

# A Case-Based Approach to Teaching Evidence-Based Practice and Motor Speech Disorders

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Over the last decade, the principles of evidence-based practice (EBP) that emerged from medicine have become integrated into disciplines in the behavioral sciences, health care, and education. Motivated in part by current standards from the American Speech-Language-Hearing Association (ASHA, 2004a), concepts including the rationale for the use of EBP and the value of locating quality external evidence have been infused into both academic and clinical education in speech-language pathology. In addition, practice guidelines and clinical protocols are frequently interjected into content courses on communication disorders to give students the most up-to-date information on diagnosis and treatment.

**ABSTRACT:** Principles of evidence-based practice (EBP) have been gradually infused into the undergraduate and graduate curriculum in speech-language pathology. However, the multiple steps involved in the EBP process require substantial background in research methods and ample exposure to a variety of communication disorders and clinical practice procedures. This article will describe a case-based approach for teaching graduate students to use EBP procedures to treat motor speech disorders in adults. This teaching strategy was used successfully to facilitate students' understanding of the inextricable connection between research and clinical practice in communication disorders. Two case studies, developed by graduate students, illustrate how the students used the EBP process to make well-informed decisions about treatment.

**KEY WORDS:** evidence-based practice, motor speech disorders

Although EBP concepts may be infused into the curriculum in communication disorders, students may not have exposure to the intricate steps involved in implementing the process. According to Schlosser and Raghavendra (2004), the EBP process entails "the integration of best and current research evidence with clinical/educational expertise and relevant stakeholder perspectives, in order to facilitate decisions about assessment and intervention that are deemed effective for a given stakeholder" (p. 3). This article describes a case-based approach to teaching students to apply EBP procedures in the context of a graduate class in motor speech disorders.

Much of the content presented in the motor speech disorders class is taught through direct instruction using conventional means such as lecture, audiovisual presentations, and readings. Students are grounded in relevant neurological concepts, information about perceptual and acoustic characteristics and neural correlates of speech disorders, and theories about speech motor control and its clinical implications. There are, of course, certain limitations to having students acquire material through logic and deductive reasoning alone. For example, student motivation may be decreased because students cannot immediately see the relevance of the material as it relates to their clinical careers. A substantial literature suggests that students may be better motivated through inductive teaching methods (Coles, 1985; Norman & Schmidt, 1992). Research suggests that inductive teaching methods may encourage students to adopt a deeper (Ramsden, 2003) and more scholarly approach to learning (Felder & Brent, 2004) than by listening to lectures and studying for an exam.

Case-based teaching is an inductive strategy wherein the instructor provides a particular problem to solve as well as

a process and resources to help students figure things out for themselves. In case-based teaching, students explore hypothetical scenarios that mirror what they will encounter in professional practice (Ludenberg, Levin, & Harrington, 1999). For students in communication disorders, this establishes the close connection between accessing and evaluating current research, generating sound research hypotheses, and providing clinical services. The EBP process provides a framework for case-based learning as well as an opportunity for students to build on their conceptual understanding and develop the skills they need to reach informed clinical decisions. However, the process and multiple steps involved in EBP present several challenges to students.

Engagement in the EBP process requires considerable background knowledge in research methods as well as ample exposure to a variety of communication disorders and clinical practice procedures. Students must be familiar with research design principles to appraise the extant literature, and they must have sufficient clinical experience in order to assert their expert opinion and involve clients as partners in treatment. For these reasons, the approach described here is envisioned as a capstone experience for graduate students at the later stages of the curriculum.

Active participation in an assignment of this nature requires that students have an understanding of how to access various databases as well as the principles of experimental design. An understanding of objective measurement and a grasp of concepts related to reliability, internal and external validity, and statistical significance is crucial to being able to complete a critical appraisal of the evidence. Meaningful participation in the EBP process also necessitates that students have had exposure to treating clients with communication disorders in a variety of settings. It is essential that students have completed some supervised practicum and that they have experience in providing client-centered treatment that shows an appreciation of individual differences and cultural variations in communication style.

Limitations in students' experiences are not the only challenge to introducing the EBP process into the classroom. Not only does participation in the EBP process require prerequisite knowledge and skills, but it also entails a willingness to alter conventional thinking about clinical practice. Because EBP has the potential to modify our preconceived notions of what we believe works in treatment, it requires openness to alternative ways of problem solving. Providing a clinical rationale based on experience alone, even when justified with a literature citation, may no longer comply with the demand for time-limited and outcome-based services in medical and educational settings. EBP procedures suggest that we have an obligation to provide efficacious treatment that takes into account the cost and benefit of services rendered. That is, EBP challenges the traditional, rationale-based approach to treatment that has guided clinical practice in the past. Positive classroom experiences may address some of the resistance to embracing EBP. A case-based approach to EBP, placed at a strategic point in the curriculum, allows the instructor to build on students' current level of knowledge by extending experiences in research into a practical approach to address clinical questions.

## Teaching the EBP Process

Before enrolling in the motor speech disorders class, students completed a graduate-level class in research methods. Thus, they came to class with experience in critically evaluating research, accessing research databases, and writing research reports. As such, students had some exposure to the principles and purposes of EBP, but they were not required to explicitly apply the process clinically before enrolling in the class. Because clinical expertise is such an important component of the EBP process, all students in the class had a minimum of two semesters of supervised practicum in at least two settings.

At the beginning of the semester, the EBP process was defined and systematically broken down into five steps, largely based on Sackett, Rosenberg, Gray, Haynes, and Richardson (1996). Students were provided with guidelines describing how to progress through the EBP process (Sackett et al., 1996) as well as resources to help clarify the steps involved in the process (e.g., Dollaghan, 2004, 2007; Robey, 2004; Schlosser & O'Neil-Pirozzi, 2006). A list of readily accessible databases was provided. By the third week of class, the instructor met with each group to ensure that they had formulated an answerable question and that they were able to locate and access appropriate databases. The steps of the EBP process were modified from Sackett et al. and included the following parameters:

- STEP 1: Identify and formulate an answerable clinical question.
  - Using the case study, identify the problem or population (P), the intervention (I), a comparison intervention or no intervention (C), and the outcome of interest (O).
  - Formulate a well-built clinical question (Schlosser & O'Neil-Pirozzi, 2006).
- STEP 2: Locate the best available evidence.
  - Search for evidence that includes practice guidelines, systematic reviews, and individual studies using a variety of databases (e.g., Cochrane Database of Systematic Reviews, PsychLit, ASHA PubMed, etc.).
  - Summarize the findings and develop a bibliography.
- STEP 3: Critically appraise the evidence.
  - Evaluate the evidence on the Evaluating Treatment Evidence form (Sackett et al., 2000) and code the level of evidence.
  - Create a summary statement that demonstrates how the findings may be organized to assist in making a clinical decision.
- STEP 4: Integrate the evidence with the client's unique biology, preferences, and values.
  - Present the evidence that guided the clinical decision.
  - Present each client with the highest quality options.
  - Determine a course of care with the client. Incorporate any unique circumstances, including personal,

cultural, or ethnic values and expectations. Help the client weigh intervention alternatives among best practice options.

- Specify the clinical recommendations.
- STEP 5: Evaluate the EBP process. Self-evaluate the group's performance in completing the process and identify goals for improving EBP skills.
  - Was the clinical question well formulated?
  - Was the best external evidence located?
  - Was the external evidence appraised critically?
  - Did the clinical decision integrate the best current evidence with clinical expertise and client values?

## The EBP Assignment

For this particular project, students were placed in a group and assigned a case history. Each case study was designed to be a realistic, context-based depiction of a clinical scenario in motor speech disorders. In addition, cases presented a fairly open-ended clinical problem that required the group to elaborate on certain details (Herreid, 2005). Group work is ideal for case-based learning because it mimics the collaborative structure of a research (Greenwald, 2006) or clinical team (Pena & Quinn, 2003). Evidence suggests that interactions in a group assist students to define pertinent issues, move through the steps needed to solve problems, and communicate their ideas verbally and in writing (Greenwald, 2006).

Each group was required to document all of the EBP process steps and determine the best course of care for the case it was assigned. Direct instruction continued throughout the semester, but the instructor met with the groups periodically to ensure that they were successfully moving through the steps of the EBP process. The required components of the assignment included a written report and 30-min oral presentation of the following information:

- An elaboration of the case history, including background information and relevant medical history
- An evaluation of the client that provides a plausible perceptual description of the client's speech, as well as an assessment guided by the Frenchay Dysarthria Assessment—Second Edition (Enderby & Palmer, 2008)
- A handout of no more than five pages with references and supplementary resources
- A treatment plan that demonstrates how the client might progress over time
- Documentation and a demonstration of how the EBP process was used to guide the approach to treatment

The latter portion of the assignment, documenting the five steps of the EBP process, is the focus of this article. Groups were graded on the clarity, relevance, and depth of their presentation as well as their documentation of the steps of the EBP process. The project, including the presentation and written documentation, was due at the end of the semester.

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## ILLUSTRATIVE CASE STUDIES

Two case studies completed by students will be presented in this article to illustrate how the students advanced through each step of the EBP process. Each case presentation will outline how the group combined current best evidence with clinical expertise and the client's personal values, expectations, and preferences to make well-informed decisions about treatment.

### Case Study 1

One year ago, JS, a 61-year-old retired attorney, was diagnosed with amyotrophic lateral sclerosis (ALS) with bulbar signs. ALS is a progressive disease of the nerve cells in the brain and spinal cord that control voluntary muscle movement. JS's speech intelligibility had started to decline and his pulmonary function had declined over the year, with particularly severe reduction in measures of air flow. In addition, his oral diadochokinesis and measures of vocal function (including jitter, shimmer, and signal-to-noise ratio) were highly variable across test sessions.

The team of graduate student collaborators, including Jeanne Calvo, Jennifer Maultasch, Mariel Phillips, Kristen Vavoules, and Mathew Weiss, implemented the following steps to determine the best treatment for JS.

- STEP 1: Identify and formulate an answerable clinical question.
  - PICO
    - o Population: Adult male, age 61, with ALS, 1 year after onset
    - o Intervention: Augmentative and alternative communication (AAC)
    - o Comparative intervention: Behavioral treatment directed at improving respiration, phonation, resonance, and articulation
    - o Outcome of interest: To prolong functional communication as the disease progresses
  - Focused clinical question: Which treatment, AAC or behavioral intervention, is most effective at prolonging functional communication in adults with ALS?
- STEP 2: Locate the best available evidence.
  - The following databases were searched: Academic Search Premiere, ASHA PubMed, ASHA Web site, ERIC, PsychInfo, Medline, Science Direct, and Google Scholar.
  - A total of 32 articles were identified as having potential for contributing evidence to the clinical question. Of the 32 articles, eight contributed some evidence to answering the clinical question. However, none of the studies contrasted the two approaches within the same study or meta-analysis (see bibliography).
- STEP 3: Critically appraise the evidence.

- Summary of the levels of evidence according to Sackett, Straus, Richardson, Rosenberg, & Haynes (2000):
  - o Ball, Beukelman, & Pattee (2004): Level II: Quasi-experimental
  - o Beukelman, Fager, Ball, & Dietz (2007): Level IA: Meta-analysis
  - o Doyle & Philips (2001): Level IV: Observational study without controls
  - o Fried-Oken et al. (2006): Level II: Quasi-experimental
  - o Kuhnlien et al. (2008): Level IA: Meta-analysis
  - o Richter, Ball, Beukelman, Lasker, & Ullman (2003): Level II: Quasi-experimental
  - o Watts & Vanryckeghem (2001): Level IV: Observational study without controls
  - o Yorkston (1996): Level IA: Meta-analysis
- Three meta-analyses were reviewed; there were no well-designed randomized control trials. The majority of the studies reviewed were quasi-experimental in that the research was well designed but not randomized. No direct comparison of AAC and behavioral treatment in ALS was found.
- STEP 4: Integrate the evidence with the client's unique biology, preferences, and values.
  - Present the evidence that guided the clinical decision:
    - o There were no randomized control trials, which are considered to be the strongest intervention design. Therefore, a clinical decision was made by pooling data from available sources and integrating this information with client values and clinician expertise based on observation of the individual.
    - o Due to the progressive nature of the disorder, behavioral treatments are ineffective. Isometric exercises and work on oral motility, voice strengthening, and loudness practice can reduce vocal quality and speech intelligibility (Watts & Vanryckeghem, 2001).
    - o In cases where the progression of the disease is slow, compensatory strategies may be taught. However, these remedies are only temporary because of the progressive nature of the disease (Kuhnlien et al., 2008).
    - o Timing of the referral for AAC intervention is the most important clinical decision. The speech-language pathologist (SLP) should recommend AAC to individuals with ALS when their speaking rate reaches 100–125 words per minute on the Speech Intelligibility Test (Beukelman et al., 2007).
    - o Findings indicate that 96% of people with ALS accepted AAC without discontinuing use of the device (Ball et al., 2004).
  - Present each client with the highest quality options:
    - o The highest priorities for using AAC by individuals with ALS were getting their needs met, clarifying their needs, giving instructions, and staying connected with family and friends (Fried-Oken et al., 2006).
    - o Individuals with ALS rely heavily on low-tech devices in the early stages of the disease, with an increased reliance on high-tech options during the middle stages and a return to low-tech approaches during the late stages (Doyle & Philips, 2001).
    - o According to Richter et al. (2003), individuals preferred listening to clients with ALS when an AAC device was used rather than just listening to the natural speech of clients with ALS.
  - Introduce AAC; provide information on AAC systems in the context of client and family counseling.
    - o Provide behavioral treatment that includes strengthening and preserving respiration for speech purposes, implementing voice therapy for improving intensity, and using compensatory articulation strategies to maximize speech intelligibility.
    - o Provide no treatment at this time.
  - Determine a course of care:
    - o Communicate the different treatment options to the client and his family.
    - o Discuss with the client and family the advantages and disadvantages of behavioral speech therapy and AAC as approaches to intervention.
    - o The current research suggests that behavioral intervention is not effective in clients with ALS due to the progressive nature of the disorder (Beukelman et al., 2007).
    - o If no intervention is offered, it would significantly compromise JS's quality of life. He would be unable to express basic needs, and limitations in his communication would affect his social relationships.
    - o Research suggests that the use of AAC may be the most effective means of prolonging communication abilities in clients with ALS.
    - o Given JS's declining speech intelligibility as well as his intelligence, motivation, and level of family involvement, speech therapy directed at improving and maintaining communication through the use of an AAC device is recommended.
  - Specify the clinical recommendations:
    - o Due to the progressive nature of ALS, an early introduction to the use of AAC is recommended. Not implementing AAC at the appropriate time will limit JS's future communication abilities.

- o Clinical observation revealed that the client is highly motivated to use ACC and has good family support, which are important factors in making the clinical decision.
- o A multidisciplinary team to maintain JS's quality of life should be assembled.
- STEP 5: Evaluate the EBP process:
  - The clinical question was well formed.
  - There was a sense that there was limited access to certain databases, which restricted the search for evidence. The group did not know when it had obtained sufficient information to fully answer the clinical question.
  - Among group members, only one had exposure to a client with ALS. Although most group members had course work and experience with individuals who used AAC devices, there was uncertainty about conducting an AAC evaluation and taking part in the collaborative decision-making process.
  - The limited amount of available evidence for the treatment options was presented to the family. Because there were no studies that directly compared AAC with behavioral therapy, the research was used cautiously to inform the treatment recommendation. The course of treatment was determined primarily by understanding the client's values and goals. The clinical decision was made based on an integration of the best evidence, clinical expertise, and the perspectives of the client and family.

In addition to documenting and presenting the five steps of the process, the students provided supplementary information about the nature of ALS and ALS with bulbar signs in particular, as well as information on the progression of the disease with emphasis on communication changes. Further, information about introducing an AAC device in stages that correspond to the progression of the disease was provided.

## Case Study 2

WH, age 68, was diagnosed with myasthenia gravis (MG), which is a chronic autoimmune neuromuscular disease characterized by varying degrees of weakness of the voluntary muscles. Muscles that control eye and eyelid movements, facial expression, chewing, talking, and swallowing are involved. More recently, WH's muscles that control breathing and neck and limb movements have become affected. WH reported that he takes medication to improve his neuromuscular transmission and increase his muscle strength. He firmly rejects the use of an AAC device but is questioning if speech therapy would be of benefit to his communication.

The team of graduate student collaborators, including Lev Fridman, Elissa Karol, Kristen Peterson, and Jonathan Wise, implemented the following steps to determine the best treatment for WH.

- STEP 1: Identify and formulate an answerable clinical question.

- PICO
  - o Population: Adult male, age 67, with moderate generalized late-onset MG
  - o Intervention: Respiratory exercises
  - o Comparative intervention: No intervention from an SLP
  - o Outcome of interest: To strengthen respiration for speech and, ultimately, improve his overall quality of life as the disease progresses
- Focused clinical question: Does behavioral intervention directed at increasing respiration help improve communication function in an adult with MG?
- STEP 2: Locate the best available evidence.
  - The following databases were searched: EBSCO host, PubMed, Medline, Google Scholar, ERIC, ASHA Web site, Highbeam.
  - A total of 44 articles were identified as having potential for contributing evidence to the clinical question. Of the 44 articles, seven contributed some evidence to answering the clinical question (see bibliography).
- STEP 3: Critically appraise the evidence.
  - Summary of the levels of evidence according to Sackett et al. (2000):
    - o Baker et al. (2003): Level IV: Observational study without controls
    - o Davidson, Hale, & Mulligan (2005): Level IV: Observational study without controls
    - o Fregonezi, Resqueti, Guell, Pradas, & Casan (2005): Level I: Well-designed randomized control trial
    - o Koessler et al. (2001): Level IV: Observational study without controls
    - o Morris et al. (2006): Level IA: Meta-analysis
    - o Rassler et al. (2007): Level IV: Observational study without controls
    - o Skeie et al. (2006): Level IA: Meta-analysis of well-designed control study plus literature review of additional lower level evidence
  - The majority of the studies reviewed were observational. In addition, there were two meta-analyses, one that examined well-designed control studies, and one that included a meta-analysis of randomized control trials as well as a review of the literature on lower quality evidence.
- STEP 4: Integrate the evidence with the client's unique biology, preferences, and values.
  - Present the evidence that guided the clinical decision:
    - o The evidence included many observational studies, so claims of a relationship between treatment and respiratory improvement may not be substantiated.

- o Observation of an adult with MG using an inspiratory muscle training program produced a substantial increase in her ability to generate maximal inspiratory pressures. A phasic relationship between the diaphragm and the posterior cricoarytenoid suggests that the increased strength of the diaphragm would also enhance the activity of the posterior cricoarytenoid (Baker et al., 2003).
  - o Exercise was a factor in reducing fatigue in a participant with MG and restoring her participation in functional activities (Davidson et al., 2005).
  - o Following a program of interval-based inspiratory muscle retraining, improvements in respiratory strength, chest wall mobility, respiratory pattern, and respiratory endurance were observed in clients with MG (Fregonezi et al., 2005).
  - o With inspiratory muscle training, respiratory function can be improved for at least 2 years (Koessler et al., 2001).
  - o Given the progressive nature of motor neuron diseases, treatment should focus on altering the environment and educating key people to maximize residual function (Morris et al., 2006).
  - o Respiratory muscle endurance therapy was effective in improving lung function in some, but not all, clients with MG (Rassler et al., 2007). However, there is no indication that respiratory muscle endurance therapy had a positive outcome on speech breathing.
  - o Pharmacological approaches to treating MG predominate in the literature. There is a lack of research on lifestyle modifications and respiratory therapies to treat MG (Skeie et al., 2006).
- Present each client with the highest quality options:
    - o Provide counseling regarding the typical course of the disorder and reintroduce the idea of using AAC.
    - o Provide behavioral treatment focused on improving the client’s respiratory strength and endurance.
    - o Provide counseling and support regarding the use of compensatory strategies such as using shorter phrases and using smaller breath groups.
    - o Provide no treatment at this time.
  - Determine a course of care:
    - o Communicate the treatment options to the client and family, noting the client’s adamant rejection of AAC.
    - o There is an absence of large-scale randomized clinical trials. Observational studies fall short of providing a cause-and-effect relationship between treatment and outcome. Therefore, recommendations for speech therapy are largely based on clinical opinion and an assessment of the individual’s needs.
- o Delay of myasthenia crisis, a sudden and critical worsening of respiratory function or profound weakening in the muscles, is a primary goal of therapeutic intervention (Kothari, 2004).
  - o Clinical expertise indicated that the flaccid dysarthria resulting from MG is best managed medically through surgery or pharmacological intervention. Behavioral speech treatment for MG may be contraindicated (Duffy, 2005).
- Specify the clinical recommendations:
    - o Discuss with the client and family the typical progression of the disease, including probable changes in eating and swallow function.
    - o Counsel the client about techniques that can be used to avoid fatigue, such as limiting speaking to short durations.
    - o Provide referral to an appropriate allied health professional for respiratory strength training.
    - o No speech therapy is indicated at this time. Recommend follow-up when needed.
- STEP 5: Evaluate the EBP process.
    - The clinical question may have been strengthened by having a comparison intervention.
    - Students expressed concern that they were missing important information from certain databases. There was uncertainty about how much research was enough to answer the question.
    - Limited clinical exposure to a wide range of neuromuscular diseases was seen as a limiting factor in the decision-making process. Students relied on Duffy (2005) to validate their expert opinion.
    - Students confessed their reluctance to acknowledge that behavioral speech therapy was contraindicated.
    - Students reported that their clinical decision included the integration of research, client values, and expertise. There was a striking lack of usable evidence to directly address the question, so expert opinion and consultation with the client held more weight in determining the course of care than originally anticipated.
- Case study 2 was supplemented by medical information on MG and a detailed explanation of the progression of the disease (Turner, 2007). An explanation of an inspiratory muscle training device was also provided. To support its clinical recommendation, the team clarified the distinction between nonspeech breathing and speech breathing.

## Summary

The EBP process described here creates a collaborative learning environment in which students discover for themselves the need to integrate external evidence with expert opinion and client values. The assignment gives students an opportunity to access, evaluate, and integrate research into

the clinical decision-making process. The case-based approach guides students to weigh various treatment options, select the most efficacious intervention, or recommend no treatment at all.

The case-based approach to teaching EBP reveals for students the reciprocal relationship between research and clinical training. In Case Study 1, the students recognized the progressive nature of the disorder and acknowledged that implementing AAC early in the course of the disease would maximize the client's future communication abilities. The decision not to use behavioral speech therapy was informed by research, but not solely determined by it. The students reported that there were no studies that directly compared ACC and behavior therapy. Although research contributed to the decision-making process, it was not the only source for determining the course of care. Even high-quality evidence must be integrated with clinical expertise and relevant client perspectives to determine the best course of care for an individual client. In Case Study 2, the students reported that it was disconcerting not to recommend treatment. Although inspiratory muscle strengthening may be achieved in some clients with MG, the team noted that there was no evidence suggesting that respiration for speech purposes could be improved. Nonspeech breathing, they determined, was better managed by another health care provider. Observational studies were acknowledged, but they were used judiciously in making decisions about treatment. An advantage of using EBP as a teaching tool is that students are encouraged to weigh clinical opinion against the available evidence in order to determine the best course of care for their client.

The student perspectives on the process provide an opportunity to examine how EBP principles are being implemented. Students in this instance often commented on the lack of quality external evidence, which is a frank evaluation of the need to conduct clinical trials in speech-language pathology. Many students reported that they were unsure when they had completed a sufficient review of the literature to address the problem at hand. However, the students did recognize that the search for clinical evidence is an ongoing process. Ultimately, the answer to deciding if a review is sufficient lies in their self-evaluation of the process. At the same time, more systematic research is needed to test treatment approaches that are directed at improving the communication of adults living with chronic motor speech disorders. Resources must be created to disseminate information that can be useful to clinicians. It is the instructor's obligation to update the list of databases that students have access to and ensure that the library resources of the university are adequate to address the problem.

Frequently, the clinician must make a clinical decision on the basis of limited quality evidence. In the absence of quality evidence, students need to be instructed in strategies that include the use of single-subject designs (Horner et al., 2005) and the concept of time-limited trial therapy to measure the impact of treatment and objectively assess its costs and benefits for individuals receiving services. As Schlosser and O'Neill-Pizzoli (2006) pointed out, decisions based on EBP have an effect on the services provided to an

individual, not a group or population of clients. Informing clients about the expected course of treatment and the outcome is consistent with EBP practices because it acknowledges the client and his or her family as active participants in their own care. The application of EBP principles to the diagnosis and treatment of individual clients must be part of clinical education in communication disorders.

Although EBP is purportedly highly valued among SLPs, it is unclear to what extent EBP is used in everyday clinical practice. In fact, students often perceive a mismatch between "best practices" taught in class and real-world clinical practices. In a survey of certified SLPs, Zipoli and Kennedy (2005) reported a significant decline in exposure to EBP as students moved from graduate programs to the clinical fellowship. University programs in speech-language pathology play a key role in teaching EBP. Students who view EBP as an extension of their clinical interests are more likely to use EBP in their work settings. An understanding of the EBP process should be made transparent to students before they move from training programs to professional practice.

Implementing EBP is an ongoing, evolving process that reflects a change in the way speech-language pathology services will be delivered. The foundation of clinical decision making in speech-language pathology is presently undergoing a shift from a reliance on conventional wisdom to practices based on the integration of clinical expertise, best current research evidence, and individual client values (ASHA, 2004b). EBP is a practical response to the demand for changes in the way health care is administered. Students and practitioners must learn to use EBP to make informed clinical decisions and to advocate for health care policies that include rehabilitation services for motor speech disorders and other chronic conditions.

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