laplante-Lévesque and coworkers¹⁴ wrote about mechanisms to promote the participation of patients in rehabilitation for their hearing loss and describe client-centeredness, joint goal setting, and shared decision making. These approaches are also central to the Ida Institute mission, and you will read in this special issue many examples of tools that reflect these concepts. In a follow-up study, the same authors interviewed new patients considering rehabilitation for the first time about their experiences with shared decision making.¹⁵ Southall et al¹⁶ interviewed people with hearing loss who were members of peer-support groups and found that stigma is both a positive and a negative influence on help-seeking. Scarinci and colleagues¹⁷ provided a qualitative analysis of the effects of hearing impairment in older people on the spouse, and Preminger and Meeks¹⁸ described and evaluated a group rehabilitation intervention for the spouses. Thus, in recent years, several studies have emerged that present new insights into hearing loss from the perspective of the person experiencing the condition and those closest to them. The fact that researchers are addressing these patient-centered issues and that their research work is appearing in scientific journals (indicating a level of acceptance and interest by their peers) lends credence to a fundamental change occurring in the field of rehabilitative audiology.

Changes in the Education of Audiology Students

In a recent article in *Audiology Today*, Sweetow and colleagues¹⁹ described a paradigm shift in

audiology education: a fundamental change in education from a traditional didactic classroom approach to an interactive problem-based learning approach. The shift, which I have personally experienced over the past 22 years as a university academic, is of course broader than audiology and has occurred widely in higher education. When I began to teach, I attended numerous sessions on how to be an effective teacher, deliver a good lecture, set examinations, and so on. The focus of these sessions was on me as a teacher. Now, such sessions for new academics are about promoting student learning, encouraging deep learning, and developing flexible modes of learning. Studying audiology successfully requires the student to develop higher learning about many complex issues. Higher learning has been defined as "an active, interactive, self-aware process that results in meaningful, long-lasting changes in knowledge, skills, behaviours, beliefs, attitudes."²⁰ Thus, the paradigm shift is from "teaching" to "learning."

In the article in *Audiology Today* we ask whether it is time for a paradigm shift in how we relate to patients. In the same way that in education there has been a shift from teaching to learning, there should be a shift from teaching our patients about hearing loss, hearing aids, and so on to a more patient-centered practice model in audiological rehabilitation—one that involves more listening than talking. After all, our patients are the ones who live day to day with a hearing loss. It is they who manage their hearing loss. The changes occurring in education augur well for similar changes in clinical practice. As students become more actively engaged in and responsible for their own learning, they may realize that it is exactly the same approach that is required for their patients. Thus, a generational change also serves to shift the paradigm.

Success of the Ida Institute

Finally, the number of clinicians who have engaged with the Ida Institute, a not-for-profit educational institute whose mission is "to foster better understanding of the human dynamics associated with hearing loss," is evidence of a paradigm shift in the field of audiological

rehabilitation. The Ida Institute runs collaborative “think tank” seminars in Denmark, as well as educational workshops and meetings around the world, and there are active discussion forums on the Web site (<http://idainstitute.com/>). An independent analysis of the Web site in 2010 revealed that the “My Ida Community” consisted of more than 200 international fellows (seminar graduates) and more than 1200 people had joined as members on the Web site. The report by Advice A/S called the numbers “quite impressive given that the website was launched just 1.5 years ago.” The same report noted that in the 12 months prior, there had been ~7000 unique visitors to the Web site and a total of ~20,000 visits. The attraction for the Web site’s toolbox of downloadable clinical tools, seminars videos, online networks, and other freely shared materials appears to be global. Web site visitors represent 51 different countries. The United States is the best represented with ~13,000 visitors throughout the year followed by visitors from Denmark, Great Britain, Holland, Germany, and Australia, among others. The number of visitors going directly to the Web page is also extremely high (45%), another indication that a great many of the visitors must have been told about the Web address beforehand. Overall, this report indicates that there is substantial interest in the Ida Institute among the audiology community.

In 2010, as part of a review of the Institute’s operations for the first 3 years, independent follow-up was conducted of participants who had attended the seminars. At that time, 188 people had participated in these 3-day events in Denmark and 47% of them responded to a survey (62 females; 26 males). In addition, qualitative interviews were conducted with nine participants. Overall, participants were extremely positive about their experiences at the seminars but the critical outcome has to be whether or not attendance changed practice once the participants returned to the workplace. The seminars have led to the development of several tools (which are described in this issue) and 90% of respondents reported using these tools after the seminar. The most popular ones are the Motivational Tools (line, box, circle), with 68% of respondents using

them, and the Patient Journey, with 44% using this tool. Survey participants who had started to use the Ida tools were asked whether they thought their patients were more satisfied now that the tools are used in the clinical practice. Nearly 16% said that their patients were much more satisfied, and 47% reported that patient satisfaction has increased somewhat. One clinician responded:

Yes, the patient does honestly seem more engaged with the process. It was enlightening for one particular patient who was resistant to getting hearing aids, but had not heard before that his wife was frustrated [with the situation] until she filled in the “line.”

The vast majority of participants (89%) said that they had changed the way they dealt with patients after the seminar. One of the people interviewed said:

It [practice in audiology] did change. Participating in the seminar really made me feel that I needed to take more time to listen to what my patients were saying. They don’t come right out and say what their issues are. Try to keep quiet and listening and trying to figure out what the real issues were. Confirm with them what I think they are meaning to say.

This person is not describing the adoption of a particular tool but is clearly describing a paradigm shift as defined at the start of this article: “a fundamental change in approach or underlying assumptions.” Another example of a shift to a more patient-centered approach is evident in the words of this interviewee who linked the Ida mission to a change in the clinical process:

The phrase human dynamics . . . it creates the need for a broader picture of understanding a patient. Rather than just talking about the hearing loss, but the person as a whole.

CONCLUSION

In the same way that patients with hearing loss and those around them are on a journey,

audiologists also take a professional journey. When my career began in audiology, I was focused more on understanding the ear than I was the person, and when I began work at the university I focused on my teaching rather than my student's learning. It is clear to me that a paradigm shift has occurred for me personally, and I hope that the evidence I have presented in this article shows that there is a broader shift occurring in the field of rehabilitative audiology. Evidence can be seen in the scientific literature, in changes to practice, in changes to education, and in the response to the work of the Ida Institute. But is this a shift that will be maintained, or is it a mere swing of the pendulum, soon to be reversed? I firmly believe that real change will have enormous positive benefits for patients, for families, and for professionals, and urge all those involved to maintain the momentum.

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