PROMOTING EARLY CHILDHOOD DEVELOPMENT
IN DEVELOPING COUNTRIES:
THE RESEARCH AND PERSPECTIVES OF EXPERTS

by

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Abstract

Early childhood is a critical period of human development, during which the rapidly developing brain and nervous system are sensitive to negative exposures, such as malnutrition, toxins, stress, lack of nurturing and brain stimulation. Many risk factors for early childhood development (ECD) have been associated with poverty, and an increased risk of poor health, education, and economic outcomes later in life. Cost-effective interventions do exist, but action in developing countries has been slow. Key informant interviews were conducted to explore the obstacles to promoting ECD in developing countries. The most prominent obstacles identified related to the challenges facing the international ECD field itself, and included: lack of clarity on operationalizing and measuring interventions; lack of health sector involvement; and lack of engagement in political advocacy. This study indicates clear recommendations for the ECD field to build its own capacity to better promote ECD in developing countries.

Keywords: Early Childhood Development; Brain Development; Developmental Risk Factors; Early Childhood Interventions; Developing Countries; International Development
Dedication

To Winnie Mfaume, our dear three year-old neighbour in Tanzania, and to all of my wife's precious young students at the Ocean Road Cancer Institute, Tanzania. The strength of your smiles to overpower the burden of your disadvantages will always be an inspiration and a call to action.
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# Table of Contents

- Approval .......................................................................................................................... ii
- Abstract ............................................................................................................................ iii
- Dedication ......................................................................................................................... iv
- Acknowledgements .......................................................................................................... v
- List of Figures .................................................................................................................... vii

## Introduction .................................................................................................................. 1
- Basic Definitions: Creating a shared understanding ...................................................... 2

## The Science of Early Childhood Development .............................................................. 6
- Brain Development ........................................................................................................... 6
- Risk Factors for Sub-Optimal Early Childhood Development ..................................... 10
- Interventions to Support Optimal Early Childhood Development .............................. 22

## Key Informant Interviews ............................................................................................ 31
- Purpose ............................................................................................................................. 31
- Methodology ..................................................................................................................... 31
- Findings .............................................................................................................................. 34

## Discussion ..................................................................................................................... 48

## Conclusion ..................................................................................................................... 56

## References ..................................................................................................................... 58
List of Figures

Figure 1: Synaptic Density of Human Brain at Three Ages.........................6

Figure 2: Human Brain Development.................................................7

Figure 3: PET Scans of Healthy and Deprived Child Brains......................13

Figure 4: Adverse Childhood Events and Risk of Adult Depression............16

Figure 5: Adverse Childhood Events and Risk of Heart Disease..............16

Figure 6: Adverse Childhood Events and Adult Substance Abuse.............16

Figure 7: Poverty Pathways Affecting Child Caregiving and Development...21

Figure 8: Risk Factors and Interventions for Child Development..............22

Figure 9: Cognitive Development of Stunted Children.........................25
Introduction

Children are a family’s, a community’s, and a country’s most precious resource, and the future health, wealth and well-being of every country depends upon its ability to nurture, care for, and support the holistic development of its children.

Early childhood, in specific from conception to 8 years, is recognized to be a critical period in human development because the rapidly developing brain and central nervous system are extremely sensitive to risks during this period (UNICEF, 2006; UNESCO, 2006). Furthermore, research has indicated that exposure to risk factors, such as malnutrition, toxins, stress, lack of nurturing and brain stimulation, can affect the development of neural circuits that mediate cognitive, linguistic, emotional, and social capacities later in life, and have been associated with an increased range of poor physical and mental health, education, and economic outcomes later in life (BVLF, 2008; Shonkoff, 2006).

Many of the risk factors for sub-optimal early childhood development are associated with poverty, and it has been estimated that more than 200 million children under the age of 5 years in developing countries are failing to reach their developmental potential due to malnutrition, iodine and iron deficiency,
and inadequate cognitive and socio-emotional stimulation (Grantham-McGregor et al., 2007).

Effective interventions for protecting against risk factors do exist, however, and research has demonstrated that it is more efficient, both biologically and economically, to prevent sub-optimal early childhood development than remediate the resulting issues later in adolescence or adulthood (Engle et al., 2007).

Despite the strength of the evidence, adequate investments in early childhood development have been slow, particularly in resource-poor countries where the greatest number of vulnerable children would benefit the most (CSDH, 2007). So why has investment in ECD been so slow, and what are the most prominent obstacles for promoting ECD in developing countries? The objectives of this investigation are to first review the science of early childhood development and the research on risk/protective factors, and then to explore the perspectives of experts on the major obstacles for promoting early childhood development in developing countries.

**Basic Definitions: Creating a shared understanding**

*Early Childhood Development (ECD)* is a relatively new field of international focus which combines elements from the fields of early childhood education, health and nutrition, neurobiology, infant stimulation, community development, parent education, child psychology, sociology, and economics
The field of ECD arose from the recognition that multiple factors interact to determine the development of young children and subsequent health, well-being, education, and economic outcomes. In order to support the development of young children and to help them thrive in the varied contexts in which they are living, the field of ECD focuses on understanding the many risk factors and protective factors affecting early childhood development.

As it is currently used internationally, *early childhood* is defined as the period of a child’s life from conception to age eight (UNICEF, 2006). *Child Development* is broadly defined as the process of change in which the child comes to master more and more complex levels of moving, thinking, feeling, and interacting with people and objects in the environment, and involves both a gradual unfolding of biologically-determined characteristics and traits that arise as the child learns from experiences (Myers, 1996). For a child to develop in a healthy and normal way, a range of needs are required including protection, food, health care, interaction and stimulation, affection, security, and learning through exploration and discovery (CGECCD, 2008). Child development is holistic in nature (i.e. child develops as a whole), and is understood to occur in 3 major areas or ‘domains’:

1. **Physical and Motor Development**

   • Physical Development: Changes in body size, structure, proportion and system
• Motor Development: Control of muscular functions (gross- and fine-motor skills) and coordination between various parts of the body

2. Cognitive and Language Development

• Cognitive Development: Ability to think, perceive and solve problems

• Language Development: Ability to both understand and use speech and language

3. Psychosocial Development

• Social Development: Ability to relate and interact with others

• Emotional Development: Ability to feel, regulate and express emotions

Development in each of the three domains does not occur independently but rather interdependently, which means that the quality of development in one domain can affect the quality of development in other domains. For example, poor social and emotional development, indicated by high insecurity and low self-confidence, can negatively affect a young child's cognitive development by impacting his/her ability and motivation to explore the world around them and learn in the classroom. Research has found that three in four
children who start school behind cognitively also have physical or social and emotional delays as issues (Wertheimer et al., 2003).

Child Development occurs in a common sequence or pattern for the majority of children, however, the rate, character, and quality of development varies from child to child (CGECCD, 2008). A developmental milestone is a capacity or skill that a child acquires within a specific time frame (such as learning to walk - a skill which is usually acquired between the ages of 9 and 15 months). Developmental Milestones develop in a sequential fashion, which means that a child will need to develop certain basic capacities and skills before he or she can develop more complicated capacities and skills. Early childhood is considered such an important period of development precisely because the capacities and skills developed later in life largely depend upon the foundation of capacities and skills developed in the first few years of life.
The Science of Early Childhood Development

Brain Development

Early childhood is unique in that it is the period of most rapid and sensitive brain development (CSDH, 2007). By age 3, the brain achieves 80-85 percent of its adult size, its architecture includes a trillion connections between neurons, and by age 5 the brain develops to 90% of its capacity (Stevens, 2008). Synapses, the functional connections between neurons, are created with astonishing speed in the first few years of life and throughout the first 10 years of life children’s brains are twice as active (i.e. have twice as many synapses) as adult's brains (Chungani, 1996). The illustration below describes the synaptic density of the human brain at 3 different points in time.

Figure 1: Synaptic Density of Human Brain at Three Ages

<table>
<thead>
<tr>
<th>At Birth</th>
<th>6 years</th>
<th>14 years</th>
</tr>
</thead>
</table>

(Shore, 1997)
Research in neuroscience has demonstrated that brain development occurs in a hierarchical “bottom-up” sequence, whereby the neural circuits that process basic information are wired earlier than those that process more complex information (Knudson, 2006). The graph below shows the time periods during which synapse formation related to seeing/hearing, speech/language, and higher cognitive functions occur. It is evident from this graph that synapse formation begins prenatally, that the majority of synapse formation related to all three areas occurs before age 6 years, and that synapse formation related to higher cognitive functions continues well into adolescence.

**Figure 2: Human Brain Development**

The development of some neural systems within the brain are considered to be genetically determined while others are considered to be `environment-` or `stimulation-` dependent. At birth, only primitive structures such as the brain stem are fully functional, whereas other regions such as the temporal lobes
only become fully functional through early childhood experiences which ‘wire’ those neural circuits (Chugani, 2001). More specifically, certain areas of the developing brain require exposure to environmental stimulation (e.g. language, emotional responsiveness, play and learning opportunities, etc.) in order to develop along an optimal trajectory.

Recent advances in the field of Epigenetics have significantly strengthened our understanding of the importance of the environment in which early childhood development takes place. Moving beyond the understanding that genes and the environment both play an important but separate role in child development, research in epigenetics has demonstrated a transactional relationship between genes and environment, termed the ‘Epigenetic Effect’. The ‘Epigenetic Effect’ describes a process whereby the conditions in early life can permanently alter gene expression (Fish et al, 2004). For example, animal studies involving rats have demonstrated that adverse maternal behaviour (e.g. neglect after delivery) can lead to offspring having poor protein synthesis from DNA because of epigenetic effects on the gene promoter functions (Champagne, 2008). This research indicates that care environments during early childhood can have trans-generational effects, not only through socialization and modelling of behaviour but also through gene expression and gene inheritance. Although results of animal research cannot be directly extrapolated to humans, and although the field of epigenetics is still young, it
has already provided significant insights and holds great potential to further our understanding of the science of early childhood development.

The development of some neural systems during early childhood have also been found to be highly modifiable (or 'neuroplastic'), with the potential for either enhancement or vulnerability (Stevens, 2008). Furthermore, small disturbances or disruptions to the processes of brain development during early childhood can have long-term effects on the brain's structural and functional capacity (Grantham-McGregor, 2007). Over the past decade, research in the fields of neurobiology and behavioural genetics have furthered our understanding of how exposure to malnutrition, toxins, stress, lack of nurturing and lack of brain stimulation during early childhood affect the development of neural circuits that mediate cognitive, linguistic, emotional, and social capacities later in life (BVLF, 2008). Research in the field of epidemiology has further demonstrated a strong correlation between negative exposures and experiences during early childhood and an increased risk of a range of poor physical and mental health, education, and economic outcomes later in life (Shonkoff, 2006).

It is important to emphasize that although early childhood development is recognized to be an important contributing factor of outcomes later in life, it is not completely deterministic of them. Adaptive brain development, or 'neuroplasticity', which is the ability of the human brain to change as a result of one's experience, does decrease over time as neural circuits stabilize with age,
making them increasingly more difficult to alter (Shonkoff, 2006). However, the potential for adaptive development remains open for much of life and there is an entire field of research on resilience, which is defined as a protective process which enables individuals to reach good outcomes even though they have endured significant adversities (Masten, 2009).

In the next section, we will explore various risk factors contributing to ‘poor’, 'sub-optimal', or 'delayed' child development. As there is very little consistency of terminology within the literature, 'sub-optimal' development will be the term used in this paper.

**Risk Factors for Sub-Optimal Early Childhood Development**

Sub-optimal developmental can be defined as a deviation of development from the normative milestones in the areas of cognitive, language, social-emotional, and neuromotor functioning (Ertem, 2009). Sub-optimal development can occur within a range of mild to severe in all the above areas of development, or may just occur in one or more of those areas.

Genetic causes are currently estimated to account for 5%-25% of children with sub-optimal development, and include both rare and relatively common disorders (Curry et al., 1997). Children are placed at genetic risk by being born with either a single gene, chromosomal, and/or a metabolic disorder.

Sub-optimal development that is attributed to non-genetic prenatal and perinatal causes include prematurity, significant birth asphyxia, congenital
infections, and exposure to toxins (lead, tobacco, alcohol, medications, or other substances abused during pregnancy) (Aicardi, 1998). Prematurity in specific, is strongly associated with long-term neurodevelopmental consequences, with risks increasing as gestation decreases, even in infants born at 34 to 36 weeks (Petrini et al., 2009).

Malnutrition of the mother and/or child, for example, is associated with disturbances in the child’s neurotransmitter systems necessary for normal neuron maturation, morphological changes in delicate brain structures, and reduction in brain growth (Cicchetti and Cohen, 2006). The effect of micro-nutrient deficiencies on brain development during pregnancy and early childhood is also well recognized. Maternal iodine deficiency during pregnancy, for example, has been found to result in an average loss of 15 IQ points in offspring (World Bank, 2006), and numerous studies have correlated early deficits of iron, zinc, and iodine with disturbed brain development and decreased cognitive skills (Cicchetti and Cohen, 2006).

Studies have found that children deprived of proper nutrition during the early years of life score much lower on tests of vocabulary, reading comprehension, arithmetic, and general knowledge at school age (NCCP, 1999). Malnutrition has also been associated with increased social withdrawal, delayed motor skills development, and delayed physical growth, leading to less exploration and interaction with the environment as well as lower expectations from parents/teachers (NCCP, 1999).
Research on the biology of stress during early childhood helps explain some of the underlying reasons for lifelong problems in learning, behaviour, physical and mental health. Exposure to stress early in life has been found to shape the way the in which the HPA (hypothalamic-pituitary-adrenal) axis responds later in life, which plays a major part in controlling reactions to stress and regulating many body processes including the immune system, digestion, mood and emotions (Gunnar et al., 2009).

More specifically, early exposure to stress can affect thresholds for autonomic nervous system arousal and reactivity (e.g. heart rate, blood pressure and respiration), as well as patterns of homeostatic adjustment via the stress hormone cortisol, which can result in an over-active stress response system that is less capable of re-adjusting or ‘calming’ to normal levels of functioning (Chugani, 2001).

Not all stress has such a damaging effect on the developing brain and nervous system, however, as stress can be categorized along a continuum as either positive, tolerable, or toxic. According to Shonkoff (2006):

- **Positive stress** involves moderate, short-lived stress responses, such as brief increases in heart rate or mild changes in stress hormone levels. Examples of positive stress affecting young children include the getting an immunization, adult limit-setting, dealing with frustration, or the challenges of meeting new people. Positive stress is considered to be an
important and necessary aspect of healthy development that occurs in the context of stable and supportive relationships.

**Tolerable Stress** involves stress responses that could disrupt brain architecture, but are buffered by supportive relationships that facilitate adaptive coping. Examples of tolerable stress include death or serious illness of a loved one, a frightening injury, parent divorce, a natural disaster, terrorism, or homelessness. Tolerable stress generally occurs within a time-limited period, which gives the brain an opportunity to recover from potentially damaging effects.

**Toxic Stress** involves long and prolonged activation of the body’s stress management systems in the absence of the buffering protection of adult support. Examples of toxic stress include extreme poverty, physical or emotional abuse, chronic neglect, severe maternal depression, substance abuse, or family violence. Toxic stress disrupts brain architecture and leads to stress management systems that respond at relatively lower thresholds, thereby increasing the risk of stress-related physical and mental illness.

The two PET (positron emission tomography) scans below illustrate the difference in neural activation that can occur between the brain of a healthy child and a child who has been exposed to toxic stress in early childhood.
Exposure to ‘toxic stress’, also termed ‘adverse childhood events/experiences’ (ACE), during early childhood has also been associated with an elevated risk for age-related diseases, such as cardiovascular disease, and mental health diseases, such as depression (Dong et al., 2004). A 32 year
prospective longitudinal study conducted by Danese et al, 2009, from the Department of Psychology and Neuroscience at Duke University, aimed to understand why children exposed to adverse psychosocial experiences are at elevated risk for age-related disease and depression by testing whether adverse childhood experiences predict long-term abnormalities in stress-sensitive biological systems, namely, the nervous, immune, and endocrine/metabolic systems.

The study was set in New Zealand and included a total of 1037 members of the Dunedin Multidisciplinary Health and Development Study. Study participants were assessed for exposure to 3 adverse psychosocial experiences (socio-economic disadvantage, maltreatment, and social isolation) during the first decade of life. At age 32 years, participants were assessed for the presence of 3 age-related disease risks: major depression, high inflammation levels, and the clustering of metabolic risk biomarkers (overweight, high blood pressure, high total cholesterols, among others). The study found that children exposed to adverse psychosocial experiences were at elevated risk of depression, high inflammation levels, and clustering of metabolic risk markers, and more specifically, that children who had experienced socio-economic disadvantage (incidence rate ratio, 1.89; 95% confidence interval, 1.36-2.62), maltreatment (1.81; 1.38-2.38), or social isolation (1.87; 1.38-2.51) had elevated age-related-disease risks in adulthood (Danese et al., 2009). The authors concluded that children exposed to adverse psychosocial experiences
have enduring emotional, immune, and metabolic abnormalities that contribute to explaining their elevated risk for age-related disease.

The graphs below illustrate the findings of additional research studies exploring the relationship between the number of adverse childhood events/experiences and the risk of adult depression, ischemic heart disease, and adult substance abuse.

**Figure 4: Adverse Childhood Events and Risk of Adult Depression**

![Bar chart showing odds ratio for adult depression by number of adverse childhood events](image)

(Chapman et al., 2004)

**Figure 5: Adverse Childhood Events and Risk of Ischemic Heart Disease**

![Bar chart showing odds ratio for ischemic heart disease by number of adverse childhood events](image)

(Dong et al., 2004)
Maternal depression is another important risk factor contributing to poor early childhood development (Cummings, 1994). Research indicates that maternal depression is common in most countries but that low- to middle-income countries face the greatest burden, and the incidence rate of post-partum depression in specific, which is a form of severe depression that can occur after delivery and requires treatment, is estimated to be much higher than is often quoted (10-15%) because mothers, especially in low-income countries, are rarely assessed (Almond, 2009).

The reduced ability of mothers who are suffering from depression to provide adequate care and stimulation to infants and young children is the pathway through which early childhood development is negatively impacted. For example, mothers suffering from depression have been found to express less positive and more negative responses, to be less attentive and more
disengaged, when engaged are more intrusive and controlling, and fail to respond to infant hunger and emotional signals (Belle, 1990). Young children of depressed mothers have been found to be less active, less motivated to master new tasks, more withdrawn, have shorter attention spans, have more behavioural problems, elevated heart rates, elevated cortisol levels, and reduced EEG activity in the right frontal cortex (Halfon, 2007; Whitaker et al., 2006).

This discussion on the effects of maternal depression on early childhood development leads us to a larger discussion on the importance of quality relationships and care during early childhood. Of all the factors that operate in a young child’s environment, one of the most important determinants is the quality of the child’s relationships with parents (or other ‘primary caregiver’, which may be grandparents, older siblings, staff in an orphanage, etc.) (WHO, 1999; 2004).

Attachment Theory (Bowlby, 1952), which comes from the field of psychology, argues that the quality of parent-child relationships is built upon the degree of `bonding` and `attachment` that occurs between the young child and the parents. Bonding is understood to be the process of the parent forming a relationship with her/his new infant, whereas attachment refers to the special relationship the infant develops with her/his parents. Bonding and attachment are understood to begin very early, within the first few hours of birth, during which skin-to-skin contact is considered to be critical. In most
cases, the primary bonding and attachment occurs with the mother, but other
caregivers can also be important. A risk factor affecting the bonding and
attachment processes is when a mother is separated from the infant for a long
period after birth, which can occur due to the poor health of the mother or
infant, mothers resuming work immediately after child birth, or the
institutionalization of the infant.

A great deal of research has been done on the importance of
attachment. Spitz (1945, 1946) described children in orphanages during the
World War II who, with little human contact, failed to develop and many of
which died. He observed that food, water, health care and protection from
physical harm were not sufficient requirements for development, and in some
cases survival. He described the process of failing to develop or 'thrive' as
anaclytic depression: failing to get stimulation and adequate response from
humans in the environment, infants begin to ‘shut down’, emotionally and
physically.

Ainsworth (1979) studied the long-term effects of poor attachment and
found that poorly attached infants are more likely to have behavioural
problems, poor peer relations, poor problem solving abilities, low self-esteem,
and other difficulties as they grow into adolescence and adulthood. The 2004
WHO publication, *The importance of caregiver-child interactions for the
survival and healthy development of young children*, reviews many of the more
recent studies on the effects of poor attachments on infants in hospitals,
orphanages, refugee camps, etc., and the consequences on later health and development outcomes.

Advances in research outside the field of psychology, as discussed earlier, may help explain the neurobiological pathways through which poor attachment, or poor parent-child relationships, affect child development and later outcomes. For example, research has found that when protective relationships are not provided to young children, levels of stress hormones increase and impair cell growth, interfering with formation of healthy neural circuits and disrupting brain architecture (Shonkoff, 2006). As it is the relationship that the young child has with her/his parents (or caregivers) that helps determine the development of neural circuits, the quality of parent-child relationships contributes, quite literally, to foundation for later learning, behaviour and health.

The quality of care that is provided in the home-environment in particular, especially during the first few years of life, is a critical factor affecting child survival, health and development (WHO 2004). Inadequate, disrupted and negligent care in the home has adverse consequences because children whose care is less than adequate: may not receive sufficient nutrition; may be subjected to stress; may be physically abused and neglected; may develop malnutrition; may not be provided with stimulation opportunities; early signs of illness may not be detected; appropriate home-health practices
may not be provided; appropriate health services may not be accessed (Lucas, 2009; Evens, 2006).

The quality of care-giving in the home environment has been associated with a number of factors including maternal depression and maternal level of education (UNICEF, 2006), however, it is widely recognized that chronic or ‘toxic’ stress associated with poverty has the greatest potential to disrupt the capacity of adults to give quality care to children (WHO 1998). The illustration below describes the multiple pathways through which poverty affects parental care-giving and ultimately the development of children.

**Figure 7: Poverty Pathways Affecting Child Care-giving and Development**

(NCCP, 1999)
Poverty exists in both developed and developing countries, however, the disproportionate number of children being born into and raised in impoverished conditions in developing countries, is a cause for significant concern. In the 2007 *The Lancet* series on 'Child Development in Developing Countries', it was estimated that at least 200 million children under the age of 5 years in developing countries fail to reach their developmental potential, because of malnutrition, iodine and iron deficiency, and inadequate stimulation in their first 5 years of life (Grantham-McGregor et al., 2007).

**Interventions to Support Optimal Early Childhood Development**

In the previous section, we discussed many of the risk factors contributing to poor or 'sub-optimal' child development. It should be apparent that the risk factors are complex, interrelated, and occur along a continuum of time starting from conception and continuing through to the early school-age years. Similarly, the strategies and interventions required to protect children against these risk factors are also complex, interrelated, and occur along a continuum of time. The figure below links specific interventions (left side) with specific risk factors (right side) along that continuum.
The range of potential interventions are multi-sectoral (i.e. fall under the mandates of various sectors including health, education, social welfare, policy and budget planning, etc.), need to be implemented at different levels (i.e. institutional policy/budget level, as well as at the community, family,
individual child levels), need to be implemented at different points in time (i.e. prenatally, postnatally, during early childhood, during policy/budget planning cycles, etc.), and need to be implemented to different populations (mothers, fathers, children, institutional caregivers, policy makers, media, etc.).

According to *The Lancet* (2007) series on "Child Development in Developing Countries", the most well-established risk factors are related to under-nutrition, micro-nutrient deficiencies (iron and iodine), and lack of adequate cognitive stimulation in early childhood, all of which have interventions that have proven to be cost-effective.

Program evaluations and efficacy trials of interventions that improve the nutrition and diets of pregnant women, infants, and toddlers have demonstrated an ability to reduce stunting, improve physical growth, motor development, and cognitive development in children (Gillespie, 2002; Engle et al., 2007). Nutritional supplementation during infancy has shown to have measurable improvements on cognitive outcomes in children as early as 3 years of age, and the study with the longest follow up found that 25 years after a nutrition intervention was delivered to preschool children in Guatemala, participants still scored 9% higher on cognition tests and 14% higher on reading comprehension tests than the control group (Schroeder, 1995; Maluccio, 2006; Engle et al., 2007).
Research has shown that iodine interventions can have a significant effect on improving cognitive development (Walker et al., 2007; World Bank, 2006). Salt iodisation, in particular, is widely considered to be the most cost-effective way of delivering iodine and of substantially improving cognitive development (Engle et al., 2007). Iron deficiency anaemia is another significant risk factor for sub-optimal child development. Research has indicated that iron therapy interventions may only be effective if targeted toward adolescent girls and pregnant mothers, as iron therapy targeted toward infants and toddlers has not be found to be effective at reversing the developmental damage already incurred during the prenatal period by iron deficiency (Lozoff, 2000).

The short- and long-term benefits from high-quality early stimulation interventions (i.e. preschools, parent-infant play groups, home-visiting programs, etc.) for disadvantaged children have been well researched over the past 20 years. Although the majority of research has been conducted in high-income countries, there are now a growing number of studies focused on middle- and low-income countries.

Randomized controlled trials of early childhood stimulation interventions in Bangladesh, Bosnia and Herzegovina, Jamaica, and Turkey, as well as three non-randomized controlled trials in Cyprus, Serbia and Mauritius, reported positive improvements in a range of outcomes including child cognitive development, problem solving, school-readiness skills, socio-emotional functioning and self esteem (Patel et al., 2005). A flagship randomized control
trial conducted by Grantham-McGregor et al. (1991) in Jamaica, demonstrated that the addition of psychosocial stimulation to a nutrition supplementation intervention improved cognitive development outcomes more than nutritional supplementation alone (See Figure 9 below). A follow-up study on the same sample found significantly higher reading and arithmetic scores, lower percentage of developmental disabilities, as well as a lower percentage of depressive symptoms in adolescence compared to the control group (Waler et al., 2005).

**Figure 9: Cognitive Development of Stunted Children: low-height for age**

![Diagram showing cognitive development over months of intervention](image)

(Grantham-McGregor et al. 1991)

The Perry Preschool Study (Schweinhart, 1993 & 2004), initiated in the early 1960’s, is considered to be a milestone study conducted in a high-income country that helped establish the human and financial value of high-quality
early stimulation interventions. The Perry Preschool Program, carried out from 1962 to 1967 in the USA, provided high-quality preschool education to three- and four-year-old African-American children living in poverty and assessed to be at high risk of school failure. The study evaluated this program in one randomized controlled trial of 128 children — 64 in the intervention group that received the preschool program, and 64 in the control group that did not. Prior to the program, the preschool and control groups were similar in measures of intellectual performance and nearly all demographic characteristics. The study examined a range of outcomes immediately after the program was completed as well as long-term follow-up at age 27 (96% of original sample), and age 40 (94% of original sample). Below is a summary of the study’s findings:

**Educational outcomes for preschool group (versus control group):**

At age 27 follow-up

- Completed an average of almost 1 full year more of schooling (11.9 years vs. 11 years).
- Spent an average of 1.3 fewer years in special education services — e.g., for mental, emotional, speech, or learning impairment (3.9 years vs. 5.2 years).
- 44 % higher high school graduation rate (65 % vs. 45 %)

**Pregnancy outcomes for preschool group (versus control group):**

At age 27 follow-up

- Much lower proportion of out-of-wedlock births (57 % vs. 83 %).
- 50 % fewer teen pregnancies on average (0.6 pregnancies/woman vs. 1.2 pregnancies/woman)
**Lifetime criminal activity for preschool group (versus control group):**

At age 40 follow-up

- 46% less likely to have served time in jail or prison (28% vs. 52%).
- 33% lower arrest rate for violent crimes (32% vs. 48%)

**Economic outcomes for preschool group (versus control group):**

At age 40 follow-up

- 42% higher median monthly income ($1,856 vs. $1,308).
- 26% less likely to have received government assistance (e.g. welfare, food stamps) in the past ten years (59% vs. 80%)

(Schweinhart, 1993 & 2004)

In addition to the above analysis, the researchers also analysed the cost of the preschool program against the economic benefits resulting from the program — higher earnings, reduced incidences of special education services, welfare assistance, and crime. The age-27 analysis found that every public dollar spent on the program saved $7.16 in tax dollars (Schweinhart, 1993, 2004).

Over the decade, a large number of cost-benefit analyses have been conducted on a range of early childhood development interventions, mostly in high-income countries. According to Engle et al (2007), the cost-benefit ratios for seven programs implemented in high-income countries ranged from 1 to 8 to 1 to 17 (i.e. for every $1 public dollar spent, $8 - $17 were saved in tax dollars). A cost-benefit analysis conducted in Turkey on a preschool
intervention found that for every $1 dollar invested $6.37 dollar in taxes could be saved (Kaytaz, 2008).

The common finding of such economic analyses are that prevention of developmental difficulties or delays is less costly than remediation. The Consultative Group on Early Childhood Care and Education’s report “Funding the Future: Strategies for Early Childhood Investing, Costing and Financing” (CGECCE, 2008), provides a useful review of many cost-benefit analyses.

The evidence reviewed in this section indicates that a range of ECD interventions could have a significant and positive impact in developing countries, where factors such as poverty, under-nutrition, and under-stimulation challenge young children’s development on a daily basis. Scientists and advocates within the ECD field argue that from a population-based policy and program planning perspective, the evidence indicates that is more efficient, both biologically and economically, to get child development ‘right’ the first time rather than to try to fix the issues related to poor development later in life.

Biologically, early intervention is more efficient precisely because science has demonstrated that brain and skill development occur in a ‘bottom up’ hierarchical sequence, which means that the development of higher level brain functions and skills becomes more difficult if lower level brain functions and skills are not developed properly (Knudson 2006). Economically, early intervention is considered a more efficient strategy because research has
indicated that by improving the developmental trajectory of young children there is potential to reduce the later costs associated with lower educational achievement (grade repetition, special education), lower economic participation (public welfare/assistance, adult skills training), lower mental and physical health (depression, substance abuse, disability, heart disease), and higher crime rates and incarceration, which have been associated with sub-optimal early childhood development (Shonkoff, 2006; Engle et al, 2007).

Despite the strength of the evidence, the WHO’s Commission on the Social Determinants of Health (2007) reports that adequate investments in ECD have been slow, particularly, in resource-poor countries where the greatest number of vulnerable children would benefit the most. Indeed, ECD program coverage has been found to be negatively associated with countries’ general poverty index (CSDH, 2007), resulting in the poorest countries having little to no investment in ECD.

So why has there has not been adequate investment in and action on ECD in developing countries? And what are the most prominent obstacles for promoting ECD in developing countries? The purpose of the next section is to explore potential answers to these questions, not through a review of peer-reviewed articles or reports but rather through a series in-depth interviews with international experts working to promote ECD in developing countries.
Key Informant Interviews

Purpose

The purpose of the key informant interviews was to explore the perspectives of international ECD experts on the most prominent obstacles for promoting ECD in developing countries.

Methodology

The key informant interviews were conducted at the World Health Organization’s (WHO) Child and Adolescent Health and Development Unit in Geneva, Switzerland, during the period with which the author was completing the practicum component of a Master of Public Health Degree Program. This exploratory investigation utilized in-depth, semi-structured interviews of key informants to collect qualitative data. Purposive non-random sampling was employed to identify a sample of key informants which reflected a range of organizations and experts working in the international ECD field. A total of 17 key informant interviews were conducted. Interviews were conducted over the phone and the average length of the interviews was 52 minutes.

The range of institutions represented by the sample of key informants included: World Health Organization (Geneva, Switzerland); World Bank
(Washington, USA); UNICEF (New York, USA); Commission of the Social Determinants of Health (Geneva, Switzerland); Aga Khan Foundation (Geneva, Switzerland); Bernard Van Leer Foundation (The Hague, Netherlands); Children’s Investment Fund of London (London, UK); Ankara University (Ankara, Turkey); Centre for Community Child Health (Melbourne, Australia); Consultative Group of Early Childhood Care and Development (Toronto, Canada); Human Early Learning Partnership (Vancouver, Canada); Centre of Excellence for Early Childhood Development (Montréal, Canada); California Polytechnic State University (San Luis Obispo, USA); University of California (Berkley, USA); University of Pennsylvania (Philadelphia, USA).

The range of experts represented in the sample included scientific researchers, medical doctors, economists, policy makers, institutional executives, programme managers and program developers. Thematic content analysis was the methodology utilized to identify obstacles within and between key informant interviews. All interviews were audio recorded, transcribed in full, coded using both a priori and emergent themes, and analysed to identify the most ‘prominent’ obstacles. The determination of ‘prominence’ was based on the depth of discussion on specific obstacles within and between the key informant interviews.
Limitations:

• Time and resources constraints did not allow for more than a small sampling.

• Due to the diverse geographical locations of key informants, which spanned several countries and continents, interviews had to be conducted over the phone. Phone interviews may limit the researcher’s ability to build rapport with the key informants and certainly removes the researcher’s ability to observe the non-verbal cues (body language and facial gestures) of key informants.

• Utilizing a semi-structured interview guide which emphasized open-ended, exploratory questions, resulted in qualitative data that was challenging to analyse for frequency and rates.

Strengths:

• Conducting this investigation while at WHO, Geneva, enabled the author to access ‘very difficult to access’ key informants who hold senior positions in a wide range of key international institutions involved in the Early Childhood Development in developing countries.

• Utilizing a semi-structured interview guide which emphasized open-ended, exploratory questions enabled key informants to direct their own answers and the ensuing discussion based on their vast and unique expertise and experience.
Findings

Key informants identified a wide range of obstacles to moving ECD forward in developing countries, many of which related to the constrained human, financial, and infrastructure resources of developing countries themselves. However, the most prominent obstacles identified and discussed did not relate to the challenges facing developing countries at all, but rather to the challenges facing the ECD field itself. More specifically, the most prominent obstacles identified by key informants included the:

1. Lack of clarity within the ECD field on recommended strategies, intervention mixes, and on the specific roles and responsibilities of the various sectors involved in delivering interventions;

2. Lack of consensus within the ECD field about indicators to measure success or failure of ECD interventions;

3. Lack of health sector involvement in delivering ECD interventions;

4. Lack of engagement by ECD field in political advocacy and policy dialogue.
Obstacle 1: Lack of clarity within the ECD field on recommended strategies, intervention mixes, and on the specific roles of the various sectors involved in delivering interventions

All key informants agreed that the interest of governments, international agencies, and communities in ECD has markedly increased over the past decade, largely due the number of reports that have published and promoted by international institutions.

A number of informants explained that this increased interest in ECD has resulted in many questions about how to actually operationalize ECD interventions. The reports themselves address questions on what ECD is and why it is important, but as one informant explained: "questions are continually being asked now about how to operationalize the recommendations made in these reports, and about which interventions make the most sense with the varied infrastructure and resources available in different countries?" Key informants repeatedly identified the need for greater clarity and consensus within the ECD field on which specific strategies and intervention mixes to recommend.

The ECD field generally takes a ‘one hundred different flowers’ approach to it’s recommendations, arguing that a variety of interventions could work - which often results in people giving poorly targeted policy and programming advice. While ECD is undoubtedly a complex area with no one ‘silver bullet’ intervention, and while all key informants agreed that there is no single or
simple answer to operationalizing ECD, informants did agree that there needs to be clear answers. The responsibility of providing clear answers, of course, rests with the ECD field itself.

In addition to the call for greater clarity concerning recommended strategies and interventions mixes, key informants also recognized the need for greater clarity concerning the roles and responsibilities of the various sectors involved in delivering ECD interventions. The ECD field is not, of course, the only field that faces the challenges of clarifying and integrating multi-sectoral interventions. However, as ECD programmes almost always require participation from several sectors in developing countries, the challenge of getting different sectors to work together at all, let alone work efficiently, was identified as a significant obstacle for the ECD field.

An illustrative example was provided by a key informant who described the dangers of promoting an ‘integrated approach’ to ECD at the policy level without explicitly monitoring how expectations are perceived at the service delivery level. After one institution evaluated the impact of promoting a policy of ‘integration’ among their pre-primary ECD programs operating in East Africa, it was discovered that front-line staff had interpreted ‘integration’ as meaning that they had to deliver all components themselves. As the key informant explained: “Staff got so excited about being holistic and integrating education, health, nutrition, and social protection components that they actually started trying to do everything themselves, rather than strategically linking with other
services and professionals who had the specific skills required to deliver those additional components.” As a result of adopting an ‘integrated approach’, front-line staff were found to be over-burdened and unable to deliver quality services on any component of the program.

**Obstacle 2: Lack of consensus within the ECD field about indicators to measure success or failure of ECD interventions**

To encourage governments and international institutions to make large investments into ECD interventions in developing countries, there needs to be effective means of measuring the success or failure of such interventions. The ECD field is still, however, working to achieve consensus on indicators for ECD and this lack of consensus was identified by key informants as a prominent obstacle.

In comparison with the significantly easier-to-measure and well established morbidity, growth and nutrition indicators, for example, indicators to measure developmental (cognitive/linguistic, social/emotional) outcomes in young children (0-8 years) is still a hotly debated topic among ECD experts. One key informant explained that their institution uses WHO health indicators for monitoring the health outcomes of their ECD programs, but that “the indicators needed to monitor developmental outcomes are far more difficult to agree on or implement”.

37
On one side of the debate are those who argue that to be done rigorously, evaluation of developmental indicators has to be conducted with individual children with clinical tools such as the Griffiths Mental Development Scales, which is often costly and requires well trained staff. On the other side of the debate, are those who argue that the preoccupation with individual-based clinical screening tools is in fact holding the ECD field back, and that more recently developed population-based ECD monitoring tools, such as the Early Development Instrument (EDI), are adequate for providing a useful picture of child development outcomes.

One key informant emphasized emphatically that before even deciding upon the indicators to measure, institutions first have to decide upon the goals that their ECD programs are trying to achieve. Are they trying to reduce neural deficits? Are they trying to improve nutrition? Are they trying to achieve better confidence in children? According to the key informant:

“In the field of ECD there is such a wide range of outcomes that could be targeted, some of which can be quite vague, so the indicators that measure it end up being much more complicated. What you end up tending to do is measure process outcomes rather than impact.”

One international funding institution currently investigating major investment into ECD is working to counteract the trend of measuring process rather than impact, by working with ECD experts to clarify what impacts can actually be achieved through which specific mix of interventions. An informant
explained that this specific funding institutions` focus on impact is a `call to arms` for the ECD field to make sure the investment case is strong, that success can be measured, because if success cannot be measured the ECD interventions simply will not be funded.

ECD interventions implemented through the education sector, however, have traditionally utilized indicators aimed at evaluating later school success, which is an outcome that many governments in developing countries express interest in. The indicators used to measure success in school, such as grade repetition, student retention, drop-out, and primary completion rates, are simpler to measure and less contentious than indicators to measure actual cognitive and psycho-social development itself. Many international institutions have been establishing tracking studies to follow children participating in education sector ECD programs over time.

One key informant explained that their agency currently has tracking studies of ECD programs under way in Syria, Egypt, Tajikistan, and Pakistan. One tracking study already completed in Uganda, according to the informant, found that grade repetition rates were 50% less for children that attended quality preschool programs compared with those who did not. While these findings are similar to those of other tracking studies of preschool programs conducted in high-income countries, what is significant is that such studies are now taking place in settings where they haven’t taken place before; which is
critical because to make a case to developing country decision-makers it is necessary to have data that is relevant to their regions.

It was noted that both multilateral and bilateral funders are increasingly interested in and encouraging such tracking studies. Pakistan, according to the key informant, has recently received substantial funding from the Netherlands to conduct tracking studies on children participating in ECD programs.

Implementing tracking studies in developing countries, however, is challenging for several reasons. Firstly, there is often a lack of available and adequately trained personnel to design and implement the tracking studies. Secondly, tracking studies can be time-consuming and costly, especially in regions where children move often as their families look for work opportunities. Thirdly, determining the specific and valid ages of children is a challenge in countries where there are not reliable birth registration systems established or where parents themselves may not know the date or year of child’s birth.

**Obstacle 3: Lack of health sector involvement in delivering ECD interventions**

It was clear from the key informant interviews that the promotion of ECD in developing countries has been moving forward mainly through the education sector, as the sector moves its attention to providing programming
to younger and younger children. A prominent obstacle identified by key informants, however, was that the health sector has not been capitalizing on its opportunities to promote ECD through health workers and facilities.

The health portfolio of many institutions and ministries is focused on maternal and child survival, and early childhood development often falls under the education portfolio. As one key informant explained, “it’s easier for the education sector to see the benefits of adding one year of preschool or kindergarten, but it’s harder for the health sector to see the benefit of adding a parenting component or outreach program to engage families because health systems are still very closed and focused on ‘health care’ rather than on ‘population health’”. This key informant went on to explain that the education sector’s efforts to expand services downward one or two years is not sufficient, however, because the majority of interventions are still not reaching children aged 0-3 years, which is known to be a critical period of development.

An interesting discussion that arose in one interview focused on the degree to which the specific mandates of the various United Nations agencies themselves may be contributing to the lack of health sector involvement in ECD in developing countries. According to the key informant: “WHO has not considered it its business to go into early childhood development in a very big way until fairly recently, as it’s generally thought to have been the concern and territory of UNICEF and UNESCO”.

41
Indeed, it was strikingly apparent from the key informant interviews that there are competing constituencies on the issue of ECD as a health sector priority. It was explained that the majority opinion within the health sector, both at the level of UN agencies and the level of developing country governments, was that child development issues should only become a priority after child survival issues have been adequately addressed. As one informant explained: “If I had dying children on my hands I would rather save them, and think about their development later”. However, this same informant went on to qualify the previous statement by explaining “Now how later is later is something which can be a matter of debate”.

Another key informant with substantial experience working with governments of developing countries explained that: “many developing countries are still at the stage where child mortality is still a huge concern for them, so child development is something that they do recognize needs to be done, but not something that needs to be done today”. Indeed, the limited resources of international agencies and governments was identified as the main reason why the child survival and child development agendas have traditionally been in competition, often competing for a greater share of the same funding pots. There has traditionally been a perception within the health sector that the ECD agenda competed with - not complemented - the child survival and nutrition agendas. Key informants indicated that this perception is changing, however, due largely to the growing body of research indicating the synergistic
effect ECD interventions can have on child survival, health and nutrition outcomes.

On the other side of the debate however, are those within the health sector who argue that child development activities should be done in parallel with child survival activities. Advocates argue that in resource poor settings there is a need to work on both child survival and development at the same time because if children survive but are stunted physically, cognitively, and emotionally, their subsequent life chances and health are severely compromised.

One key informant explained that interventions focused on increasing parenting skills, for example, can contribute to child survival goals by increasing parents’ responsiveness to young children’s feeding needs, hygiene needs, early signs and symptoms of illness, risks of accidents in the home, and to the young children’s needs for cognitive and psycho-social stimulation.

Many of the key informants also raised the argument that the health sector has, in fact, a comparative advantage for delivering ECD interventions in developing countries. Some of the reasons for this comparative advantage include:

In many developing countries the health sector is the only sector with the existing infrastructure to reach children aged 0-3 years and their families;
Families have contact with the health care system most often when women are pregnant and when their children are young, which is when attention to optimum brain development is critical. For example, family planning and pre-pregnancy visits to health workers, the first post-natal visits, and during ante-natal care visits are all opportunities to provide important ECD messages to caregivers.

Health workers and community health workers are often respected sources of knowledge and skills as well as curative care. Health workers can guide families to provide stimulating care for their children as well as good nutrition.

Several publications that have come out in recent years have been building the case for greater health sector involvement in providing ECD interventions in developing countries. One of the most notable publications was *The Lancet*’s 2007 series on Child Development in Developing Countries. The impact of this series on the position of ECD within the health sector agenda was an issue of significant interest to key informants as well as an issue of significant disagreement.

Many key informants agreed that the series strengthened the legitimacy of the ECD agenda precisely because *The Lancet* is an opinion-forming publication within the health field. As one informant explained, “the series
adds some ammunition to our arguments, and has legitimated ECD as an issue that’s important and at the forefront of medical research”. Interestingly, one key informant argued that greatest impact of *The Lancet* series may in fact have been the strong sound bite that it provided:

“The argument in the series focusing on the loss of human potential, that over 200 million children not reaching their full potential, has been enormously useful for advocacy purposes. Firstly, it put forth some hard numbers, and regardless of the assumptions made getting to those numbers, it has succeeded in giving ECD a greater level of urgency and importance. Secondly, it provides a good sound bite, which is of course essential for effective advocacy”.

Notwithstanding the traditional reluctance or resistance in the health sector to prioritize ECD, there are signs that the health sector is starting to recognize its role in promoting ECD in developing countries. In July 2010, WHO and UNICEF co-sponsored a regional meeting to promote ECD through health sector initiatives in the South Asia, South-east Asia and Pacific regions. During this 5-day meeting, health sector representatives from international agencies, government ministries and civil society organizations were brought together to discuss the evidence, identify entry points for ECD interventions along the
continuum of care, and draft country action plans for promoting ECD through the health sector.

**Obstacle 4: Lack of engagement by ECD field in political advocacy and policy dialogue**

Another prominent obstacle for promoting ECD in developing countries that was identified by key informants was the ECD field's tendencies to limit itself to scientific dialogue and not engage politicians or engage in policy dialogue enough.

The focus on scientific dialogue rather than policy dialogue and political advocacy was explained by several key informants to be a natural result of the composition of the ECD field itself. Mainly comprised of child development specialists, paediatricians, child psychologists, and developmental scientists, the ECD field was identified as significantly lacking professionals specializing in policy research, dialogue, and political advocacy.

It was explained that ECD experts often present the scientific research and believe that this should be enough to convince politicians and policy-makers in developing countries to take action. One key informant asked: “If the evidence is so good, why doesn’t ECD get more policy and financing traction?”
Scientific evidence needs to be translated into an entirely different language to appeal to politicians and to become policy recommendations. Key informants recognized that the ECD field needs to begin approaching politicians and policy dialogue with a different type of thinking, a different type of advocacy, and that this different approach requires a different set of skills not typically held by ECD scientists. One conclusion of the discussions on this topic was that scientific researchers are not necessarily the best suited to engage and advocate to politicians and policy-makers.

Key informants recommended that those within ECD field need to shift away from the belief that they must do the advocating themselves, and start to view themselves as content experts who provide evidence to others who are better equipped to do the advocating. One informant explained that when the ECD field does choose to take on the task of political or policy advocacy, “they often do not have the necessary public profiles to get the traction they are looking for, or the wide political networks needed to accomplish their goals; what they need to do is mobilize people and groups who have better mobilizing capacity than they do.”

This key informant went on to explain that the ECD field does not need more research, but rather more professionals with the expertise to make strategic use of the research already available.
Discussion

It should be evident from section one that the science of ECD has made significant advances over the last two decades, bringing to light the multiple neurobiological and genetic pathways through which negative exposures and experiences in early childhood affect children's developmental potential. Epidemiological and economic research has also built a compelling case for the long-term negative impacts of sub-optimal early childhood development, as well as the long-term benefits of early intervention.

These advances in ECD research have gained the attention of many international agencies, and there have been a multitude of reports published on ECD research over the last decade. The most significant of these reports include: WHO's (2004) report `The Importance of Caregiver-Child Interactions for the Survival and Healthy Development of Young Children`; UNESCO's (2007) `Education for All Monitoring Report: Strong Foundations - Early Childhood Care and Education`; UNICEF's (2006) report `Programming Experiences in Early Child Development`; the World Bank's (2007) report `Early Child Development from Measurement to Action: A Priority for Growth and Equity`; the Lancet (2007) series on `Child Development in Developing Countries`; and WHO's Commission on the Social Determinants of Health.
What the key informant interviews have revealed, however, is that compelling research is not enough to promote significant investment in ECD in developing countries. The main obstacles identified by key informants indicate the need for the ECD field to prioritize addressing the practical challenges of implementing multi-sectoral intervention mixes and measuring their success or failure, as well to prioritize translating the research into language and advocacy strategies that are meaningful to decision-makers.

It is apparent that the ECD field is strong at presenting the complexities and interrelationships of the various components of ECD (i.e. health, nutrition, physical/cognitive/linguistic/socio-emotional development, social protection, etc.), but not as strong at disaggregating the components and operationalizing each individually - a step that is necessary as different components of ECD fall under the mandates of different sectors. In fact, as there is almost never one sector with the sole mandate for promoting ECD, clarifying the roles and responsibilities of the various sectors involved in delivering ECD interventions should be a critical priority of the ECD field. Without this clarification, there will continue to be confusion, territorialism, and inaction.

The United Republic of Tanzania provides one example of a developing country taking a systematic approach to clarifying the roles and responsibilities of the various sectors involved in ECD. Instigated and guided by UNICEF, the
three main government ministries responsible for ECD (the ministries of health, education, and community development, gender and children), in addition to key civil society networks, have come together to form the 'Integrated ECD Steering Committee'. The mandate of this committee is to develop a national policy on integrated ECD as well as a national action plan for implementing the policy. The strength of this committee is that it provides a formal platform for the various sectors involved in ECD to have those important debates and discussions on roles and responsibilities, as well as on strategies for integrating them. After the first year of work, the Integrated ECD Steering Committee has completed a draft national policy, presented it to parliament for consideration, and is now currently preparing the policy's implementation plan.

In regard to indicators for measuring ECD and the impact of interventions, the debate seems to revolve around how to measure psycho-social (i.e. cognitive, social and emotional) development, specifically, and whether individual- or population-based tools should be promoted. Health, nutrition, and social protection indicators are already widely agreed upon and collected at a population-based level in most developing countries.

Clinical screening tools that measure the psycho-social development of individual children are widely utilized in resource-rich countries, and are extremely useful when there are functional referral and individual-based intervention services available (e.g. special needs support workers, child psychologists, etc.). In resource-poor countries, however, referral and
intervention services are often not available to individual children. It is
important then, to utilize indicators that measure psycho-social development
in larger populations of children, which can alert governments and
international agencies to specific vulnerable populations of children and inform
their planning processes.

The *Early Development Instrument (EDI)* is the population-based
indicator tool that has gained the most momentum at the international level,
and was developed by Drs. Janus and Offord at the Offord Centre for Child
Studies, McMaster University, Canada. The EDI is an outcome measure of
children’s early development and measures children’s readiness to learn in a
school environment in five general domains of development: physical health
and well-being; social competence; emotional maturity; language and cognitive
development; and communication skills and general knowledge in relation to
developmental benchmarks rather than curriculum-based ones (Offord Centre,
2004). The EDI is applied at the kindergarten level (for either 4 or 5-year olds)
by teachers who uses her/his observations after several months of classroom
interaction with the child to complete the questionnaire. The instrument
provides information for groups of children in order to: 1) report on areas of
strength and deficit for populations of children; 2) monitor populations of
children over time; 3) predict how children will do in elementary school.

The EDI has been used in resource-rich countries for some time, and the
province of British Columbia, for example, has been collecting data on ECD
through the EDI province wide for almost a decade. More recently, several low-and middle-income countries in Latin America, Asia, and the Middle East have begun plans to implement the EDI.

UNICEF has also recently included a short series of ECD indicators into the Multi Indicator Cluster Surveys (MICS), the survey program developed by UNICEF to provide internationally comparable, statistically rigorous data on the situation of children and women. The series of ECD indicators included in the MICS are proxies for ECD and focus on gathering data the quantity and quality of early learning opportunities (e.g. number of children/picture books in the home; number of toys in the home and whether they are store bought, homemade, or household objects; number and frequency of children attending formal ECD programs), care practices (e.g. how often children are left unattended; how often children are read to, sung to, told stories, played with, and taken out of the home by), and basic level of ability for age (e.g. at 5 years can the child identify or name at least 10 letters of the alphabet?; does the child know the name and recognize the symbol of all numbers from 1-10?; can the child pick up a small object with two fingers, like a stick, rock, or pencil?; can the child follow simple directions on how to do something correctly?; does the child get along well with others?).

Although there may not need to be complete consensus on which population level indicator tool the ECD field uses to measure psycho-social development in early childhood, but it is important that population level data
are collected. Currently, psycho-social development is the only area of ECD where there is a significant data gap at the population level in developing countries, as population level indicators on health, nutrition, and social protection are already being widely collected.

In regard to health sector involvement in ECD, it was clear from the key informant interviews that the health sector does not generally view the psycho-social domain of ECD as falling under its mandate. Furthermore, the reluctance to prioritize psycho-social interventions is understandable considering the great deal of work that still needs to be done in many developing countries to address high maternal and child mortality rates and build-up basic health services. However, as the key informants identified, the health sector does have a comparative advantage to other sectors in developing countries for the delivery of such interventions, in that they are often the only sector with the mandate and access to provide services to children and families in the first few years of life.

The place where the ECD field seems to be running into the greatest resistance with the health sector is where they advocate for health workers to deliver psycho-social interventions. Health workers, especially in developing countries, are often already over-burdened and under-resourced. Rather than advocating for health workers to deliver the interventions themselves, the ECD field should be advocating for the use of health clinics to deliver psycho-social interventions by non-health workers. The ECD field should focus on utilizing
cadres of workers from the education, community development, or social protection sectors, to deliver psycho-social interventions at health clinics, which are important, and in some cases the only, access point to reach families and young children in developing countries.

There are some promising examples of this strategy currently being pilot tested in Sri Lanka, where reading, play, and parent education corners have been set up at well-child clinics and are facilitated by education sector workers.

Although key informants did identify a very wide range of obstacles for promoting ECD in developing countries during the interviews, the most prominent obstacles identified did not relate to the challenges facing developing countries, such as constrained financial, human, and infrastructure resources, but rather to the challenges facing the ECD field itself. One of the key benefits of this investigation is that the identified obstacles point directly toward clear recommendations for the ECD field.

Recommendations:

1. Clarify the specific ECD strategies and intervention mixes that can be recommended, and the roles of the various sectors involved in delivering those interventions;
2. **Build consensus within the field on ECD indicators**, whether that includes evaluating existing indicators or developing and testing new ones, so that governments and institutions investing in ECD have a means of measuring success or failure;

3. **Engage the health sector with evidence-based arguments to advocate for greater involvement in delivering ECD interventions through health facilities and workers**, especially for the 0-3 age group where the health sector has a comparative advantage;

4. **Engage in political advocacy and policy dialogue more frequently and strategically**, by seeking expertise outside the ECD field and by building specific expertise in these areas within the ECD field.

The first two recommendations indicate that the ECD field faces the high priority of getting practical, and the last two indicate that the ECD field faces the high priority of getting political.
Conclusion

The ambitions of the ECD field are undoubtedly high, but so too are the stakes. The issues that the ECD field aims to address are not simple ones, in fact, they are complex, multi-factoral and multi-sectoral. The science and research has progressed significantly and demonstrated that ECD is co-determined by genetics, the quality of nutrition, health care, interaction and stimulation, affection, security, and learning opportunities from conception onward. There are now a large number of reports from international institutions that review the research and build a compelling case for the importance of early childhood as a critical period of human development, the need for early interventions, and the effectiveness of individual interventions on specific ECD outcomes.

The list of obstacles identified by key informants in this investigation reflect the stage of development that the ECD field itself is currently in, and indicate that the ECD field needs to move forward itself in order to move ECD forward in developing countries. The ECD field is relatively new and has already made great progress in establishing itself as field of cutting edge research, but it is now facing obstacles which more established fields had to struggle with during earlier
periods in their respective development. Put differently, the ECD field is facing the growing pains of becoming a mature field.

Where the ECD field now needs to focus is on using the research that it already has more strategically with politicians and policy makers, as well as to conduct new research on the effectiveness of strategies to integrate multiple interventions in a developing country context. There are a number of developing countries which are currently at various stages of designing and implementing integrated ECD strategies, and it will be extremely beneficial to conduct evaluations and case-studies on these efforts. In fact, conducting such research is of critical importance to the ECD field, as it would help to provide answers to the growing number of questions by governments and international agencies on how to operationalize ECD and affect positive change in the lives of children, families, communities and countries.
References


