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ABSTRACT

Part of a volume which explores current issues in service delivery tc infants and toddlers (ages birth to 3) with handicapping conditions, this chapter provides an overview of the relationships among screening, assessment, and curriculum in programming for this population, with attention to the potential impact of Public Law 99-457 and the participatory role of families. The following terms are discussed and defined in an effort to establish a common terminology: identification, eligibility, referral, screening, assessment, diagnosis, evaluation, community coordination, and publicity are important elements of screening and other child-find processes. Child assessment is carried on at regular 3-month or 6-month intervals by a multidisciplinary team of professionals. Sharp distinctions between screening and assessment clarify personnel functions and agency responsibilities in interagency efforts. A discussion of curriculum planning focuses on family participation, the Individualized Family Service Plan, and long-range child goals, with sample functional goals and curriculum activities provided. Finally, related issues such as eligibility requirements, selection of appropriate assessment instruments, and continuum of family participation are discussed. The chapter concludes with lists of references, brief curriculum descriptions, and selected assessment instruments. (JW)

3. Linking Screening, Identification, and Assessment with Curriculum

Patricia L. Hutinger

❑ This chapter has two purposes. First, the information gathered about a child and family during the identification processes (screening, diagnosis, and assessment) is examined, relationships among the processes are identified, and the resulting early intervention curriculum and services are explored. Second, some of the issues related to these relationships are discussed. Screening information is a preliminary step in the identification process. It is the initial process for children who are at risk or who seem to demonstrate behavior that is below developmental level; however, it is not necessary for children who have a diagnosed handicapping condition. The information gained in the identification process, which includes diagnosis, and in the subsequent assessment is the information used to plan appropriate activities for the child and family.The term "curriculum" in infant programs is used in a broad sense to cover the entire range of developmental intervention activities and services and does not refer to narrow academic curricula used by the schools for older children. Figure 1 shows a system that incorporates the identification processes into an early intervention framework.

"Curriculum" is used to cover the entire range of developmental intervention activities.

THE IMPACT OF PUBLIC LAW 99-457

❑ The Education of the Handicapped Act Amendments (P.L. 99-457), passed in late 1986, addresses the relationships among screening, assessment, and curriculum. The Act defines the components of a statewide system to provide a free, appropriate public education to handicapped children from birth through age 2. (The terms "birth through 2" and "birth to 3" are used interchangeably here since they both refer to the same period in a child's life.) Minimum components are required for comprehensive, coordinated, multidisciplinary programs of early intervention services for all handicapped infants, toddlers, and their families.

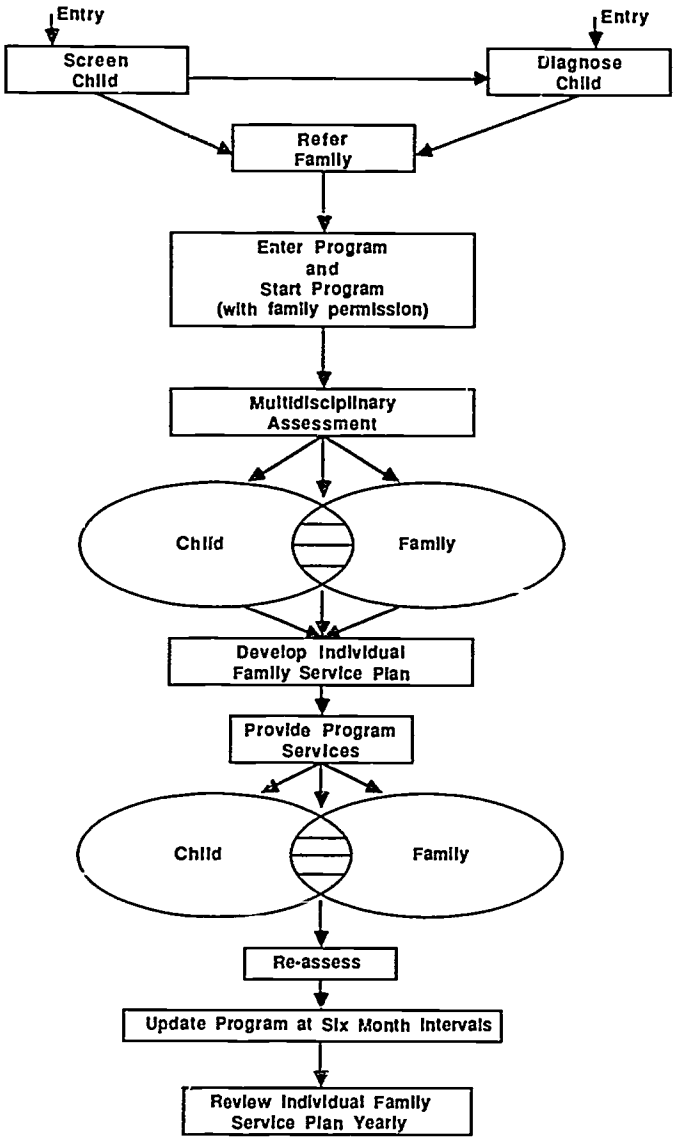
In addition, Section 676 of the Act requires that a timely, comprehensive, and multidisciplinary evaluation of the functioning of each handicapped infant and toddler and the needs of the families must be performed in order to assist appropriately in the development of the children. Individualized family service plans and case management are also required. The new law results in infant personnel no longer writing only individual service or intervention plans for children, but also plans for the entire family. Curriculum then includes activities and services for both children and family members. This chapter focuses primarily on the child portion of the program, indicating points of contact with family roles and participation, while Chapter 5 focuses on families.

The new law results in plans for the entire family.

The Act also includes a comprehensive child find system and a system for referrals to service providers that includes timelines and provides for participation by professionals from primary referral sources such as hospitals, physicians, public health facilities, and related agencies.

Provisions of the law speak directly to linkages between screening, assessment, and curriculum. Those linkages are expected to be made in a timely fashion since a part of Section 676 addresses timelines for child find and referrals. Section 677 indicates that the individualized family service plan must be developed within a reasonable time after the assessment, but notes that with the parents' consent early intervention services may commence prior to the completion of the assessment. The

Figure 1. A System of Identification Processes and Services for Families of Handicapped and At-Risk Children Under 3 Eligible for Early Intervention Services.



individualized family plan must be reviewed once a year with a documented update of the program provided to the family at least at 6-month intervals.

Public Law 99-457 defines "early intervention services" as developmental services designed to meet a handicapped infant's or toddler's developmental needs (physical development, cognition, language, social, and self-help skills) that are provided in conformity with an individualized family service plan. Services specified in P.L. 99-457 include:

- Family training, counseling, and home visits.
- Special instruction.
- Speech pathology and audiology.
- Occupational therapy and physical therapy.
- Psychological services.

- Case management services.
- Medical services only for diagnostic or evaluation purposes.
- Early identification, screening, and assessment services.
- Health services necessary to enable the infant or toddler to benefit from the other early intervention services.

Services are to be linked together.

If these services are to be provided in a coordinated way, then we must link them together in a comprehensive, thoughtful, and effective manner.

AN EFFECTIVE LINKING SYSTEM

The link is the handicapped child.

The solder is the coordinated interagency system.

The key is a case manager.

❑ What is the link between screening, assessment, and curriculum? The link is the handicapped child, together with the coordinated, accurate, and timely information collected about that child, including strengths and needs. However, the solder, or process that holds the link together is the coordinated interagency system for linking, which must be provided by others—the community, the family, and the team of early intervention service providers—together with a consistent, sound developmental philosophy. The key to the system is a single point of reference, a case manager who can keep all the information about the child and family from a variety of disciplines organized and coordinated so that decisions and activities are consistent with what is known. If the case manager operates effectively, families are more likely to benefit from all the available resources the interagency system can provide.

Both Bricker (1986) and Neisworth, Willoughby-Herb, Bagnato, Cartwright, and Laub (1980) have addressed linking assessment with intervention or curriculum target objectives. Bricker argued convincingly for an approach that links assessment, intervention, and evaluation through the use of assessment measures that are consistent with program philosophy as well as through analysis of progress at three levels: (a) daily/weekly progress; (b) progress toward long-range goals and training objectives; and (c) progress toward program goals. She also argued that since few other useful models exist at the present time, the normal developmental sequences used as a general reference provide a useful framework to build generative response classes that lead to independent functioning and problem-solving skills. Neisworth and his associates (1980) have noted that developmental scales and most preschool curricula are constructed on the normal sequence of developmental tasks, abilities, and behaviors. Most developmental scales and curricula focus on similar developmental areas: motor, language, cognitive, personal, and social. Although "readiness" is included in their listing, it is not an appropriate area for measurement in infant and toddler programs since its connotation is primarily academic and intended for older children.

Scales and curricula focus on similar areas.

Insisting that the processes of assessment, intervention, and subsequent reassessment must be linked and are inseparable (Bricker, 1986; Neisworth et al., 1980) is essential, but not enough. The tools we use to accomplish these processes must be consistent with a sound program philosophy. Bricker (1986) has laid the framework for this clearly; her work should be reviewed by early intervention personnel and planners.

Measures are only tools.

Yet the measures are only tools; they do not stand alone, nor are they the rationale for the program. Tools are only instruments to provide more effective services to children and their families. It is because children

demonstrate handicaps or delays that families become a part of early intervention services. Without the child, families would have no need for services or individualized family service plans, nor would intervention programs need to exist.

When you solder two pieces of metal together, the timing must be right. If the metal gets too hot, it melts. If it doesn't get hot enough, the solder doesn't "take" and the two pieces do not hold together. In much the same way, the timing of assessment, intervention, and reassessment activities must be reasonable. Bricker's (1986) system provides for three different assessment timing phases: daily/weekly, quarterly, and yearly. Collection of data at these time periods provides data for three levels of progress analysis: daily activities, long-range goals and training objectives, and program goals.

Timing of assessment, intervention, and reassessment must be reasonable.

Information about children and families, together with the appropriate signed release forms, must be collected and updated on a regular basis. P.L. 99-457 uses a 6-month period with an annual review, but Bricker's suggestion for data collection provides more useful information. All the information should be compiled in well-organized file folders, a computer data base, or a combination of the two, together with the appropriate signed release forms and a checklist to ensure that data are collected regularly at appropriate times. Figure 2 shows a sample record-keeping checklist for children used by the Outreach: Macomb 0-3 Rural Project.

Information must be collected and updated on a regular basis.

An effective linking system is integrated, not fragmented. Information about the child's medical diagnosis must be instantly available when decisions are made about activities that parents want to do at home. Activities and services are also integrated, not isolated. The speech and language specialist must consider the physical therapy goals for the child in planning activities that further communication. All service providers must consider information about the child's preferred toys and play activities, as well as the family's wishes for the child. If a child is to use switches to turn on battery-operated toys, the physical therapist's input is necessary for positioning. A computerized electronic communication program such as *Choices* (Whitaker, 1984) or *Peek 'n Speak* (Whitaker, 1985) for a young physically handicapped child must be initiated by a team consisting of the family members, the speech and language therapist, a technology expert, and other related personnel (depending on the nature of the child's handicap).

Activities and services are integrated not isolated.

Many professionals with widely varied backgrounds and training are involved in gathering information and implementing plans for handicapped children and their families. Physicians, public health nurses, social workers, psychologists, physical therapists, occupational therapists, vision specialists, language therapists, child development specialists, and parents are usually involved in gathering data, planning, and implementing the plans. Fewell (1983b) has reviewed the team approach and team roles in depth. Information gathered in screening and diagnosis is used to identify the children and families in need of birth-to-3 services. Assessment information is used both to plan specific activities and to measure progress, although measures for each must be different.

Many professionals are involved.

ESTABLISHING DEFINITIONS: A COMMON TERMINOLOGY

❑ Often there is confusion among professionals about the specific meanings of terms such as "child find," "screening," "identification,"

Figure 2. A Sample Child Record-keeping Form Used in the Macomb 0-3 Model.

CHILD SUMMARY
Macomb 0-3 Rural Project

Child identification number: _____ Child's name: _____

Child entered Project: _____ (date) _____ C.A. Child terminated Project: (see termination form) _____ (date) _____ C.A.

Evaluation

Test: Alpern-Boll

	1st testing score date	2nd testing score date	3rd testing score date	4th testing score date	5th testing score date	6th testing score date
Physical Age						
Self-Help Age						
Social Age						
Academic Age						
Comm. Age						
Chron. Age						

Test: REEL

	1st testing score date	2nd testing score date	3rd testing score date	4th testing score date	5th testing score date	6th testing score date
Receptive Quotient						
Expressive Quotient						
Language Quotient						
Chron. Age						

Test: Hunt and Uzgiris

Test: _____

"referral," "assessment," "evaluation," and "diagnosis." Sometimes these terms are tossed around as if they all mean the same thing. Sometimes program staff seem to consider the terms synonymous. But they are not! Clarifying what is meant and what is not meant leads to better understanding among professionals from varied disciplines, and makes it much easier for families to understand what is happening, both to them and to their children. Defining terms puts everyone on a similar footing.

Defining terms puts everyone on a similar footing.

Figure 2. A Sample Child Record-keeping Form Used in the Macomb 0-3 Model. (Continued)

Evaluation of Project: Parent Satisfaction Questionnaire:

Dates administered listed below:

_____ _____ _____ _____ _____

Child or parent videotaped:

Dates taped listed below:

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Areas of Delay Statement:

Based upon initial testing and observation of the child, the following areas have been determined in need of concentrated work:*

_____

_____

_____

_____
(CDS)

*For more detailed information, see biyearly goals

	Supplemental Services (dates)			
Medical Diagnosis	_____	_____	_____	_____
Speech Evaluation	_____	_____	_____	_____
Hearing Evaluation	_____	_____	_____	_____
Vision Evaluation	_____	_____	_____	_____
Occupational Therapy	_____	_____	_____	_____
Physical Therapy	_____	_____	_____	_____
Psychological Services	_____	_____	_____	_____

Within the State of Illinois alone, it has often been recommended that terms be defined so that early intervention professionals from varying backgrounds use the same language. In 1980, after reviewing survey data, a study of Illinois preschool program staff, administrators, and parents (Hutinger & Swartz, 1980) recommended establishing agreement on the definitions and accompanying clarification of terms. Five years later, a study of Illinois birth-to-3 programs (Hutinger, Mietus, Smith-Dickson, & Rundall, 1985) reviewed responses from service providers, administrators, and parents, and again recommended clarification of

terms. The Illinois Advisory Council to the Early Childhood State Planning Grant again addressed the issue of term clarification in 1986. Establishing clear definitions is a problem that has been addressed and acted on, but not resolved.

Defining terms is essential to coordination, cooperation, and trust.

Even though defining terms is sometimes called a philosophical exercise in semantics, it is essential if we are to establish coordination, cooperation, and trust among educators, the medical community, social workers, psychologists, speech and language therapists, and others who must join together to mount an effective birth-to-3 program. Indeed, a review of assessment literature reveals differing definitions for processes and functions for tests. Powell (1981) described a number of appropriate infant tests, but combined screening and assessment. Horowitz (1982) discussed scales used by physicians at birth and during the neonatal period, but did not distinguish between screening and assessment in developmental measures. Fewell (1983a) and others (Bricker, 1986; Neisworth et al., 1980; Peterson, 1987) discriminated between screening, assessment, and evaluation. Perhaps one result of the differences among experts on these issues is reflected in the wide variation in assessment procedures used in infant programs. The results of the recent Illinois study of birth-to-3 programs show widespread misuse of tests (Hutinger et al., 1985). For example, some programs routinely use screening tests for assessment purposes to place children in curricular activities. The terms that follow have been defined in a context that will be used throughout this chapter.

Child Find

Activities include mass media events.

❑ *Child find* includes the entire set of activities involved in attempting to locate children who need services. Activities include mass media events and a number of publicity-seeking processes. Child find activities may be preliminary to screening (which is also a child find activity) and are carried out in order to locate children who need intervention services. Child find activities are designed to notify community members that screening and other comprehensive services are available for children who may need special services for one reason or another. Publicizing the possible reasons why children may benefit from early intervention in newspapers, on radio, and on television is also a part of child find. Effective child find efforts provide the information the public needs to make a strong rationale for birth-to-3 services, in addition to locating those who need services.

Identification

❑ *Identification* refers to the determination that the child displays a clear biological or established risk condition, or that screening results suggest that the child is developmentally delayed or "at risk" for handicapping conditions according to specified criteria. Child find, screening, and assessment are part of the identification process. Identification of children with obvious handicapping conditions such as Down syndrome falls in the realm of the medical profession. Even though education personnel and parents sometimes complain that the doctor told them that "she will grow out of it," the quality of training for new medical professionals and the current awareness and knowledge gained by practicing physicians through training from the Academy of Pediatrics and contact with early

intervention specialists have led to earlier identification of children and families in need of early intervention services. As a result of increasing awareness and knowledge and society's current focus on early intervention, many physicians acknowledge the relevance of early intervention and provide valuable assistance to early intervention programs.

Many physicians provide valuable assistance.

Continuing work through the Division of Maternal and Child Health, Department of Public Health, and neonatal intensive care units, together with coordination of early intervention services offered by other agencies such as the Department of Mental Health and Developmental Disabilities, Department of Rehabilitation Services, Division of Crippled Children, State Board of Education, and Department of Public Aid also focus on the importance of early identification of children with special needs. The state-level agencies, which frequently have regional- or local-level counterparts, are those participating in the interagency effort in Illinois (Deppe, 1986). Other states may have different cooperating agencies. Every state has a Governor's Planning Council on Developmental Disabilities. Usually this council has a staff member with experience in early childhood programming, if not specific birth-to-3 programming. These Councils have contacts with medical, educational, and social services as well as funding sources for some aspects of infant programming, such as personnel training, special projects, research studies, and conferences.

Councils have contacts.

Eligibility

❑ The degree of a child's delay or the nature of the handicapping condition that qualifies the child for services is determined in an *eligibility* statement. At the present time, criteria for determining eligibility for entering a birth-to-3 program vary from state to state and among programs within a specific state. Determining criteria is a time-consuming process. In Illinois, members of a State Advisory Council examined eligibility criteria for more than a year in order to recommend a uniform basis for entry into birth-to-3 programs. When Illinois service providers were questioned in 1984, a wide range of eligibility requirements were cited (Hutinger et al., 1985) ranging from "must be toilet trained" to "developmental delay of 2 or more months in two areas of development." These requirements were not uniform and, in some instances, were inappropriate.

Criteria vary from state to state.

Section 672 of P.L. 99-457 defines handicapped infants and toddlers as individuals from birth through age 2 who are in need of early intervention services because they (a) are experiencing developmental delays as measured by appropriate diagnostic instruments and procedures in one or more of the following areas: cognitive development, physical development, language and speech development, psychosocial development, or self-help skills; or (b) have a diagnosed physical or mental condition that has a high probability of resulting in developmental delay. The term may also include, at a state's discretion, infants and toddlers who are "at risk" for substantial developmental delays if early intervention services are not provided. However, each state must define the term "developmentally delayed."

Each state must define "developmentally delayed."

A variety of definitions for infants at risk or high risk are contained in the literature. Tjossem (1976) distinguished three categories of risk factors, although they are not mutually exclusive: established risk, biological risk, and environmental risk. Ramey, Trohanis, and Hostler (1982) suggested viewing risk in terms of onset, identifying three major developmental

Three categories...established risk, biological risk, environmental risk.

periods: prenatal (from conception to birth), perinatal (from onset of labor and delivery to the fourth week of extrauterine life), and postnatal (subsequent time periods).

A number of different terms have also been used to define the criteria for eligibility. The Illinois Advisory Council to the Early Childhood State Plan, composed of professionals from a variety of disciplines, parents, and state agency task force personnel, recently formulated definitions for eligibility according to Tjossem's (1976) three broad categories of risk factors. These three categories and their definitions are included in the draft of the Illinois Early Childhood State Plan (Deppe, 1986).

Established risk was defined as a diagnosed medical disorder.

First, established risk was defined as a diagnosed medical disorder with a known etiology that bears "relatively well-known" expectancies for developmental outcomes within varying ranges of developmental disabilities.

Insults, based on medical history, increase the probability of a disability.

Second, biological risk was defined as it applies to infants and young children with a history of prenatal, perinatal, neonatal, or early developmental events resulting in biological insults to the developing central nervous system. Such insults, based on medical history, either singly or collectively increase the probability that the child will develop a disability.

Third, environmental risk was defined as it applies to families and their infants and toddlers who are considered biologically sound, but whose early life experiences (including maternal and family care, health care, nutrition, opportunities for expression of language, adaptive behavior, and patterns of physical and social stimulation) are so limiting that there is a high probability of delayed development.

Criteria for delayed development include results of appropriate assessment procedures such as a family needs inventory, social history, observation of parenting skills, maternal/infant risk index, and/or child assessment with a standardized tool. The Illinois group also noted that some children begin to show developmental delays or deviations of an unknown etiology some time during the second year of life, while others suffer an illness or an accident that results in a developmental delay.

Referral

Referrals come from community sources.

❑ *Referral* is the process whereby a child's family is directed to specific services by an individual or agency. Referrals to an early intervention program come from a variety of community sources including physicians, public health nurses, hospitals, private agencies, schools, and individual community members. Referrals are also made when screening results show clearly that the child displays delayed development. Some Illinois families reported that they referred themselves (Hutinger et al., 1985), but others indicated that they were referred to infant programs by physicians and other professionals. If good working relationships with the medical community have been established, referrals from physicians become a customary step in the early intervention process.

Screening

Screening should not be used to provide assessment information.

❑ *Screening* is the broad initial individual testing of a child to determine whether or not the child may have a handicap. Screening procedures take a minimum amount of time and should not be used to provide assessment information (although they sometimes are). A list of appropriate screening

instruments is provided at the end of this chapter. Screening procedures should *not* be used with a child who has a diagnosed handicapping condition, whether it is biological or an established risk. The child's diagnosed condition is enough to move him or her immediately into the assessment procedures. Part of the screening process also includes checking the age of the child and where the family lives in order to be sure they are eligible for services from a particular agency.

Assessment

❑ *Assessment* involves systematic observation and standardized testing of the child who has been screened and determined to exhibit behaviors below developmental level in the various domains of development (i.e., cognitive, gross motor, fine motor, communication, social, and self-help) or who demonstrates an obvious handicapping condition. Assessment results are used to determine both eligibility for services and specific skills and areas for intervention program planning. Periodic reassessment, at regular intervals, must be conducted for children and families who are already participating in programs. Assessment results are used to begin or to continue planning an intervention program.

Results are used to determine eligibility and for program planning.

Diagnosis

❑ *Diagnosis* is an activity related to the medical condition of the child and is carried out primarily by medical professionals. It involves a synthesis and analysis of both hard signs and soft signs displayed by the child and is often characterized by labels such as "cerebral palsy," "Down syndrome," or a specific syndrome such as "Williams Elfin Facies." Diagnosis, as carried out by physicians, is a rigorous process characterized by a physical examination and a neurological examination, as well as laboratory and radiographic evaluation. For example, an audiologist may conduct tests to determine whether or not a young child has a hearing loss. Diagnostic information must be available during the assessment phase for each child admitted to a program. Diagnostic information is often available prior to assessment, since infants are usually seen by doctors before they are seen by early intervention staff.

Diagnosis is carried out by the medical profession.

Diagnostic information is often available prior to assessment.

The definition of diagnosis as a medical activity is often a point of contention with some professionals in other fields. However, physicians argue, and rightly so, that one of their primary and unique functions is diagnosis. Although Peterson (1987) has argued for a broader definition of diagnosis, our position is that in programs for children under 3 years of age the role of the physician is critical to the success of early intervention efforts. Further, if medical and educational professionals are to cooperate, we must recognize the unique role of medical professionals in diagnosis, although this may mean that educators must give up a term they have long used and held dear.

In the third edition of Gesell and Armatruda's classic *Developmental Diagnosis* (1974), editors Knobloch and Pasamanick, who are both physicians, included a succinct paragraph describing the physician's role in diagnosis.

> The physician is concerned with the maturity and health of an infant or child; he has the responsibility for making a diagnosis, even if it is one of no disease. He is not asked to derive an IQ, or measure

> "intelligence" as such. It is his task to assess central nervous system function: to identify the presence of any neuromotor or sensory deficit, to discover the existence of treatable developmental disorders, to detect infants at risk of subsequent deterioration, and to determine pathologic conditions of the brain which preclude normal intellectual function, no matter how optimal the environmental circumstances. He is exercising his responsibility of protecting the total growth of the child under his care. To effect this protection he makes an analytic assessment of behavior. (p. 17)

Evaluation

Evaluation includes analysis of information over time.

❑ The term *evaluation* includes the overall gathering and analysis of information related to a child's and family's program and progress over time. Evaluation information represents several cycles of data collection. Observation and test scores over time, the reports on the child's progress and diagnosis over time, and information gathered from the family and service delivery personnel are part of the evaluation system. Program evaluation includes systematic data collection and analysis for all the components of the early intervention, including staff development and administration.

Evaluation includes data collected to establish the child's progress on a systematic basis (every 6 months is a reasonable schedule), using instruments other than those used for assessment purposes. Although it is beyond the scope of this chapter to discuss the nature of data collected to document the efficacy of early intervention, it is an important part of a birth-to-3 program's evaluation plan. Comprehensive discussions of evaluation may be found in Chapter 9 of this text by Johnson, in Sheehan and Gallagher (1983), and in Suarez (1982).

BEGINNING THE CYCLE: SCREENING

❑ Although infants and toddlers come into birth-to-3 programs from different referral sources, many come because a screening test indicates a need to gather more information about the child. If the birth-to-3 program is new to the community, screening and other child find processes provide a way to establish a caseload of those needing intervention services.

Infant projects do not emerge as full blown programs.

Programs for young handicapped and developmentally delayed infants, toddlers, and their families cannot be compared to Athena of Greek mythology, who emerged full-grown from the head of Zeus. Infant projects do not emerge as full-blown programs, complete with clients and community support, without comprehensive preparatory activities. Rather, new infant programs usually begin with planning and hiring staff, and then attempt to find children and families to serve. During the first months, the caseload may be only a handful of clients. It takes time not only to establish successful program operation and publicity, but also to establish trust in the community, so that members are willing to accept and support a program for infants and families. New programs must establish trust if they are to be successful and effective over time. Established programs must continually maintain activities that promote positive community awareness and interagency collaboration. While this chapter is not designed to detail the steps needed to prepare for community and agency

Trust must be established.

coordination, working together is necessary to establish and maintain a viable birth-to-3 program. Interagency coordination must be recognized and addressed by those beginning or upgrading programs for young handicapped children. Community coordination is a necessary condition in order to establish effective use of limited resources, to maximally organize and manage programs, and to effectively screen, assess, and program.

Community coordination is necessary.

Establishing effective community coordination is an important component that must be demonstrated by each of eight demonstration projects that were funded by the Illinois legislature in 1985 for a 3-year period. The demonstration projects, using Project Nexus (Helmstetter et al., 1985) materials as a guide, have been collecting data on coordination and collaboration in many areas, including screening, assessment, and programming for families. Several of the projects, including the Rural Assist Infant Network (RAIN) at Western Illinois University (Smith-Dickson & Hutinger, 1986), have used mass screenings as a strategy to combine agency resources to accomplish a useful task that benefits families, communities, and the agencies themselves.

A great deal of spadework, including presentations (to ministers' groups, hospital staff, community agencies, school personnel, local service groups); publicity (newspaper stories, radio and television stories, brochures, flyers, and posters); and face-to-face information exchange is needed to let the community know that a program and services are available to work with the very youngest children whose problems make their families feel uneasy and sometimes inadequate. Screening of very young children, whether it is mass screening, screening upon referral, or routine screening done by public health nurses or their counterparts, provides a vehicle to bring the birth-to-3 program to the attention of those who might need its services. The publicity needed to successfully implement mass screening in an urban or rural area is a means of gaining public awareness for a birth-to-3 program. It is also the means for a new program to locate children and families who need services. Mass screenings represent a way for the established program to ensure the broadest possible publicity so that families who need services can find them. However, mass screenings, are not the only way to identify infants and toddlers who may benefit from early intervention services.

Publicity and face-to-face exchange are needed.

Mass screenings are not the only way to identify infants.

In existing birth-to-3 programs, children are often referred for services by physicians, public health nurses, or personnel from other agencies. Sometimes the referring agency or individual has screened the child and found that delays in at least one area of development indicate a potential need for early intervention. If successful interagency cooperation is functioning, results of one agency's screening are accepted by another agency. This does away with the need for rescreening. At other times, no screening has taken place, but someone, perhaps the parent, thinks there is a problem and calls the early intervention staff. In these instances the birth-to-3 program does the screening on an individual basis. It is worth repeating that children with obvious handicaps do *not* need to be screened. However, every child referred either is screened by the referring agency or by the birth-to-3 program and found to meet established criteria of risk or developmental delay or is diagnosed with an identifiable handicapping condition before an assessment is done. Public Law 99-457 requires states to establish their own definitions of developmental delay.

Children with obvious handicaps do not need to be screened.

CONTINUING THE CYCLE: ASSESSMENT

A wide range of tests and procedures are used in early intervention programs. For example, as reported in the Illinois 0-3 Study (Hutinger et al., 1985), in 1984, Illinois birth-to-3 programs reported using over 25 different assessment instruments, ranging from formal standardized tests such as the Bayley Scales of Infant Development (Bayley, 1969) to checklists made by staff members. Appropriate assessment activities include a variety of reliable, valid tests and systematic observation procedures pinpointing behaviors to a fine degree in order to find an appropriate match between the child's existing behaviors and those milestones toward which the child will be moving.

Activities include valid tests and systematic observation.

The purpose of assessment is to determine areas of strengths and weakness of the child and family. Although this section addresses child assessment, it should be kept in mind that parents are members of the assessment team. Parents provide a wealth of information about the child and, in many cases, participate actively in the process. A play situation that allows parents to interact with the child while professionals watch and sometimes give suggestions provides useful information (i.e., arena assessment is a natural and nonthreatening situation for the child). Sometimes it is more beneficial to conduct assessment in the child's home rather than in the agency setting.

Sometimes conduct assessment in the child's home.

The family should receive services as soon as possible after determination of eligibility. Public Law 99-457 indicates that services may begin prior to assessment with the family's permission. In practice, this has been the case in many programs. However, in other instances long periods of time have passed between screening and service delivery for children and families. In Illinois, urban parents and staff reported average waits of 6.85 months, although rural parents and staff indicated that they waited only an average of 2.7 months (Hutinger et al., 1985). The intent of the identification and service provision in the laws is to get needed services to children as soon as possible, thereby eliminating some family stressors.

The intent is to get services to children as soon as possible.

P.L. 99-457 requires a multidisciplinary team of professionals to carry out assessment procedures. Usually, each set of professionals is responsible for collecting a portion of the necessary information. How they collect it is related both to their profession and to the nature of their interaction with other professionals (i.e., transdisciplinary, multidisciplinary, or interdisciplinary), as well as to the customary procedures in their particular agency or unit. Public Law 99-457 requires a multidisciplinary approach.

Bennett (1982) defined multidisciplinary, interdisciplinary, and transdisciplinary functions and roles. Those definitions were also adapted for the Illinois Early Childhood State Plan (Deppe, 1986). Multidisciplinary assessment is done separately by members of various disciplines with each writing separate reports. In an interdisciplinary mode, a member of each discipline assesses the child separately; they then meet to share recommendations and develop a service plan based on collaboration. Transdisciplinary team members work more closely together, with professionals assessing *across* traditional disciplines, thereby developing knowledge and skills in disciplines other than their own.

Transdisciplinary team members work more closely together.

If you ask a physical therapist who routinely uses a transdisciplinary approach about the uniqueness of the data she collects, she may tell you

that she observes another professional who is giving the Bayley, or that she may administer the Peabody Developmental Motor Scales (Fewell & Folio, 1974). But you are likely to hear that the physical therapist is more interested in observing the child than in administering standardized tests. A physical therapist who is accustomed to doing her own assessment and then sharing it with the other professionals who work with a specific child in an interdisciplinary mode is interested in her own findings and their implications for comprehensive intervention. In a multidisciplinary mode, the physical therapist's assessment and recommendations are made separately, then combined with others to develop the child's goals.

Whatever the nature of their teaming approach, various professionals have differentiated roles and responsibilities in gathering information. Medical professionals are responsible for initial screening using the APGAR (Apgar, 1953) or neonatal Behavioral Assessment Scale (Brazelton, 1973), in addition to the myriad of tests and observations related to the child's diagnosis and treatment. Physical therapists or occupational therapists may depend on observation or a test such as the Milani-Comparetti Developmental Scale (Milani-Comparetti & Gidoni, 1977). Psychologists may use the Bayley Scales of Infant Development (Bayley, 1969), while child development specialists might use the Battelle Developmental Inventory (Newborg, Stock, Wnek, Guidabaldi, & Svinicki, 1984) or the Evaluation and Programming System for Infants and Young Children (Bricker, Bailey, & Gentry, 1985). Social workers might use the Home Observation for Measurement of the Environment (Caldwell & Bradley, 1978), the Feetham Family Function Survey (Roberts & Feetham, 1982), or another interview instrument.

The information collected needs to be shared with all the professionals involved, after the family's rights are ensured and the appropriate releases secured, so that as much as possible of what is known about the child can be used to make decisions about appropriate goals and objectives. A team effort, with professionals and families sharing their areas of expertise, is most likely to lead to the development of the best plan possible for a particular approach to intervention.

A team effort is most likely to lead to the best plan.

Assessment is carried on at regular 6-month or 3-month intervals, as specified by the individualized program and/or observation of the child's behavior, in order to develop new goals as the child acquires previously targeted skills. Assessment findings are used to decide on appropriate activities for an individual child and family. Throughout this chapter, regular reassessment has been referred to, usually citing 6-month intervals for documented family updates of the program, with a yearly review. Keeping records of assessment results is necessary, as is a summary of assessments and their dates for each child. A simple record-keeping form used by Project ACTT (Activating Children Through Technology) is shown in Figure 3. ACTT, a supplemental component of a birth-to-3 program, involves the use of computer technology in child activities. A record-keeping form for an entire program would include more information.

Although some early childhood professionals believe that there are no appropriate assessment instruments for handicapped and developmentally disabled children, there is a group of instruments that can be used with young handicapped youngsters, even though a great deal of work is still needed in this area. There is a list of instruments used for assessment at the end of this chapter. Instrument selection depends on the age of the

There is a group of instruments that can be used.

child, the nature of the handicapping conditions, and the purpose of testing.

A number of problems do exist related to the nature of test construction and the outcome information obtained for handicapped young children (Bricker, 1986; Fewell, 1983a). There are also useful new directions in the assessment of handicapped infants and toddlers. For example, William Bricker and Campbell (1980) listed a set of 19 dimensions of assessment for children with specialized service needs. These include surviving and thriving, mobility, manipulation, consequence preference, compliance, motor imitation, and verbal imitation. Fewell pointed to the work of Brooks-Gunn and Lewis (1981), which was designed to describe the development of very young handicapped children across various dimensions and skills such as information-processing and mother-infant interaction. Fewell also cited the work of Simeonsson, Huntington, Short, and Ware (1982), which examined domains that traditional instruments did not include. Their Carolina Record of Individual Behavior (CRIB) is an observational instrument that is completed during the administration of a developmental assessment instrument or after a period of observation.

Fewell (1983a) pointed to researchers' dissatisfaction with available assessment measures and their subsequent exploration of new assessment arrangements including the use of natural environments and events and the measurement of child-parent interaction. She then included an observational assessment of infant behavior, the Behavioral Observation Form, which can be used throughout the assessment process. It could be used to analyze videotapes of infant and toddler behavior or in actual situations.

Figure 3. A Sample Record-keeping Form Used in the Technology Component of Birth-to-Three Programs by Project ACTT.

ACTT: Birth to 3 Evaluation Checklist

Early Childhood Specialist: _____ Agency: _____

Child's Name: _____ ID#: _____ Closing Date: _____

Birthdate: _____ Program Entry Date: _____

	Recommended	Date(s) Completed					
Parent Consent Forms	updated yearly						
Uzgiris and Hunt Scales (or selected assessment)	6 month intervals						
Parent Questionnaire	entry date						
Parent Satisfaction Questionnaire	6 month intervals						
Videotaping of Computer Sessions	selected sessions (as needed)						
Computer Interaction Form	each computer session (collect every 6 months)						
Computer Intervention Planning Form	each computer session (collect every 6 months)						

The list of assessment measures included in this chapter contains the Human Interaction Scale used by White and Watts (1973) to code and analyze mother-child, child-child, child-peer, and child-another adult interactions. The Human Interaction Scale includes five dimensions: activities, initiation index, encouragement index, interaction technique, and compliance index. This scale was used in a large study to examine the problem of structuring the experiences of the first 6 years of life in order to encourage maximal development of human competence. Information from the scale is useful in determining the nature of interactions within families.

The Nursing Child Assessment Teaching Scale (Barnard, 1979) was designed to record parent-child behaviors during a teaching task. Interactions between parent and child provide information about the nature of the relationship between the two, pointing to the presence of problems. Fewell (1983a) suggested that the results of a scale such as the Nursing Child Assessment Teaching Scale show how parent responses can be structured to reduce behavior problems and promote learning.

Rosenberg, Robinson, & Beckman (1986) considered several approaches to parent-child interaction, including molar and molecular rating scales. Molar scales condense classes of behaviors presumed to reflect a larger aspect of parent-child behavior. Examples are the Maternal Behavior Rating Scale (Mahoney, Powell, & Finger, 1986) and The Teaching Skills Inventory (Rosenberg, Robinson, & Beckman, 1984; Rosenberg & Robinson, 1985). Molecular Coding Systems include more narrowly defined categories and record specific behavioral events. The Human Interaction Scale (White & Watts, 1973) and the Social Interaction Assessment/Intervention model (McCollum & Stayton, 1985) are examples of molecular instruments.

Molar scales condense classes of behavior.

Observational methods for assessing communication efforts have also been developed in recent years. Analysis of Mean Length Utterance (Miller, 1981) provides a strategy to sample child language at specified times in natural daily activities and provides useful information about the child's use of language to communicate. A pragmatic approach to language focuses more on the child's communication, its intent, and the need to influence people or objects in the environment. Use of a pragmatic approach has moved us away from counting the number of words in a child's vocabulary to looking at the intent of the child's communication, a much more beneficial approach for both child and family. Mean Length Utterance, using a series of language samples, is a more useful way to assess the child's efforts at communication than the Peabody Picture Vocabulary Test (Dunn & Dunn, 1981).

A pragmatic approach focuses on communication.

Videotaping child performance in selected representative situations over time, then analyzing the performance changes using one of the observational scales cited here, or another scale focusing on a specific child behavior (such as social interaction with peers), provides objective information about the child to family members and early intervention team members. Videotapes are also useful in recording the progression of family skills. While videotapes require resources that some programs may not have, systematic collection of tapes is useful for a variety of purposes, including dissemination of information about the program to community decision makers. If a program decides to collect videotapes, it must establish a cataloging system to access information.

Videotaping provides objective information.

Norm-referenced measures have been standardized on representative samples.

A surprising number of tests are used by early intervention program staff. Ideally, the tests depend on the purpose for which they are being administered and, as pointed out earlier, are consistent with program philosophy. Norm-referenced measures such as the Bayley Scales of Infant Development (Bayley, 1969) have been standardized on representative samples of children (most often nonhandicapped children) in order to establish norms. A child's score can be compared with those of other children of the same age. These tests are more likely to be used as general measures of development and as instruments to collect scores that can be analyzed statistically to measure child progress for program evaluation purposes. Criterion-referenced measures such as the Evaluation and Programming System for Infants and Young Children (Bricker & Gentry, 1985) compare a child's score or performance to a specified level of mastery. They are far more likely to be easily translated into intervention programming activities.

Fewell (1983a) discussed curriculum-referenced tests composed of precisely stated items accompanied by a curriculum that specifies instructional strategies. Curriculum-referenced tests include the Peabody Developmental Motor Scales (Fewell & Folio, 1974) and the Skills Inventory from The Oregon Project for Visually Impaired and Blind Pre-school Children (Brown, Simmons, & Methvin, 1979). Dunst's (1981) *Infant Learning: A Cognitive Linguistic Intervention Strategy* is a curriculum guide based on the Piagetian sensorimotor stages designed on the basis of the *Infant Psychological Development Scales*. The *Ordinal Scales of Psychological Development* (Uzgiris & Hunt, 1975) were developed from both a different content than norm-referenced tests and a different test construction model. The sensorimotor period is the content. The scales are based on a Piagetian sequence of behavior achievements and are relatively independent of age (Uzgiris & Hunt, 1975).

The two scales cover a wide range of social and nonsocial developmental skills.

Dunst (1981) developed a curriculum matrix using items from the Griffiths (1954, 1970) and the Uzgiris and Hunt (1975) scales, noting that the two scales have been "found to have general utility for identifying a child's particular intervention needs" (p. 1). He also indicated that the two scales cover a wide range of social and nonsocial developmental skills, assess the child's ability to initiate and respond to different stimuli, tap progressively more complex behaviors, and lead to a "good estimation" of a child's developmental capabilities in specific rather than global terms. This is perhaps the most important criterion for the design of appropriate intervention procedures.

Assessment instruments are used for placement, but once a child is determined eligible for early intervention services, further assessment is essential to determine the most appropriate activities and strategies. A measure of child and parent interaction provides further information about appropriate teaching styles and family functions. Other measures of family needs and strengths are addressed elsewhere in this book.

MAINTAINING THE CYCLE: PLANNING CURRICULUM

❑ Planning individualized programs for handicapped infants, toddlers, and their families begins with gathering a great deal of information from a variety of sources. That information is then paired with goals, objectives, and selected activities appropriate for both the child and the family, with

special attention given to the set of unique needs and characteristics of the family unit. Gathering information for, developing, and then implementing a plan for intervention must be done whether the child and family are new clients in a birth-to-3 program or have participated in the program for some time.

The "appropriate activities" constitute what many call "curriculum." Rather than imposing a definition that assumes an "educational" flavor, early intervention curriculum is better thought of as the sum total of activities and services that can be carried out to meet the goals of the whole program plan for the child and family. This means we must consider *who* provides activities and services. Public Law 99-457 requires that qualified professionals, including special educators, speech and language pathologists and audiologists, occupational therapists, physical therapists, social workers, nurses, and nutritionists provide early intervention services. The result of such a team effort is that the early intervention curriculum used to meet individual family plans must necessarily include a wide range of activities.

Curriculum is thought of as the sum total of activities and services.

The broad definition of curriculum takes into account who carries out curricular activities, who is the target of the activities, and the nature and integration of curricular activities across developmental domains. The individualized family service plans include specific plans for the child and the family. Bricker (1986) addressed family assessment, affirming that it should address three areas: the family's needs and concerns, their understanding of the child's problems, and the extent of their instructional skills. Bristol and Gallagher (1982) also addressed individual family plans, noting that assessment, programming, and evaluation should focus on the broader context of family development.

IFSPs include specific plans for the child and family.

When long-term goals and short-term objectives are set for very young children, the activities that lead to the accomplishment of those objectives and goals are part of the "curriculum." If a 15-month-old child has difficulty with head control, and her intervention team has planned a variety of experiences using a mercury head switch and various battery-operated toys and a tape recording of her father's whistle, her family members may need to learn the skills necessary to provide the experiences. The child's activity hinges on the skills the parents develop. If computers are to be used for communication, then family members need to learn to use the software, hardware, and peripherals necessary for the child to communicate (Hutinger, Perry, Robinson, Weaver, & Whitaker, 1986). If the child needs special positioning to sit up, the parents need to learn techniques from the physical therapist and also will probably learn how to make various supports to help the child accomplish the goal. Both the child activity and the skills needed to help the family carry out the activity must be part of the early intervention program.

The child's activity hinges on the skills parents develop.

Although the information contained here is focused more directly on the child component of the curriculum, the family is an integral part of the curricular process and the early intervention team. They make decisions about what they want for their child and they carry out many activities. Just as child programs are different because of individual differences, the level of a family's participation varies because of the family's unique characteristics and interaction with the child. For example, in Project ACTT activities, parents participate on the following levels: obtaining information, assisting in intervention, and conducting intervention (Hutinger, 1987). Parents of more severely handicapped children often move quickly to the third level, actually carrying out activities. Since its inception

The level of a family's participation varies.

in 1975, the Macomb 0-3 Rural Model has been based on the premise that parents are the primary change agents for their children (Hutinger & McKee, 1980), and are therefore integrally involved with all aspects of the child's program. An informal, differential family-needs assessment when a family began in the program, and at 6-month intervals, was also a part of the original Macomb Model. Sharing Centers were designed in the Macomb Model to function like family cooperative nursery schools (Hutinger, 1986; Hutinger, Donsbach, Cunningham, Longanecker, & Sharp, 1981), involving parents in a number of organizational, instructional, and social functions. The parent cooperative nursery school has been a part of the educational environment for young nonhandicapped children for at least 60 years. Parents, siblings, and program children participate in many different Sharing Center activities designed to meet intervention objectives.

Emphasis is on family needs and participation.

Heavy emphasis is now placed on assessment of family needs and participation in their child's intervention program. When the Handicapped Children's Early Education Program (HCEEP) was established 17 years ago, emphasis was on the active role of the family. In 1985, when Project RAIN (Rural Assist Infant Network) and the other Illinois birth-through-2 demonstration programs were funded, emphasis on family needs assessment and participation was, and continues to be, of great importance. Head Start has always focused on family participation in the classroom, in the community, and as advisors. The configuration of the family system (whether members are equal or differentiated, open or closed to outsiders), the nature of the family's communication patterns, and the family's methods of solving problems have a direct impact on the family's response to early intervention for their handicapped infant. Since families have responsibility for their children for many more years than the infant intervention program staff are associated with the children, it makes sense to franchise families, giving them the skills they need to be both advocates for the child and primary change agents as well. Yet it is important to remember that the parent role is one that must involve play, happiness, and pleasant interactions (Satir, 1972). Sometimes when parents assume the role of interventionists, they become so serious about making sure that the child accomplishes an activity they forget to enjoy their children. We must not let this happen.

Head Start has always focused on family participation in the classroom.

The Individualized Family Service Plan

☐ According to P.L. 99-457, the individualized family service plan (IFSP) must contain the following:

1. A statement of the child's present levels of development (cognitive, speech and language, psychosocial, motor, and self-help).
2. A statement of the family's strengths and needs related to enhancing the child's development.
3. A statement of major outcomes expected to be achieved for the child and 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 service.

6. The projected dates for the initiation of services and expected duration.
7. The name of the case manager.
8. Procedures for transition from early intervention into the preschool program.

While there are similarities between the IFSP and the individualized educational program (IEP) of P.L. 94-142, the inclusion of the family in P.L. 99-457 marks an important landmark in early intervention programming. The IFSP is developed by a multidisciplinary team after initial assessment information has been gathered.

Inclusion of the family in P.L. 99–457 marks an important landmark.

Child Goals

The process of developing an IFSP is similar to that of the IEP, but the content is different. Results of the child *and* family assessment measures are used to plan the services or activities for each family. Long-range goals are developed by paying attention to the child's strengths and weaknesses, the family's needs, and the interactions between the child and family (Bricker, 1986).

When we are part of an effort to set goals for infants and toddlers, we need to think about what will happen when those children reach adolescence or adulthood. The ultimate goals are for them to be socially adjusted and to have as much autonomy and as many functional skills as possible. This means making use of as many avenues of accessing children's functional modalities as possible, including obtaining new and helpful medical advances, technology applications including microcomputers and their accompanying hardware, and instructional strategies that incorporate play, elements of novelty, and enjoyment. Bricker (1986) noted that play is the work of the young child. This is an important assumption. The Macomb 0-3 Model has been based on this view of play since its beginning in 1975.

Goals are to be socially adjusted, have autonomy, functional skills.

The most effective activities for gaining new skills are part of the child's daily, ongoing, real-life experiences. Picking up cubes of cheese to eat and putting them in your mouth has more relevance to a child who wants a snack than putting buttons in a jar. Operating a tape recorder with a switch to listen to music or mother's voice is a way to affect the environment, gain a sense of self-confidence, and learn to control your hand or knee or head. Activities leading to the attainment of important developmental goals integrate several skills. Activating the randomly appearing stars on a computer screen (Hutinger, Perry, Robinson, Weaver, & Whitaker, 1986) leads to the realization that touching keys has an effect, to sustained visual and auditory attention, to fine motor manipulations, and to a need to communicate with someone about those bright stars and sounds.

Operating a tape recorder is a way to affect environment.

Developing long-range goals is accomplished by listing the behaviors the child demonstrated during the assessment phase. The process used by the Macomb projects (Macomb 0-3 Rural Project and Project ACTT) to determine program goals, objectives, and instructional strategies provides examples for child programs. The Program Planning Guide portion of the Macomb 0-3 Core Curriculum (Hutinger, Marshall, & McCartan, 1983) is a useful form for indicating the behaviors the child displays. A sample page from the Program Planning Guide is shown in Figure 4. A computer version of the Program Planning Guide, the CORE

CORE provides a quick way to record data.

(Hutinger, Marshall, McCartan, Nelson, & Hutinger, 1986) provides a quick way to record data about initial and ongoing child performance in the curriculum. The CORE also provides a listing of suggested new skill areas to target next, after the child has accomplished targeted skills, and it prints out a list of the child's current individualized plan. It provides a useful tool for maintaining child records and for planning new skills.

The Macomb 0-3 Core Curriculum is based on a functional developmental approach to early intervention. It contains goals in six major areas of child development: gross motor, fine motor, cognition, social, communication, and self-care. Each curricular area is divided into a cluster of related behaviors in skill areas. Each skill has a corresponding sequence of skills that leads to the behavior described in the skill area statement. Activity examples reflect the curriculum's functional approach.

Figure 4. An Example of a Core Curriculum Program Planning Guide.

PROGRAM PLANNING GUIDE

1.0.00 Gross Motor

SKILL AREA AND SEQUENCE	AGE	DATE SKILL ACQUIRED
1.1.00 Child moves in a prone (on-stomach) position		
1.1.1 Turns head side to side	1 month	
1.1.2 Lifts head off surface momentarily	1-2 months	
1.1.3 Lifts head 45°	2 months	
1.1.4 Keeps head steady when carried in upright position	2-3 months	
1.1.5 Lifts head 90°	3 months	
1.1.6 Raises chin and shoulders off surface with weight on forearms	3 months	
1.1.7 Sustains head lift at 90°	4 months	
1.1.8 Bears weight on forearms	4-6 months	
1.1.9 Bears weight on one forearm and reaches with other arm	4-6 months	

(Continued)

They focus on child behavior and involve daily routines, life situations, and playtimes. References are included in the curriculum. Adaptations are also included that suggest activities and other ideas for use with children who have visual, auditory, and/or motor impairments. Samples of skill areas in each of the major domains are shown in Figure 5. The curriculum is arranged in a developmental sequence or hierarchy.

Activity examples focus on behavior, daily routines, playtimes.

A relatively new emphasis in programming activities for handicapped infants and toddlers is that of technology. The use of switches and battery-operated toys has been advocated for older handicapped children for some time. However, when switches and toys are viewed as the beginning of cause-and-effect activities, and are used in contingency intervention (Brinker & Lewis, 1982), technology takes on new importance. Infants and toddlers benefit from the use of computers, whether the

Infants and toddlers benefit from use of computers.

Figure 4. An Example of a Core Curriculum Program Planning Guide. (Continued)

PROGRAM PLANNING GUIDE

2.0.00 FINE MOTOR

SKILL AREA AND SEQUENCE	AGE	DATE SKILL ACQUIRED
2.1.00 Child visually focuses on objects		
2.1.1 Focuses both eyes on a nonmoving object held eight inches from eyes	1-2 months	
2.1.2 Follows moving object with coordinated eye movement	1-2 months	
2.1.3 Tracks moving object in horizontal 90° arc	1-2 months	
2.1.4 Tracks moving object in horizontal 180° arc	2-3 months	
2.1.5 Tracks moving object as it moves towards and away from him/her	3 months	
2.1.6 Anticipates a regular pattern of movement	4-6 months	
2.1.7 Visually focuses on and observes hand	3-6 months	

©MACOMB 0-3 REGIONAL PROJECT

Figure 5. Samples of Curriculum Areas and Skills from the Core Curriculum.

1.0.00 GROSS MOTOR

Skill Area: 1.1.00 Child moves in a prone (on-stomach) position.

Skill Sequence	Activity Examples	References	Adaptions
1.1.1 Turns head side to side	Place child on stomach on firm surface. Adult should lie beside child and entice child to turn head toward adult by talking to child, touching child or using noise making toy. Adult should attempt this on both sides of the child. Caregiver or sibling should talk to child, first on one side of the crib at eye level and close bars, then on	General gross motor references: Cohen & Gross ND Vol I, pp.133-142 Finnie N. PH Fredricks TA Vol II, pp. 64-65 Utley, Holvett, Barnes PH pp. 279-288 Macomb 0-3 Core	Motorically Impaired: Child is placed on stomach on roll or wedge with the thickest end of the wedge supporting chest. If child is unable to raise head, adult should stimulate child's vertibral column contractures by pressing firmly along the vertebral

2.0.00 FINE MOTOR

Skill Area: 2.1.00 Child visually focuses on objects.

Skill Sequence	Activity Examples	References	Adaptions
2.1.1 Focuses both on a non-moving object held 8" from eyes	Place child on patterned sheet. Encourage child to focus by pointing at different colors. -Use brightly colored or patterned towels on shoulders when feeding child. -Place mobile over	Cohen & Gross ND Vol I, pp. 143-151 Fredericks TA Vol II, pp. 50-51, 74-76 Melnechuk BI pp. 214-15 Macomb 0-3	Visually Impaired Use bright colors close to child.

3.0.00 COGNITION

Skill Area: 3.3.00 Child differentiates between objects.

Skill Sequence	Activity Examples	References	Adaptions
3.3.1 Observes objects.	Hang mobile above child's crib, or suspend object in walker or stroller. Place floating objects in tub when bathing child. Hold objects in front of child wiggling, squeaking, or activating them to attract child's	Applies to entire skill sequence: Melnechuk BI pp. 186-199, 204-208, 235-236, 239, 289-404 Furano et. al. pp. 1-51 ND,GA Bailey & Burton	Visually Impaired It may help to shine flashlight on object for child. When doing this, be aware of the problem of surface glare which could make it harder to see if light is coming from wrong

(Continued)

computer is a record-keeping device for the professional or a tool that responds to the child. This is not to say that all children need computers; however, severely handicapped children are able to respond to the environment in more active ways when they have access to the tools of technology (Hutinger, 1987). Hindrances to the use of technology are related to fears that machines will control children, adult fear of learning to use the technology, the costs of the equipment, and the complexity of using the equipment. Nevertheless, the promise of technology in early intervention curricula lies in its use as a tool and its ability to help very young handicapped children access the environment and develop a sense of control over that environment. The work of project ACTT has been based on this assumption.

Figure 5. Samples of Curriculum Areas and Skills from the Core Curriculum. (Continued)

4.0.00 COMMUNICATIONS

Skill Area: 4.1.00 Child Responds to auditory stimuli.

Skill Sequence	Activity Examples	References	Adaptions
4.1.1 Shows response to animate auditory stimuli	Adult approaches child slowly, with varying degrees of quietness (speaking low to louder). Watch for child's responses to this.	Furano et. al. GA p. 1-2, 7 Macomb 0-3 GA Core Curriculum, 1980	Hearing Impaired: Adult should be in child's visual field. May place lips gently against child's head or on hand to allow child to feel vibrations.
4.1.2 Shows response to inanimate auditory stimuli	Adult should shake rattle, play music box, play quiet music on tape recorder, record player or radio.	Furano et. al.GA pp. 11, 15 Macomb 0-3 GA Core Curriculum, 1980	Hearing Impaired: Use rattles, noisemakers of high or low pitch. Use toys, objects that make noise and also vibrate or make

5.0.00 SOCIAL

Skill Area: 5.2.00 Child initiates social interaction with adults.

Skill Sequence	Activity Examples	References	Adaptions
5.2.1 Observes adult.	Adult can sit child nearby during routine daily living activities. Adult should periodically look at, touch, talk to, and smile at child. Adult may use colored lipstick on own face to draw attention or wear hat.	Furano et. al. GA p. 127 Macomb 0-3 GA Core Curriculum, 1980	Visually Impaired If child is visually impaired "observes" may mean child listens or attends adult rather than watches: looks in adult's direction.

6.0.00 SELF CARE

Skill Area: 6.2.00 Child ingests semi-solids.

Skill Sequence	Activity Examples	References	Adaptions
6.2.1 Swallows semi-solids.	To prevent the child's head from being tipped back during feeding, hold the spoon just in front of the child's mouth to encourage child to come forward, bring child forward toward spoon, placing the rood in at the side of the mouth if the child is inclined to push it out with tongue.	Fredricks TA Vol I p. 47 Utley, Hovoet, Barnes P, H pp. 290-7 Furano et al. GA p. 159 Macomb 0-3 GA Core Curriculum 1980	Motorically Impaired: Position the child in an upright position either in the adult's arms or by using a standard high chair which has been adapted to provide the child with increased hip flexion. If using a high

Robinson (1986a,b) described details of the Project ACTT birth-to-3 technology intervention. The Project ACTT birth-to-3 Curriculum (Hutinger, Perry, Robinson, Weaver, & Whitaker, 1986) includes sections on goals and activities for children and families, as well as detailed information on setting up the environment and working closely with families. Switch use is viewed as a way to help children acquire both a sense of autonomy and the skills they need to control various technology devices. A sample ACTT activity curriculum is shown in Figure 6.

A variety of curricula for use with handicapped infants and toddlers is available and reflects different points of view about how very young children learn. A short list of selected curricula is included at the end of this chapter.

A variety of curricula is available.

Figure 6. Sample ACTT (Activating Children Through Technology) Curriculum Activity.

Birth to 3 Curriculum

Activity Name: Controlling a Toy Through Head Movement

Content Area: Cognition–Beginning Development of Causality Concept Through Head Control Movement

Teaching Objectives:

1. Provide child opportunities for controlling an object by moving his head appropriately.
2. Reinforce cause and effect concepts.

Child Objectives:

1. Activate toy by raising head slightly when placed in on-stomach position.
2. Notice movement of toy when head is raised.
3. Repeat process of raising head to re-activate toy when toy stops.

Materials: Several battery-operated toys containing appropriate sensory stimulus response for the child
Battery Interrupter
Mercury headband switch
Blanket or pad for floor
Towel roll
Wooden blocks to mark off boundary for toy

Procedures:

Introduce the toy to the child by placing the toy close to child's hand so he can physically explore it. Name the toy and talk about what it does. Demonstrate the toy's movement by activating switch for the child.

Lay child on stomach over towel roll and place mercury headband switch on the head. Position the mercury capsules so that slight head movement will activate the toy. Attach switch to battery-operated toy which is placed in front of child's head.

Assist child in lifting head to look at and/or listen to the toy. May need to assist child several times to become aware of start/stop action and sound of the toy.

Verbally encourage child to make the toy "go" again. Child may also need to be prompted physically by touch to side or top of head. Moving the toy around on the floor in front of the child's head may also provide stimulus for head lifting.

As child's response begins to decrease, a different toy can be introduced to continue to stimulate interest in the activity.

As child develops an understanding of causality and attains better head control, mercury capsules can be repositioned so that greater effort is required to activate toy.

Variations:

Child's position could be changed to a supported sitting position. The same mercury headband switch can be used to encourage midline head control by adjusting the placement of the capsules on the headband. If the same toy is used, it will need to be placed on a table or box at child's eye level. A

(Continued)

Figure 6. Sample ACTT (Activating Children Through Technology) Curriculum Activity. (Continued)

hanging toy or mobile could also be used at a level in which child is required to keep head in midline to activate the music or sound.

Helpful Hints:

The appropriate placement of the mercury capsules should be determined before headband is placed on the child's head, if possible, to reduce frustration on the part of the child. Also the capsules should be secured in place so that head movement elicits consistent activation of the toy.

Adaptations:

Visual Impairment: Use battery-operated toys or a tape recorder which have a variety of different sounds. Assist the child in tactilely exploring the toy and physically orientating to its location. A vibrating pillow may also be used, placed under the child's chest or other position to stimulate head movement to control the vibration.

Auditory Impairment: Use brightly colored toys or a battery-operated light to stimulate child's visual response. Also a vibratory pillow or toy may be used to stimulate head movement.

Motor Impairment: Use a timer attached to switch and toy so that toy will play for several seconds after initial activation. Child is not required to keep his head up to listen to toy. One disadvantage of using a timer for this activity is that it does not give the child direct control of the sound. It is activated for several seconds despite the child's response or head position. For some children this may be needed to stimulate initial head lifting and reduce frustration from physical limitations.

ISSUES

Screening, diagnosis, and referral precede assessment and program planning.

❑ Screening, diagnosis, and referral are linked together as processes that precede assessment and program planning. However, establishing criteria to identify children who are eligible for services represents a multisided issue bounded on one side by available funds (never enough to go around and serve all the children who may benefit), on another by agreement or disagreement about the acceptability of the degree of handicapping conditions necessary before services can be provided, and, on yet another, by questions of efficacy as it is affected by various handicapping conditions and program types.

Further, although some states may have decided on the eligibility requirement for the preschool population from 3 to 5 years of age, the same requirements are not appropriate for children under age 3. For example, if a 6-month delay in a developmental domain is used as a criterion for preschool children, it seems clear that one cannot apply the same criterion to a 3-month-old Down syndrome child. The ratio of the number of months of delay needed to identify a need for services is different for the infant who has been alive only 9 months (a 6-month delay means that the child is delayed by a ratio of 1:3). But when that criterion is applied to a 4-year-old child, the ratio is 1:8. Clearly, the arbitrary number of months delay used during the preschool years is not a fair one

to use with children from birth to age 3. Obviously, identified handicaps such as Down syndrome, cerebral palsy, and other biological conditions are candidates for birth-to-3 services. The emphasis on individual family service plans focuses attention on both the child's condition and/or delay as well as the needs of family members rather than on the quantitative amount of the child's delay.

Exhaustive tests when screening results in costly expenditures.

One of the pitfalls in gathering information is collecting too much too soon. For example, doing exhaustive tests when screening to find children with developmental delays results in needless and costly expenditures. Children who are screened and who appear to be functioning at the level typical of their chronological age do not need to go through a battery of tests during screening in order to find out whether they might be eligible for an early intervention program. These children may be rescreened in 6 months if their parents request it or if there are any questions about their development. The full battery of carefully chosen tests and observation instruments comes into play when children who are suspected of having a developmental delay or a potential problem as determined by screening receive further assessment by appropriate professionals. Sometimes rescreening may be all that is needed, particularly if parents report that the child acted in an unusual, nontypical manner during testing, or if the child was ill or afraid of the examiner. Some programs screen their children using the full Battelle Developmental Inventory (Newborg et al., 1984) or the Bayley Scales of Infant Development (Bayley, 1969). This is not necessary during the screening phase, although it may be appropriate during the assessment phase. Overtesting at the screening phase is expensive and uses valuable resources needlessly.

A pitfall is expecting to get needed information from the wrong instrument.

A second pitfall is expecting to get the needed information from the wrong instrument. For example, if the intent is to determine accurately as many of the child's behaviors as possible in order to plan appropriate daily and weekly activities, then using a test such as the Developmental Profile II (Alpern, Boll, & Shearer, 1980) is inappropriate. Rather, a comprehensive test of developmental domains, such as the EPS (Bricker, Bailey, & Gentry, 1985), will yield the needed information. Another example of using the wrong instrument is seen when screening instruments such as the Denver Developmental Screening Test (Frankenburg, 1978) are used in place of a comprehensive set of tests and observations to assess the nature of the child's developmental level and handicapping conditions.

Activities need to be functional.

A problem arises when the information gathered in the assessment phase is linked to curricular activities for young children and the curricular activities consist of the test items. This is not a major issue in curriculum-referenced measures since the best of them suggest activities to meet a teaching objective and do not attempt to teach the item specifically (Fewell, 1983a). "Teaching the test" may result in higher scores on tests, but is not likely to lead to greater adaptability and functional behavior on the part of the child or greater comfort in the family. For example, learning to stack three blocks probably will not help the child with cerebral palsy learn to feed himself or herself or to communicate needs. Learning to control switches to activate a toy or to use a communication program is more functional, but does not appear on any developmental tests we have seen. Activities planned for young handicapped children need to be functional. They should help the child

have an impact on the environment and the people around him or her even though that impact may be small.

While P.L. 99-457 legislates an individualized family service plan, we must remember that families have different needs, different strengths, and a wide range of problems. A continuum of family participation in early intervention might range from the family as primary intervener to the family expecting outside professionals to intervene. A number of factors determine where on the continuum a family might fall, yet early intervention personnel, decision makers, and families themselves must recognize that there are different roles appropriate for family members to take in screening, assessment, and curriculum. Differences in families and their roles are important and must be considered in planning programs for them and their children. All families cannot be expected to take part in the same capacity.

All families cannot take part in the same capacity.

Finally, different professionals have different conceptions about what appropriate intervention activities really are, and so do families. Notions about differences between therapy and developmental activities are found among professionals. The role of play has been gaining increasing attention in programs for handicapped children, a positive step in early intervention. Yet the notion that child-controlled play activities are worthy of serious attention will probably be a point of contention among service providers in the coming years. Taken together with the need to provide integrated intervention activities rather than separate isolated events, developmentally appropriate activities that include a recognition of the importance of play should become the hallmark of early intervention activities.

We should not see a group of three infants pull up to a table and stand there looking at blocks and plastic cups in the middle, out of their reach, and then hear the physical therapist tell their mothers as she takes the manipulative materials away, "We're just working on motor activities now, not cognitive things." Removing the blocks and the cups removes the children's need to stand at the table so they can reach for something that interests them. It also confuses mothers. Integrating motor and cognitive elements in one activity, together with communication and social skills, provides a framework for meaningful, functional activities that make sense to families and provide beneficial experiences to infants and toddlers. Curricular integration is not viewed as an important strategy by all early interventionists, but it can be expected to gain in acceptance in the coming years.

Curricular integration can be expected to gain in acceptance.

SUMMARY

❑ The material in this chapter has been wide ranging, providing an overview of the relationships among screening, assessment, and curriculum in programming for handicapped infants and toddlers and their families, with attention to the potential impact of P.L. 99-457. Each topic can be reviewed in greater depth in a number of sources suggested by the references at the end of this chapter. The intent here was to provide initial, essential information to aid service providers in their efforts to establish infant programs and upgrade the quality of their services. Sharp distinctions between screening and assessment clarify personnel functions and agency responsibilities in interagency efforts. Continued

attention to the role of families in the processes has been emphasized. The issues discussed, together with new ones, are likely to be considered and argued by early intervention staff as we move into the full realization of the impact of P.L. 99-457.

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SELECTED 0–3 CURRICULA

ACTT Curriculum
Authors: Patricia L. Hutinger, Lori Perry, Linda Robinson, Kathie Weaver, and Kate Whitaker
Available from: Project ACTT, College of Education, Western Illinois University, 27 Horrabin Hall, Macomb, IL 61455.
Date of Publication: 1986
Cost: $40.00 plus shipping (ACTT Starter Kit sold separately)
Format: Paperback
Developmental Ages: Birth–8 years
Adaptations: Visual, auditory, and motor
Comments: The ACTT Curriculum is a supplemental curriculum designed for use in conjunction with existing early intervention programs for young children ages birth through 8 utilizing computer technology. The three primary components of the curriculum include Birth to Three, Three to Five, and Severe and Profound technological applications. Designed to complement the ACTT Starter Kit, the Curriculum contains functional activities, specific hardware and software applications, and adaptations for various handicapping conditions.

Adaptips
Authors: Judy A. Goodrich and Patricia G. Kinney
Available from: Curriculum Adaptations for the Deaf-Blind Project, Center for Professional Development, 105 Taylor Education Building, University of Kentucky, Lexington, KY 40506-0001.
Date of Publication: 1985
Cost: $12.00
Format: Paperback
Developmental Ages: 0–24 months
Comments: The Adaptips Manual is a process approach for adapting curricula to meet the needs of deaf-blind children who function in the sensorimotor developmental stage. The manual is intended to assist teachers in assessment and program planning for young deaf-blind children.

Carolina Curriculum for Handicapped Infants
Authors: Nancy M. Johnson, Ken G. Jens, and Susan M. Attermeier
Available from: Brookes Publishing Company, P.O. Box 10624, Baltimore, MD 21285-0883.
Date of Publication: 1985
Cost: $29.95
Format: Paperback, 278 pages
Developmental Ages: 0–24 months
Adaptations: Visual and motor
Comments. The CCHI, developed for use with severely handicapped infants and toddlers who function in the birth to 2-year range, is a developmentally sequenced curriculum organized into 19 curricular areas (e.g. tactile integration, auditory and space localization, gestural communication). The nine cognition domains are based on Piagetian theory. The gross motor sections were authored by a pediatric physical therapist and extensive drawings illustrate the text. Each objective specifies the position of the child, materials, teaching procedures, and evaluation of performance. Assessment log available.

Developmental Programming for Infants and Young Children
Authors: D. Sue Schafer and Martha S. Moersch
Available from: The University of Michigan Press, Department YB, P.O. Box 1104, Ann Arbor, MI 48106.
Date of Publication: 1981
Cost: $16.00 (Volumes 1-3 Assessment/Applications, Profile, Activities)
Format: Paperback
Developmental Ages: 0–36 months
Adaptations: Auditory, visual and motor
Comments. A developmentally sequenced curriculum which identifies the target behavior, the skill, and appropriate activities. Developmental areas addressed include cognition items that are cross-referenced with Piagetian domains of sensorimotor intelligence.

Hawaii Early Learning Profile (HELP) and HELP Activity Guide
Authors: Setsu Furuno, Carol Hosaka, Barbara Zeisloft, Katherine O'Reilly, Takayo Inatsuka and Toney Allman
Available from: VORT Corporation, P.O. Box 11552K, Palo Alto, CA 94306.
Date of Publication: 1979
Cost: HELP Charts $2.95/set of three, $1.95 (10 or more sets), Activity Guide. $14.95 (1 to 9 copies), $11.95 (10 or more copies)
Format: Paperback, 230 pages
Developmental Ages: 0–36 months
Adaptations: Motor

Comments: A developmentally sequenced curriculum which suggests several activities for each target behavior in developmental areas of cognition, expressive language, gross motor, fine motor, social-emotional and self-help. The home activities are intended to be incorporated into daily family routines.

Infant Learning: A Cognitive Linguistic Intervention Strategy
Author: Carl J. Dunst
Available from: DLM Teaching Resources, P.O. Box 4000, Allen, TX 75002.
Date of Publication: 1981
Cost: $22.00
Format: Paperback
Developmental Ages: 0–24 months
Comments: Curriculum focuses on an "ecological" approach to intervention. Behaviors are developed in the setting and context in which they will be used. This curriculum places emphasis on acquisition of cognitive linguistic competencies and expands the Piagetian theory of sensorimotor development.

HICOMP Curriculum and Guide
Authors: Sara J. Willoughby-Herb and John T. Neisworth
Available from: Charles E. Merrill (reference #410770), Columbus, OH 43216, 800/848-1567.
Date of Publication: 1983
Cost: $60.00
Developmental Ages: 0–60 months
Comments: This curriculum was developed for typical and atypical children and is based on normal developmental theory. Domains include selfcare, communication, motor and problem solving.

Macomb 0–3 Regional Project Core Curriculum (3rd Edition)
Authors: Patricia L. Hutinger, Sue Marshall, and Kathleen McCartan
Available from: Macomb 0-3 Regional Project, Room 27 Horrabin Hall, Western Illinois University, Macomb, IL 61455.
Date of Publication: 1983
Cost: $49.95; CORE (Computer Oriented Record-Keeping Enabler) available separately
Format: Looseleaf notebook, 265 pages
Developmental Ages: 0–36 months
Adaptations: Auditory, visual and motor
Comments: This developmentally sequenced curriculum places great emphasis on functional goals, objectives and activities in six curricular areas (Gross Motor, Fine Motor, Cognition, Communication, Social, and Self Care). The curriculum is divided into three major sections. Part I provides information regarding the curriculum format, target population, and use of the curriculum. Part II is the actual curriculum and Part III is a program planning guide to be used with individual children as programs are developed, implemented and monitored.

The Core Curriculum is intended for use by a variety of professionals, as well as in programs where a single child development specialist has program responsibility.

The CORE (Computer Oriented Record-keeping Enabler) computer program for Apple II and IIe and IBM was designed for use with the Macomb 0–3 Core Curriculum, it enables direct service staff to create and store goals and objectives for IEPs. Available for Apple CP/M (requires Z–80 card), Apple Pascal, and IBM at a cost of $89.95, or purchase Core Curriculum and CORE for $129.95.

Small Wonder (Level 1 and Level 2)
Author: Merle B. Karnes
Available from: American Guidance Service (AGS), Publisher's Building, Circle Pines, MN 55014.
Date of Publication: 1979, 1981
Cost: $92.00 per Level
Format: Kit includes user's guide, activity cards, puppet, picture card stories, ideas
Developmental Ages: 0–36 months
Adaptations: Motor
Comments: Each level contains 150 activity cards based on normal development. A user's guide for each level discusses health, safety, development, and adaptations for physically handicapped or developmentally delayed children.

SELECTED ASSESSMENT INSTRUMENTS

Developmental Measures

Bayley Scales of Infant Development
Author: Nancy Bayley
Available from: The Psychological Corporation, 757 Third Avenue, New York, NY 10017, or Regional Office, The Psychological Corporation, 7555 Caldwell Avenue, Chicago, IL 60648.
Date of Publication: 1969
Age Range: 2–30 months
Comments: A norm-referenced, standardized test accompanied by a rich research base, the data was collected on nonhandicapped children. Reliability and validity data are available. Both a Mental Scale and a Motor Scale provide a Mental Development Index and a Psychomotor Development Index.

Battelle Developmental Inventory
Authors: J. Newborg, J. Stock, L. Wnek, J. Guidabaldi, and J. Svinicki
Available from: DLM Teaching Resources, P.O. Box 4000, Allen, TX 75002.
Date of Publication: 1984
Age Range: 0–8 years
Comments. Norm-referenced, standardized developmental battery, meets the requirements of the Standards for Educational and Psychological Tests. The developmental sequence across five domains is appropriate for developing individual child plans. The domains are Personal-social, Adaptive, Motor, Communication, and Cognitive. However, it is a new instrument which has not yet been subjected to extensive research.

The Callier-Azusa Scale
Editor: Robert Stillman
Available from: The University of Texas at Dallas, Callier Center for Communication Disorders, 1966 Inwood Road, Dallas, TX 75235.
Date of Publication: 1977 (F. Edition) and 1978 (G. Edition)
Age Range: 0–9 years
Comments. Criterion-referenced test for deaf-blind and severely impaired children, includes 18 subscales which assess behaviors in five domains. Motor Development, Perceptual Abilities, Daily Living Skills, Cognition, Communication and Language, and Social Development.

The Evaluation and Programming System for Infants and Young Children (EPS)
Authors: D. Bricker, E. Bailey, and D. Gentry
Available from: The University of Oregon, Eugene, OR.
Date of Publication: 1985
Age Range: 0–3 years
Comments. A criterion-referenced instrument that includes functional goals and objectives, the EPS uses observation, direct testing, and parent report. Six domains are included. Gross Motor, Fine Motor, Communication, Cognition, Self-help, and Social. Each item can become a training objective. Adaptations for sensory and motor impairments are permitted.

The Revised Gesell Developmental Schedules
Authors: H. Knoblach, F. Stevens, and A. Malone
Available from. Medical Department, Harper and Row Publishers, Inc., 2350 Virginia Avenue, Hagerstown, MD 21740
Date of Publication: 1980
Age Range: 1–36 months
Comments. A norm-referenced assessment of overall development, the test includes five domains of behavior. Adaptive, Gross Motor, Fine Motor, Language, and Personal-Social. It provides developmental quotients and a maturity age score for general development and the five domains cited above.

Sensorimotor Measure

Ordinal Scales of Psychological Development
Authors: I. Uzgiris and J. Hunt
Available from: The University of Illinois Press, Urbana, IL 61801.
Date of Publication: 1975
Age Range: 1–24 months
Comments. A criterion-referenced ordinal scale, to assess the infant's functioning on the sequences within the six stages of the sensorimotor period. These scales are based on a Piagetian framework of cognitive development.

MEASURES ADMINISTERED BY SPECIALIZED PERSONNEL

Milani-Comparetti Developmental Scale
Authors: A. Milani-Comparetti and E. A. Gidoni
Available from: Meyers Children's Rehabilitation Institute, University of Nebraska at Omaha, Omaha, NE 68131.
Date of Publication: 1977
Age Range: 0–2 years
Comments: Measures physical development through "Spontaneous Behavior" and "Evoked Response." Designed for use by a physician, occupational therapist, or physical therapist. Motor development areas include the ability to control head and body, move from one position to another, stand up from a supine position, and move about.

Reflex Testing Methods for Evaluating CNS Development
Author: Mary Fiorentino
Available from: Charles C Thomas Publishers, 301–327 Lawrence Avenue, Springfield, IL 62717.
Date of Publication: 1979
Age Range: 0–6 years
Comments: Tests are designed for those evaluating and treating children with neurophysiological disorders, i.e., pediatricians, physical and occupational therapists. The purpose is to determine neurophysiological reflexive maturation of the central nervous system at the spinal, brain stem, midbrain, and cortical levels.

PARENT REPORT MEASURES

The Developmental Profile II (revised edition)
Authors: G. Alpern, T. Boll, and M. Shearer
Available from: Psychological Development Publications, Aspen, CO.
Date of Publication: 1980
Age Range: 0–12 years
Comments: A norm-referenced and standardized measure, the domains measured are Physical, Self-help, Social, Academic, and Communication. Normally the information is gathered through parent interview.

Minnesota Child Development Inventory (MCDI)
Authors: H. Ireton and E. Thwing
Available from: Behavior Science Systems, Inc., P.O. Box 1108, Minneapolis, MN 55440.
Date of Publication: 1972
Age Range: 6 months–6 years
Comments: The MCDI is standardized and uses the mother's observations to assess her child's development through her response to 320 statements. There are seven scales. Gross Motor, Fine Motor, Expressive Language, Comprehension-conceptual, Situation Comprehension, Self-help, and Personal-social. There is also a summary General Development Scale.

Parent-Child Interaction Measures

Human Interaction Scale
Authors: Burton White and Jean Watts
Available in: Experience and Environment, Volume 1, Prentice Hall, Inc., Englewood Cliffs, NJ.
Date of Publication: 1973
Age Range: Birth–6 years
Comments: An interaction rating scale to use with observations. The scale includes five dimensions. Activities, Initiation Index, Encouragement Index, Interaction Technique, and Compliance Index.

Teaching Skills Inventory
Authors: Steven Rosenberg, Cordelia Robinson, and Paula Beckman
Available from: Journal of the Division for Early Childhood (1984), *8,* 107–113.
Comments: Version 2, which rates the interaction between mother and child, includes 15 items rated on a 7-point scale. It assesses Structure of the Interaction, Maternal Responsivity, Maternal Instructional Skills, and Child Interest.

The Nursing Child Assessment Teaching Scale
Author: L. Barnard
Available from: Department of Parent and Child Nursing, NCAST, University of Washington, Seattle, WA 98105.
Date of Publication: 1979
Comments: This is an observational instrument that can be used to evaluate parent-child behaviors in an interactional context during a teaching situation.

Social Measures

A Social Maturity Scale for Blind Children
Authors: Kathryn Maxfield and Sandra Buckholz
Available from: The American Foundation for the Blind, Inc., New York, NY.
Date of Publication: 1957
Age Range: 0–6 years
Comments. The test was standardized with 484 visually handicapped children and is an adaptation of the Vineland Social Maturity Scale. It is usually administered in a parent interview format.

Vineland Social Maturity Scale (Revised)
Author: Edgar A. Doll
Available from: American Guidance Service, Inc., Publishers Building, Circle Pines, MN.
Date of Publication: 1985
Age Range: Birth–Adult
Comments. A norm-referenced measure to assess social competence in three formats. The survey edition, a questionnaire, assesses four domains (Communications, Daily Living Skills, Socialization, and Motor Skills) and 11 subdomains. Each of the subdomains generates an adaptive level and an age equivalent score.

Curriculum Referenced Measures

Peabody Developmental Motor Scales
Authors: Rebecca Fewell and Rhonda Folio
Available from: Teaching Resources Corporation, Hingham, MA.
Date of Publication: Revised Experimental Edition 1974
Age Range: Birth–7 years
Comments. Gross motor assessment includes reflexes, balance, nonlocomotive, locomotor, and receipt and propulsion of objects. Fine motor assessment includes grasping, hand use, eye-hand coordination and finger dexterity. A program of activities to teach each skill is included.

Skills Inventory (The Oregon Project for Visually Impaired and Blind Preschool Children)
Authors: Donnise Brown, Vickie Simmons, and Judy Methvin
Available from: OREGON Project, Jackson County Education Service District, Medford, OR.
Date of Publication: 1979
Age Range: Birth–6 years
Comments. Although this is not a normed assessment instrument, it can be used to determine performance level for visually impaired or blind children. It includes a Skills Inventory in the areas of Cognition, Language, Self-help, Socialization, Fine Motor, and Gross Motor. Teaching activities are included.

Language and Communication Measures

Protocols for Language Samples and Mean-Length Utterance
Authors: Jon Miller, Thomas Klee, Reha Paul, and Robin Chapman
Available in. Assessing Language in Children, Experimental Procedures, University Park Press, Baltimore, MD.
Age Range: Infants, toddlers, and older children
Comments. Procedures to assess productive language behavior in children based on work with developmentally disabled children. Includes ways to measure pragmatics, morpheme counts, syntax, and semantics.

Receptive-Expressive Emergent Language Scale (REEL)
Authors: K. R. Bzoch and R. League
Available from: University Park Press, Baltimore, MD.
Date of Publication: 1971
Age Range: Birth–3 years
Comments. Intended to identify very young children who may need early language intervention, the scales include auditory perception, auditory association and recall, and auditory-motor learning.

Sequenced Inventory of Communication Development
Authors: Dona Lea Hedrick, Elizabeth Prather, and Annette R. Tobin
Available from: Western Psychological Services, Los Angeles, CA.
Date of Publication: 1978
Age Range: 4–48 months
Comments. The receptive language scale includes assessment of sound and speech awareness, discrimination, and understanding. The expressive scale includes imitating, initiating, and responding. The scale also assesses length of expressive language, grammatic and syntactic structure, and articulation.

SELECTED SCREENING INSTRUMENTS

Screening Measures Administered by Medical Personnel

Apgar Scales
Author: Virginia Apgar
Available in: *Current Research in Anesthesia and Analgesia, 32,* 260.
Date of Publication: 1953
Developmental Age: Neonates
Comments: A medical evaluation of fine signs in the newborn infant within minutes after birth. It is a rating system for heart rate, respiration, reflex to stimulation, muscle tone, and color.

Brazelton's Neonatal Behavior Assessment Scale
Author: T. Berry Brazelton
Available from: J. B. Lippincott Co., Philadelphia, PA.
Date of Publication: 1974
Developmental Age: Birth through first month of life
Comments: Provides a measure of physical maturation and responsivity. Includes six stages of state from sleep to crying, 11 specific behaviors, and 16 general behaviors as well as habituation.

Developmental Screening Measures Administered by Early Intervention Staff

Battelle Developmental Inventory Screening Test
Authors: J. Newborg, J. Stock, L. Wnek, J. Guidabaldi, and J. Svinicki
Available from: DLM Teaching Resources, P.O. Box 4000, Allen, TX 75002.
Date of Publication: 1984
Developmental Age: 0–8 years
Comments: Norm-referenced, standardized test in fine domains, personal, social, adaptive, motor, communication, and cognition. Each domain contains subdomains. A set of testing materials can be purchased.

Denver Developmental Screening Test (DDST)
Authors: W. Frankenburg, J. Dodds
Available from: Ladoca Project and Publishing Foundation, Inc., Denver, CO.
Date of Publication: 1970
Developmental Age: 0–6 years
Comments: Screens gross motor, language, fine motor-adaptive, and personal-social skills. Based on the Gesell Developmental Schedules, the DDST was developed to identify children whose development was normal, abnormal, or questionable.

Denver Prescreening Development Questionnaire (DPDQ)
Authors: W. K. Frankenburg, W. J. van Doorninck, T. N. Liddell, and N. P. Dick
Available from: *Pediatrics,* 1976, *57*(5), 744–753.
Developmental Age: 3–6 years
Comments: Designed to be used together with the DDST, the DPDQ provides information about the parents perception of their child's level of developmental functioning.

Developmental Activities Screening Inventory (DASI)
Authors: R. Dubose and M. Langley
Available from: Teaching Resources, Inc., Hingham, MA.
Date of Publication: 1977
Developmental Age: 6 months–6 years
Comments: For sensory-impaired preschoolers, covers fine motor, causality-means/ends, number concepts, size discrimination, and seriation. Bricker (1986) suggests that this is an "interim" screening between identification of problems in development and assessment for program planning.