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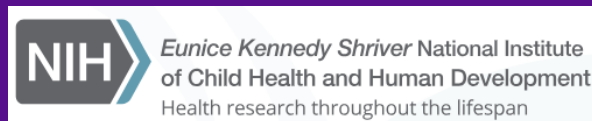


# Innovative Models for Preventing School Readiness Disparities in Pediatric Primary Care

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June 7, 2018



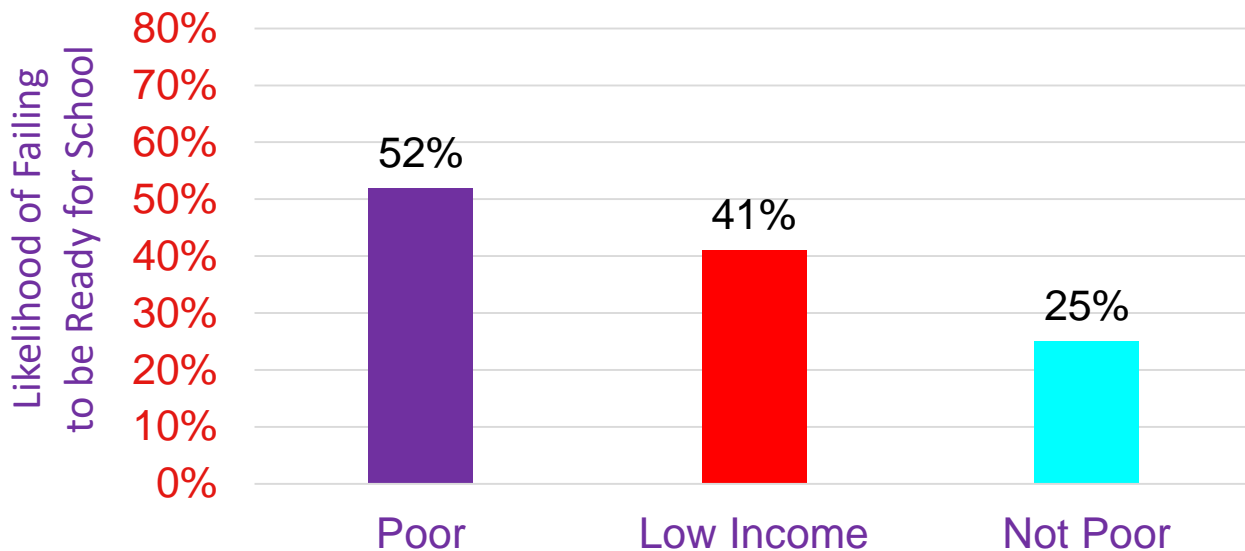
## *The problem:*

Poverty-related disparities  
across developmental domains begin in  
early childhood and impact educational,  
economic and health outcomes  
throughout life

# Guiding Principles

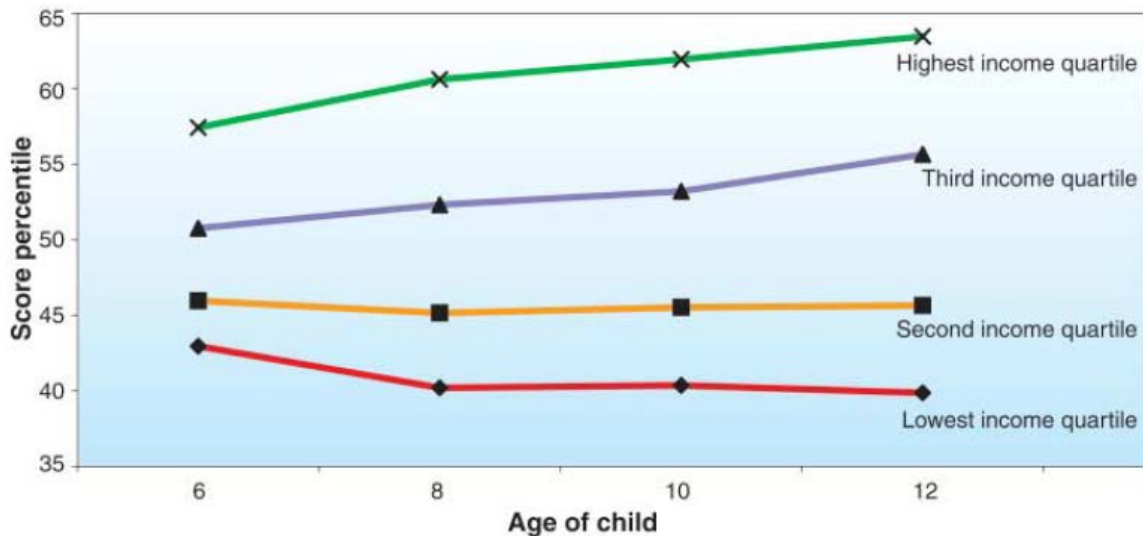
- Need for *primary prevention* beginning in *early childhood*, prior to emergence of problems
- *Positive parenting activities* are an important target for intervention given cross-domain impacts
- *Pediatric primary care* represents a low-cost, universal, population-scalable platform for promotion of parenting and school readiness

# More than 50% of Children in Poverty Fail to be Ready for School: *Major Public Health Crisis*



Brookings Institution, 2012  
Analysis of ECLS-B

# Early disparities become persistent gaps that *widen over time*

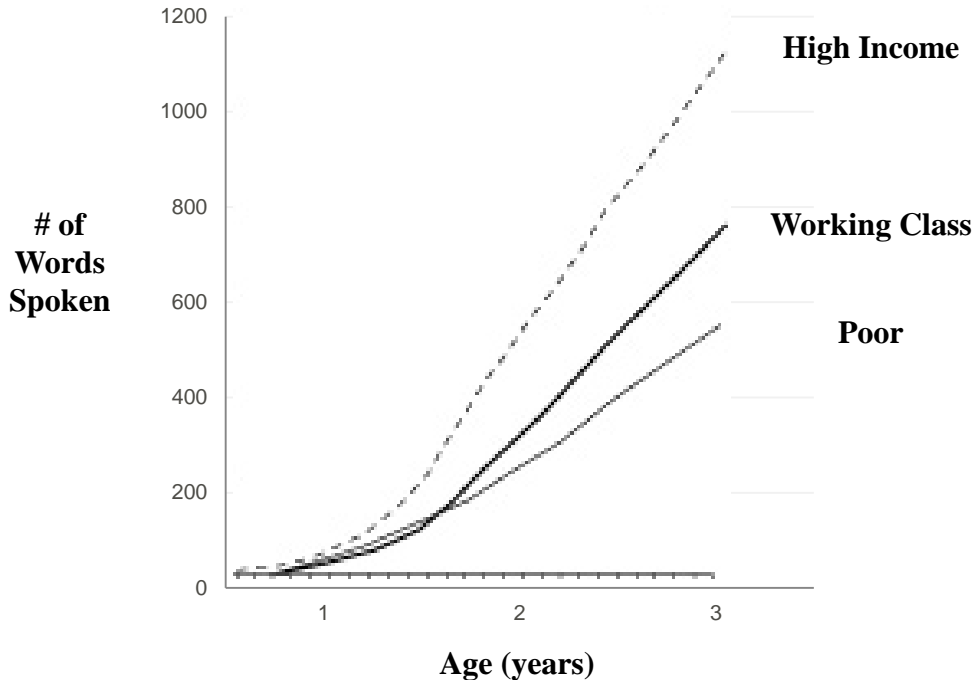


**Fig. 1.** Average percentile rank on Peabody Individual Achievement Test–Math score by age and income quartile. Income quartiles are computed from average family income between the ages of 6 and 10. Adapted from (3) with permission from MIT Press.

Heckman JJ. Skill formation and the economics of investing in disadvantaged children. *Science*. 2006;312:1900

Carneiro P, Heckman JJ. In *Inequality in America: What Role for Human Capital Policies?* Heckman JJ, Krueger AB, MIT Press 2003, chapter 2, pp 77-237.

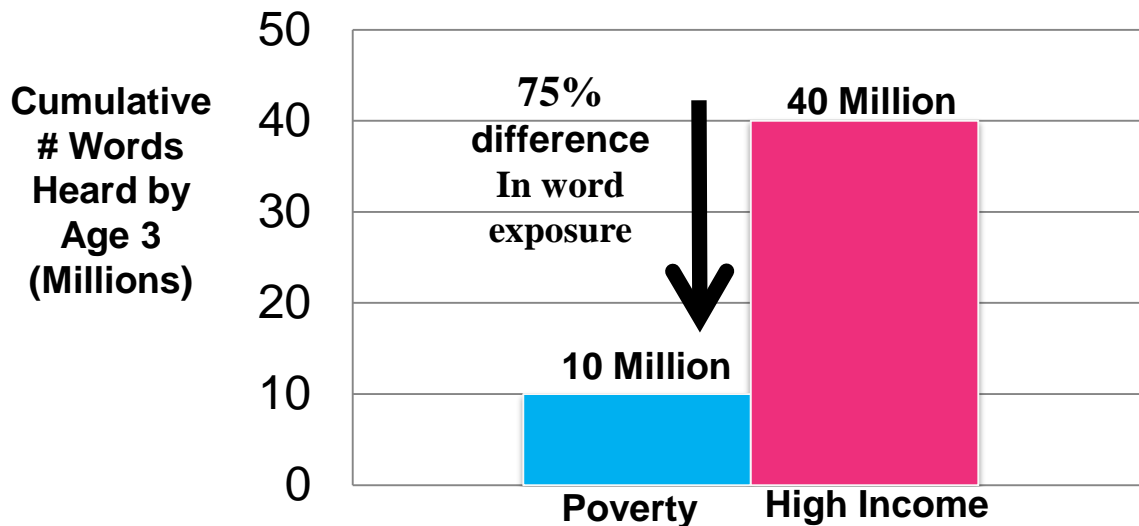
# Disparities begin in *very early childhood* & *across developmental domains*



Hart & Risley, 1995

# Parent-Child Interactions: Account for 50% of disparities

## “The 30 million word gap”



Hart & Risley, 1995  
Brooks-Gunn & Markman, 2005



# Positive Parenting Behaviors that Facilitate Parent-Child Interactions are Important Targets for Intervention

Shared  
bookreading



Adult-supported play



# Pediatric Primary Care:

## Universal Platform for Promoting Parenting and School Readiness

### Population-level accessibility:

- Medicaid and CHIP expansion
  - ~90% of children now covered for primary care
  - >90% children 0-5 attend well-child care each year
- 13-15 recommended visits from birth - 5 yrs

### High engagement:

- Opportunity to build on existing relationships and parent goals
- Medical home models further promotes this relationship

Early,  
population-scalable  
interventions

### Low cost:

- Builds on existing staff, infrastructure, and visits

# Most studied, proven primary care intervention: *Reach Out and Read*



## Waiting room volunteers & staff:

- Model reading activities

Boston City Hospital , 198

Barry Zuckerman, M.D.

Robert Needlman, M.D.

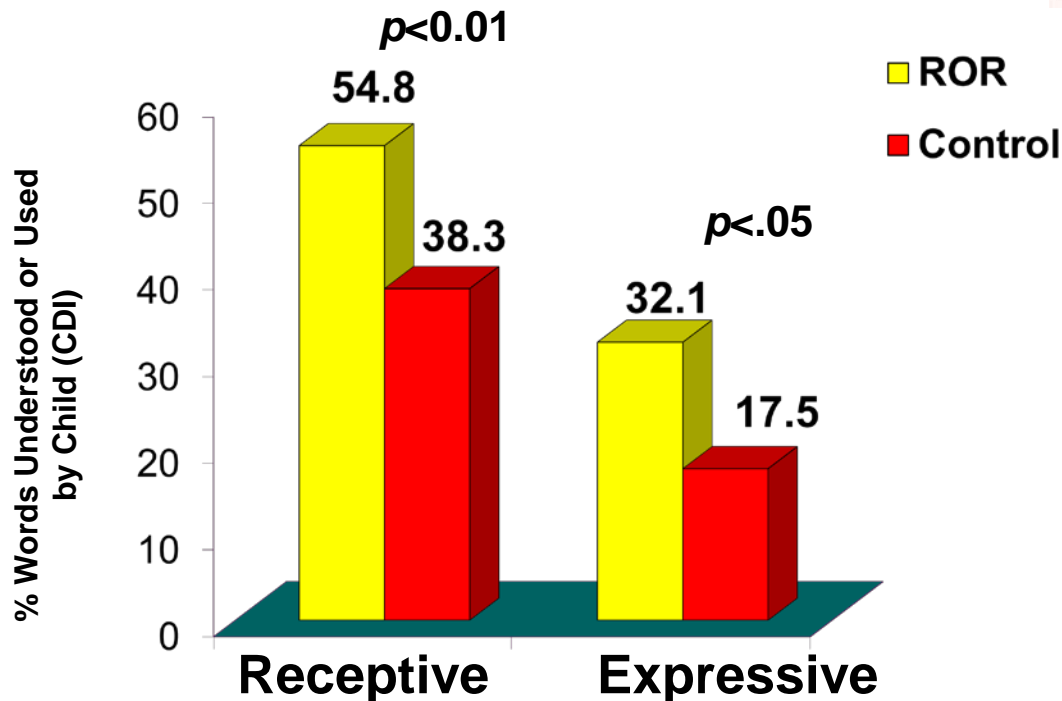
Kathleen Fitzgerald Rice, M.S.Ed

Perri Klass, M.D. (now NYU)

## Health care providers:

- Counsel parents about the importance of reading
- Distribute free children's books (10-14 books over 5 years)

# ROR: 50% Increase in *Toddler Vocabulary*



High, LaGasse, Becker et al, 2000, *Pediatrics*

ROR experience has *proven* that pediatric primary care can be effectively utilized as a *universal, population-scalable* platform for *low cost* prevention



- >15 studies show impacts (reading aloud, vocabulary)
- >25% of all low income US children ages 6 months to 5 years are reached by ROR: 4.7 million children
- Estimated cost: \$25/child/year
  - 1% cost of home visiting
  - Policy perspective: *rounding error*



Birth to 5 program designed as enhancement to ROR:

1. Coach working 1-on-1 with families
2. Promotion of play, reading aloud, teaching and talking
3. **Core activity:** Video-recording of parent-child interaction followed by review of video to promote self-reflection

Relatively low cost:

~\$175-\$200 / *child* / *year*

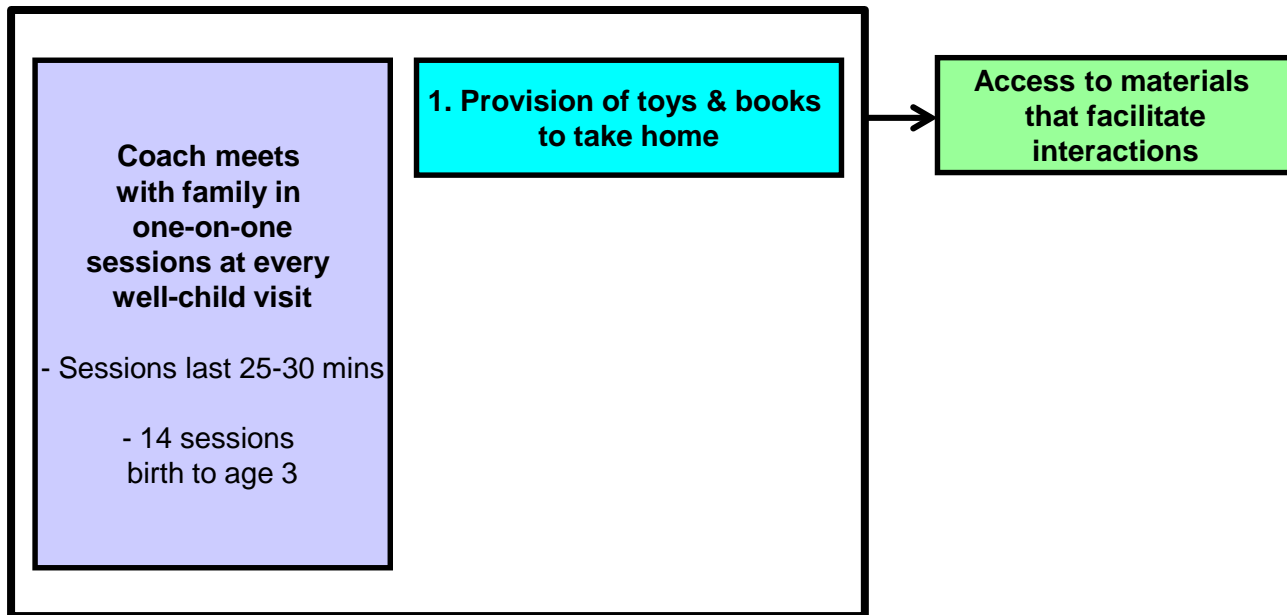


# Video Interaction Project (VIP)

## Program structure

## Key program components

## Anticipated Outcomes



# Video Interaction Project (VIP)

## Provision of Learning Materials



Infant



Toddler



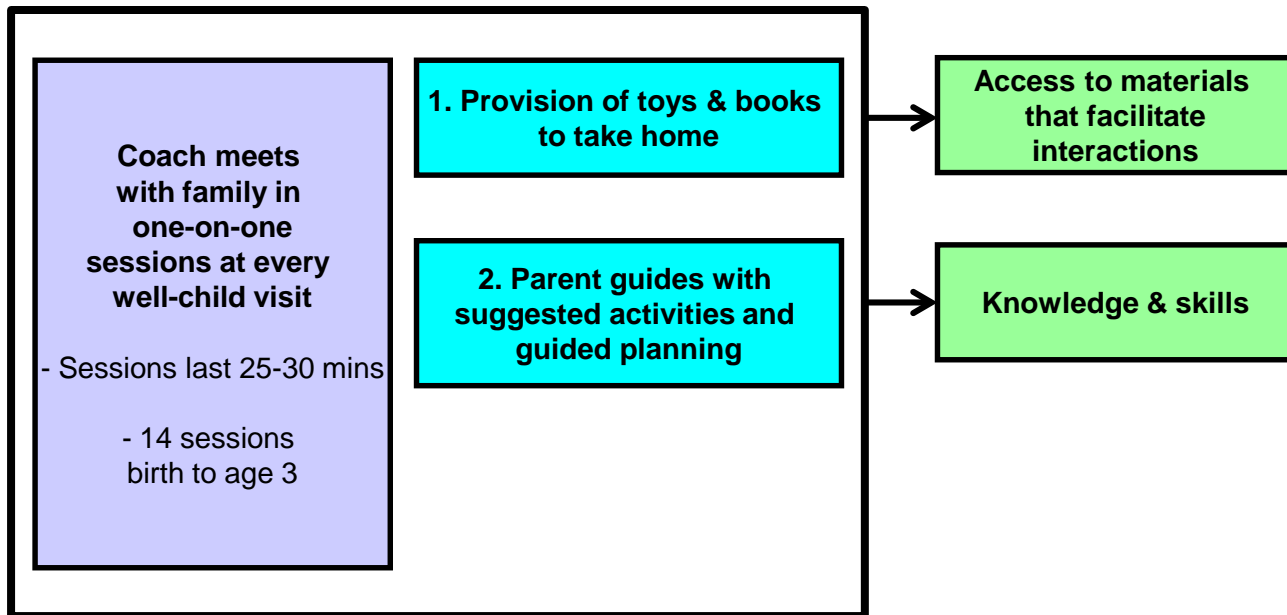


# Video Interaction Project (VIP)

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# Video Interaction Project (VIP)

## Interactive Pamphlets Build on Parent's Goals

VIP Guide

Caregiver's Name: \_\_\_\_\_

Date: \_\_\_\_\_

My Baby Today	<p>_____ is __ months old!</p> 	<p>What I've noticed:</p>			
		<p><b>What to look for:</b></p> <ul style="list-style-type: none"> <li>• Coos and squeals.</li> <li>• Imitates your smiles.</li> <li>• Lifts her head to look during tummy time.</li> </ul>	<p><b>Tips:</b></p> <ul style="list-style-type: none"> <li>• When your baby smiles or makes a sound, you smile too or can make the same sound back.</li> <li>• Talk about things you are doing while feeding, bathing, dressing.</li> <li>• Talk as your baby lifts his head.</li> <li>• Say a word that describes what she's looking at.</li> </ul>		
Reading, Playing, and Talking Together	<p><b>My favorite moments:</b></p> <p><b>Ideas for today's toy:</b></p> <ul style="list-style-type: none"> <li>• See if your baby watches as you move the toy.</li> <li>• Label parts and colors on the toy.</li> <li>• Place the toy near the baby so he can feel the texture.</li> </ul>	<table border="1"> <tr> <td> <p><b>My Video</b></p> <ul style="list-style-type: none"> <li>• My goals:</li> <li>• What I liked:</li> </ul> </td> <td> <p><b>My Plan for Home</b></p> <p>Find time every day to read, play, and talk (best with TV off).</p> <p>Looking forward to our visit at ____ months!</p> </td> </tr> </table>		<p><b>My Video</b></p> <ul style="list-style-type: none"> <li>• My goals:</li> <li>• What I liked:</li> </ul>	<p><b>My Plan for Home</b></p> <p>Find time every day to read, play, and talk (best with TV off).</p> <p>Looking forward to our visit at ____ months!</p>
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Toy: Mindshapes Blocks or Bug Jug

Interventionist: \_\_\_\_\_

2m

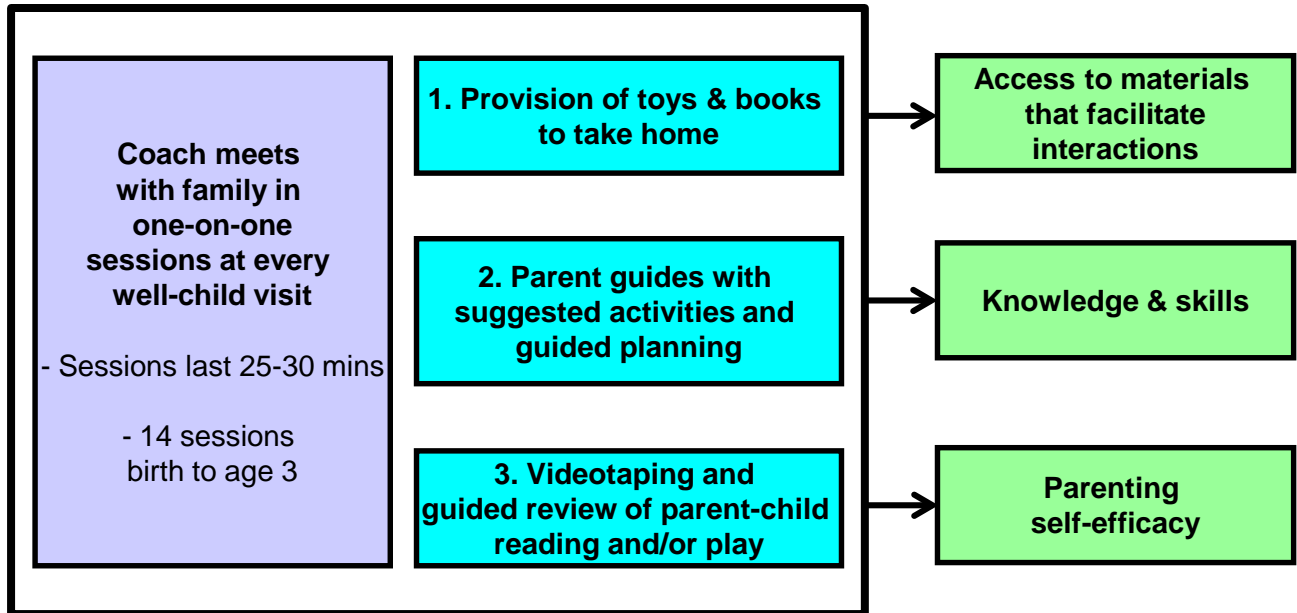
# Video Interaction Project (VIP)



## Program structure

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# Video Interaction Project (VIP)

## Making of the Video recording



Watched together by parent-child specialist and parent

- Positive interactions observed and reinforced
- Additional opportunities for interactions identified
- DVD/video given to parent to take home to share with family

# Video Interaction Project

# Video Interaction Project Research

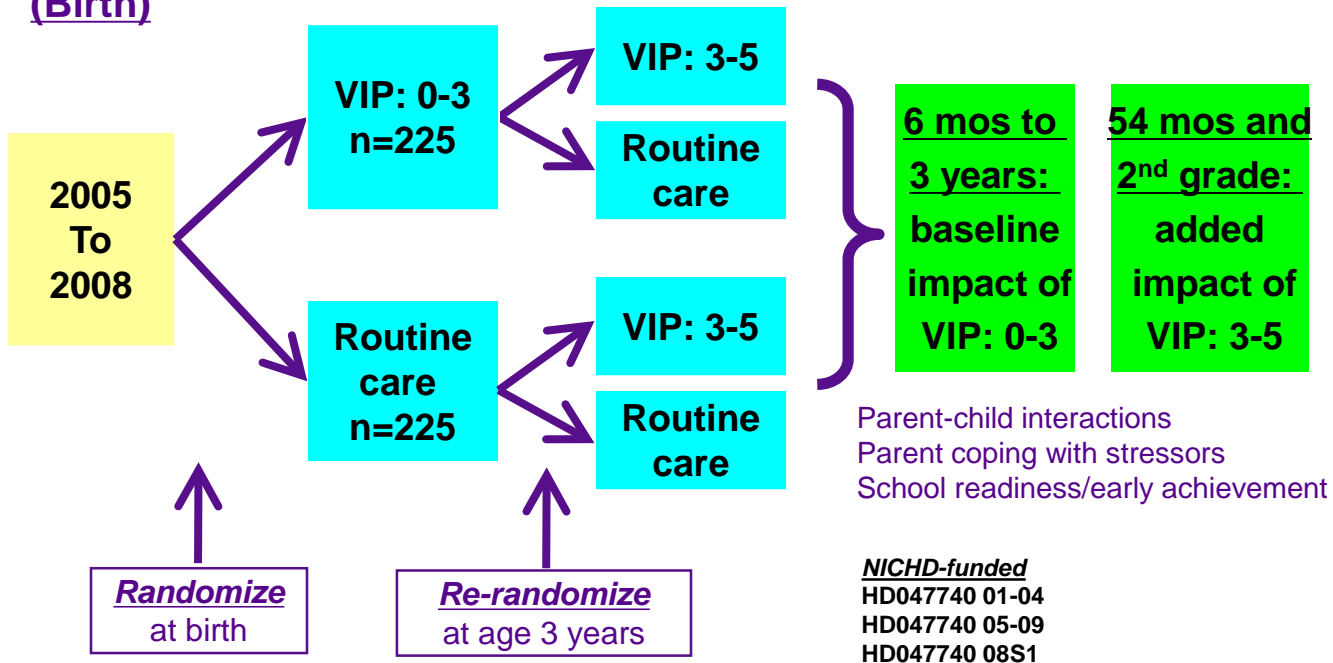
# BELLE Project: *Factorial* RCT

## Enrollment (Birth)

## 0-3 years

## 3-5 years

## Study Impact



Eunice Kennedy Shriver National Institute  
of Child Health and Human Development  
Health research throughout the lifespan



# VIP Research: Published findings



- Increased parent-child interactions
  - Enhanced reading, play, talking, teaching  
(Mendelsohn, 2011a; Cates, in press)
  - Reduced screen time (Mendelsohn, 2011b)
  - Reduced physical punishment (Canfield, 2015)
- Enhanced psychosocial functioning
  - Reduced maternal depressive symptoms (Berkule, 2014)
  - Reduced parenting stress (Cates, 2015)
- Improved child development
  - Enhanced language, cognition (Mendelsohn, 2005, 2007, 2013)
  - Enhanced social-emotional development  
(Weisleder, 2016; Mendelsohn, 2018)

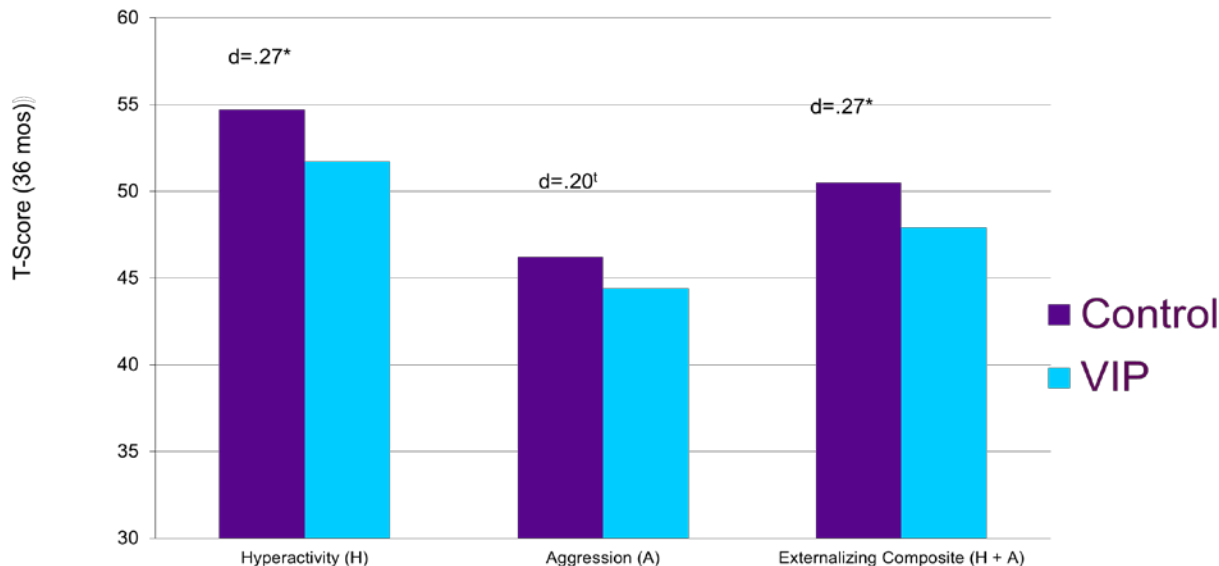


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# VIP 0-3 impacts on Social-emotional Development: Large Reductions in Behavior Problems at 3 years



d: Cohen's d

\*\*p<.05, †p<.10

Weisleder et al, *Pediatrics*, 2016

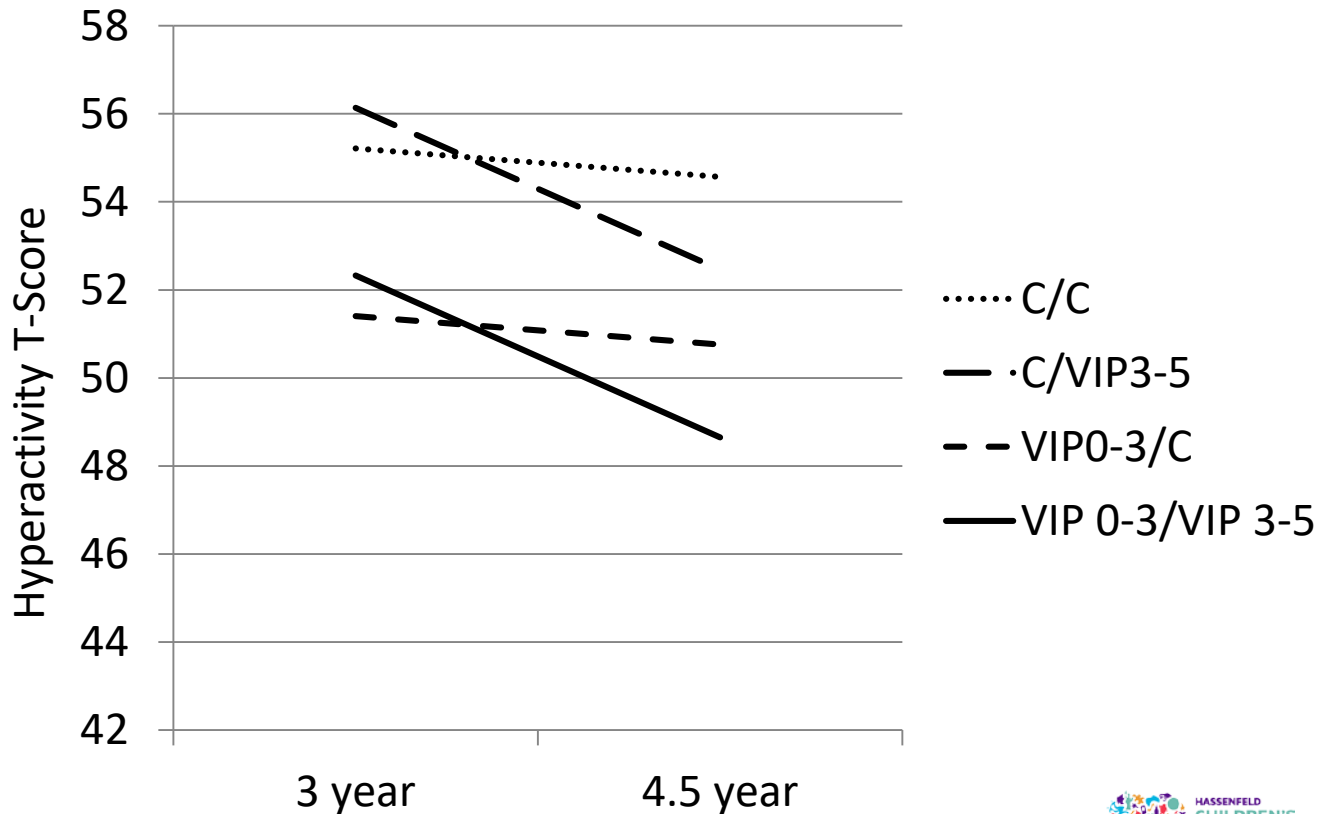
BASC Subscale



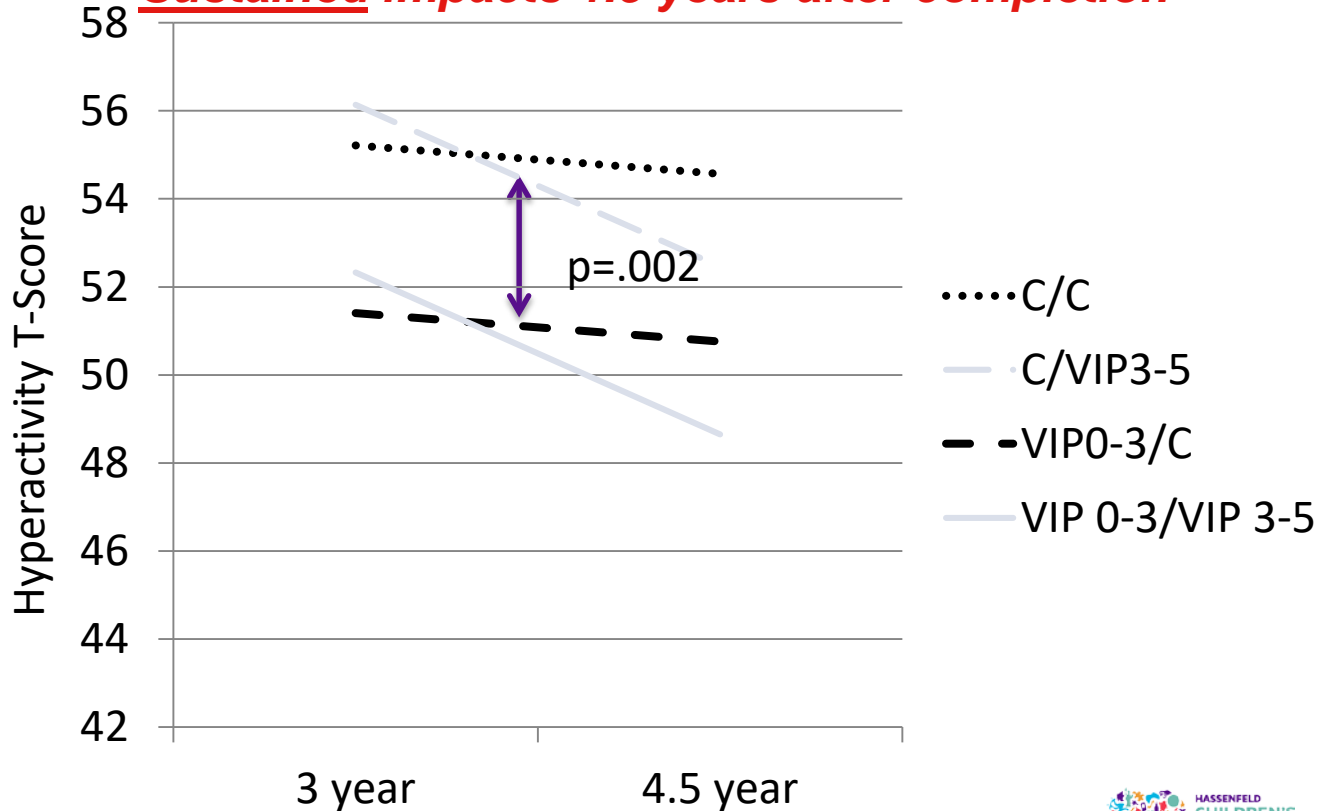
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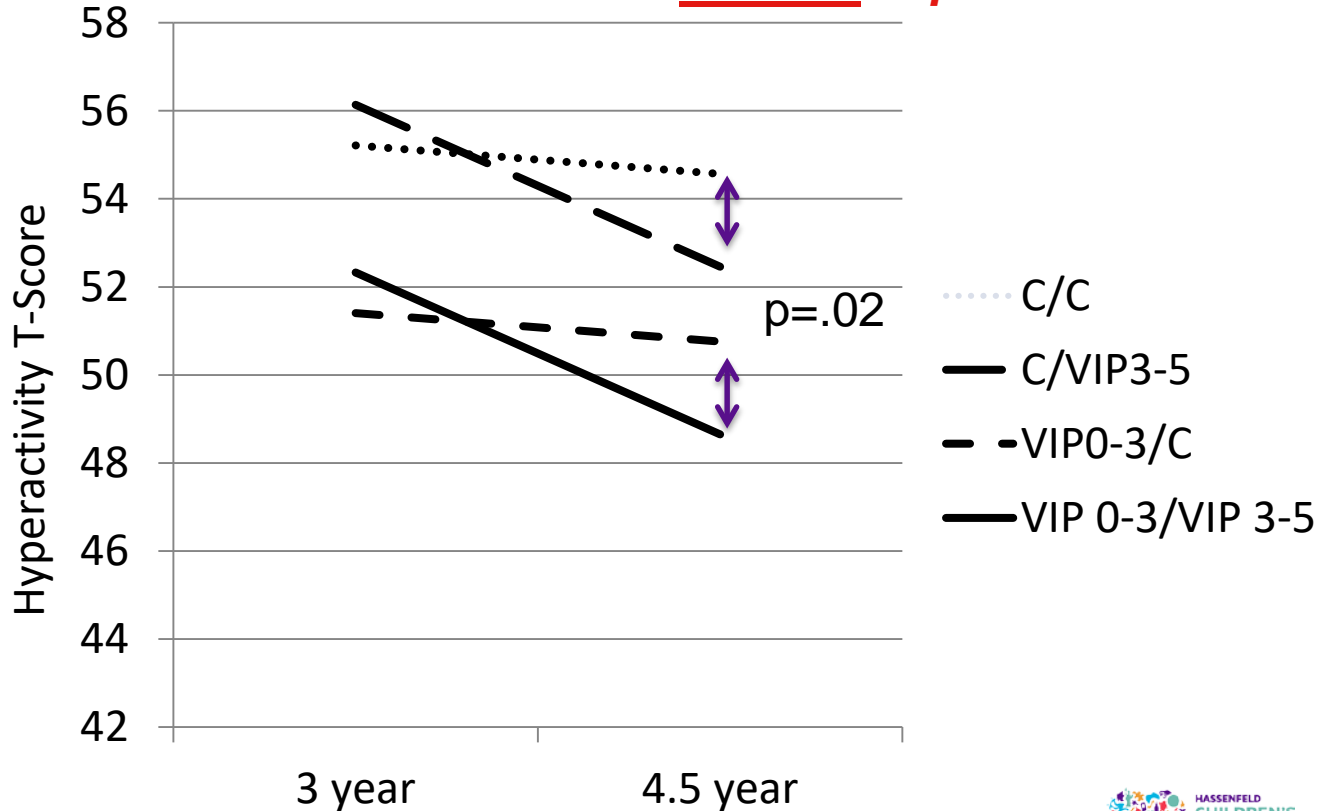
## Trajectories (MLM) of VIP 0-3 and 3-5 - impacts on behavior: Age 3 to 4.5 years



Trajectory (MLM): ***Main effect of VIP 0-3***  
***Sustained impacts 1.5 years after completion***

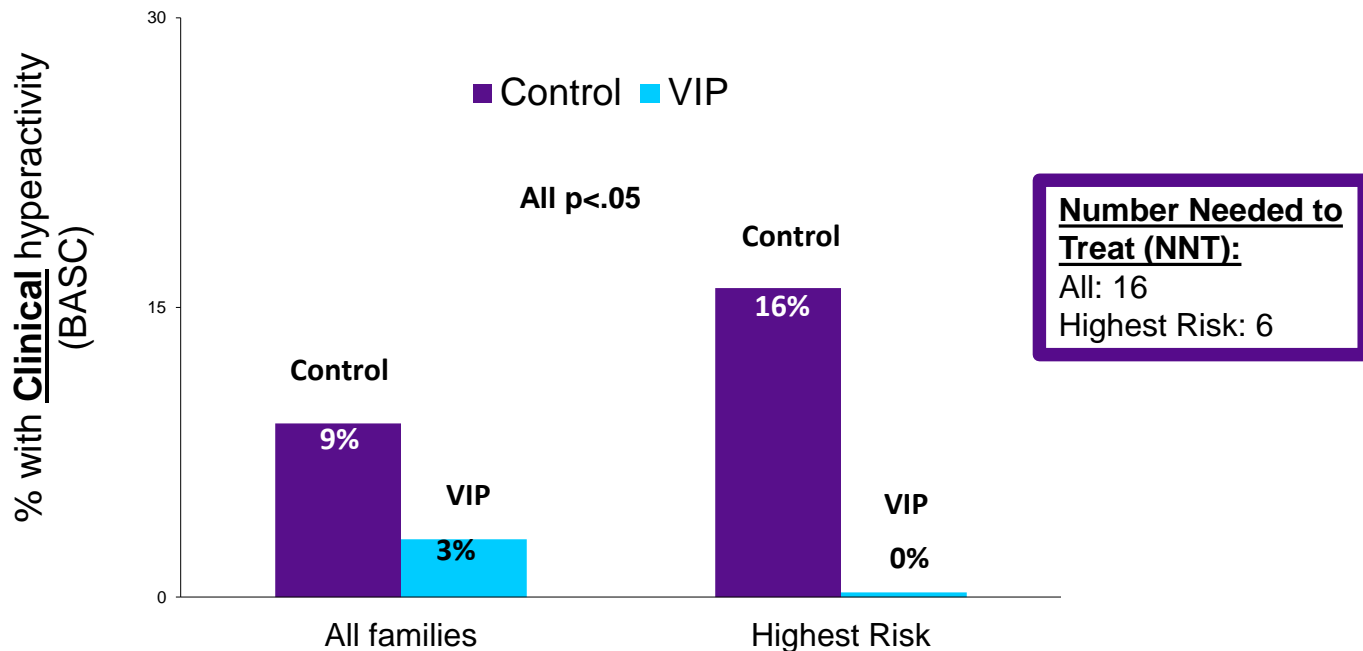


Trajectory (MLM): **Group by age interaction showing VIP 3-5 additive impacts**

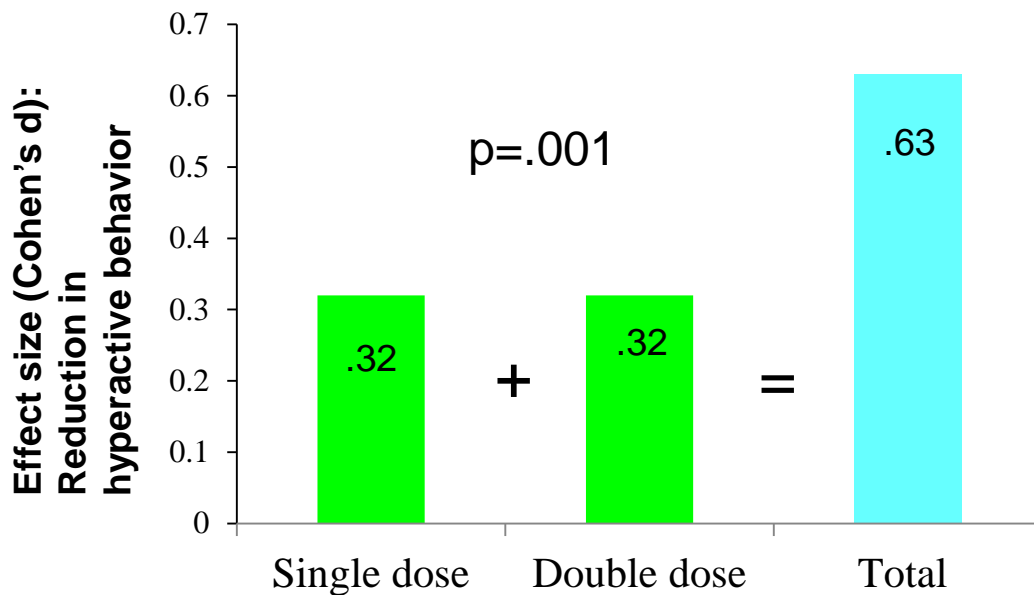


# VIP 0-3 impacts on Behavior Problems:

## Impacts on Clinical Level Hyperactivity at 4.5 years



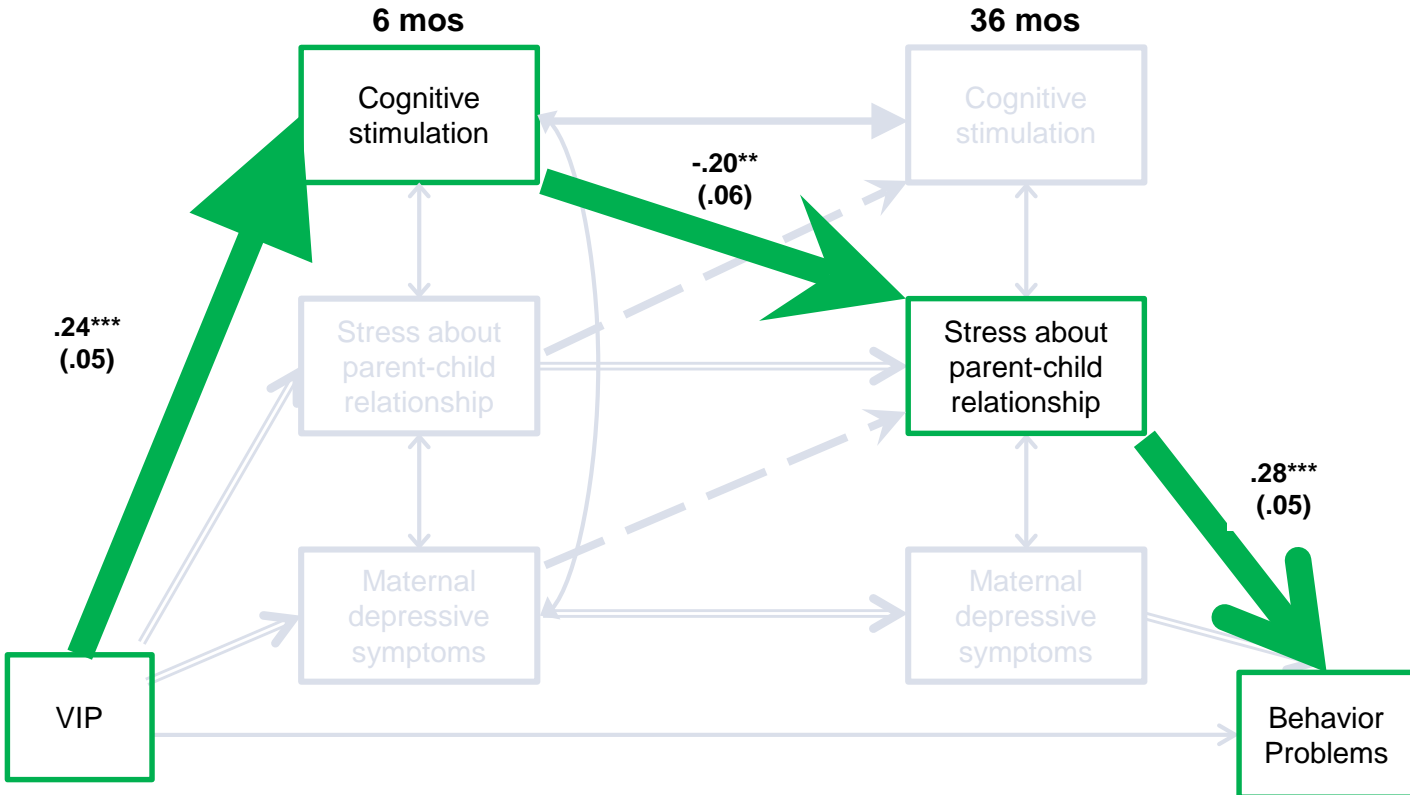
## Dose impact: *Extending* VIP to 5 years *doubled* reductions in behavior problems



Mendelsohn et al, *Pediatrics*, 2018



# Pathways of Impact: **VIP** → Parent Child Interactions → Psychosocial functioning → Behavior



# VIP: Work in Progress



## VIP: Preparation for Scaling

- Full manualization of VIP 0-3
  - VIP 3-5 in progress
- 3 day training course for interventionists
- Design of materials to support fidelity
- Blueprint for VIP Center of Excellence to support implementation:
  - Nonprofit business plan, organizational structure

# VIP: Scaling Presently Underway

## New York City

- **New York City Council: City's First Readers (NYC)**
  - Citywide primary prevention linking health care (ROR+VIP) to community (libraries, home visiting); DHHS/HRSA Bridging the Word Gap Research Collaborative
  - Implementation sites: Bellevue Hospital Center, Woodhull Medical Center (Brooklyn), Children's Aid (Harlem; foster families)
- **NYC DOHMH early childhood initiative**
  - Elmhurst as prototype for implementation across NYC H+H (Queens, in progress)
- **NYU Community Service Plan**
  - NYU Langone Family Health
- **Public Health Solutions**
  - WIC Programs (in progress)
- **NYU Center for the Study of Asian-American Health**
  - Gouverneur (NIMHD Research COE; Chinese-American families; in progress)

## National

- **Pittsburgh, PA**
  - Integration within Smart Beginnings model (VIP+home visiting; NICHD-funded)
  - Allegheny County Department of Health (in progress)
- **Flint, MI**
  - Hurley Medical Center (in context of community-level trauma)

## Smart Beginnings: *Integrated, tiered model* linking VIP to home visits for families at increased risk

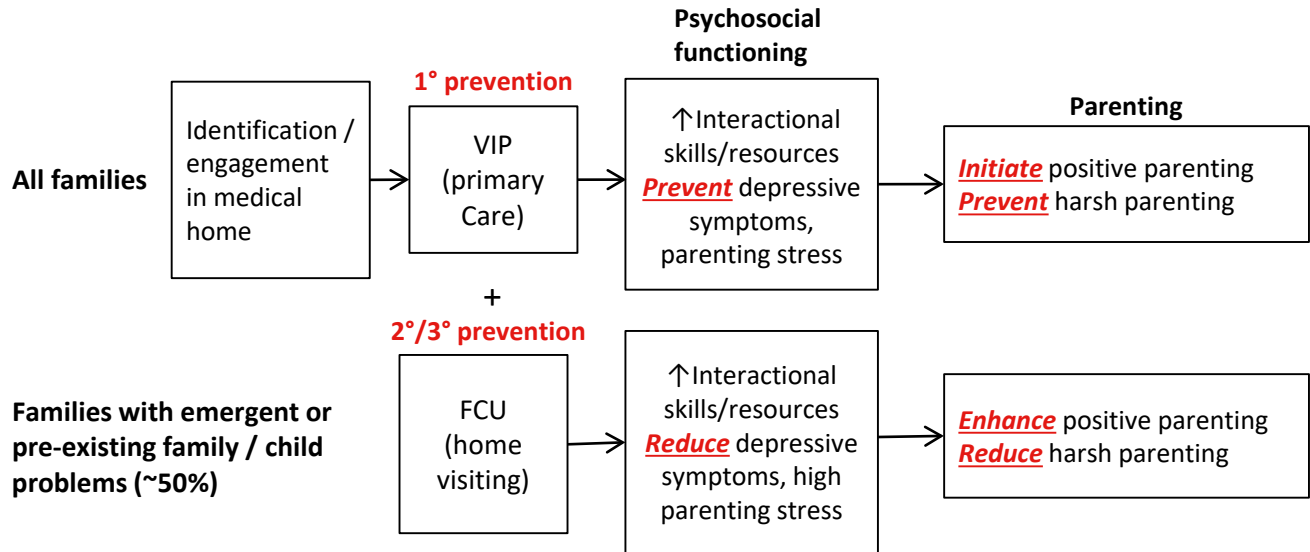
- Universal 1<sup>o</sup> prevention in primary care
  - ROR+VIP at every well child visit for *all* families
- Tiered 2<sup>o</sup>/3<sup>o</sup> prevention through home visiting
  - Family Check Up at 6, 18 and 30 months
  - Families with *identified risks* (mental health, child behavior)
- Two site RCT: NYC and Pittsburgh
  - NICHD: 1R01HD076390 (MPI Morris, Mendelsohn, Shaw)
- Progress to date
  - Enrollment of 400 parent-child dyads complete
  - Follow up through 2 years in progress (n~100)
    - Preliminary findings: large impacts on parenting and behavior



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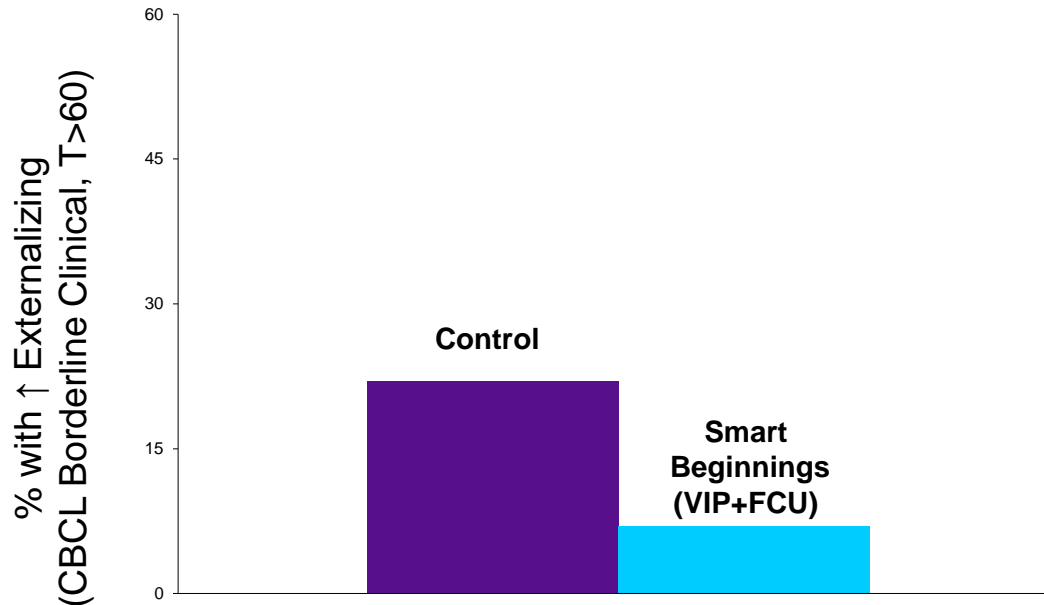
# Smart Beginnings Conceptual Model



# Smart Beginnings (Integrated VIP + FCU)

## Reduction in Externalizing Behavior at 24 months

n=94



Morris, Mendelsohn, Shaw  
R01 Preliminary Data

# International adaptation of work (Boa Vista, Brazil)

- Partnership with:
  - City of Boa Vista: Mayor-led initiative
  - Instituto Alfa e Beto: Non-profit foundation
- Challenges: low literacy, severe material hardship
- Intervention modeled on:
  1. ROR: Book-lending program, anticipatory guidance
  2. VIP: Identification of strengths / self-reflection during parent groups
- Cluster RCT: 22 Centers, 500+ children
- Large impacts on reading aloud and child development

(Weisleder, Pediatrics, 2018)



**Parenting workshops  
in child care (Casas Mae)**

# Policy Implications of Findings

## Level of prevention

- Need for *1<sup>o</sup> prevention* for all families in poverty given broad risk
  - Low intensity *1<sup>o</sup> prevention* programs can have large impacts
- *Integrated 1<sup>o</sup> + 2<sup>o</sup>/3<sup>o</sup>* likely to have greatest population-level impact

## Platform

- Pediatric primary care: potential for universal access and linkage to other platforms such as home visiting; need for increased research

## Strategies

- Facilitate engagement and maximize impact through specific strategies: relationship/strengths-based, universal/non-stigmatizing, family-centered
- Enhancement of positive parenting can have cascading impacts across domains of development

# Support

- NIH / NICHD:
  - HD047740 01-04; HD047740 05-09; HD047740 08S1 (Mendelsohn)
  - 1R01HD076390 (MPI Morris, Mendelsohn, Shaw)
- Foundations:
  - Tiger Foundation
  - Marks Family Foundation
  - Children of Bellevue, Inc.
  - KiDS of NYU Foundation, Inc.
- New York City Council
  - City's First Readers
  - Discretionary funding
- Academic Pediatric Association:
  - Young Investigator Programs (Reach Out and Read, MCHB/Bright Futures)



# BELLE/Smart Beginnings Collaborators and Project Team

## Project Directors:

- PI: Alan Mendelsohn, MD
- Caitlin Canfield, PhD
- Anne Seery, PhD

## Co-Investigators/Collaborators

- Carolyn Cates, PhD
- Adriana Weisleder, PhD
- Benard Dreyer, MD
- Samantha Berkule Johnson, PhD
- Harris Huberman, MD, MS
- Cathie Tamis-LeMonda, PhD
- Suzy Tomopoulos, MD
- Pamela Morris, PhD
- Daniel Shaw, PhD
- Deborah Bogen, MD
- Anne Gill, PhD
- Elizabeth Miller, PhD
- Rachel Gross, MD
- MaryJo Messito, PhD
- Perri Klass, MD

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- Jennifer Ledesma, BA (VIP)
- Maya Matalon, BA (VIP)
- Nina Robertson, BA (VIP)
- Sabrina Vasques, BS (VIP)
- Adriana Chung, MEd, MSW (FCU)

## BELLE / Smart Beginnings

- Caroline Raak, BS (Smart Beginnings Coordinator)
- Angelica Alonso, MS
- Maritza Morales-Gracia, MA
- Andrea Paloian, BA

## VIP Implementation Specialist

- Aida Custode, MA

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- Erin Roby, PhD
- Yun-Kuang Lai, MD

## Medical Students

- Brit Trogen, MD, MSc
- Margaret Burns, BA



# Thank you!

**Alan Mendelsohn, MD**

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# Questions?