

# Child First

## Intervening in the Face of Toxic Stress



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via:

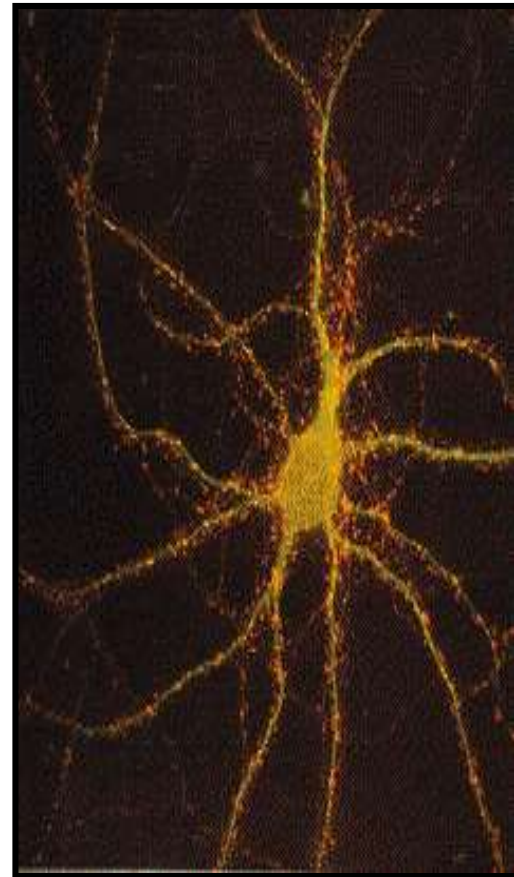
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# The Developing Brain



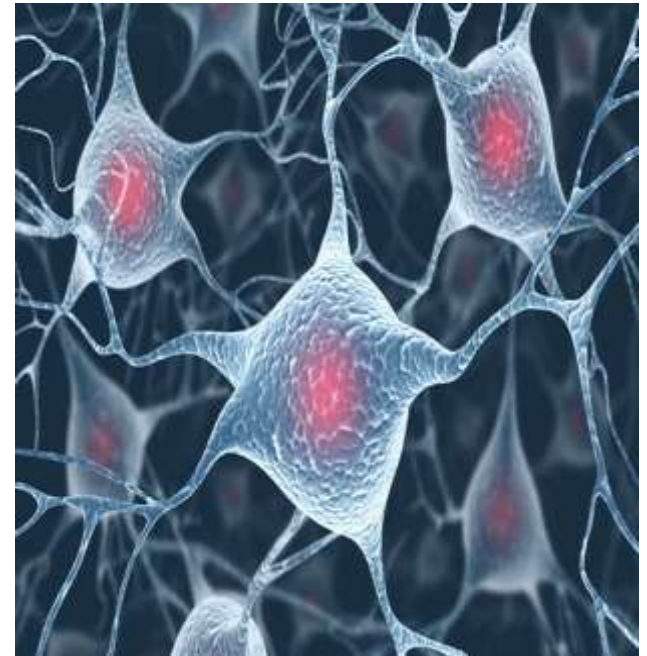
# Brain Development

- During the second trimester of pregnancy, as many as 250,000 new neurons are formed every minute.
- By 8 months of age, brain synapses have increased from 50 to 1000 trillion.
- By 2 years of age, about 40,000 new synapses are formed every second.
- By 3 years, 80% of brain growth is complete.



# Nature Versus Nurture? NO

- Environment is critical for **genetic** expression.
- The brain is particularly responsive to experiences during **early** development.
- Neural networks are created based on **repetition** of experiences.



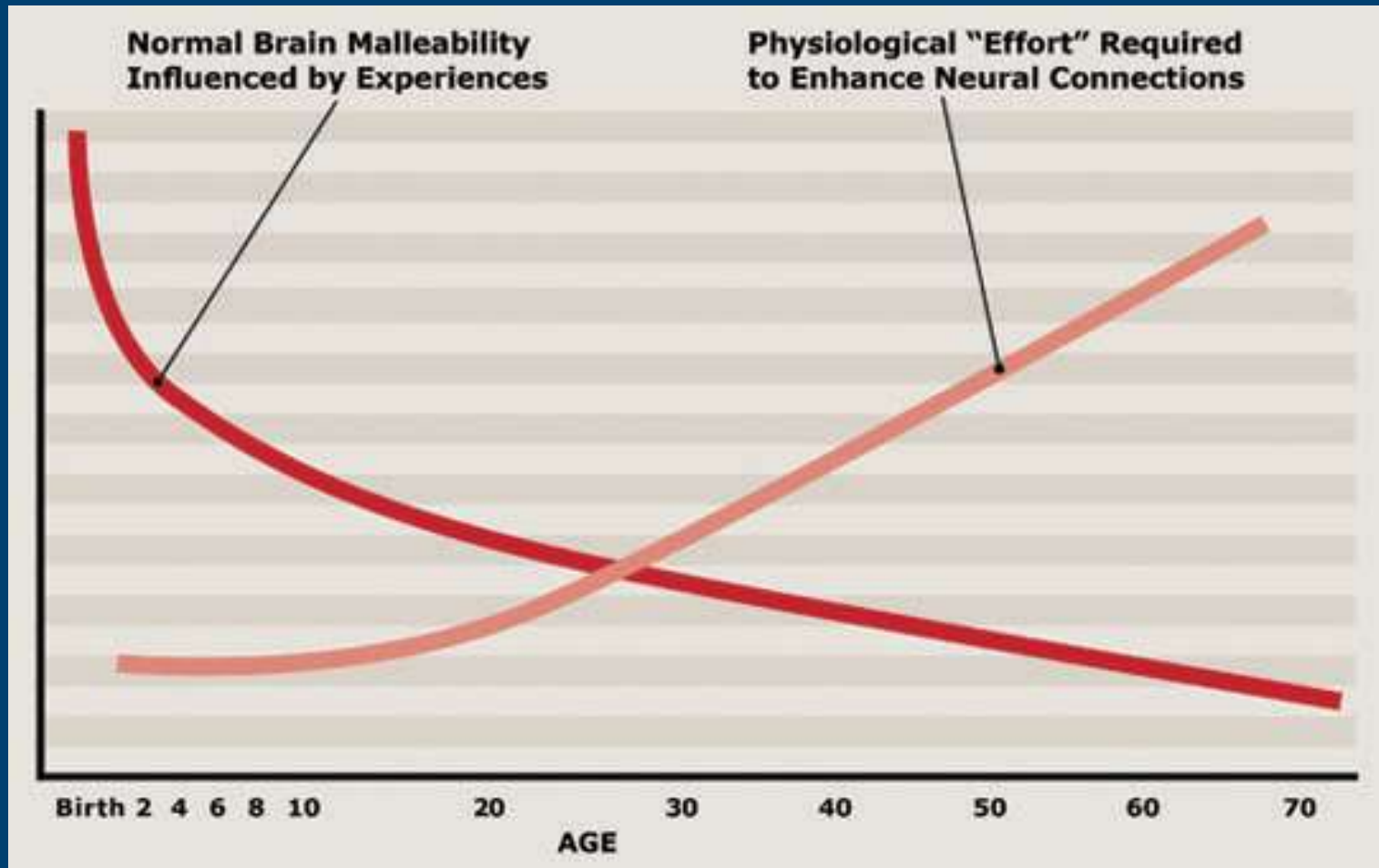
# Experience Shapes Architecture of the Brain

- Over production of neural connections is based on early experience.
- The more experience with a stimulus, the greater the number of nerve cells which are devoted to processing that stimulus and the more efficient the network.
- Then, there is pruning of up to 25% of those connections which are not used.

# Neural Wiring

- Neural networks are wired from bottom up.
- Earlier connections serve as the scaffold or foundation for later connections.
- Brain plasticity is enormous at birth, but then decreases over time.
  - **Change is easy early in development.**
  - **Change is difficult with increasing age.**
    - Intervention is extremely costly.
    - Outcomes are poor.

# Interaction between Brain Plasticity and Age





# Power of Early Relationships

- It is the back and forth interaction between parent/caregiver and child – the **“serve and return”** – which largely determines how the wiring of the brain will take place.
- Whether it will be **strong and solid**, or **weak and fragile** is determined by the child’s early relationships.



What happens in the face of multiple environmental risks, when early experiences are **threatening, unpredictable, neglectful, or abusive?**

# TOXIC STRESS and ACES



# Toxic Stress

Strong, frequent, or prolonged activation of the body's physiological response to environmental stress in the absence of the protective, buffering effect of caregiver support and mediation.

Jack Shonkoff, M.D.

Harvard Center on the Developing Child

# Toxic Stress

This “neurotoxin” has a more powerful effect and is more widespread than lead, cocaine, and other neurotoxins combined!



# Adverse Childhood Experience Study: ACES

## 10 Categories of Risk:

- Child abuse:
  - Physical, emotional, sexual
- Child neglect:
  - Physical, emotional
- Household dysfunction:
  - Domestic violence, substance abuse, mental illness, incarceration, divorce

# Environmental Risks

- Extreme poverty
- Domestic and community violence
- Abuse and neglect
- Parental mental health issues, especially depression
- Substance abuse
- Homelessness
- Incarceration
- Teen and single parenthood
- Lack of education and illiteracy
- Unemployment
- Health and dental issues
- Isolation and lack of social supports
- Poor quality child care
- Lack of basic needs: food, clothing, heat, furniture

# Effects of Toxic Stress

- **Mental/emotional health:**

Depression, anxiety, substance abuse, post traumatic stress disorder, disorders of self regulation, lack of empathy

- **Immune system:**

Cancer, difficulty fighting infections

- **Cardiovascular system:**

Heart disease, high blood pressure

- **Metabolic system:**

Diabetes, obesity, growth disturbance





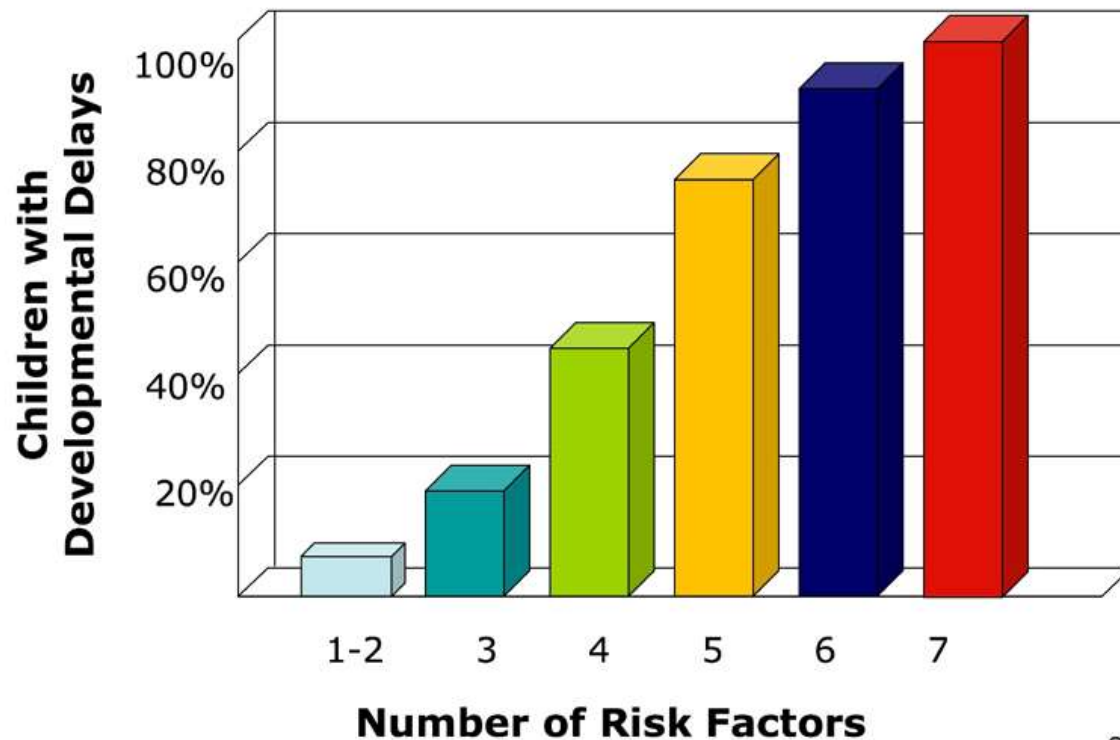
# Effects of Toxic Stress continued

- **Executive functioning and cognition:**
  - **Difficulties with working memory:** Hold and manipulate information in our heads.
  - **Inhibitory control:** Master and filter out thoughts and impulses; focused and sustained attention, prioritization, and action.
  - **Cognitive flexibility:** Adjust to changed demands, priorities, and perspectives.

# Risk Is Cumulative!

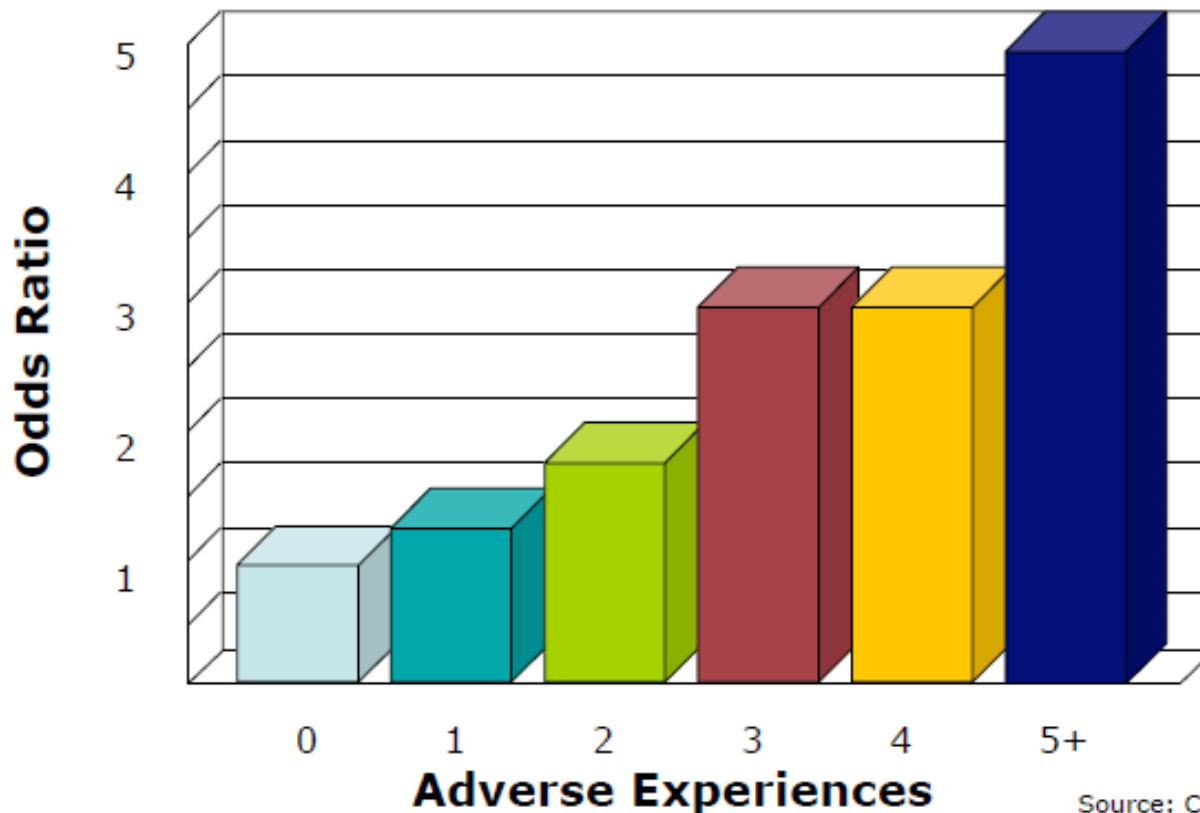


## Significant Adversity Impairs Development in the First Three Years



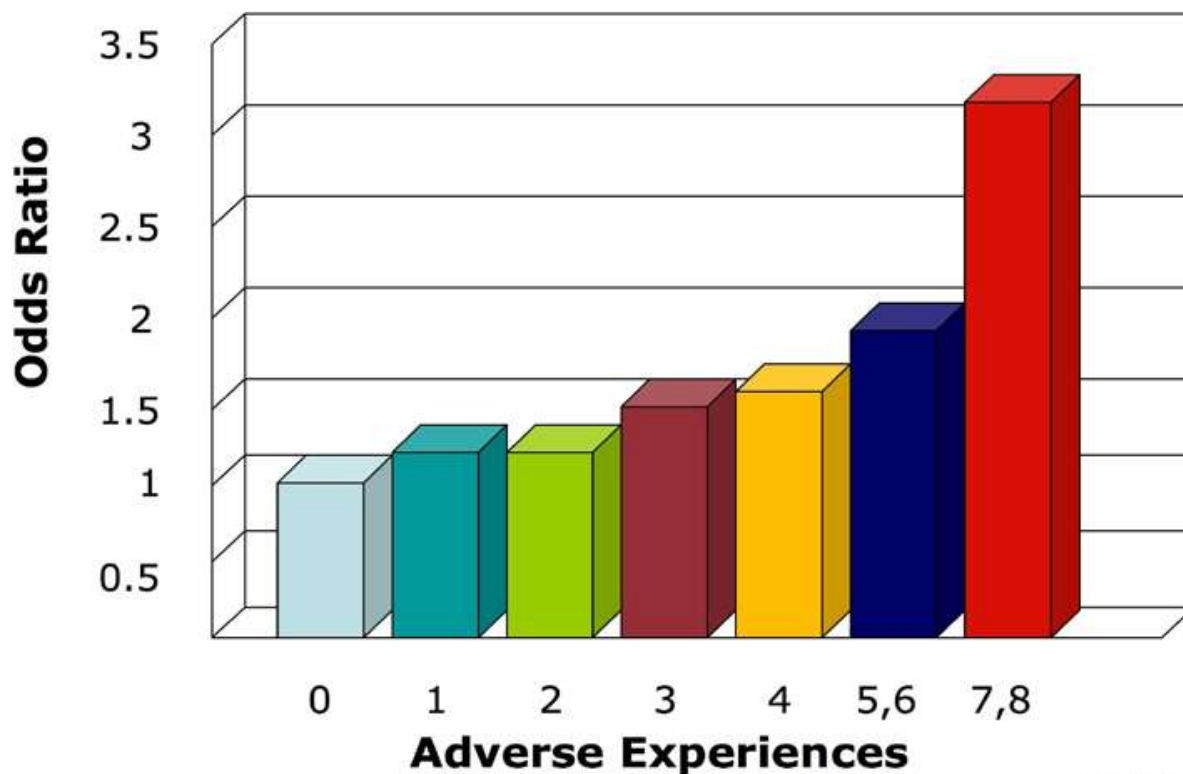
Source: Barth et al. (2008)

# Risk Factors for Adult Depression are Embedded in Adverse Childhood Experiences





## Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences



Source: Dong et al, 2004

# And It Does Not Just Go Away!

- Emotional or behavioral problems at age 3 years  
    **→** 50% psychiatric diagnosis by kindergarten or 1st grade.



# Toxic Stress

Strong, frequent, or prolonged activation of the body's physiological response to environmental stress **in the absence of the protective, buffering effect of caregiver support and mediation.**

Jack Shonkoff, M.D.

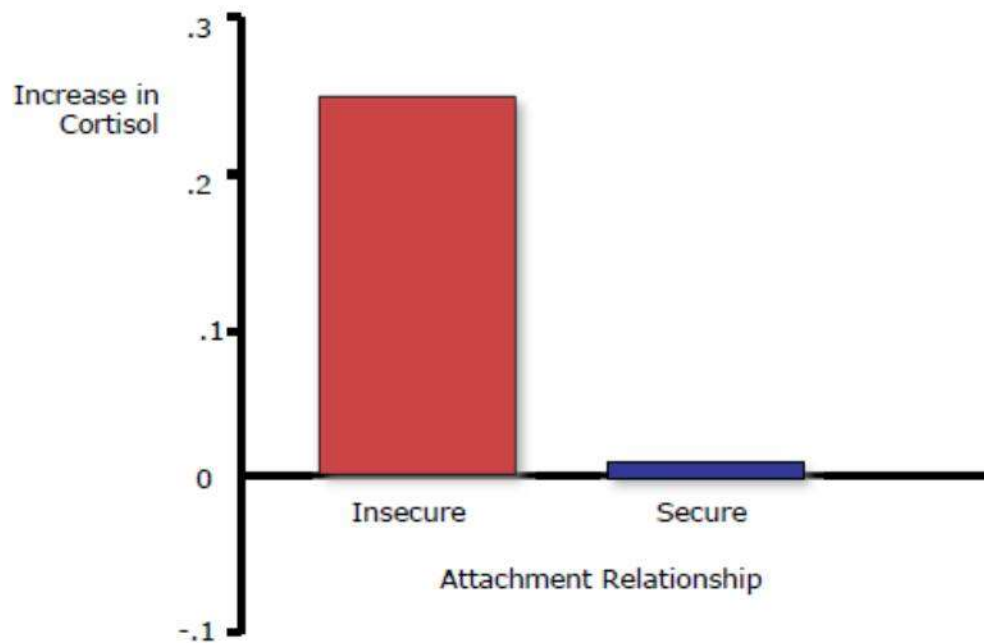
# Power of Responsive Nurturing







## Secure Relationships Calm Children's Stress Hormone Response



Source: Nachmias et al. (1996)

# Responsive Nurturing

- Responsive nurturing can dramatically decrease the effects of toxic exposures:
  - Cocaine
  - Lead





# Child First Model

# Goal of Child First

- Reach the **most vulnerable** young children and families at the **earliest** possible time
- Intervene to **prevent**:
  - Emotional and behavioral disturbance
  - Developmental and learning problems
  - Abuse and neglect

# Child First History

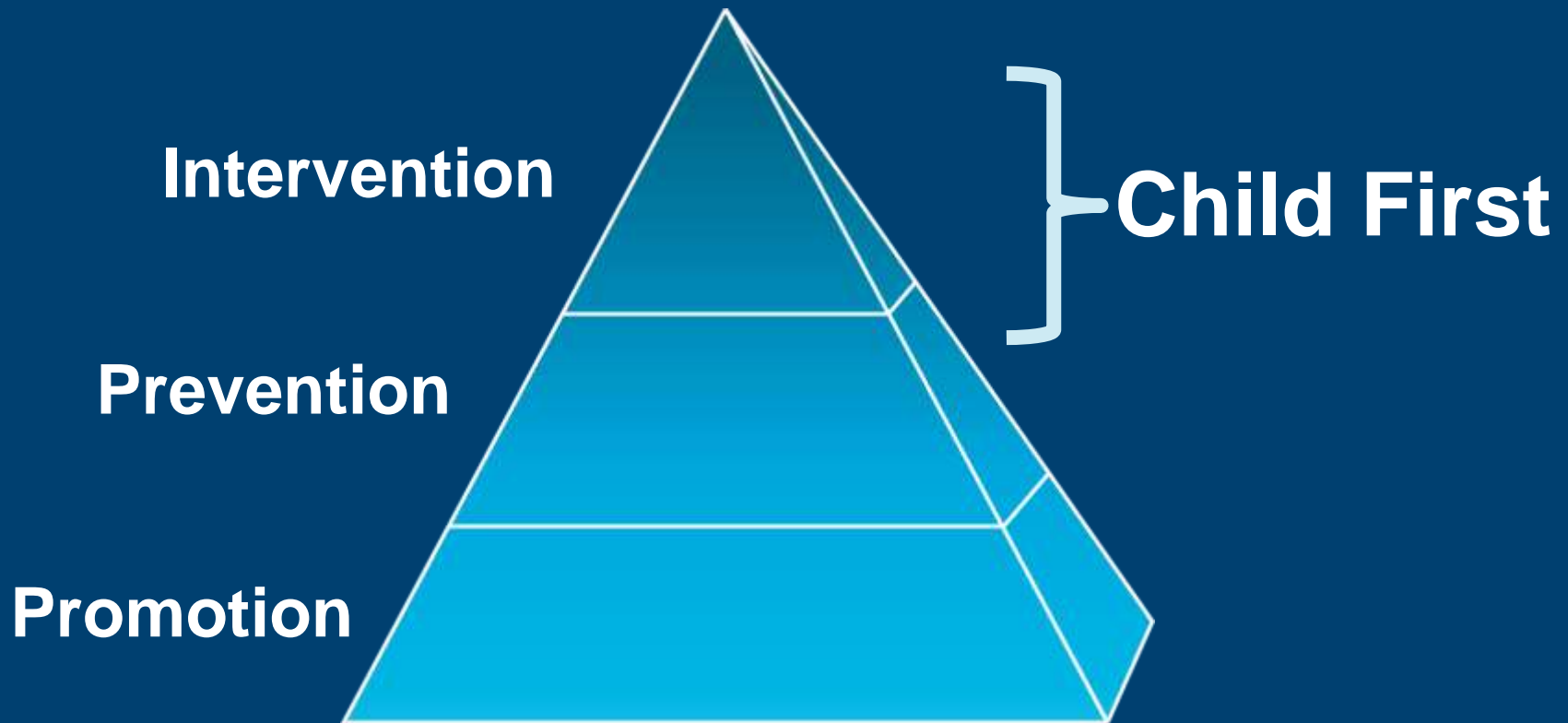


# Most Vulnerable Young Children and Families: Needs Not Met

- Services were extremely fragmented
- No services for young children with emotional/behavioral problems.
- Families were struggling with multiple challenges.
- Children were exposed to major stress and trauma.



# Innovative Model that Fills a Critical Gap in the Continuum of Care

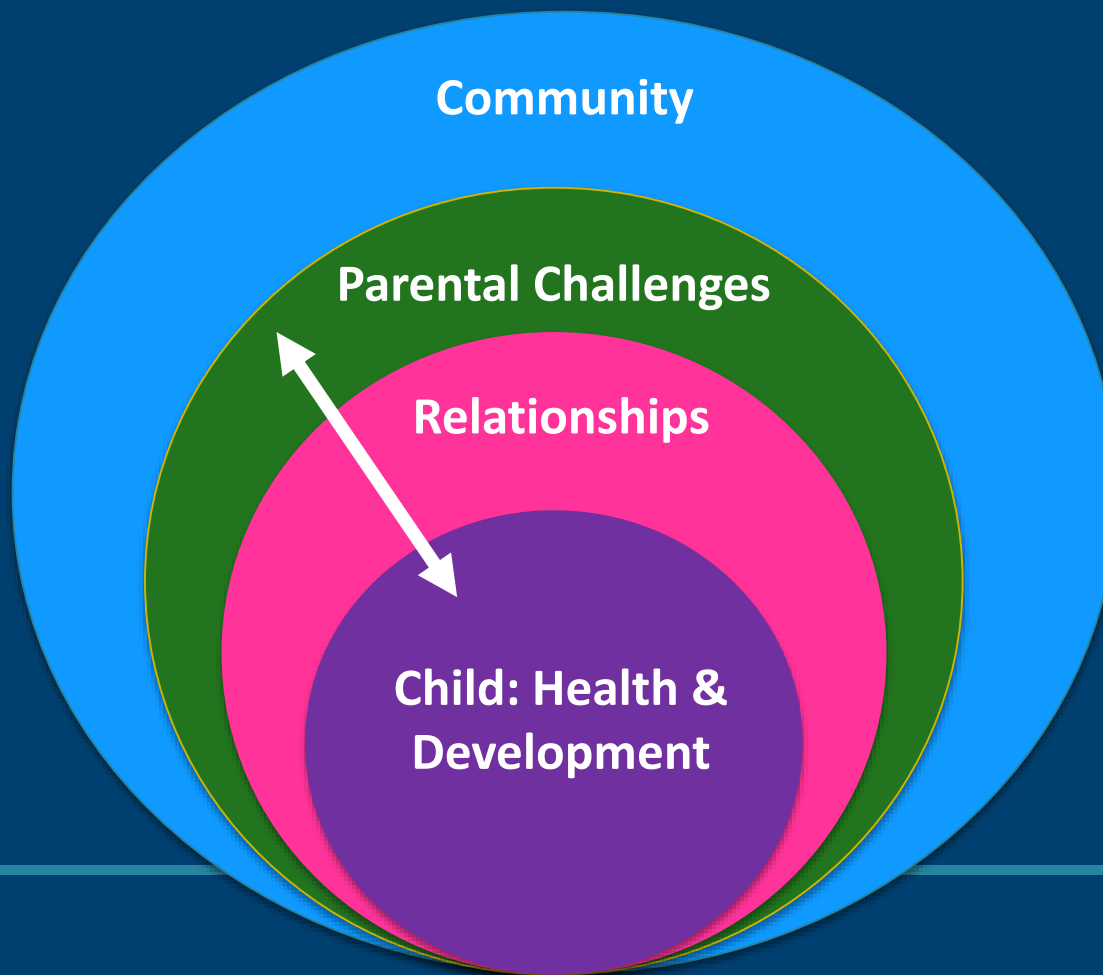


# The Child First Intervention





# Ecological Approach within an Early Childhood System of Care



# Target Population: Two Generation Approach

## Children:

- Prenatal to 6 years
- Any problem that threatens healthy development:
  - Emotional/behavioral
  - Developmental/learning
  - Abuse and neglect
- Serve families with multiple children



# Parents

- Parents/caregivers (birth parents, foster parents, relatives) with **multiple challenges**:
  - Depression and other mental health problems
  - Substance use
  - Homelessness
  - Domestic violence
  - CPS involvement
  - Poverty
- Fathers and caregiving partners



# Child First: A Two-Pronged Approach

1

Care Coordinators decrease toxic psychosocial stress by connecting children and families to needed services and supports.

2

Mental health Clinicians facilitate the development of a responsive, nurturing parent-child relationship that can protect the developing brain.

# Overview of Child First Intervention

- Screening and community referrals
- Home-based intervention
  - Engagement
  - Comprehensive assessment
  - Child and Family Plan of Care
  - Targeted parent guidance and Child-Parent Psychotherapy
  - Parent and child executive functioning
- Mental health classroom consultation
- Connection to community-based services



# Child and Family Plan of Care

- Comprehensive, well integrated, family-driven plan
- Therapeutic, two-generation intervention for both child and parents
- Community-based services and supports for all family members
- Treatment Plan for Medicaid reimbursement

# Care Coordination and Family Stabilization

- Stabilize family to decrease the level of stress.
- Increase parental capacity to plan, based on family priorities and needs.
- Hands-on connection to comprehensive, wraparound services and supports for all members of the family.
- Service needs, referrals, and access to services continually tracked.

# Services

- Primary or specialty pediatric care
- Early care and education
- Birth to Three
- Special education
- Child mental health
- Parenting groups
- Family Resource Centers
- Parent mentors and aides
- Adult mental health
- Substance abuse treatment
- Adult health care
- Legal aide
- Domestic violence services
- Housing / shelters
- Job training
- Computer training
- Food stamps
- Food banks
- HUSKY
- GED
- Literacy
- ESL
- WIC
- TANF
- SSI
- CSHCN
- Clothing and furniture
- Transportation



# Parent-Child Psychotherapeutic Intervention

- Child-Parent Psychotherapy (CPP)
  - Psychodynamic, build reflective capacity
  - Trauma-focused
  - Creation of a protective, nurturing, caregiving **relationship**
  - Reflection on **meaning of behavior**
- Parent guidance
- Two-generation intervention
- Intensive, reflective, clinical supervision



# Promotion of Executive Functioning

Ability to accomplish intentional, goal directed activity

- **Parent:**

- Build capacity for self-regulation, organization, planning and prioritization, focusing attention, monitoring, evaluating, adapting, reformulating.

- **Child**

- Increase capacity for self-regulation, memory, mental flexibility, and attention.

# Early Childhood System of Care

- Child First **does not function alone**, but as part of a broad network of early childhood and adult providers, each with their own individual expertise.
- Every state/county has its own unique structure and culture.
- Child First is one component of a continuum of care.
- Fills a gap in services for the most vulnerable children and families.

# Close Collaboration

- Health: Pediatric Primary Care, Obstetrics
- Early care and education, child care
- Schools
- Child protective services
- Other child mental health providers
- Other home visiting models
- Early intervention (IDEA Part C)
- Family support centers
- Shelters
- Adult mental health and substance abuse
- DV services and court system

# The Evidence



# Child First Randomized Controlled Trial

[*Child Development*, January/February 2011]

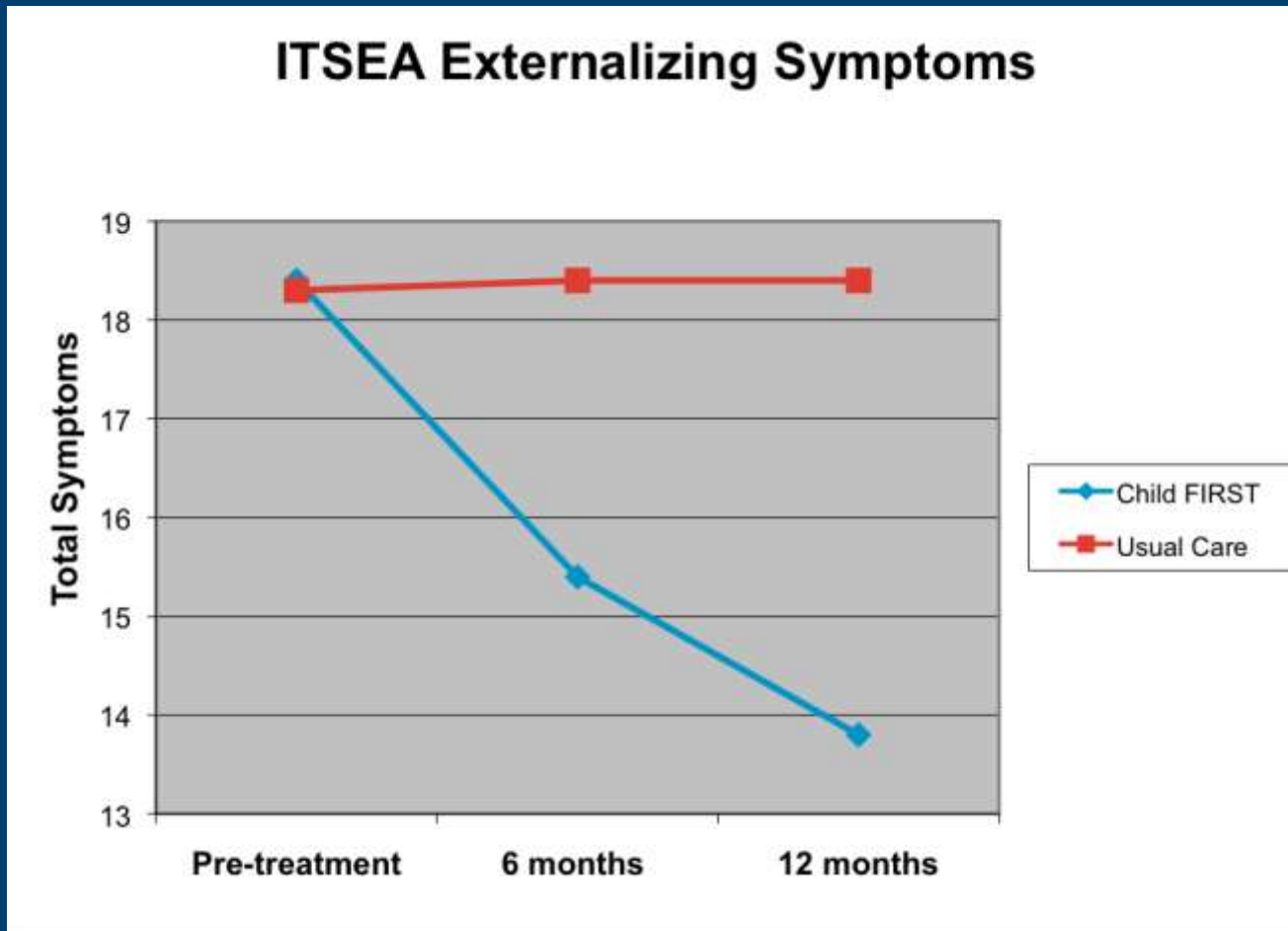
## Ethnicity/race:

- 59% Latino, 30% Black, 7% Caucasian

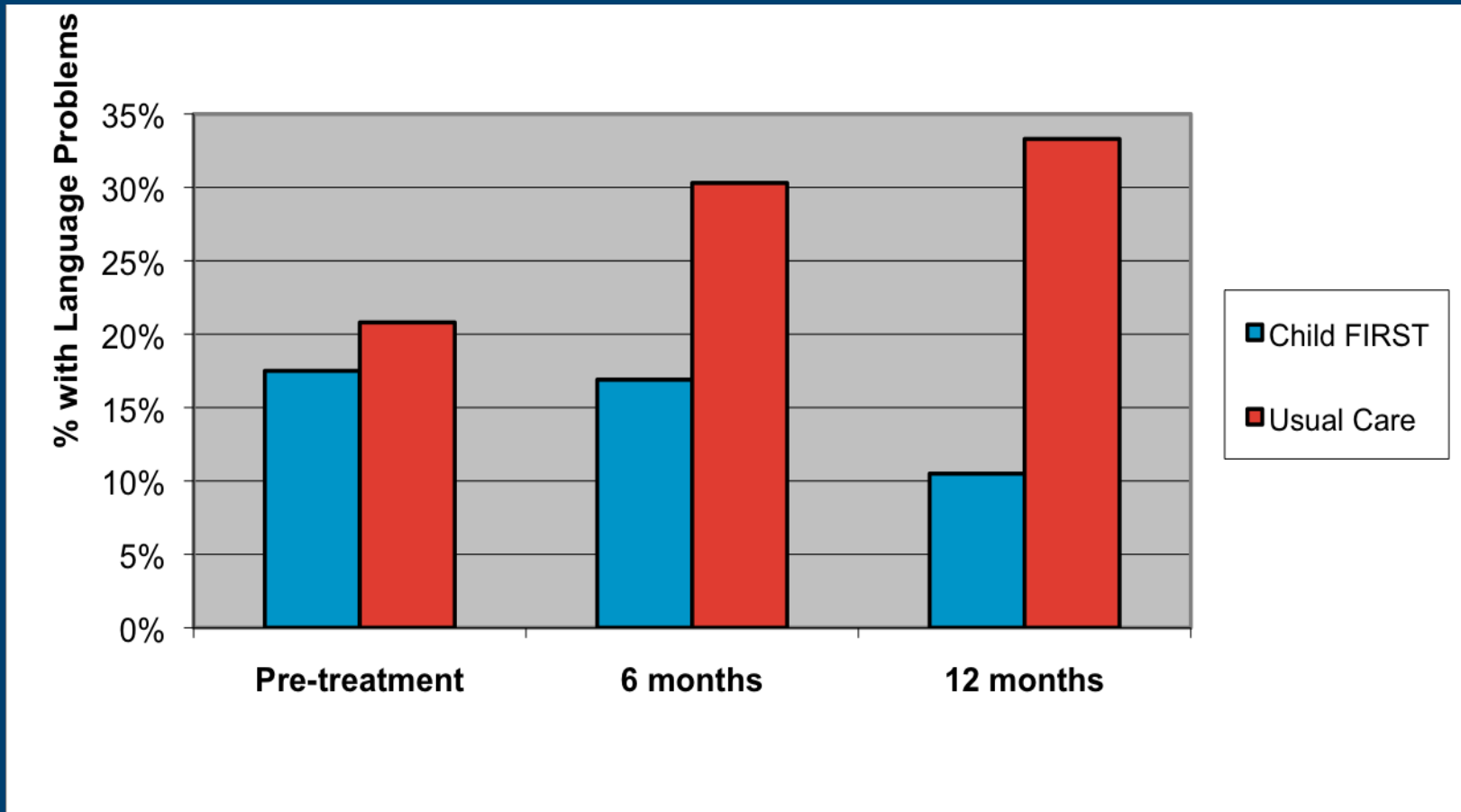
## Risk factors:

- 94% public assistance
- 67% unmarried
- 64% unemployed
- 54% depression
- 53% did not complete high school
- 44% history of substance abuse
- 25% history of homelessness

# Child Mental Health Problems



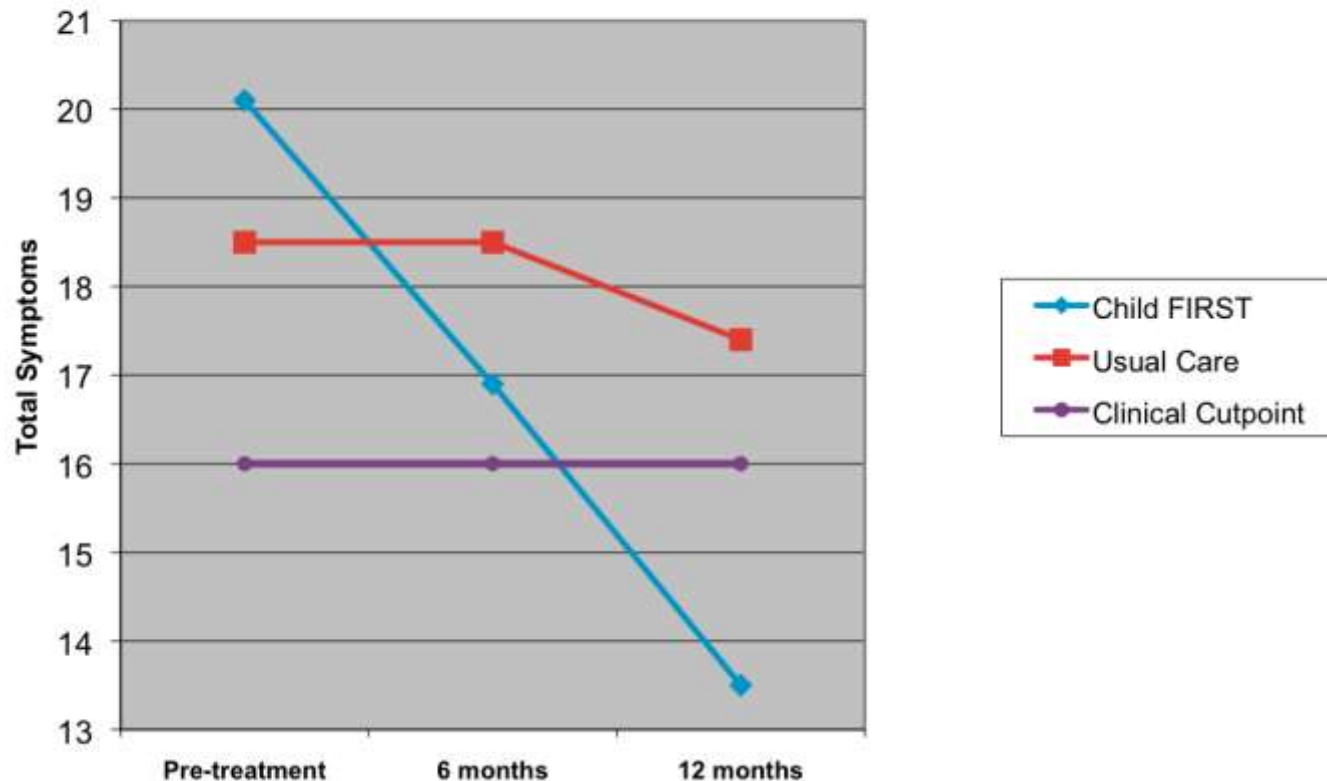
# Child Language Problems





# Maternal Depression

## Depressive Symptoms on the CES-D



# Outcomes with CT Replication



# Targeted Outcomes

## Child:

- ↑ Emotional/behavioral health
- ↑ Child secure attachment
- ↑ Language and cognition
- ↑ Executive functioning and self-regulation
- ↓ Trauma
- ↓ ER utilization and hospitalization
- ↓ Child protective services involvement

## Parent:

- ↑ Nurturing, responsive parenting
- ↑ Executive functioning and self-regulation
- ↑ Education and employment
- ↓ Depression, stress, & mental health problems
- ↓ Substance abuse
- ↓ Domestic violence
- ↓ Homelessness

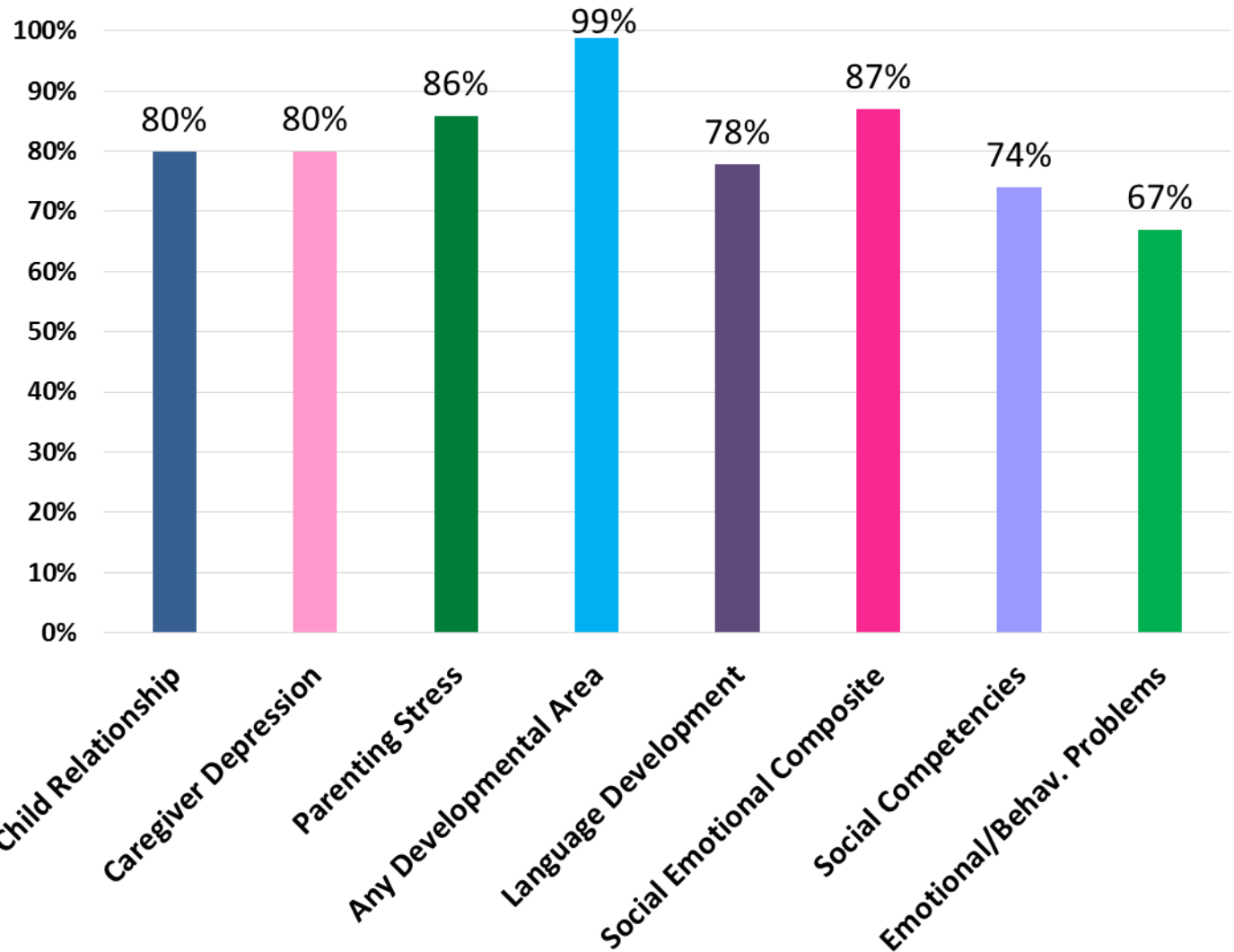
# % of Families Showing Improvement at Discharge (Among those with problems at baseline)

Improvement in  
at least:

1 area = 88.6%

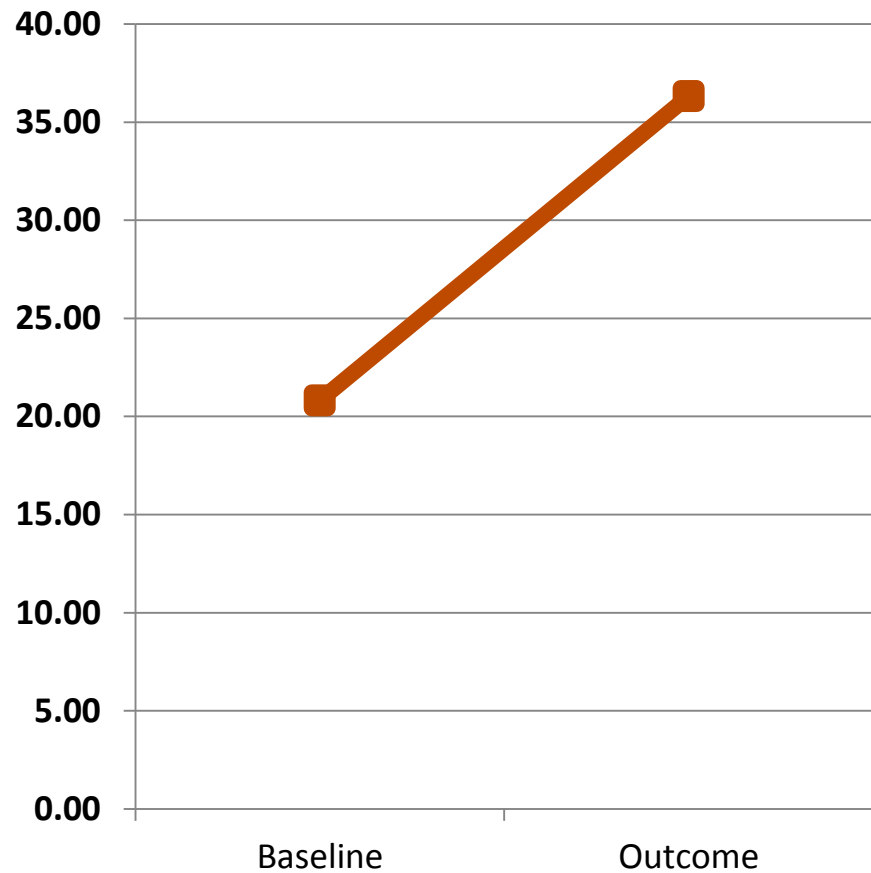
2 areas = 69.4%

3 areas = 54.1%



# Child Language ASQ Communication

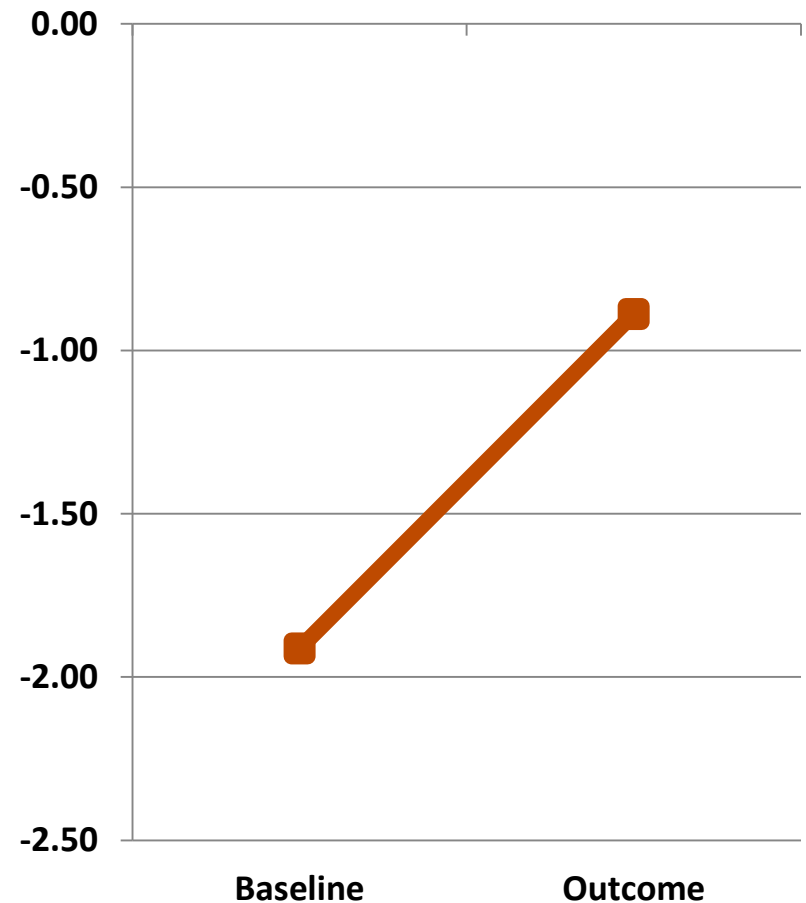
- Children with language delay at baseline showed strong improvement.
- Statistical significance:  
 $p < 0.0001$
- Effect size:  
Cohen's  $d = 1.06$



# Social Skills

## BITSEA or PKBS-2

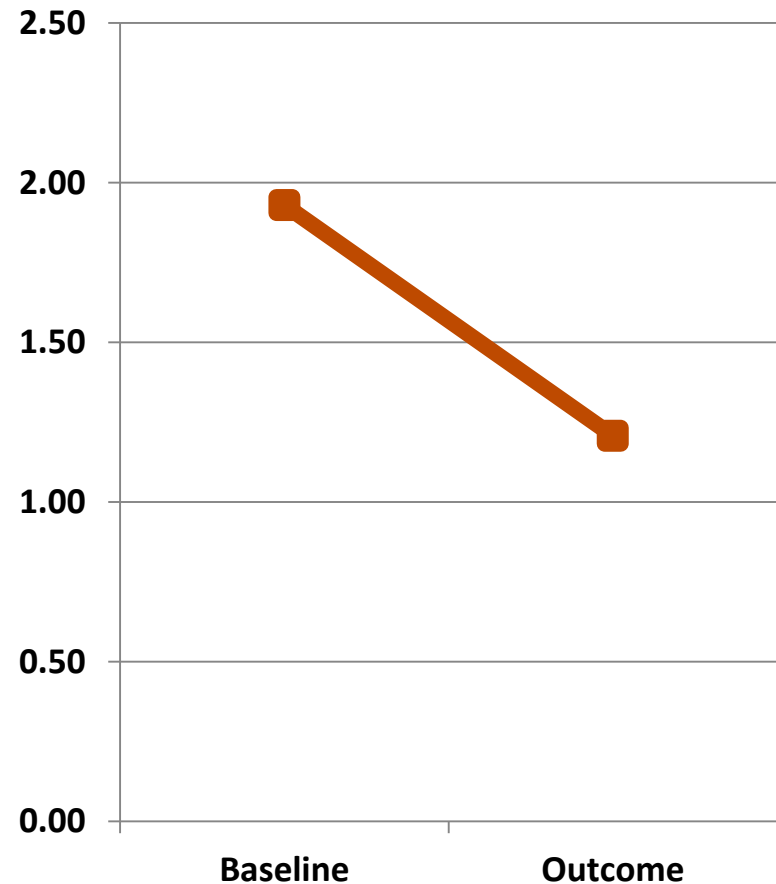
- Children that presented with deficits in social skills or competence at baseline showed strong improvement.
- Statistical significance:  $p < 0.0001$
- Effect size: Cohen's  $d = .97$



# Problem Behavior

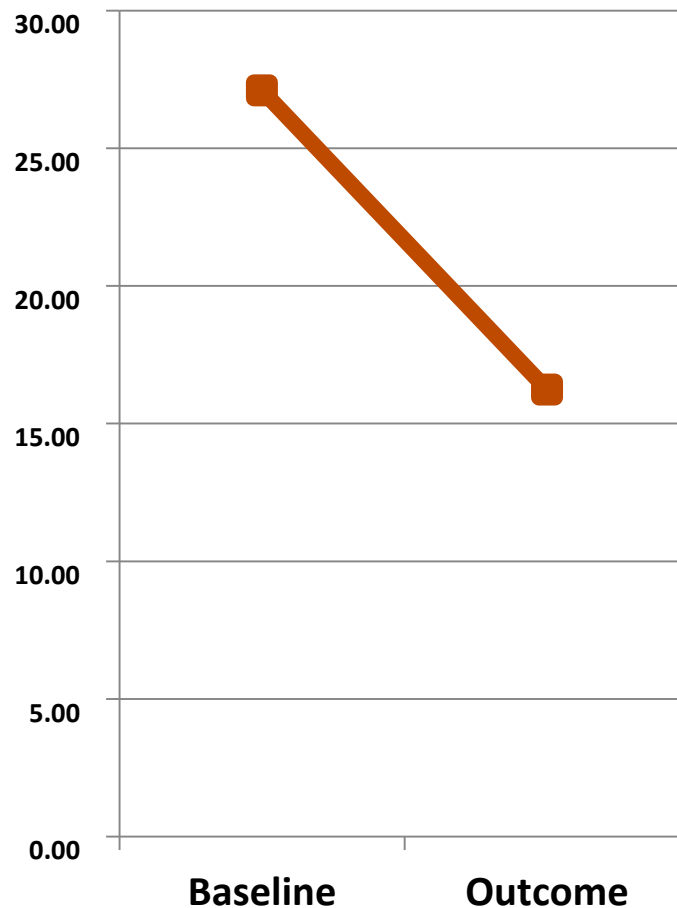
## BITSEA or PKBS-2

- Children that presented with problem behaviors at baseline showed strong improvement.
- Statistical significance:  $p < 0.0014$
- Effect size: Cohen's  $d = .68$



# Maternal Depression CES-D

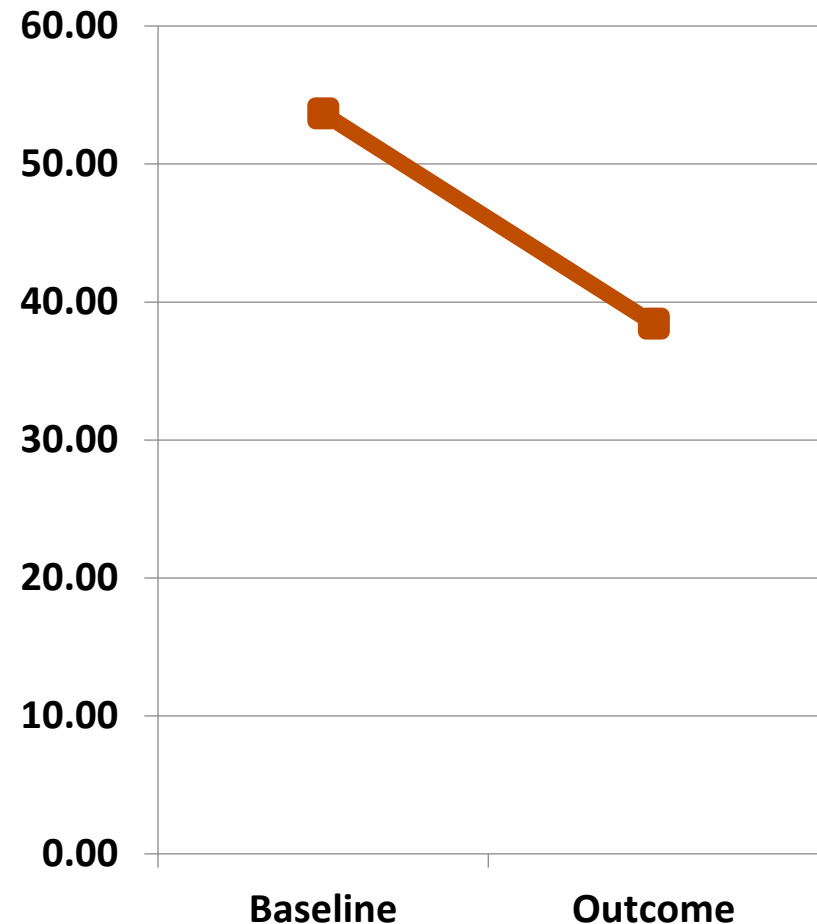
- Mothers that presented with depression at baseline showed strong improvement.
- Statistical significance:  $p < 0.0001$
- Effect size: Cohen's  $d = 1.07$





# Parent-Child Interaction CCIS

- Parents and children who presented with relationship disturbances at baseline showed very strong improvement.
- Statistical significance:  $p < 0.0002$
- Effect size: Cohen's  $d = 1.12$

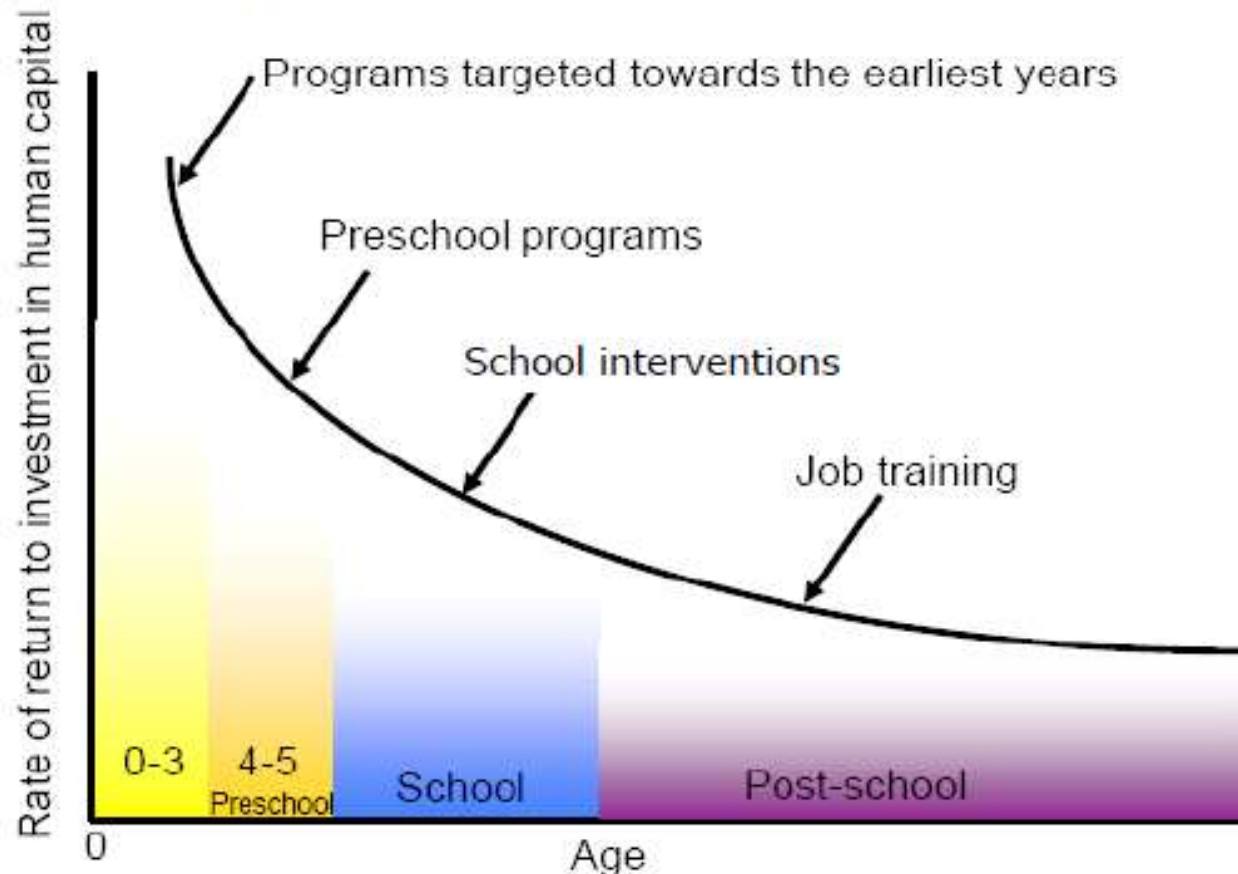


# Structure and Funding



# Return on Investment in Children

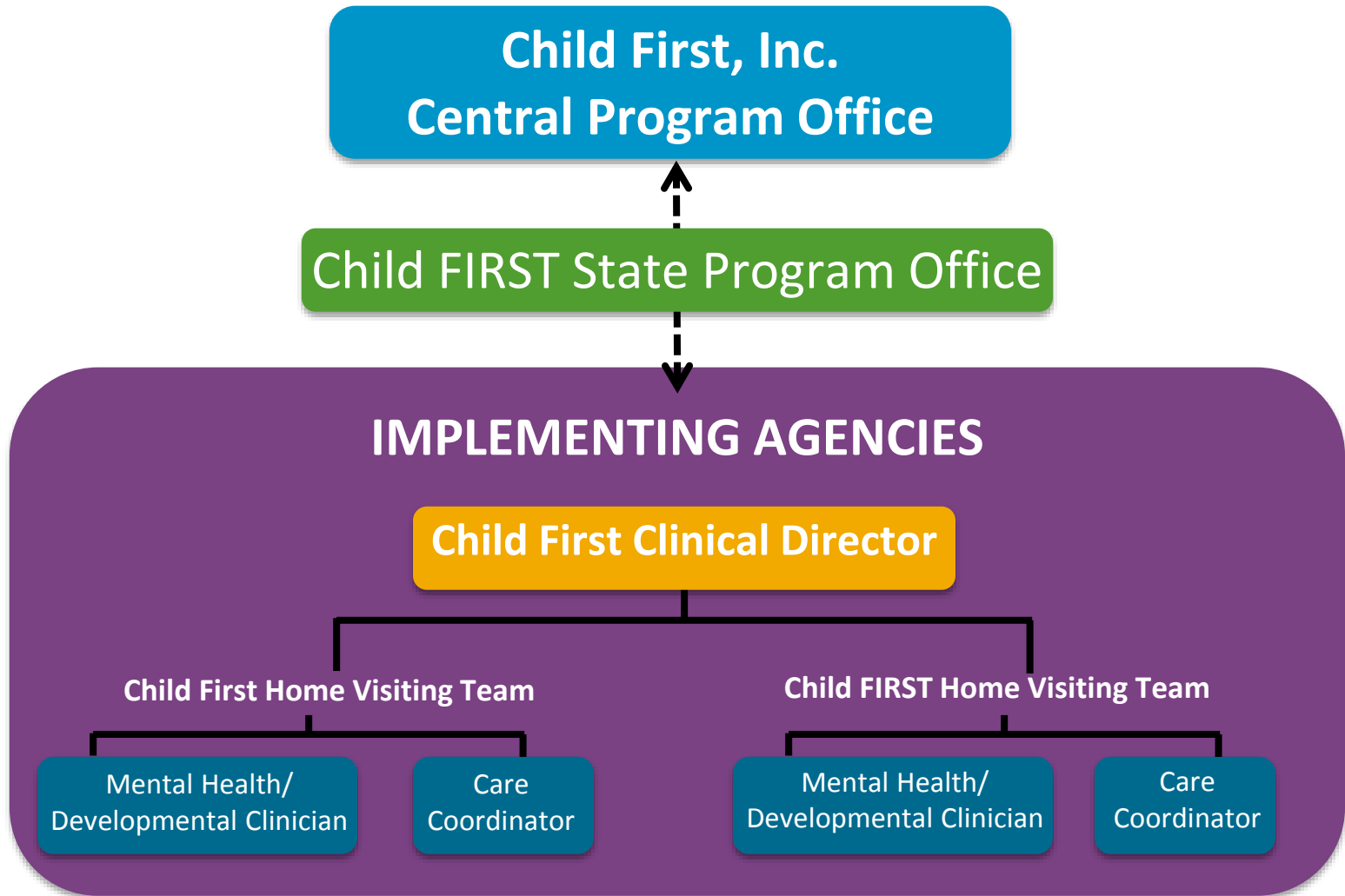
## Rates of Return to Additional Investments in Human Capital for Disadvantaged Children



8/27/2007

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# Child First Structure



# Child First Funding

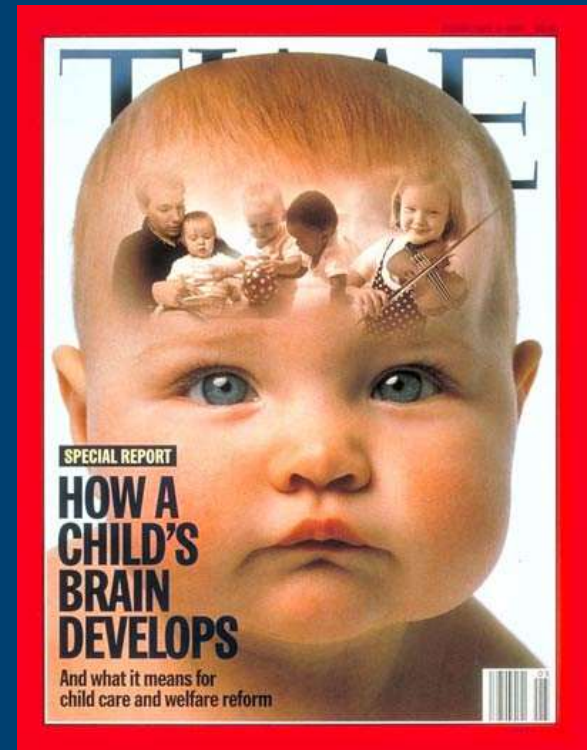
- **Central Program Office**
  - Philanthropy
  - State Child Welfare Agency
  - Fees from implementing agencies
- **Implementing agencies**
  - Philanthropy
  - State Child Welfare Agency
  - Maternal, Infant, and Early Childhood Home Visiting program (MIECHV)
  - Medicaid (in process)
  - Federal grants (e.g., Project LAUNCH)

# Child First Strengths



# Child First Strengths

- Scientific framework:
  - Brain development
  - Adverse childhood experiences (ACEs) and Toxic stress
  - Nurturing relationships
- Highest risk
- Intervention in the home
- Evidence-based



# Child First Strengths - continued

- Mental health - psychotherapeutic
- Education and executive functioning
- 2 generation: Parent and child
- Begin any time: Prenatal to age 6
- Multiple children
- Professional team
- Intensive supervision
- Continuum of care
- Cost effective





# Thank you!!!

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# Child First VIDEO

