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Comprehensive Linked System Framework for Service Delivery with Young Children

As noted in Chapter 1, ABI is a comprehensive approach to intervention that focuses on what young children do throughout their day. The approach is largely child-directed and embeds teaching/training into daily or routine activities, play, and child initiations. For example, for a child with a gross motor delay who frequently chooses to play with blocks, the child care worker can consistently move the blocks beyond the child's reach so he must move to obtain them.

Recognizing and using each child's interests serves as the basic platform from which intervention efforts are orchestrated. An intervention strategy that uses children's motivation produces significant progress in critical areas of development; however, neither ABI nor any other intervention approach can operate effectively in isolation. The effectiveness and impact of any intervention approach is enhanced by its placement in a more comprehensive framework that takes into account other factors or variables that produce systematic change in children. A review of many service delivery programs that operate in the United States provides strong evidence that many intervention efforts are not situated within a comprehensive framework. Rather, as the example that follows demonstrates, services and activities are often disconnected, producing inefficiency and oversight resulting in compromised outcomes for children and families.

The Oakdale Early Intervention Program provides services to 25 children with disabilities and their families. The children range in age from 12 to 48 months and have identified developmental delays (e.g., Down syndrome, autism, sensory impairments). The stated overall goals of the program are to 1) enhance parent–child interactions, 2) build peer interaction skills, and 3) assist children in gaining preacademic skills.

To be eligible for participation in the Oakdale Program, children must have a significant developmental delay (at least two standard deviations below mean age performance in two or more developmental areas), and therefore before entering the program, children must be assessed and their disability or delay documented. The local community does not have a screening program. Children in the community with suspected or known problems are referred to an evaluation agency for a multidisciplinary assessment. Because a community screening program does not exist, timely referral of children often does not occur.

When children are referred to the evaluation agency—usually after their development or behavior is noted to be significantly atypical—they are seen by an interdisciplinary team, including a pediatrician, psychologist, physical therapist, and speech-language pathologist, and are given at least one individualized standardized test (e.g., Bayley Scales of Infant Development; Bayley, 2005). Based on the child's performance, the team writes intervention goals and plans for those children who meet eligibility requirements.

The goals and intervention suggestions are then forwarded to the staff of community-based services such as the Oakdale Program. However, because the members of the interdisciplinary team are not familiar with the goals or operation of the Oakdale Program, the staff usually finds the children's goals to be inconsistent with their overall program goals and curriculum. This inconsistency requires that the Oakdale Program staff develop additional goals for each child. The development of more appropriate goals requires that staff conduct systematic observations and/or administer additional measures, both of which require time and effort as well as delay the initiation of intervention efforts.

Once children's goals are developed, intervention efforts focus on providing events and activities that address the children's individual goals, as well as those goals targeted by the program's general curriculum. At the end of the school year, each child's progress is evaluated by the re-administration of the standardized measure that was used to determine eligibility. Unfortunately there is little relationship between the goals the staff targets for intervention efforts and the content of the standardized measure. Consequently, caregivers and program staff have no objective way to determine the effectiveness of their intervention efforts.

The practices outlined in this example highlight a model of service

delivery that is fragmented and disconnected. A screening program does not exist, and the assessment component is not connected to the service program. The initial assessment does not provide adequate information to develop sound intervention goals, and the goals that come from the initial assessment do not reflect the overall goals of the Oakdale Program. Relevant intervention content has to be derived from other sources that are not linked to the initial assessment conducted by the interdisciplinary team. Subsequent follow-up progress monitoring is not related to the children's goals, intervention efforts, or the program's overall goals. Such models of service delivery do not have a coordinated system and consequently often waste resources and compromise quality.

Alternatives to service delivery programs that do not attempt to create systems are those that focus on building coordination and linkages with and between all of the necessary activities to ensure the delivery of quality services to young children and their families. The purposes of this chapter are to

1. Describe one such comprehensive system
2. Discuss how this comprehensive framework can be used with ABI
3. Present an example that demonstrates the application of a linked system framework

THE LINKED SYSTEM FRAMEWORK

We believe that the application of ABI is most successful when conceptualized and implemented within a linked system framework. That is, intervention activities cannot stand alone; rather, to be maximally effective they need to be supported by and linked to other critical components of service delivery. The linked system framework that we are proposing is composed of five interrelated components: screening, assessment, goal development, intervention, and monitoring progress (Bagnato, Neisworth, & Pretti-Frontczak, 2010; Bricker, 1989, 1996a, 1996b, 2002).

These five components address all critical service delivery activities from the first step of screening for potential developmental-behavioral problems to the final activity of monitoring progress toward targeted goals. As shown in Figure 3.1, each component is directly linked to the next component, or in the case of monitoring progress, linked back to assessment, goal development, and intervention efforts.

To reiterate, it is important to recognize that although ABI focuses directly on the intervention component of a linked system, the approach cannot be fully implemented without attention to all of the components necessary for quality service delivery. The following sections explain the linked system by describing each of its components. Each component then includes the following sections: Definition, Goal, Application, and Outcomes.

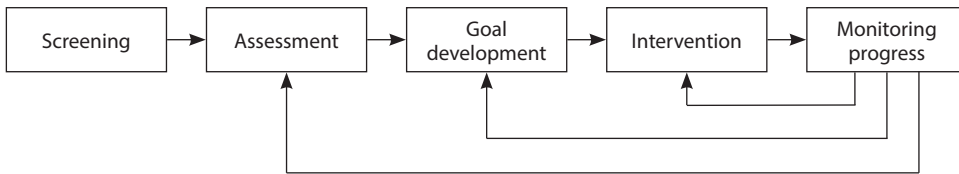


Figure 3.1. Five components of the linked system approach.

Screening

As indicated in Figure 3.1, we advocate for screening as the first component of the linked system framework. Communitywide screening programs are essential if children with potential developmental or behavior problems are to be detected in a timely manner. Early detection is fundamental to ensuring the best outcomes for children and their families (Bricker, Macy, Squires, & Marks, 2013).

Definition Screening is a quick, simple, and economical procedure to determine if more comprehensive assessment is in order (Bricker et al., 2013). Screening is often conceptualized as the administration of a brief test (e.g., Ages & Stages Questionnaires® [ASQ; Squires & Bricker, 2009]; Denver Developmental Screening Test II [Frankenburg et al., 1992]) or brief procedure (e.g., newborn hearing screening); however, effective screening needs to be communitywide and connected to a referral system, the administrative/operational context for conducting the actual screening, and strategies for providing feedback and taking subsequent appropriate action. Efficient and effective screening programs can be thought of as a subsystem embedded in the more comprehensive linked system framework.

Goal In the linked system framework, the primary goal for the screening component is the early detection of children with potential problems. More specifically, screening determines if children require a more thorough, detailed assessment of their developmental–behavioral repertoire. That is, does the child’s performance on the screening measure or procedure fall significantly below established age expectations? If so, the family should be provided feedback and referred for follow-up assessment: the next component in the linked system framework.

Application A variety of relatively new measures exist for conducting developmental screening of large groups of children (Squires & Bricker, 2007; Macy, 2012). These measures can be sorted into two groups: measures administered by professionals, and those administered by parents or other caregivers. For the linked system framework we recommend the use of parent-completed measures even for comprehensive screening programs for several important reasons. First, in most cases, primary caregivers

have the most detailed information about their children's development. When provided with an easy-to-complete, straightforward measure focused on observable behavior, caregivers can reliably assess their child's developmental repertoire (Squires, 1996). Second, having parents complete simple screening measures such as the ASQ (Squires & Bricker, 2009) is far more economical than using professional or paraprofessional staff. Third, the inclusion of parents or other primary caregivers in the child's assessment from the beginning sends an important message—that parental input and involvement is fundamentally important.

Outcomes For children who are screened (i.e., children who have been identified as needing more comprehensive developmental assessment), this component yields three important outcomes that are directly relevant to the subsequent component of assessment. The first and perhaps most important piece of information to be passed on is that the child's performance on the screening measure was below established cutoffs for developmental age expectations. That is, the child's performance on the screening measure was well below the expected performance for his or her chronological age. Second, an analysis of the child's performance on a particular measure can offer hints about the nature of the delay or problem. That is, the child's performance in the critical areas of gross motor, fine motor, social-communication, adaptive, social, and cognitive can be examined. Finally, the initial information provided by the caregiver (e.g., address, date of birth) can be passed on to personnel in the assessment team.

Passing on family demographics and specific information about the child's performance on the screening measure is important because it will assist the personnel operating the assessment component to decide what type of follow-up eligibility assessment should be used. Further, passing on family information should increase efficiency for the assessment personnel as well as the family by not having to ask the same questions and collect the same information again. Passing on child data and family information requires a connected or linked system and trust in screening data (i.e., accuracy and reliability).

Assessment

The second component of the linked system is assessment. Assessment refers to “an ongoing collaborative process of systematic observations and analysis” (Greenspan & Meisels, 1996 p. 23). In our framework, assessment can be conceived as two parts or two steps. First, the child's eligibility for services must be established. Second, the content for developing relevant and essential intervention goals and objectives must be delineated. Many programs are developing strategies to combine these two steps into a more efficient procedure that simultaneously permits establishing eligibility and also generating appropriate intervention content.

Definition For children who have been screened, the next step is to determine if they meet the stipulated criteria for receiving services and, if so, to determine appropriate goals and intervention content for eligible children. Most government-sponsored programs require that children meet established eligibility guidelines in order to receive services. In the United States, most jurisdictions require that children demonstrate significant developmental problems (e.g., Down syndrome) or developmental delays (e.g., a performance at least two standard deviations below their age norm in two or more developmental areas). Therefore assessment can be defined as collecting information to determine a child's eligibility for services and for development of appropriate goals and intervention content.

Goal As noted, the assessment component has two important goals. The first is to reliably determine those children who meet stipulated state and federal criteria for eligibility to receive services. The second goal is to collect a range of developmental information that will permit the intervention team to develop appropriate, functional, and individualized developmental goals.

Application Until the late 1990s–2000s, it was necessary to administer two different types of measures to obtain the necessary information to determine eligibility and to develop high-quality individual intervention goals. Standardized, norm-referenced tests such as the Battell Developmental Inventory (Newborg, 2004) yield information that is appropriate for determining if children meet established eligibility guidelines; however, information provided by these tests is not particularly useful for the development of intervention goals and content. Rarely can information generated by standardized, norm-referenced tests be used directly to formulate functional, high-quality goals for young children.

Curriculum-based measures (CBMs) such as the AEPS (Bricker, 2002) have, since their inception, been the choice to develop goals and intervention content because these measures have been created precisely for these purposes. CBMs have been defined as “a form of criterion-referenced measurement wherein curricular objectives act as the criteria for the identification of instructional targets and for the assessment of status and progress” (Bagnato & Neisworth, 1991, p. 87). CBMs have advantages over standardized norm-referenced assessments when linking assessment outcomes to goal development and intervention. CBMs such as the AEPS are composed of items directly relevant to the development of high-quality and individually appropriate goals. CBMs are comprehensive in that their content addresses all major developmental domains. In addition, items from curriculum-based assessments can be modified to meet children's individual needs and can be observed across settings, time, materials, and people to ensure generalizability.

As noted, developmental information generated by a CBM permits the development of appropriate goals. In addition, research suggests that CBMs

such as the AEPS can also be reliably used to determine children's eligibility for services. Children's performance outcomes on the AEPS can be compared with empirically derived cutoffs (Bricker, Yovanoff, Capt, & Allen, 2003). If children's scores fall below the established cutoffs, they are eligible for services. Therefore, the linked system framework can use curriculum-based assessment outcomes for dual purposes: to establish eligibility for services and to generate information directly relevant to goal development.

Besides gathering developmental information on children, it is usually equally important to assess or gather information about the family's strengths and challenges. As noted in Chapter 2, the AEPS has an associated tool called the AEPS Family Report. This family friendly measure is designed to assist family members in describing their living context and identifying areas in need of attention.

Outcomes In the linked system framework, the assessment component produces two important outcomes. First, it determines if a child is eligible for services. Second, it produces information that can be used to develop individualized intervention goals and objectives. CBMs are composed of items directly relevant to the development of high-quality and individually appropriate goals; therefore, the assessment outcomes are directly relevant to the creation of appropriate, functional, and measurable goals. In addition, most curriculum-based assessments address all major areas of development and offer concrete guidelines for developing individualized goals. Thus, in the linked system framework, the information produced by the assessment component is directly relevant to the next component of goal development.

Goal Development

The third component of the linked system is goal development. The purpose of goal development is to individualize and prioritize a set of goals and objectives that are developmentally appropriate, functional, and important behaviors that will advance children's behavioral repertoires. The development of high-quality, developmentally appropriate, and functional goals is dependent on comprehensive information gathering during the assessment process.

Definition Goals (or objectives) are written statements that serve to describe an end point or developmental target for a child. Goals can be formulated as general statements (e.g., the child will learn to walk), or they can be formulated as precise and specific statements (e.g., the child will take at least six steps consecutively by alternately lifting feet off the ground and propelling the entire body forward while remaining in an upright position). The linked system framework requires that goals meet five important criteria to ensure quality. Goals should be 1) functional, 2) teachable, 3) generative, 4) measurable, and 5) able to be addressed within daily activities.

To develop goals to meet these quality criteria, it is essential that assessment outcomes provide the necessary developmental information. Assessment

outcomes that are vague, irrelevant, or nonfunctional do not provide sufficient information to formulate quality goals.

Goal The goal of this component is to develop written statements for individual children that meet the five criteria for quality noted previously. In addition, assessment information generated by the AEPS Family Report or similar assessments may suggest family outcomes. As noted, the quality of these goals is highly dependent on the type and quality of assessment information gathered during the assessment component. The development of quality goals is essential because it is these goals that drive and guide intervention efforts.

Application CBMs such as the AEPS offer the user a range of developmental items that address essential behaviors. Frequently items have associated examples of a high-quality goal, as shown in Table 3.1. The first item and associated goal is from the Social Area, and the second goal is from the Gross Motor Area of the AEPS.

The associated goal examples are offered only as guidelines, and most will require some modification and adjustment in order to meet the needs of individual children.

Outcomes The outcome from the goal development component for each child is the development of two to four individualized goals, such as those shown in Table 3.1. High-quality goals (i.e., those that meet the criteria of being functional, measurable, and addressable across the day) will ensure that important, functional behaviors have been targeted and that these behaviors can be integrated into a broad range of intervention activities.

The selected goals are of critical importance in the linked system framework because it is these goals that direct subsequent intervention efforts. Children's individual goals dictate the curricular content and how to plan opportunities for practice throughout the day. Rather than offering random activities, training efforts are carefully orchestrated to address children's goals.

Intervention

The fourth component of the linked system framework is intervention. The purpose of intervention is to assist children in acquiring and using prioritized individualized goals and objectives. Specifically, ABI is designed to assist caregivers and interventionists in using daily activities as the context for delivering specially designed instruction that will produce desired change in children.

Definition Intervention refers to the planning and executing of actions and events by caregivers and teachers/interventionists/therapists that are designed to assist children in the acquisition of their individual

Table 3.1. Sample items from the *Assessment, Evaluation, and Programming System (AEPRS)* with their associated goals

AEPS test item	Associated goal
Initiates cooperative activity	The child will use verbal or nonverbal strategies to initiate cooperative activities and encourage peer(s) to participate (e.g., the child says, "Come on, let's build a house," to a group of peers).
Rides and steers two-wheel bicycle	While sitting on a two-wheel bicycle, the child will pedal forward and steer the bicycle at least 20 feet.

developmental goals and the program's general curriculum goals. Intervention is composed of planned and incidental actions and responses by adults and peers, as well as the arrangement of the physical environment, which provides guidance and practice opportunities for children to address their individual goals.

Intervention content can be conceptualized as two parts: 1) children's individual developmental goals and 2) general curriculum goals. Individual child goals are those that were specifically derived from the child's performance on a CBM and address the child's specific impairments identified during the assessment component. The general curriculum goals refer to the universal content and behavior that most children must acquire to be successful in home and school environments. An example of a universal goal for children is that they should be able to focus their attention and follow directions. Such important general curriculum goals should be addressed throughout the day. Effective intervention requires that children be given multiple opportunities to address their individual goals as well as general curriculum goals.

Goal The goal of the intervention component is to develop and execute an intervention plan that will assist children in meeting their individualized goals as well as the general curriculum goals. Reaching this outcome requires that intervention staff in conjunction with caregivers undertake two actions. First, they need to develop an individualized intervention plan for each child (an example plan is contained in Chapter 6). This plan should be designed to address the child's individualized goals. Second, a strategy to address the targeted general curriculum goals should be created in order to ensure that children are presented with numerous opportunities to acquire these important goals.

Application It is important that intervention plans—both the individualized plans and the general curriculum activities—focus on authentic activities and events that can be used to embed training on targeted goals. Authentic refers to events and activities that have meaning and relevance for children. For example, learning to use the pincer grasp by picking up bits of food when you are hungry is likely a meaningful activity for most children, whereas picking up pegs to insert in a board may be of questionable relevance or importance for many young children. Learning to use a word to

obtain a desired object will likely be more meaningful (i.e., authentic) than naming picture cards.

Outcomes There are two major outcomes for the intervention component. First, each child should have an individualized intervention plan that specifies his or her goals, intervention strategies for reaching the goals, and methods for collecting data to ensure adequate progress is being made toward goals. The second outcome should be the systematic and coordinated presentation of events and activities that target children's individual goals as well as those goals deemed essential by the general curriculum used by a program.

Monitoring Progress

Monitoring progress is the final component of the linked system framework and refers to documenting key behaviors in which children's previous performance in an area is compared with later performances. That is, this component is designed to permit comparisons of children's behavior over time to determine whether or not the offered intervention is being effective.

Definition Monitoring progress in the linked system framework refers to monitoring the child's progress toward targeted goals and objectives. Monitoring progress can be defined as a cyclical process that involves the systematic comparison of the child's current behavior (i.e., performance) with previous performance(s). Useful progress monitoring requires the collection of objective information or data that accurately and reliably describes the child's performance of target goals and objectives so that these performances can be compared with subsequent performances. It is only through appropriate comparisons that the effectiveness of intervention can be assessed.

Goal The goal of the monitoring progress component is the systematic collection of objective data to document and compare children's performances of targeted goals and objectives over time. Systematic refers to the collection of data on a preset schedule, such as once per week following an intervention activity. Objective data refers to targeting behaviors or responses that are observable and measurable. For example, an observable and measurable response would be "the child uses descriptor words such as color and size," in contrast to a vague response such as, "the child's language improves."

Application In most cases, weekly collection of data is necessary to ensure that children are making adequate progress toward targeted goals. If goals are of high quality (i.e., meet the quality criteria), it should be possible to collect systematic information on children's progress. The collection of weekly data is generally necessary to make timely and informed decisions about the effectiveness of intervention for individual children. If a child's goal is to "initiate peer interactions at least three or more times during an

activity,” staff should keep track of the number of initiations that occur at least once a week during, for example, free play, to measure whether the frequency of child initiations is growing over time.

Weekly data collection should focus on the acquisition and use of targeted goals. Often these data may not address child progress on general curriculum goals and, therefore, it is also necessary to collect more global data three to four times per year by re-administering a CBM such as the AEPS.

Outcomes Including the monitoring progress component in a linked system framework is essential. There are two outcomes from this component that inform staff about the success of the assessment, goal development, and intervention components. First, as noted earlier, a child’s progress can only be determined through the adequate collection of objective information that allows staff and caregivers to determine whether or not children are acquiring targeted goals in a timely manner.

Although the collection of objective data is necessary, it is not sufficient. To be useful (i.e., assist in making sound decisions) data must be translated into visual (e.g., graphs) or written descriptions that permit an examination of children’s progress. Generally this requires graphing or plotting findings so that legitimate comparisons can be made. Such comparisons need to be made for weekly as well as quarterly and annual data. Thus, a graph or written presentation of comparative data is the second outcome of the progress monitoring component. These comparative data provide the mechanism to determine if children are making acceptable progress toward individual as well as general curriculum goals.

ABI AND THE LINKED SYSTEM FRAMEWORK

Employing a linked system framework permits 1) efficient use of personnel and other resources, 2) accountability in terms of documenting intervention program impact over time, and 3) individualization through the design of intervention content specific to the needs of children and their families. A comprehensive system provides the necessary context for the implementation of ABI. The successful application of ABI is dependent on the use of an assessment measure (i.e., CBM) that yields information that can be translated into appropriate goals and objectives for children. The ABI approach is also dependent on targeting goals and objectives that are functional and developmentally appropriate and that can be addressed within daily activities, play, and child initiations. Finally, the approach requires careful and continuous progress monitoring and that information be transmitted or passed on (linked) to each subsequent component of the system. That is, as the system accumulates data, it passes this information forward, and this information is, in turn, used as the basis for the next component.

Figure 3.2 illustrates how data and information collected over time are transmitted across components. That is, screening findings offer information

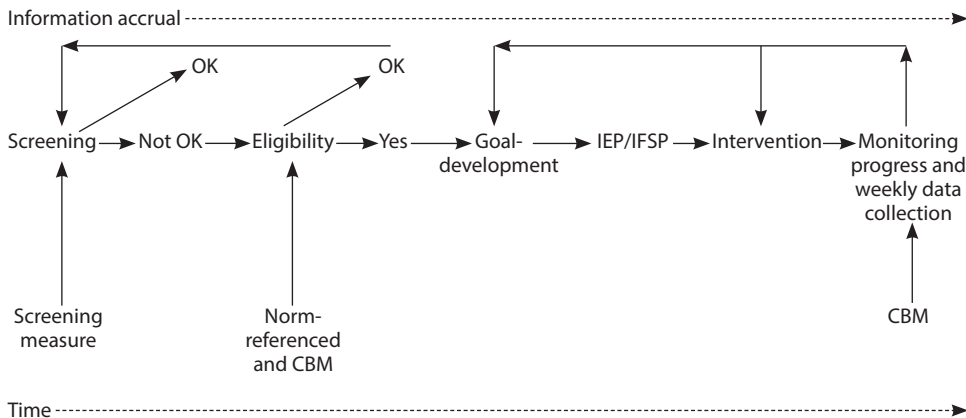


Figure 3.2. Schematic of recommended sequence of child data and information moving forward to subsequent components to create quality individualized education program/individualized family service plan goals and subsequent intervention content. (Key: IEP/IFSP, individualized education program/individualized family service plan; CBM, curriculum-based measure.)

that permits targeting the approximate developmental level of children when determining eligibility and developing IEP/IFSP goals and objectives. In turn, these goals and objectives guide the development of intervention content and finally, as shown in Figure 3.2, monitoring progress links directly to the assessment, goal development, and intervention components of the system. This cyclical feedback assists in evaluating the effectiveness of intervention efforts and when and if modification is in order.

ABI and Screening

Screening measures are designed to sort children into one of two categories: those whose development appears okay, and those whose development is suspect. Screening measures, in most cases, are used with large groups of children, thus requiring the measures be administered quickly and economically. Given these conditions, screening measures make relatively gross discriminations about children (i.e., further testing is or is not needed).

Although the screening component is part of the linked system framework, screening activities should occur as the first step in service delivery and prior to conducting intervention activities. Communities that have widespread screening efforts are able to identify children with potential problems in a timely manner. Timely identification of problems increases the likelihood that appropriate services will be offered to young children and their families, which, in turn, generally results in better outcomes (Bricker et al., 2013).

ABI and Assessment

When using an ABI approach, it is critical to obtain information regarding children's strengths, interests, and emerging skills. Meaningful intervention efforts can be designed and monitored only through ongoing observa-

tions and conversations with people who interact frequently with the child. It is therefore essential that assessment information provide a continuous, accurate, and comprehensive profile of children's behavioral repertoires in order to accurately determine eligibility and to identify appropriate goals and intervention content.

Many formal and informal procedures have been developed to guide teams in observing and documenting children's behaviors across a wide variety of settings. Formal procedures may include completing norm-referenced and/or standardized tests (e.g., Bayley Scales of Infant Development [Bayley, 2005], Battelle Developmental Inventory [Newborg, 2004]), criterion-referenced or CBMs (e.g., AEPS [Bricker, 2002], Hawaii Early Learning Profile [HELP; VORT Corporation, 1995]), or structured interviews with caregivers (e.g., Vineland Adaptive Behavior Scales [Sparrow, Cicchetti, & Balla, 2005]). Informal procedures may include observations of young children during daily activities, completion of program-created checklists, the collection of anecdotal notes, or conversations with caregivers and other team members.

Traditionally eligibility measures are standardized and norm-referenced and are used by teams to determine a child's performance in relation to a normative sample. These measures are typically administered by trained professionals (e.g., psychologists, speech-language pathologists) under controlled conditions using standardized materials and procedures. Results from such measures often provide a summary of children's development in one or more areas, and document the child's level of delay and areas of need; however, most of these measures do not yield outcomes that are directly relevant to the development of quality goals and objectives needed by the child.

Fortunately, state agencies are increasingly permitting the use of CBMs to establish eligibility for services. The ABI approach is predicated on the use of a CBM to establish eligibility and to generate content for goal development. CBMs are criterion-referenced measures in which curricular objectives act as the criteria for the identification of goals and objectives. CBMs have several advantages in comparison with standardized norm-referenced assessments when linking assessment and goal development to intervention. In general, CBMs are composed of items directly relevant to the development of high-quality and individually appropriate goals. Some CBMs are also comprehensive in that their content addresses all major developmental domains (e.g., motor, communication, social development). In addition, CBM items can be modified to meet children's individual needs and can be observed across settings, time, materials, and people.

As noted, CBMs can be used to determine eligibility and also to generate the necessary content for the development of quality goals. These measures often encourage family involvement and are specifically designed to assist teams in describing a child's level of functioning; selecting, prioritizing, and writing appropriate goals; designing appropriate intervention content; and monitoring child progress.

ABI and Goal Development

ABI addresses children's individual needs by embedding multiple and varied learning opportunities into their daily activities and by providing timely feedback/consequences designed to promote children's acquisition and use of functional and generative skills. Fundamental to the successful application of this approach is the development of children's goals that provide direction and guidance for the design and implementation of intervention.

When developing IFSPs/IEPs, teams should follow federal and state mandates. For example, the Individuals with Disabilities Education Act (IDEA) of 1990 (PL 101-476) and the Individuals with Disabilities Education Act Amendments (IDEA) of 1997 (PL 105-17) specify that teams develop IEP intervention targets as measurable annual goals and short-term objectives or benchmarks and develop IFSP intervention targets as outcomes. How the terms *goals*, *objectives*, and *benchmarks* are used across states and written sources varies. Throughout this book, *goals* are defined as measurable skills targeted for a child to acquire or master within approximately 6 months to 1 year. Goals often address general or broad classes of behaviors, are needed by children across settings, and are written to reflect their independence in performing the target skill(s). Goals are composed of a set of more specific skills often referred to as objectives or benchmarks.

Objectives or *benchmarks*, as defined in this book, represent intermediate or measurable steps toward the goal, as well as earlier milestones or building blocks of a goal. Target objectives or benchmarks should be related to the annual goal and serve as an indicator of a child's progress toward attaining the annual goal (e.g., Michnowicz, McConnell, Peterson, & Odom, 1995; Notari & Bricker, 1990; Notari & Drinkwater, 1991; Tymitz, 1980). For some children objectives or benchmarks may need to be further delineated into simpler or smaller components referred to as *program steps*. Last, throughout this book, the term *target skill* is used generically to refer to behaviors (i.e., goals, objectives/benchmarks, or program steps) selected for children to learn, strengthen, and/or use as part of their functional behavioral repertoire.

The primary method of ensuring a wise choice of specific intervention activities is through the development of high-quality individual goals for children. If skills targeted for intervention are well chosen and operationally defined, intervention efforts become clear, and the selection of teaching strategies or capitalization on learning opportunities, as well as the reinforcement of child-directed and child-initiated activities, becomes straightforward. Developmentally appropriate and functional goals help ensure that interventionists and caregivers can select with confidence intervention activities that ensure the learning of target skills.

ABI and Intervention

As noted previously, intervention refers to the planning and executing of actions by caregivers and professionals designed to assist children in the acquisition and use of target skills. In ABI, intervention is conceptualized as the intentional and incidental actions and responses by adults and peers as well as the arrangement of the physical environment that provides guidance and practice opportunities for children to learn target skills.

Intervention efforts during the early childhood years are intended to occur during daily activities, routines, and play. Selection of daily activities and events should be guided by children's individual interests and needs and should ensure that all children 1) have access to the general curriculum, 2) make progress within the general curriculum, and 3) accomplish or achieve their individualized skills.

To ensure appropriate intervention efforts within routines, play, and daily activities or events, teams employing ABI should 1) derive content for intervention from children's performance on CBMs, 2) target functional and generative skills, 3) incorporate a variety of evidence-based instructional procedures designed to meet children's individual needs, and 4) systematically monitor children's progress to ensure that effective intervention is consistently provided (i.e., employ components of the linked system framework). Furthermore, to ensure that children make desired progress toward target skills, an organizational structure should be present that directs teams to develop activities that provide frequent opportunities for practicing and learning target skills. Creating and maintaining such a structure requires ongoing, consistent, and thoughtful planning among team members. The literature on quality practices cites the importance of planning to ensure successful intervention and, in particular, individualized instruction for young children with disabilities (e.g., Bennett, DeLuca, & Bruns, 1997; Hoyson, Jamieson, Strain, & Smith, 1998; McDonnell, Brownell, & Wolery, 2001; Salisbury et al., 1994). Adequate planning time is necessary for teams to successfully use ABI (e.g., Grisham-Brown & Pretti-Frontczak, 2003).

ABI and Monitoring Progress

Monitoring progress is a cyclical process that involves making decisions regarding what to observe, when to observe, who to observe, where to observe, and how to document observations. When considering the type of evaluative data desired, it is important to determine how the data will be used (e.g., as a description of the child's performance or an evaluation of their progress over time). Evaluation data are comparative in that children's individual or group performances are compared with either their previous performance or to some other criterion such as norms for a specific chronological age. Typically, teams document a child's progress on targeted IFSP/IEP skills,

monitor a child's progress in the general curriculum, and determine whether broad program goals are being met.

To successfully use ABI, teams will need to collect weekly, quarterly, and annual progress monitoring data to ensure effective intervention over time. Weekly data collection permits monitoring children's performance during play, daily activities, and routine events. Data should be collected weekly regarding children's progress toward target skills (i.e., typically those targeted on the IFSP/IEP for individualized intervention). The weekly data that are collected regarding both a child's performance and progress should be systematically summarized and reviewed by team members to make sound decisions regarding intervention efforts.

Weekly data collection should focus on the acquisition and use of target skills that are designed to move children toward individual target goals; therefore, these data often do not address children's progress on more global outcomes or their progress toward skills associated with the general curriculum. In addition, weekly data are often difficult to combine across children, making them inappropriate for examining group effects or program efficacy. The collection of more global evaluation data three to four times per year can provide useful feedback on children's progress toward goals selected from a programmatic measure (e.g., AEPS [Bricker, 2002]) and/or from the program's general curriculum. In addition, quarterly data may permit examining group effects and/or program outcomes. Finally, web-based programs now exist such as AEPSi that permit daily or weekly data entry to track children's progress.

Teams should also be prepared to collect annual data regarding children's progress and program outcomes. The collection of annual data can be an extension of the quarterly data collection procedures if teams decide to use the same measure. For example, if a programmatic measure is administered to children quarterly, these data can also be used for annual evaluations. Teams should develop strategies to keep their data collection activities focused and efficient.

USING THE LINKED SYSTEM FRAMEWORK: AN EXAMPLE

The purpose of this example is to illustrate how teams can use and pass on information gathered within each component of the linked system. The example begins with the first component, screening, in which a potential problem with the child's development is identified and the family is referred for more comprehensive assessment. The assessment process includes administration of a CBM and assessing family resources, priorities, and concerns. Assessment information is summarized to determine the child's eligibility for services as well as her strengths and emerging skills. Priority needs serve as the basis for developing individualized goals that then become the focus of intentional intervention efforts and require systematic progress monitoring.

In this example, the team chooses to use the AEPS to meet the goals

for the assessment component of establishing eligibility and developing IEP/IFSP goals. In terms of eligibility, the AEPS has objectively derived cutoff points that can be used to determine eligibility for services. For goal development, the AEPS offers several important features. First, most items are written to reflect conceptual or generative response classes rather than specific responses (e.g., target stacking a variety of objects such as books, clothes, carpet squares, and cups vs. stacking three 1-inch cubes). Second, many items are composed of skills essential for young children to function independently and to cope with environmental demands (e.g., moving around their environment, expressing their wants and needs). Third, the AEPS contains prototype goals that can serve as guides or models for writing children's individualized goals and objectives.

Screening

Katie is 3 years old and has been slow to acquire typical developmental milestones. Both parents work, so Katie attends an all-day child care program. Before her last well child visit, Dr. Andrews, Katie's pediatrician, asked her parents to complete the 36-month interval of the ASQ online. During Katie's appointment, Dr. Andrews informed her mother that Katie's performance on the screening measure was below expectations for her age. Given this finding, Dr. Andrews referred Katie to the EI/ECSE community-based team to gather more in-depth information. Accompanying the referral was a copy of the completed ASQ, a medical summary, and demographic information on the family.

Prior to Katie's eligibility determination assessment, the team reviewed the information forwarded from the physician's office. In particular they examined her performance on the ASQ. They noted that Katie's performance in fine motor and social-communication areas were of particular concern, and this provided them with useful information for beginning the more comprehensive assessment necessary to establish eligibility for EI/ECSE services.

Gathering Assessment Information

Katie's team was composed of her parents, the ECSE teacher, and therapists. The professionals completed the AEPS by observing Katie at her child care program as well as talking to others familiar with Katie's behavior (e.g., grandparents). Her parents completed the AEPS Family Report, which provides information about the family's daily routines. The Family Report allows caregivers the opportunity to record a child's strengths, interests, and emerging skills across areas of development. This comprehensive approach to gathering assessment information was designed to meet two purposes: 1) to determine if Katie was eligible for services and, if so, 2) to assist the team in developing meaningful goals that, in turn, would guide intervention efforts.

Summarizing Findings

Following administration of the AEPS, completion of the AEPS Family Report, and review of existing and relevant documents, the team summarized the assessment information. In general, teams are encouraged to summarize assessment results in several ways (e.g., numerically, visually, anecdotal). When summarizing assessment information, teams are encouraged to focus on a child's strengths, interests, and emerging skills. Teams should identify patterns in the demonstration of skills (e.g., with or without assistance, consistently or inconsistently, in certain locations) and identify the relationship between the child's performances across areas of development (e.g., teams may look for a common feature that impedes the child from performing related tasks).

Katie's team reviewed the information they gathered and summarized their findings in three ways. First, they calculated an area percent score for each of the six developmental areas of the AEPS. Area percent scores represent the percentage of items the child can perform independently/consistently and those items they are beginning to demonstrate or can demonstrate with assistance across the six areas assessed (e.g., gross motor, adaptive, social). Second, they summarized the information visually by completing the AEPS Child Progress Record. The Child Progress Record was developed to monitor individual children's progress over time and provides teams with a visual record of the child's accomplishments, current targets, and future targets (Bricker, 2002). Third, the team summarized information anecdotally by noting Katie's strengths, interests, and needs.

Goals Development

Skills (i.e., goals) selected for intervention should meet at least five quality criteria. They should be 1) functional, 2) teachable, 3) generative, 4) measurable, and 5) able to be addressed within daily activities (Pretti-Frontczak & Bricker, 2000). Katie's team used the Revised Goals and Objectives Rating Instrument (adapted from Notari-Syverson & Schuster, 1995) to ensure that potential goals selected from assessment results meet the quality criteria. For example, the team identified cutting paper in half and cutting out shapes with straight lines as a need. Using the Revised Goals and Objectives Rating Instrument, the team noted that this skill did not meet all of the quality criteria to be selected as an IEP goal. The team then decided that manipulating objects with both hands (a broader skill that includes cutting out shapes with straight lines) met the five quality criteria listed on the Revised Goals and Objectives Rating Instrument, and, therefore, considered the broader skill as a potential target for intervention. In all, the team identified the following seven skills that met the quality criteria and served as potential intervention targets:

1. Manipulates toys and materials with both hands
2. Draws simple shapes and letters
3. Eats and prepares (e.g., taking the wrapper off of foods, removing the peel from fruits) more types of foods
4. Follows directions
5. Talks more and increases intelligibility
6. Plays with other children
7. Plays with toys and materials

Prioritizing Individualized Education Program Goals

After the team selected potential intervention targets (i.e., goals and objectives) and ensured the target skills met quality criteria, they determined which skills were of highest priority and required specialized services. The team prioritized goals by reviewing Katie's strengths and needs and by answering a series of questions:

- Do all team members understand the nature of the target skills?
- Are the skills deemed to be a priority by all team members?
- Will intentional and individualized instruction be provided for the child to acquire and use the skills?
- Are the target skills developmentally and individually appropriate?
- Are the skills necessary for the child's participation in the general curriculum (i.e., daily activities) or necessary for the completion of most daily routines?
- Are the skills related to or aligned with the general curriculum and state standards for all children, and/or do they represent the critical function of the standard versus a restatement of the standard?

Table 3.1 contains a list of potential goals and their rationale for inclusion on Katie's IEP. The prioritization process resulted in the following skills selected to serve as IEP goals:

- Manipulates toys and materials using both hands (e.g., cutting, drawing, zipping, pouring)
- Plays with toys and materials (i.e., functional use and representational use)
- Talks more and is intelligible to others (i.e., uses words to greet, inform, and request)

Table 3.2. Summary of potential individualized education program (IEP) goals and rationale for inclusion or exclusion

Potential IEP goals	Rationale for inclusion or exclusion on IEP
Manipulates toys and materials with both hands	This goal remains a priority for Katie's IEP because she needs the skill during most daily activities, and individualized intervention is needed for her to acquire the skill.
Draws simple shapes and letters	It is not necessary to target this goal on Katie's IEP because the team can address drawing simple shapes and letters as a part of targeting the manipulation of toys and materials.
Eats and prepares more types of foods	It is not necessary to target this goal on Katie's IEP because the team feels that learning to eat more types of food will come with time and does not require individualized intervention. Furthermore, by addressing the skill of manipulating materials, the team is addressing Katie's need to be more independent with preparing foods.
Follows directions	It is not necessary to target this goal on Katie's IEP because the skill is required by all children in the preschool and is addressed within the context of the general curriculum, not through individualized intervention efforts.
Talks more and increases intelligibility	This goal is a high priority that requires individualized intervention and will therefore be included on Katie's IEP.
Plays with other children	This goal is not necessary to target on Katie's IEP because the team feels the skill will emerge as Katie improves her ability to play with toys/ materials and to be understood by others. Katie also receives exposure to play with others at the preschool.
Plays with toys and materials	This goal remains a priority for Katie's IEP because she needs skills to increase her participation in activities with other children, and individualized intervention is needed for her to acquire the skill.

Writing Individualized Education Program Goals and Objectives/Benchmarks

Katie's team listed the priority skills and wrote them as IEP goals and associated objectives or benchmarks that met their state's and agency's guidelines. The team used the AEPS goal/objective examples for writing Katie's IEP. The AEPS goal/objective examples are designed to assist teams in writing meaningful goals/objectives and subsequent intervention. Katie's team used the examples from the AEPS as a starting point. They modified and individualized the examples using a straightforward ABC formula, in which A represents an antecedent, B represents the child's target behavior, and C represents the criterion or level of acceptable performance. Table 3.2 provides a comparison of AEPS goals/objectives examples and how the team individualized them for Katie. Katie's team then used the individualized goals and objectives/benchmarks to guide intervention efforts.

Linking assessment information and goal development is a critical aspect of ABI. This example illustrates how a team used screening findings to target where to begin their comprehensive assessment. The team then

used that information to determine eligibility and to develop functional and generative goals.

SUMMARY

This chapter described a linked system framework that provides the broader context for situating ABI as an intervention approach. The linked system framework encompasses five essential components: screening, assessment, goal development, intervention, and monitoring progress. These five components are critical to the delivery of effective services for young children and for the use of ABI in particular. The chapter also explained the relationship between ABI and the linked system framework, concluding with an example of the application of the linked system framework with a young child.

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