Outcomes of Prematurity

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The Impact of Prematurity

- Major Public Health Problem
  - Steady increase in the rate of preterm birth (12-13% in 2007)
  - Public health problem with significant morbidity and mortality

- These surviving pretermers have an increased risk of neurodevelopmental and social-emotional disabilities:
  - Attention Problems
  - Learning deficits
  - IQ / Cognition
  - Internalizing and Externalizing Behavior Problems
  - Impulsivity and poor effortful outcomes
Research Population

- LBW = \leq 2500g
- VLBW = \leq 1500g
- ELBW = \leq 1000g
- Normal birth weight = 2700-4000g
- Improved survival rates means \textsuperscript{^\textdagger} potential for CNS damage
Factors Associated with LBW add Variability to Premature Outcomes

• Adverse effects may not be apparent shortly after birth

1. Severity of neonatal experience
   – # & type of medical procedures, days in NICU

2. Sociodemographics
   – Economics, race, maternal health, exposure to protective and assaulting experiences

3. Ongoing health status
   – Need for oxygen, hospitalizations, feeding issues
OUTCOME STUDIES

• INITIALLY...
  – Primary emphasis on major disabilities
    • Moderate to severe cognitive disability
    • Cerebral palsy
    • Epilepsy/stroke

• NOW
  – Significant problems found in ‘non-disabled’ survivors
  – Increasing evidence of high prevalence/low severity issues
    • Learning disabilities (global)
    • Lower IQ scores
    • ADHD
    • Behavioral difficulties
Differential Susceptibility

• Children vary in their susceptibility to both adverse and beneficial effects of rearing influences

• “Biologic Sensitivity to Context”
  – “Dandelion Children”
  – “Orchid Children”

Dandelion Children

- Capacity of some children to survive and even thrive in whatever circumstances they encounter

- “Dandelion Children” demonstrate the capacity for positive adaptation despite experiences of significant adversity

Phenomenon of Resilience
Orchid Children

• Children who demonstrate a sensitivity to context

• Ability to survive and flourish is intimately tied to the nurturant or neglectful character of the ambient environment.

• “Orchid Children” are more susceptible to both positive and negative environmental factors
Catching Up – the Myth

• [https://umconnect.umn.edu/p72275556/](https://umconnect.umn.edu/p72275556/)
Marianne Keuhn, March of Dimes president
Research on Outcomes of Prematurity
A Parent’s Research

• Article: Prematurity Research Disproves the Theory that Preemies Catch Up By Age Three ~ compiled by Pattie Wrape

** 33 weeks and younger
Focus on the Brain • Video clip on long term outcomes
Continuing Medical Risks

- Twice the rate of hyperactivity
- Eating and growth challenges
- 50% with asthma
- Recurrent difficult colds
- Kidney stones/gall stones
- Constipation (33% vs. 6%)
- Dental problems
Research on links to Autism

- VLBW: 1 in 4
- Regulatory disorders

M-CHAT Toddler
Early Soft Signs

• Sleep problems
• Difficulties with feeding
• Stress around feeding
• Difficulty sustaining attention during novel visual, auditory, tactile or multisensory activities
Brain Study at 15 yrs. of Age

- (for less than 33 weeks gestation)
- 6% decrease in whole brain volume
- 11.8% decrease in gray cortical matter
- 42% increase in size of lateral ventricles
- 15.6% decrease in right and 12% decrease in left hippocampal volume
Mental Health

• 2002 Bhutta and Als meta analysis of studies
• 81% preterm increased externalizing and/or internalizing behaviors
• And more than twice the risk of developing ADHD
• At 3, 5 and 8: 20% had behavioral problems at all ages
• Maternal cigarette smoking and psychological distress predictors of most significant later problems
Meta analysis of Adult Studies

MEASUREABLY HIGHER INCIDENCE OF
• Dropout and school failure
• Autism spectrum disorder rate
• Lower competence in sports
• Clumsiness injuries
• Obsessive compulsive disorders
• Schizophrenia
• Sleeping problems
• More Difficulties with boundaries
• Eating disorders
I am not a statistic!

• “Despite all these potential outcomes, we must not lose sight of interindividual differences in the child and the family and the fact that each child’s unique neurodevelopmental course will unfold over time”

(Aylward, 2005)
Primary: Support the Parent-Infant Relationship
(Almost) Everything I Need to Know About Being a Parent in 25 Words or less

• **Always**: be BIGGER, STRONGER, WISER, and KIND.
• **Whenever possible**: follow your child’s need/lead.
• **Whenever necessary**: take charge.

© Cooper, Hoffman, Marvin, & Powell - 1998 [circleofsecurity.org](http://circleofsecurity.org)
Facilitating the Parent’s Zone of Proximal Development

- What can I do on my own?

- What can I do with your support?

- Role of the provider
1. When did you first realize that [child’s name] was going to be born prematurely?
2. What were your feelings at the time of realization?
3. Have these feelings changed over time?
4. Tell me exactly what happened when you gave birth to [child’s name’s] prematurely. Where were you, who else was there? What were you thinking and feeling at the moment?
5. Parents sometimes wonder or have ideas about why they have a child who was born prematurely. Do you have anything like that that you wonder about?
“Resolved” RPBI

• Accurate representation of the child
  – “She has some delays, she is not sitting yet, but she will do things on her own timetable”

• Forward-looking orientation
  – It was such a hard experience, but we are through the worst. I am looking forward to having a little sister now for him to play with

• Suspending the search for a reason for the prematurity
  – “I did not think anything like “why me?” His grandfather died on the 17th, and he was supposed to be born on the 19th. I guess he came early to meet his grandpa.

• Integrated view of benefits to self
  – I would have never chosen to have a preterm baby, but it has made me more patient, and I have met many wonderful people... like the nurses, because of it... so there were many good things that happened as a result
“Unresolved” RPBI

• Parents appear “stuck in the past”
  – “There’s no night that I don’t go to sleep without her monitor being like in my ear”

• Continued search for a reason for child’s prematurity
  – I just want to know why it happened. I mean, did I do something? Um, I keep asking, why why why? And finally, when someone tells you for the 10th or 15th time that it is not your fault, sometimes things just happen, I guess I should believe them, but I keep thinking, what did I do? What did I do?
Implications / Future Directions

• Early Parenting Characteristics (resolution of grief, and parenting interactions) play an important role in later outcomes (attachment security and IQ) of preterm infants.

• Interventions to improve parent adaptation to preterm birth, and the quality of early interactions should be explored to enhance cognitive and social-emotional outcomes in vulnerable pretermers.
Help the parents reflect more deeply about the child

- Understanding how the parent experiences the child
- How does the parent see the child in “her mind’s eye”
- Who is this child to the parent?
- Assessing the parent’s “Internal Working Model” of the child
Ask About Family Culture Expectations for Child Behavior

• In some families and cultures there are certain expectations for how children should behave.
• Are there any expectations in your family about what _____ should do or not do?
• Why do you feel that ______ does that?
• What do you think he should do?

(Shah 2007)
Ask Questions About the Child’s Behavior on Family Functioning

• Does your child’s behavior interfere with your family’s ability to ....
  – Maintain family routines? (eg: eating dinner together)
  – Go out in public
  – Get things done at home
  – Maintain employment

• Has your child’s behavior affected your relationship with your partner? (Shah 2007)
Assist Self Observation of Parenting Behavior

- Parent Tone
  - Angry/ flat/warm
- Parent Affect
  - Positive/negative
- Parent Mood
  - Angry/depressed/ anxious/ animated
- Parent’s style
  - Flexible/rigid
  - Creative/resourceful
  - intrusive
  - consistency
- Parent’s attitude towards child
  - Displeasure/ enjoyment
  - Physical contact (+/-)
  - Verbalizations (+/-)
  - Social Initiative
  - Responds contingently
  - Structures Environment
  - Reads child cues appropriately
  - Responds sensitively
  (Clark, 1985, 2006)
Awareness of Dyadic Behavior

- Affective Quality of Interaction
  - Angry
  - Flat, constricted
  - Tension
  - Mutual joy?
- Mutuality
  - Joint attention
  - Reciprocity
  - Regulation of Interactions
  - “Dance of Attunement” : (Stern, 1995)

(Clark, 1985, 2006)
Early Intervention Leads to Change
“Integration is the heart of health. It is the linkage of our differentiated parts. Without integration there is either chaos or rigidity. Looking at the DSM-4, all syndromes can be re-considered as either chaos or rigidity.”

Daniel Seigel, 2012
Parents Support Integration

• Parent/caregiver lends their nervous system
• “Our first mirror is the face of our parent”
• Mind formation and breathing
Developmental Watch
Famous Preemies
(take with a “grain of salt”)

- Winston Churchill
- Mark Twain
- Albert Einstein
- Isaac Newton
- Charles Darwin
- Napoleon Bonaparte
- Auguste Renoir
- Anna Pavlova
- Sidney Poitier
- Richard Simmons
- Stevie Wonder