

4

Using AEPS Test Results

In Chapters 2 and 3 the importance of using assessment information to guide intervention with young children is discussed. If intervention efforts are to be effective, assessment information should provide information regarding children's interests, present level of functioning, and developmental needs. When team members gather comprehensive assessment information that directly lends itself to the development of goals/objectives, intervention planning, and evaluation efforts, children's needs are better met (e.g., Bagnato et al., 1997; Bricker, 1989a; Bricker et al., 1998).

This chapter describes how AEPS Test results can be used to provide services to children at risk or with disabilities, from eligibility decisions and planning intervention to monitoring child progress and program efficacy. The chapter is divided into five sections that discuss using the AEPS Test results to

- **Develop individualized education program (IEP) goals/objectives or benchmarks:** The first section describes a five-step process for developing children's IEP goals/objectives or benchmarks using AEPS Test information.
- **Develop individualized family service plan (IFSP) outcomes and intervention plans:** The second section addresses using AEPS Test results to develop IFSP outcomes and to create intervention plans.
- **Use the AEPS curriculum:** The third section addresses linking assessment information, goal development, intervention efforts, and evaluation.
- **Monitor child progress:** The fourth section describes how repeated administrations of the AEPS Test can be used to monitor children's performance over time (e.g., provide information for progress reports), assist in re-evaluating children, and examine program effects.
- **Corroborate eligibility decisions:** The fifth section describes how AEPS Test results can be used to corroborate eligibility decisions.

As discussed previously, the AEPS Test has three features that make it useful for developing children's IFSPs/IEPs. First, most items from the AEPS

Test are written to reflect conceptual or generative response classes rather than singular, specific responses (e.g., target wrist rotation across conditions rather than target a specific response such as removing a jar lid). Second, AEPS Test items target skills and abilities essential for young children to function independently and to cope with environmental demands. Third, the AEPS Test contains example IFSP/IEP goals/objectives that can serve as models or guides for using AEPS Test items to develop IFSPs/IEPs. In addition, it is important to note that use of the AEPS Test to develop IFSPs/IEPs is supported by research on its utility and a growing body of evidence regarding the treatment validity of the AEPS Test (e.g., Hsia, 1993; Notari & Bricker, 1990; Notari & Drinkwater, 1991; Pretti-Frontczak & Bricker, 2000, 2001). The AEPS Test's psychometric properties are discussed in Appendix A of this volume.

When developing IFSPs/IEPs, teams are required to adhere to federal and state mandates. The Individuals with Disabilities Education Act (IDEA) requires teams to conceptualize IEP intervention targets as goals/objectives or benchmarks and IFSP targets as outcomes (Huefner, 2000). The terms *goal*, *objective*, *benchmark*, and *outcome* are used throughout the law. For the purposes of this chapter and throughout the AEPS volumes, we primarily use the terms *goals* and *objectives*. However, because it is important that teams reach consensus on the use of terms to improve communication about the focus of intervention, we have provided the following brief definitions of these key terms.

Goals are defined as measurable skills targeted for a child to acquire or master within 1 year. Goals often represent general or broad classes of behaviors that are demonstrated by the child across settings and are often performed independently. Most goals are composed of a set of discrete skills referred to in some state regulations as objectives or benchmarks. *Objectives* or *benchmarks* represent intermediate or measurable steps toward the goal or are the prerequisites, milestones, or building blocks of a goal. *IFSP outcomes* are statements of changes that family members want to see for their child or themselves. Outcomes should be written to be understandable to the family and should represent their priorities and concerns.

DEVELOPING IEP GOALS/OBJECTIVES: A FIVE-STEP PROCESS

The development of IEP goals/objectives can be conceptualized as a five-step process: 1) gathering information, 2) summarizing information, 3) selecting potential intervention targets, 4) prioritizing the selected targets, and 5) writing goals/objectives that will be used to guide subsequent intervention and evaluation efforts.

Step 1: Gathering Information

The first step in developing IEP goals/objectives is to gather data over time from a variety of sources, using multiple measures, in order to collect sufficient information for making sound decisions. Federal/state mandates and recommended practice indicate that teams should collect information that can be used to directly link the IFSP/IEP to intervention efforts. The AEPS Test

and Family Report serve as key sources for assessment information. Please refer to Chapter 3 for how to gather information on children's development using the AEPS Test and to Chapter 5 for how to gather family information using the Family Report.

Step 2: Summarizing Information

The second step in developing IEP goals/objectives is to summarize the information collected in Step 1. In particular, teams should review AEPS Test information for each developmental area by focusing on what a child can do, is beginning to do, and is interested in doing. Teams are encouraged to look for patterns in how a child demonstrates skills (e.g., with or without assistance; consistently or inconsistently; in certain locations, but not others) and for the relationship between the child's performances across areas of development; for example, teams may look for a common feature that impedes the child from performing related tasks. Summaries should clearly describe a child's present level of performance, strengths, interests, and needs.

Step 3: Selecting Potential Intervention Targets

Based on the information summarized in Step 2, the team should then select skills that 1) are developmentally appropriate, 2) are aligned with the child's current level of functioning, 3) promote a child's ability to participate in daily activities, and 4) promote independence. The AEPS Test is appropriate for this step because it meets each of these criteria. In most cases, teams will identify more goals as potential intervention targets than can be reasonably addressed. Consequently, in Step 4 it is necessary to select the most critical goals through prioritization.

Step 4: Prioritizing the Selected Targets

The fourth step in developing IEP goals/objectives is for the team to prioritize the meaningful skills identified in Step 3. Children with disabilities often show impairments in several or all of the major developmental areas. Attempting to select several skills from each problem area may be unproductive and overwhelming if caregivers and interventionists are responsible for intervening and tracking child progress on 10–15 skills. All too often, each member of a team composes or prioritizes a set of skills that align with their discipline; for example, the classroom teacher may write several goals regarding the child's participation in classroom activities (e.g., follows directions, plays cooperatively), and the speech-language pathologist may write goals regarding articulation and production of words, and the motor specialist may write goals dealing with play skills (e.g., improve bilateral motor coordination). There are at least three limitations to this approach. First, the role of the family is minimized as well as collaboration among other team members. Second, too many skills become targeted for intervention, often leading to a lack of progress by

children and overwhelmed team members. Lastly, by targeting numerous, unrelated skills, teams find it challenging to individualize and monitor each with enough regularity and reliability to use in making future decisions.

An alternative and recommended approach is for caregivers and interventionists to prioritize skills together and to select only the highest priorities. Furthermore, teams should find ways to develop goals/objectives that address multiple areas of need at the same time. Prioritizing is made easier when teams select goals/objectives in Step 3 that directly or indirectly address multiple areas of development. For a child with delays in adaptive, language, motor, and social functioning, a skill that addresses all areas simultaneously can offer greater efficiency; for example, learning to self-feed (an adaptive behavior) can also provide opportunities for a child to work on motor, social, and communication skills. Picking up pieces of food requires eye-hand coordination, biting and chewing addresses motor coordination of the tongue and lips, gaining attention is a social behavior, and if a child wants more or something different, then communication is necessary.

When prioritizing, teams should select goals/objectives that 1) are not likely to develop without intervention, 2) will significantly enhance a child's behavioral repertoire, 3) enable the child to be involved in the general curriculum/daily activities, and 4) match a child's developmental level of performance; for example, the goal of learning to make requests has the potential of enhancing a child's entire behavioral repertoire more than learning to label pictures on flashcards. By learning to make requests, children are able to get their needs met, interact with adults and peers, and engage in age-appropriate activities and play, whereas labeling pictures on flashcards is limited to a single activity that is not as likely to be interesting to the child or to promote independence and problem solving.

Step 5: Writing IEP Goals/Objectives

After prioritizing skills, team members are ready to write the IEP goals/objectives. The next portion of the chapter focuses primarily on issues related to writing IEPs. The process for writing and targeting IFSP outcomes is described in the following section.

As mentioned previously, an advantage of the AEPS Test is that it contains a list of goals/objectives (see Appendix B in this volume) that can serve as guides or examples for writing IEPs. The guides or models are provided to assist teams in writing meaningful goals/objectives as well as intervention plans. These goal/objective examples, however, should not be used as actual targets without modifying them to meet the needs of individual children. Furthermore, every AEPS item may not meet criteria for inclusion as a target for intervention (e.g., labeling colors may not be seen by the team as a priority or a skill considered critical to the child's participation in daily activities). Four criteria are often used when determining if a skill is meaningful including whether it is 1) functional, 2) generative, 3) measurable, and 4) understandable by all team members (Pretti-Frontczak & Bricker, 2000).

When modifying or revising the AEPS goal/objective examples, a simple, straightforward method involving the use of an ABC formula is suggested in

which A represents an antecedent, B stands for the target behavior, and C represents the criterion or level of acceptable performance. The ABC formula is compatible with legal mandates and also allows teams to write target skills in an understandable and usable manner. When using the ABC formula, each goal or objective that is written should contain the conditions under which the behavior is to be performed, a measurable behavior, and performance criteria. Two examples are presented next.

- Antecedent: When needing to move from location to location at home and in the classroom,
Behavior: Millie will walk using alternative left–right stepping without support or without falling for at least 2 weeks.
Criteria:
- Antecedent: When asked or initiated spontaneously,
Behavior: Georgie will use three or more words to describe an action or event that occurred recently
Criteria: 6 times per day for 2 weeks. The words should accurately reflect the action or event, should occur in the proper order, and should be intelligible to the listener.

Prioritized IEP goals/objectives should be selected and written cooperatively by members of the team. All too often, as mentioned previously, they are developed by individual team members, then shared with one another. In this scenario, the child’s caregivers may be handed a “draft” IEP and may be asked for input, may be informed of the skills that will be targeted, or may only be asked for their signature. At other times, IEPs are updated at the end of the year and are passed to the next year’s teacher, leaving the recipient no opportunity for input. The list of targeted skills may not be appropriate for intervention approaches they will be using and such IEPs do not guide intervention or ensure individualized efforts. Another ill-advised procedure for selecting IEP goals/objectives is taking them from a computerized bank or list of skills. Members of the team gain access to a computerized list, select or mark desired skills (typically those that a child did not demonstrate during testing), and produce a child’s “individualized” plan. Little consideration is given to how meaningful the skills are (e.g., if they are developmentally appropriate, if they promote a child’s ability to participate in daily activities, if they meet a child’s individual needs).

Using information from the AEPS Test, as well as working closely with team members, can help reduce many of the problems associated with developing meaningful IEP goals/objectives. Further, using the five-step process described previously should assist teams in ensuring appropriate intervention targets are selected and written.

DEVELOPING AN IEP FOR SOPHIE

Sophie is a 5-year-old who stacks blocks, runs and jumps, and swings on the monkey bars. Sophie received a diagnosis of autism at the age of 3 and attends an in-

clusive preschool for 3 hours per day. Occupational and speech-language therapy services are provided within the context of Sophie's preschool classroom. In addition, Sophie attends a playgroup twice per week. In the fall, Sophie will be moving to a kindergarten program, so it is time for her team to review her IEP. The five-step process described previously was used by the team to examine and modify Sophie's IEP. The team was composed of the family (Sophie's mom, dad, and grandparents), Sophie's preschool interventionist, next year's kindergarten teacher, the occupational therapist, and the speech-language pathologist.

Step 1: Gathering Information

The team gathered information by administering the AEPS Test: Birth to Three Years and Three to Six Years and the Family Report II: Three to Six Years. They gathered information during routine activities at the home, preschool, and playgroup. Dad talked to the playgroup coordinator to get additional information regarding Sophie's skills across settings and time. The preschool teacher reviewed Sophie's medical files, particularly the latest report from Sophie's neurologist. Finally, Sophie and her mom visited the new kindergarten classroom several times to see how she would respond to the new environment.

Step 2: Summarizing Information

The team reviewed all of the information that they had collected and reviewed changes in Sophie's strengths, interests, and areas of need. Sophie has learned to run around obstacles, play with balls, and climb on playground equipment. Her favorite activities continue to include movement and music; she also enjoys watching Walt Disney movies and her favorite book is *The Little Engine that Could*. The team looked for patterns and relationships between skills and across developmental areas; for example, they noticed that Sophie's comprehension of words and sentences (i.e., Social-Communication Area), and interactions with familiar adults (i.e., Social Area) had changed little. They looked to see which skills she performed independently and those that she still needed assistance to perform.

Step 3: Selecting Potential Intervention Targets

Based on the information collected and summarized, the team identified a list of new behaviors as potential intervention targets for Sophie in kindergarten:

- Use a variety of art materials
- Use a fork and spoon to feed herself
- Dress and undress herself

- Categorize objects, people, and events
- Participate in group activities
- Establish joint attention
- Acknowledge when people greet her or say good-bye
- Seek out and select desired toys or objects
- Respond to familiar adults' affective initiations
- Use words to describe and inform
- Meet physical needs of hunger and thirst
- Play with or near peers

As is the case for most children, Sophie's team identified more behaviors than could be reasonably addressed as intervention targets, thus requiring the prioritization that occurs at Step 4.

Step 4: Prioritizing the Selected Targets

The list of potential behaviors that could be addressed during Sophie's year in kindergarten required that the team first combine related behaviors wherever possible and then to prioritize them. For Sophie, this process produced two target behaviors:

1. Increase Sophie's interaction with others (e.g., respond to greetings, play with or near peers, use words to describe and inform)
2. Seek out and select toys/objects, manipulate toys/objects (e.g., color with crayons, feed self with fork or spoon, dress and undress)

Step 5: Writing IEP Goals/Objectives

After gathering information, summarizing the information, and selecting and prioritizing behaviors, the team was ready to write the targeted IEP goals for Sophie. The team consulted Appendix B (in this volume) and reviewed the goal/objective guides. The team proceeded to write two target goals for Sophie's IEP. The first targeted goal addressed the team's priority of increasing Sophie's interactions with others. The second targeted IEP goal addressed her need to learn to manipulate materials. These goals and their associated objectives were developed by modifying the goal/objectives guide provided in Appendix B in this volume. One of her targeted goals and associated objective appears next.

Goal: During daily activities, Sophie will manipulate a variety of objects/toys/materials that require use of both hands at the same time, while performing different movements, five times per day for 2 weeks; for example, Sophie will tie shoes, color with

crayons, button clothes, cut out shapes with curved lines, and use a spoon and fork to feed herself.

Objective: During daily activities, Sophie will perform any two-handed task using one hand to hold or steady an object/toy/material while the other hand manipulates the object/toy/material or performs a movement, five times per day for 2 weeks; for example, Sophie will hold paper and draw with a crayon, hold paper and cut paper in half, hold a bowl and spoon up food or liquid, thread and zip a zipper, and turn the pages of a book.

After the IEP goals/objectives were written, the team re-examined them to ensure that they were 1) functional, 2) generative, 3) measurable, and 4) understandable by all team members and 5) to ensure that objectives were hierarchically related to the goals. Once this was completed, the team was ready to begin planning intervention and evaluation activities.

DEVELOPING IFSP OUTCOMES AND INTERVENTION PLANS

In principle, the five-step process described for developing IEPs using AEPS Test results can be followed to develop IFSPs; however, a number of important conceptual as well as practical modifications are necessary. These modifications are described next.

Rather than goals/objectives, IFSPs generally refer to outcomes. *Outcomes* are defined as statements of the changes that a family wants to see for their child and themselves and are written in a language understandable to caregivers. One family may indicate that it is important for their child to learn to walk; therefore an outcome statement might read: "We would like Kennedy to walk by herself so that she can play with toys and friends, move around the house, and go places with the family." The following recommendations should be considered when writing IFSP outcomes:

- Be sensitive to the cultural and social environment of the child and family.
- Consider the unique abilities and disabilities of each child as well as concerns, resources, and priorities of the family.
- Avoid professional jargon.
- Select a small number of outcomes from the family's stated priorities.
- Target outcomes that reflect the child's current level of need but are not too narrow or too broad.
- State specific strategies, materials, and personnel, as well as criteria for mastery.
- Design outcomes to enhance the child's participation in daily activities.
- Write outcomes that combine targets across developmental areas.

Even when teams follow these recommendations, it is critical that IFSP outcomes be accompanied by an intervention plan that contains measurable

goals/objectives so progress toward IFSP outcomes can be measured. Teams are encouraged to use information provided by the AEPS curricula when constructing intervention plans.

Intervention plans (sometimes referred to as *treatment plans* or *program plans*) serve as systematic guides for planning interventions. Intervention plans allow teams to ensure that daily activities and events are individualized to meet the needs of specific children. Developing intervention plans is necessary to ensure that targeted outcomes are addressed throughout a child's daily activities.

The successful development of useful and effective intervention plans is dependent on 1) a linked assessment, goal development, intervention, and evaluation process; 2) meaningful and clear outcomes; and 3) team planning and decision making. Given the realities in which most interventionists and families operate, it may be difficult to find time to plan together, but teams should use creative strategies to ensure that they have time to discuss intervention content and strategies and how to evaluate intervention efforts once initiated.

Ensuring an effective choice of intervention content requires not only planning time but also a comprehensive assessment. When intervention targets are functional and operationally defined, intervention efforts become clear, and the selection of activities or routines as well as the reinforcement of child-initiated activities becomes straightforward. Without appropriate and functional target skills, interventionists and caregivers cannot confidently select activities that will enhance learning. Thus, the manner in which IFSPs are written has a direct and critical impact on subsequent intervention.

After writing meaningful IFSP outcomes, the next step is to develop an intervention plan. When developing intervention plans, teams may use different procedures for writing the goals/objectives section for children on IEPs than on IFSPs. When developing an intervention plan for a child on an IEP, team members should take the goals/objectives directly from the IEP and place them in the goals/objectives section of the intervention plan. When developing intervention plans for a child's IFSP outcomes, team members may want to refer to the IFSP/IEP Goal and Objective Examples in Appendix B of this volume to specify the conditions under which the outcome will occur, to designate the actual measurable behaviors that compose the outcome statements, and to identify data collection procedures.

Intervention plans should include information found on the IFSP but should expand that information in two significant ways. First, intervention plans are developed after the IFSP is written. As a result, teams have a foundation for planning intervention as well as additional time to develop activities and events that will support a child's acquisition of targeted skills. Second, an intervention plan is a malleable planning guide that can be altered and modified as a child's and family's interests and needs change. The plans are the link between what a team agrees on for a child and actual day-to-day practice and are designed to ensure that multiple opportunities are provided for children to work on targeted skills. Intervention plans can follow a number of formats but they should contain the following information:

- Basic information (e.g., child's and team members' names, dates for initiation and expected completion, type of setting where intervention occurs)

- Intervention area or outcome
- Goal(s)/objective(s) listed **and** program steps if needed
- Intervention strategies and teaching considerations
- Curricular modifications
- Child progress procedures
- Decision rules

An example of developing IFSP outcomes for a toddler with significant disabilities follows.

DEVELOPING AN IFSP FOR HANNAH

Hannah, an 18-month-old child, was born at 41 weeks' gestation through emergency cesarean section. Hannah suffered from a lack of oxygen to the brain that resulted in increased muscle tone. She received a diagnosis of cerebral palsy and was referred for early intervention services due to concerns with motor, communication, and feeding skills. She was evaluated by a team that included the family, an occupational therapist, and a speech-language pathologist. The team noted serious oral-motor and swallowing problems for Hannah (e.g., unable to coordinate tongue-lip movements, only able to swallow liquids without choking) as well as poor upper body balance and coordination problems with her arms and hands. After her eligibility was established, the team engaged in a five-step process to develop IFSP outcomes.

Step 1: Gathering Information

Using the AEPS Test: Birth to Three Years, the team gathered information about 1) what Hannah can do, likes to do, and is starting to do; 2) how Hannah uses her skills to participate in daily activities; 3) Hannah's typical interactions with friends and family, and 4) how successful or how much difficulty Hannah and her caregivers have during daily routines. The Family Report I: Birth to Three Years was used to gather vital information regarding Hannah's family's needs around daily routines and where they may need help to address Hannah's changing developmental needs. It was important to identify the environments in which Hannah spends most of her time and how she participates in daily activities. This information was used to decide whether a particular environment should be selected for intervention purposes and what interventions were necessary. In other words, it helped the team determine "where" and "when" intervention might occur, "who" would need to develop and/or use intervention strategies, and if Hannah would have access to materials necessary to

target identified outcomes. Thus, the AEPS Test: Birth to Three Years and the Family Report I: Birth to Three Years were used to gather relevant information across settings, people, material, and time.

Step 2: Summarizing Information

The team compiled all of the information that they had gathered and discussed what Hannah was able to do and what she was beginning to do. The team talked about which routines were frustrating for the family (e.g., mealtimes), where they needed assistance (e.g., how to help Hannah swallow without choking), and what daily activities were going well (e.g., bedtime). During the conversation, members of the team gained a better understanding of what the family's resources, priorities, and concerns were. When summarizing what they learned, the team noted the family's strengths, including a strong affectionate bond between Hannah and her parents, excellent visual tracking skills, responsiveness to oral communication and visual expressions of adults, and frequent smiles and laughter. Areas in which needs were noted included Hannah's coordination of arms and hands to midline, oral-motor coordination, vocal and consonant sound production, and swallowing.

Step 3: Selecting Potential Outcomes

Hannah's strengths as well as her needs in the area of motor coordination, oral-motor coordination, sound production, and swallowing were examined by the team. Potential outcomes for Hannah and her family were developed and listed. As is often the case, the list of potential target outcomes exceeded the team's resources, making prioritization a necessity. The team then developed intervention strategies making use of all team members' expertise, but focusing on a single outcome:

1. Occupational therapist will work with caregivers on best positioning for feeding and create a support system to help keep Hannah's body and head in midline during feeding.
2. Speech-language pathologist will provide direct services that show caregivers how to provide oral-motor exercise to increase the mobility and coordination of the tongue and lips.
3. Occupational therapist and speech-language pathologist will develop a procedure to assist Hannah in swallowing.

The team also discussed ways to measure Hannah's progress in this area:

1. Evaluate over time Hannah's ability to maintain her head position.
2. Evaluate over time improvements in her oral-motor coordination and swallowing.

Step 4: Prioritizing the Selected Outcomes

Often, team members need to assist each other in establishing priority outcomes in order that the areas most critical to the child and family be addressed. In the ensuing discussion, Hannah's parents made clear their continuing frustration with mealtime because Hannah seemed to "choke often" and "her tongue doesn't seem to be working right." Given this parental concern, the speech-language pathologist's priority to address Hannah's oral-motor and swallowing problems, and the occupational therapist's desire to focus on Hannah's positioning and swallowing needs, the following IFSP outcome was given priority: "We want Hannah to be more successful in eating." This one outcome could address the family's major concern (i.e., ingesting food), as well as the priority targets of the professional staff (i.e., oral-motor coordination and positioning).

Step 5: Writing IFSP Outcomes and Associated Intervention Plans

After the IFSP priority outcome was selected (and in this case, one outcome was able to address three critical areas of need), Hannah's team was ready to create an associated intervention or treatment plan. Using information gathered from the AEPS Test and Family Report I: Birth to Three Years, the team developed an intervention plan that contained specific goals/objectives used to ensure that the outcome targeted was addressed throughout Hannah's daily activities.

USING THE AEPS CURRICULUM

As described in the Introduction to Volume 1, the AEPS is a curriculum-based assessment and evaluation measure with an associated curriculum that consists of a set of intervention activities designed to link assessment information, goal development, intervention efforts, and evaluation. The curricular items in *Volume 3: AEPS Curriculum for Birth to Three Years* and *Volume 4: AEPS Curriculum for Three to Six Years* correspond directly to AEPS Test items, clearly relating intervention activities to children's selected goals/objectives for each area and strand. The *AEPS Curriculum for Birth to Three Years* lists goals/objectives (including programming steps), importance of the skills, lists of concurrent goals/objectives, teaching suggestions (activity based, environmental arrangement, instruction sequence), and teaching considerations for each area and strand. The *AEPS Curriculum for Three to Six Years* contains a general developmental introduction and is divided into four sections: 1) intervention considerations, 2) suggested activities, 3) using activity-based intervention, and 4) area goals.

The AEPS Curriculum follows an activity-based intervention (ABI) approach. ABI is "a child-directed, transactional approach that embeds children's

Table 9. Activity-based intervention (ABI) elements linked to key features of the AEPS Test

Elements of activity-based intervention (ABI)	Key features of the AEPS Test
1. ABI is a child-directed transactional approach.	<ul style="list-style-type: none">• Children’s interactions during daily activities (e.g., play, dressing, meals, outside time) and across settings (e.g., home, school, community) are observed.• Interactions in social and physical environment are observed.• Items that build on children’s interests and allow interventionists and caregivers to follow children’s lead can be targeted.
2. ABI embeds goals/objectives in routine, planned, and child-initiated activities.	<ul style="list-style-type: none">• AEPS Test items are educationally relevant and functional and can therefore be embedded into a range of meaningful activities.• AEPS Test items can be targeted in a variety of settings by caregivers, interventionists, and/or specialists (e.g., occupational therapist).
3. ABI uses logical antecedents and consequences.	<ul style="list-style-type: none">• AEPS Test items are observed during routine, planned, and child-initiated activities that ensure the occurrence of logical antecedents and consequences.
4. ABI targets functional and generalizable skills.	<ul style="list-style-type: none">• AEPS Test items are functional and generalizable.• AEPS Test items represent broad response classes rather than discrete skills.

From Bricker, D., Pretti-Frontczak, K., & McComas, N. (1998). *An activity-based approach to early intervention* (2nd ed.). Baltimore: Paul H. Brookes Publishing Co.; reprinted by permission.

individual goals/objectives in routine, planned, or child-initiated activities and uses logically occurring antecedents and consequences to develop functional and generative skills” (Bricker et al., 1998, p. 11). ABI consists of four major elements:

1. Uses child-initiated transactions
2. Embeds children’s goals/objectives in routine, planned, or child-initiated activities
3. Uses logically occurring antecedents and consequences
4. Develops functional and generalizable skills

Table 9 shows the link between the four elements of ABI and key features of the AEPS Test. The ABI approach enhances the link between assessment, targeted skills, and intervention; for example, multiple skills (e.g., fine motor, gross motor, adaptive, cognitive, social-communication, social) can be addressed in a water play activity in which children are sailing boats. Teams can use the water play activity to promote communication skills (“Where is my boat?”), social skills (taking turns), adaptive skills (drying hands), fine motor skills (manipulating two hand-size objects at the same time), and cognitive skills (comparing boats of different materials, sizes, colors, and shapes). Another example can be seen during an art activity in which children are given the opportunity to manipulate paper, tissue, and cellophane. This kind of art activity addresses the fine motor skill of cutting out shapes, the communication skill of informing others about what is being cut (e.g., “I’m cutting pur-

ple circles”), the cognitive skill of grouping the paper according to size/shape, and the social skill of sharing or exchanging objects (e.g., scissors, tissue). The AEPS Curriculum encourages teams to address targeted skills by embedding them into functional daily activities of interest to children; for example, rather than designing an activity in which children sit down and count to 10, they are given opportunities throughout the day to count a variety of objects/events (e.g., counting the number of children at circle time, counting plates during snack time, counting the number of trees while on a nature walk).

There are several advantages to using the AEPS Curriculum. First, the notion of providing relevant antecedents and consequences within an activity is incorporated into teaching functional skills within the child’s usual environment. When the antecedents and consequences are relevant or part of an activity, motivation and attention problems tend to be less frequent. Second, a curriculum using an ABI approach addresses the issues of generalization and maintenance. When using the AEPS Curriculum, teaching a particular skill is not limited to one activity but, instead, is taught by a variety of interventionists and/or family members across a range of materials and settings. Third, the AEPS Curriculum helps to keep targeted objectives functional for the child. If the skills targeted for intervention are those used in daily activities, then they are useful to the child in adjusting to and coping with environmental demands. A fourth advantage is that when goals/objectives are embedded into daily activities, a variety of people, such as caregivers and peers, can be used as change agents and teaching resources. Fifth, the AEPS Curriculum can be used with a heterogeneous group of young children. Children can act as peer models for one another and be involved in antecedent and consequent events; for example, in a painting activity, children may be given different color paints and will need to request various colors from one another to complete their paintings. Sally’s request for red paint may act as an antecedent event to which Miguel responds. Miguel’s response (e.g., looking, smiling, verbalizing, offering paint) may act as a positive consequence to Sally.

For additional information on how to use the AEPS Curriculum to link assessment information, goal development, intervention efforts, and evaluation, teams should review the content found in Volumes 3 and 4 of this series. For additional information on ABI, teams are encouraged to review Bricker, Pretti-Frontczak, and McComas (1998). The next section of this chapter describes how to use AEPS Test information to monitor child progress as the final step in providing quality services to young children and their families.

MONITORING CHILD PROGRESS

Systematic documentation of child change is necessary for interventionists and caregivers to evaluate the effects of their intervention efforts. As discussed in Chapter 2, the AEPS Test can be used for ongoing monitoring as well as quarterly and annual evaluations. The type of child progress monitoring chosen will depend on the background of the professional staff and on program resources. Comprehensive evaluation requires well-trained professionals and ample resources that may exceed the capacity of many programs; however,

every program should conduct basic evaluation to ensure that intervention is producing desired outcomes.

Weekly Monitoring

Collecting information on children's weekly progress toward specific goals/objectives or outcomes is a requisite of quality intervention efforts. The type of weekly child monitoring strategy is less important than ensuring that child change data are systematically collected and used to evaluate the impact of intervention efforts. Data collection procedures should be selected to meet the needs of the child, family, interventionists, setting, and focus of intervention. Given adequate staff or caregiver time, we recommend the use of observational systems to collect weekly child progress data. The use of observation is consistent with the recommended procedures for administering the AEPS Test. In addition, observation permits obtaining information as children go about their daily activities, allowing interventionists to collect progress-monitoring data during ongoing classroom or home activities. This is an efficient strategy that provides information on whether the target response is used independently and is functional for the child.

Other strategies, such as administering probe trials following or before beginning a specific intervention activity, can also be used. In a probe system, one or two opportunities¹ should be offered during daily activities to determine the child's progress; for example, if Aaron is working on walking up and down stairs, he can be observed coming down the steps of a bus, playing on the slide, and other opportunities in the daily environment, and his performance (e.g., no attempt, an unsuccessful or successful attempt) can be noted/documentated.

Using probe techniques in center-based programs can be organized in a variety of formats to accommodate the program and individual child needs. The interventionist may choose to collect data on different children's IFSPs/IEPs each day of the week as they participate in group activities. Another option is to collect data for each child during a limited number of activities designed to emphasize targets within a particular area. Thus, gross motor data would be collected during outdoor play, and social-communication data would be collected during circle time for all children who have IFSP/IEP targets in those areas.

Data could also be collected during a specified time within each activity, such as during the first or last 5 minutes of the activity; for example, data could be collected for motor skills as children initiate an activity by gathering materials, or data could be collected for social skills during the last 5 minutes of an activity as children work together to clean up the materials. When, how often, and the procedures teams use to collect data should be guided by both the IFSP/IEP and the intervention plan.

It is equally important that teams use the data that they collect. Thus, teams should summarize and interpret data routinely. The data should be

¹ If a "meaningful skill" has been targeted, then one or two opportunities should be sufficient to evaluate child progress on a weekly basis.

summarized in such a way that the information is usable by all team members. Interventionists should work with caregivers to determine how to summarize results over time to make them most useful. Changes in IFSPs/IEPs, intervention strategies, or curricular modifications and adaptations should be guided by the evaluation data collected. After skills are acquired (e.g., criteria are met), behaviors should be observed periodically to determine if target skills continue to be used functionally and if skills are being maintained.

Quarterly and Annual Evaluation

Re-administration of the AEPS Test at 3- or 4-month intervals provides interventionists and caregivers with a systematic record of the child's progress across areas of development, not just on IFSP outcomes or IEP goals/objectives. Quarterly retests on the AEPS Test generally take significantly less time due to the team's familiarity with the child and because only information on skills that were targeted for intervention (i.e., scored 1 or 0 on previous administrations) needs to be gathered; for example, if in a particular area a child received a score of 2 on the first 10 items, then teams do not need to re-administer the AEPS Test for these items.

Caregivers can be encouraged to complete the Family Report at quarterly or yearly intervals. Periodic use of the Family Report may assist in keeping caregivers involved in evaluation activities. Parents and caregivers can also use the Child Progress Record to monitor their child's progress. Results from the AEPS Test or Family Report can be used to score the Child Progress Record on a quarterly or annual basis.

AEPS Test results can be summarized as numeric scores for each developmental area and for the entire test, as described in Chapter 3 of this volume. Although AEPS Test results are best summarized as narrative descriptions of performance, summary scores may offer a useful alternative to standardized test scores or age-equivalency scores for programs required to report child progress data to funding agencies or other external organizations. There are several potential advantages to reporting AEPS summary scores (i.e., area scores or total test scores) as quarterly or annual measures of child progress:

- Reporting summary scores makes use of existing AEPS progress-monitoring data without the necessity of administering an additional standardized, norm-referenced test for each child.
- Changes in summary scores reflect acquisition of functional skills, documenting meaningful change in a child's independent daily performance, rather than tracking comparisons to chronological age standards. Changes in AEPS summary scores are, therefore, consistent with current recommendations for outcome-based evaluation measures.
- AEPS Test summary scores are sensitive to subtle improvements in performance for young children who receive specialized services. The large number of items and the three-point scoring system make it possible to show change as children begin to exhibit emerging skills and move from

emergent or inconsistent performance to independence. Tests that compare young children's progress with typically developing peers, however, are likely to yield scores that decrease over time as children with delays and disabilities may fall further behind their peers.

AEPS Test summary scores document progress in mastery of functional skills across developmental areas, but *do not* provide a standard metric (such as age equivalencies) for comparison across groups of children. Our belief is that the efforts of children, families, and interventionists are better evaluated by summary scores that reflect individual acquisition of new skills than by summary scores related to chronological age expectations.

CORROBORATING ELIGIBILITY DECISIONS

The AEPS Test is specifically designed to provide a comprehensive picture of children's behavioral repertoires. The AEPS Test was not designed to determine children's eligibility for services and does not contain age norms for items. Assignment of age norms to items has been resisted for an important reason. A skill should be targeted as an outcome or goal/objective because it is the next developmental step or skill in a teaching sequence for a particular child, not because it is an item for a 3- or 4-year-old child.

Over the years, however, AEPS Test developers have continued to receive requests from professionals using the AEPS Test to develop age norms for the items. A primary impetus for this request comes from state regulations that require evaluation teams to use at least two sources of information to establish a child's eligibility for services. In many states, results from an individualized developmental test (e.g., *Bayley Scales of Infant Development-II* [Bayley, 1993], *The Battelle Developmental Inventory* [Newborg, Stock, & Wnek, 1988]) must be supported by data from at least one other valid source that documents a child's delay or problem.

Many evaluation teams have indicated that it would be valuable to use information from the AEPS Test as the other corroborating source for at least three reasons. First, using AEPS Test information expands both the depth and breadth of developmental information on children. Second, using AEPS Test information would engender significant time-savings because teams would not have to administer two standardized tests. Third, use of the AEPS Test information leads to the development of more functional IFSPs/IEPs (e.g., Pretti-Frontczak & Bricker, 2000). Thus, a middle-ground solution has been created that allows AEPS Test information to be used in corroborating children's eligibility for services without assigning specific age norms to items.

To use the AEPS Test results to corroborate eligibility decisions required developing a procedure for comparing a child's total goal score with total goal scores of typically developing children of the same chronological age. Using Item Response Theory analysis, tables containing cutoff scores were created that showed, by age intervals, the total goal scores expected. Children with a total goal score at or below the cutoff score for their age interval are performing significantly below their age expectations and, therefore, may be eligible for

services. Because the cutoff scores have been placed well below the expected total goal scores for specific age intervals, it is highly likely that children whose total goal scores are below cutoff scores will be eligible for services.

Appendix F of this volume contains tables with cutoff scores for the Birth to Three and Three to Six levels of the AEPS Tests. This appendix also contains information on the sensitivity, specificity, percent agreement, overidentification, and underidentification for each age interval. In addition, an expanded explanation of how the tables were developed and how to use them is offered in Appendix F.

SUMMARY

Too frequently in early intervention programs, the relationship between assessment information and intervention planning is disconnected. Often, individuals who will not work with the child or family conduct assessments employing tools that generate information that is not useful for developing IFSPs/IEPs or intervention plans. Using such approaches makes it extremely difficult for interventionists and caregivers to develop appropriate intervention targets and subsequent intervention plans. The AEPS Test offers teams an alternative approach—one that directly links assessment, goal development, intervention, and evaluation efforts.

Quality intervention services require the systematic and direct linking of assessment, goal development, intervention, and evaluation processes. The material contained in this chapter describes a set of practical procedures for forging direct links among assessment information, the development of IFSPs/IEPs, intervention, and evaluation activities.

When using AEPS Test results to corroborate other standardized, norm-referenced test results, only the total number of goals receiving a score of 2 are used to obtain a total goal score, which then can be used to compare with cutoff scores for the child's age interval.