



Academy of Rehabilitative Audiology
Summer Institute 2003

Kerrville, Texas
June 13 - 15, 2003

FRIDAY, JUNE 13

8:00 - 8:15 Opening Remarks

Jody Newman-Ryan, President; *Northern Illinois University*
Barbara J. Parker, Program Chair; *Southwest Speech and
Hearing Center*

8:15 - 8:45 KEYNOTE ADDRESS

Hearing Aids: (Only) One Piece of the Puzzle
Ruth Bentler; *University of Iowa*

8:45 - 9:15 INVITED PRESENTATION

**Cochlear Implants: Still a Need for Aural
Rehabilitation**
Nancy Tye-Murray; *Central Institute for the Deaf*

9:15 - 9:45 INVITED PRESENTATION**Audiologic Rehabilitation: Across the Life Span**

Patricia Kricos; *University of Florida*

9:45 - 10:30 Verification of Hearing Aid Fitting with Digital Hearing Aids and Implications for Audiologic Rehabilitation

David Fabry; *Phonak Hearing Systems*

Digital hearing aids have dramatically improved the precision with which hearing aids can be adjusted to compensate for conductive and sensorineural hearing loss. That said, there has been much confusion over the degree to which verification of hearing aid settings may be made, through the use of behavioral or “objective” measurements of hearing aid function. For example, there has been a dramatic increase in use of “optimal aided threshold,” due to the suggestion that real-ear measures cannot be used to evaluate digital hearing aids. The focus of this session is to dispel a few myths regarding clinical verification of hearing aid performance, and also to provide a suggested protocol for use with digital hearing instruments.

10:45 - 11:30 Advanced, Non-Linear Amplification for Severe and Profound Hearing Loss

Donald J. Schum; *Oticon, Inc.*

The use of advanced non-linear processing for patients with severe and profound hearing loss has been less widespread than in the general population of hearing aid users. In this presentation, the potential benefits and challenges of using non-linear approaches with this population will be discussed. Clinical studies and case examples will be reviewed to suggest modifications of current non-linear fitting approaches in order to reflect the unique nature of severe and profound hearing loss.

11:30 - 12:00 Bringing the Real World Into the Laboratory: Connected Discourse Tracking and Hearing Aid Evaluation

Jill E. Preminger; *University of Louisville, School of Medicine*

Connected discourse tracking is a method that allows for direct observation of the hearing aid user, in a controlled laboratory environment. With this procedure, a speaker reads from a prepared text, while a receiver must repeat everything with 100% accuracy. The tracking procedure allows for the evaluation of communication strategies and overall communication abilities.

Tracking has been used in the evaluation of cochlear implant performance, but there are no reports of tracking used with hearing aid users. The purpose of this project was to design a tracking procedure that could be used reliably in order to evaluate hearing aid performance. (This work was supported by the Mary and Mason Rudd Surgical Research Fund, Jewish Hospital Foundation, Louisville, KY.)

1:30 - 3:00 Manufacturers' Forum: What the Industry is Doing to Support Audiologic Rehabilitation

David Fabry; *Phonak Hearing Systems*
 John Nelson; *Widex Corporation*
 Tom Trine; *Starkey*
 Donald J. Schum; *Oticon, Inc.*

3:15 - 3:45 Functional Hearing and Therapeutic Outcomes

Michael J. Metz; *Ear Professionals International Corporation (EPIC)*

Measures of functional hearing abilities, especially the ability to hear in the presence of competing noise, appear to assess aspects of the auditory system that are otherwise uninvestigated. It would appear that measuring hearing in noise reflects the "global tuning curve" of the ear. This paper will briefly discuss the two common measures of hearing in noise, describe the normal and abnormal distributions of these measures, and speculate on the meaning and implications of functional hearing data.

3:45 - 4:15 A Model Program for Adult Cochlear Implant (Re)habilitation Support

Loretta M. Nunez; *The Listening Center at Johns Hopkins, Johns Hopkins University*

This presentation will describe a functional communication assessment protocol and (re)habilitation support program for adult cochlear implant recipients. Discussion will focus on (re)habilitation support provided beyond device programming that includes informational and support counseling for patients and families, auditory speech recognition training, communication strategies, and an orientation to assistive technology use with cochlear implants. A model for short-term (4-10 sessions) and long-term (20-30 sessions) therapy will be described. Case studies will be presented to illustrate specific treatment plans for adult cochlear implant (CI) recipients who are pre-lingually or post-lingually deafened. Options for documenting benefit will also be presented.

4:15 - 4:45 Changes in Conversational Skills and Communication Behaviors Following a Psychosocial Group Intervention

Elizabeth Y. Mauze; *Central Institute for the Deaf*
Susan M. Binzer; *Washington University School of Medicine*

Thirty-three cochlear implant users and 14 spouses attended a 2.5 day psychosocial group workshop focusing on reviewing communication repair strategies and problem-solving the underlying causes for their limited use. This presentation will describe the results of two measures obtained pre-workshop, and at 3, 6, and 12 months post-workshop: (a) behavioral changes in conversational skills observed in 10-min videotaped conversations of CI users and an unfamiliar speaker and CI users and their partner (if present), and (b) self-reported changes in management of challenging situations of both CI users and their partners.

4:45 - 5:15 ASHA's New Focus on Audiologic Rehabilitation

Susan Brannen; *American Speech-Language-Hearing Association*

For part of its campaign, "Audiologic Rehabilitation (AR): Tools for Better Hearing," the American Speech-Language-Hearing Association (ASHA) is introducing Medicare Legislation for coverage of rehabilitation services by audiologists (audiologic rehabilitation, vestibular rehabilitation, and cerumen management) and obtaining new CPT procedures for AR services and other evaluation/management services provided by audiologists. ASHA is advocating for state legislation to expand AR services for children (Audiologic Habilitation and Rehabilitation Services, Device Coverage, and other early intervention services). To increase consumer awareness about its benefits, ASHA is promoting AR through consumer education by new brochures and by enhancing its media outreach.

SATURDAY, JUNE 14

8:00 - 8:30 Evaluation of the Screening Test for Hearing Problems

David J. Wark and Rebecca J. Kelly; *University of Memphis*
Marilyn E. Demorest; *University of Maryland – Baltimore County*

Sue Ann Erdman; *Hot Springs, VA*

The Screening Test for Hearing Problems (STHP) is a 20-item instrument designed to screen for two domains of auditory function: Communication

Performance and Personal Adjustment. The STHP was developed by selecting items from the Communication Profile for the Hearing Impaired (CPHI) using a derivation sample of 1,000 subjects and a cross-validation sample of 319. The current study describes a more appropriate evaluation of the STHP: the questionnaire was administered clinically, by itself, and screening outcomes were subsequently validated by testing with the CPHI. Internal consistency, factor structure, sensitivity, specificity, and positive and negative predictive value will be described.

8:30 - 9:00 Diagnostic Testing or Rehabilitation Planning?

Nancy Schwartz and Rose Chmiel Hardcastle; *The Methodist Hospital*

A chart review was undertaken to determine how speech understanding measures and the Hearing Handicap Inventory for Adults (HHIE/A) are used in our clinic to counsel patients regarding appropriate rehabilitation. Illustrative cases are presented showing a relationship between the HHIE score and counseling of patients with mild hearing loss. We also present case reviews of patients with different patterns of speech understanding. Results show a greater emphasis on counseling on the use of coping strategies and stronger recommendations for assistive listening devices in patients with poor performance on sentence understanding in noise. Our test battery facilitated rehabilitative counseling and fostered intervention strategies focusing on specific communication needs.

9:00 - 9:30 Maximizing Auditory Rehabilitation Training for Clients, Students, and Faculty Through SIARC

Linda Thibodeau; *University of Texas at Dallas, Advanced Hearing Research Center*

Carol Cokely; *Callier Center for Communication Disorders, University of Texas at Dallas*

The Summer Intensive Aural Rehabilitation Conference (SIARC) is a unique opportunity for adults with hearing impairment and their communication partners to experience the benefits of cooperative learning in a social environment. The 5-day conference includes classes to learn about effects of hearing loss, coping strategies, communication skills, and new technology to reduce problems associated with hearing loss. Evening activities are held to allow participants to practice new skills and technology. Each day begins with lectures by an invited rehabilitation expert. Students in Audiology and Speech and Language Pathology assist with the program as a unique feature of their graduate training.

9:30 - 10:00 Hearing Instrument Websites: Implications for Audiologic Rehabilitation

Perry C. Hanavan; *Augustana College*

National organizations are suggesting that professionals need to improve their use and understanding of Web-based technology. This is due in large part to the increasing numbers of patients and their communication partners who access the Web regarding their hearing healthcare. The delivery of information through Web-based technology to consumers of hearing healthcare is driven by consumer demand. The conveyance of information is one of the strengths of the Web. The Website content of approximately 50 hearing aid manufacturers was identified and reviewed. Each of these sites was reviewed regarding consumer-oriented features, professional-oriented features, marketing, and functionality. Implications for Web-based technology and audiological rehabilitation will be discussed.

10:15 - 11:00 Attitudes, Tinnitus, and Hearing Loss in Adolescents and Young Adults

Alice E. Holmes; *University of Florida*

Soly Erlandsson and Stephen Olsen; *University of Göteborg, Sweden*

Courtney Carver; *University of Florida*

Adolescents and young adults from different cultural backgrounds may tend to seek or avoid various noise environments that could be detrimental to their hearing and cause tinnitus. A series of studies will be presented on reported prevalence and effects of hearing loss and tinnitus in adolescents and young adults in the United States and Sweden. Attitudes and exposures to noise environments and hearing protection usage were evaluated to see if these may be correlated with their hearing losses and/or tinnitus across countries. Finally the effects of these attitudes on the quality of life in these populations will be presented.

11:00 - 11:15 Listening for Language: Perception, Production, Use, and Understanding of Grammatical Endings by CI Users

Kimberly Peters; *Western Washington University*

Diane Brackett; *New England Center for Hearing Rehabilitation*

Thirty children with cochlear implants and 30 normally hearing peers completed a variety of marker perception, production, use, and comprehen-

sion tasks. For implant users, proportion of mainstream education explained a significant amount of the variance in marker production, use, and auditory alone marker recognition. Marker use was correlated with auditory alone marker recognition, suggesting that auditory access to spoken language results in improvements in expressive language. Marker comprehension was predicted by length of implant experience.

11:15 - 11:45 Cognitive Processes of Audition: Integrating Hearing Into the Visual and Tactile-Kinesthetic Communication Skills of Pre-Linguistically Deafened Adults After Cochlear Implantation

Linda Daniel; *HEAR in Dallas*

Neural plasticity was long thought reserved for the young. Many adults with pre-linguistic deafness now enjoy hearing and improved verbal and written communication skills. Through mini-lectures and videotapes, therapy procedures will demonstrate patients integrating hearing with the visual and tactile-kinesthetic systems that dominated their communication skills prior to implantation. Therapy techniques will be demonstrated that develop an active sense of audition with support of the lip-reading and reading skills the individuals possessed prior to implantation. An individual who is achieving the long-term goal of auditory function without lip-reading will conclude the presentation.

11:45 - 12:15 Professional Issues in Audiology

Brad A. Stach; *Central Institute for the Deaf, Washington University*

The new century brings heightened expectations and renewed importance to the profession of audiology. Demographic changes due to increasing life expectancy will strengthen the demand for audiologic rehabilitative services. Increasing identification of deafness at birth will heighten the expectation for efficacy in audiologic treatment at ever-younger ages. As the field changes to keep up with demand, and as its educational status transforms to the doctorate level, challenges loom in terms of relations with otolaryngology, speech-language pathology, commercial hearing aid dealers, third-party payers, credentialing agencies, accreditation agencies, and so on. This presentation will provide an update on the current sociopolitical challenges to the profession from the perspective of the Board of the American Academy of Audiology, with a focus on reimbursement and other issues pertaining to audiologic rehabilitation.

12:15 - 1:00 POSTER SESSION**1. Talker Differences in Clear and Conversational Speech:
Acoustic Correlates of Reported Clear Speech Strategies**

Sarah Hargus Ferguson; *University of Kansas*

Diane Kewley-Port; *Indiana University*

Several studies have demonstrated that instructions to speak clearly yield significant improvements in speech intelligibility, along with several significant acoustic changes. Recently, an extensive multi-talker database ($n=41$) of clear and conversational speech was recorded. At the end of each individual clear speech recording session, talkers were asked how their clear speech had differed from the speech produced during an earlier conversational recording session. Talkers reported strategies falling into 11 broad categories. The current experiment used a variety of acoustic measurements, including measures of duration and level, to determine how accurate talkers were in reporting these strategies.

**2. The Effectiveness of a Hearing Conservation Program for
Fourth Grade Students**

Anne M. Byrnes and Laura J. Kelly; *Miami University*

Hearing conservation programs (HCP) used in industrial work settings reduce noise induced hearing loss (NIHL) in adults. There is a growing movement to adapt HCPs for use with children as a means to prevent hearing loss in later life. The purpose of this study is to measure the effectiveness of an HCP appropriate for use in fourth grade classrooms. It was hypothesized that this program could significantly improve knowledge of ear anatomy and how hearing loss occurs, as well as increase willingness to practice hearing protection strategies. Two fourth grade classrooms received the HCP. Outcome measures were compared with a control group. The results indicated a significant increase in overall knowledge from pre to post test results compared to the control group. The intervention also increased willingness to practice hearing conservation strategies.

3. Teacher Talk: Children With Hearing Loss in Preschools

Kimberly Peters; *Western Washington University*

This study described the level of teacher discourse in mainstream and self-contained preschools in which children with hearing loss were enrolled. Six preschools were chosen and a teacher-directed activity was audio recorded for 30 min. The following teacher variables were scored: rate of speech, number of utterances per 5 min, percentage of teacher directed time, level of discourse, lexical and syntactic complexity, and total questions used and type. Teachers in mainstream settings used more open-ended questions, greater

syntactic and lexical complexity, less repetitions, and a higher level of discourse than teachers in self-contained settings. Implications for intervention will be discussed.

SUNDAY, JUNE 15

8:00 - 8:30 Acknowledgement of Hearing Loss in Older Adults: A Pilot Study

Sherril L. Smith; *University of Florida*; *Herbert J. Oyer Student Research Award Winner*

8:30 - 9:00 Will Technological Advances Improve the Outcome?

Ruth Bentler; *University of Iowa*

9:00 - 9:30 The Effects of Aging on Audiovisual Speech Perception

Nancy Tye-Murray; *Central Institute for the Deaf*

9:30 - 10:00 Audiologic Rehabilitation: Back to the Future

Patricia Kricos; *University of Florida*

We Honor Herbert J. Oyer, PhD

Herbert J. Oyer (1921-2000): Born in Groveland, Illinois, Oyer attended Bluffton College in Bluffton, Ohio, where he received his BA in 1943. He then served 3 years in the Army and, from 1946 to 1947, taught high school in Castalia, Ohio. In 1949, he received his MS in Education from Bowling Green State University. He was an instructor and assistant professor at Bowling Green until 1953, and also was Supervisor of Speech and Hearing for the Sandusky County Schools. In 1955, he received his PhD from Ohio State University where he then became an assistant professor and also served as research associate with the Psycholinguistics Laboratory of the Ohio State University Research Foundation. Much of this research was published in Air Force reports.

Oyer was responsible for establishing the training program in speech pathology and audiology at Michigan State University (MSU) and he served as the Chairman of the Department of Speech and Director of the Speech and Hearing Clinic. MSU conferred upon him the distinguished faculty award and a building on the campus was named in his honor, The Herbert J. Oyer Speech, Language,

and Hearing Clinic.

He presented papers at conferences around the world and was widely recognized for his research contributions. He authored or co-authored numerous journal articles. Among his honors and achievements, he authored or co-authored more than 10 textbooks. His graduate students have served in distinguished positions around the globe. He also conducted independent research projects in audition, lip-reading, and speech intelligibility and voice communications.

Oyer was instrumental in establishing the Academy of Rehabilitative Audiology (ARA) and then served as the first President of ARA. In special recognition of his contributions to the profession and for his efforts in establishing the Academy of Rehabilitative Audiology, ARA has established the Herbert J. Oyer Student Research Award.

Herbert J. Oyer
Student Research Award Recipient
June 2003
Sherri L. Smith – University of Florida
Patricia Kricos, PhD, Advisor