

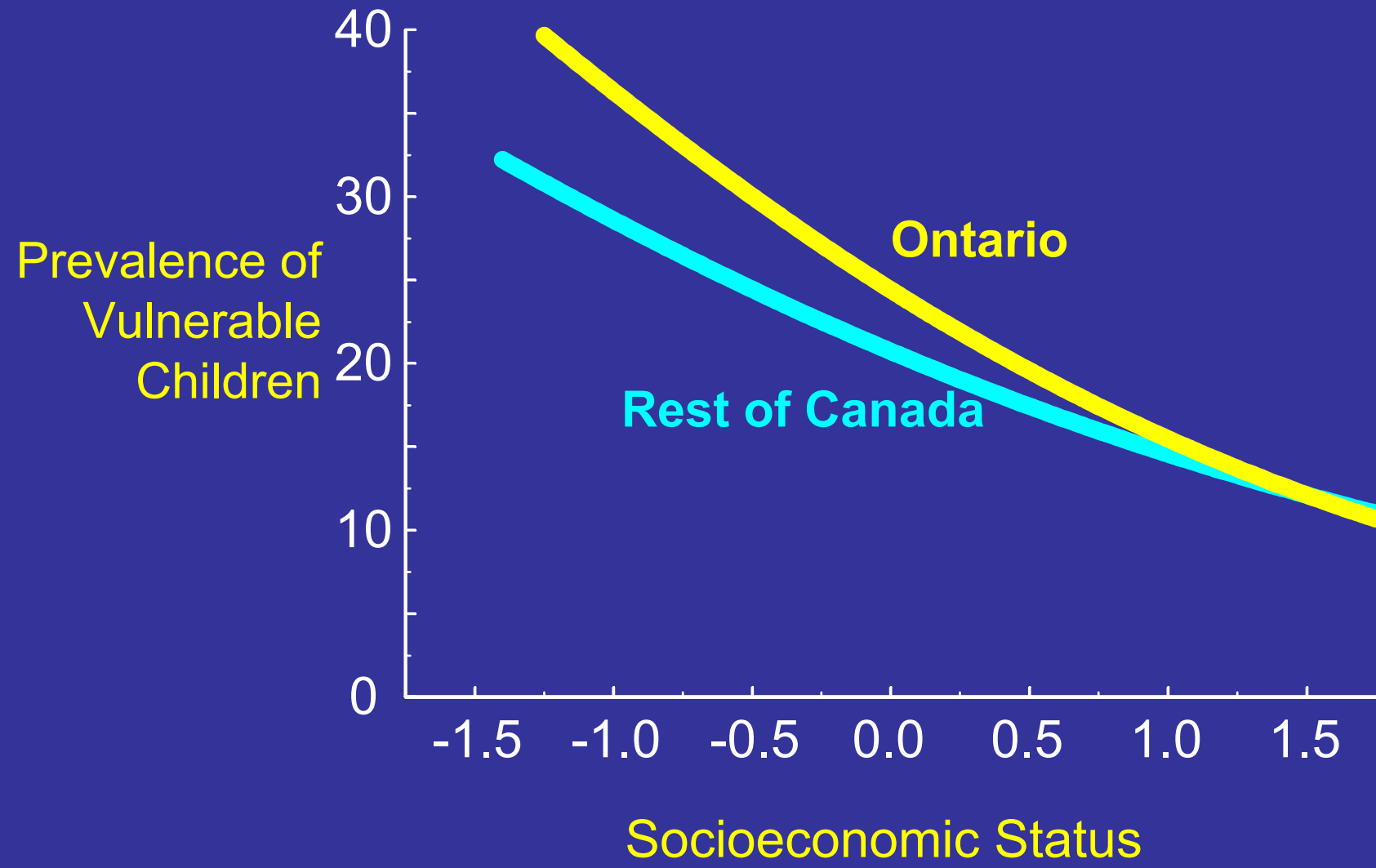
**Early Child Development**  
**The Roots of Health**  
**Jane Bertrand**

Best Start Annual Conference  
From Challenges to Opportunities  
February 22, 2005

# 1. Why are some people healthy and others are not?

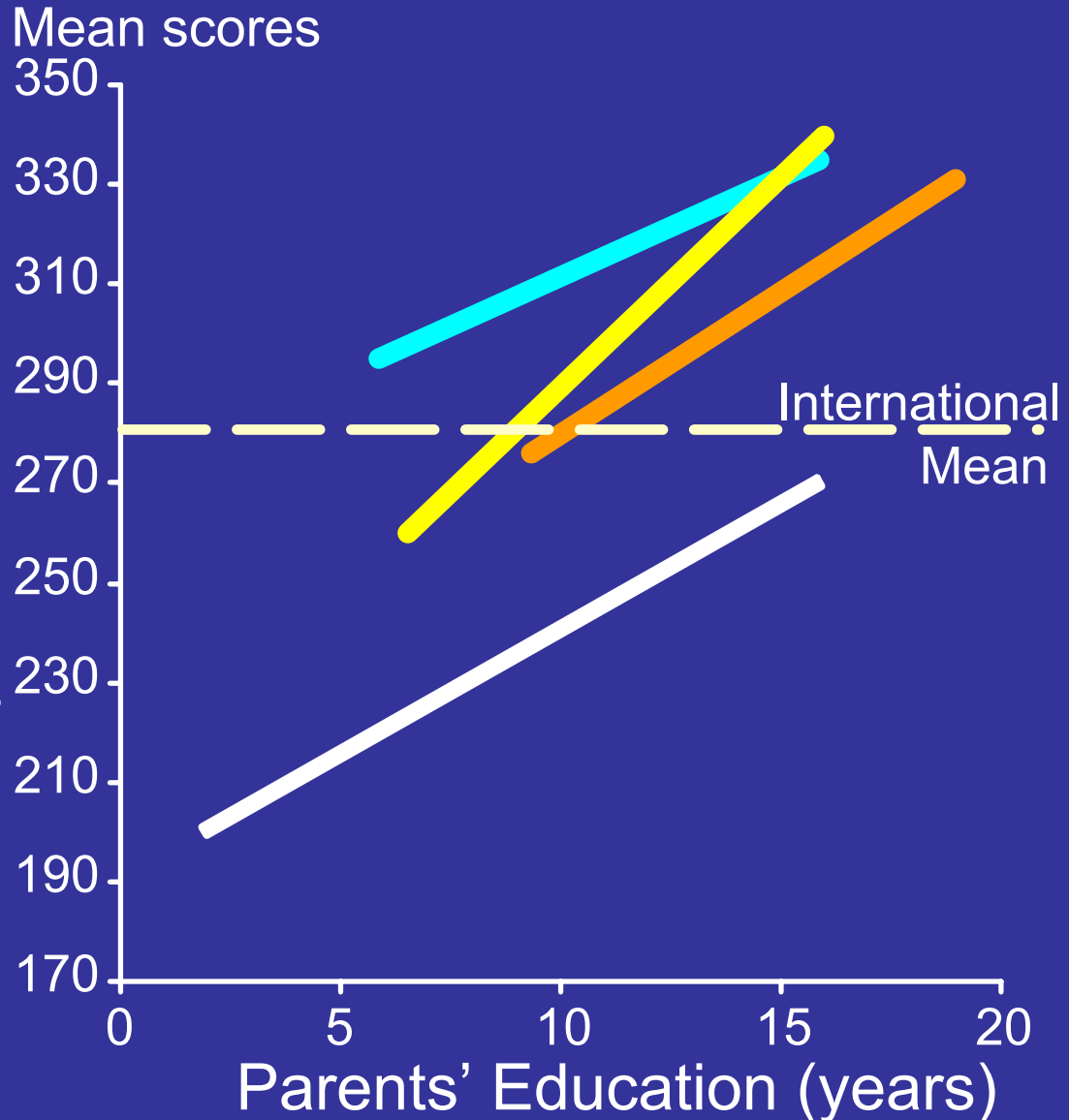
- ❖ Earlier Improvements in Health
- ❖ The Impact of Health Care
- ❖ The Gradient Effect
- ❖ The Prevention Imperative
  - Chronic Disease
  - Social Inclusion
  - Early Child Development

# Vulnerable Children Aged 4 to 6 – NLSCY 1998

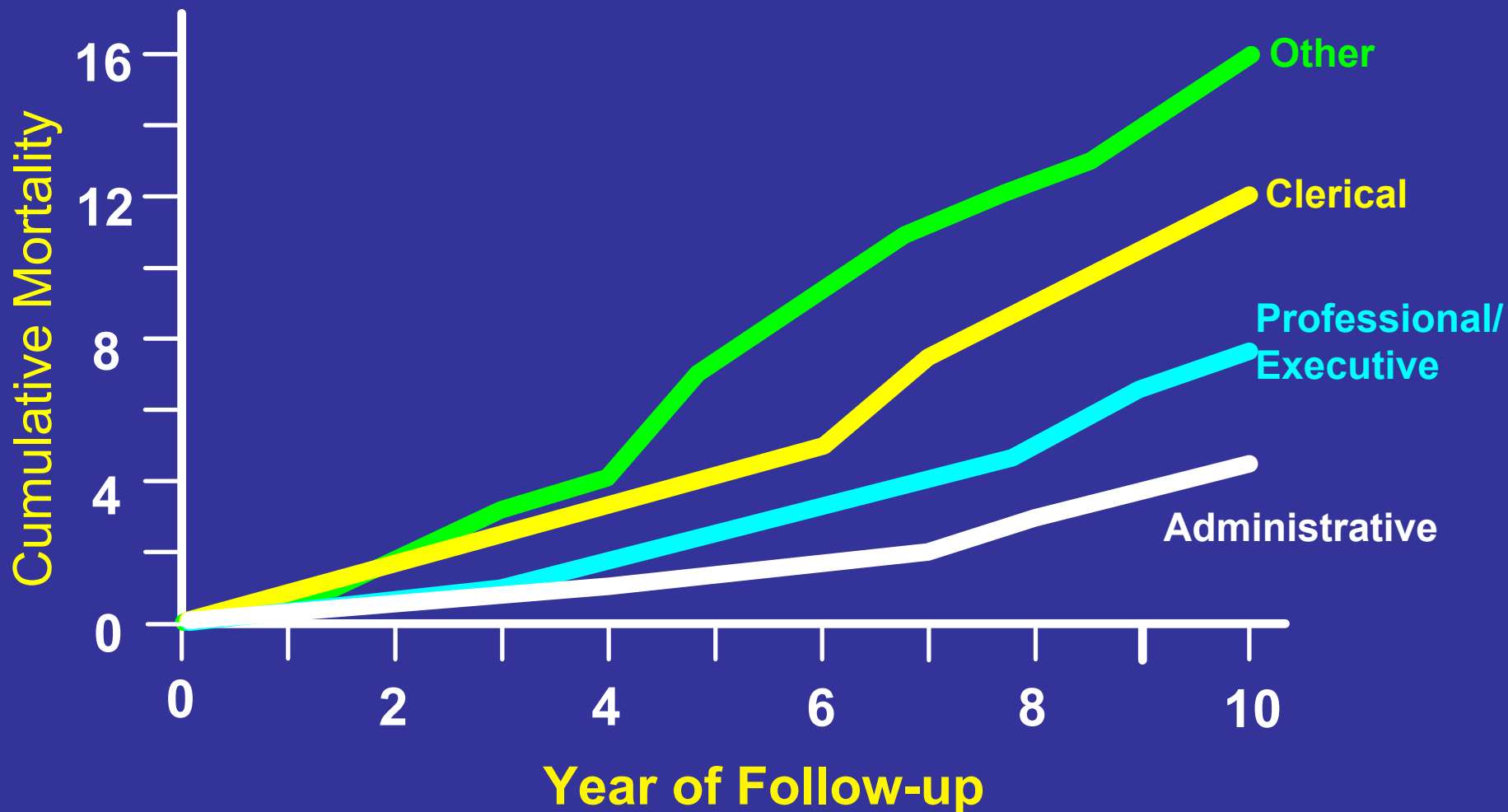


# Socioeconomic Gradients for Document Literacy Scores

- Sweden
- Netherlands
- Canada
- Chile



# U.K. CIVIL SERVICE Mortality - All Causes



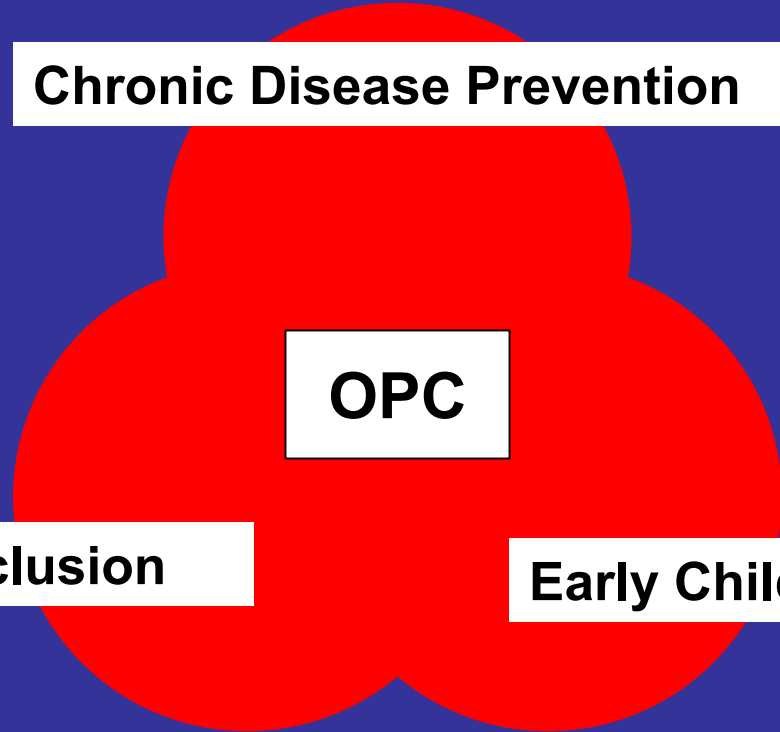
# The Prevention Imperative

**Chronic Disease Prevention**

**OPC**

**Social Inclusion**

**Early Child Development**



## 2. Early life sets later health risks.

- ❖ Depression
- ❖ Chronic Heart Disease
- ❖ Obesity
- ❖ Diabetes
- ❖ Substance Abuse

"Follow up through life of successive samples of birth has pointed to the crucial influence of early life on subsequent mental and physical health and development."

Acheson, Donald - Independent Inquiry into Inequalities in Health, 1998

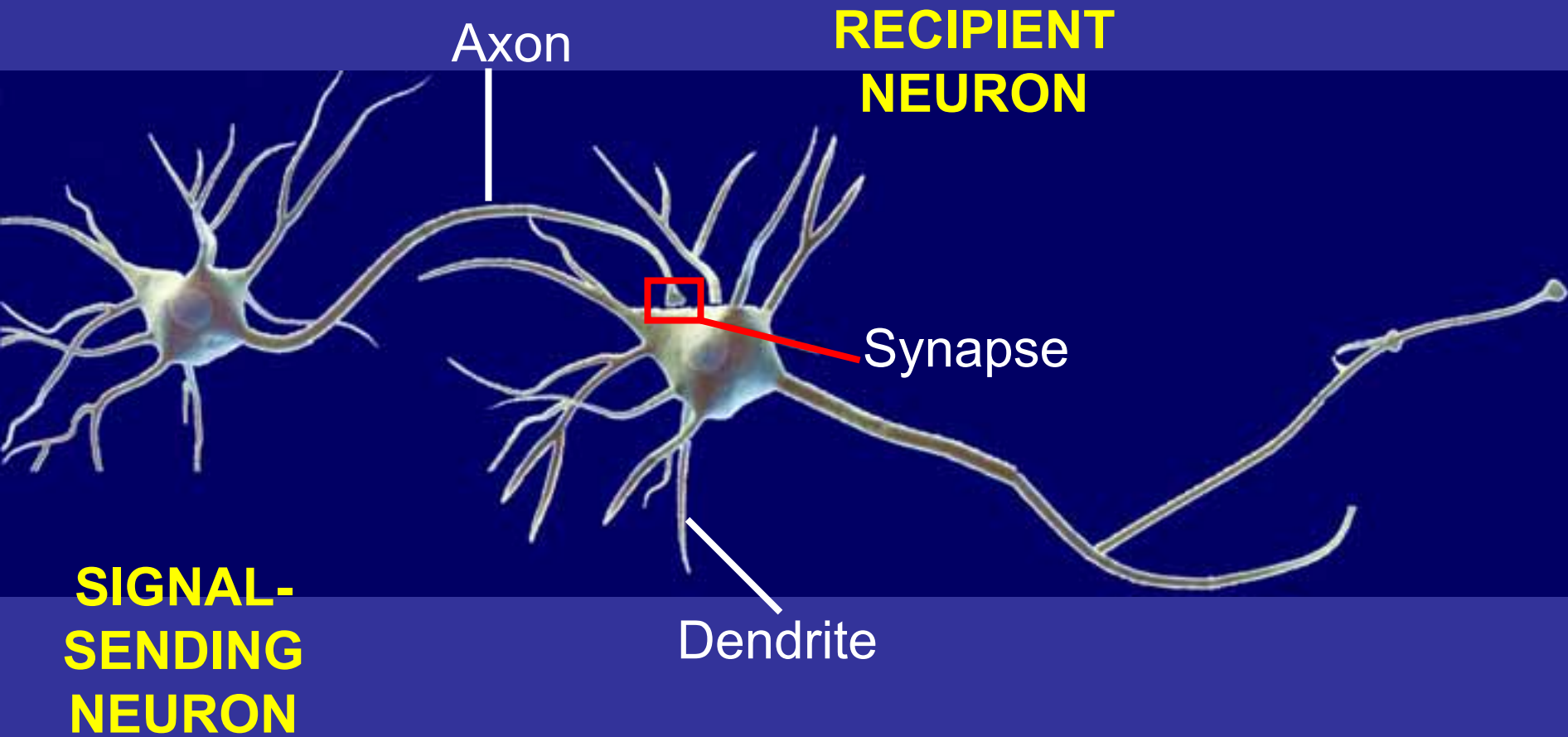
# 3. Early experiences get under the skin.

- ❖ Constructing Neural Pathways
- ❖ Sensory Stimulation
- ❖ Stress Pathways
  - Autonomic Nervous System
  - HPA Pathway
- ❖ Immune & Hormonal Pathways
- ❖ Experience-based Brain Development

# **Consilience:**

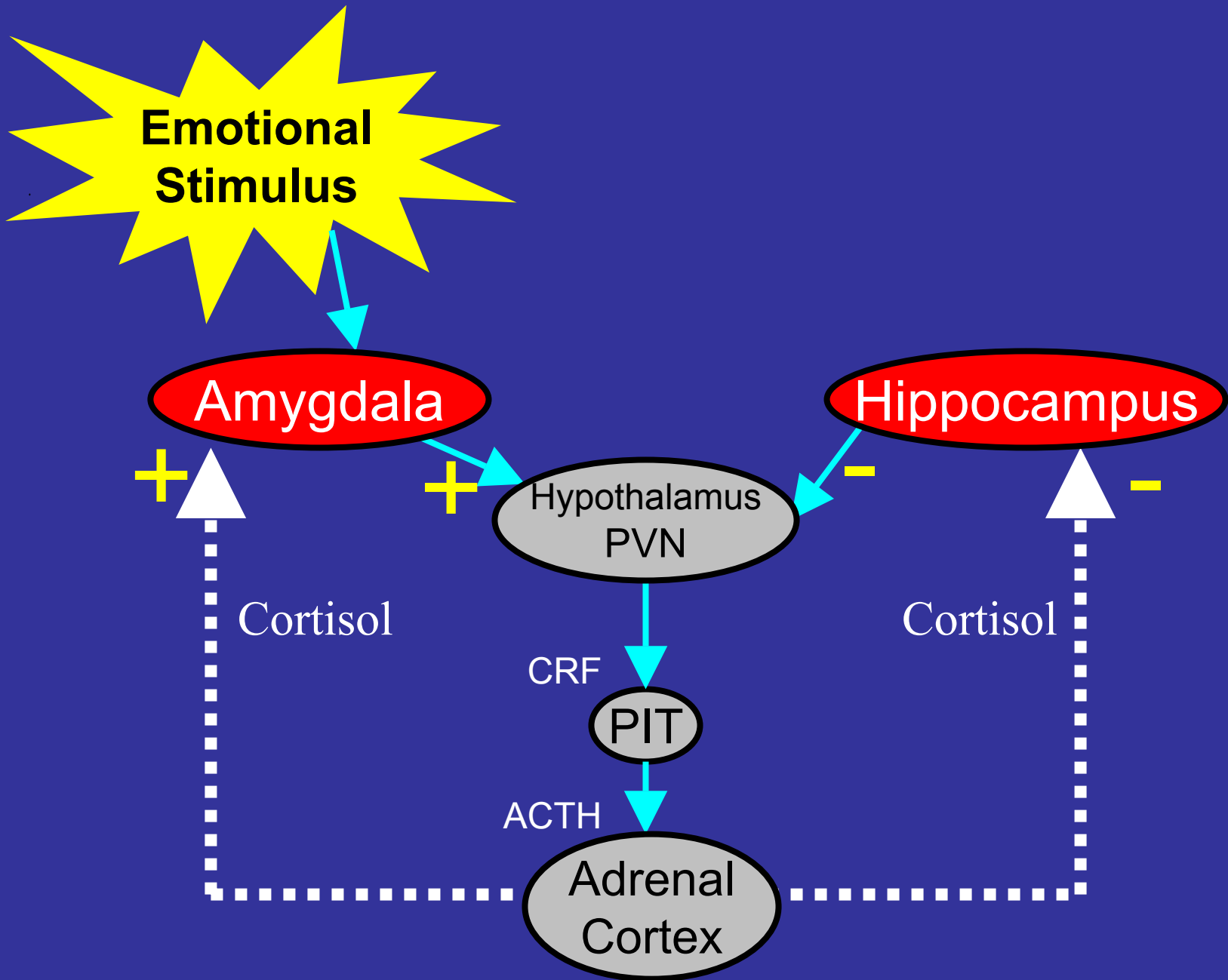
Bringing together the biological and  
social sciences

# Two Neurons

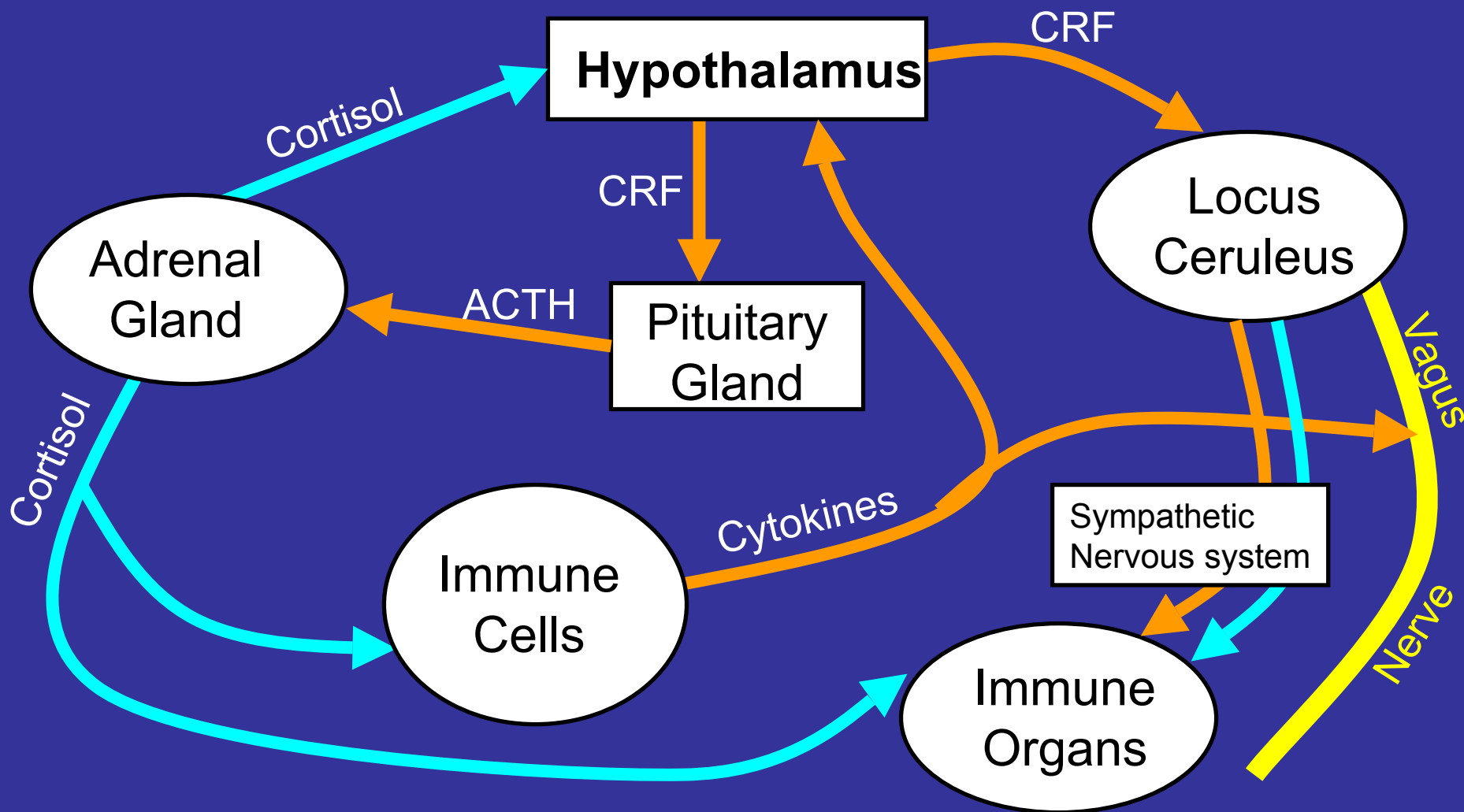


# Brain Plasticity in Early Years

1. Hypothalamus pituitary adrenal axis
  - regulation of cortisol
  - ▶ memory, diabetes, heart disease, behaviour
2. Autonomic nervous system - Epinephrine
  - ▶ blood pressure, respiration
3. Sensing pathways
  - ▶ vision, sound, touch etc.



# Interaction of the Brain and Immune System



# The Brain and Health

- From the time of the ancient Greeks to the 20<sup>th</sup> century, it was accepted that the mind can affect illness.
- The new thrust of the biosciences and the new treatments for disease have recently caused us to have less interest in the mind-body interaction and disease.

Esther Sternberg (NIH)

# 4. Early environments shape our biology.

- ❖ Gene-Environment Interaction
- ❖ The Context-Sensitive Child
- ❖ Genetic Expression



# Non Human Primates

## Poor Mothering

- ❖ Increased anxiety & depression as adults
- ❖ Excessive alcohol consumption
- ❖ Aggressive & violent
- ❖ High cortisol levels
- ❖ Serotonin metabolism deficit

## Nurturant Mothering

- ❖ Precocious exploratory patterns
- ❖ Females become nurturant mothers
- ❖ Leaders of troop
- ❖ Robust immune responsiveness

Courtesy of the Erikson Institute, Chicago

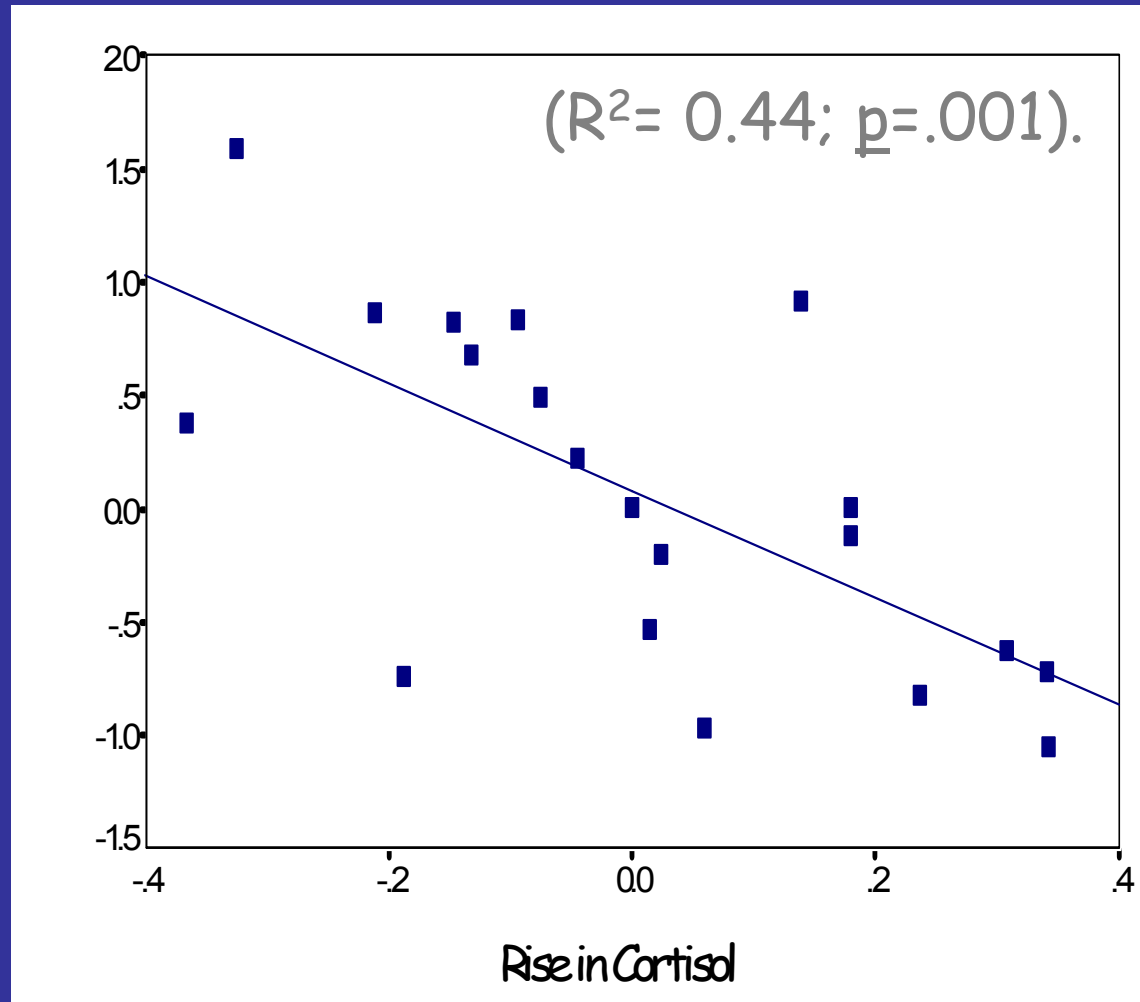


# Center-Base Childcare Data on Preschool-aged Children



# Children in Poorer Quality Family Childcare Show Rises in Cortisol Over the Day

Quality of Care



x

Rise in Cortisol

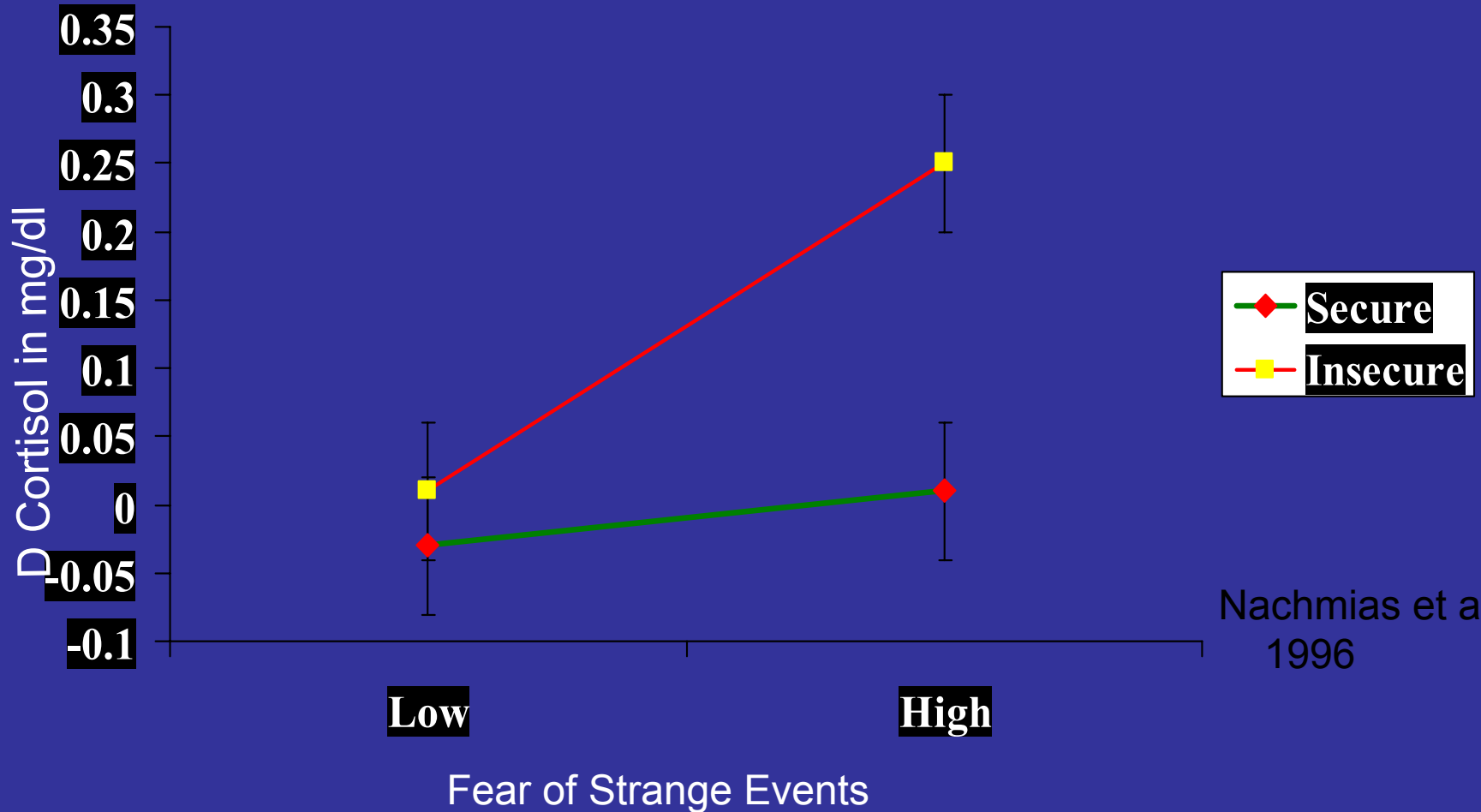
# 5. The steady drip of daily life.

- ❖ Hidden Regulators
- ❖ Optimal Childrearing versus Trade-offs
- ❖ Vulnerable Children versus Risk Factors
- ❖ Coping and Competency

Nachmias et al, 1996



# Secure Attachment Buffers Cortisol Response

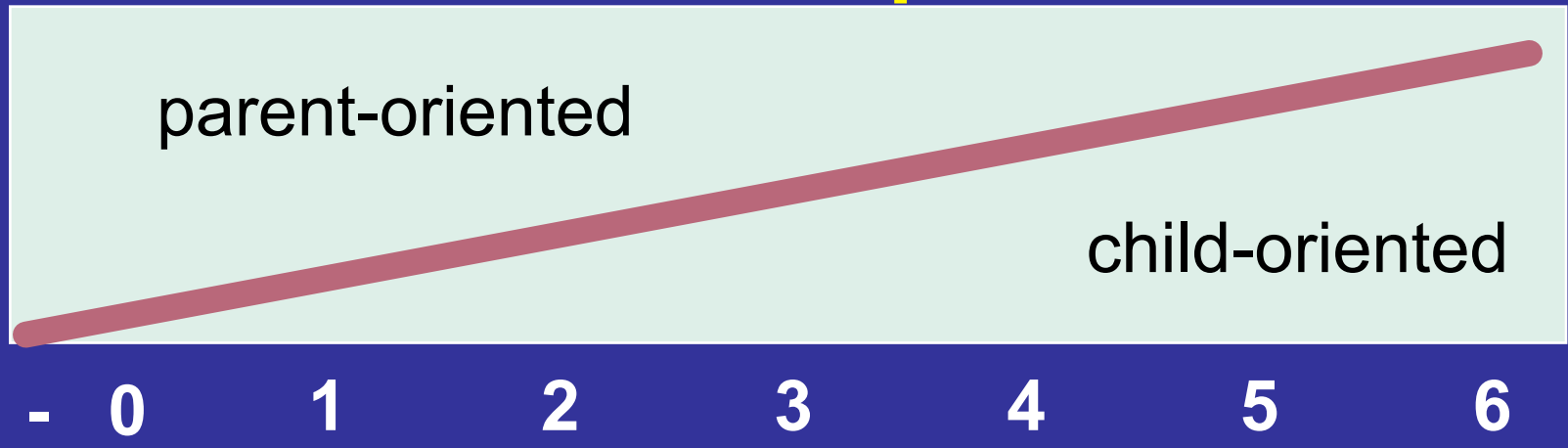


Nachmias et al.,  
1996

# 6. Make a difference from conception to entry to Grade 1.

- ❖ Parenting & Caregiving
- ❖ Nutrition
- ❖ Protection
- ❖ Problem-based Play
- ❖ Neighbourhoods & Communities

# ECD and Experience-Based Brain Development



## Components of Early Childhood Development and Parenting Centres:

- Universal – available, accessible, affordable and optional
- Parental and non-parental care
- Parent- and child-oriented
- Quality early child development environments
- Responsive relationships and parent involvement

# Parental and Non-Parental Care

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- Problem-based play
- Parents should be involved in ECD centres
- Parents 'learn by doing' in the centres
- Labour market policies facilitate parent involvement in ECD centres

# Pre- and Post-Natal Supports

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- Public health, family physicians and developmental paediatricians
- Advice in respect to nutrition, vaccination and hazards
- Community resources and services
- Service programs for children linked to ECD centres

# 7. Measure results.

- ❖ Birth Outcomes
- ❖ 18 months Check-Up
- ❖ Early Development Instrument
- ❖ Community Early Child Development Reporting

# Outcome Measures

## Early Development Instrument (EDI)

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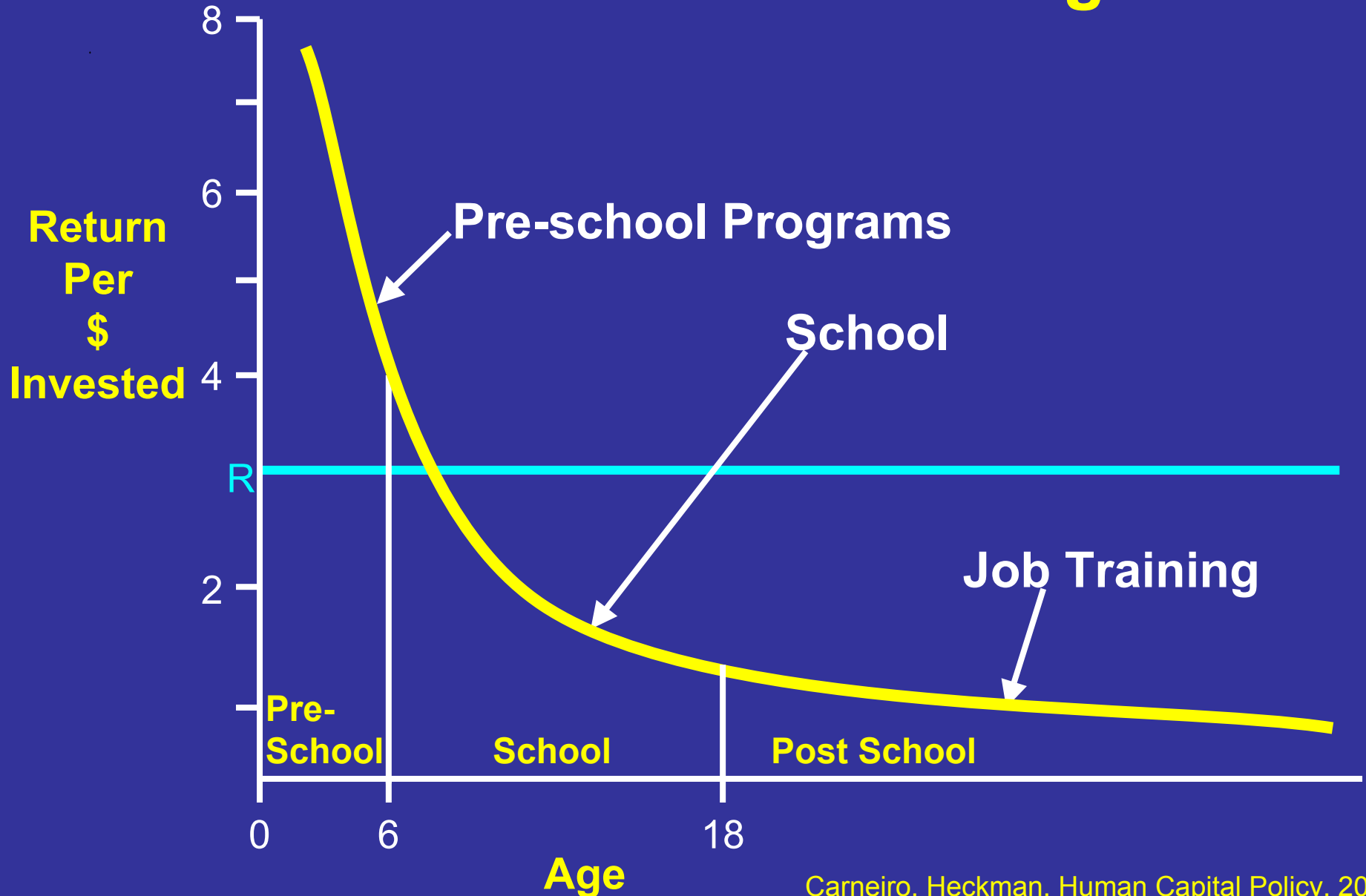
- Physical health and well-being
- Social knowledge and competence
- Emotional health/maturity
- Language and cognitive development
- Communication skills and general knowledge

# 8. Early child development is a smart investment - now & later.

- ❖ Rate of Return on Investment
- ❖ The Cost of Doing Nothing
- ❖ Enlightened Self-Interest
- ❖ The Prevention Imperative

# Rates of Return to Human Development Investment Across all Ages

03-074



# Acknowledgements

❖ J. Fraser Mustard      [www.founders.net](http://wwwFOUNDERS.net)

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- Human Development Program
- Population Health Program
- Experience B<sup>3</sup> Program