Early Brain and Child Development: Implications for the Life Course and Opportunities for Advocacy

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Learning objectives:
at the completion of this presentation participants should be able to:

• Describe the importance of both genetic and early childhood environmental influences on life course trajectories

• Define a life course perspective and its implications for maternal and child health

• Identify evidence based strategies that can improve a child’s life course as opportunities for pediatric advocacy
Early Brain and Child Development

• Popular interest in coordinating neurosciences research with developmental pediatric research

• Nature versus nurture
How the prenatal environment shapes the rest of your life => Epigenetics

- Low birth weight infants have a higher risk of heart disease as adults
- Mothers who gain excessive weight in pregnancy have heavier toddlers. Kids conceived after mom’s bariatric surgery are 52% less likely to be obese than their older sibs
- A diabetic mother’s high glucose may predispose her fetus to diabetes
Brain Development: Proliferation and Differentiation

• Brain development begins when the neural tube forms - 18th to 24th day of gestation
Neurons and Glial Cells: Building Blocks

- At birth, the human brain has 100 billion neurons and 10 times more glial cells.
- These glial cells and neurons organize, move, connect and specialize to create the amazing brain of the newborn.
Brain Development: Migration and Differentiation

- 6th prenatal week => primitive neuroblasts and glialblasts begin migrating outward
- Cortical neuroblasts are carried along radial glial fibers to target destinations in higher centers
- Brainstem monoamine systems (noradrenergic, dopaminergic, serotonergic & adrenergic) orchestrate this migration and differentiation
Structural Hierarchy of the Brain

- The brain is organized from bottom to top - brainstem to cortex
- Deepest layer is oldest
- 40% brain’s neurons are in cortex
- 6 layers of cortex

Courtesy of Bruce Perry MD PhD
Functional Hierarchy of the Brain

- Neocortex
  - Abstract Thought
  - Concrete Thought
- Limbic
  - Affiliation
  - Attachment
  - Sexual Behavior
  - Emotional Reactivity
  - "Arousal"
- Diencephalon
  - Motor Regulation
  - Appetite/Satiety
  - Sleep
- Brainstem
  - Blood Pressure
  - Heart Rate
  - Body Temperature

Courtesy of Bruce Perry MD PhD
Myelination

- **Myelination** - increases axonal speed of conduction
- **Motor and sensory** regions begin myelinization before birth; completed before the first birthday
- **Prefrontal cortex** is not fully myelinated until adolescence

Normal Tern Newborn Brain
Decreased grey-white differentiation due to limited myelination
Synaptogensis - Branching

- Mature neurons develop axons and dendrites forming connections/synapses
- This synaptogenesis occurs sequentially within the brain, by region

Courtesy of Bruce Perry MD PhD
Synaptic Sculpting

- Explosive increase in synapses in the first 8 months
- Highest density & number of synapses are in 1st year
- “Overproduction” is followed by “Pruning” phase
- Visual areas peak at 4 months—decline until preschool age
- Prefrontal cortex peaks at 1 yr—decline stabilizes in adolescence
The brain is the ultimate “Use-it-or-Lose-it” Machine

Synapses:
• At birth - 50 trillion
• At 1 year - 1000 trillion

Pruning:
• At age 20 - 500 trillion
Critical Periods of Development

- **Critical** periods of development are times during which a set of environmental signals **must be present** for neural systems to **differentiate normally**.

- Synapses are formed after only **minimal experience** has been obtained.
Critical Period: Vision

• Stereoscopic vision depends on visual cortical regions receiving separate inputs from each eye.

• These inputs result in separate columns of cells - distinct for each eye.

• If 1 eye is deprived of input (cataract, hemangioma, ptosis), these ocular dominance columns fail to develop; stereoscopic vision is compromised.

• If not corrected very early => irreversible damage.
The Role of *Experience* in Brain Development

- All sensory information is “transduced” by the nervous system into changes in nerve cells *at a molecular level*.
- This repetitive sensory input (*patterned neuronal changes*) allows the brain to make internal representations, which is how a child learns about the world:
  - Recognize a parent’s voice
  - Feel a sense of mastery and self worth
Learning

- *Patterns of experience* define and stabilize patterns of synaptic connections
- Optimizes one’s adaptation to specific environmental factors
- *In adults*, experience can alter pre-existing neural organization (when exposed to new information, we modify old synapses and make new ones)
- Learning has no critical period
Epigentics: Michael Meaney’s Mice (Rats)

- Stress Resistant/Relaxed
- High glucocorticoid receptor (GR) concentration in hippocampus
- High Licking of pups

- Stress Sensitive/Anxious
- Low GR concentration in hippocampus
- Low Licking of pups
Epigentics:
Rat Behavioral Phenotypes

Stress resistant – High Licking Mother

Stress Resistant Pups
Highly-Nurtured/Resilient
Offspring are Relaxed/Bold

Stress sensitive - Low licking Mother

Stress Sensitive Pups
Low – Nurtured/Neglected
Offspring are Anxious
Epigenetics: Rat Behavioral Phenotypes

High licking - Stress resistant Mother  
Low licking - Stress sensitive Mother

Rat  
Rat

Pups cross fostered at birth
Epigenetics:
Michael Meaney’s Mice (Rats)

High licking - Stress resistant
Mother             Rat

Pups cross fostered at birth

Stress Resistant Pup
Highly-Nurtured
Offspring are Relaxed

Low licking - Stress sensitive
Mother             Rat

Stress Sensitive Pup
Low – Nurtured
Offspring are Anxious
Epigentics:
Michael Meaney’s Mice (Rats)

- Stress Resistant/Relaxed
- Licking activates NGFI-A reducing methylation of GR gene in hippocampus of pups (turns gene on)
- Negative feedback HPA

- Stress Sensitive/Anxious
- GR gene in hippocampus remains methylated (turned off) without mom’s licking
- Exaggerated HPA responses

http://learn.genetics.utah.edu/content/epigenetics/rats/
How mother’s mood influences her infant’s behavior

- Dr. Tronick’s Still Face Paradigm (youtube)
  http://www.youtube.com/watch?v=apzXGEbZht0
Sensitive Periods

Experience - Dependent

- Early Childhood is a “Sensitive” (not “Critical”) time in a child’s life when experiences directly mold neuronal circuits (brain architecture) and influence that child’s developmental trajectory - their life course.

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Adverse Childhood Experiences (ACE) Model

- 17,337 Adults in Kaiser-Permanente San Diego 1995-7
Number of Adverse Childhood Experiences – ACE Scores (0-10)

Childhood Stress

- Physical, sexual or emotional abuse
- Physical or emotional neglect
- Household mental illness, substance abuse, divorce or separation, domestic violence or incarceration

<table>
<thead>
<tr>
<th>ACE score</th>
<th>Women</th>
<th>Men</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>35 %</td>
<td>38 %</td>
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<td>1</td>
<td>25 %</td>
<td>28 %</td>
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<tr>
<td>2</td>
<td>16 %</td>
<td>16 %</td>
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<tr>
<td>3</td>
<td>10 %</td>
<td>9 %</td>
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<tr>
<td>4 or more</td>
<td>15 %</td>
<td>9 %</td>
</tr>
</tbody>
</table>
“as ACE Score (childhood stress) increases, the risk of the following health problems increases in a strong and graded fashion”

- Alcoholism/alcohol abuse
- STDs
- COPD
- Depression
- Fetal death
- Health related QOL
- Liver disease
- Smoking
- Unintended pregnancy
- Suicide attempts
- Intimate partner violence
- Ischemic heart disease

CDC [http://www.cdc.gov/ace/prevalence.htm](http://www.cdc.gov/ace/prevalence.htm)
Adjusted prevalence of risk factors by ACE score

Dong et al, Circulation. 2004;110:1761-1766
Spokane Study: ACEs Exposure in Elementary Aged Children

- 2,100 randomly selected children in 10 elementary schools
- >200 teachers, counselors, and administrators provided knowledge of children’s risk
- 5 Title I and 5 Non-Title I schools
- Risk is greater as poverty increases
- First study of its kind

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Lifetime</th>
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</thead>
<tbody>
<tr>
<td>Parents Divorced/Separated</td>
<td>36%</td>
</tr>
<tr>
<td>Residential Instability</td>
<td>9%</td>
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<tr>
<td>Domestic Violence Witness</td>
<td>9%</td>
</tr>
<tr>
<td>Child Protective Service Involved</td>
<td>9%</td>
</tr>
<tr>
<td>Incarcerated Family Member</td>
<td>9%</td>
</tr>
<tr>
<td>Substance Abuse in Family Member</td>
<td>7%</td>
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<tr>
<td>Basic Needs</td>
<td>7%</td>
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<tr>
<td>Mental Health Disorder in Family Member</td>
<td>5%</td>
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<tr>
<td>Physical Disability in Family Member</td>
<td>3%</td>
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<tr>
<td>Community Violence Exposure</td>
<td>3%</td>
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<tr>
<td>Parent/Caregiver Death</td>
<td>2%</td>
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</table>

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Percent of Students in Spokane with Academic Problems by ACE

- No ACEs: 34%
- 1 ACE: 56%
- 2 ACEs: 71%
- >=3 ACEs: 80%

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## Odds for Academic and Health Problems with Increasing ACEs in Spokane Children

<table>
<thead>
<tr>
<th></th>
<th>Academic Failure</th>
<th>Severe Attendance Problems</th>
<th>Severe School Behavior Concerns</th>
<th>Frequent Reported Poor Health</th>
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<tbody>
<tr>
<td><strong>3 ACEs</strong></td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>N =248 (12%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 ACEs</strong></td>
<td>2.5</td>
<td>2.5</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>N=213 (10%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>One ACE</strong></td>
<td>1.5</td>
<td>2</td>
<td>2.5</td>
<td>2</td>
</tr>
<tr>
<td>N=476 (23%)</td>
<td></td>
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</tr>
<tr>
<td><strong>No Known ACEs</strong></td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>N=1,164 (55%)</td>
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ACE’s and Spokane Head Start
Christopher Blodgett, Washington State University Personal Communication

- Pilot data: US DOJ study of trauma exposed families
- 100 families screened by Head Start staff
  - Excluded parents not speaking English or with mental health concerns & children with developmental delay
  - 75% agreed to voluntary screening
  - Data from first 50 families
- Average parent ACE > 5
- Average child ACE > 3
- 2/3 of ACE positive children >= 1 social-emotional concern by parent and teacher DECA
5 Rs of Early Childhood Education

• ROUTINES – help children know what to expect of us - what is expected of them

• READING together - daily

• RHYMING, playing and cuddling

• REWARDS for everyday successes – PRAISE is a powerful reward

• RELATIONSHIPS, reciprocal and nurturing – foundation of healthy child development

Meaningful Differences in the Everyday Experiences of Young American Children
Hart and Risely

- Language environment of 42 children at home monthly from 7-36 months of age in professional, working class and welfare families => 30 Million Word Gap
Meaningful Differences in the Everyday Experiences of Young American Children

Some families talked a lot, others talked a little

“Business talk” – gets things done (‘stop,’ ‘come here,’ ‘bring me ___,’ ‘put on your shoes’)

“Non-business talk” – extra chit chat, praise, restatements, active listening, reciprocal

Amount of business talk was constant across families, the amount of non-business talk varied considerably between more and less talkative families
Parent Talkativeness (not SES or race) predicted IQ & vocabulary
Hart and Risely

- Talkative families: 5-6 times more “praise and chats” than “prohibitions”
- Taciturn families: more “prohibitions” than “praise”
- IQ (Stanford Binet) at 3 years correlated highly with “non-business” talk at 1 & 2 yo - explaining 61% of the variance in IQ
- PPVT (Receptive Language) at 3rd grade correlated highly with “non-business” talk at 1 & 2 yo – explaining 59% of variance
Parental stress leaves mark on child’s DNA

MS Kobor et al, *Child Development* online 8/30/11

Wisconsin Study of Families and Work –
Longitudinal study of children in 500 families

- Cheek DNA methylation patterns of 100 teens-15 yo
- Compared to parent report of stress in 1990-1: depression, parenting & financial stress, expressed anger
- Higher stress levels reported by mothers during their child's first year correlated with methylation levels on 139 DNA sites in their teenage children
- Methylation of 31 DNA sites correlated w/ fathers' higher stress in their child's preschool yrs (3½-4½ yo)
Maternal support in early childhood predicts larger hippocampal volumes at school age

Luby JL et al, PNAS Early Edition Feb 2012

Longitudinal study of 92 preschoolers & depression
- 51 with 0-3 sx
- 41 with 4-9 sx

P-C interaction measured at 3-5 yo

MRI at 7-13 yo with hippocampal volume
Early Childhood Stimulation Benefits Adult Competence and Reduces Violent Behavior

How experience influences life course –

- 129 Jamaican *growth retarded* children 9-24 mo
- 2 yr trial of nutritional support (1 kg milk-based formula/wk) and/or psychosocial stimulation (weekly sessions to improve mother/child interaction thru praise, play, chatting & discouraging physical punishment)
- At 22 yo (& before) =&gt; no benefit of nutritional supplement
- Early stimulation groups =&gt; 36% and 33% less likely to be involved in fights or violent behavior, had higher IQs (6.3, CI 2.2-10.4) and educational attainment, and less depression
Household Routines and Obesity
How experience influences health – Anderson & Whitaker 2010

- Early Childhood Longitudinal Study – 8,550 preschoolers in 2005
- 18% obese ( >95th % BMI )
- Controlling maternal BMI, education, race, poverty and single parent status, 4 yo with 3 household routines ( ≤2 hours/day TV, family dinner ≥5X/week, sleep ≥ 10.5 hours/night) => 40% less likely to be obese
Child Development

100% Nature
and
100% Nurture

James Jebusa Shannon
Brain Plasticity

- The brain is constantly changing
- Plasticity varies across all brain areas
- It takes **less** time, intensity and repetition to **organize** developing neural systems than to **reorganize** developed neural systems
- Opportunity exists to overcome early adversity
Early Experience Matters

Virtually every aspect of early human development - from the brain’s evolving circuitry to the child capacity for empathy, is affected by the environment and experiences that are encountered in a cumulative fashion, beginning in the prenatal period and extending throughout the early childhood years.

Neurons to Neighborhoods,
IOM, 2002
Definition: School Readiness

National Educational Goals Panel 1991 GOAL:

By 2000 all children will enter school “ready to learn”

- **Readiness within the child** (domains)
  - **PHYSICAL WELLNESS & MOTOR DEVELOPMENT**
    - health, growth, vision, hearing, disability
  - **SOCIAL AND EMOTIONAL DEVELOPMENT**
    - empathy, turn taking
  - **APPROACH TO LEARNING**
    - enthusiasm, curiosity, culture, and values
  - **LANGUAGE DEVELOPMENT**
    - listening, emergent literacy
  - **GENERAL KNOWLEDGE AND COGNITION**
    - sound/letter association and numeric concepts

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Definition: School Readiness

National Educational Goals Panel 1991

- **School’s readiness for all children**
  - Commitment to the *success of every child and every teacher*
  - Smooth home and school transitions
  - Continuity between early care and kindergarten
  - High quality instruction
  - Integrating parent involvement
  - Serving children within their communities
  - Having strong leadership
  - Taking responsibility for results
Definition: School Readiness

National Educational goals Panel 1991

- **Family and community supports contributing to child readiness including:**
  - Excellent prenatal care for mothers
  - Health care, nutrition, and physical activity for children
  - **Access to high quality preschool for all**
  - As their child’s first teacher, every parent should devote time daily, helping their child learn, and should have access to training and support to accomplish this goal
5-6 Year Old: Pre-Kindergarten Assessment - School Readiness (Bright Futures)

**MOTOR (GROSS & FINE)**
- Balances on 1 foot, hops, skips
- Draws a person ≥ 6 parts, copies △, ties knot, mature grasp, prints some letters and numbers

**LANGUAGE**
- Full sentences – appropriate tenses/pronouns
- Tells stories – good articulation

**SOCIAL/COGNITIVE**
- Counts to 10; names 4 colors
- Listens & follows directions; dresses self
- Able to separate from parents for several hours
- Takes turns; plays well with other kids
State Early Learning Guidelines

• All states + DC have Early Learning Guidelines for Preschoolers (3 to 5 yo), Voluntary (mostly)
• Domains: language and literacy, early math, early science, physical health & social-emotional health – some also address creative arts and approach to learning
• Almost half the states have ELG for birth to 3 yo
• >50% of states have kindergarten entry testing, mostly state-designed teacher observations
Recognizes All Letters
National Household Education Surveys

www.childtrendsdbank.org
Counts to 20 or Higher

www.childtrendsdatabank.org
Writes Name

www.childtrendsdbank.org
School Readiness Skills in 3-6 yo by Poverty Status 2007

- **Recognizes all letters**: Above Poverty Threshold: 67, Below Poverty Threshold: 49
- **Counts to 20 or Higher**: Above Poverty Threshold: 64, Below Poverty Threshold: 46
- **Writes Name**: Above Poverty Threshold: 35, Below Poverty Threshold: 21
- **Reads or Pretends to Read**: Above Poverty Threshold: 9, Below Poverty Threshold: 6
School Readiness Skills in 3-6 yo by Race and Ethnicity 2007

- Recognizes all letters: White non-Hispanic 36, Black, non-Hispanic 38, Hispanic 15, Asian or Pacific Islander 43
- Counts to 20 or Higher: White non-Hispanic 69, Black, non-Hispanic 69, Hispanic 42, Asian or Pacific Islander 76
- Writes Name: White non-Hispanic 64, Black, non-Hispanic 58, Hispanic 50, Asian or Pacific Islander 66
- Reads or Pretends to Read: White non-Hispanic 8, Black, non-Hispanic 16, Hispanic 3, Asian or Pacific Islander 8

www.childtrendsdbank.org
School Readiness Skills in 3-6 yo by English Spoken in Home 2007

- Parents Speak English at Home
- 1 of 2 Parents Speaks English at Home
- Parents do not speak English at Home

- Recognizes all letters: 35 (Parents Speak), 52 (1 of 2), 11 (Parents do not speak)
- Counts to 20 or Higher: 29 (Parents Speak), 68 (1 of 2), 77 (Parents do not speak)
- Writes Name: 62 (Parents Speak), 62 (1 of 2), 46 (Parents do not speak)
- Reads or Pretends to Read: 9 (Parents Speak), 9 (1 of 2), 3 (Parents do not speak)
Three Landmark Studies of Preschool for at risk children

- High/Scope-Perry Preschool Project (Ypsilanti, MI), Abecedarian Project (North Carolina), Chicago Child-Parent Centers
- Center-based programs serving children at risk for school failure
- Randomized control group design or matched comparison group
- Longitudinal research into adulthood (age 40 and beyond)
Benefits of High-quality Pre-K – Early outcomes

- **Educational**
  - Lower rate of special education and grade retention
  - Increased high school completion
  - Higher test scores

- **Social-Emotional**
  - Fewer behavior problems
  - More self-control
  - Improved peer relations

- **Child well-being**
  - Less child maltreatment and neglect
Benefits of High-quality Pre-K – Later outcomes

- Increased Earnings and Tax Revenues
- Decreased Reliance on Social Services
- Decreased Criminal Activity
  - Juvenile and Adult
- Improved Health Behaviors
  - Better health outcomes
  - Less reliance on health services
- More Skilled Workforce
  - Increased productivity
  - Increased earnings
- Stops cycle of poverty
Access: Preschool Education by Income, NHES 2005

Source: National Association for Early Education Research, Rutgers
Optimizing Health Development

Addressing the factors shaping health development trajectories over the lifespan

- Ideal child-development trajectory
- At-risk child-development trajectory without intervention
- Current practice

UCLA

Age

UCLA CENTER FOR HEALTHIER CHILDREN, FAMILIES AND COMMUNITIES
Strategies to Improve Developmental Trajectories

What will push children in red and yellow categories towards green?

Developmental Progress

Birth | Late Infant | Early Infancy | Early Toddler | Early Preschool | preschool

6 mo | 12 mo | 18 mo | 24 mo | 3 yrs | 5 yrs

Anticipatory Guidance

Parent Responsiveness

Home visiting

High quality ECE

Specialized services

Appropriate Discipline

Language Stimulation

Reading to child

Health Services

Pre-school

"Healthy" Trajectory

"At Risk" Trajectory

"High risk" Trajectory

UCLA CENTER FOR HEALTHIER CHILDREN, FAMILIES AND COMMUNITIES
UNICEF 2007 - Overall Child Well-being

Overall Child Well-being - All Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Score</th>
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<tr>
<td>Swe</td>
<td>120</td>
</tr>
<tr>
<td>Nor</td>
<td>115</td>
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<td>Den</td>
<td>110</td>
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<td>USA</td>
<td>5</td>
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<td>UK</td>
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Child Well-being by Child Poverty $r=0.75$

Bradshaw, 2007
Life Course Problems Related to Early Life

2\textsuperscript{nd} Decade
- School Failure
- Teen Pregnancy
- Criminality
- Depression

3\textsuperscript{rd}/4\textsuperscript{th} Decade
- Obesity
- Elevated Blood Pressure

5\textsuperscript{th}/6\textsuperscript{th} Decade
- Coronary Heart Disease
- Diabetes

Old Age
- Premature Aging
- Memory Loss

From Hertzman
Public Investment in Children by Age

Perry 1996
The most effective strategy for strengthening the future workforce, both economically and neurobiologically, and improving its quality of life is to invest in the environment of disadvantaged children during the early childhood years.

15% Return on Investment
Title V Block Grant Program

Enacted in 1935 as a part of the Social Security Act, the Title V Maternal and Child Health Program is the Nation’s oldest Federal-State partnership. For over 75 years, the Federal Title V Maternal and Child Health program has provided a foundation for ensuring the health of the Nation’s mothers, women, children and youth, including children and youth with special health care needs, and their families. Title V
Healthy Child Care America

What's New!

- May's "Standard of the Month" -- Introducing Age-Appropriate Solid Foods to Infants
- New Crib Standards
  - Consumer Product Safety Commission (CPSC) Q and A
  - Changes in Federal Safety Standards (PDF)

http://healthychildcare.org/

Healthy Child Care America homepage - @www.AAP.org

Become a Chapter Child Care Contact!
Welcome

Many conversations start this way ... Conversations between parents, mothers and grandmothers, parents and child care providers, parents and children. They are each talking about the important matters discussed in the doctor's office including vaccines, sleep issues, speech development, and so many other topics that are essential to a child's development.

Why add another topic to the list of things we talk about with parents? Why talk about books and pre-literacy development? Why provide books or urge visits to the local library? There are many reasons ...

To read more about the importance of literacy promotion in primary care pediatrics, and to view authors and acknowledgments, please click here.

AAP Literacy Toolkit

Support for pediatric practices interested in promoting early literacy, whether or not they can afford new books
Cómo Compartir Libros Con Tu Bebé De 6 a 8 Meses

- Aún los bebés disfrutan de los libros y aprenden muchas cosas al compartirlos contigo.
- Compartiendo libros con tu bebé, puedes ayudarle a aprender a hablar.
- Compartiendo libros con tu bebé, puedes ayudarle a prepararse para aprender en la escuela.
- Pon de lado unos pocos minutos de tranquilidad, con la televisión apagada, para compartir libros con tu bebé antes de ponerlo a dormir.
- Teniendo una rutina para poner a tu bebé a dormir, puedes prevenir futuras batallas a la hora de ir a la cama.
- Enseñas le a tu bebé a dormirse solito/a poniéndolo/a en su cuna cuando todavía está despertado/a, puedes prevenir que se despierte de noche en el futuro.

Bebés De 6 a 8 Meses Pueden:
- Agarrar un libro y tocar las imágenes que hay en él.
- Chuparlo y morderlo.
- Imitar algunos de los sonidos que tu haces y las caras que tu pones.
- Prestarlle atención a un libro por unos pocos minutos seguidos.

Tu Puedes:
- Encontrar un lugar tranquilo y cómodo para compartir libros con tu bebé.
- Nombrar y señalar las imágenes que parecen interesarte a tu bebé.
- Ayudarle a que su bebé de vuelta las páginas.
- Reproducir las imágenes del libro usando tu cara, tus manos y tu voz.
- Imitar las expresiones de tu bebé cuando juegan juntos con libros.

http://www.aap.org/literacy/pdf/6-mo-eng.pdf

Literacy promoting parent handouts keyed to well child visits in English and Spanish that can be “personalized” with a practice’s name.
The Department of Health and Human Services launched Home Visiting Evidence of Effectiveness (HomVEE) to conduct a thorough and transparent review of the home visiting research literature and provide an assessment of the evidence of effectiveness for home visiting programs models that target families with pregnant women and children from birth to age 5. MORE

At this website you will find...

- The HomVEE executive summary, which provides a comprehensive overview of review procedures, standards, and results.
- The program model reports provide a brief program model description, a review of studies, evidence of program model effectiveness, and a summary of findings by outcome domain. These reports also include details about the studies reviewed.
- Outcome domain reports provide a brief overview of the outcome domain, measurement considerations, evidence of effectiveness for outcomes in the domain, and a summary of findings for the domain by program model. More details on specific outcomes, outcome measures used in the studies, and review procedures are also included.
- Implementation profiles provide a description of the program model; prerequisites for implementation; training requirements, materials and forms, estimated costs,

Summaries

- Implementation Guidelines
- Program Model Evidence Summary

http://homvee.acf.hhs.gov/

DHHS
Home Visiting Evidence of Effectiveness - most states should be developing or implementing their plan – ARA (American Recovery Act) funded
Effective Home Visiting Options

- Early Head Start-Home Visiting (Birth to 3)
- Family Check-Up (2-17 yo)
- Healthy Families America (enroll PN-3 mo => K)
- Healthy Steps (Birth to 3 – practice based)
- HIPPY (3 to 5 yo – home visits + groups)
- Nurse Family Partnership (young, hi risk primips enroll by 28th week, continue until 2 yo)
- Parents as Teachers (pregnancy => Kindergarten)
CATCH Planning Funds Program

The 2012 Call for Proposals is Now Open

Applications are due July 29, 2011, 2 pm CDT

The Community Access To Child Health (CATCH) Planning Funds Program provides grants from $5,000 to $12,000 to pediatricians to develop innovative, community-based initiatives that increase children's access to medical homes or to specific health services not otherwise available. Grants available in the 2012 cycle:

- Medical home access
- Access to health services not otherwise available
- Connecting uninsured/underinsured with available programs
- Initiatives to address community barriers to immunizations*

CATCH is seeking innovative community-based projects to improve access to immunizations for children who are most likely to experience barriers. Eligible initiatives reach out to the community at large; activities to increase immunization rates for existing patients within practices or clinics would not qualify for this funding.

Native American Child Health*

The AAP Committee on Native American Child Health has partnered with CATCH in the funding of its Native American child health grants. The committee will fund 1 grant per year for the next 5 years for projects that benefit American Indian/Alaska Native (AIAN) children. Indian Health Service (IHS) family physicians and community family physicians serving Native American children may apply in partnership with a pediatrician. According to the IHS Manual, IHS physicians may accept grants less than $100,000 and no approval is required from area or headquarters.

*Eligibility and selection criteria are the same as for the general planning grants.
Program Overview

The Healthy Tomorrows Partnership for Children Program (HTPCP) is a cooperative agreement between the federal Maternal and Child Health Bureau (MCHB) and the American Academy of Pediatrics (AAP). The cooperative agreement is funded by MCHB. Federal grants of up to $50,000 per year for 5 years are awarded annually through the program to support community-based child health projects that improve the health status of mothers, infants, children, and adolescents by increasing their access to health services. Through the cooperative agreement, Healthy Tomorrows staff at the AAP provide technical assistance to program applicants and grantees.

Healthy Tomorrows projects must represent a new initiative within the community or an innovative component that builds on existing community resources. Projects usually target low-income populations and address four key areas:

1. Access to health care services,
2. Community-based health care,
3. Preventive health care, and
4. Service coordination

Program Requirements:

- Direct health services,
- Pediatrician involvement, 2 to 1 non-federal matching funds in years 2 - 5 (i.e., if federal grant award is $50,000, then the matching requirement is $100,000, which can include in-kind funds),
- A realistic evaluation component, and
- An advisory board comprised of local community members, families, program participants, and representatives from partner agencies

Description of Funded Healthy Tomorrows Projects

Search the Grants Database to view descriptions of current and past projects. Select “Healthy Tomorrows Partnership for Children Grants” from the “Program” list under advanced search, you can further refine your search by selecting a health topic, target population, state, and year.

Healthy Tomorrows Grant Cycles

The Healthy Tomorrows Program has a grant cycle every 1-2 years and awards approximately ten 5-year grants each year. Announcements of grant opportunities can be found here. Visit the funding cycles page to learn about past cycles and the number of applicants and grants awarded in past years.
Successful CATCH projects

• **Empower community partners**
  – Hire a coordinator whose job is making your project successful

• **Create or build on successes**
  – Have goals that are measurable and attainable

• **Use funds for community engagement**
  – Community meetings, coalition building
2004 CATCH Planning Grant:
Raising Healthy Children on Federal Hill

• Federal Hill is a culturally and ethnically diverse low SES neighborhood in Providence, RI with many children born at risk

• Coordination between local pediatricians and agencies serving families was inadequate

• Goals:
  1) Conduct a qualitative community assessment with local families & agency staff
  2) Share findings with partners & develop a strategic plan
  3) Identify resources to support implementation
Welcome to Ready to Learn Providence!

As a school-readiness initiative, we support efforts that prepare children in our urban neighborhoods for success in kindergarten and the years beyond. Since 2003, we have delivered free professional development – in English and Spanish – to more than 2,000 home- and center-based educators. We also provide workshops for families to demonstrate enjoyable activities that promote learning at home.

A 35-member AmeriCorps team furthers our work in libraries and early-care settings throughout the community, and we operate one of seven classrooms in the state’s Pre-kindergarten Demonstration Project. R2LP is the Rhode Island home of T.E.A.C.H. Early Childhood®. All of our work is guided by extensive data collection and analysis.

New at R2LP

Places to Play in Providence:
A guide to the city by its youngest citizens

Mayor Taveras praises Places to Play in his greeting to NAEYC Institute attendees.

T.E.A.C.H. RI is accepting applications for scholarships. Informational session scheduled for June 30.

R2LP is changing the mission...
The Annie E. Casey Foundation - Helping vulnerable kids & families succeed

Search
advanced

Major Initiatives
- Child Welfare Strategy Group
- Civic Sites
- Center for Family Economic Success
- Juvenile Detention Alternatives Initiative

KIDS COUNT Data Center

Leadership Development

Making Connections

Our Approach

Our Work

Casey Places

31% of U.S. children in 2009 lived in families with no full-time working parent.

LEARN MORE >

Top Resources

Subscribe

FOLLOW US

http://www.aecf.org/MajorInitiatives.aspx
Data within the bounds of a single state or territory
Includes community-level data
Search by location or topic
Create profiles, maps, rankings, line graphs, or raw data

Data spanning the U.S.
Compare states or cities
Search by topic
Create maps, rankings, line graphs, or raw data

Now You Know | Children in poverty Percent, 2008

DATA CENTER SPOTLIGHT
NEW CHILD ABUSE AND NEGLECT DATA AVAILABLE 5/4/2011
New child maltreatment data from the National Child Abuse and Neglect Data System are now available for the nation and states.

NEW INDICATORS ON THE DATA CENTER 5/4/2011
The Health and Education sections in Data Across States have been updated. Data includes estimates from the National Survey of Children’s Health and the Program Information Report. Updated data for the U.S., and states:

- Children who have more than one emotional, behavioral or developmental condition
- Children who have received special education services
- Children who speak English less than proficiently

NEW DATA CENTER TOOLS
CONGRESSIONAL DISTRICT DATA - Learn how you can access Congressional District Data on the Data Center.
ADD DATA TO YOUR WEBSITE! Learn how to use and add our new web widget to your website or blog.
KIDS COUNT MOBILE - Go to mobile.kidscount.org on your mobile browser to access KIDS COUNT data quickly and easily anytime and anywhere.
LINK TO US! Use one of our badges to link to the 2010 KIDS COUNT Data Book.

DATA BOOK/REPORTS
UPDATER 7/27/2010


http://datacenter.kidscount.org/
Profiles
(Showing 6 Featured Indicators of full set)

View the Profile for This State/Territory

Featured Indicators: Select an Indicator to Learn More
- Median Family Income with Own Children in Illinois, Nominal Dollars (2009) $63,762.0
- Enrollment of State-Supported Pre-Kindergarten Programs (FY 2009) 97,500
- Public School Enrollment in Illinois of Low-income Students (2009-2010)
- National Assessment of Educational Progress (NAEP) 4th Grade Reading Scores At or Above Basic (2009)

View Community-Level Profiles

Rankings, Maps, or Trend Graphs by Topic

Featured Indicators
- National KIDS COUNT Indicator
- By Category
  - Education
  - Economic Well-Being
  - Health
  - Safety and Risky Behaviors

ILLSINOIS GRANTEE

Voices for Illinois Children
208 S. LaSalle St.
Suite 1490
Chicago, IL 60604-1103

312-516-5551
mmighen@voices4kids.org
http://www.voices4kids.org

Melissa Meighen, Kids Count Director

Illinois Kids Count 2011 Data Book

"GREAT AT EIGHT: INVESTING IN THE WHOLE CHILD FROM BIRTH TO EIGHT"

This year's Illinois Kids Count data book focuses on the multiple factors that affect school success and the cognitive, social-emotional and physical development of young children. Entitled "Great at Eight," the report also explores the challenges of investing in the "whole child" from birth to age 8. Supporting children's many needs in the early years is crucial, in part because it reduces social costs, mainly in savings.

Voices for Illinois Children works across all issue areas to improve the lives of children of all ages throughout our state so they grow up healthy, happy, safe, loved, and well educated.
Kids Count Data Book shows trends in state’s 10 key indicators compared to national trends:

### Data Across States

Children ages 1 to 5 whose family members read to them less than 3 days per week (Percent) – 2007

Data Provided by: National KIDS COUNT Program

<table>
<thead>
<tr>
<th>State</th>
<th>% Parents of &lt;5 yo not reading to their children</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>16%</td>
</tr>
<tr>
<td>Alabama</td>
<td>15%</td>
</tr>
<tr>
<td>Alaska</td>
<td>10%</td>
</tr>
<tr>
<td>Arizona</td>
<td>17%</td>
</tr>
<tr>
<td>Arkansas</td>
<td>12%</td>
</tr>
<tr>
<td>California</td>
<td>21%</td>
</tr>
<tr>
<td>Colorado</td>
<td>16%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>10%</td>
</tr>
<tr>
<td>Delaware</td>
<td>13%</td>
</tr>
<tr>
<td>Florida</td>
<td>13%</td>
</tr>
<tr>
<td>Georgia</td>
<td>22%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>6%</td>
</tr>
<tr>
<td>Idaho</td>
<td>11%</td>
</tr>
<tr>
<td>Illinois</td>
<td>14%</td>
</tr>
<tr>
<td>Indiana</td>
<td>9%</td>
</tr>
<tr>
<td>Iowa</td>
<td>10%</td>
</tr>
<tr>
<td>Kansas</td>
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<tr>
<td>Kentucky</td>
<td>16%</td>
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<tr>
<td>Louisiana</td>
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<tr>
<td>Maine</td>
<td>4%</td>
</tr>
<tr>
<td>Maryland</td>
<td>13%</td>
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<tr>
<td>Massachusetts</td>
<td>6%</td>
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<tr>
<td>Michigan</td>
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<tr>
<td>Minnesota</td>
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<tr>
<td>Mississippi</td>
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<tr>
<td>Missouri</td>
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</tr>
<tr>
<td>Montana</td>
<td>8%</td>
</tr>
<tr>
<td>Nebraska</td>
<td></td>
</tr>
</tbody>
</table>

**NATIONAL KIDS COUNT PROGRAM**

KIDS COUNT
The Annie E. Casey Foundation
701 St. Paul Street
Baltimore, MD 21202
ph: 410-547-6600
fax: 410-547-6624
http://www.kidscount.org

**RELATED RESOURCES**

Related Links
- Casey Knowledge Center: Early Childhood & School Readiness
- Get more information on early childhood education from the Child Trends Data Bank
- Get more data on early childhood education from the Data Resource Center

Related Data
- View Early Childhood indicators in "Data Across States".

KIDS COUNT Census Data Online
- View 2000 KIDS COUNT Census data, covering hundreds of indicators for thousands of geographic areas.


Table of % parents of <5 yo not reading to their children at least 3 times/week
<table>
<thead>
<tr>
<th>CITY/TOWN</th>
<th>NUMBER OF BIRTHS SCREENED</th>
<th>NUMBER BREAST AND FORMULA FEEDING</th>
<th>NUMBER EXCLUSIVELY BREASTFEEDING</th>
<th>PERCENT WITH ANY BREASTFEEDING</th>
<th>PERCENT EXCLUSIVELY BREASTFEEDING</th>
</tr>
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<tbody>
<tr>
<td>Barrington</td>
<td>597</td>
<td>21</td>
<td>499</td>
<td>87.1%</td>
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<td>Bristol</td>
<td>845</td>
<td>45</td>
<td>567</td>
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<td>Burrillville</td>
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<td>41</td>
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<td>Central Falls</td>
<td>1,943</td>
<td>553</td>
<td>844</td>
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<td>Charlestown</td>
<td>330</td>
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<td>251</td>
<td>78.5%</td>
<td>76.1%</td>
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<tr>
<td>Coventry</td>
<td>1,618</td>
<td>73</td>
<td>989</td>
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<td>Cranston</td>
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<td>2,437</td>
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<td>58.8%</td>
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<tr>
<td>Cumberland</td>
<td>1,545</td>
<td>117</td>
<td>1,018</td>
<td>73.5%</td>
<td>65.9%</td>
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<tr>
<td>East Greenwich</td>
<td>534</td>
<td>25</td>
<td>409</td>
<td>81.3%</td>
<td>76.6%</td>
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<tr>
<td>East Providence</td>
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<td>1,522</td>
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<tr>
<td>Exeter</td>
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<td>74.5%</td>
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<td>Foster</td>
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<td>18</td>
<td>152</td>
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<td>72.7%</td>
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<tr>
<td>Gloceter</td>
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<td>252</td>
<td>73.0%</td>
<td>68.1%</td>
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<td>Hopkinton</td>
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<tr>
<td>Jamestown</td>
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<td>126</td>
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<td>Lincoln</td>
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<td>80.0%</td>
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<td>70.4%</td>
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<tr>
<td>North Kingstown</td>
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<td>848</td>
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<tr>
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<td>Pawtucket</td>
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<td>Scituate</td>
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<td>265</td>
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<tr>
<td>Smithfield</td>
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<tr>
<td>South Kingstown</td>
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<td>Tiverton</td>
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<tr>
<td>Warren</td>
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<tr>
<td>Warwick</td>
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<td>243</td>
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<tr>
<td>West Greenwich</td>
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<td>67.1%</td>
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<td>2</td>
<td>0</td>
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<td>NA</td>
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<tr>
<td>Core Cities</td>
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<td>49.9%</td>
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<tr>
<td>Remainder of State</td>
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<tr>
<td>Rhode Island</td>
<td>59,068</td>
<td>7,762</td>
<td>34,260</td>
<td>71.7%</td>
<td>58.0%</td>
</tr>
</tbody>
</table>
State Choices to Promote Access

Young children who lack health insurance, 2009

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td></td>
<td>13%</td>
</tr>
</tbody>
</table>

Percent of eligible children who received at least one EPSDT® screening, by age, 2008

<table>
<thead>
<tr>
<th></th>
<th>Under 1 Year</th>
<th>1 to 2 Years</th>
<th>3 to 5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>71%</td>
<td></td>
<td>60%</td>
<td>81%</td>
</tr>
</tbody>
</table>

NCCP – California profile for health care access
Data Resource Center for Child and Adolescent Health

http://childhealthdata.org/content/Default.aspx

Nat’l Survey of Children’s Health
2003 & 2007

Nat’l Survey of Children with Special Health Care Needs
2001 & 2005/6
Encourage parents and caregivers of young infants to...

- Talk (sing) to their baby while they hold, feed or play with him
- Let him look at their face
- Respond to his gestures, faces and sounds
- Give him colorful objects to look at including books and pictures

Hella Hammid
Encourage parents and caregivers of older infants to...

- Copy her sounds and expressions
- Play peek-a-boo and patty-cake
- Teach her to wave “bye bye” & to shake her head “no” & “yes”
- Read books together - pointing to characters, letting her pat and taste the book

Photo is used with permission from the personal collection of Pamela High, MD
Encourage parents of toddlers to...

- Be encouraging and supportive, and set appropriate limits
- Be consistent; establish routines for meals, naps and bedtime
- Make time to play daily

http://www.youtube.com/watch?v=N3PBjecBtos
Encourage parents and caregivers of toddlers to...

- Choose toys that encourage creativity (blocks, animals, books)
- Listen to and answer her questions
- Rhyme, sing and listen to music together
- Choose books with humor so you will want to read them over and over

Photo is used with permission from the personal collection of Pamela High, MD
Encourage parents and caregivers of toddlers to...

- Encourage drawing, building and creative play
- Introduce simple musical instruments
- Acknowledge desirable behavior often ("I like it when you play so well together" = TIME IN) - 2 to 10 times in for every time out!!

Photo is used with permission from the personal collection of Pamela High, MD
Encourage parents and caregivers of preschoolers...

- Create ways for your child to play with other children and to have out-of-home social experiences
- Offer simple choices (which book to read together)

Photo is used with permission from the personal collection of Pamela High, MD
Encourage parents and caregivers of children of all ages to...

- Give lots of warm physical contact and attention – Promotes a sense of security & well-being
- Be aware of their moods
- Read their gestures, faces and sounds
- Respond when they are upset and when they are happy

J.H. Lartigue
Encourage parents and caregivers of children of all ages to...

- Read together and tell stories daily (bedtime routines)
- Speak second languages
- TV isn’t recommended for children under 2 yo; instead, spend time playing together
- For children >2 yo, limit TV and video time to no more than 2 hrs of educational viewing/day
Why limit a child’s screen time?

- TV increases aggressive behavior & acceptance of violence
- TV obscures the distinction between reality and fantasy
- TV trivializes sex and sexuality
- TV is linked with obesity, poor school performance, problems with attention and sleep problems
- TV takes time away from talking and building relationships

« can provide information and teach skills
Making a Difference

- 340 families with healthy 5-10 month olds were enrolled in 2 randomized controlled trials of pediatric literacy promotion (Golova et al, 1999 and High et al, 2000)
- 292 (86%) were reinterviewed after 3.2 well child visits
- 225 families (80%) had children between 16-25 months at the time of the follow-up interview and are those considered
Intervention

Following enrollment 6 pediatricians and 1 nurse practitioner provided 3 things to *Intervention Families*:

1) Children’s board book
   » Developmentally appropriate
   » Few words
   » Culturally diverse
   » Offer multiple opportunities for interaction
Intervention

2) Handouts

» Why share books with young children
» What a child this age can do with a book
» How parents can enjoy books with their child
» When to share books - as part of a regular bedtime routine
» Third grade reading level

3) Anticipatory guidance about the importance of reading to infants
Parent reads to child ≥ 3 days/week

<table>
<thead>
<tr>
<th></th>
<th>Controls</th>
<th>Intervention</th>
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<tbody>
<tr>
<td>Enrollment</td>
<td>(5-10 mo)</td>
<td>(5-10 mo)</td>
</tr>
<tr>
<td></td>
<td>34%*</td>
<td>34%*</td>
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<tr>
<td>* NS</td>
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<tr>
<td></td>
<td>71%***</td>
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<tr>
<td></td>
<td></td>
<td>***p&lt;0.001</td>
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<tr>
<td>Post</td>
<td>(16-25 mo)</td>
<td>(16-25 mo)</td>
</tr>
<tr>
<td>Intervention</td>
<td>30%***</td>
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Post Intervention (16-25 mo)

**Total Vocabulary Scores (n=224)**

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<tr>
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<th>Controls</th>
<th>Intervention</th>
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<tbody>
<tr>
<td><strong>Receptive Vocabulary</strong></td>
<td>30.8 wds **</td>
<td>40.6 wds **</td>
</tr>
<tr>
<td><strong>Expressive Vocabulary</strong></td>
<td>12.2 wds *</td>
<td>18.8 wds *</td>
</tr>
</tbody>
</table>

** p<0.01
* p<0.05
Reach Out and Read

- >4500 practices across the USA
- Focus on underserved children - 3.8 million served annually
- 6 million new children’s books yearly + anticipatory guidance & volunteer mentoring
- 56 Roland Street, Suite 1000
  Boston, MA 02129
  617-455-0600
  www.reachoutandread.org
Preschool skills strongly predicting later literacy

- Alphabet knowledge
- Phonological awareness
- Rapid automatic naming of letters, numbers, colors and/or objects
- Writing letters and/or name
- Phonologic memory

Source: National Early Literacy Panel 2008
Instructional Practices that Enhance Early Literacy Skills

• Shared reading interventions
• Code focused interventions – e.g. phonologic awareness and alphabet
• Parent and home programs
• Preschool and Kindergarten Programs (policies like full day or extended year)
• Language enhancement interventions (greatest effect early on)

Source: National Early Literacy Panel 2008
Websites

- Children of the Code – Interviews
  http://www.childrenofthecode.org/interviews/
- Reading Rockets – Video and Practice
  http://www.readingrockets.org/
- Center on the Developing Child - Research, Policy
  http://www.developingchild.harvard.edu/
- Minds in the Making – Theory and Practice
  http://mindinthemaking.org/
- Colorin-Colorado - Bilingual literacy
  http://www.colorincolorado.org/
From Neurons to Neighborhoods: The Science of Early Childhood Development

Committee on Integrating the Science of Early Childhood Development

Board on Children, Youth, and Families
Institute of Medicine
National Research Council
SLIDE WITH PICTURES OF A VARIETY OF BOOKS OVERLAPPED

—

SMALL CONVERSATION ABOUT WHEN YOU WERE SMALL DO YOU REMEMBER BOOKS, READING etc…
5 Rs of Early Childhood Education

• ROUTINES – help children know what to expect of us - what is expected of them

• READING together - daily

• RHYMING, playing and cuddling

• REWARDS for everyday successes – PRAISE is a powerful reward

• RELATIONSHIPS, reciprocal and nurturing – foundation of healthy child development

It is all about relationships…… Thank you!