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Global Research Priorities to Acelerate Early Child Development in the Sustainable Development Era

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Between 1990 and 2015, the under-five mortality rate declined by 53%, resulting in approximately 48 million more children reaching their 5th birthday than would have occurred had 1990 mortality rates continued[1]. Many of these children, however, continue to live in conditions of adversity – marked by extreme poverty, under-nutrition, conflict and insecurity – and are not afforded the level of care required to ensure that they meet their developmental potential [2]. Neuroscience research in the last two decades is unequivocal that the period from conception through early childhood (i.e, at least the first three years) is foundational in terms of brain development. There is increasing evidence (mostly from high-

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A conflict of interest statement

- Tarun Dua has taken a major role in designing and overseeing the priority setting exercise, and in writing the submitted paper. She approved the final version. She has no other potential conflict of interest to declare.
- Mark Tomlinson has taken a major role in designing and providing input to the priority setting exercise, and in writing the submitted paper. He approved the final version. He has no other potential conflict of interest to declare.
- Elizabeth Tablante conducted the priority setting exercise, has taken a major role in writing the submitted paper and approved the final version. She has no other potential conflict of interest to declare.
- Pia Britto has taken a role in writing the submitted paper and approved the final version. She has no other potential conflict of interest to declare.
- Aisha Yousafzai has taken a role in writing the submitted paper and approved the final version. She has no other potential conflict of interest to declare.
- Bernadette Daelmans has taken a role in writing the submitted paper and approved the final version. She has no other potential conflict of interest to declare.
- Gary Darmstadt has taken a major role in designing and providing input to the priority setting exercise, and in writing the submitted paper. He approved the final version. He has no other potential conflict of interest to declare.

Details of ethical approval

Ethical approval was not required for this work

income countries) that delivering quality interventions in the early years is cost-effective [3], reduces health inequities [4], improves learning and academic attainment [5], lowers crime and violence [5], and can substantially improve adult health and economic productivity [6]. For the first time, the foremost global development framework – the new Sustainable Development Goals (SDG) – includes child development, under target 4.2 [7]. This is also reflected in the new Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) where one of the core objectives is to ensure that all women, children and adolescents have an equal chance to thrive (and not simply survive) [8]. Thus, any research agenda that aims to give young children the chance to both survive and thrive must ensure that early child development (ECD) is prioritised in order to inform policy and programmatic implementation and achieve the SDG target. While the scientific evidence is clear, donor and policy neglect of ECD has been striking. Recently however, high-level support for ECD has been emerging [9,10] including in the recent *Lancet* series. To optimise the impact of this new momentum, ECD research prioritisation is required.

In 2015 WHO and UNICEF conducted a priority setting exercise to set research priorities for ECD to 2025. This is part of WHO's larger initiative to set priorities for maternal, newborn, child and adolescent health. We used the Child Health and Nutrition Research Initiative (CHNRI) methodology for setting priorities in health research investments because: (a) it is a carefully developed and documented conceptual framework available in the public domain; (b) it has demonstrated usefulness in several previous exercises, and (c) it is increasingly being used by policy makers, large donors and international organizations [11,12]. We adapted a set of five criteria from the CHNRI methodology – answerability, effectiveness, feasibility, impact and effect on equity – against which an expert group scored research investment priorities. Library searches and snowball sampling was used to identify experts (both researchers and programme experts) who were then approached to provide their 3–5 top research questions. A total of 74 participants generated 406 research questions which we then collated into a composite set of questions by eliminating redundancies and overlaps, excluding irrelevant questions, and identifying thematic areas. This process yielded 54 questions that were then scored by 69 experts against the five criteria outlined above. Composite scores ranging from 0–100% were computed for each research question. The experts who completed scoring were geographically diverse, with 7% from WHO African, 34% from the Americas, 5% from Eastern Mediterranean, 18% from European, 11% from South-East Asian and 8% from Western Pacific Region, while 18% considered themselves international (WHO or UNICEF or international NGOs or agencies).

The research questions were organized by 6 thematic goals. Table 1 presents the goals and the top three research questions for each of the goals including their ranking. Research priority scores amongst the top 10 priorities ranged from 82% to 87%. All of the top-ranked priorities were related to the impact of implementation of interventions, whether by community health workers or through increased support to parents and families. Three of the top 10 ranked priorities related to integration, such as integrating ECD services within maternal, newborn and child health services or the additive costs of integrating health/nutrition interventions into early childhood education programs. There were no questions in

the top 10 about epidemiology, basic science or discovery, although questions arose about interactions between nutrition, physical and cognitive development.

The results of this process clearly indicated that the crucial priorities for future research related to the need for services and support to parents to provide nurturing care and the training of health workers and non-specialists. What is most striking about the top-ranked priorities is the emphasis on creating enabling environments to support families in providing nurturing care for young children, which is a key message of *The Lancet* series on Early Child Development.[13,14,15] In addition, the emphasis on integration is important – also emphasised in *The Lancet* series – as it speaks to the importance of implementing programmes using existing delivery platforms such as maternal and child health and nutrition services.[15] Given the current global focus on quality of care, the high priority given to questions of maintaining impact when going to scale is important as well as improving the policy environment, improving quality of interventions, and increasing effectiveness and improving demand.

Currently, research funding for the “thrive” component of the Global Strategy is lower than for the survival agenda for children. The SDG agenda places ECD in the centre of global efforts to improve human capital. We encourage international organizations, national governments, research institutes and donors to consider the findings of this exercise in order to address key gaps in our knowledge and enhance the ECD agenda and the achievement of the SDGs.

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Table 1

The top 3 priority research questions in each thematic goal

ECD thematic goals	Research Questions	Ranking
Improve awareness and promotion	What are cost-effective ways to promote an understanding of child development at the community level?	25
	What is the impact of demand side strategies designed to reduce access barriers for poor and vulnerable groups on pre-primary enrolment?	27
	What is the impact of social mobilization campaigns on use of positive discipline?	40
Advance identification of risk factors, and better understanding of the burden	What factors contribute to growth and development recovery following early nutritional deficiencies?	14
	What is the strength of association between stunting and cognitive development?	28
	What are the most appropriate tools for population level assessment of development in children -8 years in resource limited settings at scale?	29
Improve impact of interventions	Can early child development packages focusing on nurturing care and parent support improve child cognitive development in rural low income setting?	1
	What approaches to improve quality of early childhood care and education programs result in improved developmental outcomes for young children?	2
	What is the impact and sustainability of nutritional supplementation to improve the physical and cognitive health of children?	5
Enhance implementation of interventions	Can community health workers/paraprofessionals be trained to deliver ECD interventions effectively?	3
	Can group-based parenting support programs in the postnatal period increase self-efficacy of new mothers?	8
	Are group based interventions more effective than home visiting to deliver ECD interventions?	10
Expand integration and coordination	Would the integration of ECD counselling model within an integrated maternal, newborn and child health strategy lead to better child development outcomes?	4
	Can ECD programmes be taken to scale and maintain the degree of integrity/fidelity necessary to assure effectiveness?	11
	Can ECD programs be integrated with existing routine health care visits?	12
Increase understanding of health economics and social protection strategies	What are the additive costs of integrating health/nutrition interventions into early childhood education programs?	6
	What is the impact of unconditional cash transfer programs in pregnancy on child development?	17
	What are the most cost-effective parenting interventions to promote ECD?	21