Plenary I

The Science of Early Childhood Development and the Foundation of a Sustainable Society

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The Science of Early Childhood Development and the Foundation of a Sustainable Society

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Science Tells Us That the Foundation of a Successful Society is Built in Early Childhood

The healthy development of young children provides the building blocks for healthy and competent adulthood, responsible citizenship, economic productivity, strong communities, and a just and sustainable society.
Multiple Sources of Knowledge Currently Inform Policies in Poorly Connected Sectors

- Education
- Health
- Economic Development
- Child Protection

Science & Experience
An Integrated Scientific Framework Could Drive More Effective Investment and Innovation Across Sectors
Four Core Concepts of Brain Development
Neural Circuits are Wired in a Bottom-Up Sequence

Sensory Pathways (Vision, Hearing)

Language

Higher Cognitive Function

-8 -7 -6 -5 -4 -3 -2 -1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Birth (Months) (Years)

Brains and Skills are Shaped by “Serve and Return” Human Interaction
Cognitive, Emotional, and Social Capacities Are Inextricably Intertwined Within the Architecture of the Brain
The Ability to Change Brains Decreases Over Time

Source: Levitt (2009)
Three Consequences of Early Adversity
Barriers to Educational Achievement Emerge Before School Begins

Source: Paxton (2005)
Significant Adversity Impairs Development in the First Three Years

Source: Barth et al. (2008)
New Biological Evidence Links Maltreatment in Childhood to Greater Risk of Adult Heart Disease

Source: Danese et al. (2008)
Early Life Experiences Are Built Into Our Bodies (For Better or For Worse)

Research on the biology of stress illustrates how increases in heart rate, blood pressure, serum glucose, stress hormones, and inflammatory cytokines fuel the “fight or flight response” to deal with acute threat...

...but excessive or prolonged activation of these stress response systems can lead to long-term disruptions in brain architecture, immune status, metabolic regulation, and cardiovascular function.
Three Levels of Stress Response

Positive
Brief increases in heart rate, mild elevations in stress hormone levels.

Tolerable
Serious, temporary stress responses, buffered by supportive relationships.

Toxic
Prolonged activation of stress response systems in the absence of protective relationships.
Significant Neglect Affects Brain Power

Reared at home

Institutionalized

Profound Deprivation Impairs Physical Growth

11-Year-Old Girl
(height-for-age = 48 month old)

Source: Johnson et al. (2000)
Health, Education, Economic Development, and Civil Society Begin in Early Childhood

A healthier and more productive society begins with reducing toxic stress in childhood, beyond focusing only on child survival.

Effective early childhood interventions could decrease lifelong burdens on health care and social services, as well as prepare children to succeed in school.

A science-based approach to child maltreatment could reduce later mental illness, violence, and criminal behavior by promoting healing relationships, not just focusing on physical protection.
An Integrated Framework for Investing in the Promotion of Healthy Development

Source: Center on the Developing Child (2010)
Building the Foundations of Healthy Development in Homes and Communities

Foundations of Healthy Development

- Stable, Responsive Relationships
- Safe, Supportive Environments
- Appropriate Nutrition

Source: Center on the Developing Child (2010)
Addressing the Needs of Young Children Across Multiple Sectors

Policy & Program Levers for Innovation

- Primary Health Care
- Public Health
- Child Care & Early Education
- Child Protection & Social Welfare
- Economic & Community Development
- Private Sector Actions

Source: Center on the Developing Child (2010)
Preventive Intervention is More Efficient and Produces More Favorable Outcomes Than Later Remediation

Rates of return to human capital investment

- Programs targeting the earliest years
  - B-3
  - 4-5
- Preschool programs
- K-12 Schooling
- College or job training
- 19+

Age

The Power of Science for Informing Innovative Policy and Practice

Provides a rigorous knowledge base for decision makers to guide more effective policies.

Explains causal mechanisms that build the political will required for action.

Offers a unified framework to drive cohesive goals and strategies across policy sectors and service delivery systems.