DOCUMENT RESUME

ED 438 657 EC 307 679

AUTHOR Siegel-Causey, Ellin
TITLE Assessing Young Children with Dual Sensory and Multiple Impairments (Ages Birth to Five Years). Assessment Guidelines, Volume 1.
INSTITUTION Great Lakes Area Regional Center for Deaf-Blind Education, Columbus, OH.
SPONS AGENCY Department of Education, Washington, DC.
PUB DATE 1996-00-00
NOTE 83p.; For other volumes in this series, see EC 307 680-687.
CONTRACT H025E50001; H025C50045
AVAILABLE FROM GLARCDB, 665 E. Dublin-Granville Rd., Columbus, OH 43229. Tel: 614-785-1163; Fax: 614-785-0513; e-mail: mary.stanley@ssco.esu.k12.oh.us.
PUB TYPE Guides - Non-Classroom (055) -- Tests/Questionnaires (160)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Deaf Blind; Early Identification; *Evaluation Methods; Family Involvement; Individualized Family Service Plans; Infants; *Intervention; Measurement Techniques; *Measures (Individuals); Multiple Disabilities; Performance Based Assessment; Preschool Children; Preschool Education; *Screening Tests; *Severe Disabilities; Skill Development; Student Evaluation; Toddlers
IDENTIFIERS *Functional Assessment

ABSTRACT

This volume is a guide for assessing children with dual sensory or severe impairments between birth and age 5. It begins by discussing a functional-ecological three-step assessment process for children birth to three years, and the steps for assessing preschoolers from three to five years old. It then describes six steps to guide the use of the assessment in developing interventions: (1) use a variety of formal and informal measures to develop a clear profile of the child's skills; (2) determine child and family outcomes as part of the Individualized Family Service Plan, or child objectives as part of the Individualized Education Program process; (3) link child's current profile with selected outcomes/objectives; (4) determine family/staff preferred times/events in daily schedule; (5) select routines for intervention within preferred times/events; and (6) conduct participation analysis for selected routines. The manual then discusses steps for guiding intervention processes. Appendices include a list of selected assessment tools, an evaluation and selection criteria rating form for prescriptive developmental assessment measures, a glossary of screening and assessment terms, the Infant Toddler Characteristic Profile, an example of objectives embedded in routines for activity-based intervention, and a mealtime/snack routine intervention. (Contains 110 references.) (CR)

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ED 438 657

Assessing Young Children With Dual Sensory And Multiple Impairments

(Ages Birth to Five)

Assessment Guidelines Volume 1

Ellin Siegel-Causey, Ph.D.
University of Nebraska-Lincoln

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Great Lakes Area Regional Center
for Deafblind Education
4807 Evanswood Dr., Suite 300
Columbus, OH 43229

To purchase additional copies contact:

GLARCDB
665 E Dublin-Granville Rd.
Columbus, OH 43229
Ph. (614) 785-1163
Fax (614) 785-0513
mary.stanley@ssco.esu.k12.oh.us

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Ellin Siegel-Causey, Ph.d.
University of Nebraska-Lincoln

This document was supported in part by projects funded by the U.S. Department of Education. Project award numbers: HO25C50045, and HO25E50001. Content does not necessarily reflect the position of the U.S. Department of Education.

Work on this manual began in 1992. Contents of the document were field tested and reviewed before publication.

This volume represents a lengthy endeavor. I extend my thanks to Dr. Christine Mayhall who edited and typed much of the first version of this manuscript. I would also like to acknowledge the contributions of Amy J. Privratsky who helped edit and also added her own creative ideas to make this revision a more practical document.

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Introduction

The focus of this volume is on assessing children with dual sensory or severe impairments between birth and age 5. Assessment of young children is not a new area; however, the testing procedures have previously focused on the use of standardized tools. Using these procedures with children with dual sensory impairments or severe disabilities generally provide low IQ scores and age scores (developmental) that do not take into account or accommodate for the child's learning style, sensory skills or motor control. Although these scores may provide information to determine which programs or services the child is eligible for or to help make placement decisions, these procedures have done little to help educators determine what to teach. In addition, as our knowledge of early learning and development has grown, we have realized that a complete assessment of a young child's abilities and needs must include assessment of his/her primary environments within the context of interactions with family members and other people familiar to the child. Assessment must also be ongoing and measure the effectiveness of hte internevtion.

Assessment Focus

The change in assessment focus is evident in the requirements of Part H of the Individuals with Disabilities Education Act (IDEA 1990) which states that an infant from birth to age 3 will be assessed in terms of strengths and needs. Also, assessment should help to identify the family's needs to assist family members to develop skills to appropriately help their child develop. The family's concerns, priorities, and resources will be gathered as one gathers information about the young child's strengths and needs.

The assessment focus for preschool children (age 3–5 years) shifts toward gathering information about how the child learns and the child's current level of performance on specific skills. Educators are guided by Part B, of IDEA when collecting information regarding the development of the child's educational program. Information is gathered about the child's health, vision, hearing, social/emotional status, general intelligence, academic performance, communication skills, and motor abilities.

A Family Centered Approach

At the heart of the functional ecological assessment process is the assumption that in order to make maximum progress with young children, the entire family unit *must* be considered. Team members are encouraged to recognize that an infant or toddler with disabilities is part of a network of formal and informal support systems. Parents are viewed as the major decision-makers in determining the extent to which they will participate in and receive services. The family should guide all aspects of service delivery and they determine how early intervention will be immersed in their family life.

Assessment Guidelines

Overall Types of Assessment

Assessment is a general term that relates to testing children. According to the law (Part H, PL 99-457), assessment of young children birth to age 3 is more specific, involving three separate steps: screening, evaluation, and assessment. Figure 1 displays the processes of screening, evaluation, and assessment.

Screening

"Screening" describes those procedures used to locate newborns and infants who may require early intervention services. Screening tests are quick to administer and will identify children who may need more comprehensive evaluation measures. During a screening, the child's skills are compared with the skills of children of the same age to determine whether the child is functioning within the normal skill range. A screening describes a child's developmental status at a specific point, however, it does not determine the nature or scope of the child's problems. If the child's skills are not within the expected skill range or potential problems are detected during a screening, the child is then referred for an evaluation. When a child is identified as appropriate for an evaluation, an evaluation referral must be made within 2 working days of the screening.

Note: Some infants and toddlers may be identified as eligible for early intervention services either at birth or following a trauma based on clinical judgment alone. It is likely that a young child with suspected dual sensory impairments or with multiple handicaps will be referred for evaluation without a formal screening.

Evaluation

The purpose of "evaluation" process, is to determines for what services the child may be eligible. A young child with severe handicaps or dual sensory impairments is likely to be viewed as eligible for services without a formal evaluation being conducted. Sometimes however, the young child's impairments are not prominent. Therefore after screening, the next step in the assessment process is an evaluation by a multidisciplinary team. During an evaluation, data are collected on the child and his family to confirm or deny the existence of a problem. Evaluation determines a child's current level of performance in five developmental areas:

1. cognitive
2. physical (including vision, hearing, and health)
3. communication,
4. social or emotional, and
5. adaptive.

Evaluation is important because it determines a child's initial and continuing eligibility for early intervention services.

Assessment

Once eligibility has been determined, the next step in the overall process is to begin the phase termed "assessment." Assessment is the ongoing procedures used by qualified personnel to help plan an appropriate, relevant intervention for the child throughout the period of the child's eligibility. For children to the age of 3, the purpose of this process is to identify:

- the child's unique needs;
- the family's concerns, priorities, and resources related to the child's development; and
- the nature and extent of early intervention services that are needed by the child and his family to meet the identified concerns.

The linking between the processes of screening, evaluation, and assessment is shown in Figure 2.

For the young child, assessment will be conducted in natural environments (i.e., preschool, home, playground) by a multidisciplinary team, including at least one member who is knowledgeable in the area of the suspected/identified disability. The team observes the child's behaviors to identify specific areas of instruction and needs for related services. Ideally, the assessment is conducted more than one time in order to obtain a sample of behavior that most accurately reflects the child's actual functioning.

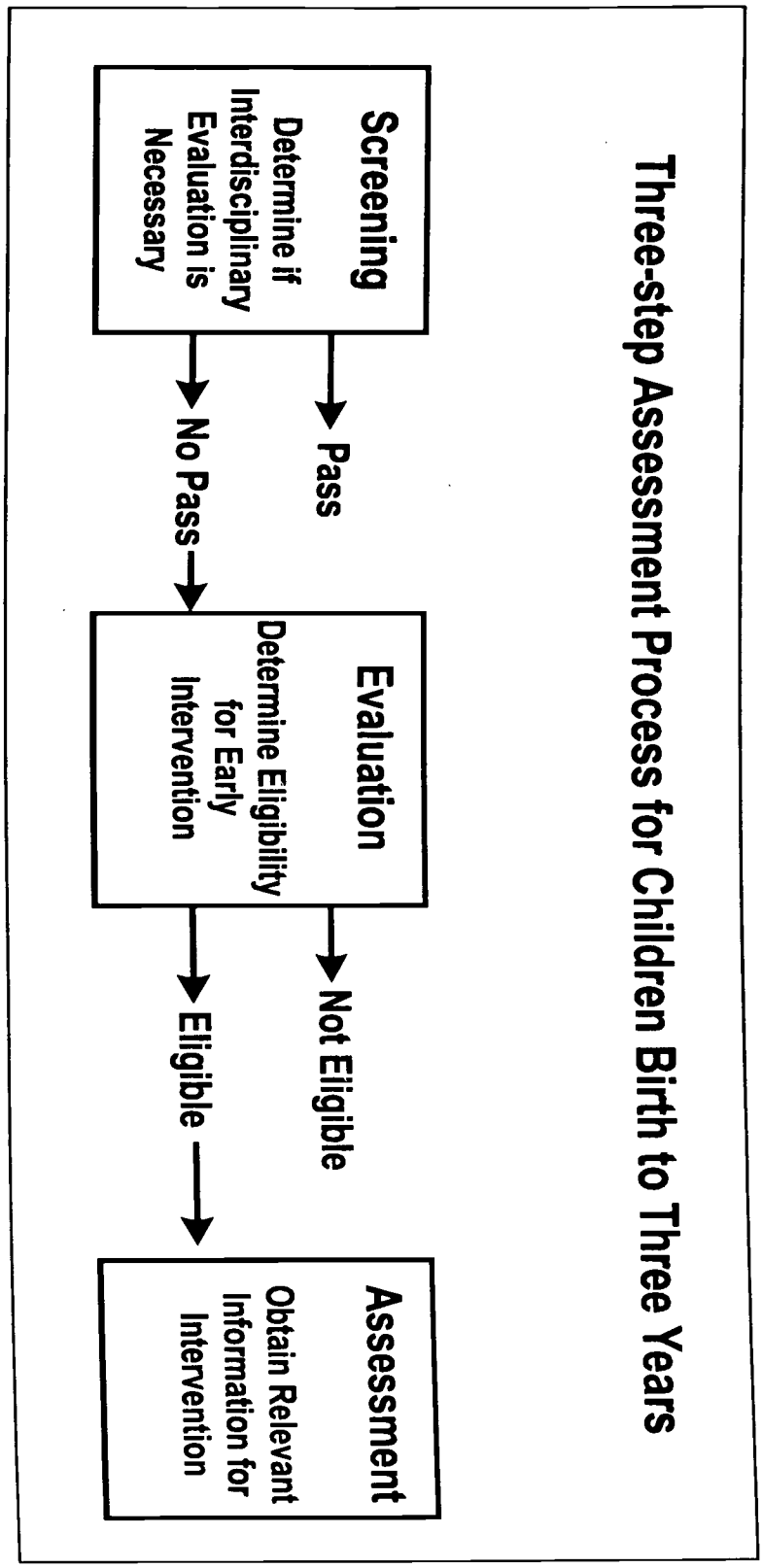

Figure 1. *Three step assessment process*

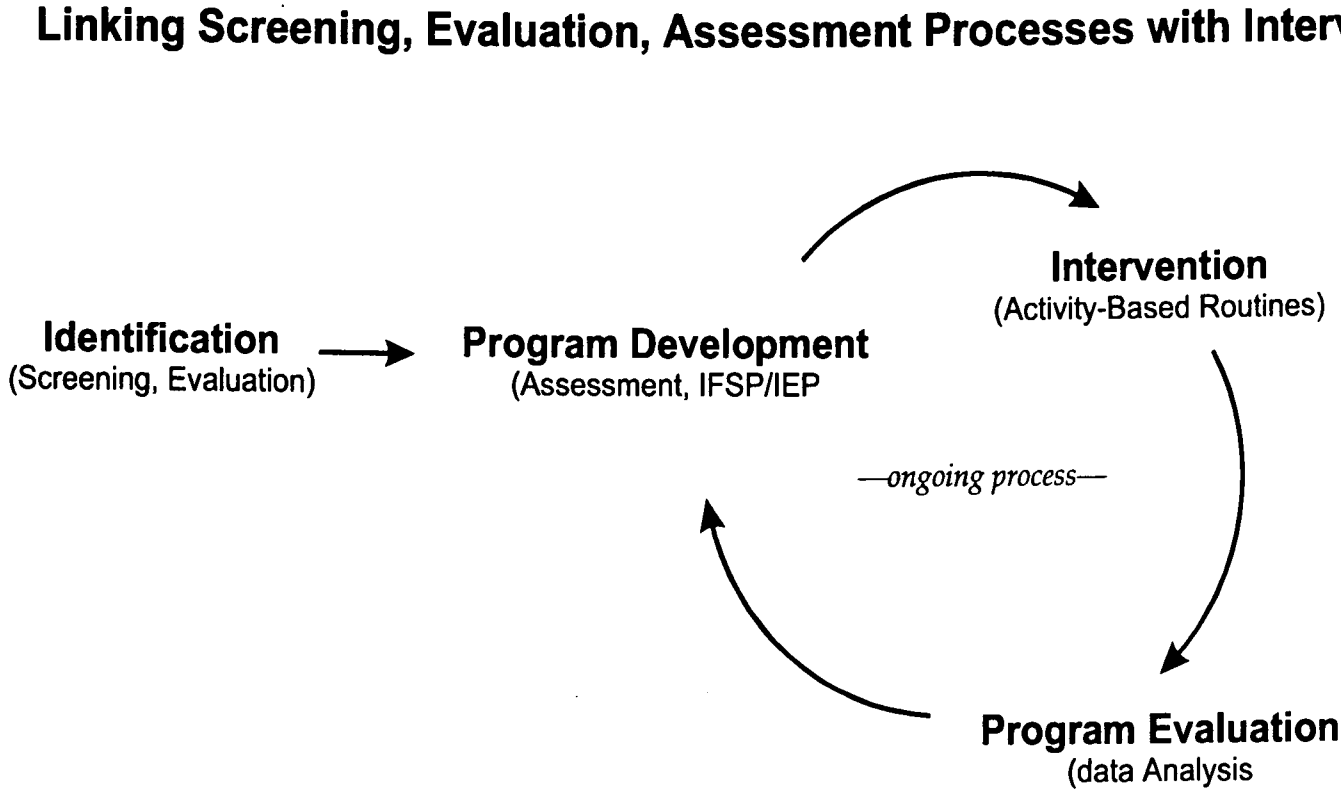

Figure 2. *Linking Screening, Evaluation, Assessment Processes with Intervention*

Meet Cameron, a toddler with dual sensory impairments

To facilitate explanation of processes and steps examined throughout this manual, a child who has dual sensory impairments will be used as an example. Cameron is a 16 month old child who was born 2 1/2 months premature. An etiology for his impairments has not been determined. He is a happy child who often responds to family members with a smile and seeks to be near them.

Cameron has a mild hearing loss and was fitted with hearing aids at 9 months of age. He differentiates light and dark and perceives shiny objects. Although Cameron just began walking at 15 months, he is now quite steady on his feet but frequently bumps into objects. Cameron has no current health problems.

Both of Cameron's parents are deaf, but he has a 4 year old brother and a 6 year old sister who have no hearing loss or additional disabilities. Cameron makes some vocalizations and will respond to some signs and gestures within certain contexts (e.g., will attempt to remove clothes at bathtime, will reach out to find food at mealtime).

The overall assessment process differs for infants and toddlers from birth to age 3 and for preschoolers from 3 years to 5. The differences are outlined in Table 1

Steps	**Infants** (Birth to age 3)		**Toddlers & Preschoolers** (36 months to age 5)
Step 1	Designate Family Service Coordinator to oversee the process		Preschool Teacher is likely to oversee the process
Step 2	Determine family concerns, priorities, and resources		Family assessment is not required nor usually part of the process
Step 3	Select assessment instruments		Select assessment instruments
Step 4	Conduct the assessments		Conduct the assessments

Table 1. ***Assessment process differences***

These steps are described below:

Step 1 for infants and toddlers: designate a family service coordinator

Once a child under the age of 3 has been determined eligible for early intervention services, a family service coordinator must be selected from the members of the multidisciplinary team. The person selected should be from a profession most relevant to the needs of the infant or toddler and the family. For example, Sara has physical impairments in addition to dual sensory impairments and therefore, a physical therapist was the family's choice for the family service coordinator. Harvey's family selected a special education teacher who they met at the screening and

had talked with them many times at community events. The family should have the opportunity to select the person who they feel most comfortable with or someone who knows their infant well family service coordinator. Ideally, selection of the coordinator is jointly made by the professional team members *and* the family.

One role of the family service coordinator is to empower the family by promoting their ability to obtain both formal and informal resources and services. In addition, the family service coordinator is responsible for implementing the Individual Family Service Plan (IFSP, to be discussed later) and coordinating this plan with other agencies.

Family Service Coordinator for Cameron. Cameron's pediatrician contacted the district to initiate screening and evaluation because of concerns about Cameron's needs coupled with the fact that his parents were deaf. For Cameron, the family service coordinator, Kim was selected from available social workers on the early childhood special education district staff family service coordinator. Kim arranged to visit the family in their home. On her first visit, Kim explained that she would function initially as the family service coordinator. After the family became familiar with other team members they were given the option of selecting another team member.

Step 1 for preschoolers: preschool teacher guides the process

For children between the ages of 3 years and 5 years, the services of a family service coordinator are not legally required, nor is any such equivalent role. With children in this age group, the preschool teacher is likely to play a more dominant role in coordinating the assessment, both as a member of the team and as a communicator to the family.

Step 2 for infants: determine family concerns, priorities, and resources

When dealing with children under the age of 3, the next step in the process is for the family service coordinator to meet with the child's parents to determine their concerns, priorities, and resources as they relate to their child's development. (Remember: Once children reach the age of 3, such parental input is no longer legally required). Such meetings can also provide information that will make it easier for team members to establish rapport with the child during the actual assessment (i.e., identify favorite toys, behavioral style). Since determining family concerns, priorities, and resources is required by law, team members must address these issues in the assessment process.

Control of the process At all times team members must remember that families have control over the process. This includes deciding whether or not they want an assessment of themselves or their family, and what areas they are willing or unwilling to have assessed. Thus, assessment of family needs should not be done without the family's consent. In

addition, team members must recognize that they may be working with a variety of families from multi-cultural and economic backgrounds, and thus should strive to create a partnership in which the welfare of the child is the focus of all activities and the development of the child is ultimately enhanced.

Cameron's family's assessment.

Cameron's family requested that an interpreter would be provided for all contacts made with the family, beginning with the first contact by Kim, the family service coordinator. In order to avoid having different interpreters each time Kim visited, Cameron's family had suggested choosing two interpreters that would be available during the times that they met.

In addition to meeting with Kim to discuss concerns and priorities, Cameron's family participated in his assessment by completing the Family Report portion and the Family Interest Survey of the AEPS-I (Cripe & Bricker, 1993) as well as the HELP Family-Centered Interview (Parks, 1994). These tools allow families to report on their child's current skills, abilities, and behaviors. These tools allow families to contribute during the assessment process and to provide information regarding their child's strengths and needs. Kim met in Cameron's home every other week and then with the help of the interpreter, had conversations with them about their concerns. His parents felt comfortable enough with Kim to share concerns and priorities for Cameron and themselves.

A list of family needs assessment surveys and questionnaires is included in Resource 1. In addition to Resource 1, an article titled, A review of scales to assess family needs by McGrew, Gilman & Johnson (1992) provides descriptions of 15 different family needs assessment scales. On pages 8 to 10 of the article, these authors summarize information about the number of items for each instrument, whether normative data and scores are provided, and an overview of the content provided. Team members might find Resource 1 helpful when selecting assessment instruments to match with the families they work with (a complete citation is listed in the reference list).

Selecting a family needs assessment. Sometimes it is helpful for families to gather their thoughts about concerns and priorities by using a formal tool such as needs assessment. There are numerous surveys and questionnaires that can be helpful in gathering information about family concerns, priorities, and resources. A useful family needs assessment tool should:

- be tailored to the needs of the family,
- be easy to read,
- be non-intrusive,
- include space for writing concerns,
- be of reasonable length, and
- be useful for determining strengths. (Raver, 1991)

Cameron's family's needs. After two visits with Kim, the family service coordinator, Cameron's family needs were identified as:

- having an interpreter provided at all meetings with intervention staff and at each intervention session

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- information about his vision: what he can see, what they can do to help him use his eyes, how to sign to him so he can see the signs
- how to teach Cameron signs that do not involve touch
- what to do about Cameron refusing to sit at meals and not tolerating being in his high chair
- what is available to them to help Cameron

Step 3 for infants and preschoolers: select assessment instruments

Based on parent concerns and needs of the child, team members select the actual instrument(s) for conducting the assessment. These instruments must enable program personnel to gather data about the child's cognitive, physical, communication, social/emotional, and adaptive skills. The information gathered from these instruments will eventually be used to develop the IFSP for the child under the age of 3, and the Individual Education Plan for the child 3 years through school age.

Overall assessment When selecting assessment instruments, team members should consider (a) how valid and reliable the instruments are and, (b) whether it is appropriate to evaluate a child with a test that has been standardized on non disabled children. Infants with multiple or severe disabilities are often unable to respond to items on many traditional instruments, resulting in scores that do not accurately reflect their abilities.

There are a variety of assessment instruments available for individuals to use. Bagnato, Neisworth, & Munson (1989) provide a helpful form to aid in making decisions when selecting assessment tools. (Appendix B). As the team tries to select assessment tools, it may be helpful for one of the team members to complete the brief form. The team uses the form to rate each assessment tool that is being considered for use with an individual young child. Team members will benefit from selecting one or two primary tools that has a developmental base, provides a multi-domain profile, uses information from multiple sources, provides linkage to curriculum, adapts to specific impairments, emphasizes functionality, and has technical support to validate the use of the tool (Bagnato, Neisworth, & Munson, 1989).

The author created a list of early intervention tools that may be helpful to use with young children who have dual sensory impairments (Appendix A). Each tool is classified into eight types: curriculum-based, adaptive-to-handicap, process, norm-based, judgment-based, ecological, interactive, and systematic observation based upon Neisworth & Bagnato (1988). A glossary of relevant screening and assessment terms is also included in Appendix C.

Assessment tools selected for Cameron

One normed test was required to be used and the team selected the Battelle Developmental Inventory (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984) because it makes adjustments for visually and hearing impaired children and for children with other handicaps and examines skills in five domains: personal-social, adaptive, motor, communication, and cognition. Also this test used by his school district's staff for screening and eligibility purposes and thus would be repeated yearly.

The Callier-Azusa Scale (Stillman, 1978) was selected as an assessment instrument because it is intended for students like Cameron who are deaf-blind. The Callier examines six domains that are relevant to planning Cameron's intervention; motor perceptual, daily living skills, cognitive, communication, and social. The AEPS Measurement for Birth to Three Years-Volume 1 (Bricker, 1993) was selected as a curriculum-based measure. This tool allowed Cameron's team to assess his skills and then to develop programming using the AEPS Curriculum for Birth to Three Years-Volume 2 (Cripe, Slentz, & Bricker, 1993).

In addition, the team wanted the family to have a primary role in gathering information about Cameron's current abilities and daily routines. The AEPS-1 Family Report, Family Interest Survey (Cripe & Bricker, 1993) and the HELP Family-Centered Interview (Parks, 1994) were used to gather this information from his family.

Functional visual and auditory assessment. It is important to assess how the young child is using his vision and hearing. This assessment must be seen as an ongoing process in both home and center settings. The parents and the interventionists want to know how the child *uses* visual and auditory information to plan and carryout a task. For example, how brightly colored must objects be before Cameron can locate them? When he locates an object, how does he interact with it? How does Cameron react when he hears a sound? Does he become quiet, move toward the sound, or move his head or body in the direction of the sound? By answering these questions one will discover how Cameron functionally uses his vision and hearing. The answers to those questions tell us how Cameron uses his vision, functionally. The same kind of information is important to gathered about what Cameron does in response to sound. If someone is knocking at the front door, will Cameron turn his head or body, move towards the door, or become quiet? Observing Cameron's responses to normal sounds around him will tell us how Cameron uses his hearing, functionally.

Conducting functional vision assessment. A functional vision assessment should be conducted by a professional vision specialist (or in some states the orientation and mobility instructor) in collaboration with the intervention team. Ideally, the vision specialist is a member of the child's educational team. The specialist is a certified teacher of the visually impaired, trained to evaluate how a child utilizes vision. Ideally, the vision specialist will measure and observe the visual methods a child uses

throughout the day and will repeat observations across more than one day. In addition, the specialist will speak with parents, intervention team members, and other caregivers who know the child well. The vision specialists will also review records and may talk to the eye doctor to learn more about the child's visual condition.

Functional vision report. The specialist's report should describe how the child behaves in a variety of situations. It should include structured and unstructured activities, involve preferred and non-preferred tasks, and take place within activities that require near and distance vision. It may include formal vision acuity testing, which provides some information about the child's ability to see detail under standard viewing conditions.

Vision Assessment Resources for the Educational Team

The Developmental Visual Dysfunction assessment (Ehrhardt, 1989) provides a detailed inventory of visual skills and reflexes. These visual behaviors are scored according to expected developmental levels for infants. This assessment tool will help the team define appropriate visual skills that may be encouraged as the next set of visual skills for the child to learn.

The Functional Vision Screening Inventory for Severely and Multiply Handicapped Children (Langely, 1980) provides both a short screening and a longer assessment that can be used to observe visual behaviors. It includes suggestions for activities and sources of materials which are visually motivating. Utley (1994) provides an Assessment Overview measure. This screening measure helps to identify students who may need more in depth measures regarding visual and visual-motor skills. It may also help you and the educational staff be more aware of the child's vision behaviors.

The team should ask the vision specialist to help them gather information to help answer the following questions suggested by Utley (1994):

1. Is the student able to locate materials visually that are used in a variety of typical instructional activities?
2. Is the student able to engage in simple visual-motor behaviors (e.g., tracking) and use his or her eyes and hands together to reach, grasp, transport, and release objects?
3. Is the student able to use both eyes together?
4. Is the student able to detect objects and/or people outside of his or her direct line of vision?
5. Is the student able to use vision as a way to gather information about his or her environment? (p. 129).

Conducting functional hearing assessment. Audition is observable only by actions of body. At birth, reflexive responses are usually present and physiological and behavioral changes can be seen (e.g., change in respiration, decrease in crying or sucking). These observable responses, however, are limited to the *localization* of sounds. A child's hearing loss must be documented and tested regularly by an audiologist. The audiologist can supply the team with answers to questions about the child's hearing loss. Information to acquire from the audiologist includes answers t the following questions.

1. What type of hearing loss is present?
2. What effect does the loss have on the child at the present time?
3. Is amplification appropriate?
4. What type of observable responses were used to document this child's hearing?

Many of the standard auditory assessment procedures rely heavily on vision and thus may have limited explicit value for the children with both hearing and vision impairments. Thus, it is crucial that someone on the educational team have knowledge about hearing and traditional hearing assessment as well as awareness of newer techniques for determining type and extent of hearing loss that may be more applicable for a child with both hearing and vision losses. An overview of some techniques that may be helpful are reviewed in the next section and sources from Cress, (1987), Goetz & Gee (1987), and Utley (1994) provide information applicable to sensory assessment of students with dual sensory impairments.

Use of Formal Hearing Tests (Audiological Findings). The formal audiological findings will help identify the presence of a hearing loss, quantify its magnitude and determine whether it is conductive or sensorineural in nature. It is important that the audiologist conducts both *behavioral* tests to assess overt behavioral responses to acoustic stimuli (i.e., turning head toward sound) and *physiological or objective* tests that measure involuntary responses to acoustic stimuli (i.e., Auditory Brainstem Response).

Two areas that the educational team may aid the family include

a) the preparation of the child for hearing testing and

b) coordinating objective measures that can be conducted at school and in medical settings.

In addition, there are some informal classroom procedures that can be used with young children in center-based or home-based settings.

Hearing Assessment Resources for the Educational Team

Classroom-based hearing assessment procedures presented by Utley (1994) are applicable to the young child with dual sensory impairments. Her suggestions include;

1) screening to determine a child's response to the presentation of a range of functional, meaningful sounds
2) coordination of assessment of hearing using team participation, and
3) preparation of a child for a formal hearing test.

Classroom Hearing Screening. Utley's (1994) Classroom-Based Informal Screening allows an educational team member to gather evidence about the hearing of children who do not speak or demonstrate sufficient understanding to consistently follow directions. Using a variety of sound sources the auditory data can be collected on a simple data sheet provided by Utley. In addition, a detailed Model to Assess Localization Acuity is presented to assess a student's ability to visually locate materials that are used in typical instructional activities. These procedures are appropriate for students with vision and motor limitations as well as for students with hearing limitations (Utley, 1994).

Team Coordination in Using Objective Audiological Measures. A number of objective measures may be accomplished through the expertise of team members in the school setting and some must be conducted in a medical setting. Impedance audiometry for acoustic immittance is designed to measure the capability of the peripheral auditory system to transmit sound to the inner ear. The information from impedance measurement can be used to predict conductive losses and does not require active participation of the student. The battery of impedance measurements include *typanometry,* which is charted on a tympanogram; *static compliance,* and *acoustic reflect threshold. Typanometry* assesses the relative mobility and integrity of the eardrum and can be conducted and interpreted by the speech-language pathologist. *Static compliance* detects the mobility of the middle ear system in absence of response to a sound source. The third component, *acoustic reflect threshold,* predicts the hearing levels at which the protective mechanism in the middle ear is active.

The presence of the acoustic reflex indicates that the student has heard the sound. Using the information from the measurement battery can provide substantial information, and for identifying the actual type of pathology within the middle ear. This can be a starting point to guide decision making regarding potential availability of hearing as an input mode to the child. Thus the team should coordinate efforts to see that these three measures are performed.

In addition, an important objective hearing test that may be coordinated though the team is the Brainstem Evoked Response Audiometry (BSER) of Auditory Brainstem Response (ABR). The BSER allows measurement of changes in electrical brain wave activity to a series of controlled auditory stimuli (usually "clicks"). The child must remain motionless for approximately 30 minutes and thus a drug that makes the child sleepy or general anesthetic may be used.

Two promising screening techniques for early identification of children before 12 months of age includes (a) transient evoked otoacoustic

emissions (TEOAE) and (b) automated auditory brainstem response (AABR). White (1996) reports that the recent technology for newborn hearing screening is practicable, effective reasonably low cost, and does not have harmful side effects. Currently only 5% of the babies in this country are born in hospitals with universal newborn screening programs; however, the technology is expected to continue to evolve (White, 1996).

Otoacoustic emissions (OAE's) are low-level signals generated within the cochlea as part of the normal auditory function. Absence of OAE's indicates that the outer hair cells are damaged. The accuracy of the tests of cochlear function depends on the integrity of the external and middle ears, OAE's have also been found to be useful in the assessments of persons with multiple disabilities as well (Gorga, Stover, Bergman Beauchaine, and Kaminski (1995).

Some students may be able to respond to behavioral testing after being prepared to participate in the testing. The manual Assessment and Programming for the Severely Handicapped and Deaf-Blind Students (Goetz, Utley, Gee, Baldwin, & Sailor, 1979). Two important procedures that classroom personnel may use with the child are visually reinforced localization and operant motor responses to auditory input. Successful training using these explicit procedures will allow the student to participate in formal audiometric testing with an audiologist.

For Infants and Toddlers

Step 4: Conduct the Assessment

One approach commonly used by teams is the "arena assessment." In this type of assessment, all team members are present during the session(s) with the child. During an assessment session, one team member interacts with the child or guides a family member to interact, while other team members observe the child from within the room or through a one-way mirror. In cases where it is not practical for all staff members to attend an arena assessment, an excellent sampling of a child's behavior can be provided by videotaping the assessment interactions within structured and unstructured activities. Team members may request that the assessor elicit certain behaviors from the child during the session. This will allow each professional involved to collect the data needed to complete the assessment relative to his or her discipline.

Ideally, any team member should be able to take the lead role with the family during assessment. A team who makes a commitment to assess, teach, and work together across disciplinary boundaries is referred to as *transdisciplinary*. The trandisciplinary model allows each member of the team to be knowledgeable about disciplines other than his/her own profession and to carry-out intervention across other discipline areas

needed by the child. This cooperation and collaboration across disciplines is termed, *role release.* Using role release is important for students with dual sensory impairments because there is a need to incorporate vision, hearing, and communication assessment and intervention into the routines of the young child's daily life.

Cameron's sensory assessment procedures.

The use of the transdisciplinary model was very helpful when assessing and intervening with Cameron. For example, the vision teacher was part of Cameron's team by providing consultation to the staff and family as well as participating in the assessment process. She made suggestions about how to present objects and toys to Cameron and variations in visual presentation during the assessment process but allowed his Mom and hearing specialist teacher to actually conduct most of the assessment. This input allowed the team to accommodate Cameron's vision but also gathered important information for the vision teacher to help her understand how Cameron's used his visual skills.

This type of team functioning increases the possibility that the assessment, and eventually intervention services, will not be fragmented or poorly coordinated among disciplines. Family members can be involved in the assessment session and play an active role in providing information about the child's abilities as the assessment occurs. Remember that the purpose of assessment is to gather information that will allow the family and team to plan for intervention based on the child's strengths and needs as well as the family's concerns, priorities, and resources related to the child's development. Assessment from more than one discipline or across disciplines can take place in the home setting or they can be center-based, depending on the family's choice. Rossetti (1990) discusses the uses of both settings.

Assessment setting for Cameron

Cameron's parents reported that when in a novel environment Cameron tends to stay near them and explores with great hesitation because he can not clearly see obstacles that lay in his path. At home, however, Cameron knows where obstacles are located and is not afraid to move freely and explore the environment. With this in mind, Cameron's parents and the team members believed they would get a more accurate picture of Cameron's abilities in an environment that is familiar to him. If this factor had not been taken into consideration, the assessment may have looked very different. It is very likely that Cameron would not have displayed typical behaviors in an unfamiliar setting, therefore the findings from the assessment would not have accurately reflected his true abilities. It may have appeared that Cameron could not search for and retrieve objects because he would have been reluctant to leave his Mother's lap in an unfamiliar setting. It is therefore important to keep factors such as this in mind when completing assessment. Students should be evaluated in multiple settings (one being the setting most familiar to them) in order for the assessor to get a clear picture of the child's abilities.

Influences of the Child's Behavioral Characteristics on the Assessment Process

Each child has unique behavioral characteristics that need to be accommodated in order to obtain a realistic profile of the his/her strengths and needs. Examining the young child's behavioral states, signals and cues, and temperament will help ensure the assessment process captures the child's unique attributes.

Behavioral states. When assessing an infant, an awareness of behavioral states is crucial. States can be described as levels or degrees of alertness that range from deep sleep to drowsiness to being wide awake.

Infants are especially influenced by state especially during the first few months of life as they learn to regulate their sleep, drowsiness, and alertness. Any infant's state of alertness will depend on factors such as hunger, thirst, comfort, and time in the sleep-wake cycle. It is important to be aware of the infant's state when administering assessments.

Research conducted with normal infants (Als, 1986; Brazelton, 1973; Helm & Simeonsson, 1989; Thoman and Whitney, 1990) and more recently with students who have severe disabilities (Guess, et al., 1988; 1990; 1993a; 1993b) have identified a range of state behaviors. During assessment, some cues can be gathered that indicate that an infant is in an alert behavioral state. Take notice when the child is "orienting" to people or events or "interacting" with people or objects. These specific behaviors will help interventionists remember what the child does when interested and alert. Later within intervention, those behaviors can be encouraged when new skills are being taught or new materials are presented. Also, during assessment take notice when the infant is getting tired and jot down the behaviors observed. It is helpful to notice how the family members help the infant relax or become more alert again.

Accommodating behavioral state. Alertness levels for a child with visual impairments and hearing impairments requires a different sensitivity than for interacting with typical infants. For example, Kristin, a young child in the author's preschool classroom was born without eyes. Most of us display sleepy behaviors through repeated blinking, staring, or gradual closing of the eyes. Kristin's staff had to learn how she indicated drowsiness. This was problematic, because when Kristin was tired she tried to stay awake by biting her finger or shaking her hands/body. Staff might have interpreted this as agitation if the teacher had not specifically asked Kristin's parents about her display of behavioral state. During assessment times the staff accommodated Kristin's needs by providing breaks and rest times for her, making sure that someone was nearby so that she felt secure and that she was not missing anything.

There are sources available to formally measure behavior states. Als (1986) developed a scale to measure states in premature or ill infants. Brazelton (1973) also has a well-known neonatal behavioral assessment scale. Rossetti (1990) and Helm & Simeonsson (1989) provide further information on these assessment issues. Guess, Siegel-Causey and colleagues at the University of Kansas also provide information related to severe disabilities (Guess, et al., 1993; Guy, Guess, & Ault, 1993).

The state of an infant or young child when assessed should be taken into consideration when assessment results are interpreted. Assessments should be scheduled at times when the child is at his or her best in terms responsiveness. Family members are a good resource for finding out information about the young child's typical states and cycles.

Cameron's behavior state

Cameron's parents reported that he was usually at his best, alert state between 2:00-4:00 PM. Therefore, the team scheduled their assessment sessions between those times. In fact, once intervention began all team members providing direct service to Cameron scheduled their home visits within that time frame.

Signals and cues.

Another important strategy for assessment is to be sensitive to behavioral signals and cues. All children send out cues to the environment about their needs and wants. It is likely, however, that infants and toddlers with dual sensory impairments have cues that are difficult to interpret. For example, Kristin was born without eyes (anapthalmia) and when the first author met her, it was important to determine how Kristin signaled interest. Over time, it was clear that Kristin tended to stop moving and orient her head to midline when she was most attentive or "listening to others". Cameron, although relying on light perception, primarily orients by turning his head and shifting his eye gaze towards objects or people of interest to him. Jaycee may get very still when she is most interested or alert while Trevor vocalizes and weaves his head as he orients to things of interest. Again, family members can serve as resources in learning about their child's cues. These cues will help everyone know how to read the child when interacting with him and in turn, aid in establishing a rapport and trust.

Thurman & Widerstrom (1990) present characteristics and definitions of different temperaments if you wish to learn more about these. Also, Huntington (1989) provides a chapter that covers many more of the behavioral characteristic issues. A profile has been developed to assist professionals in gaining information related to the unique characteristics that influence an young child's interactions (Dale & Siegel-Causey, 1992). This profile addresses the areas of behavioral style and temperament, learning style, interactional style and communicative behaviors, adaptation patterns, and environmental influences. A copy of the form is included as Appendix D.

Temperament. Infant temperament is another characteristic to determine before beginning the assessment process. For purposes of interacting with the young child and later for planning intervention, it is important to know how the child relates to the environment (i.e., is she friendly, sociable, shy, aggressive, hard to soothe, affectionate, etc.). This type of information can be gathered from parental interview and will help interpret assessment results and plan effective interventions.

As with infants, young children demonstrate different temperaments or patterns of reacting to the environment. Thomas, Chess, & Birch (1968) have defined 10 categories that characterize the temperament of children. These include:

- activity level
- approach/withdrawal
- intensity of reaction
- persistence, distractibility
- threshold of responsiveness.
- rhythmicity
- adaptability
- quality of mood
- attention span

When assessing young children, you will want to be aware of how each child may display these temperamental characteristics so that you can plan for how best to interact with the child, withdraw from the child, and encourage the child to persist during the assessment session.

Accommodating Cameron's unique signals and temperament

Interventionists working with Cameron learned to read his behavioral cues so that Cameron would not become too agitated and upset when introduced to an activity for the first time. Often when abruptly introduced to novel activities Cameron will begin to cry. If Cameron becomes too upset, he will continue to cry for long periods of time, even after the novel activity has ended. Therefore, new items were introduced by his family and offered slowly within familiar games with his interventionists.

Use of Assessment to Develop Intervention

Once data has been collected about (a) a childs skills and needs from the assessment measures, (b) information from the family, and (c) any pertinent background material from other sources such as vision and hearing testing and reports from previous professionals not currently on the team, the information can be used to develop interventions The process for using the information that has been gathered to develop programs for children birth to 5 years is discussed below.

There are six steps to guide the use of the assessment information collected. In the following pages, each will be defined separately.

Step 1	Use a variety of formal and informal measures to develop a clear profile of the child's skills.
Step 2	Determine child and family outcomes as part of the IFSP or child objectives as part of the IEP process.
Step 3:	Link child's current profile with selected outcomes/objectives.
Step 4	Determine family/staff preferred time/events in daily schedule.
Step 5	Select routines for intervention within preferred times/events.
Step 6	Conduct participation analysis for selected routines.

Table 2. ***Use of assessment information***

Step 1: Use a Variety of Formal and Informal Measures to Develop a Clear Profile of the Child's Skills

The many ways to collect assessment information has been discussed in this chapter. At this point information is compiled in a way that provides a clear description of what the young child ***can*** do. It is important to be sure that the child's strengths and needs are identified from the assessments you use. Clearly, the family should have a central role in compiling this information and using it to determine IFSP outcomes or IEP objectives. The Learner Profile form (Table 3) on the next page can be used to compile the information that has been gathered. Cameron's Learner Profile form (Table 4) has been provided.

Learner Profile

Name: _____ Age: _____ Date: _____

How information was gathered _____

_____

_____

	Current Strengths	Current Needs	Family Profiles
Cognitive Development			
Physical Develompent Fine Motor Gross Motor Vision Hearing			
Communication Development Use Understanding			
Social or Emotional Development			
Ataptive Development Self Help			

Table 3. ***Learner Profile***

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Learner Profile

Name: Cameron Age: 16 mos Date: September, 1996

How information was gathered: **AEPS-1 Data Form, Family Report, Family Interest Survey, Callier, HELP Family-Centered Interview**

	Current Strengths	*Current Needs*	*Family Profiles*
Cognitive Development	Navigates around a familiar environment quite well. Uses a few objects in functionally appropriate manner—brush to brush his hair.	Has difficulty orienting to some auditory and visual stimuli. Does not imitate motor actions such as signs commonly/frequently used at home.	Would like Cameron to explore unfamiliar environments more readily.
Physical Develompent Fine Motor, Gross Motor Vision, Hearing	Walks unsupported and easily moves around barriers in familiar environment.	Has difficulty locating and pcking up small objects (especially objects of dark color).	Would like Cameron to do more things with small objects or play with a variety of toys.
Communication Development Use Understanding	Understands some simple signs and verbal utterances.	Has difficulty expressing wants/needs, often uses simple vocalizations to indicate he wants something but can't specify what he wants.	Would like Cameron to use more signs to communicate his wants and needs.
Social or Emotional Development	Shows affectin (hugs, kisses) toward parents and siblings—especially sister. Enjoys taking turns when playing games with family members.	Has a hard time maintaining communicatin exchanges with a familiar adult (for more than 1 or 2 exchanges).	Would like Cameron to be around children his age with similar disabilities. Perhaps he will learn from his peers.
Ataptive Development Self Help	Undreses himself with some assistance.	Scoops food (with fingers) very fast into mouth	Would like Cameron to start using eating utensils rather than fingers.

Table 4. ***Example of Learner Profile***

Step 2: Determine Child and Family Outcomes as Part of the IFSP or Child Objectives as Part of the IEP Process

In this step information is compiled from the Learner Profile under Strengths and Needs and information is gathered with the family about their priorities. A review of the child's strengths and needs in the five developmental areas from the information gathered during the assessment process may help the family determine which of these areas (or area) are of immediate concern and should be given priority for intervention at this time. The use of the last column on the Learner Profile form (Table 4) to gather the family information assists the team to complete this step. The team will gather information about the concerns the family has about their child and the resources they would like to contribute in order to accomplish the chosen outcomes/objectives (e.g., identifying people in their network that may contribute to training time, transportation, building equipment, etc.). Some of the priorities and concerns Cameron's family expressed are listed in the last column on his Learner Profile form (Table 4).

The IFSP

The Individualized Family Service Plan (IFSP) is a process and the written document is the product created by the team and family. The IFSP document states how early intervention will proceed with the infant and family. The purpose of the IFSP is for families and professionals to work together to identify and mobilize formal and informal resources that help families reach their chosen goals (McGonigel & Johnson, 1991). The IFSP document results from the process of assessment; identification of family concerns, priorities, and resources; and development of outcomes to meet child and family needs. It is a plan for reaching outcomes that have been designated as important by the family. The IFSP must be written 45 days after the child is referred to Part H services; if it cannot be completed within this timeframe, an interim IFSP must be written.

Required components of the IFSP include:

1. a statement of the child's present levels of development (cognitive, physical including vision, hearing, and health, communication, social or emotional, and adaptive).
2. a statement of the family's concerns, priorities, and resources related to enhancing the child's development.
3. a statement of major outcomes expected to be achieved for the child and the family.
4. the criteria, procedures, and timelines for determining progress.

5. the specific early intervention services necessary to meet the unique needs of the child and family, including the method, frequency, and intensity of services.
6. the projected dates for initiation of services and expected duration.
7. the name of the family service coordinator.
8. the procedures for transition to early intervention in the preschool program.

Resources are available by Bennett, Lingerfelt, and Nelson (1990), McGonigel, Kaufmann, and Hurth (1991), McGonigel, Kaufmann, and Johnson (1991), and McGonigel and Garland (1988) to help devise IFSPs. It may be helpful to review the vignettes of young children provided by Linder (1990) to give examples of these content areas for IFSPs.

At this point in the testing process, information will be available from the evaluation and the assessment of the child and the family. The family and the team will now work together to determine the nature of intervention and the outcomes of the IFSP.

Outcomes. Outcomes are statements on the IFSP that the family wants to see for the child or for themselves in relation to their child's development. An outcome is written as a positive, action statement that tells what is going to occur, who will participate, and what the anticipated results are. Some examples of outcome statements that might be listed on an IFSP for young children with dual sensory impairments and their families include:

1. Bob (Dad), Candy (Mom), and Timmy (child) will take turns in favorite games.
2. Josh will stand using a family member's hand for assistance when petting the dog, looking out the window waiting for Dad to come home from work, playing hide-and-seek with Terry, etc.
3. Carlos and Verna will choose Maria's preschool and notify the team of placement choice by May 15th, 1996.

The outcome statements may be focused on the child, child and family members, or family. Let's look in more detail at a child outcome statement.

Outcome example for Cameron

Cameron's parents feel they often cannot understand his communication requests. The outcome related to this need was written on the IFSP as "Cameron will clearly request to Mom and Dad what he wants through vocalizing, gesturing, and/or reaching". Incorporating outcomes into an intervention plan may be difficult to accomplish at first. Here is one way to decipher an outcome so that it will relate to intervention.

What	Cameron will clearly request to Mom and Dad what he wants through vocalizing, gesturing, and/or reaching.
How	Cameron will gain Mom's or Dad's attention by looking toward them and vocalizing then indicate what he wants by gesturing or reaching toward the object.
When	During daily routines such as dressing, mealtime, bathing, and playing.
How often	Whenever Cameron gains Mom's or Dad's attention and seems to want a particular object or item.

It is important to note that IFSP outcomes do not have to be written in the detail shown below. However, it may helpful to do so until one becomes more experienced in translating outcomes. Translating outcomes into intervention plans are discussed in steps 3, 4, and 5.

IEP (3 to 5 Years)

Individualized education goals and objectives are necessary as specified under the law; these will be developed and outlined in the Individualized Education Plan (IEP). Child objectives should be translated into specifically planned program activities that fit the child's developmental age and performance capabilities. Information about the child's current levels of educational performance are indicated on the IEP. One difference between the IEP and the IFSP is that family information is not required on the IEP and as a result, the family focus is absent (unless individual programs choose to include it on their own). Additionally, the IEP requires a statement of annual goals and short-term objectives for the child, as well as criteria, procedures, and timelines for monitoring these. Here is an example of an IEP objective;

> When provided with a microswitch 1 inch from his hand, Jason will activate the switch to assist a peer to operate electric scissors/stapler during art, with no more than one verbal prompt, 80% of the time for one month.

The IEP will also include a statement of specific services necessary to meet the unique needs of the child to achieve the specified goals and objectives. Finally, dates and duration of services are recorded on the IEP. Unlike the IFSP for children birth to 3 years of age, the IEP does not designate a Family services coordinator.

Use of Family Input. In your work it is likely that you will serve families who come from a variety of economic and cultural backgrounds. In planning interventions for a child, it is important to actively involved the family in the assessment phase to the extent the family wishes. However, families may have different values, priorities, or concerns in selecting goals for their children than you or other professionals with whom they work. In these cases, it is important to be able to collaborate with the family in such a way that their perspective and value system is respected. The interventionist's value system should not be forced on the family. Raver (1991) suggests that in the case where values and goals differ, all alternative goals should be openly discussed so that a range of options is made available, thereby fostering respect for the family's perspectives. Developing interventions that are based on parent identified needs and parent-developed goals is considered best practice currently, and is particularly relevant in early intervention where families frequently receive services from a number of professionals and agencies. Moreover, parents may be more likely to follow through with interventions when they contribute in their planning and development.

Step 3: Build on the Child's Current Strengths When Designing Outcomes

Within this, the information collected from Step 1 and 2 is reviewed by the team and family to make sure that the outcomes or objectives selected will build upon the strengths the child already has. Huebner, Prickett, Welch, & Jaffee (1995) provide a detailed account of building on a child's strengths in the areas of communication and orientation and mobility. It may be helpful to write down each outcome and the strengths the child has to achieve the outcome.

Example of Cameron's strengths

One outcome is for Cameron to eat more food during meals so that the family can have more time together. Look at the Learner Profile form (Table 4) and see what strengths he brings to achieving this outcome. In this case Cameron enjoys taking turns with family members, explores food with his hands, and loves to get attention from his sister. As we plan to implement a feeding intervention these factors should be built into the new plan.

For some children, eating is not a positive event due to feeding problems related to motor, nutritional, or medical factors and for many families, mealtimes are one of the few times all the family members have a chance to interact together. Therefore, although mealtimes are natural routines that occur across environments throughout the day, they are not necessarily appropriate places for intervention.

Step 4: Determine Family/staff Preferred Time/events in Daily Schedule

Intervention plans for young children must be planned to be part of the child's typical routines at the home or center. It is likely that the child under 3 years of age is receiving most or all of his/her services within the home or daycare setting. The child over 3 years of age may continue to have home/daycare as the primary site or could be in a center-based intervention site. Wherever the child is during the day, his schedule should be examined and then the family and/or staff need to identify the time of day or events that lend themselves to adding intervention. Times when the child is most alert and happy should be considered for intervention times. One must take advantage of the typical routines of a young child and use them as the focus of all intervention. This allows intervention to occur in natural routines that the child, family members and/or staff are participating in already.

You may refer to these sources if you wish to do further reading about using routines for intervention: Bailey and McWilliam (1990), Bailey and Simeonsson (1988), and Rainforth and Salisbury (1988). McWilliam (1992).

Using routines allows functional behaviors to be taught in the places that are typical for any young child. Targeting of skills for the child to learn that occur frequently during many interactions of the day will allow opportunities for practice. Intervention is ideal if opportunities for learning can be dispersed or distributed rather than repeating a task over and over in a "massed" format. Using dispersed trials, allows you to teach a skill spontaneously across many natural settings and situations during the day rather than all at preplanned times. This will help the child generalize skills. Moreover, you should try to design interventions for parents to do with their children that are not intrusive or troublesome. The less demanding your tasks are for the family, the more likely they will be to follow through with them.

Cameron's dispersed training at mealtimes.

In Cameron's case, the family decided to try implementing intervention techniques during mealtime. For example, they worked on Cameron's communication by waiting for him to point or sign "more" when requesting more food or drink. For Cameron's family this was an ideal time to work on this skill because the entire family joined together for at least one meal every day. This allowed all members to interact with and respond to Cameron in a consistent manner.

Step 5: Select Routines for Intervention Within Preferred Times or Events

After the preferred events/times within a schedule have been selected as initial priorities, you will examine the events to determine what activities or routines occur during that timeframe. Events in a young child's life are likely

to have particular routines within them. Activity-based intervention can be integrated into the routines and activities of the families you work with or be used as a basis for center-based interventions.

Activity-based Intervention

Activity-based intervention is a portion of a more general approach to early intervention. Bricker and Cripe (1992) discuss that activity-based intervention takes place as part of a linked system, which

> "uses the information acquired during the assessment phase to develop IEPs or IFSPs. The IEP or IFSP in turn, guides the selection of intervention content and strategies. Evaluation of the child and family progress is focused on attainment of goals and outcomes and is congruent with the assessment procedures" (Bricker, 1989, p. 235).

This linked approach philosophy has driven what you are learning in this chapter as well. So that:

- **Assessment**: provides data for developing the IEP or IFSP
- **IEP or IFSP**: serves to guide necessary interventions
- **Intervention**: implements activities based on identified goals and objectives or outcomes
- **Evaluation**: involves feedback on the effects of intervention

Within this philosophy, activity-based intervention is a child-directed, transactional approach that embeds training on a child's individual goals and objectives in routines or planned activities and uses naturally occurring antecedents and consequences to develop functional and generalizable skills (Bricker & Cripe, 1989). In Cameron's mealtime routine, one communication skill that will be encouraged is gesturing/signing when he wants "more" to drink or eat. Within the mealtime routine, the family can serve Cameron small portions to facilitate the probable occurrence that he may want to eat or drink more. Within the mealtime the expression of "more" will occur naturally and for more than one purpose, thus increasing the functional use of Cameron's communication skill. One important feature of this approach to intervention is that the team can target multiple developmental areas (i.e., motor, communication, social, cognitive, self-help) in a single activity.

Multiple skill areas for Cameron at mealtime. Self-help and communication skills were the focus in Cameron's mealtime routine. With the help of his siblings or parents, Cameron was guided to wash his hands before mealtime.

At the dinner table, Cameron was encouraged to request more food or drink by vocalizing or reaching toward another family member. Once Cameron indicated what he wanted, the family member partially assisted Cameron to gesture sign "more" and to in pour more drink or place more food on his plate.

Natural motivation for Cameron

Cameron will learn to repeat the signal or request for "more" within a meal time when he is still hungry or thirsty. He will be more likely to use this signal because his family responds by providing more food or a drink to him when he needs these food items.

This approach is also characterized by the fact that inherent rewards exist for the child in the activities. If the activity is carefully chosen or the child is allowed to select the activity, then motivation should be sufficient and you will not have to provide artificial contingencies. The first step would be to interview the family for *their* preferred times/events in their daily schedule to insert intervention oppor-tunities. This will help you build on the family's interests and strengths, and thereby enhance the likelihood that they will follow through with planned intervention activities at home. You might find it helpful to ask family members what routines they enjoy with their infant or toddler, then incorporate simple interventions for parents to do with their child for those positive routines. Similiarly, the teacher/interventionist in a classroom or center would incorporate intervention opportunities for individual children into specific routines that are scheduled during the day. For, example, if Cameron were to attend a center-based program, the teacher may plan to work on his communication objective mentioned above during snack or lunch.

Step 6: Conduct Participation Analysis for Selected Routines

This step is focused most on the child who is in center-based or classroom programs. The team will look at how the child is participating within a routine. This use of a participation model is to increase meaningful participation of the child in routines. The goal is to closely match the participation level of nondisabled peers of the same chronological age (Beukelman & Mirenda, 1992). Specifically, in this step you will determine a) what the child does during the selected routine, b) if there is any difference between what the child does, and c) what is expected of his/her typical peers or what other children are doing. If there are differences between the child's performance and what is expected, you will determine whether to adapt the activity to allow the child to participate more or to teach the skills that will allow them to participate better. At this step a general intervention plan for the routine will be developed. Some examples are provided for in Table 5.

Sample Participation Analysis and Intervention Plan for a Preschool-Age Child

Activity	How do peers participate? (What is expected?)	How does child currently participate?	Intervention Plan
Music (group)	Choose songs, sing repetitive parts of songs, put record on player, do hand or body movements to songs	Does not choose or sing, does not put on record, does hand or body movements with aide's assistance, mostly sits and watches/listens	Provide taped songs that she can turn on with a switch to "sing along," provide picture symbols representing songs so she can choose, continue to imitate hand/body movements with aide
Snack time (group)	Wash hands with help, sit down, ask for snack item, ask for drink, ask for help as needed, eat/drink appropriately, take dirty plate/cup to sink and rinse, wash hands/face with help	Washes hands and sits with help; does not ask for snack, drink, or help; needs help to eat and drink; does not take or rinse plate/cup at sink; hands and face washed by aide	Provide real object choices of two snack and drink options, look for eye gaze or reach to indicate choice; talk to physical therapist about facilitating standing at sink so she can participate in cleanup routine

From: Beukelman, D., & Mirenda, P. (1992). Augmentative and alternative communication: Management of severe communication disorders in children and adults (p. 177). Baltimore: Paul H. Brookes.

Table 5. *Sample Participation Analysis and Intervention Plan*

Intervention Guidelines

There are four steps to guide your intervention processes.

Step 1:	Target child outcomes or objectives within routines.
Step 2:	Decide how to teach outcome or objective or to adapt routine.
Step 3:	Use outcome to measure skill attainment.
Step 4:	Analyze effectiveness of intervention.

Table 6. ***Intervention Process***

Step 1: Target Child Outcomes or Objectives Within Routines

Skills are taught using this approach by embedding intervention objectives into functional daily activities of interest to the infant or toddler. For example, if the team is teaching Ruth to initiate rolling they may provide a choice of toys on the floor during playtime and ask her which one she wants, then wait for her to initiate movement toward the desired object. The types of activities into which one can infuse activity-based intervention can be routine, planned, or child-initiated. *Routine activities* include meals, diapering, dressing, bathing or washing and all other typical daily events. *Planned activities* such as sitting on a blanket in the sunshine, playing with bubbles, or riding in a wagon are designed events that do not ordinarily happen without adult supervision and usually are interesting and appealing to the infant or toddler. Finally, *child-initiated activities* are instigated by the infant or toddler and require little use of external support or reward systems. Child-initiated activities include events such as trying to touch an animal, coming into contact with an object or toy, or hiding behind a person or curtain and peeking out at someone nearby.

Bricker & Cripe (1992) provide many examples of activity planning and many examples. Some of the examples in their book may not match the needs of some children with severe or multiple disabilities. However, the principles of activity-based intervention apply for all children. This type of intervention encourages children to direct their actions, respond to the actions of others, and facilitate generalization of functional skills, all of which are appropriate for young children with multiple or severe handicaps.

Home-based intervention activities provided by professional team members would be integrated into the family's routines based on the information the family provided. In integrating activities, the natural interactions between family members and the infant or toddler and materials that are available within the home should be built upon. Once the family uses the interven-

tions that are designed, the activities should be modified or expanded based on their comments and observations. You may be able to provide the family with suggestions for variations and you will also want to be sure to expand activities to achieve new outcomes and/or include new activities once targeted objectives have been reached. At the end of an intervention session or an activity, it can be helpful to periodically solicit the family's perceptions of the success of the session or an activity. This information will be useful in planning future interventions so that they can be the least intrusive and most effective.

Use of an activity schedule matrix or routine matrix. At this point it is helpful to list time periods of the day or routines for center-based intervention or to list routines for home-based intervention. A matrix is provided that can be used to record this information (Table 7). The team would determine *how* the child's outcomes could fit within the routines of the day and how participation analysis could help them choose the interventions. The left-hand column provides space to specify the timeframe of the child's schedule or the routine. For Cameron, the family selected mealtime as a routine to use and the team helped fill in the top row with the skills that Cameron could practice during mealtimes. Cameron's skills are in communication, self help, and fine motor.

Activity Schedule Matrix-Routine Matrix

Activity	Objectives/Outcomes Skills to Teach		

Table 7. *Activity Schedule Matrix*

Step 2: Decide How to Teach Outcome or Objective or to Adapt Routine

In this step the selected routines are analyzed to determine how to imbed the outcomes or objectives within them. The team would list the event (schedule) or the steps in the routine in the left-hand column and then indicate whether each skill can readily fit within it, with a mark of "yes" or "no." For the items marked yes, the team would then determine how the skill would be taught or how the routine would be adapted to teach the skill or to adapt the routine. Two examples are provided in Tables 8a and 8b. The first example shows the schedule of activities that occur in a community preschool for Bobby. The second example breaks-down one of the activities into a routine. The third example (Table 9) uses a mealtime routine for Cameron and uses the parts of the routine as opporunities for him to practice the skills he is learning. Appendix E provides examples of objectives that can be part of routines with descriptions of how adults can provide opportunities for the child's skills to occur. Appendix F provides an example of a mealtime routine that can be used in a home or center.

Example - Activity Schedule Matrix

Objectives/Outcomes Skills to Teach			
Activity	**Communication** Respond to comminicator	**Self-help** Initiate rolling	**Fine-motor** Grasp items placed near palm
Enter building	YES Smile or eye contact t those who greet him	NO (in wheelchair)	NO
Remove outer clothing and put away belong-ings	YES Ready to put items away or take off clothes	NO	YES Grasp clothes/items
Group welcome-singing	YES Within songs and choices of songs	YES To the rug area	YES To indicate choices with objects
Gross motor play	YES Within instruction of activity	YES To/from equipment or events	YES Within events
Snack	YES Within coice of foods or needing more	YES To snack table	YES Snack items (napkins, food, cup)

Table 8b. *Example activity schedule matrix*

Example Routine Matrix

	Objectives/Outcomes Skills to Teach		
Activity	**Communication** Respond to communicator	**Gross Motor** Initiate rolling	**Fine Motor** Grasp items placed near palm
Removing outer clothing/ putting belongings away			
Peer stands next to Bobby and says "want to take your coat off with me?"	YES Bobby will look at peer within 5 seconds	NO	NO
Peer pushes Bobby's wheelchair to coat closet and helps him with coat. He pauses at sleev and says "Your turn."	YES Bobby acknoledges turn by smile or vocalization	NO	YES Bobby grasps sleeve
Peer hands hangar to Bobby	YES Bobby acknoledges turn by smile or vocalization	NO	YES Bobby grasps hangar
Peer guides Bobby to hang up coat	NO	NO	YES Bobby grasps hangar and coat

Table 5b. *Example routine matrix*

Activity Schedule Matrix-Routine Matrix

Activity	Objectives/Outcomes Skills to Teach		
Mealtime	**Communication**	**Self-help**	**Fine-motor**
Washing his hands before mealtime with assistance from oldest sibling	Knows routine: Sibling will wait for Cameron to sign "water" before turning it on	Drying his own hands on towel	Turning off bathroom light when finished
Helping to set table	Providing him 1-2 things so he has need to request more	-----	Putting small objects on table (e.g., silverware); taking napkins out of holder
Getting into and sitting in highchair	Signs "up" or "sit"	-----	-----
Asking for food or drink and requesting more food or drink	Indicates what he wants by signing or pointing	Assist him in pouring more drink or dishing more food	Grasping spoon to serve self food, holding own cup when pouring
Indicating when finished	Signs "all done"	Assisting in taking bib off chest	Handing his empty plate and silverware to person clearing the table

Table 9. *Activity schedule matrix-routine matrix*

Step 3: Use Outcome or Objective to Measure Skill Attainment

It is critical to collect data for monitoring the effects of the interventions that are implement. It will be necessary to determine specific targets or behaviors for monitoring progress of the child and the family a home component is part of the intervention. These targets can come from the IFSP outcomes or the IEP objectives defined by the team. It has been suggested that monitoring three to five targets is an optimal and effective number (Bricker & Cripe, 1992).

The team would need to make decisions regarding when and where to collect data based on the program resources and the child's and family's needs. Bricker and Cripe (1992) suggest that probe procedures can be used in programs with many children and limited staff. In general, it is best to collect data on young children in the natural situation where the targeted behavior would occur. For example, if a child is working on initiating rolling toward a choice of desired object, data would be collected when choices are given to her in the natural context of preparing lunch, playing, or any other familiar daily activity.

Observational systems

There are a variety of methods for collecting progress data which include a) observational systems, b) rating scales, c) permanent products, d) and anecdotal records. The type of system to be used is based on several factors:

1) the abount of time the interventionist has,
2) the setting,
3) child characteristics, and
4) the nature of the objective (i.e., motor versus communication) (Bricker & Cripe, 1992).

Observational systems are ideal if adequate staff are available because detailed information on frequency and duration of behaviors can be gathered. In addition, the data can be collected in natural settings.

On any form for an observational system in general, objectives and target behaviors should be written on the form and a method for recording responses is needed.

You will need to determine the length of the data collection period for each child. This will depend on factors such as the type of response and staff time. Responses that require few trials (i.e., gestures) will require less time. Some responses will require more extended time if the child needs multiple opportunities to demonstrate behavior (i.e., initiating social interactions).

Bricker and Cripe (1992) provide examples of several observational formats if you are interested in how to set up an observational system. Their standard form includes

- *space for the child's name*
- *date*
- *observer's name*
- *the activity*

Columns across the page are designated for the child's objectives, opportunities (or antecedents), target behaviors, and outcomes (or consequences). A final column for responses is created so that both correct and incorrect responses can be recorded. Also, space for 'no response' and 'other responses' can be included.

Rating scales

Rating scales are used to indicate whether or not a targeted behavior occurs, but they do not provide detailed data on frequency or circumstances surrounding the behavior as observational systems do. A rating scale can be a chart or recording form on which intervention targets are listed. Access to them can be fairly simple so that marks can be put on them throughout the day when appropriate (e.g., one goal for Cameron was to use a spoon rather than his fingers to eat foods such as pudding, yogurt, cottage cheese, etc.; therefore a chart was put on the wall by the table so that occurrences of the behavior could be quickly marked. Later Cameron's sister wanted to help out and the family laminated the chart onto her placemat and she used a wipe-off marker to record his use of utensils during the dinner meal.

Permanent products

Such products include videotapes, audiotapes, photographs, or written/drawn materials. Changes made on target behaviors can be documented in this way (i.e., changes in head position while sitting). Although useful, these products may pose problems in terms of being difficult to store or may require extensive time commitments if video or audiotapes need to be analyzed.

Anecdotal Records

Anecdotal records are accounts of events or activities that are written down following their occurrence. Since they are written from memory, these records may be less objective and less accurate than recording behavior as it occurs. It is suggested that anecdotal records may be helpful if used in conjunction with another more objective type of data collection method.

Step 4: Analyze Effectiveness of Intervention

It may be helpful to think about the effectiveness of intervention for young children with severe disabilities in terms of a continuum of achievement. Lehr (1989) has described this continuum in terms of a) independent to dependent on tasks, b) partial participation full participation, c) difficult to easy to provide care for, and d) pleasant to unpleasant to care for.

Each outcome or objective should have the following evaluation activities to accompany it:

1. identifies the person(s) responsible for monitoring progress
2. describes mutually agreed upon criteria for measuring success
3. specifies timelines for review
4. breaks outcome or objective into small steps that can be attained in approximately three months, (as needed)

Summary

The processes of screening, evaluation, and assessment for infants and toddlers described in this chapter are likely to lead to successful interventions. This success requires participating professionals to establish productive relationships as a team and that the processes be family-centered. Carefully planned screenings, evaluations, and assessments are vital because they serve as the foundation for building programs that can be the most helpful to children and their families.

Service providers have the skills to be effective team members and to provide quality screenings, evaluations, or assessments of infants/toddlers and their families, thereby facilitating effective intervention. The goal for a team with each child and family is to gather information in a manner that respects their unique circumstances. The team needs information that most accurately reflects the current functioning of the child and his or her family. Procedures need to e established to update the assessment information on an on-going basis. It is crucial that intervention with young children like Cameron, who have dual sensory impairments be founded on solid information from quality assessment processes. The team's role in making this happen is vital and essential to the success of any intervention program.

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Appendix A
Selected Assessment Tools

Selected Assessment Tools

Category	Purpose of category	Instruments	Publisher/ Address	Age Span/ Unique Features
Curriculum-based Child mastery of objectives within a continuum of objectives. Linked to curriculum	Identify individual treatment objectives. Track child progress and provide feedback for instructional changes. Offer common base for interdisciplinary diagnosis and treatment. Ideally provides link to available curriculum.	Early Learning Accomplishment Profile (E-LAP)	E-LAP:Glover, Preminger, & Sanford, 1978 Kaplan Press P.O. Box 25408, Winston-Salem, NC 27114-5408	Birth - 3 years Covers 6 domains
		Learning Accomplishment Profile (LAP)	LAP: Sanford & Zelman, 1981 Kaplan Press P.O. Box 25408, Winston-Salem, NC 27114-5408	3-6 years Covers 7 domains
		Assessment, Evaluation, & Programming System for Infants and Toddlers (AEPS)	AEPS, Vol 1: Bricker, 1993 AEPS, Vol 2: Cripe, Stentz, & Bricker, 1993 Brookes Publishing P.O. Box 10624 Baltimore, MD 21285	Birth - 3 years Covers 5 domains Includes Family Report & Family Interest Survey
		The Hawaii Early Learning Profile (HELP) Checklist	Furuno, Inatsuka, O'Reilly, Hosaka, Zeisloft, & Allman, 1988 Vort Corp PO Box 60132 Palo Alto, CA 94306	Birth - 3 years Covers 685 behaviors Covers 7 domains
		Insite Program (Communication Subscale included)	Morgan, Terry, Snow, Watkins, Jensen, & Clark, 1989 Home Oriented Program Essentials 1780 N. Research Park Way Suite 110 Logan, UT 84321	Parent training & support materials Alternative address: SKI*HI Institute Dept. of Communicative Disorders Utah State Univ. Logan, UT 84322-9605

Category	Purpose of category	Instruments	Publisher/ Address	Age Span/ Unique Features
Adaptive-to-handicap Modification of assessment content to include or permit alternative sensory or response modes.	Obtain valid assessment by circumventing handicap. Identify goals for instruction. Specify strategies for learning.			
		Oregon Project for Visually Impaired and Blind Preschool Children Skills Inventory	Brown, Simmons, & Methvin, 1979 Jackson Co. Ed. Services 101 N. Grape St. Medford, OR	Birth - 5 years Covers 700 behaviors Covers 7 domains
		Callier-Azusa Scales (G)	Stillman, 1978 Univ. of Texas, Dallas Callier Center 1966 Inwood Road Dallas, TX 75235	Birth - 9 years Covers 5 Domains
		Callier- Azusa Scale (H): Scale for the Assessment of Communication Abilities	Stillman & Battle, 1985 Callier Center 1966 Inwood Road Dallas, TX 75235	Birth - 9 years Communication & Language
		Carolina Curriculum (Infant & Preschool Versions)	Infant: Johnson-Martin, Jens, & Attermeier, 1986 Brookes Publishing Co.	Birth - 2 years Covers 6 domains
			Preschool: Johnson-Martin, Attermeier & Hacker, 1990 Brookes Publishing Co. P.O. Box 10624 Baltimore, MD 21285	2-5 years Covers 6 Domains
		Receptive Expressive Language Assessment of the Visually Impaired B-6	Outreach Project Ingham School District 2630 W. Howell Rd. Mason, WI 48854	Birth - 6 years
		Reynell-Zinkin Scales (Manual)	Reynell, 1984 Stoelting 620 Wheat Lane Wood Dale, IL 60191	Birth - 5 years 6 profile areas Norms for blind and additional disabilities

Category	Purpose of category	Instruments	Publisher/ Address	Age Span/ Unique Features
Norm-based Comparison of a child's skills and characteristics relative to an appropriate referent group	Describe child characteristics relative to peers.			
		Battelle Developmental Inventory	Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1984 DLM Teaching Resources 1 DLM Park Allen, TX 75002	Birth - 8 years Covers 5 domains Includes 341 items Adjustments for sensory and other impairments
		McCarthy Scales of Children's Abilities	McCarthy, 1972 Psychological Corp. Harcourt Brace & Co. 555 Academic Ct. San Antonio, TX 78204-2498	2.6 - 8.6 years Covers 6 domains
Judgment-based Impressions of developmental/ behavioral traits (e.g., reactivity, motivation, normalcy)	Detect perceptions and bias. Estimate nebulous/difficult to observe processes. Enhance scope of assessment battery.			
		Carolina Record of Individual Behavior (CRIB)	Simeonsson, 1979 Child Development Ctr. Univ. of North Carolina Chapel Hill, NC	Covers consoloability, reactivity, frustration and goal directiveness
		System to Plan Early Childhood Services (SPECS) (formerly known as Perceptions of Developmental Status)	Bagnato & Neisworth, 1987 American Guidance Service, Inc. 4201 Woodland Rd. Circle Pines, MN 55014-1796	

Category	Purpose of category	Instruments	Publisher/ Address	Age Span/ Unique Features
Interactive Examination of social capabilities of the infant and caregiver and the content and extent of synchrony between them Social Emotional Development		Observation Guidelines for Social-Emotional Development	Linder, 1990 Transdisicplinary Play-Based Assessment Brookes Publishing Co. PO Box 10624 Baltimore, MD 21285	Examines a child's behavioral style and interactions with parent(s), facilitator, & peers.
		Observation of Communicative Interaction (OCI)	Klein & Briggs, 1987 M. Diane Klein, Ph.D. Division of Special Ed. California State University Los Angeles, CA 90032	Rates parent-child interactions across 10 communicative interaction categories.

Family Needs Assessment Instruments

Instrument/Author	Source	Areas Assessed
AEPS Family Interest Survey J. Cripe & D. Bricker	Bricker, D. (1993) Assessment, evaluation, & programming systems (AEPS) for infants and children: Vol. 1. Baltimore: Paul H. Brookes.	30 itmes that can be used to identify and prioritize family interests. Space provided for families to list additional needs.
AEPS Family Report D. Bricker	D. Bricker, (1993). Assessment, evaluation, & programming systems (AEPS) for infants and children: Vol. 1. Baltimore: Paul H. Brookes.	64 items that assist parents to participate in the assessment of their child's skills and abilities.
Family Information Reference Inventory A. Turnbull & H. Turnbull	(1986). Families, professionals, and exceptionality: A special partnership. Columbus, OH: Merrill.	Parent rates 37 needs in areas of home, teaching, working with professionals, future planning, & family relaxation
Family Needs Survey D. Bailey & R. Simeonsson	FAMILIES Project Frank Porter Graham Child Development Center 301 NCNB Plaza, Rm 322A Chapel Hill, NC 27514	35 items rated by parents in terms of information they need or want about social and professional support, financial needs, etc.
How Can We Help? Child Development Resources	Child Development Resources. (1989). In B. Johnson, M. McGonigel, & R. Kaufmann (Eds.), Guidelines and recommended practices for the individualized family service plan (pp. E11-E13). Washington: Association for the Care of Children's Health.	39 items posed to parents to decide what the program can offer; covers need for child care, information, social & medical service, etc.
Parent Needs Survey M. Seligman & R. Benjamin-Darling	(1989). Ordinary families, special children: A systems approach to childhood disability. New York: Guilford.	26 items include rating of need for household items, transportation, child care, etc.
Support Functions Scale C. Trivette & C. Dunst	Dunst, C., Trivette, C., & Deal, A. (1988). Enabling and empowering families: Principles and guidelines for practice. Cambridge, MA: Brookline.	20 different types of assistance are listed to be rated including finances, information needs, role demands, etc.

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Parent/Family Assessment Instruments

Instrument/Author	Source	Areas Assessed
HELP Family-Centered Interview S. Parks	Vort Corporation PO Box 60132 Palo Alto, CA 94306	Family's assessment of their child's development and the family's primary concerns, priorities, & resources related to the development of their child. Examines daily activities.
Parent Attitude Assessment Author	ECE-SMH Center Dept. of Special Education Arizona State University Tempe, AZ 85281	Parent(s) attitudes toward services, staff, their child, themselves, and their parenting abilities
Parent Questionnaire Preschool Handicapped Program Author	Preschool Program Director Board of Cooperative Educational Services Yorktown Heights, NY 10598	Parent(s) involvement in program, attitude toward services, perception of change in child, and program strengths and weaknesses
Parent Scales Author	Project RHISE Outreach Children's Development Center 650 N. Main Street Rockford, IL 61103	Parent(s) attitudes and feelings
Readiness Levels of Parents Author	Project RHISE Outreach Children's Development Center 650 N. Main Street Rockford, IL 61103	Parenting skills and abilities, primarily in relationship to educational environment

Parent-child Interaction Assessment Instruments

Instrument/Author	Source	Areas Assessed
Interaction Rating Scales G. Clark & R. Siefer	(1985). Assessment of parents' interactions with their developmentally delayed infants. Infant Mental Health Journal, 6, 214-225.	Assesses parental sensitivity to child behavior and interaction during free play including affect, reciprocity, interaction style, etc.
Nursing Child Assessment Teaching Scale (NCATS) (1978) K. Barnard	Nursing Child Assessment Satellite Training University of Washington School of Nursing, WJ-10 Seattle, WA 98195	Assessment of parent and child behaviors during a structured interaction. Parent verbalization, positioning, and sensitivity are assessed as are the child's clarity of cues and responsivity.
Nursing Child Assessment Feeding Scale (NCAFS) (1978) K. Barnard	Nursing Child Assessment Satellite Training University of Washington School of Nursing, WJ-10 Seattle, WA 98195	Assessment of parent/child behavior during a feeding interaction. Parent verbalization, positioning, and sensitivity are assessed as are the child's clarity of cues and responsivity.
Observation of Communicative Interaction (OCI) (1987) M. Klein & M. Briggs	(1988). Facilitating caregiver-infant communication. Los Angeles: California State Univ. Division of Special Education.	10 item scale rated by professional during mother-infant interaction
Parent/Caregiver Involvement Scale (PCIS) D. Kasari, M. Comfort, & S. Jay	Dale Farran Department of Child Dvlpmnt. and Family Relations University of North Carolina Greensboro, NC 27412-5001	Describes parental involvement in terms of amount, quality, and appropriateness during a play interaction within 11 behaviors.
Parent Behavior Progression R. Bromwich (1981)	Center for Research Development and Services Dept. of Educ. Psychology California State University Northridge, CA 91330	Parenting behavior assessed within interactions with infant in terms of pleasure, awareness of distress, variety of stimulation, etc.
Social Interaction Assessment/Intervention J. McCollum & V. Stayton	(1985). Infant/parent interaction: Studies and intervention guidelines based on the SIAI model. Journal of the Division for Early Childhood, 9(2), 125-135.	Assesses parent-child interaction during play including communicative social interaction, vocalization, turn-taking, etc.

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Appendix B

Evaluation and Selection Criteria Rating Form for Prescriptive Developmental Assessment Measures

Scale_____ Publisher_____

Address_____ Phone_____

Ratings: 0=Does not meet criterion
1=Partially meets criterion
2=Fulfills criterion

Developmental Base

_____ 1. Are the activities within the assessment measure hierarchically structured and sequenced according to a developmental task analysis or developmental process format?

_____ 2. Is the design of the scale based upon some reputable developmental orientation?

Multidomain Profile

_____ 3. Does the assessment measure organize items into several distinct yet interrelated subdomains?

_____ 4. Does the multidomain organization of competencies allow the detection of fully acquired (+), emerging (±), and absent (-) capabilities?

_____ 5. Does the scale offer separate scores/indexes for each subdomain?

Multisource Sample

_____ 6. Does the assessment measure integrate information obtained from several people (parent, professional) and methods (observation, ratings, performance, interview)?

_____ 7. Can several different team members independently contribute information to complete the scale?

Curricular Links

_____ 8. Is the assessment measure organized into developmental domains similar to those surveyed in the early intervention program's curriculum?

_____ 9. Does the scale contain tasks/items similar in content and behavioral demands to those included in the program's developmental curriculum?

Adaptive options

_____ 10. Does the scale provide structured modifications of tasks to accommodate the sensory and response limitations of young children with sensory, motor, and adaptive deficits?

_____ 11. Can a professional "clinically" alter the tasks within the scale to accommodate children with various handicaps?

_____ 12. Does the scale provide or allow modifications for scoring the performances of young handicapped children?

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Ecological Emphasis

_____ 13. Does the scale provide information on the child's interaction with the physical and social environment (e.g, attention to tasks, peer interaction, need for prompts and limits, ability to cope with new situations)?

_____ 14. Does the scale integrate information from both home and school?

Technical Support

_____ 15. Has research established the reliability, validity, and diagnostic utility of the assessment measure.

_____ 16. Has the scale been adequately standardized and/or field-tested in general?

_____ 17. Has the scale been field-tested and/or standardized on any handicap group?

_____18. Does the scale contain separate norms or any comparative data for young handicapped children?

_____ Total Evaluation Score

_____ /36 (total possible score) = ___%

From: Bagnato, S., Neisworth, J., & Munson, S. (1989). Linking developmental assessment and early intervention: Curriculum-based prescriptions (2nd ed.). Rockville, MD: Aspen.

Appendix C

Glossary of Screening and Assessment Terms

Glossary of screening and assessment terms

Screening: a large-scale, one-time procedure designed to determine the presence or absence of developmental problems. Screening is done to identify those infants or children considered at risk, that is, who will probably need special services to aid their normal development. Screening is usually quick and inexpensive.

Assessment: the process by which children are identified as handicapped and in need of special education services. Testing is not synonymous with assessment, for a test may yield only a score whereas a good assessment will yield much information useful for educational programming. Assessment is not so much a process as part of a process; the other part is intervention, without which the assessment is useless.

Standardized tests: Tests that include fixed administration and scoring procedures, empirical testing of items, a standard apparatus or format, and tables of norms. They most often yield a score or set of scores that may be used to compare a child's performance with those of others in his or her age group. Standardized tests may be either *norm referenced* or *criterion referenced*. Most tests are norm referenced.

Norm-referenced tests: Tests that provide tables of scores describing the test performance of a reference group of children, usually from various parts of the country and from different socioeconomic backgrounds, against which a particular child's score may be compared. The tabled scores are usually expressed as grade- or age-equivalents, standard scores, or percentile equivalents.

Criterion-referenced tests: Tests that consist of series of skills in academic or developmental areas, grouped by age level. They compare the child's performance on each test item against a standard or criterion that must be met if the child is to receive credit for that item. The child is measured against the criterion rather than against norms established by other children's performance. Often informal teacher assessmennts are based on criterion-referenced techniques. Some standardized tests, nonetheless, are criterion referenced.

Ordinal scales: Scales that contain items arranged in the order in which they emerge developmentally. Many standardized tests use a cluster of items at each level that are typical of development at that level and that are arranged in order of increasing difficulty. However, within each age level, the items simply represent development at that level and do not emerge sequentially as items in ordinal scales do. For example, on the Uzgiris-Hunt ordinal scales a baby must have mastered reaching before grasping, whereas on the Binet standardized scale a child may pass some items at the 4-year-old level before mastering all 3-year-old items.

Validity: Whether a test measures what it purports to measure. This may be assessed by investigating its content validity (the actual items on the test), construct validity (the underlying construct, such as. intelligence or creativity, that is being tested), or predictive validity (how well the test predicts future performance in the same or a related area).

Reliability: A measure of how accurate and consistent a test is. This is usually ascertained by administering the test to the same person more than once and comparing scores (test-retest reliability), or by administering first the odd items and then the even items of the test to the same person and comparing the two resulting scores (split-half reliability). Standardized norm-referenced tests usually have more extensive information available concerning their validity and reliability than do criterion-referenced tests. However, this does not necessarily mean that the former are superior to or more useful than the latter.

From: Thurman, S., & Widerstrom, A. (1990). Infants and young children with special needs: A developmental and ecological approach (2nd ed.). Baltimore: Paul H. Brookes.

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Appendix D

The Infant - Toddler Characteristic Profile

Ellin Siegel-Causey, Ph.D.

Department of Special Education and Communication Disorders

University of Nebraska-Lincoln

Lincoln, NE 68583

2nd Research Edition, 1995

Dedicated to Deborah A. Dale

The Infant-Toddler Characteristics Profile

Ellin Siegel-Causey, Ph.D.

2nd Research Edition, 1995

Dedicated to Deborah A. Dale

Chronological Age			
Dates of Documentation			

Name _____

Birthdate _____

Family Services Coordinator _____

Information Collected by _____

Sources of Information _____

Introduction

The *Infant/Toddler Characteristics Profile* is designed to assist service providers in gaining information related to those unique characteristics that influence the infant's participation in the world and interactions with others. It is intended for use with infants and toddlers ages birth to three years and is designed to augment the information in the child's standard assessment portfolio. The areas addressed by *The Infant/Toddler Characteristics Profile* include:

1) behavioral style and temperament
2) learning style
3) interactional style and communicative behaviors
4) adaptation patterns
5) environmental influences

Individuals using *The Infant/Toddler Characteristics Profile* will gain descriptive assessment information that is useful for designing an intervention program that is sensitive to and shaped by the young child's unique characteristics.

The Infant/Toddler Characteristics Profile provides a means for gathering information about influential infant characteristics in the five areas listed above through observation and interview. It is designed for use by infant specialists, therapists, and any other professional interested in supplementing their standard assessments. The instrument itself is divided into the five areas. Each area is defined and followed by selected characteristics which should form the foundation for assembling descriptive information about the infant. In addition, a list of relevant questions for parents, interventionists, and/or therapists is provided for each area. The individual using this system is encouraged to develop his or her own strategy for documenting the information gathered about the child.

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* Interactional style and communication

Name Observer

Definition: Those characteristics that typify how the infant/toddler expresses self and interacts with others.

Areas of observation and documentation

- readability: clarity of signals and cues
- expressions: vocalizations, verbalizations, facial expressions, muscle tone, body movements and gestures, crying
- initiations for contact or response of others
- responsiveness to others
- patterns of reciprocity
- preferred communication style of others
- approachability
- reactions to unfamiliar adults

Questions for caregivers and/or service providers

* How easily can you tell what your child wants to do?
* How does your child tell you he/she is: tired, bored, excited, upset, playful, etc.?
* Does your child respond more to quiet voices, playful voices, or loud voices? Does this vary?
* How does your child respond to others who try to interact with him or her in a playful manner?
* Does your child play any games with turn-taking elements like "peek-a-boo" or "I'm going to getcha"? Does he/she take turns in other ways?

* Adaptation patterns and behaviors

Name Observer

Definition: Those characteristics that typify the ways the infant/toddler's disability impacts on his or her participation in the environment and interactions with others.

Areas of observation and documentation

- adaptation to caregiving demands and parental expectations (goodness of fit): ease to fall asleep, self comforting behaviors, attachment
- visual contact with environment/others
- auditory contact with environment/others
- tactile contact with environment/others
- muscle tone and movements
- ease of participation in self help/caretaking routine (feeding, diapering, etc.)
- impact of child disability on his or her: exploration of the environment, interactions with others, ability to learn, ability to move around/play

Questions for caregivers and/or service providers

* Does your child's demands for caregiving match your expectations?
* To whom does your child seem attached?
* Does your child make contact with his or her eyes, hearing, touch? How?
* How does your child participate in such activities as eating, diaper changing, or dressing?
* Does your child have any preferences for such things as how people should interact with him or her? playtime activities? how he or she likes to be fed? handled? positioned?
* How does your child's disability seem to affect his or her interactions in the world (e.g., with others, with toys, in routine activities such as eating, dressing or sleeping)?

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* Behavioral Style and Temperament

Name Observer

Definition: Those characteristics that typify the infant/toddler's general emotional tenor and disposition.

Areas of observation and documentation

- temperament
- emotions (intensity, range: distress→joy)
- irritability
- patterns of sleepiness, drowsiness, alertness; daily rhythms (behavioral state)
- social interests and preferences (solitary, group, with one person); responsiveness to others
- attachment patterns
- reactions to presence or absence of primary caregiver
- reactions to stress/stimulation
- range of self-comforting behaviors
- energy level
- expression of likes and dislikes

Questions for caregivers and/or service providers

* How would you characterize your child's temperament?
* How does your child tell you when he or she: has "had enough"? is tired? is ready to do something else? is having a good time? is frustrated? is uncomfortable? is happy?
* Is your child's day predictable in terms of when he/she is sleepy, alert, playful?
* Does your child prefer to play alone with someone watching nearby? Play with someone else?
* How does your child react to stress?

* Learning Style

Name Observer

Definition: Those characteristics that typify the ways in which the infant/toddler learns about his/her world, acquires new behaviors, and involves self in activities and interactions.

Areas of observation and documentation

- patterns of organized attention
- approach to tasks
- preferred activities
- initiative
- range of activities
- exploration of environment, toys/objects
- preferred learning modality
- reaction to novelty
- intensity of involvement

Questions for caregivers and/or service providers

* How does your child seem to learn?
* How does he/she go about conquering a new skill?
* How does your child react to new things? New people?
* Does your child initiate interactions with novel materials/toys?
* If your child is interested in a toy/material how long will he/she play with it?
* What items is he or she most interested in now?
* If you handed your child a toy, what is he or she likely to do with it?
* What kinds of things does your child like to do? How does he or she let you know that?

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* Environment

Name Observer

Definition: Those characteristics of the material and human environment that impact on the infant/toddler's behavior and interactions.

Areas of observation and documentation

- description of child's primary environment(s)
- primary people in the child's environment
- activities in which the child participates in his or her environment
- demands/expectations present in the child's environment
- skills required in the child's environment
- barriers to child's participation in the environment (including limitations imposed by child's disability)

Questions for caregivers and/or service providers

* Where does your child spend most of his or her time?
* What people play an important role in your child's life?
* What kinds of activities does your child engage in while he or she is:
  - at home?
  - at the babysitters?
  - at [school]?
  - out and about?
* What kinds of things does your child need to be able to do while engaging in these activities?
* Can you think of anything in your child's environment that helps him or her to learn new things or to gain new skills?
* How do the people around him or her seem to help your child to grow and develop?

NOTES

Individuals interested in using *The Infant/Toddler Characteristics Profile* for intervention, educational, or research purposes may copy this form as long as the source is recognized and cited. Address correspondence to the author at: Department of Special Education & Communication Disorders, University of Nebraska-Lincoln, 202 Barkley Center, Lincoln, NE 68583.

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Dedicated to Deborah A. Dale

This profile was developed collaboratively and it was our vision to conduct research together and to publish the protocol. Deborah died unexpectedly in February 1993 and this protocol is dedicated to her. Deborah was a consummate early childhood professional and a dear friend, her memory lives on in each life she touched. I am a better person because she has been part of my life.

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Appendix E

Example of Objectives Embedded in Routines for Activity-based Intervention

Example of objectives embedded in routines for activity-based intervention

	Objectives	
Bobby's routine	Responds to communication from familiar adults/peers	Initiates rolling toward a desired activity or person
Waking up	Parent greets Bobby and initiates familiar game then pauses for response.	Parent cheerfully says hi then encourages Bobby to come closer for a hug
Dressing	Hold up two items and ask which he wants to wear	Place him near dresser and sit on floor while enthusiastically encouraging him to roll there
Mealtime/Snack	Ask if Bobby wants more when he finishes a portion of his favorite food	Offer a choice of crackers and encourage him to roll toward cabinet to choose
Washing up	Present a warm washcloth and say "Time to wash!"	Encourage Bobby to roll toward brightly colored bin where his peers are placing their used towels.
Playtime	Use wind-up toy that will run down and look at Bobby and then to the toy when it stops moving.	Place Bobby near a group of his peers who are playing during free time.
Outside play	Bobby notices peers on merri-go-round so adult stops it and looks at him.	A peer points out more than one place to play then asks Bobby to choose which one.

Appendix F

Mealtime/Snack Routine

Mealtime/Snack Routine

(focus on fine motor and communication skills)

Description/Sequence

Before the meal, have several types of food available of differing shapes, colors, and smells. Hold Sandy next to the table and have her reach and lean toward the foods that she sees. After she has had the opportunity to view the meal and you have described the food, place her in her seat.

Have some of the foods during the meal out of her reach so that she must practice reaching and grasping repeatedly. Encourage her to grasp her napkin as well as other materials you might have available (i.e., utensils, cups). When she reaches, you can name the objects and encourage Sandy to vocalize and focus her attention between you and the foods (joint attention).

You can initiate games such as "Where's the peanutbutter celery?" by having it behind something like the juice glass or pitcher.

When mealtime is over, have Sandy reach, grasp, and hand things to you. Clean off the table together and put items in a dish bin.

Variations

As Sandy's reaching and grasping improves, try using materials that are smaller and that have different textures. Such variations may help Sandy generalize her reaching and grasping skills. Introduce items that have different shapes so that she learns to accommodate her grasp to a variety of shapes.

Materials

Various sizes and shapes of foods, utensils, cups, dishes

Napkins (paper and cloth)

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Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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