

Appendix 5 NEURODEVELOPMENTAL SCREENING AND TESTS

Definitions:

Developmental Screening - a brief formal evaluation of developmental skills intended to identify those children with suspect problems who should receive further assessment

Developmental Surveillance - a more informal approach to the detection of developmental problems than developmental screening in which the primary care provider should identify parental concerns and make regular skilled observations of a child's behavior to monitor his/her developmental progress. It is suggested that this ideally will include a two level screening system (basic and focused), a combination of formal screening tools with informal observations, repeated measures at different ages, and the use of multiple sources of information, especially parental report.

Developmental Monitoring Program for High-Risk Infants and Preschoolers:

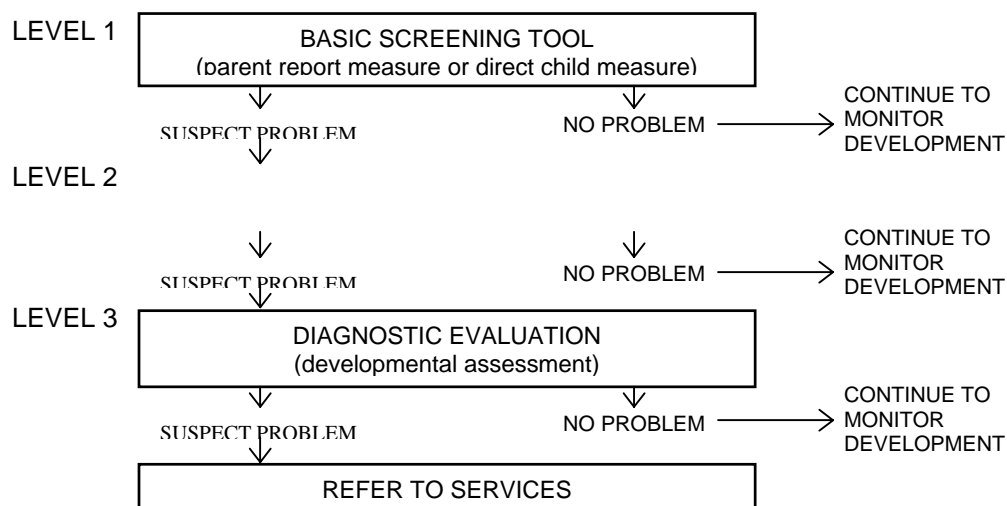
- Goals:**
- Identification of pre-school age children with developmental delay or mental retardation, cerebral palsy, language disorders, and/or autism
 - Identification of hearing or vision impairments
 - Monitoring for signs of potential ADHD and/or learning disabilities
(Identifying children with specific learning disabilities prior to the development of academic failure is difficult.)
 - Provide access to early intervention services where indicated

A Protocol for Developmental Monitoring of High-Risk Infants and Children

In addition to informal observations and review of parent concerns at each well child visit:

- Determine the presence of biologic and environmental risk factors
- Screen the development of children at 4, 8, 12, 18, 24, 36 and 48 months corrected age and when a parent/guardian expresses a specific concern.
- Use a professionally administered general developmental screening test and a neuromotor screen at 4 months
- Use a parent report measure as the first level screen for all infants and children after the 4 month visit
- Use a language screen for children 18 months to 3 years of age with language delay on first or second level screen and when a parent/guardian expresses a concern about language delay.

A MODEL DEVELOPMENTAL MONITORING PROGRAM



The following is a selection of tests. None are ideal. The list has many of the most commonly used tests.

** indicates recommended tests*

Developmental Screening Tests: Level 1 - Basic Multidomain Screening

Goal: Identify all or nearly all children with the problem with few false positives (normal children misclassified as abnormal) and little use of professional time. Need a comprehensive but brief screening tool. Children who are suspect or abnormal on the first level screen should have the results confirmed by testing with a second level screen or targeted screen or they should be referred for further evaluation.

Tools:

- *Ages and Stages Questionnaire (Bricker)
- *Child Development Inventories
 - (formerly - Minnesota Infant Developmental Inventory
 - Minnesota Child Development Inventory
 - Minnesota Preschool Development Inventory)
- Revised Parent Developmental Questionnaires (based on Gesell)
- Revised Denver Prescreening Developmental Questionnaire - Revised (PDQ-R)
- First STEp (Screening Test for Evaluating Preschoolers)
- *Denver II
 - Bayley Infant Neurodevelopmental Screener (BINS)
 - Developmental Profile II (1986)
 - Brigance Screens

Developmental Screening Tests: Level 2 - Focused Screening

Second level screens are administered by the physician, nurse, nurse-practitioner, or other primary care provider. Direct observation and examination of the child complements the results from the first level screen. These tests should be brief - 15-20 minutes to complete, but cover all appropriate developmental domains.

These tools are to confirm suspect findings from the first level screen and are used to assess children and families for whom first level screen is inappropriate. They will clarify the need for referral for early intervention services and/or other evaluation. Many health care professionals prefer to refer all children rated suspect on the first level screen rather than conduct a second-level screen.

Multidomain

- Denver II
- *Early Screening Inventory
 - Early Screening Profile (ESP)
 - Clinical Adaptive Test/Clinical Linguistic Auditory Milestone Test(CAT/CLAMS)
- *The Revised Developmental Screening Inventory (Knobloch)
 - Vineland Adaptive Behavior Scales
- *Developmental Indicators for the Assessment of Learning -Revised (DIAL-R)
- *Batelle Developmental Inventory Screening Test (BDIST)
- *Miller Assessment for Preschoolers
 - Preschool Screening System
 - First STEp
- *Bayley Infant Neurodevelopmental Screener (BINS)

Targeted screens - Language and Neuromotor Screens

Targeted screens may be used primarily by health professionals with a special interest in developmental disabilities.

Language:

- *MacArthur Communication Development Inventories
- *Early Language Milestone Scale
 - Receptive-Expressive Emergent Language Scale (REEL)
 - Clinical Linguistic and Auditory Milestone Scale (CLAMS)
- *Language Development Survey

Motor:

- *Infant Motor Screen
- *Chandler Movement Assessment of Infants Screening (in progress)
 - Bayley Infant Neuromotor Screener (BINS)
- *Milani Comparetti Motor Development Screening Test
- *Alberta Infant Motor Scale (AIMS)
 - Primitive Reflex Profile
 - Harris Infant Neuromotor Test (HINT)

Developmental Tests: Level 3

These are more in-depth tests generally performed by professionals in the subspecialty area. Most tests require training in their administration.

Multiple Domains Assessed:

- Miller Assessment for Preschoolers
- Batelle Developmental Inventory
- McCarthy Scales of Children's Abilities
- Bayley Scales of Infant Development
- Stanford-Binet Intelligence Scale

Language Assessment

- McArthur Communicative Development Inventories
- Infant-Toddler Language Scale (Louis Rossetti)
- Peabody Picture Vocabulary Test - Revised (PPVT-R)
- Receptive-Expressive Emergent Language Scale (REEL)
- Preschool Language Scale - 3
- Sequenced Inventory of Communication Development - Revised

Motor Assessment

- Alberta Infant Motor Scale (AIMS)
- Movement Assessment of Infants (MAI)
- Peabody Developmental Motor Scales

Hearing

- Otoacoustic Emissions
- Auditory Brainstem Response
- Visual Reinforcement Audiometry (over 6 months developmental skill level)