Chapter 1

The Speech-Language Pathologist in Audiology Services: An Interprofessional Collaboration

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Key Terms

Behavioral procedure
Best practice
Deaf
Diagnostic audiometry
Evidence-based practice
  (EBP)

False negative response
False positive response
Hard of hearing
Interprofessional
  collaboration
Nonbehavioral procedure

Response to intervention
  (RTI)
Screening procedure
Sensitivity
Specificity

Objectives

- Understand the requirements of the speech-language pathologist as it relates to audiologic services
- Discuss the difference between screening versus diagnostic service provision, and the information they provide
- Discuss the concept of collaboration and understand its importance
- Become familiar with terminology related to persons with hearing loss

Introduction

Speech-language pathology is an exciting profession. Listed as number 28 on *U.S. News & World Report*'s list of best jobs for 2013 (Graves, 2012), the field encompasses science, technology, and the humanities. It involves patient care from diagnosis to rehabilitation, working with all ages from infants to geriatrics. The speech-language pathologist (SLP) may find him- or herself working in a wide range of settings, including medical, educational, rehabilitative, and industrial. Perhaps one of the most exciting aspects of a career in speech-language pathology is the flexibility to work in such a wide range of settings and with an even wider range of individuals and disabilities without ever having to change your field. Throughout this rewarding career, it is quite likely that the speech-language pathologist will eventually have the opportunity to work with an individual who is hard of hearing or deaf. It is perhaps even more likely that the SLP will work with multiply impaired individuals with a wide variety of comorbidities, one of which may be hearing loss.

Working with such individuals requires that speech-language pathologists have a secure understanding of their own scope of practice as well as what it means to practice in an interprofessionally collaborative manner. Other elements critical to successful practice and interventions include best practice guidelines, evidence-based practice principles, and response to intervention. These topics will be addressed in this chapter.

Interprofessional Collaboration

The literature contains a variety of definitions related to **interprofessional collaboration**; some of them are unnecessarily extensive and complicated. At the heart of interprofessional collaboration, whether in the educational area or in clinical practice, is the concept of collaboration, which "... conveys the idea of sharing and implies collective action oriented toward a common goal, in a spirit of harmony and trust, particularly in the context of health professionals" (D'Amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005). Some of the potential benefits of interprofessional collaboration include increased coordination of service provision, better outcomes for the patient, higher satisfaction on the part of the professional, and time and cost efficiency.

Successful interactions among communication disorders service providers demonstrate the importance of having a collaborative relationship in health care, and the devastating effects that may result from its absence. If a child is referred for a speech-language evaluation because she is not speaking clearly and there is no communication between the speech-language pathologist and the audiologist, a hearing loss may go undiagnosed; unfortunately, this can and does happen. It is likely that many professionals who have worked in the field of communication disorders have encountered this scenario. The lack of interprofessional collaboration for this child can result in impaired speech-language development, academic progress, social interactions, vocational choices, and more.

The broader view of interprofessional collaboration sheds light on the fact that it is not only speech-language pathologists and audiologists whose professional areas are interrelated, but also those of occupational therapists, physical therapists, and recreational therapists (De Vries, 2012). As described by De Vries (2012), the skills required for effective interprofessional teamwork include understanding one's own and others' professions, mutual respect, cooperation, communication, coordination, assertiveness, shared responsibility, and autonomy (Banfield & Lackie, 2009; Hall, 2005; Lidskog, 2007). Although successful collaboration is clearly a complex process, fully understanding one's own scope of practice is an integral part of collaboration.

We emphasize again to the reader the importance of collaborating and working as a team, striving always to improve the quality of patient care. We also strongly encourage clinicians to be cognizant of their professional roles and responsibilities; not only in terms of their scope of practice and the knowledge and skills acquisition (KASA) standards, but also in terms of their ethical obligations.

Scope of Practice for the Speech-Language Pathologist

When the speech-language pathologist's job responsibilities include performing audiological procedures, the professional is cautioned to fully understand what is and what is not within their scope of practice. A sound understanding of how to perform a thorough hearing screening, as well as interpret audiometric data and manage the needs of a hard of hearing/deaf individual in your care, is an integral part of the speech-language pathologist's responsibilities.

The American Speech-Language-Hearing Association (ASHA) defines the scope of practice for the field of speech-language

pathology. In its 2007 document titled *Scope of Practice in Speech-Language Pathology*, ASHA presents an official policy that specifies the breadth of practice within the profession of speech-language pathology. We will point out significant passages of this policy statement that are pertinent to your roles and responsibilities with the hard of hearing/deaf individual.

The speech-language pathologist addresses typical and atypical communication and swallowing in a variety of areas, such as speech, sound production, resonance, voice, fluency, language, cognition, and feeding and swallowing. As clearly pointed out in the "Professional Roles and Activities" section of this document, the potential etiologies of these communication and swallowing disorders include, among others, auditory problems such as hearing loss and deafness. It is quite noteworthy to point out that the other potential etiologies that appear on this list, such as neonatal complications, respiratory compromise, and genetic disorders, are also potential causes of hearing loss. The professional roles and activities of the SLP include, further, not only assessment, diagnosis, and treatment planning, but also prevention, advocacy, education, administration, and research (ASHA, 2007, p. 6). With these responsibilities in mind, knowing how to perform an air conduction screening is transparently inadequate. Although the speech-language pathologist's practice does not necessitate the scope and depth of knowledge required of the audiologist, an understanding that is broader and deeper than air conduction audiometry is a must.

Moving on to the document's section describing "Clinical Services," the speech-language pathologist provides services that include "screening individuals for hearing loss or middle ear pathology using conventional pure-tone air conduction methods (including otoscopic inspection), otoacoustic emissions screening, and/or screening tympanometry" (p. 7). However, the role of the SLP does not stop there; on the contrary, being competent to screen and interpret the results might be considered merely scratching the surface. The following list is an excerpt from *Scope of Practice in Speech-Language Pathology* (ASHA, 2007, p. 7) that includes additional examples of services within the SLP scope of practice:

5. Collaborating with other professionals (e.g., identifying neonates and infants at risk for hearing loss, participating in palliative care teams, planning lessons with educators, serving on student assistance teams) . . .

8. Providing intervention and support services for children and adults diagnosed with auditory processing disorders . . .

10. Counseling individuals, families, coworkers, educators, and other persons in the community regarding acceptance, adaptation, and decision making about communication and swallowing;

11. Facilitating the process of obtaining funding for equipment and services related to difficulties with communication and swallowing;

12. Serving as case managers, service delivery coordinators, and members of collaborative teams (e.g., individualized family service plan and individualized education program teams, transition planning teams);

13. Providing referrals and information to other professionals, agencies, and/or consumer organizations;

14. Developing, selecting, and prescribing multimodal augmentative and alternative communication systems, including unaided strategies (e.g., manual signs, gestures) and aided strategies (e.g., speech-generating devices, manual communication boards, picture schedules);

15. Providing services to individuals with hearing loss and their families/caregivers (e.g., auditory training for children with cochlear implants and hearing aids; speechreading; speech and language intervention secondary to hearing loss; visual inspection and listening checks of amplification devices for the purpose of troubleshooting, including verification of appropriate battery voltage);

16. Addressing behaviors (e.g., preservative or disruptive actions) and environments (e.g., classroom seating, positioning for swallowing safety or attention, communication opportunities) that affect communication and swallowing;

17. Selecting, fitting, and establishing effective use of prosthetic/adaptive devices for communication and swallowing (e.g., tracheoesophageal prosthesis, speaking valves, electrolarynxes; *this service does not include the selection or fitting of sensory devices used by individuals with hearing loss or other auditory perceptual deficits, which falls within the scope of practice of audiologists; ASHA, 2004);*

The knowledge and skills set necessary for the speech-language pathologist to competently perform these duties is indescribably greater than just knowing how to conduct a hearing screening. Moreover, the responsibility does not end here. This manuscript also elaborates on the responsibilities as they relate to prevention and advocacy, education, administration, and research; each of these areas requires a solid understanding of the normal and abnormal

auditory system, and the role each plays in communication development and abilities.

The complete document can be found by going to www.asha.org/policy/SP2007-00283.htm.

Diagnostic Audiometry Versus Hearing Screening Procedures

The difference between **diagnostic audiometry** and hearing **screening procedures** can sometimes be confusing. Simply put, a diagnosis of hearing status cannot be made based on a screening procedure; it can be made only as a result of a complete evaluation. A screening is generally a less time-intensive procedure, sometimes taking only 1 minute, whereas a diagnostic assessment is a comprehensive and time-consuming process that starts with a thorough case history and incorporates multiple behavioral, physiologic, and electrophysiologic measures. The hearing screening can identify only those individuals who appear likely to have a hearing loss, whereas the diagnostic assessment can confirm and delineate the type and severity of auditory disorder as well as provide possible recommendations for remediation.

Principles of Screening

A screening can be defined as a means to separate apparently healthy individuals from those for whom there is a greater probability of having a disease or condition, and then to refer the latter for appropriate diagnostic testing (ASHA, 1994). All screening methods should be scrutinized using two criteria when determining the process of pass and fail—sensitivity and specificity. These terms relate to the screening test's ability to accurately separate those who have a given disorder (in this case hearing loss) from those who do not. **Sensitivity** represents the percentage labeled positive on a test that truly have the target condition; **specificity** represents the percentage labeled negative who are truly free of the condition (ASHA, 1997). **Table 1.1** provides an illustration of sensitivity and specificity possibilities.

Table 1.1   Sensitivity and Specificity

	Disease Positive	Disease Negative
Test Positive	A	B
Test Negative	C	D

In the case of air conduction hearing screenings, one critically important consideration is the intensity (or loudness) level used to do the screening. When the decibel level is set inappropriately low (too soft), a larger number of individuals will fail the screening. The individuals who failed under this very strict condition, but really *do not* have a hearing loss, are **false positive responses** (B in Table 1.1). This scenario actually might identify all individuals who really do have a hearing loss (high sensitivity); unfortunately, it also *wrongly* identifies many who really do not have a loss (low specificity).

If, on the other hand, the test intensity is set at a higher (too loud) decibel level, a larger number of individuals might pass under this inappropriately lenient condition. Those who pass under this condition but really *do* sustain hearing loss are **false negative responses** (C in Table 1.1). This scenario will correctly identify all of those cases that truly *do not* have a hearing loss (high specificity); however, the false negative responses represent the individuals who truly *do* have a hearing loss and were—quite unfortunately—not identified (low sensitivity).

The percentages of individuals who fall into each category shown in Table 1.1 for a given hearing screening event will depend largely on the parameters set, but they may also depend on other logistical concerns such as cost in time and money (McPherson, Law, & Wong, 2010; Peterson & Bell, 2008). Ideally, a screening protocol will be established that achieves sensitivity (true positive responses; A in Table 1.1) and specificity (true negative responses; D in Table 1.1) that are as high as possible. We must recognize, however, that real-life circumstances and considerations preclude the statistical perfection that would result in having a protocol that correctly separates out, with 100% accuracy, those who have the disorder from those who do not. We believe it is a reasonable goal to institute a hearing screening protocol that will minimize the false negatives as much as is possible and reasonable. Thus, no individual who actually sustains a hearing loss will miss out on the opportunity for follow-up and intervention.

Behavioral Versus Nonbehavioral Procedures

The numerous procedures used in the audiologic test battery include both behavioral and nonbehavioral types. Very simply stated, a **behavioral procedure** requires the client to actively participate in the task; thus, these types of tests are considered subjective. An example of a behavioral task is when pure tone audiometry is performed and the client is

required to raise his or her hand each time a beep is heard. A **nonbehavioral procedure** does not require the active participation of a client and, in fact, can be performed while the individual is asleep or sedated; thus, this type of task is referred to as objective.

Both behavioral and objective test measures are employed in various combinations in order to determine the type and extent of hearing loss. It is important to understand that the most comprehensive and useful diagnostic information is obtained when a test battery approach, utilizing both subjective and objective techniques, is employed. Thus, even when assessing infants, it is desirable to obtain corroboration of hearing loss by using a combination of behavioral and nonbehavioral test types.

Your Friendly Neighborhood Audiologist

As mentioned at the beginning of this chapter, never underestimate the power of collaboration. As sister fields, speech-language pathology and audiology both fall under the umbrella of ASHA; no matter where you find yourself practicing, you have a network of colleagues whom you can use as resources on a routine, daily basis. These individuals should never be hard to find in acute care medical facilities because those settings often have speech and hearing departments or otolaryngology departments where the audiologists are located. Subacute and nursing home facility employees may have a more difficult time locating the audiologist employed by the facility, possibly the result of limited hours of consultation. Within school systems there are fewer professionals employed as *educational audiologists*, but they can usually be accessed through local, county, regional, or state departments. National and state speech-language-hearing association conventions are an excellent venue for networking opportunities, as are continuing education workshops and national/international symposiums. Regardless, it is professionally beneficial that you will always be able to network with an audiologist when working with an individual with hearing loss.

A Word on Terminology

As a service provider to the patient diagnosed with hearing loss, it is important not only to understand the "technical" implications of certain terms, but also to be sensitive to the fact that some of these terms might carry unpleasant connotations and may also be considered offensive to some individuals.

Deaf

Deaf is the preferred terminology for a person presenting with a hearing loss of such significant degree that benefit derived from hearing aids is minimal. Manual communication and speech reading are the primary means of communication for these individuals. Many prefer not to attempt using amplification of any type. The archaic term *deaf and dumb* is considered offensive. In fact, in many European languages the term meant, as it did in English, not only "deaf and mute" but "deaf and stupid"—incapable of speech and, hence incapable of being educated (Power, 2006). Deaf individuals who choose not to use spoken language are technically considered *mute*. Unfortunately, a common definition of mute implies decreased mental aptitude, which is not the case for most deaf individuals. Today, deaf people find it insulting to be called "deaf and dumb."

Hard of Hearing

Hard of hearing is the preferred terminology for a person presenting with a hearing loss who can derive benefit from hearing aids and uses aural/oral speech for communication; for example, someone who can use a standard telephone (Zak, 1996). The term *hearing impaired* is felt to draw attention away from the person as an individual and focus directly on the disability itself.

Putting the Person First

Current terminology supports the view of "person first" when referring to an impairment or disability. According to *The Language Used to Describe Individuals with Disabilities*, disabilities are the person and they do not define the person, so do not replace person-nouns with disability-nouns (Folkins, 1992). Emphasis should be on the individual; this means that referring to someone as "hearing impaired", and similarly, "aphasic" or "autistic", should be avoided.

Resources for Best Practice, Evidence-Based Practice, and Response to Intervention

The practicing speech-language pathologist is held to high ethical standards by ASHA to provide the best quality service possible to his or her patients. Although a job description or a policies and procedures manual will provide

guidance for the speech-language pathologist in specific practice settings and situations, there are several overlying concepts that will provide guidance in the quality of your services. Whether it is in the form of a hearing screening using state-of-the-art technology or evaluating the articulation of a child with developmental disabilities, holding yourself accountable for quality service should be at the forefront of your clinical practice.

Best Practice

Considered by many to be a buzzword, the term **best practice** describes the development of a standard of practice or process that can be used as a benchmark across a profession; best practices provide a clear expression of professional roles and responsibilities (English, 1991). Best practice refers to a clinical process or testing technique that is judged to be scientifically sound and that consistently yields results of better quality than those achieved with other procedures. Best practices are never static, but are ever-changing as improvements in therapeutic intervention and technology are discovered. Best practices are not mandated legislative regulations, but rather guidelines used as effective measures for a standard of practice.

To this end, ASHA's practice policy documents, along with other cardinal documents of the Association, are written for and by ASHA members and approved by its governance to promulgate best practices and standards in the professions of audiology and speech-language pathology (ASHA, n.d.). As current or future members of ASHA, the vast Association resources that are available and at your disposal through the ASHA website (see www.asha.org/policy/about/) include documents in the following categories:

- *Preferred Practice Patterns*—the informational base for providing quality patient/client care and a focus for professional preparation, continuing education, and research
- *Scope of Practice*—an outline of the parameters of each of the professions
- *Guidelines*—current best practice procedures based on available evidence
- *Position Statements*—public statements of ASHA's official stand on various issues
- *Knowledge and Skills*—the knowledge and set of skills required for a particular area of practice
- *Technical Reports*—supporting documentation and research for an ASHA position statement

- *Relevant Papers*—supporting and related professional documents
- *Standards/Quality Indicators*—documents related to certification accreditation, and professional standards
- *Ethics*—includes the *Code of Ethics* (by which all members and certificate holders are bound) and supporting documents
- *Bylaws*—the bylaws of ASHA, the ASHFoundation, and the ASHA PAC

Evidence-Based Practice

Entire textbooks and courses are devoted to the study of **evidence-based practice (EBP)**. As such, this section is not intended—in any way—to provide thorough coverage of the topic or what it entails. It is important, however, to highlight the importance of employing EBP principles to the clinician's practice. Therefore, the purpose of this section is merely to define and describe EBP, and to provide resources for you to further investigate this topic on your own.

EBP is the foundational component of research from Dr. David Sackett, considered a pioneer in the area of evidence-based practice. Evidence-based practice can be defined as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research (Sackett & Rosenberg, 1996).

For the speech-language pathologist, EBP is the integration of clinical knowledge, the value a patient places on his or her therapy session, and research evidence into the decision-making process for patient care. You might think of this as being a three-legged stool that will collapse if any of those legs are missing. Knowledge of clinical practice is based on the clinician's collective experiences, education, and clinical skills. However, an integral part of EBP is also the patient. The nature of the disability, concern regarding therapeutic outcome, expectations, and values of the therapy session all play a large role in EBP. Best practices, as discussed in the previous section, are included as well because data regarding patient outcomes is usually found in clinically relevant research that has been conducted using sound methodology (Sackett, 2000).

The evidence of therapeutic progress by itself does not determine the level of therapeutic effectiveness, but it can help support the patient care process. The full integration of all three areas into clinical decisions increases the

opportunity for effective clinical outcomes and quality of life. Evidence-based practice requires the clinician to constantly develop new skills, including efficient literature searching and the ability to effectively evaluate clinical literature, which serves to hone clinical practices.

A plethora of resources for EBP are available through the ASHA website at http://www.asha.org/members/ebp/. A guide to the steps in the EBP process, EBP tutorials, and a list of evidence-based systematic reviews on a broad range of topics are only a few of the many educational tools available through the website. Students and practicing clinicians alike are encouraged to explore the information available.

Response to Intervention

The roots of **response to intervention (RTI)** are in the educational realm. Stemming from the release of the No Child Left Behind Act, it is a systematic methodology of providing assistance to children who are experiencing educational difficulty to prevent academic failure. The design of RTI is to provide interventions, frequent measurements of progress, and a spectrum of increasingly intensive research-based instructional interventions for those children who continue to demonstrate difficulty in a specific academic area. The design of RTI is based on the premise of keeping children out of the arena of special education by intervening when academic difficulties are noted, rather than waiting for the child to fail and then be referred to the Child Study Team for evaluation. RTI is viewed by many to be an alternative to the "discrepancy model," in which cognitive ability, measured by psychological measures of intelligence (i.e., IQ testing) and their academic achievement are compared and a determination of a specific type of learning disability is made. The model of RTI is thought by many to be a better alternative to the individualized education program (IEP) generated through a referral and evaluation process of special education. Its premise is that through the collaboration of all stakeholders in the educational process, a child struggling to succeed can be provided with the appropriate interventions while remaining in the general education population. **Figure 1.1** demonstrates the continuum of the RTI service provision model within the general education setting.

Although RTI is clearly and specifically written into No Child Left Behind as a process that now must take place prior to referring a child for special education and related services, much controversy surrounds the RTI model. Proponents of RTI support this multitier model of academic
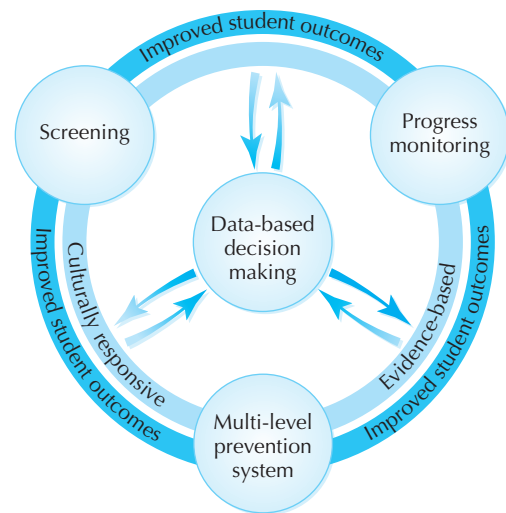
Figure 1.1   Response to Intervention (RTI) model.
Reproduced from National Center on Response to Intervention (June 2010). What is Response to Intervention (RTI). Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention.

assistance in the general education setting focusing on the early design of interventions for those struggling in the mainstream of education. Merging special education into the general education classroom provides the least restrictive environment (LRE) for these students and allows them the best possible services. By having clear standards, useful measurements, and sound instructional practices within the classroom, academic performance is enhanced. Designing a program that exposes these students to the general education setting with their nondisabled peers will result in improvement in academic achievement and overall educational success (Batsche et al., 2005).

Opponents claim that RTI simply identifies low achieving students rather than students with learning disabilities. Poor supports in the process of RTI result in students continuing in a program that is not working to meet their needs. General education teachers cannot always provide the necessary modifications to instruction, or cannot do it systematically. Opponents claim that the main flaw in RTI is that through this intervention model we are asking the student to change when it is the instruction that must change (Batsche, Kavale, & Kovaleski, 2006). The RTI model assumes full cooperation of all stakeholders in the process and that the process itself is clearly defined and implemented.

The devil is in the details. The success of RTI will depend on whether highly trained professionals appropriately implement it—and this is likely to be a problem.

Summary

The role of the speech-language pathologist in servicing patients with hearing loss is clearly defined in the ASHA *Scope of Practice in Speech-Language Pathology*. Through the effective measures of hearing screening, application of best practice methods, and being proactive in interprofessional collaboration, this process can and will serve the deaf or hard of hearing individual in the most effective therapeutic ways possible. This can only be done when the speech-language pathologist is clear about his or her role as a professional, has a strong understanding of the premise behind the screening measure used to identify potential hearing loss, and keeps his or her professional practices current based on research and trends within the field of speech-language pathology.

Discussion Questions

1. Describe the difference between a diagnostic evaluation and a screening measure.
2. Specificity and sensitivity are the two components of screening measures. Describe how each plays a role in setting the parameters of screening. How do they affect the four quadrants of your screening results?
3. What are the three components to evidence-based practice (EBP)? How does the patient's investment in their therapy play an important role in EBP?
4. What is response to intervention (RTI)? Describe a scenario in which RTI would work well for a student. Describe a scenario in which RTI would not work well for a student.

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