RE-ENVISIONING EARLY CHILDHOOD POLICY AND PRACTICE IN A WORLD OF STRIKING INEQUALITY AND UNCERTAINTY

New Science + More Diverse Voices = Greater Impact
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The current early childhood ecosystem is fueled by extensive knowledge about child development, mountains of data from program evaluations, and continuing public fascination with the developing brain. Its energy is sustained by the tireless efforts of providers of early care and education, primary health care and social services, policymakers, advocates, and families raising young children under a wide range of conditions.

Over the past two decades, the "brain science story" has made a powerful case for investing in the early childhood period. During the last two years, a devastating pandemic has exacerbated longstanding inequalities and disrupted vital services, while a groundswell of social activism has brought broader public attention to the deeply embedded inequities of institutional and systemic racism. These converging challenges have intensified the demand for fresh thinking about the future of the early childhood field. The opportunity to leverage advances in science, on-the-ground experience and expertise, and a richer diversity of voices to drive a critical re-envisioning is compelling. The need to jump on this opportunity together, at this moment in time, is urgent.

More than half a century ago, an unprecedented convergence of child development research and political will in the United States led to the creation of Head Start. Its goal was simple yet bold—to level the playing field before school entry for children living in poverty. Beginning in the early 2000s, growing awareness of the impact of early experiences on the developing brain catalyzed increased investment in policies and programs focused on young children and families around the world and across the political spectrum. Today, in a world that is still reeling from a global pandemic—and will never be the same—advances in the science of adversity and resilience offer new fuel for more effective strategies to address three particularly pressing needs:

- To expand the longstanding focus of the early childhood ecosystem on poverty and educational achievement to also address the critically important issues of systemic racism and lifelong health.
- To help shape new approaches to promoting healthy development that are matched to the diverse assets and needs of families raising young children in a wide variety of circumstances and cultural contexts.
- To stimulate new ideas about how to respond more effectively to specific challenges identified by service providers, clinicians, educators, policymakers, and community leaders across a broad range of contexts.

Envisioning a Science-Informed Mindset Shift for an Expanded Early Childhood Agenda

The current framework for policies and programs is guided by three core concepts of early childhood development (ECD) that constitute what we might now call **ECD 1.0**: (1) the impact

of early experiences on brain architecture; (2) the importance of responsive, "serve and return" interactions for healthy development; and (3) the disruptive effects of toxic stress on the developing brain and early learning. Building on this strong foundation, advances in the biological sciences now underscore three additional concepts that, together with the original core story of development, offer a broader framework for science-informed investment in a post-pandemic world. The addition of these three concepts completes **ECD 2.0**.

(1) Connecting the brain to the rest of the body. Extensive evidence of the interactive effects of excessive adversity on multiple biological systems (e.g., neural, immune, metabolic), beginning early in life, underscores the highly interrelated roots of health and development. Chronic stress activation can increase the risk of obesity as well as impair focused attention. Chronic inflammation is associated with both heart disease and depression. Persistently elevated blood sugar can lead to insulin resistance and diabetes as well as cognitive problems. The time has come to leverage 21st-century science to integrate the health and education sectors across the early childhood ecosystem. The economic impact of adult diseases associated with early adversities makes a strong case for increased use of health care funds for a range of services that reduce excessive stress activation in young children. Heart disease, depression, and diabetes alone account for more than $600B of annual U.S. health care spending, not including the indirect costs of lost productivity and personal hardship.

(2) Supporting universal needs and individual variation. Science confirms what caregivers know—all children have similar basic needs but respond differently to adversity and support, even in the same family. These responses are shaped by complex interactions among environmental influences, individual genetic variation, and developmental timing. In general, children who experience significant adversity are at greater risk for later problems in learning, behavior, and health, but long-term predictions for *individuals* based solely on adverse experiences are highly inaccurate and can lead to false labeling. Advances in science and enhanced capacity to measure chronic stress effects present promising opportunities to strengthen the early identification of children who might benefit from well-matched services and the assessment of intervention effectiveness. Both will require focusing less on average findings and more on differences in sensitivity to adverse experiences and exposures, and variation in what services work for whom and how context influences outcomes.

(3) Providing what young children need when they need it most. Research on sensitive periods in developing immune and metabolic systems, as well as in brain circuits, calls for greater attention to the prenatal period and first 2-3 years after birth. The effects of toxic chemical exposures and poor nutrition on developing organs are particularly severe during these periods; maternal nutrition and mental health during pregnancy can also have lifelong impacts on offspring. All policies and programs that affect well-being during pregnancy and infancy present opportunities to promote lifelong health. Prenatal care and home visiting are important places to start, but persistent racial disparities in maternal health, preterm birth, low birth weight, and infant mortality underscore the need to confront the "upstream" effects of racism and poverty as early as possible.

The table below summarizes the enduring relevance of the science of ECD 1.0 and the enhanced power of ECD 2.0 to drive a new vision for action, guided by the following take-home messages:

- *It's still about the brain **and** it's also about immune and metabolic systems.*
- *It's still about readiness to succeed in school **and** it's also about lifelong health.*
- *It's still about the hardships of poverty **and** it's also about the threats and burdens of racism.*
- *It's still about nurturing relationships **and** it's also about building a health-promoting society.*

ECD 1.0: Science of Early Brain Development in an Environment of Relationships		ECD 2.0: Connecting the Brain to the Rest of the Body in a Broader Ecological Context
Impacts of "serve and return" interactions on the architecture of the developing brain.	+	Impacts of conditions and experiences beyond caregiving that are built into many biological systems, as well as the brain.
Effects of toxic stress on brain circuits, with negative implications for early learning and social-emotional development.	+	Effects of a range of disruptions (e.g., toxic stress, chemical exposures, air pollution) on multiple developing systems, with negative implications for lifelong physical and mental health.
Importance of enriched learning experiences to strengthen children's readiness to succeed in school.	+	Importance of preventing or reducing effects of early adversities to promote healthy development across the lifespan.
Focus on negative impacts of poverty, maltreatment, maternal depression, addictions, and violence.	+	Expanded focus on structural inequities to include the cumulative threats and burdens of systemic racism.
Definition of "evidence-based" programs based on what works, on average.	+	Individual variation in sensitivity to the environment and a focus on which interventions work for whom, why, and in what contexts.
Research on brain development has led to increased support for Pre-K at age 4.	+	Research on developing immune and metabolic systems calls for more attention to prenatal period and early infancy.

Making the Science of ECD 2.0 Actionable for Service Providers, Policymakers, and Communities

The robust science driving ECD 2.0 provides exciting opportunities for the early childhood field to think strategically about how to achieve greater impact in multiple domains—from educational achievement and later economic productivity to lifelong physical and mental health. Three specific areas where the science can be more actionable include:

- Advancing our understanding, capacity to measure, and ability to prevent or reduce the disruptive effects of early adversity, as well as to strengthen the building blocks of resilience.
- Continuing to focus on safe, stable, and nurturing relationships for healthy development while developing new strategies to address structural inequities that impose huge burdens on families with young children.
- Expanding access to evidence-based services while doubling down on the need to increase their impacts at scale and achieve larger returns on investment.

The early childhood field is at a critical inflection point in a changing world. The opportunity to align new science and the lived experiences of families and decision makers across a diversity of sectors, cultures, and political values offers a powerful pathway forward. The need for shared leadership along that path is urgent.