Leveraging 21st Century Science to Reduce Toxic Stress and Build the Foundations of Resilience in Early Childhood

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Capitalizing on an Extraordinary Revolution in Biology

Advances in neuroscience, molecular biology, and epigenetics provide an unprecedented opportunity to catalyze the design and testing of new strategies across multiple sectors to strengthen the foundations of lifelong learning, behavior, and health.
How Can Advances in Science Build on Lessons Learned from a 50-Year War on Poverty
Racial Gaps in Reading Scores Have Decreased But Disparities By Family Income Have Grown

Source: Reardon (2011)
Infant Mortality Has Decreased But Racial and Ethnic Disparities Remain a Significant Problem

Deaths per 1,000 live births

Source: National Center for Health Statistics, America’s Children: Key National Indicators of Well-Being (2011)
Dramatic Progress in Treating Acute Lymphocytic Leukemia Provides Important Lessons for Achieving Breakthrough Impacts

Source: Hunger, Lu, Devidas (2012)
Genes and Experiences Interact to Build Brain Architecture

Watch this video:

http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/brain_architecture/
The Cumulative Pile Up of Adversity Impairs Development in the First Three Years

Number of Risk Factors

Children with Developmental Delays

Source: Barth, et al. (2008)
Biological “Memories” Link Maltreatment in Childhood to Greater Risk of Adult Heart Disease

Source: Danese et al. (2008)
Toxic Stress Derails Healthy Development

Watch this video:

http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/toxic_stress/
The Current Conceptual Framework Guiding Early Childhood Policy and Practice is Incomplete

Stimulating Experiences, Parenting Education, Primary Health Care, Good Nutrition, and Safe Environments
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Significant Adversity

Impaired Development

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Using 21st Century Science to Change the Narrative for Policy and Practice Across Sectors

Early experiences affect both lifelong health and learning
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Early experiences affect both lifelong health and learning. Healthy development requires both protection and enrichment.
Generating Hypotheses to Guide the Design and Testing of New Intervention Strategies

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Healthy development requires protection and enrichment.

Protection, enrichment, and the development of resilience in young children facing adversity require capacity-building for their caregivers.
Generating Hypotheses to Guide the Design and Testing of New Intervention Strategies

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Healthy development requires protection and enrichment.

1 Protection, enrichment, and the development of resilience in young children facing adversity require capacity-building for their caregivers.

2 Foundational capabilities for effective parenting also enhance employability, economic stability, and social well-being.
Analysis of Parent Involvement in Early Childhood Programs Conveys an Important Message

Average Impacts of 88 Early Childhood Education Programs (1960-2007)

Source: Grindal, et al. (under review)
Albert Einstein Nailed the Problem

“If you always do what you always did, you will always get what you always got.”
The Biology of Adversity Suggests a New Model for Intergenerational Investment

If we really want to achieve breakthrough outcomes for children experiencing toxic stress, then we have to transform the lives of the adults who care for them.
Moving Beyond “Why, What, and How” and Using 21st Century Science to Explore “What’s Next?”