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Early Childhood Development: A Review of the Global Evidence

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This policy brief examines international evidence on the health, nutrition, early learning, and overall development of young children with a focus on children born to adolescent mothers and reviews evidence-based approaches to improving early childhood development.

Why Early Childhood Development Matters

Early childhood development (ECD) refers to the physical, cognitive, socioemotional, and linguistic development of young children until they enter primary school.

The field of ECD is framed by the United Nations Convention on the Rights of the Child, and the Sustainable Development Goals now include a specific ECD target (among several other relevant targets for young children) as follows: “By 2030, ensure that all girls and boys have access to quality early childhood development, care, and preprimary education so that they are ready for primary education.”

Developmental gaps in the early years of a child’s life lead to costly consequences for individuals, families, and societies.

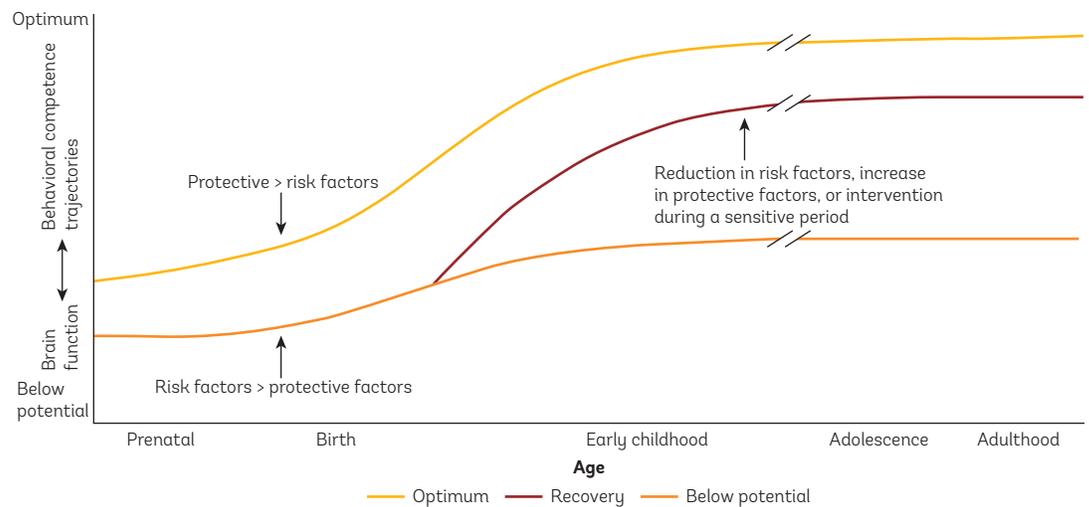
Malnutrition in early childhood significantly impairs proper development of the immune system and cognitive functions, making it difficult for children to stay healthy and to learn in school as they become older. As a result, children who are stunted by 24 months typically earn 10–20 percent lower wages throughout their productive lives (Grantham-McGregor et al. 2007). Beyond malnutrition, the overall development of young children from the most vulnerable households is

typically suboptimal, in part because they are not exposed to sufficient opportunities for early learning and development. For example, studies in five Latin American countries (Chile, Colombia, Ecuador, Nicaragua, and Peru) recorded large cognitive differences between children in the poorest and richest segments of society. The bulk of these differences was apparent by age 3, often worsened by age 6, and remained largely unchanged after that (Schady et al. 2014). Similar gaps were documented in other parts of the world, including in Cambodia, Ethiopia, India, Madagascar, Mozambique, and Vietnam (Engle et al. 2011; Fernald et al. 2011; Naudeau et al. 2011b), setting children from disadvantaged backgrounds on a suboptimal trajectory for the rest of their lives (figure 1). Children born to teenage mothers may be particularly at risk because they are more likely to come from poor or uneducated households. For example, adolescent pregnancy is associated with a 50 percent increased risk of stillbirths and neonatal deaths and increased risk of preterm birth, low birthweight, and asphyxia, putting children at elevated risk early on (Bhutta et al. 2013).

What Works

There is strong evidence that ECD interventions yield significant benefits in the short and longer terms. Many brain functions are particularly sensitive to change early in life and become less malleable over time. Much of a child’s brain architecture is “wired” in the first five years of life (Shonkoff and Phillips 2000). Various ECD interventions

Figure 1. Differential Trajectories of Brain and Behavioral Development as a Function of Exposure to Risk and Protective Factors



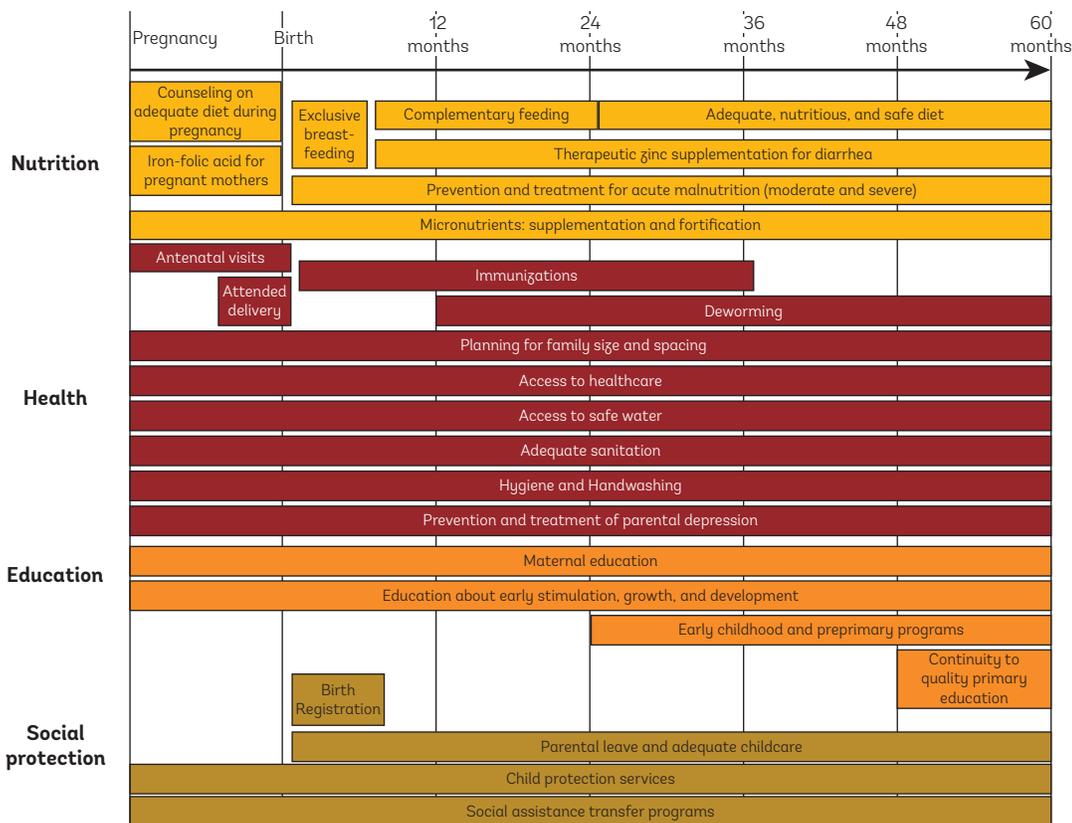
Source: Walker et al. 2011

have been shown to have significant and long-lasting benefits by enhancing school readiness and related educational outcomes, improving physical and mental health and reducing reliance on the health care system, and reducing engagement in high-risk behavior (for a review, see Naudeau et al. 2011a). As a result, ECD interventions have not only a high cost-benefit ratio but also a higher rate of return for each dollar invested than interventions directed at older children and adults. Evidence suggests a potential return of 7–16 percent annually from high-quality ECD programs targeting vulnerable groups in the United States (Heckman et al. 2009). Recent estimates also show that expanding preschool enrollment to 50 percent of all children in low- and middle-income countries could result in lifetime gains in earnings ranging from US\$14 billion to US\$34 billion (Engle et al. 2011). Many countries invest public resources in ECD as a way to enhance both efficiency and equity by leveling the playing field for the most vulnerable children and giving them an opportunity to lead happy, fulfilling, and productive lives.

Different types of ECD interventions make sense and are complementary at different times of a child’s development. Development in early childhood is a multidimensional and sequential process, with progress in one domain catalyzing development in other domains, and some specific interventions are particularly relevant during “windows of opportunity.” Figure 2 summarizes the types of interventions that are most relevant at different stages in early childhood.

Interventions to promote infant and child health and to reduce malnutrition are most effective in the 1,000-day window from pregnancy to a child’s second birthday. Worldwide, maternal undernutrition contributes to 800,000 neonatal deaths annually through small-for-gestational-age births, while stunting, wasting, and micronutrient deficiencies contribute to nearly 3.1 million child deaths annually (Bhutta et al. 2013). Interventions aimed at improving maternal health and nutrition are critical for a strong early start. Evidence from a systematic review suggests that interventions addressing reproductive health, family planning and counseling, and promotion of exclusive breastfeeding and complementary feeding interventions, especially for adolescent girls, can reduce the risk of small-for-gestational-age birth, optimize age at first birth, reduce unwanted pregnancies, and help to achieve healthy birth spacing of 18–24 months (Bhutta et al. 2013). Maternal nutrition interventions can reduce the risk of low-birthweight infants births by providing balanced energy protein, calcium, multiple micronutrient supplementation (including iron-folate), and strategies for preventing malaria during pregnancy. Vitamin A and zinc supplementation in children 6–59 months of age is another core nutrition intervention. Treatment strategies should be employed to address both severe and moderate malnutrition. If these nutrition interventions are scaled up to 90 percent coverage, stunting could be reduced 20 percent, severe wasting 61 percent, and deaths of children under 5 years nearly

Figure 2. Key Interventions for Young Children and Their Families



Source: Denboba et al. 2014

20 percent, saving 1 million lives (Bhutta et al. 2013). Using community-based and other innovative delivery platforms for many of these interventions may better enable scale-up. Since many of these interventions are delivered through the health system, close links and complementarity with efforts to strengthen health systems are critical (Horton et al. 2010).

Programs that enhance both early stimulation and nutrition are more likely to generate long-lasting impacts than nutrition alone. A systematic review and meta-analysis of 21 interventions that improved nutrition revealed that stimulation had a medium-size effect of 0.42 and 0.47 on cognitive and language development, respectively, whereas nutrition by itself had a smaller effect of 0.09 (Aboud and Yousafzai 2015). Several options exist for combining early stimulation and nutrition interventions in specific contexts (Alderman et al. 2014). In Jamaica, a ground-breaking, long-run randomized study initiated in 1986 demonstrated that stunted children 9–24 months of age who received both a nutritional supplement and early stimulation benefited much more than those who received either intervention alone.

Two decades later, the children who had received early stimulation (with or without nutrition) had earnings 25 percent higher than those who had received nutrition only or no intervention at all (Gertler et al. 2014).

Promoting early stimulation in a way that generates positive impacts can take multiple forms. There is no one-size-fits-all approach for encouraging parents and other caregivers or family members to adjust their behavior and engage in increased and higher-quality interactions with young children. The specific details that are most relevant in a given context will depend largely on the services and financial and human resources available. The types of approaches that have been effective across regions and countries include providing parenting information in the context of maternal and child health or growth-monitoring visits (as in Tajikistan or the Kyrgyz Republic), through home visits for the most at-risk families (as in Jamaica, St. Lucia, and Brazil), through a combined approach (as in Bangladesh and Honduras), or even through group meetings at the community level (as in Mexico). In other contexts, various technologies (cell phones, television, radios) have been used to reach large

numbers of children and parents with educational messages to promote early stimulation and learning at very low cost, including Bangladesh, Turkey, and Zanzibar (for a review, see Engle et al. 2011). Finally, children are likely to benefit most when both fathers and mothers are engaged in early stimulation activities (Barker 2015).

Strong evidence also exists on the positive impacts of high-quality center-based programs for young children (day-care and preschools), including in low- and middle-income countries. While the impact of quality center-based care has been documented in high-income countries, recent evidence shows that quality daycare and preschools can have significant positive effects on a child's overall development and school readiness in a wider range of countries, including in Argentina, Bangladesh, Chile, China, Colombia, Costa Rica, Kenya, Uganda, Uruguay, and Zanzibar, to name a few (Engle et al. 2011), and additional evidence continues to emerge, as in Indonesia and Mozambique, among others. In many cases, the poorest benefit the most, highlighting the need to ensure adequate targeting for publicly funded ECD interventions. However, ECD programs need to be of sufficient quality in order to yield significant positive impacts, as several studies have shown that poor-quality programs do not yield benefits.

Center-based care for young children can also generate positive impacts for other family members, including caregivers and siblings. A study in Argentina looked at the effect of large-scale increases in the availability of free preschools nationwide and estimated an effect on increased maternal employment of 7–14 percent (Berlinski and Galiani 2007). Another study of Argentine families estimated a 13 percent difference in workforce engagement in favor of mothers whose youngest child just made the age cutoff for preschool eligibility versus those whose youngest child just missed the age cutoff (Berlinski, Galiani, and McEwan 2008). Similarly, a randomized study on the impact of community-based preschools in a rural area of Mozambique found that the caregivers of participating children were 26 percent more likely to have worked in the previous month and that older siblings were 6 percent more likely to be enrolled in school (Martinez, Naudeau, and Pereira 2012). These findings may be particularly relevant for teenage mothers, who can find it challenging to pursue their education or to engage in productive activities due to childcare constraints.

Providing cash transfers to families can enhance the ECD outcomes of the poorest children. For some families, simply providing information (on the benefits of early stimulation and adequate nutrition) or increasing access to quality preschools may not be sufficient to change behavior and to generate lasting benefits for children if other constraints, such as cash or time, prevent them from using these services effectively. In such contexts, targeted cash transfers can be highly beneficial, especially when they are implemented in synergy with the provision of relevant ECD services. In particular, cash transfers and related safety nets can help to remove financial barriers and to improve access of families to child health services and appropriate food and nutrition commodities, especially for the poorest (Horton et al. 2010). For example, a cash transfer program in Bangladesh significantly reduced the incidence of wasting among children 10–22 months old (Ferre et al. 2014), while one in Burkina Faso boosted preventive health care visits more than 40 percent for children 5 years of age and younger (Akresh, De Walque, and Kazianga 2013). Cash transfer programs can also yield positive benefits for young children beyond health and nutrition, especially when parents also receive information about early stimulation. In Nicaragua, for example, a cash transfer achieved sustained improvements in children's cognitive and socioemotional development (Macours, Schady, and Vakis 2012).

Conclusions

Early childhood is a critical period of human development. While the poorest children are at greatest risk of lagging behind early in life, several types of ECD interventions have been proven effective to improve their development and life-long prospects. Programs to improve infant and child health are most effective when they combine maternal health and nutrition interventions, community-based distribution of health supplies, integrated service delivery, and postpartum counseling on infant feeding practices. Before and during pregnancy, programs that address women's reproductive health and nutrition are essential for healthy gestation and a strong foundation. For children 0–2 years of age, programs that combine early stimulation and nutrition are most likely to yield long-term effects. Center-based care can also promote child development, while freeing up caregivers' time, but quality is paramount to ensure positive outcomes. For children

3–6 years old, preschools can be a highly cost-effective way to enhance school readiness and success later in life, as long as a sufficient level of quality can be ensured. Cash transfers can alleviate financial and time constraints at the family level but are more likely to have an impact on child development outcomes when combined with access to health services, parenting education, and preschools. Finally, children are likely to benefit most when fathers and family members in addition to the mother also receive ECD information and services, especially if the mother is not the primary caregiver or the main decision maker on child-rearing practices.

References

- Aboud, Francis, and Aisha Yousafzai. 2015. "Global Health and Development in Early Childhood." *Annual Review of Psychology* 66 (January): 433–57.
- Akresh, Richard, Damien De Walque, and Harounan Kazjanga. 2013. "Alternative Cash Transfer Delivery Mechanisms: Impacts on Routine Preventative Health Clinic Visits in Burkina Faso." Policy Research Working Paper 5958, World Bank, Washington, DC.
- Alderman, Harold, Jere Behrman, Sally Grantham-McGregor, Florencia Lopez-Boo, and Sergio Urgua. 2014. "Economic Perspectives on Integrating Early Child Stimulation with Nutritional Interventions." *Annals of the New York Academy of Sciences* 1308 (January): 129–38.
- Barker, Gary. 2015. "Why Men's Caregiving Matters for Young Children: Lessons from the MenCare Campaign." In *A Good Start: Advances in Early Childhood Development*, 51–53. Early Childhood Matters 124 (June). The Hague: Bernard Van Leer Foundation.
- Berlinski, Samuel, and Sebastian Galiani. 2007. "The Effect of a Large Expansion of Pre-primary School Facilities on Preschool Attendance and Maternal Employment." *Labour Economics* 14 (3): 665–80.
- Berlinski, Samuel, Sebastian Galiani, and Patrick J. McEwan. 2008. "Preschool and Maternal Labor Market Outcomes: Evidence from a Regression Discontinuity Design." IFS Working Paper W09/05, Institute for Fiscal Studies, London, U.K.
- Bhutta, Zulfiqar, Jai K. Das, Arjumand Rizvi, Michel F. Gaffey, Neff Walker, Susan Horton, Patrick Webb, Anna Lartey, and Robert Black. 2013. "Evidence-Based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and at What Cost?" *The Lancet* 382 (9890): 452–77.
- Denboba, Amina D., Rebecca K. Sayre, Quentin T. Wodon, Leslie K. Elder, Laura B. Rawlings, and Joan Lombardi. 2014. *Stepping up Early Childhood Development: Investing in Young Children for High Returns*. Washington, DC: World Bank.
- Engle, Patrice, Lia Fernald, Harold Alderman, Jere Behrman, Chloe O'Gara, Aisha Yousafzai, Meena Cabral de Mello, Melissa Hidrobo, Nurper Ulkuer, Ilgi Ertem, and Selim Ittus. 2011. "Strategies for Reducing Inequalities and Improving Developmental Outcomes for Young Children in Low-Income and Middle-Income Countries." *The Lancet* 378 (9799): 1339–53.
- Fernald, Lia, Ann Weber, Emanuela Galasso, and Lisy Ratsifandriha. 2011. "Socioeconomic Gradients and Child Development in a Very Low-Income Population: Evidence from Madagascar." *Developmental Science* 14 (4): 832–47.
- Ferre, Celine and Iffath, Sharif. 2014. "Can Conditional Cash Transfers Improve Education and Nutrition Outcomes for Poor Children in Bangladesh? Evidence from a Pilot Project." Washington, DC: World Bank.
- Gertler, Paul, James Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan Chang, and Sally Grantham-McGregor. 2014. "Labor Market Returns to an Early Childhood Stimulation Intervention in Jamaica." *Science* 344 (6187): 998–1001.
- Grantham-McGregor, Sally, Yin Bun Cheung, Santiago Cueto, Paul Glewwe, Linda Richer, Barbara Trupp, and the International Child Development Steering Group. 2007. "Developmental Potential in the First 5 Years for Children in Developing Countries." *The Lancet* 369 (9555): 60–70.
- Heckman, James, Seony Hyeok Moon, Rodrigo Pinto, Peter Savalyev, and Adam Yavitz. 2009. "The Rate of Return to the High/Scope Perry Preschool Program." Working Paper 200936, Geary Institute, University College Dublin.
- Horton, Susan, Meera Shekar, Christine McDonald, Ajay Mahal, and Jana Krystene Brooks. 2010. *Scaling Up Nutrition: What Will It Cost?* Washington, DC: World Bank.
- Macours, Karen, Norbert Schady, and Renos Vakis. 2012. "Cash Transfers, Behavioral Changes, and Cognitive Development in Early Childhood: Evidence from a Randomized Experiment." *American Economic Journal: Applied Economics* 4 (2): 247–73.
- Martinez, Sebastian, Sophie Naudeau, and Vitor Pereira. 2012. "The Promise of Preschool in Africa: A Randomized Impact Evaluation of Early Childhood Development in Rural Mozambique." 3IE Report, International Initiative for Impact Evaluation, New Delhi.
- Naudeau, Sophie, Naoko Kataoka, Alexandria Valerio, Michelle Neuman, and Leslie Kennedy Elder. 2011a. *Investing in Young Children: An Early Childhood Development Guide for Policy Dialogue and Project Preparation*. Washington, DC: World Bank.
- Naudeau, Sophie, Sebastian Martinez, Patrick Premand, and Deon Filmer. 2011b. "Cognitive Development among Young Children in Low-Income Countries." In *No Small Matter: The Impact of Poverty, Shocks, and Human Capital Investments in Early Childhood Development*, edited by Harold Alderman, ch. 1. Washington, DC: World Bank.
- Schady, Norbert, Jere Behrman, Maria Caridad Araujo, Rodrigo Aguzero, Raquel Bernal, David Bravo, Florencia Lopez-Boo, Karen Macours, Daniela Marshall, Christina Paxson, and Renos Vakis. 2014. "Wealth Gradients in Early Childhood Cognitive Development in Five Latin American Countries." GCC Working Paper 14-02, University of Pennsylvania, Philadelphia.
- Shonkoff, Jack, and Deborah Phillips, eds. 2000. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, DC: National Academy Press.
- Walker, S. P., T. D. Wachs, S. Grantham-McGregor, N. N. Black, C. A. Nelson, S. L. Huffman, H. Baker-Henningham, S. M. Chang, J. D. Hamadani, B. Logoff, J. M. Meeks-Gardner, A. Powell Cam Rahman, and L. Richter. 2011. "Inequality in early childhood: Risk and protective factors for early child development." *Lancet*, 378: 1325–38.



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