

# ***Connecting Science + Community:*** **Breakthrough Opportunities in Challenging Times**

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## **JACK P. SHONKOFF, M.D.**

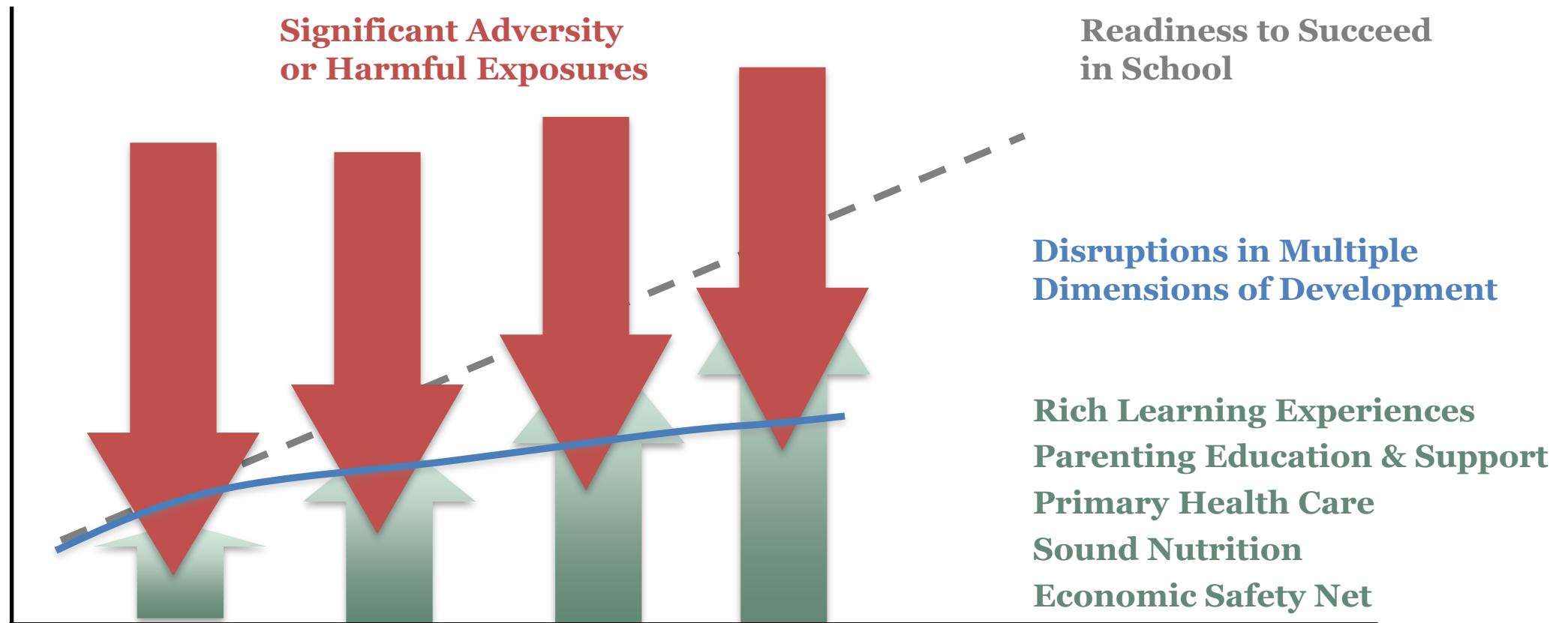
Julius B. Richmond FAMRI Professor of Child Health and Development,  
Harvard Chan School of Public Health and Harvard Graduate School of Education.  
Professor of Pediatrics, Harvard Medical School and Boston Children's Hospital.  
Founding Director, Center on the Developing Child at Harvard University.  
Director, Connecting Science + Community.

**Presentation to:**  
**16<sup>th</sup> Annual Readiness Summit**  
**Preschool Promise**  
**March 7, 2025**

**The process of development depends on  
interactions among three influences**

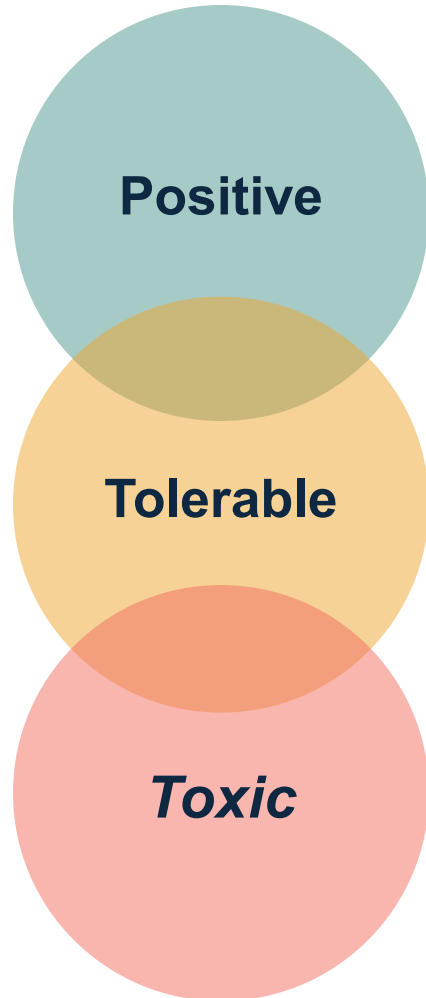
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# The mindsets guiding early childhood policies and programs are conceptually sound but variable in impact



# The biology of adversity, adaptation & resilience explains both immediate benefits and potential harm of the stress response

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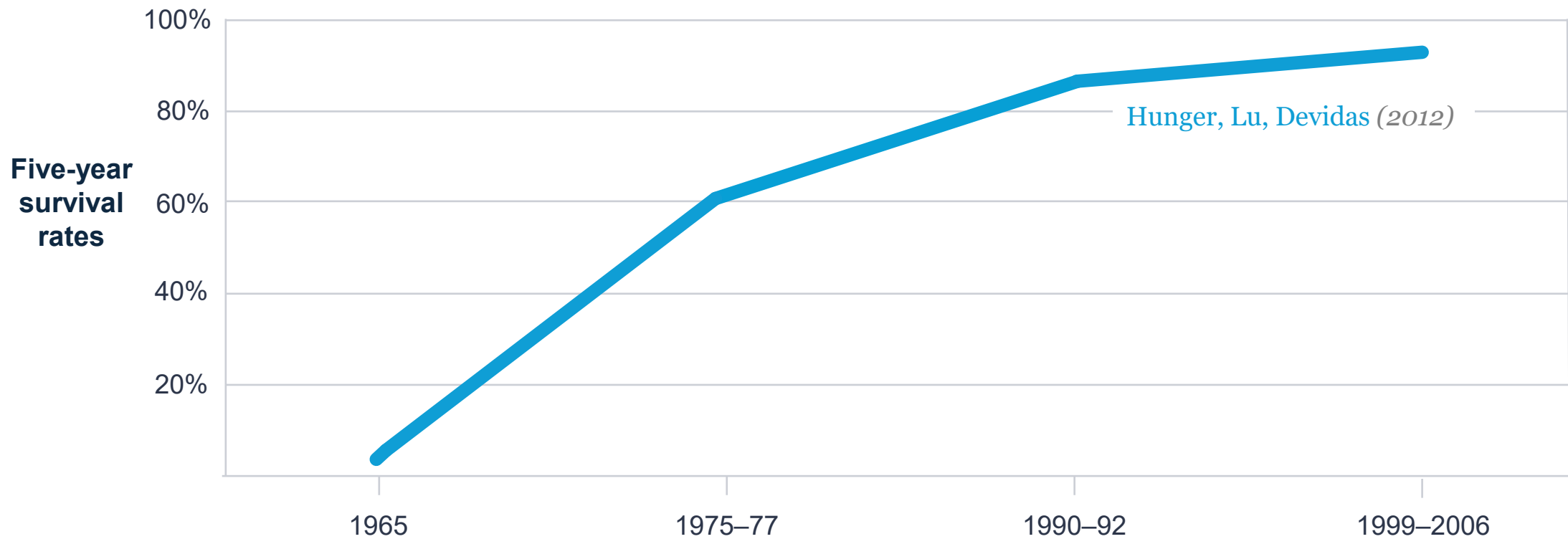
**Brief increases** in heart rate, blood pressure, stress hormones, inflammation, and other components of stress activation that facilitate coping with manageable challenges.

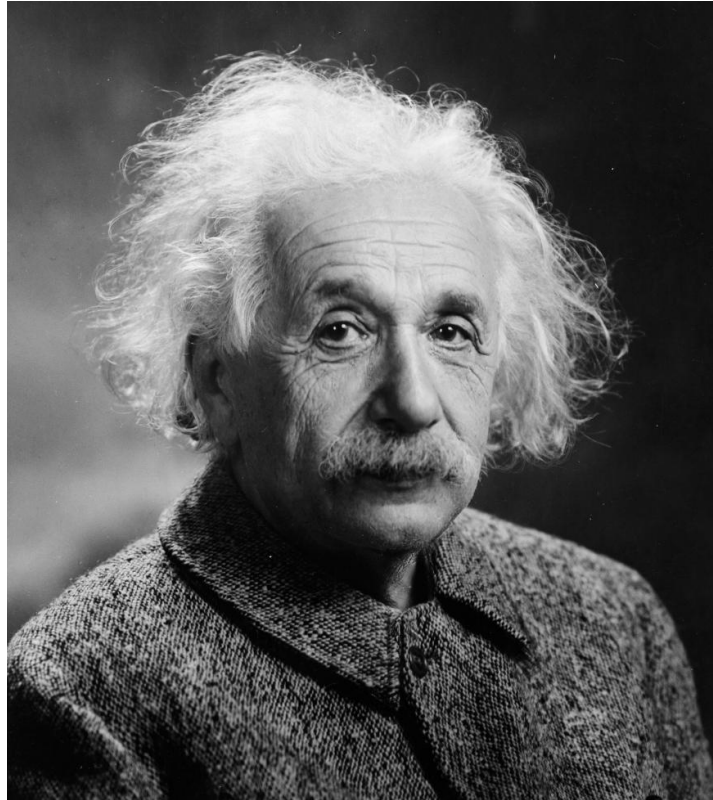
**Significant yet time-limited activation** of the stress response that is buffered by supportive relationships.

**Excessive and prolonged activation** of the stress response that is **built into the developing brain and other biological systems** with long-term consequences unless moderated by broader protective strategies.

# Why addressing variation in effectiveness of interventions is essential to achieve greater impacts

## What can we learn from 40 years of treating acute lymphoblastic leukemia?





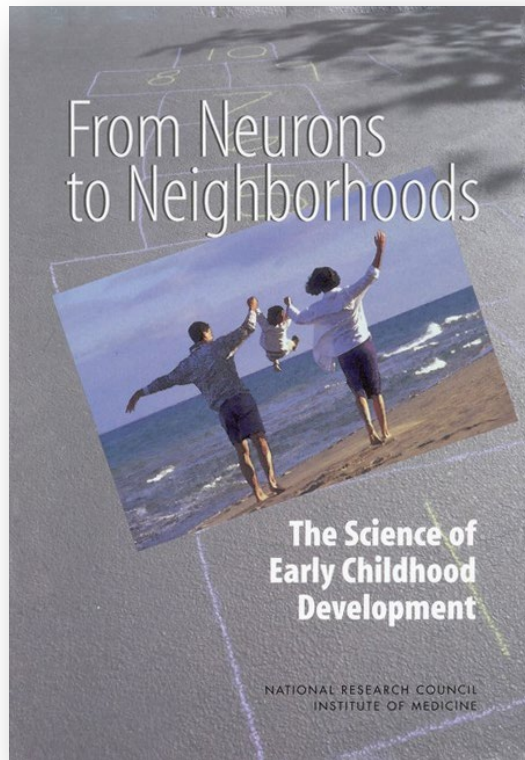
## Albert Einstein identified a pathway to greater impacts

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“To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.”

# Back to the Future

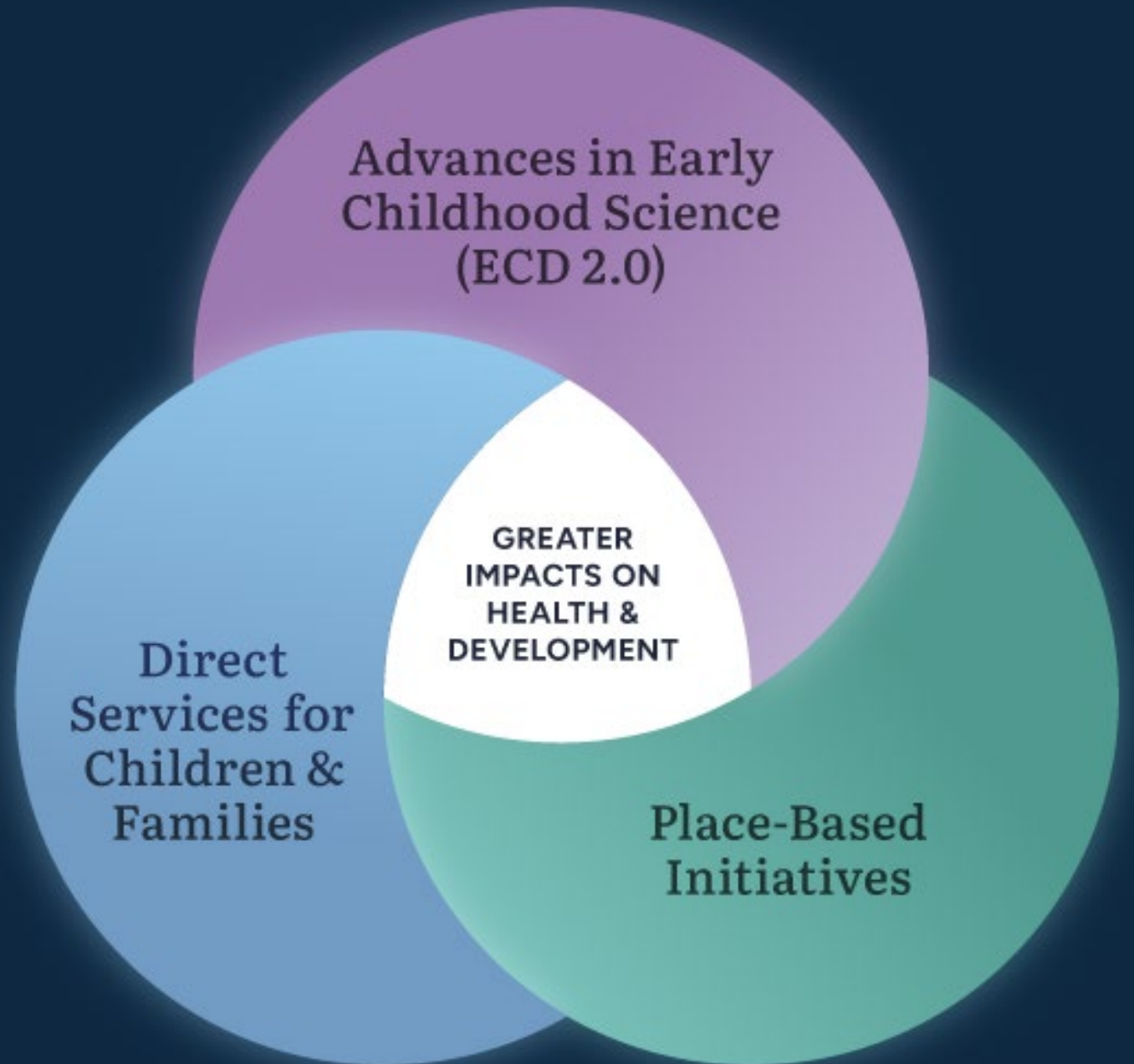
Revisiting a 25-year-old call to action that worked well for neurons but not for neighborhoods



“The field of early childhood intervention has evolved from its original focus on children to a growing appreciation of the extent to which **family, community, and broader societal factors affect child health and development.**”

“Successful policies for children who live in adverse circumstances may have less to do with the impact of specific services and be more a matter of **changing the larger environment in which children are reared.**”

# CONNECTING SCIENCE + COMMUNITY





## 3 Core Concepts

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▶ **Connecting the brain to the rest of the body**  
(educational achievement *and* lifelong health)

▶ **Place matters**  
(responsive relationships *and* healthy communities)

▶ **One size does not fit all**  
(universal needs *and* individual variation)

# First Core Concept

## ECD 1.0

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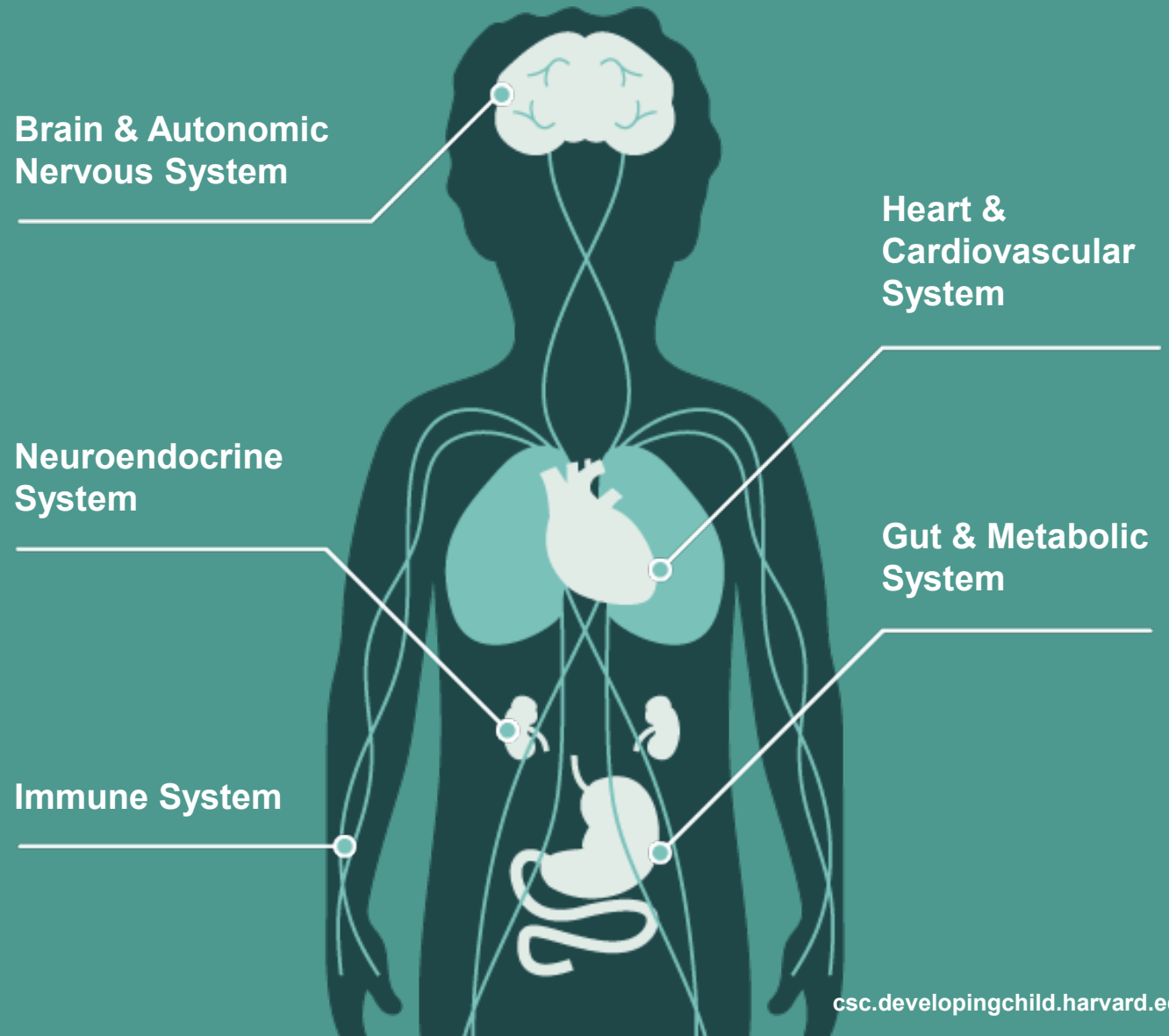
Early experiences shape the architecture of the developing brain, particularly in the highly sensitive prenatal period and 2-3 years after birth...



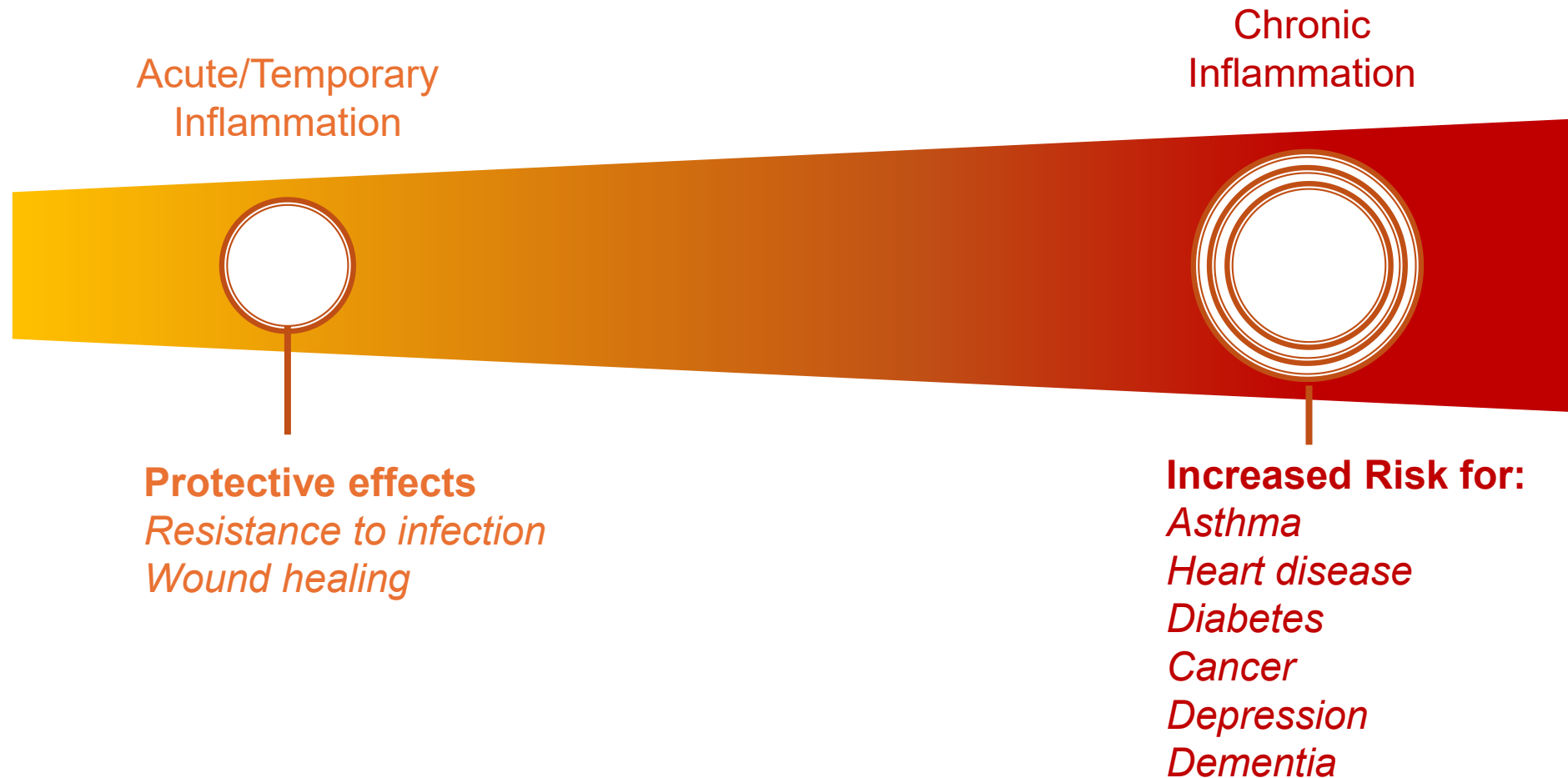
# ECD 2.0

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*...and* the same experiences affect the development of other biological systems in ways that influence both early learning and lifelong health.



# Unpacking the immune component of the stress response illustrates effects on both physical and mental health



# Emerging opportunity for enhanced capacity to measure biological responses to adversity in young children

**24 Month Questionnaire**  
ASQ:SE-2  
Ages & Stages  
Questionnaires  
Social-Emotional

Date ASQ:SE-2 completed: 3/30/15

**Child's information**  
Child's first name: **Luke** Child's middle initial: **K** Child's last name:  
Child's date of birth: **2/23/13**  
Child's gender:  Male  Female

**Person filling out questionnaire**  
First name: **Lucy** Middle initial: **K** Last name: **J**  
Street address: **20 First Street**  
City: **Baltimore** State: **MD** ZIP:  
Country: **United States**  
Phone number: **LUC**  
People talking to you:  
Program ID #: **13235**  
Child's ID #: **243**  
Program name: **Ch**  
P20124000

**24 Month Questionnaire** ASQ:SE-2  
Check the  if you have never described your child's behavior. Also, check the  if the behavior is a concern.

	OPEN OR SHUTTER	STIMULI TURNS	BASED ON HEARER	CHECK IF BEHAVIOR IS A CONCERN	SCORE
9. Does your child stiffen and arch his back when picked up?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0
10. Is your child interested in things around her, such as people, toys, and foods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
11. Does your child cry, scream, or have tantrums for long periods of time?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
27. Does your child play with objects by pretending? For example, does your child pretend to talk on the phone, feed a doll, or fly a toy airplane?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
28. Does your child wake three or more times during the night?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0
29. Does your child respond to his name when you call him? For example, does he turn his head and look at you?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
30. Is your child too worried or fearful? If "sometimes" or "often or always," please describe: <b>Luke is hesitant when he is in unfamiliar places and situations.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
31. Has anyone shared concerns about your child's behavior? If "sometimes" or "often or always," please describe: <b>Our day care provider says it takes Luke a while to stop crying when we leave.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10

TOTAL POINTS ON PAGE: **5**  
page 2 of 2

Is your child too worried or fearful?



Salmetrics

## Second Core Concept ECD 1.0

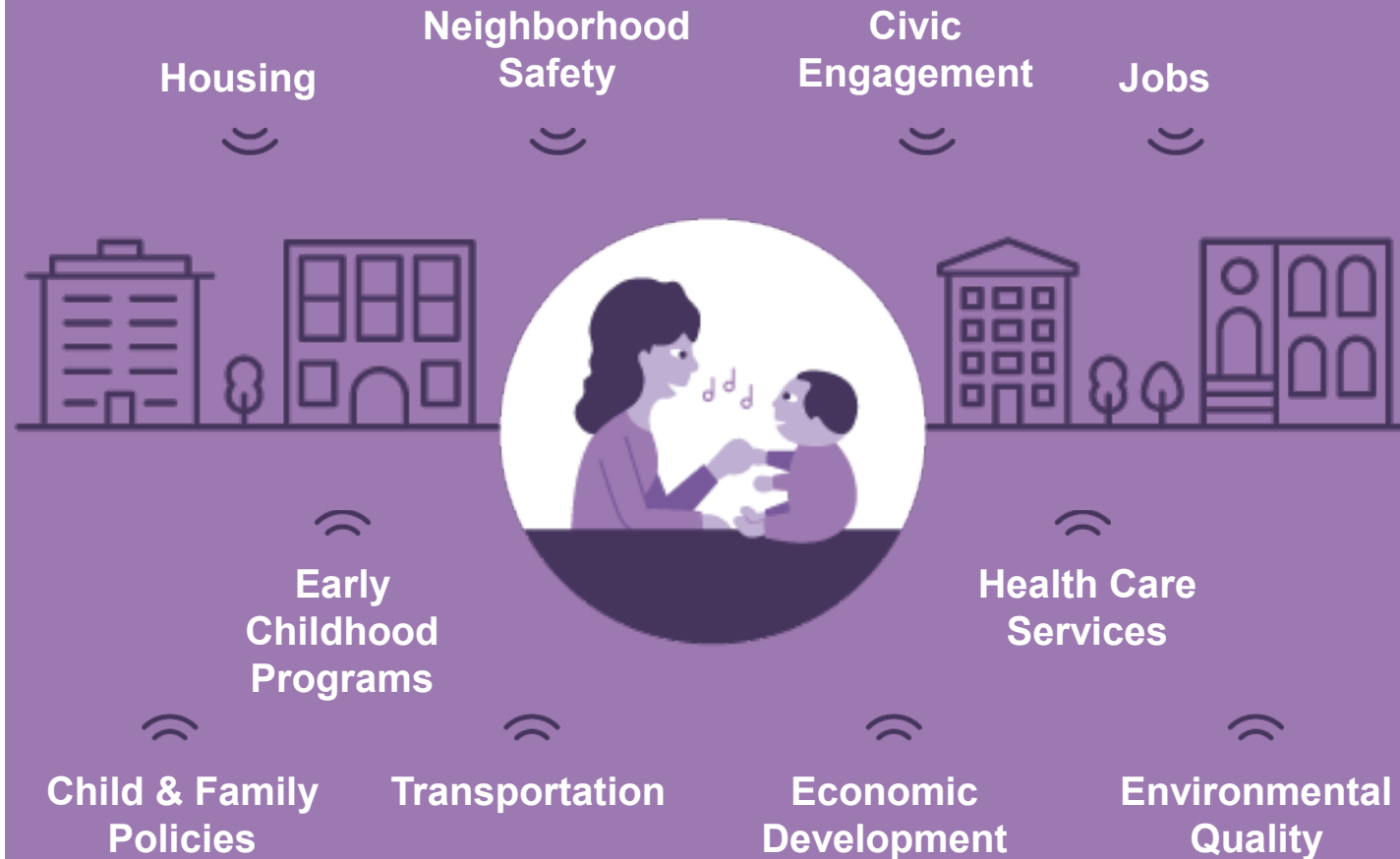
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Responsive, nurturing relationships promote healthy development...



# ECD 2.0

...and we are also influenced by where we live and policies that affect our well-being.



# Where children live presents a variety of assets and threats

that affect their educational achievement, lifelong physical and mental health, and economic mobility.

## Child Opportunity Index 3.0

100 LARGEST U.S. METRO AREAS; CENSUS TRACT DATA; 44 INDICATORS

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### Education

- Pre-K enrollment
- Reading & math scores
- High school grad rate
- Adult education levels

### Health & Environment

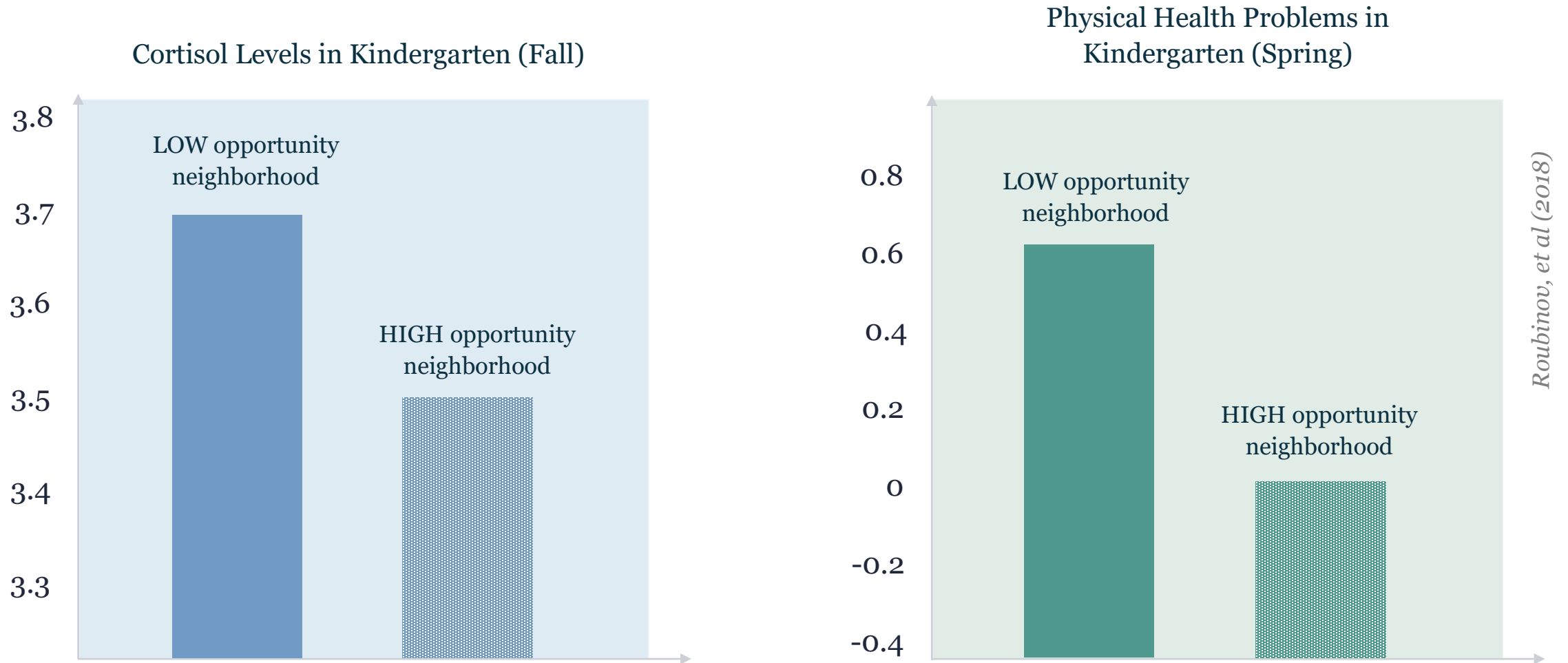
- Health services
- Access to healthy food
- Green space
- Air pollution

### Social & Economic

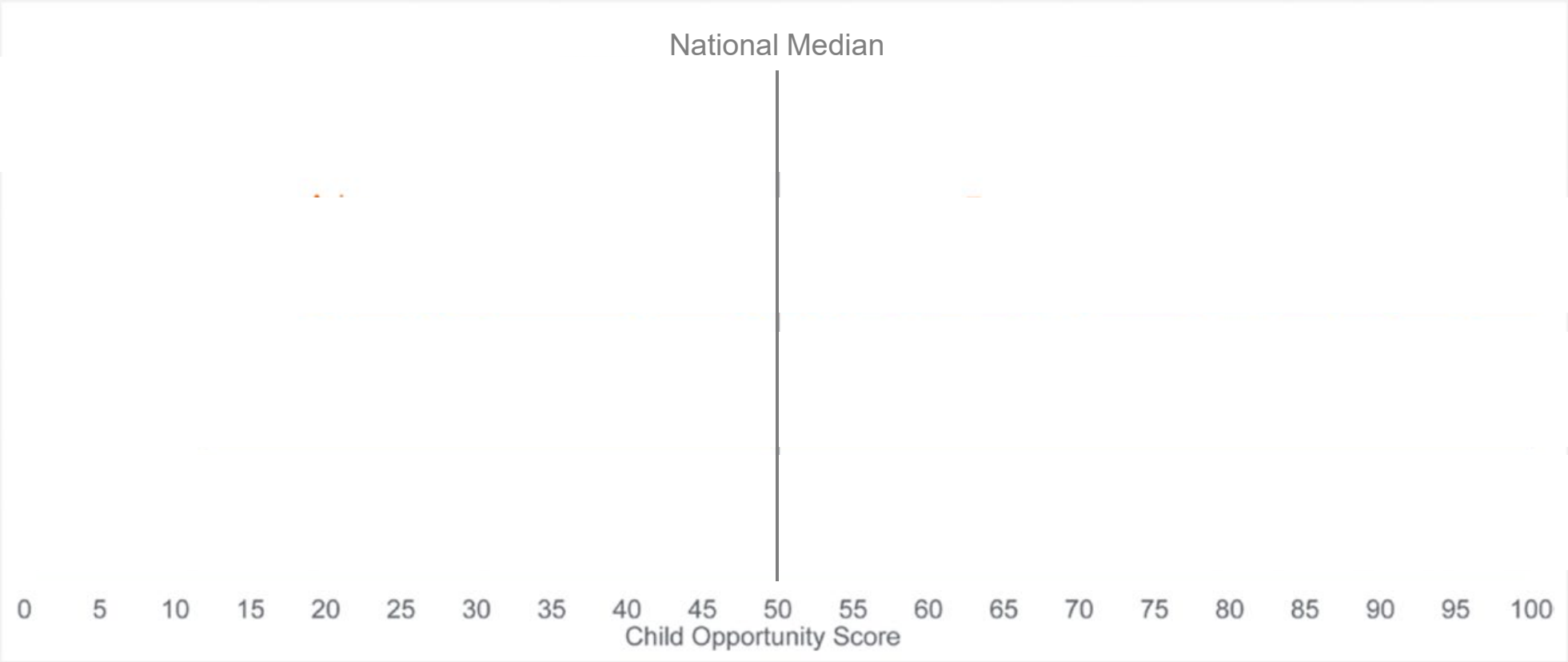
- Employment rate
- Median family income
- Home ownership rate
- Public assistance rate



# How community-level opportunities and risks affect the health and well-being of children in families with low SES



# Residential segregation leads to striking inequalities in exposure to both opportunities and adversities



diversitydatakids.org

# Third Core Concept

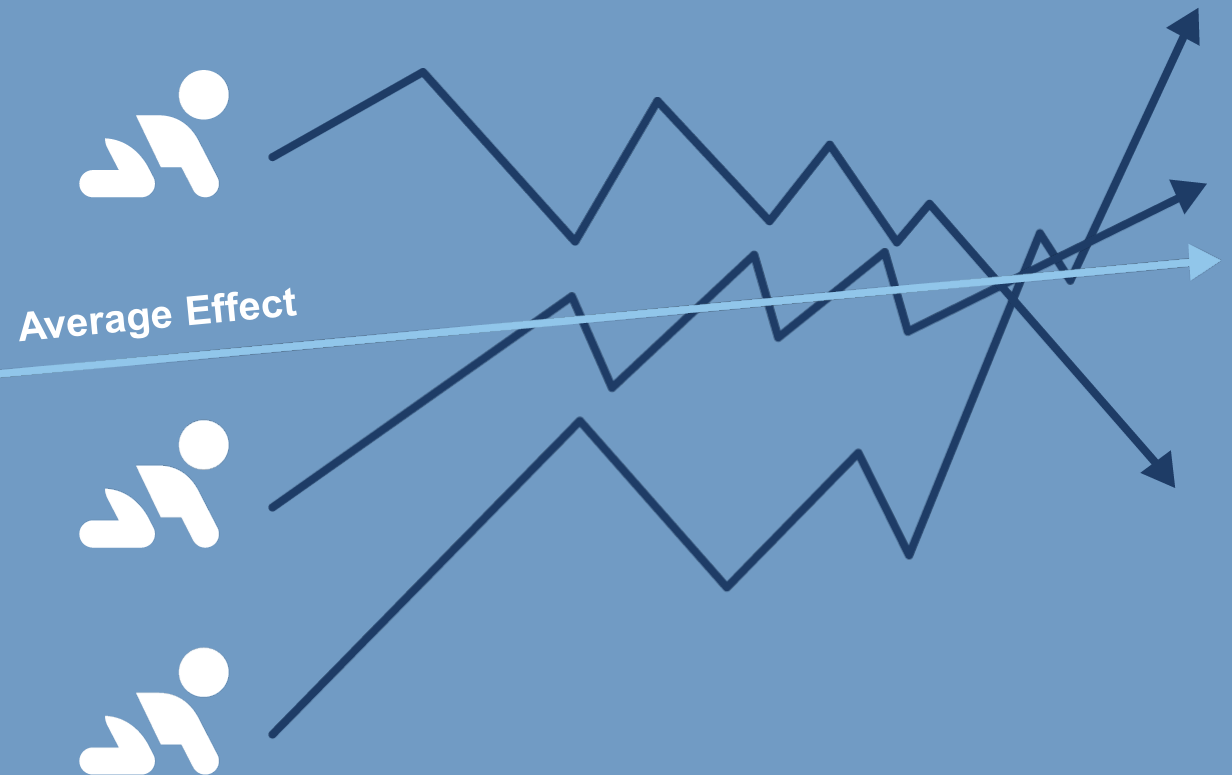
## ECD 1.0

Evidence-based programs can help many children thrive...



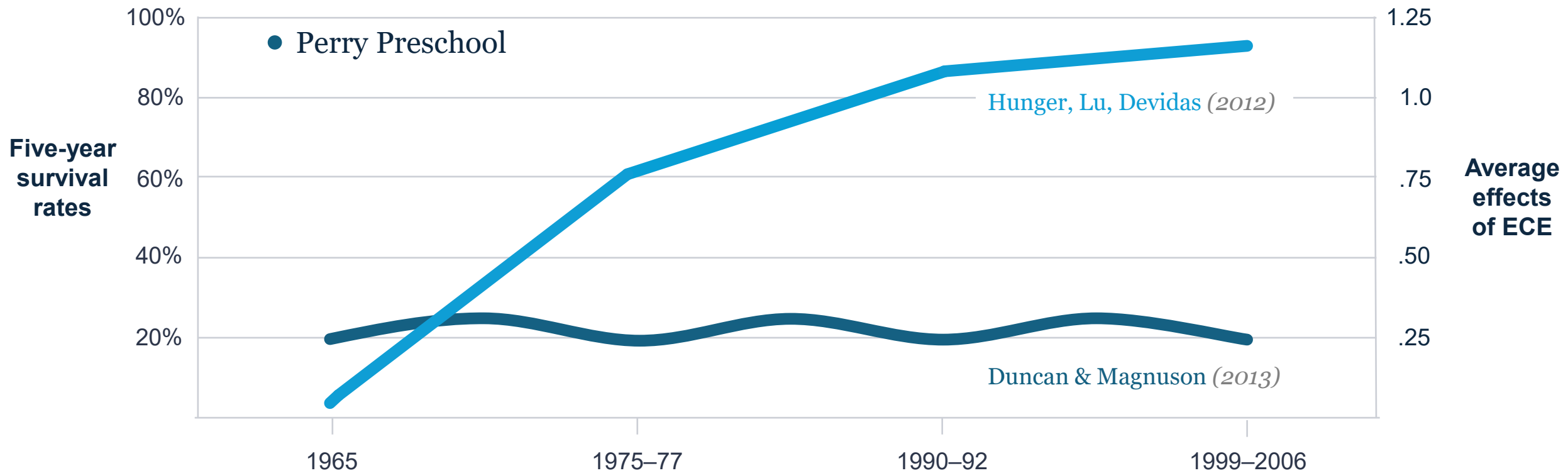
## ECD 2.0

...and flexible approaches are needed to address variation in effectiveness.



# Why addressing variation is essential to achieve greater impacts

## 40 years of treating acute lymphoblastic leukemia compared to center-based early childhood education



## Nelson Mandela mastered the formula for success in the long game

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“I never lose.  
I either win or I learn.”



# CONNECTING SCIENCE + COMMUNITY

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About Science Innovation & Application Collective Change Res

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

**CALL TO ACTION**

**Re-Envisioning Early Childhood Policy and Practice in a World of Striking Inequality and Uncertainty**

The early childhood field is at a critical inflection point in a changing world. The opportunity to align new science and the lived experiences of families and decision makers across a diversity of sectors, cultures, and political values offers a powerful pathway forward. The need for shared leadership along that path is urgent.

[Read the Call to Action](#)

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NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

**Connecting the Brain to the Rest of the Body: Early Childhood Development and Lifelong Health Are Deeply Intertwined**

WORKING PAPER 15

Center on the Developing Child HARVARD UNIVERSITY

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

**Place Matters:**  
The Environment We Create Shapes the Foundations of Healthy Development

WORKING PAPER 16

Center on the Developing Child HARVARD UNIVERSITY

NATIONAL SCIENTIFIC COUNCIL ON THE DEVELOPING CHILD

**A World of Differences:**  
The Science of Human Variation Can Drive Early Childhood Policies and Programs to Bigger Impacts

WORKING PAPER 17

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