Improvement in Cognitive Outcomes for Children Living in Poverty in the Legacy for Children^TM^ Parenting Intervention Five Years Post-Intervention

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Disclosures

- The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention
- No relationships to disclose
Learning Objectives

- Describe the Legacy for Children™ model and its implementations
- Discuss the site specific longitudinal Legacy for Children™ cognitive outcomes
- Explain the public health implications of the Legacy for Children™ model's outcomes

Childhood Poverty as a Childhood Risk Factor

- More than 16 million US children live in poverty¹
- These children...
  - are 1.3 times more likely to experience learning disabilities and developmental delays², and
  - exhibit more neurocognitive disparities with IQ and academic achievement³,⁴, executive functioning⁵, and language⁶

...than their more advantaged peers.
1992: Emerging literature on effects of poverty on child cognitive outcomes

1992-1998: CDC meetings with other Fed agencies and external experts

Prevailing models of early intervention:
- high-quality preschools
- behavioral parent training
- home visits

Conclusion: need a public health approach to improve outcomes for children in poverty by promoting positive parenting practices

**Legacy for Children™ Model**

**Philosophy**

- Parents can successfully parent, regardless of life circumstances
- Promoting positive parenting requires time and is a dynamic process

**Assumptions**

- Mothers can have a significant, positive influence
- Mother-child relationship is more important than any one experience
- Mothers’ commitment & sense of responsibility is important
- Mothers can be positiveparents best when supported
- There are multiple pathways to positive mother-child relationships

**Goals**

- Promote maternal responsibility, involvement, & devotion of time and energy
- Promote responsive, sensitive mother-child relationships
- Support mothers as guides to their children’s behavioral & emotional regulation
- Promote mothers’ sense of community
- Promote mothers’ facilitation of children’s verbal and cognitive development

**Core Elements & Activities**

- **Model Elements**
  - Adherence to the five Legacy goals
  - Delivery of a developmentally appropriate early childhood-focused parenting curriculum, consistent with intervention assumptions
  - Group-based format
  - Reinforce curriculum content one-on-one
  - Strategies to ensure attendance & participation

- **Intervention Activities**
  - Mother and mother-child group sessions
  - 1-on-1 sessions
  - Community events and activities

**All children deserve an opportunity to reach their full potential**

**Parents can successfully parent, regardless of life circumstances**

**Promoting positive parenting requires time and is a dynamic process**

**Legacies mechanisms:**
- Mother-child interactions
- Promoting sense of community
- Enhancing self-efficacy

**Mothers can have a significant, positive influence**

**Mother-child relationship is more important than any one experience**

**Mothers’ commitment & sense of responsibility is important**

**Mothers can be positive parents best when supported**

**There are multiple pathways to positive mother-child relationships**

**Promote maternal responsibility, involvement, & devotion of time and energy**

**Promote responsive, sensitive mother-child relationships**

**Support mothers as guides to their children’s behavioral & emotional regulation**

**Promote mothers’ sense of community**

**Promote mothers’ facilitation of children’s verbal and cognitive development**

**All children deserve an opportunity to reach their full potential**
Evaluation

- **Two RCTs: Los Angeles and Miami**
  - Intervention begins prenatal or at birth, ends age 3 or 5
  - ~300 mothers at each site
  - Randomized 3 intervention to 2 comparison
  - Process, cost, outcome data

- **Follow-up study in 3rd/4th grade (2009)**
  - Document the long-term effect of *Legacy* on child outcomes
  - Sample size: 175 (Miami), 179 (LA)

Participants

- **Inclusion criteria:**
  - ≥ 18 years of age
  - live within the catchment areas
  - have custody of the target child
  - speak English
  - have at least some prenatal care
  - have income < 200% of the poverty level
Maternal Baseline Demographics, at least one cognitive assessment (n= 541 dyads)

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Miami (Mean or %)</th>
<th>LA (Mean or %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Age</td>
<td>22.9</td>
<td>25.4</td>
</tr>
<tr>
<td>African-American or Black non-Hispanic</td>
<td>70.4%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.7%</td>
<td>45.5%</td>
</tr>
<tr>
<td>HS Diploma or less</td>
<td>89.1%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Income &lt;$20,000/year</td>
<td>59.4%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Maternal IQ (KBIT)</td>
<td>79.9</td>
<td>84.0</td>
</tr>
</tbody>
</table>

Cognitive Measures and Methods

- Kauffman Assessment Battery for Children-II (KABC)
  - Full scale IQ score
  - 36, 60 months, and ~ 3<sup>rd</sup> grade
- Woodcock-Johnson III Tests of Achievement (WJ)
  - 60 months (Letter-Word, Spelling, Applied Problems subtests)
  - ~ 3<sup>rd</sup> grade (Letter-Word, Passage Comprehension, Calculations, and Applied Problems subtests)

An intent-to-treat approach was used and t-tests compared adjusted mean scores of the intervention and comparison groups by site.
Overview of Significant LA Cognitive Outcomes

- Intervention group scored on average 5 points higher than the comparison group on the KABC
  - Age 3 (85.9 vs. 80.2, $p < 0.01$)
  - 3rd Grade (95.0 vs. 89.6, $p < 0.05$)

- Intervention group scored higher on the WJ subtests:
  - Age 5 Spelling (101.7 vs. 96.8, $p < 0.05$)
  - 3rd Grade Letter-Word (105.0 vs. 97.4, $p < 0.001$)
  - 3rd Grade Passage Completion (106.0 vs. 103.3, $p < 0.05$)
  - 3rd Grade Applied Problems (96.8 vs. 92.3, $p < 0.05$)

Los Angeles 36 Month KABC Scores

Frequencies of IQ (KABC) scores in Los Angeles at 36 months

Intervention (50% of children in the average or above average range for IQ)

Comparison (30% of children in the average or above average range for IQ)
Legacy for Children™ is a group-based, public health approach to improve child health and development through positive parenting.

Children of mothers participating in the LA site of Legacy had significantly higher IQ and achievement scores through third grade, five years post intervention.

Shifting the developmental trajectory of early cognitive development has immediate and long term implications for child health, educational achievement, and wellbeing.

Community-based implementation of Legacy is currently underway.
Acknowledgements

- CDC Team
- Los Angeles Site
- Miami Site
- Longitudinal Follow-Up Study
- Original Legacy Staff

...and all of the Legacy families.

Thank you!

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
More Information on Legacy

- **Legacy website**
  - [http://www.cdc.gov/ncbddd/childdevelopment/legacy.html](http://www.cdc.gov/ncbddd/childdevelopment/legacy.html)

- **Papers**

- **Legacy for Children™ POC**
  - Lara Robinson, PhD, MPH; lrobinson1@cdc.gov

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**References**