Pregnancy, Birth, and Infancy

EDS 248
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Pregnancy (Prenatal Stage)
- 26 weeks, age of viability
- 38-42 weeks, full term
- Before 38 weeks, premature
- After 42 weeks, postmature
- Prenatal care

Birth Complications and Prenatal Care: Among Low-income Mothers
(Source: Means, Origel, Kay, & Resnick, 1986)
Teratogens

Agents that enter into the embryo/fetus and negatively influence development

- **Medications**
  - Sex hormones for birth control = genital deformities
  - Anticonvulsants = mental retardation and spina bifida
  - Anticancer drugs = fetal death
  - Antibiotic (streptomycin) = deafness
  - Antibiotic (tetracycline) = underdeveloped enamel

- **Smoking**
- **Alcohol**

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FAS (Source: Krantz, 1994)

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Teratogens

- **Drugs**
  - If mother is addicted, baby will be addicted
  - Likely to be born preterm
  - Cocaine, a greater risk than heroin
    - Preterm birth, low birth weight, small head, learning and cognitive difficulties
    - Infants are irritable, easily over stimulated,
  - Transactional effects
### Transactional Effects

- **Effect on Mother**
- **Type of Baby**
- **Abused Substances**

### Teratogens
- Maternal Diseases
  - Rubella
  - Late 3rd trimester viral infections
  - Herpes simplex virus
  - Cytomegalovirus
  - Toxoplasmosis
- Maternal Stress?
- Maternal Nutrition
  - Birth weight
  - Intelligence
- Maternal Exercise?

### Genetically Transmitted Diseases
- PKU
- Tay-Sachs
- Down Syndrome
- Klinefelters Syndrome
- Turners Syndrome
- Fragile X Syndrome
- Triple X Syndrome
Labor

- Medicated
  - How much and for how long
  - Effects
- Fetal Distress (insufficient $O_2$)
  - Causes, breech presentation, umbilical cord pinched or wrapped around neck.
  - Prolonged distress may result in CNS damage
- Delivery
  - Mechanical
  - C-Section (very common, 25%)
    - Planned
    - Emergency

The Newborn

- Normal birth weight
  - 5.5 to 10 lbs.
- Length
  - 18 to 22 inches
- APGAR
  - 7+, healthy
  - 4-, critical

The Apgar Scale

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (color)</td>
<td>Blue</td>
<td>Body pink, extrem. Blue</td>
<td>All pink</td>
</tr>
<tr>
<td>Pulse (heart rate)</td>
<td>Absent</td>
<td>Slow (&lt;100)</td>
<td>Rapid (100-140)</td>
</tr>
<tr>
<td>Grimace (reflex irritability)</td>
<td>No response</td>
<td>Grimace or movement</td>
<td>Cough, sneeze, cry</td>
</tr>
<tr>
<td>Activity (muscle tone)</td>
<td>Limp</td>
<td>Weak, inactive</td>
<td>Strong, active</td>
</tr>
<tr>
<td>Respiration (effortful breathing)</td>
<td>Absent</td>
<td>Irregular, shallow, slow</td>
<td>Regular with lusty crying</td>
</tr>
</tbody>
</table>
The Newborn

- Premature
- Postmature
- Small for date (full term & under 5.5 lbs.)
- Disease
  - Genetic defect
  - Maternal Habit

Risk & Resilience: Kauai Longitudinal Study

- Self-righting forces can overcome effects of mild to moderate birth trauma.
  - Mild to moderate birth complications can be overcome if the care giving environment is stabled and enriched
- Favorable environment cannot overcome severe birth complications.

Coping with your feelings

Barbara looks forward to Heather’s birth only as relief from the misery of pregnancy. She pays as little attention as possible to her pregnancy and never sees a doctor. She keeps up her usual pattern of frequent alcoholic binges and occasional use of cocaine during the pregnancy.

She does not know when the baby is due, but she senses that it won’t be for another month or two. Then suddenly she feels the first contractions. Her fear and intense pain force her to a hospital emergency room. The doctor guesses that she is only about 35 to 36 weeks pregnant, but it appears that labor has begun. He tries to delay the labor, but he is not very hopeful. The good news is that test show the baby holding its own, at least for the moment.
The bad news is that Barbara has alcohol on her breath and a defensive attitude. That tells the doctor everything he needs to know: This baby is at risk; the situation could degenerate quickly.

Despite efforts to delay the labor, Barbara continues to dilate, although very slowly. So the doctor changes strategy and decides to speed up the labor by breaking Barbara’s bag of waters. That does not work either. He gives her a drug by IV drip that strengthens the contractions, but they soon become extraordinarily painful. He withholds pain medication, due to the alcohol content of Barbara’s blood and her generally weak physical condition.

After 15 hours of labor, Barbara is fully dilated and Heather begins to descend, but very slowly. The doctor’s worst fears materialize:

Barbara’s contractions are excruciating, the IV drip is slowed, the contractions have weakened, Heather has stopped her descent, and Heather’s heartbeat has slowed dramatically. The doctor tells Barbara that he is concerned about the baby’s pulse and that he will have to do some things to get the baby out quickly. “Whatever,” Barbara snaps: “Just knock me out and get it over with.”

Struggling to hold back his anger, the doctor decides that the situation requires the use of forceps. An epidural is administered, an episiotomy performed, and the blades of the forceps are inserted and locked. Heather is then gently but firmly pulled from her mother’s uterus. She weighs just over five pounds.

Heather’s heartbeat is slow and irregular, her body is blue, and she is having difficulty breathing. She is rushed to the intensive care unit where emergency measures are taken to assist her breathing. Within a few hours a nurse comes in to tell Barbara that Heather’s heartbeat has become normal and that she is finally breathing on her own. Barbara shows no response to the good news and expresses no desire to see her baby in the intensive care nursery.

• You are an educator and become aware of this history.
• What additional data do you need to assess risk?
• How does this situation make you feel?
• How will you cope with your feelings.
**Infant Perceptual and Physical Development**

- Sensation and Perception
- Motor Control/Development
  - Holds head steady, 1-5 mths
  - Sits w/o support, 5-8 mths
  - Crawls, 5-11 mths
  - Stands alone, 9-16 mths
  - Walks alone, 9-17 mths

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**Figure 6.10 Progression of Change in Locomotion**

- Birth
- 2
- 4
- 6
- 8
- 10
- 12
- 14
- 16
- 18
- 20
- 22
- 24

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**Figure 6.9 Progression of Change in Postural Control**

- Birth
- 2
- 4
- 6
- 8
- 10
- 12
- 14
- 16
- 18
- 20
- 22
- 24
Fine Motor Control
- Touch a cube, 2 to 6 months
- Pick up a cube, 3 to 7 months
- Grabs cube with Thumb in opposition, 5 to 9 months
- Fine prehension (neat pincer), 7 to 15 months.

Sensorimotor Development
- Reflexive (1 mth)
- Primary Circular Reactions (1-4 mths)
- Secondary Circular Reactions (4-8 mths)
- Coordination of Secondary Schemas (8-12 mths)
- Tertiary Circular Reactions (12-18 mths)
- Inventing of New Means Through Mental Combinations (18+ mths)

Infant Language Development
- Theories
  - Learning Theory
  - Nativist Theory
- Course
  - Prespeech (birth-10 mths)
  - Naming (8-18 mths)
  - Word Combinations (18-22 mths)
Components of Language

- Phonology (units of sounds)
- Morphology (units of meanings or words, a set of phonemes combined to form)
- Semantics (the meaning of words)
- Syntax (rules that govern how words are combined into sentences)
- Pragmatics (the function of language in communication)

Infant Emotional and Social Development

- Time table for appearance of discrete emotions
  - At birth
    - Interest, nonsocial reflex smiling, distress, disgust
  - 4-6 weeks
    - Social smile
  - 3-4 months
    - Anger, surprise, sadness
  - 5-7 months
    - Fear
  - 6-8 months
    - Shame, shyness, awareness of self
  - Second year
    - Contempt, guilt, jealousy
Infant Emotional and Social Development

- Temperament
  - Difficult child
  - Easy child
  - Slow to warm-up child

Infant Emotional and Social Development

- Attachment
  - Separation anxiety
  - Types
    - Secure
    - Avoidant
    - Ambivalent

Questionnaire Resources

- Autism

- Ear Infections and Language Development

- Newsweek, Spring/Summer 1997, Your Child: From Birth to Age Three

- National Network for Childcare

- Zero to Three
  - http://www.zerotothree.org/
Autism Questions and Answers for Health Care Professional

Contents
Introduction
Questions and Answers
What is the prevalence of autism?
What causes autism?
Is there a link between autism and vaccines?
What is the clinical phenotype of autism?
What disorders does PDD or ASD include?
What are the symptoms of autism?
When is the usual onset of symptoms?

(Continued)
Are there any indications that require immediate evaluation for autism?
What other parental concerns should prompt a health care provider to evaluate a child?
Do parents typically overreact when they think their child has a problem?
How can I determine whether a parental concern actually constitutes a social or behavioral problem?
What is the typical process for diagnosing a child with autism?
Are there any screening or diagnostic tools I can use to help identify children who might need additional evaluation?
What do I do once a child in my care is diagnosed with autism?
Is there a cure for autism?
Are there treatments for autism?
Where can I go for more information about autism?

References

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Questionnaire Research


- Assessed the effects of prenatal cocaine exposure on child developmental outcomes. Concluded that complex learning disabilities among these children is common (as compared with control peers).

Questionnaire Research


- Significantly more children with extremely low birth weight met criteria for LD (as compared with control peers).
Questionnaire Research


- Very low birth weight, low 5-minute Apgar score, late or no prenatal care, and low maternal education were associated with highest risk for specific language impairment.

Questionnaire Research


- Rates of neurosensory disability in the first three years among extremely low birth weight survivors ranged from 9-26% for cerebral palsy, 1-15% for blindness, 0-9% for deafness, and 6-24% for evolving cognitive disability. Rates of school-age functional educational disabilities exceeded 50%.

Questionnaire Research


- Severity of medical problems at birth and child temperament at 3 months were associated with future social skills levels, but not with behavior problems. Family variables in the first months of the child’s life including low income, single parent household, and high parenting stress were significantly correlated with behavior problems at 7.5 years of age.
Questionnaire Research


- 12.8% of women reported drinking alcohol during pregnancy. Children exposed to alcohol during fetal development can suffer multiple disorders that range from subtle changes in IQ to profound mental retardation. They can also suffer growth retardation and be born with birth defects of major organ systems. One of the most severe outcomes is fetal alcohol syndrome (FAS) which includes central nervous system disorders, growth retardation, and facial malformations. CDC studies have documented FAS prevalence rates ranging from 0.2 to 1.5/1,000 live births.

Questionnaire Research


- Perinatal morbidity and compromised motor performance are important precursors of educational underachievement.

Questionnaire Research


- In the preterm infant, even minor risk for birth hypoxia may result in discernible deviation from the expected developmental trajectory.
Questionnaire Research


- Results show significant differences between term and pre-term children with regard to their intellectual development, language comprehension, attentiveness, and hyperactivity. The developmental deficits were intensified by the presence of biological risk factors like increasingly low birth weight, bronchopulmonary dysplasia, and intraventricular hemorrhage.

Questionnaire Research


- Severe neurodisability and milder motor and psychometric impairment result from neonatal meningitis.

Questionnaire Research


- Maternal mental health is significantly associated with the presence of ADHD in school-aged children. This finding further supports a link between maternal mental health and behavioral outcomes in children.
Questionnaire Research

- The majority of very low-birth-weight children had improvement in verbal and IQ test scores over time. Only children with early-onset intraventricular hemorrhage followed by significant central nervous system injury had low PPVT-R scores that declined over time.

Questionnaire Research

- School-aged ELBW or very preterm children born in the 1990s continue to display cognitive, educational, and behavioral impairments.

Questionnaire Research

- Exposure to prenatal tobacco and environmental lead are risk factors for ADHD in U.S. children.
What is Autism?

From independent research respond to the following: “What are the early signs of autism?”

Suggested Reading:
- Autism Overview: What We Know