



AMERICAN
SPEECH-LANGUAGE-
HEARING
ASSOCIATION

Knowledge and Skills Required for the Practice of Audiologic/Aural Rehabilitation

Working Group on Audiologic Rehabilitation

Reference this material as: American Speech-Language-Hearing Association. (2001). *Knowledge and Skills Required for the Practice of Audiologic/Aural Rehabilitation* [Knowledge and Skills]. Available from www.asha.org/policy.

Index terms: audiologic/aural rehabilitation

DOI: 10.1044/policy.KS2001-00216

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About This Document

This document, Knowledge and Skills Required for the Practice of Audiologic/Aural Rehabilitation, was approved by the ASHA Legislative Council in April 2001 (LC-11) and is an official statement of the American Speech-Language-Hearing Association (ASHA). The document was prepared by the Working Group on Audiologic Rehabilitation in response to a charge from the American Speech-Language-Hearing Association's Executive Board (EB 83-97) to update the Association's definition of and competencies for aural rehabilitation document (ASHA, 1984). Committee members responsible for the development of this document include Susan J. Brannen (monitoring vice president), Catherine Carotta, Catherine C. Clark, Sue Ann Erdman (chair), Charissa R. Lansing, Joseph J. Montano, Mary June Moseley, Richard Nodar (past monitoring vice president), David J. Wark, and Evelyn J. Williams (ex officio). Pamela L. Jackson and Mary Pat Moeller served as consultants during the final stages of document development.

Introduction

The ASHA scope of practice documents (ASHA, 1996a, 1996b, 2001) indicate that the practice of audiology and speech-language pathology includes providing services for audiologic/aural rehabilitation (AR). ASHA's Preferred Practice Patterns (ASHA, 1997a, 1997b) are statements that include definitions of universally applicable characteristics of AR practice. ASHA requires that individuals who practice independently in this area hold the Certificate of Clinical Competence in Audiology or Speech-Language Pathology and abide by the 1994 ASHA Code of Ethics, including Principle of Ethics II Rule B, which states: "Individuals shall engage in only those aspects of the profession that are within their competence, considering their level of education, training, and experience."

Both audiologists and speech-language pathologists traditionally have provided rehabilitative services for children and adults with hearing disorders. Because hearing disorders can profoundly affect the acquisition, development, and use of speech and language, audiologists' and speech-language pathologists' roles may be complementary, interrelated, and, at times, overlapping. Inherent in the practice of AR are many areas of knowledge and skills that are fundamental to both audiology and speech-language pathology.

Clinical research and technological advances have expanded the range and increased the complexities of clinical activities that are now considered routine aspects of AR. AR no longer connotes merely speechreading and auditory training to help compensate for loss of hearing sensitivity due to peripheral impairment. It consists of more than a hearing aid orientation and a 30-day trial period. Many audiologists now view AR as a process in which the effects of an extended range of auditory disorders, including tinnitus and disequilibrium, are also addressed. It is an area of clinical endeavor in which global issues such as mode of communication, literacy, and self-advocacy have brought consumers' needs to the forefront. Rehabilitative assessment measures; educational, behavioral, technological, and counseling intervention procedures; and ongoing client-clinician interaction to evaluate and monitor progress are now considered integral aspects of a client-centered rehabilitation model that *promotes successful adherence to treatment recommendations and professional accountability*. Widespread implementation of neonatal screening programs makes it possible to

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provide early intervention for infants with diagnosed hearing impairment,¹ thereby significantly minimizing delays in speech and language development. In addition, programmable/digital and implantable hearing aids, cochlear and middle ear implants, tinnitus maskers, and an ever-increasing assortment of assistive technologies have provided clinicians with an expanding and flexible array of devices with which to help individuals adjust to and cope with the effects of their specific hearing problems. The communication and psychosocial disadvantages that may be imposed on individuals with hearing problems, on their significant others, on the marital dyad itself, and on family dynamics are also now the focus of those who provide AR services. Society's emphasis on environmental modifications to enhance accessibility for those with physical limitations has also expanded the focus of the clinician's role in AR. Although maximum communication effectiveness continues to be the primary goal of the AR process, the scope of the process now encompasses the whole person, with attention to his or her specific communication needs, behavioral and psychosocial adjustment, and interpersonal, educational, and vocational functioning. The evolving breadth of AR services makes it less and less likely that audiologists and speech-language pathologists have identical roles in AR or that they bring the same knowledge and skills to that process.

The purpose of this document is to provide an updated description of the knowledge and skills audiologists and speech-language pathologists demonstrate in the practice of AR so as to enhance (a) the delivery of services by members of both professions and (b) the collaborative nature of AR.

The ASHA Committee on Rehabilitative Audiology (ASHA, 1980, 1984) prepared a set of minimal competencies for clinicians who provide AR services. The committee asserted that clinicians' skills, interests, and training typically determine the extent to which they have the necessary competencies to provide AR whether they are audiologists or speech-language pathologists. Although in 1974 the Legislative Council had previously approved a position paper in which the audiologist was identified as the primary provider and supervisor of AR (ASHA, 1974), the Committee on Rehabilitative Audiology made no distinctions between AR providers from the two professions.

AR, in all probability, has represented the area of clinical endeavor in which the audiologist's and speech-language pathologist's knowledge and skills have been the most closely related and strongly inter-twined. Traditionally, AR has been defined as services and procedures for facilitating adequate receptive and expressive communication in individuals with auditory dysfunction. These services and procedures are intended for those persons who demonstrate a loss of hearing or who function as such in communication situations. The Committee on Rehabilitative Audiology (ASHA, 1984), in fact, defined AR as a series of

¹ Members of the Working Group on Audiologic Rehabilitation acknowledge the sensitive nature of terminology used to describe hearing ability in an individual. Where the term *impairment* occurs, it refers to problems in body function or structure (i.e., *hearing impairment* is the loss of hearing at the organ level, not a descriptor of the individual's personal activity or social function). This is in accordance with the parameters set forth by the World Health Organization (WHO, 1980, 2000).

activities and services (see Appendix). More recent trends and definitions, however, depict AR as an ongoing facilitative process in which the client is viewed within the context of his/her psychosocial environment, and in which he or she actively engages (Erdman, Wark, & Montano, 1994; Gagné, Héту, Getty, & McDuff, 1995; Hyde & Riko, 1994; Noble, 1996; Noble & Héту, 1994; Stephens, 1996). This ecological approach focuses on the *whole person* and emphasizes general well-being. In view of the expanding scope of AR activities and because rehabilitation is best viewed as an ongoing process in which clients engage, rather than simply as specific services that clinicians provide, the Working Group on Audiologic Rehabilitation adopted the following definition for the purposes of this document:

Audiologic/aural rehabilitation (AR) is an ecological, interactive process that facilitates one's ability to minimize or prevent the limitations and restrictions that auditory dysfunctions can impose on well-being and communication, including interpersonal, psychosocial, educational, and vocational functioning.

With either definition one can, in general, envision the clinician as an audiologist or a speech-language pathologist. The conceptualization of or indeed the scope of practice in AR, however, has expanded such that not all aspects of AR are as likely to be addressed by either an audiologist or a speech-language pathologist as they were 20 years ago.

Several other factors support the current need to distinguish between the knowledge and skills audiologists and speech-language pathologists must have to practice AR. Effective with LC 7-89, audiology and speech-language pathology officially became two separate and distinct professions. The two professions have separate scope of practice statements, separate preferred practice patterns, separate policy-making assemblies within the governance structure of the Association, and separate curriculum and practicum requirements for professionals. The advent of different entry-level degree requirements portends greater independence between graduate programs in audiology and speech-language pathology. In addition, the expanding scopes of practice in both professions make it less likely that clinicians will develop knowledge and skills in areas in which they are less involved or interested. The net effect of these developments is a decrease in the extent to which AR services provided by audiologists and by speech-language pathologists directly overlap.

Given the above considerations, two separate sets of knowledge and skills follow. One identifies the knowledge and skills in AR for audiologists; the second identifies the knowledge and skills in AR for speech-language pathologists. The current and most recently approved Standards for Certification in Audiology (ASHA, 1997c) and in Speech-Language Pathology (ASHA 1993a, 1993b, Council on Professional Standards in Speech-Language Pathology and Audiology, 2000), the current and emergent Scope of Practice Statements (ASHA, 1996a, 1996b, 2001), the Preferred Practice Patterns (PPP; ASHA 1997a, 1997b), and hearing aid fitting guidelines (ASHA, 1998) served as guidelines to identify the specific areas of knowledge and skills for each profession's range of activities in AR.

The Standards for Clinical Certification in the professions delineate those areas of knowledge and skills that entry-level clinicians can be expected to demonstrate. The Scope of Practice Statements list professional activities that define the range of services provided within each profession. These statements are updated periodically to reflect emergent areas of clinical practice. The PPPs describe (a) universally applicable characteristics of activities directed toward individual clients, (b) structural requisites for the practice processes to be carried out, and (c) intended outcomes of practice. The practice pattern statements are updated to reflect research findings and technological advances that are expected to improve the effectiveness of clinical intervention. The Scope of Practice Statements reflect the breadth and depth of clinical practice; the Preferred Practice Patterns describe areas of practice with considerable specificity.

The areas of knowledge and skills identified herein are those which audiologists and speech-language pathologists who provide AR services are, at a minimum, expected to demonstrate. They are not restrictive or limiting of the other areas or levels of knowledge and skills one could or should have.² The separate sets of knowledge and skills presented herein differ in accordance with the respective profession's Certification Standards, Scope of Practice, and Preferred Practice Patterns. As such, they reflect the knowledge and skills clinicians in each profession are more likely to have as well as the areas of emphasis and levels of expertise generally attributed to each profession. Identification of profession-specific knowledge and skills is expected to strengthen intraprofessional AR service provision and to facilitate interprofessional collaboration and promotion of a view of AR as the interdisciplinary endeavor that it often is. For clinicians whose area of expertise or specialization is AR—and pediatric AR in particular—it is anticipated that the knowledge and skills from both areas may actually define their scope of practice. Graduate students and clinicians with interests in AR can use the document to identify areas for future coursework or continuing education. Those individuals who wish to specialize in all areas of practice in AR will find it useful to visualize the breakdown in areas of knowledge and skills, be it for selection of a graduate program, a profession, specific coursework or clinical training, or continuing education experiences. Graduate programs will find the document useful in curriculum and practicum planning. The document may also be useful in employment settings for determining job descriptions. Finally, should interested groups pursue the establishment of specialty recognition in AR, the areas of skill and knowledge identified herein will be useful guides.

² To underscore the nonrestrictive, nonlimiting description of skills in AR, the phrase *provide for* is used. For example, although a specific AR skill may generally be provided by a speech-language pathologist, an audiologist who is competent in the specific skill may also provide this expertise and service. In contrast, if the audiologist does *not* have competence in the specific skill area then it must be *provided for* and thus may require collaboration with or referral to a speech-language pathologist who is competent in the specific skill area. This holds true as well when an audiologist would typically provide the service but a particular speech-language pathologist has the requisite knowledge and skills to do so.

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Providing AR
Services**

Basic Areas of Knowledge

Audiologists who provide AR services demonstrate knowledge in the basic areas that are the under-pinnings of communication sciences and disorders. These include the following:

- I. General Knowledge
 - A. General psychology; human growth and development; psychosocial behavior; cultural and linguistic diversity; biological, physical, and social sciences; mathematics; and qualitative and quantitative research methodologies.
- II. Basic Communication Processes
 - A. Anatomic and physiologic bases for the normal development and use of speech, language, and hearing (including anatomy, neurology, and physiology of speech, language, and hearing mechanisms);
 - B. Physical bases and processes of the production and perception of speech and hearing (including acoustics or physics of sound, phonology, physiologic and acoustic phonetics, sensory perceptual processes, and psychoacoustics);
 - C. Linguistic and psycholinguistic variables related to the normal development and use of speech, language, and hearing (including linguistics [historical, descriptive, sociolinguistics, sign language, second language usage], psychology of language, psycholinguistics, language and speech acquisition, verbal learning and verbal behavior, and gestural communication);
 - D. Dynamics of interpersonal skills, communication effectiveness, and group theory.

Special Areas of Knowledge and Skills

Audiologists who provide AR have knowledge in the following special areas and demonstrate the itemized requisite skills in those areas:

- III. Auditory System Function and Disorders
 - A. Identify, describe, and differentiate among disorders of auditory function (including disorders of the outer, middle, and inner ear; the vestibular system; the auditory nerve and the associated neural and central auditory system pathways and processes);
- IV. Developmental Status, Cognition, and Sensory Perception
 - A. Provide for the administration of assessment measures in the client's preferred mode of communication;
 - B. Verify adequate visual acuity for communication purposes;
 - C. Identify the need and provide for assessment of cognitive skills, sensory perceptual and motor skills, developmental delays, academic achievement, and literacy;
 - D. Determine the need for referral to other medical and nonmedical specialists for appropriate professional services;
 - E. Provide for ongoing assessments of developmental progress.
- V. Audiologic Assessment Procedures
 - A. Conduct interview and obtain case history;
 - B. Perform otoscopic examinations and ensure that the external auditory canal is free of obstruction, including cerumen;
 - C. Conduct and interpret behavioral, physiologic, or electrophysiologic evaluations of the peripheral and central auditory systems;

- D. Conduct and interpret assessments for auditory processing disorders;
 - E. Administer and interpret standardized self-report measures of communication difficulties and of psychosocial and behavioral adjustment to auditory dysfunction;
 - F. Identify the need for referral to medical and nonmedical specialists for appropriate professional services.
- VI. Speech and Language Assessment Procedures
- A. Identify the need for and perform screenings for effects of hearing impairment on speech and language;
 - B. Describe the effects of hearing impairment on the development of semantic, syntactic, pragmatic, and phonologic aspects of communication, both in terms of comprehension and production;
 - C. Provide for appropriate measures of speech and voice production;
 - D. Provide for appropriate measures of language comprehension and production skills and/or alternate communication skills (e.g., signing);
 - E. Administer and interpret appropriate measures of communication skills in auditory, visual, auditory-visual, and tactile modalities.
- VII. Evaluation and Management of Devices and Technologies for Individuals With Hearing Impairment (e.g., hearing aids, cochlear implants, middle ear implants, implantable hearing aids, tinnitus maskers, hearing assistive technologies, and other sensory prosthetic devices)
- A. Perform and interpret measures of electroacoustic characteristics of devices and technologies;
 - B. Describe, perform, and interpret behavioral/psychophysical measures of performance with these devices and technologies;
 - C. Conduct appropriate fittings with and adjustments of these devices and technologies;
 - D. Monitor fitting of and adjustment to these devices and technologies to ensure comfort, safety, and device performance;
 - E. Perform routine visual, listening, and electroacoustic checks of clients' hearing devices and sensory aids to troubleshoot common causes of malfunction;
 - F. Evaluate and describe the effects of the use of devices and technologies on communication and psychosocial functioning;
 - G. Plan and implement a program of orientation to these devices and technologies to ensure realistic expectations; to improve acceptance of, adjustment to, and benefit from these systems; and to enhance communication performance;
 - H. Conduct routine assessments of adjustment to and effective use of amplification devices to ensure optimal communication function;
 - I. Monitor outcomes to ensure professional accountability.
- VIII. Effects of Hearing Impairment on Functional Communication
- A. Identify the individual's situational expressive and receptive communication needs;
 - B. Evaluate the individual's expressive and receptive communication performance;
 - C. Identify environmental factors that affect the individual's situational communication needs and performance;

- D. Identify the effects of interpersonal relations on communication function.
- IX. Effects of Hearing Impairment on Psychosocial, Educational, and Occupational Functioning
 - A. Describe and evaluate the impact of hearing impairment on psychosocial development and psychosocial functioning;
 - B. Describe systems and methods of educational programming (e.g., mainstream, residential) and facilitate selection of appropriate educational options;
 - C. Describe and evaluate the effects of hearing impairment on occupational status and performance (e.g., communication, localization, safety);
 - D. Identify the effects of hearing problems on marital dyads, family dynamics, and other interpersonal communication functioning;
 - E. Identify the need and provide for psychosocial, educational, family, and occupational/vocational counseling in relation to hearing impairment and subsequent communication difficulties;
 - F. Provide assessment of family members' perception of and reactions to communication difficulties.
- X. AR Case Management
 - A. Use effective interpersonal communication in interviewing and interacting with individuals with hearing impairment and their families;
 - B. Describe client-centered, behavioral, cognitive, and integrative theories and methods of counseling and their relevance in AR;
 - C. Provide appropriate individual and group adjustment counseling related to hearing loss for individuals with hearing impairment and their families;
 - D. Provide auditory, visual, and auditory-visual communication training (e.g., speechreading, auditory training, listening skills) to enhance receptive communication;
 - E. Provide training in effective communication strategies to individuals with hearing impairment, family members, and other relevant individuals
 - F. Provide for appropriate expressive communication training
 - G. Provide appropriate technological and counseling intervention to facilitate adjustment to tinnitus;
 - H. Provide appropriate intervention for management of vestibular disorders;
 - I. Develop and implement an intervention plan based on the individual's situational/environmental communication needs and performance and related adjustment difficulties;
 - J. Develop and implement a system for measuring and monitoring outcomes and the appropriateness and efficacy of intervention.
- XI. Interdisciplinary Collaboration and Public Advocacy
 - A. Collaborate effectively as part of multidisciplinary teams and communicate relevant information to allied professionals and other appropriate individuals;

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- B. Plan and implement in-service and public-information programs for allied professionals and other interested individuals;
 - C. Plan and implement parent-education programs concerning the management of hearing impairment and subsequent communication difficulties;
 - D. Advocate implementation of public law in educational, occupational, and public settings;
 - E. Make appropriate referrals to consumer-based organizations.
- XII. Hearing Conservation/Acoustic Environments
- A. Plan and implement programs for prevention of hearing impairment to promote identification and evaluation of individuals exposed to hazardous noise and periodic monitoring of communication performance and auditory abilities (e.g., speech recognition in noise, localization);
 - B. Identify need for and provide appropriate hearing protection devices and noise abatement procedures;
 - C. Monitor the effects of environmental influences, amplification, and sources of trauma on residual auditory function;
 - D. Measure and evaluate environmental acoustic conditions and relate them to effects on communication performance and hearing protection.

Basic Areas of Knowledge

Speech-language pathologists who provide AR services demonstrate knowledge in the basic areas that are the underpinnings of communication sciences and disorders. These include the following:

- I. General Knowledge
 - A. General psychology; human growth and development; psychosocial behavior; cultural and linguistic diversity; biological, physical, and social sciences; mathematics; and qualitative and quantitative research methodologies.
- II. Basic Communication Processes
 - A. Anatomic and physiologic bases for the normal development and use of speech, language, and hearing (including anatomy, neurology, and physiology of speech, language, and hearing mechanisms);
 - B. Physical bases and processes of the production and perception of speech and hearing (including acoustics or physics of sound, phonology, physiologic and acoustic phonetics, sensory perceptual processes, and psychoacoustics);
 - C. Linguistic and psycholinguistic variables related to the normal development and use of speech, language, and hearing (including linguistics [historical, descriptive, sociolinguistics, sign language, second language usage], psychology of language, psycholinguistics, language and speech acquisition, verbal learning and verbal behavior, and gestural communication);

- D. Dynamics of interpersonal skills, communication effectiveness, and group theory.

Special Areas of Knowledge and Skills

Speech-language pathologists who provide AR have knowledge in the following special areas and demonstrate the itemized requisite skills in those areas:

III. Auditory System Function and Disorders

- A. Describe the impact of various disorders of auditory function on communication (including disorders of the outer, middle, and inner ear, and the auditory nerve and the associated neural and central auditory system pathways and processes).

IV. Developmental Status, Cognition, and Sensory Perception

- A. Provide for the administration of assessment measures in the client's preferred mode of communication;
B. Verify adequate visual acuity for communication purposes;
C. Identify the need for assessment of cognitive, sensory perceptual and motor skills, developmental delays, academic achievement, and literacy;
D. Determine the need for referral to other medical and nonmedical specialists for appropriate professional services;
E. Provide for ongoing assessments of developmental progress.

V. Audiologic Assessment Procedures

- A. Conduct audiologic screening as appropriate for initial identification and/or referral purposes;
B. Describe type and degree of hearing loss from audiometric test results (including pure tone thresholds, immittance testing, and speech audiometry);
C. Refer to and consult with an audiologist for administration and interpretation of differential diagnostic procedures (including behavioral, physiological and electrophysiological measures).

VI. Assessment of Communication Performance

- A. Provide for assessment measures in the client's preferred mode of communication;
B. Identify and perform screening examinations for speech, language, hearing, auditory processing disorders, and reading and academic achievement problems;
C. Identify and perform diagnostic evaluations for the comprehension and production of speech and language in oral, signed, written or augmented form;
D. Provide diagnostic evaluations of speech perception in auditory, visual, auditory-visual, or tactile modalities;
E. Identify the effects of hearing loss on speech perception, communication performance, listening skills, speechreading, communication strategies, and personal adjustment;

- F. Provide for clients' self-assessment of communication difficulties and adjustment to hearing loss;
 - G. Monitor developmental progress in relation to communication competence.
- VII. Devices and Technologies for Individuals With Hearing Loss (e.g., hearing aids, cochlear implants, middle ear implants, implantable hearing aids, hearing assistive technologies, and other sensory prosthetic devices)
- A. Describe candidacy criteria for amplification or sensory-prosthetic devices (e.g., hearing aids, cochlear implants);
 - B. Monitor clients' prescribed use of personal and group amplification systems;
 - C. Describe options and applications of sensory aids (e.g., assistive listening devices) and telephone/telecommunication devices;
 - D. Identify the need and refer to an audiologist for evaluation and fitting of personal and group amplification systems and sensory aids;
 - E. Implement a protocol, in consultation with an audiologist, to promote adjustment to amplification;
 - F. Perform routine visual inspection and listening checks of clients' hearing devices and sensory aids to troubleshoot common causes of malfunctioning (e.g., dead or corroded batteries, obstruction or damage to visible parts of the system);
 - G. Refer on a regularly scheduled basis clients' personal and group amplification systems, other sensory aids, and assistive listening devices for comprehensive evaluations to ensure that instruments conform to audiologists' prescribed settings and manufacturers' specifications;
 - H. Describe the effects of amplification use on communication function;
 - I. Describe and monitor the effects of environmental factors on communication function.
- VIII. Effects of Hearing Loss on Psychosocial, Educational, and Vocational Functioning
- A. Describe the effects of hearing loss on psychosocial development;
 - B. Describe the effects of hearing loss on learning and literacy;
 - C. Describe systems and methods of educational programming (e.g., mainstream, residential) and facilitate selection of appropriate educational options;
 - D. Identify the need for and availability of psychological, social, educational, and vocational counseling;
 - E. Identify and appropriately plan for addressing affective issues confronting the person with hearing loss;
 - F. Identify appropriate consumer organizations and parent support groups.
- IX. Intervention and Case Management
- A. Develop and implement a rehabilitative intervention plan based on communication skills and needs of the individual and family or caregivers of the individual;
 - B. Provide for communication and counseling intervention in the client's preferred mode of communication;
 - C. Develop expressive and receptive competencies in the client's preferred mode of communication;

- D. Provide speech, language, and auditory intervention (including but not limited to voice quality and control, resonance, phonologic and phonetic processes, oral motor skills, articulation, pronunciation, prosody, syntax/morphology, semantics, pragmatics);
- E. Facilitate appropriate multimodal forms of communication (e.g., auditory, visual, tactile, speechreading, spoken language, Cued Speech, simultaneous communication, total communication, communication technologies) for the client and family;
- F. Conduct interviews and interact effectively with individuals and their families;
- G. Develop and implement a system to measure and monitor outcomes and the efficacy of intervention.
- X. Interdisciplinary Collaboration and Public Advocacy
 - A. Collaborate effectively as part of multidisciplinary teams and communicate relevant information to allied professionals and other appropriate individuals;
 - B. Plan and implement in-service and public-information programs for allied professionals and other interested individuals;
 - C. Plan and implement parent-education programs concerning the management of hearing loss and subsequent communication problems;
 - D. Plan and implement interdisciplinary service programs with allied professionals;
 - E. Advocate implementation of public law in educational, occupational, and public settings;
 - F. Refer to consumer-based organizations.
- XI. Acoustic Environments
 - A. Provide for appropriate environmental acoustic conditions for effective communication;
 - B. Describe the effects of environmental influences, amplification systems, and sources of trauma on residual auditory function;
 - C. Provide for periodic hearing screening for individuals exposed to hazardous noise.

Professional Implications

The interdisciplinary nature of AR, particularly in the area of pediatrics where speech and language intervention is crucial, supports the need for additional training/coursework beyond the current minimal requirements for certification for either audiology or speech-language pathology. AR services for children must include the expertise generally provided by an audiologist in addition to the knowledge and skills of a speech-language pathologist. This can be achieved in a number of ways. There are clinicians whose training, interest, and experience easily enable them to demonstrate the requisite knowledge and skills identified herein for both audiologists and speech-language pathologists. Nonetheless, in view of current training models, expanding scopes of practice, and the tendency toward specialty rather than general practice, it is more likely that individual clinicians primarily will have the knowledge and skills representative of their individual profession. Hence, AR in many settings will continue to be provided as an interdisciplinary or transdisciplinary service, with clinicians from both professions providing complementary or supplementary services. In those cases, it is hoped that delineation of the areas of expertise will simplify and expedite service delivery while improving its quality.

As in any area of clinical practice, members of ASHA are bound by the Code of Ethics (ASHA, 1994) to practice within the scope of their particular knowledge and skills. Individuals providing AR services should be especially mindful of this in view of cross-disciplinary expectations from employers. Separation of the areas of knowledge and skills for audiologists and speech-language pathologists should be of help to clinicians in this regard. Speech-language pathologists in nursing home or public school settings, for example, are not required to demonstrate knowledge and skills in the areas of hearing aid fittings or adjustments beyond manual inspections for damage or dead batteries. Ethically, to provide services beyond that level, one must be able to demonstrate that one has the requisite knowledge and skills to do so. It is entirely appropriate to reference the Skills and Knowledge in AR and the ASHA Code of Ethics documents to delimit one's scope of practice in such situations. Conversely, if one does provide services beyond those described in the Scope of Practice for the profession in which one is certified and beyond those areas of AR knowledge and skills delineated for that profession herein, one is similarly bound by the Code of Ethics to be able to demonstrate that one has the requisite knowledge and skills.

In view of the rapid development of technology and emergent research that increases our understanding of the complex needs of those who have hearing problems, the scope of AR continues to grow. Hence, the areas of knowledge and skill required to maintain competency continue to evolve. Practitioners must engage in an ongoing, self-directed process of continuing education that is motivated by career responsibilities and changes. Professionalism mandates that speech-language pathologists, audiologists, and related professional organizations take an active role in the creation of appropriate learning experiences that facilitate the application of new information in the clinical arena. Professionals must assume responsibility for assessing their needs in the area of professional development; moreover, they must assume responsibility for informing employers of areas of needed growth. And employers and program directors must be supportive of professionals' efforts to meet the ever-changing needs of the field.

Opportunities for continuing education are present in a variety of formats: traditional academic coursework, distance-learning, in-service training, workshops, professional meetings/conventions of associations, teleconferences, videoconferences, journal and study groups, self-study, and so forth. Addressing the ongoing and changing needs of individuals with hearing loss requires professionals and learning institutions to demonstrate that they value change, have an ability to adapt, use reflective and systematic thinking practices, and have the ability to establish cross-disciplinary communities of learning (Chawla & Renesch, 1995; Senge, 1990). To achieve this standard in AR, professionals and organizations alike must realize that continuing education is not a luxury but a necessity—a necessity that can only be addressed by professionals and organizations creating plans for growth with an eye on the current and future needs of individuals with hearing loss (Smutz & Queeney, 1990).

Academic Training Implications

Ideally, the basic knowledge and skills necessary to provide AR should be acquired during academic training. Academic programs quite naturally vary, however, in the extent to which content areas are emphasized in the curriculum. Even within the core curriculum, graduate requirements and certification standards permit clinicians-in-training considerable flexibility in terms of electives and practicum

experiences. Across academic programs there is variability in terms of what AR courses are offered and how they are offered; they may be offered as audiology courses or as speech-language pathology courses. Such subtle differences can affect enrollment, the perception of course content, and the perception of AR as an area of practice. Many academic programs do not have specific requirements for students with an interest in AR regardless of whether they are audiology or speech-language pathology students.

Specifying the AR knowledge and skills audiologists and speech-language pathologists should each have provides considerable clarification to those responsible for developing curriculum and practicum experiences in academic programs. Identifying the requisite knowledge and skills provides academic programs with guidelines in the selection, evaluation, and monitoring of academic and clinical experiences. Furthermore, an outcomes-based approach allows training programs to indicate more clearly to potential employers what to expect from graduating students. This not only increases the credibility of the training program but also improves student performance for at least two reasons. First, employers may be less inclined to impose unrealistic expectations upon the clinician. Second, if the content of the training is properly specified, the clinician should be better prepared to meet the critical demands of the work setting. From the clinician's perspective, such shifts in job-readiness and employer attitudes should lead to increased credibility, effectiveness, and job satisfaction. More important, from the client's perspective these shifts should facilitate improved service delivery and outcomes.

A repeated concern is that the implementation of knowledge and skills will necessarily increase the time required for students to matriculate. This is a legitimate concern in view of rising education costs and declining enrollments at the graduate level. Fortunately, the marked expansion of rehabilitative activities and responsibilities in audiology coincides with the profession's transition to a doctoral-level profession that will facilitate inclusion of academic and clinical experiences designed to maximize students' knowledge and skills in the assessment and management of individuals with auditory disorders. Another important consideration, however, is that not all training occurs at the pre-service level. In fact, it is unreasonable to expect any pre-service training program to be the complete source of knowledge in any profession. We should only expect that pre-service training will provide the emerging professional with the skills for meeting a limited set of client and employer needs and the strategies for acquiring new knowledge and skills on the job. Technological and clinical advancements, as well as changing clinical responsibilities, can result in a demand for additional competencies. From this standpoint, continuing education assumes a prominent role in clinical training. It, therefore, becomes critical that we delineate training and service-delivery guidelines that extend beyond the pre-service level. As such, the areas of knowledge and skills described herein are intended to delineate comprehensive service delivery independent of training method or level.

References

- American Speech-Language-Hearing Association. (1974). The audiologist: Responsibilities in the habilitation of the auditorily handicapped. *Asha*, 16, 68-70.
- American Speech-Language-Hearing Association. (1980). Proposed minimal competencies necessary to provide aural rehabilitation. *Asha*, 22, 461.

- American Speech-Language-Hearing Association. (1984, May). Definitions of and competencies for aural rehabilitation. *Asha*, 26, 37-41.
- American Speech-Language-Hearing Association. (1993a). *Standards and implementations procedures for certificate of clinical competence in audiology*. Rockville, MD: Author.
- American Speech-Language-Hearing Association. (1993b). *Standards and implementations procedures for certificate of clinical competence in speech-language pathology*. Rockville, MD: Author.
- American Speech-Language-Hearing Association. (1994, March). Code of ethics. *Asha*, 36 (Suppl. 13), 1-2.
- American Speech-Language-Hearing Association. (1996a, Spring). Scope of practice in audiology. *Asha*, 38(Suppl. 16), 12-15.
- American Speech-Language-Hearing Association. (1996b, Spring). Scope of practice in speech-language pathology. *Asha*, 38(Suppl. 16), 16-20.
- American Speech-Language-Hearing Association. (1997a). *Preferred practice patterns for the profession of audiology*. <publisher-loc>Rockville, MD</publisher-loc> <publisher-name>Author</publisher-name>
- American Speech-Language-Hearing Association. (1997b). *Preferred practice patterns for the profession of speech-language pathology*. Rockville, MD: Author.
- American Speech-Language-Hearing Association. (1997c, October 21). Standards and implementations for the certificate of clinical competence in audiology. *ASHA Leader*, 7-8.
- American Speech-Language-Hearing Association. (1998). Guidelines for hearing aid fitting for adults. *American Journal of Audiology*, 7, 5-13.
- American Speech-Language-Hearing Association. (2001). *Scope of practice in speech-language pathology*. Rockville, MD: Author.
- Chawla, S., & Renesch, J. (Eds.). (1995). *Learning organizations: Developing cultures for tomorrow's workplace*. Portland, OR: Productivity Press.
- Council on Professional Standards in Speech-Language Pathology and Audiology. (2000). *Speech-language pathology certification standards*. Rockville, MD: Author.
- Erdman, S. A., Wark, D. J., & Montano, J. J. (1994). Implications of service delivery models in audiology. *Journal of the Academy of Rehabilitative Audiology*, 27, 45-60.
- Gagné, J.-P., Héту, R., Getty, L., & McDuff, S. (1995). Toward the development of paradigms to conduct functional evaluative research in audiological rehabilitation. *Journal of the Academy of Rehabilitative Audiology*, 28, 7-25.
- Hyde, M. L., & Riko, K. (1994). A decision analytic approach to audiological rehabilitation. In Gagné, J. P. & Tye-Murray, N. (Eds.), *Research in audiological rehabilitation: Current trends and future directions*. In Gagné, J. P. & Tye-Murray, N. (Eds.), *Journal of the Academy of Rehabilitative Audiology* (Vol. 27, pp. 337-374).
- LaBlance, G. R., & Fagan, E. C. (1994, June-July). Death, taxes, and lifelong learning. *Asha*, 36, 32-33.
- Morris, B. A., & Huffman, N. P. (1994, June-July). Self-directed learning in adult education. *Asha*, 36, 36-37.
- Noble, W. (1996). What is a psychosocial approach to hearing loss? *Scandinavian Audiology*, 25, 6-11.
- Noble, W., & Héту, R. (1994). An ecological approach to disability and handicap in relation to impaired hearing. *Audiology*, 33(2), 117-126.
- Northcott, W. (1973). Competencies needed by teachers of hearing-impaired infants, birth to three years, and their parents. *Volta Review*, 75, 532-544.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.
- Smutz, W. D., & Queeney, D. S. (1990). Professionals as learners: A strategy for maximizing professional growth. Education: A symposium. In *Visions for the future of continuing professional education* (pp. 183-208). Athens: University of Georgia.

- Stephens, D. (1996). Hearing rehabilitation in a psychosocial framework. *Scandinavian Audiology*, 25, 57-66.
- Stephens, D., & Hetu, R. (1991). Impairment, disability and handicap in audiology: Toward a consensus. *Audiology*, 30, 185-200.
- World Health Organization. (1980). *International classification of impairments, disabilities and handicaps: A manual of classification relating to the consequences of disease*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2000). *International classification of functioning, disability and health* (Prefinal draft, full version, December 2000). Geneva, Switzerland: World Health Organization.

Appendix ASHA 1984 Definition of Aural Rehabilitation³

- I. Identification and Evaluation of Sensory Capabilities
 - A. Identification and evaluation of the extent of the impairment, including assessment, periodic monitoring, and re-evaluation of auditory abilities;
 - B. Monitoring of other sensory capabilities (e.g., visual and tactile-kinesthetic) as they relate to receptive and expressive communication;
 - C. Evaluation, fitting and monitoring of auditory aids and monitoring of other sensory aids (e.g., visual and vibrotactile) used by the auditorily handicapped person in various communication environments (e.g., home, work, and school). Such auditory and sensory aids are taken to include all amplification systems (group and individual), as well as such supplementary devices as telephone amplifiers, alarm systems and so on;
 - D. Evaluation and monitoring of the acoustic characteristics of the communication environments confronted by the hearing-impaired person.
- II. Interpretation of Results, Counseling and Referral
 - A. Interpretation of audiologic findings to the student/client, his/her family, employer, teachers, and significant others involved in communication with the hearing-impaired person;
 - B. Guidance and counseling for the client, his/her family, employer, caregiver, teachers, and significant others concerning the educational, psychosocial, and communication effects of hearing impairment;
 - C. Guidance and counseling for the parent/caregiver regarding educational options available, selection of educational programs, and facilitation of communication and cognitive development;
 - D. Individual and/or family counseling regarding acceptance and understanding of the hearing impairment, functioning within difficult listening situations, facilitation of effective strategies and attitudes toward communication, modification of communication behavior in keeping with those strategies and attitudes, and promotion of independent management of communication-related problems;
 - E. Referral for additional services (e.g., medical, psychological, social, and educational), as appropriate.
- III. Intervention for Communication Difficulties
 - A. Development and provision of an intervention program to facilitate expressive and receptive communication;
 - B. Provision of hearing and speech conservation programming;
 - C. Service as a liaison between the client, family, and other agencies concerned with the management of communication disorders related to hearing impairment.
- IV. Re-evaluation of the Client's Status
- V. Evaluation and Modification of the Intervention Program

³ Excerpt from: Definitions of and competencies for aural rehabilitation (ASHA, 1984).