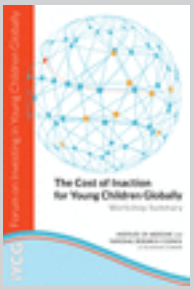

The Cost of Inaction for Young Children Globally: Workshop Summary

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The Cost of Inaction for Young Children Globally

Workshop Summary

Kimber Bogard and Maureen Mellody, *Rapporteurs*

Forum on Investing in Young Children Globally

Board on Children, Youth, and Families

Board on Global Health

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NATIONAL RESEARCH COUNCIL
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PLANNING COMMITTEE ON INVESTING IN YOUNG CHILDREN GLOBALLY: THE COST OF INACTION—A WORKSHOP[1]

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Reviewers

This workshop summary has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published workshop summary as sound as possible and to ensure that the workshop summary meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this workshop summary:

JERE R. BEHRMAN, University of Pennsylvania
ALBERT LEE, The Chinese University of Hong Kong
THEODORE D. WACHS, Purdue University
SUSAN WALKER, University of the West Indies

Although the reviewers listed above have provided many constructive comments and suggestions, they did not see the final draft of the workshop summary before its release. The review of this workshop summary was overseen by **Enriqueta Bond,** President Emeritus, Burroughs Wellcome Fund. Appointed by the Institute of Medicine and the National Research Council, she was responsible for making certain that an inde-

pendent examination of this workshop summary was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this workshop summary rests entirely with the rapporteurs and the institution.

Acknowledgments

The planning committee and project staff deeply appreciate many valuable contributions from individuals who assisted us with this project. First, we offer our profound thanks to all of the presenters and discussants at the workshop, who gave so generously of their time and expertise. These individuals are listed in full in the workshop agenda in Appendix B. We are also grateful to the many participants who attended the workshop both in person and via the live webcast. The engagement of all those in attendance was robust and vital to the success of the event.

In addition, the forum wishes to recognize the sponsors that supported this activity. Financial support for this project was provided by the Accordia Global Health Foundation; the Aga Khan Foundation; Autism Speaks; the Bernard van Leer Foundation; The Bill & Melinda Gates Foundation; Grand Challenges Canada; The William and Flora Hewlett Foundation; the Inter-American Development Bank; the Jacobs Foundation; National Institutes of Health–Fogarty International Center, National Institute of Mental Health, and National Institute of Child Health and Human Development; the Nestlé Nutrition Institute; the Open Society Institute–Budapest; the Society for Research in Child Development; UNICEF; U.S. Centers for Disease Control and Prevention; U.S. Department of State; the Maria Cecilia Souto Vidigal Foundation; and the World Bank.

A NOTE ABOUT THE COVER ART

The Forum on Investing in Young Children Globally is committed to confronting the challenges and exploring the opportunities surrounding the global nature of integrating the science of health, education, nutrition, and social protection. One of the ways the forum has committed itself to being global in scope is through the workshops that occur in different regions throughout the world. The cover design is intended to embrace the diversity in place, culture, challenges, and opportunities associated with the forum activities at each of the workshops, but this global trajectory is done keeping in mind the momentum that comes in connecting these diverse locales to one another through the work of the forum. The bright orange dot represents the location of the workshop this report summarizes, and the lighter orange dots represent workshop locations across the first 3 years of the forum. The dotted orange line suggests that the forum will link what was gleaned from the convening activities from this workshop to the next. We would like to thank Jocelyn Widmer for her contributions to the cover design.

Contents

1

Overview

FORUM ON INVESTING IN YOUNG CHILDREN GLOBALLY OVERVIEW[1,2]

The Forum on Investing in Young Children Globally, which has now launched, went through a yearlong planning process with initial planning grants by the Bernard van Leer Foundation and the Doris Duke Charitable Foundation. The first planning meeting took place in March 2013 and the second one in June 2013. Out of those two meetings and discussions with multiple leaders in the field came the vision, objectives, and goals for the Forum on Investing in Young Children Globally.

The Board on Children, Youth, and Families of the Institute of Medicine (IOM) and the National Research Council (NRC), in collaboration with the IOM Board on Global Health launched the Forum on Investing in Young Children Globally in January 2014. At this meeting the participants agreed to focus on creating and sustaining, over 3 years, an evidence-driven community of stakeholders across northern and south-

[1] The planning committee's role was limited to planning the workshop. The workshop summary has been prepared by the rapporteurs (with the assistance of Charlee Alexander, Pamella Atayi, Rachael Clark, and Sarah Tracey) as a factual account of what occurred at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the IOM. They should not be construed as reflecting any group consensus.

[2] This section summarizes information presented by Zulfiqar Bhutta, Co-Director, SickKids Centre for Global Child Health, Toronto, and Founding Director, Center of Excellence for Women and Child Health, Aga Khan University, Karachi, Pakistan.

ern countries that aims to explore existing, new, and innovative science and research from around the world and translate this evidence into sound and strategic investments in policies and practices that will make a difference in the lives of children and their caregivers. Forum activities will highlight the science and economics of integrated investments in young children living in low-resourced regions of the world across the areas of health, nutrition, education, and social protection. As a result the forum will explore a holistic view of children and caregivers by integrating analyses and disciplines that span from neurons to neighborhoods and discuss the science from the microbiome to culture. Moreover, the forum will support an integrative vision to strengthen human capital. This work will be done through the forum and will engage in a series of stakeholder consultative sessions or public workshops, each focusing on specific aspects of science integration, bridging equity gaps, and implementing and scaling evidence-informed efforts.

A set of forum goals includes supporting the development of integrated science on children's health, nutrition, education, and social protection and working with policy makers, practitioners, and researchers to raise awareness of integrated approaches to improve the lives of children and their caregivers. Forum objectives to meet these goals are expected:

1. To shape a global vision of healthy child development across cultures and contexts, extending from preconception through at least age 8, and across current silo areas of health, nutrition, education, and social protection.
2. To identify opportunities for intersectoral coordination among researchers, policy makers, implementers, practitioners, and advocates to improve quality practices in public and private settings and bring these practices to scale, in the context of the economics of strategic, integrated investing in young children.
3. To inform ongoing conversations and activities of groups working on issues related to young children globally such as the sustainable development goals and indicators being developed.
4. To identify current models of program and policy financing across health, education, nutrition, and social protection, within the framework of reproductive, maternal, newborn, and child health that aim to improve children's developmental potential. This information could be used to illuminate opportunities for new financing structures and forms of investments that may be more effective in improving child outcomes and potentially drive economic development.

WORKSHOP OVERVIEW

A central element in the forum's activities is its workshops; the forum has planned a series of workshops over its 3-year tenure.[3] These workshops will be held around the world and will address a range of topics, including investments in young children, financing investments in children and their caregivers, scaling preventive intervention programs for young children, platforms for integrated investments, family and community investments in children, and investing in children affected by conflict. On April 17–18, 2014, the forum conducted its first workshop focusing on investments in young children and the cost of inaction. A complete statement of task for this workshop is shown in Box 1-1.

This report summarizes the workshop presentations and discussions. The planning committee's role was limited to planning the workshop, and the workshop summary has been prepared by the workshop rapporteurs as a factual summary of what occurred at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants, and are not necessarily endorsed or verified by the IOM and the NRC, and they should not be construed as reflecting any group consensus.

While acknowledging the importance of current research in early childhood development, several workshop participants argued for an increased need to translate that knowledge into actions that policy makers around the world could use to develop and optimize early childhood programs and investments. Individual suggestions to encourage that translation included:

- Shifting the early childhood development community's core message to thriving, not merely surviving;
- A focus on prevention of poor child development outcomes;
- The use of community-based health workers to support and educate caregivers in supporting children's developmental potential;
- Interventions and supports for young children, including cash transfer programs, early investment in education from early childhood into primary school, and early investment in nutrition and environmental enrichment;
- Additional delivery platforms to address inequities experienced by children; and

[3] More information about the forum and its activities, including future workshops, can be found online at http://www.iom.edu/Activities/Children/InvestingYoungChildrenGlobally.

- Integration across different sectors (for example, health and education) to create a holistic approach to investing in young children and their caregivers.

Several workshop participants emphasized the need to understand indicators and assessments that are common across all cultures and locations and those for which local context should be considered. Currently, context may not always be properly addressed, leading to inaccuracies in measurements and a misunderstanding of regional strengths and regional needs. Multiple speakers and participants discussed the need for a set of consistent, integrated metrics to measure progress toward early childhood development outcomes. That set of metrics should be small in number, easy to understand by a layperson, and harmonized throughout the community.

Various workshop speakers and participants discussed the importance of different socioeconomic trends and their associated factors that affect the development of young children. Individual speakers referred to the effect of inequality in the socioeconomic and caregiving environments among children. In particular, several speakers pointed out inequality in

BOX 1-1
Workshop on the Cost of Inaction Statement of Task

An ad hoc committee will plan and conduct an interactive public workshop featuring presentations and discussions that highlight opportunities for scientifically grounded investments in young children globally. Investments will be broadly conceived to include allocations of economic, natural, social, and other resources that sustain or promote human development and well-being. Speakers will explore the question of whether the science converges on a set of universal elements that support optimal development from preconception to age 8. Intersections across health, education, nutrition, living conditions, and social protection will be explored. Speakers will address elements that may vary by geographic context and issues affecting diverse populations, including children with disabilities. The science will be highlighted by a set of research presentations focused on interrelated themes of promoting optimal development through investing in young children and the potential economic consequences of inaction. The contexts of child development, including families and caregivers as well as culture and community, will be considered. The committee will identify specific topics to be addressed, develop the agenda, select and invite speakers and other participants, and moderate the discussions. An individually authored summary of the presentations and discussions at the workshop will be prepared by a designated rapporteur in accordance with institutional guidelines.

access to education, differential fertility rates among caregivers of young children and access to family planning tools, and caregiver income. Other important factors raised by many speakers included child disability status, caregiver mental health, particularly maternal depression, and HIV-infected caregivers.

Several participants articulated the need to understand the priorities for investment and a clear idea of the usefulness of today's practices. Several speakers focused on how to assess the cost-effectiveness of different interventions. Additionally, some speakers identified how to determine benefit–cost ratios, including the use of systematic tools and economic considerations and pragmatic examples of successful government interventions.

2

Linking Children's Developmental Potential to a Nation's Developmental Potential[1]

Peter Singer began his keynote address by challenging the audience to consider its failures. In particular, he argued that the primary failure of the early childhood development (ECD) community is its inability to translate emerging evidence into commensurate action by policy makers. ECD research results are not reflected in global policies and accountability frameworks that will guide action in the next 15–20 years. Singer referred to this failure as "lost in translation." He emphasized that this statement was not a critique of individual efforts, but rather a collective acknowledgement that the community is not where it wants to be.

Suggesting that ECD is one of the world's grandest challenges in terms of scope, scale, and impact, Singer proposed that failure to provide optimal early environments for children leads to lower income and national gross domestic product (GDP), higher rates of disease and depression, and increased crime rates (Naudeau et al., 2011). Without ECD, children are already behind at school age. Singer posited that inattention to ECD is locking countries in a condition of poverty. Specifically, ECD will provide the first skills needed to build a nation's workforce.

One particularly salient political issue for the field is the presence of ECD in the post-2015 agenda, and more specifically, the United Nations' Open Working Group (OWG) on sustainable development goals. The

[1] This section summarizes information presented by Peter Singer, Grand Challenges Canada.

OWG proposed a list of 19 focus areas.[2] Singer stated that no one area explicitly cites ECD initiatives, though ECD is included in the next level of detail for many of the 19 areas. As a result, ECD is not considered in a holistic manner and is not seen as the grand challenge that it truly is.

Singer also described the Countdown to 2015 framework, which is the outcome of the United Nations' Commission on Information and Accountability for Women's and Children's Health.[3] The main indicators of the Countdown to 2015 framework are stunting and survival; these are related to child development, but emphasize biology and nutrition more strongly. Survival is a necessary and critical element to child welfare, but alone it is insufficient, he said. Mothers do not merely want their children to survive; they want them to thrive. Singer suggested pivoting the discussion in women and children's health from a focus on survival to a focus on thriving—a more aspirational message.

Framing the absence of a holistic view on ECD as a "lost in translation" failure, Singer pointed out that a compelling story focused on thriving children is not being told. He listed a number of reasons contributing to this failure, including

- Fragmented risks—Singer noted that the risk factors in child development are complex and manifold, including such elements as nutrition, vaccines, and early education. He argued that, instead of focusing on risks, the community should adopt a holistic, integrated view of risk in order to have an integrated response.
- Siloed outcomes—There are many different outcomes, including economic (such as GDP), social (such as violence), or health-related (such as depression). By focusing on only a single element of the burden, the effect of interventions on outcomes appears diminished.
- Metrics—Singer listed several concerns with metrics. First, he posited that good metrics do not exist for the early years (ages 0 to 2). Singer noted that The Bill & Melinda Gates Foundation recently joined the Grand Challenge on Saving Brains, launching an Explorations call for proposals on measuring early child development (fetal/infant stage) (Grand Challenges Canada, 2014). On the other hand, Singer argued that there are many organizations, each with many different metrics, and referred to this as

[2] See http://sustainabledevelopment.un.org/owg.html for more information (accessed April 27, 2014).

[3] See http://www.countdown2015mnch.org/about-countdown/accountability for more information (accessed April 27, 2014).

"starvation in the midst of plenty." He challenged the audience to develop six metrics that could fit onto a "dashboard" that could be tracked by a policy maker. He argued that these metrics should be harmonized across health, economics, and other fields, and that the community should be cognizant of context when metrics are used. Singer stated that metrics are the gateway to accountability, which drives global policy.

- Political economy—Singer stated that many people consider investment in global child development to be "big government" or "big spending," which adds the challenge of politics to the ECD discussion. He proposed that the community take a fiscally conservative approach, noting that many basic improvements (such as safe spaces and enhanced play) are not expensive. He also proposed the use of innovative financing mechanisms for situations in which additional money is needed. For instance, corporations benefit from workforce development and might be willing to support programs if the benefits to them are well understood. Singer emphasized the importance of developing programs that are financially neutral or net positive, whether for a nation or for a corporation.
- Lack of global linkages—Singer argued that the U.S. war on poverty, including initiatives in ECD, is not appropriately linked to the global challenges of ECD, international development, and human capital infrastructure. This nation has an opportunity to link domestic problems with the problems of global poverty.

Singer also challenged the audience to better synthesize science and data. He stated that economic data on child development could provide translational evidence that is compelling to policy makers. He suggested addressing such questions as the total cost of inattention, the cost of neglecting ECD on an individual country's GDP, and the cost of neglecting a particular set of risk factors.

Singer noted that the OWG framework cannot be implemented unless change first takes place. He offered two possibilities for how that change could be implemented. Under one possibility, a single actor will appear who will shape the goals and the community will follow. Under the second possibility, a narrative will develop that unifies the goals and provides a coherent story. Singer suggested that the narrative be integrated under a single theme, such as "reaching potential" or "human promise." Such a theme embraces all the goals in a coherent manner.

A workshop participant pointed out that individual pieces of a larger problem are easier to sell to policy makers than a large, holistic perspective. Singer countered that both elements are necessary: a holistic frame-

work that unifies all the goals and a tactical use of individual programs or elements appealing to an individual policy maker. The unifying framework could serve to align and unify the community and better enable partnerships.

In response to a question about how to translate the science to policy, Singer stated that translation must be considered from the beginning. He pointed out that, in today's model, policy focuses on domestic economic development (investment, infrastructure, and stimulus) to spur domestic prosperity. Foreign aid is considered charity and a drain on scarce resources. The community instead needs to reframe global investment in ECD as a key to domestic prosperity. For example, South Africa made development of its workforce a priority and quickly realized ECD would support that effort. Such an idea should be put in an international framework. Participants also discussed the importance of synthesizing the evidence and linking it to real challenges and programs in countries.

3

The Science of Developmental Potential

The forum emphasizes an evidence-based approach to explore new and innovative science that can be translated into policies to improve the lives of children. Accordingly, the workshop opened with a discussion of new science in developmental potential. Individual speakers focused on the science of developmental potential and disability and illuminated how different factors such as nutrition, stress, enrichment, and cultural context affect that development.

THE TIMING OF INTEGRATED EARLY INTERVENTIONS: NUTRITION, STRESS, AND ENVIRONMENTAL ENRICHMENT[1]

Michael Georgieff began his presentation by stating that one must consider the way in which the brain develops when designing interventions. Georgieff posited that an integrated approach is essential because neural, nutritional, metabolic, physiological, and behavioral biology form a linked multidimensional system. All behaviors emanate from the brain, he explained, which has a well-described development path. Rules must be applied to assess brain development and the impact of environmental factors (such as nutrition, stress, and environmental enrichment) on the developing brain.

The brain is inhomogeneous and composed of multiple subregions,

[1] This section summarizes information presented by Michael Georgieff, University of Minnesota.

stated Georgieff. In addition, the brain consists of many areas and cell types, each with a different developmental trajectory. Some areas begin and end development during the fetal period, while other areas continue to develop through adolescence. As a result, the vulnerability of the brain to environmental factors depends upon the interaction of (1) the timing of an environmental deficit or enrichment; (2) the brain region requirement for a nutrient, its receptivity to enrichment, or its vulnerability to stress; and (3) dosage and duration.

Vulnerability changes through the life of a child, as described by Georgieff. For example, different brain regions have different iron requirements over time, and so a child is not equally at risk for iron deficiency throughout his or her life. The times of highest risk occur when there is high demand coupled with a strong lack of availability. Moreover, Georgieff pointed out that toxic stress is always a negative and can lead to an unhealthy brain structure. In stressful situations, dendrites shrink and behaviors become less efficient. Georgieff explained that the variables are interrelated: for example, stressed people do not absorb nutrients as efficiently. Conversely, poor nutrition gives rise to stress responses.

In noting that the brain is both plastic and vulnerable, Georgieff suggested that, on the whole, vulnerability outweighs plasticity. He also pointed out that it may be possible to reestablish plasticity in the brain, and that less rapid growth in regions of the brain does not mean that the change is immutable. Primary systems, including learning and memory, speed of processing, and reward, develop in the first 3 years of life; these primary systems provide the "scaffolding" for the later development of higher-order neural systems. Georgieff proposed aligning the timing and coordination of interventions based on differential sensitivity periods. This would be particularly helpful in resource-limited environments, because targeting sensitive developmental windows for providing integrated biological and psychosocial interventions will be most efficient in promoting the development of children.

Expounding on the idea of the importance of timing for interventions with young children, Georgieff used the example of nutrient supplementation on cognition. He stated that clinical data support the importance of nutrient supplementation at critical times, providing the specific example of iron (Christian et al., 2010). Fetal supplementation of iron improved memory, inhibitory control, and fine motor skills when the children were ages 7–9. Supplementation of iron later than the fetal period did not have an effect (Murray-Kolb et al., 2012).

Georgieff stated that, in general, early intervention results in better outcomes. He cited results showing that 6–12 months is a sensitive period for promoting secure attachment (van Ijzendoorn and Juffer, 2006); the early years of life are a salient time period for interventions to improve

quality of parenting (Bakermans-Kranenburg et al., 2003); and intervention during early years has long-term cognitive and academic benefits (Barnett, 2011; Engle et al., 2011). Follow-up interventions later in childhood have also proven effective (Reynolds and Robertson, 2003; Reynolds et al., 2001). He pointed out that adolescence remains a relatively unexplored area of brain change and offers an opportunity to catch up and solidify the scaffolding put into place as a young child.

In conclusion, Georgieff stated that early development (prenatal to 5 years) affects the developing primary brain structures, and it is difficult to make up this development later in life. He also pointed out that follow-up and follow-on interventions are critical, particularly for children who have multiple risk factors. In the discussion period, Georgieff noted the importance of finding early predictors of outcomes, such as likely models for success in education, employment, and social structure. He gave the example of autism and its late diagnosis. Although there are early indicators, many children, especially boys, are not diagnosed until age 3, and they miss early interventions during crucial periods of brain development.

DEVELOPMENTAL POTENTIAL AND CHILD DISABILITY[2]

Maureen Durkin defined a child disability, or developmental disability, as functional limitation(s) manifested in childhood because of impairments to the developing nervous system or other bodily systems. A disability can affect many aspects of development. She explained the causal pathways for learning and developmental disabilities, using a scheme to identify risk factors and interventions from preconception through early development with evidence-based proof of effectiveness (Durkin et al., 2007).

The early childhood development community tends to focus on optimizing conditions for children without disabilities, at the exclusion of children with developmental disabilities. There is little integration of developmental disabilities into early child development research and program development agendas, according to Durkin. Perhaps the rationale is that, with limited resources available, funding should not be "wasted" on children who will never achieve optimal development. Durkin argued that recent developments in human rights (both for children and for persons with disabilities) support the need for including children with disabilities in work related to the education and health of children. Durkin pointed out that the disabled are being recognized more and more as

[2] This section summarizes information presented by Maureen Durkin, University of Wisconsin.

human beings with rights, instead of objects of charity. She specifically noted the United Nations' *Convention on the Rights of the Child* (United Nations, 1989) and the *Convention on the Rights of Persons with Disabilities* (United Nations, 2006) as two activities that explicitly acknowledge the rights of children with disabilities.

The United Nations' Millennium Development Goal 4 is to reduce by two-thirds the mortality rate for children under age 5 from 1990 to 2015.[3] Durkin explained that significant progress has been made toward that goal; and as of 2011, child mortality had dropped by nearly half worldwide.[4] Durkin pointed out that reduction in child mortality leads to an increased prevalence in disability, and she provided data from Bangladesh to support this claim (Khan et al., 2013).

United Nations Children's Fund (UNICEF) currently plays the lead role in international monitoring and assessment of child disabilities. Data show that children in low- and middle-income countries are at the greatest risk for severe disabilities because of the lack of access to primary prevention and exposure to poverty, according to Durkin. However, there are relatively few data from around the world to confirm the prevalence of developmental disabilities in these countries owing to a lack of assessment tools, trained personnel, and funding to collect and monitor this information.

Durkin also pointed out that economic development does not lead to a decline in disability; in fact, the prevalence of child disability has increased with economic development in the United States (Halfon et al., 2012). As the prevalence of child disability has increased, the proportion of disabilities classified as "mental" has also increased. In the United States, most of the increase in the prevalence of child disability in recent decades has been from increases in cognitive and behavioral disabilities. Durkin cautioned that economic investment will not necessarily reduce disability numbers, at least in the short term.

Studies on the cost-effectiveness of interventions support selected interventions across primary, secondary, and tertiary levels (Durkin et al., 2006). Specifically, Durkin explained the results of a study that examined the cost-effectiveness and benefit–cost ratios of several interventions focusing on different aspects of developmental disability (Durkin et al., 2006). One of these interventions was folic acid fortification of the food supply to ensure optimal maternal folic acid levels before conception. The cost-effectiveness of folic acid varies around the world because of differences in cost and prevalence, but in all cases folic acid fortification

[3] See http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf for more information (accessed April 30, 2014).

[4] Ibid.

is highly cost effective: the cost per disability-adjusted life years (DALYs[5]) averted ranged from $36 in Latin America to $160 in East Asia. A second intervention highlighted by Durkin was newborn screening for congenital hypothyroidism followed by targeted thyroid hormone replacement therapy to prevent the onset of disability. The benefit–cost ratio for this intervention ranged from 2 to more than 5.

Durkin concluded by noting that, at the population level, child disability is integral to child development and vice versa; society cannot make progress in either area without unifying them and putting them on the same agenda. Despite the existence of effective interventions, children in low- and middle-income countries are not likely to have access. This condition increases the risk for disability globally. She stated that, for a condition to become a global health priority, the condition must be common, severe, and changeable. She argued that disability satisfies all three conditions, and prevention of disability should be an international priority.

SOME CRITICAL GAPS IN THE CURRENT SCIENCE BASE OF DEVELOPMENTAL POTENTIAL[6]

Robert Serpell began by describing several developmental characteristics of humans: they are plastic and resilient; they rely heavily on caregivers in the early years; they are predisposed to live in social groups and to use language for communication; they have the capacity for reflection and innovation; they participate in culture and society; and they develop cultures particular to their community. Serpell explained that humans' developmental niche consists of three dimensions to which humans adapt: physical and social settings, caregiving practices, and implicit theories held by caregivers (Super and Harkness, 1986).

According to Serpell, the International Child Development Steering Group (ICDSG) articles in *Lancet* (Engle et al., 2007; Grantham-McGregor et al., 2007; Walker et al., 2007) contain a political argument about social justice and economic inequalities. The group also made a technical argument grounded in science about the strategic benefits in prevention. To strengthen the argument, Serpell posited that the ICDSG exaggerated the degree of consensus within the community about what constitutes developmental potential and how to support its fulfillment.

The ICDSG supported an intervention package similar to the 1980s UNICEF strategy of growth monitoring, oral rehydration, breastfeeding,

[5] DALY is the sum of the years of life lost to premature death and the years lost to disability for people with a particular health condition.

[6] This section summarizes information presented by Robert Serpell, University of Zambia.

and immunization (GOBI). The case was made that these were universally effective for infant survival, growth, and health. The ICDSG proposed that, in this new era, stimulation and caregiver sensitivity are universally effective causes of social and emotional competence in children. However, Serpell pointed out that there is no cross-culturally equivalent cognitive stimulation policy analogous to GOBI, and this policy is currently under critical examination. It is difficult to articulate and operationalize its principles across cultures, for three main reasons:

1. Environmental variations—Demands and affordances are different across cultures.
2. Theoretical biases—The criteria for validation of explanatory models in developmental psychology are influenced by culture.
3. Measurement challenges—Assessments depend on culturally specific practices.

Serpell noted that young Zambian children in lower-income families have a rich tradition of music, dance, and games, and they make their own toys. They receive little input from parents, but they do have significant input from siblings and peers, and they derive support from a socially distributed system of care. This local context may not adequately be considered in the ICDSG policy.

While models proposed by Western science are elegant, testable, and parsimonious, they have little usefulness if they fail to connect to the local realities, Serpell said. Research evidence does not currently exist to support that imported, culturally alien cognitive stimulation techniques are more supportive of children's development than prevailing, local stimulation techniques. Serpell proposed that the design of appropriate, effective ECD services for African societies include the consideration of not only adverse economic conditions in rural and peri-urban neighborhoods, but also the strengths and limitations of local child-rearing practices, knowledge, and attitudes.

Measurement challenges, as identified by Serpell include the cultural relevance of standardized tests developed outside of the country or locale of interest. Standardized instruments have little adaptation to individual populations. If an external test is applied to a population for which it is not designed, the population will perform poorly. Serpell stated that most tests are grounded in Western practices, which disadvantage African test-takers. A specific example is in block design pattern reproduction, which is a Western-origin test that involves the manipulation of puzzles and blocks. African children tend to perform poorly, despite the fact that the main cognitive functions under assessment (such as visual discrimination, pattern reproduction, mental shuffling/rotation, and planning) tend to be

manifested in common, everyday behavior by African children, according to Serpell.

A study compared low-income, urban children in Zambia and England by presenting pattern recognition tasks in different media: paper and pencil, clay modeling, and wire modeling. As predicted by their ecocultural environments, English children scored much higher on the paper and pencil task, Zambian children scored much higher on the wire modeling task, and the groups did not differ in performance on the clay modeling task. The conclusion was that that the same underlying cognitive functions were only displayed when the test used a familiar medium. As a result, a clay modeling test was developed for the assessment of cognitive development in African children (Ezeilo, 1978; Kathuria and Serpell, 1998).

Serpell discussed three critical gaps in developmental science:

1. Language development in multilingual contexts—Serpell noted research evidence that multilingualism supports cognitive development (Bialystok et al., 2009; Cummins, 2000; Heugh, 2000; SRCD, 2013), but there is little evidence of how children learn language in a multilingual environment.
2. Child-to-child interactions as a source of cognitive development—Serpell argued that children taking responsibility for a younger child is not exploitative but rather is a respectful and effective way to give responsibility to a child in preparation for adult roles. He stated findings from research that showed such a system of practices promoted children's prosocial values, peer-group cooperation, gender equality, and helping others (Serpell et al., 2011). However, a workshop participant cautioned that a distinction should be made for situations in which a child is forced to care all day for younger siblings and may not be receiving proper education as a result. Another participant noted that there is likely a gender differential to caregiving, with more girls than boys responsible for other children.
3. Socially distributed care and emotional security—Serpell noted that the hypothesis of maternal care as a biological survival mechanism (such as Bowlby, 1971) is a popular position. Less publicity has been given to alternative positions, such as that of Keller (2006), who showed that the goals of parenting as they relate to caregiving practices systematically differ in rural African societies from industrialized settings such as the United States. Serpell cautioned against applying a model of attachment from one culture to another.

Serpell stated that developmental science can enhance the design of social policies and professional practices by highlighting reductions in vulnerability of children in the presence of ameliorative intervention; individual and social factors that protect against poverty and its psychological impact; exceptions to the "developmental trajectory" postnatally given personal agency; and effective strategies to engage the community in the promotion of sociocultural change. Serpell concluded by suggesting a number of ways in which the community can move forward from provisional knowledge into responsible intervention, including

- Create partnerships in training in ECD.
- Launch feasibility projects incorporating and adapting indigenous cultural resources in ECD.
- Include cultural relevance in the criteria applied by accreditation bodies for approval of ECD services, institutions, and training programs.
- Challenge Western hegemony through the systematic study of cultural diversity.
- Integrate non-Western cultural resources into teaching resources for higher education in Northern, Western, and more industrialized countries.
- Bridge curricula for higher education between orthodox, Western, higher-educational practices and the demands of prevailing sociocultural contexts around the world.
- Institutionalize child development research at universities outside the Northern, Western, and more industrialized countries.
- Foster international partnerships in the design and delivery of professional training for ECD providers that emphasize the use of indigenous resources, cultivation of social responsibility, and respect for human rights.

4

The State of the World's Young Children

Data on the state of the world's young children highlight several issues: the need to move from survival to development of young children; links among education, health, nutrition, and brain development; the role of caregivers; disparities in access to quality early childhood and primary school education; rates of children who are double orphans; significant levels of child stunting in many areas; and the presence of violence in conflict in children's lives.

CHILD DEVELOPMENT FROM A GLOBAL PERSPECTIVE[1]

Donald Bundy stated that child mortality data show a success story: mortality is declining significantly in almost all regions of the world (United Nations, 2013). While the trend is not strong enough to meet the Millennium Development Goals,[2] Bundy suggested that now is the time to transition the discussion of early childhood from one of survival to one of development. He also noted that the child mortality rates vary geographically in a significant way; children in sub-Saharan Africa and Southern Asia face a much higher risk of dying prior to age 5 than the rest of the world.

Development is not a continuous process, and Bundy emphasized

[1] This section summarizes information presented by Donald Bundy, World Bank.

[2] See http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf for more information (accessed April 22, 2014).

the importance of understanding the age trajectory and specific stages of development. For example, nutrition interventions in the 0 to 8 age period have a larger impact than intervention later on. However, Bundy recommended that the community should also consider the child more broadly and simultaneously consider adolescence, as this time period is also characterized by large physical and emotional development. Areas such as education and schooling as well as nutrition can have significant effects on children's development.

Education can actually change brain architecture. In fact, schooling enhances fluid intelligence by as much as a half a point per year of education. Overall, Bundy pointed to the Flynn effect (Flynn, 1999), which, put simply, is that people are getting smarter. Data show that the average intelligence quotient (IQ) has been increasing since the 1930s. The clearest data is from northern Europe, which shows a 15 point IQ increase per generation. Bundy cited studies that showed a link between education and neuro-cognitive development (Baker et al., 2012). The result is that several years of basic education cause people to think and reason differently.

Bundy discussed the relationships between education outcomes and interventions in health, nutrition, and education. Interventions in health and nutrition have the same level of impact on access to schooling as education interventions. In other words, policy makers should consider health and nutrition when implementing improvements to education. Bundy remarked that in 2008, the World Bank developed a crisis fund to respond to the financial crisis. Countries asked the World Bank for funding for school meal programs. World Bank analysis has since shown the remarkable scale of school meal programs: 368 million children are fed each day through these programs (Burbano de Lara et al., 2013). Bundy explained that school meal programs should not be considered nutrition programs, but education programs; they are designed both as a social safety net and to support education. This is an overlooked platform that is not usually part of the child development discussion.

In describing the role of caregivers and educators of young children globally, Bundy stated that caregivers in the preprimary environment tend to be teachers, adolescent girls, and parents. The number of teachers and trained caregivers is tiny (close to 60 million total) relative to the number of adolescent girls and mothers (around 2.4 billion total).[3] Despite studies showing the benefits of early education, the number of preschool teachers has remained fairly constant over the past 25 years, between 20 to 30 million.[4]

[3] See http://esa.un.org/unpd/wpp/index.htm, and the databases from http://databank.worldbank.org for more information and statistics (accessed April 30, 2014).

[4] See http://databank.worldbank.org for more information and statistics (accessed April 30, 2014).

Bundy concluded by noting that human rights and the rights of the child are implicit in this discussion. The World Bank also has pragmatic, cost-based reasons for acting as well. Not only does early child development make sense from a human rights perspective, it also makes economic sense.

STATE OF YOUNG CHILDREN IN THE ARAB REGION[5]

Maysoun Chehab focused on the education and health of children in the Arab region, along with the threats that challenge the development of children in the region. She explained that Arab nations began to focus on the welfare of young children in the 1990s, when most Arab nations ratified the Convention of the Rights of the Child. In 2000, the United Nations Educational, Scientific, and Cultural Organization's (UNESCO's) Education for All (EFA)[6] goals and the United Nations' Millennium Development Goals were released, and most Arab nations also adopted those standards. Around that time, most Arab nations developed early childhood care councils. The demand for the services of these councils remains greater than what is available, and there are large differences in the services across the 22 Arab nations. The focus of these programs tends to remain on treatment rather than intervention or prevention.

Regarding the status of child health and nutrition in the Arab world, Chehab emphasized that malnutrition remains a problem, with 17 percent of young children moderately to severely underweight. While all Arab countries have an immunization program for children under 5 years old, only a few have school health programs in public schools for children ages 3–8 (UNESCO, 2010).

The EFA Goal 1 is to expand and improve comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children. Chehab noted that preprimary education in Arab nations increased by 8 percent from 1999 to 2011, but it remains the second-lowest enrollment in the world (UNESCO, 2014). She explained that Arab nations have highly unequal access to services. Part of the reason, according to Chehab, is that the region also has the highest share of private preschools, with two-thirds of the total enrollment in private schools. She noted a wide gap in enrollment between the highest-income and lowest-income households. Algeria has the highest share of government programs, and it achieved the largest expansion in enrollment (from 2 percent in 1999 to 75 percent in 2011) as the result of its public reforms (UNESCO, 2014).

[5] This section summarizes information presented by Maysoun Chehab, UNESCO.

[6] See http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all for more information (accessed May 1, 2014).

Therefore, Chehab suggested that Algeria may be considered as a model or case study for other Arab nations.

Chehab explained that the access to education varies in the region. For ages 0 to 3, education is usually privately operated, and enrollment varies by nation. Few services are provided to children under 3, and the programs tend to be of a custodial nature rather than educational. She noted that several nations have specific programs to target children from low socioeconomic backgrounds, and eight countries are involved with developing early childhood strategies in collaboration with UNICEF and other organizations.

Armed conflict is a major barrier to the well-being of young children and one of the most pressing needs in the area. She noted that conflict is not merely at a nation's borders; it is now internal and affects more civilians. Twelve nations in the Arab region currently have conflict, and, as a result, an increased number of people are displaced. Lebanon, a nation with a population of 4 million, has 1.5 million refugees (UNESCO, 2011).

As a result of conflict and displacement, children's living conditions have degraded, with many refugees living in tents or outdoors. The school infrastructure is a target itself, and 25 percent of the schools in Syria have been destroyed (UNICEF, 2013b). Many parents do not send their children to school because of safety concerns. Also, the problem of the child soldier remains, with schools as a target for recruitment. The child soldier problem is particularly acute in Sudan. Discretionary funding, intended for education, is being diverted to the military in these nations. Chehab emphasized the need for increased funding for education; currently, education accounts for less than 2 percent of humanitarian aid (UNESCO, 2011).

Chehab concluded with a call to action in three areas:

1. Make early childhood programs a force for peace; work to increase political will and the priority of early childhood development.
2. Increase attention on the transition years (age 6 to 8). Information on children in this age group is limited.
3. Develop a database, accurate statistics, and laboratory studies to provide detailed data that can be communicated to policy makers.

THE DEMOGRAPHIC AND HEALTH SURVEYS (DHS) PROGRAM AND CHILDREN[7]

Sunita Kishor explained that the Demographic and Health Surveys (DHS) program has been continuously funded by the U.S. Agency for International Development (USAID) since 1984. It is a survey-based program that provides countries with technical assistance to collect, analyze, and present data on population health and nutrition. She noted that the DHS mission extends beyond that of many other projects providing survey-related assistance in that its objectives include the facilitation of data use and capacity building, not just the collection and presentation of data.

For its household sample survey operation, the DHS uses a household questionnaire, a woman's questionnaire, and (often, but not always) a man's questionnaire. These questionnaires are adapted for context and to address country-specific needs, according to Kishor. The DHS uses scientifically selected samples of households in which all eligible women (and often men) in the household are interviewed. These interviews yield nationally representative data that can be used to identify health, demographic, and nutrition metrics for nationally informed programs so that policy makers can understand what is happening in their country. Kishor posited that the DHS is considered by many as the "gold standard" for providing data and noted that all DHS data are downloadable free from the DHS website in the form of recoded data files that facilitate comparative analyses and in formats that are ready for use by most analytical software programs.

Kishor explained that the DHS includes biological and physical measures mainly for women and children, including height and weight readings for calculating nutrition indicators such as stunting, underweight and wasting, and hemoglobin testing for measuring the prevalence of anemia. In some countries children are also tested for malaria. The DHS often includes HIV testing, but rarely for children. Over the years, the DHS has also included other biomarkers, mostly for adults, in specific countries, including metrics on hepatitis, diabetes, lead, measles, vitamin deficiencies, lipids, and sexually transmitted diseases. The DHS also obtains basic indicators for children, such as birth registration, orphanhood status, early marriage, birth weight, vaccine usage, and prevalence and treatment of diarrhea, fever, and symptoms of respiratory infection.

In terms of data collected from mothers, the program collects information related to child nutrition, such as breastfeeding, other feeding

[7] This section summarizes information presented by Sunita Kishor, Demographic and Health Surveys.

practices, and dietary supplementation. The DHS program collects information on education of all household members typically above age 5, and on school attendance ratios and gender parity. It also collects background information on the household, such as sanitation, access to water, fuel usage, smoking, household assets, and mosquito net usage. Kishor noted that the DHS does not directly measure literacy or motor skills for children under 6. Often, where Multiple Indicator Cluster Survey (MICS) data are not available, the DHS helps UNICEF by implementing the MICS module on early childhood development.

In using the data collected by the DHS, Kishor identified areas of significant risk for children. She first showed data for the percentage of children ages 0 to 14 who are double orphans. Most countries in the world have a number that is steady and generally less than 1 percent. However, several African nations, such as Zimbabwe and Lesotho, have much higher rates, in the range of 3 to 6 percent. In some countries, a high proportion of children live with neither parent even though the parents are alive: in many African countries, this proportion is more than 10 percent; and in Namibia and South Africa it is more than 20 percent.

While there has been much progress in primary school attendance, according to Kishor, many countries have less than 30 percent of children ages 6 to 9 attending school. Kishor also presented data on stunting: stunting is declining only very slowly over time, but the level of stunting among children under age 5 remain very high, particularly in sub-Saharan Africa where in several countries more than half of children under 5 are stunted.

Kishor concluded by stating the DHS, whose data can be downloaded for free,[8] helps to answer questions about infant mortality and maternal mortality in addition to the following questions that address nutrition, health, education, and living conditions:

- Are children age 0 to 4 appropriately fed?
- Are children age 0 to 4 starting life malnourished? Anemic?
- What is the context in which children of any age live?
- Do children live with or without parents?
- Do children live in poverty?
- Do children live in families with no education or literacy?
- Do children live in households where they breathe smoke?
- Do children go to school in an age-appropriate way?
- Are children fully immunized?
- What type health care do children with fever or diarrhea receive?

[8] For more information, see http://dhsprogram.com/data (accessed May 1, 2014).

5

Inequality Among Children in Reaching Their Developmental Potential

While child mortality has been decreasing around the world, children are not always able to thrive. This can be attributed in part to growing inequalities among children in different socioeconomic, geographic, and demographic groups. Speakers discussed inequalities among children, along with potential opportunities to improve conditions for children worldwide, including a greater emphasis on empowering women.

INEQUALITIES AND TWO GENERATION APPROACHES[1]

Mickey Chopra described the remarkable progress made around the world in reducing child mortality: child mortality levels have dropped from 12 million in 1990 to 6.6 million in 2012 (UNICEF, 2013a). This decline has occurred in all regions of the world, to a lesser or greater extent, including in unpromising settings. West and Central Africa saw a 40 percent decline, which was slightly less than average but still represented significant progress (UNICEF, 2013a). He cautioned, however, that this progress can mask certain inequalities. Because sub-Saharan African birth rates are soaring; the absolute number of children dying is the same or even greater now than it was in 1990 in more than 30 countries (UNICEF, 2013a), even with reduced mortality rates. Birth spacing also remains suboptimal, particularly in sub-Saharan Africa, indicating an unmet need for family planning in critical countries. Chopra encouraged

[1] This section summarizes information presented by Mickey Chopra, UNICEF.

an increased focus on the empowerment of women and the availability of family planning to improve child survival and development.

Countries have made significant progress in combating childhood illnesses such as malaria and diarrhea, but Chopra pointed out that there has been less progress on neonatal conditions, which in 2013 accounted for 44 percent of deaths in children under age 5 (WHO, 2012). He emphasized that critical developmental milestones occur in the earliest time periods, and more focus is needed in this area.

Gaps between the rich and poor are widening, with poorer populations less likely to have access to critical interventions and services (Barros et al., 2012). This is particularly true for newborn and maternal services. Chopra indicated that the largest inequalities are in accessing services such as having a skilled birth attendant and access to antenatal care visits. Even universal interventions, such as iodized salt consumption, show important economic disparities where the rich have far greater access.

Schooling is another area of inequality in access. Chopra highlighted data from Nigeria to explain the inequalities that exist. In Nigeria, children receive an average of 6.7 years of schooling (UNICEF, 2012a). However, there are sharp socioeconomic differences among different populations that vary by income, gender, geographic location, or ethnicity. Within each category, the richest children have more years of schooling than the poorest; boys have more schooling than girls; and those with the least access are poor, rural girls from the Hausa tribe who have essentially no education at all (UNICEF, 2012b).

To begin to address some of these inequities among children, Chopra described the Care for Child Development package created by the World Health Organization (WHO) and UNICEF (United Nations, 2013). The program is designed to teach caregivers better caregiver–child interactions. He showed results from the Pakistan Early Development Scale-Up trial (Yousafzki et al., 2012), which led to key improvements for children, including

- Higher-quality mother–child interaction
- Increased support for maternal psychosocial well-being
- Better quality of the home environment for child rearing
- Increased knowledge and practices pertaining to care for health, feeding, and development
- Better cognitive, language, and motor development outcomes for children

Chopra suggested that community-based interventions could have a significant impact in populations with limited access to interventions. These interventions could be quite simple and involve community work-

ers, and yet they could significantly improve areas of child development and stimulation. He provided an example of a social mobilization network in northern Nigeria, where UNICEF alone employs around 9,000 community health workers to combat polio. There are now more than 14,000 community health workers from UNICEF in the most deprived regions. Chopra indicated that these workers could be employed to provide services that support other areas of child development and support their caregivers. The cost-effectiveness of building off community platforms can be quite significant.

CHILD HEALTH AND NUTRITION AND THE LOSS OF HUMAN POTENTIAL IN INDIA[2]

Ramanan Laxminarayan stated that India lags behind other nations in early child development, despite impressive improvements in economic growth and child survival rates. He explained that 27 million children are born each year in India, and one-third of them are disadvantaged. Infant mortality in India was 4.7 percent in 2010 (World Bank, 2012), and 48 percent of children at age 5 are stunted (International Institute for Population Sciences and Macro International, 2007), with large variation across different Indian states (UNICEF India, 2011). While this number represents a significant improvement, Laxminarayan stated that this improvement still falls below the United Nations' Millennium Development Goals.

Laxminarayan also showed data from a 2012 study (UNU-IHDP and UNEP, 2012) that examined inclusive wealth[3] for different nations. He explained that the study showed that human capital dominates the inclusive wealth of such countries as Japan and the United States. Canada has a larger proportion of natural capital, though human capital still dominates its inclusive wealth. In India, by contrast, natural capital outweighs the human capital. Laxminarayan explained that human capital includes indicators and outcomes, such as population by age and gender, mortality probability by age and gender, employment, educational attainment, employment compensation, and labor force by age and gender. Human capital is a useful measure, as it can be otherwise difficult to measure how much a population is thriving. Laxminarayan argued that if early child development is enhanced, measures of human capital will improve.

Child malnutrition has been declining in India, but at a slow rate,

[2] This section summarizes information presented by Ramanan Laxminarayan, Center for Disease Dynamics, Economics, and Policy.

[3] In 2012 the United Nations developed an inclusive wealth metric, which includes a full range of assets such as manufactured, human, and natural capital, to measure a nation's wealth and the sustainability of its growth (UNU-IHDP and UNEP, 2012).

just under 1 percent per year. In contrast, Bangladesh has lowered its malnutrition rates an average of 3.5 percent per year (Gragnolati et al., 2005). Laxminarayan noted that one-fourth of children in the highest quintile of income are underweight (International Institute for Population Sciences and Macro International, 2007), indicating that food insecurity is not always a major factor. Crop yield has increased in the past 40 years,[4] but calorie intake has simultaneously declined as data from the National Sample Survey indicates (Basu and Basole, 2012; Chandrasekhar and Ghosh, 2003; Deaton and Dreze, 2009); in other words, increasing food production is not the answer, either.

Laxminarayan stated that high rates of stunting and poor nutritional status represent a significant loss of child development potential. He showed results that indicate that height is correlated to improved cognitive scores, higher wages, greater educational attainment, and improved health (Vogl, 2014). In other words, height is a proxy for the early-life environment. In this context, Laxminarayan noted that cell phone usage in rural areas of India has increased dramatically recently (Mehta, 2013). He asked why the poor, when given an opportunity, choose to spend their additional income on luxury durables, such as cell phones, rather than on the nutrition of their children. He posited that they may be uninformed about the long-term economic benefits of child nutrition and growth, or perhaps assessments of the economic cost of undernutrition or of retarded child development in India are incorrect. In a later discussion period, a participant suggested that parents may not know how to spend to reduce malnutrition.

India spends significant resources on child development, efforts that pay off when implemented well, Laxminarayan explained. India's budget includes $10 billion in direct food subsidies; $6 billion in health spending; $3.2 billion in integrated child development services; $2 billion in midday meal programs; and $500 million in drinking water and sanitation.[5] Further, integrated child development services began in 1975 as a concerted government effort, harmonizing work in early education, nutrition, health, and immunization. It consists of centers all over the country, roughly 1 for every 800 people, with a penetration rate of 91.5 percent into India's villages. He also noted that the quality of the integrated child development services programs can vary. While they are staffed reasonably well, many supervisory positions remain empty, and there may be situations in which positions are auctioned off. Laxminarayan posited

[4] See http://www.indiastat.com for more information and statistics (accessed May 5, 2014).

[5] See http://www.accountabilityindia.in for more information and statistics (accessed May 5, 2014).

that multisectoral interventions, implemented well, are needed to achieve child development potential.

GROWING UP UNEQUAL: TRENDS IN GLOBAL INEQUALITY AMONG CHILDREN[6]

Parfait Eloundou-Enyegue stated that children are growing up increasingly global, but, at the same time, unequal. He stated there are many global influences on expected norms, particularly with the rise of mass international communication and the Internet. As a result, children experience more direct international contact, and aspirations and expectations around the world are converging.

Inequalities are found at three concentric levels: between countries, within countries, and within families, and Eloundou-Engyegue attributes demographic shifts as key to the drivers such as dependency and caregiving. Also, family transformations contribute to the drivers. He first described between-country inequality. Eloundou-Enyegue said that inequality in education spending across countries is declining slightly, but the level of inequality remains higher than the inequalities in GDP per capita among countries. In other words, inequality among children is larger than it is for the general population (Eloundou-Enyegue and Rehman, 2009). There are enormous differences in resources available per child. For instance, Panama, which spends an average amount of education dollars for children, may spend $100 per child. Relative to Panama, the Democratic Republic of Congo spreads that hypothetical $100 in education spending across 55 children, and countries that spend higher amounts on education would spend that amount on one-fourth of a child (Eloundou-Enyegue and Rehman, 2009). Herein lies inequality across countries in the amount of education dollars spent per child.

In a decomposition analysis, Eloundou-Enyegue then showed that global convergence across the regions has been driven exclusively by Asia's economic productivity, which overshadows factors such as population size and age structure. The lack of demographic convergence is a break from fostering convergence in the level of resources allocated per child, and according to Eloundou-Enyegue should be addressed. The expectation is that future demographic convergence will induce further convergence in the level of resources per child.

Shifting to examine inequality within a country, Eloundou-Enyegue noted that demographic changes have an influence. He examined four demographic forces:

[6] This section summarizes information presented by Parfait Eloundou-Enyegue, Cornell University.

1. Family size—There are large differences in the birth rate between the top income quintile and the lowest. Declines in fertility rates have occurred only in the higher income brackets. In Liberia, for instance, the fertility rate ranges from three births per woman in the upper quintile to eight births per woman in the lowest quintile.[7]
2. Family structure—Differences in the age at marriage, maternal employment, and single motherhood all fuel inequality for children (McLanahan, 2004). These factors are also related to level of income of women.
3. Nucleation—Extended families and fostering children have historically provided a buffer against inequality (Isiugo-Abanihe, 1985). However, that buffer can erode if fewer children are being fostered, fosterage becomes more selective (Case et al., 2004), or the fosterage is less effective (Eloundou-Enyegue and Shapiro, 2005). The impact of this on inequality, Eloundou-Enyegue said, is not fully known.
4. Assortation—Assortation is the tendency for people to marry based on income or education—the rich marry the rich and the educated marry the educated (Schwarz and Mare, 2005). Assortative marriages lead to greater inequality.

Within families, one factor of inequality is gender differences among children: girls are typically educated less than boys. Education data suggests that gender differences are converging worldwide, including in sub-Saharan Africa where these differences had often been the largest but were now converging at the primary and slightly at the secondary level (World Bank, 2014).

Eloundou-Enyegue explained that there are three opportunities for action to reduce inequality for children:

1. Ambitious goals—The Millennium Development Goals Plus (MDG+) offer an opportunity to set even more ambitious goals for nations who meet the Millennium Development Goals standards. In schooling for instance, the minimum threshold could move from basic education to secondary school completion and greater attention could be paid to early education and quality education as well.
2. Emergence—Many countries in Africa are hoping to move to emerging status. Eloundou-Enyegue noted that 2035 is the date

[7] Eloundou-Enyegue calculated these values from DHS data. See http://dhsprogram.com/data for that data (accessed May 2, 2014).

commonly used to describe when African countries will emerge. He noted, however, that there is no particular importance associated with that date, and he argued that people should focus on children today.

3. Demographic dividend—In the next few years, African countries will enter a period of transition with lowered fertility rates, allowing for an increased investment in social and economic development for children.

Eloundou-Enyegue concluded by emphasizing ways to take action. One is to invest in a life-course and child-centric perspective. He stated that childhood is not Las Vegas—what happens in childhood does not stay in childhood, it actually stays with you throughout life. Strategically, building alliances across horizons to crossbreed ideas can generate new ways to address issues in child development that can link to growth in low-income countries. Another way is to take advantage of capturing dividends and identify policy measures to capitalize on the shifts taking place. The rewards of lowering inequality for children are real—several African countries in particular have the opportunity to move forward, if they invest more resources in cultivating children and monitor trends within families and how they cultivate children.

6

The Context of Families and Caregivers

As they grow and develop, children are affected by numerous contextual factors, most notably the family and caregivers that surround them. The condition of caregivers, particularly their mental health and economic well-being, can have a profound impact on growth and development outcomes of children. Speakers examined the influence of family and caregivers on children's developmental potential, as well as possible ways to improve conditions for families and caregivers and, thus, for children.

MATERNAL MENTAL HEALTH[1]

Atif Rahman explained that depression is the second most common global disease burden in women, following infections and parasitic disease (Rahman, 2013), impacting approximately one out of five women in the perinatal period (Parsons et al., 2011). Depression is diagnosed by its symptoms, which include low mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration—all symptoms that profoundly affect maternal functioning. Depression can be chronic, leading to substantial impairments in the mother's ability to care for her children. Also, depression can lead to mortality; suicide is a leading cause of mortality in women of child-bearing age.

[1] This section summarizes information presented by Atif Rahman, University of Liverpool.

He framed the problem of maternal depression by dispelling four myths, or states of denial (Rahman et al., 2013a):

- **Myth 1: Maternal depression is rare and occurs only in high income nations.** This myth is grounded in the belief that developing countries have better social support networks. Rahman dispelled this myth, stating that the mean prevalence of perinatal depression in low- and middle-income countries was 18 to 23 percent (Fisher et al., 2012; Parsons et al., 2011). These rates, he noted, are quite high.
- **Myth 2: Maternal depression has no impact on children.** Rahman argued that this myth has led to the neglect of maternal health. He explained there is strong evidence that links maternal depression to quality of care and child outcomes, including less adequate prenatal care, reduced breastfeeding, child undernutrition, child diarrhea, less adequate child health care, less responsive child care, disrupted mother–infant attachment, increased harsh discipline, reduced coping skills, and increased family stress (Rahman et al., 2013b; Wachs and Rahman, 2013).
- **Myth 3: Nothing can be done about maternal depression.** This myth often stems from the fact that there are very few psychiatrists to support low-income populations. Rahman cited evidence that nonspecialists can effectively conduct successful interventions through community-based interventions and home visits. Rahman showed that simple interventions are effective (Rahman, 2013a), with improvements to the mother–child interaction, better cognitive development and growth, reduced diarrhea, and increased immunization rates.
- **Myth 4: Maternal mental health interventions cannot be integrated with other programs such as child programs and maternal health programs.** Rahman cited evidence from his trial conducted in rural Pakistan (Rahman et al., 2008) that community health workers were still using techniques for intervention in maternal depression after a number of years, finding the techniques helpful and intuitive (Zafar et al., 2014). He also cited work that emphasized the "five pillars" approach: family support, empathic listening, guided discovery using pictures, behavioral activation, and problem solving that community health workers implemented. A pilot study has indicated that community health workers can be trained to help address maternal depression without much additional burden. The training improves the skill set of the community health workers, and the techniques are feasible and accepted (Zafar et al., 2014).

Rahman concluded by stating the following:

- Mental health problems, particularly depression, are common in women in the critical perinatal period.
- Maternal depression is associated with negative outcomes in the child, especially growth and development.
- Interventions for maternal psychosocial well-being can be delivered by nonspecialists, and therefore benefit both the mother and the child.
- Strategies to combat maternal depression should be integrated with maternal and child health programs.

A participant noted that paternal health should also be studied.

THE CAREGIVING CONTEXT AND ITS INFLUENCE ON DEVELOPMENTAL OUTCOMES OF HIV-AFFECTED CHILDREN[2]

Amina Abubakar focused on the chronic stress conditions for children as the result of being infected and/or affected by HIV/AIDS. She stated that 90 percent of all children who are HIV positive live in sub-Saharan Africa, equaling 2.3 million children. More than 16 million children have been orphaned as the result of HIV/AIDS, and many others live with caregivers who are HIV positive (Cluver et al., 2013). Abubakar explained that, as the result of advances in antiviral medications, children with HIV are living longer lives. Now, she emphasized, those children need to thrive, not simply survive.

HIV-infected children lag behind in developmental areas, even when they are on medication and are medically stable. Abubakar explained that HIV-infected children tend to experience more neurocognitive delays, lag behind in educational outcomes, and can experience mental health problems (Abubakar et al., 2009; Devendra et al., 2013; Kamau et al., 2012). Similarly, HIV-affected children are also at risk of poor outcomes (Sherr et al., 2014), and this trend is stronger in resource-constrained areas (Le Doaré et al., 2012), likely the result of inadequate access resources.

Abubakar explained that there are many pathways to poor outcomes for children who are affected by HIV. She focused on caregiving and caregivers, noting that HIV causes multiple risk factors in caregiving. First, when ill, parents cannot bring in income due to lower participation rates in economic activities, and they also have more extensive medical expenses. This may lead to poverty. Children may also be responsible for

[2] This section summarizes information presented by Amina Abubakar, Centre for Geographic Medicine Research–Kenya Medical Research Institute.

caring for an ill parent. In certain communities, HIV has destroyed the standard support systems, leading to high levels of orphanhood. Finally, caregiver mental health problems, which can include depression and anxiety, are likely increased by the disease, and this is likely related to the stigma associated with the disease.

A study of Ugandan children ages 1 to 5 provided evidence for the adverse impacts of compromised caregiving, including behavioral problems for children (Busman et al., 2013). In describing this study, Abubakar pointed out that there remains a very small evidence base, and others have pointed out that the evidence on how to intervene is piecemeal (Sherr, 2011). This is particularly true for the youngest children. She suggested that more research can be done to understand the caregiving environments of HIV-infected or HIV-affected children.

The best solution, Abubakar proposed, is to address modifiable risk factors and focus on providing protective environments for children. Abubakar explained that in Kenya, HIV-infected children are enrolled in its comprehensive care system. For example, if a mother is HIV positive, then the entire family is tested. If a child is found to be uninfected, then the child is released from the comprehensive care program. However, research shows that the mental health and educational outcomes for such children are adversely affected (Abubakar, unpublished).

Abubakar emphasized the ability to enhance the potential of caregivers using psychosocial stimulation (Potterton et al., 2010). She suggested reaching families via community health workers. While these workers are not usually trained in mental health issues, they can be helpful nonetheless. With limited training, health workers can teach parents simple play techniques to enhance developmental outcomes for their children.

Results from a program in Mediational Intervention for Sensitizing Caregivers (MISC) also led to enhanced outcomes in terms of the mental health of the caregivers and improved caregiving practices (Boivin et al., 2013). Abubakar suggested examining factors that help parents succeed within a challenging context (such as poverty), and implementing those successful strategies with children and families infected and affected by HIV. The quality of child care is compromised when the caregiver is not doing well, either physically, mentally, or emotionally, Abubakar stated. She recommended investing to enhance the condition of caregivers, which would then promote the developmental potential of children affected by HIV.

A participant asked if the strategies for children with HIV could also be applied to children with autism, disabilities, or mental health issues. Abubakar said that interventions to support HIV-affected children could also translate to children with disabilities or other challenges, as they experience similar stresses. She pointed out that caregiver mental health

may be challenged in either circumstance. Also, she noted that any intervention program should be holistic in nature.

CAREGIVING AND OTHER CONTEXTUAL INFLUENCES ON EARLY CHILD DEVELOPMENT[3]

Patricia Kariger examined the context in which children develop, including the interactions among those contextual factors. Contextual influences range from near (family and community) to more distal (state, national, and global). While the more immediate influences are critical, distal levels set policies that can have a strong, if indirect, influence. Kariger emphasized the need to strengthen all levels for children to develop to their full potential. She cited evidence that shows children exposed to multiple risk factors exhibit developmental decline (Sameroff et al., 1993).

Kariger illustrated the influence of different variables by age, shown in Figure 6-1. In the figure, color saturation indicates the level of impor-

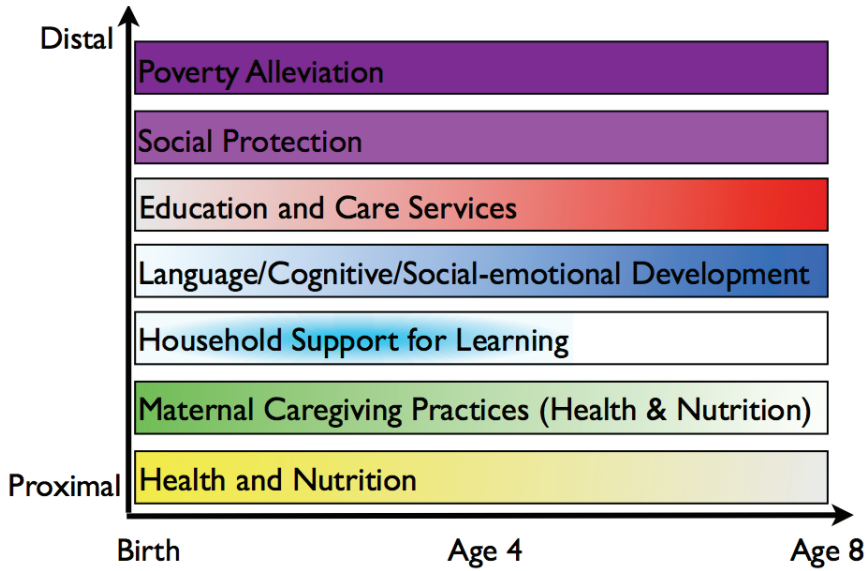

FIGURE 6-1 Importance of indicators as a function of age. Color saturation shows the importance of the variable. Indicators are organized from most proximal (lower on the y-axis) to more distal (higher on the y-axis).
SOURCE: Kariger, 2014.

[3] This section summarizes information presented by Patricia Kariger, University of California, Berkeley.

tance. She noted that proximal measurements, such as those for health and caregiving, are most critical in the early years (ages 0 to 3). Education and language and cognitive development are more critical in later childhood (ages 4 to 8). Other variables, such as those related to poverty and social protection, are equally critical throughout childhood, and these variables tend to be the more distal ones.

Kariger proposed several ways in which measures of the caregiving context can be improved:

- Develop more comprehensive measures across the age span.
- Measure the responsiveness of parents or caregivers.
- Measure the quality of home-based care.
- Identify a more developed way to screen for specific disabilities.
- Monitor children's exposure to violence and abuse.
- Integrate measures across sectors.

7

Indicators and Metrics

Numerous metrics and indicators are currently in use by the ECD community, though today's metrics may not be consistently applied and harmonized. Different types of indicators and metrics, as well as challenges associated with their use and widespread implementation, were discussed by the speakers.

EARLY CHILD DEVELOPMENT: MEASURING RESULTS BEYOND 2015[1]

Tarun Dua pointed out that ECD resides in several sectors, including health, nutrition, education, social and child protection, poverty, and home and family environment. She emphasized the need for a harmonized framework for action that follows a transsectoral approach. She explained that measuring ECD is necessary to (1) understand the status and well-being of young children, (2) assess the level of skills and competencies of children, and (3) determine the services and supports necessary to promote child development. Dua also said that metrics are needed to understand thriving—whether lives saved early fare well throughout their development. She stated that what gets measured gets addressed; without measurement and consensus on the outcome, no action will take place.

[1] This section summarizes information presented by Tarun Dua, World Health Organization, as well as information from Patricia Kariger, University of California, Berkeley.

BOX 7-1
Measures and Indicators of Child Development and Learning as Presented by Dua

Some of the common early childhood development indicators are as follows:

- The Multiple Indicator Cluster Survey (MICS) is a set of survey questionnaires developed by UNICEF and carried out by government agencies in each nation. The survey questions are designed to estimate indicators in the areas of health, education, child protection, and HIV/AIDS, and they are adapted to suit the local environment. See http://www.unicef.org/statistics/index_24302.html for more information.
- The Early Childhood Development Indicators (ECDI) is a set of indicators added to the MICS survey in 2005. ECDI questions provide information about early schooling, learning materials, support for learning, and adequate care. See http://www.childinfo.org/ecd_indicators_mics.html for more information.
- The Early Development Instrument (EDI) is a population measure to assess the development of young children in U.S. communities, measuring physical health and well-being, social competence, emotional maturity, language and cognitive skills, communication skills, and general knowledge. See http://teccs.net/about-edi for more information.
- The Early Grade Reading Assessment (EGRA) is an oral assessment that measures the basic foundation for literacy, including letter recognition, reading simple words, understanding sentences, and listening with comprehension. See https://www.eddataglobal.org/reading for more information.

Dua explained that measurement and assessment take place at both the individual and population levels. At the individual level, measurement tools have been developed, and at the population level, several instruments have been developed as well (see Box 7-1 for some examples).

A number of indicators are in use, but Dua pointed out that measurement efforts are fragmented and should be harmonized. In addition, the current population-level assessments do not focus on younger children (ages 0 to 3) or provide holistic information about contextual factors. Without a comprehensive population-level assessment, it is difficult to implement ECD policies at scale, she noted. Dua also identified the need to link child survival and child development outcome assessments in a single, integrated monitoring framework.

Dua explained that many variables are being measured as part of an accountability framework for the Countdown to 2015: Maternal, New-

- The Early Grade Math Assessment (EGMA) is an oral assessment that measures the basic foundation for numeracy and math skills, including number identification, quantity discrimination, missing-number identification, word problem solving, addition and subtraction, shape recognition, and pattern extension. See https://www.eddataglobal.org/math for more information.
- The Learning Metrics Task Force determined the feasibility of identifying common learning goals to improve learning opportunities and outcomes for children and youth. They recommend measures to assess broad learning competency for children. See http://www.uis.unesco.org/Education/Pages/learning-metrics-task-force.aspx for more information.
- The Organisation for Economic Co-operation and Development (OECD) initiative on monitoring quality of early childhood education and care assesses the quality of early childhood education. See http://www.oecd.org/education/school/earlychildhoodeducationandcare.htm for more information.
- The East-Asia Pacific Early Childhood Development Scale (EAP-ECDS) is a regional instrument for measuring early childhood development at the population level in the East-Asia Pacific region. See http://www.unicef.org/mongolia/activities_20597.html for more information.
- Save the Children produced a set of child protection outcome indicators. See http://resourcecentre.savethechildren.se/library/child-protection-menu-outcome-indicators-save-children for more information.
- Programa Regional de Indicadores de Desarrollo Infantil (PRIDI) provides high-quality, policy-relevant, and regionally comparative data on the situation of young children and their families. See http://www.iadb.org/en/topics/education/without-data-there-is-no-action,7454.html for more information.

born, and Child Survival project.[2] She showed country profiles developed as part of the Countdown to 2015 program and noted particularly relevant indicators in different areas. These include child survival and nutrition indicators, including stunting, breastfeeding, sanitation and access to clean drinking water, and complementary feeding, as well as maternal education and access to preschool education.

Additional indicators not part of the Countdown to 2015 framework include contextual factors such as violence against children, mental health of mothers and caregivers and impact on caregiving practices, age-appropriate development, and child disability.

[2] Countdown to 2015 is a project established in 2005 to monitor health interventions proven to reduce maternal, newborn, and child mortality. It uses country-specific data to stimulate and support country progress toward Millennium Development Goals 4 and 5, to reduce child mortality and improve maternal health. See http://www.countdown2015mnch.org/about-countdown/accountability for more information (accessed May 12, 2014).

Dua concluded by summarizing her main points: (1) the need for a holistic assessment of early child development, with an integrated set of indicators; (2) the need to focus on the earliest years (ages 0 to 3), where current gaps exist; and (3) the need to consider child survival and child development (i.e., thriving) in an integrated manner. She argued that a harmonized, concerted effort is necessary to make a difference in early childhood development.

Patricia Kariger made similar points in her presentation on the caregiving environment in relation to measurement and indicators. She stated that ECD indicators are currently an active area of interest, and efforts in this area should be coordinated and shared to optimize individual efforts. Kariger proposed a single, online warehouse or repository for indicator storage, along with agreement and support for a core set of indicators. She hopes that this will provide greater consistency in application cross child outcomes and contextual areas that predict development.

Kariger proposed that measures and indicators should be well defined, evidence based, universally meaningful, easy to measure, capable of showing change, and in a format that is easy to understand. She pointed out that UNESCO recently reviewed indicators in different sectors and identified hundreds of them,[3] but that these indicators are still applied inconsistently. For instance, Kariger noted reasonable consistency in measuring health and nutrition, poverty and wealth, and child protection, but less consistency in measuring education, early care, cognitive/social/language development, and household supports. She argued that a set of indicators is needed to measure context at all levels, and that data on contextual variables can be collected via surveys of parents, clinicians, teachers, and government representatives.

MEASURING EARLY CHILDHOOD DEVELOPMENT IN LOW- AND MIDDLE-INCOME COUNTRIES: THE MICS[4]

Claudia Cappa explained that UNICEF supports the collection of data on children and women in low- and middle-income countries through the MICS.[5] A standard MICS survey collects data on more than 100 indicators in such areas as health, nutrition, HIV, education, and disability. Since 1995, MICS data have been collected in more than 100 countries. MICS surveys are conducted by government organizations with the technical

[3] See http://www.unesco.org/new/en/education/themes/strengthening-education-systems/early-childhood/monitoring-and-evaluation/holistic-ecdindex for more information (accessed May 8, 2014).

[4] This section summarizes information presented by Claudia Cappa, UNICEF.

[5] See http://www.unicef.org/statistics/index_24302.html for more information (accessed May 8, 2014).

and financial support from UNICEF and other partners. Cappa noted that this is a collaborative effort that helps strengthen local capacity, while promoting data ownership and harmonization of statistics across countries. MICS data can be analyzed for disparities across different characteristics, such as sex, ethnicity, and wealth quintile. The fifth round of MICS (MICS-5) is currently under way in some 40 countries. The results can be used to assess whether countries have been able to attain the Millennium Development Goals,[6] and may serve as baselines for post-2015 targets.

Relating MICS to early childhood development, Cappa explained that the first set of early childhood development questions were introduced in the second round of MICS (MICS-2) in 2000. ECD questions have been included in every round of MICS surveys since then. MICS-2 included questions on attendance in early childhood education programs. Starting from the third round of MICS (MICS-3) in 2005, a few questions pertaining to early childhood development were added, including questions on the availability of books and playthings, adult engagement in learning, and the adequacy of child care. In 2010, the Early Childhood Development Index (ECDI)[7] was added to MICS-4.

Cappa briefly presented selected MICS data on ECD. The data show, for example, that just more than half of children are developmentally on track in most countries, and Cappa clarified that "on track" is limited to measures in the MICS ECD module, which asks mothers if their child can perform certain activities and functions; if the child can perform these activities in three of the four domains surveyed, then they are considered on track. She illustrated that children in the richest households tend to have more books in the home than poorer households. Moreover, the percentage of children attending early childhood education programs varies dramatically across countries, with less than half of children attending a program in most nations. In the least developed nations, around 12 percent of children attend a program. Finally, Cappa pointed out that literacy, numeracy, and learning are the domains where most children fall behind.

"READINESS TO LEARN" ASSESSMENT PROJECT[8]

Abbie Raikes proposed that it may be possible to identify a common set of items that are consistent across cultures and regions to inform

[6] See http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf for more information (accessed April 27, 2014).

[7] The Early Child Development Index (ECDI) is a 10-item index designed to assess the developmental level of children ages 3 to 5 in four areas: literacy-numeracy, physical, social-emotional, and learning. See http://www.childinfo.org/ecd_indicators_mics.html for more information (accessed April 28, 2014).

[8] This section summarizes information presented by Abbie Raikes, UNESCO.

global tracking of children's learning and development. However, currently national-level measures do not contain the same items to be able to compare globally. National-level measurements have very high value, given they are longer in duration, more frequent, and adapted to the local environment. Raikes introduced the Readiness to Learn Assessment Project as an effort to develop prototype learning and development measurements for children ages 4 to 6, with an emphasis on low-income countries.

The Readiness to Learn Assessment Project was mandated by the UNESCO Learning Metrics Task Force, and partners include the World Bank, Brookings Institution, and UNICEF. The project is in its early stages, and completion is expected by early 2016. The priority for this project is a national-level measure that identifies the quality of the learning environment. Raikes explained that the core assumption to the Readiness to Learn Assessment Project is that measurement contributes to improvement. By understanding the current quality of the learning environment, improvements can be made to policies, teacher support, and parent knowledge accordingly. Also, measurement results can encourage citizens to increase their focus on and advocacy for ECD to create both national and international pressure to improve conditions.

Raikes stated that, to build a useful measurement system, two ideas must be addressed. First, related to the content, one must ensure that items are reliable, relevant, and technically sound, with an emphasis on actionable items. Second, on issues of usability, it is important to identify how measurement systems will be designed and how data will be collected and shared. Third, field testing and validation are critical. Raikes mentioned that countries have dedicated few resources to validation. Finally, information sharing has been minimal because of data privacy concerns and technical obstacles.

Raikes concluded by stating that national measurements of education readiness can complement global efforts, while recognizing the challenges associated with item comparability and proper use. Specifically, she noted potential challenges in identifying a common core of indicators, while still adjusting to the local context.

EARLY CHILDHOOD RIGHTS INDICATORS (ECRI): A RIGHTS-BASED APPROACH TO ENHANCING EARLY CHILD DEVELOPMENT[9]

Ziba Vaghri focused on a rights-based approach to early childhood development. She began by noting that life expectancy in Burundi is 50,

[9] This section summarizes information presented by Ziba Vaghri, University of British Columbia.

while life expectancy in Sweden is 81, and she presented data that indicate a correlation between average income and life expectancy. She argued that health should be a more equitable commodity.

Vaghri highlighted an effort by WHO to study the social determinants of health from 2005 to 2008, called the Commission on the Social Determinants of Health (CSDH). During this time, another effort was launched, called the Total Environment Assessment Model of ECD (TEAM-ECD). TEAM-ECD is a framework developed by the Human Early Learning Partnership (HELP), which was acting as the ECD knowledge hub for CSDH.

A specific effort to promote children's development and health at the country level entered into force in 1990—namely the *Convention on the Rights of the Child*, which is an international human rights treaty, and to this day 194 nations have ratified it (United Nations, 2014). Vaghri pointed out that by virtue of ratification the governments have the obligation of submitting a report on the state of the rights of their children to the United Nations Committee on the Rights of the Child (the monitoring body of CRC) every 5 years (OHCHR, 2014).

Vaghri described several articles of the convention. For example, Article 6 states the right of a child to health. Article 26 states that the government must support a child if his or her family cannot. Article 31 guarantees a child safety and security. Articles 43 to 54 discuss how to respect and protect the rights of the child internationally. She then drew the attention of the audience to the alignment between TEAM-ECD and the articles of the convention, both designed to promote children's development through improving their experiences within many layers of environments surrounding them. After more than a decade of reviewing the reports from different governments, the committee observed that the majority of government reports focused primarily on the older cohorts, and that younger children were often overlooked. The reports on young children were limited to a number of health indicators (such as under-5 mortality rate) and civil rights indicators (such as birth registration), said Vaghri. In response to this discovery, G*eneral Comment 7 (GC7): Implementing CRC for Young Children* was released as a comprehensive guide meant to aid governments with their reports. However, it remained underused.

In 2007, subsequent to a discussion of an international team of experts, the committee wrote a letter of invitation to HELP asking it to act as the secretariat of an ad hoc group of international experts to work on operationalizing GC7 in an attempt to make it a user-friendly guide for the governments to facilitate implementation. The result of this 7-year collaboration was a tool titled Early Childhood Rights Indicators (ECRI), which monitors the rights of young children in an integrated way, using 17 indicators. ECRI contains three categories of questions: structure related

(such as policies and laws), process related (programs and initiatives), and outcome related (how children have changed and what progress has been made over time). The 17 indicators are shown below[10]:

1. Dissemination of GC7
2. Constructing and implementing a positive agenda
3. Human rights training
4. Data collection system
5. Early child development
6. Birth registration
7. Participation in family decision making
8. Violence against young children
9. Basic material needs
10. Breastfeeding and complementary feeding
11. Access to and use of health services
12. Age-appropriate health education
13. Provision of early childhood education and care services
14. Educational provision for vulnerable young children
15. Knowledge of right and capacity to support their realization
16. Play, leisure, and rest opportunities
17. Inclusive policy and provisions for marginalized groups

Two ECRI pilot programs were launched in Chile and Tanzania. Both pilot programs demonstrated the efficacy of ECRI as a monitoring tool. The purpose of this tool is to track progress within a country, and not to develop comparisons across countries. Vaghri explained that ECRI is a tool that monitors and enhances early childhood development through (1) taking an inventory of existing capacities in early childhood development and child rights; (2) advocacy, by drawing the attention of policy makers to gaps; and (3) planning and capacity building by serving as a blueprint for action. Vaghri concluded by saying that such carefully designed and methodically validated tools can facilitate data collection and action plans on ECD, as well as promote good governance.

[10] Adapted from Early Childhood Rights Indicators (ECRI). See http://crc-indicators.earlylearning.ubc.ca/index.php/content/overview (accessed September 2013).

8

Investing in Young Children and Their Caregivers

Investments in young children globally, from birth through primary school, have the potential for short- and long-term economic and social benefits by improving child health and caregiver well-being, thus strengthening the skills, capabilities, and health of the future workforce. Speakers explored specific investment topics such as cash transfer programs, investments in early child education programs and nutrition programs, and teacher development, as well as long-term potential benefits of each of these options as well as potential unintended consequences.

POLICY APPROACHES TO SUPPORTING CHILDREN'S DEVELOPMENT[1]

Lia Fernald explained that risk factors begin early in life. She presented a schematic (shown in Figure 8-1) that outlines optimal development (shown in green on the figure), development in which risk factors outweigh protective factors (shown in red), and the development curve when risk factors are reduced (shown in blue). Fernald is interested in attaining this blue curve by reducing risk factors through intervention during sensitive periods.

Fernald explained that there are a large number of intervention possibilities: early nutrition and health interventions such as breastfeeding and

[1] This section summarizes information presented by Lia Fernald, University of California, Berkeley.

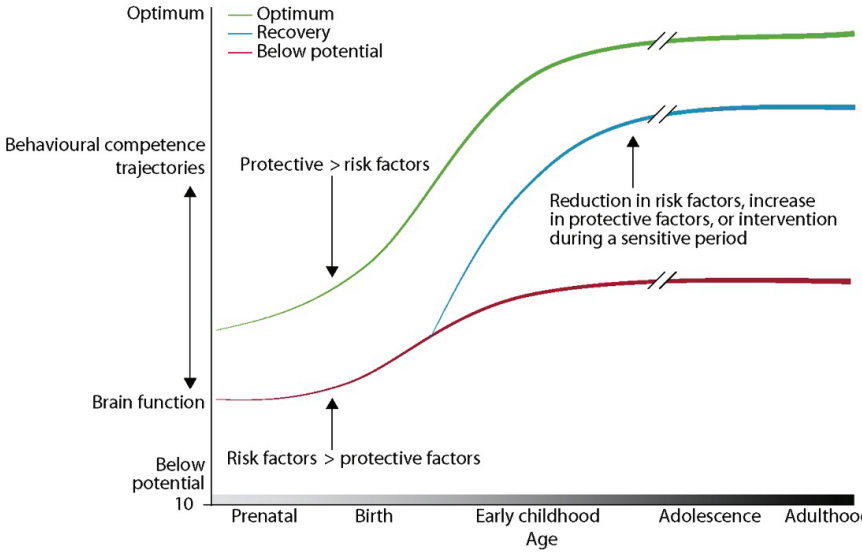

FIGURE 8-1 Differing trajectories of brain and behavioral development as a function of exposure to risk and protective factors. The cumulative effect is illustrated by the progressive strengthening (darker lines) of the trajectories over time.
SOURCE: Walker et al., 2011.

iodine supplementation, parenting family support programs, preschool programs (though she noted that these range in quality, which affects outcomes), and social-sector approaches. Interventions are most effective when they target the most vulnerable populations, she said.

In her presentation, Fernald focused on social-sector approaches, particularly cash transfer programs. These programs usually involve giving cash to mothers, and can increase household income by as much as 30 percent (Fernald et al., 2011). The added income can help parents purchase basic needs, invest in children's schooling, and focus on caregiving. There are two types of cash transfer programs:

1. Conditional—In a conditional cash transfer program, cash is provided to a household to encourage compliance with a prespecified action; the cash also serves as a way to alleviate short-run economic pressure that the family may be facing. The action required by the program could be, for instance, attending school (for children), receiving health examinations, or consuming nutrition supplements. The quality of these programs varies, and Fernald noted that not every country has the infrastructure to sustain them.

2. Unconditional—Unconditional cash transfer programs provide money to a household, with no established, related requirements that are linked to receiving the cash.

In a later discussion session, a participant asked Fernald about the pros and cons of conditional and unconditional cash transfers. Fernald noted that unconditional cash transfers are much easier logistically, as there is no need to track compliance. She said that the Mexico program is complex and requires detailed compliance records. She noted that a reported 97 percent of participants were compliant with the conditions (Benderly, 2013). She also stated that the outcomes may be different between conditional and unconditional cash transfer programs, but studies with head-to-head comparisons of the two types of programs have not produced clear results. One study about growth in children showed no differences between conditional and unconditional programs (Robertson et al., 2013), but another study showed differences in breastfeeding and vaccines when comparing conditional and unconditional cash transfers. This comparison is an area open for research.

Conditional cash transfer programs were first implemented in Brazil and Mexico in the 1990s. Fernald explained that cash transfer programs have inconsistent results for children (Fernald et al., 2011). In this review with her colleagues, Fernald found that there are generally positive effects on birth weight, illness, morbidity, behavioral development, prenatal care, maternal depression, growth monitoring, micronutrient supplementation, and household food consumption. There are mixed effects on height, weight, cognitive and language development, the presence of a skilled birth attendant, and receipt of childhood vaccinations. There is no perceived effect on hemoglobin concentration. Fernald posited that different cash amounts, differential requirements, different levels of compliance, and different initial rates of poverty or cultural differences may be some reasons that the results are heterogeneous.

After 10 years, Mexico's conditional cash transfer program positively affected height, behavior (Fernald et al., 2008, 2009a; Ozer et al., 2012), and stress levels (Fernald and Gunnar, 2009), but no effects on body mass index, verbal performance, and cognitive performance (Fernald et al., 2009b). Cash transfers were associated with reductions in maternal depressive symptoms (Ozer et al., 2011) and improvements in children's growth, verbal performance, and cognitive performance (Fernald et al., 2008, 2009a). The program also had unintended consequences. Increased cash also led to increased body mass index, obesity, and hypertension (Fernald et al., 2008). Higher levels of socioeconomic status have been associated with increased consumption of soda and alcohol (Fernald, 2007), suggesting a possible mechanism for the findings.

Throughout her work, Fernald discovered that reducing poverty is not sufficient, and that parenting support and parenting education are also important variables to improving conditions for children. Therefore, Fernald explained that a new Mexican program has added a childhood stimulation element (essentially a group parenting support class) to the existing cash transfer program. The addition of the childhood stimulation element may be critically important to improve cognitive outcomes for children. During the discussion period, a participant asked how to engage families in a program. Fernald noted that cash can be a powerful motivator.

Fernald then described a program in Mexico, in which dirt floors in homes were replaced with cement. This action correlated to reductions in maternal depression and had positive impacts on child growth and development (Cattaneo et al., 2009). She concluded by stating the most effective approaches to early child development use comprehensive approaches, including combinations of cash transfers and the direct promotion of child development.

INVESTING EARLY AND RETURN ON INVESTMENT[2]

Paul Gertler analyzed the long-term economic returns from investments in young children. He connected investment in young children with workforce skills that are necessary for economic productivity—both individual and global economic productivity. He emphasized the need for capabilities to bring individuals out of poverty and participate more fully in the workforce. He posed three main questions:

1. How much human potential is lost if investments are not made?
2. If investments are made, what is the correct age for intervention, and when is it too late?
3. How can long-term inequality be reduced, beginning at an early age?

Gertler stated that 200 million children are at risk of not reaching their potential (Grantham-McGregor, 2007). This translates to a large potential loss in quality of life, including the lost potential for economic growth if people are unable participate actively in the economy. Presenting data from India, Indonesia, Peru, and Senegal, Gertler showed that differences begin early in life, at around 12 months (Fernald et al., 2011). Specifically, the data indicate that children from the wealthiest income quartile

[2] This section summarizes information presented by Paul Gertler, University of California, Berkeley.

showed statistically significant gains over the children from the poorest income quartile. He also showed that poor children performed worse on language tests (Engle et al., 2011). Specifically, 5-year-old children in higher-income quintiles have better language performance relative to lower-income quintiles.

Early gaps may persist throughout a person's lifetime (NRC and IOM, 2000), according to Gertler. He posited that interventions targeting the earliest period of life (before age 2 to 3) will have the highest rate of return, thus improving the efficacy of later interventions and eliminating the need for pricey remediation services later in life. Further, investment in the poorest populations will likely yield the greatest return, as there is the most potential for improvement. Investment in the poorest population also adds to the economy and reduces long-term inequality.

Gertler then discussed two specific intervention studies that provided evidence of a return on investment in the early years:

1. Jamaica Psychosocial Stimulation Intervention, 1986 to 1987—This intervention consisted of home-based play sessions facilitated by community aid workers and a once-a-week class to improve the quality of mother–child interactions. The program found significant improvement in cognitive development sustained through age 17 for participants, but the intervention did not bring the stimulated group up to the level of a normal (not stunted) group (Walker, 2010). After 20 years, the group with intervention showed a 25 percent earnings increase over those who did not receive the intervention, and this increase brought their earning levels up to the level of the normal population (Gertler et al., 2013).
2. Institute of Nutrition of Central America and Panama (INCAP) Nutrition Intervention, Guatemala, 1969 to 1977—This program provided a nutrition supplement known as Atole, a high-protein energy drink, along with Fresco, a less nutritious drink, to groups of young children. The treatment group showed significantly less stunting over time. At ages 25 to 42, researchers found income improvements equal to or greater than those in the Jamaica study. The gains were most significant when the supplement was given to children under 36 months of age. After 36 months, there was effectively no economic advantage to the supplement (Hoddinott et al., 2008).

Gertler concluded that early disadvantage leads to a long-term disadvantage, which is difficult and expensive to compensate for later in life. He also stated that investments in young children and their development

can improve future skills in the labor market in a cost-effective manner, which has a positive impact on long-term economic outcomes.

CONTINUITY OF INVESTMENTS INTO PRIMARY SCHOOL[3]

Norbert Schady explained that, in Latin America, many students arrive at school with deep deficits in the areas of nutrition, cognition, and language (Schady et al., 2014). These disparities have led to different social policies directed at children younger than school age, including

- Cash transfers—Programs have been implemented in many countries, and their effect on child development has been evaluated in Ecuador (Fernald and Hidrobo, 2011; Paxson and Schady, 2010), Mexico (Fernald et al., 2008, 2009a), and Nicaragua (Macours et al., 2012).
- Parenting interventions—Programs have been implemented in Colombia (Attanasio and Hernandez, 2014) and Jamaica (Gertler et al., 2013; Walker et al., 2011a). A nationwide parenting program is in the process of being implemented in Peru.
- Center-based care and preschool—Programs have been implemented in many countries, and evaluations are under way in Brazil (Barros, unpublished), Colombia (Bernal, unpublished), and Ecuador (Oosterbeek and Rosero, 2011).

Kindergarteners are a "captive audience," according to Schady. The majority of 5-year-old children in Latin America attend school.[4] He noted a great deal of progress in enrollment, and a closing enrollment gap between the lowest- and highest-income quintiles. He asked, "What developmental delays can be recovered at age 5?"

Schady presented results from a study of 200 schools in Ecuador (Schady and Araujo, 2006). Students with varying readiness levels were randomly exposed to kindergarten teachers of varying quality. More than 450 teachers were filmed for a full day, and their recordings were scored on a rating scale of 1 to 7 in three broad domains: social support, classroom organization, and instructional support using the Classroom Assessment Scoring System, or CLASS (Pianta et al., 2007). Across all teachers, the emotional support score was medium, with a fairly narrow distribution. The classroom organization score was high, with a fairly wide distribution, and instructional support was very low, with a narrow distribution.

[3] This section summarizes information presented by Norbert Schady, Inter-American Development Bank.

[4] Schady's calculations are based on household surveys.

At the end of the year, students were given 12 tests in math, language, and executive function (response inhibition, working memory, attention, and cognitive flexibility). Teacher effects on student performance were then calculated by finding the average learning outcome per class relative to the school mean and finding the variance of teacher effects, correcting for sampling error. In general, the data show that teachers make a great deal of difference. If a teacher scored one standard deviation higher overall on the CLASS, the children in his or her class scored an average of 0.6 standard deviations higher. Children at all levels experienced this increase; in other words, better teachers are better for all students, not just the lowest-performing students. After correcting for measurement error, the CLASS score of the teacher accounted for 34 percent of the variation in within-school, cross-teacher learning outcomes.

According to the study, better teachers, as scored by the CLASS, did not affect child attendance or dropout rates; rather, they increased the amount of learning per day. The same teachers improved outcomes in all dimensions that were tested (math, language, and executive function). In response to a later question, Schady explained that the CLASS score analyzed 10 dimensions across 3 domains, and there was a strong correlation among the scores in the 10 dimensions for an individual teacher. Schady indicated that he did not have much confidence in the measures of the individual 10 dimensions, but the overall score accurately reflected the quality of the teaching.

Schady concluded by stating that what happens to a child before he or she begins school is very important, and there are currently large disparities in school readiness across socioeconomic class and place of residence. One contributing factor may be that differences in language, math, and executive function all correlate to the level of the education of the child's mother. Across all tests, children whose mothers are elementary school dropouts scored about 0.5 standard deviations below children whose mothers graduated from elementary school, and around 1 to 1.5 standard deviations below those children whose mothers graduated from high school. However, good teachers in the primary school years can help to reduce those deficits. Schady suggested that programs be designed to better select teachers, provide more effective in-service training, and better compensate effective teachers.

9

Benefit–Cost Analysis of Inaction

In this section, speakers discussed how to determine the cost of inaction, including how to determine benefit–cost ratios using systematic tools and techniques, including decisions in the parameters used in such analyses; a country-level perspective on the political will to engage in investments in young children across sectors; and a measure of a country's readiness to invest in young children and avoid costs of inaction.

COSTS OF INACTION VERSUS COSTS OF ACTION FOR INVESTING IN YOUNG CHILDREN GLOBALLY[1]

Jere Behrman explained that in considering the costs of inaction in investing in young children, costs of action should also be considered. He emphasized the need for a holistic approach that considers a life cycle framework, because investments early in life are likely to result in returns at a different (i.e., later) point in the life cycle. Behrman affirmed that benefit–cost ratios can be an effective guide for policy development and also noted that distributional weights can be included to meet particular policy aims. For instance, certain elements of early child development can be considered as human rights, and distributional weights can be used to incorporate that perspective. Challenges to benefit–cost approaches include the idea that benefits, such as improved health, reduced mortal-

[1] This section summarizes information presented by Jere Behrman, University of Pennsylvania.

ity, and resources saved, are likely to be multiple, and it can be challenging to weigh different benefits to obtain a combined measure. Behrman presented evidence of associations among dimensions of early life and outcomes over the life cycle. For instance, Victora and colleagues (2008) showed positive associations between anthropometric measures at infancy and adult outcomes, such as level of schooling, adult height, labor income, and birth weight of offspring. Studies reviewed in Engle et al. (2007, 2011) indicate a positive association between attendance in ECD programs and future cognitive skills.

Benefits from an early intervention might not be realized until the child is an adult, Behrman said. He cautioned that future benefits should be discounted in today's terms because there is an opportunity cost of not being able to use resources for other purposes in the meantime if one has to wait for benefits in the future. For instance, a benefit valued at $1,000, if it were to be received 10 years from now, would be worth $744 today (assuming a 3 percent discount rate) or $386 today (assuming a 10 percent discount rate). If the $1,000 benefit were to be received 60 years from now, it would be worth $170 today (assuming a 3 percent discount rate) or only $3 today (assuming a 10 percent discount rate).

Discount values can vary for each of seven major impacts of moving one infant out of low birth weight status in a low-income, developing country (Alderman and Behrman, 2006). The seven major impacts presented by Behrman were reduced infant mortality, reduced neonatal care, reduced costs of infant and child illness, productivity gains from reduced stunting, productivity gains from increased cognitive ability, reduced cost of chronic diseases, and intergenerational effects. He noted that impacts related to increased productivity showed the largest value because the impact is felt over many years. He also pointed out that there is disagreement in the community about how to value infant mortality. If it were valued highly enough, it would become the dominant value.

Resource costs, Behrman explained, include time, materials, and human effort, but this is generally not equal to provider expenditures. He noted that resource costs matter to society, not expenditures. For instance, the conditional cash transfer program described in Lia Fernald's presentation has costs associated with running the program, but those costs are small relative to the governmental expenditures themselves, which are dominated by transfers that are not resource costs. Resource costs also include private costs, which can have a differential effect across populations. Behrman discussed an example of costs for acute malnutrition programs, studied by Levin and Brouwer (2014), in which costs vary across country because of the methods employed.

Behrman then showed data for benefit–cost estimates for nutritional interventions (Behrman et al., 2004). The benefit–cost ratios vary across

interventions, but the results are promising. For a single intervention, the benefit–cost ratio range is large because of different possible discount rates. However, while the range is large, it is usually greater than 1 in most cases, suggesting to Behrman that these are interventions worth undertaking. He also presented very large benefit–cost ratios for reducing rates of stunting for children (Hoddinott et al., 2013), but these benefit–cost ratios vary significantly across countries.

In showing the lasting positive effects of preschool (Engle et al., 2011), Behrman pointed out that there is significant variation by country. For example, countries with higher preschool enrollment have a smaller gap in attained schooling between the highest-income quintile and other quintiles. The estimated increase in future earnings provides a benefit–cost ratio ranging from 6.4:1 to 17:1 as a result of bringing enrollment rates for the bottom four quintiles up near those of the top quintile. Behrman cautioned that these are likely to be conservative estimates, as the only dimension considered in the benefit–cost is the nexus among preschool, school, and earnings. The likely benefit–cost ratio could be even larger. Behrman also presented results from a study in Uganda of the benefit–cost ratio of preschool attendance (Behrman and van Ravens, 2013), and cautioned that these estimates are very sensitive to the assumptions, such as base cost and discount rates.

Behrman concluded by stating that while the data presented show very high benefit–cost ratios for intervention programs, there is uncertainty with those ratios because of the different assumptions that are used. He noted that the benefit–cost ratios described are mostly for interventions for the poor. If this were framed as a human rights issue, and the value of human rights were weighted more heavily, the ratios would be even higher. He also noted that it is important to understand context and identify what data are context specific.

A COMPREHENSIVE COUNTRY-LEVEL APPROACH TO INVESTING IN YOUNG CHILDREN: COLOMBIA[2]

In many countries, Constanza Alarcón noted, the gap between scientific evidence and the development of policy is a very serious issue. Owing to the lack of quality data in Colombia, it is difficult to make decisions and develop actions that have an impact on childhood development programs to support families, provide nutritional support, and educate children. Despite this, however, Alarcón noted that Colombia is among many countries with access to early childhood education because a large

[2] This section summarizes information presented by Constanza Alarcón, Presidency of the Republic, Colombia.

number of people can provide these services. Colombia has helped to generate skills, strengthen institutions, and ensure the development of quality services to support positive outcomes. Alarcón emphasized the importance of measuring quality. She stated that without quality actions, the services provided will not benefit children, and any investment made would be lost. Alarcón explained that a very detailed, holistic vision is needed to enable policy implementation. A program on nutrition, for example, must connect to emotional care, bonding, and access to other services. In moving toward an integrated system, Alarcón noted that it does not cost more to have a vision, but the cost of not having a vision can be very high.

For 3 years, the government of Colombia, as described by Alarcón, has used political will to work toward implementing early childhood development policies, based on the Convention of the Rights of the Child (United Nations, 1990). Prior to this effort, each interest group (such as local authorities, the education sector, the health care sector, society in general, and the private sector) had objectives that targeted a certain part of the population, resulting in fractured and disparate policies. Colombia's new strategy is to reorganize the institutional framework into a single and integrated paradigm.

Alarcón introduced the Early Childhood Commission as a system that includes different sectors, ministries, and entities. She explained that Colombia has one of the greatest degrees of social inequality in the world. According to Alarcón, this new framework is necessary for the protection of the 5 million children experiencing diverse living conditions in Colombia.

A central tenet to Colombia's current approach is integrated care. Alarcón described the integrated care pathway as a framework that helps to understand the differences in development along the life course from preconception through age 6, as well as how these differences affect policy interventions. This policy framework synthesizes approximately 18 programs moving toward integrated and comprehensive approaches. It provides the structural basis for activities to promote healthy development throughout a child's life. The development of the integrated care pathway is a complex exercise, with 170 different types of intersectoral activities focused on the child.

Alarcón also defined five lines of action: national management, the development of knowledge, coverage and quality, monitoring and evaluation, and social movement. She referenced two studies on quality. The first study focused on developing a baseline to determine quality in health care services and in child development centers, which includes the quality of information and medical histories for women and children (Centro Nacional de Consultoria, 2013). Research supports the importance of

the prenatal period for pregnant mothers and early infancy. Currently, the medical histories of pregnant women and children are not always recorded or maintained. Colombia has recognized the importance of maintaining medical records, as well as taking actions in measures of quality as it pertains to the health of the developing child; not doing so is counterproductive to the communities being served.

The second study Alarcón referenced is a benefit–cost analysis of the fundamental services at different ages: parenting, feeding, nutrition, vaccines, access to culture, physical and recreational activities, learning, schooling, development, screenings, transitional periods, prevention, recovery, and human rights (Alarcón, 2013). Comparisons can be made between the different types of services and care. For example, the cost of child care for a 1-year-old can range from $800 to $2,600 annually, depending on the setting and services provided. Additionally, the context must be considered, as conditions within a single country can vary. Alarcón noted that the least expensive services are not necessarily the best for the country, as they will have varying levels of impact in different contexts and communities.

Alarcón concluded by explaining that Colombia considers both direct costs such as care for the child and the services they receive, as well as indirect or potentially hidden costs such as social mobilization, communications, training, support, and institutional architectures. When developing a program, both aspects of cost should be considered. In recognition of the diversity within Colombia, including African descendants, indigenous groups, and aboriginal groups, Alarcón emphasized that, even within a single country, one single suite of programs is insufficient. Governments should identify different service modalities and differential costs to best serve the needs of their specific populations.

In response to a question on integrating disabilities into early childhood development, Alarcón noted that Colombia has been able to shift many service modalities to facilitate working with those with disabilities. In line with what Maureen Durkin previously stated, Alarcón indicated that the focus should shift to prevention. A number of disabilities in Colombia are preventable with proper interventions (such as nutritional interventions) during gestation. Alarcón recommended improving training of community health care workers to understand the risk factors associated with nutrition and other preventable behaviors that can lead to child disability.

INVESTING IN YOUNG CHILDREN FOR HIGH RETURNS[3]

Quentin Wodon discussed three World Bank resources that are being made available to the ECD community and the lessons learned from them:

1. A report on trends in ECD investments and lessons from operational work at the World Bank over the past 12 years;
2. A guidance document on investing in young children through 25 essential, cost-effective, and high-return interventions for ECD that the World Bank recommends; and
3. A summary of some of the progress to date with the ECD module of the Systems Approach for Better Educational Results (SABER), a tool to help conduct comprehensive policy diagnostics in countries, with examples of specific results from of the implementation of the tool in developing countries.

Wodon explained that a number of recent World Bank documents recognize and support the importance of ECD. The Education Sector 2020 strategy (World Bank, 2011) recognizes that the education of children must be supported early to enable future success. The Social Protection 2012 strategy (World Bank, 2012) emphasizes the need to invest in stronger social protection systems to the benefit of children; and recent work on health, nutrition, and population also emphasizes the need for investing in and protecting young children, including in the area of nutrition. In short, the World Bank strategies for human development adopted over the past few years have placed early child development at their core.

Wodon then shared the results from a recent portfolio of ECD interventions at the World Bank (Sayre et al., 2014) that includes an analysis of trends in grants and loans for education, nutrition, and social protection that specifically focus on ECD. The question is whether the higher recognition of the importance of ECD has resulted in more funding for ECD. He observed a sharp increase in operational commitments through grants and loans related to ECD in the past few years, as well as an increase in analytical work on the topic. He noted that while this sharp increase in resources for ECD has been observed only for a few years, it is very encouraging and likely to continue.

Wodon then identified 25 key cost-effective interventions for young children and families, spanning nutrition, education, and social protection (shown in Figure 9-1). He explained that the World Bank will be releasing a document to elaborate on these key interventions (Denboba et al., 2014). The interventions tend to have high returns, and they can help the

[3] This section summarizes information presented by Quentin Wodon, World Bank.

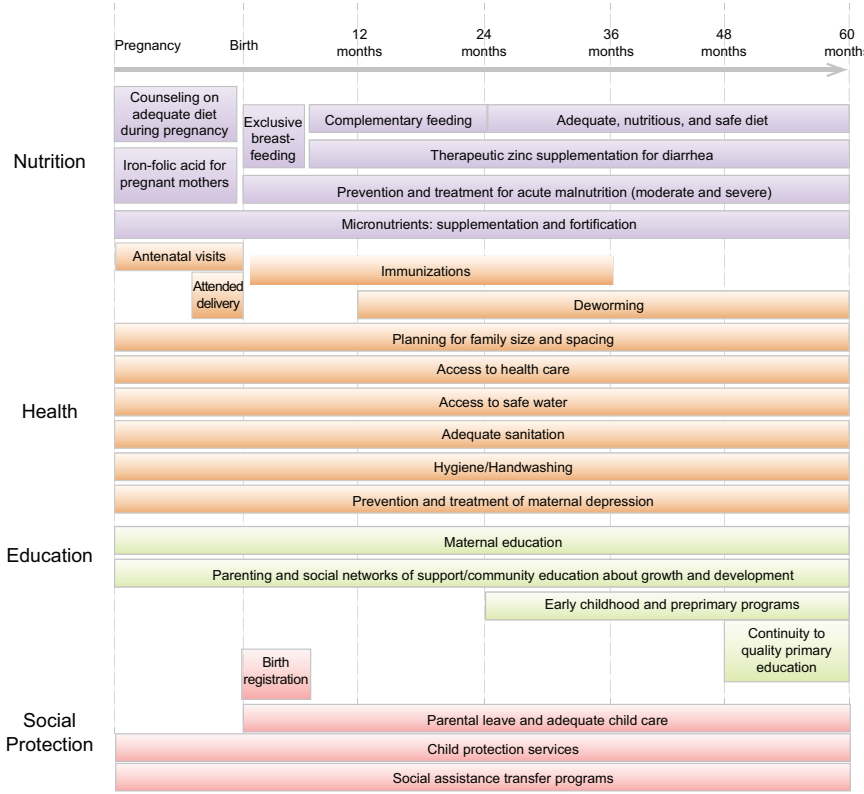

FIGURE 9-1 Key cost-effective interventions for young children and their families. SOURCE: Denboba et al., 2014.

discussion and prioritization of ECD initiatives. Wodon was asked which of the 25 listed interventions were the most critical, and his response was that this really depends on the country context in which one operates, but ideally countries are encouraged to implement as many of the interventions as they can. The color scheme in Figure 9-1 refers to the sectors to which the various interventions belong. In addition, although this is not shown in Figure 9-1, the 25 interventions can also be assembled into five integrated packages of interventions and services by age group: a family support package, a pregnancy package, a birth package, a child health and development package, and finally a preschool package.

Wodon then turned to a discussion of a diagnostic tool to help understand the quality of ECD policies in countries. The tool is part of SABER, which helps analyze education systems holistically. The idea of the approach is to complement traditional data on enrollment and learn-

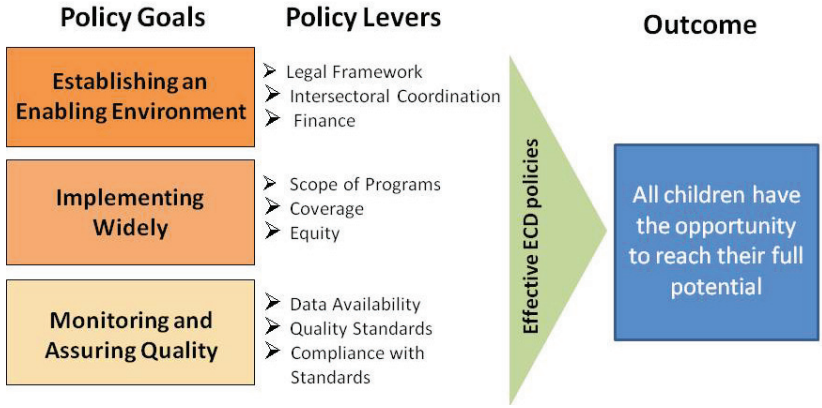

FIGURE 9-2 Policy goals and levers of the SABER ECD framework.
NOTE: An online course introducing SABER ECD as well as other related topics has been developed by Wang et al. (2014).
SOURCE: Neuman and Devercelli, 2013.

ing with an analysis of the policies implemented by countries. SABER includes a dozen modules, one of which is devoted to ECD policies, covering not only education policies for young children, but also policies and programs in health, nutrition, population, and social protection. As with other SABER modules, the SABER ECD module identifies a number of key policy goals and policy levers according to which the diagnostic of policies in a country can be conducted. The goals and levers are shown in Figure 9-2.

The SABER ECD framework helps in assessing whether countries have policies in place that can help ensure all children have the opportunity to reach their full potential. Wodon explained that SABER ECD is being implemented in 50 countries. However, he cautioned that SABER ECD is not necessarily a useful tool for understanding statistically the impact of policies on outcomes—it is rather a tool to help frame a policy dialogue with government ministries, donors, and other stakeholders and to identify areas where a country could do better. The World Bank team is currently working on an analysis of the data collected so far, and the next step will be to assess the extent to which countries are indeed implementing the policies they have adopted.

In concluding, Wodon affirmed that the World Bank is increasing its focus on ECD. He emphasized the importance of identifying cost-effective and high-return interventions (such as the 25 he presented), as well as identifying in a systematic way key policy areas for improvement, with SABER ECD being a useful tool to conduct such a systematic analysis of policy intent and implementation.

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Appendix A

Acronyms

AIDS	acquired immune deficiency syndrome
CLASS	Classroom Assessment Scoring System
DHS	Demographic and Health Surveys
ECD	early childhood development
ECDI	Early Childhood Development Index
ECRI	Early Childhood Rights Indicators
EDI	early development instrument
EFA	Education for All
EGMA	Early Grade Math Assessment
EGRA	Early Grade Reading Assessment
GDP	gross domestic product
GOBI	growth monitoring, oral rehydration, breastfeeding, and immunization
HIV	human immunodeficiency virus
ICDSG	International Child Development Steering Group
INCAP	Institute of Nutrition of Central America and Panama
IOM	Institute of Medicine
IQ	intelligence quotient

MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MISC	Mediational Intervention for Sensitizing Caregivers
NRC	National Research Council
OECD	Organisation for Economic Co-operation and Development
OWG	Open Working Group
PRIDI	Programa Regional de Indicadores de Desarrollo Infantil (Project on Child Development Indicators)
SABER	Systems Approach for Better Education Results
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Appendix B

Workshop Agenda

Day 1 – Thursday, April 17, 2014 **LECTURE ROOM**

8:00 am **BREAKFAST**

8:30 am **Welcome, iYCG Mission, Goals, Objectives, Forum Members, Sponsors, Webcast**
Zulfiqar Bhutta (Co-Chair, iYCG)

9:30 am **Panel 1 The Science of "Developmental Potential"**

Moderator: Kofi Marfo, University of South Florida
Speakers:

- Michael Georgieff, University of Minnesota
- Maureen Durkin, University of Wisconsin
- Robert Serpell, University of Zambia

10:15 am **Questions and Discussion**

10:45 am **BREAK (15 minutes)**

11:00 am **Panel 2 What Is the State of the World's Young Children and Their Caregivers?**

Moderator: Andy Shih, Autism Speaks
Speakers:
- Donald Bundy, World Bank
- Parfait Eloundou-Enyegue, Cornell University
- Mickey Chopra, UNICEF
- Maysoun Chehab, UNESCO

12:00 pm **Questions and Discussion**

12:30 pm **LUNCH**

1:00 pm **Panel 3 What Measures/Indicators Exist to Track Progress Toward Supporting Children's Developmental Potential?**

Moderator: Joan Lombardi, Bernard van Leer Foundation
Speakers:
- Tarun Dua, World Health Organization
- Abbie Raikes, UNESCO (via WebEx)
- Patricia Kariger, University of California, Berkeley
- Claudia Cappa, UNICEF

2:00 pm **Questions and Discussion**

2:30 pm **BREAK (15 minutes)**

2:45 pm **Panel 4 What Are the Essential Conditions/Supports to Promote Children Reaching Their Developmental Potential?**

Moderator: Chloe O'Gara, The William and Flora Hewlett Foundation
Speakers:
- Atif Rahman, University of Liverpool
- Amina Abubakar, Tilburg University
- Lia Fernald, University of California, Berkeley

3:45 pm **Questions and Discussion**

4:15 pm **Summary of Panels 1–4**
- Kofi Marfo
- Andy Shih
- Joan Lombardi
- Chloe O'Gara

4:45 pm **Closing Remarks and Preview of Next Day**
Zulfiqar Bhutta, Co-Chair, iYCG

5:00 pm **Adjourn**

Day 2 – Friday, April 18, 2014 **LECTURE ROOM**

8:00 am **BREAKFAST**

8:30 am **Welcome and Reflections from Day 1**
Zulfiqar Bhutta and Ann Masten (Co-Chairs, iYCG)

8:45 am **Keynote: Linking Children's Developmental Potential to a Nation's Developmental Potential**
Peter Singer, Grand Challenges Canada

9:30 am **Panel 5 Given the Current Trends Across Multiple Domains of Children's Health and Development, Including Their Caregiving Environment, What Are the Expected Consequences for the World's Children? How Does This Link to Global Development and Current Investments?**

Moderator: Gillian Huebner, USAID
Speakers:
- Sunita Kishor, Demographic and Health Surveys (DHS)
- Paul Gertler, University of California, Berkeley
- Ramanan Laxminarayan, The Center for Disease Dynamics, Economics & Policy
- Norbert Schady, Inter-American Development Bank

10:30 am **Questions and Discussion**

11:00 am **BREAK (15 minutes**)

11:15 am **Panel 6 Employing Existing Cost–Benefit Studies, What Is Expected to Be the Cost of Inaction (or Action) Toward Investing in Young Children Globally?**

Moderator: Hirokazu Yoshikawa, New York University
Speakers:

- Jere Behrman, University of Pennsylvania
- Ziba Vaghri, University of British Columbia
- Constanza Alarcón, Presidency of the Republic, Colombia
- Quentin Wodon, World Bank

12:15 pm **Questions and Discussion**

12:45 pm **Summary of Panels 5 and 6**

- Gillian Huebner
- Hiro Yoshikawa

1:00 pm **LUNCH**

Appendix C

Participant Biographies

Amina Abubakar, Ph.D., studied educational psychology at Kenyatta University in Kenya, before proceeding to study Developmental Cross-Cultural Psychology at Tilburg University where she obtained her Ph.D. in 2008. She currently works at the Kenya Medical Research Institute/ Wellcome Trust Research Programme, in Kenya. She is also a visiting academic at Tilburg University, the Netherlands and University of Oxford, UK. Her research concerns three broad areas: examining the sequelae of various childhood diseases, neurodevelopmental disorders, specifically autism spectrum disorders (ASDs) and contextual predictors of mental health among adolescents across cultural contexts. Her main interests are in the study of developmental delays and impairments among children exposed to various health problems such as HIV, malnutrition and malaria. Her main focus in this regard is on developing culturally appropriate strategies for identifying, monitoring and rehabilitating at-risk children. Alongside her colleagues, Dr. Abubakar has been instrumental in developing various culturally appropriate measures of child development currently in use in almost 10 African countries. She has also been involved in various projects aimed at examining the psychosocial risk factors (i.e., maternal depression, quality of home environment, and parental socioeconomic status) predictive of poor developmental outcome among vertically infected HIV positive children and adolescents. In addition, she is also interested in examining the prevalence of and risk factors for neurodevelopmental disorders, specifically ASD, within the African context. As part of her post-doctoral work in cross-cultural psychology,

she has recently completed a study involving more than 7,000 adolescents and emerging adults from 24 countries, where she investigates how various contextual factors (familial, school, peer, and cultural) impact on well-being (mental health and life satisfaction identity formation). Dr. Abubakar has given guest lectures, and workshops largely focusing on cross-cultural research methods in various countries, including Cameroon, Germany, Indonesia, Kenya, the Netherlands, New Zealand, South Africa, and Spain. She has (co)-authored several peer-reviewed journal articles and book chapters.

Constanza Alarcón, is a Psychologist at the National University of Colombia, and she has a degree in Special Education and Integral Social Attention in Mental Health. She also received a master's degree in Social and Educational Development and received a certificate for Early Childhood Education at Israel's Golda Meir Mount Carmel International Training Center.

Dr. Alarcón currently works with the Presidency of the Colombian Republic in the Presidential Office for Special Programs as the National Coordinator of the Inter-Sectoral Commission for Early Childhood. She served as the Deputy Director of the Childhood Attention Department of the Local Secretary for Social Integration and worked as an advisor on cooperation and social organizations strengthening issues for the Mayor of Bogotá. In the academic field, she has been Dean of Education Faculties as well as professor at both undergraduate and graduate levels for a number of universities in Colombia. For more than 15 years, she has been working in child education teacher training. Dr. Alarcón has also coordinated protection, adoption, and attention programs for disabled populations.

Jere R. Behrman, Ph.D., is the WR Kenan, Jr. Professor of Economics and Sociology and Population Studies Center Research Associate at the University of Pennsylvania. His research is in empirical micro economics, economic development, early childhood development, labor economics, human resources (education, training, health, nutrition), economic demography, household behaviors, life-cycle and intergenerational relations, and policy evaluation. He has published more than 370 professional articles (primarily in leading general and field economic journals, also in leading demographic, sociology, nutritional, and biomedical journals) and 34 books. He has been a research consultant with numerous international organizations, involved in professional research or lecturing in more than 40 countries, principal investigator (PI) on more than 75 research projects and received various honors for his research, including being selected as Fellow of the Econometric Society, a 40th Anniversary Fulbright Fellow,

the 2008 biennial Carlos Diaz-Alejandro Prize for outstanding research contributions to Latin America, a 2011 Doctor Honoris Causa from the University de Chile, and a member of the U.S. National Institutes of Child Health and Development (NICHD) Advisory Council. He currently is PI on The Bill & Melinda Gates Foundation and Grand Challenges Canada grants and an investigator on two NICHD projects studying early childhood development.

Zulfiqar A. Bhutta, MBBS, FRCPCH, FAAP, Ph.D., is the Robert Harding Inaugural Chair in Global Child Health at the Hospital for Sick Children, Toronto, the co-Director of the SickKids center for Global Child Health and the Founding Director of the Center of Excellence in Women and Child Health, at the Aga Khan University, unique joint appointments. He also holds adjunct professorships at the Schools of Public Health at Johns Hopkins (Baltimore), Tufts University (Boston), University of Alberta, and the London School of Hygiene & Tropical Medicine. He is a designated Distinguished National Professor of the Government of Pakistan and was the Founding Chairman of the National Research Ethics Committee of the Government of Pakistan from 2002–2014. Dr. Bhutta's research interests include newborn and child survival, maternal and child undernutrition, and micronutrient deficiencies. Dr. Bhutta is one of the seven-member Independent Expert Review Group (iERG) established by the UN Secretary General in September 2011 for monitoring global progress in maternal and child health Millenium Development Goals. He represents the global academic and research organizations on the Global Alliance for Vaccines and Immunizations (GAVI) Board, is the co-Chair of the Maternal and Child Health oversight committee of WHO Eastern Mediterranean Regional Office (EMRO) as well as the Global Countdown to 2015 Steering Group. He has served as a member of the Global Advisory Committee for Health Research for WHO, the Board of Child & Health and Nutrition Initiative of Global Forum for Health Research, and was a founding Board member of the Global Partnership for Maternal, Newborn and Child Health (PMNCH). He serves on several international editorial boards. Dr. Bhutta is currently a member of the WHO Strategic Advisory Committee for Vaccines (SAGE), the Expert Advisory Group for Vaccine Research, the Advisory Committee for Health Research of WHO EMRO, and a co-chair of its apex Regional Committee for Maternal and Child Health. He has won several awards, including the Aga Khan University Awards for Research (2005) Distinguished Faculty (2012), and the WHO Family Health Award (2014). Professor Bhutta received his Ph.D. from the Karolinska Institute, Sweden, and is a Fellow of the Royal College of Paediatrics & Child Health, American Academy of Pediatrics, and the Pakistan Academy of Sciences.

Donald A. P. Bundy, Ph.D., is the World Bank's Lead Specialist for Health, Nutrition and Population in the Africa Region and serves as Coordinator of the African Programme for Onchocerciasis Control (APOC). Before joining the World Bank, he was Professor of Epidemiology at Oxford University, and is currently visiting professor at George Washington University, Imperial College (London), and the London School of Hygiene and Tropical Medicine. He has worked in the field of international child health and development for 30 years and was the founder of the Partnership for Child Development, a civil society organization that promotes health and education in more than 50 countries. He is an editor for the Disease Control Priorities, Third Edition, and is also the Lead Editor of the new Volume 3 on Child and Adolescent Development. He has authored more than 350 publications, including 3 best-selling books, and has twice been awarded the prestigious Council on International Nontheatrical Events (CINE) Golden Eagle for his work in documentary film making, which includes the award-winning PBS series *Behind the Crisis*.

Claudia Cappa, Ph.D., is currently working as Statistics Specialist in the Data and Analytics Section, Division of Policy and Practice, at UNICEF headquarters. She is the focal point for data collection, data analysis, and methodological work on early childhood development, child disability and child protection from violence, exploitation, and abuse. The support for these activities includes elaboration of survey questionnaires and data collection tools, data analysis, production of reports, as well as delivery and dissemination of final results. In this capacity, she has been responsible for the preparation of a number of data-driven publications, including the recent UNICEF reports on birth registration (*Every Child's Birth Right: Inequities and Trends in Birth Registration*) and FGM/C (*Female Genital Mutilation/Cutting: A Statistical Overview and Exploration of the Dynamics of Change*). Prior to joining UNICEF, she was working at the University of Geneva and at the Institute for Social Studies of the International Labour Organization. Dr. Cappa holds an M.A. and a Ph.D. in Development Studies from the Graduate Institute of International and Development Studies, Switzerland.

Maysoun Chehab is an Education Specialist and a Global Leader for Young Children. She has an M.Ed. in Special Education, and a B.A. in Child and Family Counseling from the University of Michigan, and is certified as an Inclusion Specialist. Chehab is the Basic Education Programme Consultant for UNESCO, Beirut Regional Office and the Global Leaders' Regional Coordinator in the Arab States. In 2014 she joined the International Network for Education in Emergencies as the Arabic Community Language Facilitator. Chehab has developed and managed education pro-

grams in many countries, including Egypt, Iraq, Jordan, Lebanon, Sudan, Syria, Tunisia, and Yemen. Her professional interest is mainly in program and policy planning and advocacy for quality education.

Mickey Chopra, Ph.D., took up his post as Chief of Health and Associate Director of Programmes at UNICEF's New York Headquarters in August 2009, leading the agency's work on maternal, newborn and child health, immunization, pediatric HIV/AIDS, and health systems strengthening, policy and research. Prior to his appointment to UNICEF, Dr. Chopra was the director of the Health Systems Research Group of the South Africa Medical Research Council.

Dr. Chopra is qualified as a medical doctor with an additional degree in medical sociology from the University of Southampton in England. After completing his internship, he went to work as a district medical officer in the rural health district of Hlabisa, South Africa. He had a particular focus on child health and nutrition programmes and received his Diploma in Child Health during this time.

After receiving his master's in public health (Primary Health in Developing Countries) at the London School of Hygiene and Tropical Medicine in 1997, he joined the nascent School of Public Health at the University of the Western Cape in South Africa. In 2008, he earned his Ph.D. from Faculty of Medicine, University of Uppsala in Sweden.

Dr. Chopra has published more than 120 international peer-reviewed papers and contributed to numerous book chapters concerned with international child health and nutrition.

Tarun Dua, Ph.D., is currently a Medical Officer at WHO, contributing to many of the department's work in the area of neurological disorders. She was the project manager for many of the department's key publications, such as *mhGAP Intervention Guide for Management of Mental, Neurological and Substance Use Disorders in Non-Specialized Settings* (including developmental and behavioral disorders). She focused on the development of mhGAP guidelines on mental, neurological, and substance use disorders and neonatal seizure guidelines using GRADE methodology. She is also an editor of the volume of mental, neurological, and substance use disorders of the latest edition of *Disease Control Priorities in Developing Countries* currently being prepared for publication in 2015.

After completing her postgraduate training and residency, Dr. Dua worked as a Senior Research Officer at the All India Institute of Medical Sciences, India, where she was one of the editors for a review of published and unpublished reports of programs related to neonatal and child health in India. During her tenure as Senior Research Associate in Child Neurology at the All India Institute of Medical Sciences, New Delhi,

she established the Child Development Clinic and was involved in running of Neurology Clinic and Neuromuscular Clinic. Dr. Dua organized the South Asian Association for Regional Cooperation (SAARC) Expert Group Meeting for Reduction of Childhood Neuromorbidity in India. She was one of the editors for the *Training Module for Childhood Neurological Disorders*, which was widely circulated in the SAARC region. She worked as a Senior Lecturer in University of Delhi, India, from 2001 through 2004. Dr. Dua was also responsible for clinical work and research in addition to teaching undergraduate and post-graduate students in Pediatrics with specific focus on child neurology. She completed a research project to establish norms of plantar reflex in Indian infants. She was the Supervisor for a research studentship of the Indian Council of Medical Research for the project titled "Etiology of Neonatal Seizures in a Tertiary Health Care Centre." Additionally, she was a co-investigator in a multi micronutrient supplementation trial of malnourished pregnant women to see the effect on birth weight and early neonatal outcome.

Maureen Durkin, Ph.D., Dr.P.H., M.P.H., is Professor of Population Health Sciences and Pediatrics and a Waisman Center investigator at the University of Wisconsin–Madison. She is also vice chair of the department and director of the graduate program in population health sciences. Dr. Durkin received her undergraduate degree and Ph.D. in anthropology from the University of Wisconsin–Madison and her M.P.H. and Dr.P.H. degrees in epidemiology from Columbia University. Her research interests include the epidemiology, prevention, antecedents and consequences of neurodevelopmental disabilities and childhood injuries, both globally and within the United States. She has collaborated in the development of cross-cultural methods for screening for developmental disabilities and methods for surveillance of childhood injuries, and has directed international studies of the prevalence and causes of neurodevelopmental disabilities in low-income countries. She has also directed a cohort study of neuropsychological outcomes of neonatal brain injuries associated with preterm birth and with metabolic disorders detected on newborn screening, and is currently the principal investigator on the Wisconsin Surveillance of Autism and Other Developmental Disabilities System.

Parfait Eloundou-Enyegue, Ph.D., is Professor of Development Sociology, Cornell University. His areas of research interest cover broad questions related to children, schooling, inequality, and African development, including contemporary transitions in education and family systems, and the role of population change in these transformations. He is interested in microlevel studies and macrolevel analyses of the impacts of changing family environments on the development of African children. He has

published scientific work on these topics and currently leads an international panel of researchers studying the implications of contemporary demographic change in sub-Saharan Africa. He is Associate Editor of *Demographic Research*, and he sits of the Board of Directors of the Population Reference Bureau, the Guttmacher Institute, the Population Association of America, and the International Union for the Scientific Study of Population.

Lia Fernald, Ph.D., MBA, is Associate Professor in Community Health and Human Development at the School of Public Health at the University of California, Berkeley. Dr. Fernald's work has focused primarily on how inequalities in socioeconomic position contribute to growth and developmental outcomes in mothers, infants, and children, and on how interventions can address socioeconomic and health disparities. Much of her work for the past decade has centered on looking at the effects of interventions (e.g., conditional cash transfer programs, parenting programs, microcredit interventions, and community-based nutrition interventions) on child development and maternal mental health, particularly focused on low- and middle-income countries. Dr. Fernald has published more than 70 academic articles and book chapters in journals such as *Lancet, Pediatrics, International Journal of Epidemiology, Journal of Health Economics, Social Science and Medicine, American Journal of Public Health,* and *Developmental Science;* she also acts as an Associate Editor for *Public Health Nutrition*.

Michael Georgieff, M.D., is an internationally recognized expert on fetal and neonatal nutritional risk factors to the developing brain. His career in this area has spanned more than 25 years and includes investigations of memory function in humans and in rodent models. His scientific approaches range from conditional gene knock-out mouse models to human behavior. He received his B.A. in Psychology at Yale University in 1975 and his M.D. at Washington University School of Medicine in St. Louis. He did his post-doctoral work at the University of Pennsylvania and the Children's Hospital of Philadelphia. He joined the Pediatric faculty at the University of Minnesota in 1985 and the Institute of Child Development in 1997. He is currently the Martin Lenz Harrison Land Grant Professor of Pediatrics, the head of the Section of Neonatology, and the Vice Chair of the Department of Pediatrics. He co-founded and directs the University of Minnesota's Center for Neurobehavioral Development, an interdisciplinary research center with 40 faculty members from 11 departments and 5 schools. He serves as an advisor to the Pediatric Nutrition Branch of NICHD. He has published more than 160 research papers and has had continuous NIH funding for 20 years.

Paul Gertler, Ph.D., is the Li Ka Shing Foundation Professor at the University of California, Berkeley, where he holds appointments in the Haas School of Business and the School of Public Health. Dr. Gertler was Chief Economist of the Human Development Network of the World Bank from 2004–2007 and the Founding Chair of the Board of Directors of the International Initiative for Impact Evaluation (3ie) from 2009–2012. He received his Ph.D. from the University of Wisconsin and has held faculty appointments at Harvard University and RAND. He was awarded the Kenneth Arrow Award in health economics in 1996, an academic Leadership Award by NIH in 1998, a Research Medal in Economic Development by the Global Development Network in 2002, and The Juan Jose Bobadilla Medal for Global Health in 2013. He has been a PI of a large number of impact evaluations, including Mexico's CCT program PROGRESA/OPORTUNIDADES, Rwanda's Health Care Pay for Performance scheme and Argentina's Plan Nacer. He has published extensively in both scientific and policy journals on early childhood development, education, health, HIV/AIDS, energy and climate change, housing, job training, poverty alleviation, labor markets, and water and sanitation.

Gillian Huebner is a Senior Advisor for Child Development and Protection at USAID's Center of Excellence on Children in Adversity. She has worked with an interagency team to develop and coordinate implementation of the U.S. Government Action Plan on Children in Adversity, which was launched from the White House in December 2012. The U.S. government's whole-of-government approach to children is mandated by Public Law 109-95: The Assistance to Orphans and Other Vulnerable Children in Developing Countries Act of 2005. Her previous experience includes work with the United Nations as well as with nongovernmental organizations and academic institutions in six countries in Africa, the former Soviet Union, Western Europe, and the United States. She served as a UN humanitarian affairs officer in Angola during the past 3 years of the civil war and has designed conflict resolution and child rights programs with Search for Common Ground and Save the Children. Ms. Huebner has taught courses in field research and cross-cultural communication with World Learning's School for International Training in Russia and has been involved in a working group on psychosocial support in crisis settings. She received her B.A. from Bard College and a master's degree in social sciences from the University of Amsterdam.

Patricia Kariger, Ph.D., is an independent consultant and researcher at the University of California, Berkeley, with more than 15 years of experience in measuring early child development in the context of large health, nutrition and preschool studies. As part of a Cornell University/UNI-

CEF team, she helped produce a brief, survey-level measure of household factors important for child development (now part of the Multiple Indicator Cluster Surveys). She has experience adapting early development and household environment measures for use in Latin America, Asia, and Africa. Dr. Kariger has worked as a consultant with the World Bank, USAID, the Aga Khan Foundation, the Inter-American Development Bank, Global Alliance for Improved Nutrition, and Action Against Hunger. She holds a Ph.D. in Human Development from the University of California, Davis.

Sunita Kishor, Ph.D., is the Director of the DHS Program, the leading nationally representative household survey program for developing countries since 1984. In addition to other demographic and health indicators, the USAID-funded program also collects information on child health, nutrition, and well-being. Dr. Kishor herself has expertise in questionnaire development and survey implementation. She was co-manager for the India DHS surveys, the largest of all DHS surveys. She is also a widely known gender specialist with more than two decades of experience in conducting research on the interface between gender and health in developing countries. Dr. Kishor has worked for the DHS Program since 1993 and has supported the development of special modules on gender-based violence and women's status.

Ramanan Laxminarayan, Ph.D., is Vice-President for Research and Policy at the Public Health Foundation of India. He is an economist and epidemiologist by training. His research work deals with the integration of epidemiological models of infectious diseases and drug resistance into the economic analysis of public health problems. Through his work on Extending the Cure project in the United States and the Global Antibiotic Resistance Partnership, he has worked to improve the understanding of antibiotic resistance as a problem of managing a shared global resource. He has worked extensively with WHO, the World Bank, and other international organizations on evaluating malaria treatment policy, vaccination strategies, the economic burden of tuberculosis, and control of noncommunicable diseases. Dr. Laxminarayan is an editor of the *Disease Control Priorities for Developing Countries*, 3rd edition. He has served on a number of advisory committees at WHO, CDC, and the U.S. National Academy of Sciences/IOM. In 2003–2004, he served on the IOM Committee on the Economics of Anti-Malarial Drugs and subsequently helped create the Affordable Medicines Facility for malaria, a novel financing mechanism for antimalarials. He has co-authored and edited 5 books and published more than 80 peer-reviewed journal articles. Dr. Laxminarayan also directs the Center for Disease Dynamics, Economics & Policy in

Washington, DC, and is a Research Scholar and Lecturer at Princeton University.

Joan Lombardi, Ph.D., is an international expert on child development and social policy. She currently serves as Senior Advisor to the Buffett Early Childhood Fund on national initiatives and to the Bernard van Leer Foundation on global child development strategies. She also directs Early Opportunities, LLC, focusing on innovation, policy, and philanthropy. Over the past 40 years, Dr. Lombardi has made significant contributions in the areas of child and family policy as an innovative leader and policy advisor to national and international organizations and foundations and as a public servant. She served in the U.S. Department of Health and Human Services as the first Deputy Assistant Secretary for Early Childhood Development (2009–2011) in the Obama administration, and as the Deputy Assistant Secretary for Policy and External Affairs in Administration for Children and Families and the first Commissioner of the Child Care Bureau among other positions (l993–1998) during the Clinton administration. Outside of public service, she served as the founding chair of the Birth to Five Policy Alliance (now the Alliance for Early Success) and as the founder of Global Leaders for Young Children. She currently serves on the Board of Trustees for Save the Children and the Board of Directors for the Collaborative for Academic, Social and Emotional Learning.

Kofi Marfo, Ph.D., is Professor of Educational Psychology at the University of South Florida, Tampa, and newly appointed Director of the Institute for Human Development at Aga Khan University (Pakistan-East Africa, effective June 2014). He was the Founding Director of the Center for Research on Children's Development and Learning at the University of South Florida from 2000 to 2007. With current interests in developmental science and childhood interventions, the advancement of a global science of human development, and philosophical issues in behavioral science and education research, he has published extensively in the areas of early child development, early intervention efficacy, parent–child interaction, behavioral development in children adopted from China, and childhood disability in low- and middle-income countries. His scholarship has been cited across disciplines in more than 180 different journals worldwide. He is co-leader of an initiative to support child development research capacity-building in Africa and is a co-convener of the African Scholars in Child/Early Child Development Workshop series. He is a member of the Society for Research in Child Development, the International Society for the Study of Behavioral Development, and the American

Educational Research Association. He has been a U.S. National Academy of Education Spencer Fellow, a Zero to Three Irving B. Harris Mid-Career Leadership Fellow, and more recently a Residential Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University. He was, for 4 years, a member of NICHD's Bio-Behavioral and Behavioral Sciences Subcommittee. He is a member of the Governing Council of the Society for Research in Child Development and serves on an Advisory Committee of ELMA Philanthropies, USA. He is a graduate of the University of Alberta, Canada (M.E. and Ph.D.), and the University of Cape Coast, Ghana (B.Ed., Honors).

Ann S. Masten, Ph.D., LP, is the Irving B. Harris Professor of Child Development and Distinguished McKnight University Professor in the Institute of Child Development at the University of Minnesota. She completed her doctoral training at the University of Minnesota in clinical psychology and an internship at the University of California, Los Angeles. In 1986, she joined the faculty in the Institute of Child Development at the University of Minnesota, serving as chair of the department from 1999 to 2005. Dr. Masten's research focuses on understanding processes that promote competence and prevent problems in human development, with a focus on adaptive processes and pathways, developmental tasks and cascades, and resilience in the context of high cumulative risk, adversity, and trauma. She directs the Project Competence studies of risk and resilience, including studies of normative populations and high-risk young people exposed to war, natural disasters, poverty, homelessness, and migration. The ultimate objective of her research is to inform sciences, practices, and policies that aim to promote positive development and a better future for children and families whose lives are threatened by adversity. Dr. Masten currently serves on the Board on Children, Youth, and Families (BCYF) and the U.S. National Committee of Psychology for the IOM/National Academies, and formerly served on the BCYF Committee on the Impact of Mobility and Change on the Lives of Young Children, Schools, and Neighborhoods and planning committee on Investing in Young Children Globally. She also has served as President of the Society for Research in Child Development and President of Division 7 (Developmental) of the American Psychological Association (APA). She is a 2014 recipient of the Urie Bronfenbrenner Award for Lifetime Contributions to Developmental Psychology in the Service of Science and Society from APA. Dr. Masten has published and presented extensively on the themes of risk and resilience in human development. Her book *Ordinary Magic: Resilience in Children* will be published in 2014 by Guilford Press.

Chloe O'Gara, Ph.D., is a program officer in the Global Development and Population Program at The William and Flora Hewlett Foundation, responsible for the Foundation's grants to strengthen Women's Economic Empowerment. The portfolio includes an emphasis on caregivers, paid and unpaid, and the impacts of child care in the lives of women and children. Before joining the Foundation, Dr. O'Gara served as the associate vice president for education and child development at Save the Children International, where she was responsible for programs, advocacy, and investments to improve basic education and human development of marginalized children around the world.

Atif Rahman, Ph.D., is professor of child psychiatry at the University of Liverpool and chairs the academic child mental health unit at the Alder Hey Children's Hospital in Liverpool. He is a Visiting Professor at the Institute of Psychiatry, Rawalpindi, Pakistan, and an Honorary Director of the Research NGO, the Human Development Research Foundation, Pakistan. Dr. Rahman leads the Global Mental Health research group at the Institute of Psychology, Health and Society at the University of Liverpool. Dr. Rahman's research, funded through successive Wellcome Trust Fellowships, has focused on the epidemiology of maternal mental health, the impact of maternal depression on child health and development, and community-based psychosocial interventions for maternal and child mental health in low-income settings. He currently leads three multisite trials in South Asia focusing on the integrated delivery of mental health interventions through non-specialists. He is PI, with Vikram Patel, of the South Asian Hub for Research, Advocacy and Education in mental health, a 5-year program funded by NIH in the United States. He divides his time between the United Kingdom and South Asia, where most of his research is based.

Abbie Raikes, Ph.D., is a programme specialist in early childhood care and education at UNESCO, Paris. Prior to joining UNESCO, Dr. Raikes served as a senior officer of impact planning and improvement at The Bill & Melinda Gates Foundation in Seattle, Washington, where her work focused on strategy development and measurement in global health and education, including early childhood. Dr. Raikes' background in early childhood is extensive, and spans early childhood programs, research, and policy. Her experience includes positions as a quality improvement evaluator for early childhood programs, a home visitor for infants and toddlers, and several years in university-based research and teaching. She holds a Ph.D. in developmental psychology and a master's degree in population and family health.

Norbert Schady, Ph.D., is the Principal Economic Advisor for the Social Sector at the Inter-American Development Bank (IDB). He holds a bachelor's degree from Yale University and a Ph.D. from Princeton University. In addition to the IDB, Dr. Schady has worked at the World Bank and UNICEF, and has taught at Georgetown and Princeton. His main research areas include early childhood development, cash transfer programs, and the effects of economic crises on the accumulation of human capital. Dr. Schady has published 2 books and more than 25 articles in academic journals in economics, political science, and health, and he has extensive experience advising governments in Latin America, Europe, Asia, and Africa.

Robert Serpell, Ph.D., has spent most of his adult life in Zambia. Born and raised in England, in 1965 he graduated from Oxford and joined the founding staff of the University of Zambia. In 1979 he became a citizen of Zambia, where all his children were born and raised.

Formerly Director, University of Zambia's Institute for African Studies (1977–1983), Director, Graduate Studies program in Applied Developmental Psychology, University of Maryland, Baltimore County, USA (1989–2001), and Vice-Chancellor, University of Zambia (2003–2006), he is currently Professor of Psychology at the University of Zambia, and Coordinator of the Centre for Promotion of Literacy in Sub-Saharan Africa.

His publications include contributions to a wide range of scholarly journals and edited volumes, and four books: *Culture's Influence on Behaviour* (1976), *Mobilizing Local Resources in Africa for Persons with Learning Difficulties or Mental Handicap* (1984), *The Significance of Schooling: Life-Journeys in an African Society* (1993), and *Becoming Literate in the City: The Baltimore Early Childhood Project* (2005). His primary interests are in cultural aspects of human development, intelligence, multilingualism, literacy, assessment and intervention for children with disabilities and their families, and curriculum development, with special attention to cultural context, and to the region of sub-Saharan Africa.

Andy Shih, Ph.D., is Senior Vice President of Scientific Affairs at Autism Speaks. He works closely with members of Autism Speaks' Board, Scientific Advisory Committee, senior staff and volunteer leadership to develop and implement the organization's research program. He oversees the etiology portfolio, which includes genetics, environmental sciences, and epidemiology, as well as the Innovative Technology for Autism program, which supports the research and development of novel assistive technologies. Dr. Shih also leads Autism Speaks' international scientific development efforts, including the Global Autism Public Health Initiative, an international advocacy effort currently active in more than 45 countries around the world that integrates awareness, research, and service

development. His team serves as facilitators and technical advisors to community stakeholders, including government ministries, professional societies, and advocacy organizations. Dr. Shih joined the National Alliance for Autism Research (NAAR) in 2002, an autism science organization that merged with Autism Speaks in 2006. Prior to joining NAAR, he served as an industry consultant and was a member of the faculty at Yeshiva University and New York University Medical Center. Dr. Shih's research background includes published studies in gene identification and characterization, virus-cell interaction, and cell-cycle regulation. He earned his Ph.D. in cellular and molecular biology from New York University Medical Center.

Peter A. Singer, OC, M.D., M.P.H., FRSC, has dedicated the past decade to bringing science and innovation to tackle the health challenges of the world's poorest people. He is well known around the world for his creative solutions to some of the most pressing global health problems. Dr. Singer is Chief Executive Officer of Grand Challenges Canada. He is also Director at the Sandra Rotman Centre at University Health Network, Professor of Medicine at University of Toronto, and the Foreign Secretary of the Canadian Academy of Health Sciences. Dr. Singer chaired the Canadian Academy of Health Sciences' assessment on Canada's Strategic Role in Global Health. He has advised The Bill & Melinda Gates Foundation, the UN Secretary General's office, the Government of Canada, Pepsico, BioVeda China Venture Capital Fund, and several African Governments on global health.

Dr. Singer was appointed an Officer of the Order of Canada in 2011 for his contributions to health research and bioethics, and for his dedication to improving the health of people in developing countries. In 2007, Dr. Singer received the Michael Smith Prize as Canada's Health Researcher of the Year in Population Health and Health Services. He is a Fellow of the Royal Society of Canada, the Canadian Academy of Health Sciences, the IOM, and The Academy of Sciences for the Developing World.

Dr. Singer has published more than 300 research articles, received more than $50 million in research grants, and mentored hundreds of university students. He co-authored, along with Dr. Abdallah Daar, *The Grandest Challenge: Taking Life-Saving Science from Lab to Village*. He studied internal medicine at University of Toronto, medical ethics at University of Chicago, public health at Yale University, and management at Harvard Business School.

Ziba Vaghri, Ph.D., is the Director and co-founder of the International Program of Human Early Learning Partnership at the University of Brit-

ish Columbia. Her current interest lies in monitoring the implementation of the Convention on the Rights of the Child (CRC) and Early Child Development across the globe. She ascribes to the view that this type of monitoring has the potential to inform new initiatives in an international context and provide direction to nations wishing to frame future policy around ECD.

Dr. Vaghri has been actively involved in the development of ECRI, designed to facilitate CRC monitoring. She has authored the Manual for General Comment 7 Indicators, spearheaded development of the computerized ECRI, and directed pilot projects of ECRI in Chile and Tanzania.

Dr. Vaghri is a member and co-secretariat of the Global Reference Group for Accountability for Children, supported by the UN Committee on the Rights of the Child (the Committee). She has a solid history of work with UN agencies such as UNICEF, WHO, UNESCO, the Committee, and serves on a number of international committees, working groups, and Think Tank entities working on child development and child rights issues.

Quentin Wodon, Ph.D., is an Adviser/Lead Economist in the Education Department of the Human Development Network at the World Bank where he serves as cluster leader for equity, resilience, and early childhood development. Previously, he managed the World Bank unit working on faith and development, served as Lead Poverty Specialist for Africa, and as an Economist/Senior Economist for Latin America. Before joining the World Bank, he worked as Assistant Brand Manager for Procter & Gamble Benelux, volunteer corps member and Deputy Director with the International Movement ATD Fourth World, and tenured Assistant Professor of Economics at the University of Namur. He is a fellow with the Institute for the Study of Labor in Bonn, Germany, and the European Center for Advanced Research in Economics and Statistics in Brussels, Belgium, and has taught at Georgetown University and American University in addition to the University of Namur.

Dr. Wodon serves on various advisory boards, as Associate Editor for journals, and is a past President of the Society of Government Economists. He is also actively involved in service work with Rotary and through pro bono consulting for nonprofits. His work focuses on improving policies that can contribute to poverty reduction and development. He has more than 350 publications and is a recipient of the Prize of Belgium's Secretary of Foreign Trade, a Fulbright grant, and the Dudley Seers Prize. He holds graduate degrees in business engineering, economics, and philosophy (Université Catholique de Louvain), as well as Ph.D.s in Economics (American University) and in Theology and Religious Studies (Catholic University of America).

Hirokazu Yoshikawa, Ph.D., is the Courtney Sale Ross University Professor of Globalization and Education at New York University's Steinhardt School of Culture, Education and Human Development. He is also the co-chair of the UN Sustainable Development Solutions Network Workgroup on Early Childhood Development, Education and the Transition to Work, and serves on the Network's Leadership Council. He is a community and developmental psychologist who studies the effects of public policies and programs related to immigration, early childhood, and poverty reduction on children's development. He conducts research in the United States and in low- and middle-income countries, including studies on early childhood development and policy in Cambodia, Chile, Colombia, and other countries. His recent books include *Immigrants Raising Citizens: Undocumented Parents and Their Young Children* (2011, Russell Sage). He has served on the Board on Children, Youth, and Families of the U.S. National Academy of Sciences, the Early Childhood Advisory Committee of the Inter-American Development Bank, and the U.S. Department of Health and Human Services Advisory Committee on Head Start Research and Evaluation for the Clinton and Obama administrations. In 2011 he was nominated by President Obama and confirmed by the Senate as a member of the U.S. National Board for Education Sciences. In 2013 he was elected to the National Academy of Education. He obtained his Ph.D. in clinical psychology from New York University.