Wisconsin Department of Health and Family Services

Wisconsin Birth to 3 Program: Guidelines for Determining Eligibility

November 2005

Overview of the Evaluation and Eligibility Process

Introduction

Purpose of this document: To convey standards and best practices for determining eligibility for early intervention services so there is a consistent approach to eligibility determination with clear and specific guidelines for each domain. This document reflects the work of the Eligibility Workgroup that convened on a regular basis from March 2001 to July 2003.

Both the federal Individuals with Disabilities Education Act (IDEA) and the state law (Chapter HFS 90, Wisconsin Administrative Code) give guidelines on eligibility determination. However, questions remain and clarification is needed. To maintain a quality Birth to 3 Program statewide, consistent standards are appropriate. This document is an attempt to clarify Wisconsin's guidelines for the process of determining eligibility within the Birth to 3 Program.

In accordance with the law, determining eligibility means that any child who meets the criteria for "developmental delay" or who has a diagnosed condition with a high probability of resulting in developmental delay may be eligible for services through the Birth to 3 Program. The decision about eligibility is made by a team. This document describes the process of referral, the composition of the Early Intervention team (EI Team) and determination of eligibility prior to the provision of intervention. For the purposes of this document, EI Team means the interdisciplinary team as defined in HFS 90.03 (17).

This document includes specific considerations and resources for evaluating each of the five developmental areas: cognitive, communication, gross and fine motor, social/emotional and adaptive/self-help. Screening, evaluation and assessment are defined and their differing applications during the process of eligibility determination are presented.

The Law
Chapter HFS 90, Wis. Adm. Code

Guidelines in Determining Eligibility

According to HFS 90.08 (5) and (6), a child is eligible for early intervention services in the Birth to 3 Program if the EI team determines that the child is developmentally delayed or that the child has a diagnosed physical or mental condition which will likely result in a developmental delay.

HFS 90.08(5) Determination of a Developmental Delay.

(a) A determination of developmental delay shall be based upon the EI team's clinical opinion supported by:

1. A developmental history of the child and other pertinent information about the child obtained from parents and other caregivers;
2. Observations made of the child in his or her daily settings identified by the parent including how the child interacts with people and familiar toys and other objects in the child's environment; **AND**

3. Except as provided under paragraph (b), a determination of at least 25% delay in one or more areas of development as measured by a criterion referenced instrument, or a score of 1.3 or more standard deviation below the mean in one or more areas of development as measured by a norm referenced instrument, and interpreted by a qualified professional based on informed clinical opinion. In this subdivision, areas of development mean:
   a. Cognitive development;
   b. Physical development, including vision and hearing;
   c. Communication development;
   d. Social and emotional development; and
   e. Adaptive development which includes self-help skills.

(b) If the results of the formal testing under paragraph (a) 3 closely resemble but do not equal the standard in paragraph (a) 3 for a developmental delay but observation by qualified personnel or parents indicates that some aspect of the child's development is atypical and is adversely affecting the child's overall development, the EI team may use alternative procedures or instruments that meet acceptable professional standards to document the atypical development and to conclude, based on informed clinical opinion, that the child should be considered developmentally delayed.

Note: Examples of atypical developments are asymmetrical movement, variant speech and language patterns, delay in achieving significant interactive milestones such as exhibiting a pleasurable response to a caregiver's attention, and presence of an unusual pattern of development such as a sleep disturbance or eating difficulties.

(6) Determination of a diagnosed condition.

A determination of high probability that a child's diagnosed physical or mental condition will result in a developmental delay shall be based upon the EI team's informed clinical opinion supported by a physician's report documenting the condition. High probability implies that a clearly established case has been made for a developmental delay.

Currently a note follows this section in HFS 90. This note will be replaced with a reference to the list that appears in this document on page 15, titled "Diagnosed Conditions and Atypical Development –Guidance for Wisconsin's Birth to 3 Program". High probability means that evidence has been shown that the condition has a 50% or greater likelihood of resulting in a developmental delay.

Setting the scene

Any discussion of federal and state laws and their application is incomplete without incorporating the guiding principles and mission of Wisconsin's Birth to 3 Program. This mission and these guiding principles provide the framework for all decisions and discussions about infants and toddlers who have special needs. They continue to be as appropriate today as when they were developed in 1988. They are indicative of the commitment of the Wisconsin Birth to 3 Program to children and their families.

Guiding the Way

Guiding principles outline what we believe to be important. They provide a framework for our decision-making. The following guiding principles were adopted by the Governor's appointed Interagency Coordinating Council in December 1988.

Children's optimal development depends on their being viewed first as children and second as children with a problem or disability. All children have the same basic needs for acceptance, affection, nurturing and security. The system should encourage the integration of children with disabilities with children who do not have disabilities. The developmental, social, emotional and physical needs of all children must be considered in the delivery of any service. We must always ask ourselves, are we considering the whole child or just one facet of the child?

Children's greatest resource is their family. Children are best served within the context of family. Young children's needs are closely tied to the needs of their family. Both must be met to adequately serve the child. The nurturing, love, and commitment of a family cannot be replaced by any array of services. The best way to support children and meet their needs is to support and build upon the individual strengths of their family. The Individualized Family Services Plan (IFSP) focuses on how the system can support the "whole" family, its cultural values, strengths, and needs.

Parents are partners in any activity that serves their children. Parents or primary caregivers have a unique understanding of their children's needs. They are the primary teachers of their children. They have the special bond of kinship and commitment that no professional will ever have. They must be given the opportunity and encouragement to be a part of the decision-making process and empowered so that they are partners in the services developed for their child.

Just as children are best supported within the context of family, the family is best supported within the context of the community. Families depend on the positive relationships they make through the formal and informal networks in the community. Community resources should be open and able to respond to all families. Successful supportive services value the integrity of the family, its unique needs and cultural heritage, and provide a link to traditional community resources.

Professionals are most effective when they can work as a team member with parents and others. This requires flexibility and openness, joint training experiences, shared views of infant and family development, and commitment to team cooperation. The abilities of a variety of individuals both paid and volunteer to teach, assist, and develop relationships which help families must be recognized and promoted.

Collaboration is the best way to provide comprehensive services. No single agency is able to provide all services to all children and families. Cooperation and shared responsibility are necessary components of a service system that is able to meet the varied needs of children and families. Just as agencies must establish partnerships at the local level, the state must assume a role as a partner with local communities to enhance our mutual ability to serve young children with disabling conditions and their families.

Early intervention enhances the development of children. Early intervention is appropriate for children and families. It is often cost efficient and effective for society and the taxpayer. The goals of early intervention are to: enhance the capacity of families to meet the special needs of their child, maximize the potential for independent living, and reduce costs to our society.

Mission Statement

The Birth to 3 Program is committed to children under the age of three with developmental delays and disabilities and their families. We value the family's primary relationship with their child and work in partnership with the family. We work to enhance the child's development and support the family's knowledge, skills, and abilities as they interact with and raise their child.

For information on the Birth to 3 program go to the Birth to 3 website: www.dhfs.Wisconsin.gov/bdds/birthto3

For information about the evaluation and assessment processes, including additional resources, visit the Birth to 3 Program Training and Technical Assistance sites at http://www.waisman.wisc.edu/birthto3/EVALANDASSESS.HTML

In addition to Wisconsin's Guiding Principles listed above, two national organizations with interest in young children have studied and published principles and recommended practices regarding the evaluation and assessment of young children. The work of the *Zero to Three National Center for Infants, Toddlers, and Families* and the *Division for Early Childhood* are included in Appendices 3 and 4. Readers should reflect on these recommendations and integrate them into practice when conducting evaluation and assessment.

While this document defines procedures in determining a child eligible for Birth to 3 services, the Guiding Principles, the Mission Statement, the ZERO TO THREE Principles (Appendix 3) and the Division for Early Childhood (DEC)Recommended Practices (Appendix 4) stress the relationship aspects of evaluating and assessing young children within the family context.

Determining Eligibility for Early Intervention Services

Procedures for determining eligibility for the Birth to 3 Program differ depending on the nature of the referral. The flowchart on page 8 summarizes these procedures. Several definitions and descriptions of team members will help clarify the language used in the chart. A full narrative follows the chart to explain procedures in greater detail.

Definitions:

Screening – Screening is the process of observation, parent interview, and informal assessment of a few indicators of developmental status that indicate whether or not further evaluation is appropriate. If the referral source is unclear about whether the need is for screening or evaluation, further questioning may clarify the issue. If the child has a diagnosis that has a 50% or greater probability of resulting in a developmental delay proceed directly to evaluation. Screening should not be conducted for children who have a strong indication of need for evaluation.

Evaluation – Evaluation is the process of gathering data to determine initial and continuing eligibility. This data may include diagnostic information, records review, parent interview, observation in a natural environment, and administration of formal tests.

Assessment – Assessment is an initial and ongoing process of gathering information to determine developmental functioning in the five areas of development. The purpose of assessment is to identify the unique strengths, needs, and resources of the child and family. It may consist of additional observations and interviews, and administration of formal or informal assessment tools. Assessment may begin concurrently with evaluation. Assessment is useful for appropriate planning for intervention and determining the effects the intervention.

Role of the Service Coordinator

The service coordinator is assigned as soon as possible after the referral. After reviewing the referral information and information from the intake visit the service coordinator selects the team, ensuring that team membership reflects the area(s) of suspected delay.

The service coordinator is the primary contact person for the family and the rest of the team. It is this person's job to ensure that the family is involved and consulted throughout the entire evaluation process. The service coordinator facilitates the team and schedules evaluations, eligibility meetings, IFSP meetings, and reviews. (See Appendix 5 for best practices involving parents in planning and carrying out the evaluations)

Prior to evaluation the service coordinator should get the child's medical history, developmental history, educational history (previous interventions), and social history (siblings, peer interactions, behaviors, etc). Any information that is learned about the child's routine, temperament, and frustration level is also important for the evaluation process. This information should be shared with the team prior to conducting their evaluations.

Coordination with medical and other health care providers is part of the role. To insure good team communication, the service coordinator should facilitate information gathering and sharing during all phases of eligibility determination, the IFSP process and service provision.

Early Intervention Team Membership

The early intervention team must include at least two persons qualified to perform evaluations and assessments, the parent(s), and a service coordinator. (The service coordinator may also be one of the evaluating members, given the appropriate credentials.) The membership of the team must reflect the areas of suspected need. One member of the team must be knowledgeable about typical and atypical development and program planning.

According to HFS 90.08(3)(b) personnel who are qualified to serve on the early intervention team to perform evaluation and make the determination of eligibility are the following (see HFS 90 for qualifications for each):

1. Audiologists
2. Nutritionists
3. Occupational Therapists
4. Physical Therapists
5. Physicians
6. Psychologists
7. Rehabilitation Counselors
8. Registered Nurses
9. School Psychologists
10. Social Workers
11. Special Educators
12. Speech and Language Pathologists
13. Other persons qualified by professional training and experience to perform evaluation and determine eligibility.

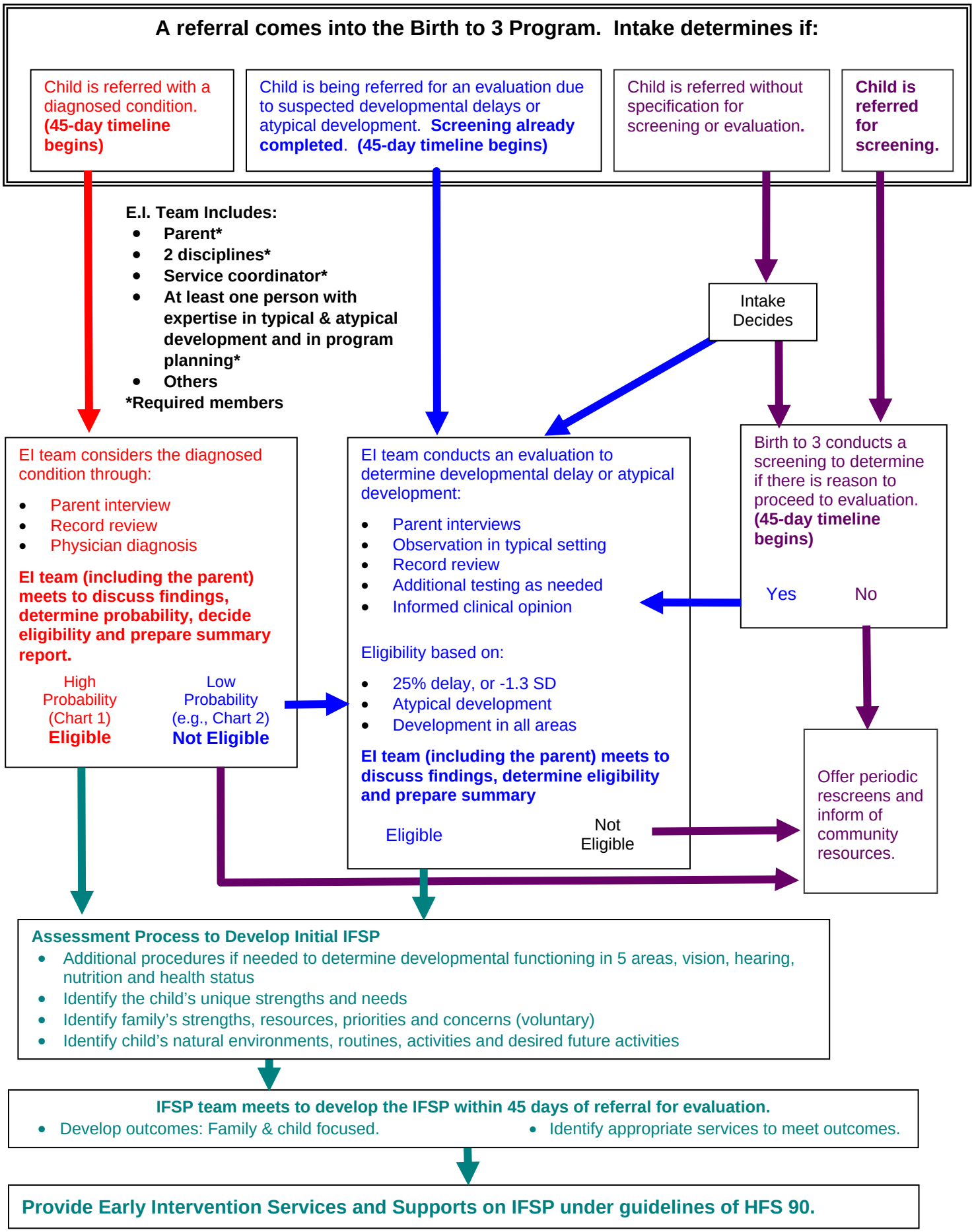
Considerations for team membership when there is suspicion of delay in only one area of development

Evaluators must be from at least two different disciplines in area(s) of concern. [HFS 90.08(3a)] One team member must have expertise in the area of typical and atypical development. The composition of the early intervention team depends on the concerns presented by the child and the focus of the evaluation determined by the parents and the rest of the team.

The service coordinator could be the second discipline for the evaluation only if qualified in an area of concern. In this role the service coordinator/evaluator must represent a discipline different than the other early intervention team member. For example, if the service coordinator is an educator, the service coordinator could perform the role of the educator and service coordinator, provided another person on the team represents a different discipline such as speech and language. If the service coordinator is a social worker, the social worker may be the second qualified provider if that person's skills and training relate to the referral concerns. For example if there are concerns about behavior, social-emotional development or family interactions, a social worker may be prepared to evaluate these concerns.

Both disciplines need to be involved in evaluation and must be represented at the eligibility meeting and IFSP development meeting.

Birth to 3 Program Flow Chart



Flow Chart Narrative

Referrals to the Birth to 3 Program can be made by anyone with knowledge of the child. Possible referral sources include, but are not limited to, parents, grandparents, physicians, hospital discharge planners, social workers, public health providers, child care providers, teachers, Early Head Start providers, etc. The referral may be in writing or may be made in a telephone call. The first job of the Birth to 3 Program intake person is to determine the intent of the referral.

- Does the child have a diagnosed condition?
- Is the child being referred for an evaluation due to a suspected developmental delay or atypical development?
- Is the child being referred for a screening?
- Is the referral non-specific?

Each of these scenarios will be addressed and procedures for follow-up will be provided. If the referral is for evaluation, the 45-day timeline begins with the referral. If the referral is for screening, the 45-day timeline begins if and when a need for further evaluation is indicated.

The child is referred with a DIAGNOSED CONDITION.

1. During the initial referral call or contact, the intake person gathers information to help determine the nature of the diagnosed condition. A **service coordinator** is assigned immediately. The 45-day timeline begins with the referral. The service coordinator contacts the parents to schedule a home visit and discuss the referral from the parents' perspective.
2. During the **initial visit,** the service coordinator establishes rapport with the family, describes the Birth to 3 Program, interviews the parents and obtains appropriate consents (record releases, consents for other team members, consents for evaluations). As much information as can be is gathered in the five areas of development (cognitive, communication, motor, social/emotional and adaptive/self-help). Any available records are reviewed as well as documentation of the child's diagnosis.
    a. If the condition is on the list of those with a **high probability** (50% or greater) of resulting in a developmental delay (see *Diagnosed Conditions and Atypical Development Chart 1*), an **eligibility** meeting is scheduled. (Eligibility is a team decision.) Screening should not be done. Evaluation may not be necessary if there is sufficient information available about the child's current development.
    b. If the condition is on the list of **diagnosed conditions that do not have a high probability of resulting in developmental delay** (see *Diagnosed Conditions and atypical Development Chart 2*)**,** assemble the Early Intervention Team and schedule **evaluation**.
    c. If the condition is not listed on either chart and there are concerns about the child's development decide with the family whether to screen or evaluate the child and proceed accordingly.
3. Based on the known concerns about the child's development, the **Early Intervention Team** is gathered to review reports and conduct any evaluations needed. At a minimum, this team includes the parents, the service coordinator, and qualified persons

from at least two disciplines that are appropriate for the area(s) of concern of the child. The discipline in which there is a probability of delay should be represented on the team. At least one person with expertise in typical and atypical development and program planning is a required member of the team.

4. After the initial visit, records and any information gathered by the service coordinator are shared with the rest of the team.
5. The Early Intervention Team meets at a time and location of the family's convenience. At this **eligibility meeting,** findings are discussed and a brief **summary report** is developed. The five areas of development are addressed. Statements of the child's health status, hearing, vision and nutrition may be included. Together the team makes a determination of eligibility based on the information gathered and informed clinical opinion. The team members sign the summary report.
6. If the team agrees that the child is **eligible** for services:
    a. Arrangements are made for further **assessment** to identify the child's unique strengths and needs. With parent consent, the family's strengths, resources, priorities and concerns are also determined. At this time, the child and family's natural environments, routines and activities are identified. Information about the child's health, vision, hearing and nutrition should be gathered if it has not already been done.
    b. The IFSP team (including the family) meets to develop the **IFSP**. Family and child-focused outcomes are developed and appropriate services and strategies are identified.
    c. Provide the Early Intervention **services** and supports as listed on the IFSP under the guidelines of HFS 90.11.
7. If the Early Intervention Team determines after reviewing the records that the child is **not eligible based on the diagnosed condition** (the probability of developmental delay is less than 50%) and there are concerns about the child's development:
    a. The team arranges and conducts an **evaluation** to determine whether a developmental delay exists or if development is atypical. This evaluation consists of parent interview, observations of the child in typical setting, records review, testing as needed and informed clinical opinion.
    b. Each team member involved in evaluating the child may prepare an **individual report** although individual reports are not required. These reports may express opinions about the child's needs but should not include recommendations for services. While it is understood that some providers may need to make recommendations on reports for third party pay sources, it is not appropriate to bring these to the meeting. This needed information may be added to the report after the meeting. Any individual reports should be made available to the family prior to the meeting.
    c. The Early Intervention Team meets at a time and location of the family's convenience. At this **eligibility meeting,** findings are discussed and a **brief summary report** is developed. The five areas of development are addressed. Statements of the child's health status, hearing, vision and nutrition may be included at this point if the information is available. Together the team makes a determination of eligibility based on the information gathered and informed clinical opinion. The team members sign the summary report.

d. If the team agrees that the child is **eligible** for services:
    1) Arrangements are made for further **assessment** to identify the child's unique strengths and needs. With parent consent, the family's strengths, resources, priorities and concerns are also determined. At this time, the child and family's natural environments, routines and activities are identified.
    2) The IFSP team (including the family) meets to develop the **IFSP**. Family and child-focused outcomes are developed and appropriate services and strategies are identified.
    3) Provide the Early Intervention **services** and supports as listed on the IFSP under the guidelines of HFS 90.11.
e. If the team determines that the child is **not eligible** for services at this time, an offer to rescreen the child within 3-6 months is made, information about appropriate community programs is shared, and, if the parent requests and consents, the service coordinator assists with and makes a referral to other programs (HFS90.08 (7)(j)).

The child is being referred for an EVALUATION due to suspected developmental delays or atypical development. (Screening has already been completed.)

1. During the initial referral call or contact the intake person gathers information to help determine the nature of the referral. A **service coordinator** is assigned immediately. The 45-day timeline begins with the referral. The service coordinator contacts the parents to schedule a home visit and discuss the referral from the parents' perspective.
2. During the **initial visit,** the service coordinator establishes rapport with the family, describes the Birth to 3 Program, obtains appropriate consents (record releases, consents for other team members, consents for evaluations) and interviews the parent(s). As much information as can be is gathered in the five areas of development (cognitive, communication, motor, social/emotional and adaptive/self-help). Any available records are reviewed.
3. The **Early Intervention Team** is gathered. At a minimum, this team includes the parent(s), the service coordinator, and qualified persons from at least two disciplines that are appropriate for the area(s) of concern for the child. At least one person with expertise in typical and atypical development and program planning must be a member of the team.
4. After the initial visit, records and any information that has been gathered by the service coordinator are shared with the rest of the team.
5. The Early Intervention Team conducts an **evaluation** to determine whether or not a developmental delay exists or if the child's development is atypical. The evaluation consists of parent interviews, observation of the child in a typical setting, records reviews, testing as needed and informed clinical opinion.
6. Each team member involved in evaluating the child may prepare an **individual report** although individual reports are not required. These reports may express opinions about the child's needs but should not include recommendations for services. While it is understood that some providers may need to make recommendations on reports for third party pay sources, it is not appropriate to bring these to the meeting. This needed information may be added to the report after the meeting. Any individual reports should be made available to the family prior to the meeting.

7. The Early Intervention Team meets at a time and location of the family's convenience. During this **eligibility meeting,** findings of the team are discussed and a brief **summary report** is developed. The five areas of development are addressed. Statements of the child's health status, hearing, vision and nutrition may be included at this point if the information is available. Together the team makes a determination of **eligibility** based on the information gathered and informed clinical opinion. The team members sign the summary report.
8. If the team agrees that the child is **eligible** for services:
    a. Arrangements are made for further **assessment** to identify the child's unique strengths and needs. With parent consent, the family's strengths, resources, priorities and concerns are also addressed. At this time, the child and family's natural environments, routines and activities are identified.
    b. The IFSP team (including the parents) meets to develop the **IFSP**. Family and child-focused outcomes are developed and appropriate services and strategies are identified.
    c. Provide the Early Intervention **services** and supports as listed on the IFSP under the guidelines of HFS 90.11.
9. If the team determines that the child is **not eligible** for services at this time, an offer to rescreen the child within 3-6 months is made, information about appropriate community programs is shared, and, if the parent requests and consents, the service coordinator assists with and makes a referral to other programs (HFS90.08 (7)(j)).

The child is referred WITHOUT SPECIFICATION FOR SCREENING OR EVALUATION.

1. The intake person attempts to determine the intent of the referring party. If **no screening** has been conducted, the child may be screened to determine if there is reason to proceed to evaluation. Proceed to step 3.
2. If the concerns indicate, screening may be skipped and the **service coordinator** is assigned to begin the evaluation process (step 4).
3. If the screening **does not indicate the need for an evaluation,** the family is offered rescreening within 3-6 months and is informed of appropriate community resources.
4. If screening **indicates the need for evaluation** a **service coordinator** is assigned immediately. The 45-day timeline begins when the screening indicates the need for evaluation.
5. The service coordinator contacts the parents to discuss the screening results and schedule a home visit.
6. During the **initial visit**, the service coordinator establishes rapport with the family, describes the Birth to 3 Program, secures appropriate consents (record releases, consents for other team members) and interviews the parent(s). As much information as can be is gathered in the five areas of development (cognitive, communication, motor, social/emotional and self-help/adaptive). Any available records are reviewed.
7. The **Early Intervention Team** is gathered. At a minimum, this team includes the parent(s), the service coordinator, and qualified persons from at least two disciplines that are appropriate for the area(s) of concern for the child. One person with expertise in typical and atypical development and program planning is a required member of the team.

8. After the **initial visit,** records and any information that has been gathered by the service coordinator are shared with the rest of the team.
9. The Early Intervention Team conducts an **evaluation** to determine whether a developmental delay exists or if the child's development is atypical. The evaluation consists of parent interviews, observation of the child in a typical setting, records review, testing as needed and informed clinical opinion.
10. Each team member involved in evaluating the child may prepare an **individual report** although individual reports are not required. These reports may express opinions about the child's needs but should not include recommendations for services. While it is understood that some providers may need to make recommendations on reports for third party pay sources, it is not appropriate to bring these to the meeting. This needed information may be added to the report after the meeting. Any individual reports should be made available to the family prior to the meeting.
11. The Early Intervention Team meets at a time and location of the family's convenience. At this **eligibility meeting** findings are discussed and a brief **summary report** is developed. The five areas of development are addressed. Statements of the child's health status, hearing, vision and nutrition may be included at this point if the information is available. Together the team makes a determination of eligibility based on the information gathered and informed clinical opinion. The team members sign the summary report.
12. If the team agrees that the child is **eligible** for services:
    a. Arrangements are made for further **assessment** to identify the child's unique strengths and needs. With parent consent, the family's strengths, resources, priorities and concerns are also addressed. At this time, the child and family's natural environments, routines and activities are identified.
    b. The IFSP team (including the family) meets to develop the **IFSP**. Family and child-focused outcomes are developed and appropriate services and strategies are identified.
    c. Provide the Early Intervention **services** and supports as listed on the IFSP under the guidelines of HFS 90.11.
13. If the team determines that the child is **not eligible** for services at this time, an offer to rescreen the child within 3-6 months is made, information about appropriate community programs is shared, and, if the parent requests and consents, the service coordinator assists with and makes a referral to other programs (HFS90.08 (7)(j)).

The child is referred for SCREENING:

1. The child is screened to determine if there is reason to proceed to evaluation
2. If the screening **does not indicate the need for an evaluation,** the family is offered rescreening within 6 months and is informed of appropriate community resources.
3. If screening **indicates the need for evaluation** a **service coordinator** is assigned immediately. The 45-day timeline begins when the screening indicates the need for evaluation.
4. The service coordinator contacts the parents to discuss the screening results and schedule a home visit.

5. During the **initial visit** the service coordinator establishes rapport with the family, describes the Birth to 3 Program, secures appropriate consents (record releases, consents for other team members) and interviews the parents. As much information as can be is gathered in the five areas of development (cognitive, communication, motor, social/emotional and self-help/adaptive). Any available records are reviewed.
6. The **Early Intervention Team** is gathered. At a minimum, this team includes the parent(s), the service coordinator, and qualified persons from at least two disciplines that are appropriate for the area of concern for the child. At least one person with expertise in typical and atypical development and program planning is a required member of the team.
7. After the initial visit, records and any information that has been gathered by the service coordinator are shared with the rest of the team.
8. The Early Intervention Team conducts an **evaluation** to determine whether or not a developmental delay exists or if the child's development is atypical. The evaluation consists of parent interview, observation of the child in a typical setting, records review, testing as needed and informed clinical opinion.
9. Each team member involved in evaluating the child may prepare an **individual report** although individual reports are not required. These reports may express opinions about the child's needs but should not include recommendations for services. While it is understood that some providers may need to make recommendations on reports for third party pay sources, it is not appropriate to bring these to the meeting. This needed information may be added to the report after the meeting. Any individual reports should be made available to the family prior to the meeting.
10. The Early Intervention Team meets at a time and location of the family's convenience. At this **eligibility meeting** findings are discussed and a brief **summary report** is developed. The five areas of development are addressed. Statements of the child's health status, hearing, vision and nutrition may be included at this point if the information is available. Together the team makes a determination of eligibility based on the information gathered and informed clinical opinion. The team members sign the summary report.
11. If the team agrees that the child is **eligible** for services:
    a. Arrangements are made for **further assessment** to identify the child's unique strengths and needs. With parent consent, the family's strengths, resources, priorities and concerns are also determined. At this time, the child and family's natural environments, routines and activities are identified.
    b. The IFSP team, including the family, meets to develop the **IFSP**. Family- and child-focused outcomes are developed and appropriate services and strategies are identified.
    c. Provide the Early Intervention **services** and supports as listed on the IFSP under the guidelines of HFS 90.11.
12. If the team determines that the child is **not eligible** for services at this time, an offer to rescreen the child within 3-6 months is made, information about appropriate community programs is shared, and, if the parent requests and consents, the service coordinator assists with and makes a referral to other programs. [HFS90.08 (7)(j)]

Diagnosed Conditions and Atypical Development
Guidance for Wisconsin's Birth to 3 Program

Children are found eligible for Wisconsin's Birth to 3 Program because of:

a) A diagnosed physical or mental condition with a high probability of resulting in a developmental delay, based on the early intervention team's informed clinical opinion and supported by a physician's report documenting the condition.
b) A developmental delay of 25% (or 1.3 standard deviation below the mean) in one or more areas of development. This delay is documented from a number of perspectives (i.e., observations in natural environments, testing procedures, review of records, parent report and informed clinical opinion) by a qualified early intervention team that includes the parents.
c) Atypical development that is based on the informed clinical opinion of the early intervention team. When testing results closely approach but do not demonstrate a delay (25% or -1.3 S.D.) and observations indicate that some aspect of the child's development is atypical and adversely affecting the child's overall development, the early intervention team may use alternative procedures to document atypical development and conclude that the child should be considered developmentally delayed.

The following information was prepared by the Birth to 3 Eligibility Work Group to give clarity to an evaluation team in determining a child's eligibility for the Birth to 3 Program in Wisconsin.

A. Diagnosed Conditions:
Some children served by Wisconsin's Birth to 3 Program are found eligible based on a diagnosed condition that has a high probability of resulting in a developmental delay. High probability implies that a clearly established case has been made for a developmental delay. In Wisconsin, "high probability" is defined as ***50% or greater likelihood of delay***.

Information regarding diagnosed conditions changes as medical advances and new information becomes available. For example, it was once believed that all children born with HIV or cocaine exposure would have a high probability of having developmental delays. Recent research and experience has described different outcomes for these children.

Research is a dynamic process and reflects medical and intervention advancements. As a result the eligibility work group has developed a list of diagnosed conditions that is based on the best thinking and research in 2003. The list is based on a) a review of other states' lists of diagnosed conditions, b) input from physicians with expertise in genetics, neonatology, and development and c) a review of published literature.

See Chart 1 for a listing of the current conditions that conform to the 50% or greater probability guideline. A diagnosis of one of these conditions would mean a child is eligible for Birth to 3 regardless of their current development functioning. Information about the child's developmental status, however, is needed to develop an Individualized Family Service Plan. This list is **definitive** in that the conditions listed in Chart 1 have a 50% or greater probability of resulting in delay, but it is **not inclusive** as there may be other conditions that will be added.

B. Developmental Delay:
It is not necessary to have a diagnosed condition to be eligible for the Birth to 3 Program. In fact, the majority of children served in Wisconsin's Birth to 3 Program are eligible because of developmental delays (25% or –1.3 standard deviations below the mean) in at least one of the following five areas of development: cognitive, communication, motor, self-help/adaptive, and social emotional.

Research suggests that there are numerous diagnosed conditions that ***do not*** have a high probability of resulting in developmental delay. Clearly, there are some diagnosed conditions such as neurofibromatosis and torticollis, for which there is not evidence that a developmental delay will result. This means that these conditions in and of themselves do not point toward eligibility for early intervention; however, there may be other circumstances in the child's life (e.g., health status, family situations) that may influence the course of the child's development. When developmental concerns exist concurrent with these diagnosed conditions,

the child's evaluation team would determine eligibility based on whether there is delayed or atypical development. (See Chart 2-I & II.)

C. Atypical Development: In some instances a 25 % delay or a -1.3 SD below the mean may not exist, but in the opinion of the early intervention team, some aspect of the child's development is atypical. The development may be unusual in its pattern and adversely affects the child's overall development. Under these circumstances, the team substantiates their clinical opinion with observations, interpretations of test results, review of records, and parent reports to determine eligibility based on atypical development. Under these circumstances, it is the child's atypical development, not a condition that leads to eligibility. (See Chart 2-III.)

Chart 1: Diagnosed Conditions

Examples of diagnosed conditions with a high probability (50% or more) of resulting in developmental delay are listed below. Please note that this is a definitive, but not an inclusive list.

1. **Genetic**
   - A. Chromosomal anomalies
     (Down syndrome, trisomy 13, trisomy 18, 5p deletion syndrome (Cri du chat), 4p deletion syndrome, 1p36 deletion syndrome, 17p13.3 deletion syndrome (Miller-Dieker syndrome), Fragile X syndrome-in boys)
   - B. Inborn errors of metabolism
     (Storage disorders (such as Hurler syndrome, Hunter syndrome, and I-Cell disease), Untreated or poorly controlled PKU, Maple Syrup Urine disease, Tay-Sachs disease, Lesch-Nyhan disease)
   - C. Other:
     (Angelman syndrome, Prader-Willi syndrome, Cornelia deLange syndrome, Smith-Lemli-Opitz syndrome, Williams syndrome, CHARGE syndrome, Osteogenesis Imperfecta, Achondroplasia

2. **Perinatal**
   - A. Extreme prematurity (born at 26 weeks gestation or earlier)
     (This is not a standard definition but for use with this document only.)
   - B. Extremely low birth weight (less than 1000 grams or 2.2 pounds)
   - C. Prenatal infections
     (Toxoplasmosis, Rubella, CMV, Herpes, TORCH)
   - D. Prenatal toxic exposures
     (Fetal alcohol syndrome-FAS)
   - E. Fetal and Neonatal Hemorrhage
     (Grade III or Grade IV Intraventricular Hemorrhage)

3. **Neurological**
   - A. Congenital anomalies of the brain
     (holoprosencephaly, lissencephaly, microcephaly)
   - B. Anomalies of the spinal cord
     (meningomyelocele)
   - C. Degenerative or progressive disorders
     (muscular dystrophies, leukodystrophies, spinocerebellar disorders, pediatric AIDS)
   - D. Cerebral palsy, all types, including generalized hypotonic patterns
   - E. Abnormal movement patterns
     (ataxias, myoclonus, dystonia)
   - F. Neurocutaneous diseases (Sturge-Weber, Tuberous sclerosis)
   - G. Other Central Nervous System (CNS) influences -CNS trauma
     (shaken baby syndrome or sudden impact syndrome)

4. **Sensory**
   A. Blind or visually impaired
   B. Deaf or hard of hearing as defined by the Wisconsin Birth to 3 Universal Newborn Hearing Work Group, 2001 (See page 19.)
   C. Deafblind

5. **Physical**
   A. Congenital (Arthrogryposis multiplex congenita)

6. **Social-emotional**
   A. Autism disorders, pervasive developmental disorder (PDD) as diagnosed by a licensed psychiatrist or clinical psychologist under the classification system in the *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood/* American and/or the Psychiatric Association *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV R)

Chart 2: Evaluate for Developmental Delay, including Atypical Development

This chart describes the five areas of development considered for determining a developmental delay and lists examples of diagnosed conditions and atypical behaviors that may bring a child to the Birth to 3 Program for consideration of eligibility. Children with these conditions or characteristics ***should be screened and/or evaluated*** for Birth to 3 eligibility based on concerns regarding their current developmental circumstances.

I. Developmental Delays

To conclude that a child is eligible, the early intervention team must document a 25% delay or development that is 1.3 standard deviations below the mean in one or more of the five developmental areas below.

A. Cognitive development;
B. Physical development, including vision and hearing;
C. Communication development;
D. Social and emotional development; and
E. Adaptive development, including self-help skills

II. Diagnosed Conditions

The following diagnosed conditions **do not have documented evidence** of having a high probability of resulting in developmental delay. However, children with these conditions ***may have*** developmental delays or atypical behaviors that would result in their eligibility for the Birth to 3 Program. If the child has a condition not listed below in Chart 2 or previously in Chart 1, the early intervention team should investigate the probability of the condition resulting in delay. Please note that this is a **definitiv**e, but **not inclusive** list.

1. **Genetic** (with increased risk for developmental delay)
   A. Chromosomal anomalies
      (e.g., Turner syndrome, Fragile X syndrome (in girls), 22q deletion syndrome)
   B. Inborn errors of metabolism
      (e.g., Classical Galactosemia, Homocystinuria)
   C. Other Syndromes
      (e.g., Goldenhar syndrome, Neurofibromatosis, Marfan syndrome)

2. **Perinatal**
   A. Premature (born 27 to 37 weeks gestation)
   B. Small for gestational age (SGA) (weighing less than the 10^{th} percentile for gestational age, using a standard weight-for-age chart)
   C. Low birth weight (born 1001 to 2000 grams)

D. Prenatal toxic exposures
(e.g., alcohol, polydrug exposure, fetal hydantoin syndrome, exposure to cocaine, exposure to narcotics)
E. Fetal and Neonatal Hemorrhage
(e.g., Grade I intraventricular hemorrhage)
F. Other Conditions originating in the perinatal period
(e.g., seizures, low apgars)

3. Neurologic

a. Anomalies of the brain
(e.g., absence of the corpus callosum, hydrocephalus, macrocephaly)
B. Anomalies of the spinal cord
(e.g., tethered cord)
C. Epilepsy
D. Abnormal movement patterns
(e.g., severe tremor, gait problems, asymmetry in movement)
E. Other Central Nervous System (CNS) influences
1. CNS or spinal cord tumors
2. CNS infection (e.g., meningitis, abscess)
3. CNS toxins (e.g., lead poisoning)
F. Variant speech and language patterns
(e.g., intelligibility, fluency)

4. Sensory

A. Low vision after correction
(e.g., severe strabismus, visual field defects, poor functional use of vision)
B. Intermittent hearing loss
(e.g., chronic otitis media or serous otitis media greater than 4 months duration)

5. Physical

A. Congenital
(e.g., cleft lip and palate, torticollis, limb deformity, club feet, hip dysplasia)
B. Acquired
(e.g., severe arthritis, scoliosis, brachial plexus injury)
C. Chronic illness or medically fragile
(e.g., delays in a child's development that may result from an illness or treatment for an illness such as chronic heart disease, cystic fibrosis, technology dependent, hypothyroidism, or cancer)

6. Social Emotional

Diagnosed psychiatric conditions or severe emotional/behavioral disorders diagnosed by a licensed psychiatrist or clinical psychologist under the classification system in the *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood/* American and/or the Psychiatric Association *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-R). (e.g., mood disorders of infancy or early childhood - anxiety, depression, disruptive behavior disorders, reactive attachment disorder of infancy or early childhood, post traumatic stress disorder, self-injurious behaviors)

III. Atypical Behavior

The following examples describe circumstances under which a child may demonstrate atypical development that should be considered a developmental delay. When parents and others identify concerns in these areas, and test results approach, but do not demonstrate a delay (25% or -1.3 S.D.) or scattered skill development is present, alternative measures including observations and parent reports should be used to make an informed opinion about whether a child should be ***considered*** developmentally delayed.

1. Growth and Feeding

(e.g., severe growth delay, failure to thrive, feeding problems, gastrostomy for feeding)

2. **Sensory and Regulatory**
   (e.g., chronic problems with sleep, attention, and/or eating; sensory processing disorders)

3. **Chronic Illness/Medically Fragile**
   (e.g., differences in a child's development that may result from an illness or treatment for an illness such as chronic heart disease, cystic fibrosis, technology dependent, hypothyroidism, cancer)

4. **Social Emotional**
   (e.g., atypical social interaction with caregivers and peers, delays or differences in ability to communicate emotional needs or achieve expected emotional milestones such as pleasurable interest in adults and peers)

5. **Motor**
   (e.g., asymmetrical movements, atypical tone, poor balance, problems in motor planning)

6. **Communication**
   (e.g., variant speech and language patterns)

The Birth to 3 Program Eligibility Work Group reviewed program guidelines from Georgia, New Mexico, New York, Rhode Island, Utah, and Virginia in developing this guidance.

Procedures for Initial Evaluation

Regardless of the expressed area(s) of concern there are basic commonalities for the evaluation process for all domains. The evaluation process begins with the referral and continues until the eligibility meeting. The guidelines presented here outline a procedure that insures that the child's and the family's best interests are served and that the evaluation is comprehensive and considers "the whole child". The following components should be part of every evaluation.

1. Prior to Evaluation

Review records including referral information and any medical records:

- Gather pertinent information regarding birth history, medical history, diagnosis, and caretaker concerns prior to the scheduled evaluation.
- Identify family concerns.
- Consider the diagnosis, area(s) of concern from the referral source and complications.
- If joint evaluation, discuss evaluation times and strategies.
- Calculate the child's chronological and adjusted age (if the child was born less than 37 weeks gestation). Adjust for prematurity until the child is 24 months old.

Schedule an appointment with the family for the evaluation

- Begin to establish a rapport with the family from your first contact with them.
- Schedule an evaluation in the child's natural environment at a time that is optimal for the child and allows a family member to be present.

Select the evaluation approach. Individualize the evaluation based on the child, observations, the records review and concern(s) expressed by the family. No single procedure may be used as criteria for determining eligibility [HFS 90.08(7)(e)]. In selecting the evaluation approaches and instruments it is critical to consider any motor, language, or sensory impairments of the child in order to ensure accurate reflections of the child's skill development (HFS 90.08 (6).

Possible Evaluation Procedures:

1. Interviews
2. Developmental observations
3. Criterion or norm-referenced evaluation tools (See Appendix 6 for a partial listing. Additional tools will be found in the sections for evaluation of developmental areas.)
4. Parent/caregiver developmental history report

Determination of a developmental delay for the Birth to 3 Program is based upon the identification of at least a 25% delay in one or more areas of development as measured by a **criterion-referenced** instrument or a score of 1.3 or more standard deviations below the mean in one or more areas of development as measures by a **norm-referenced** instrument, and interpreted by a qualified professional based on informed clinical opinion (HFS 90.08 (4)).

It is important that evaluators understand the differences in criterion- versus norm-referenced tests, objectives of the test and test characteristics when interpreting and reporting scores used for the determination of a developmental delay. (See Appendix 7 for other considerations.)

Criterion-referenced tests (25% or more delay for eligibility):

- Compare individuals to themselves over time rather than to standardized population and a given point in time.
- Identify performance along developmental continuum from least to most advanced.
- Measure the degree to which an individual achieves specific level of development or performance.

Norm-referenced tests (1.3 or more standard deviations below the mean for eligibility):

- Compare an individual's average level of development with others of similar age, gender, and socioeconomic status,
- Result in percentile norms/standardized scores.

2. At the Evaluation

Discuss the evaluation with the family:

- Confirm that you have the needed consent for evaluation.
- Explain the process of the evaluation. Give functional examples of test items and explain why the skill is important or what it assists in developing.
- Explain the role of each evaluator, the areas to be covered and the tools to be used.
- Gain information about the child's current health and mood for that day.
- Review family concerns.
- Review medical reports and information gathered by the service coordinator.
- Ask the parent some of the child's favorite things to do, and bring that into the evaluation.
- Ask about recent developmental changes (i.e. since the intake interview).
- Ask parents if they have any questions and encourage them to ask questions throughout the evaluation.
- If adjusting for prematurity, explain this to the family.
- Observe the child in his/her natural environment and in interactions with parents and siblings.
- Establish a rapport with the child by respecting his/her personal space needs.
- Administer evaluation tools in accordance with their individual guidelines.

Clinical Observation During Evaluation

Consider the following questions:

- What impairments may have been affecting the child's ability to complete a task (vision, motor impairment including strength and tone, hearing, language delays, social/emotional issues)?
- What types of modifications are needed? Are environmental modifications needed (smaller space, softer voice, singing voice, visual cues)?
- What type of reinforcement is the child responding to?
- Is attention interfering with child's ability to complete the task?
- Is the child able to complete the task spontaneously, in imitation, or with verbal or physical cues?
- How does the child interact with his toys versus toys used for evaluation purposes?

- Does the child generalize skills to different toys, people, and environments? Seek parent input.
- What is the child's learning style? Does the child learn best auditorally, visually, through manipulation of objects, combination of some?
- Are there behaviors interfering with the child's performance? If so, what are they?
- Are there sensory processing issues that are interfering with the child's ability to participate? Are they on constant defense or is their level of arousal too low?

Follow-up questioning – Ask parents questions to "fill in the blanks". Was child's performance typical of him/her? Are there any other things that didn't show up during the evaluation?

Closing Conversation
- Communicate initial impressions. Include child's strengths.
- Invite caregiver questions.
- Provide home activity suggestions if requested.
- Address all of the family's questions and all of their initial concerns during the evaluation session.
- Tell the family that the service coordinator will make a follow up contact to schedule a discussion regarding eligibility.

3. After the Evaluation

Interpreting Test Results/Preparing Evaluation Report
Score test in accordance with protocol and analyze findings. Never alter statistics by changing a standard score into a percent delay.
- Whenever possible, use standard deviation scores in accordance with the HFS 90.08 to determine extent of delay.
- Describe strengths and functional limitations and/or developmental milestone delays identified through the evaluation.
- Write a family-friendly report that avoids or defines technical lingo. The individual report should:
  - ✓ Provide a common understanding of the child's current development.
  - ✓ Include the child's strengths and address the items the child was able to do.
  - ✓ Help parents participate as equally informed members of their child's team.
  - ✓ Assist with communication with physicians, extended family, childcare providers, and other people and agencies involved with the family.
  - ✓ Support applications for other programs (Katie Beckett, Family Support, etc.).
  - ✓ Facilitate third party reimbursement.
  - ✓ Represent the Birth to 3 Program in the community.
  - ✓ Should not state eligibility nor make suggestions about specific services. This information can be added later if necessary for third party reimbursement. Opinions may be expressed, however.
  - ✓ Be made available to the service coordinator, the family and all team members prior to the eligibility meeting.

4. Participate in Eligibility Meeting

- Eligibility is a team decision that includes the family. Individual evaluators should present their findings and observations**.** The team discusses these findings and observations. Determine if tests scores meet eligibility criteria (1.3 standard deviation below mean for norm-referenced test or 25% delay in one or more areas of development).
- If there is not adequate information from testing, it will be important to use informed clinical opinion and team input to determine eligibility. Evaluations or assessments may not show a significant delay, but clinical opinion or team discussion may validate eligibility. Be sure to document this information in the team report.
- Each initial evaluation (whether or not the child was found eligible) must result in a written report. The report should be readable and useful to parents and members of various disciplines. The EI team summary report reviews the findings of all team members and includes a statement of the team's consensus about eligibility. The report should summarize the child's development in the areas of cognitive development, communication development, physical development (gross motor, fine motor, vision and hearing), social/emotional development, and adaptive/self-help development.

  The report should also include the location of the evaluation and a brief description of the process and instruments used. A summary of the family's role in the evaluation process is helpful. When reviews of outside evaluations are used, indicate that such a review was performed in the written report

  The initial evaluation should include a statement of eligibility including the reason why the child was found eligible or not. All team members must sign the report.

Informed Clinical Opinion

Standardized instruments are often insufficient to adequately measure the developmental levels of infants and toddlers. They may not provide enough information and the scores obtained from available evaluation instruments may not be as valid or reliable as one would like. They may not identify children who are indeed in need of Birth to 3 services. Therefore, it is extremely important to use informed clinical opinions of qualified team members when making decisions regarding eligibility for very young children. In a report by the U.S. Department of Education's Office of Special Education Programs (OSEP), the issue of informed clinical opinion as a component of evaluation and determining eligibility was addressed. "Requiring that the evaluation and assessment of each child be based on informed clinical opinion in determining eligibility helps to ensure that children needing early intervention services will be appropriately identified at the earliest possible age" (OSEP, August 25, 2000).

Eligibility

If the team decides that the child is eligible, arrangements are made to continue the process of IFSP development. (See page 10, #7d.) Following eligibility determination further assessment may be necessary prior to IFSP development.

Ineligibility

If the team determines that the child is not eligible for services at this time, an offer to rescreen the child within 3-6 months is made, information about appropriate community programs is

shared, and, if the parent requests and consents, the service coordinator assists with and makes a referral to other programs (HFS90.08 (7)(j)). Additional information offered to the family may include:

- Handouts of activities to facilitate area(s) of developmental concern that led to the initial referral.
- List of resources available in the community that may facilitate/enhance child's development or parent/child interactions.
- Name, address, phone number, email address of contact person in case of future concerns.
- Follow-up letter to physician and/or referral source to summarize findings.

Appendix 1

Eligibility Workgroup Members

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Appendix 2

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Appendix 3

Basic principles of assessment for infants and young children

ZERO TO THREE; National Center for Infants, Toddlers, and Families, with the support of the A. L. Mailman Foundation, convened a work group of clinicians, researchers, and parents representing the state-of-the-art knowledge base for assessing infants and young children. The work group took on the task of formulating the basic principles of assessment for infants and young children. It attempted to articulate:

1. Principles that clarify what constitutes an appropriate assessment; and

    - Assessment must be based on an integrated developmental model
    - Assessment involves multiple sources of information and multiple components
    - An Assessment should follow a certain sequence
    - The child's relationship and interactions with his or her most trusted caregiver should be the cornerstone of an assessment
    - An understanding of sequences and timetables in typical development is essential as a framework for the interpretation of developmental differences among infants and toddlers
    - Assessment should emphasize attention to the child's level and pattern of organizing experience and to functional capacities, which represent an integration of emotional and cognitive abilities.
    - The assessment process should identify the child's current competencies and strengths, as well as the competencies, which will constitute developmental progression in a continuous growth model of development.
    - Assessment is a collaborative process
    - The process of assessment should always be viewed as the first step in a potential intervention process
    - Reassessment of a child's developmental status should occur in the context of day-to-day family and/or early intervention activities

2. Current assessment practices that are at odds with state-of-the-art understanding of development in infancy and childhood and that should be avoided.

    - Young children should never be challenged during assessment by separation from their parents or familiar caregivers
    - Young children should never be assessed by a strange examiner
    - Assessments that are limited to areas that are easily measurable, such as certain motor or cognitive skills, should not be considered complete
    - Formal tests or tools should not be the cornerstone of the assessment of an infant or young child

    Meisels and Fenichel, New Visions for the Developmental Assessment of Infants and Young Children, pp.16-25).

Appendix 4

DEC Recommended Practices: Assessment

Professionals and families collaborate in planning and implementing assessment.

A1. Professionals provide families with easy access by phone or other means for arranging initial screening and other activities.

A2. Professionals ensure a single point of contact for families throughout the assessment process.

A3. Families receive a written statement of program philosophy regarding family participation in assessment planning and activities.

A4. Professionals meet and collaborate with families to discuss family preferences and reach consensus about the process, methods, materials, and situations of assessment that will meet the child's needs best.

A5. Professionals solicit information from families regarding the child's interests, abilities, and special needs.

A6. Professionals review, with parental consent, agency information about the child and family.

A7. Professionals and families identify team members and the team assessment style to fit best the needs and goals of the child and family.

A8. Families participate actively in assessment procedures.

A9. Families choose their roles in the assessment of their children (e.g., assistant, facilitator, observer, assessor).

A10. With each family's agreement, professionals help families identify their resources, concerns and priorities related to their child's development.

A11. Professionals, families, and other regular caregivers work as equal team members for purposes of assessment (i.e., give equal priority to family/caregiver's observations and reports, discuss assessment results, reach consensus about the child's needs and programs).

A12. Program administrators encourage the use of assessment procedures that ensure consultations and collaboration among families and professionals (e.g., the whole team discusses qualitative and quantitative information and negotiates consensus to make decisions).

Assessment is individualized and appropriate for the child and family.

A13. Professionals use multiple measure to assess child status, progress, and program impact and outcomes (e.g., developmental observations, criterion/curriculum-based, interviews, informed clinical opinion, and curriculum-compatible norm-referenced scales).

A14. Professionals choose materials and procedures that accommodate the child's sensory, physical, responsive and temperamental differences.

A15. Professionals rely on materials that capture the child's authentic behaviors in routine circumstances.

A16. Professionals seek information directly from families and other regular caregivers using materials and procedures that the families themselves can manage to design IFSP/IEP goals and activities.

A17. Professionals assess children in contexts that are familiar to the child.

A18. Professionals assess children after they have become familiar to the child.

A19. Professionals gather information from multiple sources (e.g., families, professional team members, agencies, service providers, other regular caregivers).

A20. Professionals assess the child's strengths and needs across all developmental and behavioral dimensions.

Division for Early Childhood of the Council for Exceptional Children, (2000*). DEC Recommended Practices in Early Intervention/Early Childhood Special Education*, Sopris West, Longmont CO.

Appendix 5
Parent-Professional Partnerships

In the following suggestions for building relationships with families the terms "evaluation/assessment" are used interchangeably. However, in the Birth to 3 Program the term "evaluation" refers to the gathering of information for eligibility determination. Some assessment may be useful for making this decision. However, assessment is used to individualize intervention planning. (Refer to page 6 for more discussion.)

Building Parent-Professional Partnerships

Pre-Evaluation/Assessment:

- Parental consent must be received in writing prior to initial evaluation/assessment.
- Explain the process/procedural safeguards.
- Ask about the need for an interpreter if the family's first language is not English.
- Suggestions are offered to the family about how they might prepare for assessment.
- Determine location; if center-based, discuss things to bring (e.g. toys, clothes, snack).
- Time options (best for child and family) are discussed.
- Discuss possible roles for family and how they wish to participate.
- Parents may be asked to think about goals/outcomes/dreams. The McGill Action Planning System (Forest & Lusthaus, 1990) is an example of a process to assist parents in preparing for the evaluation or assessment.
- Parents may fill out pre-assessment surveys in areas of concern.
- Parents are asked if they want others (e.g. advocate, friend, relative) involved in evaluation/assessment or at the meetings.
- Parents might be asked if there are other settings that their child should be observed in.
- Ask parents to describe their child's preferences regarding materials (e.g., toys, snacks).
- Ask parents how they feel their child might be engaged to elicit his or her best behavior, e.g., structuring the environment, presenting toys or tasks (motor, visual).
- Elicit parents' concerns and preferences for the evaluation.
- Discuss who will be involved in evaluation/assessment and why.
- Ask parents if siblings will be at the evaluation/assessment and whether the parents would like child-care arranged for the sibling.
- If parents ask questions to which the professional doesn't have answers, explain how the evaluation/assessment might answer the questions or that you will try to find out from other sources. However, be prepared to acknowledge that sometimes the answer is not known.
- Ask parents specifically about what questions they might have about their child's development.
- Discussions with parents at this stage can occur in a variety of settings, and information can be gathered through a variety of formats.

Evaluation/Assessment:

- Parents' preferences for time, location, participation are respected.
- Parents and professionals discuss the evaluation/assessment protocol and how it addresses the parent's concerns.
- Test/instruments/methods are explained as presented.
- Professional/facilitator checks with parents as to whether the child's behavior is typical.
- Prior to administering a standardized test, the parent's role is explained to maintain standardization.
- Parents are encouraged to ask questions.

- Parents' opinions are sought if the child's state indicated the need for a change in tasks or a break, etc.
- Jargon and acronyms, if used, are explained.
- "People first" language is used; for example, a report would refer to "a child with Down syndrome" rather than "a Down syndrome child."

Post-Evaluation/Assessment:

- Parents are asked if they feel the evaluation was valid. If not, why? What was not observed or elicited?
- Immediate feedback regarding the evaluation is provided to the extent possible.
- A positive approach focusing on strengths is taken rather than focusing on deficits.
- The parents' concerns are clearly addressed, even if there are not answers to all the questions.
- Ask parents how they would like to have feedback/staffing conducted, e.g., one person talk, others support, or answer questions. What level of detail (test scores, Standard Scores, age equivalency) would parents like?
- Use visual/graphic information rather than just words.
- No jargon is used unless it is explained.
- Reports are written in "people first" language.
- A "Circle of Support" might be used rather than traditional staffing (Mount & Zwernik, 1988)
- Parents are asked about next steps. They are asked if and when they would like to meet with the team or specific team members to follow up on issues that are not resolved.
- Parents are invited to speak first and are encouraged to ask questions and make comments.
- Ask parents about additional questions and if there were things discussed that were not clear or do not reflect their child as they see him or her.
- Discuss with parents when they will receive written reports.
- Provide the parents with one or two concrete suggestions related to their concerns.

Reprinted from *Partnerships in Early Intervention: A Training Guide on Family-Centered Care, Team Building, and Service Coordination* by P. Rosin, A. Whitehead, L. Tuchman, G. Jesien, & A. Begun, 1993 Waisman Center, Early Intervention, University of Wisconsin-Madison.

Appendix 6

Varying Approaches to Assessment

When assessing the skills of young children, from birth to three years, different modes of obtaining children skills can occur along the continuum from structured formats to open-ended approaches. A norm-based assessment compares a child's performance to other children his/her chronological age. One is able to obtain a child's age level as well as a standard score. A standard score enables one to compare the performance of the targeted child on different measures. From this comparison, an educator can describe the strengths and weaknesses of a child using different tests. Examples of these norm-based assessments are: Bayley Scales of Infant Development-II, Battelle Developmental Inventory, etc.

In contrast, a curriculum-based assessment has the advantage of determining how children are progressing along the curriculum. What is being assessed is what is being taught. Often in the birth-to-three population, typical developmental milestones are being determined. Yet, curriculum-based assessment could contain individualized objectives focusing on a child's particular needs, such as demonstration of sign language in order to request an object, communicating a simple two-word sentence using a communication board, etc.

A curriculum-based assessment has the advantage of one being able to use alternative materials. With a standardized assessment, one is expected to use the test procedures and materials, which come with the assessment tool. A curriculum-based assessment does have the flexibility in use of materials being used and the types of skills which could be assessed. Unfortunately, a curriculum-based assessment does not give an educator standard scores, so the results are not comparable across tests. Rather, curriculum-based assessment is most useful for program planning. An example of a curriculum based assessment is the Carolina Curriculum for Infants and Toddlers with Special Needs (Second Edition) (Johnson-Martin, Jens, Attermeir, & Hacker, 1991).

Another assessment approach which is beneficial for program planning is process-oriented assessment. One is able to determine how a child approaches a task, which will then assist the teaching techniques and skills to emphasize with the child. For example, a child could perform a Piagetian object permanence task. How the child is able to solve the "problem-solving" task will determine at what Piagetian stage the child is functioning. The Ordinal Scales of Psychological Development by Uzgiris and Hunt (1975) is one example of a process-oriented assessment.

Process-oriented assessments could include a child's reaction to a humorous event, such as reacting to a slapstick humorous event. If a child with a severe level of physical involvement responded to this type of humor, one could conclude that the child have an intact cortex and a social problem-solving skill of about one year. This stimulus event refers to the use of information processing paradigms in which children develop a familiarity with a set of objects/stimuli and then immediately notice a change in the events (novelty) by about 10 weeks of age. One can conclude that the child is demonstrating rudimentary evidence of classification.

A fourth approach to assessment is the use of ecological assessment, in which an evaluator determines a child's skills in his/her typical environment. The educator determines which characteristics are available to child and then is able to attach a qualitative descriptor along a continuum such as most favorable to least favorable. Caldwell and Bradley (1978) developed the Home Observation for Measurement of the Environment on which one can record the presence and frequency of various types of adult behavior, events, and objects in the home.

An approach focusing on the parent-child relationship, the interactive assessment, focuses on the transactional nature of this dyad. The Parent Behavior Progression by Rose Bromwich (1979) includes observational items including the frequency and the quality of the behaviors of both the child and his/her parent. This unique type of assessment enables one to determine the child's contribution to the relationship as well as the parent's influence on the relationship.

Also, educators have found that play-based assessment can enable an educator to determine a child's hypothesized level of functioning in varying developmental domains. One is able to ascertain the child's level of symbolic play. A wide range of typical environments could be used for play-based assessment. Unfortunately, one cannot obtain standard scores for comparison across tests. Yet, the results could facilitate effective programming.

Patricia Caro, Ph.D.

Appendix 7

Evaluation Instruments – Some Advantages and Disadvantages

HFS 90 allows both norm and criterion-referenced instruments to determine eligibility.

Norm-referenced Instruments – Advantages

- Useful for its intended purpose
- Eligibility
  - Can interpret the scores in a standard way
  - Consistent eligibility
- Often multi-domain
- Simplify evaluation
- Can minimize resources up front
- Lends itself to monitoring progress
- Standard for most criterion-referenced tools

Norm-referenced Instruments – Disadvantages

- Few tools for age group
- May not be normed for populations on which used
- Non-standardized results can be misinterpreted as norm-referenced results (e.g. age equivalents)
- May not include adjustment for prematurity
- Deficit focus
- Families report controlled administration and comparative outcomes difficult
- Limited information about each stage of development
- May miss important developmental tasks
- May not capture functional application of skills
- Limited information for intervention

Criterion-referenced Instruments – Advantages

- Useful assessment information for intervention
- Administration can vary to capture functional application of tasks in natural setting
- Focus on strengths
- Can include several tasks at varying stages of development
- Can be linked to curriculum/intervention
- Usually derived from standardized tests
- Validates good understanding of child development and observations

Criterion-referenced Instruments – Disadvantages

- Results are not easy to interpret relative to other tests
- May include limited description of tasks
- Relies on child development knowledge and observations of administrator
- May require more than one administration
- Age ranges difficult to use to determine eligibility
- May not provide information for interventions within family routines and activities

Linda Tuchman www.waisman.wisc.edu/birthto3/EVALANDASSESS

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Informed Clinical Opinion

by Jo Shackelford

Based on previous paper by
Patti Biro, Deb Daulton, and Eleanor Szanton,
in consultation with Constance Garner

The term "informed clinical opinion" appears in the regulatory requirements for the implementation of Part C of the Individual with Disabilities Education Act (IDEA) as an integral part of an eligibility determination (see Table 1). It must be included in evaluation and assessment procedures, since it is a necessary safeguard against eligibility determination based upon isolated information or test scores alone. Since the term carries different meanings for individuals and agencies, it is important to clarify the meaning and use of "informed clinical opinion" in the context of Part C. This document uses a question-and-answer format to address three key issues:

- ★ What does informed clinical opinion mean in the context of Part C?
- ★ How does informed clinical opinion affect the determination of eligibility?
- ★ Why is it necessary to document informed clinical opinion?

What does informed clinical opinion mean in the context of Part C?

Informed clinical opinion is used by early intervention professionals in the evaluation and assessment process in order to make a recommendation as to initial and continuing eligibility for services under Part C and as a basis for planning services to meet child and family needs. Informed clinical opinion makes use of qualitative and quantitative information to assist in forming a determination regarding difficult-to-measure aspects of current developmental status and the potential need for early intervention. For example, a physical therapist must make judgments about muscle tone abnormality based on the therapist's training and experience with other children. Likewise, a psychologist may note in observing a child playing that she performs tasks in adaptive ways not permitted during the administration of a standardized cognitive assessment.

Continued...

Table 1

Part C Regulations Pertaining to Informed Clinical Opinion

Subpart D - Program and Service Components of a Statewide System of Early Intervention Services.

§ 303.300 State eligibility criteria and procedures.

General
Each statewide system of early intervention services must include the eligibility criteria and procedures, consistent with § 303.16, that will be used by the State in carrying out programs under this part.
(a) The State shall define developmental delay by—
(1) Describing, for each of the areas listed in Sec. 303.16(a)(1), the procedures, including the use of informed clinical opinion, that will be used to measure a child's development; and
(2) Stating the levels of functioning or other criteria that constitute a developmental delay in each of those areas.
(b) The State shall describe the criteria and procedures, including the use of informed clinical opinion, that will be used to determine the existence of a condition that has a high probability of resulting in developmental delay under § 303.16(a)(2).

NOTE: Under this section and § 303.322(c)(2), States are required to ensure that informed clinical opinion is used in determining a child's eligibility under this part. Informed clinical opinion is especially important if there are no standardized measures, or if the standardized procedures are not appropriate for a given age or development area. If a given standardized procedure is considered to be appropriate, a State's criteria could include percentiles or percentages of levels of functioning and standardized measures.

§ 303.322 Evaluation and assessment.

(c) *Evaluation and assessment of the child.* The evaluation and assessment of each child must –

(1) Be conducted by personnel trained to utilize appropriate methods and procedures;
(2) Be based on informed clinical opinion; and
(3) Include the following:
(i) A review of the pertinent records related to the child's current health status and medical history.
(ii) An evaluation of the child's level of functioning in each of the following developmental areas:
(A) Cognitive development;
(B) Physical development, including vision and hearing;
(C) Communication development;
(D) Social or emotional development; and,
(E) Adaptive development.

§ 303.323 Nondiscriminatory procedures.

Each lead agency shall adopt nondiscriminatory evaluation and assessment procedures. The procedures must provide that public agencies responsible for the evaluation and assessment of children and families under this part shall ensure, at a minimum, that –

(a) Tests and other evaluation materials and procedures are administered in the native language of the parents or other mode of communication, unless it is clearly not feasible to do so;

(b) Any assessment and evaluation procedures and materials that are used are selected and administered so as not to be racially or culturally discriminatory;

(c) No single procedure is used as the sole criterion for determining a child's eligibility under this part; and

(d) Evaluations and assessments are conducted by qualified personnel.

Early Intervention Program for Infants and Toddlers With Disabilities Rule (2001).

The knowledge and skill of the early intervention multidisciplinary team, including the parents, constitute the basic foundation for the process of becoming "informed" about a child's developmental status within a socially valid context. In essence, they seek to answer the question, What are the child's abilities and needs within his/her natural environment? Thus, appropriate training, previous experience with evaluation and assessment, sensitivity to cultural needs, and the ability to elicit and include family perceptions are all important elements of informed clinical opinion.

The individuals and agencies responsible for implementing Part C need to consider **who** might have an informed clinical opinion, **what** these people might have an informed clinical opinion about, and **how** their informed clinical opinion can be integrated into the process of evaluation and assessment. In the context of Part C, these questions should be considered both at the level of the individual early intervention professional and at the level of the multidisciplinary team.

How does informed clinical opinion affect the determination of eligibility?

Informed clinical opinion should be taken into account at both the individual and team levels.

Individual team member level The individual early intervention professional uses both qualitative and quantitative information to shape an informed clinical opinion about a child's development and need for early intervention services. To do so, the professional must have knowledge of the multiple domains of development characteristic of infants and toddlers; the expected sequence of development; and the broad range of individual variations that may be seen in appropriately developing infants and toddlers. In order to reach an informed clinical opinion about the development of a particular infant or toddler, the professional may use any or all of the following:

- ★ clinical interviews with parents;
- ★ evaluation of the child at play;
- ★ observation of parent-child interaction;
- ★ information from teachers or child care providers; and
- ★ neurodevelopmental or other physical examinations.

Information derived from these examples and additional psychometric and diagnostic data are synthesized to become the "informed clinical opinion" of an individual. The informed clinical opinion should reflect a meaningful assessment of the individual child's development and family resources, priorities, and concerns, and suggest areas that may require further evaluation.

Team level The multidisciplinary team, which includes family members, then synthesizes and interprets all available information, both qualitative and quantitative, about a child and family offered by the team participants.

This opportunity to integrate observations, impressions, and evaluation findings of the individuals facilitates a "whole child" approach to evaluation and assessment that goes beyond a reporting of test scores. In this way, the functional impact and the implications of noted delays or differences in development can be discussed and considered by the team in determining eligibility and developing the Individualized Family Service Plan (IFSP). Knowledge about available services is useful in formulating the IFSP, but should not limit the recommendations made by the team.

Why is it necessary to document informed clinical opinion?

Appropriate documentation of the sources and use of informed clinical opinion is important for two reasons. First, documentation provides a baseline against which to measure the progress and changing needs of the child and family over time. The initial recommendations of the multidisciplinary team reflect the needs of the child and family at a specific point in time. In Part C, assessment and subsequent eligibility determination is an ongoing process that may require modifications in the IFSP. The perceptions and impressions of individual early intervention professionals may change over time. Documentation of the individual and team findings can facilitate transition when families move, change service providers, or enter additional or new service delivery systems.

Secondly, documentation of the sources and use of informed clinical opinion also can provide information to assure that procedural safeguards were provided in the evaluation and assessment process and the determination of eligibility. This documentation should be maintained by a designated person, such as the interim or permanently assigned service coordinator and the parent.

Thus, the regulations regarding informed clinical opinion

are intended to accomplish the following: 1) ensure a dynamic assessment approach; 2) support and encourage the acquisition and interpretation of multiple sources of information as part of the evaluation and assessment process; and 3) permit greater compatibility between a child and family's needs and the provision of services.

References

Early Intervention Program for Infants and Toddlers With Disabilities Rule of 2001, 34 C.F.R. §303 (2001).

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Guidelines for Best Practices in Determining Eligibility Based on Children's Cognitive Development

The goal of these *"Guidelines for Best Practices in Determining Eligibility Based on Children's Cognitive Development"* is to offer support to the evaluation team in their decision-making regarding a child's eligibility for early intervention services based on cognitive development. **(See pages 21-24 for Procedures for Initial Evaluation.)**

In Wisconsin, cognitive is defined in HFS 90 [HFS 90.08 (7)(c)1] as follows:

> *Cognitive Development, as evidenced by play skills, manipulation of toys, sensorimotor schemes, attention, perceptual skills, memory, problem solving and reasoning.*

Preface

Cognitive development focuses on how children learn and process information. Young children initially learn about the world through active, physical exploration and through their experiences. They use all their senses (touch, movement, smell, taste, vision, and hearing) to gather information about their world. Gradually, children learn to think symbolically and logically about their experiences. Cognitive development occurs as children explore and test a variety of ideas and newly learned concepts. As evaluators, it is important to assess the child's ability to organize and make sense of the environment to which he or she is exposed (Rossetti, 1990).

Play, social interactions with parents, family members and caregivers, and exploration of their physical environment are children's first learning experiences. Cognitive development is intertwined with all other areas of development. Consider the following tasks: Putting objects in a container not only requires eye-hand coordination, but also requires the ability to move from the idea of taking things out of a container to putting them back in. Putting items on a string is a fine motor task as well as a problem-solving task. The child's pleasure and motivation increase the likelihood of completing and repeating the tasks.

The understanding of language and the ability to use language are also all related to one's cognitive ability. A child's ability to connect to people and objects in his environment allows him to place meaning to his experiences. A child's ability to perform various cognitive tasks is dependent on his or her motor, social, and language skills.

Theories of Cognitive Development

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

Jean Piaget's theory of cognitive development is one of the most quoted theories describing the stages of cognitive development. (Atherton, 2003) Many evaluation tools are reflective of his findings. The stages of intellectual development formulated by Piaget appear to be related to major developments in brain growth. (Myers, 2004)

Recent research has found that infants anticipate events, actively search for hidden objects, flexibly vary their sensorimotor schemes, and engage in make-believe play within Piaget's time frame. (Berk, 2003) Yet other capacities, including secondary circular reactions, the emergence of object permanence, deferred imitation, categorization, and analogical problem-solving, seem to show themselves sooner than Piaget expected. (Berk).

Below are listed Piaget's stages of development for the ages birth to three:

Sensory Motor Period (0–24 Months)

Reflexive Stage (0–2 Months) - Simple reflex activity such as grasping and sucking.

Primary Circular Reactions (2–4 Months) - Simple motor habits centered around the infant's own body; limited anticipation of events, stereotypical repetition such as opening and closing fingers repetitively.

Secondary Circular Reactions (4–8 Months) - Repetition of actions to reproduce interesting consequences such as kicking one's feet to move a mobile suspended over the crib; imitation of familiar behaviors.

Coordination of Secondary Reaction (8–12 Months) - Responses become coordinated into more complex sequences. Actions take on an "intentional" character such as the infant reaching behind a screen to obtain a hidden object (object permanence); improved anticipation of events; imitation of behaviors slightly different from those the infant usually performs.

Tertiary Circular Reactions (12–18 Months) - Discovery of new ways to produce the same consequence or obtain the same goal, such as the infant pulling a pillow toward him in an attempt to get a toy resting on it; imitation of unfamiliar behaviors; ability to search in several locations for a hidden object.

Invention of New Means Through Mental Combination (18–24 Months)- Evidence of an internal representational system. Symbolizing the problem-solving sequence before actually responding; deferred imitation; beginning of make believe play.

The Preoperational Period Phase (2–7 Years)

Preoperational Phase (Preconceptual) (2–4 Years) - Increased use of verbal representation but speech is egocentric (cannot take another's perspective). The beginning of symbolic rather than simple motor play. Transductive reasoning (does not generalize from particulars, confuses goals or effects with causes). Can think about something without the object being present by use of language.

Adapted from childdevelopmentinfo.com

Another model in which to view infant-toddler cognition was presented by McCall (1979). In this model performance is thought to change as various stages of cognitive development are reached. This model is similar to Piaget's and is also broken into stages.

MC CALL'S STAGES OF MENTAL PERFORMANCE

Newborn Stage (0-2 months) - Infant primarily exercises endogenous, structural behavioral dispositions and selective but basically responsive attention to certain aspects of the environment.

Subjectivity (2-7 or 8 month) - Infant's world is known by and is indistinguishable from the infant's perceptual-motor and physical action with it. Infant acquires information by exploratory behavior, especially that producing some obvious perceptual consequence.

Separation of Means from Ends (8 months) - At this point infants can distinguish between objects and their actions, but a strong reliance on interaction with objects is needed for the child to really know the object. A more goal-oriented pattern of exploration is observed. Initial attempts at imitation may also be seen at this point.

Entity-entity relations (13 months) - The infant can appreciate the independence of entities and understand that they carry their own properties, including the potential to be independent forces in the environment. It is at this point that the infant can see one object in relation to another object without having to act on these objects. This ability enhances information acquisition by permitting consensual vocabulary, and the infant can also imitate new behaviors not previously seen and not currently in the child's response repertoire.

Symbolic Relations (21 months) - The child can draw symbolic relationships between entities in which one or more of the entities as well as the relationship itself may be symbolically coded. Sequences of actions can be remembered and imitated, and creative two-word utterances are possible.

Adapted from Rossetti, 1990, *Infant-Toddler Assessment*

When examining the evolution and history of cognition there are two additional theories that should be noted: the Core Knowledge Perspective, and Sociocultural Theory.

CORE KNOWLEDGE PERSPECTIVE

According to the Core Knowledge Perspective, infants begin life with innate special-purpose knowledge systems, or core domains of thought, each of which permits a ready grasp of new, related information and therefore supports early, rapid development of certain aspects of cognition (Berk). According to Berk, each core domain has a long evolutionary history, is essential for survival, and develops independently, resulting in uneven, domain-specific changes. Reviews of the accuracy of the Core Knowledge Perspective are mixed.

SOCIOCULURAL THEORY

Piaget's theory, McCall's stages, and the Core Knowledge Perspective emphasize the biological side of cognitive development. These theories represent the child himself as the most important source when developing cognition. Lev Vygotsky believed that children are active seekers of knowledge, but he did not view them as solitary agents. In his theory, rich social and cultural contexts strongly impact cognitive development (Berk). He coined the label "zone of proximal development," during which a knowledgeable adult or even a proficient child supports the child

only as much as necessary in order for that child to display an emerging behavior. This type of scaffolding results in one ascertaining what kind of supports would be needed for a child to display a skill independently.

Vygotsky believed that children speak to themselves for self-guidance and self-direction. His approach included the influence of significant people in a child's life. He viewed language as the foundation for all higher cognitive processes, including, controlled attention, memorization, and planning. As children get older and tasks become easier, their self-directed speech declines and is internalized as silent inner speech. According to Vygotsky, language development broadens preschoolers' participation in dialogues with more knowledgeable individuals, who encourage them to master culturally important tasks (Berk). Limitations of Vygotsky's theory are thought to be that verbal dialogues are not the only means, or even the most important means through which children learn in some cultures, and that little is said about biological contributions of children's cognition. (Berk)

General Recommendations for Evaluation of Cognitive Development to Determine Eligibility for the Birth to 3 Program

If cognitive development is an area of concern, a teacher should be a member of the team. If a teacher is not on the team one member must have expertise in evaluation of both typical and atypical development and program planning. [HFS 90.08 (3)(a)] **(See pages 20-24 in the Introduction Section for procedures for initial evaluation.)**

In the evaluation of cognitive skills consider the following **components:**

Sensory Stimuli - The ability to respond to sensory stimulation (movement, visual, auditory, tactile, smell, taste) from the environment. The responses to sensory stimulation impacts all future learning for if a child is having difficulty responding to sensory stimuli it becomes challenging to learn from their environment or place meaning to events and happenings. A child may be under-responsive, over-responsive, or defensive to sensory stimuli or have difficulty regulating the information that occurs around them or to them. See Appendix 5 for characteristics that may occur if a child is having difficulty processing sensory stimuli.

Sensorimotor - How a child relates information from his or her sensory systems. This facilitates problem solving and preacademic skills. May include such skills as object permanence (the ability to understand that objects and people continue to exist when they are removed from the child's immediate sensory field), spatial awareness, means end, and causality (the ability to act on objects in order to produce a desired response.

Object Use/Schemes - The ability to use developmentally appropriate actions with objects. Schemes are a Piagetian concept defined as a basic unit of knowledge, a mental structure that represents both the internal and external aspects of the child's world (Rossetti, 1990). Schemes may relate to physical behaviors, mental images or complex belief systems (Rossetti). The development of symbolic use of objects follows the child's ability to use a wide range of schemes, and use them functionally with objects (Linder, 1993) When looking at early object use consider the type and range of schemes, scheme use and generalization, and linking schemes.

Problem Solving - Begins as an infant learns that the parent can solve problems or make interesting events occur, then that his or her own actions cause fun things to happen, and finally that through experimentation, verbal guidance, and/or thinking, he or she can solve problems encountered daily. (Linder) Reasoning and problem solving involve the child's mastery of the spatial environment, memory of events and actions, and the development of procedures or "rules" for action on the environment.

Imitation - The ability to match a visual and/or auditory model by imitating developmentally appropriate speech sounds, words, and motor actions. Imitation is critical skill for development in every domain, and facilitates turn taking, memory, and attention. Imitation is one of the primary ways children learn.

Memory - Ability to retain information. Measures the child's ability to retrieve information when given relevant cues. Allows for skills to be related to each other as information that is retained and is paired to other information (Linder). Requires ability to attend.

Causality - The ability to act on objects in order to produce a desired response.

Conceptual Development - These items measure the child's ability to grasp concepts and draw relationships among objects. May include matching, sorting, discrimination/classification, part/whole relationships (Battelle).

Discrimination/Classification - Often thought of as preacademic skills. The ability to differentiate stimuli and then categorize those stimuli into meaningful sets (Linder). These skills lay the foundation for reading and writing skills as well as higher-level thinking skills (Linder).

One-to-one Correspondence - Can be a part of discrimination/classification. One-to one correspondence is a preacademic skill, and is demonstrated when a child assigns one object to each of two or more objects and/or people.

Sequencing Ability - The ordering of objects or concepts. Sequencing is related to classification, one-to-one correspondence, and linking of schemes as well as differentiating sensory input (Linder).

Play

- *Exploratory/Functional* - Simple muscular activities and repetitive muscular movements with or without objects are used in functional play; the child repeats or initiates actions (Rossetti, 1990).
- *Constructive* - The child learns the use of play materials and attempts to create something with play materials (Rossetti).
- *Dramatic* - The child takes on a role and pretends to be someone else using real or imagined objects (Rossetti).

Typical Developmental Milestones

Just as one must examine a variety of theories of development and combine components of each to gain a comprehensive and holistic view of the process of the cognitive development of the child, one must also consider various resources when viewing developmental milestones. Three sources of developmental milestone lists are displayed in Appendices 2, 3, and 4 to show differences in perspective and emphasis when using various sources and skill classifications. Milestones only represent overall age trends. Individual differences exist in the precise age at which each milestone is attained. All children do not exhibit all the milestones. Each milestone must be considered as part of the process of development and progression along a continuum of cognitive growth.

The chart of evaluation tools (Appendix 1) lists instruments that reflect different aspects of cognitive development. Appropriate tools should be chosen on an individual basis to address the particular child and the area in question.

MODIFICATIONS AND CLINICAL OBSERVATIONS

By using clinical observation and making modifications or adaptations to learn about how the child learns or is best able to interact and gain meaning from his environment we gain a better chance of identifying future learning challenges. When evaluating the aforementioned components of cognitive development and the milestones that follow, it is essential to look beyond the basic skill or task that is being evaluated. In order to gain an accurate and beneficial assessment of the child it is critical that the evaluator considers various factors that may impact the child's performance and make any needed modifications that may assist the child in completing the requested task. Clinical observation will assist in providing an accurate reflection of the child's abilities. Observations and modifications must be noted in your evaluation reports. Alterations to the evaluation tool must be noted, and scoring completed according to test protocol.

During the initial contact with the family it will be important to learn if there are any factors that may impact the child's ability to complete various evaluation components. Is there a vision, hearing, mobility, language or social/emotional conditions that may impact the child's performance? When factors are identified, it is essential that modifications be made during the evaluation so the child is able to successfully complete the required tasks. Be sure the child is positioned so he can manipulate and see evaluation items. If a child has an expressive language delay offer responses by providing objects/pictures to choose from. If a condition is identified it may impact the evaluation tool that is used. Appendix 1 provides a variety of evaluation tools to choose from.

When the child's attention or sensory processing system is found to impact the child's performance once the evaluation process has begun, modifications can be made during the evaluation. Environmental modifications can be helpful when a child is seen to have difficulty processing or attending to the information provided. Experiment with removing and limiting stimuli and objects, moving the evaluation to a smaller space or table, changing your proximity to the child by moving closer or further away, lowering or softening your voice or singing, using familiar or comforting toys, providing time for the child to process and then respond to request, or using gestures or visual cues.

Observing how the child completes a task or request is helpful. Is the child only able to complete the task when modifications or prompting is provided? After the task has been modeled one time or several? Is lots of reinforcement and encouragement needed? Is the child able to generalize the skill? Observe the child's learning style. Does he learn visually, tacitly, through movement, by being an observer or by doing? Does the child connect meaningful to the idea or is there a rote learned response? Can the child form ideas during play? Is the child's response purposeful?

Identifying learning challenges in the early years of life are based on clinical observation and the emerging research on the developmental pathways involved in early learning and eventual mastery of reading, math, writing and organizing (*Diagnostic Manual for Infancy and Early Childhood* (2005). "These early learning challenges involve emotional and social capacities, auditory processing and language (including memory and retrieval), visuo-sptatial processing, perceptual motor and motor planning (including visual memory, sequencing, and what is often referred to as nonverbal learning) capacities and sensory modulation." (ICDL-DMIC pg. 168).

Each of these individual areas, intertwined or separate, are the building blocks to successful learning.

The *Diagnostic Manual for Infancy and Early Childhood* (2005) developed by the Interdisciplinary Council on Developmental and Learning Disorders, defines and identifies learning challenges. Compromises in functional emotional developmental capacities, auditory processing and language, visuo-spatial capacities, regulatory-sensory processing patterns, or a combination of these have an impact on the Emerging Learning Challenges of reading and language arts, math, reading comprehension, written communication, and in organizing capacities (executive function)

By considering these factors during evaluation and assessment activities, we can inform the eligibility decision making process. We will prevent future difficulties for children if we are able to identify the specific areas they are having difficulty with in infancy and childhood and support them to obtain or have successful interactions with their environment so future learning difficulties are lessened or eliminated.

Patterns are identified in Appendix 5. *These tables are meant as guidelines and should not be used as diagnostic tools unless you are trained or certified in that area.*

References

Atherton, J. S. (2003) *Learning and Teaching: Piaget's developmental psychology* [On-line] UK: Available: http://www.dmu.ac.uk/~jamesa/learning/piaget.html.

Berk, L. (2003) *Child Development, Sixth Edition,* Allyn & Bacon.

Bradley, R.H. & Caldwell, B.M. (1979). Home observation for measurement of the environment: A revision of the preschool scale. *American Journal of Mental Deficiency,* 84, 235-244.

Bricker, D et al., (1993) *Assessment, Evaluation, and Programming System for Infants and Children, Birth to Three Measurement,* Volume 1. (AEPS). Paul H Brookes Publishing.

Interdisciplinary Council on Developmental and Learning (2005) The *Diagnostic Manual for Infancy and Early Childhood*

Kusmierek, A., et al (1995). *Birth to Three Sequenced Team Assessment Resource,* The Family Enrichment Program, Riverdale, IL.

Linder, T (1993) *Transdisciplinary Play-Based Assessment (TPBA), Revised Edition,* Paul H. Brookes Publishing Co.

McCall, R. (1979). The development of intellectual function in infancy and the prediction of later I.Q. In J. Osofsky (Ed.) *Handbook of infant development.* New York: John Wiley & Sons.

Myers, Robert (Editor). (2004) *Stages of Intellectual Development in Children and Teenagers.* Child Development Institute [Online]. Available: http://www.childdevelopmentinfo.com/development/piaget.shtml.

Newborg, J. (2004). *Battelle Developmental Inventory, Second Edition,* Riverside Publishing, Itasca, IL.

Rossetti, L., (1990). *Infant-Toddler Assessment,* Boston: Little, Brown.

Appendix 1

Evaluation Tools (List is not exhaustive)

Tool	Comments	Authors	Publisher
A Clinical and Educational Manual for Use with the Uzgiris & Hunt scales of Infant Psychological Development	Standardized	Carl Dunst, 1980	Pro-Ed; Austin, TX:
Assessment, Evaluation, and Programming System for Infants and Children, Birth to Three Measurement, Vol. 1. (AEPS).	Criterion-referenced	Bricker, Bricker and Pretti-Frontczak, 1993	Paul H Brookes Publishing
Battelle Developmental Inventory, Second Edition	Norm-referenced Birth – 8	Jean Newborg, 2004	The Riverside Publishing Company
Bayley Scales of Infant Development	Norm-referenced	Nancy Bayley, 1993.	The Psychological Corporation
Carolina Assessment for Infants and Toddlers with Special Needs second edition	Criterion-referenced	Johnson-Martin, Jens, Attermeier & Hacker, 1991.	Paul H. Brookes Publishing Company
Developmental Assessment of Young Children (DAYC)	Norm referenced	J. K. Voress and T. Maddox, 1998	Pro-Ed; Austin, TX
Developmental Profile II (DPII)	Norm-referenced Infancy to 9 ½ years	Alpern G, Boll T, Shearer M., 1986.	Western Psychological Services
Early Intervention Developmental Profile	Criterion-referenced	Rogers, et.al.,1981	University of Michigan Press
Early Learning Accomplishment Profile for Young Children.	Criterion-referenced	1995	Kaplan Early Learning Company
Hawaii Early Learning Profile (HELP)	Criterion-referenced	Furano, et. al., 1994.	VORT Corporation
Infant-Preschool Play Assessment Profile	Criterion-referenced	Sally L. Flagler, 1996	Kaplan Early Learning Company
Infant-Toddler Developmental Assessment (IDA)	Norm-referenced	Sally Provence, Joanna Erikson, Susan Vater, and Saro Palmeri, 1995	The Riverside Publishing Company.
McCarthy Scale of Children's Abilities	Norm-referenced	Dorothea McCarthy, 1972.	The Psychological Corporation
Minnesota Child Development Inventory	Norm-referenced	Harold R. Ireton, 1992.	Behavior Sciences Systems, Inc.
Mullen Scales	Norm-referenced	Ellen M. Mullen, 1995.	American Guidance Services, Inc.
Transdisciplinary Play-Based Assessment (TPBA)	Criterion-referenced	Toni W. Lindner, 1993.	Paul H. Brookes Publishing Company

Appendix 2

Linder's Developmental Milestones

CATEGORIES OF PLAY

Age attained	Milestones
0-24 months	Exploratory of sensorimotor play
9-24 months	Relational or functional play (predominates from 15-21 months)
24 months+	Constructive play (predominates from 36 months on)
21-72 months	Representational/symbolic play
36 months+	Rough and tumble play

EARLY OBJECT USE

Age attained	Milestones
3-6 months	Focus on action performed by objects (banging, shaking)
6-9 months	Begins to explore characteristics of objects; range of schemes expand (e.g. pulling, turning, poking, tearing)
8-9 months	Begins to combine objects, relational play (e.g. objects in container)
9-12 months	Begins to see the relation between complex actions and consequences (opening doors, putting on lids)
12 months+	Acts on objects using a variety of schemes
12-15 months	Links schemes in simple combinations into a meaningful sequence (puts person in car and pushes car)
24-36 months	Links multischeme combinations into a meaningful sequence (puts paste on toothbrush, puts cap on tube, brushes baby's teeth
36-42 months	Links schemes into complex script

SYMBOLIC AND REPRESENTATIONAL SKILLS

Age attained	Milestones
12-16 months	Simple pretend play directed toward self (eating, sleeping)
12-18 months	Can focus pretend play on animate and inanimate objects and others; combines simple schemes in action out familiar activity
18-24 months	Increased use of nonrealistic objects in pretending (similar to real); can have inanimate objects perform actions (doll washes self)
24-36 months	Can use more abstract representation of object in play; uses multischeme combinations (feed doll with bottle, pat it on back, put it to bed)
36-48 months	Plans out pretend situations in advance, organizing who and what are needed for role-play; events in play are sequenced into scenario that tells story
36-42 months	Can use imaginary objects in play; acts out sequences with miniature dolls (in house, garage, airport, etc)

IMITATION SKILLS

Age attained	Milestones
4-8 months	Imitates vocalizations and actions that are part of his or her repertoire
6-9 months	Imitates actions he or she can see performed that are in his or her repertoire
8-12 months	Imitates sounds and gestures not part of his or repertoire
9-12 months	Imitates unseen patterns composed of familiar actions
12-15 months	Imitates novel movements

IMITATION SKILLS (CONTINUED)

Age attained	Milestones

12-18 months	Immediate imitation of a model
15-18 months	Imitates drawing of a stroke
18-24 months	Recognizes ways to activate toys in imitation of adult; Deferred imitation
21-24 months	Varies own imitation creatively from that of model
27-30 months	Imitates drawing of face
36-60 months	Demonstrates increasingly complex role imitation

PROBLEM-SOLVING SKILLS

Age attained	Milestones
6-9 months	Finds object after watching it disappear; Uses movement as a means to attain an end; Anticipates movement of objects in space; Attends to environmental consequences of actions; Repeats actions in order to repeat consequences
9-12 months	Demonstrates tool use after demonstration; Uses goal-directed behavior; Performs an action in order to produce result
12-15 months	Uses an adult to achieve a goal; Attempts to activate simple mechanisms; Rotates and examines three dimensional aspects of an object; Uses nonsystematic trial-and-error problem solving
18-21 months	Attends to shapes of things and uses appropriately; Uses some foresight before acting; uses tool to obtain a desired object; invents means to attain a goal through thought processes rather then just trial and error; Operates a mechanical toy; Can foresee effects or infer causes
24-27 months	Discriminates sizes
24-30 months	Can build with blocks horizontally and vertically
27-30 months	Relates one experience to another, using logic and knowledge of previous experiences; Can plan actions in his or her mind without acting them out; Can relate one experience to another using "if…then" logic
36-48 months	Can build vertical block structure requiring balance and coordination (9 blocks); Can put graduated sizes in order; Uses representational thinking in constructions

DISCRIMINATION/CLASSIFICATION SKILLS

Age attained	Milestones
2-6 months	Growing sense of difference between self and mother and mothers of others
6-9 months	Differentiates primary caregiver from others
9-12 months	Combines related objects
15-18 months	Begins to spontaneously cluster objects that share physical or functional similarities; matches objects with relational parts (round lid on tea pot)
16-19 months	Discriminates circle and square on formboard
24-27 months	Matches objects by color, shape and size; Recognizes part/whole relationships (can identify parts and the objects with which they go); discriminates size (can nest four cups)
24-36 months	Discriminates circle, square triangle; Matches object to picture of the object; Matches picture of object to another picture of object
30-33 months	Matches object that have the same function (comb and brush)
36-48 months	Can sort one criterion (shape or color) without getting confused

ONE-TO-ONE CORRESPONDENCE

Age attained	Milestones
24-36 months	Can count by rote to five; Understands concept of one; Can count two or three object
36-48 months	Can count up to five objects

SEQUENCING ABILITIES (SEE EARLY OBJECT USE FOR EARLY SEQUENCING ABILITIES)

Age attained	Milestones
36-42 months	Understands big, little
36-48 months	Understands questions about what is going to happen next
36-52 months	Understands tall, short

Taken from Linder, T (1993) *Transdisciplinary Play-Based Assessment (TPBA), Revised.*

Appendix 3

Berk's Developmental Milestones

Some Cognitive Attainments of Infancy

Approximate Age	Exploration/ Problem Solving	Object Concept	Imitation
Birth-1 month	Newborn reflexes; Exploration with limited motor skills such as head turning and sucking	Awareness of size and shape constancy	Imitation of adults' facial features
1-4 months	Exploration with better coordinated motor skills, such as kicking, reaching and grasping; Limited anticipation of events	Use of motion and spatial arrangements to identify objects; Some awareness of object permanence	Deferred imitation of adult facial expressions - after 24 hours
4-8 months	Exploration using well-coordinated reaching, grasping, swiping, banging and other manual behaviors	Use of shape, texture and color to identify objects	Deferred imitation of adults' actions on objects after 24 hours
8-12 months	Intentional, or goal-directed behavior; Improved anticipation of events; Problem solving by analogy to other similar problems	Ability to retrieve an object from the first location in which it is hidden	
12-18 months	Exploration of objects by action on them in novel ways; Experimenting with actions when solving problems	Ability to search in several locations for a hidden object (A-B Search)	Deferred imitation across changes in context and after one to several months
18- 24 months	Sudden solutions to problems without overt experimentation with actions	Ability to find an object moved while out of sight (invisible displacement)	Imitation of actions an adult tries to produce, even if these are not fully realized; Deferred imitation of everyday behavior in make-believe play
	Cognitive Attainment		
2-4 years	Shows dramatic increase in representational activity, as reflected in the development of language, make-believe, drawing, and understanding dual representation Takes the perspective of others in simplified, familiar situations and in everyday, face-to-face communication Distinguishes animate being from inanimate objects; Denies that magic alters everyday experiences Grasps conservation, notices transformation (reasons by analogy about physical changes), and gives logical causal explanations in simplified familiar contexts Sorts familiar objects into hierarchically organized categories Devises ideas about underlying characteristics (not just perceptual features) that category members share		

Berk, L. (2003) *Child Development, Sixth Edition.*

Appendix 4

Additional Cognitive Skills of Infancy (Kusmierak)

Memory

0-3 months	Alternates glance between two visual stimuli Begins to associate environmental cures (Expects to be fed when held in feeding position) Recognizes parent
3-6 months	Adjusts behavior to visual, positional, or auditory cues (becomes alert upon hearing footsteps) Recognizes familiar object Makes anticipatory adjustment to being lifted
6-9 months	Anticipates when parent is leaving Waits for next step in routine Waves and looks responsively
9-12 months	Abandons goal when directed (plays with string attached to toy out of reach) Anticipates daily routine Readies in response to visual or verbal cue Shows surprise
12-15 months	Maintains goal without being distracted
15-18 months	Performs daily routines Anticipates routine for future events
18-24 months	Keeps goal in mind while shifting locations Uses environmental cues to anticipate future events Observes ongoing activities and recreates them later Avoids dangerous objects Expresses expectancy of an event Increases memory of location
24-30 months	Can think about past events Requests distant and absent objects Uses more subtle environmental cues to anticipate future events Recalls and repeats fragments of songs Follows two part direction
30-36 months	Remembers ideas for play Repeats two digit sequence Can dual focus Recalls and repeats simple songs Reconstructs social sequence appropriately at a later time (picks up phone, says hello, and calls for adult)

Causality

0-3 months	Cries as a signal Smiles contingently Repeats movements which are self pleasing Seeks sound/vision relationship Bats at objects, first accidentally and then with intent
3-6 months	Acts directly on objects to create outcomes (shakes, bangs) Attempts to engage adult when adult face is still and expressionless Perceives that another person can produce stimulation (laughs when tickled) Uses a variety of behaviors to engage others Causes actions that seem likely to continue interesting or pleasing displays
6-9 months	Uses behavior to have an interesting event repeated Attends to consequences of actions with interest Shows interest in how things work (looks for bell) Demonstrates definite attention
9-12 months	Uses gestures to gain attention of another person or make a request Uses objects to get adult attention Demonstrates interest in the actions of objects Repeats behavior to get a response
12-15 months	Attempts to activate a simple mechanism Uses adults as a means (brings wind up toy to adult) Uses purposeful gestures to make wants known
15-18 months	Uses adults as means Knows causes for actions exist outside himself (Lets ball roll down an incline)
18-24 months	Uses others as human means (directs adult hand) Gives directives to adults Approximates reactivation of objects Infers a cause, given its effect (seeks source of rolled ball) Begins to anticipate the outcome of an action
24-30 months	Requests that actions be instigated Recognizes operations of an increasing variety of mechanisms Reconstructs operational sequence at a later time to operate a toy Shows increasing capacity to infer a cause, given only its effects Shows increasing capacity to foresee an effect, given a cause Relates one experience to another using “if/then” logic
30-36 months	Uses adults as a resource when independent attempt fails Recognizes operation of an increasing variety of mechanisms Understands natural consequences

Taken from Kusmierek, A., et al (1995). *Birth to Three Sequenced Team Assessment Resource.*

Appendix 5

Table1: Functional Emotional Developmental Capacities

Functional Emotional Developmental Level	Examples of Importance for Early Learning and Academic Skills
Level 1 Shared attention and Regulation (Begins at 0-3 months)	Necessary for attention to sights and sounds and, later, to words, letters, numbers, etc.
Level 2 Engagement and Relating (Begins at 2-6 months)	Necessary for engaging with the world (not being self-absorbed), learning about "reality," and mastering all cognitive skills.
Level 3 Two-Way Purposeful Emotional Interactions (Begins at 4-9 months)	Necessary for "cause-and-effect" preverbal and verbal thinking and high level of logical thinking.
Level 4 Shared Social Problem Solving (Begins at 9-18 months)	Necessary for: • Pattern recognition, including discriminating quantity (more vs. less or bigger vs. smaller) as well as the recognition of number (quantity) • Recognition of deviation from a patterns and constructing new patterns, such as finding an object that's hidden and bringing it into one's visual range. • Multi-step problem solving
Level 5 Creating Ideas (Begins at 18-30 months)	Necessary for forming and using symbols in language, reading, math, planning, and problem solving
Level 6 Building Bridges Between ideas: Logical Thinking (Begins at 30-48 months)	Necessary for all learning, including: • Symbolizing quantity concepts • Matching symbols to letter patterns • Comprehending written and oral communication
Level 7 Multi-Cause, Comparative, Thinking (Begins at 4-6 years [48-72months])	Levels 7-9 are necessary for al learning, including: • The manipulation of numerical symbols in terns of relativistic gray-area thinking (e.g., multiplication, division) and thinking off an internal standard (e.g., algebra and, later on, calculus. • Comprehending sentences, paragraphs, and essays.
Level 8 Emotionally differentiated gray-area thinking (Begins at 6-10 years)	Being able to construct patterns of ideas at progressively higher levels of creativity and logic.
Level 9 Intermittent reflective thinking, a stable sense of self, and an internal standard Begins at 9-12 years and beyond)	Self evaluative thinking evidenced in analyzing one's own or another person's oral or written communication, considering different options, creating "experiments" to prove or disprove a hypothesis, and using judgment.

"All the basic academic abilities, including reading, math, writing, and organizing, require mastery of these critical abilities to attend to the outside world, engage in interactive relationships, participate in complex social interactions that lead to pattern recognition, construct such meaningful symbols, and connect the different realms of experience together." ICDL –DMIC pg 173

Table 2: Auditory Processing and Language

Age and Level	Examples of Auditory Processing and Language Skills
0-3 months Shared Attention and Regulation	Attends to the world of speech sounds and their production, e.g., • Attention to caregiver's mouth and tongue actions • Attention to caregiver's trill sounds and tongue clucking sounds • Attention to additional sounds
2-6 months Engagement and Relating	Synchronous sound productions with increasing capacity to: • Discriminate and make sounds (e.g., tonal variation), vowel sounds with synchronous consonant sounds and mouth movements • Synchronize sound and mouth movements with caregiver's vocal rhythms
4-9 months Two-Way Purposeful Emotional Interactions	Reciprocal exchange of expanding sound productions, e.g., • Consonants • Vowels • Syllables, such as "dada" "gaga" "baba," etc. • Beginning emergence of words up, out, etc.
9-18 months Shared Social Problem Solving	Increasing reciprocal use of vocal patterns, including words, e.g., • Expansion of verbs • Expansion of nouns • Use of two-word phrases • Compliance with two-word commands. Beginning comprehension of spoken language. *For all, but specifically for math*: Coordinates touching and quantifying to judge specific quantity
18-30 months Creating Ideas	Combining words into ideas Begins to form visual images for word meanings. Increasing comprehension of spoken language and, eventually, complex ideas.
30- 48 months Building Bridges Between Ideas: Logical Thinking	Exchanging ideas (e.g., why, how, when, etc.) Perceives the parts/whole concepts of sound patterns in words (e.g., syllables) both receptively and expressively.
4-6 years [48-72 months] Multi-Cause, comparative, thinking	Begins to connect sounds (duration, pitch, and elements) and expressively. Begins to connect sounds, words and shapes, including letters, e.g., • Creates a multisensory motor experience of the basic shapes (e.g., walks, pantomimes, or draws straight line, curves, slants as named).
4-6 Years [48-72 months] Multi-Cause, Comparative, Thinking	• Identifies, then copies and names shapes and design • Writes some letters • Follows 4-step communication Names and identifies sounds and letters of alphabet in and out of sequence (for all, but specifically for reading and language arts) <u>Between 4 – 5 years</u>: Begins to integrate awareness of auditory, visual, and motor components of speech sounds and place and manner of articulation. <u>5 years (60 months) on:</u> Becomes aware of nature of errors enabling monitoring and self-correction (*for all, but specifically for reading and language arts)* *For all, but specifically for reading comprehension:* Comprehension of written language as reading ability develops

"Mounting research supports the importance of the infant and young child's ability to discriminate and recognize sound patterns, and later the identity, number, and order of individual sounds within words, as the basis for reading and spelling (Calfee, Lindamood, & Lindamood, 1973; Shankweiler & Liberman, 1989; Heilman, Voeller, & Alexander, 1996; Lindamood & Lindamood, 2005.)" ICDL-DMIC Pg 174

Table 3: Summary of Visuospatial Capacities by Age

Visuospatial Capacities **Indicate the overall capacity for expected age levels** (Note that Year 1 is actually birth to first year, Year 2 is firstbirthday to second birthday, and so on)
1. Body Awareness and Sense Year 1: Purposeful, coordinated movement, guided by vision and sound. Year 2: Purposeful movement for interactive play (rolling a ball back and forth) Year 3: Awareness of body boundaries of self and others Year 4: Awareness of body affecting others in space and time Year 5: Awareness of body for coordinated actions
2. Location of the Body in Space Involves location of own body parts in relationship to each other, location of body as a whole in its immediate surroundings; and location of the body in terms of the broader environment. Year 1: Beginning movement in space Year 2: Observes things move in space in relationship to self Year 3: Purposeful movement in relation to other moving objects Year 4: Planning and organization of movement prior to the action Year 5: Becoming a team player
3. Relation of Objects to Self and Other Objects and People Year 1: Reciprocal interactions with people and things Year 2: Self-control in relation to other people and things Year 3: Development of symbols Year 4: Rules and expectations Year 5: Boundaries and Membership
4. Conservation of Space Year 1: Space is uni-dimensional Year 2: Space is three-dimensional and movement in space is alterable Year 3: Relationship of object in three dimensional space Year 4 Relationship of object to object in space Year 5: Combining time and space
5. Visual Logical Reasoning Year 1: Knowledge through sensorimotor action Year 2: Moving from action knowledge to planning the actions Year 3: Understanding the cause and effect of the action Year 4: Stability of early visuospatial thinking Year 5: Logical thinking to solve problems
6. Representational Thought (Drawing, Thinking, Visualizing) Year 1: Direct representation Year 2: Words, pictures, gestures, and toys Year 3: Early imaginative play Year 4. More purposeful representations Year 5. Matching space to representational thought

"Visuospatial capacities are often attended to in considering early learning and academic skills, but not in the sufficient depth or scope required for a full understanding of their importance. For example, understanding math even at its most elementary level of addition and subtraction requires comprehending one-to-one correspondence. This means that the child doesn't simply count, but can match the number he says to the number of objects he sees in front of him, and can manipulate these objects and see how a change in their pattern would relate to a change in the number he applies to them." ICDL-DMIC Pg 177

Sensory Over-Responsivity

Suggested Observation
Visual Domain Complex, cluttered, moving, novel, and/or high intensity visual stimuli over-excite, anger or overwhelm Wears sunglasses or caps all the time
Tactile Domain Consistently over-responsive to touch (pulls body part away when touched); discomfort when people too close Over-sensitive to certain types of clothing (e.g. labels, long/short sleeves, certain fabrics) or activities of daily living (e.g. hair or hand-washing, bathing)
Vestibular/Proprioceptive Domain Avoids/becomes upset in certain positions (e.g., prone, upside down) or uneven surfaces Uncomfortable, insecure when walking with others who may push them
Visceral Responses Does the child need to go to the bathroom frequently? Does the child's body go still or seem to shut down when he has an emotional reaction? Shows somatic symptoms indicating physiological over-reactivity (e.g., irritable bowel syndrome, migraines, constant stomach aches)
General Shows overt signs of 'fight, flight or freeze' when presented with particular sensory stimuli; may seem irritable, avoidant Withdraws from/tries to escape a toy or sensory input

"Children who are extremely visually over-responsive sometimes find the contrast between dark print on a white page too dramatic and find it difficult to focus in on individual letters, syllables, words or phrases. Over-responsivity to sounds can contribute to making it difficult for some children to discriminate sound patterns and, therefore, connect sounds to letters and eventually words." ICDL- DMIC Pg 178

Sensory Under-Responsivity

Suggested Observations
Fails to attends or orient to salient stimuli. Fails to responds to name when occupied; overly absorbed. Shuts down; stops interacting. Overly focused to some stimuli (e.g., blinking lights, moving wheels). Investigates new object only briefly; fails to engage. Shows no or limited response to an obnoxious sounding toy. Fails to orient to sounds as expected. Lacks awareness of bodily sensations.

" Children who are under-responsive to sensation such as sound, sight, and touch may tend toward self-absorption (e.g., the teacher's voice doesn't attract their attention) and find it hard to listen or follow directions. In the extreme, self-absorption can compromise attention to the outside world and, therefore, comprehension of reality and logic (e.g., the child escapes into fantasy)." ICDL-DMIC Pg 179

Sensory Seeking

Suggested Observations
Seeks high intensity input in activity; appears unable to get enough; engages with high energy. Resists moving from high intensity activity; resists increasing complexity of activity. Child seems unaware of potential danger or pain, or the consequences of their actions. Increasing sensory input results in increasing impulsivity, behavioral disorganization. Responses to input escalate, behavior gets out of control.

"For children who are sensory seekers, the need for constant stimulation is difficult to fulfill and may be particularly problematic in environments where children are expected to sit quietly such as in school…" ICDL-DMIC Pg 86

Sensory Discrimination Disorder

Suggested Observations
Auditory Fails to orients to most sounds (loud/soft) when otherwise engaged. Does not discriminate name from background noise.
Visual Shows inadequate eye-hand coordination: ability to visually anticipate object movement. Fails to scan environment and spot what looking for in near or far space. Fails to show age-appropriate figure-ground skills.
Vestibular/Proprioception Cannot sense direction of movement in space, eyes open and closed. Does not change planes of movement in play. Shows inappropriate postural and balance reactions in response to movement. Poor awareness of movement makes safety a concern.
Tactile/Kinesthetic Cannot identify objects by feel. Unaware of location of bump/bruise; identifies finger touched, vision occluded. Senses if socks twisted, shoes on wrong foot, hair needs combing, fingers in wrong place in gloves Fails to actively explore tactile characteristics of objects.
Olfactory and Gustatory Cannot identify typical smells and tastes. Has specific preference for different foods for his age (spicy, "pop rocks").
Proprioceptive Does not investigate objects with in hand manipulation or adjust to qualities of materials. Poorly grades movements and applies inappropriate force. Cannot feel where feet/body are without looking.

"Discrimination requires higher level of cognitive functions than modulation and is not automatic." ICDL-DMIC Pg 295 The ability to distinguish shapes or letters, and follow through with tasks or directions may be difficult for a child with discrimination difficulties.

Postural Disorder

Suggested Observations
Cannot stabilize posture when challenged; sitting on stable or dynamic (unstable) surfaces. Difficulty maintaining postural alignment and stability when standing/sitting at desk or in chair completing table top tasks. Does not automatically use non-dominant hand to assist dominant hand in fine motor tasks. Difficulty maintaining postural alignment and balance while moving body. Difficulty with equilibrium, rotation, weight shift, crossing midline. Difficulty with stability on different surfaces e.g., climbing, walking on foam, walking on moving surfaces. Difficulty with bilateral symmetrical activities. Difficulty with bilateral reciprocal movements. Muscle tone and strength insufficient to accomplish antigravity activities and functional movement. Facial expressions fixed during posturally challenging activities. Difficulty with near/far gaze shift. Does not have developmentally expected physical fitness as evidenced by endurance, strength measures.

"Postural control provides a stable yet mobile base for refined movement of the head, eyes, trunk, and limbs… For example, when writing at a desk, they (child with postural difficulties) may bend far over the paper or lay their head on their arms as they write" ICDL-DMIC Pg 92 A child with postural control issues needs to focus their energy on moving their body and maintaining their body in space rather than learning from their surroundings.

Dyspraxia

Suggested Observations
Has difficulty with action-based problem solving.
Can figure out what to do but has trouble with how to do it.
Appears clumsy and awkward in gross and/or fine motor tasks.
Has difficulty with motor imitation.
Unable to take small parts to make a whole.
Difficulty replicating space and form in 2D and 3D constructions.
Does not show joy in success; not motivated to persist with somewhat difficult activities requiring active problem solving.
Does not initiate activities, or initiates only when activity is familiar, or is he/she able to initiate creative and novel play.
Is inefficient, ineffective in reaching goal of activity.
Pace/rate of activity is not age-appropriate.
Difficulty adapting to changes in task demand, new task demand, or novel situation.
Difficulty sequencing tasks in an age appropriate manner.
Talks self through motor sequences; tries to get out of doing by talking.

"Children with motor planning problems (dyspraxia) may find it difficult to carry out the sequence of motor actions required for writing, lining up columns in math or following directions." ICDL-DMIC Pg 179

Guidelines for Best Practices in Determining Eligibility Based on Children's Physical Development

The goal of the *Guidelines for Best Practices in Determining Eligibility Based on Children's Physical Development* is to offer support to the evaluation team support in their decision-making regarding a child's need for early intervention services based on physical development. In Wisconsin, physical development is defined as follows:

> *Physical development, including hearing and vision, as evidenced by gross motor and fine motor coordination, tactility, health and growth.* [HFS 90.08 (7)(c)2.]

In the first three years of life a typical infant learns to move purposefully, to sit, crawl, stand, walk, run and jump. Movement of a typically developing child is smooth, easy, coordinated, purposeful and graded. Typical motor control is characterized by variability and adaptability.

Multiple factors influence the progression of the ability to move. A child's health situation can greatly impact motor development. This is particularly true in the first few months of life when the infant needs energy to move. Poor health, low birth weight, ineffective feeding, and birth complications all have a tremendous impact on early movement patterns.

Motor skills support other domains, such as an infant's cognitive need to explore and to manipulate objects and a toddler's social-emotional need to safely keep up with peers and to gain independence with self-help tasks. Children develop concepts about objects through manipulation and learn about their world by moving through the space around them.

Physical Development
Fine Motor and Vision

COMPONENTS TO EVALUATE:

Vision Components

- Visual fixation—The ability to maintain a steady visual attention on an object
- Visual pursuits—The ability to efficiently track a moving object
- Visual Saccades—The ability to move eyes smoothly from point to point
- Visual field usage—The ability to use one's vision in upper, eye level and lower quadrants as well as left, midline, and right quadrants.
- Convergence—Eye aiming coordination by eye muscles so that the eyes are directed toward an object that is brought closer
- Visual motor integration—The ability to transform a visual image to a motor image
- Visual perceptual skills—The ability to organize and interpret information that is seen and give it meaning. These information processing skills include figure ground, form constancy, spatial relations, visual closure, visual discrimination, visual memory, and visualization.
- Binocular vision—The ability to use both eyes as a team
- Visual attention to task at hand—The ability to maintain visual perceptual skills to complete any given task.

Sensory Responsiveness

- Auditory—responsiveness/searching/localizing/distraction/processing
- Visual—see above
- Registration and integration of tactile, proprioceptive, and vestibular processing
    - Hypo/hyper responsiveness
    - Gravitational insecurity
    - Body scheme development
    - Laterality/right-left discrimination
    - Bilateral integration
    - Motor planning ability
- Modulation of sensory input
    - Ability to transition behavior
    - Ability to self calm and organize
    - Ability to maintain appropriate level of alertness

Fine Motor Control Components

- Postural control
- Muscle tone—passive/active/fixations/asymmetries
- Postural stability
- Righting reactions
- Equilibrium responses
- Protective extension

- Associated reactions
- Reflexes
- Weight shifts
- Upper Extremity motor skills
    - Active Range of Motion (AROM)
    - Passive Range of Motion (PROM)
    - Joint biomechanics
    - Soft tissue limitations
    - Strength
    - Endurance
    - Quality of movements
- Fine Motor skills
    - Grasp patterns
    - Release patterns
    - Hand preference
    - In hand manipulation patterns
    - Crossing midline
    - Bilateral coordination

Acceptable Evaluation Approaches

1. Standardized or norm referenced evaluation tools
2. Naturalistic assessment
3. Ecological assessment
4. Parent/caregiver developmental history report

Selecting Appropriate Evaluation Tools

Based on your data from record review and caregiver concerns, select an evaluation tool to tailor your evaluation:

Fine Motor or Quality of Movement Concerns	**Vision Concerns**	**Self Help Concerns**	**Behavioral, motor planning Adaptive, social, emotional**
Infant Toddler Development Assessment	Vision Skills Development Guidelines	Pediatric Evaluation of Disability Inventory	DeGangi Infant Toddler Symptom Checklist
Peabody Developmental Motor Scales			Dunn Infant Toddler Sensory Profile
Toddler Infant Motor Evaluation			Sensory Motor History
Alberta Infant Motor Scales			Hanschu Sensory Profile
Bayley Scales of Development			Wisconsin Behavior Rating Scale
Clinical Observations			Test of Sensory Function in Infants

If there is global concern for overall developmental delay, a combination of above tests may be appropriate or a combination of a sensory integration test with a more generalized test from the following list:

- Hawaii Early Learning Profile
- Early Intervention Developmental Profile

Interpreting Results

- Clarify functional limitations and/or developmental milestone delays identified through the evaluation with baseline measurements.
- Identify underlying medical impairments and limitations when establishing the plan of care.

Appendix 1

Acceptable Standardized or Norm Referenced Evaluation and Assessment Tools

(This list is not exhaustive.)

Tool	Authors	Population/Type	Publisher
Alberta Infant Motor Scales (AIMS)	Piper & Darrah (1994)	Birth to 18 months; observation	W.B. Saunders Company
Bayley Scales of Infant and Toddler Development III –	Bayley (2005)	1 to 42 months; norm referenced	Harcourt Assessment, Inc.
Early Intervention Developmental Profile (EIDP)	D'Eugenio &.Moersch (1994)	Birth to 36 months; criterion referenced	University of Michigan Press,
Hawaii Early Learning Profile (HELP)	Furuno et al (1994)	Birth to 36 months; curriculum based	VORT Corporation
Infant Toddler Development Assessment (IDA)	Provence, Erikson, Vater, & Palmeri (1995)	1 to 36 months; Standardized; criterion referenced; yields a performance age range; percentage delay can be computed	Riverside Publishing
Infant/Toddler Sensory Profile	Dunn (2002)	Birth to 36 months; norm referenced	Harcourt Assessment, Inc.
Infant Toddler Symptom Checklist	DeGangi, Poisson, Sickel, & Santman Wiener (1995)	7-30 months; parent report or interview; criterion referenced	Therapy Skill Builders, Psychological Corporation
Peabody Developmental Motor Scales-2	Folio & Fewell (2000)	Birth to 60 months; norm referenced	PRO-ED, Inc.
Pediatric Evaluation of Disability Inventory (PEDI)	Haley et al (1992).	6 months - seven year; Functional skills; standardized; normed; parent interview;	Boston University, Health and Disability Research Institute.
Test of Infant Motor Performance (TIMP)	Campbell et al (1993)	From 34 weeks gestational age to 4 months post-term; developmental age standards for performance	Infant Motor Performance Scales, LLC 1301 W. Madison St. #526 Chicago, IL 60607-1953
Test of Sensory Function in Infants (TSFI)	DeGangi, and Greenspan	4 to 18 months	Western Psychological Services
Toddler Infant Motor Evaluation (TIME)	Miller and Roid (1994)	Birth to 3 1/2 years. Standard scaled scores	Harcourt Assessment, Inc.
Wisconsin Behavior Rating Scale	Song, et al	Adaptive behavior scale for persons functioning below the developmental level of 3 years	Central Wisconsin Center for the Developmentally Disabled Madison

Appendix 2

Normal Development

Vision Development

AGE	SKILL
Newborn	Focuses 8-15 inches away. Has 20/400 acuity Eye movements are not coordinated
1-3 Months	Eyes begin to track together Follows moving object by 5 weeks Sustains eye contact by 3 months
4-6 Months	Binocular vision established Looks at hands and feet Has 20/100 acuity at 5 months
8-12 Months	Looks at object to grasp it with accuracy
12-24 Months	Visually interested in simple pictures
25-36 Months	Visually explores entire environment Identifies pictures in book Visually watches and imitates others

Fine Motor Development

0-1 Month	Fisting
2-3 Months	Holds rattle briefly
4-5 Months	Brings hands together for play above chest
6-7 Months	Uses palmer hand grasp Transfers objects from one hand to the other
8-9 Months	Uses an inferior Pincer grasp Claps hands together
10-11 Months	Uses superior pincer grasp
12-14 Months	Turns pages in a cardboard book
15-17 Months	Begins to place pegs in a pegboard Builds a tower of 3 1inch cubes
18-23 Months	Separates pop beads Imitates a circular scribble stroke
24-29 Months	Completes a simple 3 piece form board Imitates a vertical and horizontal stroke Builds a tower of 4-5 1 inch cubes
30-36 Months	Copies a circular stroke Builds a tower of 6 1inch cubes

REFERENCES FOR NORMAL DEVELOPMENT

1. Early Intervention Developmental Profile
2. Pediatric Evaluation of Disability Inventory
3. Peabody Developmental Motor Scales
4. University of Connecticut Cooperative Extension of Education
5. www.med.utah.edu/healthinfo/pediatric/Growth/infhab.htm

Guidelines for Best Practices in Determining Eligibility Based on Children's Physical Development

The goal of these *Guidelines* is to support Birth-to-3 staff and families in their team decision-making regarding a child's eligibility and need for intervention based on physical development. In Wisconsin, physical development is defined as follows:

> *Physical development, including hearing and vision, as evidenced by gross motor and fine motor coordination, tactility, health and growth.* [HFS 90.08 (7)(c)2]

Evaluation considerations for the areas of Gross Motor Development and Fine Motor Development will be addressed separately. Vision is addressed in the Fine Motor section. Hearing is addressed in the Communication section.

Motor Development

In the first three years of life a child typically learns to move effectively to reach, sit, crawl, walk, run, climb and jump. Ideally, movement is smooth, easy, coordinated, purposeful, graded and fun. Efficient motor control is characterized by variability and adaptability. Multiple factors influence motor progress, most obviously neurological and orthopedic integrity, but also general health and medical history, nutrition and feeding, metabolism and energy level, behavior and temperament. Motor skills are an end in and of themselves, but also critically support development in other domains. Cognitively, an infant needs to explore their environment and manipulate toy and non-toy objects alike. Emotionally, a toddler needs to earn greater autonomy (and learn self control). Socially, a preschooler needs to engage with friends, even if they are not able to fully "keep up with peers" in all situations.

These *Guidelines* highlight the components of evaluation and follow the process in a thematic manner. Additional considerations are noted as well. Appendix 1 provides milestones for gross motor development from birth to age three. Appendix 2 lists approximate lower extremity range of motion which would be expected in a 2 year old. Appendix 3 lists some evaluation tools with brief comments. Appendix 4 offers considerations when evaluating children less than 4 months adjusted age (a period when most assessment tools lack discernment and we must rely more on professional judgment). Appendix 5 contains information on muscle tone and various presentations. Appendix 6 is a reference on early reflexes and their integration.

Physical Development
Gross Motor

Components to evaluate

- ✓ Milestones and history (e.g., age at sitting, creeping, walking; recent changes/ rate of development; inhibiting factors such as illnesses)
- ✓ Function (across environments)
- ✓ Gross motor developmental level (as determined on standardized testing)
- ✓ Underlying strengths and impairments
- ✓ Temperamental considerations (e.g., motor-driven, observer, cautious, fearful)
- ✓ Potential equipment needs (positioning devices, mobility aides, orthotics, etc.)
- ✓ Environmental strengths and concerns

DURING THE EVALUATION

If gross motor development is an area of concern, evaluation includes:

- ❑ Ongoing conversation with parents and caregivers regarding their child's
  - function and safety across environments (including frequency and pattern of falls),
  - overall health and activity level,
  - temperament and personality factors,
  - performance during the evaluation compared to their typical behavior.
  - Also elicit not-easily-observed information and
  - confirm that all concerns are being addressed.

- ❑ Clinical observation of the child's
  - mobility (method, quality and functionality),
  - static posture (weight bearing alignment, sitting posture, etc.),
  - dynamic posture (transitions, walking on line, walking on tip toes, etc.),
  - gait pattern and any deviations and
  - overall quality of movement

- ❑ Administration of an evaluation tool for baseline and eligibility requirements. Some commonly used evaluation tools are listed in Appendix 3. As most assessment tools lack sensitivity with newborns – will "miss" children who later "develop" motor delays -- clinical judgment is even more essential (see also Appendix 4).

- ❑ Physical examination, including:
  - range of motion (please see Appendix 2 for approximate ranges)
  - muscle tone (please see Appendix 5 for comments on muscle tone)
  - clonus
  - balance reactions (speed, effectiveness, maturity)
  - tolerance to vestibular stimulation (e.g., swing, spin, toss in air)

  Defer to the end any procedures which are likely to upset a particular child.

It is essential to rule out significant impairments, particularly if the child may not be seen again by a motor specialist. A thorough physical exam will assess atypical muscle tone, genu recurvatum or excessive calcaneal valgus in weight-bearing, clonus, heel cord or hamstring contracture, limited hip abduction (possible hip dysplasia), or weak or latent trunk balance reactions.

- ❑ Supplemental testing (as needed to identify underlying impairments):
  - balance challenge (e.g., step over obstacle, walk on pillow, recovery from perturbation, stance on rocker board, etc.)
  - strength indicators (e.g., ease of stair climbing, steadiness in squat, jumping, sustaining tip toes with or without hand support, etc.)
  - motor planning (e.g., novel fine motor task, climbing off couch, down stairs or off kitchen chair, complex fine motor task, etc.)
  - eye-hand/eye-foot coordination (e.g., catch, throw, kick; walk on a line, etc.)
  - respiration (e.g., pattern of chest expansion, sternal depression, rib flare, etc.)

- ❑ Trial intervention for purposes of assessment and planning (if appropriate and time permits).

- ❑ Closing Conversation with family to
  - Invite caregiver questions
  - Communicate initial impressions and findings
  - Provide home activity suggestions as appropriate
  - Foreshadow next steps (test scoring and analysis of findings, consultation with other professionals, phone call from service coordinator, written report mailed to family, meeting to determine eligibility, possible development of IFSP)

AFTER THE EVALUATION

- ❑ Reflect. Score and analyze test results.

- ❑ Consult with professional references and supports as needed.

- ❑ Synthesize findings and write report in family-friendly language.

- ❑ Participate in Eligibility Meeting and Individualized Family Service Planning.

If gross motor development is *not* an area of concern, it may be appropriate to gather information about the child's gross motor abilities by using these methods:

- Checklist (e.g., Hawaii Early Learning Profile – Gross Motor strand)
- Screening (e.g., Denver 2, Bayley Screener)
- Parent Interview and Observation
- Play-Based Assessment

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Selected References

Alexander, R., Boehme, R., & Cupps, B. (1993). *Normal Development of Functional Motor Skills*. Tuscon, Arizona: Therapy Skill Builders.

Cusick, B. (1990). *Progressive Casting and Splinting for Lower Extremity Deformities in Children with Neuromotor Dysfunction.* Tuscon, Arizona: Therapy Skill Builders.

Damiano, D.L., & Abel, M.F. (1998). Functional outcomes of strength training in spastic cerebral palsy. *Archives of physical medicine and rehabilitation*, 79(2): 119-125.

Dubowitz, Victor, (1980). *The Floppy Infant, 2nd ed*. England: Levanham Press Inc.

Jacobson, Richard D., (1998). Approach to the Child with Weakness or Clumsiness. *Pediatric Clinics of North America* 45 (1). W. B. Saunders Company
http://medicine.ucsd.edu/peds/Pediatric%20Links/Links/Neurology.htm

Moerchen, Victoria, PhD, P.T. 2003. Personal communication.

Appendix 1

Early Milestones in Gross Motor Development		
Milestones	**Ages**	**Comments**
Rolling	3-6 months	Variable onset. Temperamental factors play large role in emergence. Quality is more telling than timing. Very early rolling may fade with loss of tonic neck reflex
Sitting	5-8 months	Gradual emergence. Posture is revealing, as well as maturity of balance reactions
"Creeping" (hands and knees)	8-9 months	By some accounts, 10-15 % of "typically developing" children do not creep. There are many benefits to creeping.
Pull to Standing	8-10 months	Usually emerges right after creeping.
Cruising	10-12 months	Important precursor activity for walking.
Walking	9-15 months	If child begins walking late (after 14-15 months) expect a more mature early gait pattern with less "toddling" quality, fewer falls, more rapid competence on uneven surfaces.
Crawl up stairs*	9-12 months	Dependent on opportunity to practice.
Climb safely off of couch*	10-16 months	Unwillingness may be indicative of difficulty with motor planning, body awareness, and/or visuo-perceptual delays. Visuo-perceptual experience with creeping should be considered.
Walk stairs* - 2 hand assist	18 months	Both hands held or one hand held and one on rail, "marking time" / "step to" pattern (i.e., placing both feet on each step).
Run	18-24 months	Technically involves "flight" (both feet off the ground at once). Functionally can be defined as when the child is "hard to catch."
Walk stairs* - independent	24 months	Holding rail with one hand, marking time.
Jump	22-26 months	Both feet must leave the ground together.
Walk stairs* - maturing	36 months	Without holding onto support and marking time OR holding rail with one hand and using reciprocal pattern (one foot on each step).

* Items which are more experience-dependent in their emergence.

Adapted from *Hawaii Early Learning Profile,* Furuno, S., et al (1995) with practitioner input.

Appendix 2

Selected Lower Extremity Range of Motion (ROM) Table		
Lower Extremity Range of Motion	**Approximate range for 2-year-old**	**Comments**
Hamstring length test, measured in supine with hip flexed at 90 degrees and contra-lateral thigh in relaxed extension: Extend knee up toward 180 degrees. Measure end range (R2), expressed often as a negative. Note angle of first catch (R1) if there is spasticity.	Neutral to -20 degrees of full knee extension	Hamstring length less than -20 degrees (e.g., -30 degrees) can be considered limited. Excessive hip range is consistent with low muscle tone, although a precaution is to flex hip only to 90 degrees in Thomas position to avoid overstressing SI joint.
Hip Abduction (supine)	60 degrees	90 degrees is possible for a child with low tone/ joint laxity. Limited range may indicate hip dysplasia.
Hip External Rotation (supine, 90/90 knee/hip)	80 degrees	Supine testing is not consistent with prone testing of ER and IR, which is used for clinical assessment of hip torsion.
Hip Internal Rotation (supine)	30-45 degrees	Greater range may be a sign of habitual "W" sitting (with resultant soft tissue changes).
Ankle Dorsiflexion (in subtalar neutral)	15-30 degrees	25-45 degrees in 1 year old reduces to 10-20 degrees by about 5 years. Range of 45 degrees or more can be considered increased. Less than 10 degrees may impact balance and gait.

Estimated ranges were primarily compiled from practitioner findings, most often non-goniometric.

Reference was also made to *Progressive Casting and Splinting for Lower Extremity Deformities in Children with Neuromotor Dysfunction*, 1990, by Beverly Cusick, which should be consulted for more definitive joint ranges by age as well as postural and gait parameters.

Appendix 3

Considerations when evaluating children less than 4 months (adjusted) age:

- Family Concerns
- Diagnoses, conditions, complications, pertinent family history
- History of care in the NICU with oxygen supplementation
- Known neurological conditions (such as intraventricular hemorrhage, periventricular leucomalasia, etc)
- Failure to Thrive (poor suck, fatigue with feeding, difficulty with coordination of breathing, sucking, swallowing)
- Tube feedings beyond NICU period
- History of frequent seizures, particularly if uncontrolled
- Difficulty with self-regulation (highly arousable, easily upset and difficult to calm, extremely sleepy well past first month, frequent hiccups)
- Stiff: body seems tight with clothing and diaper changes, straightens and holds legs stiffly, does not conform body to adult when being held, arms do not explore own body
- Floppy: feels "like a sack of flour", legs "frogged" in supine in first month of life, arms flop out to sides, seems passive to gravity
- Does not move arms and legs after 1 month of age (as when excited during play or interaction with adults and siblings)
- Does not show emerging head control*
- Lacks visual engagement (holding eye gaze and social smiling) by 4 months of age

(Moerchen, PhD, P.T. (2003) Personal communication).

Development of early head control

– A newborn lifts and turns head part way in prone.

– A baby holds head erect briefly in supported sitting, not steady but bobs and lifts head in prone 45 degrees by end of second month.

– And, when held upright at three months, the baby maintains the head in a vertical position and, if tipped forward or back, the baby extends or flexes the head and neck accordingly. In the fourth month, lateral flexion occurs when the baby is tilted to the side. By five months, when pulled to a sitting position, the baby flexes and lifts the head, tucking the chin.

Alexander, Rona, Boehme, Regi and Cupps, Barbara. (1993). *Normal Development of Functional Motor Skills*, Therapy Skill Builders.

Appendix 4

Evaluation Tools

Evaluation tool (examples)	May be appropriate for:	Comments:
Alberta Infant Motor Scale (AIMS)	Pre-walkers, under 16 months	Fast, observational gross motor tool. Assess in prone, supine, sit and stand *W.B. Saunders Company*
Peabody Developmental Motor Scales, second edition - Gross Motor (PDMS2 - GM)	Child with divergent Gross and Fine Motor skills	Separation of 4 GM sub-tests aids analysis, although each subtest is not equally sensitive for every age group. *Riverside Publishing*
Bayley Scales of Infant Development, 2nd ed. (BSID-2)	General motor delays suspected	3rd edition now available. *Psychological Corporation*
Toddler Infant Motor Protocol (TIMP)*	Preemies; for kids at risk for cerebral palsy	Newer test. *Infant Motor Performance Scales, LLC*
Gross Motor Function Measure (GMFM)**	Children with cerebral palsy.	Valid and sensitive measure of progress. GMFM Score sheets & Gross Motor Functional Classification System for Cerebral Palsy (GMFCS) available at no cost http://www.fhs.mcmaster.ca/canchild/

- Note: the TIMP used "high risk" and "low risk" infants for standardization, rather than typically developing children. As a result, the TIMP recommends children who score .5 standard deviation below the mean be considered delayed (the 1.3 standard deviation cutoff in HFS 90 is not appropriate; clinical judgment can be cited and evidence of atypical development carefully documented).

Appendix 5

MUSCLE TONE

Low Muscle Tone/Hypotonia
Tone is tension or resistance to movement of resting muscles. Reduced tone cannot be described. It can only be experienced. There is not a precise dividing line between abnormally reduced tone and normal tone. The examiner must place the individual patient along a spectrum defined by his or her own experience. Examination of many normal children is essential in defining this spectrum.

Hypotonia is usually assessed by passive manipulation of the arms or legs, which can be made into a game with younger children. Other maneuvers that assess tone include pulling the child from supine to sitting (traction response); holding the child vertically with the hands underneath the arms; holding the child in ventral suspension (tummy down). The child's response to these maneuvers depends not only on passive tone, but also on the strength generated by their proximal limb girdle and trunk muscles. Weakness and hypotonia are different aspects of motor control that should not be used interchangeably." (Jacobson, 1998)

Descriptors/ definition of low muscle tone:

- Decreased resistance to passive elongation of a muscle
- Excessive joint laxity
- Atypical postures

(Dubowitz, 1980)

A child with **low muscle tone** could present as follows. This "constellation of findings" is presented in the order characteristics might be observed during the evaluation:

- parents and teachers describe the child as "clumsy" or "weak"
- history of delayed milestones, falls
- open mouth appearance; drooling in absence of illness or teething, decreased facial expressiveness
- sitting posture: rounded back; sacral sitting; habitual or exclusive "W" sitting; leaning against support such as couch; propping on hands in sit
- creeping posture, speed and pattern: knees wide apart, lordotic (not using abdominals against gravity to raise/"flatten" spine), hands turned (fingers pointing inward), slower speed , difficulty creeping over obstacles such as an adult leg (all of these signs are typical for approximately first two months of creeping)
- standing posture: wide base of support, "toe out", locked or hyper-extended knees
- immature gait: persistent side-to-side toddle ("Trendelenberg")
- immature run: persistent high arm guard position; slow speed, decreased trunk rotation with reciprocal arm swing (for age), compensatory "hip swivel" (due to posture/ alignment), inconsistent foot placement
- delayed balance, excessive falls for age
- ineffective protective extension (as evidenced by bumps, bruises on face) due to arm or neck weakness or slow reaction
- use of momentum, leverage, other compensatory movement strategies
- specific muscular weakness (e.g. inability to rise onto tiptoes or poor eccentric quadriceps control with stair descent)

- phasic but not tonic muscular contraction (e.g., no sustained tiptoe standing)
- pronounced specialization of sides (i.e., right side mobile side, left side stability side)
- avoidance of static postures (e.g., refuses to attempt single limb stance or walking on line)
- lower extremity alignment: pronated feet (arches more collapsed than typical baby flat feet), calcaneal valgus (ankle rolling in), toe out (particularly if from forefoot)
- poor head control (significant head lag when pulled to sit after 4 months of age, inadequate head control when moved about)
- slow, immature, ineffective balance reactions in trunk (as seen when tipped in space when sitting on theraball or therapist's knees, point of control at pelvis)
- "slip through" when held around trunk at armpits (usually more significant central hypotonia)
- poor tolerance to vestibular stimulation possible
- low tone when child relaxed and legs or arms passively moved
- crepitus
- calf muscle bulk feels "squishy"
- joint laxity
- increased range of motion (common pattern: hip abduction and ankle dorsiflexion, often also hip flexion, finger extension)
- may have decreased hamstring range (due to guarding with hamstrings in sitting and/ or "W" sitting)
- may develop decreased ankle dorsiflexion (due to lack of use of dorsiflexion range with chronic "toe out" position)
- decreased endurance and activity level (observed and reported)
- decreased vocalization/ breath support/ length of utterance
- poor motor planning (due to decreased body awareness or lack of practice)
- fine motor may be a strength or grasp patterns may be delayed (inaccurate reach, unrefined pincer grasp, opposition of thumb with middle or more lateral fingers, use of straight instead of rounded fingers to utilize stability of end ranges)
- delayed self-help skills such as removing socks (due to need to prop with a hand in sitting, inability to reach forward using flexion control trunk rotation, weakness of grasp)
- behavioral adaptations to avoid demands (screaming, tantrums, tears, excessive need by child to control activity or how they are moved)
- persistent self-direction toward sedentary, fine motor activities.

Physical therapy prognosis (expectations about rate and course of development) is based on the child's diagnosis (the etiology of their condition) even more than on the child's presentation. To illustrate this, at a given testing point, two children with hypotonia may have similar test scores and age at milestones. However we would anticipate a child with anemia to progress more rapidly after receiving iron supplements than a child with Down Syndrome, whose standardized scores might diverge further from the norm over time even with intervention.

Low Muscle Tone: Consideration of Underlying Issues (differential diagnosis)

- Metabolic low tone: child with low energy level and poor endurance (possible anemia or Carnitine deficiency, often unknown etiology)
- Respiratory low tone: chronic respiratory illnesses, nasal discharge, energy fluctuates with health
- Sensori-neural low tone: good energy level, may have poor body awareness or poor motor planning (e.g., Idiopathic; Autism spectrum; Down Syndrome)

High Muscle Tone/Hypertonia

Many of the underlying impairments and functional limitations listed above for low muscle tone may also describe aspects of a child with high muscle tone. For a child with increased tone, in addition to spasticity or rigidity, the "constellation of findings" could include:

- parents describe the child as "tight"; caregivers note difficulty opening legs for diaper changes baby may feel "different" when held or legs are moved
- history of delayed milestones, possibly quite significantly delayed
- "reflexive" (persistent asymmetrical tonic neck reflex (ATNR), symmetrical tonic neck reflex (STNR), reverts to reflexive postures when stressed or surprised)
- appearance of excessive effort with of without movement
- lack of isolated muscle control (synergistic patterns)
- atypical movement patterns (e.g., commando crawl by pulling with forearms, legs dragged behind)
- atypical gait pattern, such as "crouched gait" (may increase over time with decreasing range of motion or increasing balance demands) or "scissoring gait" (a very significant finding which may be present even with early assisted walking)
- asymmetric gait features, such as unilateral hip hike, leg circumduction, medial heel whip, inadequate toe clearance (as in spastic diplegia)
- toe walking due to muscle tone (vs. idiopathic toe walking)
- persistent high arm guard with gait, decreased "freedom" for arms to move
- lack of protective extension due to arm guard postured, tight biceps, disadvantaged/ inhibited/weak triceps
- decreased speed with attempt to run, "bouncy" quality
- generally poor balance and coordination due to lack of dynamic and graded muscle control;
- lack of variety with movement (as with climbing or descending stairs)
- decreased trunk rotation (log roll, lack of rotation with reach in sitting)
- pull-to-sit sign: child's hips do not bend easily with this maneuver so their bottom slides toward you or child goes straight to standing (may be early indicator of diplegia or, if transient, just a phase where the child wants to get on their feet)
- "stiff" trunk when held and swung
- decreased range of motion, particularly tight hamstrings and shortened heelcords
- sternal depression or emerging pectus excavatum (due to excessive reliance on rectus abdominus and lack of dynamic abdominal oblique control)
- fisted or overly-flexed hands (beyond 4-6 months)
- poor control with release (may put hand in container when releasing object, may have poor control of directionality when tossing a small ball)
- lack of reaching across midline and bimanual coordination (due to arm guard posture, decreased trunk rotation)
- "retracted" lips with or without drooling or,
- "forced" quality to vocalizations

- Weakness, or the inability to generate force, will be a significant underlying impairment for children with hypertonia. This is true even if parents report feeling that their child is unusually strong, such as if it is hard to bend their child's legs for diaper changes or if there seems to be precocious weightbearing. See also the research of Damiano in support of strength training for children with cerebral palsy.

Appendix 6

Newborn Reflexes

Infantile reflexes are tested and observed by the medical team to evaluate neurological function and development. Absent or abnormal reflexes in an infant, persistence of a reflex past the age where the reflex is normally lost, or redevelopment of an infantile reflex in an older child or adult may suggest significant neurological problems.

As a newborn and young infant, most of your baby's development and physical reactions will be determined by primitive reflexes. For example, if you brush your newborn's cheek, he will likely turns his head (**rooting reflex**), which helps him to find a breast or bottle for a feeding. Or if you place a nipple in his mouth, as it touches the roof of his mouth, it will cause him to begin sucking (**sucking reflex**).

There are many of other types of reflexes, most of which are present at birth, including the Moro or startle reflex, walking or stepping, tonic neck reflex and the palmar and plantar grasp.

It is not always easy to demonstrate these reflexes and not all babies do them all of the time, so don't be surprised if you or your Pediatrician can't trigger all of the reflexes. More important, is your baby's overall growth and development. Absent, asymmetric or persistent reflexes might be a sign of a neurological problem, though, and need further evaluation.

Moro Reflex

Also called the startle reflex, the Moro is usually triggered if your baby is startled by a loud noise or if his head falls backward or quickly changes position. Your baby's response to the moro will include spreading his arms and legs out widely and extending his neck. He will then quickly bring his arms back together and cry. The Moro reflex is usually present at birth and disappears by 3-6 months.

Grasp

This reflex is shown by placing your finger or an object into your baby's open palm, which will cause a reflex grasp or grip. If you try to pull away, the grip will get even stronger. In addition to the palmar grasp, there is also a plantar grasp, which is elicited by stroking the bottom of his foot, which will cause it to flex and his toes to curl. The palmar and plantar grasps usually disappear by 5-6 months and 9-12 months respectively.

Stepping/Walking

Most parents are surprised by this reflex. If you hold your baby under his arms, support his head, and allow his feet to touch a flat surface, he will appear to take steps and walk. This reflex usually disappears by 2-3 months, until it reappears as he learns to walk at around 10-15 months.

Positive Support Reflex

Like the stepping reflex, if you hold your baby under his arms, support his head, and allow his feet to bounce on a flat surface, he will extend (straighten) his legs for about 20-30 seconds to support himself, before he flexes his legs again and goes to a sitting position. This reflex usually

disappears by 2-4 months, until it becomes a more mature reflex in which there is a sustained extension of the legs and support of his body by about 6 months.

Tonic Neck Reflex

A postural reaction, the asymmetric tonic neck reflex, or fencer response, is present at birth. To elicit this reflex, while your baby is lying on his back, turn his head to one side, which should cause the arm and leg on the side that he is looking toward to extend or straighten, while his other arm and leg will flex. This reflex usually disappears by 4-9 months.*

Galant Reflex

If your baby is on his stomach and you stroke neck to the spinal cord (paravertebral area) on his middle to lower back, it will cause his back to curve towards the side that you are stroking. This reflex is present at birth and disappears by 3-6 months.

Infants also have reflexive **postural reactions** that usually begin later in the first year of life. These postural reactions include:

Derotational Righting

This reaction usually appears by 4-5 months, and involves your infant's body turning to follow the direction of his head when it turns, helping him learn to roll over.

Parachute Response

This is a protective response that protects your infant if he falls. Beginning at about 5-6 months, if an infant falls, he will extend his arms to try and 'catch' himself.

Propping

Beginning at different ages, the propping responses help your child learn to sit. The first is the anterior propping response, which begins at 4-5 months, and involves your infant extending his arms when he is held in a sitting position, allowing him to assume a tripod position. Next, lateral propping, appearing at 6-7 months, causes him to extend his arm to the side if he is tilted. Lastly, posterior propping, causing him to extend his arms backwards if he is titled backward.

It is also important that the reflexes are symmetric, meaning that they are the same on both sides of the body. An asymmetric Moro reflex, for example, might mean that your baby has weakness on one side of his body.

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Guidelines for Best Practices in Determining Eligibility
Based on Children's Social and Emotional Development

BACKGROUND INFORMATION

Rationale

In infancy and early childhood, providing interventions that promote healthy social and emotional functioning results in behaviors that have a strong correlation with future mental health and school success. Early Interventionists, however, often lack preparation, experience, and knowledge about social emotional development and their potential roles, boundaries and partners. This section will offer guidance and resources to assist practitioners in meeting the challenges of evaluating the complexities of social and emotional development as the foundation for early intervention eligibility and intervention.

History

Until recently, the prevailing view of children's development focused on discrete skill areas. We looked at social abilities such as cooperating, playing with peers, or reaching out for hugs; cognitive skills such as searching under a blanket for a hidden toy; language skills such as saying 'baba' or 'dada'; and motor skills such as drawing a circle. We identified the ages at which the skills occurred and judged a child's developmental progress based on whether she fit age expectations. As interest in infants and young children grew, the importance of social and emotional skills in development became apparent and more of these skills were added to the list of skills charted. A baby's first smile, the first time he balks at being held by a stranger, his first turn taking; we now look for these skills, too, on a young child's path of development (Greenspan & Weider, 1998).

The study of differences in the social and emotional development of children has only occurred recently. What is known is that there is wide variability in this area of development. Developmental specialists have just begun to understand the relationship between biological and environmental factors that influence a child and family's ability to navigate reciprocity, shared experiences and emotional well being. Recent work in the field of brain development is beginning to look closely at the role of emotion in all areas of development.

Throughout history we have believed that emotions were subservient to thought or reason. Freud likened the emotions to a wayward horse, controlled by the rational ego. But our recent clinical work with infants and young children, as well as an emerging body of observational and neuro-scientific research, suggests this view is inaccurate. Rather than being separate and subservient to thought, emotions seem to be responsible for our thoughts. Because emotions give direction to our actions and meaning to our experiences, they enable us to control our behavior, store and organize experiences, construct new experiences, solve problems, and think (Greenspan & Wieder, 1998).

Individuals with Disabilities Education Act (IDEA)

The need for prevention or minimization of social or emotional problems in young children is an international concern, addressed in the United States the Individuals with Disabilities Education Act (IDEA) Amendments of 1997 (Squires, Bricker & Twombly, 2003). This was accomplished by identifying social and emotional development as one of the five developmental domains for which an infant or toddler may be found eligible for early intervention service from a state's Part C Early

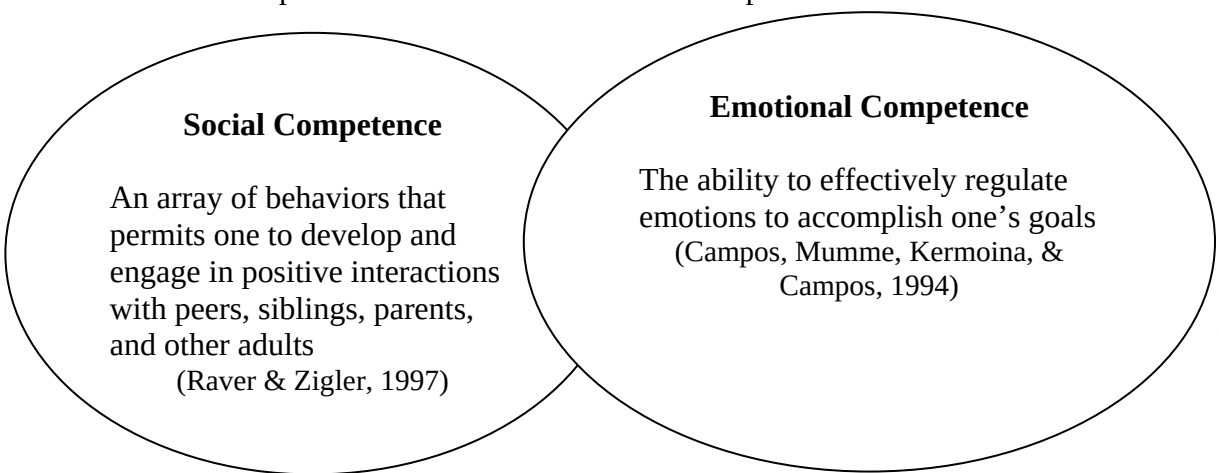
Intervention Program. This meant that early intervention programs have an obligation to identify and serve children who demonstrate developmental delays in social or emotional development. The reauthorization of IDEA in 2004 increased attention to social emotional and other areas of development relative to the impact of child abuse and neglect. *The Child Abuse and Treatment Act* (CAPTA*)* requires child protective services agencies to refer all infants and toddlers (birth to three) with substantiated cases of abuse and neglect to early intervention for screening. In response to CAPTA, IDEA 2004 requires early intervention programs to screen all infants and toddlers (birth to 3) who are referred to Birth to 3 Programs by child protective services with a substantiated case of abuse or neglect.

In reviewing data collected by the State of Wisconsin's Birth to 3 Program, (April 2003), no children were found eligible due to a documented developmental delay solely in the area of social and emotional development. This finding reinforces the need for early intervention providers to have information, education **and experience in evaluating social and emotional** development as part of a comprehensive approach to determining children eligible for the Wisconsin Birth to 3 Program.

The administrative rules that govern The Birth to 3 Program and early intervention services in Wisconsin, HFS 90, define social and emotional development as a domain to be considered for evaluation, assessment, eligibility determination, and intervention. The rules define social and emotional development as evidenced by "temperament, mood, attachment, self-soothing behaviors, adaptability, activity level, awareness of others and interpersonal development" (HFS 90.08). These broad terms need to be understood if effective evaluation, assessment, and intervention are to take place. Furthermore, it is important to understand social and emotional development when it is the only area of documented delay, and when social and emotional delays are present alongside other developmental delays. When a young child experiences social and emotional delays concurrent with other developmental challenges or diagnosed conditions, the impact of a primary disability may be exacerbated (Vygotsky, 2004). *See Cognitive Section for additional information about Vygotsky's theories of development*. However, 'comprehensive' definitions of social and emotional competence and disability are not included in either federal or state statutes or regulation (Squires, et al.2002, p.5).

Social and Emotional Competencies

It is clearly understood that social and emotional aspects of development are connected. It is important to understand the relationships and distinct differences between social and emotional competencies. " Social competence can be defined as an array of behaviors that permits one to develop and engage in positive interaction with peers, siblings, parents, and other adults," (Raver & Zigler, 1997). "… Emotional competence can be defined as the ability to effectively regulate emotions to accomplish one's goals," (Campos, et al., 1994). The following diagram illustrates the interconnected relationship between social and emotional competencies:



> "The early identification of social and emotional problems in infants, toddlers, and young children is essential if we are to assist them in building their emotional and social competence and reduce the likelihood of placement in special education programs, residential treatment, or later incarceration." (Squires et. al., 2002, p.3).
>
> "The assessment of an infant's or young child's core emotional and social capacities provides families and clinicians with a rich, nuanced profile of how a very young child experiences his or her physical and human environment, the ways in which the child uses his or her own resources and the support of caregivers to engage with the world, and the challenges that confront the child" (Greenspan, 1996).

UNDERSTANDING SOCIAL AND EMOTIONAL DEVELOPMENT

For early intervention providers to gain confidence in their ability to make informed team decisions about a child's social and emotional functioning, it is helpful to have knowledge of areas of functioning that contribute to a child's social and emotional development. It is also important for early intervention providers to understand their roles and boundaries in evaluating, diagnosing, and providing intervention for complex social emotional disorders.

The system of infant and early childhood mental health services proposed by Constantine Lillas (2003) encompasses an array of professional services across multiple types of caregivers and programs. Appendix A includes a description of the proposed services and interventions for early intervention providers within Levels I (developmental, relational practices for daily care across all caregivers) and II (developmental, relationship-based early intervention services). When interventions that fall into Level III (developmental, relationship-based mental health services) are required, a licensed mental health professional is needed to address the more complex situations for a child diagnosed with or suspected of having an emotional disorder, serve mental health problems or been exposed to abuse, neglect or violence.

This section includes information about various frameworks for describing critical areas of social emotional functioning to help early intervention practitioners better understand the work of Level III practitioners and develop their roles as Level I and II partners with licensed mental health professionals. Important partnership roles for early interventionists may include: screening, observing, assessing, identifying, listening, reporting, referring, coaching, consulting, supporting, and interacting with children and families within relationship-based early intervention services.

Attachment

Accepting that early relationships the basis for a child's development, D.W. Winnicott tells us "There is no such thing as a baby; there is a baby and someone else". To begin understanding a child's social and emotional functioning, it is important to understand the child's behavior in relation to the significant caregivers in her life. Early attachments shape the development of a child's "internal working model" of their world and have a long-term influence on early relationships. Attachment is a special enduring form of an emotional relationship with another, and if secure creates trust that allows a baby to explore, learn and reach out to a bigger world. When these attachments are disrupted, a baby often experiences a great sense of loss. (Noddings-Eichinger, 2005).

Types of Attachments)

***Secure*:** Child shows active exploration in the presence of mother/caregiver; searching and distress upon separation; and rapid cessation of distress and resumption of exploration upon reunion.

Insecure/Avoidant: Child shows little or no distress upon separation from mother/caregiver; avoids efforts of mother/caregiver to attract attention or establish contact upon reunion; may be linked to a mother's rejection of her infant's attachment behavior; and may represent" organized shift of attention" away from the caregiver and/or her absence.

***Insecure-Ambivalent/Resistant*:** Child shows preoccupation with mother/caregiver throughout; little exploration and distress in the presence of mother/caregiver; heightened emotionality and inability to be settled by mother/caregiver upon reunion; and may be linked to unpredictable mother/caregiver responses and discouragement of autonomy.

Disorganized/Disoriented: Child shows disorganization and/or disorientation in the mother/caregiver's presence; exhibits a mix of approaching, avoidance, and "trance-like" behaviors; may be linked to mal-treatment; and may represent a collapse or organizational strategies produced by fear of the mother/caregiver.

> "….the balance between attachment and exploration in the child is mirrored by the balance between protectiveness and encouragement of exploration in the parent. When things go well enough, the parent serves as a secure base from which the child sets forth to explore and to which he can trustingly return for solace before moving off yet again." (Alicia Liebermann, *Zero to Three)*

Assessing Parent-Child Interactions: *The Parent-Child Early Relational Assessment* (PCERA) (1985), developed by Roseanne Clark, Ph.D., UW-Madison, Department of Psychiatry, is one way to learn more about the quality of parent-child interactions (Clark, Tluczek, & Gallagaher, 2005). The assessment process includes parent interviews and observations of parent and child interactions in four different situations- feeding/snack, free play, structured task, and parent-child separation and reunion. The results are used to develop a profile based on the ratings and provide feedback for discussion with the parent/caregiver. The information gathered from the PCERA would help early intervention professionals develop an affective vocabulary to describe parent-child interactions and a child's performance, and to formulate ideas to focus intervention. Professionals often describe specific motor or communication actions, but don't typically include comments about a child's enjoyment or motivation to perform a task such as playing with dolls or building a bridge. One caution, specific training in the tool is required to use it for an initial diagnostic evaluation to formulate relationship issues and to assess outcomes in treatment efficacy studies.

Functional Emotions

Stanley Greenspan M.D. has developed *The Functional Emotional Assessment Scale (1994, 1996)* through his work with young children and their families as a way to help practitioners systematically organize and interpret observations of the child with his or her parents as well as the

clinician. The *Functional Emotional Assessment Scale (Greenspan, DeGangi, & Wieder, 2001)* addresses six areas:

1. ***Primary Emotional Capacities:*** The attainment of primary emotional capacities at each developmental level determines if a child has progressed to his age-expected functional emotional developmental capacity. When a primary functional emotional capacity is not present it suggests the infant has not achieved his age expected developmental level.
2. ***Emotional Range-Sensorimotor (including speech):*** This area focuses on the range of sensory and motor equipment, including speech, the infant or child is able to employ in mastering his primary functional emotional capacities (e.g., using motor gestures, touch, words, etc.). At later ages these capacities will involve the use of sensory, motor, and speech capacities to support higher level functional and conceptual abilities.
3. ***Emotional Range-Affective:*** This area focuses on the different affective themes (e.g., dependency, aggression) that the child can organize at his age-expected developmental level (e.g., one child can use words and pretend play in relationship to the theme of dependency-the dolls hugging-while another child can only use play and words for aggression).
4. ***Related Motor, Sensory, Language, and Cognitive Capacities:*** This area comprises selected developmental items not already covered in the primary emotional capacities. Many capacities that would ordinarily fall in one of the cognitive categories will be seen to be covered as part of a functional emotional capacity.
5. ***General Infant Tendencies:*** These are constitutionally and maturationally based capacities.
6. ***Overall Caregiver Tendencies:*** These are facilitating and undermining caregiver patterns.

Each area is rated on a continuum from "not present" to "consistently present under all circumstances". The *Functional Emotional Assessment Scale (*FAES) is available from Harcourt Publishing Company. Visit this website for a rating scale form: http://www.coping.org/intervention/feas.htm.

Phases of Emotional Development

Greenspan further defines *phases of development* as described in his book, *Infancy and Early Childhood* (1992):

- Regulation and Interest in the World
- Forming Relationships
- Intentional Two-Way Communication
- Complex Sense of Self 1: Behavioral Organization
- Complex Sense of Self II: Behavioral Elaboration
- Emotional Ideas I: Representational Capacity
- Emotional Ideas II: Representational Elaboration
- Emotional Thinking

Greenspan and Wieder (2001) have clarified the understanding of social and emotional "functioning" in children. They define what is necessary for the child to interact with his environment and others successfully:

> ***Attention and Regulation:*** The child notices and attends to what is going on in the world through all the senses – for example, by looking, listening, touching, and moving. The child can stay regulated, without over or under reacting to external or internal stimuli in order to attend

and interact. As the child grows and achieves higher levels of functioning, attention and regulation are evidences by the capacity to maintain a long continuous flow of interactions.

Forming Relationships or Mutual Engagement: The child develops a relationship with an emotionally available caregiver for pleasure, but also for comfort and soothing when needed, so that she can deal with the world's satisfactions and frustrations. As the child grows, the capacity for engagement needs to embrace the full range of emotions (joy, caring, anger, jealousy, fears, competition, etc.), supported by affect cues (for example, smiles or scowls) from others which help the child stay engaged and feel comfortable and curious about different experiences.

Intentional Two-way Communication: The child uses back-and-forth reciprocal gestures, including affective interactions, to convey his or her intentions or desires to start the 'conversations' needed to participate actively in the world. The simple gestures of a child less than a year old, such as pointing or playing 'give and take,' turn to complex gestures during the second year, and then to back-and-forth conversations as the child develops language.

Complex Gestures and Problem Solving: Children learn more about how to solve problems with their new abilities to move, use their hands, and use complex gestures and words to get what they need or want. Complex gestures involve sequences – all the steps needed to communicate and solve problems – first through actions and then with words as well.

Creating Symbols/ideas*:* The child begins to express thoughts, ideas and feelings through symbols, using pretend play and words. A child can communicate what she imagines through role-play; dress up, dolls, and action figures, which now represent experiences from real life as well as those learned from other sources. These become her own as she projects her feelings into the characters and actions.

Connecting Symbols Logically and Abstract Thinking**:** The child can connect and elaborate ideational sequences in logical ways, taking time and space into account. Realistic conversations and pretend play stories are now made up of logically interconnected ideas. They often may have a beginning, middle, and end, with clear motives and anticipated consequences. The child can now also abstract and reflect on various feelings and lessons to be learned.

Emotional Response/Temperament

Stella Chess and Alexander Thomas (1996) have defined nine elements that are widely regarded as markers of a child's emotional response or temperament. Each dimension defines the child's personality and personal traits. The understanding of individual temperament can lend predictability and insight into the child's social and emotional development and the "goodness of fit" between the child and parent's interaction styles. It is helpful to recognize the influence of a child's temperament on the reciprocal interactions between the child and the environmental expectations or demands of the parents/caregivers. When demands and expectations of the parent match with the child's capacities, style of behaving, and motivations "goodness of fit" is achieved. The elements of temperament are as follows.

Activity Level**:** The motor component present in a given child's functioning and the diurnal proportion of active and inactive periods.

***Rhythmicity Regularity*:** The predictability and/or unpredictability in time of any function…such as feeding, sleeping, elimination.
Approach/Withdrawal: The nature of the initial response to new stimulus, be it a new food, a new toy, or a new person.
Adaptability: Responses to new or altered situations. One is not concerned with the nature of the initial response, but rather the ease with which they are modified in the desired direction
Intensity of Reaction: The energy level of (an emotional) response.
Mood: The amount of pleasant, joyful, and friendly behavior, as contrasted with unpleasant, crying, and unfriendly behavior.
***Distractibility*:** The effectiveness of environmental stimuli in interfering with or in altering the direction of the ongoing behavior.
Persistence: The continuation of an activity in the face of obstacles.
Threshold of Responsiveness: The intensity level of stimulation that is necessary to evoke a discernible response, irrespective of the specific form that the response may take, or the sensory modality affected.

Researchers in the area coupled the concepts of temperament and self-regulation (Bates & Wachs, 1994; Rothbart & Ahadi, 1994). Developmental research confirms the view that temperament encompasses the infant's innate, biologically based patterns of reacting to stimulation (reactivity) and the parallel capacity for emerging self-regulation.

Temperamental Attributes:
A 'core set' of five temperamental attributes that are characteristic of typical development has emerged from research in this area and includes:

- ***Novelty Reactivity***: fearfulness of and distress caused by novelty
- ***Negative Reactivity****:* general irritability and distress causes by frustration
- ***Positive Affectivity toward People and Object***
- ***Gross Motor Activity and Expenditure of Energy***
- ***Attentional Persistence***

Self-Regulation:
Self-regulation pertains to a child's ability to organize and react adaptively to sensory or sensory-motor stimuli in daily interactions and relationships. Researchers have found that a young child's failure to develop "executive brain functions" to inhibit or delay behavioral actions is strongly related to difficulties in self-regulation. Impairments in this neurodevelopmentally rooted processes are often associated with various problems in thinking and behavioral organization and result in challenging behaviors. (Neisworth, Bagnato, Salvia, & Hunt, 1999). These behaviors are often the ones that draw attention to a child's problems in developing appropriate social skills and result in referrals to early intervention and other services.

Other Social and Emotional Development Resources

Wisconsin Think Big Start Small: Relationships Matter: This brochure, developed in collaboration with the Wisconsin Infant Mental Health Initiative, identifies a number of social and emotional development markers in young children. Visit:
http://www.thinkbigstartsmall.com/docs/Relationships_Matter.pdf

Wisconsin Model Early Learning Standards: The standards are a listing of developmental expectations for children upon kindergarten completion supported by practice-based evidence and scientific research. Visit: http://www.collaboratingpartners.com/EarlyLS.htm

Healthy Minds: Nurturing Your Child's Development: This free product of ZERO TO THREE and The American Academy of Pediatrics is based on findings from a report from the National Academy of Sciences that examined the research on early childhood and brain development**.** Visit: http://www.zerotothree.org/healthyminds/

UNDERSTANDING DEVELOPMENTAL DISORDERS

Recent work in the field of children's mental health has yielded an increase in classification systems and strategies designed for diagnosing and treating difficulties in social and emotional development. One such tool is the *Diagnostic Classification: Mental Health and Developmental Disorders of Infancy and Early Childhood* (DC: 0-3). The diagnostic framework presented in *Diagnostic Classification: 0-3* seeks to address the need for a systematic, developmentally based approach to the classification of mental health and developmental difficulties in the first four years of life.

The *Diagnostic Classification: 0-3* categorizes emotional and behavioral patterns that represent significant deviations from normative development in the earliest years of life. Some of the categories presented represent new formulations of mental health and developmental difficulties. Other categories describe the earliest manifestations of mental health problems, which have been identified among older children and adults but have not been fully described in infants and young children. In infancy and early childhood, these problems may have different characteristics, and prognosis may be more optimistic if effective early intervention can occur (Zeenah, 2000).This approach to classification complements *The Diagnostic and Statistical Manual –IV (DSM-IV*) and offers alternative to avoid prematurely or inappropriately labeling a child with a psychiatric disorder. Additionally, the *DC: 0-3* includes descriptive information that is developmentally appropriate for infants and toddlers and helpful both for classification and intervention. *See Appendix B for additional information about some of the most common early childhood disorders described in both the DSM-IV and the DC: 0-3.*

SCREENING FOR DEVELOPMENTAL CONCERNS

Whether families themselves raise concerns, or they are identified through exploration and observation, any child for whom you have concerns about their social and emotional development should be screened and receive further evaluation if needed.

Recommendations for Screening:
There are a growing number of instruments that have been developed for the purpose to screen for social and emotional concerns. These three instruments are readily available and widely used:

- ***Ages and Stages Questionnaire: Social-emotional Behaviors*** **(ASQ: SE)** was developed in 2002 by Jane Squires, Diane Bricker, and Elizabeth Twombly with assistance from Suzanne Yockelson, Maura Schoen Davis, and Younghee Kim.

- ***Temperament and Atypical Behavior Scales Screener (TABS Screener)*** was developed in 1999 by Stephen J. Bagnato, John T. Neisworth, John J. Salvia, and Frances M. Hunt.

- ***The Brief Infant-Toddler Social and Emotion Assessment (BITSEA)***, originally published in 2002 and revised spring 2006, by Alice Carter and Margaret Briggs-Gowan includes a 42 item parent form and a child care provider form. The instrument screens for dysregulation (sleep, negative emotionality, eating and sensory sensitivity) as well as competence (compliance, attention, imitation/play, mastery motivation, empathy, and prosocial peer relations).

Any child who demonstrates the need for further evaluation in the area of Social and Emotional Development should receive a thorough and comprehensive look across all areas of development. *See Appendix B for additional information about these screening tools.*

EVALUATION OF SOCIAL AND EMOTIONAL DEVELOPMENT

Once a child has been identified to be in need of further evaluation in the areas of social and emotional development, it is important for practitioners to have access to the tools and strategies that can accurately and reliably identify children eligible for early intervention**.** Because of the mounting evidence for attending to early social and emotional development, along with requirements to evaluate in programs such as early intervention and Early/Head Start, new and better tools, instruments and strategies are becoming available on the market. However, at the present time, there are few instruments that would stand alone in indicating that a child has social and/or emotional development delays that would lead an early intervention team to determining eligibility. As indicated by HFS90 and other best practices guidelines, a comprehensive approach is needed. Ultimately, this approach should be based on the informed judgments of early intervention team members. *See Overview Section for additional information on "informed clinical opinion".*

Components of Evaluation

Consistent with best practices promoted by the *Zero to Three* organization and other infant mental health initiatives, the following areas have been identified as critical components in the evaluation of social and emotional development:

- presenting symptoms and behaviors;
- developmental history -- past and current affective, language, cognitive, motor, sensory, family, and interactive functioning;
- family functioning and cultural and community patterns;
- parents as individuals;
- caregiver-infant (child) relationship and interactive patterns;
- the infant's constitutional-maturational characteristics; and
- affective, language, cognitive, motor and sensory patterns.

In addition, it is important to consider the family's psychosocial and medical history, the history of the pregnancy and delivery, and current environmental conditions and stressors.

The result of such a comprehensive evaluation should lead to preliminary notions about:

1. The nature of the infant's or child's difficulties, as well as her or his strengths; the level of the child's overall adaptive capacity; and functioning in the major areas of development, including social-emotional, relationships, cognitive, language, sensory and motor abilities in comparison to age-expected developmental patterns.

2. The relative contribution of the different areas assessed (family relationships, interactive patterns, constitutional-maturational patterns, stress, etc.) to the child's difficulties and competencies.
3. A comprehensive treatment or preventive intervention plan to deal with 1) and 2) above. (Zero to Three).

> "Classification schemes in infancy are in the process of rapid evolution, reflecting changing perspectives from clinical experience, advancing knowledge, and new directions in research," (Zeenah, 2002, p. 225)

These processes and strategies should be invaluable to a team in making an informed clinical opinion about whether a child would quality for Wisconsin's Birth to 3 Program with a delay in social and/or emotional development. The information may also help a team determine if a child demonstrates atypical behaviors that would warrant consideration for eligibility beyond the numerical data available from testing instruments.

Instruments for Evaluating Social and Emotional Development

The following section provides an overview of a few instruments. A single domain instrument, the *Temperament and Atypical Behavior Scale (TABS)* is included as an example of a tool that is norm-referenced, and therefore, appropriate for using as one data source for determining eligibility. The *Functional Emotional Assessment Scale* (*Greenspan, DeGangi, & Wieder, 2001*), described above on page 5 could also be used to help determine eligibility for Wisconsin's Birth to 3 Program. *The Hawaii Early Learning Profile (1992)* is included as an example of a multi-domain curriculum-based, criterion-referenced instrument that has a comprehensive social and emotional development component. With growing developments in the field of infant and early childhood mental health, it will be important to watch for the availability of new and better instruments. For example *The Bayley Scales of Infant Development, Third Edition* (2005), a norm-referenced instrument now includes a social and emotional domain developed by Stanley I. Greenspan. *See Appendix C for a list of other instruments for measuring social emotional development.*

Temperament and Atypical Behavior Scale (TABS)

The *Temperament and Atypical Behavior Scale* (TABS) was developed to provide a reliable and valid, norm-referenced, individually administered measure of dysfunctional behavior appropriately used with infants and young children between the ages of 11 and 71 months.

As a norm-referenced scale, TABS is intended to identify children who are either developing atypically or are at risk for atypical development. In addition, when used for clinical purposed, TABS data can indicate specific areas of concern and can be the basis for planning early intervention programs for children and support programs for parents.

Content Summary: On the *TABS* Assessment Tool, atypical self-regulatory behavior is assessed by 55 items in areas such as temperament, attention, attachment, social behavior, play, vocal and oral behavior, senses and movement, self-stimulation and self-injury, and neurobehavioral state. Four psychometric factors underlie the 55 items and are arranged into four subtests on the Assessment Tool. These four factors define a construct of atypical temperament and self-regulation.

Factor 1: Detached

For infants and young children, a *detached* style of temperament and self-regulation is exemplified by behavior that is withdrawn, aloof, self-absorbed, difficult to engage, and disconnected from everyday routines involving adults or other children. This behavior can be manifested in a variety of activities and contexts. Infants and young children with a detached style may *look through or past people, turn out, lose contact with what is going on, often just start into space,* or *act like others are not there*. Behavior assessed by Subtest 1 is commonly associated with autism spectrum disorder (ASD).

Factor 2: Hyper-sensitive/active

For infants and young children, a *hyper-sensitive/active* style of temperament and self-regulation is exemplified by behavior that is overreactive to even slight environmental stimulation, impulsive, highly active, negative, and defiant. This behavior can be manifested in a variety of activities and contexts. Infants and young children with a hyper-sensitive/active style may be *difficult to soothe when upset and crying, frequently irritable, touchy, or fussy, mostly on the go, too grabby, impulsive, or destructive*. Behavior assessed by Subtest 2 is commonly associated with attention-deficit/hyperactivity disorder (ADHD).

Factor 3: Underreactive

For infants and young children, an *underreactive* style of behavior is truly unresponsive and requires intense environmental stimulation to elicit a response. An underreactive style is associated with limited awareness, low alertness, passivity, and lethargy – it differs from a detached style that actively avoids engagement. Infants and young children with an underreactive style may *show no surprise to new events, not be upset when a favorite toy is taken away, not react to new sounds, or rarely smile, giggle, or laugh at funny things*. Behavior assessed by Subtest 3 is commonly associated with a variety of severe neurodevelopmental problems (i.e., problems presumed to have primarily a neural basis, such as problems related to brain injury and more subtle neurological impairment).

Factor 4: Dysregulated

For infants and young children, a *dysregulated* style of temperament and self-regulation is exemplified by difficulty controlling or modulating neurophysiological behavior (e.g., sleeping, crying, self-comforting) and oral-motor control (e.g., jitteriness and hypersensitivity to physical contact). Infants and young children with problems in regulation may *cry too long, need help falling asleep too often, scream in their sleep, or be inconsolable.*

The Hawaii Early Learning Profile (HELP) *(1992*) authored by Stephanie Parks and published by VORT Corporation is a widely regarded curriculum-based, criterion-referenced developmental assessment (http://www.vort.com/products/help_overview.html). The HELP identifies the following milestones in the social and emotional development of young children:

Attachment/Separation/Autonomy

0-3.1	Enjoys and needs a great deal of physical contact and tactile stimulation
0-2	Establishes eye contact
0-3	Draws attention to self when in distress
3-6	Awakens or quiets to parent's voice
3-5	Socializes with strangers/anyone

3-5.1	Discriminates strangers
4-8	Recognizes parents visually
5-9	Lifts arms to parents
5-7	Explores adult features
5-8	Displays stranger anxiety
6-10	Shows anxiety over separation from parent
8-12	Lets only parents meet his needs
9-12	Explores environment enthusiastically
12-13	Likes to be in constant sight and hearing of any adult
12-14	Attempts self-direction: resists adult control
24-30	Displays dependent behavior; clings/whines
24-36	Feels strongly possessive of loved ones
30-36	Separates easily in familiar surroundings
30-36	Shows independence
30+	Insists on doing things independently

Development of Self

2-3	Inspects own hands
3-5	Plays with own hands, feet, fingers, toes
3-5.5	Makes approach movements to mirror
5-7	Looks and vocalizes to own name
5.5-8.5	Smiles at mirror image
6-9	Distinguishes self as separate from parent
6-9	Responds playfully to mirror
7-12	Shows like/dislike for certain people, objects, places
12-15	Displays independent behavior; is difficult to discipline – the “no” stage
12-18	Shows toy preferences
12-18	Enjoys being center of attention
12-18	Recognizes several people in addition to immediate family
15-16.1	Identifies self in mirror
18-24	Uses own name to refer to self
18-24.1	Experiences a strong sense of self-importance
19-24	Recognizes self in photograph
24-30	Uses “self-centered” pronouns
24-30	Takes pride in clothing
24-30	Becomes aware of sex differences
24-36.1	Distinguishes self as separate person; contrasts self with others
26-33	Knows own sex or sex of others
30-36	Takes pride in achievement; resists help

Expression of Emotions and Feelings

0-1	Cries when hungry or uncomfortable
0-1.5	Smiles reflexively
1.5-4	Responds with smile when socially approached
1.5-4	Laughs
2.5-5.5	Squeals
3-6	Vocalizes attitudes – pleasure and displeasure

6-7	Responds to facial expressions
6-18	May show fear and insecurity with previously accepted situations
12-18	Displays frequent tantrum behaviors
14-15.5	Hugs and kisses parents
18-24	Expresses affection
18-24	Shows jealousy at attention given to others, especially other family members
18-24	Feels easily frustrated
22-24	Attempts to comfort others in distress
24-30	Frustration tantrums peak
24-30	Dramatizes using a doll
24-30	Fatigues easily
24-30	May develop sudden fears, especially of large animals
30-36	Demonstrates extreme emotional shifts and paradoxical responses

Learning Rules and Expectations

1.5-4	Shows anticipatory excitement
3-6	Becomes aware of strange situations
5-6.5	Distinguishes between friendly and angry voices
9-12	Tests parental reactions during feeding
9-12	Tests parental reactions at bedtime
9-12	Knows what “no no” means and reacts
12-16	Acts impulsively, unable to recognize rules
12-15	Hands toy back to adult
12-18	Needs and expects rituals and routines
12-18	Begins to show a sense of humor
12-15	Displays distractible behavior
12-18	Tends to be quite messy
18-24	Desires control of others-orders, fights, resists
21-24	Remembers where objects belong
24-27	Demonstrates awareness of class routines
24-30.1	Holds parent’s hand outdoors
24-30.1	Says no but submits anyway
24-30	Dawdles and procrastinates
30+	Begins to obey and respect simple rules
30-36.1	Resists change; is extremely ritualistic
30-36	Experiences difficulty with transitions

Social Interactions and Play

0-1	Regards face
0-2	Establishes eye contact
0-3	Molds and relaxes body when held; cuddles
1.5-4.1	Responds with smile when socially approached
3-5	Vocalizes in response to adult talk and smile
3.5-4.5	Laughs when head is covered with a cloth
3-8	Demands social attention
3-6	Enjoys social play

5-6	Hand regard no longer present
4-8	Repeats enjoyable activities
6-10	Plays "Peek-a-boo"
6-10.1	Cooperates in games
9-12	Extends toy to show others, not for release
11-12.5	Repeats sounds or gestures if laughed at
12-15	Plays ball cooperatively
18-24	Interacts with peers using gestures
18-24	Engages in parallel play
23-34	Defends possessions
24-30	Displays shyness with stranger and in outside situations
24-30	Tends to be physically aggressive
24-36	Enjoys a wide range of relationships; meets more people
24-36	Relates best to one familiar adult at a time
24-36	Engages best in peer interaction with just one older child, not a sibling
24-36	Initiates own play, but requires supervision to carry out ideas
30-36	Tends to be dictatorial and demanding
30-36	Talks in a loud, urgent voice
30+	Participates in circle games; plays interactively

MAKING A DIFFERENCE…ONE CHILD AT A TIME

Vignette #1
A child has been referred to your program by her parent. The mother reports great difficulty in managing her child's behavior. The child has been asked to leave 2-day care centers due to destructive and aggressive behavior. The mother reports difficulty in getting her child to "listen to her." She says her child won't "do what she is told." The developmental screening tool that you administered does not identify concern. Your observation of the child in her home environment revealed a compliant and engaging child with appropriate play and learning skills.
What would you do?

Vignette #2
A 5-month-old child has been referred to your program by his pediatrician due to concerns for extreme irritability. The mother reports the child to be difficult to soothe when upset. And, although there really isn't any difficulty with feeding, the mother reports that the child never "feels satisfied" after a feeding. The mother has attempted to get her child on a schedule but reports that her baby isn't cooperating.

Which factors will be important to explore in working with this family? Should this child be evaluated to determine eligibility? Who should be on the evaluation team? What information will need to be gathered?

What resources or supports would be helpful to consider when working with this family?

Vignette #3
A family doctor has been treating a mother for depression, (with limited success), following the birth of her third child. The children are ages 3, 1-1/2, and 2 months. The physician has referred the family to your Birth to 3 Program due to concerns for the effects of depression on the children. ***What would you do?***

OTHER THOUGHTS

As a state, we need to better serve children and families with concerns for social and emotional development. There is a ground swell being created through the Wisconsin Infant Mental Health Initiative. Many people, from many diverse professions throughout the state, have been meeting to create a system capable of responding to the social and emotional needs of young children and families. Conversations have led to discussions, which have led to a Statewide Summit addressing the mental health needs of young children. A plan is beginning to take shape. People in Wisconsin are thinking about promoting young children's mental health and intervening when concerns are identified.

Things to Do

- Identify mental health providers and resources in your community who work with families with young children.
- Meet with area physicians to encourage screening for maternal depression and to encourage referral to the Birth to 3 Program when depression interferes with the bonding and attachment process.
- Read! Learn all you can about Social and Emotional Development and its relationship to future Mental Health issues. Keep up with the latest research.
- Become familiar with this book: *Pathways to Competence - Encouraging Healthy Social & Emotional Development in Young Children* by Sarah Landy; Brookes Publishing, 2002.
- Watch for the development of new screening and evaluation instruments.
- Accept referrals from physicians. Become a resource in your community.
- Listen to families when they express frustration in the evolving relationship with their child. Provide support, guidance, and resources to ensure emotional stability and social development.
- Become familiar with the revised Wisconsin Model Early Learning Standards that address ages birth to kindergarten.
- Become a member of the Wisconsin Infant Mental Health Initiative. www.mhamilw.org/infantmh.htm

Things Can Only Get Better

Hopefully this document will inspire you to sharpen your skills and expand your resources to include services that will enhance the social and emotional well being of children in Wisconsin.

Developed for the *Wisconsin Birth to 3 Program Eligibility Work Group* (2001-2003) by Diane Fett, M.Ed., Fond du Lac County, Birth to 3 Program, Director, Fond du Lac County Department of Community Programs.

Edited by Linda Tuchman, Ph.D. Waisman Center, University of Wisconsin-Madison with guidance and input from Carol Noddings Eichinger, MS, LPC, LLP ., University of Wisconsin-Milwaukee and consultant.

Appendix A

A System of Infant Mental Health Services for Infants and Young Children and Their Families: WORKING DRAFT – 4/03

Interdisciplinary Training Institute

Revised and adapted from Florida's Strategic Plan: The Florida State University Center for Prevention and Early Intervention Policy

SENSORY MOTOR AFFECT MEMORY SPEECH & LANGUAGE COGNITION

The Array of Infant Mental Health Services	*Level One* **Developmental, Relational Principles for Daily Care Across All Caregivers**	*Level Two* **Developmental, Relationship-Based Early Intervention Services**	*Level Three* **Developmental, Relationship-Based Mental Health Services**
Priority Population	Expectant families and families of all children birth to age five; may include level 2 & 3 children and families in service delivery	Families of children with delays, disabilities, health problems or multiple risk factors	Families with children or primary caregivers diagnosed with emotional disorders, severe mental health problems, or have experienced abuse, neglect, or violence
Description of Services/Interventions	Strengthening the caregiver/child bond by: ▪ Helping caregivers to understand and to respond to baby's cues ▪ Incorporating brain development research and psycho neurobiological theory into all aspects of pregnancy, birthing and child's daily care ▪ Promoting continuity of care ▪ Supporting the child's on-going emotional development within the context and culture of the family ▪ Modeling responsive care giving ▪ Providing family support and education across all functional domains ▪ Identifying early signs of problems that may impede the parent-child relationship or the child's maturational milestones ▪ Refer for further screening/assessment ▪ Providing continuity of care by supporting developmental milestones across all domains through a parallel relationship with the caregiver, the child, & interdisciplinary team members ▪ Basic comprehension of how sensory, motor, affect, memory, speech & language, and cognitive domains intersect and mutually influence development	Strengthening the caregiver/child dyad through: ▪ Identifying emotional concerns: ▪ Integrating relationship-based and interdisciplinary practices into the child's existing services ▪ Providing direct services based on the context, culture, and needs of the child and family ▪ Providing consultation to enhance responsive care giving across all domains of development ▪ Using dyadic emotional milestones as a guide for dyadic intervention within one's specialization ▪ Assisting the family to access RN, OT, PT, SLP, educational, neuropsychologist, mental health and any other services in a bi-directional team approach between early intervention and mental health interdisciplinary team members ▪ Assisting the family to access specific mental health treatment as needed and/or seeking consultation with mental health providers ▪ Early interventionists providing consultation to Level 3 Mental Health providers re: principles in self-regulation physiology, sensory, motor, speech & language, and cognitive systems ▪ Complex comprehension of how sensory, motor, affect, memory, speech & language, and cognitive domains intersect and mutually influence development	Strengthening the caregiver/child dyad through: ▪ Dyadic and individual therapeutic interventions for caregivers, infants, and young children with specific mental health needs ▪ Establishing a nurturing relationship based on trust and respect of family/child strengths ▪ Ongoing, intensive treatment with parent/child dyad ▪ Team leader in coordinating and titrating the need for all allied disciplines ▪ Incorporating the use of other professionals and services as needed to support physiological regulation and other coinciding developmental delays ▪ Provide consultation to other interdisciplinary team members who are not mental health providers ▪ Receive consultation from all needed early intervention specialists and therapists ▪ Complex comprehension of how sensory, motor, affect, memory, speech & language, and cognitive domains intersect and mutually influence development
Range of Responsibilities for Infant Mental Health Services	▪ Front Line caregivers including: ▪ Parents ▪ Childcare Providers – Daycare ▪ Health Care Providers ▪ Home Visitors/Parent Educators ▪ Social Workers ▪ Child Protection Case Workers ▪ Police Officers, Judges, Lawyers ▪ Level 2 & 3 Providers	▪ Developmental Professionals such as: ▪ All Mental Health licenses, Level 3 providers ▪ Child Development Specialists ▪ Early Interventionists ▪ Therapists (Occupational, Physical, & Speech) ▪ Public Health Nurses ▪ Developmental Pediatricians ▪ Special Education Teachers ▪ Educational Therapists	▪ All **licensed** mental health therapists, psychiatrists and psychologists, with additional training in interdisciplinary mental health for infants and their families including: ▪ Infant/toddler development ▪ Quality of infant/parent interaction and emotional milestones ▪ Assessment & dyadic infant/parent psychotherapy ▪ Understanding context, culture, & family systems ▪ Team leading and collaborative skills

Appendix B
Diagnosis as a Tool for Understanding Social and Emotional Development

The following information is adapted with permission from a lecture given by Carol Noddings-Eichinger, MS, LPC, LLP, at the Summer 2005 Wisconsin Videoconference: *Social and Emotional Development in Children Birth to Age 6: Nurturing Relationships and Recognizing Concerns and Boundaries.*

To help early intervention providers understand some of the most frequently considered social and emotional disorders, Carol has provided a cross referenced list of disorders from the two major classification systems - *The Diagnostic and Statistical Manual – IV (DSM-IV) and the Diagnostic Classification: Mental Health and Developmental Disorders of Infancy and Early Childhood* (DC: 0-3). Pervasive Developmental Disorders are the only diagnostic classifications included in Chart 1 of the Wisconsin Birth to 3 Program list of diagnosed conditions with 50% or higher probability of resulting in a developmental delay. The other classifications would be considered under Chart 2, and would require documentation of development delays or atypical development. *See Overview Section for Diagnosed Conditions information.*

PERVASIVE DEVELOPMENTAL DISORDERS

Pervasive Developmental Disorders (DSM-IV)

- Autistic Disorder
- Rett's Disorder
- Childhood Disintegrative Disorder
- Asperger's Disorder
- Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)

Multisystem Developmental Disorder (DC: 0-3)

- Pattern A: Children are aimless and unrelated most of the time, with severe difficulty in motor planning so that even simple intentional gestures are difficult
- Pattern B: Children are intermittently related and capable some of the time of simple intentional gestures
- Pattern C: Children evidence a more consistent sense of relatedness, even when they are avoidant or rigid

REGULATORY DISORDERS

Regulation Disorders (DC: 0-3)

A distinct behavioral pattern coupled with a sensory, sensory-motor, or organizational processing difficulty which affects the child's daily adaptations and interaction and relationships

- ***Hypersensitive: Type I*** (negativistic, stubborn, controlling and defiant; difficulty in making transitions; prefers repetition, absence of change; fussy, difficult, resistance to transitions as baby; compulsive and perfectionistic; tends to avoid or be slow to engage in new experiences; and generally not aggressive unless provoked

Motor and Sensory Patterns:

- Tendency toward decreased auditory-verbal processing capacity paired with ability to create a rich range of ideas
- Easier for child to tune into his/her own ideas rather than another person's ideas due to receptive language difficulties
- May or may not show irregularities in other sensory and motor capacities

- ***Under-reactive : Type II*** (self-absorbed, withdrawn and difficult to engage)

  Motor and Sensory Patterns:

  - Tendency toward decreased auditory-verbal processing capacity paired with ability to create a rich range of ideas
  - Easier for child to tune into his/her own ideas rather than another person's ideas due to receptive language difficulties
  - May or may not show irregularities in other sensory and motor capacities
- ***Motorically Disorganized, Impulsive: Type III*** (high activity, seeking contact and stimulation from deep pressure; appears to lack caution, might break things, or intrude onto other people's body space; excitability, paired with poor motor planning and organization; craves sensory input and stimulation; and if anxious or unsure of self, might use "counterphobic" behavior and hit first, or repeat unacceptable behavior

  Motor and Sensory Patterns:

  - Sensory under-reactivity
  - Craving of sensory input
  - Motor discharge
  - Poor motor modulation and motor planning
  - Diffuse, impulsive behavior
  - Unfocused and diffuse motor activity
  - Listens fleetingly to people yet craves loud noises
  - May evidence auditory or visual processing difficulties, or not

ATTENTION DISORDERS

Attention Deficit/Hyperactivity Disorder (DSM-IV)

Inattention Symptoms (6 or more)

- Fails to pay close attention to details
- Difficulty in sustaining attention
- Doesn't seem to listen
- Does not follow through on instructions
- Difficulty organizing activities
- Avoids tasks that require sustained mental effort
- Loses things
- Easily distracted
- Forgetful

Hyperactivity/Impulsivity Symptoms (6 or more)

- Fidgets with hands or feet
- Often out of seat
- Runs about, climbs excessively
- Difficulty playing quietly
- "On the go", "Driven by a motor"
- Talks excessively
- Blurts out answers
- Difficulty waiting turn
- Interrupts or intrudes on others

OPPOSITIONAL DEFIANT DISORDER (DSM-IV)

Negativistic, hostile and defiant behavior lasting at least six months:
Four or more of the following are present---

- Loses temper
- Argues with adults
- Defies or refuses to comply with adult requests or rules
- Blames others for mistakes or misbehavior (his/her own)
- Touch or easily annoyed by others
- Angry and resentful
- Spiteful and vindictive

REACTIVE ATTACHMENT DISORDERS

Reactive Attachment/Maltreatment Disorder of Infancy (DC: 0-3)

- Persistent parental neglect or abuse of a physical or psychological nature, of sufficient intensity and duration to undermine the child's basic sense of security and attachment
- Frequent changes in, or inconsistent availability of the primary caregiver—making an attachment to an individual caregiver impossible
- Other environmental compromises beyond the control of parent and child, prevent stable attachments
- Persistent parental neglect or abuse of a physical or psychological nature, of sufficient intensity and duration to undermine the child's basic sense of security and attachment
- Frequent changes in, or inconsistent availability of the primary caregiver—making an attachment to an individual caregiver impossible
- Other environmental compromises beyond the control of parent and child, prevent stable attachments
- Child fails to initiate social interactions
- Manifests ambivalent or contradictory social responses
- Approach/avoidance responses to caregivers or others
- Extreme vigilance
- Excessively inhibited or apathetic responses to social interaction

  OR
- Social indiscriminateness
- Excessive sociability with strangers

Reactive Attachment Disorder (DSM-IV)

Markedly disturbed and developmentally inappropriate social relatedness inmost contexts, beginning before age five:

- Persistent failure to initiate or respond in a developmentally appropriate fashion—excessive inhibition, hypervigilance, highly ambivalent or contradictory responses OR
- Diffuse attachments, indiscriminate sociability, excessive familiarity with strangers, inability to exhibit selective attachments
- Markedly disturbed and developmentally inappropriate social relatedness inmost contexts, beginning before age five:
- Persistent failure to initiate or respond in a developmentally appropriate fashion—excessive inhibition, hypervigilance, highly ambivalent or contradictory responses OR
- Diffuse attachments, indiscriminate sociability, excessive familiarity with strangers, inability to exhibit selective attachments

POST TRAUMATIC STRESS DISORDER

Traumatic Stress Disorder (DC: 0-3)

- A re-experiencing of the traumatic event through post-traumatic play, recurrent recollections of the traumatic event outside of play, repeated nightmares, distress at reminders, episodes of "flashback" or dissociation
- Numbing of responsiveness through increased social withdrawal, restricted range of affect, temporary loss of developmental skills, constriction in play
- Symptoms of increased arousal, including night terrors, difficulty going to sleep, repeated night waking, attentional and concentration difficulties, hypervigilance, exaggerated startle response
- New symptoms: aggression, separation anxiety, fear of toileting, fear of the dark, other new fears, pessimism, self defeating behaviors, somatic symptoms, sexual behaviors.

Post Traumatic Stress Disorder (DSM-IV)

- Exposed to a traumatic event (threatened death or serious injury or threat to the physical integrity of self or other—involving intense fear, horror or helplessness)
- Traumatic event is persistently re-experienced (distressing recollections and dreams, feeling as if it were recurring, psychological distress & physiological reactivity to exposure to cues/reminders)
- Persistent avoidance of stimuli associated with trauma and numbing (avoid activities or thoughts that arouse recollection, detachment, diminished interest, restricted range of affect, inability to recall, sense of foreshortened future)
- Persistent symptoms of increased arousal (difficulty falling asleep, irritability, difficulty concentrating, hypervigilance, exaggerated startle)

DEPRESSION AND ANXIETY DISORDERS

Anxiety Disorders (DC: 0-3)

- Multiple or specific fears
- Excessive separation or stranger anxiety
- Excessive anxiety or panic
- Excessive inhibition or constriction of behavior
- Lack of development of basic ego function
- Agitation, uncontrollable crying, sleep or eat disturbance, recklessness

Separation Anxiety Disorder (DSM-IV)

- Excessive distress when separated
- Worry about harm to attachment figures
- Worry about getting lost or kidnapped
- Reluctance or refusal to go to school
- Fearful when without significant adult
- Reluctance to go to sleep without adult
- Nightmares about separation
- Physical symptoms (headache, stomach ache)
- (3 or more symptoms)

Generalized Anxiety Disorder (DSM-IV)

- Excessive anxiety and worry
- Difficult to control the worry
- Following symptoms (3 or more)
    - Restlessness
    - Easily fatigued
    - Difficulty concentrating
    - Irritability
    - Muscle tension
    - Sleep disturbances

Mood Disorder (DC: 0-3)

Bereavement/Grief

- Cry, call, or search for the absent parent
- Emotional withdrawal and lethargy
- Disruption of eating and sleeping
- Regression in development
- Constricted affect
- Detachment
- Sensitivity to any reminders

Depression

- Depressed or irritable mood
- Diminished interest or pleasure
- Diminished ability to protest
- Excessive whining
- Diminished social interactions
- Diminished initiative
- Disturbance in sleep or eating

Depression (DSM-IV)

- Depressed mood most of the day
- Diminished interest or pleasure
- Weight loss or gain
- Insomnia or hypersomnia
- Psychomotor retardation or agitation
- Fatigue or loss of energy
- Feelings of worthlessness
- Diminished ability to think or concentrate
- Recurrent thoughts of death

Appendix C:

Selected Instruments for Measuring Social-Emotional Development

Social Emotional--Screening					
Instrument	**Author(s)**	**Age Group**	**Method(s)**	**Type**	**Publisher**
Temperament and Atypical Behavior Scale Screener (1999)	Bagnato, S., Neisworth, J., Salvia, J., and Hunt, F.	11 through 71 months	Report or Observation	Normed	Paul H Brookes www.pbrookes.com
Infant/Toddler Symptom Checklist (1995)	De Gangi, G., Poisson, S., Sickel, R., and Santman Weiner, A.	7 to 30 months	Checklist	Criterion	Harcourt Assessment, Inc. www.harcourtassessment.com/
Ages and Stages Questionnaire- Social Emotional (2002)	Squires, J., Bricker, D., and Twombly, E.	6-60 months	Parent completion; rating scale	Normed	Paul H Brookes www.pbrookes.com/
Brief Infant Toddler Social Emotional Assessment (BITSEA) (2000, Spring 2006)	Alice Carter and Margaret Briggs-Gowan	12-36 months	Parent and Child Care Provider Rating Form	Normed Spanish & English	Harcort Assessment, Inc. www.harcourtassessment.com/

Social Emotional--Evaluation					
Temperament and Atypical Behavior Scale (1999)	Bagnato, S., Neisworth, J., Salvia, J., and Hunt, F.	11 through 71 months	Report or Observation	Normed	Paul H Brookes www.pbrookes.com/
Functional Emotional Assessment Scale (2001)	Greenspan, S., De Gangi, G., Wieder, S.	7-48 months	Observation	Normed	ICDL www.icdl.com
Child Behavior Checklist (2002)	Achenbach, T.M.	18-60 months	Checklist; rating scale. Psychologist administered	Normed	ASEBA Room 6436 1 S. Prospect St Burlington VT 05401
Vineland SEEC: Vineland Social-Emotional Early Childhood Scales (1998)	Sparrow, S., Balla, D., & Chicchetti,D.	Birth – 5-11	Interview Ph.D. in psychology/ certified or licensed school psych./ social worker	Normed	AGS Publishing http://www.agsnet.com/
Bayley Scales of Infant and Toddler Development, Third Edition (2005)	Bayley, N. (social emotional by Greenspan, S.I.)	1-42 months	EI, EC, assessment, and cross disciplinary specialists; school psychologist	Normed (includes new social emot. dev. Domain)	Harcourt Assessment www.harcourtassessment.com/

Social and Emotional Development References

Ahadi, S.A. & Rothbart, M.K. (1994). Temperament, development and the Big Five. In C. F. Halverson, Jr., G. A. Kohnstamm, & R. P. Martin (Eds.), *The Developing Structure of Temperament and Personality from Infancy to Aadulthood*. Hillsdale, NJ: Erlbaum.

Bagnato, S.J. Neisworth, J.T., Salvia, J.J., & Hunt, F.M. (1999) *Temperament and Atypical Behavior Scale Early childhood Indicators of Developmental Dysfunction.* Baltimore:MD. Paul H. Brookes Publishing.

Bates, JE., & Wachs, TD. (Eds.). (1994). Temperament: Individual differences at the interface of biology and behavior. Washington, DC: *American Psychological Association.*

Campos, J., Mumme, D., Kermoian, R., & Campos, R. G. (1994). A functionalist perspective on the nature of emotion. *Monographs of the Society for Research in Child Development*, 59(2-3, Serial No. 240), 284-303.

Chess S.& Thomas, A.(1996). *Temperament: Theory & Practice*. New York: Bruner-Maze.

Clark, R., Tluczek, A, & Gallagher, K.C. (2004). Assessment of parent-child early relational disturbances. In. *Handbook of Infant, Toddler, and Preschool Mental Health Assessment***.** R. Delcarmen-Wiggins & A.Carter (Eds.). NY: Oxford University Press.

Greenspan, S.I. (1992). *Infancy and Early Childhood: The Practice of Clinical Assessment and Intervention with Emotional and Developmental Challenge.* Madison, CT: International University Press.

Greenspan, S.I., Wieder, S. (1998). *The Child with Special Needs***:** *Encouraging Intellectual and Emotional Growth.* Reading, MA: Addison Wesley Longman.

Greenspan, S.I. & Wieder, S. (2001) The DIR (Developmental, Individual-Difference, Relationship-Based) Approach to Assessment and Intervention Planning, *Zero to Three*, 21 (4), 11-19.

Lillas, C.M. (2003). A System of Infant Mental Health Services for Infants and Young Children & Their Families. Florida State University Center for Prevention & Early Intervention Policy.

Meisels, S. & Fenichel, E. (1996). *New Visions for the Development Assessment of Infants and Young Children Washington, DC:* ZERO TO THREE: National Center for Infants, Toddlers and Families.

Noddings-Eichinger (2005). *Social and Emotional Development in Children Birth to Age 6: Nurturing Relationships and Recognizing Concerns and Boundaries*. Powerpoint for lectures presented Summer 2005, Madison, WI.

Parks, S. (1992). *Hawaii Early Learning Profile*. VORT Corporation. http://www.vort.com/products/ml
Raver, C.C., & E.F. Zigler (1997). Social competence: An untapped dimension of Head Start's success. *Early Childhood Research Quarterly,* 12, 363-85.

The Diagnostic and Statistical Manual – IV (DSM-IV). American Psychiatric Association. http://www.psychiatryonline.com/resourceTOC.aspx?resourceID=1

Squires, J., Bricker, D., & Twombly, E. (2002). *Ages & Stages Questionnaires®: Social-Emotional (ASQ:SE*). Baltimore, MD: Paul H. Brookes Publishing.

Vygotsky, L.S. (2004). The fundamentals of defectology. In *The Collected Works of L.S. Vygotsky*, Vol. 2. L.S. Vygotsky, J.E. Knox, & C.G. Stevens (Eds.). Klewer Academic Publishers.

Wisconsin Model Early Learning Standards (2003). Madison, WI: Wisconsin Department of Public Instruction. www.collaboratingpartners.com

Zeenah, C.(Ed.) (2000). *Handbook of Infant Mental Health. Second Edition.* New York: Guilford Press.

ZERO TO THREE (2005). *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood* (*DC: 0-3)*. Washington, DC. ZERO TO THREE.

ZERO TO THREE: National Center for Infants, Toddlers and Families. Infant Mental Health Resource Center. Washington, DC: ZERO TO THREE. http://www.zerotothree.org/index.htm

Guidelines for Best Practices in Determining Eligibility Based on Children's Communication Skills

The goal of these *"Guidelines for Best Practices in Determining Eligibility Based on Children's Communication Skills"* is to offer the evaluation team support in their decision-making regarding a child's need for early intervention services based on communication development.

In Wisconsin, communication is defined in HFS 90 [HFS 90.08 (7)(c)3.] as follows:

> *Communication development, as evidenced by understanding, expression, quantity and quality of speech sounds or words, and communicative intent through gestures. Communication development includes the acquisition of communications skills during pre-verbal and verbal phases of development; receptive and expressive language, including spoken, non-spoken and sign language means of expression; oral-motor development; auditory awareness skills and processing; the use of augmentative communication devices; and speech production and awareness.*

To determine eligibility the team must consider a number of components of communication including:

> **Receptive language -** understanding, comprehension, receptive language, auditory awareness skills and processing;
> **Expressive language -** expression, production, social language (pragmatics);
> **Speech, voice, fluency -** quantity and quality speech sounds and words; and,
> **Oral-motor development -** the structure and function of the speech mechanism for feeding and speech development.

In these guidelines:

- Each communication component is *defined* and *developmental information is offered*;
- A list of *recommended practices* for evaluation is provided;
- Several *methods and tools* for evaluation are listed;
- *Considerations* related to eligibility, including use of informed clinical opinion in decision making and interpreting results are discussed; and
- References, readings, and websites are provided.

These guidelines are written to be useful to the entire team, including parents, but some components are specifically intended for speech-language pathologists. The guidelines were developed to help individuals who work with young children and their parents consider the many facets of a comprehensive communication evaluation.

Receptive Language

Receptive language is a term that is synonymous with language comprehension or understanding of what is spoken, written, or signed. It refers to the child's ability to get meaning from language. The development of receptive language for the spoken word is dependent on the development of auditory perception and auditory processing skills. Auditory perception refers to the identification, interpretation, or organization of sensory data received through the ear. Auditory processing refers to the ability to fully utilize what is heard.

Receptive language has its foundations in the infant's social interactions. The infant learns to recognize the human voice, to differentiate speech from nonspeech sounds, and to begin to associate meaning to the sounds heard during the first months of life. Understanding words generally begins with understanding commonly spoken, familiar people and object names or routines (e.g., bye). In the first year of life, children come to understand words related to people and objects that are present in their environment. In the second year of life, the child begins to understand words spoken without the support of context. For example, when the caregiver says, "Go get your shoes" the child may go to another room to retrieve them. At the end of the second year, children are beginning syntactic understanding of two-word relations and early question comprehension begins. Table 1 is a summary of receptive language development in typically developing children.

Table 1: Receptive language development in typically developing children.

Approximate Age Range	Receptive Language Skills
8-12 months: Comprehension of routines	Understands a few words in context (e.g., plays peek-a-boo when mom says words and models gestures, responds to direction "splash" if in tub)
12-18 months: Lexical guides to context-determined responses	Understands single words for objects in immediate environment Will get an object if told to when object is in view Will perform some actions (e.g., kiss, hug, pat) with verbal instruction alone Knows names of familiar people Average receptive vocabulary size: 12 months: 3 words 15 months: 50 words 18 months: 100-150 words
18-24 months: Lexical comprehension but context determines sentence meaning	Understands two-word combinations similar to those produced including: Action-object Agent-action Possessor-possession Entity-location Action-location Understands words for objects that are out of view Does not process three-term relations (e.g., agent-action-object) fully Average receptive vocabulary size: 150-500 words
24-42 months: Context-influenced comprehension	Understands three-term relations (agent-action-object) but has difficulty using word order to identify agent versus object in improbable (e.g., Baby feeds mother) or neutral (e.g., Horse pushes cow) sentences Understands *who*, *what*, *where*, and *whose* questions
42-48 months: Emerging syntactic comprehension	Understands word-order cues to agent-action-object relations Understands *how* questions Average receptive vocabulary size: 1,000-3,000 words

Based on Miller, J.F. and Paul, R. (1995). *The Clinical Assessment of Language Comprehension*, Baltimore, Paul H. Brookes.

Expressive Language

Birth to 18 Months

A child learns to use language to interact with others and to communicate more efficiently and effectively. The form and complexity of the child's communication skills change substantially during the first three years of life. Additionally, research has consistently demonstrated that a child begins to communicate long before producing his or her first word.

At birth, the child's behavior is best described as nonintentional (i.e., not purposeful or goal-directed) and noncommunicative. In fact, the word, "infant" comes from the Latin "infans," which means, "not speaking" (Owens, 1996). Until the age of approximately 9 months, the typically developing child's behavior is considered nonintentional (not purposeful) and noncommunicative (lacking communicative intent); however, the primary caregivers respond as though the child's behaviors are intentional and communicative. For example, when the infant goos and coos, the caregiver is likely to respond as though the infant is conveying a message. Such responses from the caregiver are important to the child's learning to communicate nonlinguistically via the use of eye contact, gestures, and vocalizations (in isolation and in combination). As the child progresses through this stage of development, his or her behavior becomes increasingly more intentional (i.e., purposeful and goal-directed). The infant's prelinguistic behavior is used primarily for four purposes: relief from discomfort; attainment of desired ends; reestablishment of proximity; and initiation, maintenance, and termination of an interaction (McLean & Synder-McLean, 1978).

Gradually, the child expresses these purposes through the use of nonlinguistic and then linguistic communicative behavior. Beginning at approximately 9 months of age the child continues to use nonlinguistic behaviors, but uses the behaviors to intentionally communicate a message. By the age of approximately 12 to 18 months, the child has begun to use single words to communicate messages that had previously been communicated nonlinguistically. Word combinations begin to emerge when the child is approximately 18 to 24 months old, reflecting beginning use of grammar.

Appendix 1 provides a summary of expressive language development for typically developing children from birth to 18 months.

18 to 36 months

During this period, children progress from producing single words to using simple sentences to express a variety of meanings. They also express a greater range of communicative intentions (greeting, requesting, commenting). Although there is considerable variability of vocabulary size in young children, this variability greatly decreases during the third year of life. The communication development in this period is dramatic and for ease of discussion, the period is discussed in two stages.

18 to 24 months:

Paul (2001) describes a significant increase in the frequency of both nonverbal and verbal communication in children between 18 and 24 months of age. In addition, children increasingly use words over preverbal communication. The child of about 18 months produces an average of two communicative acts/per minute to express an intention through words, gestures or vocalizations; a

child of 24 months produces an average of five. (Wetherby, Cain and Walker, 1988; Paul and Shiffner, 1991). The communicative intentions that are expressed most frequently include requesting information, answering questions, and acknowledging what was said. The ability to combine words is one of the hallmarks in language production typical of the 18 to 24 month range.

Other notable aspects of children's language in this range:

Vocabulary Size

Approximate Age	*Approximate Number of Words in Expressive Vocabulary*
18 months	50
20 months	150
2 years	20-300

Adapted from Reed, V. A. (2005). An introduction to children with language disorders (3rd Ed) Boston, Pearson Education, Allyn & Bacon.

Two-word combinations emerge to express meaningful relationships including (Brown 1973):

Agent-object	"Me ball"
Agent-action	"Mommy eat"
Action-object	"Eat cookie "
Action-locative	"Throw chair" (Throw it onto the chair)
Entity-locative	"Baby bed" (Baby is in the bed)
Possessor-possession	"Mommy shoe"
Demonstrative-entity	"This ball"
Attribute-entity	"Big ball"
Recurrence	"More milk"
Non-existence	"No cookie"
Negation, Disappearance	"Cookie all gone"

Range of Mean Length of Utterance (MLU) in morphemes*

*A morpheme is the smallest unit of meaning, e.g. "ball" equals one morpheme, "balls" equals two morphemes

At 18 months: 1.0-1.6 morphemes
At 21 months: 1.1 – 2.1 morphemes

24 – 36 months:

Major developments in children's language at this stage include: talking about absent events and objects; using language in pretend play; using grammar; and beginning to participate in conversations.

Vocabulary Size

300-1000 words (Reed, 2005)

Expansion of meaningful relationships

- Greets adults spontaneously
- Relates experiences from recent past
- Uses polite language (please, thank you)

- Use of spatial terms (in, on, under)

Developing Grammar
During this stage, children use phrases and short sentences and begin to incorporate the following grammatical features:

- *Ing (added to verbs),* plural nouns end with /s/,
- *In/on* spatial terms
- Negation: no, not, can't, don't
- Simple questions
- Gonna, wanna, gotta, hafta + verb
- Am, is and are used with verbs
- *Be* verbs used inconsistently (is, are)
- Over-generalized past tense verbs appear (e.g., "jumpted")

Mean Length of Utterance (MLU): Ranges
At 24 months: 1.5 – 2.2 morphemes
At 27 months: 1.9 – 2.4 morphemes (a variety of two–three word phrases and sentences emerge)
At 30 months: 2.0-3.1 morphemes
At 33 months: 2.5-3.5 morphemes
At 36 months: 2.5-3.9 morphemes

SPEECH SOUNDS

Children's ability to produce sounds and make their speech clear develops quickly over the first three years of life. The way children speak is more than the words, gestures, and expressions they use. What sounds they make and how they make the sounds influences their ability to be understood by others.

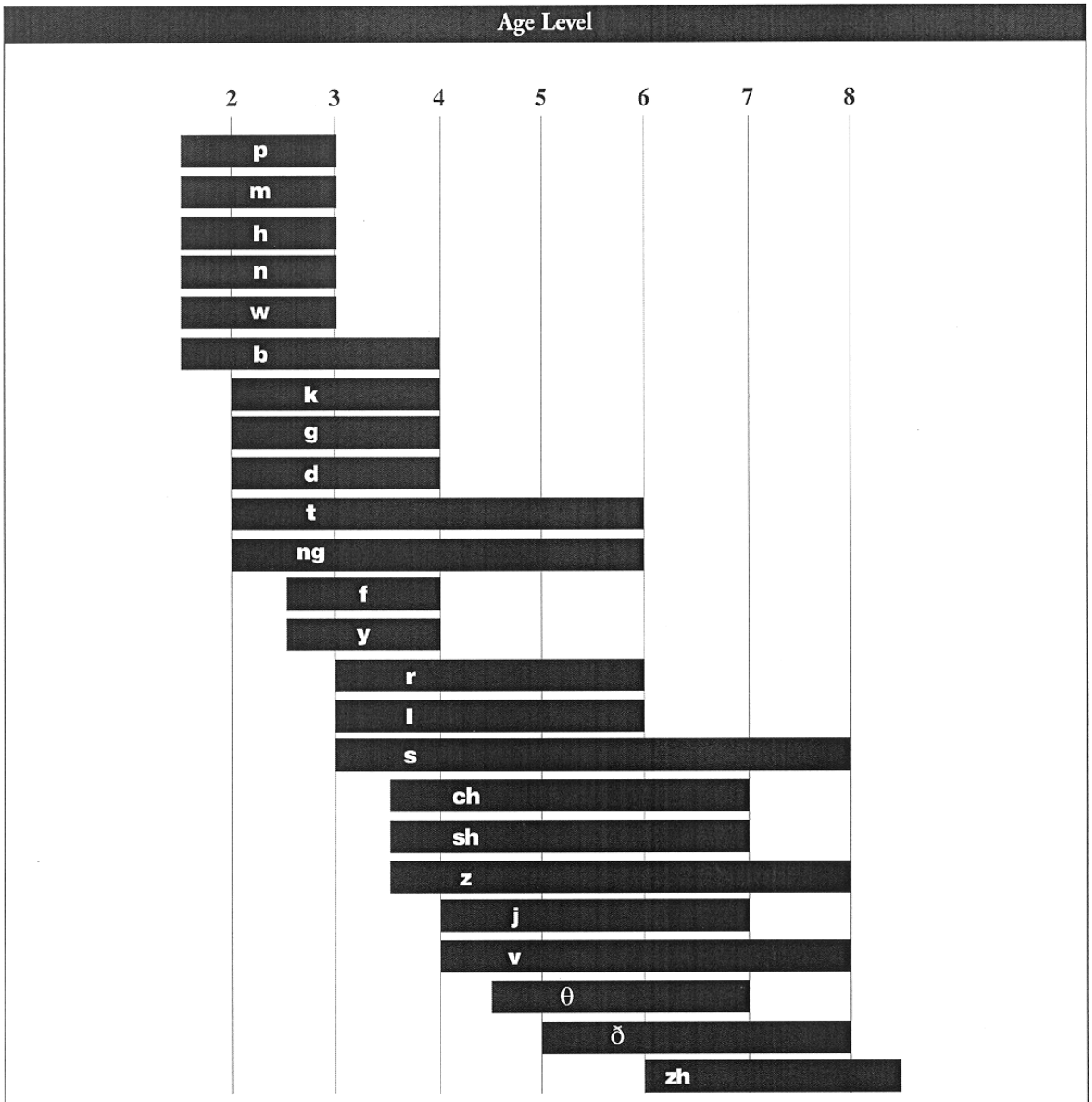
Speech sound development proceeds over time during the infant and toddler years. In infancy, there are stages of normal non-cry development (See Appendix 2). As children develop, so does their ability to master vowels and consonants of the language. There is a range when individual children may master particular sounds. Kent (1999) summarizes the approximate ages of speech sound mastery (75% or better) based on several studies of children's acquisition of consonant sounds:

Group 1: [m n h p f]	2-5 years
Group 2: [j k d w b t g]	2-6 years
Group 3: [s r l t]	3-7 years
Group 4 [voiced and voiceless th dz v z]	4-7 years

Children's speech sound development is affected by their ability to coordinate the oral motor system (i.e., lips, tongue, palate, larynx, respiration) and to learn the underlying rule system related to sounds (i.e., phonology). According to Linder (1993), by two years of age 50%-65% of words will be understood by unfamiliar adults. By the age of three most children's speech is understandable to familiar adults and about 75% of utterances produced by 3-year-olds are intelligible to unfamiliar listeners (Vihman & Greenlee, 1987).

In Table 2 below, Sanders (1972) summarizes children's acquisition of consonant sounds.

Sander's (1972) Consonant Acquisition



Average age estimates and upper age limits of customary consonant production. The solid bar corresponding to each sound starts at the median age of customary articulation; it stops at an age level at which 90% of all children are customarily producing the sound.

From "When Are Speech Sounds Learned?" by E. Sander, 1972, *Journal of Speech and Hearing Disorders, 37,* p. 62.

VOICE

Voice is sound produced by the vibration of the vocal folds and modified by the resonators (e.g., sinus cavities) and shaped by the articulators (e.g., lips and tongue). Voice characteristics include pitch, volume, and quality.

FLUENCY

Young children learning language demonstrate normal developmental ***disfluencies*** (interruptions to the flow of talking), which most often disappear as their expressive language skills mature. These developmental disfluencies are characterized by:

- hesitations,
- interjections of sounds, syllables, and words
- word and phrase repetitions.

This characteristic of speech and language development is considered to be normal and therefore does not require any type of intervention, except to allay the parents' fears and concerns by explaining this course of normal development.

Differentiating children whose stuttering-like disfluencies (SLD) will naturally resolve versus those whose stuttering will persist is an important question. The Illinois Longitudinal Study (Yairi & Ambrose, 2005) focused on this question and followed 89 children with an average age of onset 33 months. Several findings about which children persisted in stuttering included: 1) about 20 % of children persisted in their stuttering which is consistent with other data; 2) their age of onset was slightly later; 3) girls tend to resolve their stuttering and did so faster than boys; and 4) predictions of who will recover based on measuring stuttering-like disfluencies alone is difficult. They suggest that the best predictor is a decrease in all SLD types, which approach normal limits within 6 to 8 months following onset.

ORAL MOTOR SKILLS

Speech requires a command from the central nervous system to move and control more than 100 muscles. Development of the oral motor system depends then on the maturation of the central nervous system. The oral motor system undergoes a long period of development and may not be complete until early adolescence. Critical periods occur, it appears, when certain neural, musculoskeletal, environmental and cognitive changes occur in the child, which in turn promote the growth and functioning of the oral motor system.

The following are examples of how the changes in the anatomy and physiology of the infant over the first year of life affect vocal output. Little is known as to what effect, if any, crying has on later speech development.

- From birth to 3 months of age, the infant's vocal output is:
  - nasalized
  - short in duration
  - vowel-like in nature due to vocal tract size and shape
- At 3 months, when in a sitting position, the infant assumes adult-like use of the ribs and abdomen.

By 7 months:
- breathing patterns are essentially adult-like
- the lower jaw grows down and forward
- the larynx moves rapidly downward
- the upper airway assumes more mature dimensions
- swallow becomes more mature as the tongue draws backward rather than forward
- eruption of the front teeth may increase tongue retraction
- lip, tongue and jaw movements become more independent in early chewing
- consonant (C) - vowel (V), VC and VCV productions appear in a single expiration.

- From 3 to 9 months:
  - the jaw becomes independent of the lower lip and tongue
  - a full range of vowels are produced
  - voiced/voiceless contrasts are produced
  - there are first variations in pitch
  - the infant can produce nasal versus non-nasal consonants
- From 12 to 24 months:
  - The emergence of words coincides with the completion of myelination of the major neural pathways believed important to speech
  - A period of stabilization in musculoskeletal growth occurs

Kent (1999) provides the major milestones and conclusions about the development of the three major speech motor control subsystems (i.e., respiratory, laryngeal, upper airway/speech production). Some of this information is highlighted below:

Respiratory Subsystem:

Newborn	Diaphragm of newborn has bellows-like displacement Rest breathing rate is 30-80 breaths per minute
2 months	Alveolar development begins
3 years	Respiratory function not closely geared to linguistic requirements until this age Rest breathing rate is 20-30 breaths per minute

Laryngeal Subsystem

Newborn	Laryngeal position is high in the neck, so the laryngopharynx is relatively short Vocal folds are 5-7 mm long
Birth-3 years	A child's larynx does not yet possess a vocal ligament, and the cartilaginous portion of the folds is proportionately large. During this period the larynx descends in the neck as the laryngopharynx takes form

Upper Airway

Birth	Newborn vocal tract anatomy resembles that of a nonhuman primate The larynx descends Primary dentition emerges at about 6 months; the dental arcade establishes boundaries and points for articulation for the tongue
1 year	First primary molars achieve occlusal contact at about 16 months; this occlusal event marks the appearance of a stable jaw closing pattern
2 year	Rapid growth of the lips between age 1 and 2
3 year	Laryngopharynx well developed

Recommended Practices for Communication Evaluation to Determine Eligibility for the Birth to 3 Program

Communication evaluation should be completed within a multidisciplinary context that evaluates the child across all developmental domains. It is recommended that communication evaluation include consideration of the child's:

- ✓ hearing ability and hearing history
- ✓ history of speech-language development
- ✓ expressive and receptive language performance (syntax, semantics, pragmatics, phonology)
- ✓ speech
- ✓ oral-motor functioning and feeding history
- ✓ voice (quality, pitch and loudness)
- ✓ fluency (rate and flow of speech/language)

When communication delays are the primary concern of the parent or referring source, a speech-language pathologist should be a member of the team.

In evaluating a child who has a possible communication delay, it is important that the evaluation team not rely solely on test scores but gather and use information from observations, interviews and records as well as their clinical judgment. Evaluation tools and procedures should be individualized age-appropriate, and culturally sensitive for the child and family.

It is recommended that the evaluation of young children with possible communication delays include both standardized tests and alternative evaluation approaches. Standardized tests are important because of the objectivity and structure they offer to the evaluation process, even though standardized test scores alone are insufficient to make a determination of delay. Alternative approaches, such as an analysis of samples of the child's speech and language, are important because many dimensions of communication are not easily measured using standardized tests (such as pragmatics, discourse, voice, fluency, and oral-motor skills).

It is recommended that an evaluation of a child with a possible communication delay include the following components:

- standardized tests of expressive and receptive language
- samples of spontaneous speech and language collected in natural contexts
- observations of communicative interactions
- interviews with caretakers

Standardized tests of expressive and receptive language are recommended as part of the evaluation. It is important that these tests be appropriate for the age, language, socio-economic status, etc, and include both norm-referenced and criterion-referenced measures, as described below:

- norm-referenced measures compare the child's performance to an appropriate peer group (matched for age, culture, and language)
- criterion-referenced measures compare the child's performance with an established level or predetermined standard

Samples of the child's spontaneous speech and language should be collected in natural contexts. The language samples are used to determine language level and to describe language form, content, and use. Language measures derived from spontaneous language samples may be useful as a quantitative method for assessing language problems in young children. The sample can also be used to make decisions about speech development including developing a sound inventory, completing a babbling analysis, categorizing sound errors and/or patterns of errors, and making judgments about intelligibility.

Another important component of the evaluation is the **observation** of the primary caregiver's communicative interactions with the child. Language is a social tool for the child; thus, it is important to examine the child's communicative environment. Observation of the communicative behavior of the caregiver and child will be used to determine the characteristics of the communicative environment that might influence the child's communication (e.g., opportunities for the child to communicate, communicative behaviors of others during interactions with the child) as well as ways in which the child's communication skills might influence his/her communication environment.. These observations can also be organized to gain information about the child's ability to understand language e.g., vocabulary, directions, etc.

Interviews with caregivers are essential. The caregivers' concerns and comments about the child's communication abilities, strengths, and challenges are critical to the evaluation process. These interviews can be conversational in tone but should be organized to gain the caregiver's perspective across all areas of communication.

In each evaluation for determining eligibility based upon the child's communication skills, it is necessary to rule out hearing loss as a contributing factor. For example, otitis media with effusion is commonly associated with reduced hearing acuity. When present at critical milestones of speech and language development, the otitis media with effusion can negatively affect the child's communication development. A child of any age can have a hearing evaluation. The nature and importance of an audiological evaluation should be discussed with the child's family and physician and referrals should be made as appropriate.

Evaluation of Receptive Language

A child with communication delays or disorders might have difficulties with receptive language function. Consequently, it is important to assess the child's receptive language skills. Such an assessment should address (1) the child's ability to attach meaning to single words and to word combinations, and (2) the extent to which the child relies on nonlinguistic cues to attach meaning to linguistic input.

There are few standardized measures of receptive language available for children from birth to three years of age. (See Appendix 3 for a list of *Evaluation Tools and Methods*.) Some receptive language assessments are based primarily on parent report. Receptive language measures based on parent report can be less reliable than measures of expressive language because of the variability in the caregivers' interpretations of the questions (Dale, 1991). Other measures use primarily elicitation tasks in which the child is instructed to respond to verbal instructions. Many young children do not respond to such tasks because the tasks are somewhat structured and contrived rather than naturalistic.

Therefore, to supplement the findings of standardized receptive language measures, the speech-language pathologist (SLP) should incorporate informal assessments of the child's receptive language skills. Through observation of the child, the SLP can determine the child's skills in understanding single words and word combinations with and without the support of nonlinguistic cues. The SLP can observe the child's responses during interactions with family members and other caregivers. In addition, informal tasks, such as those described by Miller and Paul (1995) can be used to assess the child's comprehension of single words and specific semantic relations, grammatical forms, and syntactic constructions. It is important to remember that a child's incorrect response or lack of response does not conclusively indicate comprehension difficulties.

Evaluation of Expressive Language

The evaluation of expressive language in young children can be less complicated than receptive language because this more readily observed. The key to evaluating expressive language is collecting and analyzing authentic samples of the child's use of expressive language. The language samples should be obtained though observations during interactions with parents, family members and other caregivers. The evaluation of expressive language between birth and 36 months of age should focus on a variety of behaviors, including:

- **prelinguistic behavior** (behavior that does not include true words; can be intentional or nonintentional);
- **nonlinguistic communicative behavior** (behavior that is intended to convey a message through the use of nonverbal behavior only); and
- **linguistic communicative behavior** (behavior that is intended to convey a message through the use of true words).

Children with a language delay may be producing few, if any, intelligible words. The language sample focuses on the child's use of prelinguistic, nonlinguistic and early linguistic behaviors. For the emerging and developing language stages, sample analysis includes the size and extent of vocabulary, the intentions expressed, the basic semantic roles (the various meaning relationships expressed), and grammar development.

Standardized assessments of expressive language can be used to supplement the results of the language sample analysis. Such assessments can include parent report and/or elicitation tasks. The context for elicitation tasks tend to be structured and less naturalistic than the context for a language sample. However, standardized assessments can provide additional information about the child's expressive language skills. (See Appendix 3 for a list of Evaluation Tools and Methods.)

Evaluation of Speech

Many factors influence and can interfere with the development of intelligible speech in young children. A child's speech development and intelligibility can be affected by: 1) hearing loss; 2) speech motor control problems; 3) delays or disorders of the sound system; 4) cranial facial anomalies; 5) voice disorders; and 6) fluency problems. If a child's speech intelligibility is decreased, the evaluation should measure how much the clarity of the message is affected and attempt to disambiguate the factors contributing to the decreased intelligibility.

Methods for Evaluation of Speech Intelligibility

There are several ways to quantify speech intelligibility depending on the age and the amount of speech produced by the child.

1. **Percent Intelligible Words** – This intelligibility measure is generally derived from analysis of spontaneous speech that is audio taped. A useful method is to obtain a 100 word sample and calculate the percent of intelligible words by having an unfamiliar listener write down the words understood.

$$\frac{\text{\# of intelligible words}}{\text{\# of total Words}} \times 100 = \text{Percent of Intelligible Words}$$

2. **Percentage Consonants Correct** (PCC) – (Shriberg and Kwiatkowski, 1982b) compares child's pronunciation with the adult form in terms of the proportion of correct consonants to the number of possible consonants.

$$\frac{\text{\# of correct consonants}}{\text{\# of consonants}} \times 100 = \text{PCC}$$

Their scale classifies a level of delay based on percentage of consonants correct:

Degree	Percentage of Correct Consonants (PCC)
Mild	85-100% PCC
Mild-moderate	65-85% PCC
Moderate to severe	50-65% PCC
Severe	less than 50%

3. **Speech intelligibility 5-pt rating scale** (Ray, 2000) – This measure uses a 5-point rating scale to determine level of intelligibility

Rating	Description	Percentage
4	Normally intelligible	100%
3	Minimally impaired	70 - 90%
2	Mildly impaired	50 - 70%
1	Moderately impaired	30 - 50%
0	Severely impaired	10 - 30%

Methods for Evaluation of the Speech Sound System

In making a decision about whether a speech delays exists, it is important to collect a sample of the child's speech. With infants and toddlers this sample is generally collected in a play situation while interacting with the caregiver, speech-language pathologist or other early interventionist. The speech sample is collected similarly to the collection of the language sample. It is analyzed from a different perspective i.e., instead of looking at word use and grammar, speech sounds and how they are produced are analyzed. For children between two and three years of age, a standardized measure (e.g., *Goldman-Fristoe Test of Articulation –2*) may be used to collect an inventory of speech sounds. See Table 2, "Sanders (1972) Consonant Acquisition," for a summary of speech sound mastery.

One resource for evaluating the early speech sound development of infants and toddlers is the *Language Production Scale* from "Assessing Prelinguistic and Early Linguistic Behaviors in Developmentally Young Children" by Olswang, L., Stoel-Gammon, C., Coggins, T., and Carpenter,

P., 1987. This scale includes methods for completing a babbling analysis to measure the phonetic complexity of babbled utterances. An outline of the information about this scale is found in Appendix 4. Another portion of the scale is the Early Meaningful Speech Analysis which is based on a sample of 100 fully or partially intelligible utterances produced by the child. From this sample relevant analyses are completed to: 1) describe the child's phonetic inventory; 2) compute PCC (described above); 3) measure occurrence of simplification patterns or phonological processes; 4) count the number of different words produced; and 5) measure length of utterance and word meanings expressed.

Methods for Evaluation Speech Motor Control System

Another potential cause of speech intelligibility problems in infants and toddlers is weakness and/or coordination difficulties of the speech motor control system (SMCS). Caregiver interviews and observation of the child in conjunction with elicitation tasks can be useful in determining whether the SMCS is contributing to speech delays or a breakdown of intelligible speech. Signs that implicate the SMCS as a contributing factor to the intelligibility concerns include:

1. Respiration:
    a. short phrases only in older children (3+ years)
    b. inappropriate pausing within phrases
    c. decreased loudness
    d. excess variation in loudness or monoloudness
    e. audible or frequent inspiration
2. Phonation
    a. monopitch or excess pitch variation
    b. inappropriate pitch level for age, size or sex
    c. lack of prosody (melody of the speech)
    d. vocal fry (gravelly, rough voice)
    e. falsetto
    f. harshness
    g. breathiness
3. Resonation:
    a. hypernasality (sounds like air comes through the nose)
    b. hyponasality (sounds like a cold in the nose)
4. Articulation:
    a. unintelligible speech
    b. slurred speech
5. Other indicators:
    a. drooling
    b. feeding problems
    c. gross and/or fine motor problems

There are two major types of speech motor disorders that affect speech production and influence intelligible speech. These speech motor disorders are dysarthria and developmental apraxia of speech (DAS). Below are definitions for each of these speech motor disorders, associated characteristics and methods to include in evaluation.

1. **Dysarthria a collective term for a group of m**otor speech disorders resulting from neuromuscular dysfunction. There are different types of dysarthria affecting one, several or all major subcomponents of speech production: respiration, phonation, resonance and articulation. In infants and toddlers dysarthria is frequently associated with cerebral palsy or

progressive neurological disease (Marquardt, 2000). Some characteristics often used for diagnosis include:

- General motor and postural delays
- Low muscle tone or hypotonia
- Fine motor timing deficits
- Decreased primitive reflexes
- Rough voice production
- Voicing errors & vocal fold vibratory irregularities
- Variability in formant transition patterns
- Difficulty maintaining adequate intra-oral pressure
- Imprecise consonant productions
- Persistent speech sound distortions
- Speech timing errors (Leddy, et.al, 2003)

2. Developmental apraxia of speech (DAS)

Developmental apraxia of speech (DAS) is defined as an inability or difficulty with carrying out purposeful, voluntary movements for speech in the absence of a paralysis of the speech musculature. Most definitions focus on the articulatory aspects of the disorder and the inability to sequence speech movements (Strand, 1998). There is controversy as to whether DAS exists as a specific deficit because speech is a complicated fine motor activity that is continuously interactive with cognitive and linguistic processing.

Strand (1998) and Shriberg, Aram, & Kwiatkowski (1997) indicated that speech-language clinician “don’t have good diagnostic markers” related to Developmental Apraxia of Speech (DAS); however, a differential diagnosis (to determine whether the intelligibility problem is due to other factors than DAS) is essential. Some characteristics often used for diagnosis include:

- receptive language skills are superior to expressive language skills
- frequent phoneme **omission** errors
- **inconsistent** phoneme errors
- presence of **vowel** errors
- increase in errors with **longer units** of output
- simple syllable shapes noted
- connected speech poorer than single words
- function words and bound morphemes omitted
- difficulty with sound **sequencing** and diadochokenetic (i.e., rapid, alternating movements) rates
- groping and/or trial and error behavior
- methathetic errors (transposition of sound or syllable in words)

A factor frequently associated with DAS is disturbance with prosody, including slower rate, inappropriate or longer pauses, reduced stress variation, and errors in syllabic stress.

Methods for evaluation for Dysarthria and DAS

The following communication evaluation information should be collected:

1. Family history
2. hearing status
3. evaluation of language comprehension
4. evaluation of language production
   - ✓ collect a language sample
5. evaluation of phonologic and phonetic inventory (segmental)
   - ✓ collect speech sample
   - ✓ assess ability to sequence sounds using a hierarchy of difficulty
   - ✓ determine type and pattern of errors
   - ✓ observe volitional versus nonvolitional productions
6. evaluate suprasegmental factors (prosody/melody of speech)
7. evaluate automatic (e.g., counting, rhyme) vs. spontaneous speech
8. evaluation of the structure and function of the mechanism
   - ✓ elicit nonspeech movements
   - ✓ check the ability to produce sounds associated with the mechanism
   - ✓ evaluate diadochokentic (i.e., rapid, alternating movements) rates

Cranial Facial Anomalies – Cleft Lip & Palate

For children with an identified cleft lip and/or palate the speech-language pathologist must determine the extent to which the cleft contributes to the child's articulation or phonological errors and overall intelligibility. Approximately one in about 800 babies is born with a cleft lip or palate. Roth and Worthington (1996) define cleft palate and or lip as a congenital malformation that results from the failure of oral structures at midline to fuse during the first trimester of pregnancy. Children with cranial facial anomalies are generally followed by an interdisciplinary team with expertise in these disorders. Surgery for cleft lip is generally done when the infant is about 10 weeks old. Repairing a cleft palate is a more extensive surgery and is usually done when babies are between nine to 18 months of age.

Canady, Karnell, and Marsh (1999) report that children with a cleft lip only, with no other problems, should have normal or close to normal speech development. They further state that approximately 80 % of infants born with clefts of the palate develop normal speech once their palates are repaired. Additionally, children with clefts of the palate are at increased risk for language and cognitive delays or disorders. With the cleft of the palate the most significant speech problem may be velopharygeal incompetence resulting in audible nasal emission, hypernasality, and articulation errors especially of fricatives (e.g., f, s, z), affricatives (e.g., ch, sh) and plosives (e.g., p, b, m).

Submucosal clefts in children may go undetected at birth and often are difficult to detect in children of any age. Hypernasal resonance may be the hallmark for this type of cleft. An oral motor evaluation is essential and the palate should be palpated (midline from front to back of palate) to determine whether the submucosal cleft exists. Submucosal clefts are the most common association with syndromes and a referral for genetic counseling may be warranted.

Methods for evaluation of children with cranial facial anomalies
The following communication evaluation information should be collected:

1. medical and surgical history
2. hearing status
3. feeding evaluation at birth
4. evaluation of language production
   - ✓ collect a language sample
5. evaluation of phonologic and phonetic inventory (segmental)
   - ✓ -collect speech sample
   - ✓ -determine type and pattern of errors
   - ✓ -observe volitional versus nonvolitional productions
6. evaluate suprasegmental factors (prosody/melody of speech)
7. evaluation of the structure and function of the mechanism
   - ✓ elicit nonspeech movements
   - ✓ check the ability to produce sounds associated with the mechanism

Considerations for Evaluating Voice
If voice concerns arise or are already documented via medical history, consideration of outside referral for evaluation may be appropriate. Evaluation of a child with vocal concerns will involve a case history (previous voice and speech history; medical information and testing, behavioral factors), otolaryngological report and recommendations pertaining to appropriate leading to counseling and planning. Depending upon the child's past medical contacts and the nature of the concern, the appropriate specialty (Otolaryngology, Speech Pathology, and other medical specialties) may apply. See Appendix 5 for more detailed descriptions of voice characteristics and pathologies.

Considerations for Evaluating Fluency
The incidence of children under the age of three who are diagnosed as having stuttering-like disfluencies (SLDs) is difficult to determine. The incidence of preschool children (age 2 through 5) is considered to be less than 1%. With the mean age of onset being 32.76 months, a significant number of the less than 1% would be over the age of three, leaving a very small number of children under the age of three. The first step in early identification is to be able to make the differential diagnosis between normal developmental disfluencies and stuttering-like disfluencies.

Evaluators should collect a thorough child and family history to determine:

- ✓ the presence of stuttering among other family members
- ✓ the exact age of onset of stuttering
- ✓ the amount of time since the stuttering began
- ✓ the number of SLDs per 100 syllables demonstrated during evaluation
- ✓ type of stuttering behavior at onset
- ✓ changes in the behavior since onset

This information is critical to making sound decisions regarding eligibility.

Following a multidisciplinary evaluation, referrals may be appropriate to determine underlying or associated medical, genetic, environmental factors

Late Talkers

> In young children, language skills change dramatically during the child's first three years. It is important to recognize that it is often difficult to determine the reason for or extent of a communication disorder in young children, particularly less than 24 months of age with no other apparent developmental concerns. Some children, in absence of any other developmental problems, may eventually catch up to their peers and thus may seem to "outgrow" their communication delay. (New York State Department of Heath, Early Intervention Program, *Clinical Practice Guideline, Quick Reference Guide*, Communication Disorders, Assessment and Intervention for Young Children)

One area of discussion among experts in the field of speech-language pathology is the extent to which speech and language intervention is necessary for young children age 18 to 36 months who have an expressive language delay but no other developmental problems. The term, "late talkers" is one of the terms that have been used to describe these children. o date, no clear predictors have been established to indicate long-term outcomes for "late talkers" (Ellis Weismer, 2000, p. 161). An important consideration is that there is a certain degree of variation in the timing of language development in typically developing children in this age range. Some experts maintain that children with milder language delays may catch up with typically developing peers by 48 months of age, especially if efforts are made to facilitate language development, such as increasing social interactions and involvement in play groups. However, experts also suggest that beginning speech and language therapy by 24 months is important for those children who have more severe delays and those who appear at increased risk for continued delays.

Several studies suggest that many children who only have an expressive language delay at 24 months (but have some words and no other apparent developmental problems) will gradually "catch up" to a functional language level that is more typical of their peers. (Fischel, et al., 1989; Paul, 1991; Paul and Alforde, 1993; Rescorla and Schwarz, 1990; Thal and Tobias, 1994) One of these studies (Rescorla and Schwartz, 1990) found that children at age 24 months who had a vocabulary of fewer than 30 words continued to have problems in the future. In contrast, in the group of children with milder delays (such as a 30-50 word vocabulary, or over 30 words but no word combinations), some continued to have problems, but a large percentage also caught up with typically developing peers at 4 to 5 years of age.

While no *single* known factor can reliably predict later language status even for well-defined groups of children and certainly not for a individual child, (Ellis Weismer, 2000, Thal & Katich, 1996), Olswang, et al. (1998) identified several factors noted in these studies that appeared to predict which children with language delays at 18 to 24 months would still have delays at 36 to 48 months old. These predictors of future language delay are listed in Table 2 below. Based on this evidence, Olswang (1998) has suggested using these predictors to determine which language-delayed 24 month olds are likely to attain normal language development on their own, and which children are likely to have ongoing language problems and would benefit from speech/ language intervention. The Birth to 3 Program has incorporated many of these considerations into the chart on page 21.

> (Adapted from *Clinical Practice Guideline, Quick Reference Guide*, Communication Disorders, Assessment and Intervention for Young Children, New York State Department of Heath, Early Intervention Program)

Table 2

Predictors and risk factors of language change in toddlers

PREDICTORS

SPEECH

Language Production

- Small vocabulary for age
- Few verbs
- Preponderance of general all-purpose verbs (GAPS) such as "do", "make", "want", "go"
- More transitive verbs
- Few intransitive and ditransitive verb forms such as "give ball"

Language Comprehension

- Presence of 6-month comprehension delay
- Large comprehension-production gap with comprehension deficit

Phonology

- Few prelinguistic vocalizations
- Limited number of consonants
- Limited variety in babbling structure
- Less than 50% consonants correct (substitution of glottal consonants and back sounds for front)
- Restricted syllable structure
- Vowel errors

Imitation

- Few spontaneous imitations
- Reliance on direct model and prompting in imitation tasks of emerging language forms

NON-SPEECH

Play

- Primarily manipulating and grouping
- Little combinatorial and/or symbolic play

Gestures

- Few communicative gestures, symbolic gestural sequences, or supplementary gestures

Social Skills

- Behavior problems
- Few conversational initiations
- Interactions with adults more than peers
- Difficulty gaining access to activities

RISK FACTORS

Otitis Media

- Prolonged periods of untreated otitis media

Heritability

- Family member with persistent language and learning problems

Parent Needs

- Parent characteristics:
- Low SES
- Directive more than responsive interaction style
- Parent concern: Extreme

Olswang, L. B., Rodriguez, B., Timler, G. (1998). Recommending Intervention for Toddlers with Specific Language Learning Difficulties: We May Not Have All the Answers, But We Know a Lot. *American Journal of Speech-Language Pathology, 7*

Eligibility for a Child Who Shows Greater than 25% Delay Only in the Area of Expressive Language

Receptive language delay >25%	Intelligibility concerns (voice, fluency, & quality of speech sounds)	Frustration during communication	Regression in child's communication over the past three months	Oral motor concerns	Family history of language impairment	Birth or health history associated with increased risk of poor language development[1]	Communication environment is not conducive to facilitating language acquisition[2]	Recommendation	
								Watch and See[3]	*Eligible*
No	No	No	No	No	No	No	No	Yes	No
Yes	No	No	No	No	No	No	No	No	Yes
No	Yes	No	No	No	No	No	No	No	Yes
No	No	Yes	No	No	No	No	No	No	Yes
No	No	No	Yes	No	No	No	No	No	Yes
No	No	No	No	Yes	No	No	No	No	Yes
No	No	No	No	No	Yes	No	No	No	Yes
No	No	No	No	No	No	Yes	No	No	Yes
No	No	No	No	No	No	No	Yes	No	Yes

[1]Examples: congenital infection, ototoxic medications, chronic otitis media, craniofacial anomalies

[2] Examples: Few conversational initiations, interactions with adults more than peers, difficulty gaining access to activities, parent interaction style more directive than responsive

[3] Each of these factors would help the team in determining whether the child should be eligible for early intervention services. When the child displays a delay only in expressive language and there are no other factors present, a "watch and see" approach is recommended.

"Watch and see" means that

1. The child is not found eligible for early intervention at this time
2. Parents are provided suggestions for activities and community resources to promote language development and for monitoring of their child's progress
3. The child is screened within three months to assess progress in communication and in other developmental areas (Screening by the speech language pathologist (SLP) is recommended depending on the age of the child. A developmental specialist may be an appropriate screener with guidance from the SLP)
4. If communication concerns persist, eligibility will be reconsidered.

CHILDREN FROM HOMES IN WHICH ENGLISH IS NOT THE PRIMARY LANGUAGE

Many families are living in the United States with limited or no English skills. At the same time, there are a number of resources being developed to meet the needs of these families. Wisconsin's Birth to 3 Program respects individual differences and requires that programs communicate with families in their preferred language, to the extent possible. A child and family's proficiency in English should be considered before any evaluation is conducted. This consideration will give the clinician information regarding evaluation protocols and tests to use, and whether a monolingual clinician, bilingual clinician, or a monolingual clinician using an interpreter would be "best practice" when conducting an evaluation.

Early Identification

It is important to ask more than whether or not the parent can speak English. More appropriate inquiries should explore how often English is spoken to the child and how often the parent talks to child in the non-English language.

The evaluation team should consider the use a standardized test if a valid instrument exists in the family's language. There are few choices available. Many instruments are literal translations of English tests that have not been validated for use in other languages. The use of non-standardized assessment, interviews, and observation are generally preferred methods. Appendices six and seven cite several references and websites for evaluation tools and methods for children who are English language learners.

Since a child should be assessed in the primary or dominant language of the home [HFS 90.08(7)(d)1], the eligibility criteria are the same as for a native English-speaking child. The child would have to show a significant language delay in their primary or dominant language. Wisconsin's Birth to 3 Program does not serve children if they are only significantly delayed in their second language. Other programs may be available to enhance those skills.

When assessing bilingual children, it is important for clinicians to be cognizant of second language acquisition. Second language acquisition is similar to, although not identical to, first language acquisition and because acquisition is a developmental process, children need adequate time to acquire a second language: 1-2 years for conversational skills (grammar, basic vocabulary, pronunciation), and 5-7 years to develop the academic linguistic proficiency (literacy, problem-solving, and critical thinking skills) needed for academic success (Moore & Beatty, 1995.) The development of competence in English is a function of the level of competence previously developed in the first language (Ortiz, 1994.)

It is the responsibility of the Birth to 3 team to raise families' level of awareness about second language acquisition and bilingual issues and how they can best support their child's development. The parents should be supported for acknowledging the importance of the child's language development and then encouraged to communicate with the child in their native language, to enhance the child's intellectual, cognitive, and linguistic development (Moore & Beatty, 1995). Learning a second language is easier for children if they have a good language base in their first language. (Erickson, 1992) According to Ortiz (1994), "…the native language is the foundation upon which English competence is built."

Guidance for using an interpreter during communication evaluations

An interpreter is under the supervision of the speech pathologist at all times. An interpreter's activities should be reviewed and assigned by the clinician. The following "best practice" list should be considered when using an interpreter (Moore & Beatty, 1995):

- Interpreter should receive training in basics of evaluation (role of the interpreter, functions of the SLP and interpreter, testing protocols), intervention, and conferencing.
- In evaluation, the interpreter should have an understanding of the rationale, procedures, and information that is obtained from tests.
- Interpreter should have a high degree of proficiency in both English and minority language.
- Interpreter should have high school diploma, adequate communication skills, and the ability to relate to clinical population.
- Interpreter should understand both mainstream American culture and the culture of the child and family.
- Interpreter should not be a family member or family's friend unless they have had proper training.

It is important to remember that all reports, correspondences and the IFSP must be translated into the family's language. Skilled verbal interpreters are not necessarily also skilled written translators.

STRATEGIES FOR CHILDREN FOUND NOT ELIGIBLE FOR THE BIRTH TO 3 PROGRAM

While evaluation and team consensus may indicate that the child is not eligible for early intervention services at this time, the child and the family may benefit from additional information. Sharing resources and strategies for facilitating speech development may be appropriate.

The following actions may be appropriate depending on the family's interests:

- Give the family information regarding normal speech language development (Examples: *How Does Your Child Hear and Talk*? and *Activities to Encourage Speech and Language Development*, American Speech and Hearing Association (ASHA) www.asha.org/public/speech/development/
- Give the family information about how to facilitate and monitor their child's language development in the home.
- Give the family a list of community resources available or activities to foster language development
- Connect the family to parent training activities (e.g., Hanen program www.hanen.org)
- Encourage the family to call the Birth to 3 Program again to re-refer if they have questions or do not feel their child is making progress in 3-6 months.
- Encourage the family to enroll the child in community playgroups if appropriate.

References

Brown, R. (1973). *A first language: The early stages*. Cambridge, MA, Harvard University Press.

Canady, J. Karnell, M. & Marsh, J. (1999). *Cleft lip and cleft palate: The first four years*. New York: The Smile Train.

Dale, P. (1991). The validity of a parent report measure of vocabulary and syntax at 24 months. *Journal of Speech and Hearing Research, 34,* 565-571.

Ellis Weismer, S, (2000). Language for children with developmental delay. In D. Bishop & L. Leonard (Eds.). *Speech and language impairments: From theory to practice,* 157-176.

Erickson, J.G. (1992). *Multicultural considerations—A building blocks module*. Silver Spring, MD: American Speech Language Hearing Association.

Fischel, J.E., Whitehurst, G.J., Caulfield, M.B., & De Baryshe, B.D. (1989). Language growth in children with expressive language delay. *Pediatrics*, 82, 218-227.

Kent, R. (1999). Motor control: Neurophysiology and functional development. In (Eds.) A. Caruso and E. Strand. *Clinical Management of Motor Speech Disorders in Children*. NY: Thieme Medical Publishers, Inc. (pp. 29-71).

Leddy, M., Rosin, P. & Miller, JF. *Improving the speech intelligibility of young children with Down syndrome.* 2-hour seminar *ASHA Convention*, Chicago, IL, November 13, 2003

Linder, T. (1993). *Transdisciplinary Play-Based Intervention*. Baltimore, MD: Paul H. Brookes

Marquardt, T. (2000). Dysarthria. In R. Gillam, T. Marquardt, & F Martin (Ed.), *Communication Sciences and Disorders: From science to clinical practice.* San Diego: Singular Publishing Co.

Moore, S. M., & Beatty, J. (1995). Developing cultural competence in early childhood assessment. Boulder, CO: University of Colorado at Boulder.

New York State Department of Heath, Early Intervention Program, (1999). *Clinical Practice Guideline, Quick Reference Guide*, Communication Disorders, Assessment and Intervention for Young Children.

Olswang, L. B., Rodriguez, B., Timler, G. (1998). Recommending Intervention for Toddlers with Specific Language Learning Difficulties: We May Not Have All the Answers, But We Know a Lot. *American Journal of Speech-Language Pathology*, 7 (1), 23-32

Olswang, L., Stoel-Gammon, C., Coggins, T., and Carpenter, P., (1987). *Language Production Scale* in “Assessing Prelinguistic and Early Linguistic Behaviors in Developmentally Young Children" Published by the University of Seattle.

Ortiz, A. (1994). Second language acquisition, assessment and instruction. Paper presented to Boulder Valley Public Schools, Boulder, CO.

Owens, R. E., Jr. (1996). *Language development: An introduction*. Boston: Allyn and Bacon.

Paul, R. (2001). *Language disorders from infancy through adolescence: Assessment and intervention.* St. Louis, MO: Mosby.

Paul, R. (1996). Clinical implications of the natural history of slow expressive language development. American Journal of Speech-Language Pathology, 5 (2), 5-21.

Paul, R., & Shiffner, M. (1991). Communicative initiations in normal and late-talking toddlers. Applied Psycholinguistics, *12(4)*, 419-431.

Paul, R. & Alforde, S. Grammatical Morpheme Acquisition in four year olds with normal, impaired, and late-developing language. Journal of Speech and Hearing Research 36, 1271-1275. 1993.

Ray, J. (2000). Treating phonological disorders in a multilingual child: A case study. Poster session presented at the American Speech-Language-Hearing Association convention, Washington, D.C..

Reed, V. A., (2005). *An introduction to children with language disorders – Third Edition.* Boston, MA: Allyn & Bacon.

Rescorla, L., & Schwartz, E. (1990). Outcome of toddlers with specific expressive language delay. Applied Psycholinguistics, 11, 393-407.

Roth, F. and Worthington, C. (1996). Treatment Resource Manual for Speech-Language Pathology. San Diego, CA: Singular Publishing Group, Inc.

Sanders, E. (1972). When are speech sounds learned? *Journal of Speech and Language Disorders*. 37, p.62.

Shriberg, L.D., & Kwiatowski, J. (1982). Phonological disorders II: A conceptual framework for management. Journal of Speech and Hearing Disorders, 47, 242-256.

Shriberg, L. Aram, D. & Kwiatkowski, J. (1997). Developmental apraxia of speech: I. Descriptive and theoretical perspectives. *Journal of Speech & Hearing Research,* 40. 273-285.

Shriberg, L. Aram, D. & Kwiatkowski, J. (1997). Developmental apraxia of speech: II. Toward a diagnostic marker. *Journal of Speech & Hearing Research,* 40. 286-312.

Strand , E. (1998). Treatment of Developmental Apraxia of Speech. Workshop. Madison, WI.

Thal, D. & Tobias, S. (1994). Relationships between language and gesture in normally developing and late-talking toddlers. *Journal of Speech & Hearing Research,* 37:157-170.

Thal, D.J., & Katich, J. (1996). Predicaments in early identification of specific language impairment: Does the early bird always catch the worm? In K.N. Cole, P.S. Dale, & D.J. Thal (Eds.), Assessment of communication and language, (pp.1-28). Baltimore, MD: Paul H. Brookes.

Vihman , M. & Greenlee, M. (1987). Individual differences in phonological development: Ages one to three years. *Journal of Speech & Hearing Research*, 30, 503-521.

Wetherby, A., Cain, D., Yonklas, D., & Walker, V. (1988). Analysis of intentional communication of normal children from the prelinguistic to the multiword stage. *Journal of Speech and Hearing Research, 31,* 240-252.

Yiari, E. & Ambrose, N.G. (2005). *Early childhood stuttering for clinicians by clinicians*. Austin, TX: Pro-Ed

Appendix 1

A Summary of Expressive Speech and Language Development For Typically Developing Children Birth to 18 months

Newborn:
- Cries
- Produces noncrying speechlike sounds, usually during feeding
- Smiles reflexively

One Month:
- Cries for assistance
- Produces pleasure sounds
- Smiles spontaneously
- Makes eye contact with primary caregiver

Two Months:
- Produces gutteral or "throaty" cooing
- Smiles unselectively

Three Months:
- Produces single syllable (consonant-vowel) cooing
- Responds vocally to the speech of others
- Produces primarily vowel sounds
- Smiles selectively (familiar people)

Four Months:
- Begins to babble, producing strings of consonants
- Varies pitch
- Smiles at person speaking to him/her

Five Months:
- Produces "vocal play" to experiment with sounds
- Imitates some sounds
- Responds differently to smiling and scolding

Six Months:
- Babbles, producing strings of consonant-vowel combinations (reduplicated babbling)
- Vocalizes to express pleasure and displeasure
- "Squeals" when excited

Seven Months:
- Continues to produce reduplicated babbling
- Demonstrates "vocal play"
- Produces several sounds in one breath
- Imitates gestures of another person

Eight Months:
- Continues to produce reduplicated babbling
- Continues "vocal play"
- Imitates gestures and intonation patterns of another speaker

Nine Months:
- Produces adult-like intonation patterns
- Imitates coughing, hissing, tongue clicking, "raspberries"
- Produces sequences of vowel-consonant-vowel (VCV) and CVC syllables in which adjacent and successive syllables are different (variegated babbling)
- Uses conventional gestures (e.g., waving, pointing)

- Uses eye contact, gestures, and vocalizations (nonlinguistic behaviors) alone or in combination to express communicative intents
- Participates in communication games (e.g., "How big is ____? SO BIG!!")

Ten Months:

- Imitates sounds produced by another speaker if the infant has already produced the sounds spontaneously on his/her own
- Continues to produce sequences of vowel-consonant-vowel (VCV) and CVC syllables in which adjacent and successive syllables are different (variegated babbling)
- Continues to use conventional gestures (e.g., waving, pointing)
- Continues to use eye contact, gestures, and vocalizations (nonlinguistic behaviors) alone or in combination to express communicative intents
- Produces syllable sequences with adult-like intonation patterns (jargon)

Eleven Months:

- Imitates intonation patterns, facial expressions, etc.
- Continues to use conventional gestures (e.g., waving, pointing)
- Continues to use eye contact, gestures, and vocalizations (nonlinguistic behaviors) alone or in combination to express communicative intents
- Continues to use jargon
- Produces sound sequences that are not true words, but demonstrate an understanding of the relationship between sound sequences and meaning (phonetically consistent forms, e.g., consistent use of "ada" to mean "boy")

Twelve to Fourteen Months:

- Continues to imitate intonation patterns, facial expressions, etc.
- Continues to use conventional gestures (e.g., waving, pointing)
- Continues to use eye contact, gestures, and vocalizations (nonlinguistic behaviors) alone or in combination to express communicative intents
- Continues to use jargon
- Continues to use phonetically consistent forms
- Produces first true words
- Mixes words with jargon

Fifteen to Eighteen Months:

- Uses jargon and words in conversation
- Produces approximately six words (15 months) to 50 words (18 months) that consist primarily of CV or VC combinations (e.g., "ba" for "ball" or "up")
- Begins to produce two-word combinations (18 months)
- Refers to self by name
- "Sings" and hums
- Plays question-answer with adults

Based on Owens, R. J, (1996) and Paul, R (2001)

Appendix 2

Stages of Normal Noncry Vocal Development in Infants/Toddlers

1. Proctor (1989) combines five investigations which propose stages of vocalizations and outlines five stages where there appear to be qualitative differences distinguishing stages:
   a. Stage 1 (0-2 months):
      (1) more crying and discomfort sounds than noncry sounds
      (2) predominating noncry sounds are vegetative (reflexive), neutral, and mainly vocalic (vowel-like) in nature
   b. Stage 2 (2-4 months):
      (1) marked decrease in crying after 12 weeks
      (2) vocalic sounds predominate, but consonant-like sounds are introduced
      (3) combining of consonantal (C) and vocalic (V) segments (coo or goo)
      (4) glottal Cs heard
   c. Stage 3 (4-6 months):
      (1) increased number of C segments produced
      (2) more variation of V productions
      (3) consistent production of CV syllables
      (4) variation of intonational contours
   d. Stage 4 (7-10 months):
      (1) canonical, repetitive, or reduplicated babbling (i.e., CV or CVC-like structure)
      (2) consistent variations of intonational contours
      (3) early nonreduplicated CV syllables
      (4) utterances produced with full stop
   e. Stage 5 (10-14 months)
      (1) variegated babbling (advanced form of reduplicated babbling)
      (2) variety of CV and CVC combinations with sentence-like intonation
      (3) approximations of meaningful single words
   f. Proctor provides a system of evaluating early noncry vocal development based on these stages.
2. Kent (1999) discusses some of the difficulty with the use of stages as described by Proctor above (e.g., different classifications are not completely congruent in the ages assigned to the stages or even the characterization of the stages). Kent does offer recognize distinctive vocal behaviors appearing within the first 9 months:
   a. Stage 1 (about 2 months) transition from simple phonation to combining phonation with some aspects of articulation. Infants use supralaryngeal constrictures.
   b. Stage 2 (about 3 to 5 months) there is an expansion of exploratory, vocalic development and primitive articulation. Sound changes at this stage correlate with anatomical in the vocal tract (e.g., laryngeal framework separated from the nasopharynx).
   c. Stage 3 (about 7 to 9 months) is associated primarily with babbling.

3. Kent (1999) synthesizes data from previous studies related to infant/toddlers' phonetic inventories.
    a. 3 to 6 months: vowels [E I ^] glottals [h ?] and velars [g k].
    b. 6 to 12 months: vowel to consonant ratio smaller; consonants: voiced stops (bilabial and apical; nasals (bilabial and apical) spirant [h], and glide [w]; vowels: central, mid-front, and low front; alveolars and bilabials predominate while in the first 6 months glottals and velars predominate.
    c. 12 to 18 months: inventory size does not increase markedly; from 8 to 18 months an average of 6 consonants from the set [b d g t m n h w l]; most consonants are in the syllable initial position.
    d. 18 to 25 months: inventory size grows; 2 year old has an inventory of 10-20 consonant sounds; more consonants in syllable-initial position; syllable-final position are often voiceless.
4. Stoel-Gammon (1985) collected longitudinal samples on 34 normally developing children. Samples were analyzed for range and types of consonantal phones produced at 15, 18, 21 and 24 months. Separate inventories were kept for word initial and final position:
    a. Consonantal phones in the initial position were primarily:
        (1) stops
        (2) nasals, and
        (3) glides.
        (4) By 24 months voiceless stops, velars and a few fricatives were added.
    b. Consonantal phones in the final position were primarily:
        (1) voiceless stops, and
        (2) alveolars
    c. There was a tendency for voiced stops to appear in initial positions and for /t/ and /r/ to appear in the word final position.
    d. There was a highly similar pattern across subjects.

Appendix 3

Evaluation Tools and Methods

Tool	Use	Author	Publisher
Assessing Linguistic Behaviors (ALB): Assessing Prelinguistic and Early Linguistic Behaviors in Developmentally Young Children	Observational and Structured scales; assessment of cognitive antecedents, play, communicative intention, language production and comprehension	L. Olswang, C. Stoel-Gammon, T. Coggins and L. Carpenter	University of Washington Press, Seattle. Out of Print, 1987
The Clinical Assessment of Language Comprehension (CALC)	Auditory comprehension of syntax, comprehension and vocabulary, standardized and yields percentile score. Normed	J.R. Miller, J. Gidden, and J. Stark	Riverside Publishing Company, 1983.
Communication and Symbolic Behavior Scale (CSBS)	Contains Infant-Toddler Checklist, caregiver Questionnaire and Behavior Sample.	Amy M. Wetherby & Barry M. Prizant,	Paul H. Brookes Publishing Company, New York, 1993.
Ages and Stages Questionnaire (ASQ)	Screener. A parent-completed, norm-referenced child-monitoring system.	Diane Bricker	Paul H. Brookes Publishing Company, New York, 1993.
Early Language Milestone Scale (ELM)	Screener. Normed. Yields percentiles	James Coplan	SuperDuper Publications, Greenville, South Carolina, 19--.
Mac Arthur Communicative Developmental Inventory	Screener. Parent-report instruments used to determine child's comprehension and production vocabularies for using words and gesture and production vocabulary for word combinations; from first non-verbal gestural signals through expansion of early vocabulary to grammar.	Fenson, Dale, Resnic, Thal, Bates, Harung, Pethick, & Reilly,	Singular Publishing. 1993
Pre-School Language Scale–4 (PLS–4),	English, Spanish: evaluation of young child's receptive and expressive language: birth to 6.11, contains expanded coverage of language skills and new norms between 0–2.11. Normed	Irla Lee Zimmerman, Violette G Steiner. & Roberta Evattt Pond	Psychological Corporation, 2002
Receptive-Expressive Emergent Language Scale – Third Edition (REEL-3)	Assess language development birth to 36 months. Parent Interview. Expressive and language ages	Kenneth Bzoch. Richard League, & Virginia Brown,	Pro-Ed, 2003
Reynell Developmental Language Scales	Qualitative and quantitative assessment of expressive and verbal comprehension in children 1–7 years; designed for those thought to show some language deficit, suitable for hearing impaired children. Normed.	Joan K. Reynell & Christian P.Gruber.	Slosson Educational Publications, Inc., 1990.
Rossetti Infant-Toddler Language Scale	Informal Communication and Interaction measure: Interaction Attachment, Pragmatics, gesture, language Comprehension and Language Expression yielding age ranges. Criterion referenced	Louis Rossetti	LinguiSystems, Inc., 2005

Tool	Use	Author	Publisher
Sequenced Inventory of Communication Development Revised (SICD-R)	Receptive and Expressive Scales. Four to 48 months. Normed. Spanish translation available.	Donna Lee Hendrick,, Elizabeth Prather, and Annette, Tobin	Pro-Ed, 1984
Test of Early Language Development – Third Edition	A standardized measure of receptive and expressive language Ages: 2-0 through 7-11 Administration Time: 20 minutes	W. Hresko. K. Reid, & Donald Hammill	AGS, 1999
Clinical Assessment of Language Comprehension	A series of non-standardized tasks to assess young children's receptive language	Jon F. Miller & Rhea Paul	Brookes, 1995
Goldman-Fristoe Test of Articulation-Second Edition	GFTA-2 is a systematic means of assessing an individual's articulation of the consonant sounds of Standard American English. It provides a wide range of information by sampling both spontaneous and imitative sound production, including single words and conversational speech.	Ronald Goldman & Macalyne Fristoe	AGS, 2000

References for Evaluation Tools and Methods

Evaluation Tools and Methods

Bzoch, K., & League, R. (1991). *The Receptive-Expressive Emergent Language Scale*. Gainesville, FL: Language Education Division, Computer Management Corporation.

Goldman, R., & Fristoe, M. (2000). *The Goldman-Fristoe Test of Articulation—Second Edition*. Circle Pines, MN: AGS Publishing

Hedrick, D., Prather, E., & Tobin, A. (1995). *Sequenced Inventory of Communication Development-Revised.* Austin, TX: Pro-Ed.

Hresko, W., Reid, K., & Hammill, D. (1991). *Test of Early Language Development*. (Third edition). Austin, TX: Pro-Ed.

Linder, T. (1993). Transdisciplinary Play-Based Intervention. Baltimore, MD: Paul H. Brookes Publishers.

Miller, J.F. (1981). Assigning a Structural Stage Procedure: Appendix B in Assessing Language Production in Children: experimental procedures. Baltimore: University Park Press.

Miller J. F. and Paul, R., (1995). *The Clinical Assessment of Language Comprehension*, Paul H. Brookes Publishing Co., Baltimore.

Zimmerman, I., Steiner, V., & Pond, R. (2002). *Preschool Language Scale-4.* San Antonio, TX: Psychological Corporation.

Language sampling
Crais, E. R. & Roberts, J.E. (1991). Decision Making in Assessment and Early Intervention Planning, *Language, Speech and Hearing in the Schools*, 22, 19-30

Leadholm, B. & Miller, J. F. (1995) *Language Sample Analysis: The Wisconsin Guide Madison*, WI: Department of Public Instruction

Miller, J.F. (1981). Assigning a Structural Stage Procedure: Appendix B in *Assessing Language Production in Children: experimental procedures*. Baltimore: University Park Press.

Rescorla, R., (1991). Identifying Expressive Language Delay at Age Two, *Topics in Language Disorders*, 11(4), 14-20.

Rescorla, R., (1989) The Language Development Survey: a Screening tool for delayed language in Infants and Toddlers, *Journal of Speech and Hearing Disorders*, 54, 587-599.

Production
Miller, J. & Leadholm, B., (1992). *Language sample analysis guide: The Wisconsin Guide for the identification and description of language impairment in children.* Madison: Wisconsin DPI.

Pragmatics
Linder, T. (1993). *Transdisciplinary Play-Based Intervention*. Baltimore, MD: Paul H. Brookes

McLaughlin, S. (1998). *Introduction to Language Development*. San Diego, CA: Singular Publishing Group, Inc.

Whitehurst, J., Fischel, J., Lonagin, C., Valdez-Menchaca M. Arnold, D., Smith M., (1991). Treatment of early expressive language delay: If, when and how, *Topics in Language Disorders*, 11, (4) 55-68.

Comprehension
Miller, J. & Paul, R. (1995). *The Clinical Assessment of Language Comprehension*. Baltimore, MD: Paul H. Brookes

Appendix 4

Language Production Scale

From "Assessing Prelinguistic and Early Linguistic Behaviors in Developmentally Young Children" by Olswang, L., Stoel-Gammon, C., Coggins, T., and Carpenter, P., 1987.

1. Designed to examine the vocalizations and verbalizations of children 9 to 24 months of age.
2. Two major parts to the scale:
    a. prelinguistic utterances i.e., babbling
    b. early meaningful speech i.e., linguistic productions
3. Administration
    a. 30 minute sample
    b. 4 sets of toys (tea party, farm, nurturing, transportation)
    c. Examiner presents each set one at a time attempting to elicit labels and each set is played with for 8 minutes.
    d. Parents are instructed to comment, gloss and be non-directive.
4. Babbling Analysis
    a. 50 vocalizations of children who produce fewer than 10 words during data collection are used for analysis.
    b. 50 consecutive utterances that met the following criteria were analyzed:
        (1) judged to be non-meaningful,
        (2) vocalization contained at least a voiced vocalic element or a voiced syllabic consonant,
        (3) produced or an eggressive air stream, and
        (4) judged to be "speech-like"; it could be a grunt but not a cry, cough or scream.
    c. utterances were segmented when bounded by a second of silence on either side, by vocalizations not meeting criteria 1-4 above, or by parental report.
    d. each babble was assigned to one of three levels:
        (1) Level I - the utterance is composed of voiced vowel(s), voiced syllabic consonant(s), or CV syllables(s) in which the consonant is a glottal stop, /h/, /j/, /w/ and voiced vowels are always classified as level I.
        (2) Level II - the utterance is composed of CV, VC, or CVC syllable(s) with a single consonantal type. Disregard voicing difference.
        (3) Level III - the utterance is composed of syllables with two or more consonantal types. Disregard voicing differences.
    e. Scoring the Sample:
        (1) Use last 15 minutes of samples and classify 50 babbled utterances as Level I, II, or III. Use first 15 minutes if not enough babbles.
        (2) Count the number of occurrences at each level.
        (3) Figure the mean level of babbling by multiplying the number of Level I utterances x 1, the number of Level II utterances x 2, the Level III utterances by 3, and dividing the total by the number of babbled utterances.
        (4) The score provides a measure of phonetic complexity of babbled utterances.

Appendix 5

VOICE

The speech component of the young child's communication evaluation should address voice production (elements such as phonation [the ability to produce voice], pitch, loudness, quality and prosody). Voice and resonance disorders are commonly seen in the pediatric population, which receives speech-language pathology services. (Johnson and Jacobson, 1998) In the general population, estimates for the incidence of voice and resonance problems in children range from 6 to 9 percent. Voice disorders have a variety of causes; voice disorders in children can be organic (physical) and either congenital or acquired.

Producing Voice
Phonation is the production of sound via a vibrating mechanism (the vocal folds) and shaping of the oral cavity by placing of the articulators (lips, tongue). Phonation attempts typically result in adequate voicing and duration for speech. When problems in resonance are noted, the quality of phonation should be assessed.

Perceptual Characteristics
Perceptual characteristics of the voice involve and are influenced by airflow, the loudness that is achieved, vocal fold mechanics and phonation. When vocal fold mechanics are involved, the following may be perceived: hoarseness, breathiness, glottal fry or hard glottal attacks, diplophonia, and inappropriate loudness, whispered speech (aphonia-lack of vocal fold vibration) or dysphonia (abnormal vocal quality in the absence of a vocal fold pathology).

Vocal Pathology Conditions
A variety of vocal pathologies can occur in children. Usually vocal pathologies are perceived by abnormalities in the quality or efficiency of the voice during speech. Examples include: roughness, strain, nasality, unusual prosody (rhythm, inflection, pacing), effort in speaking, breathiness, abnormal duration (maintaining sound). Vocal fold nodules can occur due to misuse of the voice. When nodules are present, pitch or loudness may be affected and typically both vocal folds are usually affected.

When airway obstruction is the problem, there may also be a condition of the larynx such as a laryngeal web, hemangioma, subglottic stenosis or bilateral vocal fold paralysis.

Resonance Characteristics
Hypernasality is typically perceived as too much resonance in the nasal cavity during speech. This difference in voice quality is a result of velopharyngeal incompetence (VPI) of the soft palate, but can also occur through a large fistula (opening) in the palate resulting in inappropriate nasal sound during speech. Hypernasal voice may also increase in connected speech due to the additional demands it places on the velopharyngeal mechanism.

Other forms of resonance abnormality include hyponasality and denasal speech. A reduction in nasal resonance during speech occurs as a result of blockage in the nasopharnx or entry to the nasal cavity, called "cul-de-sac resonance". Muffled speech can occur in a child with very large tonsils and adenoid hypertrophy with mixed resonance (i.e., when both hypernasal and hyponasal speech are produced), indicating velopharyngeal incompetence and significant nasal air blockage.

Other Conditions

- When airway obstruction is the problem, there may also be a condition of the larynx such as a laryngeal web, hemangioma, subglottic stenosis or bilateral vocal fold paralysis. A laryngeal web, a congenital abnormality, is usually determined soon after birth. In this condition there is a lack of tissue separation of the vocal folds, in the embryonic stage. Due to airway restrictions this can be life threatening. Hoarseness, lack of voicing and inspiratory stridor may be noted.
- Conditions involving vocal cord paralysis are associated with other neurological conditions or trauma, particularly cardiac conditions or nervous system lesions.
- The quality of speech depends on vocal cord approximation. In cases of subglottic stenosis, a narrowing of the airway from the vocal folds down to the cricoid area below the glottis occurs. This is the case when the laryngeal mechanism is damaged by intubation, thus affecting voice quality. Breathiness, hoarseness, restricted pitch and reduced loudness of the voice may occur.
- A papilloma is a neoplastic growth that is thought to be caused by a virus. Papillomas are the most common form of tumors of the larynx in children and occur between ages two and four, typically.
- Subglottic stenosis involves a narrowing of the airway from the vocal folds to the cricoid area below the glottis.
- The subglottic hemangioma condition involves a congenital mass of blood vessels resulting in labored breathing and feeding problems, with hoarseness or breathiness symptoms.
- Dysphonia due to the presence of a tracheostomy may be experienced. Changes in vocal production will be noted. Speech may be produced depending on sufficient airflow between the tracheostomy tube and trachea for phonation.
- The Passy-Muir valve is a one way-trach valve that allows manual closure of the tracheostomy tube during speech. This can facilitate voicing by forcing airflow around the trach tube and up to the larynx. If the tracheostomy tube is narrow compared to the size of the trachea, this may allow sufficient airflow between the tracheostomy tube and the trachea for phonation.

References

Boone, D.R. and Mc Farlane, S.C., (1988). *The Voice and Voice Therapy*, Englewood Cliffs, N.J.: Prentice-Hall, 1988

Johnson, A. and Jacobson, B.H. (Eds) (1988).*Medical Speech-Language pathology: a practitioner's guide*. Alex F.., NY: Thieme.

Tomlin, J.B., Morris, H.L., & Spriesterbach, D.C. (2000). *Diagnosis in Speech-Language Pathology*, San Diego, Singular.

Appendix 6

Additional References

American Speech-Language-Hearing Association. (1981). Guidelines for the employment and utilization of supportive personnel. *ASHA*, 23(3), 165-169.

American Speech-Language-Hearing Association, Committee on Supportive Personnel. (1988). Utilization and employment of speech-language pathology supportive personnel with underserved populations. *ASHA*, 30 (11), 55-56.

American Speech-Language-Hearing Association, Committee on the Status of Racial Minorities. (1985). Clinical management of communicatively handicapped minority language population. *ASHA*, 27(6), 29-32.

Anderson, N.B. (1992). Understanding cultural diversity. American Journal of Speech Language Pathology, 1 (2): 11-12.

Culturally and Linguistically Appropriate Services, University of Illinois at Urbana-Champaign, Champaign, IL http://clas.uiuc.edu/

Curlee, R. (1993). *Stuttering and related disorders of fluency*. New York: Thieme.

Curlee, R., & Yairi, E., (1997). Early intervention with early childhood stuttering: A critical examination of the data. *American Journal of Speech –Language Pathology*, 6, 8-18.

Deal, V.R., & Rodriquez, V.L. (1987). *Resource guide to multicultural tests and materials in communicative disorders*. Rockville, MD: American Speech-Language-Hearing Association.

Fenson, L., Dale, P.S., Reznick, J.S., Thal, D., Bates, E., Hartung, J.P., Pethick, S., & Reilly, J.S. (1993). *Mac Arthur Communicative Development Inventories*. San Diego, CA: Singular Publishing Group, Inc.

Grunwell, P. (1982). The development of phonology: A descriptive profile. *First Language*, 3, 161-191.

Hamayan, E.V., & Damico, J.S. (Eds.) (1991). *Limiting bias in the assessment of bilingual students*. Austin: Pro Ed.

Hart, B., & Risley, T.R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Paul H. Brookes.

Johnson, J.M., Watkins, R.V., & Rice, M.L. (1992). Bimodal bilingual language development in a hearing child of deaf parents. *Applied Psycholinguistics*, 13, 31-52.

Jones, M.L., & Quigley, S.P., (1979). The acquisition of question formation in spoken English and American Sign Language by two hearing children of deaf parents. *Journal of Speech and Hearing Disorders*, 44, 196-208.

Kayser, H. (1993). Hispanic cultures. In D.E. Battle (Ed.), *Communication disorders in multicultural populations,* (pp. 114-152). Boston: Andover Medical Publishers.

Kayser, H. (Ed.). (1995). *Bilingual speech-language pathology: An Hispanic focus*. San Diego: Singular Publishing Group, Inc.

Kelly, D., (1998). A clinical synthesis of the "Late Talker" literature: Implications for service delivery. *Language, Speech, and Hearing Services in the Schools*, 29, 76-84.

Kwiatowski, J., & Shriberg, L. D. (1992). Intelligibility Assessment in developmental phonological disorders: Accuracy of caregiver gloss. *Journal of Speech and Hearing Research,* 35, 1095-1104.

Langdon, H.W. (1988, June). Working with an interpreter/translator in the school setting. Presentation at State Conference for School Superintendents. Dimensions of appropriate assessment for minority handicapped students: Recommended practices. Tucson, AZ: University of Arizona.

Langdon, H.W. (1992a). *Interpreter/translator process in the educational setting: A resource manual*. Sacramento, CA: Resources in Special Education.

Lowe, R.J. (1994). *Phonology: Assessment and intervention applications in speech pathology. Baltimore,* MD: Williams and Wilkins.

Mallory, B.L., Zingle, H.W., & Schein, J.D., (1993). *Intergenerational communication modes in deaf-parented families*. Sign Language Studies, 78, 73-92.

Matsuda, M., & O'Connor, L.C. (1993). Creating an effective partnership: Training bilingual communication aides. Presentation at the annual convention of the California Speech, Language and Hearing Association, Palm Springs, CA.

Mayberry, R., (1976). An assessment of some oral and manual-language skills of hearing children of deaf parents. American Annuals of the Deaf, 121, 507-512.

McCathren, R., Warren, S. & Yoder, P. (1996). Prelinguistic predictors of later language development. In K. Cole, P. Dale, & D. Thal (Eds.). Assessment of communication and language. Baltimore, MD: Paul H. Brookes.

Medina, V. (1982). Interpretation and translation in bilingual B.A.S.E., San Diego CA: Superintendent of Schools, Department of Education, San Diego County.

Monahan, D. (1986). *Remediation of common phonological processes*. Austin, TX: Pro Ed.

Nippold, M.A., & Schwartz, I.E. (1996). Children with slow expressive language development: What is the forecast for school achievement? *American Journal of Speech- Language Pathology*, 5 (2), 22-25.

Nippold, M.A., & Schwartz, I.E. (1996b). Slow expressive language development: A call for more data. *American Journal of Speech-Language Pathology*, 5 (2), 29-30.

Omark, D.R., & Watson, D.L. (1981). *Assessing bilingual exceptional children: In-service manual*. San Diego, CA: Los Amigos Research Associates.

Ortiz, A., & Wilkinson, C. (1990). *AIM for the best: Assessment and intervention model for the bilingual exceptional student.* Austin, Texas: University of Texas at Austin.

Paul, R. (1997). Understanding language delay: A response to van Kleeck, Gillam, and Davis. *American Journal of Speech-Language Pathology*, 6 (2), 40-49.

Paul, R., & Shriberg, L.D. (1982). Associations between phonology and syntax in speech delayed children. *Journal of Speech and Hearing Research*, 25, 536-547.

Paul, R., Hernandez, R., Taylor, L. Johnson, K. (1996). Narrative development in late talkers: Early school years. *Journal of Speech, Language, and Hearing Research*, 39, 1295-1303.

Rescorla, L., Roberts, J. & Dahlsgaard, K. (1997). Late talkers at 2: Outcome at age 3. *Journal of Speech, Language, and Hearing Research*, 40, 556-566.

Roth, Froma P. & Worthington, (2005) *Treatment Resource Manual for Speech-Language Pathology* (Third Edition), Thomson Delmar Learning

Ruscello, D.M., St. Louis, K.O., & Mason, N. (1991). School-aged children with phonologic disorders: Coexistence with other speech/language disorders. *Journal of Speech and Hearing Research*, 344, 236-242.

Schiff-Myers, N.B., (1982). Sign and oral language development of preschool hearing children of deaf parents in comparison with their mothers' communication system. *American Annals of the Deaf.* 127, 322-32.

Stoel-Gammon, C. (1991). Normal and disordered phonology in two-year-olds. *Topics in Language Disorders*,11, (4), 21-32.

Schwartz, R.G., Leonard, L., Folger, M., & Wilcox, M. (1980). Evidence for a synergistic view of language disorders: Early phonological behavior in normal and language disordered children. *Journal of Speech and Hearing Disorders*, 45, 357-377.

Van Kleeck, A., Gillam, R.B., & Davis, B. (1997). When is "watch and see" warranted? A response to Paul's 1996 article, "Clinical implications of the natural history of slow expressive language development." *American Journal of Speech-Language Pathology*, 6 (2), 34-39.

Watson, M., Jayaram Murthy, S, Wadhwa, N. (2003). *Phonological Analysis Practice*, Eau Claire, WI: Thinking Publications

Wetherby, A. & Prizant, B. (1996). Toward earlier identification of communication and language problems in infants and young children. In S. Meisels & E. Fenichel, *New Visions for the developmental assessment of infants and young children*. Washington, D.C.: Zero to Three: National Center for Infants, Toddlers, and Families.

Whitehurst, G. Lonigen, C., Valdez-Menchaca, M., Arnold, D. Smith, R, (1991). Treatment of early expressive language delay: If, when, and how. *Topics in Language Disorders*, 11 (4), 55-68.

Whitehurst, G.J., & Fischel, J.E. (1994). Practitioner review: Early developmental language delay: What, if anything, should the clinician do about it? *Journal of Child Psychology and Psychiatry*, 35, 613-648.

Winitz, H. (1975). *From syllable to conversation*. Baltimore, MD: University Park Press.

Yairi, E., & Ambrose, N. (1992). A longitudinal study of stuttering in children: A preliminary report. Journal of Speech and Hearing Research, 35, 755-760.

Yairi, E., Ambrose, N., Paden, E., & Throneburg, R. (1996). Predictive factors of persistence and recovery: Pathways of childhood stuttering. Journal of Communication Disorders, 29, 51-77.

Appendix 7

Websites

Communication and Communication Evaluation

ASHA http://www.asha.org/default.htm

WSHA http://www.wisha.org/

Tests found at http://www.linguisystems.com/age.php?age=1 (Linguisystems):

Differential Assessment of Autism and Other Developmental Disorders (Richard and Calvert) (age 2-8)
- Found at: http://www.linguisystems.com/age.php?age=1

EOWPVT Expressive One-Word Picture Vocabulary Test, 2000 Edition (age 2-18)
- Publisher: Academic Therapy Publications = http://www.academictherapy.com/

GFTA-2 Goldman-Fristoe Test of Articulation-2 (age 2-21)
- Publisher: American Guidance Service AGS = http://www.agsnet.com/

KLPA-2 Kahn-Lewis Phonological Analysis – Second Edition (age 2-21)
- Publisher: The Riverside Publishing Company = http://www.riverpub.com/

REEL-3 Receptive-Expressive Emergent Language Test – Third Edition (Bzoch, League) (age B-3)
- Publisher: Pro-Ed = http://www.proedinc.com/

The Rossetti Infant-Toddler Language Scale (Rossetti) (age B-3)
- Publisher: Linguisystems = http://www.linguisystems.com/age.php?age=1

ROWPVT Receptive One-Word Picture Vocabulary Test, 2000 Edition (Academic Therapy Publications) (age 2-18)
- Publisher: Academic Therapy Publications = http://www.academictherapy.com/

TELD-3 Test of Early Language Development (Hresko, Reid, Hammill) (age 2-7)
- Publisher: Pro-Ed = http://www.proedinc.com/

PLS-4 Preschool Language Scale-4th Edition (B-6:11)
- Publisher: A Harcourt Assessment Company http://www.harcourt.com/bu_info/harcourt_assessment.html

MICS (Raack)
- Publisher: (?) Community Therapy Services = http://clas.uiuc.edu/special/evaltools/cl01610.html

Including ELL (English Language Learners) parents in their child's education:

http://www.gse.harvard.edu/hfrp/projects/fine/resources/digest/parents.html

http://www-tcall.tamu.edu/newsletr/jun98/jun98e.htm

Assessment of ELL children includes:

http://www.cal.org/resources/faqs/rgos/special.html

Involving Immigrant Parents of Students with Disabilities in the Educational Process (Includes assessment)

http://journals.cec.sped.org/EC/Archive_Articles/VOL.34NO.5MAYJUNE2002_TEC_Article-9.pdf

http://www.ncela.gwu.edu/enews/outlook/2002/08.htm

Evaluation and Instructional Services for ESL Program/Special Education Students
http://www.slc.sevier.org/esleval.htm

Educating Students With Limited English Proficiency (LEP) and English Language Learners (ELL)
http://www.pde.state.pa.us/k12/cwp/view.asp?A=11&Q=45272&eslNav=%7C4974%7C

Bilingual Special Education
http://www.teachervision.fen.com/page/6048.html

Learning Disability or Language Development Issue?
http://www.everythingesl.net/inservices/special_education.php

Sites for Spanish Speaking Families

Bebe Web - La Pagina del Bebe http://almez.pntic.mec.es/~lperez18/

Cyber Padres - Informacion de todo para Padres http://www.cyberpadres.com/

El Primer ano Del Bebe http://www.uwex.edu/ces/flp/parenting/spanish.html

Huggies in Mexico http://www.huggies.com.mx/

Mi Pediatra http://www.mipediatra.com/

Reading Rockets http://www.colorincolorado.org/

U.S. Department of Education - Resources en Español http://www.ed.gov/espanol/bienvenidos/es/index.html

The Education Trust http://www2.edtrust.org/edtrust/spanish

SchwabLearning http://www.schwablearning.org/espanol/index.asp