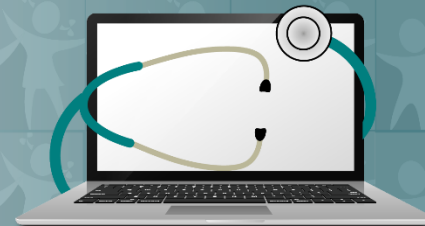




PEHSU NATIONAL CLASSROOM

Pediatric Environmental Health Specialty Units



www.pehsu.net/nationalclassroom.html



Webinars

Series of scientific webinars that provide a forum for discourse on scientific issues.

Live and On-Demand

Case Conferences
Journal Clubs
Grand Rounds

CE Available



Online Courses

Evidence-based online courses on a variety of children's environmental health topics.

Interactive and Self-Paced

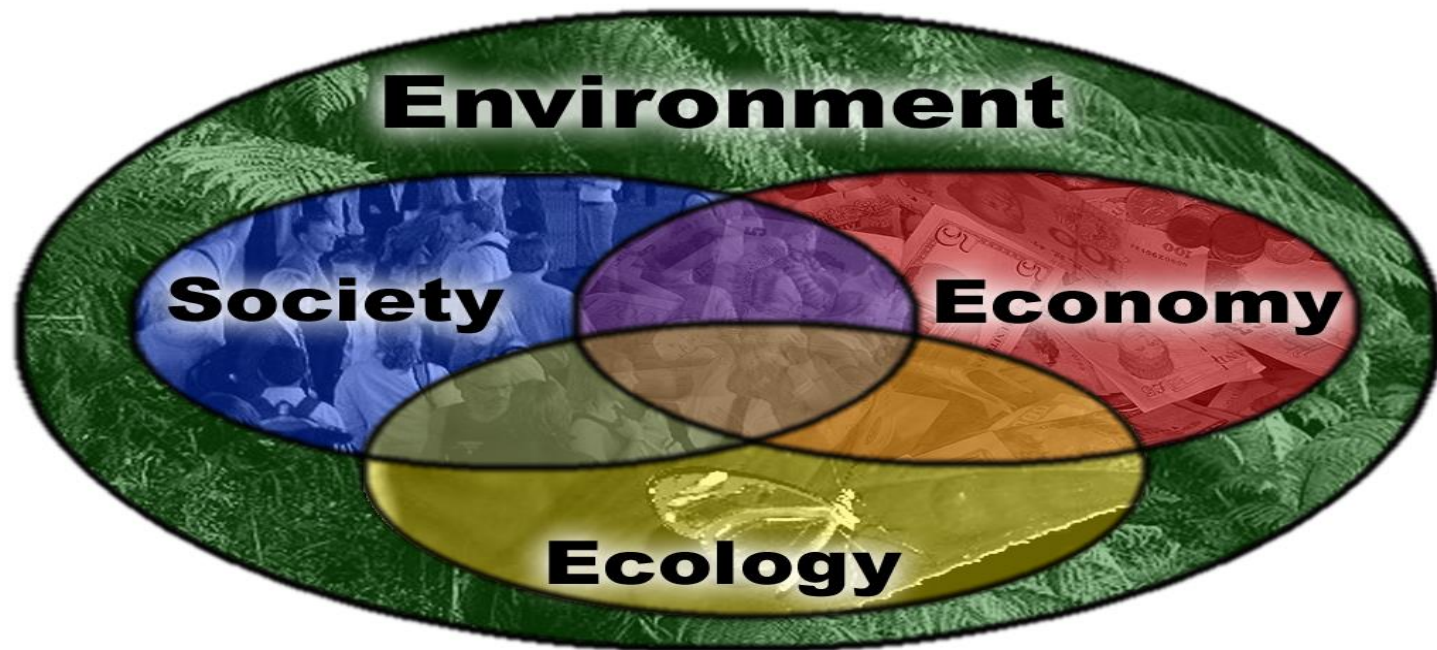
CE Available



Resource Catalog

Fact sheets, journal publications, reports, and other resources for parents, community members, patients and healthcare professionals

Topics included:
Air Quality, Pesticides,
Natural Disasters, BPA,
Mold, Lead, Mercury



Ecology of Children's Environmental Health Disparities

Leslie Rubin MD
Morehouse School of Medicine
Developmental Pediatric Specialists
Innovative Solutions for Disadvantage and Disability
Southeast Pediatric Environmental Health Specialty Unit at Emory University



Disclaimer

- This material was supported by the American Academy of Pediatrics (AAP) and funded (in part) by the cooperative agreement FAIN: 1U61TS000237-03 from the Agency for Toxic Substances and Disease Registry (ATSDR).
- Acknowledgement: The U.S. Environmental Protection Agency (EPA) supports the PEHSU by providing partial funding to ATSDR under Inter-Agency Agreement number DW-75-95877701. Neither EPA nor ATSDR endorse the purchase of any commercial products or services mentioned in PEHSU publications

Objectives

- Review impact of adverse environmental effects of poverty on children's health and development
- Understand ecology of environmental health disparities in the context of a cycle
- Explore strategies to reduce environmental health disparities and promote children's health and development
- Examine the Break the Cycle Program as a leadership development model to reduce children's environmental health disparities

Children at most risk for health disparities



Poverty Disparities

- ***Race:***
 - 12.3% of white children
 - 31.9% of Hispanic children
 - 37.1% of black children
- ***Education:***
 - some college education, 13% are poor
 - less than a high school degree, 57% are poor
- ***Employment:***
 - 1 parent works full-time, 9% are poor
 - no parent works full-time, 48% are poor

Family Constellation

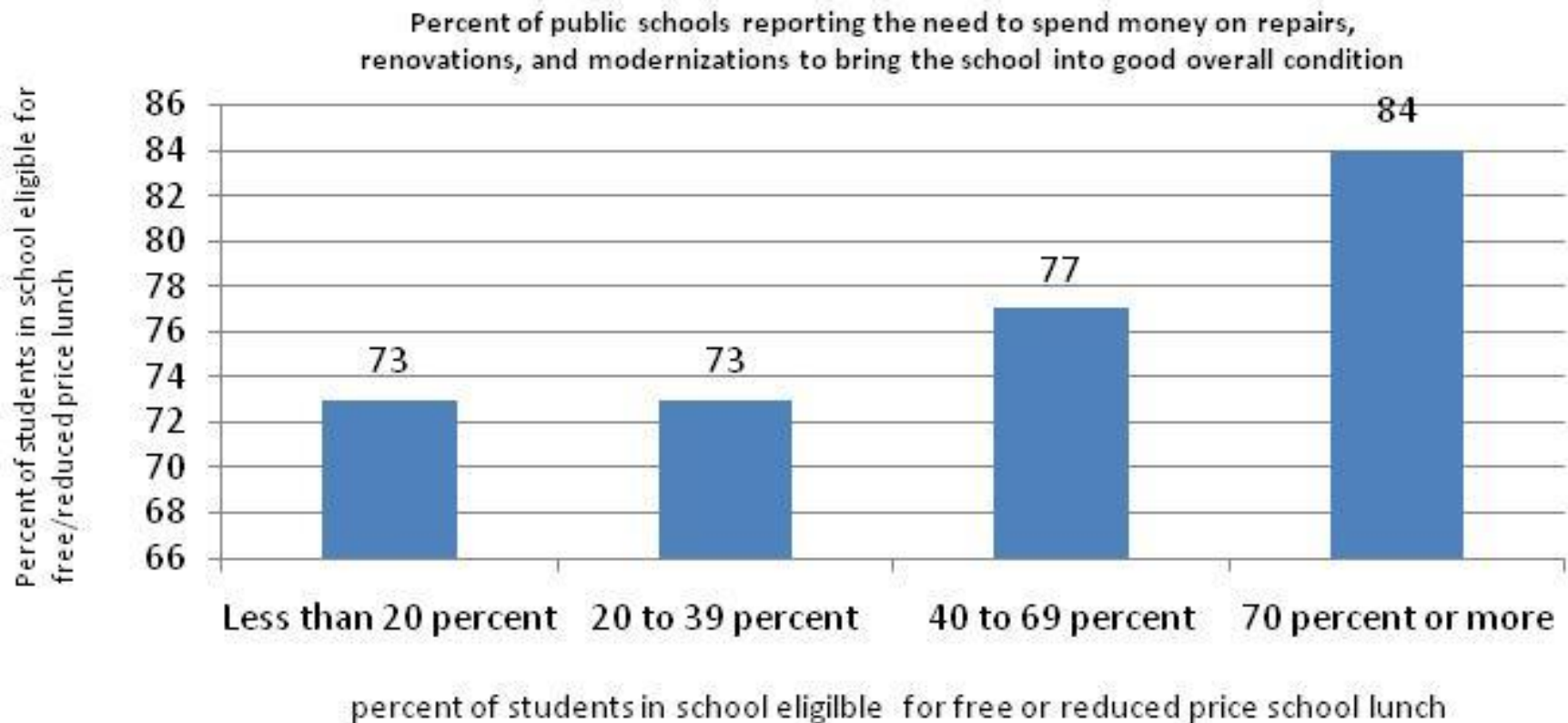
- The absence of fathers in the home is associated with a fourfold risk of poverty.
 - 42% of single female-headed families are poor
 - 12% for 2-parent families
- Children of single mothers are at greater risk for:
 - infant mortality
 - child maltreatment
 - failure to graduate from high school
 - incarceration

Built Environment in Poor Communities

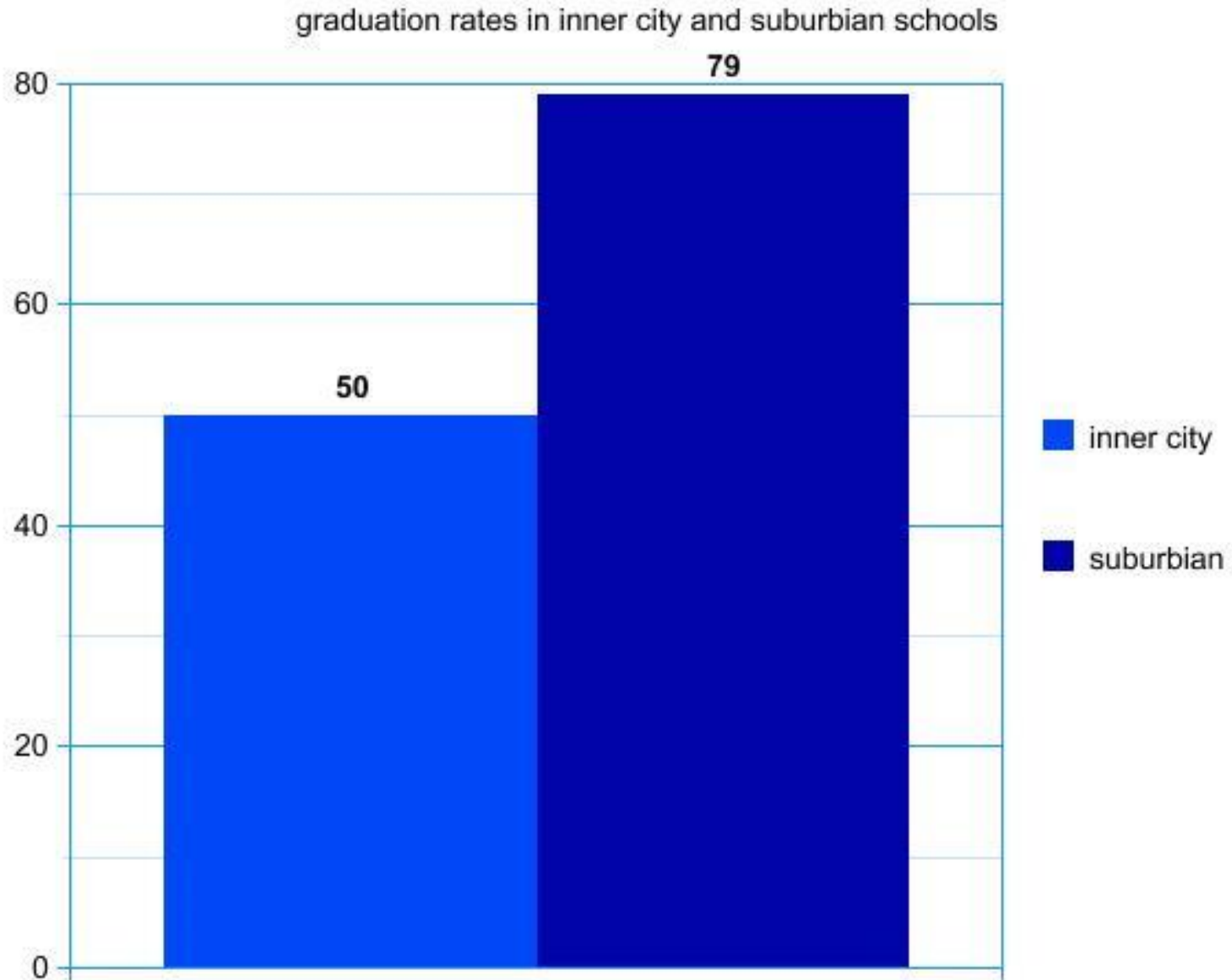
- Unsafe Neighborhoods due to: Traffic, Crime, Litter & Trash, Food Desert, Limited Green Space
 - 61% more likely to be Obese
- Older Houses in Poor Condition
 - 3.5x more likely to have lead toxicity
- Older Schools in Poor Condition
 - 50% less likely to graduate
 - 2x more likely to be unemployed

Physical Conditions of U.S. Schools

the condition of building features in schools with the highest concentration of poverty are less than adequate compared to schools with the lowest concentration of poverty.



Graduation from High School



Smoking Prevalence and Education

- 5.6 percent with a graduate degree
- 9.1 percent with a college education
- 24.2 percent who do not graduate from high school



Mother - 1st generation

Fetus - 2nd generation

Reproductive cells - 3rd generation

Asthma and Equity

- CDC Morbidity and Mortality report:
 - Smoking in the home is highest among black people & people with low incomes
- Asthma inequity in blacks compared to whites
 - prevalence 2x as high
 - mortality 3x as high,
- Asthma hospitalization among Medicaid children:
 - 93% in black
 - 34% in Hispanic

Adverse Childhood Experiences and Toxic Stress

- occurs when a child experiences strong, frequent, and/or prolonged adversity
- such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship
- without adequate adult support.

Impact on Brain Function

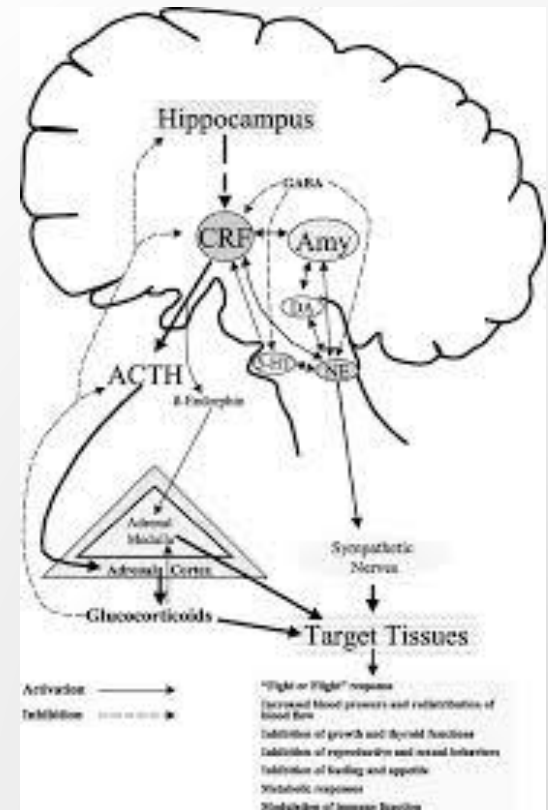
- Disorders of learning, memory and executive function
- Impaired decision-making
- Behavioral self-regulation
- Mood and impulse control
- Risk-taking behaviors

Long Term Outcomes

- School failure
- Unemployment
- Poverty
- Homelessness
- Substance abuse
- Gang membership
- Violent crime
- Incarceration
- Being single parents

Poor Health Outcomes

- Alterations in immune function and measurable increases in inflammatory markers, increasing risk for:
 - obesity
 - diabetes
 - hypertension
 - stroke
 - early death



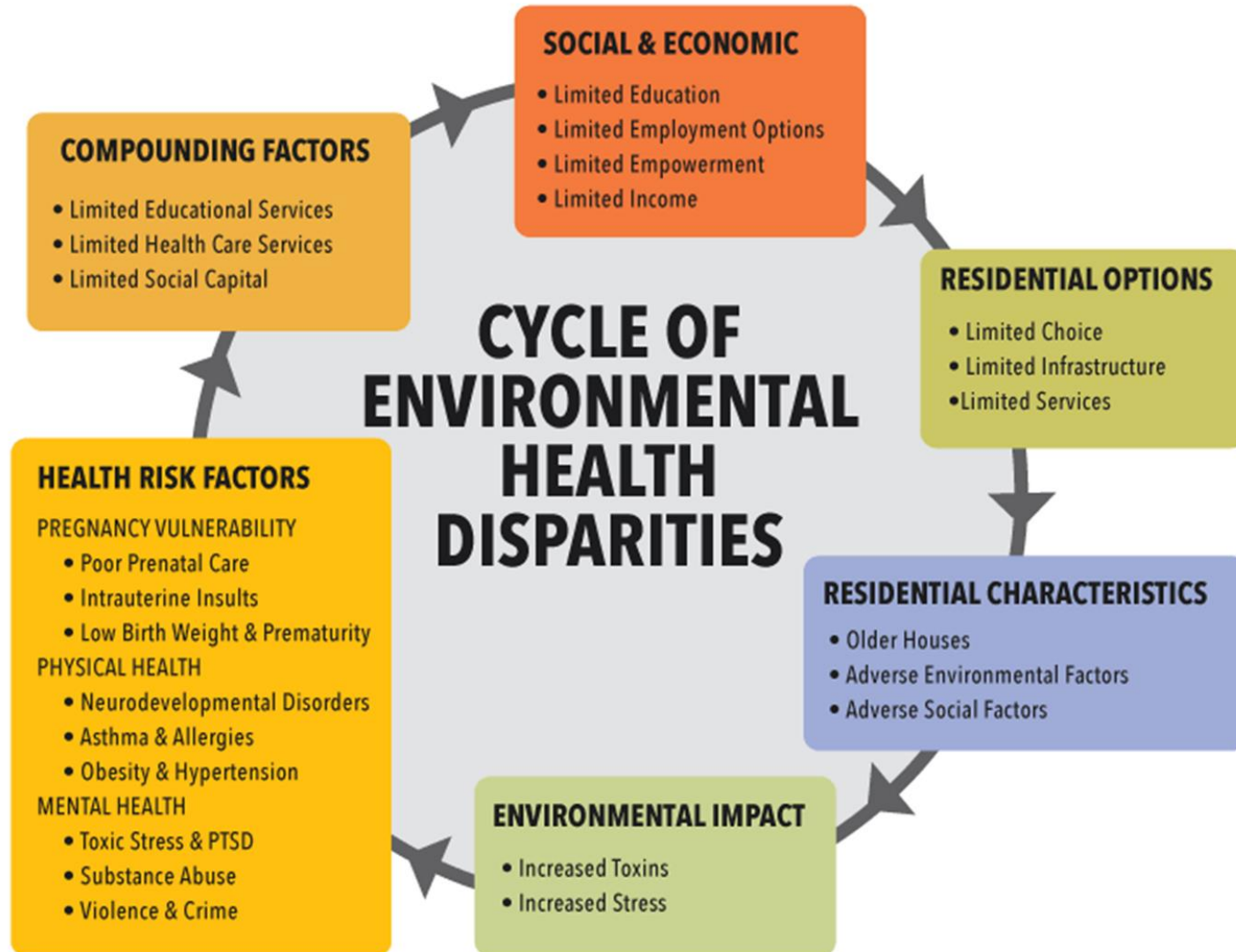
Children: Poverty & Vulnerability

<u>Child Outcomes</u>	<u>Risk for poor children</u>
Child abuse and neglect	6.8
Lead Poisoning	3.5
Birth to unmarried teenager	3.1
Depression	2.3
Experiencing violent crimes	2.2
Short-stay hospital episode	2.0
Grade repetition and high school dropout	2.0
Substance abuse	1.9
Low birth weight	1.7
From Neurons to Neighborhoods IOM 2000	

Health Care, Family, and Community Factors Associated with Mental, Behavioral, and Developmental Disorders in Early Childhood — United States, 2011–2012

Sociodemographic factors and environmental influences in early childhood have been demonstrated to have significant impact on development, mental health, and overall health throughout the lifespan.

Ecology of Environmental Health Disparities

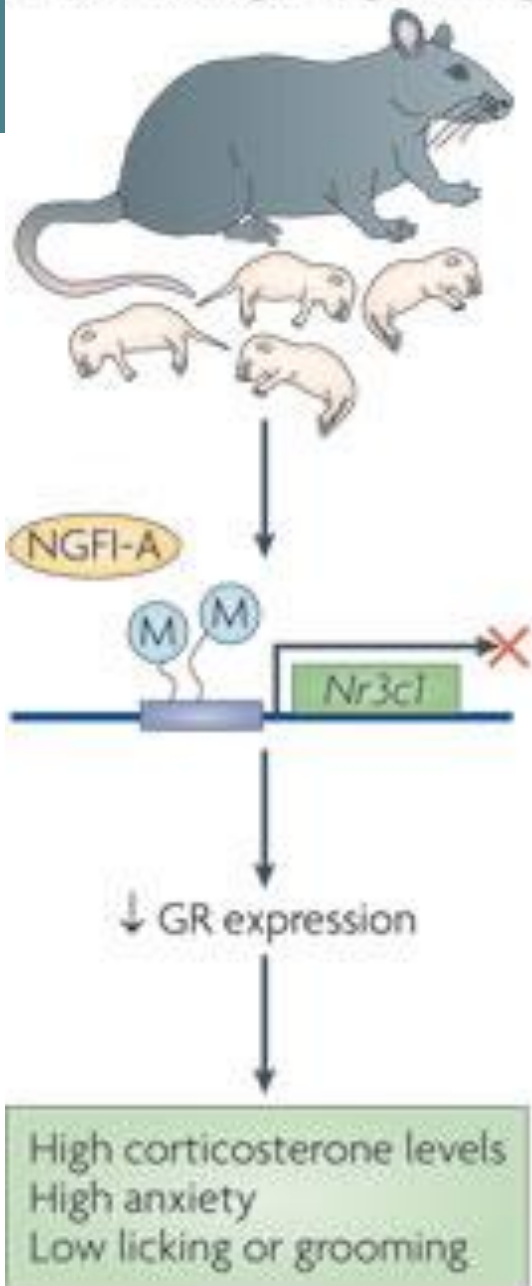


Can we make a Difference?

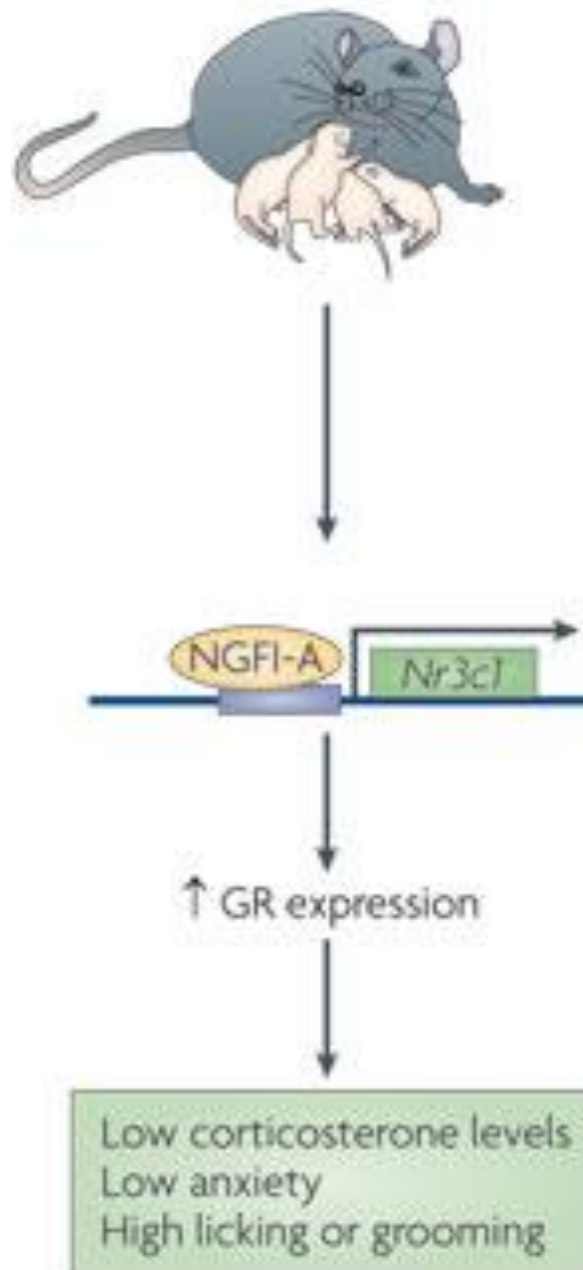
- Absolutely!!!!!!
- Positively!!!!!!



a Low licking and grooming



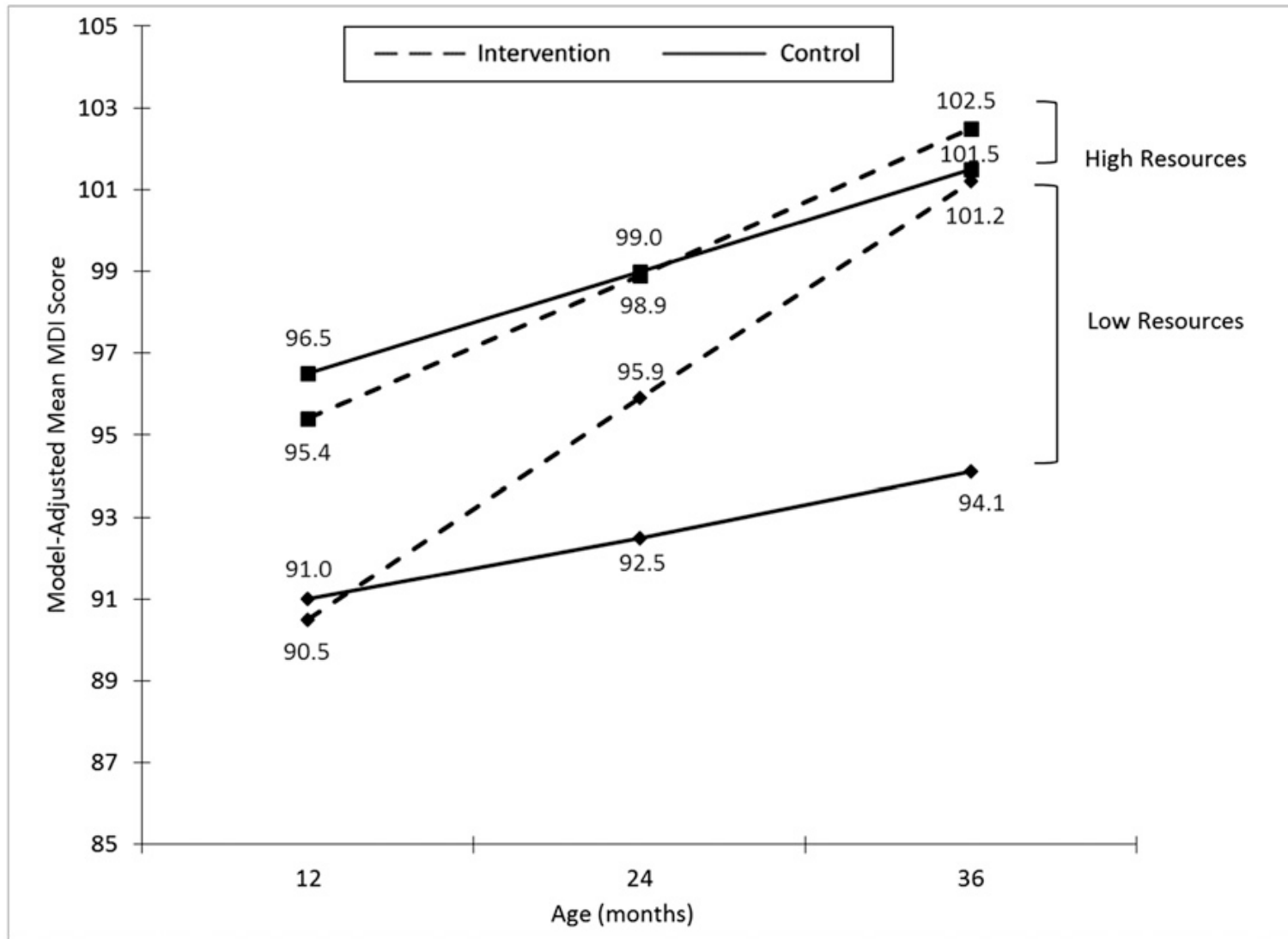
b High licking and grooming



Home-Based Early Intervention

- Impact of EI on children of high resource (HR) & low resource (LR) families
- LR children displayed greater improvement with EI than HR children
- LR children receiving EI did not differ significantly from HR children

Home-Based Early Intervention

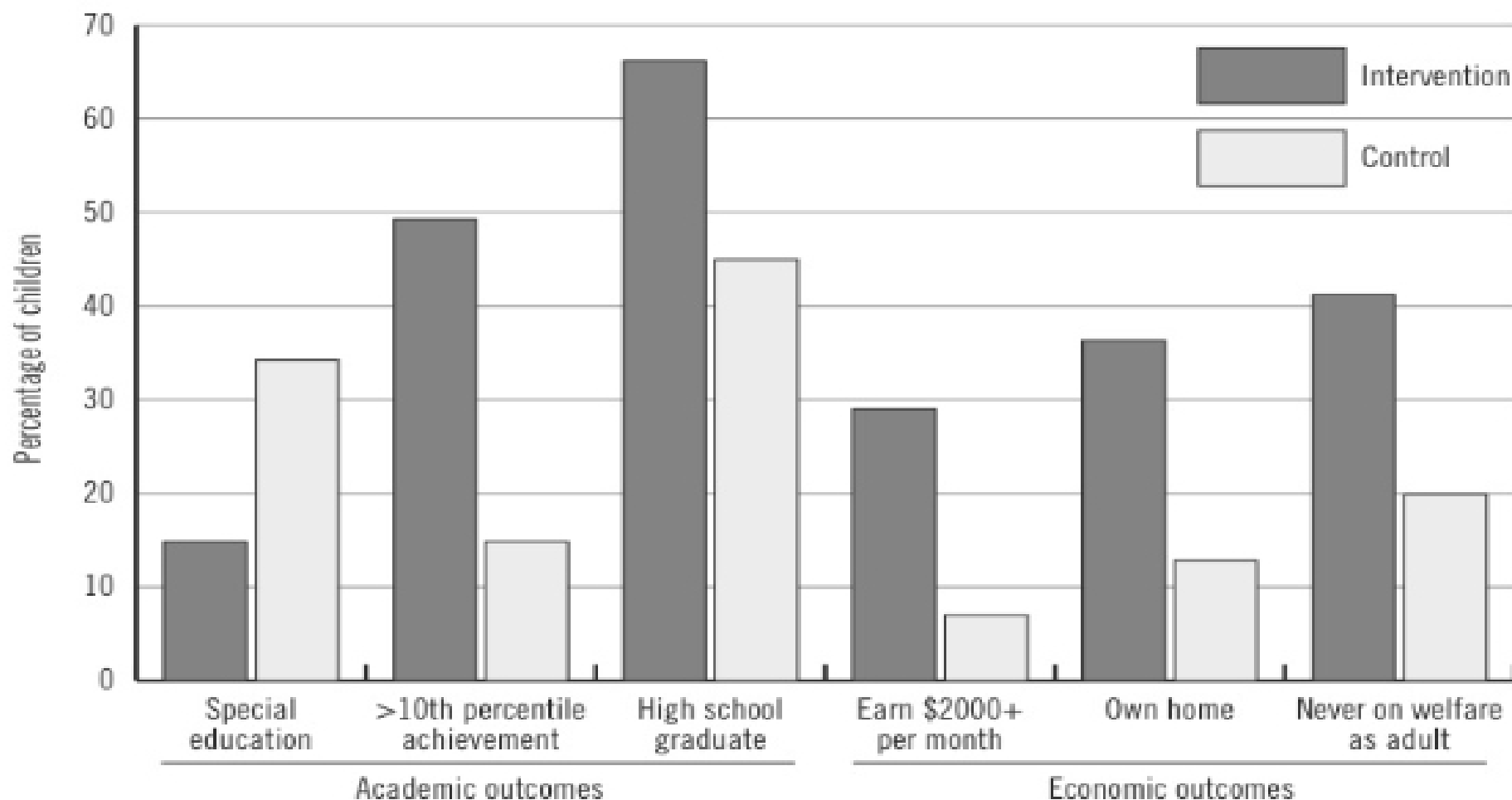


The Perry Preschool Program

- Poor children with low IQ
- Beginning at age 3 and lasting 2 years:
 - 2.5-hour preschool program weekdays during the school year,
 - supplemented by weekly home visits by teachers
- Follow-up at ages 15, 19, 27, and 40

The Perry Preschool Program

A. Data from the Perry Program collected when the individuals were 27 years old (High/Scope). >10th percentile achievement indicates children who scored above the lowest 10% on the California Achievement Test (1970) at age 14; HS Grad indicates number of children who graduated High School on time.



The Perry Preschool Program

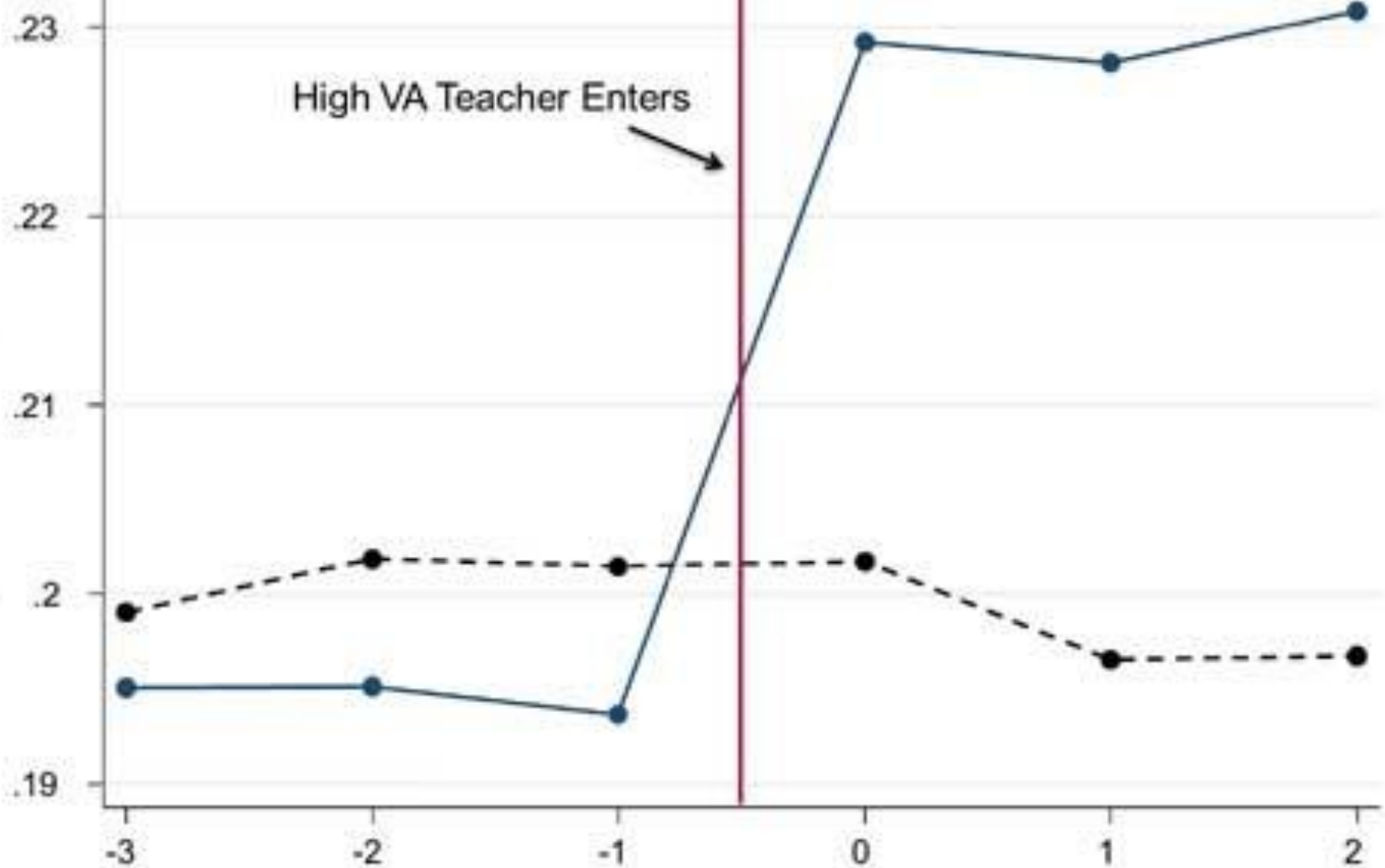
“Our estimate of the overall social *rate of return* to the Perry program is in the range of 7% to 10%”

Value-Added Teachers & Student Outcomes

- Researchers in Economics at Harvard and Columbia universities
- Tracked one million children from a large urban school district from 4th grade to adulthood looking at the outcomes of having a Value-Added Teacher

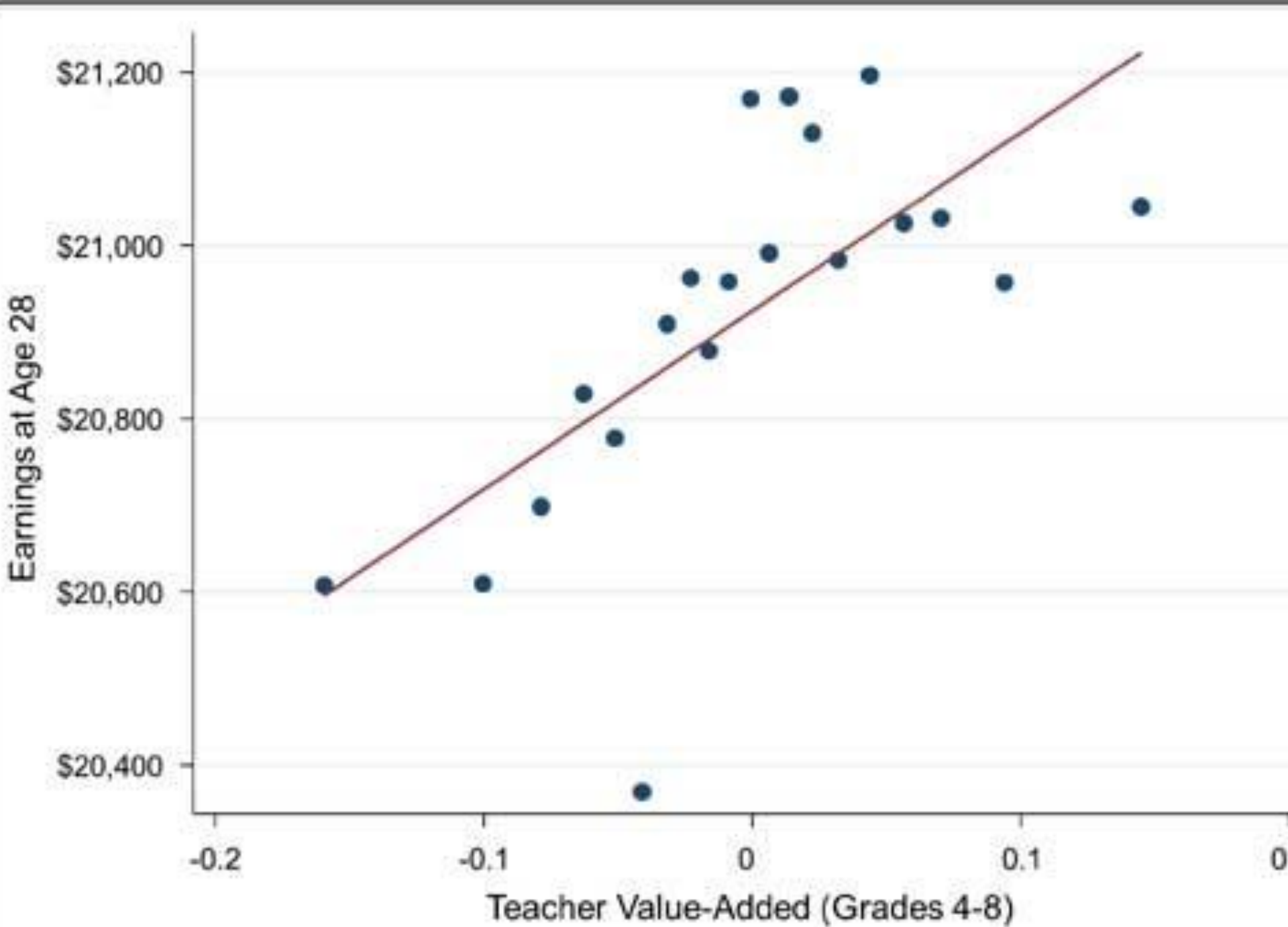
Average Test Scores by School Year

High VA Teacher Enters

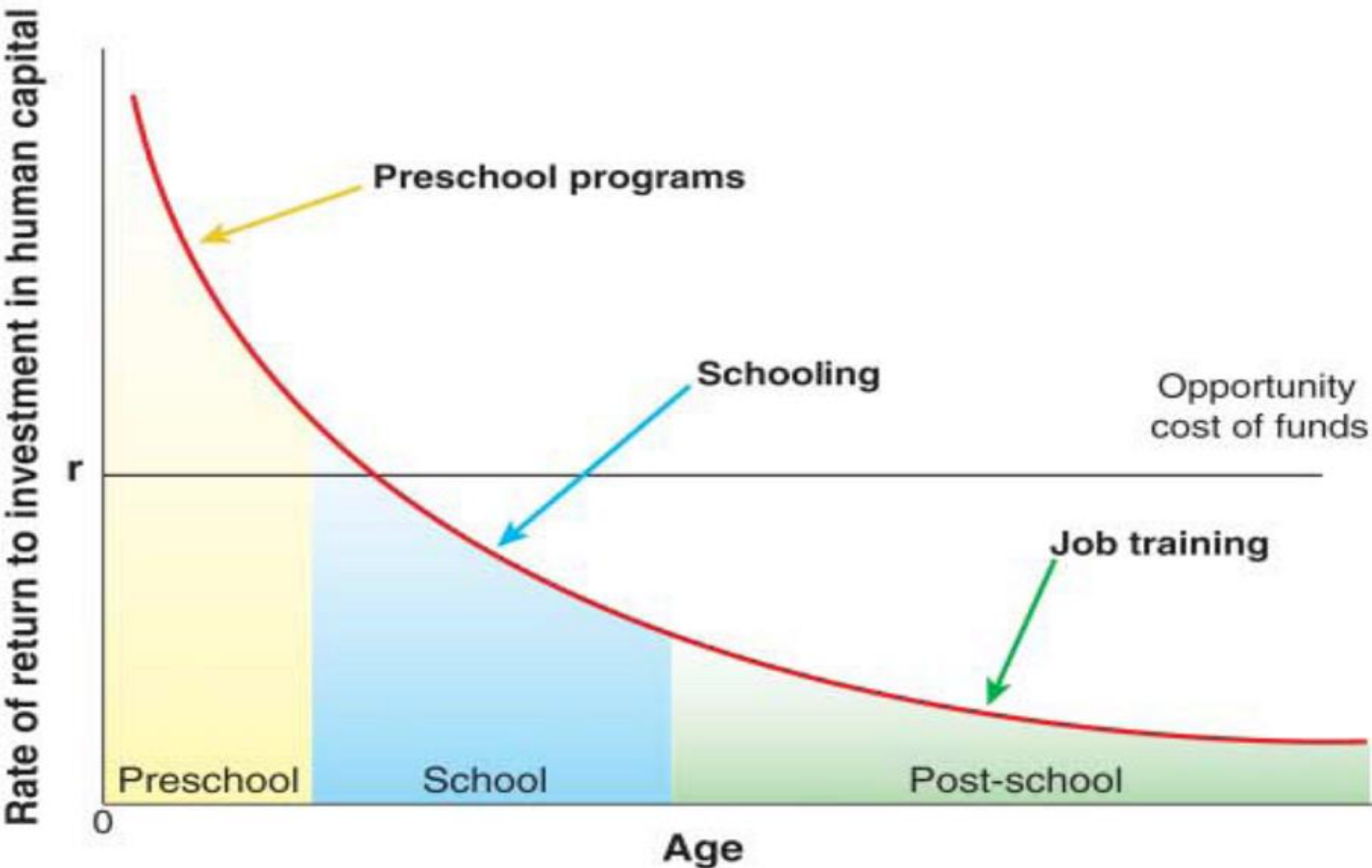


School Year Relative to Entry of High Value-Added Teacher

—●— Average Score in Grade Teacher Enters - - ● - - Average Score in Previous Grade



Rates of return to human capital investment



BREAK THE CYCLE

12

BREAK THE CYCLE OF ENVIRONMENTAL HEALTH DISPARITIES

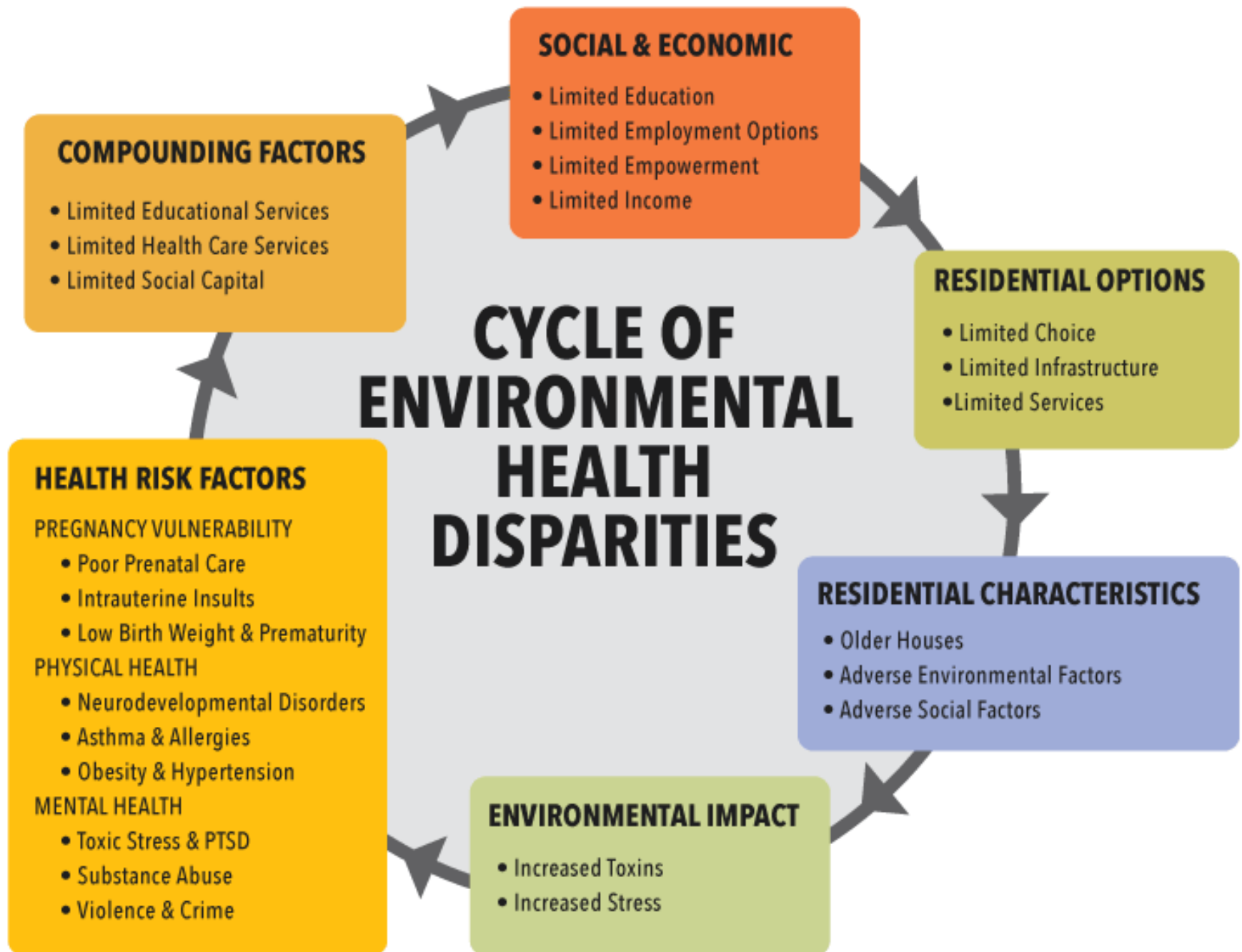
Reducing Children's Environmental Health Disparities and Promoting Health Equity For all Children

A Leadership Development Program of:



Requirements from Break the Cycle Students

- Recruit Students from a variety of universities and disciplines to:
 - Develop a project
 - Identify a mentor
 - Conduct the study
 - Present results at a conference
 - Write a manuscript for publication



An Ecological Model of Healthcare Disparities for Poor Children in The South

COMPOUNDING FACTORS

Art Works: Converting Issues into Art

Health Vulnerabilities of Utah's Immigrant Children: Breaking the Cycle

'Mommy' – a Pregnancy Surveillance System

HEALTH RISK FACTORS

Family Wellbeing after Relocation from a Distressed Public Housing Development

Addressing Social Determinants of Health at a Federally Qualified Health Center

PHYSICAL HEALTH

Learn, Eat, Grow: Healthy Living Initiative

RESIDENTIAL CHARACTERISTICS

Barriers to Blood Lead Screening Practices Among Healthcare Providers

MENTAL HEALTH

School Readiness in Young Children

ENVIRONMENTAL IMPACT

Access to Early Intervention Services for Preterm Survivors

BREAK THE CYCLE

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BREAK THE CYCLE OF ENVIRONMENTAL HEALTH DISPARITIES

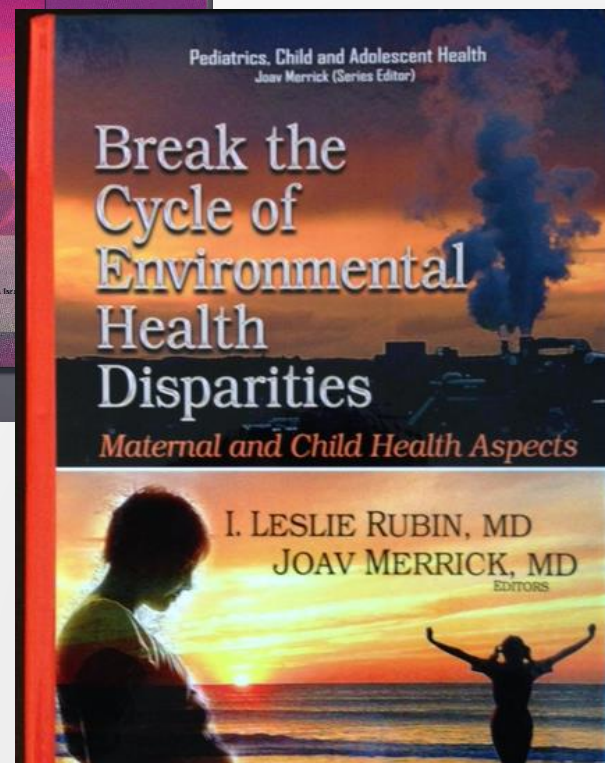
Reducing Children's Environmental Health Disparities and Promoting Health Equity For all Children

To Date:

- 11 annual programs
- 10 states in USA, Latin America, Europe & Africa
- 103 students
- 30 university departments

Publications

- 8 international journal supplements
- 8 books



Break the Cycle Outcomes

- Increased Awareness of Children's Environmental Health
- Increased Awareness of Environmental Health Disparities
- Influenced Future Careers

We may not be required to complete a task but we are not permitted to desist from undertaking the challenge

