Cycle of Disadvantage and Disability

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Hughes Spalding
Cerebral Palsy Clinic

- The Inner City Population of Atlanta in the 1990’s was low income, predominantly minority and decidedly underserved

- In 1998 we started an interdisciplinary clinic for children with Cerebral Palsy
## A Typical Clinic Day

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<th>Dr. Bruce</th>
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In 2002 we surveyed the records of 260 children who had attended the clinic since its inception.

We found a complex set of medical, developmental and social complications.
Medical Complications

- Significant orthopedic problems with functional implications
- Multiple associated medical problems
- Frequently tube fed
- On multiple medications
- High rate of hospital admissions
- High rate of surgeries
Percentage of Patients Whose Mothers Used Substances during Pregnancy, per Gestational Age Group

- <28: 25.58%
- 28-32: 19.64%
- 33-35: 18.18%
- 36-40: 14.29%
- 41+: 8.89%
The Child lives with...

- Mother: 64
- Grandparent(s): 58
- Foster/Adopt: 18
- Both biologic: 9
- Father: 2

For stays:
- <28-35 Weeks: 13
- 36-41+ Weeks: 32

Lives with...
# Children:
## Poverty & Vulnerability

<table>
<thead>
<tr>
<th>Child Outcomes</th>
<th>Risk for poor relative to non-poor children</th>
</tr>
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<tbody>
<tr>
<td>Child abuse and neglect</td>
<td>6.8</td>
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<tr>
<td>Lead Poisoning</td>
<td>3.5</td>
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<tr>
<td>Birth to unmarried teenager</td>
<td>3.1</td>
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<tr>
<td>Depression</td>
<td>2.3</td>
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<tr>
<td>Experiencing violent crimes</td>
<td>2.2</td>
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<tr>
<td>Short-stay hospital episode</td>
<td>2.0</td>
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<tr>
<td>Grade repetition and high school dropout</td>
<td>2.0</td>
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<tr>
<td>Substance abuse</td>
<td>1.9</td>
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<tr>
<td>Low birth weight</td>
<td>1.7</td>
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<td>Mortality</td>
<td>1.7</td>
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<tr>
<td>Learning disability</td>
<td>1.4</td>
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<tr>
<td>Parent report of emotional or behavior problem that lasted 3 months or more</td>
<td>1.3</td>
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# Poverty Effects on Cognitive and Educational Function

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Children Who Are Poor</th>
<th>Children Who Are Not Poor</th>
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</thead>
<tbody>
<tr>
<td>Developmental delay</td>
<td>5.00%</td>
<td>3.80%</td>
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<tr>
<td>Learning disability</td>
<td>8.30%</td>
<td>6.10%</td>
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<tr>
<td>Grade retention</td>
<td>28.80%</td>
<td>14.10%</td>
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<tr>
<td>Ever expelled or suspended</td>
<td>12.10%</td>
<td>6.10%</td>
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<tr>
<td>High school dropout rate in 1994</td>
<td>21.00%</td>
<td>9.60%</td>
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<tr>
<td>Not employed or in school at age 24</td>
<td>15.90%</td>
<td>8.30%</td>
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</table>
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.

Percent of public schools reporting the need to spend money on repairs, renovations, and modernizations to bring the school into good overall condition:

- 5 percent or less: 74%
- 6 to 20 percent: 74%
- 21 to 50 percent: 73%
- More than 50 percent: 82%

Percent of minority student enrollment:

- 5 percent or less
- 6 to 20 percent
- 21 to 50 percent
- More than 50 percent
Emotional and Behavioral Problems by Family Income
Cycle of Disadvantage and Disability

Potential Outcomes
- neurodevelopmental disabilities
- child abuse
- foster care placement

Risk Factors
- infant with increased needs
  - medical needs
  - developmental needs
  - increased irritability
- mother under stress
  - increased demands
  - lack of supports
  - substance abuse

Environment
- poverty
- poor community supports
- poor health services
- inadequate academic services

Self Worth
- despair
- substance abuse
- promiscuity

Pregnancy
- poor prenatal care
- tobacco, alcohol, and drug exposure
- risk of STDs/HIV

Newborn Infant
- prematurity/LBW
- FAS

Environment → Self Worth → Pregnancy → Newborn Infant → Risk Factors → Potential Outcomes → Environment
Can we make a Difference?

• Absolutely!!!!!!

• Positively!!!!!!
Improvements, attitude pay off for Tri-Cities High
Improvements, attitude pay off for Tri-Cities High

"I see students buying into the program, and I see teachers buying into what the principal and other administrators are trying to do."

ANDREA WYNN
Grandmother of student

"Nothing is impossible, even in little East Point, Ga.," said Mimi Davis, the school's principal for the last five years. Davis has an unconventional style for a school principal. Some days she has..."
Rat Mothers at Work

• When rat mothers give birth to their pups they will lick and groom them (LG)
• Not all mothers groom their young the same way, high LG mothers groom and lick their young at a much greater rate than the low LG mothers.
• As a result it was found that the pups of high LG mothers were healthier, grew at a good rate, and were all around much better off than the pups raised by low LG mothers.
Next Generation

• The high LG mother rats had daughters that went on to lick and groom their own litters more frequently than the daughters of low LG mothers

• But interestingly, when the offspring of a low LG mother is raised by the high LG mother, the rat adopts the high-licking behavior when it has babies of its own!
Value-Added Teachers and Student Outcomes

- Tracked one million children from a large urban school district from 4th grade to adulthood.
- Found that when a high VA teacher joins a school, test scores rise immediately in the grade taught by that teacher.
- Found that students assigned to higher VA teachers are more likely to attend college, earn higher salaries, live in better neighborhoods, and save more for retirement.

Conclusion

• Economists argue for early and sustained investments in early care and education programs,
• particularly for children whose parents have limited education and low income,
• on the basis of persuasive evidence from cost-benefit analyses that reveal the costs of incarceration and diminished economic productivity associated with educational failure
Cycle of Environmental Health Disparities

Compounding Factors
- Limited Educational Services
- Limited Health Care Services
- Limited Social Capital

Health Risk Factors
- Physical
  - Asthma & Allergies
  - Neurotoxicity
  - Obesity & Hypertension
- Emotional & Social
  - Depression
  - Substance Abuse
  - Violence

Personal Characteristics
- Limited Education
- Limited Employment Options
- Limited Empowerment
- Limited Income

Residential Options
- Limited Choice
- Limited Infrastructure
- Limited Services

Residential Characteristics
- Older Houses
- Adverse Environmental Factors
- Increase Social Factors

Impact
- Increase Toxins
- Increase Stress

Personal Characteristics
- Limited Education
- Limited Employment Options
- Limited Empowerment
- Limited Income

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Impact
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Break the Cycle

• *Break the Cycle* is a collaborative interdisciplinary research and training program for University students to focus on the environmental impact on children’s health.

• The target populations are communities where the environmental health hazards are related to circumstances of social and economic disadvantage.
Each student is required to develop a project that "Breaks the Cycle." At the end of the project period, the students will present their results at a conference. The students then write up their projects, which are published in an international journal.
Break the Cycle

Social and Economic Disadvantage and Health
- Limited Education
  - Limited Employment Options
- Limited Choice
- Limited Infrastructure
- Limited Services

Residential Characteristics
- Older Houses
- Adverse Environmental Factors
- Increase Social Factors

Impact
- Increase Toxins
- Increase Stress

Health Risk Factors
- Physical
  - Asthma & Allergies
  - Neurotoxicity
  - Obesity & Hypertension
- Emotional & Social
  - Depression
  - Substance Abuse
  - Violence

Compounding Factors
- Limited Educational Services
- Limited Health Care Services
- Limited Social Capital

Personal Characteristics
- Limited Education
- Limited Employment Options
- Limited Empowerment
- Limited Income

Improving Education Through KIPP Schools
- Limited Educational Services
- Limited Health Care Services
- Limited Social Capital

Toxic Waste Sites and Mercury Exposure
- Limited Choice
- Limited Infrastructure

Impact of the Built Environment on Birth Weight

Laws and the Built Environment
- Older Houses
- Adverse Environmental Factors
- Increase Social Factors

Healthy Homes: Reducing Lead Exposure
- Increase Stress

Environmental Factors and Obesity
- Violence

Reducing Second Hand Smoke
- Neurotoxicity
- Obesity & Hypertension
- Emotional & Social

Healthy Homes: Reducing Lead Exposure
- Increase Stress
Lessons

• Children who grow up in circumstances of social and economic disadvantage can get trapped in a cycle of disadvantage and disability

• It is possible to break the cycle and for the children to have a more positive future in their lives with significant contributions to society

• Although it is difficult to change the system in a short period of time it is possible to make small changes which can have major positive long term benefits

• If enough small changes occur this could cumulatively result in major long term changes for the better for all children to grow up with a positive view of their individual and collective future
• We may not be required to complete a task but we are not allowed to desist from undertaking the challenge
Thank You.....

Leslie Rubin MD
Developmental Pediatric Specialists
Research Associate Professor Morehouse School of Medicine
President Institute for the Study of Disadvantage and Disability
Southeast Pediatric Environmental Heath Specialty Unit at Emory