Report of the Global and Humanitarian Efforts

Presidential Task Force

American Academy of Audiology

2011

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Introduction

The "Global and Humanitarian Efforts" Presidential Task Force (hereafter called the task force) was formed in April 2008 by President Alison Grimes, on behalf of the Board of Directors (hereafter called BOD) of the American Academy of Audiology. The American Academy of Audiology (hereafter called the Academy) is the largest and only organization representing audiologists in the world. The Academy has addressed and resolved many of the issues in this country and has not had resources to extend its influence in other parts of the world. Therefore, This task force was formed with the intent to review and charter a course of action to make the Academy a global leader for all audiologists, in this country as well as in others. The members and charges to this task force are shown in Appendix B. The charges aforementioned are distinctly separate from each other, therefore, the three distinct areas (Appendix A) will be presented as three separate reports (Parts I, II, and III). Part I is the humanitarian audiology, Part II is related to addressing clinical and educational needs of culturally and linguistically diverse populations, and Part III will be on global audiology.

The charge to this task force was approved by the BOD during the April 2008 meeting in Charlotte, NC. This was and still is an ambitious and comprehensive project by the Academy to position itself as the global leader in audiology. It was intended to present the first report in mid 2010 and the second report in November 2010, and the third report in December 2010. A final and complete report will be presented to the BOD for review and acceptance of the task force report at the July 2011 meeting.

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Part I: Humanitarian Audiology

A. What is Humanitarian Audiology?

For clarification and better understanding of humanitarian audiology and audiologists, it was reasoned that clear definitions of humanitarian and other words related to humanitarianism are required; therefore, dictionary meanings are given here. A humanitarian is defined as someone devoted to the promotion of human welfare and to social reform. It also means do-gooder, improver, benefactor, helper— a person who helps people or institutions (especially with financial help). Another definition of humanitarian is an advocate of the principles of humanism; someone concerned with the interests and welfare of humans. Additional words related to humanitarian are as follows: humanist, advocate, advocator, proponent, human-centered, humanist, humanistic, humane, compassionate, charitable, benevolent, altruistic, beneficent, charitable, public-spirited, benefactor, Good Samaritan, and altruistic. Other explanations include: marked by humanistic values and devotion to human welfare and marked or motivated by concern with the alleviation of suffering. Another term that reflects the essence of humanitarian concepts is philanthropy, which is an altruistic concern for human welfare and advancement, usually manifested by donations of money, property, or work to needy persons, by endowment of institutions of learning and hospitals, and by generosity to other socially useful purposes. Also, the effort or inclination to increase the well-being of humankind, as by charitable aid or donations; a love of humankind in general; or something, such as an activity or institution, intended to promote human welfare.

Humanitarian Audiology is defined as: Audiologic services rendered by volunteers and philanthropic organizations to individuals who are experiencing difficulties with their ears or hearing due to the unavailability of services or diminished financial means, or by establishing and/or mentoring hearing healthcare practitioners in remote regions. Remote regions exist within the United States where communities are isolated from professional services, and internationally within the confines of a developing country. Audiologic services include assistance (financial and professional services) to implement hearing tests (screening and diagnostic), early identification of hearing loss, supply of hearing aids at no cost or at an affordable price, training locals in underserved and developing countries to provide appropriate hearing care, and creating a global network of like-minded individuals and organizations to support humanitarian work in audiology. A humanitarian audiologist, therefore, is one who is engaged in humanitarian audiology work in any part of the world.

The need to provide audiological services to the underserved population exists all around the world. We must never equate poverty with dysfunction. Many persons from low socio-economic status (SES) backgrounds are very successful, well-rounded individuals who make important contributions to society. Nevertheless, it must be acknowledged that living in a low-SES environment can present several major challenges. Audiologists in this country and elsewhere, who are compassionate about a lack of audiologic services reaching a needy population, have taken the responsibility to provide services at a personal level or through volunteer work in philanthropic and charitable organizations. The demands and types of humanitarian work vary from continent to continent, as well as country to country, therefore, humanitarian work has been divided into two major geographic areas: 1. Humanitarian

Audiology domestic (within the United States,) 2. Humanitarian work in other countries, identified as Humanitarian Audiology International.

B. Humanitarian Audiology Domestic

As the politics and economic demographics of the United States undergo continuing shifts, many audiologists find themselves serving increasing numbers of children and adults from low-SES surroundings. There is a tremendous need for information that will help audiologists effectively serve members of this growing population. Ironically, socio-economic status has not previously been considered a serious or important issue in providing audiological services. The impact of low socio-economic status is twofold: 1. it affects the growth and development of children; 2. it affects communication needs of adults.

i. Issues Related to Children

The impact of low-SES on children includes: **1. Access to Healthcare and medical management of ear infections.** Living in poverty has more implications for lack of services than access to health care for children from low-SES homes. Many families with low income are underinsured or have no health insurance at all; additional barriers, such as transportation and lack of funds, limit their options; they are unable to reach physicians and/or medical facilities for care. Another factor that deters adequate medical care for low-SES families is limited knowledge of English and/or cultural beliefs that exclude Western medicine. Many families with low income also tend to be unaware of available healthcare services; their inadequate access to healthcare has numerous implications for audiologists. For example, children who are frequently sick and don't get medical care are absent from school more; when they do attend school, they are unable to fully concentrate and participate in activities. Also, children who do not see their Pediatrician or Primary Care Physician (PCP) frequently may have ear infections that go untreated. This can be detrimental to auditory discrimination and processing skills, language development, and articulation. It has been reported that children who have chronic ear infections during the early years of language and speech development show considerable impediments in communication skills. In addition to lack of medical care, mothers from low-SES are frequently underfed and malnourished, resulting in children born with malnutrition and disrupted cognitive performance. Childhood malnutrition produces permanent, structural damage to the brain. Between birth and two (2) years of age, the brain grows to approximately 80% of its adult size; malnutrition during this period is especially devastating to cognitive growth. **2. Inadequate audiologic services and language development.** Research has documented a strong correlation between early identification of hearing loss and correction of language and communication development. Inadequate audiologic service can delay the development of language skills and academic achievements. Besides appropriate hearing care (early identification and aural habilitation), a child's academic success has proven relative to family income and the mother's educational level, not ethnic background or language ability. Most or some parents with low-SES have limited education and are overworked providing basic family needs, therefore, they are unable to provide any language stimulation for their children. As a result, these children grow up with limited spoken and written language proficiency, resulting in poor classroom performance.

Even though the United States is a developed nation, there is still a need to provide audiologic services to many underserved populations in several states.

ii. Issues Related to Adults

Most adults in this country, due to poverty, don't know where to go for audiologic help and cannot afford to pay for hearing aids and other services. There is a considerable need to provide hearing aids to a growing population of older adults due to economic changes. At present there are very limited services that provide hearing aid(s) to adults; similar to children, cultural issues and linguistic barriers exist and, most often, adults do not seek help for their hearing loss. The committee on humanitarian audiology can help identify various organizations involved in philanthropic and humanitarian audiology work in this country, allowing the Academy to take a lead in supporting humanitarian work in the United States.

iii. Organizations and Programs Associated with Humanitarian Audiology Domestic

At present, hearing care is covered by Medicaid or similar state programs. Hearing aids for children have been provided by most insurance companies due to state mandated laws; however, several insurance companies have denied hearing services to children. A detailed list of various organizations and programs are listed in Appendix C.

C. Humanitarian Audiology International

It is of particular interest to further explore audiologic services available to people with hearing loss in other countries. Gaining a global perspective can assist consumers and hearing care professionals in knowing what options might be of potential usefulness; likewise, it also provides a broad measuring stick relative to how our own country is situated in the hearing healthcare continuum. There are certainly many interesting and challenging opportunities available internationally.

i. Issues Related to Children

The World Health Organization (WHO) estimates that approximately 278 million people in the world have hearing impairment greater than 40 dB. Two-thirds of individuals with hearing impairment live in developing countries, and hearing impairment in 68 million people is estimated to have originated in childhood. Annually, approximately two to four babies per 1,000 live births are born in developed countries with permanent or sensorineural hearing impairment; this range may extend to six per 1,000 live births within the neonatal period in developing countries**. Permanent hearing impairment is an etiologically heterogeneous trait attributable to genetic and environmental causes, half of which are likely preventable***. Hearing loss prevention—through immunization, health education, and improved maternal and child health services—are useful for preventing environmental causes of neonatal hearing impairment. But attention must be paid to hearing impairment due to genetic or hereditary etiologies to minimize the impact of hearing loss on society.

*(World Health Organization (2006). Primary ear and hearing care training resource. Advanced level. Geneva: World Health Organization)

**(Olusanya BO (2007) Addressing the global neglect of childhood hearing impairment in developing countries. PLoS Med 4(4): e74.doi:10.1371/journal.pmed.0040074;Olusanya BO,

Ruben RJ, Parving A (2006). Reducing the burden of communication disorders in the developing world: An opportunity for the millennium development project. JAMA 296: 441–444).
***(World Health Organization (2006) Primary ear and hearing care training resource. Advanced level. Geneva: World Health Organization).

Among the many issues that arise during humanitarian audiology is early detection of hearing loss in children. The moral imperatives for providing early hearing intervention services, even in the absence of data on the cost effectiveness of available interventions relative to other diseases, are discussed in greater detail by Olusanya BO, Luxon LM, Wirz SL (2006)*. The authors provide a compelling argument to make early hearing detection an important component of hearing care, especially in developing countries. They suggest that it is essential to identify a child's hearing status to augment the effectiveness of interventions for optimal outcomes in speech, language, and cognitive skills, because the critical period for these developments is limited to the first couple of years of life. However, any well-thought out early hearing loss detection program will recognize the importance of an infrastructure that can effectively provide audiological services within the context of a developing country, while consistently seeking to be a sustainable program.
*(Ethical issues in newborn hearing screening for developing countries. J Med Ethics 32:587–590

Despite more than 4% of the world's population experiencing hearing loss, the current global health priorities for developing countries have ignored the World Health Assembly* resolution on hearing impairment, which acknowledges this condition in early childhood as a significant health problem**. WHA 38.19 resolution for the reduction of impact and prevention of hearing loss narrowly passed acceptance by the World Health Organization Executive Meeting in 1997; there is a serious need to update the resolution to include new technology, such as cochlear implantation, and rehabilitation procedures that were not included in the original resolution.

*(WHA is an interesting event for those involved in medical and health issues. As the premier meeting of the World Health Organization, it brings together Health Ministers, senior officials and non-governmental organizations (NGOs) to review major health problems).

** (www.who.int/entity/bulletin/volumes/86/12/07-050005/en/).

The prospects of any immediate action to implement newborn hearing screening is uncertain, since vital data required by current approaches to global disease prioritization is scarce and of limited value where available. Although external assistance constitutes a small proportion of total health expenditure in low- and middle-income countries, the priorities of multilateral/donor organizations still have a great influence on national health priorities and public sector–led systematic investment in requisite capacity building for early hearing detection and intervention services. There is an urgent need to recognize the WHA resolutions and provide adequate hearing care in underserved and developing countries. The WHO recognized the need for hearing care and created guidelines for dispensing hearing aids and providing services in developing countries (Appendix E). With WHO's guidance, the collaborative partnership with WWHearing (http://www.wwhearing.org) was established with six pilot projects in 2006, each in a different region of the world, to assess how to provide affordable hearing aids and hearing healthcare to developing countries.

Key stakeholders concerned with provision of appropriate and affordable hearing aids and services in developing countries came together recently at a workshop at WHO, Geneva, and agreed to establish this new initiative. Participants came from eighteen developing and developed countries and represented governments, NGOs, manufacturers (commercial and not-for-profit), organizations of users and professionals, donors, and relevant experts. The mission of WWHearing will be to promote better hearing and seek to eradicate hearing loss through the provision of hearing aids and services in developing countries and underserved communities within the framework of the WHO Guidelines for Hearing Aids and Services for Developing Countries.

ii. Issues Related to Adults

Most hard of hearing people live in underdeveloped countries and are, indeed, similar to people living in the developed world who do not have hearing aids and are therefore not able to communicate adequately with their families, friends, and society. In some countries, these people are quite literally outcasts, they may not be able to acquire jobs to earn a living, and they are at a greater risk of developing serious diseases. Furthermore, in poorer countries, there is too little knowledge of causes and prevention of hearing loss. Medical and audiological services may be non-existent or, at best, limited. The equipment used for diagnosis and the hearing instrument fitting process is often outdated and inadequate. Professionals often have neither the motivation nor the means to improve the skills and services they provide consumers. Consumers themselves do not have the knowledge and, therefore, the impetus to ask for personal help, let alone improvements, in their country's hearing healthcare system.

iii. Organizations and Programs Associated with Humanitarian Audiology International

The organizations, programs, and audiologists from this country providing humanitarian audiology work are considerably greater than what is available internationally. However, the demand for such services is overwhelming and the need to help the underserved in developing countries is considerable. While curriculum for audiology training is well-established and specific to industrialized/developed countries, there is a paucity of information, training and agreement amongst organizations regarding providing humanitarian audiology services in under-resourced areas. Due to a lack of basic services in all areas, audiologic humanitarian work can be very challenging; a list of various organizations and programs is listed in Appendix C & D.

D. How to Become a Humanitarian Audiology Ambassador

1. Find or create the humanitarian aid program that performs the type of work you are interested in, in this case hearing care or audiologic work, and consistently aim towards sustainability. Not all humanitarian aid programs perform the same work; for example, although Peace Corps volunteers perform many tasks, there is an emphasis on agriculture and education. Attend information sessions offered by humanitarian aid organizations and ask questions; become familiar with various published WHO guidelines that provide valuable information about establishing priorities for humanitarian programs.

2. Volunteer locally. Until you find an International organization or an association that is interested in hearing care, volunteering close to home can help you acquire desirable skills and demonstrate your commitment to service. It also looks great on your resume.

3. Market your talents and expertise. Be vocal about your abilities; join organizations that display your skills. Write articles that exhibit your expertise and have them published or publish them on your website. If an article could benefit the organization for which you would like to volunteer, send the organization a copy.

4. Be prepared to take time off and travel to various countries at your own expense. Few organizations and international programs have the funds to cover your expenses.

5. Focus on jobs that you can do well as an audiologist. Acquire needed equipment(s) to provide adequate and appropriate audiologic services.

6. Hire and/or train locals to support or become community health workers or hearing care providers.

7. Get your passport—you'll need it to travel out of the country. Be aware of Visa restrictions that may be specific to the country of travel. Don't wait until you have been hired to take care of the necessary paperwork. There is often a waiting period to get a passport, so start the process. After you get a passport, keep it up-to-date.

8. Understand the cultural, political, and diplomatic issues in the country where you wish to provide humanitarian audiology. Even with its limited emphasis, the Peace Corps provides valuable information and training modules for cultural awareness and sensitivity when working in under resourced areas.

9. If there is not a humanitarian audiology program in the country that you are interested in, then you may be just the leader to start a program. For detailed information on how to do this, contact the Humanitarian Audiology Committee of the American Academy of Audiology.

E. Humanitarian Audiology: Ethics

Ethics involves the sphere of interpersonal, group, and community politics at the level of values– not just what *can* be achieved or *how* to achieve it, but more what *should* be sought in the realm of social harmony and fairness. It is the complexity of individualism– other than taking care of oneself, what do we want our collective to do or refrain from doing? Ethics looks at our proper relations, our duties to each other, individually and collectively. Ethical issues become very important in humanitarian work, where the recipient is dependent on the good will of the provider. The extent of the problems may not be as extreme as emergency medicine after a

disaster, however, we still have to ensure that membership is informed in relation to recognizing and conducting the standard care of practice as outlined by the Academy. Humanitarian work must be ethical and appropriate to the needs of the individual patient. The new UN Convention on the rights of persons with disabilities should provide a further moral impetus for all to act ethically and responsibly to our patients (United Nations; 2006: Available: http://www.un.org/esa/socdev/enable/rights/ahcfinalrepe.htm).

Every government owes its citizens the right to be educated on best practices in healthcare delivery, regardless of the limitations of public funding to deliver such services. This is a moral obligation. From this standpoint, parents should be educated on current options in early detection and intervention for early childhood hearing impairment regardless of the parents' financial status or the government's ability to provide the requisite services. Additionally, while it is unethical to withhold infant hearing screening in places where rehabilitation services are poor, it is also ethically questionable to continue screening without any systematic effort to improve relevant intervention services, including community support for individuals with hearing impairment.

F. Humanitarian Audiology: Cultural and Linguistic Issues

Most often you may be involved in humanitarian work concerning a group of individuals who do not speak your language or understand your cultural values. Irrespective of where you are providing humanitarian audiology work (A location in the United States or in another country), it is important to recognize cultural and linguistic issues. If your culture is different from that of the population you are serving, you must recognize differences and respect cultural values. Cultural and linguistic awareness is vital, therefore comprehensive information is provided in the next document (Serving the Culturally and Linguistically Diverse Population)

G. Humanitarian Audiology: Political (Diplomatic) and Health Issues

The first point you must learn in humanitarian audiology is the political and constitutional structure of different countries. Also, obtain a passport and learn the culture and infrastructure of the specific country in which you want to work. Please visit the State Department website (Department of State: http://www.state.gov/travel/ --- Travel warning: http://www.travel.state.gov/travel/cis_pa_tw/tw/tw_1764.html) for additional information or contact the diplomatic mission (Embassy or Consulate Office) of your country of interest. Also, contact audiologists currently working in various countries to learn important political and diplomatic issues before you proceed to that country (Appendix E). In addition to diplomatic and political issues you must pay attention to health warnings and immunizations that must be taken before visiting your country of interest (CDC website: http://www.cdc.gov/ -Travel vaccinations: http://wwwnc.cdc.gov/travel/content/vaccinations.aspx). Last but not least, you must take adequate personal items to last the duration of your stay and clothing appropriate for that country.

H. Recommendations to the BOD of the AAA for Consideration by the Task Force:

Recommendations have been removed and are under review by the Academy.

I. Summary and Conclusion:

Our goal to help underserved and financially deprived persons in need of hearing care can be achieved through humanitarian audiology programs by identifying audiologists and associations involved in philanthropic work and using the Academy as a clearing house at both domestic and international levels. Humanitarian audiology includes awareness and prevention of hearing loss, public education, early identification and diagnosis of hearing loss and hearing related problems, encouraging hearing aid manufacturers to produce and supply hearing aids at affordable prices, facilitating audiology education/training in underserved and poor nations, and creating a web-based clearing house for humanitarian audiology activities. To achieve this goal, we need the expert knowledge and energy of audiologists in this country and in other countries to make a positive impact in the lives of hearing impaired persons on a global level. A graphic display of proposed humanitarian audiology activities is depicted in Figure 1 on the following page.

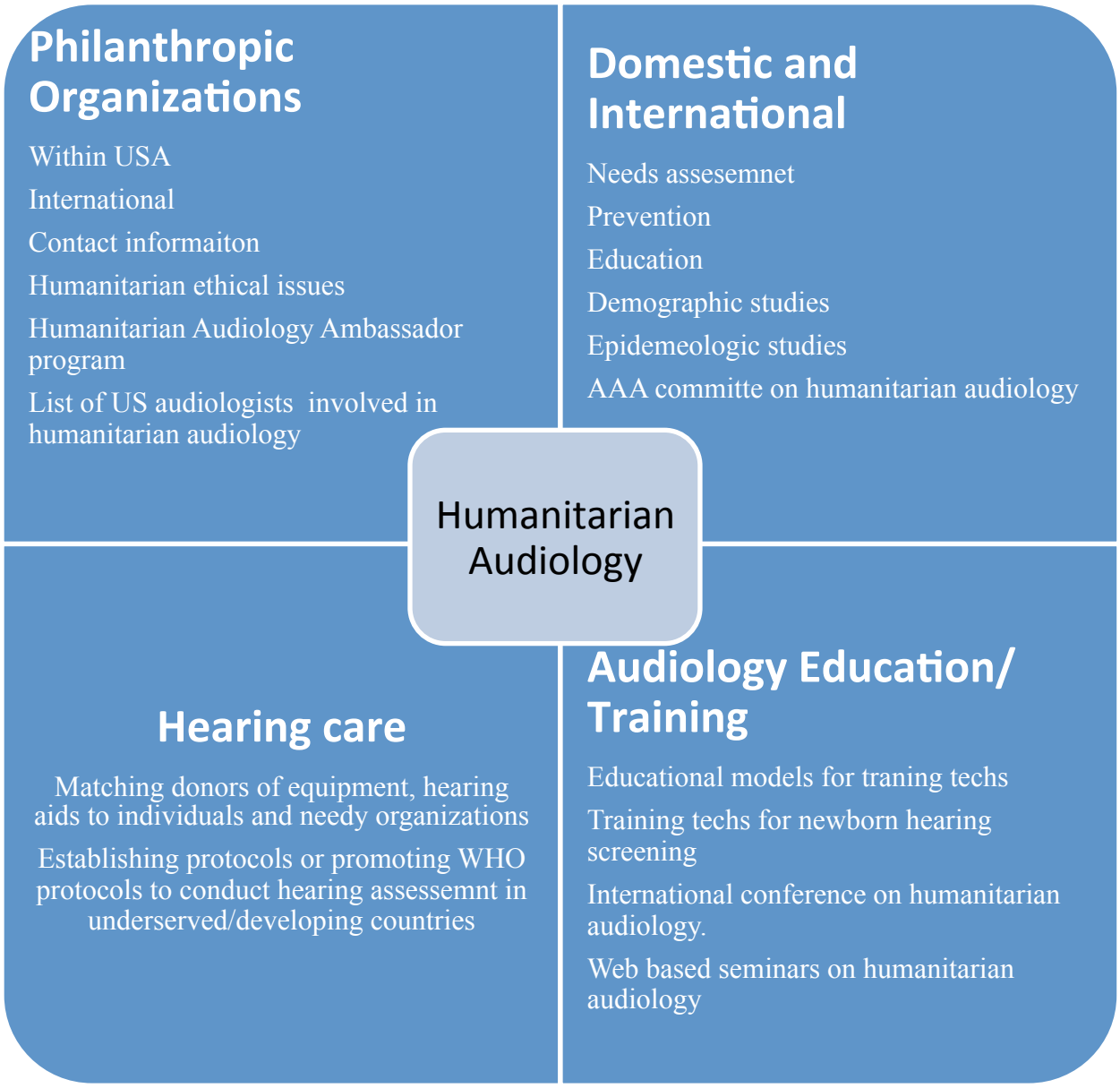


Figure 1: A general description of Humanitarian Audiology: Four quadrants depict the various activities proposed for Humanitarian Audiology

II. Cultural and Linguistic Diversity

We are fortunate to live and work in settings that include multicultural and multilingual people. The demographic composition of the United States is made up of people from various cultural, ethnic, and linguistic backgrounds, including American-born minorities, such as African-Americans, Hispanic Americans, Asian Americans, and Native Americans; and the people who migrate to the United States from Europe, Asia, Africa and Central and South America. According to the 2000 census, the estimated foreign-born population of the United States is 25.8 million. This number is 6.0 million more people, a 30 percent increase from 1990 and a 168 percent increase from 1970. Among the foreign-born, over half are from Latin America (13.1 million), more than a quarter are from Asia (6.8 million), and another 20 percent (4.3 million) are from Europe. Moreover, about 80 percent of the newcomers speak a language other than English at home, including Spanish, Asian languages or many languages from Europe and Africa. The educational background varies in the multicultural population. Many do not speak English very well, and people from some countries are linguistically isolated. A better definition and description of cultural and linguistic diversity is discussed in the following separate sections:

J. What is Cultural Diversity?

Cultural diversity is the variety of human societies or cultures in a specific region, or in the world as a whole. (The term is also sometimes used to refer to multiculturalism within an organization. This report does not currently cover that alternative meaning). There is a general consensus among mainstream anthropologists that humans first emerged in Africa about two million years ago. Since then they have spread throughout the world, successfully adapting to widely differing conditions and to periodic cataclysmic changes in local and global climate. The many separate societies that emerged around the globe differed markedly from each other, and many of these differences persist to this day. More obvious cultural differences that exist between people are: language, dress and traditions. Societies also differ in the way they organize themselves, in their shared concepts of morality and in the ways they interact with their environment.

The Universal Declaration on Cultural Diversity adopted by UNESCO in 2001 is regarded as a legal instrument recognizing for the first time, cultural diversity as "common heritage of humanity" and considers its safeguarding to be a concrete and ethical imperative inseparable from respect for human dignity. There is also the Convention for the Safeguarding of the Intangible Cultural Heritage ratified on June 20, 2007 by 78 States which said:

“The intangible cultural heritage, transmitted from generation to generation is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and gives them a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. Cultural diversity was also promoted by the Montreal Declaration of 2007, and by the European Union. The idea of a global multicultural heritage covers several ideas, which are not excluded. In addition to language, diversity can also include religious or traditional practice.”

Cultural diversity is a driving force of development, not only in respect of economic growth, but also as a means of leading a more fulfilling intellectual, emotional, moral and spiritual life.

The end of the cold war has created a series of tentative attempts to define "a new world order". So far, the only certainty is that the international community has entered a period of tremendous global transition that, at least for the time being, has created more social problems than solutions. At the same time, previously isolated peoples are being brought together voluntarily and involuntarily by the increasing integration of markets, the emergence of new regional political alliances, and remarkable advances in telecommunications, biotechnology, and transportation that have prompted unprecedented demographic shifts in this country as well as in various parts of the world.

i. Cultural Rights

Every human being has the right to culture, including the right to enjoy and develop cultural life and identity. Cultural rights, however, are not unlimited. The right to culture is limited at the point at which it infringes on another human's right. No right can be used at the expense or destruction of another, in accordance with international law. This means that cultural rights cannot be invoked or interpreted in such a way as to justify any act leading to the denial or violation of another human's rights and fundamental freedoms. As such, claiming cultural relativism as an excuse to violate or deny human rights is an abuse of the right to culture.

Similarly, cultural rights do not justify torture, murder, genocide, discrimination on grounds of sex, race, language or religion, or violation of any of the other universal human right and fundamental freedom established in international law. Any attempts to justify such violations on the basis of culture have no validity under international law. Title VI of the Civil Rights Act of 1964 of the United States also upholds the basic values of cultural diversity and the respect to all diversities. It prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance (Appendix G). The U.S. Department of Health and Human Services published the final reports on national standards for culturally and linguistically appropriate services (CLAS) in health care by Federal and State health agencies and other organization as a blue print to follow to establish a competent health care and workers (Appendix H). It contains fourteen (14) standards to address all the issues related to health care provision to culturally and linguistically diverse populations.

ii. Cultural Competency Training

An important factor hindering a more beneficial relationship between a growing ethnically diverse U.S. population and our healthcare system is the lack of both culturally sensitive and linguistically appropriate services. Ethnic disparities in health outcomes can result from differential access to services because of direct or indirect discrimination, diagnostic errors resulting from misunderstanding of language, and failure to attend to culturally based health beliefs and practices. Culturally competent healthcare systems are intended to remove the barriers to access healthcare, caused by discrimination, differences in language, and culturally based health practices, and ultimately to decrease ethnic disparities in health status. Numerous

professional associations, including the American Medical Association, the Association of American Medical Colleges, the American Association of Medical Students, the American Academy of Nursing and the National Association of Social Workers have endorsed cultural competence education as important in the training of professionals in their disciplines. Specific practice specialties, such as the American Academies of Family Practice and Pediatrics and the American Colleges of Emergency Medicine and Obstetrics and Gynecology, have policy statements recommending study in culture and health care. A general description of cultural training for health care providers is given below and may be adapted to audiologists and audiologic services.

1) Types of Cultural Diversity

Cultural diversity extends beyond some of the overt differences such as race, physical size, sexual orientation, national origin (or languages spoken), gender or religion (when garb or other apparel is worn). It includes less obvious differences such as age; education; economic status; impairments in vision, hearing or mobility; mental health challenges; or belief in traditional medicines. Appropriate training must address methods to communicate in all of these possible scenarios.

2) Goal of the Training

Diversity training should enable audiologists and other healthcare workers to be effective in cross-cultural situations, whether dealing with patients or their families. The goal is to improve communication, respect differences, and develop skills to provide the same level of high quality healthcare.

3) Relevance

According to Public Health Reports, it is difficult for minority populations to obtain "appropriate, timely, high-quality care because of language barriers, perspectives on health, medical care, and expectations about diagnosis and treatment." Training will help healthcare providers to become more responsive to the needs of this growing population and can have a significant impact on the health consequences for all diverse groups. Audiologists in general have not incorporated cultural sensitivity into their practice when treating patients from diverse cultural background. The Academy can provided guidance like other health care organizations in promoting cultural awareness and sensitivity to its members.

4) Training Considerations

Clinicians/ audiologists should be trained to incorporate cultural sensitivity, listening, and negotiation into their interactions with cross-cultural patients. Sensitivity is necessary when clinicians/audiologists inquire about a health concern; the patient's perception of the medical problem, its causes, and its solution could differ because of their cultural experiences. Listening is important; once the clinician is aware of the patient's perception of the problem, the clinician should explain it to be sure that he/she understood it correctly. If an interpreter is needed because of handicaps or language barriers, obtain one (do not rely on a family member(s) to serve as a proficient interpreter, but hire someone who is knowledgeable about audiology) before making

treatment recommendations or engaging in medically complex discussions. When it is time to discuss treatment, be open to areas where negotiation might be necessary. Audiologists must understand that they may be dealing with a greater proportion of patients whose perspectives are different from those taught in the mainstream audiology and healthcare system. It might be possible to honor the patient's belief systems by making minor modifications to the recommendations/treatment plan so that both the audiologist and the patient can approach the process with confidence.

K. What is Linguistic Diversity?

About 80 percent of the newcomers speak a language other than English at home, including Spanish, Asian languages or any of the languages from Europe or Africa. The educational background varies in the multicultural population. Many do not speak English very well, and people from some countries are linguistically isolated. The pattern of settlement among the immigrants varies. Six states—California, New York, Florida, Texas, New Jersey and Illinois—have the most foreign-born people; and in several states, the populations of people from diverse backgrounds exceed the national average, which is 10 percent of the general population.

The early concept of patient-oriented evaluation and treatment has changed to family-centered approaches, and these changes have made it clear that audiologic evaluation without due respect to culture and language can be incomplete and ineffective. Consequently, an important question is: Do we have enough audiologists who speak different languages, come from different cultural backgrounds, and can provide adequate clinical services to culturally and linguistically diverse population? The resounding answer is NO. We have an acute shortage of audiologists in general but a serious shortage when it comes to providing audiologic services to diverse patient populations. To better understand the linguistic/language diversity, a rank order of various languages used in the world is shown in Appendix I and languages spoken/used in various countries of the world in Appendix J.

It is astonishing to learn that audiologists who may be unaware of issues concerning linguistic and cultural diversity will end up treating diverse patients. Without a clear understanding of the impact of cultural and linguistic differences, audiologists will be unable to provide adequate and effective services. Audiologic assessment of diverse populations requires recognizing the impact of language differences on test selection and results, and understanding the cultural acceptance of hearing loss and/or deafness.

i. Audiologic Issues in a Linguistically Diverse Population

During audiologic assessment, differences in the medium of communication between the audiologist and the patient may compromise the quality of care during the gathering of case history information, selecting test materials, instructing test administration, and counseling. Presently, more than 70 languages are spoken in the United States as a primary or secondary language. Furthermore, a significant number of people in this country do not speak English, speak a non-standard version of English, have limited English proficiency, or speak English with an accent. As a result, the language barrier can be a real problem when gathering case history information. Without a complete and thorough case history, the audiologist will be deprived of important information, such as the nature of the problem, causative factors, and most

importantly, information to determine the number and type of tests needed for accurate diagnosis. The case history of a patient should provide as complete information as possible regarding their medical, audiological, family, cultural and linguistic past history. Most audiologic tests require verbal or written instructions. The language of the audiologist and the patient dictates the test selection and administration.

Another language issue is poor instructions due to differences in language, which can often lead to a lack of understanding of tasks. This in turn leads to poor participation and erroneous test results. If language barriers influence test participation and outcome, audiologists must recognize the need to overcome this problem. The type of tests administered to gather audiologic information should be carefully selected, because the so-called standardized tests have been established for use with an English speaking population. Several standardized tests in other languages are available to audiologists; and information about these tests can be obtained from companies that distribute audiologic tests, (Auditec - St Louis) as well as from professional organizations such as the AAA and American Speech-Language Hearing Association (ASHA). Audiologists should be astute enough not to make clinical judgment on these standardized tests while administering to patients whose primary or first language is not English. Similarly, any test administered by an audiologist in another language without proper standards and protocols should also be viewed cautiously. In essence, test bias may be real and not imagined in a number of audiologic test settings.

Knowing only the language of another culture does not mean that person is knowledgeable regarding that culture as a whole. Encouraging cultural competency among audiologists, and others involved in hearing health care, can promote respect for cultural beliefs, attitudes, and social behaviors that may be held or exhibited by the patient or the patient's family. The impact of cultural diversity on audiologic issues has mainly focused on the prevalence of different types of hearing loss, such as otitis media, hearing loss due to sickle cell anemia, and genetic factors in various ethnic minorities. Though it is important to understand the prevalence of various types of hearing loss, very little has been reported on cultural sensitivity to hearing loss or acceptance of hearing loss as a serious problem when compared to other health problems. When audiologists are familiar with diverse cultures they can influence patient participation in aural habilitation/rehabilitation and compliance with the recommended treatment procedures.

Language and cultural barriers during counseling will be a major factor, because the information may be conveyed inappropriately or may be misinterpreted by the patient and the concerned party. This is counterproductive when the intent of the counseling is to provide maximum information about hearing loss and remedial procedures, and to answer questions. The audiologist must recognize that such an important communication between the clinician and the patient or others should not be compromised due to language-related difficulties.

The ideal situation would be to find an audiologist who speaks the language and understands the culture of the patient to explain the audiologic findings. It also is advisable to seek assistance from professionally trained interpreters and translators for counseling. However, one must be cognizant of the fact that there are some advantages and some limitations to using people other than the clinician for counseling. It is the responsibility of the audiologist to find a competent interpreter/translator to convey the message properly and accurately to the patient.

L. Educational Needs of Audiology Students From Culturally and Linguistically Diverse (CLD) Populations

In addition to meeting the needs of the CLD patient population, we should also encourage and recruit students from CLD populations. Some of these students may require a support system to complete their education in audiology. Other organizations have identified that students who come from various cultural and linguistic diverse backgrounds require a mentoring program or buddy system to help withstand rigors of educational needs. It is quite apparent that the needs of these students are different when compared with students from mainstream America. This is an important aspect of our educational process and this can be addressed by AAA sub committees and the student academy of audiology (SAA).

M. Inventory of Test Materials (Test Materials in Different Languages)

As a global leader in audiology, the Academy can serve as a clearing house for test materials in various languages.

N. ABA and ACAE Involvement

In addition to the Academy, the other organizations such as ABA and ACAE can incorporate materials relevant to issues related to cultural and linguistic diversity.

O. Recommendation to the BOD of the AAA for Consideration by the Task Force:

It has been known that audiologists that provide ongoing services to underserved populations and individuals from various multicultural backgrounds are faced with many challenges. These challenges include dispensing amplification to people who can't afford it, limited readily available resources, and ongoing research. Through a discussion and focus group meeting at the American Academy of Audiology's Audiology NOW!, the following recommendations were made to assist with servicing multicultural and underserved populations:

Recommendations have been removed and are under review by the Academy.

P. Summary and Conclusion

In summary, competency in understanding cultural and linguistic diversity is an important part of our clinical services, training of audiologists, and research questions. The cultural and linguistic issues are not limited to audiology and audiologists. It is an emerging issue in our health care systems. A clear understanding of diversities will help us be educated, well prepared, and highly qualified as audiologists.

Part III: Global Audiology

The field of audiology is new compared to other health care professions, but the impact of hearing loss and the need for evaluation has made study of audiology an important aspect of health care in many countries. The term audiology and audiologist will be described in detail in other sections in this report. The educational and training model currently in place in this country is not the same as in other countries, therefore, a considerable disparity exists in educational models and recognition of audiologists from other countries. The report explains various educational models and audiology service in various countries. An important goal of this task force is to examine the role the American Academy of Audiology can and is able to play in globalizing audiology training and audiologic services.

Q. What is Global Audiology?

Recent shifts in the global economy have created, in various countries, greater recognition to the need to provide audiologic services to their population. In the past, audiologic services did not command the same attention as other health related issues. However, countries with emerging markets and a greater economic independence have changed the perception of audiology and are recognizing the importance of better hearing, early intervention, and overall attention to the hearing impaired population. The global awareness of audiologic services has created a greater demand on the Academy (AAA) to become a leader in meeting the needs of these countries. The demands have ranged from providing guidance on how to conduct national meetings, to establishing education and service delivery in various parts of the world. As stated earlier there is a considerable need to provide audiologic services in various parts of the world. The audiologic needs have ranged from providing educational support such as conducting classes in other countries to providing seminars by noted and established members of the Academy. An important topic that has come up is the need to conduct research in several areas of audiology. It has been seen that the new trend in genetic research has created a considerable increase in understanding hearing loss associated with several types of genes. The support the Academy can provide in many areas of research is innumerable and cannot be justified by listing all the areas. It will be a disservice to the research community just by pointing out the possibilities and options available for research in other parts of the world. Recent advances in genetic research have increased the frequency with which genetic syndromes are reported to the Annual Survey.

R. Audiology Education in Various Parts of the World

The issues surrounding audiology education are different when comparing developing countries to developed countries. Developing countries have severe limitations in economic support to fund audiology programs. In some countries hearing impairment and deafness may not be seen as a significant problem and may not receive as much attention as other health care programs (WHO 2004).

i. Current Nomenclature of Practitioners of Audiology

The word audiologist was introduced by US education institutions, and it has been exported to other countries that follow the US educational models until recently the basic requirements to practice audiology changed from requiring a Masters degree to requiring a Doctoral of Audiology. A list of nomenclatures of practitioners of audiology around the world is below in

(Table 1).

Table 1: The professional titles used by hearing care providers in various parts of the world (Goulios and Ptuzzi, (2008). International Journal of Audiology. 47: 647-664).

	Professional titles	Used in countries
1.	Audiological physician	European countries
2.	Audiological scientist	United Kingdom and some Asian countries
3.	Audiological technician	South America and Europe
4.	Audiologists	Most countries – Initiated by US education programs
5.	Audioloog	Netherlands
6.	Audiometrist	Some English speaking countries
7.	Audio-prosthetist	France and Romania
8.	Audiometrist – BSc	Norway
9.	ENT technician	Mali
10.	Hearing aid acoustician	European countries
11.	Hearing aid dispenser	USA and other English speaking countries
12.	Hearing aid technician	USA and other English speaking countries and Africa
13.	Hearing therapist	United Kingdom, New Zealand, and Scandinavian countries
14.	Fonoaudiologo	Argentina and Panama
15.	Phonoaudiologist	Brazil
16.	Otorhinolaryngologist/ENT	Mexico, European countries and world wide
17.	Surdologist	Russia
18.	Teacher of the deaf	World wide
19.	Technician in audiometry	Costa Rica
20.	Technologmedico con mencion en otorhinolaringologia – TMORL	Chile

The title audiologist is used for professional involved in audiology without training in medicine. In most European countries, Mexico, Egypt, and Chile, the profession of audiology was considered as a specialization after ENT training. The training model that has been used in this country, non medical, is becoming more popular in various countries. However, the duration of course work and title of the degree has varied in other countries compared to the education model in this country (i.e., Au.D.).

ii. Audiology Programs Outside the USA

Despite the differences in educational models, the scope of practice of the audiology practitioner overlaps a lot. The major goal is to train audiology practitioners to manage the hearing impaired population. There is a considerable interest in a move towards international equivalency. The main thrust is due to the recent shift in globalization and humanitarian efforts by audiologists from developed countries. As a result there is already a movement of audiologists from country to country. This movement is mostly from developing country to developed countries. The permanent relocation of audiologists from developing country to developed country is causing a shortage of audiologists in some countries. Recent requirements by state licensing boards that AuD be the entry level degree requirement will minimize the relocation of audiologists as most of the non-US programs do not offer Au.D. degrees. Even though audiology programs outside the US may not designate their graduate degree as Au.D., the course may be equivalent or exceed the requirements of becoming a doctor of audiology (Au.D.). It is beyond the scope of this report to recap the origin and educational models in different countries. However, a cursory list of a number of audiology programs in various countries is listed in Table 2.

Table 2. Number of audiology programs in different continents/countries.

	Audiology Programs in different continents/country	**Number of Programs**
1	**North America (USA, Mexico, Canada)**	**90**
2	**Europe**	**40**
3	**Asia**	**48**
4	**Africa**	**6**
5	**Australia and New Zealand**	**7**
6	**Middle East**	**8**
7	**South America**	**36**
8	**Total programs**	**235**

S. Recommendations to the BOD of the AAA for Consideration by the Task Force:

The field of audiology is expanding to various countries around the world. Looking ahead, the Academy will become the "Go To" place for most countries with emerging economies. The scope of the Academy's influence may become considerable, therefore, it is appropriate at this time to extend the scope of our involvement to other countries. The Task Force is submitting the following recommendations to the Board for review and implementation:

Recommendations have been removed and are under review by the Academy.

It is known that severe-to-profound congenital hearing loss affects 1 in 1,000 newborns world-wide. These statistics are from developed countries and the numbers in underdeveloped countries may be higher and is not available at this time. In half of these infants, the hearing loss is genetic due to either syndromic or nonsyndromic causes. Nonsyndromic genetic hearing loss predominates, comprising 70% of congenital hereditary hearing loss. Additionally, approximately 77% of congenital hearing loss is recessively inherited, 22% are dominantly

inherited, and the rest are X-linked or mitochondrial (Gorlin, Toriello, & Cohen, 1995). Thus, for half of all infants with severe-to-profound congenital hearing loss, their loss is most likely a nonsyndromic genetic hearing loss recessively inherited (Scott 2005).

In 1997 a deafness-causing gene GJB2 was identified. GJB2 encodes the protein connexin 26 (Cx26), an essential component of the potassium (K) pathway. This pathway facilitates K circulation needed to maintain the high K concentration in scala media. Although more than 22 different deafness-causing mutations of Cx26 have been described, in many populations it appears that a single mutation predominates (McGuirt & Smith, 1999). However, different single mutations can predominate in different populations. A large study of this nonsyndromic genetic hearing loss suggests that the pattern of mutation and the transmission of genetic coding varies in different populations. For example, one mutation that causes deafness is designated as 35 delG and is commonly found in the midwestern US population, but is not the same cause for deafness in the Ashkenazi Jewish population (Green et. al 1999). A large body of knowledge suggests that there are several factors contributing to this nonsyndromic genetic inheritance of hearing loss and deafness. Based on these studies it appears that racial and ethnic background is an important factor, therefore, specific recommendations for genetic testing may differ based on the child's racial and ethnic background.

Nonsyndromic hearing loss can also be caused by mitochondrial mutations. Mitochondria are small organelles found in cells. One type of mitochondrial mutation makes individuals susceptible to hearing impairment after treatment with aminoglycosides (antibiotics) at concentrations that do not normally affect hearing. Yet, this one mutation can have different effects across different populations. In families from Zaire and Spain, researchers have found this mitochondrial mutation at higher than expected rates in family members who went deaf with and without administration of aminoglycosides. In Shanghai, the same mutation accounts for 30% of aminoglycoside-induced hearing loss (HL), while in the U.S. it accounts for only about 15% of aminoglycoside-induced HL (Fischel-Ghodsian, 1998). A study conducted in India showed that the changes in genetic expressions were different for the North Indian population compared to the South Indian population. Another mitochondrial mutation has been found in Scotland; however, with a very low penetrance for hearing loss. Yet, in New Zealand and Japan, the same mutation has a high penetrance for hearing loss. In Scotland these factors appear to be rare, while in New Zealand and Japan they appear to be common. Apparently, the mutation by itself is not sufficient enough to cause a hearing loss; additional genetic or environmental factors are needed (Fischel-Ghodsian, 1998).

From the above studies it is apparent that racial, ethnic as well as environmental factors play a major role in producing nonsyndromic hearing loss. A clear understanding of all the contributing factors can assist audiologists in recommending treatment to his/her patients. AAA can provide the needed leadership in educating audiologists as to key factors causing hearing loss in different parts of the world.

Appendix A
Taskforce on Global and Humanitarian Goals

In recent years the American Academy of Audiology has become a center point for addressing several emerging issues in audiology. Consequently, the Academy has created a task force called "Task Force to Evaluate the Role of the American Academy of Audiology in Global and Humanitarian Efforts." The overall goal of this task force can be summarized into three areas:

1. How the Academy can become a global leader in providing audiological services to the global community. This includes identifying research that is unique to that region, helping develop educational programs, and identifying Academy members who are involved in training and teaching classes in other countries.

2. How the Academy can become a clearing house for humanitarian work in this country and in other countries. The first step in the Academy's support of humanitarian audiology, however, is to identify organizations and Academy members currently involved in humanitarian work in this country and in other countries. Humanitarian (philanthropic) audiology by several Academy members has helped much-needed service delivery in several parts of the world. We need members to let the Academy know of others. Please see the contact information at the end of this report.

3. How the Academy can infuse cultural and linguistic awareness in our clinical practice and encourage students from various cultures to become audiologists. Do we have enough audiologists who speak different languages, come from different cultural backgrounds, and can provide adequate clinical services to culturally and linguistically diverse population? The answer is a resounding "NO". The ideal situation would be to have audiologists who are culturally sensitive to the needs of the patients and who can also speak different language to provide adequate services to their patients.

Appendix B
Task Force Charges and Members

Task Force to evaluate the role of the American Academy of Audiology in Global and Humanitarian efforts.

The charges to the above task force include, but are not limited to the following:

1. Identify and list the agencies and individuals currently involved in humanitarian work in audiological education, evaluation, habilitation, and rehabilitation within United States and in other parts of the World.

2. Create a website under the title "Humanitarian" within AAA to provide contact information for both audiologists and the public about the agencies/individuals currently engaged in humanitarian work.

3. Create a site within "Humanitarian" for individuals to donate instruments etc. and also to seek needed equipment for donation.

4. Create a data base for audiological training programs and audiology associations outside United States.

5. Create an online environment/a chat room for international members to engage in dialogue regarding clinical and research issues. (Similar to "Sound Off").

6. Create a model curriculum, similar to the Au.D., that can be made available to Universities and other educational programs in countries outside the USA. The aim is to create a unified training program around the world.

7. Create a list of AAA members who are engaged in teaching courses at various Universities outside USA.

8. Create a data base for training volunteers and paraprofessionals in other countries: Individuals in this data base can provide information on how to train the volunteers and paraprofessionals: a. Newborn hearing screening; b. Hearing aids; c. Cochlear implants.

9. Create awareness among practicing audiologists about being sensitive to cultural and linguistic needs while providing clinical services to diverse population.

10. Create curricuumr models to infuse cultural and linguistic awareness in our training programs.

11. Create an environment to encourage students from traditionally diverse populations to enroll in Au.D. programs (Mentoring program etc.).

Task Force:
Chair: Bopanna Ballachanda,
Staff liaison: Ed Sullivan, Amy Miedema, Victoria Keetay.
Board liaison: Bopanna Ballachanda.

Members:

1. Representative from Educational Committee (Chair or a representative)
2. Representative from International Committee (Chair or a representative)
3. Representative from Membership Committee (Chair or a representative)
4. Representative from Research Committee (Chair or a representative)
5. Representative from Publications Committee (Chair or a representative)
6. Representative from ACAE (Chair or a representative)
7. Representative from ABA (Chair or a representative)
8. Person currently involved in humanitarian work Internationally (Jackie Clark)
9. Representative from State Leaders Network (Chair or a representative)
10. Representative from Honors and awards Committee (Chair or a representative)
11. Representative from Student Academy (Chair or a representative)

Charges to the above representatives:
The chairs or representatives will create a subcommittee from their committees and/or other identified specialists to address specific issues and produce a report.
The representatives will provide a written document to the Chair by the time line outlined above.

1. **<u>Humanitarian</u>**
   Within USA:
   Chair or a representative, from State Leaders Network, Honors and Awards Committee, and a person currently involved in humanitarian work internationally (Jackie Clark).

   a. What type(s) of assistance are available to individuals of all ages, with limited financial resources in the USA for audiological evaluation and remedial process including cochlear implants. Identify organizations/state agencies currently providing such services.

   b. How to establish an area on the AAA Website where members can go to for information about audiological assistance (testing and treatment) to patients in their state. This would be an area where state leaders could go to see what is being done in other states and across the county. This site will serve as a clearing house for humanitarian activity in the US.

   International:
   Chair or a representative, from International Committee, Honors and Awards Committee, and person currently involved in humanitarian work internationally (Jackie Clark).

What types of humanitarian work is currently going on in other countries by individuals and organizations. Identify and list all the organizations, individuals, and the countries where such work is being done.

2. **<u>Educational</u>**

Within USA:
Chair or a representative, from Educational Committee.

a. How to include materials within a course or creating new courses to educate Au.D. students about needs of cultural and linguistically diverse populations? Increasing sensitivity to the needs of diverse patient populations.
b. How to recruit students from minorities in this country (African Americans, Hispanic, and Native Americans)?
c. How to develop curriculum models to include in ACAE evaluation process.

International:
Chair or a representative, from Educational Committee, Research Committee, International Committee, and State Leaders Network (to address b. iii issue).

a. How to provide educational models (Au.D.) to Universities and Educational Institutions in other countries who are interested in establishing audiology programs?
b. Educational support services: teachers/professors in the United States being solicited to provide education and training in Audiology programs in other countries
    i. Assist other countries in establishing AuD training programs
    ii. Identify training programs currently in existence
    iii. Determine how foreign-educated audiologists can qualify for licensure in the US (this may be a regulatory issue within individual states) - (Need input from State Leaders Network)
c. How to facilitate and or establish research collaboration with researchers/audiologists in countries where the facilities are limited or nonexistent.

3. **<u>Clinical:</u> Chair or a representative, from ACAE, ABA, Educational Committee.**
    a. How to educate currently practicing audiologists about the need to provide adequate clinical services to culturally and linguistically diverse population in this country.
    b. How to establish ABA requirements to include areas in cultural sensitivity and service delivery to linguistically diverse populations.
    c. Establish a clearing house for diagnostic materials to culturally and linguistically diverse population (Web site where they can find test materials etc.)

d. Reserve space for educational courses at Audiology Now that are directed towards clinical, educational, and research needs of multicultural and multilingual population seen by audiologists. This will be one way to educate practicing audiologists.

4. **<u>Membership:</u> Chair or a representative, from International Committee and Membership Committee and the newly formed Student Academy.**

Within USA:

a. How to increase membership from minorities in this country.
b. Presentation or some sort of involvement from students from minority universities during Audiology Now.

International:

i. How to increase membership from audiologists from other countries?
ii. Identify and list audiology organization in other countries and how AAA can establish a relationship between these organizations.
iii. Identify organizations that can evaluate degrees (educational preparations) from other countries for reciprocity.
iv. Identify and list testing materials (Materials in different languages) to culturally and linguistically diverse population.

Appendix C

Consumer and Philanthropic Organizations – Domestic General Links

- **Audiology Net www.audiologynet.com/hearing-aids.html**
  Audiology Information for the Masses (extensive lists under headings Hearing Aids and Anatomy of the Ear)
- **Children with Hearing Loss www.childrenwithhearingloss.org. Non-profit organization trains local community health workers, establishes earmould labs, dispenses hearing aids, and trains deaf educators.**
- **DeafWeb Washington www.wolfnet.com/~hydronut/newsletr.htm**
  Lists newsletters (many online links), Newsgroups and ListServs, Chat Sites, and Newspaper and Radio sites.
- **Deaf World Web http://dww.deafworldweb.org/**
- **4 Hearing Loss http://www.4hearingloss.com This non-profit website offers news and reviews for people with hearing loss.**
- **Hearing and Hearing Disorders**
  www.mankato.msus.edu/dept/comdis/kuster2/audiology.html#treatment
  HUGE list described as a 'virtual textbook of pointers'. Includes a link to the Hearing Loss Simulator Site
- **Hear of the Village www.heartofthevillage.org Primary program (in Kenya) is training audiologists at local universities, screening and diagnostic testing, and dispensing hearing aids.**
- **PEPNet Resource Center http://prc.csun.edu/**
  You'll find LOTS of free materials here!
- **RIT Library Deaf and Hard of Hearing Table of Contents**
  http://wally.rit.edu/internet/subject/deafness.html
  ***Unbelievable* list of deafness related internet resources (I printed 37 pages), divided by topic. Many multicultural sites, as well.**

ALDA-Association of Late Deafened Adults

- **National ALDA Organization www.alda.org**
- **ALDA New Jersey http://www.alda-gs.org/**

Deaf Consumer Groups

- **Deaf Artists of America, Inc.: 716-244-3460 tty**
- **DeafDigest http://www.deafdigest.com/**
  Weekly news digest
- **Deaf Women United, Inc. lisaflynn@aol.com**
  503-624-7688 tty
- **Deaf World Web http://dww.deafworldweb.org/**
- **Intertribal Deaf Council http://www.deafnative.com**
- **National Association of the Deaf www.nad.com**
- **National Black Deaf Advocates http://www.nbda.org/**
- **National Theatre of the Deaf deaste@aol.com**

Self Help for Hard of Hearing People (SHHH)

- **National SHHH Organization http://shhh.org**
  Includes an on-line catalog of publications and articles on a wide variety of hearing loss topics. Also includes a list of state chapters and contact info.
- **California www.shhhca.org**

  Montgomery County MD http://members.tripod.com/maf_/mcshhh/

- **North Carolina http://www.nchearingloss.org/**

  Site includes glossary including definition of T-Coils, ALDs, Silhouettes, FM, IR, DAI, etc. Use the index on the left of the page and select "Glossary".

  Oregon SHHH www.shhhor.org
  "Once they get a hold of you, you'll never be the same!" --a *satisfied* member of the Eugene Chapter of SHHH
  Central Arkansas SHHH http://cenarkshhh.scottweb.us/index.htm

- **Washington State Association-SHHH www.wasa-shhh.org**
  Great site! Lots of information on hearing loss, current events, and resources.

Beyond-Hearing Member Pages

- **Beyond-Hearing Bios www.geocities.com/heartland/prairie/4727/bhframe.htm**
  Use the index on the left of the page and select "BH People". Contains biographies and articles about living with hearing loss contributed by various members of the Beyond-Hearing e-mail list.
- **Dana Mulvany's home page**
  http://members.tripod.com/~Dana_Mulvany/HearingAids.htm
  covers basic options to consider in choosing a hearing aid. She has many interesting pages on a wide variety of consumer topics.
- **Deaf Info Page www.weizmann.ac.il/deaf-info/**
- **EDEN-The Electronic Deaf Education Network www.bradingrao.com**
  includes 'The Parent's Place' chatroom
- **Ron Vickery's home page http://members.tripod.com/~GaCracker/Phones2.htm**
  Discussion of silhouettes and neckloops

Other

- **Boys Town National Research Hospital http://www.boystownhospital.org/**
- **Hearing Health Magazine http://hearinghealthmag.com/**
  Check out this site for current and past articles.
- **Hearing Loss Web www.hearinglossweb.com**
  Archives for Hard-of-Hearing/Late Deafened News
- **League for the Hard of Hearing www.lhh.org**

- **Mobility International, USA www.miusa.org**
- **Parents of Hard of Hearing/Deaf Children www.gohear.org**
- **Sertoma Club www.sertoma.org**
- **Hear Now http://www.leisurelan.com/hearnow**
- **Alexander Graham Bell www.agbell.org**
- **Blanche Fisher Foundation (Oregon only) www.bff.org**
  Nonprofit, civic organization devoted to speech-language and hearing causes
- **Lions Club focus on hearing and vision**
- **Sertoma focus on hearing and speech**
- **Quota Clubs focus on disadvantaged women and children**
- **Kiwanis Clubs general humanitarian interest**
- **Rotary Club and Foundation general interest in children**
- **Hard of Hearing Advocates** - PO Box 1184, Upton, MA 01568 - Phone: (508) 875-8662 FAX (508) 529-4069
- **Avery-Fuller-Welch Children's Center** (San Francisco, CA)
- **HEAR NOW Program** (Starkey Hearing Foundation, Eden Prairie, MN)
- **The HIKE Fund** ("Hearing Impaired Kids Endowment" - St. Charles, MO)
- **The Miracle Ear Children's Foundation** (Minneapolis, MN)
- **Native Daughters of the Golden West - Children's Foundation**(San Francisco, CA)
- **United Healthcare Children's Foundation** (Minneapolis, MN)
- **Cleveland Hearing & Speech Center assistance program** (Cleveland, OH)
- **H.E.A.R. Project** (Colorado, work with CAA)
- **Donor Hearing Aid Program** (Wichita, KS)
- **Charlotte Speech & Hearing Clinic** (Charlotte, NC)
- **Travelers Protective Association Scholarship Trust for the Deaf and Near-Deaf** (St. Louis, MO)
- **AUDIENT Program** (Seattle, WA)
- **Hope for Hearing Foundation and Hearing Aid Bank** (Los Angeles, CA)
- **Let Them Hear Foundation** (East Palo Alto, CA)
- **Children of the Silent World** (Cridersville, OH)
- **John W. Keys Speech and Hearing Center** (UofOK Health Sci. Ctr - Oklahoma City, OK)
- **The Warren Center** (Bangor, ME)
- **Help America Hear Program** (EarQ/Foundation for Sight and Sound, Smithtown, NY)
- **Ear Foundation / Hear for Kids** (Phoenix, AZ)
  Community Hearing Aid Program - pro bono audiology work (various communities in AZ)

Appendix D
Consumer and Philanthropic Organizations -International

- **International Federation of Hard of Hearing People (IFHoH).** IFHOH was organized 1977, and currently has 49 general and associate members in 32 countries. **International Federation of Hard of Hearing People www.ifhoh.org**
- **Africare**
  "Africare's self-help programs assist Africans in the broad areas of food, water, the environment, health, private-sector development, governance and emergency humanitarian aid. Africare now reaches families and communities in 28 countries in every major region of Africa." 440 R Street, N.W., Washington, DC 20001. Phone: 202-462-3614. Fax: 202-387-1034.
- **Argentinian Association of Logopedics Phoniatrics and Audiology**
  Founded in 1948, it began publishing *Fonoaudiológica Magazine*, the first dedicated to this subject in Latin America. E-mail: **asalfa@asalfa.org.ar.**
- **Canadian Hard of Hearing Association**
  The Canadian Hard of Hearing Association is "Canada's only nation-wide non-profit consumer organization run by and for hard of hearing people." 2415 Holly Lane, Suite 205, Ottawa, Canada, K1V 7P2. Phone: 613-526-1584. Fax: 613-526-4718.
- **Catholic Medical Mission Board**
  "Provides medicines and medical supplies, free of charge, to partner organizations overseas. Our partners then distribute these medicines to those who live in substandard conditions and have little or no hope of receiving even basic medical care. CMMB also recruits and sends volunteers, provides emergency relief, and supports ongoing health-care projects around the world." 10 West 17th Street, New York, New York 10011-5765. Phone: 212-242-7757 (toll free 1-800-678-5659). Fax: 212-807-9161.
- **Coalition for Global Hearing Health**
  "Advocates for policies pertinent to hearing health care practices in humanitarian capacity by directing professionals, students, and stakeholders to existing policy; creating topical guidelines in various languages; and encouraging dialogue and consensus amongst and between professionals globally to achieve topical policy. Equips and empowers both hearing healthcare professionals and families, educators, communities and those who have ear/hearing difficulties by educating societies and organizations on available resources, providing networking opportunities through regularly provided coalition conferences, and addressing holistic/complete needs within the context of the available resources found in the underserved region. Encourages and perpetuates best practices by engaging recipients of humanitarian services in dialogue about their priorities, needs, and resources.
- **Center for International Cooperation in Health and Development**
  "Promotes and supports the health sector reforms of developing countries by making access to basic health services easier and more equitable, by ensuring the sustainability,

effectiveness, and efficiency of the initiatives undertaken, and by contributing towards the autonomous and self-sufficient continuation of the projects implemented." Pavillon de l'Est 2180, chemin Sainte-Foy, Québec G1V 0A6 Canada. Phone: 418-656-5525. Fax: 418-656-2627.

- **Disabled Peoples' International**
  "DPI is a grassroots, cross-disability network with member organizations in over 158 countries, over half of which are in the developing world. DPI is administrated through the headquarters in Winnipeg Canada and through eight Regional Development Offices." Publishes *Disability International*.
- **Doctors of the World**
  "Dedicated to improving the health and relieving the suffering of vulnerable populations in the United States and abroad and to fulfilling the ideals of medicine by encouraging health professionals to provide voluntary services to underserved populations." 375 West Broadway, 4th Floor, New York, New York 10012. Phone: 212- 226-9890 (toll free: 888-817-HELP).
- **Doctor to Doctor**
  "Established to promote international medical aid and educational exchange programs. Seeking practitioners who have experience teaching and lecturing, who wish to share their knowledge with colleagues abroad, and who are willing to help collect medications, books, and journals. Can consider applications from physicians, dentists, psychologists, and other health professionals for programs in Southeast Asia." 1749 Martin Luther King Jr. Way, Berkeley, California 94709 Phone: 510-548-5200. Fax: 510-540-1707.
- **Doctors Without Borders**
  "An independent medical relief organization with sections in 18 countries, and sends over 2,000 volunteers to over 80 countries annually." US Headquarters: 6 E. 39th St., 8th floor, New York, New York 10016. Phone: 212-679-6800. Fax: 212-679-7016.
- **Global Foundation for Children with Hearing Loss**
  The Global Foundation for Children with Hearing Loss offers teacher training programs, hearing aid distribution, consultations, and research support to those working with hearing loss in developing countries.
- **Hearing Concern**
  Hearing Concern is "an organisation built on the principles of self-help" and "aimed at people who are deaf or hard of hearing and use lip reading and speech as their main means of communication." 95 Gray's Inn Road, London, United Kingdom, WC1X 8TX. Phone: +44 020 7440 9871. Fax: +44 020 7440 9872.
- **Hearing International, Nigeria**
  Hearing International, Nigeria (HING), is a registered non-governmental organization that seeks to promote best practices in hearing health care in Nigeria and other developing countries. HING is affiliated with the Alexander Graham Bell Association for the Deaf and Hard-of-Hearing, USA.

- **International Federation of Red Cross and Red Crescent Societies**
  The International Federation's programs are grouped into four main core areas: promoting humanitarian principles and values; disaster response; disaster preparedness; and health and care in the community. PO Box 372, CH-1211 Geneva 19 Switzerland. Phone: +41 (22) 730 4222. Fax: +41 (22) 733 0395. New York Office: 800 Second Avenue, 3rd floor, New York, New York 10019. Phone: 212-338-0161. Fax: 212-338-9832.
- **International Foundation for Education and Self-Help**
  Places American educators in African schools, colleges, universities, and governmental agencies. 5040 East Shea Blvd., Suite 260, Phoenix, Arizona 85254-4610. Phone: 480-443-1800 (toll free: 800-835-3530). Fax: 480-443-1824.
- **International Medical Corps (IMC)**
  A global humanitarian nonprofit organization dedicated to saving lives and relieving suffering through health care training and relief programs. 11500 West Olympic Blvd., Suite 506, Los Angeles, California 90064. Phone: 310-826-7800. Fax: 310-442-6622.
- **International School Services**
  Placement service for American and international schools for both teaching and administrative jobs. 15 Rozel Road, PO Box 5910, Princeton, New Jersey 08543. Phone: 609-452-0990. Fax: 609-452-2690.
- **Nordic Audiological Society (NAS)**
  NAS's objective "is to promote hearing care and audiological research and development in the Nordic countries through cooperation between the single professional organizations and the organizations for the hard-of-hearing."
- **Operation Crossroads Africa**
  Volunteer organization that sponsors projects related to public health practices. 475 Riverside Drive, Suite 830, New York, New York 10115. Phone: 212-870-2055. Fax: 212-870-2055.
- **Partners of the Americas**
  Links U.S. with Latin America and Caribbean; funds partnership projects for volunteer work. 1424 K Street, NW, #700, Washington, DC 20005. Phone: 202-628-3300. Fax: 202-628-3306.
- **People to People Ambassador Programs**
  A program of People to People International that coordinates international exchange of professionals working in scientific and technical fields; sends delegations to other countries. Dwight D. Eisenhower Bldg., 110 South Ferrall Street, Spokane, Washington 99202. Phone: 509-534-0430 (toll-free 800-669-7882). Fax: 509- 534-5245.
- **Project Concern**
  Health Care placement service; publishes a bi-monthly newsletter with openings offered by programs they represent. 3550 Afton Road, San Diego, California 92123. Phone: 858-279-9690. Fax: 858-694-0294.
- **Project Deaf:**

A private non-profit group helping organize EDHI in India contact information and web site is - http://www.projectdeafindia.org/

- **Project Hope**
  "Project HOPE sponsors programs appropriate to the country through training, health systems development, health policy analysis, and immediate humanitarian assistance. More than a million Health Professionals have been trained by Project HOPE and is currently active in 31 countries." 255 Carter Hall Lane, Millwood, Virginia 22646. Phone: 540-837-2100.
- **Rehabilitation International**
  "A federation of national and international organizations and agencies working toward the equalization of opportunities for people with disabilities and their families. RI is currently composed of 200 organizations in 90 nations. RI maintains official relations with the United Nations Economic and Social Council, the World Health Organization, the International Labour Office, UNESCO, UNICEF, the Organization of American States, the European Union and the Council of Europe, and the UN Economic & Social Council for Asia & the Pacific (UNESCAP)." 25 East 21st Street, New York, New York 10010. Phone: 212- 420-1500. Fax: 212-505-0871.
- **The Rockefeller Foundation**
  "A knowledge-based, global foundation with a commitment to enrich and sustain the lives and livelihoods of poor and excluded people throughout the world." 420 Fifth Avenue, New York, New York 10018. Phone: 212-869-8500.
- **Swedish Association of Hard of Hearing People (HRF)**
  The HRF envisions "a society where impaired hearing is not a hinder, but a natural part of a diverse community; a society without discrimination, one where all of Sweden's one million hard of hearing people can participate in studies, work and cultural activities, and where good aids are a right, not a question of income." Gävlegatan 16, Box 6605, 113 84 Stockholm, Sweden.
- **World Federation of the Deaf**
  "WFD represents approximately 70 million people. Membership comprises national organizations of Deaf people in 120 countries; and associate, international and individual members." P.O. Box 65, FIN-00401, Helsinki, Finland.

Audiological Societies & Organizations, cont'd

Please see handout

Country	Email	Society	Humanitarian Committee w/in society (Y/N)
Canada	caa@canadianaudiology.ca	Canadian AA	NR
Germany	info@dga-ev.com	German A. Society	NR
International	http://www.isa-audiology.org/	Interntl Soc A	Yes
Ireland	Jennifer.Sim@CUH.ie	Irish Soc. A	NO
Italy	siaf@mvcongressi.it	Italian Soc A	NR
Saudi Arabia	http://www.jish.com/	Jeddah Institute for Speech and Hearing (Saudi Arabia)	NR
New Zealand	mail@audiology.org.nz	New Zealand A	NR
Nordic	claes.moller@orebroll.se	Nordic Soc A	NR
Pan America	http://www.pasaudi.org/	Pan American Society of Audiology	NO
Russia	http://www.audiology.ru/ru/	Russian Audiological Society	NR

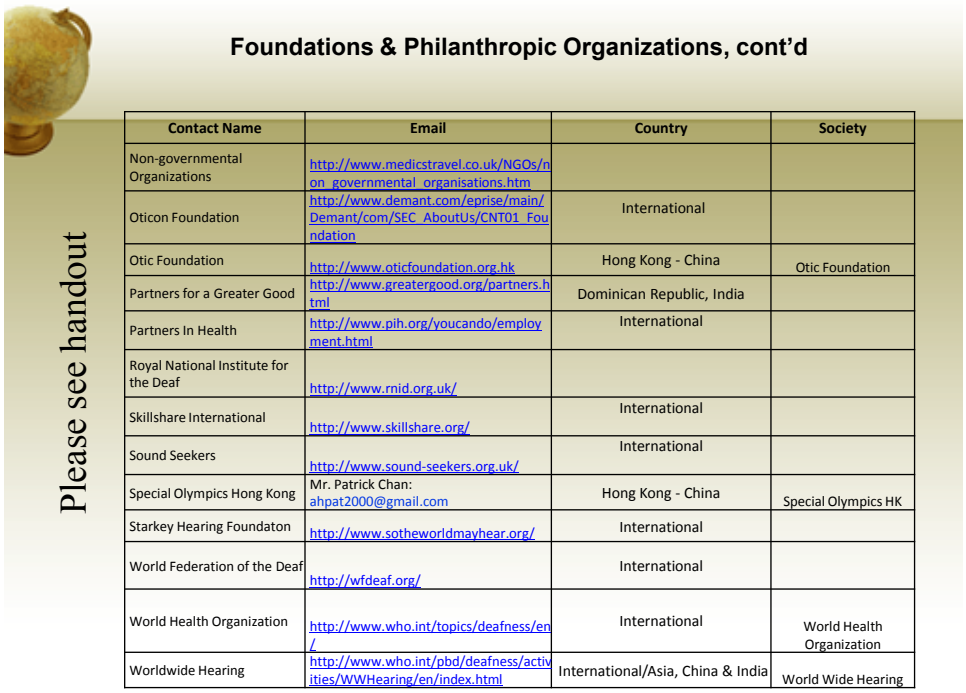
(**Figure courtesy of Jackie Clark**)

A listing of the known audiology and/or hearing health care organizations and societies across the world with their websites.

Contact Name	Email	Country	Society
Foundations and Philanthropic Organizations			
Community Ear & Hearing: Ichtes World Care	http://www.icthesworldcare.com	International	Community Ear & Hearing
Chrisitian Blind Mission	http://www.cbmus.org/site/PageServer	International	
ComCare International	http://www.comcareinternational.org/	International	
Deaf Child Worldwide	http://www.deafchildworldwide.org/	International	
Deaf Children of Cambodia Jean-Paul Beraha	jpberaha@aol.com	Cambodia	Deaf Children of Cambodia
Ears, Inc.	http://www.earsinc.org/	International	
Hear Talk Foundation	http://www.heartalk.org Ms. Iris Ng: irisng@ent.cuhk.edu.hk	Hong Kong - China	Hear Talk
Hear the World – Phonak Foundation	http://www.hear-the-world.com	International	
Hearing International	http://www.hearinginter.com/	Asia	
Heart of the Village	http://www.icfaid.org/	Kenya	
Heart-to-Heart	http://hearttoheart.org/	International	
International Children's Fund	http://www.icfaid.org/	International	
Keren Or Jerusalem Center for Multi-handicapped Children	http://www.keren-or.org	Jerusalem	

(Figure courtesy of Jackie Clark)

This details a listing (though not exhaustive) of the philanthropic organizations and foundations, with their base of operation, whose mission involves hearing and hearing health care



Foundations & Philanthropic Organizations, cont'd

Please see handout

Contact Name	Email	Country	Society
Non-governmental Organizations	http://www.medicstravel.co.uk/NGOs/non_governmental_organisations.htm		
Oticon Foundation	http://www.demant.com/eprise/main/Demant/com/SEC_AboutUs/CNT01_Foundation	International	
Otic Foundation	http://www.oticfoundation.org.hk	Hong Kong - China	Otic Foundation
Partners for a Greater Good	http://www.greatergood.org/partners.html	Dominican Republic, India	
Partners In Health	http://www.pih.org/youcando/employment.html	International	
Royal National Institute for the Deaf	http://www.rnid.org.uk/		
Skillshare International	http://www.skillshare.org/	International	
Sound Seekers	http://www.sound-seekers.org.uk/	International	
Special Olympics Hong Kong	Mr. Patrick Chan: ahpat2000@gmail.com	Hong Kong - China	Special Olympics HK
Starkey Hearing Foundaton	http://www.sotheworldmayhear.org/	International	
World Federation of the Deaf	http://wfdeaf.org/	International	
World Health Organization	http://www.who.int/topics/deafness/en/	International	World Health Organization
Worldwide Hearing	http://www.who.int/pbd/deafness/activities/WWHearing/en/index.html	International/Asia, China & India	World Wide Hearing

(Figure courtesy of Jackie Clark)

This details a listing (though not exhaustive) of the philanthropic organizations and foundations, with their base of operation, whose mission involves hearing and hearing health care

Responses to Query: Regional Contacts

- Middle East
  - Cypress – Chryssoula Thodi (ctpetrou@hotmail.com)
- Central America
  - Guatemala - Patricia Castellanos Munoz (pdemunoz@cedaf.com.gt; audiocaresa@yahoo.com)
  - Costa Rica - Carla Rondeau (carla_rondeau@starkey.com; crondeau@sotheworldmayhear.org)
- South America
  - Brazil – Ieda Russo (irusso@terra.com.br)
- Mexico
  - Monica Lopez Vazques (moniklov@yahoo.com)
  - Pedro Berruecos (kefasmex@yahoo.com)
- Australia
  - Cristy Newall (starclm@hotmail.com
  - Philip Newall (Philip.newal@ridbc.org.au)
- Arabian Peninsula

Please see handout

Regional Contacts, cont'd

- South East Asia
  - Cambodia - Jose Juan Barajas de Prat (Barajas@clinicabarajas.com)
  - Thailand – Sumalai Maroonroge – (Maroonroge@aol.com)
- China
  - Hong Kong – Bradley McPherson (dbmcper@hkucc.hku.hk)
- Carribean
  - Dominican Republic – Donna Carkeet (carked@yahoo.com)
- Pacific Rim (excluding China)
- Indian subcontinent
- Baltic Region
  - Romania – Tricia Towle (ttowle07@gmail.com)
- Russia
- Sub-Saharan Africa
  - DeWet Swanepoel (dewet.swanepoel@up.ac.za)

Please see handout

The regional contact information was generated by Jackie Clark for the International Society of Audiology Humanitarian Committee for networking purposes.

Appendix E

WHO Guidelines for Hearing Aids and Services in Developing Countries

GUIDELINES FOR HEARING AIDS AND SERVICES FOR DEVELOPING COUNTRIES

Second Edition
September 2004

World Health Organization
Prevention of Blindness and Deafness (PBD)

WHO Library Cataloguing-in-Publication Data
Guidelines for hearing aids and services for developing countries, September 2004 -- 2nd ed.
1. Hearing aids - supply and distribution. 2. Hearing disorders - prevention and control 3.Needs assessment 4.Technology assessment, Biomedical 5.Guidelines 6.Developing countries
I. World Health Organization.

ISBN 92 4 159243 5 (NLM classification: W V 274)

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Printed in Switzerland

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ACKNOWLEDGEMENTS

The members of the Hearing Aids Working Group wish to thank the following persons who kindly reviewed the draft text and made many useful suggestions.

NurulAmin, Bangladesh
Peter Alberti, Singapore
Stig Arlinger, Sweden
Erik Brodersen, Denmark
Rashmi Bhatt, India
Xingkuan Bu, China
Ron Brouillette, Viet Nam
Joe Morrissey, Uganda
George Mencher, Canada
Phillip Newell, Australia
Rakesh Prasad, Nepal
Beatriz Rayman, Brazil
Seema and Harish Rupani, Kenya
Dafydd Stephens, Wales, UK
Susan Swart, South Africa

EXECUTIVE SUMMARY

These guidelines have been developed by an expert working group set up following are commendation by the WHO-CBM Workshop on Needs and Technology Assessment for Hearing Aids Services in Developing Countries held in 1998.

Current production of hearing aids is one-tenth of the global need and only one quarter of these are distributed to developing countries. There is an urgent need to provide hearing aids and services that are appropriate and affordable for developing countries, taking into account the scarcity in resources of skills, training, services and finances in most developing countries. These guidelines set out minimum requirements and recommendations for such hearing aids and services, and are particularly targeted at manufacturers, distributors, policy makers and service providers at all levels. It is intended that the hearing aid requirements given here would enable manufacturers to produce them at low cost and in bulk with currently available technology.

The guidelines recommend that priority for hearing aids and services should be given to children with an average hearing impairment in the range 31 to 80 dBHL in the better ear in the frequency range 500Hz to 4kHz, followed by adults with an average hearing impairment in the range 41 to 80 dBHL in the better ear in the same frequency range. Behind the ear hearing aids should be the preferred option but body-worn aids may still be required in some situations, provided they are of similar reliability and no greater cost than behind the ear hearing aids. To ensure that a basis for specifying the electroacoustic performance of hearing aids is available a minimum performance specification is given; this does not preclude the use of higher performance aids as appropriate.

Persons with profound hearing impairment may benefit from a Cochlear implant (CI) but implantation is not recommended unless the necessary medical, technical, educational, psychological and hearing therapist resources and services are available. Also, where resources are limited, the available resources may be more effectively used to prevent a greater burden of hearing loss in more people through using less costly interventions.

Manufacture or assembly and servicing of hearing aids should be feasible in developing countries. Hearing aids and batteries that are imported from another country should be classified as medical devices in order to avoid import duty. Batteries should be zinc air or rechargeable type. The availability of a reliable supply of batteries is essential.

Earmoulds should be individually made by a two-stage syringe technique in locally established static laboratories; other methods that maintain the same quality may be used. Portable, mobile facilities may be necessary in less accessible areas. Universal or stock size earmoulds should only be used as a temporary measure. Earmoulds should be replaced at recommended intervals.

Services for providing hearing aids to users are an essential component of a hearing health system. The guidelines make recommendations for services which comprise raising awareness, identification and assessment, provision, support for users, and training.

Awareness should be raised through the promotion of prime messages about the problems caused by hearing impairment, its detection, and prevention of its effects. These messages should be targeted at particular groups in society including people with hearing impairment, parents, teachers, community and national leaders, health care and educational and other service providers, and policy makers and administrators.

Identification of hearing impairment should be done at the primary level by primary healthcare (PHC) workers with training and skills in primary ear and hearing care

(PEHC).Persons with hearing impairment and discernible ear disease (such as otitis media) should receive medical &/or surgical treatment initially, where possible; persons in whom such treatment fails to resolve the hearing problem and also persons who are found to have a

hearing problem alone should be referred to the secondary level for hearing assessment. This should include ENT examination, frequency specific test of hearing threshold in each ear, and decision whether a hearing aid would be beneficial. It may be feasible to make available some of these functions, including provision of hearing aids, at the primary level if they cannot be developed at the secondary level.

Provision of hearing aids includes supply, pricing, distribution, delivery, and fitting. Reliable sources for the aids, batteries, earmould materials, spare parts and repair materials need to be identified and adequate systems for importation, storage, stock control and delivery should be set up. Costs should be kept low Hearing aids and services should be provided to the user at a price they can afford or, in certain cases, they may be provided free. Hearing aid services should be designed and implemented as a low cost, sustainable, community service.

Fitting of a hearing aid with earmould and batteries should only be done following a hearing assessment. Persons doing the fitting must have received the necessary training and keep adequate records. Support for users (including their care-givers, if present) should include easily understood instruction in using and continuing to learn to use the hearing aid; care and maintenance; obtaining batteries; dealing with problems; and special instructions for parents and teachers. Follow-up should be done at secondary and primary levels and by suitable hearing-aid users in the community. There should be easy and close access to affordable services for replacement of earmoulds and batteries and maintenance and repair of hearing aids. Initial contact for these services should be with the PEHC-trained worker.

The performance of the whole programme for provision of hearing aids should be monitored and evaluated using performance and outcome indicators for achievement of specified targets. A system of quality assurance should be set up.

The guidelines list topics and equipment required for training the different categories of health worker at primary, secondary and tertiary levels; topics can be adapted according to a country's needs. Training courses, especially at primary level, should take place as close as possible to where the workers will be employed. Courses should be recognized as soon as feasible in the countries where they are conducted. At the primary level, it is likely that the PEHC-trained worker will be a CBR or PHC worker who has received additional training in PEHC with subsequent refresher training. At all levels, good trainees will become trainers, with selection of trainers occurring progressively from the basic levels. Training for trainers is essential.

Before implementing a programme for provision of hearing aids services in full, pilot project(s) should be set up to determine costs of the services, refine the model of service delivery, and assess the impact and effectiveness of the hearing aids and services being utilized.

PREFACE TO THE SECOND EDITION

The Hearing Aids Working Group (HAW G) was set up in 1999 following a recommendation from the WHO-CBM Workshop on Hearing Aids Services — Needs and Technology Assessment for Developing Countries held in Bensheim in 1998. From its terms of reference the HAW G was charged with drawing up guidelines containing requirements and recommendations for hearing aids and services so that they are appropriate and affordable for developing countries, and so that manufacturers can produce them at low cost and in bulk with currently available technology.

These guidelines are targeted at the following groups who provide hearing aids services in developing countries:-

(1) Manufacturers and distributors of hearing aids
(2) Policy makers
(3) Service providers at all levels.

Hearing aids services defined here include the design and manufacture of hearing aids, and the provision of hearing aids, ear moulds, batteries, maintenance, repair, instruction, and rehabilitation. These elements are all intimately related and hearing aids and the services to provide them in developing countries should be appropriate, acceptable, affordable, and available. The recommendations made here are the minimum required to serve the needs of most populations in developing countries.

Children with moderate or severe hearing impairment[1] in the better ear should be given priority, followed by adults. Behind the ear hearing aids are the preferred option. Body-worn hearing aids are not preferred because of easy damage to leads and lack of head-turning effects; however body-worn aids may still be needed in some circumstances. Basic requirements to meet the needs of people with moderate to severe hearing losses are listed to enable manufacturers to produce hearing aids according to these recommendations.

For this second edition, the text has been reviewed by most of the original members of the Hearing Aids Working Group, and they have been joined by a new member, Professor Xingkuan Bu, from China. A number of small changes have been made to the guidelines in light of recent of recent developments, and a statement has been added about cochlear implants.

[1] **In this document, the term 'hearing impairment', used by itself, denotes any or all levels of severity of hearing difficulty. These levels comprise mild, moderate, severe and profound hearing impairment. The term 'deafness' denotes profound hearing impairmen**

LIST OF ABBREVIATIONS

AC: air conduction
AGC. automatic gain control
BC: bone conduction
BTE: behind the ear
CBM: Christoffel-Blindenmission / Christian Blind Mission
CBR: community-based
rehabilitationdB: decibel
dB HL: dB hearing level
ERA: evoked response audiometry
FM: frequency modulation radio device
HAW G: Hearing Aids Working Group
IEC: International Electrotechnical Commission
ISO: International Organization for Standardization
ITE: In-the-ear
ITC: In-the-canal
mA: milliamperes
OAE: oto-acoustic emission
OSPL: output sound pressure level
PEHC: primary ear and hearing
care.PHC: primary health care.
SPL: sound pressure level
WHO: World Health Organization

INTRODUCTION

WHO has estimated[1] that in 2001 250 million persons in the world have disabling hearing impairment[s-]; the burden is estimated to be approximately twice as large in developing countries as in developed countries[2].Total world production of hearing aids is less than one tenth of the global need; '5% of the annual production are distributed to North America and Europe and 25% to the rest of the world. Japan, Australia and New Zealand account for over half of these and the remainder are distributed in developing countries[3].Where hearing aids and services are available they are generally expensive and often inappropriate for developing countries[4]. It is important to determine accurately the extent of the need for these items in developing countries and what would be the most appropriatesolutions[5].

WHO has addressed these issues at a consultation held at the European Regional Office in 1990[6] and more recently at the W HO/CBM Workshop on Hearing Aid Services in 1998[3]. The latter meeting made recommendations on the most appropriate type of hearing aid and service provision in countries with limited resources and how these might be provided. Consensus was reached concerning hearing aids as part of a hearing health system: "A hearing aid should be regarded as only one component of a hearing health system that includes the ear mould, batteries, maintenance, repair, instruction, and rehabilitation". Hearing aids and the services to provide them should be appropriate, acceptable, affordable, and available[t].

The 1998 meeting recommended that a small working group of experts should be convened by WHO to develop detailed specifications for appropriate hearing aids and services for developing countries. Thus, the Hearing Aids Working Group (HAW G) was setup and commenced work in 1999.

The HAW G was asked to draw up guidelines for requirements for hearing aids and their accessories and services so that they would be appropriate and affordable for developing countries, and so that manufacturers could produce them at low cost and in bulk. The group was also asked to use these guidelines to help set up a meeting with interested societies of hearing aid manufacturers to determine possibilities for future production (see Annex 1 for the group's terms of reference).

For these guidelines the Hearing Aids Working Group decided to focus particularly on the following issues:-

- to set-up minimal requirements for low cost hearing aids for developing countries.- to propose solutions for ear moulds.
- to propose solutions concerning batteries.
- to propose systems for delivery of the whole package of services.

The group decided not to address the following elements of the terms of reference:"consider and make recommendations on method and location of manufacture and

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[t] WHO DEFINITIONS OF DISABLING HEARING IMPAIRMENT":

Disabling hearing impairment in adults should be defined as a permanent unaided hearing threshold level for the better ear of 41 dB or greater; for this purpose the "hearing threshold level" is to be taken as the better ear average hearing threshold level for the four frequencies 0.5, 1, 2, and 4 kHz."

Disabling hearing impairment in children under the age of 15 years should be defined as a permanent unaided hearing threshold level for the better ear of 31 dB or greater; for this purpose the "hearing threshold level" is to be taken as the better ear average hearing threshold level for the four

frequencies 0.5, 1, 2, and 4 kHz."

[Note that the term "hearing impairment" without the epithet "disabling" is taken to mean a hearing problem of any level or all levels of severity.]

assembly, bulk purchase, tendering, importation". It was felt that these items should either be left to the manufacturer, or would vary according to the region or country concerned and would be better determined locally as an addition to the guidelines.

It should be emphasized that the purpose of these guidelines is to provide a set of minimal but appropriate recommendations for the manufacture and provision of services for hearing aids in developing countries. Setting minimum standards for the population is necessary because of the scarcity in resources of skills, training, services and finances in developing countries [8] . The guidelines are intended to be of particular interest to manufacturers and to encourage them to address the huge need in these parts of the world. The guidelines are also intended for policy makers and service providers at all levels in developing countries in order that they may develop and provide appropriate and affordable services for the provision of hearing aids.

2

BASIC HEARING AID REQUIREMENTS2. 1

Overview

The group considered the problem of specifying hearing aid performance to cover the needs of both children and adults. The consensus of opinion is that a basic specification or requirement should be produced that would enable hearing aids to be produced at low cost to meet the needs of the majority of those with hearing impairment. It was recognized that all needs could not be met and therefore children should be given priority. Initially these should be children with an average hearing impairment in the range 31 to 80 dBHL in the better ear in the frequency range 500Hz to 4kHz. Next in priority should be adults with an average hearing impairment in the range 41 to 80 dBHL in the better ear in the same frequency range. These are the largest groups with hearing impairment and the ones that should benefit most from using hearing aids. However, people experiencing hearing problems at a hearing level better or worse than the above range may need hearing aids and, when appropriate, may be considered as candidates.

It should be stated that persons with profound hearing impairment may benefit from a Cochlear implant (CI). However implantation cannot be recommended unless the necessary medical, educational, technical, psychological and hearing therapist resources and services are available. Also, given the very high cost of implantation, consideration must be given, where resources are limited, to whether resources for implantation could be more effectively used to prevent a greater burden of hearing loss in more people through using less costly interventions.

Given the restrictions in resources, both in terms of skills and finance, that are likely to apply in developing countries the specifications given below, as well as service and training needs, should be seen to be the minimum to meet the needs of this population.

These requirements do not preclude the delivery of hearing aids with more advanced specifications providing that this does not lead to increased costs and resources which then put hearing aids beyond the reach of the majority of people in developing countries.

The main recommendation is that aids worn behind the ear are likely to be the preferred option in the first instance. However, aids worn in the ear of the modular type may have potential use once the problems of large-scale fitting have been overcome. There may also be a need for body worn aids in some areas, provided they have similar reliability and less or no greater cost than BTE hearing aids. The group felt that body-worn aids would only be needed where the problems for which they are provided (low cost, ease of repair, wide availability of batteries) cannot be solved by the other hearing aids that are being recommended here. For example this may be the case in rural areas of some developing countries where at present body-worn aids are generally preferred. ITE hearing aids and IT Hearing aids should be considered in adults as long as their reliability, stability and costs are comparable to BTE-hearing aids.

The technology to be used in the manufacture of the hearing aid is not specified as this is a matter for the manufacturers in determining the best way in which to implement the specifications.

2.2 General Specification

Hearing aids should be constructed in a form that allows for ease of servicing and with components that are readily available and will remain so for a period of at least five

years. Manufacturers should provide sufficient technical details, including circuit diagrams, to permit servicing to take place in appropriate centres in developing countries.

Hearing Aids should be powered by either primary cells of the zinc air type or secondary rechargeable cells. The aids should meet the specifications below with either type of cell. Where rechargeable cells are the preferred option appropriate battery chargers should be provided together with clearly stated instructions for proper use of the cells and chargers.

Aids should be capable of operating within the specified performance over at least the temperature range 5°C to 45°C and a humidity range of 0% to 80%.

Aids should have the means to reduce the gain at frequencies below 750Hz. A reduction of at least 12dB at 250 Hz, relative to 750Hz, should be achieved by either a pre-set or a user control. The volume control should have a range of at least 30dB and be clearly numbered. The provision of an induction pick-up coil is optional but preferred. Preference should be given to aids with a means for controlling the level of the maximum acoustic output, preferably by means of output controlled AGC. In some countries, programmable units and trained staff are available for the HA-fitting. Hearing Aid Manufacturers should have certification to ISO 9001 on quality management systems[9].

The hearing aid should be designed so that the risk of injury or discomfort to the user is minimized. The external parts of the hearing aid should not have any sharp edges or protrusions and should be made of materials, which minimize the risk of allergic skin reactions. The external parts should be made of durable materials and designed and finished in a way that minimizes the noise caused by wind and/or physical contact.

Manufacturers should provide hearing aids in a few basic colours as requested by the country involved. The colour range could include skin colours, or black or grey (to match hair colour).

The number of moving parts should be minimized. Consideration was given to omitting the on/off switch and just removing the battery when the hearing aid is not being worn. However it is difficult to make a simple and effective battery drawer act as an on/off switch and the loose batteries could more easily be lost and be tempting for a young child to swallow. The battery compartment should be designed in such a way that the battery can only be inserted with the correct polarity.

For the educational setting, a direct audio input system for FM or other direct coupling could be considered[3] although this may add significantly to the costs of the programme and of the hearing aids themselves. Such costs may be beyond the resources available in many areas so such systems should not be considered a priority if they jeopardise the provision of the hearing aids themselves.

2.3

Electro-acoustic specification

The following specification represents the minimum performance requirements for hearing aids and does not preclude or suggest that performance values in excess of these should not be used as appropriate.

Measurements should be made in accordance with IEC60118-7: Hearing Aids Part 7: Measurement of the performance characteristics of hearing aids for quality inspection for delivery purposes[10]

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Minimum Performance Requirements	
Maximum $OSPL_{90}$	118 dB (+/- 4dB)
$OSPL_{90}$ at 1 kHz	114 dB (+/- 4dB)
Maximum full-on acoustic gain	45 - 55 dB ($^{+5}/_{-0}$ dB)
Full-on acoustic gain at 1 kHz	42 dB ($^{+5}/_{-0}$ dB)
Basic frequency response	200 Hz to 4500 Hz (200 Hz to 2000 Hz +/- 4dB, 2000 Hz to 4000 Hz +/- 6dB, on nominal frequency response curve)
Total harmonic distortion at 70 dBSPL input	500 Hz < 5%800 Hz < 5%1600 Hz <
Equivalent input noise level	< 25 dB SPL
Battery current	1 mA

2.4 Classification of hearing aids

A hearing aid should be classified globally as a medical device as in most developed but few developing countries. If so, it would avoid import duty[11]. Thus, for example, the Medical Devices Directive of the European Union under regulation 93/42/EEC[12] regulates all non-implantable medical devices, and under its requirements hearing aids will be classified as Class 2 medical devices.

There is also a classification system for medical devices by the ISO which isIS015225:2000 Nomenclature - Specification for a nomenclature system for medical devices for the purposes of regulatory data exchange[1*]. Hearing aids of all types are classified under this and therefore can be taken as medical devices.

2.5 Manufacture and Guarantee

Hearing aids may be manufactured or assembled nationally or regionally in a developing country or imported from the developed world[14] provided neither option affects the cost or availability of spare parts and their quality and distribution.

The cost of hearing aids is affected by the form of guarantee given to the purchaser. For bulk purchasers manufacturers may provide aids on, for instance, a 30 day return basis. This requires the purchaser to ensure that the aids are tested on delivery and any faulty aid returned in this time. Thereafter the purchaser is responsible for repairs and any subsequent

guarantee given to the end user. This provides the lowest cost option but places the onus on the purchaser to inspect the aids on delivery and provide a repair service. For one or two-year guarantees the costs will increase substantially and will require a system to be in place to ensure the rapid repair of aids.

For costing of hearing aids, see section 3.4.3.

2.6 Earmoulds

The earmould is an integral part of the hearing aid system. Individual earmoulds produced from impressions of the ear taken at primary care level using a syringe technique are required. Where no earmould manufacturing facilities are available a range of universal, or stock size, earmoulds may be used but only as a temporary measure.

Readily accessible earmould manufacturing facilities must be established as soon as possible to produce earmoulds using the two stage technique i.e. (1) making a cast of the ear impression using Plaster of Paris (partly dehydrated gypsum) or gel; (2) filling the cast with the acrylic or silicone based earmould material.

Other production methods may be used as long as high quality of the ear mould is maintained.

Initially earmould laboratories should be set up centrally to serve a district, region or country, (depending on demand). Central laboratories can only be effective where there is a good network to bring ear impressions to the laboratory and return finished earmoulds to the hearing aid user. When the situation permits, district (secondary) level earmould laboratories (static or mobile) should be set up. Ear impressions need to be brought to the laboratory quickly since shrinkage occurs after a few days. Such centralized laboratories can be set up to produce a larger range of earmould styles of various materials. Initially it may be possible to train a local dental technician and house the earmould-making facility in a dental laboratory.

Alternatively, simpler, portable earmould making facilities can be established. The equipment and materials can be transported to where the earmoulds are required. However, the range of earmoulds styles and the materials used with this method are limited. This method is recommended for more inaccessible regions (e.g. that do not have electricity) or where a central earmould laboratory has not yet been established. They could also support the central laboratory. Instant (one stage) earmoulds would in principle be suitable for these situations where appropriate materials are available together with adequate training in their use, but further research and development for this technique is needed.

Many materials required for making earmoulds can be obtained from established dental suppliers in developing countries. Other materials need to be imported from specialist earmould suppliers in developed countries. A long-term supply of materials need to be ensured when setting up earmould laboratories.

Some equipment needed for the manufacture of earmoulds can be bought locally in developing countries from electronics, or dental suppliers. Other equipment needs to be imported from specialist earmould suppliers in developed countries.

Earmoulds should, if possible, be replaced at the following intervals:-

<for infants and young children - every three to six months

<for older children - every six to twelve months

<for adults - every two to three years

The need for replacement also depends on the style and material of the earmould. A leaking, hurting or broken earmould should be replaced as soon as possible.

Sufficient, on the job, practical training is required by the person(s) who are to make these earmoulds. In the initial stages earmould manufacture may be an additional duty taken on by a primary level worker. However, as demand and services increase, dedicated earmould technicians will be required.

2.7 Batteries

The availability of a reliable supply of batteries is essential to the continuing use of hearing aids. Batteries may be of the primary type such as zinc air cells. These have to be replaced when exhausted.

Rechargeable batteries may be appropriate for many countries. These will last for a period of at least one year but have to be used in conjunction with a source of electrical energy to charge them. This can be amains powered charger or a larger higher voltage battery such as a car battery; solar-powered chargers are now available. The costs of electricity for charging plus costs of the re-chargeable batteries should be less than the cost of disposable batteries for the same period. User training is important to achieve maximum benefit. The further development of solar powered or battery-based battery chargers should be encouraged as well as the development of alternative energy sources.

See Box 1 for key points about batteries.

- **At present most hearing aid batteries need to be imported from developed countries and should be done so duty free(this could be by countries re-classifying them as medical instruments rather than electronic consumables).**
- **Bulk purchase of batteries by districts, countries, regions, international NGOs etc can substantially reduce costs.**
- **A good distribution network is required to make batteries readily available to hearing aid users e.g. through PHC or CBR networks or commercial vendors selling at affordable prices.**
- **Batteries must be made available to the users at a price that they can afford.**
- **At least twenty zinc air hearing aid batteries will be required to power a hearing aid for one year of daily use. Battery consumption depends on length of use and power of the hearing aid, and care taken to switch off the aid or remove the batteries when not in use.**
- **New batteries should be issued in exchange for old, used batteries. This enables the use of hearing aids and batteries to be monitored and can make battery disposal safer.**
- **Batteries must be stored in cool, dry conditions to prolong shelf life & avoid corrosion.**
- **All batteries should have an expiry date (printed on the packet) and should be purchased well within the expiry date.**
- **Hearing aid users should be instructed to use the correct type of batteries recommended for their hearing aid. The service provider should indicate the type, where they can be obtained and any alternative types that could be used.**

Box 1: Key points about batteries

3 SERVICES.

3. 1 Categories

Services and their delivery can be divided into four main categories (see Figure 1).These categories are all interlinked and are dependent on each other. If just one aspect of any category is missing then the system of hearing aid provision will breakdown. Continuous networking, supervision and feedback is required between users and service providers at all levels.

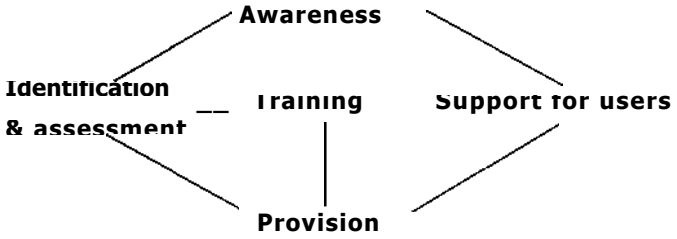

Figure 1: Categories of services

3.2 Raising Awareness

Awareness of hearing impairment and how to prevent it[15] and deal with it needs to be raised and promoted in many groups in society[16]. Using a hearing aid should be promoted

as one of the potential solutions; the subsequent demand will help to create a market which will sustain rehabilitation needs.

The prime messages for raising awareness and health promotion (see Box 2) are the same for all target groups although they need to be specifically adapted and targeted for each group.

The targets for these messages include:-

- society in general
- people with hearing impairment
- parents, teachers
- influential persons, community and national leaders
- professional providers of health care especially community health and rehabilitation workers
- providers of education and social/vocational services
- policy makers, administrators

Raising Awareness Programmes should operate on three levels:

1. At a National Level to influence national policy makers
2. At the provincial/district level (i.e. second tier services) to influence service providers — medical services, educational services, social services, local administration/policy services, and community health services.
3. At the primary level to inform the local community i.e. people who may have a hearing impairment.

Such programmes may be part of a larger, disability prevention programme and have a larger target population.

A variety of health education materials should be developed and different media utilized according to the group being targeted. Training in awareness-raising should be given for all professional care providers, including community health workers. Material to be presented by the primary level worker should be mainly verbal, supported by other methods used and understood by the community (e.g. pictures, booklets, video/TV, sign language etc)

3.3 Identification and assessment

This includes an initial screening-type test at the primary level to identify those people who may have a hearing problem and/or other ear disease (for example chronic otitis media[21] or otitis media with effusion). This test could be used as part of a population screening programme or the same type of test used by a health worker on request for any infant, child or adult who presents with suspicion of hearing loss.

Following identification, an assessment of hearing function is required. This assessment may take place at primary or secondary level depending on what facilities and infrastructure are available. Assessment involves finding the type, degree and shape of hearing loss and whether a hearing aid is beneficial. As a result of the identification and assessment some people will also need referral to other services, e.g. medical, social, educational.

Hearing Impairment can...

- <limit activities and restrict participation in daily life
- <retard child language and educational development
- <cause employment disadvantage and behavioural, social &emotional problems
- <lead to large social and economic costs
- <often be prevented

Hearing impairment and its effects are prevented by[19]:-

- <preventing and treating causes
  - -immunization against rubella, mumps, measles, meningococcus, haemophilus, and pneumococcus- awareness and control of the use of ototoxic drugs[17]-better perinatal care and management of perinatal problems
  - -early identification and adequate treatment of ear disease, especially chronic otitis media & otitis media with effusion.- identification and treatment of syphilis
  - -reducing harmful noise and controlling its effects[18]- publicising and providing counseling for hereditary hearing problems and their links with consanguineous marriages.
- <early detection of hearing impairment, especially inchildren[19], in order to provide rehabilitation without delay[29]<proper provision of hearings aids for most people with a hearing problem
- <giving support services in regular and special education settings
- <vocational training, and help with and in employment<enabling alternative modes of communication.

A teacher who suspects a child has a hearing problem must refer him/her for proper hearing assessment.

A child with a hearing problem may need additional help in regular school or special education.

People with hearing impairment:-

- <should be encouraged to seek help from the appropriate services in the community
- <need informing about how to cope with it
- <may need help to obtain appropriate education/employment<may require poverty relief due to limited employment potential
- <have special needs which should be included in local policies and community services (e.g. ear health care services, educational assistance, assistive services, disability relief)
- <should be encouraged and trained to set up support groups

Box 2: Prime messages for raising awareness

The categories of personnel who perform these functions are given in section 3.4.4 and their training for primary and secondary levels in sections 4.1 and 4.2 respectively.

3.3.1 Primary Level Identification

A simple and straightforward screening procedure is useful to allocate the person presenting at a health centre or for screening each member of a target population into one of four groups. The groups are (1) hearing problem and discernible ear disease that is treatable by medical &/or surgical means, (2) hearing problem and no such ear disease, (3) such ear disease and no hearing problem, (4) no such ear disease and no hearing problem (see Figure 2).

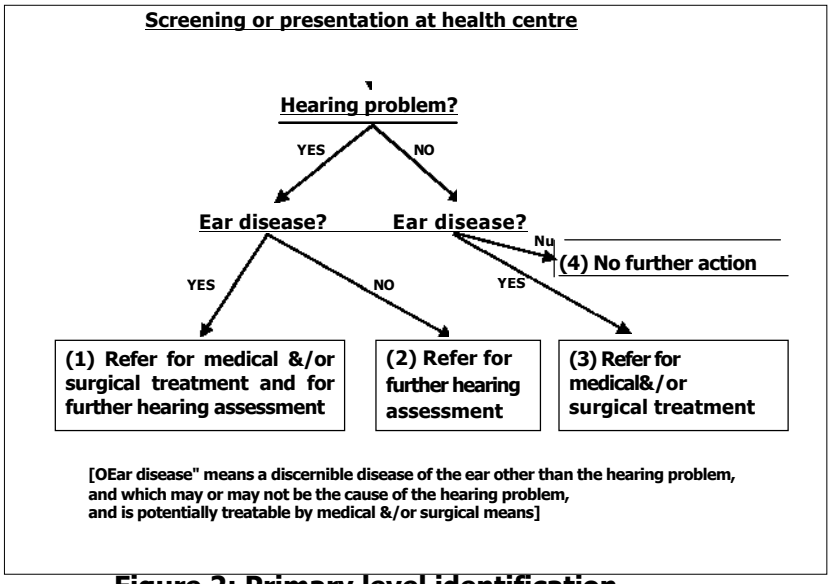

Figure 2: Primary level identification

In group (1), if medical and/or surgical treatment results in no hearing problem and no ear disease, then no further action is needed. If treatment does not resolve the hearing problem then further hearing assessment is required. If medical/surgical treatment is not available at the primary level for someone in this group, he or she would first have to be referred to the secondary level for treatment.

In some cases, such as in a child in order to avoid loss of auditory sensory input[22], whilst appropriate treatment is being sought hearing aids could be considered on a temporary basis, but only if the ear is not infected and is not actually or likely to be discharging.

The screening procedure should include a combination of the following:-

- a short questionnaire concerning ear and hearing health
- ear examination, preferably with an otoscope
- a simple hearing test , whose performance characteristics are known and proven
- for infants: questionnaire to parents regarding response to sound and development of speech
- voice test for older subjects

The screening procedure should be followed by a hearing assessment that could include an OAE test prior to an assessment of hearing thresholds at recommended frequencies by air-conduction pure tone audiometry in an appropriate acoustic environment.

Each stage of the procedure should include a sheet giving the minimum data required and there should be detailed instructions for the procedure.

The procedure should be carried out by a trained primary level worker, in the community who is here called a primary ear and hearing care (PEHC) -trained worker (see Figure 3 and Figure 4). This person in most countries will not be a dedicated health worker who only deals with PEHC, even though it would be preferable in order to fully address this subject. It is more likely that the PEHC-trained worker will be a CBR or PHC worker who has received additional training[23]. The amount and content of such training that this person receives will determine the level at which he or she functions. A recent workshop on

PEHC[24] recognized 3 levels of worker who could provide PEHC services. In this workshop they were called the community health worker, the Nurse practitioner/clinical assistant, and the PHC worker with special training and skills. The level of service provided would depend on the amount of training received. Not all of these categories may be available in a particular programme (and they may have different titles).

If PEHC-trained workers do not exist, the PHC or CBR worker would refer ear and hearing problems directly to the secondary level where the hearing assessment and hearing aid provision would be done by the audiology technician (see Figure 3). If there is no secondary level, primary health care workers would have to be trained to refer cases directly to the tertiary level, if feasible.

3.3.2 Hearing Assessment

Those people found to have a possible hearing problem through failing the primary level identification should be referred for an ear and hearing assessment (see Figure 3 for routes for referral; these may vary in different programmes and according to staff categories available).

This assessment should be carried out at the secondary level, when these facilities and personnel are available. When secondary level facilities are not available the primary level worker should be trained to carry out a hearing assessment (see section 4.1.2).Facilities may be shared amongst a group of communities or take the form of mobile services[25].

Hearing assessment should include:

<Brief case history

<Ear, Nose and Throat specialist assessment if available or assessment by a medical officer if not.

<Frequency specific test of hearing threshold level in each ear.

<Shape, degree, classification and cause of hearing loss

<Interpretation of hearing test results and decision whether hearing aid would be beneficial (see section3.4 for provision of a hearing aid)

<Referral to other services where necessary (e.g. social/educational services)

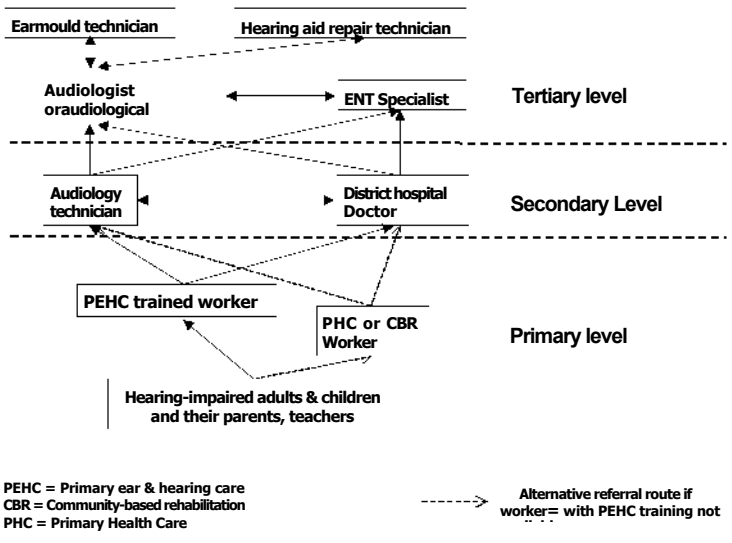

Figure 3: Routes for referral

In addition countries should be encouraged to develop the following audiology facilities:

frequency-specific test of hearing threshold levels in each ear using air and bone conduction to determine type and degree of hearing loss

-tympanometry to determine function of middle ear. For some cases, such as very young children, assessment should preferably take place at tertiary level centres using

hearing tests appropriate for the developmental level of the child. Oto-acoustic emission testing may be useful at this level. Countries without such facilities should be encouraged to develop these services. However some tests for young children may be suitable to carry out at a more basic level (e.g. speech reception testing, play audiometry and free-field audiometry, use of hand held sound generators with calibrated output levels when presented at set distances).

Reassessment should be carried out every few months in children (depending on age of the child), and after 4-5 years in adults (the general life-span of a hearing aid).

3.4 Provision of Hearing Aids

3.4.1 Components of Provision Process

Provision includes supply, pricing, distribution, delivery and fitting of hearing aids.(see Box 3 and Box 4)

3.4.2 Supply and distribution of hearing aids

Prior to services being setup to fit users with hearing aids, a reliable source of supply needs to be established for the hearing aids themselves, batteries, earmould materials, and spare parts and materials for repair or replacement of defective devices.

Decide how aids should be funded i.e. loan, gift, or payment by user

Specify aids, make, model, quantities and contract conditions

▼

Set up distribution and administration system

Source hearing aids
(Contracts for supply should include spares, technical information and training of repair technicians)

Set up maintenance & repair system

Box 3: Supply of hearing aids

If hearing aids are to be imported, then a reliable and safe method of shipment is required which allows all items to enter the country without being detained at customs. Shipment can be done in bulk. Hearing aids should be checked after arrival in country and before being fitted to the user. Sufficient stocks of all items should be kept in order to meet the demand and hence minimize the time between assessment and fitting and the time required for repair or replacement.

All hearing aids should be ordered with an adequate stock of spare parts (a repair laboratory having been set up and a technician trained). A record should be kept of all parts replaced and this will assist in re-ordering spares, and indicate which parts are required most frequently.

The amount of earmould material required can be approximately calculated using the number of hearing aids fitted and the rate of replacement of earmoulds. The number of batteries required can be calculated using the average battery life and the number of users).

All items, hearing aids, batteries, spare parts and earmould materials should be stored at all times, including during shipment, in cool and dry conditions.

The process by which a hearing aid reaches its eventual wearer varies depending on whether the distribution service is completely state operated, under controlled conditions from the state or under a completely private commercial system.

State operated services put out tenders for the bulk purchase of hearing aids and distribute the hearing aids to the end user through various locations (see section 3.4.5). The hearing aids and the service that goes with them e.g. batteries, repairs, replacement are provided free of charge or on a nominal charging basis.

Private commercial services, which exist in most countries, distribute the hearing aids

through dispensers who purchase the aids either directly from manufacturers or from a

wholesaler. The hearing impaired person then either pays the whole cost of the aid and service to the dispenser, or may be covered in some countries for part of the cost by an insurance scheme, which may operate under compulsory government legislation. In this system the cost of batteries, repairs etc would depend on local arrangements.

It should be noted that potential hearing aid users should always have a hearing assessment before being fitted with a hearing aid (see section 3.3.2) and the hearing aid should be fitted by trained personnel (see section 4).

3.4.3 Costs of hearing aids and services

To reduce costs, hearing aids can be purchased in bulk by countries, districts, or regions such as through governmental and non-governmental agencies. Hearing aids and services for them should be provided to the user at a price that he or she can afford[26].Governments of some developing countries may agree to share in the costs of hearing aids and services or provide them free. A low cost hearing aid should be carefully marketed, especially in countries where more sophisticated models are already available. Affordable hearing aids must not be made available to unscrupulous individuals who may sell them to users for large profits.

Affordable hearing aid services should be considered as a community service and be structured so that financially they are low cost yet sustainable.

3.4.4 Setting up a hearing aid provision service

The main stages in a service for identification and provision of a hearing aid and earmould to a person with hearing loss are shown in Box 4.

A simplified chart showing the ideal staff categories required to set up such a service is shown in Figure 4 and their training is described in section 4. The health worker who provides the services for primary level identification has been described in section 3.3.1.The rest of the stages would normally take place at the secondary and/or tertiary levels.

Where secondary level services are not available, hearing aids could be provided at the primary level, as long as secondary level services are intended or starting to be developed. In this situation it may be possible to have distribution and delivery of hearing aids, earmoulds and batteries done in combination with other programmes such as community-based rehabilitation (CBR), or blindness prevention.

Assess subject's suitability for a hearing aid
(user's motivation, skills and family support to use an aid)

Take ear impression (syringe technique for individual moulds)

Send impression to earmould laboratory without delay.

Make individual earmould
(or use stock or temporary mould if no laboratory available)

Get earmould to audiology technician

Deliver hearing aid & batteries

Box 4: Stages in provision of a hearing aid and earmould to a person with a hearing problem

Whichever level hearing aids are provided at, persons must be designated who will administer the distribution and keep records of all hearing aids (make, model, serial number, date of delivery, name of user, cost/payment made) delivered to those who fit them.

3.4.5 Fitting Hearing Aids

Hearing aids should only be fitted following a hearing assessment[27]. A hearing aid should be fitted together with an earmould, some batteries, a case for the hearing aid, dehydrating agent to prevent moisture corroding the hearing aid and battery, and simple instructions in pictures and text. Young children should be provided with a suitable harness to prevent damage or loss of the aid.

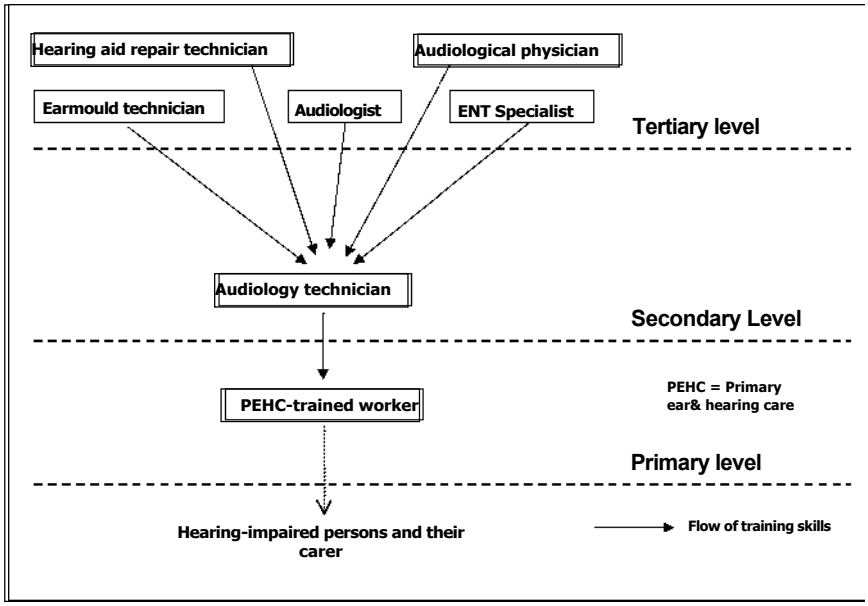

Figure 4: Staff categories for hearing aid services

The actual fitting of the hearing aid can be done in any of a number of possible locations(e.g. home, school, clinic, CBR or PHC centre, hospital) provided that all personnel fitting hearing aids have received the necessary training (see section 4) and have access to the results of the recent hearing assessment (see section 3.3.2).

Records of all hearing aids should be kept by the personnel fitting them (i.e. date of fitting, users name and address, make, type, model of hearing aid and earmould fitted, serial number of hearing aid, user settings). This information may also be required for guarantee purposes.

3.5 Support for users

As used in this section, "users" refers to the hearing aid users and their care givers, e.g. parents, family, teachers, social workers. "Support" includes initial instruction given when the hearing aid is fitted and follow-up given

- How to use the aid (i.e. inserting earmould and wearing aid, changing batteries, use of volume control, on/off switch and any other user controls), provide written or pictorial instructions, involve family or friend
- Encouragement of realistic expectations
- Suitability of hearing aid to user
- When to use / not use the aid
- Encouragement to continue with learning to use the hearing aid
- Special instructions for child users for parents, teachers
- Care and maintenance of aid (changing batteries, washing the earmould, storage)
- Where & how to obtain new batteries
- Trouble-shooting - what to do, who to contact when problems with the aid occur

Box 5: Instruction topics for the user

3.5.1 Instructions for the user

These instructions (see Box 5 for topics) should be given to the user and his/her carer when the hearing aid is fitted and repeated as often as necessary during 'follow-up'.

Instructions must be given in a format that is easily understood, using a combination of verbal instructions in the local language (including local sign language), booklets, information sheets, pictorial instructions and demonstrations.

Instructions should be given by a trained secondary level worker who fits the hearing aid. If there are no secondary level personnel, then the hearing aid should be fitted and instructions given by the primary level worker. Hearing aid users require a 'learning' or adaptation period' during which repeated instructions and support are needed. This learning period may last from a few weeks to some months. Where appropriate, users should be issued with individual record cards.

3.5.2 Follow-Up

Follow-up helps to encourage better use of the hearing aid, provides ongoing support and deals with problems that may arise (see Box 6).

Follow-up should be provided by primary and secondary level workers and also other experienced hearing aid users.

Follow-up should be provided in the community[28] (i.e.at primary level) and should be pro-active. It should be directed to users, parents, teachers, carers.

It may need to be in the form of outreach, going out to the consumer, rather than waiting for

- Hearing tactics: training the user to use their residual hearing and the hearing aid more effectively
- Identification of users having difficulties with their hearing aid, earmould, batteries; they may require the following:
  -reinstruction on use and care of the aid
  -replacement due to loss or breakage
  -advice on realistic expectations (user & carer)-trouble shooting and potential solutions
- Attention to the special needs of children, e.g. acceptance of aid, need for more information, support and other services
- Establishment of local support groups, using skills& experience of existing hearing aid users.
- Links with other services for deaf and hearing impaired people
- Provision of replacement batteries, earmoulds, and hearing aids as required
- Referral to other services e.g. reassessment, medical, social, educational.
- Use of record cards with each aid for individual problems, and "report-back" cards by the aid fitter for potential collective problems.
- Expectations of users and their family
- Hearing aid maintenance, repair or replacement

Box 6: Items to be done at follow-up

3.5.3 Hearing aid maintenance, replacement, repair

All users must have easy and as close as possible access to affordable services for the replacement of batteries, earmoulds, and the maintenance and repair of hearing aids.

Some countries operate a replacement system for hearing aids in place of a system of repair and return of the hearing aid to the same user. In principle, this allows quicker replacement of malfunctioning hearing aids and makes for easier repair and replacement.

Users should be made aware of the ongoing costs of wearing a hearing aid when the aid is issued. Batteries should be readily available at all levels including the primary level, from the PEHC-trained worker or other designated person (e.g. parent or teacher of a child with hearing impairment). This designated person should obtain batteries (on a sale or return basis) from a central supplier (e.g. tertiary level audiology centre or hearing aid supplier).

Earmoulds will need to be regularly replaced, especially for young children. The PEHC worker' should take an ear impression for a new earmould when required and is then responsible for sending the impression to the laboratory without delay and collecting the finished earmould and fitting it to the user. Sometimes new earmoulds may need to be modified, in which case the user may need to see the earmould technician directly.

With regard to hearing aid maintenance and repair, initial contact should be with the PEHC-trained worker. These workers should be able to carry out basic trouble-shooting procedures to identify and solve minor problems with hearing aids (and earmoulds) e.g. replace earmould tubing. If the hearing aid needs to be repaired the primary level worker is responsible for taking or sending the broken hearing aid to the repair technician, collection of the repaired hearing aid and returning it to the user.

The availability of aids for loan to regular users whilst theirs is away for repair is recommended. Hearing aids considered beyond repair should be kept centrally with a view to providing spares for other aids of the same or similar types

In order for all these services to work efficiently, there needs to be good networking between the primary level services 33and the earmould and hearing aid repair laboratories. Therefore, these laboratories, together with the hearing aid supplier/distributor should ideally be located at the same site. They should be established nationally initially but subsequently should be set up in different parts of the country.

3.6 Evaluation / Quality Assurance

The service and delivery system should be continuously monitored and regularly evaluated. Key performance indicators for the service components and outcome indicators[29]for overall success of the hearing aid service should be specified. Targets should be specified.

The data for monitoring and evaluation should be collected initially by the primary level worker using simple output and outcome measures[39,31] and then analysed by the district health centre and at secondary and tertiary levels.

Examples of such data would be:-

How many hearing-impaired persons are there in the local community?

How many hearing aids have been fitted?

How many people continue to use their hearing aid? (the return of flat batteries in exchange for new ones can also be used to monitor aid usage)

What are the reasons that others with a hearing problem have not acquired hearing aids?

For those who have been fitted with a hearing aid, simple measures of reduction in 'disability' should be determined (e.g. does a child respond to sound when previously it did not? Have specific communication problems been solved? Is a child making better progress at school?).

When feasible, a quality assurance system should be put in place to help ensure that hearing aids, ear moulds, and batteries as well as services, procedures and reporting are of the highest quality[32].

4 TRAINING

The following items are proposed for inclusion and adaptation into training courses according to a country's needs. It will be important that training courses are given recognition in the countries where they are carried out.

The diagram(Figure 5) shows relevant existing staff categories and the categories whom they train (shown by connecting arrows). It should be noted that in this and other diagrams showing staff categories not all countries may have the categories shown; in this situation the category nearest in function should be identified or consideration given to creating the categories referred to in this document.

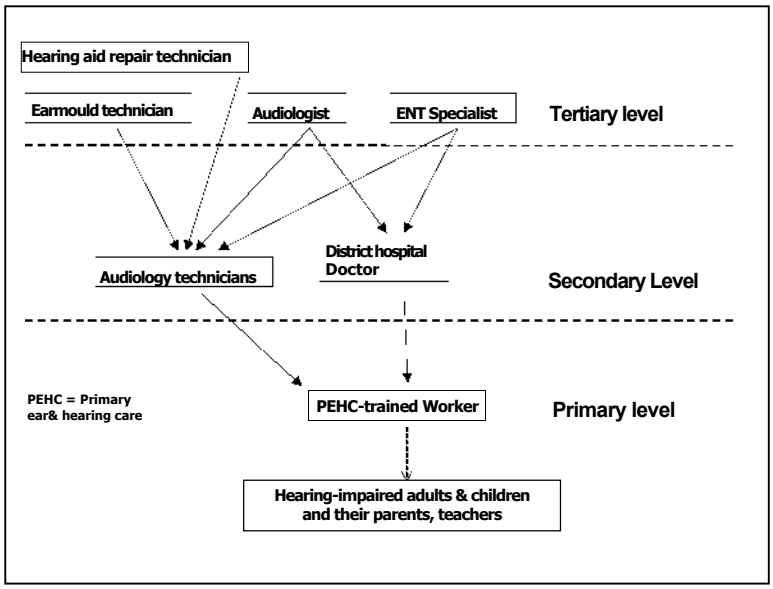

Figure 5: Staff categories and their trainers

4. 1 Primary Level

4.1.1 Training for a PEHC-trained Worker

This section describes the particular training in primary ear and hearing care (PEHC)that would be required at the primary level to provide a service for provision of hearing aids. Such training should be included in existing primary health care programmes[33] and consist of an initial 3-week training course in the community in the local language followed by supervision, networking and refresher courses. It is likely that the PEHC-trained worker will be a CBR or PHC worker who has received additional training. As a primary level worker becomes progressively better-trained in this field he or she will become progressively more dedicated to providing services for ear and hearing care. Further information on objectives, principal elements and outcomes-based training programmes for PEHC are contained in the report of a recent workshop on this subject[24]

The position of PHC worker who has received additional training in ear and hearing care should be recognized within the country's health system.

Training topics;-:

- **Basic anatomy/physiology of ear, acoustics, causes of deafness and hearing impairment, ear diseases**
- **Basic hearing test, questionnaire, ear examination**
- **Effects of deafness and hearing impairment on speech communication**
- **Problems of people with hearing impairment and their needs**
- **Social implications of deafness and hearing impairment**

- **Guidelines on treatment, referral, hearing aid use, maintenance**
- **Including ear and hearing care into existing primary health care programmes**
- **Data collection/record keeping**

Trainers

Training for trainers is essential. Selection of trainers generally occurs from bottom-up progressively moving up each level; eventually some from the top level may need overseas training.

Qualified trainers are required from the first available level (local, regional, national, or from another country if no trainer available in country). e.g. an audiology technician to train PEHC workers, if no audiology technician is available, then an audiologist would train primary ear care workers.

Cascade effect:- trainer trains primary care level workers some of whom become trainers themselves. As primary ear care workers gain knowledge and experience, some may be trained as audiology technicians and become trainers themselves. As audiology technicians gain knowledge and experience some may be trained as audiologists and become trainers themselves.

Training should take place in the locations of the PHC worker. The training programme should be recognized nationally and the WHO training package[34] should be used.

4.1.2 Training required where secondary level does not exist

If no services have been set up at the secondary level, it may be possible to provide additional training to a PHC worker to perform some of the functions of an audiology technician until secondary-level services are instigated. The designated PHC worker would already have some experience and would be trained to assess hearing and fit hearing aids in his/her community under the supervision of the tertiary level. Training time should be a minimum of 6 weeks.

Training topics: (In addition to Primary Level training):-

- **Assessment of hearing**
- **Additional training in data collection**
- **How audiological equipment should be calibrated and maintained (day to day care &maintenance of equipment - knowledge of full calibration is not necessary),.**
- **Hearing aid function and use**
- **Hearing aid fitting (if this is not available at the secondary level)**
- **Hearing aid basic adjustment**
- **Hearing aid instruction**
- **Hearing aid trouble-shooting**
- **Other common ear disorders such as tinnitus and balance problems.**

Trainer

An audiology technician from another district could train PEHC workers but if none were available, then a tertiary-level audiologist should train them (from that or another country).

4.2 Secondary Level

4.2.1 Audiology Technician

The trainee should have completed at least secondary school education and should have some previous experience of working with hearing-impaired persons. An existing

PEHC-trained worker would be suitable. This staff person in this category may be called an audiometric technician in some places.

Training programme

The initial training course should be a minimum of three months, followed by practical/supervised training. Refresher Courses should be held. Formal appropriate training should lead to a recognized qualification (some developing countries may find it difficult to provide formal recognition at first).

Training should preferably be located in a secondary centre and should be in the national language.

Training topics:

- **All topics listed above for primary level (sections 4.1.1: Training for a PEHC-trained Worker and 4.1.2 Training required where secondary level does not exist).**
- **Management/supervision**
- **Training methods**
- **Making earmoulds and identifying their problems (for when the ear mould technician is not available)**
- **Book-keeping, stock records, administration**

Equipment

- **Audiometer with AC and BC, noise-excluding headsets, and access to calibration (special arrangements may need to be made for this at national or even regional levels)**
- **Tympanometer (impedance audiometer)**
- **Otoscope**
- **Ear mould manufacturing equipment and supplies**

If a secondary level centre is not available, the equipment should be portable to enable these items to be done as outreach.

4.3 Tertiary

Level4.3.1

Audiologist

Training programme

The course should be located at a specialized centre in a teaching hospital or university department, preferably in the country of the trainee (if not available nationally, the trainee may have to obtain the training in regional countries or internationally, with in-built safeguards to encourage the graduates to return to work in their home countries).

The initial training course (modular if feasible) should be at least 1 year of mainly academic work followed by supervised practical training leading to a certificate of clinical competence.

A recognized qualification should be given and could be a diploma, bachelor or masters degree depending on extent of development of the course and the situation in the country.

In some developing countries there are audiological physicians who are medically-qualified doctors who have received further training in audiological medicine.

Training objectives:

The person completing the course and passing the required examinations would be able to:-

- **Work independently**

- **Conduct assessments for all ages**
- **Provide hearing aids for all groups**
- **Provide support for all users**
- **Manage (including using quality assurance), monitor and evaluate programmes**
- **Train personnel at lower level**
- **Conduct research appropriate to the supervision available**

Equipment

Training should be provided to enable the use of:-

- **Diagnostic audiometers with free field facilities**
- **OAE testers**
- **Evoked response audiometer**
- **Middle ear analyser**
- **Hearing aid analyser**
- **Vestibular test equipment**
- **Real-ear measurement equipment**

Real-ear-measurement equipment is preferable to validate the acoustic frequency and amplification characteristics of the hearing aid and ear mould in the ear.

4.3.2 Earmould Technician

Trainee:-

The trainee should have completed school education and have good manual dexterity and precision. It could be a possible job for a hearing impaired person. The applicant may already have other 'ear care' responsibilities (depending on demand for earmoulds).

Programme:-

Currently there are no formal courses available for the training of earmould echnicians and training needs are met by established laboratories giving in-service training.

The course should therefore be located in an established earmould laboratory. The initial training period should last about 4 to 6 weeks and consist of in-service, practical training followed by close supervision.

Training Topics:-

- **Basic understanding of hearing aids and their use**
- **Examination of the ear using an otoscope**
- **Taking an ear impression**
- **Earmould manufacture**
- **Earmould fitting, modification and repair**
- **Record keeping and administration**

4.3.3 Hearing Aid Repair Technician

Trainee:-

The trainee should if possible already have practical experience in electronics.

Programme:-

Training should take place at an established hearing aid repair laboratory, and may initially have to be outside the country if not available nationally. The training course should last about 6-8 weeks followed by practical work under close supervision, and in-service practical training. Training is also partly the responsibility of the manufacturers of the hearing aids

provided in a particular country.

Training Topics:-

- Basic acoustics
- Acoustic measurements of hearing aids using hearing aid analyser
- Hearing aid trouble-shooting
- Replacement of faulty hearing aid parts
- Calibration of acoustic measuring equipment
- Quality control (i.e. checking new and repaired hearing aids)
- Record keeping and administration

Equipment:-

- Hearing aid analyser (could be shared with audiology services
- Microscope
- Soldering station
- Digital multimeter
- Hearing aid repair tools
- Spare parts for all hearing aids issued

5 PILOT PROJECTS

In order to test the programme to be implemented, one or more pilot projects should be set up. These should be in rural communities and organized/supervised by acceptably designated centres or units in various representative countries.

The pilot projects should be used to:-

- < Evaluate the proposed services as a whole
- < Determine exact costs of setting up, running and maintaining these services.
- < Refine the model of service delivery.
- < Evaluate the effectiveness of the hearing aid(s) being used
- < Evaluate the impact of availability of hearing aids in a society

Pilot projects should be subject to appraisal within the methodology of a formal impact assessment or programme evaluation.

In addition to pilot projects, recognized methods of monitoring and evaluation should be built in to each project.

ANNEX 1: TERMS OF REFERENCE AND OUTPUTS FOR THE HEARING AIDSWORKING GROUP

Terms of Reference

With regard to hearing aids, earmoulds, batteries and their accessories for developing countries, the working group will carry out the following activities in the light of the recent W HO/CBM meeting.

1... consider the needs and requirements for these items at all ages and all aidable levels of severity in these countries now and in the future.

2...draw up requirements for these items so that they are appropriate and affordable for developing countries and so that manufacturers could produce them at low-cost and in bulk with currently available technology.

3...consider and make recommendations on method and location of manufacture and assembly, costing, bulk purchase, tendering, importation, distribution, warranty, and maintenance & repair services.

4..consider and make recommendations on the most likely needs for research and development in the future

5...use these specifications and recommendations so developed to convene or encourage others to convene a meeting with interested manufacturers to determine possibilities for future production.

Outputs

1 A document containing detailed specifications and recommendations as listed under Terms of Reference.

2 Convening of, or agreement to convene by an appropriate non-governmental development organization (NGDO) in cooperation with WHO, a meeting with hearing aid manufacturers to discuss production of hearing aids according to the recommendations made in the document described in paragraph 3.1.

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ISBN 92 4 159243 5

World Health Organization

Worldwide hearing care for developing countries (WWHearing)

WHO and WWHearing

WHO and WWHearing embark on a new collaboration to provide affordable hearing aids

On 18 October 2006, the World Health Organization (WHO) and WWHearing (World Wide Hearing Care for Developing Countries) agreed to work together to encourage and enable provision of affordable hearing aids and services on a massive scale, especially in developing countries and underserved communities. By working together, WHO and WWHearing will consolidate and strengthen global efforts to eliminate avoidable hearing impairment and promote better hearing.

WWHearing is a new global partnership of key stakeholders, formally created in April 2006, whose mission is to encourage large-scale provision of affordable hearing aids and services in developing countries and underserved communities, within the framework of the WHO Guidelines for hearing aids and services for developing countries, and to remove the barriers that prevent hearing aids and services from being appropriate, acceptable, affordable, available, and accessible in developing countries.

WHO launched the Guidelines for hearing aids and services for developing countries in 2001 and published the second edition in English and Chinese in 2004. At the time of the launch WHO called on the private sector to provide affordable hearing aids in developing countries. Today, 278 million people in the world are affected by moderate bilateral hearing loss or worse. Two-thirds of these people are in developing countries and most would benefit from hearing aids. More than 30 million hearing aids are needed annually in developing countries, together with services and staff to fit them, but current annual provision is less than 1 million.

Providing appropriate and affordable hearing aids and services worldwide is the most effective and cost-effective way of making a major reduction to the burden of hearing impairment. Yet currently fewer than three percent of people in developing countries who need a hearing aid actually have one.

Guidelines for hearing aids and services (English)
Guidelines for hearing aids and services (Chinese)
WHO fact sheet: deafness and hearing impairment

Project objectives

- To gather, review, collate and disseminate information on the current provision and need for hearing aids and services in different countries and regions of the developing world in order to promote the development of hearing care services.

- To determine the constraints to providing both hearing aids and the necessary systems and services required for their effective distribution and use in developing countries, and the ways of overcoming these constraints.

- To encourage the development of projects, including pilot projects, that would implement or improve the provision of hearing aids and services for fitting, follow-up, repair and training.

- To enable the setting up of networks and partnerships from within the public and private sectors and civil society to provide affordable, appropriate hearing aids and accessories, and the services to fit them, in large enough numbers to satisfy the need in developing countries. The networks or partnerships could be made at the global, regional and country level. WWHearing shall set up the network or partnership at the global level but shall have a monitoring role for networks or partnerships made at the country and regional level.

- To develop criteria in order to review projects for their appropriateness and feasibility. WWH will use these criteria to review projects and make recommendations to funding bodies as to whether such projects should be funded.

- To develop criteria in order to monitor and evaluate any partnerships or projects approved or set up by WWHearing. WWH will use these criteria to monitor and evaluate these partnerships and projects.

- To identify the need for and commission studies on the economic costs of hearing impairment, and studies to compare cost/effectiveness of hearing aid interventions, and to assess cost benefit to countries of early provision of hearing aids especially to children.

- To encourage and assist all Member States of WHO to introduce hearing health services into their health planning cycle with appropriate policies, legislation, regulations and health financing to ensure equitable access to services.

- To encourage and support all Member States of WHO to include data collection and reporting on hearing impairment, hearing handicap and hearing aid use in national and district censuses and in routine data collection.

Pilot projects

Implementing agencies in major developing countries in four WHO regions have proposed pilot projects. Their objectives will be to show increases in provision of hearing aids and services in underserved areas through local partnerships; to demonstrate positive effects of provision of hearing aids through developing simple measures of satisfaction, social impact and cost-effectiveness; to demonstrate implementation of WHO guidelines within the service delivery system in the country; and to determine the best methodologies for achieving the objectives of WWHearing. The pilot studies in India and China have commenced and will assess

innovative, community-based methods to provide, fit and follow up hearing aids on a large scale in adults and children respectively. The costs and cost-effectiveness of the projects will be measured.

Over the next five years and beyond, as the models are shown to be successful, funding will be sought to progressively implement full-scale projects in targeted developing countries where the needs and opportunities for cost-effective interventions are greatest.

Appendix F

The Global Network of Humanitarian Audiology (GNHA): This is the website hosted by the American Academy of Audiology to establish personal and professional contacts among individuals and organizations working in the US and global humanitarian audiology. The aim of this website is to promote cooperative relationships in areas such as humanitarian service, volunteer work and supply donation, research, hearing prevention education and visitor exchange. A primary goal of this website will be to provide the mechanism by which members of the Academy can personally contribute to the improvement of hearing care in underserved areas of the world. By joining the net work audiologists can find others with whom to exchange ideas, supplies, information, and equipment. As a member of the network you can also post notices about upcoming events like courses, lectures or meetings related to international hearing care. Some examples of these network activities are listed below:

Hosting audiologists by audiologists and/or organizations interested in visiting humanitarian work in other countries. This can also apply to students interested in doing humanitarian work and earn credits for their work.

Service

Identifying humanitarian work by individuals and organization and

Remote Consultation:

Tele audiology

Idea Exchange
Individuals involved in school health projects in different developing countries share advice on successful hearing screening programs.

Collaboration
This can be clinical and research area

Supply Donations
Supply equipments and hearing aids to other members and also list equipments that are available to others if needed.

Appendix G

Overview of Title VI of the Civil Rights Act of 1964	
	Title VI, 42 U.S.C. § 2000d et seq., was enacted as part of the landmark Civil Rights Act of 1964. It prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. As President John F. Kennedy said in 1963: Simple justice requires that public funds, to which all taxpayers of all races [colors, and national origins] contribute, not be spent in any fashion which encourages, entrenches, subsidizes or results in racial [color or national origin] discrimination. If a recipient of federal assistance is found to have discriminated and voluntary compliance cannot be achieved, the federal agency providing the assistance should either initiate fund termination proceedings or refer the matter to the Department of Justice for appropriate legal action. Aggrieved individuals may file administrative complaints with the federal agency that provides funds to a recipient, or the individuals may file suit for appropriate relief in federal court. Title VI itself prohibits intentional discrimination. However, most funding agencies have regulations implementing Title VI that prohibit recipient practices that have the effect of discrimination on the basis of race, color, or national origin. To assist federal agencies that provide financial assistance, the wide variety of recipients that receive such assistance, and the actual and potential beneficiaries of programs receiving federal assistance, the U.S. Department of Justice has published a Title VI Legal Manual. The Title VI Legal Manual sets out Title VI legal principles and standards. Additionally, the Department has published an Investigation Procedures Manual to give practical advice on how to investigate Title VI complaints. Also available on the Federal Compliance and Coordination Website are a host of other materials that may be helpful to those interested in ensuring effective enforcement of Title VI.

http://www.justice.gov/crt/cor/coord/titlevi.php for more information on Title VI

Appendix H:
Cultural and Linguistic Competence

By Houkje Ross

Closing the Gap, Cultural Competency Part II • February/March 2001

In late December 2000, the Office of Minority Health (OMH) , U.S. Department of Health and Human Services, published the final recommendations on national standards for culturally and linguistically appropriate services (CLAS) in health care. Federal and state health agencies, policy makers, and national organizations care organizations and workers.

The 14 standards are based on an analytical review of key laws, regulations, contracts, and standards currently in use by federal and state agencies and other national organizations. The standards were developed with input from a national project advisory committee composed of individuals representing State and Federal agencies, health care organizations and professionals, consumers, unions, and health care accrediting agencies. OMH conducted a four-month public comment period and held three regional meetings in early 2000 to solicit testimony and advice for the first draft of the standards.

Although many excellent standards do exist, many are limited in their scope—they address only a specific issue, geographic area, or subfield of health care such as mental health, according to OMH's final report.

Four of the standards (4-7) reflect existing federal guidance that address language assistance services for people with limited-English proficiency (LEP). Language barriers are a problem for many Hispanic and Asian Americans with limited English proficiencies. Take for example, a recent Asian American or Hispanic immigrant who speaks little or no English. The person may live a block from the local hospital, but be unable to receive adequate medical care if there are no interpreters available. Accessing health care is an issue that appears over and over in literature, research, and studies that examine the lowered health status of our nation's minority populations.

The CLAS standards that deal with language assistance services are consistent with HHS' Office of Civil Rights (OCR) written policy guidance to help ensure that LEPs can effectively access critical health and social services. The OCR standards were introduced in August 2000 (See story, page 4). The remaining CLAS Standards are recommendations suggested by OMH for voluntary adoption by health care organizations (Standard 14) and guidelines or activities recommended by OMH for adoption by federal, state, and national accrediting agencies (Standards 1-3; 8-13).

Leveling the Playing Field

"At a very basic level these standards are about ensuring that all persons entering the health care system, regardless of race or ethnicity, receive equal, fair, and quality treatment," said Guadalupe Pacheco, project officer at OMH. According to OMH's final report, the CLAS standards are a means to correct inequities that currently exist in the provision of health services and to make these services more responsive to the individual needs of all patients and consumers. "The standards are also a way for providers, policymakers, and others in the health care community, to create accountability within their organizations for providing equitable, quality services," he said.

When it comes to treating minority patients and consumers, what is fair and equal treatment needs to be looked at closely. Current research and literature point to overwhelming disparities in health status of minorities when compared to whites. Minorities have higher prevalence and mortality rates of diseases like cancer, diabetes, and cardiovascular diseases. For example, African American men have some of the highest incidences and mortality rates of cancer. And in many American Indian and Alaska Native communities, diabetes is rampant.

Wilbur Woodis, management analyst and a behavioral health specialist for the Indian Health Service, noted that acknowledging the problems of minority populations is only the first step to eliminating health disparities. It has long been known that American Indians and Alaska Natives (AI/ANs) have high incidences of behavioral health issues such as suicide, substance abuse, and mental health problems. "It is easy to acknowledge the problems and the government programs that work to address these problems. What is harder, however, is acknowledging how culture influences the health of AI/AN and other minority populations," said Woodis.

"Culture and language are an integral part of how we define who we are. The CLAS standards bring attention to the need and importance of culture and language for people of color," said Woodis, who also served on the CLAS advisory committee that helped review draft standards.

Under the CLAS standards (see page 3), health care organizations are encouraged to ensure that patients receive understandable and respectful care that is compatible with their cultural health beliefs, practices, and preferred language. This may mean providing an environment in which patients from diverse cultural backgrounds feel comfortable discussing cultural health beliefs or practices; using community workers as a check on the effectiveness of communication and care; or encouraging patients to express their spiritual beliefs and cultural practices, according to OMH.

Data Issues And Discrimination Also Addressed

Ensuring that our minority populations receive culturally appropriate care is only one of a handful of problems addressed by the CLAS standards. For some minority groups like Asian Americans and Pacific Islanders and American Indians and Alaska Natives, statistical data on disease mortality and prevalence are either not available or limited. Limited data on racial and ethnic minority health can make it difficult for agencies to identify health disparities, justify the need for special initiatives, or measure progress made by state initiatives.

continued>>>>

Office of Minority Health Publishes Final Standards for Cultural and Linguistic Competence

By Houkje Ross

Closing the Gap, Cultural Competency Part II • February/March 2001

To gain a better understanding of the health problems that exist in minority populations, CLAS Standard 10 recommends that health care organizations collect data on an individual patient's race, ethnicity, and spoken and written language. CLAS guidelines also recommend that organizations maintain a current demographic, cultural, and epidemiological profile of the community, as well as a needs assessment, to accurately plan for and implement services that respond to the cultural and linguistic characteristics of a service area.

Unfortunately, discrimination is still a factor in the quality of health care services some minorities receive. A recent study from the Kaiser Family Foundation, *Perceptions of How Race & Ethnic Background Affect Medical Care,* found that minority patients are often distrustful of the U.S. health care system. Reasons cited for the lack of trust included lack of time and attention given to patients by health care professionals and the perception that health care professionals hold negative stereotypes of minority patients.

To help curb discrimination, the CLAS standards recommend that health care organizations develop participatory, collaborative partnerships with minority and ethnically diverse communities. There are many formal and informal mechanisms available for this, including participation in governing boards, developing community advisory committees and ad hoc advisory groups, or conducting interviews or focus groups, according to OMH. Health care organizations are also encouraged to develop culturally and linguistically sensitive grievance resolution processes for resolving cross-cultural conflicts or complaints by patients and consumers.

A 1999 study conducted by the Oregon Office of Multicultural Health, *Strategies in Collaboration,* supports the CLAS recommendation for including minorities in health care organizations. The study notes that central to beginning the process of gaining trust from ethnic minorities is finding 'natural leaders' from within the minority communities. "Mainstream agencies need to foster opportunities for ethnic community leaders to meet within and across communities. This will help clarify needs, including how services need to be adapted to fit each community," said the study.

The CLAS standards and the final report documenting all phases of the project issues related to the standards are available online at http://www.omhrc.gov/CLAS. A hard copy can also be requested by writing: Attn: CLAS/Guadalupe Pacheco, Office of Minority Health, 5515 Security Lane, Suite 1000, Rockville, MD, 20852. Or e-mail gpacheco@osophs.dhhs.gov..

Revised CLAS Standards
From the Office of Minority Health

Closing the Gap, Cultural Competency Part II • February/March 2001

1. Health care organizations should ensure that patients/consumers receive from all staff members, effective, understandable, and respectful care that is provided in a manner compatible with their cultural health beliefs and practices and preferred language.

2. Health care organizations should implement strategies to cruit, retain, and promote at all levels of the organization a diverse staff and leadership that are representative of the demographic characteristics of the service area.

3. Health care organizations should ensure that staff at all levels and across all disciplines receive ongoing education and training in culturally and linguistically appropriate service delivery.

4. Health care organizations must offer and provide language assistance services, including bilingual staff and interpreter services, at no cost to each patient/consumer with limited English proficiency at all points of contact, in a timely manner during all hours of operation.

5. Health care organizations must provide to patients/consumers in their preferred language both verbal offers and written notices informing them of their right to receive language assistance services.

6. Health care organizations must assure the competence of language assistance provided to limited English proficient patients/consumers by interpreters and bilingual staff. Family and friends should not be used to provide interpretation services (except on request by the patient/consumer).

7. Health care organizations must make available easily understood patient-related materials and post signage in the languages of the commonly encountered groups and/or groups represented in the service area.

8. Health care organizations should develop, implement, and promote a written strategic plan that outlines clear goals, policies, operational plans, and management accountability/oversight mechanisms to provide culturally and linguistically appropriate services.

9. Health care organizations should conduct initial and ongoing organizational self-assessments of CLAS-related activities and are encouraged to integrate cultural and linguistic competence-related measures into their internal audits, performance improvement programs, patient satisfaction assessments, and outcomes-based evaluations.

10. Health care organizations should ensure that data on the individual patient's/consumer's race, ethnicity, and spoken and written language are collected in health records, integrated into the organization's management information systems, and periodically updated.

11. Health care organizations should maintain a current demographic, cultural, and epidemiological profile of the community as well as a needs assessment to accurately plan for and implement services that respond to the cultural and linguistic characteristics of the service area.

12. Health care organizations should develop participatory, laborative partnerships with communities and utilize a variety of formal and informal mechanisms to facilitate community and patient/consumer involvement in designing and implementing CLAS-related activities.

13. Health care organizations should ensure that conflict and grievance resolution processes are culturally and linguistically sensitive and capable of identifying, preventing, and resolving cross-cultural conflicts or complaints by patients/consumers.

14. Health care organizations are encouraged to regularly make available to the public information about their progress and successful innovations in implementing the CLAS standards and to provide public notice in their communities about the availability of this information.

**Note: The standards are organized by three themes.*

1. *Culturally Competent Care (Standards 1-3)*
2. *Language Access Services (Standards 4-7)*
3. *Organizational Supports for Cultural Competence (Standards 8-14).*

Appendix I: World Ranking of Languages Based on Usage (Adapted from Wikipedia)

Languages	World ranking
Mandarin	1
Spanish	2
English	3
Hindi/Urdu	4
Arabic	5
Bengali	6
Portuguese	7
Russian	8
Japanese	9
Panjabi	10
German	
Javanese	
Wu	
Telugu	
Vietnamese	
Marathi	
French	
Korean	
Tamil	
Yue	
Turkish	
Pasto	
Italian	

Appendix J: Languages Used in Various Countries of the World (Adapted from Wikipedia).

Afghanistan	Afghan Persian or Dari (official) 50%, Pashto (official) 35%, Turkic languages (primarily Uzbek and Turkmen) 11%, 30 minor languages (primarily Balochi and Pashai) 4%, much bilingualism
Akrotiri	English, Greek
Akrotiri	Greek
Albania	Albanian (official - derived from Tosk dialect), Greek, Vlach, Romani, Slavic dialects
Algeria	Arabic (official), French, Berber dialects
American Samoa	Samoan 90.6% (closely related to Hawaiian and other Polynesian languages), English 2.9%, Tongan 2.4%, other Pacific islander 2.1%, other 2%; *note:* most people are bilingual
Andorra	Catalan (official), French, Castilian, Portuguese
Angola	Portuguese (official), Bantu and other African languages
Anguilla	English (official)
Antigua and Barbuda	English (official), local dialects
Argentina	Spanish (official), Italian, English, German, French
Armenia	Armenian 97.7%, Yezidi 1%, Russian 0.9%, other 0.4%
Aruba	Papiamento (a Spanish-Portuguese-Dutch-English dialect) 66.3%, Spanish 12.6%, English (widely spoken) 7.7%, Dutch (official) 5.8%, other 2.2%, unspecified or unknown 5.3%
Australia	English 79.1%, Chinese 2.1%, Italian 1.9%, other 11.1%, unspecified 5.8% (2001 Census)
Austria	German (official nationwide) 88.6%, Turkish 2.3%, Serbian 2.2%, Croatian (official in Burgenland) 1.6%, other (includes Slovene, official in Carinthia, and Hungarian, official in Burgenland) 5.3%
Azerbaijan	Azerbaijani (Azeri) 90.3%, Lezgi 2.2%, Russian 1.8%, Armenian 1.5%, other 3.3%, unspecified 1%
Bahamas, The	English (official), Creole (among Haitian immigrants)
Bahrain	Arabic, English, Farsi, Urdu
Bangladesh	Bangla (official, also known as Bengali), English
Barbados	English
Belarus	Belarusian, Russian, other
Belgium	Dutch (official) 60%, French (official) 40%, German (official) less than 1%, legally bilingual (Dutch and French)
Belize	Spanish 46%, Creole 32.9%, Mayan dialects 8.9%, English 3.9% (official), Garifuna 3.4% (Carib), German 3.3%, other 1.4%, unknown 0.2%
Benin	French (official), Fon and Yoruba (most common vernaculars in south), tribal languages (at least six major ones in north)
Bermuda	English (official), Portuguese

Bhutan	Dzongkha (official), Bhotes speak various Tibetan dialects, Nepalese speak various Nepalese dialects
Bolivia	Spanish 60.7% (official), Quechua 21.2% (official), Aymara 14.6% (official), foreign languages 2.4%, other 1.2%
Bosnia and Herzegovina	Bosnian, Croatian, Serbian
Botswana	Setswana 78.2%, Kalanga 7.9%, Sekgalagadi 2.8%, English 2.1% (official), other 8.6%, unspecified 0.4%
Brazil	Portuguese (official and most widely spoken language); note - less common languages include Spanish (border areas and schools), German, Italian, Japanese, English, and a large number of minor Amerindian languages
British Virgin Islands	English (official)
Brunei	Malay (official), English, Chinese
Bulgaria	Bulgarian 84.5%, Turkish 9.6%, Roma 4.1%, other and unspecified 1.8%
Burkina Faso	French (official), native African languages belonging to Sudanic family spoken by 90% of the population
Burma	Burmese, minority ethnic groups have their own languages
Burundi	Kirundi (official), French (official), Swahili (along Lake Tanganyika and in the Bujumbura area)
Cambodia	Khmer (official) 95%, French, English
Cameroon	24 major African language groups, English (official), French (official)
Canada	English (official) 59.3%, French (official) 23.2%, other 17.5%
Cape Verde	Portuguese, Crioulo (a blend of Portuguese and West African words)
Cayman Islands	English 95%, Spanish 3.2%, other 1.8%
Central African Republic	French (official), Sangho (lingua franca and national language), tribal languages
Chad	French (official), Arabic (official), Sara (in south), more than 120 different languages and dialects
Chile	Spanish (official), Mapudungun, German, English
China	Standard Chinese or Mandarin (Putonghua, based on the Beijing dialect), Yue (Cantonese), Wu (Shanghainese), Minbei (Fuzhou), Minnan (Hokkien-Taiwanese), Xiang, Gan, Hakka dialects, minority languages (see Ethnic groups entry)
Christmas Island	English (official), Chinese, Malay
Christmas Island	English (official), Chinese, Malay
Cocos (Keeling) Islands	Malay (Cocos dialect), English
Cocos (Keeling) Islands	Malay (Cocos dialect), English
Colombia	Spanish
Comoros	Arabic (official), French (official), Shikomoro (a blend of Swahili and Arabic)
Congo, Democratic Republic of the	French (official), Lingala (a lingua franca trade language), Kingwana (a dialect of Kiswahili or Swahili), Kikongo, Tshiluba

Congo, Republic of the	French (official), Lingala and Monokutuba (lingua franca trade languages), many local languages and dialects (of which Kikongo is the most widespread)
Cook Islands	English (official), Maori
Costa Rica	Spanish (official), English
Croatia	Croatian 96.1%, Serbian 1%, other and undesignated 2.9% (including Italian, Hungarian, Czech, Slovak, and German)
Cuba	Spanish
Cyprus	Greek, Turkish, English
Czech Republic	Czech 94.9%, Slovak 2%, other 2.3%, unidentified 0.8%
Côte d'Ivoire	French (official), 60 native dialects with Dioula the most widely spoken
Denmark	Danish, Faroese, Greenlandic (an Inuit dialect), German (small minority); *note:* English is the predominant second language
Dhekelia	English, Greek
Dhekelia	Greek
Djibouti	French (official), Arabic (official), Somali, Afar
Dominica	English (official), French patois
Dominican Republic	Spanish
East Timor	Tetum (official), Portuguese (official), Indonesian, English; *note:* there are about 16 indigenous languages; Tetum, Galole, Mambae, and Kemak are spoken by significant numbers of people
Ecuador	Spanish (official), Amerindian languages (especially Quechua)
Egypt	Arabic (official), English and French widely understood by educated classes
El Salvador	Spanish, Nahua (among some Amerindians)
Equatorial Guinea	Spanish 67.6% (official), other 32.4% (includes French (official), Fang, Bubi)
Eritrea	Afar, Arabic, Tigre and Kunama, Tigrinya, other Cushitic languages
Estonia	Estonian (official) 67.3%, Russian 29.7%, other 2.3%, unknown 0.7%
Ethiopia	Amarigna (Amharic) (official) 32.7%, Oromigna (official regional) 31.6%, Tigrigna (official regional) 6.1%, Somaligna 6%, Guaragigna 3.5%, Sidamigna 3.5%, Hadiyigna 1.7%, other 14.8%, English (official) (major foreign language taught in schools), Arabic (official)
European Union	Czech, Danish, Dutch, English, Estonian, Finnish, French, Gaelic, German, Greek, Hungarian, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Romanian, Slovak, Slovene, Spanish, Swedish
Falkland Islands (Islas Malvinas)	English
Falkland Islands (Islas Malvinas)	English
Faroe Islands	Faroese (derived from Old Norse), Danish
Faroe Islands	Faroese (derived from Old Norse), Danish
Fiji	English (official), Fijian (official), Hindustani

Finland	Finnish 91.2% (official), Swedish 5.5% (official), other 3.3% (small Sami- and Russian-speaking minorities)
France	French 100%, rapidly declining regional dialects and languages (Provencal, Breton, Alsatian, Corsican, Catalan, Basque, Flemish)
French Guiana	French
French Polynesia	French 61.1% (official), Polynesian 31.4% (official), Asian languages 1.2%, other 0.3%, unspecified 6%
Gabon	French (official), Fang, Myene, Nzebi, Bapounou/Eschira, Bandjabi
Gambia, The	English (official), Mandinka, Wolof, Fula, other indigenous vernaculars
Gaza Strip	Arabic, Hebrew (spoken by many Palestinians), English (widely understood)
Georgia	Georgian 71% (official), Russian 9%, Armenian 7%, Azeri 6%, other 7%; *note:* Abkhaz is the official language in Abkhazia
Germany	German
Ghana	Asante 14.8%, Ewe 12.7%, Fante 9.9%, Boron (Brong) 4.6%, Dagomba 4.3%, Dangme 4.3%, Dagarte (Dagaba) 3.7%, Akyem 3.4%, Ga 3.4%, Akuapem 2.9%, other 36.1% (includes English (official))
Gibraltar	English (used in schools and for official purposes), Spanish, Italian, Portuguese
Gibraltar	English (used in schools and for official purposes), Spanish, Italian, Portuguese
Greece	Greek 99% (official), other 1% (includes English and French)
Greenland	Greenlandic (East Inuit), Danish, English
Grenada	English (official), French patois
Guadeloupe	French (official) 99%, Creole patois
Guam	English 38.3%, Chamorro 22.2%, Philippine languages 22.2%, other Pacific island languages 6.8%, Asian languages 7%, other languages 3.5%
Guatemala	Spanish 60%, Amerindian languages 40% (23 officially recognized Amerindian languages, including Quiche, Cakchiquel, Kekchi, Mam, Garifuna, and Xinca)
Guernsey	French, Norman-French dialect spoken in country districts
Guernsey	English, French, Norman-French dialect spoken in country districts
Guinea	French (official); note - each ethnic group has its own language
Guinea-Bissau	Portuguese (official), Crioulo, African languages
Guyana	English, Amerindian dialects, Creole, Caribbean Hindustani (a dialect of Hindi), Urdu
Haiti	French (official), Creole (official)
Holy See (Vatican City)	Italian, Latin, French, various other languages
Holy See (Vatican City)	Latin, French, various other languages
Honduras	Spanish, Amerindian dialects
Hong Kong	Cantonese 90.8% (official), English 2.8% (official), Putonghua (Mandarin) 0.9%, other Chinese dialects 4.4%, other 1.1%
Hungary	Hungarian 93.6%, other or unspecified 6.4%
Iceland	Icelandic, English, Nordic languages, German widely spoken

India	Hindi 41%, Bengali 8.1%, Telugu 7.2%, Marathi 7%, Tamil 5.9%, Urdu 5%, Gujarati 4.5%, Kannada 3.7%, Malayalam 3.2%, Oriya 3.2%, Punjabi 2.8%, Assamese 1.3%, Maithili 1.2%, other 5.9%; *note:* English enjoys associate status but is the most important language for national, political, and commercial communication; Hindi is the national language and primary tongue of 41% of the people; there are 14 other official languages: Bengali, Telugu, Marathi, Tamil, Urdu, Gujarati, Malayalam, Kannada, Oriya, Punjabi, Assamese, Kashmiri, Sindhi, and Sanskrit; Hindustani is a popular variant of Hindi/Urdu spoken widely throughout northern India but is not an official language
Indonesia	Bahasa Indonesia (official, modified form of Malay), English, Dutch, local dialects (the most widely spoken of which is Javanese)
Iran	Persian and Persian dialects 58%, Turkic and Turkic dialects 26%, Kurdish 9%, Luri 2%, Balochi 1%, Arabic 1%, Turkish 1%, other 2%
Iraq	Arabic, Kurdish (official in Kurdish regions), Turkoman (a Turkish dialect), Assyrian (Neo-Aramaic), Armenian
Ireland	English (official) is the language generally used, Irish (Gaelic or Gaeilge) (official) spoken mainly in areas located along the western seaboard
Israel	Hebrew (official), Arabic used officially for Arab minority, English most commonly used foreign language
Italy	Italian (official), German (parts of Trentino-Alto Adige region are predominantly German speaking), French (small French-speaking minority in Valle d'Aosta region), Slovene (Slovene-speaking minority in the Trieste-Gorizia area)
Jamaica	English, English patois
Japan	Japanese
Jersey	English 94.5% (official), Portuguese 4.6%, other 0.9%
Jordan	Arabic (official), English widely understood among upper and middle classes
Kazakhstan	Kazakh (Qazaq, state language) 64.4%, Russian (official, used in everyday business, designated the "language of interethnic communication") 95%
Kenya	English (official), Kiswahili (official), numerous indigenous languages
Kiribati	I-Kiribati, English (official)
Korea, North	Korean
Korea, North	Korean
Korea, South	Korean, English widely taught in junior high and high school
Kuwait	Arabic (official), English widely spoken
Kyrgyzstan	Kyrgyz 64.7% (official), Uzbek 13.6%, Russian 12.5% (official), Dungun 1%, other 8.2%
Laos	Lao (official), French, English, and various ethnic languages
Latvia	Latvian (official) 58.2%, Russian 37.5%, Lithuanian and other 4.3%
Lebanon	Arabic (official), French, English, Armenian
Lesotho	Sesotho (southern Sotho), English (official), Zulu, Xhosa
Liberia	English 20% (official), some 20 ethnic group languages, of which a few can be written and are used in correspondence
Libya	Arabic, Italian, English, all are widely understood in the major cities
Liechtenstein	German (official), Alemannic dialect

Lithuania	Lithuanian (official) 82%, Russian 8%, Polish 5.6%, other and unspecified 4.4%
Luxembourg	Luxembourgish (national language), German (administrative language), French (administrative language)
Macau	Cantonese 85.7%, Hokkien 4%, Mandarin 3.2%, other Chinese dialects 2.7%, English 1.5%, Tagalog 1.3%, other 1.6%
Macedonia, Republic of	Macedonian (official) 66.5%, Albanian (official) 25.1%, Turkish 3.5%, Roma 1.9%, Serbian 1.2%, other 1.8%
Madagascar	English (official), French (official), Malagasy (official)
Malawi	Chichewa 57.2% (official), Chinyanja 12.8%, Chiyao 10.1%, Chitumbuka 9.5%, Chisena 2.7%, Chilomwe 2.4%, Chitonga 1.7%, other 3.6%
Malaysia	Bahasa Malaysia (official), English, Chinese (Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow), Tamil, Telugu, Malayalam, Panjabi, Thai; *note:* in East Malaysia there are several indigenous languages; most widely spoken are Iban and Kadazan
Maldives	Maldivian Dhivehi (dialect of Sinhala, script derived from Arabic), English spoken by most government officials
Mali	French (official), Bambara 80%, numerous African languages
Malta	Maltese (official) 90.2%, English (official) 6%, multilingual 3%, other 0.8%
Man, Isle of	English, Manx Gaelic
Man, Isle of	Manx Gaelic (about 2% of the population has some knowledge)
Marshall Islands	Marshallese (official) 98.2%, other languages 1.8%; *note:* English (official), widely spoken as a second language
Martinique	French, Creole patois
Mauritania	Arabic (official and national), Pulaar, Soninke, Wolof (all national languages), French, Hassaniya
Mauritius	Creole 80.5%, Bhojpuri 12.1%, French 3.4%, English (official; spoken by less than 1% of the population), other 3.7%, unspecified 0.3%
Mayotte	Mahorian (a Swahili dialect), French (official language) spoken by 35% of the population
Mayotte	Mahorian (a Swahili dialect), French (official language) spoken by 35% of the population
Mexico	Spanish only 92.7%, Spanish and indigenous languages 5.7%, indigenous only 0.8%, unspecified 0.8%; note - indigenous languages include various Mayan, Nahuatl, and other regional languages
Micronesia, Federated States of	English (official and common language), Chuukese, Kosrean, Pohnpeian, Yapese, Ulithian, Woleaian, Nukuoro, Kapingamarangi
Moldova	Moldovan (official, virtually the same as the Romanian language), Russian, Gagauz (a Turkish dialect)
Monaco	French (official), English, Italian, Monegasque
Mongolia	Khalkha Mongol 90%, Turkic, Russian
Montserrat	English
Morocco	Arabic (official), Berber dialects, French often the language of business, government, and diplomacy
Mozambique	Emakhuwa 26.1%, Xichangana 11.3%, Portuguese 8.8% (official; spoken by 27% of population as a second language), Elomwe 7.6%, Cisena 6.8%, Echuwabo 5.8%, other Mozambican languages 32%, other foreign languages 0.3%, unspecified 1.3%

Namibia	English 7% (official), Afrikaans common language of most of the population and about 60% of the white population, German 32%, indigenous languages 1% (includes Oshivambo, Herero, Nama)
Nauru	Nauruan (official; a distinct Pacific Island language), English widely understood, spoken, and used for most government and commercial purposes
Nepal	Nepali 47.8%, Maithali 12.1%, Bhojpuri 7.4%, Tharu (Dagaura/Rana) 5.8%, Tamang 5.1%, Newar 3.6%, Magar 3.3%, Awadhi 2.4%, other 10%, unspecified 2.5%; *note:* many in government and business also speak English
Netherlands	Dutch (official), Frisian (official)
Netherlands Antilles	Papiamento 65.4% (a Spanish-Portuguese-Dutch-English dialect), English 15.9% (widely spoken), Dutch 7.3% (official), Spanish 6.1%, Creole 1.6%, other 1.9%, unspecified 1.8%
New Caledonia	French (official), 33 Melanesian-Polynesian dialects
New Zealand	English (official), Maori (official), Sign Language (official)
Nicaragua	Spanish 97.5% (official), Miskito 1.7%, other 0.8%
Niger	French (official), Hausa, Djerma
Nigeria	English (official), Hausa, Yoruba, Igbo (Ibo), Fulani
Niue	Niuean, a Polynesian language closely related to Tongan and Samoan; English
Norfolk Island	English (official), Norfolk - a mixture of 18th century English and ancient Tahitian
Norfolk Island	English (official), Norfolk - a mixture of 18th century English and ancient Tahitian
Northern Mariana Islands	Philippine languages 24.4%, Chinese 23.4%, Chamorro 22.4%, English 10.8%, other Pacific island languages 9.5%, other 9.6%
Norway	Bokmal Norwegian (official), Nynorsk Norwegian (official), small Sami- and Finnish-speaking minorities; note - Sami is official in six municipalities
Oman	Arabic (official), English, Baluchi, Urdu, Indian dialects
Pakistan	Punjabi 48%, Sindhi 12%, Siraiki (a Punjabi variant) 10%, Pashtu 8%, Urdu (official) 8%, Balochi 3%, Hindko 2%, Brahui 1%, English (official; lingua franca of Pakistani elite and most government ministries), Burushaski and other 8%
Palau	Palauan 64.7% official in all islands except Sonsoral (Sonsoralese and English are official), Tobi (Tobi and English are official), and Angaur (Angaur, Japanese, and English are official), Filipino 13.5%, English 9.4%, Chinese 5.7%, Carolinian 1.5%, Japanese 1.5%, other Asian 2.3%, other languages 1.5%
Panama	Spanish (official), English 14%; note - many Panamanians bilingual
Papua New Guinea	Melanesian Pidgin serves as the lingua franca, English spoken by 1%-2%, Motu spoken in Papua region; *note:* 820 indigenous languages spoken (over one-tenth of the world's total)
Paraguay	Spanish (official), Guarani (official)
Peru	Spanish (official), Quechua (official), Aymara, and a large number of minor Amazonian languages
Philippines	Filipino (official; based on Tagalog) and English (official); eight major dialects - Tagalog, Cebuano, Ilocano, Hiligaynon or Ilonggo, Bicol, Waray, Pampango, and Pangasinan
Pitcairn Islands	English (official), Pitkern (mixture of an 18th century English dialect and a Tahitian dialect)
Pitcairn Islands	English (official), Pitkern (mixture of an 18th century English dialect and a Tahitian dialect)
Poland	Polish 97.8%, other and unspecified 2.2%

Portugal	Portuguese (official), Mirandese (official - but locally used)
Puerto Rico	Spanish, English
Qatar	Arabic (official), English commonly used as a second language
Romania	Romanian 91% (official), Hungarian 6.7%, Romany (Gypsy) 1.1%, other 1.2%
Russia	Russian, many minority languages
Rwanda	Kinyarwanda (official) universal Bantu vernacular, French (official), English (official), Kiswahili (Swahili) used in commercial centers
Réunion	French (official), Creole widely used
Saint Barthelemy	French (primary), English
Saint Barthelemy	French (primary), English
Saint Helena	English
Saint Kitts and Nevis	English
Saint Lucia	English (official), French patois
Saint Martin	French (official language), English, Dutch, French Patois, Spanish, Papiamento (dialect of Netherlands Antilles)
Saint Martin	French (official language), English, Dutch, French Patois, Spanish, Papiamento (dialect of Netherlands Antilles)
Saint Pierre and Miquelon	French (official)
Saint Vincent and the Grenadines	English, French patois
Samoa	Samoan (Polynesian), English
San Marino	Italian
San Marino	Italian
Saudi Arabia	Arabic
Senegal	French (official), Wolof, Pulaar, Jola, Mandinka
Serbia and Montenegro	Serbian 88.3% (official), Hungarian 3.8%, Bosniak 1.8%, Romany (Gypsy) 1.1%, other 4.1%, unknown 0.9%; *note:* Romanian, Hungarian, Slovak, Ukrainian, and Croatian all official in Vojvodina
Seychelles	Creole 91.8%, English 4.9% (official), other 3.1%, unspecified 0.2%
Sierra Leone	English (official, regular use limited to literate minority), Mende (principal vernacular in the south), Temne (principal vernacular in the north), Krio (English-based Creole, spoken by the descendants of freed Jamaican slaves who were settled in the Freetown area, a lingua franca and a first language for 10% of the population but understood by 95%)
Singapore	Mandarin 35%, English 23%, Malay 14.1%, Hokkien 11.4%, Cantonese 5.7%, Teochew 4.9%, Tamil 3.2%, other Chinese dialects 1.8%, other 0.9%
Slovakia	Slovak (official) 83.9%, Hungarian 10.7%, Roma 1.8%, Ukrainian 1%, other or unspecified 2.6%
Slovenia	Slovenian 91.1%, Serbo-Croatian 4.5%, other or unspecified 4.4%
Solomon Islands	Melanesian pidgin in much of the country is lingua franca; English (official; but spoken by only 1%-2% of the population); 120 indigenous languages

Somalia	Somali (official), Arabic, Italian, English
South Africa	IsiZulu 23.8%, IsiXhosa 17.6%, Afrikaans 13.3%, Sepedi 9.4%, English 8.2%, Setswana 8.2%, Sesotho 7.9%, Xitsonga 4.4%, other 7.2%
Spain	Castilian Spanish (official) 74%, Catalan 17%, Galician 7%, Basque 2%, are official regionally
Sri Lanka	Sinhala (official and national language) 74%, Tamil (national language) 18%, other 8%; *note:* English is commonly used in government and is spoken competently by about 10% of the population
Sudan	Arabic (official), English (official), Nubian, Ta Bedawie, diverse dialects of Nilotic, Nilo-Hamitic, Sudanic languages; *note:* program of "Arabization" in process
Suriname	Dutch (official), English (widely spoken), Sranang Tongo (Surinamese, sometimes called Taki-Taki, is native language of Creoles and much of the younger population and is lingua franca among others), Caribbean Hindustani (a dialect of Hindi), Javanese
Svalbard	Norwegian, Russian
Svalbard	Russian
Swaziland	English (official, government business conducted in English), siSwati (official)
Sweden	Swedish, small Sami- and Finnish-speaking minorities
Switzerland	German (official) 63.7%, French (official) 20.4%, Italian (official) 6.5%, Serbo-Croatian 1.5%, Albanian 1.3%, Portuguese 1.2%, Spanish 1.1%, English 1%, Romansch (official) 0.5%, other 2.8%; *note:* German, French, Italian, and Romansch are all national and official languages
Syria	Arabic (official); Kurdish, Armenian, Aramaic, Circassian widely understood; French, English somewhat understood
São Tomé and Príncipe	Portuguese (official)
Taiwan	Mandarin Chinese (official), Taiwanese (Min), Hakka dialects
Tajikistan	Tajik (official), Russian widely used in government and business
Tanzania	Kiswahili or Swahili (official), Kiunguja (name for Swahili in Zanzibar), English (official, primary language of commerce, administration, and higher education), Arabic (widely spoken in Zanzibar), many local languages; *note:* Kiswahili (Swahili) is the mother tongue of the Bantu people living in Zanzibar and nearby coastal Tanzania; although Kiswahili is Bantu in structure and origin, its vocabulary draws on a variety of sources including Arabic and English; it has become the lingua franca of central and eastern Africa; the first language of most people is one of the local languages
Thailand	Thai, English (secondary language of the elite), ethnic and regional dialects
Togo	French (official and the language of commerce), Ewe and Mina (the two major African languages in the south), Kabye (sometimes spelled Kabiye) and Dagomba (the two major African languages in the north)
Tokelau	Tokelauan (a Polynesian language), English
Tonga	Tongan, English
Trinidad and Tobago	English (official), Caribbean Hindustani (a dialect of Hindi), French, Spanish, Chinese
Tunisia	Arabic (official and one of the languages of commerce), French (commerce)
Turkey	Turkish (official), Kurdish, Dimli (or Zaza), Azeri, Kabardian; *note:* there is also a substantial Gagauz population in the European part of Turkey

Turkmenistan	Turkmen 72%, Russian 12%, Uzbek 9%, other 7%
Turks and Caicos Islands	English (official)
Tuvalu	Tuvaluan, English, Samoan, Kiribati (on the island of Nui)
Uganda	English (official national language, taught in grade schools, used in courts of law and by most newspapers and some radio broadcasts), Ganda or Luganda (most widely used of the Niger-Congo languages, preferred for native language publications in the capital and may be taught in school), other Niger-Congo languages, Nilo-Saharan languages, Swahili, Arabic
Ukraine	Ukrainian (official) 67%, Russian 24%, other 9% (includes small Romanian-, Polish-, and Hungarian-speaking minorities)
United Arab Emirates	Arabic (official), Persian, English, Hindi, Urdu
United Kingdom	English, Welsh (about 26% of the population of Wales), Scottish form of Gaelic (about 60,000 in Scotland)
United States	English 82.1%, Spanish 10.7%, other Indo-European 3.8%, Asian and Pacific island 2.7%, other 0.7%; *note:* Hawaiian is an official language in the state of Hawaii
Uruguay	Spanish, Portunol, or Brazilero (Portuguese-Spanish mix on the Brazilian frontier)
Uzbekistan	Uzbek 74.3%, Russian 14.2%, Tajik 4.4%, other 7.1%
Vanuatu	local languages (more than 100) 72.6%, pidgin (known as Bislama or Bichelama) 23.1%, English 1.9%, French 1.4%, other 0.3%, unspecified 0.7% (1999 Census)
Venezuela	Spanish (official), numerous indigenous dialects
Vietnam	Vietnamese (official), English (increasingly favored as a second language), some French, Chinese, and Khmer; mountain area languages (Mon-Khmer and Malayo-Polynesian)
Virgin Islands	English 74.7%, Spanish or Spanish Creole 16.8%, French or French Creole 6.6%, other 1.9%
Wallis and Futuna	Wallisian 58.9% (indigenous Polynesian language), Futunian 30.1%, French (official) 10.8%, other 0.2%
West Bank	Arabic, Hebrew (spoken by Israeli settlers and many Palestinians), English (widely understood)
Western Sahara	Hassaniya Arabic, Moroccan Arabic
Yemen	Arabic
Zambia	English (official), major vernaculars - Bemba, Kaonda, Lozi, Lunda, Luvale, Nyanja, Tonga, and about 70 other indigenous languages
Zimbabwe	English (official), Shona, Sindebele (the language of the Ndebele, sometimes called Ndebele), numerous but minor tribal dialects