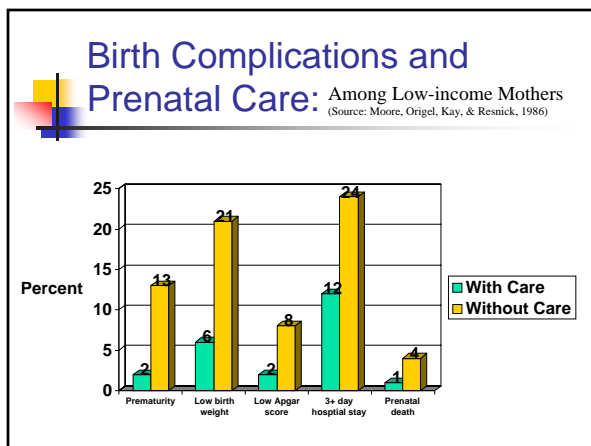



Pregnancy, Birth, and Infancy

EDS 248
Stephen E. Brock, Ph.D., NCSP

Pregnancy (Prenatal Stage)


- 26 weeks, age of viability
- 38-42 weeks, full term
- Before 38 weeks, premature
- After 42 weeks, postmature
- Prenatal care





 **Teratogens**

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

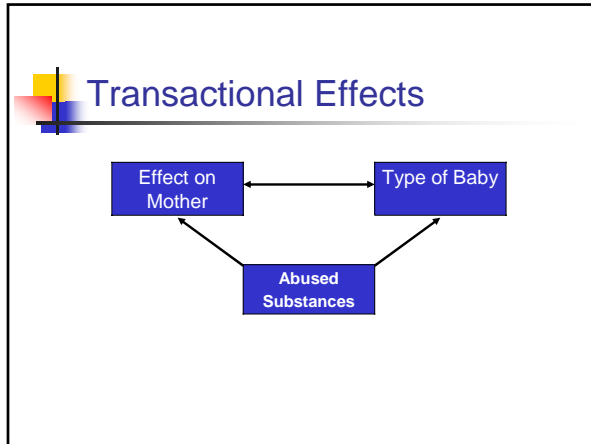
- **Medications**
 - Sex hormones for birth control = genital deformities
 - Anticonvulsants = mental retardation and spina bifida
 - Anticancer drugs = fetal death
 - Antibiotic (streptomycin) = deafness
 - Antibiotic (tetracycline) = underdeveloped enamel
- **Smoking**
- **Alcohol**

 **FAS** (Source: Krantz, 1994)



 **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



- ### 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 O₂)
 - 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

Sign	0	1	2
Appearance (color)	Blue	Body pink, extrem. Blue	All pink
Pulse (heart rate)	Absent	Slow (<100)	Rapid (100-140)
Grimace (reflex irritability)	No response	Grimace or movement	Cough, sneeze, cry
Activity (muscle tone)	Limp	Weak, inactive	Strong, active
Respirations (effortful breathing)	Absent	Irregular, shallow, slow	Regular with lusty crying




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 stable and enriched
- Favorable environment cannot overcome severe birth complications.




Coping with your feelings

(Krantz, 1994, pp. 117-118)

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.




Coping with your feelings

(Krantz, 1994, pp. 117-118)

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 the doctor's worst fears materialize:




Coping with your feelings

(Krantz, 1994, pp. 117-118)

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 form her mother's uterus. She weights just over five pounds.



Coping with your feelings

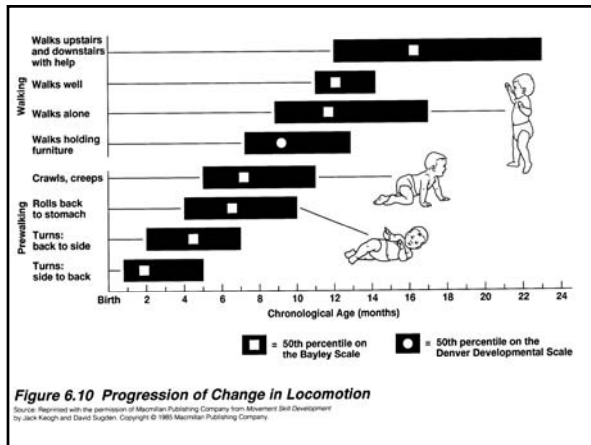
(Krantz, 1994, pp. 117-118)

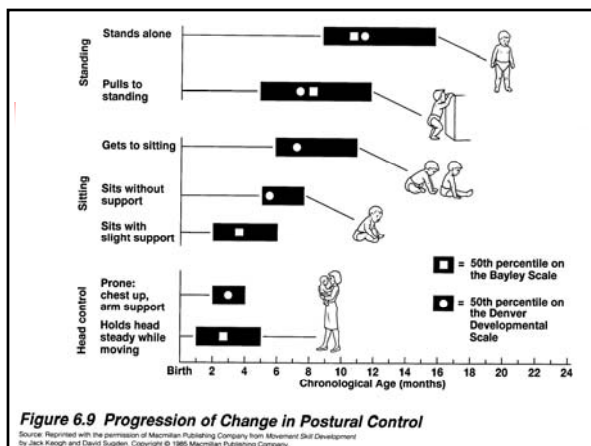
Heather's heartbeat is slow and irregular, her body is blue, and she is having difficulty breathing. She is rushed to the intensive care unit where emergency measures are taken to assist her breathing. Within a few hours a nurse comes in to tell Barbara that Heather's heartbeat has become normal an that 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









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
 - Leaning 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



Infant Emotional and Social Development

- Time table for appearance of discrete emotions
 - 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
 - <http://www.nichd.nih.gov/publications/pubskey.cfm?from=autism>
- Ear Infections and Language Development
 - http://www.pueblo.gsa.gov/cic_text/family/ear-lang/ear-lang.pdf#search=%22Ear%20Infections%20and%20Language%20Development%22
- Newsweek, Spring/Summer 1997, Your Child: From Birth to Age Three
- National Network for Childcare
 - http://cyfernet.ces.ncsu.edu/cyfdb/browse_2pageAnncc.php?subcat=Child+Development&search=NNCC&search_type=browse
- Zero to Three
 - <http://www.zerotothree.org/>



National Institute of Child Health & Human Development

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 is my role as a health care professional in caring for a child with autism?

What are the symptoms of autism?

When is the usual onset of symptoms?





National Institute of Child Health & Human Development

Autism Questions and Answers for Health Care Professional

Contents (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 behavior problem?

What is the typical process for diagnosing a child with autism?

Are there any screening or diagnostics 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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national network for child care nccc.org



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Infant Mental Health Resource Center. [More](#)


Spotlight:
Fire Safety for Babies & Toddlers. [More](#)
Healthy Minds: Reproducible handouts by age-range. [More](#)
Music: Fun, and powerful for development. [More](#)



Questionnaire Research

Singer, L. T., Arendt, R., Minnes, S., Farkas, K., Salvator, W., Kirchner, H. L., & Kliegman, R. (2002). Cognitive and motor outcomes of cocaine-exposed infants. *JAMA*, 287, 1952-1960.


- 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

Grunau, R. E., Whitfield, M. F., & Davis, C. (2002). Pattern of learning disabilities in children with extremely low birth weight and broadly average intelligence. *Archives of Pediatric and Adolescent Medicine*, 156, 615-620.


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



Questionnaire Research

Stanton-Chapman, T. L., Chapman, D. A., Bainbridge, N. L., & Scott, K. G. (2002). Identification of early risk factors for language impairment. *Research in Developmental Disabilities, 23*, 390-405.


- 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

Msall, M. D., & Tremont, M. R. (2002). Measuring functional outcomes after prematurity: Developmental impact of very low birth weight and extremely low birth weight status on childhood disability. *Mental Retardation and Developmental Disabilities Research Review, 8*, 258-272.


- 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

Saylor, C. F., Boyce, G. C., & Price, C. (2003). Early predictors of school-age behavior problems and social skills in children with intraventricular hemorrhage (IVH) and/or extremely low birth weight (ELBW). *Child Psychiatry and Human Development, 33*, 175-192.


- 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

Weber, M. K., Floyd, R. L., Riley, E. P., & Snider, D. E. (2002). National task force on fetal alcohol syndrome and fetal alcohol effect: Defining the national agenda for fetal alcohol syndrome and other prenatal alcohol-related effects. *MMWR*, 51(RR14), 9-12.


- 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 1.5/1,00 live births



Questionnaire Research

Sullivan, M. C., & Margaret, M.M. (2003). Perinatal morbidity, mild motor delay, and later school outcomes. *Developmental Medicine and Child Neurology*, 45, 104-112.


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



Questionnaire Research

Hopkins-Golightly, T., Raz, S., & Sander, C. J. (2003). Influence of slight to moderate risk for birth hypoxia on acquisition of cognitive and language functions in the preterm infant: A cross-sectional comparison with preterm-birth controls. *Neuropsychology*, 17, 3-13.


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



Questionnaire Research

Hanke, C., Lohaus, A., Gawrilow, C., Hartke, I., Kohler, B., & Leonhardt, A. (2003). Preschool development of very low birth weight children born 1994-1995. *European Journal of Pediatrics*, 162, 159-164.


- 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

Stevens, J. P., Eames, M., Kent, A., Halket, S., Holt, D., & Harvey, D. (2003). Long term outcome of neonatal meningitis. *ADC: Fetal Neonatal Edition*, 88, 179-184.


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



Questionnaire Research

Lesense, C. A., Visser, S. N., & White, C. P. (2003). Attention-deficit/hyperactivity disorder in school-aged children: Association with maternal mental health and use of health care resources. *Pediatrics*, 111(5 Part 2), 1232-1237.


- 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

Ment, L. R., Vohr, B., Allan, W., Katz, K. H., Schneider, K. C., Westerveld, M., Duncan, C. C., & Makuch, R. W. (2003). Change in cognitive function over time in very low-birth-weight infants. *JAMA*, 289, 705-711.


- 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

Anderson, P., Doyle, L. W., Victorian Infant Collaborative Study Group. (2003). Neurobehavioral outcomes of school-age children born extremely low birth weight or very preterm in the 1990s. *JAMA*, 289, 3264-3272.


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



Questionnaire Research

Braun, J., Kahn, R. S., Forehlich, T., Auinger, P., & Lanphear, B. P. (2006). Exposures to environmental toxicants and attention deficit hyperactivity disorder in US children. *Environmental Health Perspectives*, Retrieved September, 19, 2006 from <http://www.ehponline.org/members/2006/9478/9478.pdf>

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



New Week

- What is Autism?
- From independent research respond to the following: “What are the early signs of autism?”
- Suggested Reading:
 - Autism Overview: What We Know
 - http://www.nichd.nih.gov/publications/pubs/upload/autism_overview_2005.pdf
