

The Evaluation of a Child with Developmental Delay

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Developmental Spheres

- Gross motor
- Fine motor
- Language
- Cognitive
- Developmental milestones are the cornerstone of the developmental history and allow the clinician to identify delay or confirm normality.

Capute A, Accardo P: *Developmental disabilities in Infancy and Childhood*, 2nd ed. Baltimore, Paul H. Brooks Publishing Co. 1996.

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Variations of Development

- Developmental delay—refers to a significant lag in one or more areas of development
- Developmental dissociation—there is a discrepancy between the developmental rates of two streams of development, with one stream significantly more delayed
- Developmental deviance—there is nonsequential unevenness in the achievement of milestones within one or more streams of development

Capute A, Accardo P: *Developmental disabilities in Infancy and Childhood*, 2nd ed. Baltimore, Paul H. Brooks Publishing Co. 1996.

Developmental Surveillance

- Physician elicits and monitors parental concerns by obtaining a developmental history
- Developmental milestones monitored at each well-child visit
- Developmental screening used to identify children who might need more comprehensive assessment

American Academy of Pediatrics, Committee on Children with Disabilities. Developmental Surveillance and Screening of Infants and young Children. *Pediatrics*. 2001;108:192-196.

Developmental Screening

- Informal screening (direct observation of child)
- Formal screening (parent-completed questionnaires, check-lists, direct examination of the child)
- Screening tests are not used to make a diagnosis

Levine M, Carey W, Crocker A: Developmental-Behavioral Pediatrics, 3rd ed. Philadelphia, W. B. Saunders Company 1999.

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Examples of Screening Tests

- Bayley Infant Neurodevelopmental Screener (BINS)—3-24 months
- Checklist for Autism in Toddlers (CHAT)—18-36 months
- Denver II—0-6 years
- Parents Evaluation of Developmental Status (PEDS)—0-8 years

Developmental Delay or Mental Retardation?

- Global developmental delay—defined as significant delay in 2 or more developmental domains (gross/fine motor, speech/language, cognition, social/personal, and activities of daily living)
- Significant delay—defined as performance 2 standard deviations or more below the mean on age-appropriate, standardized norm-referenced testing
- Global developmental delay usually applied to younger children, whereas mental retardation is usually applied to older children when IQ testing is more valid

Shevell M, Ashwal S, Donley D, et al. Practice parameter: Evaluation of the child with global developmental delay. *Am Acad of Neurol* 2003;60-367-380.

Mental Retardation

Diagnostic Criteria for Mental Retardation:

A. Significantly subaverage intellectual functioning: an IQ of approximately 70 or below on an individually administered IQ test (for infants, a clinical judgment of significantly subaverage intellectual functioning).

Mental Retardation

B. Concurrent deficits or impairments in present adaptive functioning (i.e., the person's effectiveness in meeting the standards expected for his or her age by his or her cultural group) in at least two of the following areas: communication, self-care, home living, social/interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, and safety.

Mental Retardation

C. The onset is before 18 years.

Mild Mental Retardation: IQ 50-55 to 70

Moderate Mental Retardation: IQ 35-40 to 50-55

Severe Mental Retardation: IQ 20-25 to 35-40

Profound Mental Retardation: IQ below 20-25

American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association, 2000.

Prevalence of Mental Retardation

- Approximately 1% of the population has mental retardation
- Mental retardation is more common in:
 - older children (>6 years)
 - boys
 - African-American children
(?cultural bias of test material)

Etiology of Mental Retardation

- Hereditary Disorders:

- inborn errors of metabolism— PKU, Tay-Sachs disease, Hurler syndrome

- single gene abnormalities— neurofibromatosis, tuberous sclerosis

- chromosomal aberrations—fragile X syndrome, Down syndrome, translocations, microdeletions

Etiology of Mental Retardation

- Acquired Childhood Diseases
 - infection (meningitis, encephalitis)
 - cranial trauma (automobile accident, shaken baby syndrome)
 - other (asphyxia, near drowning, intoxications)

Etiology of Mental Retardation

- Environmental Problems and Behavioral Syndromes:
 - psychosocial deprivation
 - emotional and behavioral disorders
 - autism
 - childhood psychosis

Evaluation of a Child with Developmental Delay/Mental Retardation

- Complete history, physical, and neurological examination
- Metabolic studies (urine amino acids, serum organic acids, serum ammonia and lactate levels)
- Routine chromosome analysis
- High resolution chromosome analysis
- Molecular screening for subtelomeric chromosomal rearrangements (FISH)

Evaluation of a Child with Developmental Delay/Mental Retardation

- DNA for fragile X testing
- MECP 2 (Rett syndrome)
- EEG (if history or findings on physical exam suggest epilepsy)
- MRI of brain
- Audiology evaluation
- Vision assessment

Mental Retardation

- 85% of persons thought to have mental retardation (MR) are mildly retarded
- Disorders associated with MR:
 - seizure disorder (15-30%)
 - cerebral palsy (20-30%)
 - impairments of hearing and/or vision (10-20%)

Practice Parameters for the Assessment and Treatment of Children, Adolescents, and Adults With Mental Retardation and Comorbid Mental Disorders. *J. Am. Acad. Child Adolesc. Psychiatry*, 1999,38(12 Supplement):5S-31S.

Comorbidity of Mental Illness and Mental Retardation

- Pervasive Developmental Disorder (PDD)
- Attention deficit hyperactivity disorder (ADHD)
- Conduct Disorder (CD)
- Tic Disorders
- Stereotypic Movement Disorder (self-stimulatory, nonfunctional, motor behaviors)
- Schizophrenia and other Psychotic Disorders

Practice Parameters for the Assessment and Treatment of Children, Adolescents, and Adults With Mental Retardation and Comorbid Mental Disorders. *J. Am. Acad. Child Adolesc. Psychiatry*, 1999, 38 (12 Supplement):5S-31S.

Comorbidity of Mental Illness and Mental Retardation

- Mood Disorders
- Anxiety Disorder
- Posttraumatic Stress Disorder (PTSD)
- Obsessive-Compulsive Disorder (OCD)
- Eating Disorders
- Personality Disorders

Practice Parameters for the Assessment and Treatment of Children, Adolescents, and Adults With Mental Retardation and Comorbid Mental Disorders. *J. Am. Acad. Child Adolesc. Psychiatry*, 1999, 38 (12 Supplement):5S-31S.

Treatment of Children with Developmental Delay/Mental Retardation

- Treatment is supportive
- Children 0-3 years:
 - develop individual family service plan (IFSP)
 - enroll in Early Intervention (EI) through local regional center
 - provide supportive services: physical therapy (PT), occupational therapy (OT), speech and language (S/L)

Treatment of Children with Developmental Delay/Mental Retardation

- Children greater than 3 years:
 - transition from IFSP to school-based services and provide an individualized education plan (IEP)
 - continue PT, OT, S/L as needed

Treatment of Children with Developmental Delay/Mental Retardation

- Children 16 years of age and older
 - provide a Transitional Services Outcome Plan
- Treat medical conditions as needed (seizures, metabolic disorders, etc.)
- Address mental health issues
 - psychotherapy
 - medication

Resources

- **The Arc of the United States**
1010 Wayne Avenue, Suite 650
Silver Spring, MD 20910
301.565.3842
www.thearc.org
- **American Association on Mental Retardation (AAMR)**
444 North Capitol Street NW, Suite 846
Washington, DC 20001-1512
202.387.1968; 800.424.3688 (outside DC)
www.aamr.org
- **Division on Developmental Disabilities**
The Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
888.232.7733; 703.620.3660
866.915.5000 TTY
www.dddcec.org

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Resources

- **National Dissemination Center for Children with Disabilities (NICHCY)**
P.O. Box 1492
Washington, DC 20013
(800) 695-0285 · v/tty
(202) 884-8441 · fax
www.nichcy.org (can look up resources by state)
- **California Assistive Technology Systems (CATS)**
California Department of Rehabilitation
2000 Evergreen
P. O. Box 944222
Sacramento, CA 94244-2220
Project Director: Richard Devylder
Phone: 916-274-6325
TTY: 916-263-8685
Fax: 916-263-7472
www.atnet.org/resources/about_cats.htm