



## *PRACTICING AUDIOLOGY IN THE UNITED STATES*

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Before I begin my formal remarks, I want to thank the conference organizers for their kind invitation to speak at this important meeting. As you may know, I was privileged to present at the 1<sup>st</sup> International Course on Audiology on September 23 to the 22 of 1985. My hosts at that time were Drs. Orozimbo Costa and Cecilia Bevilacqua. We had a wonderful meeting at that time and Orozimbo and Cecilia have been important friends in my life since that time. In addition, I remember meeting Doris Lewis in Sao Paulo and I am pleased to learn that she is now president of the Brazil Academy of Audiology. It is a pleasure to see her again at this meeting. In 1989 or so, your journal editor Altair Pupo visited our program for several weeks. Finally as a result of my 1985 visit, Thais Morata came to the University of Cincinnati where she earned her PhD in Audiology. Since then she has become famous in the world of noise

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and solvents and their combined effect on hearing. And so, many friendships have resulted from that meeting. I have a strong relationship with this country, with this society and this meeting and I am pleased to be back among you.

The purpose of my presentation is to speak on the topic of audiology as an independent practicing profession. In the United States, audiologists have worked hard to establish themselves as an independent profession and we have come a long way in accomplishing that goal. During this presentation I plan to discuss several of the factors that have contributed to the emergence of audiology as an independent practicing profession in the United States. An overview of my remarks is shown in Table I.

### **Audiology as an Independent Practicing Profession**

- Graduate Training – raising the bar
- Licensure – by states
- Certification – independent and voluntary
- Membership in Professional Association
  - Continuing education
  - Ethical practice
- Expanding Scope of Practice
- Legislative Activity – government recognition
- Lobbying private insurance carriers
- Marketing to the general public

It seems to me that the growth of audiology has been dependent on a number of factors including, (a) sophistication of electronic technology and hearing aids, (b) advances in otologic surgery to include neurotologic operative procedures on acoustic tumors and other skull based procedures, and (c) technical advances that have been made in cochlear implants.

Prior to World War II, audiology was in its infancy. There were no professionally trained audiologists. Hearing testing was confined to air conduction threshold measurements with tuning fork tests to verify findings. Hearing aid components included vacuum tubes that required large batteries

making the devices bulky with poor sound quality. The origins of audiology as a profession in the United States began in the 1940s as a rehabilitation profession working with soldiers who were deafened during the war. It is important to remember our roots as a rehabilitative profession because it forms the basis of all that we do. Following World War II the first university programs in audiology were established in the United States. In the 1950s the academic requirement for practicing audiology was a bachelor's degree. There was no licensure of audiologists in the 1950s and our single credential was certification by the American Speech and Language Association at both and basic and advanced levels. At that time an early understanding of hearing aid fitting was established primarily through the work of Raymond Carhart at Northwestern University. However, hearing aids were still large, used vacuum tubes, and had only linear amplification circuits.

In the 1960s and 70s, audiology made remarkable strides because of three main factors. They included the introduction of a transistor hearing aid that allowed miniaturization of devices along with better circuitry and improved acoustics. The development of the stapedectomy by otologists required precise measurement of air-bone gaps to determine pre- and post-operative status. Also, the introduction of tympanometry and acoustic reflex testing enhanced our diagnostic capabilities. Simultaneously in the 1960s and 70s the American Speech Language Hearing Association introduced the Certificate of Clinical Competence in audiology that became the standard for several years to come. At that time there were few audiologists in the United States who were in private practice. Audiologists in medical centers and in community speech and hearing centers conducted "hearing aid evaluations" and referred their patients to non-academically trained hearing aid dealers for the hearing aid. The consequence was that patients did not receive the professional help of academically trained audiologists and the aural rehabilitation that their patients required. In the 1960s there was the beginning of discussion of a professional doctorate for audiologists but that dream was to come years later.

At the same time in the 1960s there was introduced, largely through the work of James Jerger, a number of behavioral tests that were used in the diagnosis of conductive versus cochlear versus auditory nerve lesions. These

tests were necessary because imaging studies such as CT scans and MRI were not available and there were few good techniques to identify lesions of the auditory pathway. All of the advances of the 1970s made the services of audiologists more important and elevated our professional status.

During the 1980s, audiology made significant strides toward becoming an independent practicing profession. The most important advancement was the licensing of audiologist in most states across the United States of America. State by state licensing of audiologists meant that they were recognized as an equal profession similar to physicians, nurses, dentists, psychologists and other allied health professions. At the same time advances in technology took the diagnostic capability of audiologists to even higher plains. For example the introduction of auditory evoked potentials, the development of sophisticated amplifications systems including programmable and digital hearing aids, and the introduction of multiple channel cochlear implants required a level of academic sophistication from audiologist that was unprecedented.

The 1990s saw additional technical advances including the universal use of computer technology for programming hearing aids, the development of otoacoustic emissions to measure cochlear echoes, the development of tinnitus management programs, the application of cochlear implants to children, and the increased understanding of auditory neuropathy were all significant components in the advancement of audiology. On a professional level, the formation of the American Academy of Audiology in 1988 with the mandate that audiology become a doctorate level profession by the year 2007 sent a signal to everyone that we had come of age as a profession, that we were independent and able to conduct our professional affairs without supervision.

Some of the changes in graduate training are evidence of what is known as "raising the bar" to become an audiologist. Recall that in the 1950s a bachelor degree was required to practice audiology. In the 1960s that was raised to a master's degree as a minimum requirement for practicing audiology in the US. Finally in 1988 when the American Academy of Audiology was formed, the entry level requirement was raised to the professional doctorate designated as an AuD for clinicians with a PhD being reserved for scientist and instructors. The reality is that many PhD's will continue to do clinical work in the future.

Nevertheless the change in educational requirement to a doctorate level sends another signal of the maturity of the profession and its ability to practice equally with all other professions.

Since I mentioned science, one of the requirements for an independent practicing profession is the need to maintain a scientific and scholarly basis for the profession. Scholarly work should include, among other things, a continued development of our understanding of normal auditory processes, an understanding of abnormal auditory systems, the development of better techniques for assessment and remediation, and the performance of outcome studies that answered the question "how are we doing?"

Another aspect of independent practicing profession in the US is the recognition by state governments through licensure. Licensure achieves at least three functions. It provides legal recognition of the audiology scope of practice, it specifies who is qualified to provide audiologic services, and it specifies the training requirements that are needed to become an audiologist. My understanding is that there is the equivalent of licensure in Brazil through the "Conselho Federal de Fonoaudiologia" where the regional counsels (Conselhos Regionais) licenses audiologists in this country.

Another aspect of signifying our independent status is voluntary certification through an independent board. In the United States the American Speech Language Hearing Association certificate of clinical competence was the sole certification board certification that was available for many years. At the present time the American Board of Audiology offers a program of voluntary certification through a board that is independent of any professional association. Board certification is necessary for professional recognition and is common among physicians, teachers, psychologists, and many other professions. The benefits of certification include helping the consumer understand who audiologists are and who is qualified to provide the highest level of services. Benefits accrue to employers who can use the certification process to identify the highest trained audiologists that are available. Certification assists our patients in identifying those audiologists who have volunteered for this special recognition. To the individual it identifies an audiologist who subscribes to a higher professional standard. Certification helps you to promote your private

practice, verifies your credentials to employers and reimbursement agencies and establishes a standard that is recognized by other professions. Finally, certification provides a benefit to the profession because it unifies the profession of audiology under a signal standard of excellence that is designed specifically by and for audiologists. Certification will not change even when politicians may change the requirements of a state licensure and so it provides a measure of stability.

One important aspect of a successful profession is its ability to be financially independent. If there is no income there is no independence. In order to become financially independent audiologists in the United States have been active in lobbying governmental agency and insurance companies for recognition of services and for direct payment. For example, legislative activity in the area of government includes inclusion of audiology in legislation relative to reimbursement for care of the elderly, infants, and children. Legislative activity includes recognition of audiology as an entry level profession for hearing health care. Finally, recognition of audiologic procedures must include diagnostic and procedure codes that can be used for reimbursement. We have also been actively involved in lobbying private insurance carriers to identify audiologists as being eligible for direct reimbursement, to establish and recognize the audiologist's scope of practice, and to recognize that audiologist can serve as an entry level profession.

As we evolve in this profession we are continually working to expand our scope of practice. At the present time our practice includes, at least, diagnostic hearing testing, vestibular assessment and rehabilitation, the diagnosis and management of central auditory processing disorders, intraoperative monitoring, occupational audiology, hearing conservation in industry and the military, educational audiology, tinnitus management and hearing dispensing that includes cerumen management. It is important for the general public to understand the wide scope of practice in which audiologists are involved. To that end we all need to market our services to the public through audiology awareness campaigns, through newspaper articles and through listings in telephone

directories. We can market our profession by taking opportunities to speak at public events where we provide visibility to our profession and spread the message about the services we provide.

While we have come a long way in our profession audiology in the new millennium will take us even further. For example, the development of universal newborn hearing screening programs provides both challenges and opportunities for service to younger children. The increase in numbers of elderly in the new millennium provides other opportunities for service to those individuals hearing loss in their later years. Audiology in the new millennium will be impacted by research on regeneration of inner ear hair cells, through understanding of the neurobiology of hearing and through gene therapy. Who can guess what advances will be made in our understanding of deafness in the next generation.

In summary, to succeed as an independent practicing profession it is necessary to simultaneously make advances in three areas. They include education, legislation, and marketing. As we advance in those areas we move further along the path toward audiology as an independent practicing profession. We are doing well in the United States. Good luck in Brazil! We know that you will do as well and that you will make many significant contributions to the citizens of Brazil in the years to come.

Thank you again for your invitation to speak at this important meeting and for your kind hospitality.

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