AUDIOLOGY TODAY

Bulletin of the American Academy of Audiology March/April 1992 Volume 4, Number 2

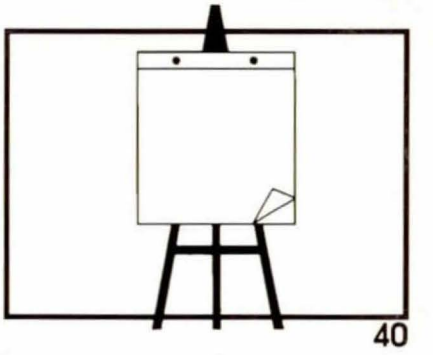
Convention Special

Fourth Annual Convention
April 9 - 12, 1992
Opryland Hotel
Nashville, Tennessee

Bring this Issue to the Convention!

5

27



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Features

In Every Issue

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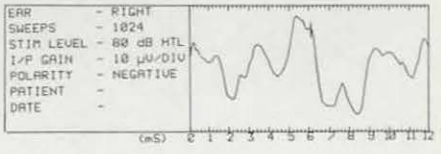

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Tel: 508-486-3514, Fax: 508-486-8059, Twx: 710-347-6892

AUDIOLOGY TODAY

March/April 1992 Volume 4, Number 2

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American Academy of Audiology

"...Of, By and For Audiologists"

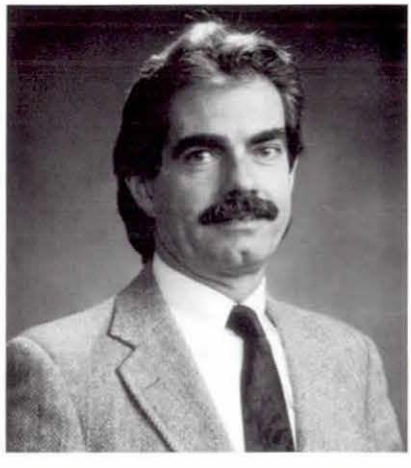
President's Message

Academy National Office Moves East

The Executive Council has taken a bold and positive step and approved the move of our national office to Washington, D.C. We are very excited about this event as many of our members have encouraged us to have a "presence" in the nation's capital to have immediate access to legislative action. With our national office in Washington, D.C. it will be easier for us to interact with other professional organizations as well as the major consumer groups with whom we need closer contact. We are evaluating office space in Georgetown and expect our move to be completed with only minor inconvenience to our members. We should be settled in our new quarters by May 1, 1992.

Our current Administrative Assistant, Charlotte Howard, has elected to stay in Houston and we will all miss her pleasant and helpful telephone manner, and her thoroughness in conducting the daily business of the Academy. She has been with us since the start of our business office, and has been an instrumental part in keeping us afloat and on line. The Transition Team has recommended the addition of an administrative officer to manage the day-to-day operation of the Washington D.C. office.

A job well done as we extend our appreciation and a fond farewell to Charlotte Howard.



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Doctoral Requirement Deadline to be Extended

Considerable discussion among the Executive Committee was devoted to the issue of the pending 1993 deadline requirement for *new* members to hold doctoral degree in audiology. Although we all agree with the initial premise of the Academy founders that the profession of audiology must be elevated to a clinical doctoral level, the fact that we do not have any professional degree programs in place yet necessitates extending the deadline until the year 2000. This recommendation will be passed on to the Board of Representatives for ratification and endorsement during their Nashville meeting in April, 1992.

Convention Time

As you can see in this issue of *Audiology Today* we are looking forward to another great Annual Convention. Jay Hall and his convention committee have done an outstanding job of combining a strong professional program with a wide variety of wonderful social activities. If you have not previously attended an Academy convention, you can look forward to a unique experience that will undoubtedly have a significant effect on your attitude about audiology as a profession; if you have previously attended an Academy Convention, you will know better than to miss this one.

—•—

Personal Note

"Time flies when you are having fun" is an old, but true, adage. As I near the end of my presidential term, I look back on the past 16 months with satisfaction and pride. The momentum of our Academy, and the renewed spirit expressed by audiologists all over the country concerning our new "independence", shows that our future holds extraordinary promise for professional fulfillment.

The National Office Transition Team. Pictured above, right to left, Jerry Northern, Brad Stach, Fred Bess, Linda Hood and Dr. Kathleen Griffin of Griffin Management, Inc.

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Election Results

President-Elect
Lucille B. Beck
Position Statement Exerpts

The American Academy of Audiology was founded to assure that the future of audiology is in the hands of the professional group best suited to formulate a plan for action for the profession of audiology and the consumer it serves.

...The single most important goal is to make audiology an autonomous profession complete with all of the privileges and responsibilities inherent in independent provision of care.

...Our profession must become eligible for direct Medicare (and third party) reimbursement.

...We must accomplish the educational goal of making the professional doctorate the entry level degree for the practicing audiologist.

...The underlying foundation of every profession is its research. We must support the development of scientists of the future by returning to the Ph.D. its rightful role as a robust research degree.

...The American Academy of Audiology must align us into an organized and united profession, whose members stand together to enhance the professional future.

...As an organization dedicated to improving services available to individuals with hearing impairment, we must have mutually beneficial partnerships with the organizations who represent consumers and related health care professions. It will often be the case that through cooperative efforts we will reach our goals.

Member-at-Large

Noel D. Matkin

Board of Representatives

Carol A. Flexer

Barry A. Freeman

Sharon E. Fujikawa

In a nearly 40% return of ballots, Academy members have elected Lucille Beck as President-Elect, Noel Matkin as Member-At-Large on the Executive Council, and four-year terms on the Board of Representatives to Carol Flexer, Barry Freeman, Sharon Fujikawa, David Hawkins and Judith Rassi. I would like to extend my congratulations to these new officers who will take office on May 1, 1992, as well as my appreciation to the other candidates for their willingness to participate in a leadership role for the Academy. The Past-President is Chair of the Nominations Committee, so the task for 1993 will fall into my hands this summer. If you have any ideas about nominees for Academy officers, or would personally like to be considered by the Nominations Committee, please contact Jerry L. Northern.

David B. Hawkins

Judith A. Rassi

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Forum

We Got Letters!

More letters than can be published were received in support of the Academy's position in favor of the Audiology Doctorate degree. Given space limitations, phrases from as many writers as possible have been included in Forum. Ed. (CCB)

...It is time for us to accept the need for an appropriate degree for those persons who "practice" audiology. The 1990's afford the opportunity... to prepare for the task of engaging in... professional service delivery to hearing-impaired... Let us join our colleagues from other professions who not only provide intensive training but award the proper degree to practice...

Jerome G. Alpiner
Sioux Falls, SD

...Let's stop our small talk and entrench our efforts in establishing the Au.D...

Steven D. Sederholm
Boynton Beach, FL

...The audiologist of today needs to be educated in a manner that is consistent and comprehensive and allows us to function as nationally recognized **autonomous**, primary hearing healthcare service providers...

Linda Brown
Joan D'Alessandro
Pottstown, PA

...I support the Au.D. as the entry-level degree for the practice of audiology and a mechanism to recognize the experiential equivalency of practicing audiologists...

Aaron H. Liebman
Albany, NY

...The Au.D. will allow the Ph.D. to again become a true research degree. The Au.D. should be... the entry level degree for Audiology in the not too distant future...

Michael Thelen
Appleton, WI

...If we are to gain the respect of the public and other professionals... it is imperative that the Au.D. degree be established for practicing audiologists...

David L. Smith
Huntington, WV

...It is absolutely essential to our professional autonomy that Audiology become a doctoral level profession... It is time to move forward to the next level of professionalism, not move backward to be compared to technicians, therapists, and paraprofessionals...

Steve Huart
Wausau, WI

Finally, some headway... in our profession to help make it autonomous and to improve the quality of service... We need the Au.D...

John H. Voss
Duluth, MN

...The field of Audiology has changed dramatically since its inception. The training of future Audiologists must keep up with these advances... We need to be a unified profession if we wish to improve our status as an autonomous, care-providing profession especially with relationship to third party payers. This can be accomplished by implementing Au.D. programs...

Beth L. Ehrlich
Hayward, CA

...Wake up and smell the coffee! We are wasting too much time "debating" with each other and too little time planning and implementing...

David C. Chin
Maidens, VA

...The growth of audiology as a viable profession going into the next century needs the Au.D...

Bernard Lipin
Branford, CT

Ethical Issues

In the November/December 1991 (Vol 3, No. 6) issue of *Audiology Today*, there were articles pertaining to issues of ethics which deserve comment. Curran and Harford comment that the Ethical Board of ASHA damaged audiologists for dispensing hearing aids. They state that these audiologists were functioning ethically at that time. In fact they were **not** ethical because their behavior was not in accord with the principles governing the group. It took over 20 years to change the principles that govern ethical behavior concerning dispensing hearing aids. In that change, some very good clinicians were damaged—such may be the risks assumed by pioneers.

I don't think anyone would argue that a professional health care provider ought to comply with a "higher" set of ethical standards as compared to a business person or a manufacturing firm. In fact, many of those people critical of the health care system in this country would attribute a portion of the

problem to the fact that the provision of medical care/services has taken on too much of the aspect of business and profit — to the exclusion of the ethical standards of the past. While most of us believe in a "free enterprise system" when it comes to automobiles, groceries and plumbers, to allow a health care profession to function solely with the "free enterprise system" objective (profit) as the major driving force puts the professional objective (patient care) in a secondary position. WE, as the professional group involved, can change our ethical principles to accommodate profit first, but wouldn't this change place us on a "lesser" ethical level?

Reputation, individual or collectively, is earned, not granted. It would seem that our professional reputation is in a state of change again, and now more than ever, **our** reputation will become higher or lesser, resulting from how well **we** adhere to a strict ethical standard of behavior that leaves no doubt in anyone's mind who we are and what we do.

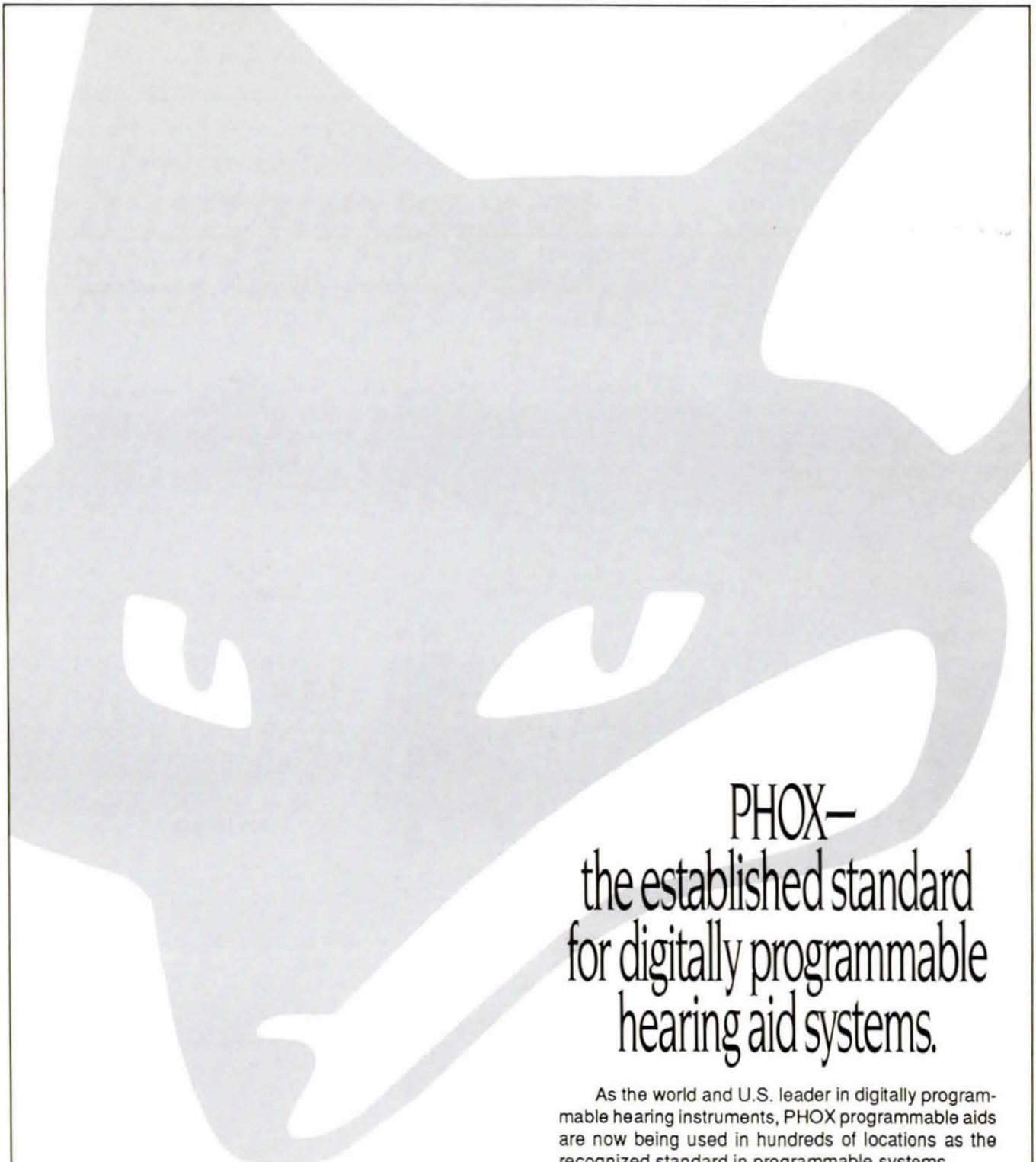
Michael J. Metz
Garden Grove, CA

Guidelines for Forum

Audiology Today *encourages letters in response to published material as well as topics of general professional interest.*

Letters must include the writer's name, address and signature. Unsigned letters will not be considered for publication, although the writer's name can be withheld on request. Letters should be limited to 300 words. Letters are subject to abridgment for publication and may be edited for clarity, and to preserve the editorial style of ***Audiology Today.*** *Letters will not be returned or acknowledged. Letters to Forum should be addressed to:*

Carmen C. Brewer, Ph.D.
Washington Hospital Center
Hearing and Speech Center
110 Irving St. NW
Washington, DC 20010
Fax 202-877-3299.



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Announcements

Calendar of Events

March

13-16, 1992
Institute for Higher Education Administration
Charlottesville, VA
For further information contact:
RickTalbott
U of Virginia
P.O. Box 9022
Charlottesville, VA 22906
(804) 924-7107

20-22, 1992
Clinical Testing of Evoked Otoacoustic Emissions
Bal Harbour, FL
For further information contact:
Division of Continuing Medical Education (D23-3)
U of Miami School of Medicine
P.O. Box 016960
Miami, FL 33101
(305) 547-6716, FAX (305) 547-5613

21-25, 1992
National Conference on Deaf-Blindness
Washington, D.C.
For further information contact:
Conference Coordinators
P.O. Box 440657
Aurora, CO 80044
(303) 337-2077

Operation Ear Drop: Kenya

Dr. Zachary Wanjohi, Project Leader: Ear Drop, continues his development of pediatric otologic health care for the children of Kenya. His national health survey revealed that approximately 16% of school age children have suppurative otitis media. Almost single handedly, with support from the African Medical and Research Foundation, Dr. Wanjohi has completed otologic examinations and hearing screenings for 10,000 children. Since there is a critical shortage of physicians and nurses to provide ongoing care, a corp of older children have been trained to serve as "ear monitors", who routinely clean ear canals and administer antibiotic ear drops to younger school-age children with draining ears. At present, Dr. Wanjohi is developing swahili word lists since speech audiometry has not been routinely included in audiological evaluations. In a recent letter to Noel Matkin, who visited the Project in 1989, Dr. Wanjohi requested the donation of an acoustic reflectometer for use in the field, a dosimeter and a sound level meter. He also would be pleased to receive serviceable body type hearing aids for use with young children. If you have questions relative to this project, please feel free to write Noel Matkin, University of Arizona, Speech Building, Tucson, AZ 85721 or call (602) 621-7070

Grant Awarded to Audiological Engineering

Somerville, Massachusetts — Audiological Engineering Corporation, Manufacturer of TACTAID vibrotactile aids for the deaf, has been awarded a research grant by the United States Department of Health and Human Services. The objective of the 2-year study is to develop an improved method of producing and displaying tactile information for the deaf. The company will address several issues involved in presenting tactile information including optimal number of channels, signal encoding techniques, and noise immunity. Audiological Engineering has been developing tactile aids for almost 10 years, and according to Vice President, Mike Reynolds, "We are constantly assimilating the latest research data and utilizing the most current technological advances to produce a better product. We take pride in the fact that each new product is the best it can be, but at the same time we set new goals and we are convinced that we will reach them." For further information the company can be reached at 35 Medford Street, Somerville, MA 02143, 1-800-283-4601 or 1-800-955-7204 TDD.

Auditory Evoked Response Workshop

The Vanderbilt Auditory Evoked Response Hands-On Workshop sponsored by the Division of Hearing and Speech Sciences and Department of Otolaryngology at Vanderbilt University School of Medicine in Nashville, Tennessee will be held July 16-19, 1992. Auditory evoked response measurement is an essential dimension of audiologic practice, and now extends beyond the traditional application of ABR. This workshop is designed to instruct the audiologist and graduate audiology students. Due to the intensity of the hands-on laboratory sessions, attendance at each workshop is limited. Early registration is strongly recommended. For further information contact either James W. Hall III, Ph.D., Workshop Director or Linda Kozimor, Workshop Coordinator, Vanderbilt Balance and Hearing Center, Suite 2600, Village at Vanderbilt, 1500 21st Avenue South, Nashville, TN 37212-3102, phone 1-615-322-HEAR (4327).

April

1-4, 1992
Hearing Conservation Conference
Cincinnati, OH
For further information contact:
Elizabeth Maden
University of Kentucky
320 CRMS Building
Lexington, KY 40506-0108
(606) 257-3972, FAX (606) 257-4297

3-4, 1992
Hearing Aids '92: Assessment and Application of New Technology
Denver, CO
For further information contact:
Ann Steele
College of Continuing Education
University of Northern Colorado
Greeley, CO 80639
(800) 776-2434

8, 1992
Central Auditory Processing
Nashville, TN
American Academy of Audiology
For further information contact:
AAA
(800) AAA-2336

24-25, 1992
Amplification in the '90's
St. Louis, MO
For further information contact:
Continuing Medical Education
Washington University School of Medicine
Box 8063, 660 S. Euclid
St. Louis, MO 63110
(800) 325-9863 OR(314) 362-6893

24-26, 1992
ENG Test Administration Interpretation and Diagnosis
White Plains, NY
For further information contact:
Joyce Simenson
ICS Medical Corporation
2227 Hammond Dr.
Schaumburg, IL 60173
(800) 289-2150

29-May 2, 1992
International Congress of Phonoaudiology
Rio de Janeiro, Brazil
For further information contact:
JZ Promocoes Assessoria de Congressos
Rua Visconde Silva, 52
gr. 505 CEP: 22271
Rio de Janeiro, Brazil
(021) 2862846, FAX(021) 2269351

AAA Appointed to Advocacy Committee

The American Academy of Audiology has been appointed a permanent Advisor to the Advocacy Committee for the Early Identification of Hearing Loss. In this capacity, the Advocacy Committee will keep the American Academy of Audiology informed about activities concerning early identification of hearing loss and seek the Academy's advice and input on appropriate matters. The Advocacy Committee meets on a monthly basis at the Volta Bureau in Washington, D.C.

May

1-4, 1992
The Molecular Biology of Hearing and Deafness
La Jolla, CA
For further information contact:
UCSD, ENT Dept.9500
Gilman Dr., 0666
La Jolla, CA 92093-0666
(619) 534-4594, FAX(619) 534-5319

16, 1992
Central Auditory Processing: Current Perspectives on Evaluation and Management
Los Angeles, CA
For further information contact:
AAA
(800) AAA-2336

28-29, 1992
Central Auditory Pathways: Processing and Disorders
For further information contact:
Meredith Megathan Haluschak
Glenrose Rehabilitation Hospital
10230 - 111 Avenue
Department of Audiology
Edmonton, AB T5G 0B7 Canada
(403) 471-2262

June

4-6, 1992
Audiology-Scope of Practice
St. Louis, MO
For further information contact:
Douglas L. Beck
3660 Vista Ave.
St. Louis, MO 63110
(314) 577-6110, FAX(314) 577-6119

11-14, 1992
Academy of Rehabilitative Audiology Summer Institute
Austin, Texas
For further information contact:
Sharon A. Lesner
School of Communicative Disorders
The University of Akron
Akron, OH 44325-3001
(216) 972-7883

11-14, 1992
Assistive Devices for the Hearing Impaired: Tutorials, Applications, Research
Iowa City, IA
For further information contact:
The Conference Center
249 Iowa Memorial Union
The University of Iowa
Iowa City, IA 52242
(319) 335-3231, FAX(319) 335-3533

20, 1992
Central Auditory Processing: Current Perspectives on Evaluation and Management
Chicago, IL
For further information contact:
AAA
(800) AAA-2336

25-29, 1992
Hear the World from the Heartland
Cedar Rapids, IA
For further information contact:
Tammany Young
Meeting Planner
SHHH
7800 Wisconsin Ave.
Bethesda, MD 20814
(301) 657-2248, TDD(301) 657-2249

26-30, 1992
A Practical Short Course in Auditory Brainstem Response and Otoacoustic Emissions
New Orleans, LA
For further information contact:
Kresge Hearing Research Laboratory
2020 Gravier St., Ste A
New Orleans, LA 70112
(504) 568-4785, FAX(504) 568-4460

28- July 2, 1992
Building Bridges to the Second Century
San Diego, CA
For further information contact:
Vicki Slater
Alexander Graham Bell Association for the Deaf
3417 Volta Place NW
Washington, D.C. 20007-2778
(202) 337-5220

July

16-19, 1992
Auditory Evoked Response Workshop
Nashville, TN
For further information contact:
James W. Hall III, Ph.D.
Vanderbilt Balance and Hearing Center, Suite 2600
Village at Vanderbilt1500 21st Ave. South Nashville, TN 37212-3102
(615) 322-4327

September

24-27, 1992
Paediatric Cochlear Implantation
University Hospital, Nottingham, UK
For further information contact:
University of Nottingham
Office for Professional and Industrial Training
University Park
Nottingham NG7 2RD
(0602) 792841, Fax (0602) 501718

October

30-Nov. 1, 1992
ENG Test Administration Interpretation and Diagnosis
Chicago, IL
For further information contact:
Joyce Simenson
ICS Medical Corporation
2227 Hammond Dr.
Schaumburg, IL 60173
(800) 289-2150

American Academy of Audiology

April 9-12, 1992
Fourth Annual Convention
Nashville, TN
Jay Hall III, Convention Chair

Better Hearing and Speech Month

Washington, D.C. — Clarence Bustamante, age five, of Santa Fe, New Mexico, has been named the Child of the Year in the national poster child contest sponsored by the Council for Better Hearing and Speech Month. Selected from more than 150 entries from across the country, young Clarence will be featured nationally on TV, radio, and in newspaper and magazine articles. Clarence and his parents will be brought to Washington, D.C. in May 1992 to kick off Better Hearing and Speech Month.

The Council promotes the contest annually as part of the activities which lead up to the nationwide public awareness campaign for the month of May. The contest, open to children ages five to eight, is held each year to select a representative to highlight the needs and achievements of children with hearing losses or speech problems.

Clarence's profound bilateral hearing loss was identified at two weeks of age. Due to a history of hearing loss in his family, he was referred through a newborn hearing screening program to a certified audiologists and was fit with hearing aids at the age of six months. He communicates with the help of his hearing aids, an FM system, speech therapy, lip reading, and sign language. His oldest sister, Ivy, is deaf also and currently a student at New Mexico State University.

The Council for Better Hearing and Speech Month is an association of more than 29 national and local non-profit organizations dedicated to serving persons with hearing and/or speech problems. Each year a member organization agrees to be the host and selects a representative to chair the steering committee. Gallaudet University in Washington, D.C. is this year's host with Robert Daniels as the steering committee chair.

Council members include the Academy of Dispensing Audiologists, Alexander Graham Bell Association of the Deaf, American Academy of Audiology, American Academy of Otolaryngology-Head and Neck Surgery, American Auditory Society, American Speech-Language-Hearing Association, American Tinnitus Association, to mention a few. For more information and to receive mailings from the Council for Better Hearing and Speech Month, contact Robert Daniels at Gallaudet University, 800 Florida Avenue NE, Washington, D.C. 20020, phone (202) 651-5505 voice or TDD.

Clarence E. Bustamante, Jr.

April 15-18, 1993
Fifth Annual Convention
Phoenix, AZ
Noel Matkin, Convention Chair

April 28- May 1, 1994
Sixth Annual Convention
Richmond, VA
Richard E. Talbott, Roger Ruth
Co-Chairs

Seventh and Eighth Annual Conventions — In Planning

April 1997
Ninth Annual Convention
Cincinnati, OH

For further information contact:
Charlotte Howard
American Academy of Audiology
6565 Fannin, NA200
Houston, TX 77030-2707
(713) 798-3429, FAX(713) 798-6002
(800) AAA-2336

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Wave Fronts

Eugene C. Sheeley
Contributing Editor

People

The board of the Better Hearing Institute elected AAA member **Ross J. Roeser** (Callier Center, Dallas) as president. **John Zei**, president of Siemens Hearing Instruments, is the new vice president, and **Michael K. Stone**, president of the National Hearing Aid Society, is one of the new directors.

Academy member **Maureen Hannley** is the new Director of the Office of Research Development at the AAO-HNS. Under Hannley's direction, the office will begin new activities including assessment of clinical outcomes and multicenter clinical trials.

Ensoniq Corporation has announced the appointment of Academy member **Susan M. Reynolds** as its district sales manager for the south central U.S.

AAA member **David L. Smith** (Huntington Hearing Center, WV) was appointed by the governor to the West Virginia General Medicaid Enhancement Board. The board will make recommendations in line with recent legislation to increase Medicare payment for health care.

New fellows of the Acoustical Society of America include AAA members **Donald D. Dirks** (UCLA) for contributions to bone conduction hearing, hearing aids, and speech recognition and **Judy R. Dubno** (UCLA) for contributions to the understanding of auditory perception and hearing impairment.

Academy member **Roberta B. Aungst** (Audiologic Diagnostic and Rehabilitation Center, Norristown, PA) has been appointed Vice President for Convention Planning and Program for the Pennsylvania Speech-Language-Hearing Association.

After 21 years as Director of Audiology at the New York League for the Hard of Hearing, AAA member **Jane R. Madell** has accepted a position as Director of Communicative Disorders at Long Island College Hospital, and Director of Communicative Disorders in the Department of Otolaryngology of SUNY Health Sciences Center at Brooklyn.

Kathryn Horton (Military Systems Group, Inc. and Vanderbilt University) was recently appointed to the board of the EAR Foundation in Nashville.

Sesame Street's **Linda Bove** was honored with a Doctor of Fine Arts degree by Gallaudet University. The award recognized that her work pioneered new pathways in the entertainment industry, paving the way for other hearing-impaired actors.

Ernest Glen Wever died in Princeton, NJ last fall. He is best known for his books: *Theory of Hearing*, *Physiological Acoustics* (with Merle Lawrence), *The Reptile Ear*, and *The Amphibian Ear*.

Hans Heinrich Spondlin died in November in Innsbruck, Austria. He developed the "block-surface" technique that allowed examination of the entire cochlea by electron and light microscopy, and he made many other contributions to our knowledge of cochlear anatomy and physiology.

Organizations et al.

The **National Captioning Institute** provided real-time captioning for TV coverage of the winter Olympics in Albertville, France, and will continue the practice for the summer Olympics in Barcelona. NBC, CBS, and TNT will broadcast the captioned events as they occur.

The Aram Glorig Prize is awarded every other year to a person who has had a distinguished career in audiology. The next award will be made at the International Congress of Audiology in Japan in August-September. The four previous recipients have been AAA member Marion Downs (U.S.),

Jan Sekula (Poland), Moe Bergman (Israel), and Gunnar Lidén (Sweden). To obtain information or make a donation, write to **Aram Glorig Foundation**, c/o Prof. Sanford E. Gerber, Department of Speech and Hearing Sciences, University of California, Santa Barbara, CA 93106-7050.

At its annual awards dinner in November, the **A. G. Bell Association for the Deaf** presented awards to several organizations including the **House Ear Institute** and the **John Tracy Clinic**.

The Hearing Journal (December) reports that at last year's convention, the **National Hearing Aid Society** decided to admit four categories of nonvoting members: affiliate members (educators, physicians, and others who do not qualify for regular membership), associate members (receptionists and others employed by dispensers), student members (students in "hearing instrument sciences or related professions"), and consumer members (hearing aid users, their families and advocates). The society also decided to change its name to the **International Hearing Society.**

The HASBRO Children's Foundation has awarded the **New York League for the Hard of Hearing** a grant to establish a national resource center to assist professionals and families in the habilitation of children with cochlear implants. The project staff will generate an individualized plan to improve a child's listening and speaking, as well as demonstrate techniques on videotape for the child's local clinician or teacher. For more information, call the project director, Diane Brackett, 212-741-7698.

The Better Hearing Institute has released public service announcements featuring Leslie Nielsen, a veteran film actor and the comic star of the Naked Gun series. The print messages are funded by Starkey Labs and the video messages, by Microtronic (Denmark) and Gennum Corp. (Canada).

Paul-Michel Vahanian has been appointed the international accounts manager for **Electone, Inc.** Vahanian, who is fluent in English, French, and Spanish, will be involved with marketing hearing aids in more than 30 countries.

Products

A new type of sound-absorbing panel has been developed by a Japanese company and is marketed in the U.S. by **Peer, Inc**. Rigid panels (0.1 inch thick) are made of sintered aluminum particles and have a noise-absorption coefficient of about 0.90 in the midfrequency range. The material contains 40 vol% pores, which give it sound absorbing properties while reducing its specific gravity to half that of solid aluminum. More information about the material, called Almute, can be obtained from Peer, Inc., 241 West Palatine Road, Wheeling, IL 60090; telephone 800-433-PEER.

The General Electric Network Information Exchange (**GEnie**), a computer-accessed mail and bulletin board, has established a new interest group for hearing-impaired users. It will provide information about organizations that deal with hearing-impaired people and topics of interest. More information can be obtained from GEnie, 401 North Washington Street, Rockville, MD 20850; telephone 800-638-9636.

Government

The Chronicle of Higher Education (January 15) reported that the **National Institutes of Health** for the first time in its 105-year history is developing a long-range plan. As a first step, NIH officials and consultants generated a mission statement. Then they designated 15 areas of support over the next decade: aging, basic biology and the environment, biotechnology, chronic and recurrent illness, the health of women and minority-group members, the impact of research on health care, infant health and mortality, international dimensions of research, molecular medicine, neuroscience and behavior, population-based studies, prevention, reproductive biology and development, structural biology, and vaccine development. After seeking opinions from U.S. scientists, NIH is expected to issue a final report late in the spring.

Recently **Hawaii** became the 50th state to recognize hearing dogs when it revised its state laws relating to guide dogs. At present, statutes vary among the states with respect to things such as leash color and sites where access is guaranteed. Assistance Dogs International, a coalition of organizations that train assistance dogs, hopes to persuade all states to adopt a uniform statute that will specify rights to housing, transportation, etc. A booklet, *Legal Rights of Assistance Dogs*, is available for $4 from the Hearing Dog Resource Center, telephone 800-869-6898 (voice and TDD).

According to the *Chronicle of Higher Education* (December 4), the Board of Trustees at Rochester Institute of Technology (home of the National Technical Institute for the Deaf) voted to maintain many of RIT's ties with the **CIA.** The trustees' statement said, "The board believes that there is nothing inherently inconsistent with RIT's academic mission in accepting funding from the CIA, having current employees of the CIA on campus, or in conducting research or studies on behalf of the CIA."

Wave Fronts Continued

The **U.S. Department of Justice** is funding a new information service to provide free legal advice and technical assistance to help businesses comply with the Americans with Disabilities Act and educate individuals with communication disabilities about their new rights. The service, called the Americans with Disabilities Act-Communication Accommodations Project, has been established by the National Center for Law and Deafness at Gallaudet University and the American Foundation for the Blind. Information will be supplied at either of two telephone information lines from 9:00 a.m. to 4:30 p.m. (ET), Monday through Friday: NCLD is reached at 202-651-5343 (voice and TDD) and AFB is reached at 202-223-0101 (voice and TDD).

The **Department of Justice** also awarded ASHA a one-year grant to develop technical and training materials relating to hearing, speech, and language impairments. The materials would help those concerned with public accommodations and facilities to comply with the regulations of the Americans with Disabilities Act.

The *NAD Broadcaster* (December) reports that a recent poll by Louis Harris and Associates shows that a majority of those surveyed support increased participation in the mainstream of American life by disabled citizens. Although most of those questioned had not heard of the **Americans with Disabilities Act,** they overwhelmingly supported its key provisions when informed of them. ASHA's Executive Board appointed a task force to make recommendations to the board concerning the need to revise the current FDA regulations on dispensing hearing aids. Members of the task force are Christopher D. Bauch*, Lucille B. Beck*, Ruth A. Bentler*, Constance H. Cabeza*, Donald M. Goldberg*, Gail Hubbard, Solveig Ingersoll*, Barbara R. Murphy*, Kimberly Parker-Bright, Roy F. Sullivan*, and Susan P. Whichard*. The group also includes staff of ASHA's national office and Vice President for Governmental and Social Policies, Jean H. Lovrinic*. The task force will present its report to the Executive Board possibly as early as March. (* = AAA member)

Health Professions

In a study of the efficacy of the routine use of topical antibiotic solutions following **tympanostomy tube** placement, B. A. Scott and C. L. Strunk, Jr. found that such a prophylactic procedure does not appear to be necessary in a majority of patients. According to their paper in Otolaryngology—Head and Neck Surgery (January), they did find that a subgroup of patients with thick mucous fluid in the middle ear are at significantly higher risk for postoperative drainage and may benefit from antibiotic drops.

E. I. Cantekin et al., in the Journal of the American Medical Association (December 18) reexamined the data from a 1987 study (n=518 infants and children) of antimicrobial therapy for **otitis media with effusion** and drew different conclusions. They found that, at four weeks, the amoxicillin-treated group and the placebo group were not significantly different as determined by a tympanometric criterion or by improved hearing thresholds. Only by otoscopic judgment can an argument be made for marginal benefit from amoxicillin. The authors present statistical evidence questioning the validity of the otoscopic observations, and note further that six weeks after amoxicillin therapy ended, the recurrence of effusion was two to six times higher in the amoxicillin-treated group. In a full-page article on otitis, *U.S. News and World Report* (January 27) discusses the controversial conclusions and quotes pediatrician John Bolton (San Francisco) on children who have fluid-filled ears, but who are not experiencing lingering fever, pain, or hearing loss. He urges parents to see a doctor but wait four weeks for the problem to clear up before using antibiotics. The magazine also quotes otologist Robert Ruben (New York) who criticizes the practice of giving low-"maintenance" doses of antibiotics to prevent recurrence of otitis.

A letter in *Lancet* (November 23) from researchers at the University of Heidelberg reports a study of patients who had **meningococcal meningitis** in childhood. In one group (n=30), the disease was caused by *Neisseria meningitidis* serogroup B, and there was one case of impaired hearing, while in the other group (n=30), the disease was caused by uncommon serogroups W135, X, Y, or 29E, and there were 6 cases of impaired hearing. The researchers suggest that "meningococcal meningitis due to uncommon serogroups may be more often associated with deafness than meningitis due to common serogroups of *N meningitidis*.

An article in *The Hearing Journal* (December) asserts that 1991 was the first year of significant growth for the **hearing aid industry** since 1987. The article, based on figures from the Hearing Industries Association, also shows a continued, although small, shift toward ITE aids: they account for 79.1% of all aids dispensed. BTE aids account for 20.5% of all aids dispensed, and body and eyeglass instruments account for the remaining fraction of 1%.

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Issues in Ethics

Editor's Note: *Dr. Resnick currently serves as Chair of the Academy's Ethical Practice Board. At our invitation, he has written a series of articles to inform our membership about issues in ethics. The remaining articles will be published in future issues of* ***Audiology Today****.*

Balancing the Ethics of a Profession and a Business

David M. Resnick

One of the difficult tasks associated with being a professional is to remain sensitive to all the features that distinguish a profession from a business or a trade. With continued growth in the number of private practicing audiologists the maintenance of a distinction between the values held by professionals and the profit motives embraced by business persons becomes crucial to the preservation of audiologists as professionals. The basic assumption here, of course, is that audiologists desire to be known as professionals, rather than as purveyors of hearing aids, or hearing aid specialists.

In the September/October issue of *Audiology Today* Earl Harford puts that assumption a slightly different way. The point is beautifully made in his guidance for establishment of an independent private practice when Harford indicates that you must decide whether you will operate as a seller of hearing aids who just happens to be an audiologist, or as a professional audiologist who provides hearing aids as one phase of a comprehensive hearing healthcare service. There are ethics involved in both choices, of course, but the ethics are more stringent for professionals.

Physicians, for example, are by tradition both professionals and entrepreneurs, but they are not known primarily for their business acumen. Most of them chose to be known for their medical rather than their business accomplishments when they selected the field of medicine as a career. At least this is the way it always has been. It is true, however, that medicine today, as with most professions, is victim of powerful economic incentives which operate to make healthcare professions more of a business than ever before. Many physicians in leadership roles fear that these incentives will tip the fragile balance between professionalism and entrepreneurship that has existed for centuries, and that the shift just might downplay the profession, if care isn't taken.

Somewhere in between the push toward commercialism emanating from the economics of modern America, and the resistance of professionalism originating mainly, although not exclusively, from the AMA, professionals try to preserve the **professions** by appealing to their membership.

The AMA asks physicians, for instance, to recognize the factions of professionalism and business in medical practice, but to do it in a way that will allow medicine to enter the next millennium still intact as a profession.

The issue simply put is the co-existence of two components important to the success of any professional practice—businessjudgments and professional ethics. At the extreme low end of the business judgments continuum are the dollar oriented workers, where ethics frequently fly out the window. At the uppermost end of the professional ethics scale are the altruistic missionaries of baseball, motherhood, and apple pie, where potentially profitable businesses, e.g. private practices, often die young.

It is reasonable to presume that **good** business practices are normally distributed within any group of businessmen, and similarly, to expect a bell-shaped curve of **ethical** professionals in any given profession. The concern, however, is whether the distribution will continue to represent a normal surface of frequency if professional practices become predominantly businesses, and the atmosphere becomes suited for professional ethics to give way to self-interest.

Some of the questions which professionals are presently asking themselves are:

When a professional is placed in a competitive business atmosphere must professional ethics erode? Are professional ethics and good business practices mutually exclusive? Is a private practitioner more apt to violate a professional code of ethics than is a staff member of an institution? Can a balance be achieved between compliance with a code of professional ethics and the profit demands of a successful practice?

The most frequent answers to the above are: no; no; no; and yes.

But the answers are never easy. For example, responses to the following more involved questions may be less definitive:

In general, if an audiologist fits every corner-audiogram patient with at least one Dolce Vita ABC hearing aid, is this unethical? Not necessarily, but there are instances where it might be.

Are program staff apt to be considered in violation of the Code of Ethics of the AAA merely because they have used the same earmold lab for several years? Not for that reason

Must an audiologist ignore all of the hearing aid discount purchase packages available in order to avoid being reported as unethical?

The audiologist may be **reported**, but may not be found in violation of the Code simply for taking advantage of discount purchase plans. However, Medicaid in at least one state is investigating the procedures used by hearing aid dispensing practices that take advantage of a manufacturer's quantity discount hearing aid purchases, but fail to reflect any savings to the reimburser.

Is it possible for audiologists to utilize the services of a single hearing aid manufacturer exclusively and still remain in compliance with the Academy's Code of Ethics? Probably, unless it can be shown that a clear conflict of interest exists by doing so.

Obviously, no professional association should establish itself through its Code of Ethics as insensitive to the practice routines of its members. About four decades ago the Audivox Company produced an unique hearing aid receiver designated as the 9C. It was developed to serve individuals with normal hearing through about 2KHz, and was used with a body-aid. The size of the receiver, slightly larger than a pencil eraser, was revolutionary for those days. More important was the unmatched success it achieved in fitting the young hearing-impaired military population, a large percentage of whom revealed precipitous, high tone hearing loss from war noise exposure. Audiologists serving the military population quickly came to rely on the benefits of the Audivox 9C receiver and some utilized it to the **exclusion** of other purported "high frequency emphasis" hearing aids available. There was never a question of that favoritism being unethical, however.

Audiologists in private practice come to know the suppliers of product and tend to favor some over others for a variety of legitimate reasons. Professional ethics would dictate that this type of favoritism be driven by the need to provide the **best** for a patient, and not be motivated by an eagerness to accumulate 'buyer' points which can be converted into a future ticket to Shangrila. When a professional puts self-interests ahead of all else, professional ethics are put at risk.

Consider this hypothetical situation involving a dentist who, early in practice, located a dental supply company that in her opinion made outstanding filling material. The dentist has, in fact, purchased all her filling material from this company for nearly fifteen years. The order to the company has consistently requested fifty pounds every month, except for a few times over the years when the order dropped below fifty pounds because the dentist went on a long vacation. But the supplier considers her a regular 50 lb/month buyer.

One day a sales rep from the company called on the dentist and said, "Doctor, if you buy 75 pounds of this **new** amalgam each month for the next twelve months, not only will I give it to you cheaper by the pound than you're now getting it, but I will install a jacuzzi in your bathroom. I'll leave this brochure. It describes the new amalgam and our purchasing program-you know, all about how you get the jacuzzi, and even some other things".

The dentist has a decision to make at this point. The approach selected can affect both the business and the professional aspects of her practice.

She could say, "Terrific! I've always wanted a jacuzzi in my bathroom and I know they're not cheap. I'm sure I can fill a few more cavities a week to use the extra amalgam. I usually let the little ones go for a time. I'll just fill 'em sooner that's all".

Conversely, she could tell the sales rep, "Fine, but I don't want the jacuzzi so whatever you figure the cost of it is just reduce what you charge me for the filling material that much more. That way I can further increase my profit margin and put a few more dollars in the bank so I can take two months vacation next year. Maybe three".

Or the dentist could respond, "Okay I'll take the 75 pounds of the new stuff, but I would rather you reduce my cost for the amalgam by the cost of the jacuzzi because I already have a jacuzzi, and I don't want two jacuzzis. To be honest with you I don't even want the one jacuzzi, but my husband thinks it's fun. Besides, I can put the savings back into the practice and perhaps not have to raise the charge to my patients for fillings next year".

Still another rejoinder might be simply to say to the sales rep, "Stick it in your ear, and just deliver my regular 50 pounds. That's all I ever use. That's all I need. And besides I still have some left from three years ago when I went on vacation for a month, and you wouldn't take back. The old stuff works just fine for me".

At least one of these responses would be an excellent choice for the **good of the business**. It may **not** be a **professionally ethical** choice, but it would be a good business judgment. Another selection might be the **purely ethical** approach, but an **eventual disaster** to business growth and the future of the practice. One of the choices is defensible because it embodies **balance between professional and business ethics**.

In the above situations thought must also be given to the patients of the dentist. Remember, patients have the right to expect impartiality from a professional. They do not suspect that professionals are motivated by anything other than a strong desire to provide what is **best** for them. Patients do not approach a professional person alert for what may be a conflict of interest. The patient affords the professional complete trust. That's the tradition. Professions have earned the public trust because they do not engage in conflicts of interest.

How might the patient's attitude toward the dentist change, however, if the dentist openly displayed the company's brochure describing the jacuzzi offer for a twelve month purchase guarantee? For one thing the patient might wonder if the dentist were filling the patient's tooth because it truly required filling, or because the dentist made more money as a result of company discounts associated with greater use of material. Or the patient might wonder if the dentist were using

a lot of amalgam in order to qualify for the jacuzzi.

A rule of thumb in situations involving product promotions might be that, if you as a professional would feel comfortable telling all your patients truthfully about the promotional arrangements you maintain with the suppliers of goods which you sell, the chances are good that the arrangements are professionally ethical. But, if you are hesitant to let on to your patients that the sale of an 'x' number of Dolce Vita hearing aids, for example, results in you being flown to Shangri-la, the possibility of the arrangements being a violation of the Code of Ethics is increased.

Disclosure is not a full solution to the problem, however, because it does not take into account that patients depend on the profesionals' unbiased judgment to select what is best for them — whether that means a choice of treatment, or a prosthetic device. Disclosing to patient a manufacturer's incentive rebate plan in no way renders the patient better able to judge the differencesamong products in the way a professional can. The patient **still** relies on the practitioner's judgment. Patients may think they are getting something when, in fact, they are not.

Frustrating as it may be, a good business decision is not always a professionally ethical one. In opposite fashion, a professionally ethical conduct may not always provide for the best business tactics. The pure businessperson has no professional ethic to consider when charging the corner-audiogram patient $2400.00 for binaural hearing aids. There is only the ethic of the marketplace-present and future. The audiologist as a professional, however, always must be aware that self-interest is not often a proper motivation toward compliance with a Code of Ethics. The professional, especially the private practitioner, must constantly strive to preserve an appropriate balance between the necessary ethics of professionalism and the good sense of business. The 'wolf at the door' is not always your friend.

Coming Next Issue:

- **Convention Highlights**
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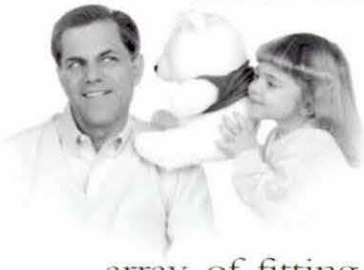

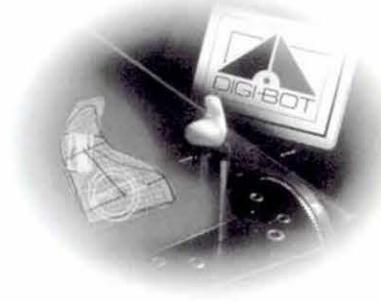

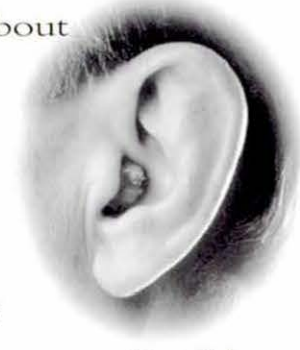

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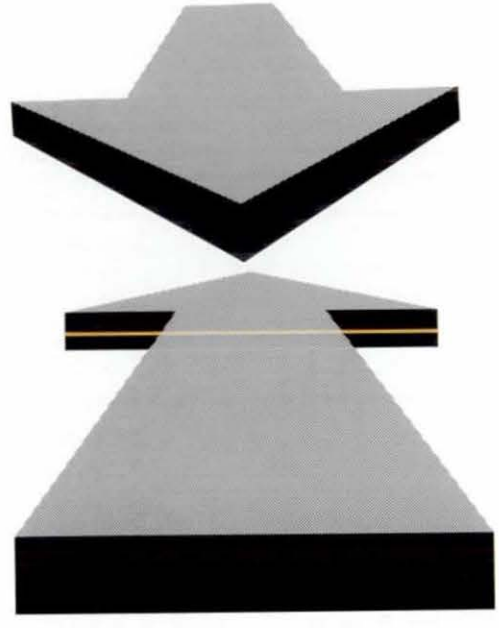
Point: Counterpoint

Alternatives to AU.D. Degrees

The submitted response to the American Academy of Audiology position paper on the Professional Doctorate (Au.D.) ***Audiology Today*** *Vol. 3, No. 4, 1991 was submitted by Larry Humes and colleagues.*

We are writing to express our concern about two positions adopted by the American Academy of Audiology. The two positions are somewhat related. First, since its inception, the Academy has indicated that a doctoral degree should be the required degree for audiologists and that, in the near future, membership in the Academy would be restricted to those holding such degrees. Second, the Academy has recently endorsed the creation of a professional doctorate in audiology (*Audiology Today*, Vol.3, No.4, 1991). Both positions maintained by the Academy clearly indicate that the Academy believes that clinical audiologists should have a doctoral degree to be able to function as competent and well-qualified clinicians.



These positions have apparently developed from a concern about the qualifications of audiologists currently being graduated from existing programs with Masters degrees. While we share the Academy's concern about the quality and depth of training received by graduating Masters-level clinicians, we do not believe that a doctoral degree or a professional doctorate represents the only or the best solution to the problem. Four years of undergraduate education and two years of graduate work represent an educational framework well suited to the training of competent and highly qualified audiologists. The primary problem, though, is that most audiologists received the vast majority of their education in the final two years of this 6-year time period. Most of today's audiologists were required to essentially major in speech/language pathology as undergraduates. The vast majority of beginning audiology graduate students, for example, have typically completed only two courses in audiology as undergraduates, one in diagnostic areas and one in rehabilitation, and have little or no clinical practicum in audiology. As a result, these students must then cram practically everything they need to know about audiology into 1-1/2 to 2 years of graduate work. Why not encourage the restructuring of **undergraduate** education in audiology so that much of the coursework currently taken at the Masters level could be taken during the Junior and Senior years of an undergraduate program, with two years of Masters work for advanced coursework and extensive clinical work? Actually, if one compares this proposal to the structure originally proposed for the Au.D. by David Goldstein in the *Asha* magazine (*Asha*, Vol. 31, No. 4, 1989), the parallels are obvious.

The primary difference between these two proposals would be in the title of the degree conferred. We think that few would argue that more than six years of education are needed by audiologists to perform their services with the highest level of competence, as long as a significant amount of their education as audiologists was allowed to take place during the first four years.

The original 6-year Au.D. model advocated by Goldstein has since been modified to be an 8-year model with four years of audiological training following the completion of a 4-year undergraduate program. This compromise proposal appears to have been necessitated for two primary reasons. First, there was no provision for an alternate degree in the original 6-year Au.D. model for those individuals deciding to leave the 6-year Au.D. program after four years of education. This was clearly undesirable. (Note that this would not be a problem in the proposed 6-year Bachelors/Masters audiology program.) Those individuals opting out of audiology after four years of a 6-year Au.D. program, however, could not be offered a Bachelor's degree of some type without drawing attention to the obvious fact that the Au.D., a professional **doctorate**, was being earned with only two years of graduate study. A second major factor motivating the change from a 6-to 8-year Au.D. program appears to be an effort to establish some face validity for the Au.D. degree and follows from the fact that this amount of education is typical of other "doctoring" professions, such as

optometry, dentistry and medicine. Note, however, that even in this modified 8-year Au.D. proposal there would still be only four years of audiological training required for the Au.D. Thus, the extra two years required in the revised 8-year Au.D. plan will not provide more audiological training than the alternative 6-year Bachelors/Masters model. The primary gain associated with the longer 8-year model lies in two additional years of **undergraduate** education in areas other than audiology. We feel that 2 to 2-1\2 years of coursework in areas such as calculus, chemistry, physics, biology, anatomy and physiology, computer science and psychology are sufficient to establish a firm foundation for future work in clinical audiology.

Perhaps the primary disadvantage associated with the proposal to maintain the Masters degree as the terminal degree for clinical audiologists has to do with the professional title earned in the process. With the Au.D. program, one would not only be well educated, but would also be referred to as "Doctor." There are many reasons why such a title would be preferred; some trivial, some not. On the other hand, are the 8 years of training and the accompanying title **really** needed to better serve the hearing impaired? It is not obvious to us how the four years of pre-audiological undergraduate training proposed in the 8-year Au.D. model will produce such a result. Who will bear the costs of this extra training, both to the individual and to society? Obviously, "doctors" of audiology will demand more for their services; at least they'd better, if the field is to draw from the same pre-professional pool of life-sciences undergraduates being courted by medicine, dentistry, and optometry. Will the benefits to society justify these added costs? Will the public's needs be better served? Will Au.D.s continue to serve hearing¬impaired children in the public schools and will the school systems be able to afford them? Will the public value the services delivered by an audiologist more when delivered by an individual with an Au.D. than when delivered by an audiologist with a Master's degree, if both have four years of audiological training and the end result for the patient is the same?

We agree with the Academy that there is a problem with the education of audiologists today, but do not think that the professional doctorate is the only, or even the best, solution to the problem. Individuals obtaining undergraduate majors in Audiology and Hearing Sciences, followed by a Masters degree in audiology, would have clinical qualifications identical to individuals with the proposed professional doctorates, but with much less cost to both the individual and society. This plan, moreover, is much easier to implement than a new professional doctorate, such as the Au.D. It seems more logical, moreover, to use the existing Bachelors/Masters educational format to its fullest capacity before developing a new professional doctorate in audiology. If in the future, **after** having maximized the usefulness of the Bachelors/Masters educational framework, audiologists once again observe that this framework is inadequate, **then** an educational model leading to a more advanced professional doctorate in audiology would appear appropriate.

Interestingly, the individuals educated under the existing or improved Bachelors/Masters framework will soon no longer be qualified to be members of the Academy. Is the **membership** of the Academy, the overwhelming majority of whom are Masters-degree clinicians, **really** ready to prevent others with identical degrees from becoming members of the Academy on the basis of that "inferior" degree? We would much rather see the Academy endorse a set of educational and clinical criteria for mastery of audiology that could be realized in a variety of ways (Masters degree or Au.D.), rather than endorse a particular degree option. An academy "of, by and for audiologists" should then accept as members all those individuals who meet those criteria, without regard for the degree that was conferred in the process.

We are audiologists and have been actively involved in this field over the past fifteen years. We are keenly interested in bettering our profession and enthusiastically support efforts to do so. We believe that the Au.D. is an effort to do so. We remain unconvinced, however, that it is the **best** or **only** way in which this goal can be realized. Many of the questions we have posed and issues we have raised, moreover, are not easily answered. They are questions and issues, however, that must be carefully considered and thoughtfully addressed by those leading the field of audiology and certainly ones that will be raised by those less sympathetic than us to furthering the profession of audiology. These questions and issues deserve careful and thoughtful consideration by the Academy, both its leadership and its membership.

Larry E. Humes, Indiana University
Allan O. Diefendorf, Indiana University
Nicholas M. Hipskind, Indiana University
Nancy N. Barlow, Indiana University
Carol G. Cokely, Indiana University
Carolyn Garner, Indiana University
Patricia Stelmachowicz, Boy's Town National Research Hospital
Cynthia Fowler, Veterans Administration Medical Center
Sandra Gordon-Salant, University of Maryland

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PHONAK

Bringing Sound to Life

American Academy of Audiology
Fourth Annual Convention
Nashville, Tennessee
April 9-12, 1992

Thursday, April 9

10:30- 8:00 pm Registration

12 noon — 5:00 pm Exhibits Open

1:00 — 4:30 pm Special Sessions

A. The Human Ear Canal: Development and Structure, Dysfunction and Disorder, Management and Professional Issues
(Moderator: Ross Roeser)
Sponsored by the **American Auditory Society**

B. Auditory Neuroscience in the Decade of the Brain
(Moderator: Frank Musiek)

5:00 — 6:30 pm Membership Meeting
AAA President: *Jerry Northern*
AAA President-Elect: *Linda J. Hood*

6:30 — 8:00 pm Cocktails in the Exhibit Hall (complimentary)

8:30 — midnite AAA Opening Night Party
Sponsored by **Starkey Laboratories**

Friday, April 10

Exhibits Open: 10:00 am — 4:00 pm
7:45 — 8:30 am Continental Breakfast (complimentary)

8:30 — 10:00 am Concurrent Sessions I

A. The "How To's" of Programmable Hearing Aid Technology
(Moderator: Susan Whichard)
Sponsored by **Academy of Dispensing Audiologists**

B. Audiology in the Schools: We're All In It Together
(Moderator: John Sexton)
Sponsored by **Educational Audiology Association**

C. Hearing Conservation Concerns for the Practicing Audiologist
(Moderator: Andrew Stewart)
Sponsored by **National Hearing Conservation Association**

10:00 — 10:30 am Break (complimentary refreshments)

10:30 — 12:00 noon Concurrent Sessions II

A. Hearing Aid Practices
(Moderator: H. Gustave Mueller)

B. Ototoxicity and Hearing
(Moderator: Kathleen Campbell)

C. Otoacoustic Emissions
(Moderator: John Durrant)

12 noon — 3:00 pm Box Lunch in Exhibit Hall (complimentary)
Poster Session I (meet with authors)

3:30 — 5:00 pm Concurrent Sessions III

A. Student Research Forum
(Moderator: Rieko Darling)

B. Audiology Services for Culturally Deaf Individuals
(Moderator: Harriet Kaplan)

C. Cochlear Implants
(Moderator: Roger Ruth)

5:00 pm Keg Party (complimentary)

5:30 — 7:00 pm Round Table Discussions and Debates

A. Audiometric Technicians *(Robert Harrison)*
B. What is Aural Rehabilitation and Who Should Do It? *(Sharon Lesner)*
Sponsored by the **American Academy of Rehabilitation Audiology**
C. Professional Doctorate Update II *(Carl Binnie)*
D. What Do You Want from the AAA? *(Jerry Northern)*

7:00 pm A Night in Nashville

- Manufacturer's Open Houses at Opryland Hotel
- Sampling of Music City Songwriter's Clubs
- Grand Ole Opry performance

Saturday, April 11

Exhibits Open: 10:30 am — 4:00 pm
7:30 — 9:00 am Audiology Trivia Bowl III
Sponsored by **Siemens Hearing Instruments**

7:45 — 9:00 am Continental Breakfast (complimentary)

9:00 — 10:30 am General Session I
Founders of Audiology: An Aural History
(Moderator: James Jerger)

10:30 — 11:00 am Break (complimentary refreshments)

11:00 am — 12:30 pm Concurrent Sessions IV

A. Assessment of Balance Disorders
(Moderator: Gary Jacobson)

B. Hearing Aids: Technological Advances
(Moderator: Harry Levitt)

C. Stimulus-Response Considerations When Eliciting ABRs
(Moderator: Michael Gorga)

12:30 — 3:00 pm Box Lunch in Exhibit Hall (complimentary)

Poster Session II (meet with authors)

3:30 — 5:00 pm Concurrent Sessions V

A. Pediatric Audiologic Assessment and Management
(Moderator: Anne Marie Tharpe)

B. Legal Issues in Audiology
(Moderator: Willam Domico)

C. Event Related Potentials
(Moderator: Laszlo Stein)

8:00 pm — 12 midnite Academy Dance

Sunday, April 12

7:45 — 8:30 am Continental Breakfast (complimentary)

8:30 — 10:00 am Concurrent Sessions VI

A Newborn Hearing Screening
(Moderator: J. Michael Dennis)

B. The Primary Care Physician as an Essential Resource in Private Practice
(Moderator: Roy Sullivan)

C. Screening for Middle Ear Effusion in Children
(Moderator: Shlomo Silman)

10:30 — 12 noon General Session II
Future of Audiology: Five Years Later
(Moderator: Richard Talbott)

12 Noon — Adjourn

Convention Program

Thursday, April 9

10:30 am - 8:00 pm — **Registration**

12:00 - 5:00 pm — **Exhibits Open**

1:00 - 4:30 pm Special Session 1: — **The Human Ear Canal: Development and Structure, Dysfunction and Disorder, Management and Professional Issues (Co-Sponsored by the American Auditory Society)**

Chair

Ross Roeser
Callier Center for Communication Disorders
Dallas, Texas

Participants

Lucille Beck
VA Medical Center
Washington, D.C.

William Domico
Shuttleworth, Smith, McNabb & Williams
Memphis, Tenneessee

Stephen E. Mock
Scranton, Pennsylvania

Bob Oliveira
Hearing Components
Maplewood, Minnesota

Peter Roland
UT Southwestern Medical Center
Dallas, Texas

Mitchell K. Schwaber
Vanderbilt University School of Medicine, Nashville, Tennessee

Roy F. Sullivan
Sullivan and Sullivan
Garden City, New York

Gary Wright
Callier Center for Communication Disorders, Dallas, Texas

Ross Roeser
Callier Center for Communication Disorders
Dallas, Texas

Overview

This four part session will address issues dealing with the human ear canal, including the tympanic membrane. The first part will focus on embryologic development, anatomy, and physiology of the outer ear, with a special presentation describing magnetic resonance imaging of the human ear canal. The second part will cover disorders of the outer ear, ear canal, and tympanic membrane. Part three will focus specifically on cerumen management. Proper procedures for otoscopic inspection of the ear canal and cerumen management will be presented; contraindications and possible complications will be discussed. The final part of this session will be a panel discussion on professional issues involving the ear canal. The panel members will represent private practice audiology, audiology in an institutional setting, otolaryngology, and the legal insurance professions.

1:00 - 4:30 pm **Special Session 2:** **Auditory Neuroscience in the Decade of the Brain**

Chair

Frank E. Musiek
Dartmouth-Hitchcock Medical Center
Lebanon, New Hampshire

Participants

Frank E. Musiek
Dartmouth-Hitchcock
Medical Center
Lebanon, New Hampshire

Mitchell K. Schwaber
Vanderbilt University School of
Medicine
Nashville, Tennessee

Dennis P. Phillips
Dalhousie University
Halifax, Nova Scotia Canada

Overview

Central auditory function has been studied clinically for over thirty years. Recently, however, there have been marked advances in the basic neuroscience of central audition with exciting clinical implications. In this session, new and intriguing research breakthroughs will be presented by three outstanding speakers. These speakers represent a unique mixture of basic and applied neuroscience backgrounds allowing the focus of the session to be on both basic and clinical issues. In this, the decade of the brain, it is important that audiologists realize the profound accomplishments of auditory neuroscience and fully appreciate the critical role the brain plays in hearing and hearing disorders.

5:00 - 6:30 pm

Membership Meeting
Academy President: Jerry Northern
Academy President-Elect: Linda Hood

6:30 - 8:00 pm

Reception in the Exhibit Hall (complimentary)

8:30 pm -12:00 midnight

Academy Opening Night Party (Sponsored by Starkey Laboratories)

Friday, April 10

10:00 am - 4:00 pm

Exhibits Open

7:45 - 8:30 am

Continental Breakfast (complimentary)

8:30 -10:00 am **Concurrent Session 1A:** **The "How To's" of Programmable Hearing Aid Technology (Co-Sponsored by Academy of Dispensing Audiologists)**

Chair

Susan Whichard
Lewis Gale Clinic
Salem, Virginia

Participants

David Cieliczka
President of ADA
Audiology and Hearing Instruments
of New Hampshire
Concord, New Hampshire

James Rippey
McCain Professional Hearing Services
North Little Rock, Arkansas

Overview

Programmable hearing aid technology is being used in many audiology practices around the country. Topics to be covered will include: Do I need programmable hearing aid technology in my practice? How do I decide who is a candidate for programmable aids? How do I decide which system is right for my office?

8:30 -10:00 am Concurrent Session 1B: Audiology in Schools: We're All In It Together (Co-Sponsored by Educational Audiology Association)

Chair

John Sexton
John E. Sexton & Associates
Greensboro, North Carolina

Participants

Patricia Blake
St. Petersburg Beach, Florida

Cheryl Johnson
John E. Sexton & Associates
Greensboro, North Carolina

John Sexton
John E. Sexton & Associates
Greensboro, North Carolina

Peggy Von Almen
Utah State University
Logan, Utah

Overview

This session is designed to present a comprehensive audiology program for school systems to implement with four possible service delivery models: 1) parent referral, 2) school based/self-contained, 3) school and community based, and 4) contractual agreement. All audiologists, regardless of employment setting, need to be aware of school program aspects and how they, as service providers, interface with school personnel. This session will give information on how audiologists may play a key role in service delivery for children with auditory difficulties.

8:30 -10:00 am Concurrent Session 1C: Hearing Conservation Concerns for the Practicing Audiologist (Co-Sponsored by National Hearing Conservation Association)

Chair

Andrew P. Stewart
Ennis, Lumsden, Boylston & Associates
Chapel Hill, North Carolina

Participants

C. Lewis Addison
Tennessee Valley Authority
Chatanooga, Tennessee

David M. Lipscomb
Correct Service, Inc.
Stanwood, Washington

Mead C. Killion
Etymotic Research
Elk Grove Village, Illinois

Overview

This session will include three presentations about various aspects of industrial hearing conservation useful to the clinical audiologist. The presentation titles are: Considerations for Clinical Audiologic Evaluation of Industrial Noise Exposed Workers, Fallacies and Foibles in Hearing Conservation, and Parvum Bonum, Plus Melius: The "More Is Better" Fallacy.

10:00 -10:30 am Break (complimentary refreshments)

10:30-12:00 pm Concurrent Session 2A: Hearing Aid Selection and Fitting: Practical Issues

Chair

H. Gustav Mueller
University of Northern Colorado
Greeley, Colorado

Participants

Ruth A. Bentler
University of Iowa
Iowa City, Iowa

David A. Fabry
Mayo, Clinic
Rochester, Minnesota

David B. Hawkins
University of South Carolina
Columbia, South Carolina

Michael J. Metz
Audiology Associates
Garden Grove, California

Overview

During this session, panel members will be asked to respond to a variety of practical issues regarding the selection and fitting of hearing aids. A wide range of topics will be covered. We will take a critical look at some of the new hearing aid circuitry (e.g., K-Amps, BILL ASP, Class D Amps) and debate the efficacy of various fitting practices (e.g., LDLs, prescriptive techniques, speech measures, probe microphone). All panel members dispense hearing aids, and they represent a variety of dispensing settings. Audience members are encouraged to participate.

10:30-12:00 pm Concurrent Session 2B: Current Issues in Ototoxicity

Chair

Kathleen Campbell
Southern Illinois University School of Medicine
Springfield, Illinois

Participants

Leonard P. Rybak
Southern Illinois University
School of Medicine
Springfield, Illinois

Fling A. Boettcher
Southern Illinois University
School of Medicine
Springfield, Illinois

Overview

Clinical findings of ototoxicity will be described for the aminoglycoside antibiotics, loop-inhibiting diuretics, anti-neoplastic agents, and salicylates. The putative ototoxic mechanisms of each class of drug will be reviewed, as will evidence for interactions between classes of ototoxic drugs, synergism of drugs with acoustic trauma, and effects of ototoxic drugs during development. Recent use of ototoxic drugs to study basic mechanisms in hearing will also be discussed.

10:30-12:00 pm Concurrent Session 2C: Update Miniseminar in Otoacoustic Emissions

Chair

John D. Durrant
University of Pittsburgh Medical Center
Pittsburgh, Pennsylvania

Participants

Joseph P. Walton
University of Rochester
Medical Center
Rochester, New York

Richard E. Talbott
University of Virginia
Charlottesville, Virginia

James F. Jerger
Baylor College of Medicine
Houston, Texas

Panelists

Martin Robinette
Mayo Clinic
Rochester, Minnesota

Judith Widen
The University of Kansas Medical Center
Kansas City, Kansas

John Jacobson
The University of Texas
Health Science Center at Houston
Houston, Texas

Antonia Maxon
University of Connecticut
Storrs, Connecticut

Overview

The research and, now, clinical interest in otoacoustic emissions continues to grow. Three test instruments are now being marketed, and various investigations are in progress to delineate the clinical utility of OAEs. Continued assessment and reassessment of available information is thus needed, and clinicians need to be educated in this area so that practical methods of application can be fully realized and appropriate interpretational bases of OAE measurements developed. The purpose of this miniseminar is to assess the state-of-the-science of OAE measurement, especially specific areas which are likely to impact directly upon clinical utility. These areas will include screening and differential diagnostic applications of OAEs and underlying phenomena, such as the relation between OAE magnitude and hearing threshold. The format of the program will be lectures presented by the program coordinator and other noted clinical researchers from other subspecialities, who are now actively investigating and/or clinically using OAE measurements, plus a discussion panel of other distinguished colleagues.

12:00 pm - 3:00 pm **Box Lunch in Exhibit Hall (complimentary)**

Poster Session 1 (meet with authors)

3:30 - 5:00 pm Concurrent Session 3A: Student Research Forum

Chair

Rieko Darling
Auburn University
Auburn, Alabama

Participants

G. Pamela Burch-Sims
Vanderbilt University
Nashville, Tennessee

Cassandra Colville
The University of Iowa
Iowa City, Iowa

Henry Lew
Baylor College of Medicine
Houston,Texas

Anne Marie Tharpe
Vanderbilt University
Nashville, Tennessee

Ossama A. Sobhy
Memphis State University
Memphis, Tennessee

Andrew J. Vermiglio
California State University
Long Beach, California

Overview

The American Academy of Audiology Student Research Forum provides graduate audiology students at the Masters and Doctoral level with the opportunity to disseminate research findings to the Academy membership. The session consists of six scientific papers, each presented by a student author. After each presentation, time is allotted for questions from the audience. The author and his or her faculty research advisor and affiliated institution will be acknowledged at the Membership Meeting. At that time, each Student Research Forum Finalist will receive a $500 award from the American Academy of Audiology Foundation.

3:30 - 5:00 pm Concurrent Session 3B: Clinical Audiology Services for Culturally Deaf Individuals

Chair

Harriet Kaplan
Gallaudet University
Washington, D.C.

Participants

Barbara Brunner
Gallaudet University
Washington, D.C.

Lisa Devlin
Gallaudet University
Washington, D.C.

Harriet Kaplan
Gallaudet University
Washington, D.C.

Elena Kleifges
Gallaudet University
Washington, D.C.

Robert Windham
Gallaudet University
Washington, D.C.

Overview

In this presentation we will discuss audiological diagnostic and follow-up procedures adapted for individuals with severe to profound hearing losses who are part of the deaf community. Use of hearing aids and assistive listening devices with this population is included.

3:30 - 5:00 pm Concurrent Session 3C: Physiological Measurements of Cochlear Implants

Chair

Roger Ruth
University of Virginia
Charlottesville, Virginia

Participants

Paul R. Kileny
University of Michigan
Medical School
Ann Arbor, Michigan

Roger A. Ruth
University of Virginia
Health Science Center
Charlottesville, Virginia

Jon K. Shallop
Denver Ear Institute
Denver, Colorado

Overview

The integrity of the internal components (receiver-stimulator and electrode array) of a cochlear implant and the viability of a given patient's auditory system to respond to such stimulation can be determined in various ways. Adults and older children can provide adequate behavioral responses and descriptions which enable the subjective verification of device function. However, occasionally the need arises to objectively assess the internal components of a cochlear implant or to assist in the initial fitting of the device of a young child. This session will provide an overview of the various methods currently available to assess the functionality of a single or multi-channel cochlear implant.

5:00 pm **Keg Party (complimentary)**

5:30 - 7:00 pm Round Table Discussions and Debates

A. Audiometric Technicians

Chair

Robert J. Harrison
University of Miami School of Medicine
Miami, Florida

Participants

Donald Bender
Brooke Army Medical Center
San Antonio, Texas

James F. Jerger
Baylor College of Medicine
Houston, Texas

William McFarland
Private Practice
Lebanon, Oregon

Jay McSpaden
Lebanon Community Medical Center
Rochester, Minnesota

Martin Robinette
Mayo Clinic
Rochester, Minnesota

Robert T. Sataloff
American Neurotology Society
Philadelphia, Pennsylvania

Overview

Predictions of future manpower needs clearly show that the current supply of qualified audiologists may be inadequate to provide aural rehabilitation to the growing segment of infant and adult citizens. A method of providing services to this expanding population is the training and utilization of supportive personnel working under the supervision of an audiologist. On the other hand, some Academy members view the emergence of a corps of lesser-paid audiometric technicians as a threat to high quality service provision and the employment marketplace. In this session, a panel of experienced audiologists and a representative of The American Neurotology Society, will discuss the controversial issues and respond to questions from the audience.

5:30 - 7:00 pm Round Table Discussions and Debates

B. What is Aural Rehabilitation and Who Should Do It?

Chair

Sharon A. Lesner
School of Communicative Disorders
The University of Akron
Akron, Ohio

Participants

Donald M. Goldberg
Helen Beebe Speech and
Hearing Center
Easton, Pennsylvania

Pamela Jackson
Northern Illinois University
Dekalb, Illinois

Patricia McCarthy
University of Georgia
Athens, Georgia

Craig W. Newman
Henry Ford Hospital
Detroit, Michigan

Nancy Tye-Murray
The University of Iowa Hospitals
and Clinics
Iowa City, Iowa

Karen R. Rothwell-Vivian
Auditory-Verbal Services
Costa Mesa, California

Overview

Audiology began as a rehabilitative specialty. Currently, there are a variety of definitions of what constitutes auditory rehabilitation. During this Round Table Discussion, practitioners from a variety of settings will examine the issue of what is aural rehabilitation. A discussion of who should be providing auditory rehabilitation services and what qualifications are needed in order to provide the services will also be examined. Audience participation will be encouraged.

5:30 - 7:00 pm Round Table Discussions and Debates

C. Professional Doctorate Update

Chair

Carl Binnie
Purdue University
West Lafayette, Indiana

Participants

David Cunningham
University of Louisville
School of Medicine
Louisville, Kentucky

David Goldstein
Purdue University
West Lafayette, Indiana

Scott Griffiths
University of Florida
Gainesville, Florida

James Lynn
University of Akron
Akron, Ohio

Overview

The American Academy of Audiology has endorsed the concept of the professional doctorate in audiology as the appropriate entry-level degree for the practice of audiology. Significant momentum continues. Several universities will provide an update on the Au.D. degree. There will be reports from several audiology educators, including information on the formation of the Council of Au.D. Degree programs. There will be ample opportunity for discussion.

7:00 pm **A Night in Nashville**

- Manufacturer's Open Houses at Opryland Hotel
- Sampling of Music City Songwriter's Clubs downtown
- Grand Ole Opry performance

Saturday, April 11

10:30 am - 4:00 pm **Exhibits Open**

7:30 - 9:00 am **Audiology Trivia Bowl III (Sponsored by Siemens Hearing Instruments)**

7:45 - 9:00 am **Continental Breakfast (complimentary)**

9:00 -10:30 am General Session 1: **Founders of Audiology: An Aural History**

Chair

James Jerger
Baylor College of Medicine
Houston, Texas

Participants

Ira Hirsh
Central Institute for the Deaf
St. Louis, Missouri

S. Richard Silverman
Emeritus Director, Central Institute for the Deaf
St. Louis, Missouri

Sam Lybarger
Radio Ear, Corp.
Cannonsburg, Pennsylvania

Frank Lassman
University of Minnesota
Minneapolis, Minnesota

Robert Galambos
University of California
San Diego, California

Overview

The format will be a panel discussion. The chairperson will introduce the session with a tape recording of the reminiscences of Raymond Carhart. He will ask leading questions designed to encourage participants to recall early events in the history of the profession, and to discuss their impact on its development. Emphasis will be on those human aspects of the activities of these pioneers that today's young people can relate in their own professional activities.

10:30 - 11:00 am **Break (complimentary refreshments)**

11:00 - 12:30 pm Concurrent Session 4A: Assessment of Balance Disorders

Chair

Gary Jacobson
Henry Ford Hospital
Detroit, Michigan

Participants

Larry Hoffman
UCLA School of Medicine
Los Angeles, California

David G. Cyr
The Boys Town National
Research Hospital
Omaha, Nebraska

Gary Jacobson
Henry Ford Hospital
Detroit, Michigan

Craig W. Newman
Henry Ford Hospital
Detroit, Michigan

Overview

The field of balance function testing has grown from being centered entirely around the ENG examination to including tests of rotation and postural maintenance. The present miniseminar will introduce the clinician to three areas of current interest. Technical problems inherent to, the current status of, and the future clinical uses of short latency vestibular evoked potentials will be discussed (Dr. Hoffman). The development of the EQUITEST system has made it possible to evaluate patients using unpredictable destabilizing stimuli in an attempt to predict how well the patient will maintain equilibrium in the real world. The usefulness of the technique and some of the limitations that have been identified will be discussed in the second presentation (Dr. Cyr). The final presentation will involve the development and usefulness of an instrument to evaluate self-perceived balance handicap, the Dizziness Handicap Inventory (DHI - Drs. Newman and Jacobson).

11:00 - 12:30 pm Concurrent Session 4B: Hearing Aids: Technological Advances and Clinical Implications

Chair

Harry Levitt
City University of New York Graduate School
New York, New York

Participants

James M. Kates
City University of New York
Graduate School
New York, New York

Harry Levitt
City University of New York
Graduate School
New York, New York

Matthew H. Bakke
City University of New York
Graduate School
New York, New York

Herbert Bachler
Phonak
Switzerland

Overview

Recent advances in hearing aid technology and their clinical implications will be reviewed. Technological constraints that impose restrictions on prescriptive fitting procedures will be discussed as well as the effects of audiological constraints and consumer preferences on technological development. Several neglected areas in hearing aid development will be reviewed such as controlling for loudness in fitting compression hearing aids, speech recording, and the indirect benefits of feedback reduction.

11:00 -12:30 pm Concurrent Session 4C: Stimulus-Response Considerations When Eliciting ABRs

Chair

Michael Gorga
Boys Town National Research Hospital
Omaha, Nebraska

Participants

Paul R. Kileny
University of Michigan
School of Medicine
Ann Arbor, Michigan

Michael Gorga
Boys Town National Research Hospital
Omaha, Nebraska

Terence W. Picton
The University of Ottawa
Ottawa, Ontario, Canada

Yvonne S. Sininger
House Ear Institute
Los Angeles, California

Overview

In order to fully understand any measured response we must not only understand the stimuli that elicit that response but also must understand underlying properties of the system from which that response is elicited. This seminar will begin with an overall description of stimuli commonly used to elicit ABRs. This presentation will be followed by two papers that describe how certain combinations of stimuli can be used to reduce the effective spread of excitation due both to the spectral splatter in the stimulus and to the imperfect frequency resolution of the cochlea. In particular, these talks will describe the use of maskers to restrict the cochlear regions that can contribute to a response. A primary focus in these papers is to obtain more accurate estimates of behavioral auditory sensitivity from ABR measurements. The fourth paper in the series will describe the use of both clicks and tone burst stimuli in neuro-otologic assessments. Of primary concern in this talk is the use of tone bursts in cases when click-evoked responses may be ambiguous, such as when asymmetrical hearing loss exists. Following these papers, there will be a general discussion of stimulus-response issues among the panelists and members of the audience.

12:30 - 3:00 pm **Box Lunch in the Exhibit Hall (complimentary)**

Poster Session 2 (meet with authors)

3:30 - 5:00 pm Concurrent Session 5A: Pediatric Audiologic Assessment and Management

Chair

Anne Marie Tharpe
Vanderbilt University School of Medicine
Nashville, Tennessee

Participants

Richard Folsom
University of Washington
Seattle, Washington

Noel Matkin
University of Arizona
Tucson, Arizona

Richard C. Seewald
Elborn College, University of Western Ontario
London, Ontario Canada

Anne Marie Tharpe
Vanderbilt University School of Medicine
Nashville, Tennessee

Overview

Audiological management of young children requires incorporating many skills including behavioral and electrophysiological assessment, hearing aid selection and fitting, and family counseling. Our knowledge in these areas continues to expand through research and clinical experience. This session will provide current information on each of these topics that will be of use to the clinical pediatric audiologist.

3 30 - 5:00 pm Concurrent Session 5B: Legal Issues in Audiology

Speaker

William Domico
Shuttleworth, Smith, McNabb & Williams
Memphis, Tennessee

Overview

Audiologists have made tremendous strides in recent years achieving greater professional autonomy and independence. However, as audiologists are viewed as independent practitioners by a greater community, they increasingly become faced with questions and situations involving legal, ethical and professional implications. The purpose of this seminar is to introduce the audiologist to the legal definitions and concepts of standard of care, acceptable professional practice, negligence, and malpractice. Examples will be given discussion will include participation by audiologists in the legal system in three capacities: as a fact witness, an expert witness and a named defendant. Suggestions for both participation in and protection from a lawsuit will also be presented.

3:30 - 5:00 pm Concurrent Session 5C: Event Related Potentials

Chair

Laszlo Stein
Northwestern University
Evanston, Illinois

Participants

Terence W. Picton
Ottawa General Hospital
Ottawa, Ontario Canada

Nina Kraus
Northwestern University
Evanston, Illinois

Overview

There is growing interest by audiologists in the endogenous auditory evoked potentials and how they may add to our basic and clinical knowledge of higher central auditory processes. In contrast to the early potentials (exogenous) which are closely related to the physical parameters of the stimuli that evoke them; the late (endogenous) potentials are determined by the context of the stimuli and the state of the subject. Their variability reflects the variability of human auditory perception making them an appropriate tool for the evaluation of auditory perception and its disorders. The recording of these potentials is difficult. Multiple channels are necessary to disentangle the overlapping responses and to rule out artifacts. In this session, Dr. Picton reviews some of the endogenous potentials and how we might understand their perceptual significance. Dr. Kraus reports on the mismatched negativity (MMN) endogenous auditory evoked potential elicited to speech stimuli as an indicator of early selective processing of incoming stimuli.

7:00 - 12:00 pm **Academy Reception, Banquet and Dance**

Sunday, April 12

7:30 - 8:00 am **Continental Breakfast (complimentary)**

8:00 - 10:00 am Concurrent Session 6A: Newborn Hearing Screening

Chair

J. Michael Dennis
University of Oklahoma Health Sciences Center
Oklahoma City, Oklahoma

Participants

Roger Ruth
University of Virginia Medical Center
Charlottesville, Virginia

James W. Hall III
Vanderbilt University
Nashville, Tennessee

John Jacobson
The University of Texas Medical School at Houston
Houston, Texas

Martha Carmen
Senior Legislative Assistant to Congressman James T. Walsh
Washington, D.C.

Armin Giebel
Munich, Germany

Overview

This session will offer issues, advances, controversies, and updates as they relate to screening for detection of hearing loss in newborns. The format will include short presentations followed by an interactive panel discussion between participants and the audience. Topics will focus on the various applications of ABR and cochlear emissions for neonatal hearing screening, high risk criteria for infant hearing loss, strategies and policies currently existing in the United States, and an update on HR 2089, the hearing loss prevention act currently under congressional consideration,which would require mandatory hearing screening of all newborns.

8:00 -10:00 am Concurrent Session 6B: The Primary Care Physician as an Essential Resource in Private Practice

Chair

Roy Sullivan
Sullivan and Sullivan
Garden City, New York

Participants

Kathy Foltner
Audio-Vestibular Testing Center
Lansing, Michigan

Earl R. Harford
Starkey Laboratories
Eden Prairie, Minnesota

Holly L. Hosford-Dunn
Tucson Audiology Institute
Tucson, Arizona

Angela Loavenbruck
Audiology and Speech Associates
New York City, New York

Overview

There are presently 169,000 internists, family, and general practitioners serving as primary care physicians (PCPs) to the adult population in the United States. Each PCP represents a potential source of professional interaction with and referral to the privately practicing audiologist. This program is designed to provide information and practical techniques for developing productive PCP professional relationships. Contemporary information on PCP orientation to the identification and referral of adult patients with hearing acuity deficits will be reviewed. This will be followed by individual presentations and group discussion of professional marketing strategies used successfully by audiologists in private practice to promote ongoing professional interaction with PCPs.

10:00 -10:30 am **Break**

10:30 -12:00 pm General Session 2: Future of Audiology: Five Years Later

Chair

Richard Talbott
University of Virginia
Charlottesville, Virginia

Participants

Lucille Beck
Veterans Affairs Medical Center
Washington, D.C.

James W. Hall III
Vanderbilt University
Nashville, Tennessee

James F. Jerger
Baylor College of Medicine
Houston, Texas

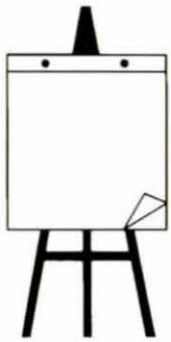
George S. Osborne
Oak Park Speech and Hearing Center
Oak Park, Illinois

Richard Talbott
University of Virginia
Charlottesville, Virginia

Overview

At the ASHA annual convention in New Orleans in 1987 a miniseminar titled, the Future of Audiology, featured a panel of audiologists representing various segments of the audiology profession. The seminar was organized by Richard Talbott, who chaired the panel of Jim Jerger, Lu Beck, George Osborne, and Jay Hall. The panel members each commented on the various challenges facing the field of audiology in the future. Among the various suggestions for change was the call by Dr. Jerger for the establishment of a separate organization for audiologists. The American Academy of Audiology is the direct result of this call. With change comes new challenges and opportunities. The original panel has been requested to examine the changes that have occurred in the past five years to comment *vis a vis* their original insights. In addition each panel member will specifically comment on critical issues facing the field including scope of practice, academic and clinical training, the Academy, and economics, and politics of our future. Following the presentations of the panel members, the floor will be opened for reactions, questions, or comments. In order to accommodate as many of the audience as possible, reactions or comments are requested to be limited to three minutes, and responses of the panel to questions will also be limited to this time. It is hoped that in addition to the insights provided by the panel, the audience will benefit from hearing the concerns and reactions of each other to the critical issues of the day.

12:00 noon **Convention Adjourns**



Poster Abstracts

Can Hearing Loss Be Predicted From Distortion Product Otoacoustic Emissions?

John R. Allen, James F. Jerger, Jeffrey D. Nye

We sought to determine the extent to which audiometric hearing threshold level could be predicted from distortion-product otoacoustic emission (DPOAE) amplitude. We explored the frequency range from 1000 to 8000 Hz in two groups of subjects, one with conductive hearing loss and one with sensorineural hearing loss, presumably of cochlear origin. Results suggest that it is doubtful that one can, with confidence, predict how much conductive or cochlear loss a person has, from DPOAE amplitude, but one can predict, with considerable confidence, how much such loss the person does not have. The clinical value of DPOAE amplitude appears to lie, not in its ability to predict degree of conductive or cochlear loss, but in its ability to predict the maximum possible such loss. It is, in this respect, not unlike its electrophysiologic and electroacoustic cousins, the auditory brain stem response and the acoustic stapedial reflex.

Comparison of the Effects of Broadband Masking on Binaurally and Monaurally Evoked Auditory Responses

Steven L. Benton, Linda J. Hood

Binaural interaction represents differential processing of binaural and monaural stimuli and can be measured in auditory evoked potentials. We reasoned that the desynchronizing effects of broadband masking might provide insight into binaural interaction of the ABR. Masked vs. unmasked latency, interpeak latency, and amplitude differences were compared for binaurally masked binaural and ipsilaterally masked monaural ABRs at two click levels. Results suggest that this method may provide additional information on binaural interaction and may present electrophysiologic evidence of the binaural advantage.

Reverberation and Time Compression in Adults and Children

Steven Bornstein, Frank Musiek

The purpose of this investigation was to provide normative data for multiplicative distortion effects in adults and children, and begin investigation into use of these tasks for assessment of central auditory function. Twenty adults and twenty children, age nine to ten years, with no significant audiological, otological, or learning histories served as subjects. Adults listened to NU #6 word lists spoken by a male talker, and children listened to the Word Intelligibility by Picture Identification lists spoken by a male talker under 3 conditions: time-compressed by 60% alone; reverberated by 0.5 seconds alone; and time-compressed and then reverberated such that both distortions were present. Combining distortions resulted in a greater breakdown in speech recognition ability than would be predicted based upon speech recognition scores for each distortion in isolation. In addition, children demonstrated a greater breakdown than the adults. Also, data has been collected on patients who demonstrated a significant ear difference.

A Study of Hyperacusic Subjects (Pre and Post Treatment)

William T. Brandy

Pre-Treatment and Post-Treatment audiometric results, loudness scaling results and acoustic reflex threshold results are presented for a group of hyperacusic subjects. Of the endocrine disorder subjects who were re-evaluated, 100% demonstrated improvement with medical treatment. Of the anxiety disorders subjects who were re-evaluated, 33% demonstrated improvement with medical treatment. For those anxiety disorder subjects who did not improve with medical treatment, as well as for the noise-exposed and the mixed groups, the most effective audiologic strategy was a combination of counseling and the use of acoustic earplugs. Desensitization therapy was far less effective.

Monaural/Binaural Fitting Decisions for Those Who Live or Work in Noise

William T. Brandy

Two hearing aid evaluation protocols were utilized for the "monaural/binaural fitting decision" in two groups of hearing-handicapped clients who live or work in noise. They were fit with monaural or binaural hearing aids, depending upon their test-protocol outcomes. Surveys were sent to both groups. The satisfaction rates were 64.3% for the Protocol A group and 91.7% for the Protocol B group. The details of the two protocols will be compaired. (The author acknowledges the VA Medical Center in Danville, IL, where the protocols were developed and utilized.)

Central Auditory Disorder in Aids: A Case Study

Denice P. Brown

Studies of neurologic complications associated with acquired immune deficiency syndrome (AIDS) have proven the central nervous system (CNS) to be an early target of the immunodeficiency virus type 1 (HIV-1). Auditory electrophysiologic and basic and central audiologic tests batteries were administered to an HIV-1 seropositive individual who was neurologically asymptomatic until one week prior to evaluation. Behavioral and electrophysiologic results yielded evidence of central auditory involvement, despite an essentially normal neurologic work-up. These findings suggest that comprehensive audiologic assessment may prove to be a valid means of evaluating seropositive individuals for evidence of CNS dysfunction and thus assist in medical management of the condition.

Assessing Short-Term Recognition Memory with Psychophysical Methods

Anthony T. Cacace, Dennis J. McFarland, Joseph F. Emrich, Jerome S. Haller

The use of computer controlled tasks to assess auditory and visual STRM are

presented. These tasks evaluate the span and decay of short-term memory within a 3-1FC paradigm. All stimuli were random binary auditory or visual frequency patterns. Memory spans for auditory and visual sequential patterns and visual spatial pattern matrices were determined by means of an adaptive procedure and memory decay was determined by a delayed matching-to-sample paradigm. Assessing multiple sensory modalities determines if deficits are modality specific as demonstrated by human lesion data.

SSW and Dichotic Digit Test Results in Normal and Central Auditory Involved Individuals

Deborah L. Carlson, Richard S. Saul

Test performance on the Staggered Spondaic Word test and a two pair dichotic digit test were compared for 125 normal subjects (children and adults) and central auditory involved patients (learning disabled and temporal lobe patients). Performance patterns from these tests differed for children and adults while temporal lobe involved patients showed performance similarities for both tests. Results are discussed in terms of statistical versus clinical significance for heterogeneous populations, effects of stimulus alignment on the perception of simultaneity, effects of linguistic load and the various performance subtleties in these populations.

The Effect of Hearing Loss on ABR Interpretation: Use of a Correction Factor

Marlene Cashman, Susan Stanton, Catherine Sagle, Hugh Barber

Patients suspected of retrocochlear disorders often have abnormal ABRs when they have high-frequency hearing loss, making clinical decisions difficult. The false-positive and -negative rates for ABR (n=1540) are presented as a function of the 4000Hz threshold, before and after using Selters and Brackmann's correction factor for hearing loss. For patients with over 50 dBHL at 4000Hz the false-positive and -negative rates, uncorrected for hearing loss, were 25.0% and 2.9% respectively, and 12.5% and 5.8% when the correction factor was used. We conclude that correcting for hearing loss is helpful.

Binaural Interaction of Middle Latency Responses as Detected by Difference Wave and Ratio Methods

Anna Chamberlin, Carol C. McRandle

Binaural interaction of middle latency responses to l0/sec clicks at 40 dB SL was investigated. Composite waveforms were obtained for each of eight female subjects. A difference wave was calculated by computer addition of left and right monaural traces, yielding a predicted binaural response from which the true binaural response was subtracted. Ratios were also calculated between the peak-to-peak amplitudes of the predicted binaural response and the true binaural response. All subjects demonstrated binaural interaction, most reliably at Na/Pa, Pa/Nb and Nb/Pb.

Performance on the Hearing Handicap Inventory for the Elderly in Aided and Unaided Conditions

Carl R. Chiasson, Robert I. Davis

The Hearing Handicap Inventory for the Elderly(HHIE) was administered to sensorineural hearing impaired aided adults who were separated into homogeneous groups based upon the amount and configuration of the hearing loss. This analysis showed systematic changes in the variables which define the quality of handicap as hearing loss progressively increased and that the degree of handicap is generally lessened in experienced hearing aid users.

Identifying Hearing Loss and Handicap Among Institutionalized Elderly People

Enza Ciurlia-Guy, Marlene Cashman, Brenda Lewsen

The purpose was to determine whether the 1989 ASHA Draft Guidelines, validated for outpatient elderly people, were also appropriate for identifying hearing impairment and handicap in 104 institutionalized elderly. The guidelines included a puretone screening test (AudioScope) and a hearing handicap self-assessment test (HHIE-S). Our "gold standard" was an audiometric assessment. The AudioScope results agreed well with the audiogram. The best frequency for screening and providing a basis for referral for hearing assessment was 2000 Hz. The HHIE-S was less useful than the AudioScope. Almost all patients could perform the tests.

Effects of Speakers Language Background on Spanish Word-Recognition Performance

Jeffrey A. Cokely, Barbara A. McDowell

This study investigated whether oral presentations of Spanish speech stimuli by native English speakers with college-level Spanish yield valid measurements of Spanish word-recognition performance. Spanish-speaking listeners' word-recognition performance was measured in quiet (40 dB HL) and in noise (0 dB S/N) for Spanish stimuli presented by native Spanish speakers (Mexicans) and native English speakers (Americans). Subjects' performed significantly better when stimuli were presented by the native Spanish speakers rather than the native English speakers. Furthermore, our Spanish-speaking listeners yielded poorer Spanish word-recognition scores in noise than English-speaking listeners yield for English word-recognition measures.

Spanish Word-Recognition Performance of Natives of Mexico, Puerto Rico, and Venezuela

Jeffrey A. Cokely, Luis Camacho

This study investigated the influence of a listener's country of origin on Spanish word-recognition performance. Studied were three groups of native Spanish-speaking people from three different regions: Mexico, Puerto Rico, and Venezuela. Subjects' performance was measured at five intensity levels (4, 8, 16, 24, and 32 dB HL) for Auditec recordings of four lists of two-syllable Spanish words. The natives of Mexico yielded the highest word-recognition scores and the natives of Venezuela yielded the lowest word-recognition scores at all intensity levels for each of the four lists. The clinical implications of these data will be described.

The Helmholtz Resonance of Hearing Aid Vents

John Coleman

Real ear measurement has identified the presence of unexpected broad band gain centered between 500 Hz and 1000 Hz in some vented hearing aids. This investigation describes the Helmholtz resonance of a range of typical ITE and earmold vents as measured in 2cc cavities and real ears. Factors that contribute to similarities and differences within these measures and the clinical implications will be discussed.

The ADA: Implications for the Profession of Audiology

Cynthia L. Compton, Carol Flexer

The Americans with Disabilities Act (ADA) became effective on July 26, 1991. The purpose of this legislation is to provide "access to life" for persons with disabilities. The term "ACCESS" includes access to: the workplace, the school, public accommodations (e.g., restaurants, hotels, churches, stores, theaters), telecommunications, and transportation. Audiologists will be called upon to advocate for and to provide communication access for persons of all ages who experience hearing problems. The purpose of this poster will be to highlight those portions of ADA regulations and issues most relevant to audiologists.

ABR Binaural Interaction for Low and High Frequency Signals

Barbara Cone-Wesson, Ellen Ma, Cynthia G. Fowler

Frequency-related differences underlying binaural hearing in neonates were investigated by measuring ABR binaural interaction component (ABR-BIC) for 500 and 4000 Hz signals. Twenty normal full-term neonates and five normal hearing adult subjects were studied. ABR latency differences as a function of frequency were greater for neonatal subjects compared to adults; frequency-related differences were maintained for ABR-BICs. ABR-BIC amplitude ratios showed large frequency-related differences for adults, that were smaller but significant for neonates. Neonatal ABR-BICs to tonal stimuli can be used to explain developmental aspects of binaural hearing.

Speech Recognition in Children with Minimal Degrees of Sensorineural Hearing Loss

Carl C. Crandell

It is well recognized that appropriate classroom acoustics are an important variable in the academic achievement of hearing-impaired children. The present investigation examined the speech-recognition abilities of 15 children with minimal degrees of sensorineural hearing loss under commonly-reported classroom signal-to-noise ratios. Results demonstrated that the minimally hearing-impaired group performed significantly poorer thatn normal-hearing children across most listening conditions. Moreover, the performance decrement between the two groups increased as the listening environment became more adverse. Educational implications of these data, such as the utilization of sound-field amplification systems, will be discussed.

Now Easy-to-Use Two-Item Hearing-Handicap Rating Scale

Larry E. Dalzell, Teri D. Holt, Kathleen S. Merle

Questionnaires to assess hearing handicap have been popular research tools for years. Yet, there is little evidence to suggest that hearing-handicap questionnaires have gained widespread clinical use. The purpose of this study was to develop a very brief one or two-item rating scale that would be highly correlated with the HHIE-S and with hearing loss. Adult audiology patients responded to each questionnaire prior to audiometric testing. Correlation coefficients were comparable between audiometric hearing loss and self-assessed hearing handicap, whether handicap was assessed with the rating scale or the HHIE-S. The rating scale and the HHIE-S were very highly correlated (r= .75). Implications for widespread use of the two-item rating scale will be discussed.

Preferred Frequency Response for Two and Three Channel Amplification Systems

Donald D. Dirks, Jayne B. Ahlstrom

A digital master hearing aid, configured as either two or three channel linear system, was used to determine the preferred frequency-gain responses from 10 hearing-impaired subjects. The preferred response was obtained for various cut-off frequencies using a modified simplex strategy. Results for the two and three channel systems were then compared using a round-robin tournament, and ranked according to the number of times each response was chosen. In general, no significant differences were found between the preferred frequency-gain responses chosen for the two versus three channel system. Additionally, most subjects did not show a single clear preference for a particular cut-off frequency.

Apgar Scores in the Elderly Identification of Sensorineural Hearing Loss

John G. Eichwald, Thomas M. Mahoney

Findings on 290,737 live births suggest that Apgar scores are very sensitive indicators in predicting the risk of sensorineural hearing impairment in infants. From a group of 2,408 infants tested with low Apgar scores, 52 of 64 (81%) would not have been identified using the Apgar pass-fail recommendations of the 1990 Joint Committee on Infants Hearing. It is strongly suggested that those involved in newborn hearing screening consider both the one minute and five minute Apgar scores, and further, that they raise the cut-off criteria of both above that recommended by the 1990 Joint Committee statement.

Estrogen Modifies Auditory Brainstem Responses (ABRs) During the Normal Menstrual Cycle

K.E. Elkind-Hirsch, R. Stoner, B.A. Stach, J. Jerger

The impact of the menstrual cycle on the auditory brainstem response was evaluated in nine cycling women and in an age-matched control group of nine women on oral contraceptives. A significant lengthening of wave III and wave V peak latencies as well as the I-V interpeak interval were associated with a high estrogen state during the mid-cycle peak in cycling females. These findings suggest that brainstem auditory pathways are sensitive to cyclic fluctuations in ovarian hormones. Increased circulating estrogen levels at mid-cycle could result in increased availability of the inhibitory neurotransmitter GABA at synapses in the auditory neural tract and could lead to delayed axonal conduction time.

Infrared/Video ENG System: Two Case Studies

Janet Endo, Dana Kwock, Ronald A. Waldorf, Anita Bazavilvazo

A prevalent method for vestibular evaluation is electronystagmography (ENG). However, there are numerous problems associated with the ENG procedure. Vertical beating and disconjugant deviations may be obscured. Rotary nystagmus recordings are impossible. Artifacts may also be generated by corneal-retinal potential instability and closing the patient's eyes to minimize optic fixation. In 1977, Waldorf et al. described a method of evaluating vestibular function that does not rely on the placement of electrodes, the corneal-retinal potential or closing the patient's eyes. The Infrared/Video (IR/Video) ENG System uses a lightproof goggle with infrared illumination and video cameras to assess eye movements

and position. Two case studies are presented to illustrate how the IR/Video can document rotary, vertical and fixation nystagmus otherwise obscured by conventional ENG.

Use of Auditory Development Norms in Fitting Amplification to the Preschool Child

Chris H. Evans, Sheryl G. Reid

Selecting hearing aid parameters for young children and simultaneously training parents can be linked to auditory developmental norms. The goal of amplification for the normally developing hearing impaired child, as well as the developmentally delayed hearing impaired child, should be to develop auditory skills at the child's cognitive level of functioning. Two case studies will be presented that illustrate uses of the Piagetian based Auditory Developmental Checklist. The impact of middle ear fluid can be documented by reviewing the changes in auditory behaviors. Parent rating that impact modifications in the hearing aid settings will be discussed.

A Prospective Auditory Monitoring Program for Ototoxicity

Stephen A. Fausti, Richard H. Frey, Deanna J. Olson, Heidi I. Schaffer

Serial conventional and high-frequency (>8 kHz) pure-tone thresholds and high-frequency tone burst-evoked ABRs (8, 10, 12 & 14 kHz) were prospectively obtained in hospitalized patients being administered potentially ototoxic agents. Hearing loss was identified behaviorally in 58% of ears studied. An individualized five-frequency range was identified in which 82% of initial ototoxic changes would have been detected behaviorally. Objectively, correlative ABR latency/morphology changes were revealed in 90% of ears demonstrating behavioral change. If only high-frequency tone burst-evoked ABRs had been conducted, 87% of all initial changes would have been identified. Early identification allows treatment alternatives which may preserve communication ability.

Evaluation of Hearing Aid Fitting Procedures for Multiple-Memory "Programmable" Hearing Aids

David A. Fabry, Paul Stypulkowski

This study examined whether user-selected frequency responses differed from prescribed NAL target gain for three typical listening environments: speech in quiet, speech in noise, and music. In the laboratory, hearing-impaired subjects adjusted gain in low- and high-frequency bands of a multiple-memory programmable hearing aid (3M MemoryMate) to preference for each listening situation. Subsequently, the hearing aid was programmed with NAL target gain and one of the user-selected frequency responses, and subjects wore the device for two weeks, but only for listening environments similar to the condition under evaluation. Use patterns of the hearing aid were monitored via the datalog feature. Results will compare the standard and user-selected frequency responses in terms of 1) low- and high-frequency insertion gain, 2) use patterns, and 3) speech recognition.

The Influence of Circuit Type and SSPL on the Tolerability of Impulse Noise

Todd Fortune, David Preves

Two high SSPL (Class D ASP, Class D linear) and one low SSPL (Class A linear) hearing aid circuits were evaluated by twelve hearing-impaired subjects with regard to the tolerability of impulse-like sounds. Digital real ear recordings of hearing-aid-processed stimuli were analyzed for crest factor, rms SPL and peak SPL. Results indicated that tolerability is affected primarily by RMS SPL, rather than peak SPL or crest factor. Similar RMS SPL values were produced by the Class D ASP and Class A linear circuits, despite large differences in SSPL. Clinical implications to be discussed.

Effects of Clicks & 1000 Hz Tone Pips on ABR Latencies in Cochlear Pathology

Cynthia G. Fowler, Charlene M. Mikami

The interpretation of click evoked auditory brainstem responses (ABRs) can be confounded by the presence of high frequency hearing loss. Stimulating equivalent areas on the basilar membrane with frequency specific tone pips is one method proposed to circumvent this problem. This retrospective study measured ABR latencies and thresholds to clicks and 1000 Hz tone pips from 90 asymmetrical cochlear-impaired subjects. The 4000 Hz threshold significantly affected the wave V latencies from both clicks and tone pips for the most severely impaired subjects. Wave V latencies were highly correlated between ears for both stimuli, but the correlation was higher with the 1000 Hz tone pips. It was concluded that the use of 1000 Hz tone pips can supplement the interpretation of click-evoked ABRs, particularly in patients whose 2000 and/or 4000 Hz thresholds are worse than 75 dB HL.

Normal Adaptation Functions of Optokinetic Nystagmus

Cynthia G. Fowler, Carol A. Zizz, Robert H.I. Blanks

This study investigated the time course of optokinetic nystagmus (OKN) in 10 normal human subjects with stimulus speeds from 10-100 degrees. Confirming the contributions from the smooth pursuit system, OKN began within 200-300 ms of the stimulus onset and ceased within 300-400 ms of stimulus offset. During the first 5 s, the eye velocity most accurately matched stimulus velocity. A subsequent decline in the response, i.e., adaptation, occurred during the first 15 s and was greatest at the high stimulus velocities. Eye velocities at low stimulus velocities evidenced predictive behavior. Mechanisms and clinical implications will be discussed. (Supported by Rehabilitation Research and Development Service, Department of Veterans Affairs.)

Effects of Ambient Noise Masking on Earphone Thresholds

Tom Frank, Dennis L. Williams, Marie K. Schmitt

Monaural thresholds were measured for 24 normally hearing subjects using TDH-49P, Audiocup, and ER-3A earphones from 500 to 6000 Hz in quiet and in background noise having maximum permissible ambient noise levels (MPANLs) specified by OSHA and newly specified by ANSI. At each frequency, the mean threshold shifts were negligible (<2 dB) regardless of earphone in the ANSI and for the ER-3A in the OSHA MPANLs but were >6 dB for the TDH-49P and >2 for the Audiocup in the OSHA MPANLs. Implications for hearing conservation will be discussed.

Use of Tactile Aids with Infants and Preschoolers with Dual Sensory Deficits

Barbara Franklin

This paper will present the results of Years 1 and 2 of a validation study ('89-'92) to investigate the effect of a 2-channel

vibrotactile aid, the Tactaid II+, on communication skills of infants and preschoolers who are deaf-blind. An ABAB single-subject design was used and a visual inspection of the data indicated that the device improved the target behaviors for two of the children. Improvement in a number of non-target behaviors was also observed for several other participants. A comparison of the Tactaid II+ and a new 7-channel device, the Tactaid VII, will be made during Year 3.

Multifrequency Tympanometry: Test/Retest Reliability and Normative Data

Donna Gelnett, Barbara Bell

Tympanometry involving multiple frequency probe tones has been shown to provide useful information regarding the integrity of the ossicular chain. To effectively interpret test results generated by multifrequency testing, normative measures as well as test/retest reliability relevant to this test were investigated. Multifrequency tympanometry was performed on 18 normal adult subjects using probe tone frequencies ranging from 226 Hz to 2000 Hz. Each subject was tested on three separate occasions with a minimum interest interval of three days. Results revealed a normative resonant frequency range from 650 Hz to 1200 Hz with fair to poor reliability across test sessions.

Why TACTAID 7? Why not TACTAID 21?

Robert A. Gilmore

This poster session will describe why the TACTAID 7 seven channel vibrotactile device was developed. The poster session will include: a discussion of reasons for vibrator number (7), placement (nape of neck, chest or abdomen), and orientation (high to low frequency); as well as vibrator frequency response; TACTAID 7 signal processing schema; use of the output visual (LED) display; use of the auxiliary input jack; and a description of user and clinician adjusted controls and their purpose.

3-D vs. Conventional Induction Loop Assistive Listening Systems

Robert A. Gilmore

This poster presentation will compare new state-of-the-art 3-D Loop Assistive Listening Systems with conventional induction loop assistive listening systems. New 3-D Loop technology has revolutionized the use of induction-based assistive listening systems in a variety of public and private spaces (including classrooms, meeting rooms, theaters, and transportation centers). 3-D Loop Systems greatly minimize signal spillover (thus allowing adjacent areas to be "looped") and create signal uniformity regardless of telecoil orientation. Conventional loop systems can provide communication accessibility to large areas at low cost. The relative advantages and disadvantages of both types of systems will be discussed.

Professional Ethics, Licensure and Law

Gregg D. Givens

Professional associations' efforts to enforce Codes of Ethics can often lead to confusion between violations of ethics, law or licensure. Although these are all areas of concern they are not always overlapping in their relevancy to a specific action. The purpose of this poster session is to bring in focus the relationship among the various systems of sanction for unprofessional conduct. Standards and their sanction system are of increasing importance in audiology due to our changing scope of practice as well as the infancy of this Academy. This poster and handout will identify different levels of interpretation and their relationship to each other.

Multifrequency Tympanometry (MFT) in Children

Wendy D. Hanks

This study examined the clinical usefulness of MFT in detecting ossicular abnormalities and to establish normative data for school aged children. We examined six variables of acoustic immittance using the sweep frequency method in 69 children with severe to profound sensorineural hearing impairment and 90 children with normal hearing, ages 6 to 15 years. No statistically significant differences between groups were found, therefore, one set of normative data is sufficient for all children ages 6 to 15. This study provides a large data base for MFT in children and provides a good tool for determining if abnormal ossicular pathologies exist.

A Comparison of Sound Quality and Clarity with Peak Clipping and Compression Output Limiting

David B. Hawkins, Sharmala Naidoo

Twelve listeners with mild-to-moderate sensorineural hearing loss made judgements in a paired-comparison format of sound quality and clarity of a hearing aid whose method of output limitation could be changed from peak clipping to compression. Stimuli were speech in quiet, speech in noise and music. Judgments were made at three output levels: no saturation, slight saturation, and high saturation. Results indicated a significant preference for compression over peak clipping for both sound quality and clarity, especially when the hearing aid was in high saturation.

Electrocochleography: Test/Re-test Reliability of Re-Insertion of the TM Electrode

Cathy Henderson, Jayme Pultro, Donna Montague, Sue Yarbrough

Non-invasive, extratympanic electrocochleography (ECochG) was performed on 69 ears, using a tympanic membrane (TM) electrode. Twenty-four of the ears tested were from normal, asymptomatic subjects. The other 45 ears tested were from patients symptomatic for endolymphatic hydrops. The TM electrode was placed directly on the tympanic membrane. Click ECochG recordings were obtained. The TM electrode was then removed and re-inserted. A second ECochG was obtained. The test/re-test results indicated that the ECochG procedure using the TM electrode was extremely reliable.

Intra-Operative Monitoring Using Electrocochleography: A Case Study

Cathy Henderson, Jayme Pultro, Milton Waner

A 24-year-old woman diagnosed with Meniere's disease was monitored during surgery for endolymphatic shunt removal. Useful information and ECochG changes were recorded following drilling, suctioning, opening of the endolymphatic sac, removal of scar tissue and the shunt, probing of the sac, and closing. Final ECochG results indicated a significant improvement in SP/AP ratio from the baseline.

The Effect of Middle Ear Pressure on Otoacoustic Emissions

Judith E. Hirsch, Mary Beth Codd, Robert H. Margolis

To determine the effect of middle ear pressure on otoacoustic emissions (OAEs), evoked emissions were recorded in normal

hearing ears with negative middle ear pressures < -100 daPa. OAEs were determined at ambient pressure and at an ear canal pressure that matched the middle ear pressure. OAE amplitude increased with equalization of the middle ear pressure. Amplitude differences were larger in ears demonstrating greater negative pressures. These results suggest that for hearing screening applications a high false positive rate may occur in ears with significantly negative middle ear pressure.

Interactive Laser/Video Technology In Adult Aural Rehabilitation

Raymond H. Hull

The purpose of this study was to test an advanced interactive laser/video system that may become useful in providing an avenue through which older hearing impaired adults may gain access to increased speech and accuracy in visual tracking, synthesis and perception, thus enhancing their visual compensatory skills. The result could lead to a tangible methodology for aural rehabilitation therapy on behalf of hearing impaired adults of any age. This poster session presents the results of a study of the impact of the use of this system on the speed and accuracy of visual synthesis and closure among older hearing impaired adults.

Central Auditory Processing In Aging—Research and Application

Raymond H. Hull

The content of this Poster Presentation centers on current information on factors of central auditory processing that accompany older age that can compound the difficulties that hearing impaired older adults experience in speech understanding, and that, in turn, should influence the audiologists' diagnostic, counseling and hearing aid fitting decisions. Current information on 1) factors of central auditory decline in advancing age, 2) cognitive factors which accompany central auditory decline in advancing age, and 3) specific needs for research to discover clinical procedures for addressing central auditory decline in older age are presented. Central to this presentation is an Analysis-By-Synthesis Theorem of Categorical Perception in Aging that can be applied to research on central auditory processing in advancing age.

Geriatric Hearing Aid Satisfaction as a Function of Central Auditory Processing Abilities

W. Garrett Hume, Gregg D. Givens, Trina Bedsaul

The present study was designed to observe the relationship between central auditory processing skills in the geriatric population and hearing aid satisfaction. Results indicated that there appears to be a significant relationship between perceived hearing aid benefit, as measured by the PHAP, a self-report questionnaire, and central auditory function, as determined by the SSI-60% compressed test and the Dichotic Digits Version 1 and 2. There also does not appear to be a relation between degree of peripheral hearing loss with CAPD and their Non-CAPD counterparts.

Effectiveness of Central Auditory Tests in Adults

Raymond M. Hurley, Frank E. Musiek

Three tests of central auditory function were administered to groups of normal subjects, cochlear hearing loss subjects, and central lesion subjects. The tests under study were the Dichotic Digits Test (DDT), the Auditory Duration Patterns Test (ADPT), and the P300 evoked potential test (P300). Test results were evaluated using a Decision Matrix Analysis (DMA) model to determine test effectiveness. Data analysis indicated that cochlear hearing loss does not affect the the outcome of the three tests investigated. Further, DMA indicated that all three test were equally effective in identifying central auditory lesions.

The Effect of Stimulus Frequency on the Amplitude and Latency of CAEP Component N1

Gary P. Jacobson, Donna M. Lombardi, Noreen D. Gibbens, B.K. Ahmad

Stimulus frequency effects on AEP component N1 amplitude and latency were investigated. Multichannel AEPs from 11 young normal adults were collected following monaural tone burst stimulation at 250 Hz, 1000 Hz and 4000 Hz. Results demonstrated that N1 was significantly larger following stimulation at 250 Hz than 1000 Hz or 4000 Hz. Additionally, N1 occurred 13 msec earlier following 4000 Hz stimulation than 250 Hz stimulation. Though the amplitude data have been previously reported in auditory evoked field studies, the frequency-related latency differences have not, to date, been described. Hypotheses underlying the origins of these findings will be discussed.

Subjective Quality Judgements Between a Conventional and an Analog/Digital Hybrid Hearing Aid

Timothy A. Jones, Roger N. Kasten, Michael K. Wynne

Twenty subjects with normal hearing made subjective differences in the quality of amplified speech across three listening conditions and between a conventional analog hearing aid and an analog/digital hybrid hearing aid. Both hearing aids had equivalent performance configurations. The subjects were also asked to quantify the magnitude of their judgments. The analog hearing aid was preferred in quiet and at a MCR of +5 dB whereas the hybrid hearing aid was preferred at a MCR of +10 dB. Given the nature of these preferences, audiologists are advised to consider additional variables and go beyond simple probe microphone measurements when fitting hearing aids.

Hearing Aid Venting Effects: Coupler Gain vs. Insertion Gain

Roger N. Kasten, T. Valencie Johnson

This study was designed to determine whether insertion gain values, as measured within 4 millimeters of the tympanic membrane, were similar to the electroacoustic gain values, measured in the 2 cm3 coupler, as a function of 3 sizes of mold venting. A typical low frequency gain reduction as a function of venting, was seen in the 2 cm3 coupler measurements. Low frequency reduction was not seen with the REIG measurements. Pearson correlations between electroacoustic and REIG values for each venting condition were randomized and relatively weak. Venting effects appear to occur only in the coupler.

A Comparison of Traditional Versus Peritympanic Hearing Aid Insertion Gain

Laura Jennings Kepler, Sandra Abbott Gabbard, Jerry L. Northern

This study compared the real ear gain of traditional and peritympanic hearing aids in 30 male and 30 female ears. Results revealed the peritympanic instrument consistently provided more gain across all frequencies. Females showed a greater increase in real ear gain with a peritympanic

fitting, likely due to the smaller volume of their ear canals. These findings show that peritympanic instruments are a viable alternative to traditional hearing aids, with the benefit of providing increased gain in the ear without increasing the output of the instrument.

Assessment Profile for Hearing-Impaired Children

Kazunari J. Koike

The amount of information for assessment of hearing-impaired children expands rapidly as rehabilitation strategies such as a cochlear implant are considered. The audiologist must integrate results from various disciplines. Data could include unaided and aided audiometric results, closed- and open-set speech perception, speech production ability, language measures, verbal/nonverbal cognition, and gross/fine motor coordinations. A means of integrating all the data into a single group is proposed, thus providing the audiologist an overview of the child's assessment status at each stage of rehabilitation.

Effects of Extratympanic Electrode Placement and Type on ECoG Response Amplitudes

Douglas Laws, Teresa Garcia, Cecyle Perry, Trudy Frederics

Effects of placement and electrode type on summation and action potentials were investigated. Test arrangements were: the Life-Tech Leaf electrode placed 2-3 mm from the tympanic membrane, the Leaf situated on the tympanic annulus, and a TM electrode placed on the tympanic membrane. Results revealed that the TM electrode appears to a better choice than the Life-Tech electrode, regardless of placement site, for recording ECoG potentials. When using the Leaf electrode, tympanic placement is recommended over canal placement because response amplitudes were larger, and trial-to-trial responses were more reliable.

A Comparison of Measured vs. Prescribed Insertion Gain

Elizabeth M. Leadbitter, Terry M. New

No clear guidelines exist for determining how closely an obtained frequency response should correspond with the real ear prescription. Average RMS errors between measured and prescribed insertion responses for 102 hearing aid fittings were calculated for 500 through 2500 Hz. Results indicated that the average RMS error for conventional fittings was 3.71 dB and for custom fittings was 3.62 dB. Of these fittings, 17% had an RMS error of > 5 dB for the mid-frequency range, as opposed to 65% of the custom instruments returned to the manufacturer for frequency response modification. Clinical implications will be discussed.

Binaural Interference: Electrophysiological and Behavioral Observations

Henry Lew, Rose Chmiel, Shlomo Silman, James Jerger

Patients with central auditory processing disorders may yield poorer behavioral and/or electrophysiological responses to binaural than to monaural stimulation. This binaural interference phenomenon is perhaps analogous to binocular rivalry in the visual system. Seven cases illustrating the binaural interference phenomenon are reported.

Effects of Binaural Stimulation on Human Middle Latency Response Components

Thomas Littman, Therese McGee, Nina Kraus, Trent Nicol

Evidence from guinea pig studies indicates that the middle latency responses (MLRs) recorded over temporal lobe and midline reflect activity of primary and non-primary auditory pathways respectively. Additionally, in response to binaural stimulation, midline MLR amplitude increases while temporal amplitude decreases. The present study examined whether binaural stimulation could similarly distinguish between the human vertex and temporal (TP41) MLRs. Preliminary results indicate that human MLR components may be differentiated via scalp topography, stimulation rate, and binaural interaction. However, the pattern of MLR responses across these parameters is complex. The relation between the animal and human model will be discussed.

Comparison of Programmable and Conventional Hearing Aids by Sophisticated Users

James M. Lynn, Sharon A. Lesner, Sharon McKarns, Judith Yakunich

Hearing aid use, benefit, and satisfaction were compared in a group of sophisticated hearing aid users, between subjects' own hearing aids and an Ensoniq programmable hearing aid. Use was assessed by measuring REIG at user-adjusted volume control setting. Benefit was assessed by performance on the ED-NST. Satisfaction measures included the Profile of Hearing Aid Performance and the Hearing Aid Use and Satisfaction Measure. Overall, the programmable hearing aid showed (a) better REIG approximation to target gain at user volume control setting, (b) significant improvements in ED-NST scores, and (c) higher satisfaction scores on self-report assessment.

Hearing Loss and Audiologic Management in Sanfilippo Syndrome: A Case Presentation

Karen S. Lynn

The audiologic manifestations of Sanfilippo Syndrome in an eight year old child will be described through repeated audiograms, ABR results and audiologic management. The time course of his progressive hearing loss from identification through present will be presented. The incidence of hearing impairment in this rare syndrome and the possibility of a progressive hearing loss warrants early audiometric assessment and long-term monitoring. Moreover, information concerning hearing loss in this syndrome is incomplete because of low incidence and high mortality rate.

Test-Retest Reliability of Wave V: Air-Conduction/Bone-Conduction

Karen S. Lynn, James M. Lynn

Test-retest reliability of the ABR Wave V latency was investigated for air- and bone-conducted clicks in a sample of normally hearing young adults. Five ABR tracings were recorded on each of four separate days in order to assess Wave V reliability with, and without variability attributed to transducer placement. Contralateral masking was used in all conditions. Differences in test-retest reliability within, and between test sessions will be described for both stimulus conditions.

Survey of Parents' Knowledge of Hearing Loss and Hearing Aids

Eileen M. McGahan, Stephen J. Boney

Because parents play an essential role in providing the best possible education for a hearing-impaired child, a common knowledge base of audiological information must be established between

parents and professionals to facilitate communication. The purpose of this study was to determine, by administering an objective questionnaire, if differences exist in parents' knowledge levels based on their hearing status and educational setting of their child. Similar studies conducted prior to the full implementation of P.L. 94-142 and P.L. 99-457 suggested that limited parent education resulted in inadequate understanding of audiological concepts (Blair, Wright, and Pollard, 1981).

A Study of the Contribution to Word Intelligibility of Speech Spectrum Audibility as Represented by the Articulation Index

Maria C. Mendonca, M.A. Weatherton, H. Keiser, C. Thompson

The primary purpose was to determine the contribution of speech spectrum audibility to word intelligibility performance in a hearing-impaired population using Pavlovic's, Humes' and Mueller and Killion's clinical versions of the articulation index (AI). A secondary purpose was to determine how closely the three AI methods are related. Audiometric test results of sensorineural hearing-impaired listeners were analyzed retrospectively. The AI scores and word intelligibility scores were analyzed for all data, for the effects of degree, configuration, age, and gender. The results were indicative of weak relationship between the AI scores and word intelligibility performance. All three AI methods were closely related as indicated by the high correlation coefficients.

Age Effects on Tympanometric Gradient Measures

Anthony J. Milliano, Kevin D. Squibb

The effects of age on tympanometric gradient were examined to determine if the poor correlation between static compliance and gradient previously reported in the adult population persists in younger and older populations. Tympanometric gradient and static compliance were obtained from three groups of 15 normal-hearing subjects. Subject ages for the three groups ranged from 3 to 6 years, 18 to 30 years, and over 65 years. Results indicated that significant age effects may exist for tympanometric gradient. Correlation results suggested that age appears to affect whether or not gradient and static compliance provide significantly different diagnostic information.

Effects of Varying the Number of Electrodes and Coding Strategy on Speech Perception with the Nucleus Cochlear Implant

Dawna Mills

The purpose of this study was to evaluate the speech perception of one subject using the Nucleus 22 Channel Cochlear Implant when electrode number and coding strategies were varied. The subject was evaluated using the following coding strategies; Multi-Peak, FO/F1/F2, FO/F1/F2/F5. Each coding strategy was tested with maps containing 17, 15, 10, and 5 electrodes. The following tests were administered: NU-6 Words, BKB Sentences, Speech Tracking, and Vowel and Consonant Confusion Tests. Results indicate that as the number of electrodes are increased, speech perception is improved. In general, mean scores were best for M-Peak coding strategy followed by FO/F1/F2/F5 and FO/F1/F2 coding strategies.

Study of the Occlusion Effect Using Probe Microphone Measurements

H. Gustav Mueller, Kathryn E. Bright

Recent research related to deep canal hearing aid fittings has sparked renewed clinical interest in the occlusion effect. We used probe microphone measurements to study the degree and variability of the occlusion effect caused by a standard unvented ITE hearing aid. Results showed the greatest measured occlusion effect for 250 Hz, with mean occlusion of 10 dB or more also observed for 125, 500 and 1000 Hz. The ranges and standard deviations for each frequency were relatively small.

The Elderly Hearing-Impaired: Obstacles to Hearing Aid Use

H. Gustav Mueller, Karen A. Roberto, Donna Bottenberg, Judith M. Richter

Elderly individuals with hearing impairment were surveyed through personal interview to assess factors related to hearing loss and hearing aid use. Subjects were grouped as hearing aid non-users. The two groups were matched for age, income, education and hearing loss. Survey topics included 1) the HHIE, 2) expected or derived benefit from hearing aids, 3) the "hearing aid effect", 4) social participation, 5) locus of control, and 6) social desirability. We compared the findings for the hearing aid users to the non-users to identify possible obstacles to hearing aid use.

Cerumen Occlusion of Canal Instruments-Solved!

Richard Navarro

Up to 60% of warranty repairs of canal hearing instruments are due to cerumen occlusion of the receiver. This problem is costly for the manufacturer and the clinician who must deal with a dissatisfied patient when the instrument fails. Attempts to resolve this problem will be reviewed by analyzing the benefits of limitations of the various methods. Attention will be directed toward the problems created for the clinician and consumer by historical solutions. The new WAX PRO system will be presented and analyzed. Case studies will be reviewed to document the superiority of this new system.

Psychoacoustic and Speech Understanding Correlates of Tinnitus Handicap

Craig W. Newman, Jeanne A. Wharton, Gary P. Jacobson

Relationships between the Tinnitus Handicap Questionnaire (THQ), tinnitus pitch, loudness, maskability, and audiometric speech tasks were evaluated in 23 tinnitus patients. The psychoacoustic measures revealed weak associations with the handicap measure. The exception was a moderate significant correlation with tinnitus loudness. Although a major complaint of tinnitus patients is difficulty understanding speech, only one significant relationship existed between the THQ and a component of the audiometric speech test battery (i.e. Speech Perception in Noise Test). It was shown that audiometric speech understanding measures alone are insufficient in demonstrating communication problems encountered by tinniteurs.

Transient Evoked Otoacoustic Emissions for Screening Schoolage Children: A Pilot Study

Robert J. Nozza, Diane L. Sabo

Transient Evoked Otoacoustic Emissions (TEOAEs) and conventional screening tests (pure-tone screening, acoustic immittance and otoscopy) were performed on an unselected group of children between five and 10 years of age in a school setting. Otoscopy was done by a pediatrician/validated otoscopist. Seventy children were screened; 61 provided complete data for all tests for both ears and three provided complete data for all tests

for a single ear. Of the 64 children, 16 met criteria for follow-up according to current ASHA screening guidelines. The TEOAE data were analyzed according to different pass/fail criteria and sensitivity and specificity estimates were made using the ASHA criteria as the "gold" standard.

Acoustic Analysis of Syllables Processed by Linear and Nonlinear Hearing Aid Circuits

Marleen T. Ochs, Carol A. Sammeth, Marta Tetzeli

Frequency responses for three amplification circuits (linear, Argosy Manhattan II, and a prototype expansion circuit) were measured using natural syllables.The nonlinear devices alter frequency response depending on the level and frequency content of the input. These devices differ dramatically in frequency response when the input signal is a steady-state speech-spectrum noise. Low frequency filtering and high frequency expansion was not always as dramatic when the input stimulus was a consonant or vowel. When hearing aid circuits are evaluated for their effect on syllable recognition, acoustic analysis of processed syllables may help explain behavioral findings.

Jaw Position and Changes in the External Auditory Canal

Robert J. Oliveira, Nancy Gilliom, David Goldstein

A study of the effect of jaw position on the contour of the ear canal has been conducted on six subjects. One of the subjects was suspected to have jaw-induced changes in the canal while the other five were believed "normal". The results showed that silicone impression material was effective in discerning subtle changes in the ear canal. When change occurred, it was observed in the anterior:posterior plane of the ear canal. Two of the so-called normals showed measurable change, while the control "abnormal" showed a change of approximately 25%.

MRI of the External Auditory Canal

Robert J. Oliveira, Bruce E. Hammer, Arthur E. Stillman

There has been confusion in the literature over the comparative length of cartilaginous to osseous tissue as one transverses the human ear canal. Utilizing MRI to simultaneously visualize the canal, cartilaginous tissue, and osseous tissue, the transition from cartilaginous to osseous tissue was measured. In one subject, osseous tissue was found to be 100% surrounding the canal at a 48% depth into the canal. This signifies that one may not have to penetrate the ear canal as deeply as some researchers believe to reach 100% osseous tissue in attempts to diminish the occlusion effect.

Adult Hearing Screening: A Comparison of Results on Two Populations

Colleen M. O'Rourke, C. Frederick Britten

The purpose of this study was to examine the effectiveness of a hearing screening protocol with two adult groups. A total of 323 individuals with a mean age of 33 years participated. Of those, 203 were required to have their hearing screened and 120 voluntarily chose to be screened. Each subject received: case history, visual inspection, pure-tone screening, and SAC. Results indicate the protocol is effective and efficient in identifying adults experiencing auditory dysfunction.

"Prosodic Characteristics of Text Read by Hearing Mothers to Hearing Impaired Children"

Sheila Pratt

In response to the suggestion that speech directed to hearing impaired children by hearing mothers differs from speech directed to normally hearing children, some fundamental frequency, temporal, and relative intensity characteristics of sentences read by a group of mothers to their hearing impaired preschool children were evaluated. Comparisons were made to the same sentences produced by two other groups of mothers; mothers of age matched and mothers of language matched children. For most of the measures employed, the mothers of the hearing impaired and language matched children were similar but different from the mothers of the age matched children.

Comparison of ABR Waveform Characteristics Using Maximum Length Sequencing and Conventional Acquisition Techniques

Bradley K. Pugh, Barbara A. Jacaruso

Maximum Length Sequencing (MLS) can decrease test administration time for evoked potential threshold testing due to different processing techniques and stimulus characteristics. This study attempts to determine which MLS presentation parameters produce reliable responses when compared with conventional testing techniques. Comparisons are made of amplitude and latency of Wave V, as well as test administration times between the various MLS parameters and conventional techniques. Results indicate a range of latency shifts, decreased amplitude with increased presentation rate, and good overall waveform morphology.

A Performance Comparison of Meniere's and Benign Positional Vertigo Patients on the Dizziness Handicap Inventory

Allison M. Quinn

This study evaluated performance differences between Meniere's and benign positional vertigo patients on the three subscales and the total scale of the Dizziness Handicap Inventory. The DHI was administered to 15 Meniere's and 15 BPV subjects over the telephone. Mann-Whitney U Tests of the data showed significant differences between groups on the physical subscale but not on the functional subscale, emotional subscale, or total scales. Results are discussed with respect to the frequency of dizziness episodes and its effect on test scores.

The Use of Electrophysiological Tests in Evaluating Central Auditory Processing Disordered Children

Jody Newman Ryan

A battery of both behavioral (including Competing Sentences and the Test of Auditory Perceptual Skills) and electrophysiological (ABR, MLR, SSR, LLR, and P3) tests was administered to eight* children suspected of having central auditory processing disorders (CAPD). Often, it is difficult to distinguish language-learning disabilities from isolated auditory-perceptual disabilities in these children. Results showed that some children performed poorly on the behavioral tests but did not necessarily display abnormalities on electrophysiological tests; they are suspected of having language-based CAPD. Children who displayed abnormalities on both behavioral tests and electrophysiological tests are assumed to have true auditory processing disorders.

* this number will increase before the conference

Dichotic Digit Test Results for Normal and Temporal Lobe Disordered Adults

Richard S. Saul

Dichotic digit test results were compared for a group of twenty normal adults with those of six adults with varied temporal lobe disorders. The test utilized for this study involved digits edited for equal durations having simultaneous onsets and offsets. Results showed a significant difference between group scores as well as a high hit rate in identifying individual disordered subjects. In addition, the data will be presented in terms of the heterogeneity of subject groups, the meaning of simultaneity in dichotic listening, and test efficacy.

Physiologic Risk Factors for Cis-Platinum-Induced Hearing Loss

Sabina A. Schwan, Anil K. Gupta, Steven F. Myers, Brian W. Blakley

Forty-two head and neck cancer patients undergoing cis-platinum chemotherapy were evaluated audiometrically. Patients were divided into two groups according to audiometric results suggesting resistance or susceptibility to hearing loss. Results of routine blood tests obtained prior to chemotherapy were compared between groups. The susceptible group had statistically lower values for albumin, red blood cell count, hemoglobin and hematocrit ($p<0.05$ MANOVA). Results suggest that 1) poorer general health, 2) reduced oxygen transport capabilities, and 3) less plasma albumin available to bind cis-platinum are associated with greater risk for hearing loss.

Autonomy of Educational Audiologists

Jane Seaton, Peggy Von Almen, James C. Blair

A mail survey of 295 members of the Educational Audiology Association was conducted to determine the autonomy of educational audiologists in four areas: job description or scope of practice, referral for services, assessment and management of students, and employment conditions. Usable responses were obtained from 245 audiologists, giving a return rate of 83%. Results of the survey indicate that educational audiologists have a great deal of autonomy in matters relating to the scope of their practice and the implementation of daily activities. However, autonomy in the area of employment conditions was much less widespread.

BSR-to-Behavioral Low and High Frequency HTL Prediction Curves Based upon BSR (Broad-Band Click) HTLs

David C. Shepherd

Low and high frequency HTL prediction curves based upon BSR (broad-band click) HTL, were constructed for normal, conductive and sensory-neural ears using two sets of regression equations. One set predicts behavioral HTLs at 2000 to 8000 Hz from click-BSR HTL. The second set predicts a behavioral HTL at one frequency from another at a different frequency. Validation data revealed that the curves accurately predicted HTLs that fell within 15 dB from measured behavioral HTLs in the low frequency region for 80 to 97 percent, high frequency region for 82 to 93 percent, and in both low and high frequency regions for 71 to 87 percent of 207 normal, sensory, and conductive ears' audiograms.

Measuring Electrical Acoustic Reflex Thresholds in Cochlear Implant Patients: Feasibility and Reliability

Lynn Spivak, Patricia Chute

The electrical acoustic reflex threshold (EART) is a potentially valuable tool for estimating comfort levels in children with cochlear implants who are too young to make reliable psychophysical judgements. This poster presentation describes a clinically feasible method for obtaining EARTs from both adults and children and examines the relationship between EARTs and behavioral comfort levels. EARTs were easily obtained from 74% of the subjects who had normal tympanograms. Good agreement was found between EARTs and comfort levels suggesting that EARTs can be used as an objective estimate of comfort levels.

Effect of Filter Setting on Detectability of Wave V in Neonate ABRs

Lynn G. Spivak, Donna Memming, Susan Ziegler

The effect of filter setting on the amplitude and latency of neonate ABRs was examined. ABRs were recorded at screening levels from 7 normal infants and 24 infants from the NICU using two different filter settings: 1) 30 - 3000 Hz and 2) 150 - 3000 Hz. The 30 - 3000 Hz band pass produced significantly longer latencies and larger amplitudes than the 150 - 3K Hz band pass in both groups. Results indicated that a low high pass filter setting which preserves more low frequency spectral information will allow enhanced detectability of wave V in infant ABRs recorded at low stimulus intensities.

Peripheral Auditory Function in Infants Exposed to Cocaine in Utero

Eileen Tyrala, Agustin Legido, Dorothy Wavrek, William H. Martin

Auditory brainstem evoked potentials (ABEP) were utilized to evaluate peripheral auditory function in infants with intrauterine cocaine exposure (CE). ABEPs were recorded from CE infants and non-CE infants in an intensive care nursery population. Peripheral auditory function was evaluated by the presence (pass) or absence (fail) of a response to a 39 dBnHL rarefaction click presented at a rate of 15 per second. Results indicated that in utero exposure to cocaine increased the vulnerability of the critically ill, less than 30 week gestation infant to peripheral auditory dysfunction.

The Effects of Gender and Binaural versus Monaural Stimulation on the Spectral Analysis of the Auditory Brainstem Response

Mary J. Vaughan, T. Newell Decker

Latencies of the ABR are measured to determine the integrity of the auditory system. Investigators have studied spectral components suggesting that there is potential as a diagnostic tool. While the effects of gender and mode of stimulation on the amplitude and latency of the ABR in the time domain are well documented, they have yet to be examined in the frequency domain. General results of this study indicate that gender and mode of stimulation did not appear to significantly alter all spectral peaks. Rather, they tended to affect only selective peaks, predominantly the low frequency peak.

Cyclic Steriod Replacement Alters Auditory Brainstem Responses (ABRs) in Young Women With Premature Ovarian Failure

E. Wallace, K.E. Elkind-Hirsch, B. Stach, R. Malinak

To determine the independent contributions of estradiol and progesterone to the ABR latency changes associated with the mid-cycle phase, we obtained

ABRs on five women with premature ovarian failure who were undergoing cyclic hormone replacement therapy. A significant lengthening of wave V peak latency and I-V interpeak interval was found during estradiol-only replacement. During the estradiol plus progesterone replacement, wave V latency decreased despite unchanging circulating serum estradiol levels. These findings suggest that estradiol alters the speed at which sensory information travels through the auditory brainstem nuclei and that progesterone may have an antagonistic or nullifying effect on estrogen's action.

Ultra-High Frequency Hearing Sensitivity in Persons with Closed Head Trauma

Derin C. Wester, Susan Marie Sheehy-Grigsby

The ultra-high-frequency (UHF) thresholds of 15 mild and severe closed-head-trauma subjects were compared to established UHF norms. The degree of closed-head-trauma was classed as mild or severe according to developed guidelines. No statistical differences were shown between ears within the head trauma subjects or among normative data. Within the head trauma group no clinically substantial differences were found between mild and severe trauma categories. However, the lack of any interaction supported a trend of increased UHF hearing loss with increased severity of closed-head trauma. It appears that degree of closed-head trauma may not be a confounding historical factor in persons needing UHF testing.

Compact Disk Project: Compressed Speech Materials Using an 80386 Computer

Richard H. Wilson, Nancy Cambron, John Preece, Jennifer Sperry, Debra Soloman, June McCullough

An audio compact disk under development includes several sets of degraded speech materials, one of which is temporally compressed speech in which segments of the waveform are deleted without altering the long-term power spectrum. This presentation describes (1) the digital techniques used to compress the N.U. No. 6 materials (female speaker) on a 80386 based computer, and (2) the recognition data from two experiments with compression ratios of 45%, 55%, 65%, 70%, and 75% from young listeners with normal hearing. (Sponsored by Medical Research Service, Department of Veterans Affairs).

Compact Disk Project: MLD for Spondaic words in 2000-ms Noise Bursts

Richard H. Wilson, Carol A. Zizz, Jennifer Sperry

An audio compact disk being developed for auditory perceptual (central) assessment contains spondaic words embedded in 2000-ms bursts of broadband noise at 0 dB to -30 dB S/N ratios for the masking-level difference (MLD) paradigm. Two experiments were performed to establish a normative data base. The mean SoNo thresholds from both experiments were at S/N ratios 3-4 dB lower than previously reported spondaic word thresholds in continuous broadband noise. To study this discrepancy, Experiment 3 studied the MLDs with the words embedded in continuous noise and embedded in the 2000-ms bursts. The results confirmed the 3-4 dB difference between thresholds for the two masker conditions. (Sponsored by Medical Research Service, Department of Veterans Affairs.)

Performance of Binaural Hearing Aids in Noise

Lena Wong, Jean A. Sullivan, Sigfrid D. Soli

This study demonstrated that speech intelligibility problems in noise may be partly attributable to hearing aids themselves rather than solely to hearing impairment. Binaural speech reception thresholds in noise were measured for normal-hearing subjects with and without hearing aids, and with and without spatial separation of speech and noise sources. Aided signal-to-noise ratios (SNR) at threshold were poorer than unaided SNR with speech and noise from the same source and poorer still with speech and noise from different sources. Results suggest that improved hearing aid design and fitting may yield better hearing in noise.

The Upward Spread of Masking, Speech Recognition in Noise, and Noise-Induced Hearing Loss

Michael K. Wynne, Paulette A. Henry, Gary E. Topping

This study investigated the upward spread of masking and its influence on speech recognition in noise in subjects with noise-induced hearing loss (NIHL). Adapting from the methods of Klein, et al. (1990), our results indicated that the upward spread of masking was greater in the NIHL group than in the group with normal hearing. Undermasking appeared to be a characteristic of noise-induced hearing loss. The data suggest that the upward spread of masking and recruitment may be mediated by the mechanical response of the outer hair cells which serve as a biological amplifier network within the cochlea.

Scoring Spanish Word-Recognition Measures

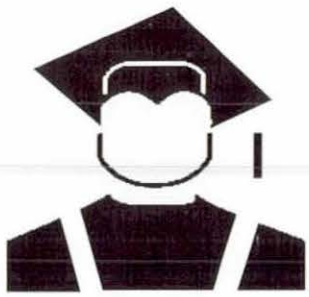
Cheryl Yager, Jeffrey A. Cokely

This study investigated whether an English-speaking person's knowledge of Spanish affects the scoring of Spanish-speaking listeners' spoken responses to Spanish word-recognition scores determined from spoken and written responses. The study revealed that Spanish word-recognition scores derived from spoken responses were the same when scored by English-speaking persons with a knowledge of Spanish and when scored by English-speaking persons without a knowledge of Spanish. Furthermore, scores determined from written responses were near-identical to scores determined from spoken responses.

Are Acoustically-Tuned Earmolds Being Ordered?

Laurie Zollinger, Sharon A. Sandridge

Twelve (44%) earmold laboratories nationwide returned a survey assessing the percentage of a) type of earmolds, b) material of the earmolds and c) earmold acoustic modifications such as venting and tubing/soundbore requested. Sixty-three percent of the earmolds were either shell or skeleton with the majority of the earmolds made from soft material. Pressure vents or no vents were ordered in over 60% of the earmolds. Interestingly, the majority (60%) of the earmolds did not have any tubing modifications. When tubing other than standard #13 tubing was ordered, the most common alternative was Libby Horns. Clinical implications will be discussed.



Student Research

Spectral Analysis of the Auditory Middle Latency Response in Children and Adults

G. Pamela Burch-Sims, James W. Hall, III

Traditionally, auditory evoked responses have been described in terms of latencies and the recorded waveform and interpeak latency intervals (time domain). This investigation concentrated on measures of the spectral composition (frequency domain) of the AMLR with various electrode montages. Ten adults and ten children were evaluated. Our results indicated maturational related effects, as well as significant effects of recording montage. Significant differences in AMLR spectral composition with various recording arrays provide meaningful implications regarding a better understanding of the neural generators of the AMLR.

Electromagnetic Interference with Probe Microphone Assessment of Telecoil Function

Cassandra L. Colville, Ruth A. Bentler, Jill L. Elfenbein

Hearing aid telecoils serve an important function in the use of telephones and assistive listening devices. Measurement of telecoil function utilizing (real ear) probe microphone systems has been advocated as an essential component of a hearing aid fitting. Data from this research project indicate that electromagnetic leakage in the test environment is likely to interfere with the accuracy of such measures .

A Comparison of the Auditory and Visual Event-Related Potentials Using Voice and Color Identification Tasks

Henry Lew, James Jerger, Susan Jerger, Rose Chmiel

Previous studies on the event-related potentials (ERPs) or P3 have shown that this type of response can be elicited by both auditory and visual signals. However, the question of modality-independence of the ERPs remains to be answered. The present study addressed this issue by comparing auditory and visual ERPs using voice and color identification tasks. Results suggest some modality-dependence. The auditory ERP was lateralized more to the left.

Interaural Attenuation Using Insert Earphones: An Electrocochleographic Approach

Ossama A. Sobhy, Herbert J. Gould

The interaural attenuation for click stimuli using insert earphones, ER-3A, has been measured. Electrocochleographic Thresholds were determined when clicks were presented ipsilateral and contralateral to the recording ear. The interaural attenuation was calculated as the difference between ipsilateral and contralateral thresholds. Results from 10 normal listeners showed that cross-over occurred in 8 subjects. The mean interaural attenuation for those 8 subjects was 68.88 dBnHL. Results agree with previous investigators using a different approach. The study confirms the need for masking the non-test ear when insert earphones are used in clinical evoked potentials.

Expert System for Pediatric Auditory Brainstem Response Interpretation

Anne Marie Tharpe, Gautam Biswa, James W. Hall, III

Expert systems are computer programs created to emulate the decision making abilities of human experts. The advantage of such systems lies in their ability to capture the model expert problem solving knowledge in a domain and make it available to an unlimited number of consumers in an economic and efficient way. The purpose of this project was to develop an expert system to interpret infant auditory brainstem response data as entered by the user. The resulting system provides diagnostic conclusions regarding hearing status, type of hearing loss, and brainstem function at an accuracy level equal to that of a human expert.

Effects of Condensation versus Rarefaction Clicks in High Pass Masking on the Auditory Brainstem Response

Andrew J. Vermiglio, Randall C. Beattie, Cynthia G. Fowler

Previous investigations have not demonstrated a consistency in the data for polarity effects in normal-hearing and hearing impaired subjects. Whereas polarity effects can be demonstrated with responses to low frequency stimuli, the effect of stimulus phase on the ABR at specific characteristic frequencies has not been well documented. Stimulus polarity effects were evaluated on the normal ABR in quiet and in highpass masking. No significant differences for condensation and rarefaction latencies were found. Long and short latencies, however revealed significant polarity effects for highpass cut-off frequencies below 3000 Hz. Experimental polarity effects on the latencies of Waves I, III, and V revealed good correspondence to the predicted half-periods of the noise cut-off frequencies.

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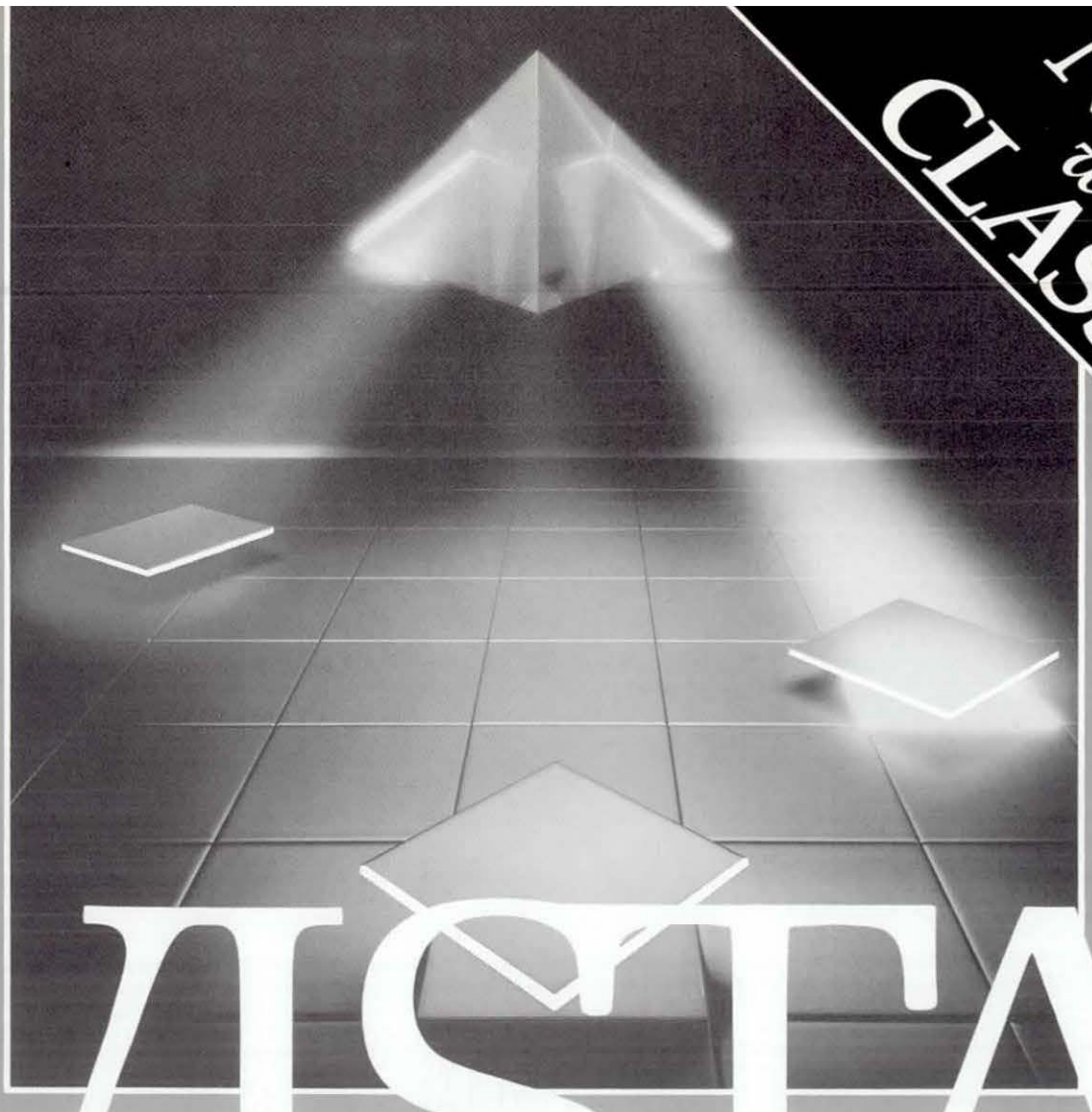

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Article Review

Lynn E. Huerta
Contributing Editor

Prediction of Auditory Nerve Survival in Humans Using the Electrical ABR

Fifer and **Novak** reported the results of a study of electrical auditory brainstem response (EABR) functions in ten patients with normal auditory neural systems and in twenty cochlear implant candidates with profound sensorineural hearing loss. The EABR input-output functions were obtained while the patients were undergoing various ear surgeries. Stimuli were delivered to the promontory at intensities ranging from 1 to 12 mA and the EABR was recorded with a clinical signal averager using a contralateral recording montage. The EABR results were different from acoustically evoked ABRs in that the EABR waveforms showed a dominant early wave corresponding in latency to wave II. In addition, this wave was of much greater amplitude and was often elicited at lower stimulus intensities than wave V. In general, normal subjects had larger, more robust early waves than either group of patients with sensorineural hearing loss. The amplitudes or rates of growth for wave V were not significantly different among the three groups. These authors concluded that the EABR differentiated the way in which normal and impaired auditory systems responded to electrical stimulation and that the EABR might be useful as a means to qualitatively predict gross neural survival.

[Fifer, R. C. & Novak, M.A. (1991). Prediction of auditory nerve survival in humans using the electrical auditory brainstem response. Am. J. Otol., 12: 350-356.

Psychologic Predictors of Audiologic Outcomes of Multichannel Cochlear Implants

Knutson and others reported the results of a study designed to determine whether certain psychological variables were associated with variability seen in the audiologic performance of multichannel cochlear implant recipients. Twenty-nine postlingually deafened adult cochlear implant candidates underwent a series of tests designed to assess the candidate's ability to visually identify features from sequentially arrayed information and to respond rapidly after identification of those features. A nonverbal measure of general intelligence and a measure of a patient's opinion of and desire for participation in his/her own health care were also administered. Up to 30% of the variance in audiologic measures of implant outcome was accounted for by the cognitive measures designed to assess the implant recipient's ability to rapidly detect and respond to visual features imbedded in sequentially arrayed information. The Health Opinion Survey was also significant as a predictor of implant outcome, whereas standardized measures of intellectual ability were not. The authors concluded that the general pattern of results suggests that the ability to rapidly and accurately respond to visual information may be related to implant success measured auditorily.

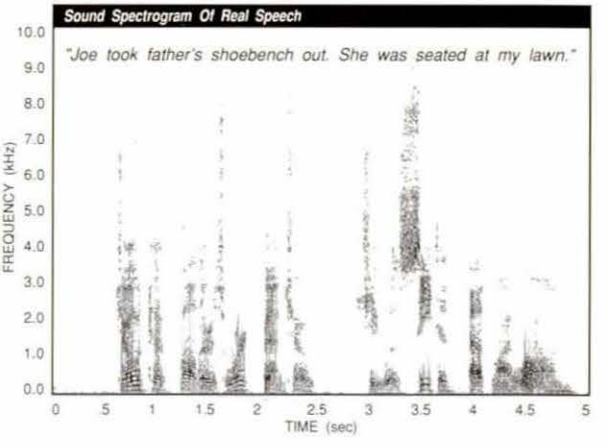
[Knutson, J. F., Hinrichs, J. V., Tyler, R. S., Gantz, B. J., Schartz, H. A., & Woodworth, G. (1991). Psychological predictors of audiological outcomes of multichannel cochlear implants: preliminary findings. Ann. Otol. Rhinol. Laryngol., 100:817-822.]

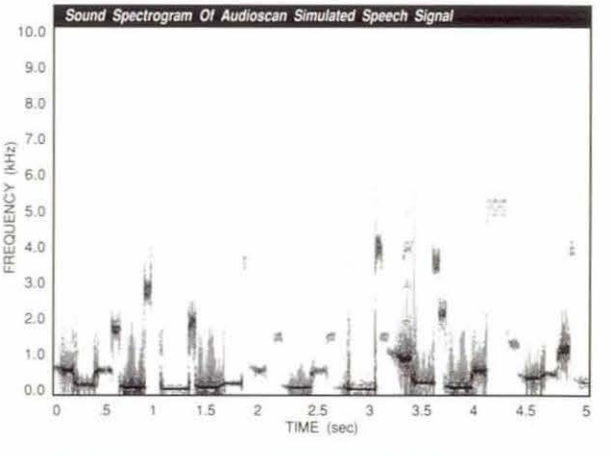
Otosclerosis: The U of Minnesota Temporal Bone Collection

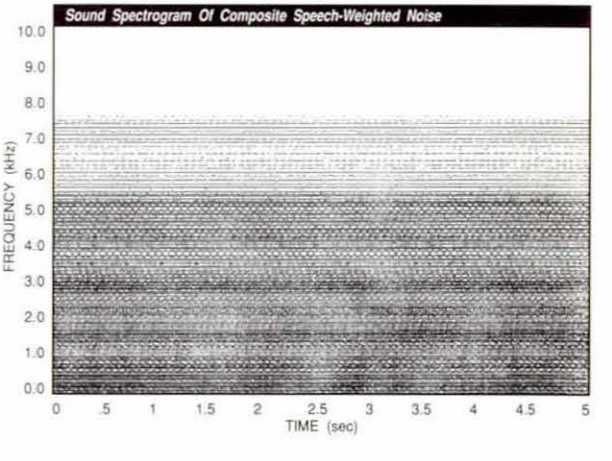
Hueb and others described a study of 1452 human temporal bones. One hundred and forty-four temporal bones from 82 individuals exhibited otosclerosis. Histologic evaluation of the temporal bones revealed otosclerotic lesions which were classified according to location, size, activity, and degree of cochlear endosteal involvement. Men and women exhibited a similar incidence of clinical otosclerosis. Bilateral otosclerosis was higher in women than in men. Histologic otosclerosis was more common than clinical otosclerosis. Multifocal lesions were seen in 73 ears, unifocal lesions in 71. The most common location for otosclerotic lesions was anterior to the oval window, followed by the round window. Seventy-three of the lesions located anterior to the oval window showed signs of activity, 44 were inactive. Medium and large lesions were predominantly active small lesions were mostly inactive. Only the age group 60 to 69 years and older exhibited worse bone conduction thresholds for the otosclerosis cases as compared to equivalent age groups of the normal population. The authors concluded that while their findings are in general agreement with those of previous studies, they are not suggestive of an association of sensorineural hearing loss with otosclerosis without stapedial fixation.

[Hueb, M. M., Goycoolea, M. V., Paparella, M.M., & Oliveira, J. A. (1991). Otosclerosis: The University of Minnesota temporal bone collection. Otolaryngol. Head Neck Surg., 105:396-405.]

If A Hearing Aid Processes *Speech*... Shouldn't It Be Tested That Way?







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