Child Development
Goals

- Normal development provides “roadmap” for the behavioral assessment of children
- Develop an understanding of different developmental dimensions
- Identify concepts that will be important in future clinical work
Developmental Considerations

“Is the child at an age-appropriate level?”

Issues:

- Chronological age (CA) versus mental age (MA)
- Developmental “milestones”,
- Developmental theories of Piaget, Erikson, etc.
- Age-appropriate problem-phases
Developmental Considerations

- Chronological age (CA) versus mental age (MA)
  - CA = age of child according to birthday
  - MA = age that the child is functioning intellectually, regardless of CA.
    - The 6-year-old who performed as well as the average 8-year-old was assigned a mental age of 8, while the 6-year-old who performed only as well as a 4-year-old was assigned a mental age of 4.
Dimensions of Development

- Temperament
- Physical growth and motor skills
- Cognition and intelligence
- Language
- Social relations and attachment
The Concept of Temperament

- 3 recognized clusters:
  - **Easy child** (Positive mood; regular; adaptable; low intensity; positive to novelty)
  - **Difficult child**
  - **Slow-to-warm-up** (Negative response to novelty; mild intensity; gradual adaptation after repeated contact)
Developmental Milestones

- Developed by Arnold Gesell and Colleagues
- Objective observation of large numbers of children at various ages
- Assessment of gross and fine motor, personal-social, and language domains
- **DENVER II Developmental Screening Test** provides age ranges of normal appearance of various milestones up to age 6 years
- Recently revised and restandardized; very widely used
Height and Weight Growth During the First Two Years

Height

<table>
<thead>
<tr>
<th>Age in Months</th>
<th>Height in Centimeters</th>
<th>Height in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>75</td>
<td>29.5</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>31.5</td>
</tr>
<tr>
<td>6</td>
<td>85</td>
<td>33.5</td>
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<tr>
<td>9</td>
<td>90</td>
<td>35.4</td>
</tr>
<tr>
<td>12</td>
<td>95</td>
<td>37.4</td>
</tr>
<tr>
<td>15</td>
<td>100</td>
<td>39.4</td>
</tr>
<tr>
<td>18</td>
<td>105</td>
<td>41.3</td>
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</tbody>
</table>

Weight

<table>
<thead>
<tr>
<th>Age in Months</th>
<th>Weight in Kilograms</th>
<th>Weight in Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.5</td>
<td>3.3</td>
</tr>
<tr>
<td>3</td>
<td>2.0</td>
<td>4.4</td>
</tr>
<tr>
<td>6</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>9</td>
<td>3.0</td>
<td>6.6</td>
</tr>
<tr>
<td>12</td>
<td>3.5</td>
<td>7.7</td>
</tr>
<tr>
<td>15</td>
<td>4.0</td>
<td>8.8</td>
</tr>
<tr>
<td>18</td>
<td>4.5</td>
<td>9.9</td>
</tr>
<tr>
<td>21</td>
<td>5.0</td>
<td>11.0</td>
</tr>
<tr>
<td>24</td>
<td>5.5</td>
<td>12.1</td>
</tr>
</tbody>
</table>
Growth in Height and Weight from 2-18 Years

Height

- Boys
- Girls

Weight

- Boys
- Girls
Milestones of Motor Development

- Birth
  - Push chest up with arms
  - Sit up without assistance
- 2 months
  - Pull up with assistance
  - Stand holding on to furniture
- 4 months
  - Roll from stomach
  - Remain sitting without assistance once up
- 6 months
  - Pull self up to stand
  - Walk holding on to furniture
- 8 months
  - Walk well alone
  - Stand well alone
- 10 months
  - Walk backward
### Development of Gross Motor Skills in Early Childhood

<table>
<thead>
<tr>
<th>49–60 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Throw ball underhanded (4’)</strong></td>
</tr>
<tr>
<td>Pedals tricycle 10 feet</td>
</tr>
<tr>
<td>Catches large ball</td>
</tr>
<tr>
<td>Completes forward somersault (aided)</td>
</tr>
<tr>
<td>Jumps to floor from 12 inches</td>
</tr>
<tr>
<td>Hops three hops with both feet</td>
</tr>
<tr>
<td>Steps on footprint pattern</td>
</tr>
<tr>
<td>Catches bounced ball</td>
</tr>
<tr>
<td><strong>Bounces and catches ball</strong></td>
</tr>
<tr>
<td>Runs 10 feet and stops</td>
</tr>
<tr>
<td>Pushes/pulls a wagon/doll buggy</td>
</tr>
<tr>
<td>Kicks 10-inch ball toward target</td>
</tr>
<tr>
<td>Carries 12-pound object</td>
</tr>
<tr>
<td>Catches ball</td>
</tr>
<tr>
<td>Bounces ball under control</td>
</tr>
<tr>
<td>Hops on one foot for four hops</td>
</tr>
<tr>
<td><strong>Throws ball (44’, boys; 25’, girls)</strong></td>
</tr>
<tr>
<td>Carries a 16-pound object</td>
</tr>
<tr>
<td>Kicks rolling ball</td>
</tr>
<tr>
<td>Skips alternating feet</td>
</tr>
<tr>
<td>Roller-skates</td>
</tr>
<tr>
<td>Skips rope</td>
</tr>
<tr>
<td>Rolls ball to hit object</td>
</tr>
<tr>
<td>Rides two-wheel bike with training wheels</td>
</tr>
</tbody>
</table>

Note: The skills are listed in the approximate order of difficulty within each age period.
# Motor Development

## Age 6-12 years

<table>
<thead>
<tr>
<th>6 Years</th>
<th>7 Years</th>
<th>8 Years</th>
<th>9 Years</th>
<th>10 Years</th>
<th>11 Years</th>
<th>12 Years</th>
</tr>
</thead>
</table>

**Girls superior in accuracy of movement; boys superior in more forceful, less complex acts.**
- Can throw with the proper weight shift and step.
- Acquire the ability to skip.
- Girls can balance on one foot with eyes closed.
- Can walk on a 2-inch-wide balance beam without falling off.
- Can hop and jump accurately into small squares (hopscotch).
- Can correctly execute a jumping-jack exercise.
- Can grip objects with 12 pounds of pressure.
- Can engage in alternate rhythmical hopping in a 2-2, 2-3, or 3-3 pattern.
- The number of games participated in by both sexes is the greatest at this age.
- Girls can jump vertically 8.5 inches over their standing height plus reach; boys can jump vertically 10 inches.
- Can judge and intercept directions of small balls thrown from a distance.
- Both girls and boys can run 16.6 feet per second and throw a small ball 41 feet; girls can run 16 feet per second and throw a small ball 41 feet.
- Boys can achieve standing broad jump of 5 feet; girls can achieve standing broad jump of 4.5 feet.
- Can achieve high jump of 3 feet.
Motor Skills - Summary

Age 2-up stairs w/o help

Age 3-tricycle, copies circle

Age 4-hops, copies square

Age 5-skips, copies triangle
## Theoretical Approaches to Childhood Development

<table>
<thead>
<tr>
<th>Age</th>
<th>Stages</th>
<th>Piaget Cognitive</th>
<th>Erikson Psychosocial</th>
<th>Freud Psychosexual</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 months</td>
<td>Sensorimotor</td>
<td>Trust vs. Mistrust</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>1-2 years</td>
<td>Sensorimotor</td>
<td>Autonomy vs. Shame and Doubt</td>
<td>Anal</td>
<td></td>
</tr>
<tr>
<td>2-6 years</td>
<td>Preoperational</td>
<td>Initiative vs guilt</td>
<td>Phallic</td>
<td></td>
</tr>
<tr>
<td>6-12 years</td>
<td>Concrete operations (logical, but not abstract)</td>
<td>Industry versus inferiority</td>
<td>Latency</td>
<td></td>
</tr>
<tr>
<td>12-18 years</td>
<td>Formal operations</td>
<td>Intimacy vs. isolation role confusion</td>
<td>Genital</td>
<td></td>
</tr>
</tbody>
</table>
Cognition and Intelligence

- Pioneered by Jean Piaget
- Provides a framework for understanding the cognitive capabilities of children enabling effective communication and treatment
- Assumes that cognitive development is influenced by maturation, experience, and social learning
- Proposes 4 major stages
## Cognition and Intelligence

### Table 2.1

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensorimotor</td>
<td>An infant progresses from reflexive, instinctual action at birth to the beginning of symbolic thought. The infant constructs an understanding of the world by coordinating sensory experiences with physical actions.</td>
<td>Birth to 2 years</td>
</tr>
<tr>
<td>Preoperational</td>
<td>The child begins to represent the world with words and images; these words and images reflect increased symbolic thinking and go beyond the connection of sensory information and physical action.</td>
<td>2 to 7 years</td>
</tr>
<tr>
<td>Concrete operational</td>
<td>The child can now reason logically about concrete events and classify objects into different sets.</td>
<td>7 to 11 years</td>
</tr>
<tr>
<td>Formal operational</td>
<td>The adolescent reasons in more abstract and logical ways. Thought is more idealistic.</td>
<td>11 to 15 years</td>
</tr>
</tbody>
</table>
Jean Piaget's Stages of Mental Development

1. SENSORY-MOTOR STAGE
   - Birth to age 2
   - Child gains motor control and learning about physical objects.

2. PREOPERATIONAL STAGE
   - Ages 2 to 7
   - Child acquires verbal skills

3. CONCRETE OPERATIONAL STAGE
   - Ages 7-12
   - Child begins to grasp abstract concepts such as numbers and relationships

4. FORMAL OPERATIONAL STAGE
   - Ages 12 to 15
   - Child begins to reason logically and systematically.

- Diagram flow: Birth to age 2 (Sensory-Motor Stage) → Ages 2 to 7 (Preoperational Stage) → Ages 7-12 (Concrete Operational Stage) → Ages 12 to 15 (Formal Operational Stage)
Cognitive Development
Sensorimotor Stage: Object Permanence

Attempting to search for a hidden object

Infant retrieves a visible object

Infant searches for and retrieves a partially hidden object

But …

Infant is unable to search for a fully hidden object

Cognitive Development
Preoperational Stage

“Cut it up into A LOT of slices, Mom. I’m really hungry!!”
Conservation of liquid
Conservation of mass
Conservation of number
Conservation of length

Original Setup
Alter as Shown
Ask Child
Usual Answer

Which has more liquid?

Do they both weigh the same, or does one weigh more than the other?

Are there still as many pennies as nickels, or more of one than the other?

Are they the same length, or is one longer?

Is one pencil as long as the other, or is one longer?
Cognitive Development

“Thinking in a New Key”

- Concrete to abstract
- If...then
- Alternatives
- Future perspective
- Gray areas
- Empathy & Perspective
Language Development

6 Months
- Vocalization with intonation
- Responds to human voices without visual cues by turning his head and eyes

12 Months
- Uses one or more words with meaning
- Understands simple instructions

18 Months
- Has vocabulary of approximately 5-20 words
Language Development

24 Months
- Can name a number of objects common to his surroundings
- Approximately 2/3 of what child says should be intelligible
- Vocabulary of approximately 150-300 words
- My and mine are beginning to emerge

36 Months
- Knows chief parts of body and should be able to indicate these if not name
- Handles three word sentences easily
- Has in the neighborhood of 900-1000 words
- About 90% of what child says should be intelligible
Language Development

4 Years
- Knows names of familiar animals
- Names common objects in picture books or magazines
- Knows one or more colors

5 Years
- Can count to ten
- Speech should be completely intelligible, in spite of articulation problems
- Speech on the whole should be grammatically correct

6 Years
- Speech should be completely intelligible and socially useful
Language Development

7 Years
- Should be able to tell time to quarter hour
- Should be able to do simple reading and to write or print many words

8 Years
- All speech sounds, including consonant blends should be established
- Should be reading with considerable ease and now writing simple compositions
- Can carry on conversation at rather adult level
Social Development

- John Bowlby studied attachment from multiple perspectives and proposed that infant attachment behavior serves to ensure protection from danger, by keeping parents close and interested.

- Innate nature of social development
  - attachment occurs in spite of maltreatment
  - inanimate objects can serve for attachment
  - not all forms of attachment are equal

- Attachment theories as foundation
  - bonding involves active, reciprocal interactions between infant and caregivers
  - bonding time depends upon maturational and environmental factors
  - attachment occurs as the result of some social learning
**Social Development**

**Attachment**
- an enduring emotional bond uniting one person with another
- manifested in efforts to seek proximity and contact to the attachment figure
- important psychological catalyst for the early emergence of trust in others and understanding of self

**Bonding**
- the emotional process occurring between a parent and offspring that usually begins at the time of birth
- the basis for further emotional affiliation
- influences the child's physical and psychological development.
Social Interaction

Full-Term Newborn
- has organized states
- attends selectively
- behaves in interpretable ways
- systematic responses to parents
- acts in temporarily predictable ways
- learns from, adapts to parent’s behavior

Parent
- helps regulate states
- provides necessary stimuli
- searches for communicative intent
- wants to influence newborn and feel effective
- adjusts to newborn’s temporal rhythms
- acts repetitively and predictably
Attachment in Infancy

- Though attachment features prominently in interpersonal relationships, it is an unequal partnership. The caregiver is responsible for the care, nurturance, and protection of the child, but not vice versa.

- Attachments in early toddlerhood reflect the toddler’s use of the caregiver as a secure base and a safe haven.
Margaret Mahler developed the concept based on infant observation; some concepts (“normal autism”) need revision.

Children learn to identify the boundaries between self-caretaker, and negotiate a balance between attachment and independent.

Coined terms of differentiation, separation – individuation, practicing, refueling, rapprochement, object constancy.

- Object permanence = Piagetian term (out of sight….)
- Object constancy = frustrating mother and comforting mother are the same person
Separation-Individuation

- Birth to 5 months: symbiosis
- 5-10 months: Differentiation (movement away; explore body; stranger anxiety)
- 10-15 months: Practicing (walking; exploration; separation anxiety)
- 18-24 months: Rapprochement (self-awareness develops; conflict over closeness/exploration)
- 24-36 months: Consolidation and object constancy (internal representation of mother; tolerates separation, knowing reunion will occur)
Age-appropriate “Problem-Phases”
Normal Anxiety Experiences

<table>
<thead>
<tr>
<th>PHASE</th>
<th>“Also known as…”</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separation anxiety</td>
<td>“Mom can not leave the room phase”</td>
<td>10-16 months</td>
</tr>
<tr>
<td>Dear of darkness</td>
<td>“nightlight phase”</td>
<td>2-8 years</td>
</tr>
<tr>
<td>Fear of bodily injury</td>
<td>“band-aid phase”</td>
<td>5-7 years</td>
</tr>
</tbody>
</table>
Psychosocial Development

- Pioneered by Erickson
  - Developmental phases continue throughout life.
  - Major themes have to be successfully negotiated in each phase
  - Outcomes of prior phases influence how a person masters the next level
Erikson's Psychosocial Stages

- **Infancy 0-1 year**: Trust vs. Distrust
- **Infancy 1-2 years**: Autonomy vs. Shame and Doubt
- **Early Childhood 3-5 years**: Initiative vs. Guilt
- **Middle Childhood 6-11 years**: Industry vs. Inferiority
- **Adolescence 12-14 years**: Identity vs. Role confusion
- **Middle Adulthood 40s and 50s**: Generativity vs. Stagnation
- **Young Adulthood 20s and 30s**: Intimacy vs. Isolation
- **Late Adulthood 60 years and over**: Integrity vs. Despair
Shifting Focus of Assessment: Infants and Toddlers

- Observation
  - Gross and fine motor functions
  - Language and communication
  - Social behavior
  - Bonding
- Concerns:
  - Delayed development (e.g. MR)
  - Abnormal development (e.g. PDD)
  - Poor bonding (e.g. neglect, abuse)
Shifting Focus of Assessment: Preschoolers

- Observation, personal interview
  - Observe milestones
  - Assess what child talks and thinks about (e.g. through play)
  - Parent-child relations

- Concerns:
  - Delayed development (e.g. MR), Abnormal development (e.g. PDD), Poor bonding (e.g. neglect, abuse)
  - Speech-language delays
  - Hyperactivity
  - Aggressive/defiant behaviors
  - Excessive anxiety
  - Toilet training
Shifting Focus of Assessment: School-age Child

- Observation, interviews, reports from school
  - How does child function in family?
  - How does child function in school? (behavior and academics)
  - What kind of peer relations?
  - Formal psychological and academic testing

- Concerns:
  - Learning problems
  - Externalizing conditions (ADHD, Oppositional DD)
  - Separation anxiety
  - Tourette’s syndrome
Summary

- Understanding of normal development is essential for child psychiatric evaluation.
- Child psychiatric assessment needs to be adjusted for age.
- Integrate developmental assessment into observations and interviews, obtain collateral information from schools and testing as needed to aid in diagnosis.