



Making Hearing Health A Global Priority



Fourth Annual Meeting of the Coalition for Global Hearing Health

May 3 - May 4, 2013
Nashville, Tennessee, USA

coalitionforglobalhearinghealth.org



PURPOSE OF THE COALITON:

To advocate for hearing health services and policies, to equip and empower hearing healthcare professionals, families, educators, communities and those with hearing loss, and to encourage and perpetuate best practices.

MISSION STATEMENT:

To promote and enhance hearing health services in low-resource communities

MEMBERSHIP STATEMENT:

Join the CGHH movement to support our shared interest in hearing healthcare work and service that reaches low resource communities. As a member, you invest in the CGHH efforts to improve Best Practices, Family/Community Empowerment, Technology options, Education and Training, and Advocacy in related areas of hearing health.

Welcome to Nashville, Tennessee and the 4th Annual Conference of the Coalition for Global Hearing Health!

Our inaugural conference, held in June of 2010 at the headquarters of the American Academy of Otolaryngology in Alexandria Virginia was a great success. Representatives from 18 countries including professionals from all aspects of hearing healthcare, deaf educators and patient advocates met and discussed common interests.

During our second conference at the House Ear Institute in Los Angeles we engaged in extended discussions about the highest priority concerns in hearing healthcare around the world and especially in low-resource settings. In Los Angeles, we identified areas of need where the Coalition can have the most impact and further refined our goals at our third conference at the EduPlex campus in Pretoria, South Africa. We have divided these goals into five categories: Advocacy and the Media, Training and Education, Technology, Best Practices, and Community / Family Empowerment. This year we will continue this tradition with breakout discussion sessions on these topics that will evolve into CGHH Steering Committees with the goal of continuing this work throughout the year.

The purpose of each annual conference is to enable us to come together to share the challenges we have faced and the solutions we have developed, to raise awareness of important issues and to explore new technologies to help us meet our goals. Thanks to your involvement and to the generous support of the Bill Wilkerson Center at Vanderbilt, we continue our work to promote and enhance hearing health services in low resource communities.

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Thank you to our hosts!

VANDERBILT  UNIVERSITY

MEDICAL CENTER

Bill Wilkerson Center

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Friday - May 3, 2013

- 7:30 - Registration and Coffee
- 8:00 - Welcome & Introductions
- 8:30 - Plenary: Best Practices
- 9:30 - Discussion/Break
- 10:00 - Plenary: Advocacy/Community Involvement
- 12:00 - Lunch
- 1:00 - Plenary: Technology
- 3:15 - Poster Session
- 5:30 - Depart for dinner and keynote address



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Morning Activities

7:30 – 8:00	Registration (Coffee available)
8:00 – 8:30	Welcome and Introduction

8:30 – 9:30

Plenary I: Best Practices

12 minute presentations with discussion following

What, how, where and who with, of CBM's Ear and Hearing Care work

— **Diego Santana-Hernandez** (Bolivia)

CBM's scope is to empower partners, Governments and other stakeholders to take the lead in their own development and, if possible, to become self-sufficient.

CBM's strategy for middle and low income countries is to serve as facilitator, not solely as a funding partner or equipment provider. CBM aims to raise awareness, invest in capacity building and provide the adequate setting where the different actors can meet and work together. CBM encourages each actor to explore what they can provide to the country, rather than to express what they need from donors.

CBM's role is to help set the stage for all involved, to create the right platform in order to stimulate new links within each country, amongst different professionals working in the field of Ear and Hearing Care. Contributions may be diverse; however, in an environment of tolerance this will enrich the final outcome and allow CBM to maintain its identity.

The aim of this presentation is to share CBM's experience in a practical manner, stimulating the exchange of ideas by focusing on the What, How, Where and Who with, of CBM's Ear and Hearing Care work.

Social Justice and Other Ethical Issues in Delivering Medical Care to Developing Countries

— **George Richard Holt** (USA)

Humanitarian aid, short-term medical missions and medical interventions in developing and marginal countries are salutary efforts. Much good can be accomplished through the provision of medical and surgical care, delivery of medical supplies and devices, and medical research meant to improve the health care infrastructure of the country. However, there are a number of ethical issues that need to be considered before, during, and after such efforts, including:

1. Social justice--attempting to ensure that the same medical care is given to those in need and across cultural and socioeconomic provinces;
2. Autonomy and informed consent--prospective patients and families need to know what are the advantages and disadvantages, risks and likely outcomes, and potential complications of procedures and the use of medical devices;
3. Nonmaleficence--every attempt should be made to not cause harm to the individuals being cared for and to not abandon the patient after care has been initiated;



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4. Beneficence—if clinical research trials are being held in a developing or marginal country, it is incumbent upon the investigators and providers of the drug or device to develop an infrastructure that will ensure continued care for the patients and that will provide long-term enhancement of the health care delivery system in that country.

5. Cultural awareness and sensitivity—traditions, health practices, beliefs, and societal customs must all be taken into consideration when providing any form of health care to a certain group of persons in order to not be offensive and to ensure adequate compliance with the intended therapy.

These issues and others will be presented to enhance their awareness and importance in global health efforts.

Making Short-Term Count — Donna Carkeet (Dominican Republic)

We all want to maintain our high standards of care and leave behind something that lasts whether it is in the results for the patients or in the training we do with local workers. How can we ensure that what we do in a short term project continues and makes long term lasting differences? This presentation talks about different models of short term volunteering, the challenges of delivering quality care in less than ideal circumstances, working with local groups, managing expectations and how to ensure your time is making the difference you want. Using examples taken from the work of EARs inc. and Medical Ministries International in countries such as Dominican Republic, Cambodia and Fiji this presentation discusses the way that a short trip can change not just the patients served but leave behind long term differences.

Merging Access to Technology with Professional Responsibility — H. Christopher Schweitzer (USA)

Research has shown that from the moment a baby is born, she needs full and equal access to language and communication in order to develop typically. This right to develop to the fullest, as well as the right of the child to participate fully in family, cultural, and social life are enshrined within the convention on the rights of the child. In the majority of developing countries however, infants with hearing loss are only identified late, impeding on typical development and thus their full rights as children.

This paper presents an overview of the HI HOPES early intervention program, from inception to implementation, focusing on its innovative services and practices as well as quality assurance mechanisms for early intervention programs.

9:30 – 10:00

Discussion / Break

10:00 – 11:30

Plenary II: Advocacy/Community Engagement
12 minute presentations with discussion following

Newborn Hearing Screening in Island Nations: Good News - and Not Just for Babies! — Jean L. Johnson (USA)

Research shows populations in developing countries often have disproportionately higher prevalence of hearing and speech-language disorders. Examples include Pacific Island nations, politically connected with the United States, which lie in an expanse of

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ocean larger than the continental U. S. Consisting of thousands of tiny islands with small populations, they are without a single local ENT specialist or audiologist.

Demands on health care systems in these nations put services for communication disorders at low priority. Provision of primary health care is further challenged by chronic and endemic diseases, high rates of teen pregnancy, and low rates of immunization. Widespread poverty, inadequate island infrastructure, and vast geographical distances between islands confront efforts to develop needed medical and therapeutic services.

The good news is that, because of U.S. national interest and legislation for identifying deaf babies at birth, federal funds have become available for newborn hearing screening in these small nations. These funds are being used to further expand resources to improve hearing health in older children and adults. This presentation describes how providing such services in Pacific nations is being accomplished and offers insights and suggestions for developing sustainability. Time is provided for comments and suggestions from members of the audience.

Neonatal Hearing Screening: The Jamaican Experience

— **Ediel Brown, Howard Francis, Aye Thwin** (Jamaica)

The aim of the presentation is; to highlight some of the challenges encountered and lessons learned in attempting to establish universal neonatal hearing screening program in a developing island nation; to share some preliminary results from a pilot study conducted in two of Jamaica's largest maternal and child care institutions with a view of utilizing the information garnered to inform future policy decisions and the implementation of a suitable and sustainable universal neonatal hearing screening (UNHS) model.

Methodologies used involved stakeholder identification, mobilization, sensitization and participation through public lectures, focus groups, workshops and a situational analysis conducted in collaboration with our national and international partners. Neonatal hearing was done using the standard non-invasive 'Transient Otoacoustic Emission Test' (TOAE) which was carried out in two stages; the first screening was performed within 7 days of birth follow by a repeat screening in two to four weeks for those neonates who failed the initial screening.

Even though significant efforts have been made the government has not yet embrace UNHS as part of its national health policy. The result of the screening identified (3.5%) of the neonates as having potential hearing impairment. This compares favourably with the JCIH recommendation of less than 4% failure rate for a successful screening program. In addition there was no significant difference in failure rates between the no-risk and high risk groups of neonates.

In conclusion inadequate support services, low public awareness and lack of commitment from healthcare practitioners were some of the challenges encountered in the study. There is no doubt however that UNHS needs to become a part of the Jamaica's national health policy even in light of its limited financial resources and human (audiological and related) competences.

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Developing a Comprehensive National Hearing Health Plan for Nicaragua

— **Karen Mojica Alvarez, James E. Saunders, Joaquin Escoto, Diego Santana, Debra Fried** (Nicaragua)

Nicaragua is the second poorest country in the western hemisphere. Despite a national health plan, the provision of specialty services such as otolaryngology and audiology are lacking. In 2011, the Nicaraguan Ministry of Health conducted a national survey of disabilities and initiated a program, Todos Con Voz, to address the unmet needs of disabled Nicaraguans including hearing loss. In May of 2012, a group of Nicaraguan professionals and government officials met with WHO and PAHO representatives, as well as key NGOs working on hearing loss in Nicaragua.

The result of this meeting was to develop a comprehensive plan to improve hearing healthcare services in Nicaragua. Key elements of this plan are: 1) creation of regional centers for otolaryngology and audiology, 2) nationwide training of primary care doctors with the WHO created Primary Ear and Hearing Care manuals, 3) creating a training program for Audiometric technicians, 4) strengthening tertiary care of ear disease and otological surgery, 5) improved coordination with school systems for hearing screening and deaf education. We report on the progress of these initiatives.

Etiology of Childhood Hearing Loss in Cameroon (Sub-Saharan Africa)

— **Jean Jacques N. Noubiap, Jason Bosch, Collet Dandarot, François Djomou, Geneviève Toure Bengono, Ambroise Wonkam** (Cameroon)

Background: Severe hearing loss (HL) is a global problem affecting particularly developing countries. There is scarcity of recent published data on the epidemiology of childhood HL in sub-Saharan Africa.

Objective: To determine the etiological profile of severe childhood HL in diverse Cameroonian populations.

Methods: 582 patients were recruited from 8 out of the 10 regions of Cameroon. We obtained clinical (including personal and family medical past history), otological and audiological data for all the patients. We sequenced the GJB2 gene in the genomic DNA of 180 unrelated patients with non syndromic HL, 2 syndromic cases and 60 healthy control persons of Cameroonian origin.

Results: Putative environmental causes, mostly meningitis, accounted for 52.6% (n=306), genetic causes for 14.8% (n=86) and unknown causes for 32.6% (n=190). The analysis of the GJB2 gene revealed the heterozygous mutation D50N in the two patients with KID syndrome, and two other pathologic mutations in heterozygous state were found in two unrelated patients with non syndromic prelingual HL.

Conclusion: These data highlight the predominance of putative environmental causes in childhood HL in Cameroon, and support the notion that mutations in the GJB2 gene do not play a significant role in non-syndromic hearing loss in the African population.

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Prevalence of Hearing Loss Among Primary School Children in Western Uganda — Irving Basanez, Doreen Nakku (USA)

Purpose: Hearing loss in children is a common entity worldwide. We examined the prevalence and etiology of hearing loss among primary school children in a large urban center in Western Uganda and the effects of hearing loss on school performance.

Methods: Cross-sectional study in primary school children aged 5-14 with hearing loss was performed. 492 Ugandan primary school children were screened for hearing impairment (threshold >30 dB) and average examination scores from the latest school term were compared.

Results: 34 children (6.9%) were identified with hearing loss. Complete thresholds could not be obtained from a lack of formal audiometry equipment in the region. 12 (2.4%) children had conductive hearing loss, and 3 (0.6%) had suspected sensorineural hearing loss based on examination. 19 (3.9%) children had a normal otoscopic/tuning fork examination and were classified as unknown. There was no statistically significant difference in exam scores between the normal hearing and the failed hearing screening children. However, of the children with failed hearing screening, those with suspected true hearing loss had statistically significant lower average school scores than those with normal hearing.

Conclusions: The incidence of failed hearing screening in this remote African population is similar to other populations, and hearing loss may affect their academic performance. Even without formal audiology, screening is recommended especially for those performing poorly in school. Western Uganda remains in need of equipment, a trained audiologist and comprehensive otolaryngologic care.

Building Capacity to Support Children With Hearing Loss in Vietnam — Paige Stringer (USA)

Since 2010, the Global Foundation For Children With Hearing Loss has been collaborating with Vietnamese partners across the hearing health care and special education communities to identify and address gaps in the system of support for children who are deaf or hard of hearing in Vietnam. The Global Foundation's integrated model includes a training curriculum that spans audiology, therapy, and education for doctors, audio-technicians, teachers and therapists; hearing aid distribution; and awareness campaigns. Thirty-eight schools for the deaf across 20 Vietnam provinces and 3 pediatric hospitals are currently participating. What makes this program unique – besides its size and scale – is its broad reach across the support network for children with hearing loss. Recognizing that no area of support can succeed in isolation, the program is designed to help the Vietnamese establish the early identification, early intervention, therapy, audiology, and education services needed to ensure that their children with hearing loss can reach their full potential. The Global Foundation's model encourages sharing of knowledge amongst the Vietnamese participants and their communities, making the benefits of the Global Foundation's work exponential ---and sustainable.

11:30 – 12:00 Break — Discussion

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12:00 – 1:00 Lunch

1:00 – 3:15 **Plenary III: Technology**
12 minute presentations with discussion following

Validation of Tele-Audiology Equipment — Jackie L. Clark (USA)

With the proliferation of technology and advent of greater access to global connectivity, Hearing Healthcare Specialists are finding themselves at a crossroads of opportunity to harness a new resource: TelePractice. TelePractice becomes a viable means of addressing the continuing shortage of hearing healthcare providers. This study sought to validate the use of one specific audiometer model for TelePractice by assessing attenuation properties of three specific types of headsets while in a double-walled soundsuite. Probe microphone recordings were collected in the three headset conditions from KEMAR while sitting in the presence of on multi-talker babble presented via loud speaker. There were distinct attenuation differences between the three headsets across frequencies. One particular headset offered significantly better attenuation properties than the other two. It is important when engaging in TelePractice that every component of instrumentation is rigorously evaluated to assure that a compliant assessment is conducted. In this particular study, it was ascertained that one type of headset provided the best attenuation while maintaining calibrated fidelity.

Global Policy, Technology, Systems and Workforce Innovation: A Model for Driving LMIC* Hearing Health in Tandem — Evelyn Cherow (USA)

The 2007 UN Convention (treaty) on the Rights of Persons with Disabilities and the 2011 WHO World Report on Disability estimate 1 billion people with disabilities worldwide—80% in developing countries— typically lacking access to healthcare and rehabilitation. WHO estimates hearing loss as the most prevalent of all disabling conditions in both developing and developed countries. Identification and intervention challenges require solutions integrated with broader international development priorities. Development context typically is missing from rehabilitation and medical preservice and inservice curricula.

The 127 CRPD-ratifying countries required to design national disability implementation plans have minimal targeted funds or workforce for this purpose. The UN, USAID, World Bank, and UNICEF have promulgated policies that require funded development projects to incorporate disability inclusion goals—a challenge to the traditional development 'actors' rarely with knowledge or skills in disability policy and programming.

A WB Global Commission 2011 report on 21st century health professionals' education urges shifting from a US-focused professional education framework to a global workforce orientation. This presentation 1) shares international development priorities, policies, and workforce drivers in early childhood, healthcare, education, public health, telehealth and Communities of Practice; and 2) offers a model to optimize global knowledge and services transfer to reduce the 'global burden' of disability from hearing loss.

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International Humanitarian Hearing Aid Purchasing Program

— Debra Fried, Natalie Souza (USA)

The International Humanitarian Hearing Aid Purchasing Program (IHHAPP) is an organization created to address the barrier to hearing aid fittings in developing countries.

The IHHAPP is able to provide low-cost, new, digital behind the ear hearing aids to qualified members providing humanitarian care.

This presentation will address the various aspects of the IHHAPP, including philosophy, membership requirements, types of hearing aids offered, procedure for placing orders, future goals.

Quality Services in Hearing Aid Provision

— Patricia Castellanos de Muñoz (Guatemala)

Hearing aid fitting is not a one step activity; it must be seen as a systematic and organized process with clearly defined goals. The ultimate goal is not limited to the listening of the user, but also to the care and maintenance of the hearing aids. Also, the various family members must be involved both in the technical aspects and emotional issues.

Although hearing aid fitting can be carried out by technical staff, this process should not be taken lightly, nor should it be performed by personnel lacking extensive training and that are committed to follow up of every person.

In addition to ensuring a good fit and follow up services, there are management aspects should not be neglected. The record keeping of both the beneficiaries and their hearing aids is essential; this includes clinical information as well as brand, make, model and serial number. This allows, in addition to establishing internal control, enables statistics, which can be used for fundraising, donations and policy makers.

Accuracy of computer-based audiometry outside of a sound-treated booth

— Susan Stangl, Anne Marie Tharpe, Ben Hornsby (USA)

Pure tone threshold testing is the foundation of diagnostic hearing evaluations. To obtain reliable threshold measurements, background noise levels must be minimal. This is often achieved by testing in a sound-treated booth, but limited access to booths in underserved areas becomes a barrier to conducting evaluations during outreach. The KUDUwave is a portable, computer-based audiometer, designed to test auditory thresholds reliably outside of a sound booth. The purpose of this study was to examine the noise levels in which the device could accurately assess thresholds. Thresholds of eighteen normal hearing individuals were tested in quiet and in three levels of noise. In quiet, the computer-based system measured air conduction thresholds within ± 5 dB of conventionally measured thresholds in 97% of cases and bone conduction thresholds within ± 10 dB of conventional thresholds in 86% of cases. Threshold measurement outside of the sound booth suggested increased attenuation of ambient noise when using the KUDUwave headphones as compared to using insert earphones alone, indicating that threshold testing may be conducted reliably in slightly higher noise levels. The results of this study could have implications for testing inpatients in hospitals, students in schools, and individuals seen during rural outreach or via tele-audiology.



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Medical, Surgical and Audiological Implications of Imaging and Cochlear Implants

— **Andrea Hedley-Williams, Robert Labadie** (USA)

Using pre and post operative CT scans and image processing techniques, the position of the implanted cochlear implant array is detected. The effects of electrode position (scala tympani vs scala vestibuli) and the effects on speech recognition performance is noted. In addition, the placement of the electrode array in the cochlea can be used to quantify the electrode to neural interface for individual cochlear implant recipients resulting in the creation of patient-customized cochlear implant MAPs. Using this image-guided stimulation strategy, we detect and deactivate electrodes likely to cause cross-electrode channel interaction. Results indicate that this image-guided stimulation strategy and the resulting MAP leads to significant objective and qualitative improvements in hearing benefit and performance for cochlear implant users.

How to combine a mobile audiology lab with centralized experts' knowledge?

— **Katrin Neumann, P. Boettcher, R. Higgs, H. Oswald** (Germany)

Audiological services in developing countries require affordable, easy to use, well transportable, robust equipment which offers the whole range of audiological screenings and diagnostics. Furthermore, it should enable a secure and direct bidirectional data submission and teleaudiological functions.

Such a complete audiological solution is revealed by the German handheld device Sentiero® (Path medical). It contains a patient management software (MIRA) and an electable modular system of the following physiological and psycho-acoustical tests: TEOAE (quick test; diagnostic test), DPOAE (quick test; hearing threshold estimation), AABR, binaural diagnostic ABR (clicks; chirps; frequency-specific chirps), ASSR, the Multiple-Choice Auditory Graphical Interactive Check (MAGIC, a pure tone audiometry self-test for children), pure tone audiometry, speech audiometry in noise (SUN), a test battery for assessing central auditory processing disorders and developmental language abnormalities using speech and non-speech stimuli.

A direct and bi-directional communication between this mobile device and a central server (for tracking aims in a hearing screening program or for teleaudiological aims) using wireless radio modem technology enables prompt transmission of information and results and facilitates the tracking of positively tested infants and children. The implemented teleaudiological software enables an online peer-reviewing of diagnostic results or a discussion of therapy options with remote experts.

3:15 – 4:00

Poster Session

All posters are listed below

Special Olympics Healthy Hearing Program Provides Framework for Hearing Healthcare Training

— **Lindsay Bondurant, Peter Fauver** (USA)

Disabling hearing loss (DHL) has been identified by WHO as a global health issue affecting 360 million persons. However, little information has been collected regarding the worldwide incidence of DHL in people with intellectual disabilities (PID). Data from developed nations indicate that incidence of ear pathology is much higher in PID compared to the general population, suggesting that it's likely that the incidence of DHL and other ear pathologies may be quite high in the



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population of PID in developing countries. A promising approach to identifying and providing intervention in this population is via the Special Olympics Healthy Hearing (SOHH) Program.

The SOHH program provides hearing screenings (and at some events diagnostic evaluations) using trained volunteers led by professional Audiologists and Speech-Language Pathologists. Special Olympics International provides a structured framework and administrative support for these efforts, making SOHH an excellent avenue for the provision of training/education for varying levels of hearing healthcare providers in developing regions.

The purpose of this poster is to describe the training model used in the Illinois SOHH program to train novice volunteers to provide high-quality hearing screenings, and discuss ways that this model could be used for similar training events in other countries.

Humanitarian Audiology Class Provides Opportunities for Student Training

— **Lindsay Bondurant (USA)**

In 2012, WHO released new estimates indicating that 5.3% of the world's population (360 million persons) has disabling hearing loss (DHL). The prevalence of DHL is greatest in developing nations, particularly in South Asia, Asia Pacific, and Sub-Saharan Africa. However, access to Audiological care in developing countries is limited due to cost, travel, and availability of trained hearing healthcare professionals.

There has been a growing movement among audiologists in developed countries to travel to developing countries to provide care in a "Humanitarian Audiology" setting, with initiatives taking a variety of forms—spanning a continuum from careful development of infrastructure with a focus on sustainability to "mass hearing aid dispensing" exercises. With the goal of helping Audiology students to learn best-practice approaches to hearing-healthcare outreach efforts, Illinois State University recently debuted a required course in "Humanitarian Outreach in Audiology" as part of its Doctor of Audiology curriculum.

The purpose of this poster is to describe the course, and discuss ways that this model could be used to help Audiology students and current Audiologists apply best-practice principles to their efforts to provide services and develop hearing healthcare programs in underserved areas.

Audiological measures in HIV-infected children in Tanzania

— **Isaac I. Maro, Ndeserua Moshi, Odile H. Clavier, Todd A. MacKenzie, Jed C. Wilbur, Robert D. Chambers, Abigail M. Fellows, Benjamin G. Jastrzembski, John E. Mascari, Muhammad Bakari, Mecky Matee, C. Fordham von Reyn, Paul Palumbo, Jay C. Buckey (USA)**

Objectives: Abnormal hearing tests have been noted in HIV-infected patients in several studies, but the nature of the hearing deficit is unknown. We have performed a cross-sectional study of both HIV-positive (HIV+) and HIV-negative (HIV-) children in Tanzania using a comprehensive audiological test battery. Design. Pure-tone thresholds, distortion product otoacoustic emissions (DPOAEs), tympanometry and a gap detection test were performed using a laptop-based hearing testing system on 208 children (126 HIV+, 82 HIV-, 26 ART- and 100 ART+ subjects). Subjects completed a video and audio questionnaire about their hearing as well as a health history questionnaire.

Results: HIV+ children did not report greater difficulties with hearing. The HIV+ group had significantly lower DPOAE levels compared to HIV-negative individuals, but their

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hearing thresholds and gap detection thresholds were similar. Conclusions. The HIV+ showed lower DPOAEs.

One possible explanation for the DPOAE findings is ototoxicity from medications. Also, the HIV+ individuals might be more susceptible to ear infections, and have reduced DPOAE levels due to middle ear problems. A direct effect of HIV on the cochlea is also possible and the lower DPOAE levels in the HIV+ group might reflect damage to the cochlea from the HIV virus.

Public school hearing screening in Guatemala City

— Sara K. Mamo, Bianca Gomez, Patricia Castellanos de Muñoz (USA)

Hearing screening is not publicly provided or required by the Ministries of Health or Education in Guatemala. Fundación Sonrisas que Escuchan (Smiles that Hear), a non-profit organization associated with CEDAF (The Center for Audition), a private audiology practice in Guatemala City, has identified public school hearing screening as a major priority over the next few years.

Data from school screening could be used to support efforts to change policies in the Ministries of Health and/or Education to require public school hearing screening. Through a partnership between CEDAF and the Division of Speech and Hearing Sciences at the University of North Carolina-Chapel Hill (UNC-CH), our project performed hearing screenings on 595 students in 5 public schools over 3 days. Using a protocol adapted from the Special Olympics Healthy Hearing program, the primary screening tool was Distortion Product Otoacoustic Emissions (DPOAEs) following wax removal when needed.

We also performed tympanometry and pure tone screening when indicated according to our protocol. Of the 595 students screened, 93.8% passed and 6.2% referred. Importantly, wax removal improved the efficiency of our screening protocol as 25.5% of students needed wax removal from at least one ear prior to screening. Future directions for this project are for UNC-CH to provide personnel and equipment to assist Fundación Sonrisas que Escuchan in its mission to improve identification and access to services for children with hearing loss in Guatemala.

The Feasibility of Including Distortion Product Otoacoustic Emissions (DPOAEs) in the Annual Medical Surveillance Test Battery for the Early Identification of Noise-Induced Hearing Loss (NIHL) in a Group of Workers from a Beverage Manufacturing Industry

— Tarryn Marisca Reddy, Seema Panday & Cyril Govender (South Africa)

The study investigated the feasibility of including DPOAEs in the annual medical surveillance test battery for the identification of NIHL in workers in a manufacturing industry in KwaZulu-Natal, South Africa. Feasibility was investigated by exploring the sensitivity, specificity and predictive efficiency of DPOAEs, the ability of DPOAEs to detect subtle noise-induced cochlea changes, test-retest reliability of DPOAEs and time taken to conduct DPOAEs.

A high sensitivity and negative predictive value was found. The specificity of DPOAEs ranged between 55%-97%. Visual inspection of the DP-gram revealed a reduction in DPOAE amplitudes in the high frequencies, in the absence of a statistically significant difference ($p > 0.05$). Corresponding changes on the pure tone audiogram were not observed, however, noise notch configurations were observed for the groups with a longer service history.

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A good test-retest reliability of DPOAEs was observed with indication that probe removal and reinsertion may have had an effect on DPOAE amplitudes. An average of 1 minute 26 seconds was calculated to conduct DPOAEs bilaterally, confirming that DPOAEs are quick to administer. These findings suggest that DPOAEs may be used to monitor early subtle cochlea changes in workers exposed to noise in the manufacturing industry as part of the annual medical surveillance test battery.

A Novel Solution to Screen Newborns for Hearing Loss in Resource Constrained Settings — Nitin Sisodia, Neeti Kailas (India)

Sohum is working on a novel comprehensive solution to screen newborns for hearing loss in resource-poor settings. The challenges to conduct hearing screening in resource constrained settings are: 1) Awareness: Children go undiagnosed for hearing impairment till the age of 4 by when it is too late to prevent speech and hearing loss. Lack of awareness among parents and health professionals is major challenge 2) Lack of technologies that perform in resource-poor settings: There is a lack of skilled healthcare workers, and resources like time and money are spread thin over several babies. 3) After care cycle: Several areas, mainly rural, lack of access to audiologists and access to specialized health care.

We have been gathering insights and stakeholder perspectives since three years. Based on this we designed a multistage solution to implement universal hearing screening in resource-poor settings like India.

Our solution comprises of: 1) Awareness material for parents: We designed a calendar which maternity homes can provide to parents. This calendar has illustrated activity ideas along with a growth milestones checklist. Parents can perform these and observe the child and participate in assessing her development. It will increase awareness and involve parents in early detection of hearing loss. The calendar is to be published in 15 different language across India.

2) Technology: We have designed a low cost ABR device suitable for resource constrained settings. The unique features of the device are: a) Unique algorithm— can perform in noisy settings b) Non-disposable electrodes— lowers the cost of procedure c) Easy to use interface— avoids human error d) Optimized product design— reduces test duration through reducing preparation time which makes it ideal for mass screening e) Tele diagnosis: sends selected data (true positive) to centralized server for recheck

3) Audiologist network: Sohum has formed a professional network of audiologists which will take care of the post screening care of the newborn. 40 audiologists, 15 maternity homes and 3 tertiary care hospitals are part of the Sohum audiologist network and are willing to test the solution in India (www.sohumforall.com).

This presentation will help us share the system level challenges and opportunities that we face while creating a sustainable solution for universal hearing screening in India and other similar settings.

Cultural Journey: Connecting With Your Patients — Alexandra Shevelyok, Jackie L. Clark (USA)

Whether it's through our jobs as clinicians, researchers, or humanitarians, we meet people that may be part of smaller communities that associate more closely to specific cultures which are not familiar to us. Culture would be defined as "a system of shared beliefs, values, customs, behaviors . . . members of a group use to cope with the world and one another . . ." (Bates & Plog, 1990). According to the U.S. Census Bureau, the

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- 3:15 - Poster Session
- 5:30 - Depart for dinner and keynote address

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population of the U.S. is 314 million residents, with approximately 40 million residents being foreign born. When one considers approximately 14% of individuals residing on U.S. territory are foreign born, it is logical that an audiologist would likely encounter individuals from different cultural background than themselves. Consequently, a professional may easily make incorrect assumptions from misinterpreting a patient's behavior (or lack of behavior) during any interactions they are engaged in. Certainly, a professional will only be more prone to not only misinterpret a patient's behavior, but even worse, the impression a patient has of a professional could be irrevocably damaged due to a cultural mis-step. With such changing population demographics, it becomes imminently critical for professionals to aspire to attain intercultural competence in an ongoing manner to minimize any barriers that can exist due to cultural differences. This poster describes some basic cultural parameters (e.g. collectivism/individualism, monochronic/polychronic; gender/age roles; etc.) which often times result in cultural mis-matches when not recognized. There will be some discussion about the clinical relevance when interacting with individuals who are of a culture group different than one we may be most comfortable with.

International Trends and Disparities in Access to Cochlear Implantation — Donna Sorkin (USA)

While health insurance coverage for cochlear implantation is in place in most "developed" countries of the world, utilization is variable. We will review the diversity and also commonalities of cochlear implant availability in five countries: Belgium, China, Japan, the US and the UK.

Utilization of cochlear implants by candidate children varies the most with 50% of eligible children in the US receiving the intervention compared with 90% or more of children in many European countries. Japan's pediatric utilization rate is even lower. In China, where there is limited insurance coverage, lower cost devices and rapidly changing cultural attitudes about deafness have pushed CI growth to 25% per year.

Adult utilization is even lower with no more than 5% of candidate adults in the US and even fewer adults in Europe and Asia receiving CI.

The reasons for this underutilization include: (1) low awareness of the benefits among the general public and among health care professionals; (2) lack of specific referral pathways; (3) political issues relating to deafness; (4) financial issues related to provision of CI whether from private insurers or from government entities; and (5) the dearth of cost effectiveness data on CI benefit.



- 7:30 - Registration and Coffee
- 8:00 - Welcome & Introductions
- 8:30 - Plenary: Best Practices
- 9:30 - Discussion/Break
- 10:00 - Plenary: Advocacy/Community Involvement
- 12:00 - Lunch
- 1:00 - Plenary: Technology
- 3:15 - Poster Session
- 5:30 - Depart for dinner and keynote address



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Study Away and Service Learning in Nicaragua

— Letitia White, Lisa Proctor, Neil Disarno (USA)

The purpose of this presentation is to introduce the use of service learning and study away as a means to educate students, while providing services in a third world country. Logistical considerations associated with course development are discussed.

Service learning is a teaching pedagogy in which students apply knowledge gained in the classroom to a real world environment to serve the needs of the community. Additionally, they reflect on their experiences. Reflection is a critical component in service learning and very important in helping students understand the impact their service has on the world around them. Through service learning, students engage in their community. By blending service learning and Study Away, MSU students gained an opportunity to deliver speech, language and hearing related service in rural Nicaragua, while demonstrating an understanding of the themes of the University's public affairs mission, which include community engagement, cultural competence, and ethical leadership.

To date, there have been two MSU Study Away trips to Nicaragua (March 2012 - 13 students, 2 faculty; January 2013 - 17 students, 2 faculty). While learning about the history and the culture of the country, students administered approximately 400 hearing screenings and fit seventeen hearing aids.

4:00

End of Sessions

5:30

Depart for Traveler's Rest Plantation: Reception and Dinner

"Deafness and Hearing Impairment in Developing Countries"

Keynote Speaker: Lady Jean Wilson

Lady Jean Wilson, OBE, FRCOphth (Hon)

is currently the Chair of the Hearing Conservation Council; President of the UK Impact Foundation, and Vice President of Sightsavers International. Lady Jean Wilson and her husband, Sir John Wilson founded and established the Royal Commonwealth Society for the Blind. Their extensive travel led to development of many national organizations for the blind in Africa, Asia and Latin America. Lady Jean and Sir John Wilson became THE experts in promoting education and rehabilitation for individuals with disabilities.

In 1974, she assisted in founding and development of the International Agency for the Prevention of Blindness and in 2000 co-founded the Hearing Conservation Council. She has been recognized for her immense contributions with honors of the Dana International Gold Medal, OBE, Harding Award, Jose Rizal Gold Medal and Honorary Fellowship of the Royal College of Ophthalmology.

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8:00 – 8:30	Breakfast / Introduction to Steering Committee Format
8:30 – 10:00	Steering Committee Meetings

Steering Committee Meetings

Family / Community Empowerment – Chair: Selvarani Moodley (South Africa)

Promote a family and community centered approach to hearing loss with social integration and awareness through effective services such as counseling, parent groups and community based habilitation programs. Some examples of how the CGHH might accomplish this goal:

- Create resource materials that equip and empower families with information regarding (communication and habilitation options)
- Advocate by creating awareness of best practices with schools, communities, and medical providers
- Explore way of expanding CGHH membership among families and community representatives
- Advocate and Equip through related tools and promotional materials
- Develop relationships and collaboration with related organizations and societies
- Create CGHH website content for families and community representative

Technology Access – Chair: Katrin Neumann (Germany)

Enhance hearing health through the use of current technology and prepare for what's next. Explore ways that the CGHH promote the use of technology by raising awareness and defining reasonable goals and outcomes. Some examples of technology and programs that have been discussed in previous CGHH meetings:

- Affordable hearing aids
- Alternative hearing aids
- Assistive listening devices
- Equipment donations
- Purchasing consortium
- Self-fit hearing aids
- Telehealth and teleaudiology
- Cochlear implants
- Field based testing

Training/Education – Chair: Dimity Dornan (Australia)

Promote and develop for online and university-based education and training opportunities of hearing health professionals, families and community representatives including, but not limited to:

- Hearing health practitioners
- Primary care physicians
- Other health care providers
- Deaf educators
- Teachers
- Speech therapists
- Parent partnership



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Steering Committee Meetings (continued)

Best Practices – Chair: TBA

Create best practice guidelines for the CGHH website, Advocate for the ethical use of guidelines and reasonable outcome measures for all aspects of hearing health including, but not limited to:

- Guidelines for humanitarian / outreach trips
- Guidelines for family counseling and support
- Guidelines for medical providers
- Guidelines for education and habilitation services (including all communication options)
- Guidelines for hearing health providers and technicians

Advocacy / Media – Chair: TBA

Enhance awareness of hearing loss as a global health priority through dissemination of epidemiological data as well as the societal, educational and economic impact of hearing loss. Explore and develop programs to enhance public relations for CGHH and hearing health services through traditional and social media.

Promote programs of and equip healthcare professionals with strategies for hearing loss prevention. Advocate for governmental policy that supports hearing health (but not limited to):

- Providing direction to professionals, families, individuals to existing policy
- Encourage dialogue and consensus amongst and between professionals globally to achieve topical policy

10:00 – 11:15

Plenary IV: Advocacy & Other

12 minute presentations with discussion following

WHO Ear and Hearing Disorders Survey: National Study / Ecuador 2009

— **Alejandra Ullauri, Andrew Smith, Mauricio Espinel, Rodrigo Castrillon, Cesar Salazar, Carlos Jimenez** (USA)

OBJECTIVES: First national study of prevalence of ear and hearing disorders conducted in Latin America which follows the World Health Organization Ear and Hearing Disorder Survey protocol.

1) Provide regional governments, institutions and professionals with local and accurate information on the prevalence of ear and hearing pathologies in the Ecuadorian population, 2) Contribute to the global burden of disease by generating standardized data that can be compared among countries and regions.

METHOD: This is a prospective, multi-stage cluster sample design study, conducted over a 9 month period (March to Dec 2009). Population tested: all members of households selected according to the sample strategy (cluster sample design, 28 clusters by population proportional to size in Ecuador). Testing was carried out in hospital facilities across the country including: audiometry / TEAOEs, and otological examination. Outcome measures included the diagnostic criteria for disabling hearing impairment established by the WHO. Data was entered in EARFORM software for basic statistical



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analysis and then compared to results obtained from contingency tables.

RESULTS: 5762 subjects tested. The prevalence found in the ages 6 mths. to 3 yrs 11 mths. was 4.3%, 4 yrs to 14.11 mths. was 1.5%, 15 to 64 yrs was 2.6%, 64 years and older 40.9%, with a global prevalence of 5 % with a 95% CI of 3.9% a 6.1%. Out of the total population tested 14.52% are in need of action or services.

CONCLUSIONS: The prevalence of disabling HI correlates with the prevalence found in other studies using the same protocol and it is slightly higher than the 4.2% global estimate for disabling hearing loss. The Ecuadorian population is in need of a substantial improvement in hearing services delivery.

Exploration of communication across home and school contexts: A case study of a Deaf child who uses Sign Language — Zandile Blose, Neethie Joseph (South Africa)

Research that focuses on the communication between deaf children and their hearing families is scarce. The majority of deaf children are born into hearing families where a common communication mode does not exist. The aim of the study was to explore, describe and compare the nature of communication of a Deaf child who uses Sign Language and who is born into a hearing family with no prior experience of Sign Language, across typical daily contexts.

A case study design which focused on a nine year old grade one child with a profound hearing loss was studied which included quantitative and qualitative components. Communication was observed with 13 communication partners in the home context including the mother, a sibling and peers. Two educators and 11 peers were observed at the school. Surveillance cameras were used to obtain 27 hours of video-recording in the home and 19 hours at the school. Interviews were conducted with the mother, siblings, the deaf child and educators. Factors that include socio economic status, early intervention, policy verses practice in the deaf education system and primary health care services were seen as contributing to the findings. Clinical implications and recommendations for future research are discussed.

Idle no more: A 5-year plan to improve hearing healthcare in a remote northern community — Jack Scott (Canada)

Lack of resources, infrastructure, and services reduce access to hearing healthcare for many remote northern communities. Individuals from northern communities, typically consisting of First Nation and Aboriginal peoples, may be required to travel large distances to more populated areas in order to receive necessary audiological assessment and intervention. The goal of this 5-year plan is to improve hearing healthcare in an isolated Canadian First Nation's community. This goal is being achieved through the following steps: 1) creation of inroads within the community, 2) providing students with opportunities to participate in outreach to underserved populations, 3) obtaining funds to facilitate the placement of assistive technology within the community, and 4) raising awareness of community needs through publications. To date, the program has resulted in the hearing screening of over 120 preschool and school-aged children, the assessment of 20+ adults in the community, the delivery of soundfield FM systems to the elementary school, the delivery of personal listening devices to the local hospital, and the education of 4th graders on the impact of noise exposure. Challenges, successes, lessons learned, and strategies will be reviewed with the audience.



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Local Anesthesia in Otologic Surgery: Background and Implications for Humanitarian Medicine — Alexander G. Bien, Eric P. Wilkinson, Audrey P. Calzada, Richard Wagner (USA)

Objectives: 1. Describe the benefits of performing otologic surgery using local anesthesia in humanitarian medicine. 2. Review the neurovascular anatomy of the ear and local anesthetic agents. 3. Present techniques to achieve effective local anesthesia in otologic surgery.

Background: Otologic surgery performed in the developing world presents unique constraints characterized by shortages in medication, equipment, time, support staff, and skilled co-practitioners. The use of local anesthesia for otologic procedures optimizes patient safety in the humanitarian setting where there is often a lack of monitoring equipment, anesthesia machines, skilled anesthesia personnel, and time.

Study Design: Retrospective, descriptive review

Results: Based on over 10 years of experience performing otologic surgery in developing countries, we describe our technique of using local anesthesia to perform middle ear and mastoid surgery. The neurovascular anatomy of the ear is complex, as both cranial and cervical plexus nerves contribute to sensation. This anatomy is reviewed along with the various local anesthetic agents and injection techniques including both local infiltration and field blocks. The application of local anesthetics in humanitarian otologic surgery avoids the risk of intubation, decreases bleeding, allows the patient's hearing and vertigo to be assessed intraoperatively, and allows for safe surgeries to be performed in locations without anesthesia equipment and personnel.

Conclusions: The use of local anesthesia is both a practical and necessary method by which middle ear and mastoid surgery can be safely performed in the humanitarian setting.

11:15 – 1:15

Lunch

Tour of Vanderbilt / Bill Wilkerson Center

12:00 – 1:15

Plenary VI: Training / Education

12 minute presentations with discussion following

Best Practices for Training Hearing Health Workers Globally

— Sivakaran Nagaratnam, Abi Sriharan, Arnold M. Noyek, Khalid Hadi, Dennis Bojrab (Canada)

Worldwide, hearing loss is one of the most common cause of disability and a leading cause of disability in developing countries. There is a clear consensus that newborn and infant hearing screening, followed by early rehabilitation improves speech and language development outcomes. Many developing countries around the world that are starting to invest resources into early screening initiatives are facing shortage of adequately trained human resource to undertake the screening and rehabilitation programs at the community level. Based on systematic synthesis of literature and a case study, this paper provides evidence-based recommendations for best practices for training hearing health workers in developing countries.



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A worldwide web of university-based humanitarian program

— **King Chung, Hsiao-chuan Chen (USA)**

This presentation describes a university-based humanitarian research and service program. Students and faculty at Northern Illinois University joined force with local professional organizations and/or universities in different countries to conduct research and to provide free hearing services to underserved populations. The operational model is characterized by four elements: 1) joining forces with audiologists, faculty, and/or students in the visiting countries to provide hearing services to underserved populations; 2) visiting professional organizations to know more about the hearing health care system in the visiting countries; 3) engaging in cultural immersion activities to gain understanding of the people in the visiting countries; and 4) publishing in professional magazines and peer-reviewed journals to increase the impact and lengthen the duration of our services. The collaboration also continues after the trips. Two universities in our collaborating countries sent students to Northern Illinois University to conduct research, clinical observations, and professional activities. Moving forward, we will continue to form new allies and strengthen our ties with previous partners to form a worldwide web of university-based humanitarian programs.

Problems associated with Ear and Hearing care manpower development in Nigeria with focus on Audiology — Eneche Audu (Nigeria)

Nigeria lies around the coast of West Africa and has a population of more than 160,000,000 inhabitants, giving her a position as the most populous black nation in the world. But instead of using this huge population to her advantage especially in manpower development in the various field of human endeavour, failed leadership, failed policies and corruption has created an unbelievable degree of inequality and imbalance amongst the population, where we have the super-rich and the super-poor, with majority of the later which constitute up to 70% of the population (America Central Intelligence Agency 2010 estimate) and usually rural subsistent farmers living below the poverty line. According to Daily Times Newspapers (2011) Nigeria struggles for the second position with Iran as the second largest producer of crude oil in the Organisation of Petroleum Exporting Country OPEC ranking, yet she is ranked among the top poorest countries in the world due to corruption.

Partly due to improper planning and the fact that hearing disability is a hidden disability, specialised training such as Audiology as well as speech and language therapy cannot be found in the brochure of the Joint Admission and Matriculation Board (JAMB) -the body established by the government to conduct examination for candidate seeking admission into institution of higher learning in Nigeria, as a result, there exist less than one qualified audiologist to 16,000,000 and one qualities speech therapist to 32,000,000 people. Because of these abnormalities habilitation/rehabilitation of persons with hearing, speech and language problem in Nigeria has gone beyond expensive to exploitation, and because majority of these people are living in poverty, they are force to live with the problem as the government does not provide these services.

This paper therefore seeks to expose the difficulties associated with hearing healthcare manpower development in Nigeria.

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The DoD Hearing Center of Excellence- creating a hearing health improvement network — Mark Packer (USA)

In the Military, the ability to hear and communicate is critical to the safety of each warrior and their unit, and is central to effective command and control, and mission accomplishment. In spite of current hearing conservation efforts, hearing loss and auditory injuries in the military continue to rise as the most predominant wounds of war. Although the Services teach the importance of hearing protection, provide the means for hearing protection, and monitor risk through conservation programs, the need for hearing during battle often overrides the expediency of hearing protective devices. Military members equate hearing protection with increased vulnerability, widening the gap between preventive efforts and hearing preservation. The scope and magnitude of the effect of war and Military Service on the auditory system validates congressional legislation that called for the establishment of the Department of Defense Hearing Center of Excellence (HCE) to address the scope of these injuries, and warrants a vigilant, focused effort to combat them. This presentation will present the HCE mission, concept, organizational establishment and outreach as a virtual hearing health improvement network. The HCE will provide leadership, support, and communication towards building transparency into an interactive, collaborative system of readiness, care and research.

Case Study in Delivering Hearing Health and Education to a low resource community Location: Dominican Republic — Joanne Travers (USA)

Over ten years of mission experience, Partners for A Greater Voice gathered data to evaluate and discern priority considerations in supporting underprivileged families of children with hearing loss living in low resource communities throughout the Dominican Republic. This presentation showcases a case study on the community of Boca Chica, where hearing health and education for the deaf were once non-existent. It explores key factors that influence development of hearing health, listening and language services, and ultimately a better education to more than twenty-eight children.

Information compiled from twenty five (25) education missions includes thirty (30) specific parent group meetings and thirty-three (33) weeks of teacher workshops and professional development. The case study analyzes the organization's strategy for fostering outcomes in hearing health, family participation and spoken language. The presentation highlights ways to empower communities through education and how to put into practice sustainable education services. Factors in the analysis include cultural beliefs and barriers, teacher training in hearing health and oral habilitation, parent perception and receptivity to listening and spoken language, parent engagement, collaboration, leadership development, technology management, and external influences that hinder or excel program development in lower socio-economic environments.

Local Solutions and The PEHC Training School at All Ears Cambodia — Ned Carter (Cambodia)

The All Ears Cambodia training school runs a full-time, two-year primary ear and hearing care (PEHC) course. Cambodian ENT doctors are unaffordable, inaccessible, poorly qualified and, like audiologists, absent in rural areas. High rates of ear disease and complications mean that staff require strong skills in both ear and hearing care. Training is tailored to fill this gap and reflects the importance of investing in Cambodian clinicians.

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Students undergo intensive practical training in live morning clinics. Comprehensive academic training teaches Cambodians from the ground up by combining visual, unthreatening material with engaging, varied teaching methods.

In 2012, staff conducted more than 15,000 consultations on top of student teaching, prevention education, outreach, hearing aid repair, earmould manufacturing and continuing professional development. Staff numbers are set to triple by 2016. In cities, All Ears Cambodia prioritises free services for vulnerable groups such as children with HIV, women in precarious situations and elderly people living in poverty. In rural areas, these services are made accessible to all.

All Ears Cambodia has been providing PEHC services and training for 10 years. Subtle idiosyncrasies to national Cambodian struggles continue to influence service delivery, reinforcing the importance of local solutions and quality training for local clinicians.

From Hearing to Literacy: Accessing Opportunities for Sequential and Complex Auditory Development — Laura N. Peterson (USA)

Although children with hearing loss in under-resourced countries need access to technology to hear speech and language, a child given an opportunity to hear may not develop language proficiently by amplification and listening technology alone. It is well-documented that children with significant hearing losses (greater than 60dB.) born to parents with normal hearing and emergent in development of oral language, are likely to need systematic intervention to develop proficiency.

While there are many augmentative strategies to supplement communication, bi-modally represent language, or bypass the cortical auditory system altogether, it is well recognized that reading comprehension and writing proficiency are language-based skills and that children with hearing loss or specific language impairments who are learning to listen and talk respond with gains in language after receiving systematic training and development of the auditory system and related auditory processing skills.

The purpose of this presentation is to explain the presenter's experiences with comprehensive listening training in an instructional context that focuses on integrating auditory skills into a literacy program for deaf children. These experiences will be described as related to in-service educational information for teachers of deaf and hard of hearing children here in the United States and in the Dominican Republic.

2:45 - 3:00

Break

3:00 – 5:00

Discussion

Brief Reports/Summaries given by Steering Committees (10 minutes for each group)

5:00

Meeting Adjourns

AGENDA at-a-glance



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Time	Presenters	Session Title
7:30		Registration and Coffee
8:00	Eavey	Welcome
	Saunders & Clark	Introductions
8:30	Plenary Sessions (12 minutes each with discussion at end of session): Best Practices	
	Santana-Hernandez	What, How, Where and Who with, of CBM's Ear and Hearing Care Work
	Holt	Social Justice and Other Ethical Issues in Delivering Medical Care
	Carkeet	Making Short-Term Count
	Schweitzer	Merging Access to Technology with Professional Responsibility
9:30	Discussion / Break	
10:00	Plenary Talks (12 minutes each with discussion at end of session): Advocacy/Community Engagement	
	Johnson	Newborn Hearing Screening in Island Nations: Good News
	Brown	Neonatal Hearing Screening; The Jamaican Experience
	Mojica, et al	Developing a Comprehensive National Hearing Health Plan for Nicaragua
	Noubiap, et al	Etiology of Childhood Hearing Loss in Cameroon (Sub-Saharan Africa)
	Basanez, et al	Prevalence of Hearing Loss Among Primary School Children in Western Uganda
	Stringer	Building Capacity to Support Children With Hearing Loss in Vietnam
11:30	Discussion	
12:00	Lunch	
1:00	Plenary talks (12 minutes each with discussion at end of session): Technology	
	Clark	Validation of Tele-Audiology Equipment
	Cherow	Global Policy, Technology, Systems and Workforce Innovation
	Fried	International Humanitarian Hearing Aid Purchasing Program
	Castellanos	Quality Services in Hearing Aid Provision
	Stangl	Accuracy of Computer-Based Audiometry Outside of a Sound-Treated Booth
	Hedley-Williams	Medical, Surgical and Audiological Implications of Imaging and Cochlear Implants
	Neumann	How to Combine a Mobile Audiology Lab with Centralized Experts' Knowledge
3:15	Poster Session	
	Bondurant & Fauver	Special Olympics Health Hearing Program Provides Framework for Hearing Healthcare Training
	Bondurant & Fauver	Humanitarian Audiology Class Provides Opportunities for Student Training
	Buckey et al.	Hearing Loss in HIV Infected Children in Tanzania
	Mamo et al.	Public School Hearing Screening in Guatemala City
	Panday et al	Feasibility of Including DP OAEs in Annual Medical Surveillance Test Battery
	Sisodia & Kailas	A Novel Solution to Screening Newborns for Hearing Loss in . . .
	Shevelyok & Clark	Connecting with your patients: A Cultural Journey
	Sorkin	International Trends and Disparities in Access to Cochlear Implantation
	White, et al	Study Away and Service Learning in Nicaragua
4:00	End of Sessions (Day One)	
5:30	Depart for Traveler's Rest Plantation Reception and Dinner / Keynote Speech by Lady Jean Wilson	

AGENDA at-a-glance



Saturday — May 4, 2013

Time	Presenters	Session Title
8:00	Breakfast / Introduction to Committee Meeting Format	
8:30	Steering Committee Meetings:	
Committees:	Advocacy; Training/Education; Technology; Best Practices; Community Empowerment/ Engagement	
10:00	Plenary Sessions (12 minutes each with discussion at end of session): Advocacy & Other	
	Ullauri, et al	WHO Ear and Hearing Disorders Survey: National Study/Ecuador 2009
	Blose & Joseph	Exploration of Communication Across Home and School Contexts
	Scott	Idle No More: A 5-Year Plan to Improve Hearing Healthcare
	Calzada, et al	Local Anesthesia in Otologic Surgery
11:15	Lunch – TOUR Vanderbilt/Bill Wilkerson Center	
1:15	Plenary Sessions (12 minutes each with discussion at end of session): Training Education	
	Nagaratnam, et al	Best Practices for Training Hearing Health Workers Globally
	Chung	A Worldwide Web of University-Based Humanitarian Program
	Eneche	Problems Associated with Ear and Hearing Care Manpower Development in Nigeria
	Packer	The DoD Hearing Center of Excellence - Creating a Hearing Health Improvement Network
	Travers	Delivering Hearing Health and Education in Oral Habilitation
	Carter	The PEHC Training School at All Ears Cambodia and Local Solutions
	Peterson, et al.	From Hearing to Literacy: Accessing Opportunities for Sequential and Complex
2:45	Break	
3:00	Discussion: Brief Steering Committee Report/Summaries – List Action Items (10 minutes each report)	
	Wrap up	CGHH: The Way Forward
5:00	Meeting Adjournment	

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