



Child Growth and Development Path-to-Scale Research Agenda

September 2020

Path-to-Scale Research at IPA

Innovations for Poverty Action's Path-to-Scale Research (PSR) Program works to accelerate the process of moving evidence-based interventions from proof-of-concept to scalable and adaptable programs and policies. In contrast to *innovation research* that explores brand new ideas for solving development problems, *path-to-scale research* begins with evidence-based approaches that have already shown promise in rigorous impact evaluations. Path-to-scale research builds on these promising approaches by creating evidence on when, where, and why an approach is expected to work, and identifying ways to optimize program design and implementation at scale. Path-to-scale research supports policy-maker efforts to identify and incorporate the most effective interventions into programs and policies, resulting in better health outcomes, improved livelihoods, and less poverty.

Child Growth and Development (Stunting) Initiative

Stunting,¹ or being too short for one's age, is a warning signal that a child is at risk of failing to reach their full potential. Stunting predicts poor school achievement and progress, lower cognition, reduced earnings, and a higher probability of living in poverty. It also increases the risk of death from infectious diseases in childhood. Stunting is a standard measure of chronic malnutrition, but poor nutrition and feeding, inadequate care, and repeated infections can also cause growth faltering. Increases in poverty, disruptions to food and agricultural systems, and reduced access to health services, challenges predated but also exacerbated by the current COVID-19 pandemic, create conditions that make children vulnerable to stunting.^{2,3}

In December 2019, the PSR team reviewed evidence on stunting reduction interventions and held a workshop with academic and practitioner experts to identify promising evidence-based approaches (EBAs) and explore research questions to address evidence gaps. These prioritized EBAs include **small-quantity lipid-based nutrient supplements (SQ-LNS)** and **animal source foods** to complement infant diets, **cash transfers with behavior change communication (BCC)** programs, and **home-based growth monitoring**.

The PSR team has consolidated research agendas around four prioritized evidence-based interventions, working closely with stakeholders throughout the process, and is currently seeking implementation and research partnerships for SQ-LNS, cash transfers combined with BCC, and animal-source foods. The PSR team is targeting its research to countries and

sub-national regions with the most severe burdens of stunting.⁴ Priority sites include Bangladesh, Liberia, Mali, Malawi, Nigeria, Philippines, Rwanda, Malawi, Sierra Leone, Tanzania, and Zambia.

EBA 1: SMALL-QUANTITY LIPID-BASED NUTRIENT SUPPLEMENTS (SQ-LNS)

Small-quantity lipid-based nutrient supplements provide a balance of energy, protein, fatty acids, and micronutrients to complement infant diets. Small-quantity LNS increases linear growth by 0.11 to 0.30 standard deviations and reduces stunting by up to 11 percent based on a meta-analysis of 17 studies from 13 countries across Asia, Africa, and Latin America.⁵ Given robust evidence of the efficacy of SQ-LNS to improve growth outcomes, our path-to-scale research agenda focuses on **how to deliver SQ-LNS** to children at risk of growth faltering during the complementary feeding period. For example, are market, public sector, or hybrid delivery channels more effective for improving child growth and nutritional status?

PSR Research Questions

- Demand and consumption: How do pricing (subsidized vs. market), marketing, and delivery methods affect demand, consumption, and child growth outcomes?
- Cost assessment: How cost-effective is SQ-LNS compared to other feeding and home fortification supplements?
- Market impacts: How does SQ-LNS availability affect childhood diets and obesity rates after the 1,000-day window?
- Development: What does SQ-LNS affect anthropometric, developmental, and morbidity outcomes after the 1,000-day window?
- Feeding practices: How do you align SQ-LNS with local child nutrition practices for optimal child growth and development?
- Targeting: Which households should be targeted for SQ-LNS distribution?

Project Development Priorities

Conduct impact evaluations in three or more countries with areas of high rates of stunting to test methods of delivering small-quantity LNS to children between six and 24 months of age at high risk of growth faltering.

EBA 2: CASH TRANSFER PLUS BEHAVIOR CHANGE COMMUNICATION

Social and behavior change communication (BCC) approaches covering maternal health and nutrition, exclusive breastfeeding, complementary feeding, hygiene and sanitation practices, and health-seeking for child illness combined with cash transfers can improve linear growth by 0.14 to 0.25 standard deviations and reduce stunting by four to 7.8 percentage points, based on recent evidence from Bangladesh, Myanmar, and Nigeria.^{6,7,8}

Our path-to-scale research agenda builds on this promising evidence to understand **how robust these findings are** at larger scales and in new contexts and **how to maximize the cost-effectiveness** of the approach. For example, what is the optimal dosage and intensity of the BCC, and which components are most effective at changing key behaviors to improve growth outcomes? Can the cash and BCC be delivered cost-effectively over digital platforms?

PSR Research Questions

- Delivery: How do intensity (number and duration of activities) and delivery platforms (digital, community health worker) of the BCC package affect child growth outcomes?
- Co-Delivery: Which component of the intervention drives results -- BCC, conditionality, or cash transfer?
- Cost assessment: How cost-effective are BCC and cash compared to other child growth interventions?
- Development: What are the anthropometric, developmental, and morbidity outcomes after the 1,000-day window?
- Behavior change: How does delivery of BCC to multiple audiences (i.e. mothers and other primary caregivers, fathers, influencers such as mothers-in-law/grandmothers) affect child growth outcomes?
- Targeting: Which households should be targeted for participation in cash plus BCC programs?

Project Development Priorities

Conduct multi-arm RCTs of cash transfers combined with BCC programs of varying intensity and delivery methods on child growth and nutritional status.

EBA 3: GROWTH MONITORING

Home-based growth monitoring is a promising new approach to improve child growth outcomes. While the evidence for traditional growth monitoring outside the home indicates little or no effect on children's nutritional status,⁹ an RCT in Zambia found that installing life-sized growth charts in homes for caregivers to monitor their child's height over time led to a 22-percentage point reduction in stunting among malnourished children. Our path-to-scale research agenda seeks to test **how robust these findings are** and if the approach can work **at a larger scale and in other contexts** with similarly high rates of stunting.

PSR Research Questions

- Replication: Does the initial Zambia RCT replicate on a larger scale and in other contexts?
- Co-Delivery: How does the addition of caregiving/early child development messages and tools on the poster impact child cognition (ECD measures) while maximizing effects on child growth and nutritional status?
- Cost assessment: How cost-effective are growth charts compared to other child growth interventions?
- Development: What are the anthropometric, developmental, and morbidity outcomes after the 1,000-day window?
- Feeding practices: How do the charts affect child growth and nutritional status of future children and siblings after the 1,000-day window?

Research Projects Underway

- Launching in 2020, a second RCT in Zambia will test the growth chart intervention at a larger scale across three regions of the country with government implementation and test the growth charts with and without nutrient supplement provision.
- A new RCT in Indonesia is underway to test an adapted model of the growth chart in a new country context (currently paused due to COVID-19).

EBA 4: ANIMAL-SOURCE FOODS

Animal-source foods are energy dense and contain multiple micronutrients and essential fatty acids with high bioavailability. Limited evidence suggests ASF can improve height, but very few studies have directly tested the effect of ASF on child growth during the complementary-feeding window, and effects appear highly context-dependent.¹⁰ In Ecuador, the provision of eggs to children from ages six to nine months led to a 0.63 increase in length-for-age scores and a 47 percent reduction in stunting.¹¹ When replicated in Malawi, in a context with high access to fish, the provision of eggs had no effect.¹² Our path-to-scale research agenda seeks to **understand the contextual factors** that determine when and where ASF interventions can be effective at improving child growth and nutritional status.

PSR Research Questions

- Demand and consumption: How does delivery (e.g., raising garden chickens vs. egg provision/purchase) affect outcomes?
- Cost assessment: How cost-effective are ASFs compared to other feeding and home fortification supplements?
- Development: What are the anthropometric, developmental, and morbidity outcomes outside of the 1,000-day window?

- Feeding practices: What are the contextual factors (cultural preferences and practices)/selection criteria for choosing ASF versus another type of intervention to improve child growth?
- Replication: Does ASF impact on child growth replicate in other contexts?
- Targeting: Which households should be targeted for encouraging ASF to complement infant diets?

Project Development Priorities

Conduct a multi-arm RCT to compare two different types of ASF with non-ASF nutrient supplements in a context where ASFs are accessible but not commonly fed to children between the ages of six and 24 months.

Please contact Savanna Henderson, Senior Program Associate, Path-to-Scale Research, shenderson@poverty-action.org for more information.

References

¹ Height-for-age Z score ← 2 standard deviations below the mean of a healthy reference population

² Headey, Derek, Rebecca Heidkamp, Saskia Osendarp, Marie Ruel, Nick Scott, Robert Black, Meera Shekar et al. "Impacts of COVID-19 on childhood malnutrition and nutrition-related mortality." *The Lancet* 396, no. 10250 (2020): 519-521.

³ Akseer, Nadia, Goutham Kandru, Emily C. Keats, and Zulfiqar A. Bhutta. "COVID-19 pandemic and mitigation strategies: implications for maternal and child health and nutrition." *The American journal of clinical nutrition* 112, no. 2 (2020): 251-256.

⁴ Very high: >30% Prevalence thresholds (%) for severity of malnutrition among children under 5 years (UNICEF Data; de Onis, Mercedes et al. (2018) Prevalence thresholds for wasting, overweight and stunting in children under 5 years. *Public Health Nutrition* 22(1):1-5 · October 2018.

⁵ Das, Jai K., Rehana A. Salam, Yousaf Bashir Hadi, Sana Sadiq Sheikh, Afsah Z. Bhutta, Zita Weise Prinzo, and Zulfiqar A. Bhutta. "Preventive lipid-based nutrient supplements given with complementary foods to infants and young children 6 to 23 months of age for health,

nutrition, and developmental outcomes." *Cochrane Database of Systematic Reviews* 5 (2019).

⁶ Ahmed, Akhter, John Hoddinott, and Shalini Roy. *Food transfers, cash transfers, behavior change communication and child nutrition: Evidence from Bangladesh*. Vol. 1868. Intl Food Policy Res Inst, 2019.

⁷ Maffioli, M. Elisa, Erica Field, Nicholus Tint Zaw, Frederica Esu and Alexander Fertig. LEGACY Program Randomized Controlled Trial Endline Report: November 2019. Livelihoods and Food Security Fund.

⁸ Carneiro, Pedro, I. Rasul, G. Mason, L. Kraftman, and M. Scott. "Child Development Grant Programme evaluation." *Quantitative endline report volume I: final endline findings* (2019). E-Pact Consortium.

⁹ Bryce, Jennifer, Denise Coitinho, Ian Darnton-Hill, David Pelletier, Per Pinstrup-Andersen, and Maternal and Child Undernutrition Study Group. "Maternal and child undernutrition: effective action at national level." *The Lancet* 371, no. 9611 (2008): 510-526.

¹⁰ Eaton, Jacob C., Pamela Rothpletz-Puglia, Margaret R. Dreker, Lora Iannotti, Chessa Lutter, Joyceline Kaganda, and Pura Rayco-Solon. "Effectiveness of provision of animal-source foods for supporting optimal growth and development in children 6 to 59 months of age." *Cochrane Database of Systematic Reviews* 2 (2019).

¹¹ Iannotti, Lora L., Chessa K. Lutter, Christine P. Stewart, Carlos Andres Gallegos Riofrío, Carla Malo, Gregory Reinhart, Ana Palacios et al. "Eggs in early complementary feeding and child growth: a randomized controlled trial." *Pediatrics* 140, no. 1 (2017): e20163459.

¹² Stewart, Christine P., Bess Caswell, Lora Iannotti, Chessa Lutter, Charles D. Arnold, Raphael Chipatala, Elizabeth L. Prado, and Kenneth Maleta. "The effect of eggs on early child growth in rural Malawi: the Mazira Project randomized controlled trial." *The American journal of clinical nutrition* 110, no. 4 (2019): 1026-1033.