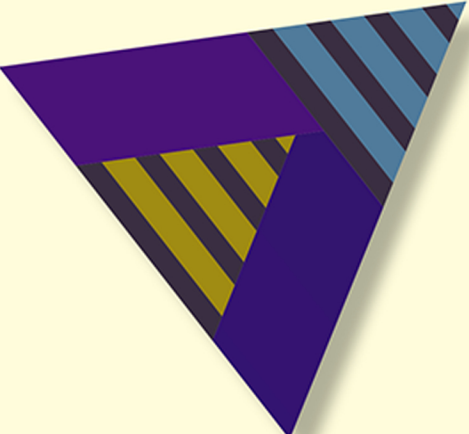


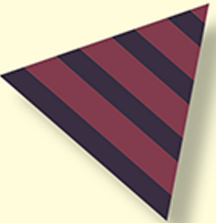
NINTH EDITION



Diagnosis and Evaluation in Speech Pathology



Rebekah H. Pindzola
Laura W. Plexico
William O. Haynes



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Ninth Edition

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Preface

With this ninth edition of *Diagnosis and Evaluation in Speech Pathology*, we welcome a new coauthor and invite a new group of students and practitioners to consider the complex and fascinating arena of assessment in communication disorders. For over 40 years, this text has introduced diagnosis and evaluation as a *process* conducted in the context of an *interpersonal relationship* between clinicians and clients. This interesting and challenging process is a curious blend of science and art. On the science side, each case requires the clinician to think, solve problems, form hypotheses, gather data, and arrive at conclusions. Assessment, however, is much more than the simple administration of a few psychometrically adequate tests or scales, which takes us into the more artistic side of the process.

The diagnostician is much more than a neutral conduit through which test scores pass, and he or she must interact with clients to determine the real effects of communication impairment on their lives. The clinician must be able to interpret scores and measurements in the context of an individual client's circumstances. Thus, in this edition, we again remind readers that most communication disorders have functional consequences for a person's life. The World Health Organization continues to emphasize the role of functional effects of disorders in its International Classification of Functioning, Disability and Health (ICF). Third-party coverage in the United States, be it through Medicare or other insurers, also emphasizes functional outcomes, and so our assessment baselines are of critical importance. Another emphasis of the current edition is the ongoing nature of assessment. We must move beyond the notion of a single diagnostic session and think of assessment as gathering baseline data, monitoring treatment progress, determining if generalization has occurred from training, and documenting functional gains in communication in a client's life.

Many readers of the prior editions have commented that they found the book to be both readable and clinically relevant. They have also made insightful suggestions, which we have endeavored to address in the present edition. Since the first edition appeared in 1973, the field of communication disorders has gone through many changes. With each successive revision of the text, we have attempted to reflect theoretical, clinical, and technological advances that have taken place in the field. The ninth edition is no different. The reader will notice that we have attempted to maintain the strong points of the former edition while including new research and clinical tools in this new edition.

NEW TO THIS EDITION

We have made every effort to modernize assessment practice patterns in this book and have done so for a more expansive array of speech, language, and swallowing disorders. Here is a summary of these changes and additions:

- Expansion of assessment tools available for each disorder, many with insightful critiques and procedural guidelines

- Additional chapter (Chapter 10) dedicated to assessing adult dysphagia and pediatric feeding and swallowing disorders
- Expansion of clinical interviewing to include ethnographic and motivational interviewing
- Expansion of child speech-language assessment issues, including phoneme awareness and literacy
- Additional chapter (Chapter 13) dedicated to head and neck cancer and the ongoing assessment of alaryngeal speakers
- Addition of sample sections of diagnostic reports showing writing attributes covering a wide array of communication disorders
- Expansion of billing and coding issues inherent in diagnostic evaluations, including coverage of the new ICD-10 system
- Addition of an appendix (Appendix A) dedicated to the oral peripheral examination
- Addition of an appendix (Appendix B) offering various assessment resources, such as information on developmental milestones, transcription symbols, hearing screening guidelines, hearing-related case history questions, and a selection of reading passages for clinical use
- Inclusion of learning tools for the reader in each chapter, such as learning outcomes and end-of-chapter self-assessment questions

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We would like to express appreciation to our students, clients, colleagues, and past teachers who helped to mold our thinking about the assessment process. We would also like to acknowledge Dr. Lon Emerick, who provided the initial impetus for this work. His basic philosophy, sensitivity, and enthusiasm still echo through the text. We also thank the reviewers of this book: Beverly Henke-Lofquist, SUNY Geneseo; Karen Harris Brown, University of West Georgia; Rosemary Lubinski, University of Buffalo.

Many of their helpful suggestions have been incorporated into the ninth edition of *Diagnosis and Evaluation in Speech Pathology*.

Finally, we should remember that the diagnostic session is our initial contact with clients; we never get a second chance to make a first impression. Every evaluation is unique, and each client deserves the best we can offer in terms of our ability, knowledge, judgment, and interpersonal sensitivity. We hope that this text can communicate to our readers both the method and the magic of this challenging task.

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Introduction to Diagnosis and Evaluation

Philosophical Issues and General Guidelines

LEARNING OUTCOMES

After reading this chapter you will be able to:

1. Define and describe the difference between the terms *evaluation* and *diagnosis*.
2. Describe the two major reasons evaluations are performed.
3. Define the three levels of diagnosis and evaluation.
4. Describe the three parts of evidence-based practice.
5. Describe response to intervention and how it is used for evaluation.
6. Compare and contrast the differences between dynamic and static assessment.
7. Describe the guidelines described by the World Health Organization that drive the American-Speech-Language-Hearing Association's preferred practice patterns.
8. Describe the three components in determining a communication disorder.
9. Distinguish among predisposing, precipitating, and perpetuating factors.
10. Describe how the diagnostician is a factor in the evaluation process.
11. Describe factors that require consideration when making prognoses.

Speech-language pathology is a wonderfully diverse profession that requires a practitioner to possess a wide range of skills, knowledge, and personal characteristics. A speech-language pathologist (SLP) works as a case selector, case evaluator, diagnostician, interviewer, parent counselor, teacher, coordinator, record keeper, consultant,

researcher, and student. Because the boundaries for these various duties are not clearly defined and because the clinician must move continuously from one area to another, no one person can expect to be equally competent in all areas. The ultimate goal is to maximize one's strengths in all aspects to provide the best possible service to individuals with communicative disorders.

Diagnosis is one of the most comprehensive and difficult tasks of the speech-language pathologist. The diagnosis of a client requires a synthesis of the entire field: knowledge of norms and testing techniques, skills in observation, an ability to relate effectively and empathetically, and a great deal of creative intuition. Because communication is a function of the entire person, the diagnostician must try to scrutinize all aspects of behavior. We must remember that we are not simply working with speech sounds, fluency, vocal quality, or linguistic rules but rather with changing people in a dynamic environment. The ambiguous findings that sometimes culminate in a diagnostic evaluation must be dealt with in a fashion that perpetuates the evaluative undertaking rather than closes the door on further probing and a greater understanding of the presenting problem(s). Diagnosis is a continuous and open-ended venture that results in answers or partial answers that themselves are open to revision with added information. The experienced diagnostician does not look at objective scores of articulatory skill, point scales of vocal quality, or standard scores as ends in themselves but rather as aspects of an individual's communication ability—we diagnose communicators, not just communication. That revelation is a major factor in the transition from a technician to a professional clinician.

DIAGNOSIS AND EVALUATION DEFINED

Some clinicians, at first glance, may consider the words *diagnosis* and *evaluation* to be synonymous. It is our intent in this text that the term *diagnosis* refer to the classical Greek definition of distinguishing a person's problem from the large field of potential disabilities. The term *diagnosis* in Greek means "to distinguish." The prefix *dia-* means "apart," and *-gnosis* translates as "to know." To distinguish a person's particular problem from the many possibilities available, we must know the client thoroughly: how he or she responds in many conditions and how he or she performs a variety of tasks. *Evaluation* refers to *the process* of arriving at a diagnosis. Thus, informal probes, trial therapy tasks, and gathering generalization data are part of evaluation. In standard dictionary definitions, the term *diagnosis* is generally described as "the use of methods or processes to identify or determine the nature and cause of a disease or problem. This process is accomplished through an analysis of patient history, examination of signs and symptoms, administration of special tests, and a review of data." Our conception of diagnosis, then, includes a thorough understanding of the client's problem and not merely the application of a label. It is relatively simple to call a child "language impaired," but it is a more difficult matter really to understand how this child deals with linguistic symbols in a variety of tasks and situations. *The latter* is diagnosis in our view. We would also like to expand the notion of diagnosis to include distinguishing the nature and evolution of a person's problem at different points in time. Thus, diagnosis and evaluation are ongoing processes. We perform evaluation activities to arrive at an initial diagnosis, and we also examine the client repeatedly during the course of treatment. A client's diagnosis and the nature of the client's difficulties often changes over time. For example, a child may initially present with language delay and, after a period of language treatment, be characterized as primarily demonstrating a phonological disorder. A neurogenic patient may initially be diagnosed with aphasia but may experience

further neurological damage and be re-diagnosed with aphasia and dysarthria. Another major thrust of this text is that the diagnostic process need not be confined to a 2-hour block of time in a university setting or a 30-minute period in a medical facility. The competent clinician will continue evaluation activities until the client's performance is understood to the extent necessary to determine an effective treatment approach.

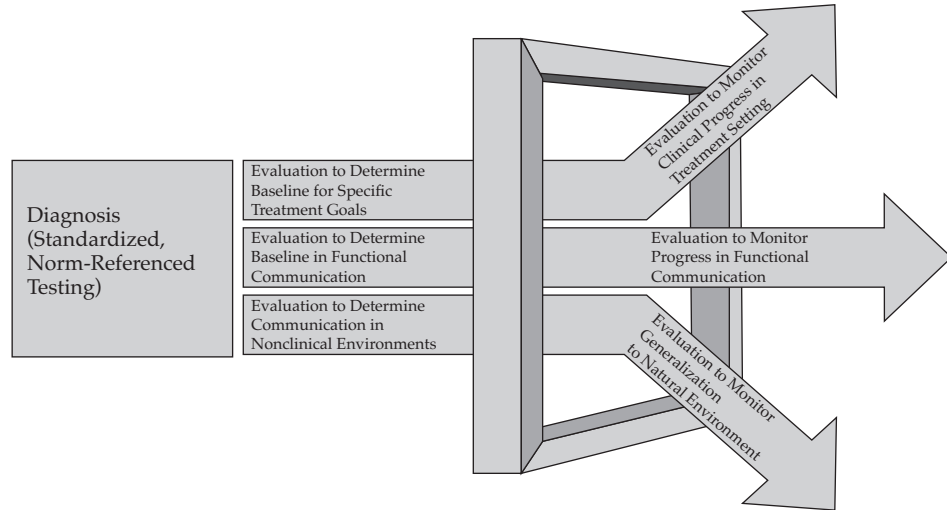
We perform evaluation tasks with two major goals in mind. First, we evaluate to arrive at a good understanding or diagnosis of a client's problem. Arriving at a diagnosis is a complex task. It requires problem solving, reasoning, and the ability to recognize patterns (Richardson, Wilson, & Guyatt, 2002). Sometimes these evaluation activities will be confined to an assessment period, and at other times they will be performed well into the beginning of treatment. Often we must begin therapy with a client before arriving at a firm diagnosis. This approach is not optimal, but it is justified as long as we realize that (1) *any* treatment approach is experimental to a certain degree in the beginning, (2) most initial treatment goals will generally be "in the ballpark" in terms of appropriateness (e.g., we probably would not engage in voice therapy for a stuttering client), and (3) beginning treatment does not mean that we have abandoned our efforts to define the parameters of the client's problem and arrive at a diagnosis. We can always fine-tune a treatment program based on an increased understanding of a client's problem and capabilities.

A second major reason to perform evaluation activities is to monitor the client's progress in treatment and describe changes in the communication disturbance. In this use of evaluation activities, we are not necessarily trying to diagnose the problem but to document treatment progress and determine possible changes in the course of treatment. In the chapters of this text that deal with disorders, we will suggest evaluation tasks often used for these purposes that are not in the formal test category. Formal tests are designed more for categorizing clients as exhibiting certain disorders, whereas non-standardized evaluation tasks are used to gain insight into specific client abilities and to gauge treatment progress. We will now discuss some of the purposes of diagnosis and evaluation in more detail.

BROADENING THE NOTION OF ASSESSMENT

Most people tend to think of diagnosis and treatment as two separate parts of the clinical process. We schedule clients for an "assessment" and then, if they evidence a problem, we arrange for them to receive "treatment." This distinction between assessment and treatment is somewhat arbitrary and nothing more than an administrative dichotomy made by school systems, medical settings, and insurance companies. In reality, we perform evaluations at the beginning of a clinical relationship with a client in order to determine the existence of and nature of a communication disorder, but the assessment does not stop there. Figure 1-1 shows a process in which diagnosis, to determine the existence of a problem, is only the first step in assessment. We diagnose the problem typically by using a combination of norm-referenced standardized tests coupled with nonstandardized communication tasks. Once the problem is confirmed, many additional evaluation tasks are performed to determine a client's baseline performance on very specific aspects of communication. These tasks are often performed after the initial diagnostic session and become part of measurements taken during the treatment phase of clinical work. We continue to evaluate in order to understand the client's baseline performance levels for specific treatment goals, functional communication, and communicative effectiveness in the natural environment. We must also continue to evaluate in order to monitor treatment progress. Thus, even though treatment may have been going

FIGURE 1-1
Diagnosis and Evaluation Involve Determining the Existence of a Problem, Taking Baseline Performance Data, and Monitoring Treatment Progress



on for months, we continue to gather assessment data on the client's performance in the clinic, his or her changes in functional communication abilities, and the generalization of these abilities to other environments. These three levels of diagnosis and evaluation form a continuum ranging from diagnosis on one end, moving through establishing baseline performance data, and finally ending at measurement of treatment progress.

ILLUSTRATING THE IMPORTANCE OF MEASUREMENT IN CURRENT TRENDS

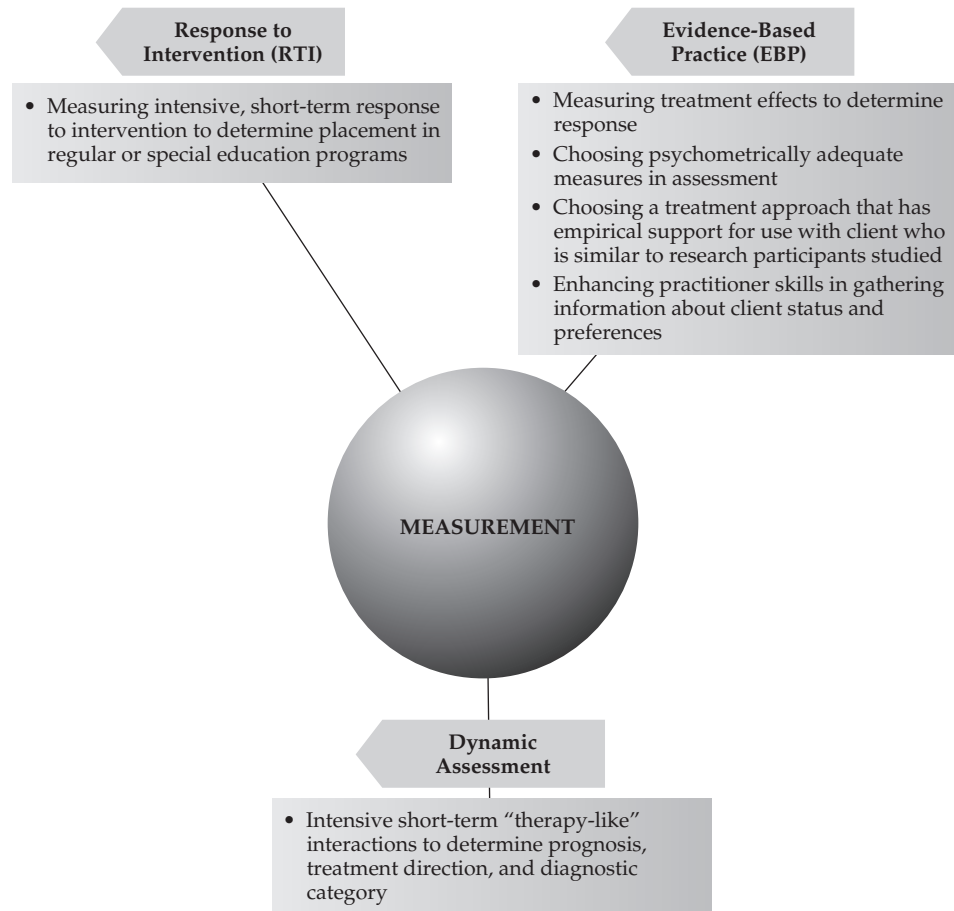
The assessment activities that take place after the initial diagnostic session have taken on increased importance in recent years with the emergence of three important influences in the field of communication disorders. These three influences have had and should continue to have far-reaching effects on our field in terms of research, theory, and clinical practice. The areas of which we speak are evidence-based practice (EBP), the response to intervention (RTI) initiative in public education, and research in dynamic assessment. You will soon see that the three areas overlap and in many ways deal with the same underlying construct of ongoing assessment or measurement of treatment progress. The three areas are illustrated in Figure 1-2. We will briefly discuss each of these important influences in the following sections.

Evidence-Based Practice in Speech-Language Pathology

The Joint Coordinating Committee on Evidence-Based Practice of the American Speech-Language-Hearing Association (ASHA) produced a position statement (American Speech-Language-Hearing Association, 2005). Among the recommended skills for speech-language pathologists, we emphasize following:

- Ability to perform screening and diagnostic procedures to gather information in a cost-effective manner; the SLP, then, must be aware of assessments as well as their efficacy.
- Ability to evaluate the efficacy, effectiveness, and efficiency of assessments as well as ongoing treatment.

FIGURE 1-2
Three Overlapping Areas in Current Literature Where Measurement Techniques Are Critical

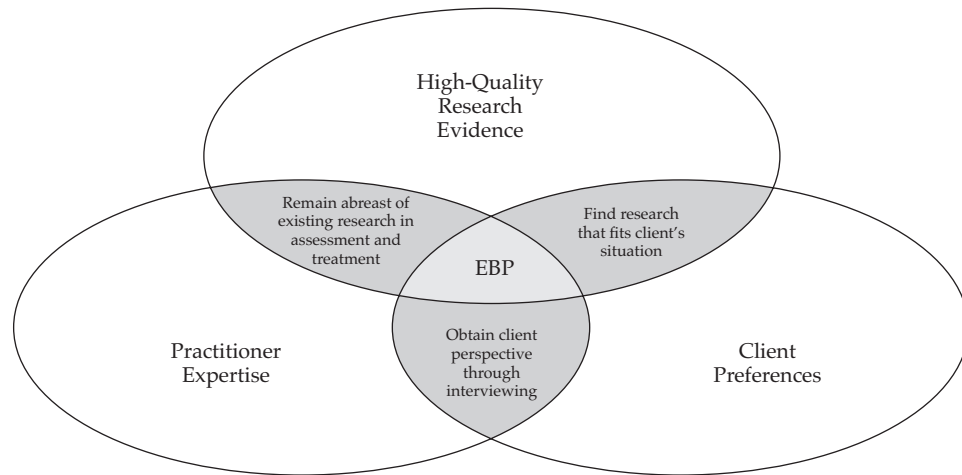


These skills suggest two major implications of evidence-based practice. First, in selecting diagnostic measurements, it is our responsibility to choose those that have the most scientific support and psychometric adequacy. The second implication involves the notion that assessment is ongoing, and it is only through such continued evaluation that we can monitor treatment progress on the goals we have selected as targets. In short, what is the "evidence" in evidence-based practice? In many ways it all boils down to measurement of one type or another.

Evidence-based practice was initially developed in the medical profession as a means of promoting ". . . the integration of best research evidence with clinical expertise and patient values" (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000, p. 1). Obviously, this implies a three-part model with research evidence, clinical expertise, and patient values at each point, presumably each contributing significant importance to making clinical decisions. Figure 1-3 depicts the relationships in this model to the assessment process. This model has been recently applied to many other professions, including education, social work, psychology, and communication disorders.

It is important to discuss how the three parts of the model in Figure 1-3 apply to assessment in communication disorders. The part of the model that deals with research evidence is critical in selecting both norm-referenced assessment instruments and

FIGURE 1-3
Three Classical Components of Evidence-Based Practice



nonstandardized measurements of client behaviors. As we will discuss in Chapter 3, all standardized tests should have been carefully developed so that they have psychometric qualities that make them both valid and reliable. These tests should have been normed on populations that make them applicable to clients from a variety of social and cultural groups. A clinician must be very careful to use standardized tests that meet exacting psychometric criteria and have been scientifically shown to identify clients with communication disorders adequately. When a clinician chooses a nonstandardized method of examining client communicative behavior, research evidence is even more critical. We should not simply design our own methods of gathering data on clients, but we should use nonstandardized methods that research has shown to be reliable and valid. For example, measurements such as mean length of utterance, type-token ratio, maximum phonation time, and percentage of disfluency are nonstandardized procedures that have well-documented definitions, procedures for sampling/calculation, and data on reliability/validity from many scientific investigations. It is almost always preferable to use a technique that has been implemented in research rather than develop an idiosyncratic approach with no empirical support.

Another way that knowledge of research evidence comes into play is in selecting a treatment procedure. There is no shortage of manuals and programs that tell the clinician how to do therapy. However, not many scientific studies actually document treatment effects on clients who underwent specific therapy procedures. The implication here is that clinicians should choose treatment methods that have scientific support in research literature and not use untested techniques when others are available with evidence that shows effectiveness. Thus, research evidence is an extremely important component of the EBP model and applies to both assessment and treatment enterprises in communication disorders.

The second part of the EBP model includes the clinical expertise of the practitioner. Clinical expertise is important for several reasons. First of all, one cannot be clinically competent unless he or she keeps up with the current research literature in the field. This is where the second part of the EBP model intersects with the first, research evidence. We assume that a competent clinician is familiar with the latest developments in assessment and treatment. We also assume that if a practitioner uses new clinical methods, then he or she will study and practice them so that they are used appropriately with the

client. The practitioner is responsible for choosing appropriate assessment and treatment methods and knowing how to use them.

The third part of the EBP model involves the values and perspective of the patient with whom we are working. It is the responsibility of the practitioner to evaluate the client as a person rather than merely a communication disorder. Every person has perceptions, values, and preferences that should be taken into account in a clinical relationship. For example, in the field of medicine, a person who has been diagnosed with cancer has many treatment options, ranging from surgery to chemotherapy and radiation. Each treatment has research data associated with it; these results can be communicated so that the patient and physician can make the decision that is best for the patient and family. Note that patients are not simply told which option to take; they have a choice. Sometimes they may choose to have a shorter survival chance but a better quality of life. The decision is up to the patient. Although this choice is not as dramatic in communication disorders, there are many possible ways of dealing with most speech and language disorders. For example, it may be preferable for a family to receive an intense parent training program instead of having to make frequent visits to a clinical setting, which may be more of a strain on finances and scheduling. Again, the patient's view should always be taken into account and his or her preferences should be included in the clinical decision-making process. This part of the EBP model interacts with practitioner expertise because a good clinician will be able to assess the values and preferences of the family and take them into account when arriving at a clinical decision. In Chapter 2 we discuss interviewing, which is the mechanism by which we get to learn about patient concerns, preferences, and goals. There is also an interaction between the patient perspective and research evidence. As a clinician chooses assessment and treatment techniques, he or she must determine if the technique has been used effectively on patients who fit the profile of the current client. That is, we should select treatment and assessment options that have been successful with clients similar to our patient.

It is easy to see from Figure 1–3 how research evidence, practitioner expertise, and patient preferences are not only important as individual entities but also in how they interact in carrying out the clinical transaction, both in assessment and in treatment. ASHA recently developed practice portals to help speech-language pathologists identify the best existing evidence and resources with credibility that are available. The content contained within the practice portals includes information on a variety of professional issues and clinical topics. To date, professional issues included are bilingual service delivery, caseload/workload, classroom acoustics, cultural competence, speech-language pathology assistants, and telepractice; clinical topics include aphasia, autism spectrum disorder, dementia, pediatric dysphagia, social communication disorders, and speech sound disorders. Evidence maps are provided within the practice portals to guide clinicians through an evidence-based clinical decision-making process and highlight the three components of EBP within each professional issue or clinical topic. You can search for the practice portals and the information contained within each portal at www.asha.org.

The Response to Intervention (RTI) Model

Authorities in the field of education and learning disabilities have recently postulated a procedure for identifying and treating students with disorders using a model called *response to intervention (RTI)*. The National Association of State Directors of Special Education (2005) defines RTI as “the practice of (1) providing high-quality instruction/intervention matched to student needs and (2) using learning rate over time and level of performance to (3) make important educational decisions.” The legal groundwork for RTI was laid by PL 108-447: IDEA 2004, which states: “In determining whether a child

has a specific learning disability, a local educational agency may use a process that determines if the child responds to scientific, research-based intervention." No Child Left Behind (NCLB) advocates the use of scientifically based research, which is described as "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs." These two legal perspectives seem to be quite compatible. Justice (2006) and Ukrainetz (2006) detailed how the SLP would fit into this type of approach to assessment and intervention for language, reading, and literacy disorders. We discuss RTI here only as an example of the important role that ongoing assessment plays in any program that involves continuous monitoring of client progress.

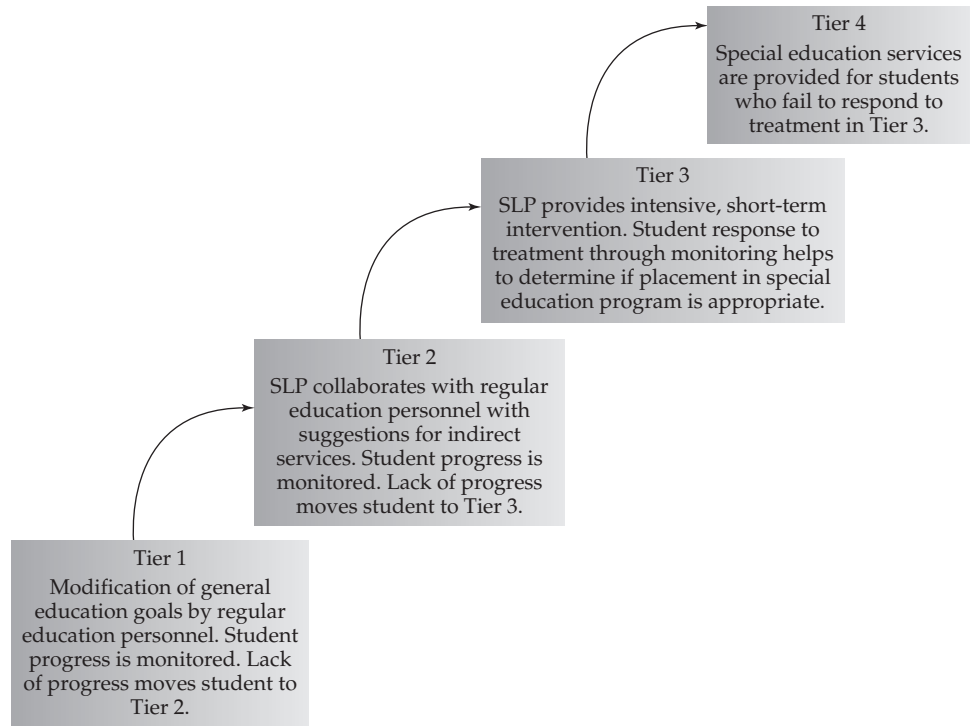
It is important to provide some perspective on why RTI is a novel approach to evaluating students. Historically, students with learning disabilities, the majority of which are language/literacy based, were given special education services after being diagnosed with a particular learning problem. In most cases this was done by using outdated discrepancy formulas, which showed a disconnect between a student's potential as measured through intelligence and aptitude testing and the student's performance on tests of specific abilities such as reading, writing, or oral language. Often, such evaluations were not completed until the end of second grade and, at this point, remediation is difficult and the social/psychological effects of failure may have already begun. The historical scenario described above has been called the wait-to-fail model. Currently, most authorities do not support the sole use of discrepancy models in diagnosis.

In an effort to be more proactive, educators have posited that variables other than just test scores could be used to determine the existence of a learning or language disorder. One such variable involves placing the student in a limited, intense period of treatment to determine if he or she can benefit from additional assistance. Proponents of RTI characterize the approach as having a number of tiers that provide progressively more specialized and intensive treatment. The number of tiers varies depending on the specific RTI model considered. Figure 1-4 illustrates a general four-tier model of RTI. Movement through the tiers depends on monitoring student response to treatment as revealed by continuous assessment. Those students who benefit from the assistance could continue to be served in the general education classroom on a consultative basis by the SLP. The students who do not benefit from the intense treatment regimen could then be declared eligible for special education services by the speech-language pathologist. In this way, a student's actual learning response can be a significant consideration in the decision to enroll him or her for specialized services instead of just using arbitrary cutoffs and test scores. Enrollment in specialized special education services often involves pulling the student out of the classroom, which could contribute to further academic problems caused by missing critical material. If a student can be served adequately in the general education setting in Tiers 1 to 3 without having to be admitted to a special education program, such additional academic problems might be avoided.

RTI involves prevention and intervention goals in an outcomes-driven system. For RTI to be successful, it must include a team approach involving parents, educators, special educators, administrators, and related service providers (e.g., SLPs). The American Speech-Language-Hearing Association has developed guidelines regarding the role of the SLP in RTI (Ehren, Montgomery, Rudebusch, & Whitmire, 2007). Most of the early work with RTI concerned children who have learning disabilities, but currently it has been applied to all children receiving services in early childhood. According to Jackson, Pretti-Frontczak, Harjusola-Webb, Grisham-Brown, and Romani (2009, p. 425), "Common principles of RTI include (a) many tiers to insure maximum support for each child, (b) instruction implemented with high quality, (c) a core curriculum that encompasses a research base, (d) a data collection system consisting of both formative

FIGURE 1-4

The Importance of Monitoring in RTI: Ongoing Assessment Determines Whether More Intensive Intervention Is Needed



and summative sources of information, (e) interventions that have an evidence base, (f) procedures for identifying the selection and revision of instructional practices, and (g) measures to monitor the fidelity of implementation.” It is clear from this statement that assessment and evaluation procedures are intimately related to almost every principle. Jackson et al. (2009) go on to point out that preferred methods of assessment should include naturalistic observation, family preferences, and functional outcomes. When monitoring treatment progress, some allowance should be made not only for pre- and postintervention measures but also on more frequent assessments on a daily or weekly basis to determine if the program needs modification. For some SLPs this may require an adjustment. For example, Jackson et al. (2009, p. 429) indicate: “Although SLPs have specific knowledge in the area of communication and language, the challenge is to shift their focus from the discipline’s traditionally ‘clinical,’ norm-referenced assessment approaches to engagement in collaborative assessment practices that are authentic and focus on all areas of child development.”

So what does this have to do with assessment? It should be abundantly clear that evaluating a student’s baseline abilities and then continuing to monitor his or her performance during an intensive, short-term treatment regimen involves copious measurements. In the RTI model, such assessment is very important because it can be used in the decision-making process to determine eligibility for special education services.

Dynamic Assessment

If diagnosis is to be of utmost benefit, it must be goal-oriented. Diagnosis is an empty exercise in test administration, data collection, and client evaluation if it fails to provide