Shift Happens: Evolving Practices in School-Based Audiology

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Public education initiatives such as Common Core State Standards, Response to Intervention, Multi-Tiered Systems of Support, Universal Design for Learning, and the 21st Century Learning Framework are influencing school-based audiology practices. As a result of these programs, technological advancements, and increased focus on evidenced-based practice and student outcomes, school-based audiologists need to shift how they work and the services they provide. While making these changes, they must continue to meet the requirements of IDEA and other federal and state mandates. In this article we discuss current policy initiatives and the unique audiological contributions of school-based audiologists and explore use of a workload approach and other practical strategies to facilitate shifting and evolving roles of educational audiologists.

Key Words:
Common Core State Standards
Disruptive Education
Multi-Tiered Systems of Support
Response to Intervention
School-Based Audiology
Universal Design for Learning
21st Century Learning

Explanation of terms used in this article:

Educational Audiology: *Audiology services that support children and youth, especially those who are deaf, hard of hearing, deaf-blind, or have other auditory impairments, in their educational environments.*

Educationally Significant Hearing Loss: *Any hearing loss that potentially interferes with access to classroom instruction and impacts a child or youth's ability to communicate, learn, and develop peer relationships (Johnson & Seaton, 2012)*

School-Based Audiology: *Educational audiology services that are delivered in a school or other educational setting by an educational audiologist (Johnson & Seaton, 2012; Richburg & Smiley, 2012).*

Interprofessional Collaborative Practice: *Multiple health workers from different professional backgrounds who collaborate to provide comprehensive services by working with patients, their families, caregivers and communities to deliver the highest quality of care across settings (WHO, 2010).*

Self-Determination: *A combination of attitudes and abilities that lead people to set goals for themselves and to take the initiative to reach these goals (PACER Center, www.pacer.org).*

Introduction

Educational audiologists understand the major role that advocacy plays in our profession. As a relatively new and highly specialized service in the school setting, school-based audiologists spend a lot of time explaining what we do and why. We point to federal regulations, such as the Individuals with Disabilities Education Act (IDEA 2004), that set the parameters of our practice and to the state laws and local policies that have further shaped individual job descriptions and workloads. Interpretation of these laws over the years has resulted in considerable variability of daily practices among school-based audiologists. As a result of guidance by our professional associations and leaders in educational audiology, we have a solid collection of best-practice guidelines to keep us aligned and moving in a common direction (EAA, 2009a, 2009b; ASHA 2002). However, a "shift" in practice is necessary to continue advocating for our profession in a manner that is relevant and influential with administrators and educators, to improve programs and services to students and, ultimately, their outcomes.

The priorities within our professional practices are influenced by reforms in public education across the country. Since the 2001 passage of No Child Left Behind (NCLB), schools and states have been held increasingly more accountable for all student performance including that of students with disabilities. Initiatives to improve instructional practices have had a major impact as well. For example, Response to Intervention (RtI), Multi-Tiered System of Supports (MTSS), and Universal Design for Learning (UDL) promote the use of effective, accessible and differentiated curricula, the use of data-driven instructional practices, and greater collaboration among general and special education personnel (RTI Action Network, n.d.; National Center for Learning Disabilities, n.d.; National Center on Universal Design for Learning, 2012). New technologies and digital innovations both provide opportunities and drive change at a pace that is difficult for educators and schools to manage. Disruptive Education is a term that describes how a new educational technology and/or theory unexpectedly displace an established technology and/or theory, reshaping the learning landscape (Christensen, 2008). The 21st Century Learning Framework and the adoption of Common Core State Standards (CCSS) introduced a more rigorous set of expectations for student learning, significantly impacting the way teachers teach as well as the way that they are evaluated and compensated (Wiener, 2013). Since 2009, many states have taken accountability further by enacting legislation that holds educators to strict, performance-oriented criteria that tie student learning outcomes to personnel evaluations and ultimately job retention (National Council on Teacher Quality, 2013). As this trend continues, school-based audiologists are increasingly aware of and involved in implementing programs that link our services to student performance.

Impact of Current Federal, State and Local Initiatives on School-Based Audiology Practice: Common Core State Standards, Response to Intervention/Multi-Tier System of Supports, Accommodations, Expanded Core Curricula, and Access Skills

As we shift our workload to fill a growing need for audiology services that support students in general education settings, familiarity with general education curricula and standards at state and local levels and other pertinent educational trends is essential. Individualized Education Program (IEP) goals and services increasingly target outcomes that are based on these state and local standards while still providing for individual student needs under special education legislation (IDEA 2004). These initiatives provide a structure to monitor and support the students on 504 Plans as well as those without a 504 Plan or IEP. Data summarized in Table 1 from the Departments of Education in Colorado, Washington, and Iowa (personal communications, CO: June 1, 2005; WA: August 5, 2012; IA: October 4, 2012) reveal that about half of the students in these states received services through special education and relatively few children received services under a 504 plan. As the last column shows, the percentage of students who are deaf and hard of hearing and educated without any formal support services is significant in each state.

Table 1. Service profile of students who are deaf and hard of hearing.

State	% IEP	%504 Plan	% no services
Colorado (2005)	43%	2%	55%
Washington (2012)	57%	17%	26%
Iowa (2012)	54%	No data available	46%

Source: Personal Communication (CO: June 1, 2005; WA: August 5, 2012; IA: October 4, 2012).

Common Core State Standards

The Common Core State Standards (CCSS) were developed by a consortium of state education chiefs and governors with input from teachers, parents, school administrators, and experts from across the country. Now adopted by 43 states, these standards include a set of college- and career-ready learning goals and expectations for English language arts/literacy and mathematics. Stated another way, the standards identify what students should know and be able to do at each grade level to ensure success in their post-graduation world.

Curricula, materials, and much of the content for the CCSS may vary depending on state standards and requirements, but, typically, the student skills needed for achieving positive outcomes do not. The CCSS require that students systematically acquire knowledge through reading, writing, speaking, and listening. In addition, the 21st Century Learning Framework recommended skills in creativity, critical-thinking, communication, and collaboration are interwoven throughout the standards.

Response to Intervention, Multi-Tier System of Supports, and Universal Design for Learning

Response to Intervention (RtI) and Multi-Tier System of Supports (MTSS) provide another avenue in general education for facilitating access to classroom instruction. Schools are beginning to use the term MTSS because it represents a more comprehensive framework of effective instruction, behavior supports, and intervention for all students. Further, MTSS has a stronger and more general goal of prevention as compared to RtI's primary focus targeted to students with learning disabilities. In addition, MTSS is designed to provide multiple levels of support for all learners (struggling through advanced), with a greater focus on collaboration among all school personnel including school leaders and parents (Hoover & Patton, 2008; Hurst, 2014; National Center on Learning Disabilities, n.d.).

Universal Design for Learning (UDL) provides school systems with a set of curricular design principles that support flexible approaches to, and accommodations for, instruction and assessment that can be customized for individual student needs. Technology is central to this educational framework, but emphasis is on the goal to create environments where everyone will have the opportunity to become expert learners, and the use of personal and assistive technologies (e.g., cochlear implants, personal FM) is promoted "...even during activities where other students may not use any technologies at all" (National Center on Universal Design for Learning, 2012).

Accommodations

With the increasing number of learners who are deaf and hard of hearing participating in general education (many without an IEP or formal 504 plan), school-based audiologists must find ways to shift their workload to include more time for consultation and collaboration with classroom teachers and other educational personnel. Many staff members are unfamiliar with the barriers to classroom instruction that can occur as a consequence of partial, absent, or distorted hearing. As a result, they also are unaware of teaching strategies and accommodations for improving access to communication in educational environments. Knowledge and expertise in technology and other accommodations to facilitate access for classroom instruction and assessment has been a consistent focus within the practice of educational audiology. As development and availability of technology continues to grow and goals for student outcomes evolve, the need to stay informed has never been more critical. Knowledge of your state's requirements related to accommodations for assessment and classroom instruction is essential. Key questions to be answered include the following:

- Has your state adopted the CCSS?
- If your state has adopted the CCSS, what assessments are being used to measure student performance? Currently, core assessments are being developed, but states have the option to use alternate assessments, including those they may have used previously.
- Are these assessments based on UDL?
- What type of disruptive technology and hybrid teaching is being implemented in your state or school district?
- Does your state require that accommodations for assessment only include those used for classroom instruction? Some states (e.g., GA) require that students demonstrate need for, and benefit from, accommodations for instruction before these accommodations are permitted for use during assessments.
- Does your state have a list of "approved accommodations?" If so, can you easily access this list (e.g., links under general education, assessments, special education)? Accommodations that benefit students with hearing challenges often are already adopted and, therefore, easier to specify for individual students.
- If a desired accommodation is not on your state list, what is the process for approval? As technology advancements emerge, the school-based audiologist may be the most appropriate team member to recommend additions to the accommodation list.
- Finally, what is the process for *documenting* need for and benefit from a recommended accommodation for an individual student? What are the expected student outcomes? If the recommended accommodation involves technology, what funding sources might be utilized, and how quickly can the technology be available for the student?

Familiarity with terminology used to describe assessment and instruction can enhance collaboration among traditional service providers under IDEA and general education personnel. Educational audiologists will need to familiarize themselves and their colleagues with relevant words and phrases that may have become second nature to our communication but are new vocabulary for others. Examples include, but are not limited to, the following:

- **Accommodations** do not reduce learning expectations; they allow students with challenges access to the same learning opportunities as their typical peers. Accommodations must be documented on the IEP or 504 Plan and should be monitored to ensure they are implemented with fidelity. Documentation of evidence validating the benefit of the accommodation may also be required (Thompson, Morse, Sharpe, & Hall, 2005).
- **Access skills** are skills that need to be addressed through IEP goals to enable full participation in the student's educational program (Colorado Department of Education, 2012).
- **Modifications** or alterations refer to practices that change or reduce learning expectations (Thompson et al, 2005).
- **Standard administration** refers to testing conditions in which the procedures and directions included in the administration manual are followed exactly (Georgia Department of Education, 2013).
- **Conditional administration** refers to testing conditions in

which more expansive accommodations are used to provide access for students with more severe disabilities (Georgia Department of Education, 2013).

Expanded Core Curricula and Access Skills

For many students with disabilities, including those with hearing challenges, achieving successful outcomes necessitates goals and standards beyond those included in the CCSS. A movement to develop and implement an expanded core curriculum (ECC) was first initiated for students with visual challenges (Florida Resource Materials and Technology Center, n.d.; Perkins School for the Deaf and Blind, n.d.). With support from the deaf education National Agenda (2005), states including WI and IA began to apply the ECC concept to their programs for students who are DHH (Iowa Department of Education, 2013). Ultimately, Iowa adopted and disseminated a formal ECC document that has since been adopted or cited as a recommended resource by a number of other states (e.g., FL, GA, IL, KY, PA, TX, WI).

The Colorado Department of Education (2012) developed a slightly different approach based on access skills that apply to all students with disabilities to address the underlying skills necessary to access the general education curriculum as well as life outcomes, career, and community membership and participation. Regardless of the approach, expanded core curricular topics and access skill areas are unique for each individual and are designed to supplement, not supplant, core academic standards addressed in the general education curricula. These ECC and access skill areas often represent the specialized instruction and support services that are the basis for the IEP and instruction from a specialist in deaf education or related field, such as audiology. The main focus is to facilitate access to general education content with the goal of improved student outcomes. Examples of common ECC areas identified by Iowa and Florida, and Access Skills in Colorado are shown in Table 2.

Table 2. Selected ECC/Access Skill content areas.

Iowa ECC	Florida ECC	Colorado Access Skills
● Audiology ● Career Education ● Communication ● Family Education ● Functional Skills for Educational Success ● Self-Determination & Advocacy ● Social-Emotional Skills ● Technology	● Knowledge of Hearing Loss ● Language and Accommodations--http://rmtcosbd.org/glossary/supports-services-and-accommodations-worksheet-for-students-who-are-deaf-or-hard-of-hearing ● Personal and Interpersonal Skills ● Self-Determination ● Self-Advocacy--http://rmtcosbd.org/glossary/self-advocacy ● Transition--http://rmtcosbd.org/glossary/transition ● Deaf Culture and Heritage	● Communication and Basic Language Skills ● Decision-making and Problem-solving ● Self-advocacy/Self-determination ● Physical ● Inter-Intra-personal ● Organization ● Technology ● Career Development

Immediate Need

As we have described, the field of education is changing and this is having an impact on school-based audiology services. Central to this are budget constraints, a growing population of students to serve (due to EHDI, RTI/MTSS) and the need for school-based professionals to document outcomes/ benefits of their services. Audiologists must be prepared to articulate their value, demonstrate their role in student outcomes and maximize their efficiency in order to serve children in special and general education.

Articulating our Value for Improved Student Outcomes

In the current educational landscape, where schools are on a continuous journey to improve student performance and educational outcomes with fewer resources and greater accountability, school-based audiologists need to clearly define how we add value to student learning and outcomes. Ask a school-based audiologist if what they do is important, and they will say yes. Ask school personnel and parents of learners who are deaf and hard of hearing if the school-based audiologist is an important member of the school team and, mostly likely, they too will say yes. If we rephrase the question to both groups and ask: "How does the work of the school-based audiologist contribute to improved student outcomes?" it might be more difficult to provide substantive answers.

School-based audiologists have the skills and knowledge to provide comprehensive audiology services onsite to students in academic settings. These services, as delineated in IDEA (2004), include identification of students with hearing loss, determination of the degree and nature of the hearing loss (diagnostic evaluation), habilitation for children with hearing loss, hearing loss prevention education, counseling students, families and school personnel about the hearing loss, and the selection, fitting, verification, and validation of hearing instruments including group amplification systems. A few examples of the roles/duties that school-based audiologists perform with a brief explanation of how these tasks contribute to improved student outcomes follows. School-based audiologists are encouraged to use these examples as springboards for crafting their own job task/workload analysis specific to the roles/responsibilities that they have within their practice settings.

Identification and diagnosis of hearing status and subsequent implications. A major component of student learning occurs verbally. If students are unable to access verbal input, educational progress is negatively impacted. These students often perform poorly on standardized assessments of curricular material as a result of limited access to instruction in the classroom. As instruction increasingly focuses on analytical thinking and problem solving and learning becomes more active through group and cooperative activities (e.g., flipped classrooms, integrated multimedia and other disruptive education practices), deaf and hard of hearing learners may be left behind because they may not adequately hear, process, and respond to the information presented at the expected pace. School-based audiologists impact student outcomes by identifying, quantifying and intervening to accommodate for hearing challenges. Audiologists have unique skills to evaluate auditory function and classroom listening to guide interventions that will assist students to have better access to classroom instruction.

State education agencies are required to have policies and procedures in place to identify children with disabilities and to determine whether or not those children are in need of special education or additional supports for equal access to classroom information (IDEA, 2004; ADA 1990; Rehabilitation Act of 1973; Section 504.). Hearing screening is usually considered a routine part of state and local "child find" efforts but these practices vary widely from state to state with different policies and professionals responsible for conducting them. For example, in the state of Arkansas, school nurses are responsible for hearing screening. However, some children with developmental or behavioral challenges are unable to participate in a "routine" hearing screening protocol that might be carried out by a non-audiologist. Furthermore, once basic hearing screening has been completed, children who do not pass the screening need further evaluation. School-based audiologists employ their expertise by using specialized equipment and techniques to screen and evaluate students to ultimately rule out or confirm the presence of a potentially educationally significant hearing loss (ESHL). These school-based services are valuable to students, their families, and school personnel because they are provided within the school district, are specific to the educational setting, reduce time away from instruction and provide opportunities for school-based interprofessional collaboration.

When hearing loss is present, there is ample evidence to support that early identification and intervention results in better developmental outcomes than if the hearing loss is identified late (Holt & Svirsky, 2008; Moeller, 2000; Nicholas & Geers, 2006). These studies, however, focus on young children (under 3 years of age). Ongoing surveillance of developmental outcomes for all children with hearing loss, whether identified early or late, is needed to document language, communication, social and academic performance and support students accordingly. On average, only 38.5% of children exiting Part C are determined to be eligible for Part B services (US Department of Education, 2014). Because the preschool years are a particularly vulnerable period, in part due to more formal classroom learning settings and increased demands for attention and language proficiency in group learning environments, the opportunities for children who are deaf and hard of hearing to fall behind is great. Therefore comprehensive audiological (including speech in noise, classroom acoustics, functional listening), and speech-language (including receptive and expressive language, pragmatic language, vocabulary) assessments are necessary to assure deficits are identified and appropriate services are available to support these children. If we do not recognize this vulnerability and adequately support these children, we, and the school system, will fail our children by beginning a cycle of limited educational access and increasing academic difficulties and delays.

Hearing assistance technology (HAT). School-based audiologists are essential to the selection and management of appropriate HAT, a role that is unique to our professional scope of practice. For deaf and hard of hearing learners with audibility goals, it is our responsibility to provide them auditory access to the same

learning opportunities as their hearing peers and consequently help improve their educational outcomes. In the previous example, we are reminded that classroom instruction is primarily delivered in an auditory-oral mode requiring good access to the auditory input. In most cases, hearing aids or cochlear implants alone do not provide adequate auditory access in a classroom setting. Classroom barriers to auditory access include varied distances from the talker (e.g., the teacher and other classmates), excessive background noise and reverberation of the auditory signal, and soft or unintelligible speech from the talker. Research evidence supports the premise that students do perform better on tasks of speech understanding when utilizing hearing assistance technology in addition to their personal hearing instruments (Anderson & Goldstein, 2004; Schafer & Thibodeau, 2006; Schafer, Thibodeau, Whalen, & Overson, 2007; Thibodeau, 2010; Wolfe, et al., 2013).

The role of school-based audiologists in coordinating HAT with the school's media and technology is critical as hybrid models of disruptive education continue to redefine our educational systems. One example of hybrid disruptive education is blended classrooms (i.e., utilizing "brick and mortar" schools and online learning). Blended-learning programs are classified as rotation models if they involve students within a given course or subject rotating on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning (Christensen, 2013). School-based audiologists need to observe the structure of the learning environment, including classroom acoustics and implications for learning, combined with knowledge and expertise in HAT to provide students with appropriate solutions to adapt to blended classroom learning. They not only need to ensure that the teacher's voice is providing an appropriate speech-to-noise ratio, but also to help identify the best way for students to actively engage in small group discussions with peers and computer-based instruction (e.g., computerized standardized testing, flipped classroom learning, supplemental instructional learning modules). School-based audiologists are the professionals positioned to be innovators who are knowledgeable about current classroom acoustic accessibility and can leverage online technologies to create powerful new hybrids to better serve students with hearing loss (Spangler, 2014).

Careful and thoughtful selection, fitting and management of HAT must take into account the student's auditory abilities, amplification preferences, and communication access needs in association with classroom acoustics and instructional methodologies. With full auditory access to spoken information in the classroom, including multimedia, students will realize greater benefit from their education. These improvements may be evidenced in better performance on standardized tests and achievement of language, communication, academic, and social outcomes that are directly impacted by access to auditory information.

Self-Determination. A primary goal of school-based audiology services is to prepare learners to become independent, responsible citizens with the knowledge and self-advocacy skills to effectively address the communication needs associated with their particular hearing status. As school-based audiologists, our unique position results in being able to follow students throughout their school career in long-term relationships through which we can guide and support these skills from school entry until high school graduation.

The role of self-determination toward achieving life goals has received increasing attention, particularly with students with disabilities for whom specific support is often necessary. According to Weymeyer, Palmer, Agran, Mithaug, and Martin (2000), self-determination focuses on setting goals, making decisions and choices, solving problems, and self-advocating. Unique to this model is the shift from teacher-directed and teacher-driven instruction to student-directed teaching practices. Audiologists can support learners in this model through self-assessments to help identify communication challenges and facilitating learning activities to increase knowledge of hearing loss-related problems, disability rights, technology solutions, and understanding the implications of using, or not using, various accommodations.

Educational framework. As with other health professions, audiology is a field with sub-specialties. An audiologist working in a school setting should possess and utilize a different skill set from the audiologist who is working in a clinical practice. Audiologists in clinical settings fulfill an important service for students and complement the school-based audiology services. A school-based audiologist needs to have expertise in how hearing loss affects listening, communication and learning, how hearing assistance technology and other access technologies should be used in an academic setting, and classroom acoustics. In addition, school-based audiologists are called upon to interpret and apply education specific laws and regulations (e.g. IDEA and Section 504) as they relate to deaf and hard of hearing learners. Often clinic-based audiologists verify the appropriateness of personal hearing instruments for a student's hearing loss; however, the school-based audiologist needs to extend the evaluation to include validation of the effectiveness of the amplification (personal instruments and HAT) in the actual classroom. In order to substantiate our added value to student outcomes, results of hearing evaluations must be connected to the student's functional learning environments including student counseling and relevant teacher consultation. School-based audiologists should continuously document and describe what they do on a day-to-day basis that contributes to improved outcomes for the students. Communication, collaboration, and ongoing education with other school professionals and administrators are strategies for illustrating these values. As members of interprofessional academic teams, we must be vigilant for opportunities to demonstrate our contributions to student outcomes.

Managing Change by Working More Efficiently

In order for school-based audiologists to expand their services to support students with hearing challenges in their access to general education, a shift in the role perception and funding of these services may be required. Additional time, knowledge and skill is needed to collaborate with a greater variety of school personnel and to shift focus to facilitate students' self-determination and self-advocacy skills related to their individual needs in their schools and communities. In planning for the future, a workload approach can be helpful in moving beyond the role of related service provider for individual students who are deaf or

hard-of-hearing (a.k.a. caseload approach) to that of a consultant and collaborator who serves as a member of school or district-wide teams. Facilitating communication access for students with hearing challenges and enabling successful outcomes on standards and performance measures used with all students remains central to this approach.

Workload Analysis. The shift towards increased accountability and attention to student outcomes provides an opportunity for school-based audiologists to document the value of their services for students with hearing loss. However, the demands on our time may stretch us thin as workloads expand to include initiatives such as RtI, MTSS and UDL in general education settings in addition to the services already provided to students on IEPs as required under IDEA. With renewed national attention on student outcomes and professional performance, it is more critical than ever that school-based audiologists be able to define their roles and document the value of their services.

A key step in documenting our value and the outcomes of our services is the development of a clear and thorough description of our workload. Workload is impacted by a number of variables including student population, administrative and supervisory duties, the types of services provided, and how and where they are delivered. When measuring workload, the full range of duties and activities that fill each day and week must be considered. These activities change over time during the course of the school year and will require periodic reevaluation. Obvious tasks such as direct student contact are part of the analysis, but we need to consider time spent collaborating with general education and special education staff, communication with parents, indirect services to students, meetings, documentation, and travel time as well.

Factors Impacting Increased Workload. Larger workloads are increasingly common across the education workforce. The overall economy of the country contributes to layoffs and restructuring and ultimately pushes employers to ask workers to do "more with less" in order to stretch limited financial resources.

In addition to those seen in the overall workforce, several factors have contributed to increasing workloads within school-based audiology. Students with multiple disabilities and complex academic and communication needs often require the expertise of a pediatric/school-based audiologist to determine hearing status. If hearing loss is diagnosed in a student with complex issues, the school-based audiologist may need to devote more time educating and supporting other school personnel on the aspects of the student's developmental and academic challenges that are hearing loss related.

The complexity of hearing assistance technology is another factor that is increasing the school-based audiologist's workload. This technology is constantly changing and often lacks the ease of "plug and play." That is to say, even if the school-based audiologist is involved in the selection of the technology, school personnel cannot (and should not) take it out of the box, plug it in and expect it to work. Although we have access to technology that can provide students with exceptional access to auditory input, it must be fitted and used correctly to benefit the student. Improper fitting degrades the auditory input and increases the risk for harm (Eriks-Brophy, Durieux-Smith, Olds, Fitzpatrick, Duquette, & Whittingham, 2006).

Many school-based audiologists do not see students in a single location. Most travel to several buildings within a district or even multiple school districts. Travel time is a factor that often is not taken into consideration when a caseload approach is used. If two educational audiologists both cover student populations of 10,000 total students but Audiologist A's students are in a single district where buildings are in close proximity to each other and Audiologist B's students are spread across multiple districts with buildings located miles apart, the workload will be greater for Audiologist B when all other factors are equal. Travel time decreases the amount of time that school-based audiologists can spend on direct services or in student support services.

As is the case in the overall workforce, decreases in funding and/or stagnation in funding are significant factors that increase the workload for school-based audiologists, or, in some cases, decrease the duties. When IDEA was enacted in 1975, the federal government was to fund 40% of excess educational costs for children with disabilities with the states providing the remaining 60%. To date, the federal share has never exceeded 19% (National Education Association, 2014). This means that states are still required to provide the services required under IDEA, but in actuality they must fund 80%+ of the costs. In many states these extra costs are passed on to local school districts. Not only has the federal government never fully funded IDEA, but in some years, federal funding has decreased while inflation has caused costs to rise. Because of funding shortages, school-based audiology positions are often eliminated as staff retire or leave positions. Without significant advocacy efforts, these cuts will increase the workload for school-based audiologists and/or decrease services provided to students. In some cases the duties are inappropriately shifted to teachers of the deaf and/or speech-language pathologists.

Increasingly school-based audiology services are required to support students in general education settings. Early Hearing Detection and Intervention (EHDI) programs, advancements in technology, parent preferences, and inclusion agendas are among the reasons for this continuing practice. Even though students may not qualify for special education services, we are ethically obligated to serve them through the RTI/MTSS process or a 504 Plan in order to provide access to education through technology and accommodations. While our ethical/moral obligations may clash with perspectives from local administrators, overall, it is positive that school-based audiology services are needed in the general education arena. As a result, our support to students outside of special education continues to shift the workload for school-based audiologists.

Conducting a Workload Analysis. Ideally, the school-based audiologist should establish a workload baseline using past performance. This can be accomplished by documenting day to day work tasks across time. First, a list of expected job tasks for a given position should be created. Using items such as the language in IDEA regarding the definition of audiology services to students with IEPs, documents available from the EAA (2009a; 2009b), a district or program specific job description and the Educational Audiology Workload Analysis Form (Johnson & Seaton, 2010, p. 661), a school-based audiologist should be able to construct a comprehensive list of potential work tasks. The tasks are

monitored over a period of time to yield an analysis of how work time is spent. This workload baseline provides a starting point for analyzing tasks that are getting the most attention as well as tasks that are not being covered. Figure 1 illustrates one example of a workload model.

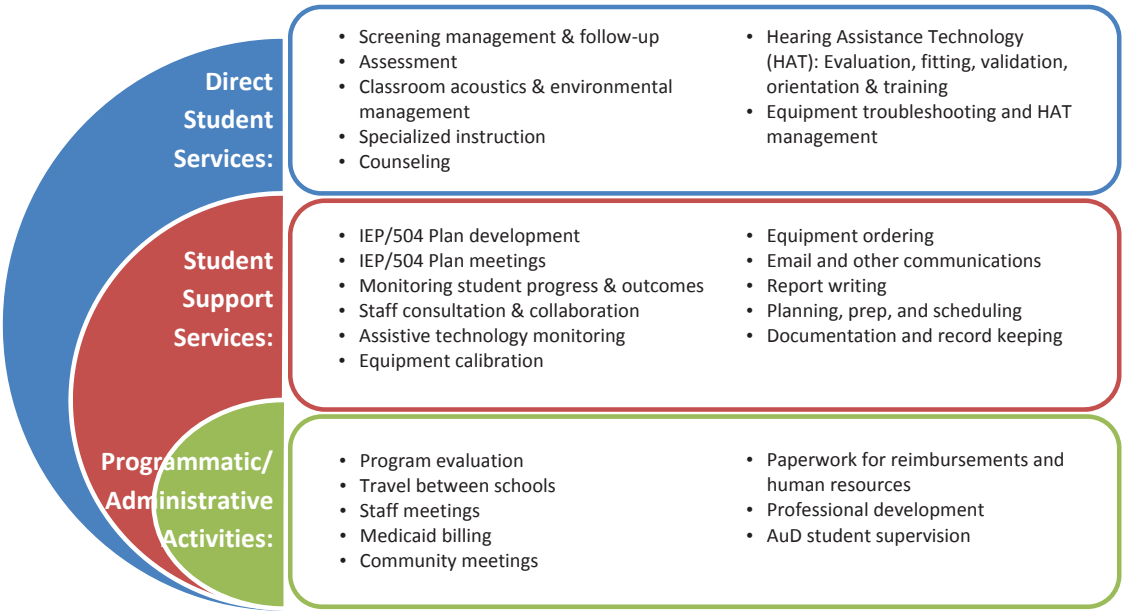


Figure 1. Workload model of school-based audiology duties and activities.

One challenge of many school-based audiologists is school personnel's lack of knowledge regarding the potential contribution that an audiologist brings to the educational setting. Some school personnel may think that school-based audiologists are mostly diagnosticians. This perception ignores the habilitative and collaborative tasks that are essential components of our practice. When school districts attempt to determine the need for more school-based audiology positions, they may suggest eliminating tasks related to consultation, collaboration, habilitation, counseling and prevention in efforts to decrease the need for more positions. It is incumbent on school-based audiologists, as well as our counterparts in clinical settings, to advocate for all aspects and job tasks of service provision necessary for improved student outcomes.

Approaches to Managing Workloads. Strategies for managing workloads include the use of support persons, telepractice, technology and increased collaboration. These tactics may alleviate some of the overload while school-based audiologists shift to a workload approach. Implementation of these strategies will provide opportunities to work more efficiently and effectively.

Support personnel may perform clerical tasks such as managing paperwork, scheduling and email communication. Depending on licensure laws, HIPPA and/or other regulations in your state, audiology assistants or technicians may be used to conduct routine clinical tasks such as hearing screening or monitoring amplification that, with proper training and oversight, do not require the audiologist's on-site expertise. The use of audiology support personnel frees school-based audiologists to attend to tasks that require their expertise. AuD students, whether in formal practicum through their clinical rotations or hired as temporary workers (assistantship), provide effective support to school-based audiologists while being exposed to the practice of audiology in the school setting

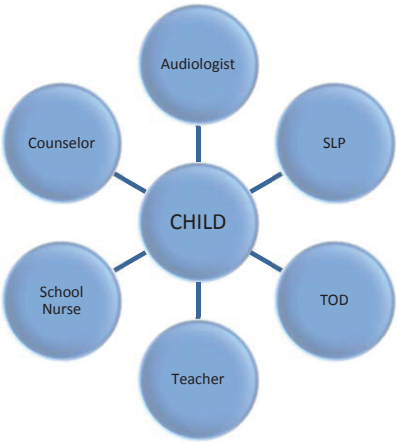
State regulations and privacy laws may permit the use of telepractice to increase the efficiency of the school-based audiologist's workload. Telepractice can decrease travel time which in turn increases the amount of time to devote to student support services. Through telepractice, school-based audiologists can increase consultation time with local school personnel thereby positively impacting outcomes for students. Technology may also increase the efficiency of the workload. Computer-based IEP programs, report writing formats, and database management software programs for scheduling, tracking student data, managing equipment, and other performance documentation have the potential to streamline many of our programmatic and administrative tasks. Email communication, texting, on-line meetings and video/audio applications (e.g., Facetime) used for troubleshooting hearing assistance technology are examples of how technology can increase efficiency and effectiveness for the school-based audiologists.

Although it may take more time on the front end, increased levels of collaboration may ultimately pay off in decreased

workloads. There are varying degrees of collaboration from merely "networking" to fully integrated collaboration where all members of the educational team work in tandem to improve outcomes for students who are deaf/hard of hearing. As illustrated in Figure 2, networking, which is the lowest level of collaboration, indicates that school personnel know that the other members of the team exist but there is minimal communication and most decisions are made independently (i.e., the silo effect). Coordination of efforts is a mid-level form of collaboration. Communication is frequent and some decisions are shared, but not all. True collaboration means that all members of the educational team see themselves as belonging to one system, communication is frequent and is based on a high level of trust, and all decision are made by consensus (Frey, Lohmeier, Lee, & Tollefson, 2006; Gajda, 2004).

Fully Integrated Collaboration: Frequent communication with common purpose within one system.

Coordination: Frequent communication with some decisions shared.



Networking: Minimal person to person with communication; decisions are independent of one another.

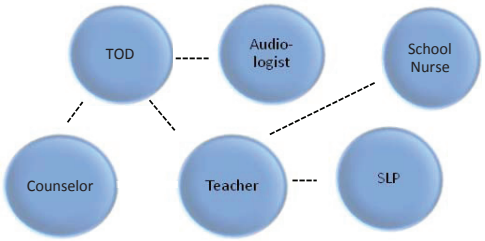


Figure 2. Levels of Collaboration

Evidence-Based Practices, Practice Outcomes and Indicators

Education policy will continue to change as political priorities and budgets steer the course. It is becoming increasingly important that we are able to demonstrate that our services improve student outcomes thereby increasing the likelihood that local districts will meet state and/or national education standards. As classroom teachers are being asked to change the way they think about their practice, it is critical that educational audiologists and other related services professionals examine our own practice standards as they relate to desired outcomes. Through ongoing discussion and a survey of its members, the Educational Audiology Association (EAA) has identified key outcomes, indicators, and measurement strategies to assist educational audiologists in documenting the outcomes and value of their services (EAA 2011). It is time to take that initiative further to develop consensus and collect data to support these efforts.

ASHA describes evidence-based practice (EBP) as an integration of clinical expertise/expert opinion, external scientific evidence, and client/patient/caregiver values (www.asha.org/members/ebp/intro). The key is evidence that the practice being employed produces the intended results. Therefore, it is necessary to validate our work with, and on behalf of, students through data. EBP should also be aligned with desired student outcomes. Individual outcomes should be generated as part of the IFSP/IEP or other planning process to serve as a road map for what students should know and be able to do upon graduation from high school as a result of the specialized support that is provided. Likewise, professional outcomes are needed to identify measurable indicators that represent the results of school-based audiology practices. The Educational Audiology Association (EAA) has undertaken an initiative to identify and reach consensus on outcomes and measurement indicators to address the impact of school-based audiology services (Johnson, 2011). This effort represents a conceptual shift, from a prescriptive approach that identifies and assesses professionally determined key components of services and programming to one that is focused on the outcomes and effectiveness of school-based audiology services. This shift, described in Table 3, alters how audiologists and audiology services have traditionally evaluated their practices.

Table 3. Prescriptive vs Outcome Model of Practices

	Prescriptive Model	Outcomes Model
Focus:	Process	Results
Practices:	Evidence-based (screening, assessment, amplification, counseling, habilitation, hearing loss prevention)	Evidence-based (screening, assessment, amplification, counseling, habilitation, hearing loss prevention)
Evaluation Type:	Quantitative: Number of students who receive services	Results oriented: Qualitative/Quantitative: Number of students who meet outcome/measureable indicators
Evaluation Process:	Practice goals or targets	Outcomes-Indicator benchmarks

Challenges to an Outcomes Approach

One challenge to moving to an outcomes approach is identifying the outcomes and associated indicators that are desired as a result of our educational audiology practices. Other anticipated challenges include:

- Consensus on the outcomes- what are the relevant and meaningful student performance expectations?
- Articulation of the indicators- what are the relevant data points and levels of performance for each outcome and how should each one be measured?
- Feasibility of measurement- how difficult will the indicators be to measure?
- Reporting and use of data- how will data be reported and used?

Proposed Outcomes for School-Based Audiology Services. A group of educational audiologists met during the EAA Conference in Memphis, TN (2011) to address the proposed outcomes and develop indicators. Prior to the conference, a membership survey was undertaken to obtain data on the proposed outcomes. Appendix A contains the 15 proposed outcomes including survey data on importance, satisfaction with implementing each outcome, and feasibility to measure.

Table 4 contains three outcomes and examples of associated indicators. While all indicators specify the number and percent of children and youth who attain the intended outcome, the strategies and evidences for evaluating the indicators include measures such as student performance on assessments, student work, or surveys of interactions with families, community peers and staff. For some outcomes, the indicators target teachers, school staff, and parents. Measurement formulas still need to be developed for each indicator.

Table 4. Proposed indicators for Outcomes 2, 4, and 15.

Outcome	Indicators
2. Children/youth access free audiology services as part of their educational programs.	Number and percent of children/youth who receive audiology services through their school or school-based contract. ● screening ● assessment ● amplification and amplification management ● habilitation ● counseling ● prevention
4. Children/youth receive audiology services that are relevant to the education setting and that accurately identify the parameters associated with the auditory disorder.	Number and percent of children/youth who have an audiological assessment that identifies performance for: ● listening in noise and distance conditions, with and without visual cues, with and without hearing assistive technology (HAT) o Evidence: speech/phoneme perception testing in quiet (50dBHL), soft conversation (35dBHL), and at 50dBHL with 0 or +5dB SNR. o Evidence: perform tests in typical listening mode (aided or unaided) and with HAT. ● functional classroom performance o Evidence: LIFE or similar questionnaire completed at end of reporting period that follows fitting of HAT
15. Young adults are equipped to locate appropriate services post high school for education, employment and life.	Number and percent of young adults at graduation who understand the following IEP objectives: ● their hearing loss including type, degree, configuration, and impact on communication o Evidence: post-test ● ADA and their rights o Evidence: post-test ● how to find an audiologist o Evidence: a written list of potential service providers and contact information produced by the student ● costs and maintenance of personal and assistive hearing technology o Evidence: written statement regarding cost of new hearing aids, necessary follow-up maintenance schedules, and typical timeline for obtaining replacement instruments ● how to navigate systems for independence into adulthood: o Services at post-secondary institution ▪ Evidence: list of services that are available from disability/accessibility services and accurately describe them to teacher, audiologist or case manager o Vocational rehabilitation ▪ Evidence: written information produced by student summarizing meeting with VR counselor regarding potential services and steps to take to access the services o Other state funding agencies ▪ Evidence: written list of potential funding sources produced by student

Benchmarks for meeting the indicators are intended to be developed locally to reflect individual practice situations. When benchmarks are met, the performance data may reinforce existing programs and practices or policies and procedures. If benchmarks are not realized, analysis should be completed to determine reasons for the under-performance. These causes may include a lack of resources to sufficiently provide the practices, poor implementation of practices, or use of inappropriate benchmarks. Like IEPs, annual assessment and review of goals and benchmarks are needed to track progress to reach the intended performance. These performance measures may also impact individual pay-for-performance and other value-added services provided by the educational audiologist as well as the multidisciplinary team that supports learners who are deaf and hard of hearing.

Summary

Is your school-based practice positioned to support the shifts in practice described in this discussion? Do you have:

- ✓ educationally relevant assessment procedures?
- ✓ a comprehensive HAT protocol that considers individual student needs and preferences, multimedia and hybrid classroom learning models, functional performance, and validation evidence?
- ✓ interprofessional collaboration within the school and within your community?
- ✓ an interprofessional collaborative team that works effectively to support students who are deaf/hard of hearing?
- ✓ knowledge of school-wide initiatives impacting current educational practice (CCSS, RtI/MTSS, ECC, UDL, Disruptive Education) and the implication for learners who are deaf and hard of hearing?
- ✓ 21st century learning basics (creativity, critical-thinking, communication, and collaboration) embedded in assessment, habilitation and counseling practices?
- ✓ a workload approach to evaluating how your services and time are allocated?
- ✓ data-based software programs and technology to manage scheduling, student data, equipment and communication with teachers and staff to increase efficiency of your workload?
- ✓ beginning discussions about the desired outcomes of your school-based audiology services or a formal evaluation process in place that is associated with student performance?

School-based audiology is influenced by changing practices in audiology as well as the evolving agendas of public and special education. To effectively meet the needs of our students and function as a member of the school multidisciplinary team, we must be vigilant to these shifts while continuing to advocate for services and supports that provide our students the opportunity to reach the same outcomes as their peers without hearing challenges. Accountability measures are integral to every aspect of this work requiring data that evaluates and supports our practices as they relate to student outcomes and increasing the likelihood that districts meet state and federal standards.

Resource Links

21st Century Learning Framework	www.p2.org
Audiology Assistants: ASHA Portal	http://www.asha.org/Practice-Portal/Professional-Issues/Audiology-Assistants/
Common Core State Standards	www.corestandards.org
Disruptive Education	http://disruption.wpengine.com/wp-content/uploads/2014/06/Is-K-12-blended-learning-disruptive.pdf
FACT Sheet: Creating Hearing Accessible Education through Technology (Spangler, 2014)	http://www.listeningandspokenlanguage.org/uploadedFiles/Professionals/Education_Environment/VV%20Extra_EdTechAccess_FactSheet.pdf
IDEA	http://idea.ed.gov/
Interprofessional Collaborative Practice	http://whqlibdoc.who.int/hq/2010/WHO_HRH_HPN_10.3_eng.pdf?ua=1 http://www.asha.org/Practice/Interprofessional-Education-Practice
Iowa Expanded Core Curriculum for Deaf and Hard of Hearing Students	www.educateIowa.gov/sites/files/ed/documents
Multi-Tiered System of Supports/RtI	http://www.rtinetwork.org/
Universal Design for Learning	www.udlcenter.org http://cast.org/udl/index.html
Telepractice: State Requirements	http://www.asha.org/Advocacy/state/State-Telepractice-Requirements/
Telepractice: ASHA Portal	http://www.asha.org/PRPSpecificTopic.aspx?folderid=8589934956&section=Key_Issues

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Appendix A.

Summary of the EAA Outcomes Measurement Survey (Johnson, 2011) indicating importance, level of satisfaction for implementation, and measurement feasibility. Outcomes reported in the same order of importance or satisfaction indicates the ratings were the same.

Order of Importance	Order of Satisfaction	Outcome	Modal Scores		
			Importance	Satisfaction	Feasibility to Measure
#6	#6	1. Children/youth with auditory disorders are identified at birth or within a reasonable time (60 days) of the onset of the suspected loss/deafness.	80% very important	34.3% Satisfied (25.7% very satisfied)	45.7% somewhat difficult to measure
#3	#1	2. Children/youth access free and appropriate audiology services as part of their educational programs.	91.4% very important	45.7% very satisfied	48.6% Straightforward to measure
#8	#4	3. Children/youth receive audiological evaluations within 30 days of referral from screening.	68.6% very important	34.3% very satisfied	68.6% straightforward to measure
#5	#7	4. Children/youth receive audiology services that are relevant to the education setting and that accurately identify the parameters associated with the auditory disorder.	82.9% very important	51.4% satisfied (20% very satisfied)	51.4% somewhat difficult to measure
#2	#11	5. Children/youth receive the necessary medical attention required to habilitate medically treatable hearing problems in a timely manner.	94.3% very important	48.6% somewhat satisfied (5.7% very satisfied)	48.6% somewhat difficult to measure
#1	#10	6. Teachers, parents, and relevant other professionals understand the communication and learning implications of a child/youth's auditory disorder based on both traditional and functional parameters of assessment.	97.1% very important	48.6% satisfied (8.6% very satisfied)	48.6% difficult to measure
#2	#5	7. Children/youth with auditory disorders are accommodated in the educational setting such that they have the opportunity to fully access all components of their educational environment.	94.3% very important	40% satisfied (28.6% very satisfied)	57.1% difficult to measure
#2	#3	8. Children/youth with auditory disorders have access to appropriate hearing instrumentation, including personal and assistive devices that provide full access to all communication within the learning environment (e.g., teachers, students, themselves), and that function properly on a consistent basis.	94.3% very important	37.1%very satisfied	51.4% straightforward to measure

#5	#2	9. Children/youth have full access to auditory and spoken information in their educational environment regardless of mode of communication.	82.9% very important	40% very satisfied	57.1% somewhat difficult to measure
#6	#4	10. Children/youth with auditory disorders have access to services that promote their ability to communicate with their peers, teachers, and others in their environment.	80% very important	42.9% satisfied (34.3% very satisfied)	62.9% somewhat difficult to measure
#7	#8	11. Children/youth with auditory disorders receive educational support that reflects high academic standards with accountability measures to monitor student learning.	77.1% very important	57.1% satisfied (14.3% very satisfied)	45.7% somewhat difficult to measure
#5	#9	12. Children/youth with auditory disorders have positive self-concepts.	82.9% very important	37.1% somewhat satisfied (11.4% very satisfied)	45.7% difficult to measure
#4	#12	13. Children/youth with auditory disorders are able to advocate for their listening and communication needs.	88.6% very important	48.6% satisfied (2.9% very satisfied)	51.4% somewhat difficult to measure
#6	#8	14. Families are encouraged and supported to fully participate in their child/youth's education.	80% very important	37.1% somewhat satisfied/37.1% satisfied (14.3% very satisfied)	45.7% difficult to measure
#4	#10	15. Young adults are equipped to locate appropriate services post high school for education, employment and life.	88.6% very important	37.1% somewhat satisfied (8.6% very satisfied)	54.3% somewhat difficult to measure