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**Sample Size**

127 villages (547 children 6-24 months old)

**Research Implemented by IPA**

Yes

# Evaluating the Impacts of Home-Based Growth Charts and Community Monitoring on Stunting in Zambia

## Key Finding Lead Phrase

Providing caregivers with basic growth charts in their homes significantly improved growth among malnourished children, relative to the comparison group.

## Abstract

Inadequate nutrition during the earliest years of life can cause stunting and contribute to long-term developmental consequences that can affect future productivity and well-being. In Zambia, an IPA research team found that providing parents with full-sized growth charts, which included information about nutrition and were placed on the walls inside homes, reduced stunting rates among malnourished children by 22 percentage points. In contrast, community-based monitoring, in which parents were invited to quarterly meetings to learn if their children had a healthy height and weight and received food supplements for malnourished children, did not lead to statistically significant reductions on stunting. Given their relatively low cost, home-based growth charts appear to be a cost-effective tool to reduce physical growth deficits in this context.

## Policy Issue

The first 1,000 days of life comprise a critical period of physical and cognitive development. Children who experience normal physical growth and development in this period do better in

school, and as adults, earn about 20 percent more in their jobs and are 10 percent more likely to own their own businesses.<sup>1</sup> On the other hand, inadequate nutrition during this period can cause stunting and contribute to long-term developmental consequences that affect future productivity and well-being. According to the World Bank, the economic costs of stunting and related developmental deficits can be enormous, with countries losing up to 2 to 3 percent of their potential Gross Domestic Product (GDP) each year.<sup>2</sup> Worldwide, about 167 million children under age five have stunted growth, with prevalence rates more than 40 percent in several sub-Saharan African and South Asian countries.

Relatively few interventions have been proven to reduce stunting through rigorous evaluation. Recently, public health experts and policymakers have been interested in designing and evaluating programs and approaches that aim to increase parental efforts to support child health and nutrition. A growing number of national governments have tried to change parental behavior through financial incentives and by educating parents on best practices for raising their children, including practices related to feeding and nutrition. In general, neither approach provides much information for parents, implicitly assuming that parents either do not need to know about their children's developmental status or that such knowledge would not change their behavior because of other constraints. Neither of these assumptions seems obvious. The main goal of this research was to test whether parental behavior and child growth can be improved by providing caregivers with increased access to information about their children's growth, specifically height information.

## Context of the Evaluation

This study took place in 127 rural, subsistence farming communities in Chipata District, in Zambia's Eastern Province. This province has traditionally been one of the poorest areas of Zambia, with an estimated 43 percent prevalence of stunting in 2013.<sup>3</sup>

Zambia's 2011 National Food and Nutrition Strategic Plan identified as strategic priorities the prevention of stunting in children less than two years old and the early identification, treatment, and follow-up of severe acute malnutrition. The ultimate objective of the national strategy is to reduce stunting among children younger than age two from 45 percent to 30 percent, nationally.

## Details of the Intervention

An IPA research team tested the impact of two approaches designed to increase parental awareness of developmental deficits on child nutrition and physical growth.

Researchers randomly assigned 127 villages, comprised of 547 children between 6 and 24 months of age at baseline, to one of three groups:

1) **Home-based growth charts:** To enable parents to monitor their children's health and development, parents in these villages received a simple growth chart wall poster. The full-sized growth charts allowed parents to directly compare their children's height to the

expected height range for children of the same age and provided parents with information regarding the most suitable local foods.

2) **Community-based monitoring:** To provide parents with information about their children's height and weight, parents in these villages were invited to attend three community meetings which took place every three months. All meetings were organized and run by the study staff who received anthropometric assessment training from the Ministry of Health's District Nutrition Officer. During the community meetings, children's height and weight were measured and parents received information about whether their children were below the reference measures established by the World Health Organization. Parents of stunted children under the age of two received micronutrient-rich food supplements for their children.

3) **Comparison group:** Parents in these villages did not receive either of the above programs during the study period.

Researchers measured impacts approximately one year after the programs began.

## Results and Policy Lessons

Overall, the study found that providing caregivers with basic growth charts in their homes significantly improved growth among malnourished children, relative to the comparison group. In contrast, researchers did not find statistically significant improvements in child growth as a result of the community monitoring and nutritional supplements program. Neither intervention was found to significantly impact child neurocognitive development.

*Impact on stunting:* Villages that received growth charts experienced a 22 percentage point reduction in the prevalence of stunting among children malnourished at baseline; in the comparison group, 94 percent of children who had been stunted were still stunted one year later, compared to 72 percent in the growth charts group. Community-based growth monitoring with nutritional supplements, on the other hand, did not have a statistically significant impact on stunting rates.

*Parental behaviors:* Caregivers in both the community monitoring and growth charts groups reported feeding their children more protein-rich foods than caregivers in the comparison group, but the growth charts program achieved larger impacts on all observed behaviors. This finding was surprising to researchers given that community meetings were held by trained health workers who reminded caregivers of the principles and importance of healthy nutrition in each session, while the caregivers in the growth charts program only received information through the posters in their homes.

The research team also collected feedback data to understand what might be driving the impacts. One of the main things caregivers said they liked about the chart was that it included an explicit focus on children who will be successful in later life; while researchers do not have data to test this directly, it is possible that the overall design of the poster increased parents' aspirations and their willingness to spend additional resources on their children's

nutrition. Further research is needed to better understand what is driving the impacts and the general relation between parental information, parental aspirations, and growth in early life.

In sum, the results suggest that increasing parental knowledge can change behavior and also can lead to improvements in child growth outcomes. **Given their relatively low cost, home-based growth charts may be a cost-effective tool to increase parental efforts toward reducing children's physical growth deficits, particularly among children with stunted growth.**

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## Sources

<sup>1</sup> IDS (2013) *Delivering Demographic Dividend in Africa: Investing in Nutrition is the First Step*.

<sup>2</sup> World Bank Nutrition Overview: <http://www.worldbank.org/en/topic/nutrition/overview#1>

<sup>3</sup> Central Statistical office (CSO) [Zambia], Ministry of Health (MOH) [Zambia], ICF International. *Zambia Demographic and Health Survey 2013-14*. Rockville (MD): Central Statistical Office, Ministry of Health, and ICF International; 2014.

<sup>4</sup> There are several possible explanations for this. It is possible that parents taking their children to community meetings incorrectly interpreted positive feedback received from official measurements (evidence of their children not having stunted growth) as a signal to not worry about their children's nutritional status, and thus reduced their effort to support children. It is also possible that parents attending community measurement meetings were disappointed by the fact that their child was not eligible for the food supplements provided to children with stunted growth and thus became less concerned about their children's nutritional status. Last, as with all evaluations, we cannot rule out the possibility that this finding is the result of an error.

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