



NOURISH PROJECT CASE STUDY THE CHILD LENGTH MAT: A COMMUNITY TOOL FOR VISUALIZING LINEAR GROWTH

BACKGROUND

Global evidence indicates that adequate linear growth in the first two years of life is a marker of child well-being. Low length- or height-for-age, i.e. stunting, reflects chronic under-nutrition: persistent, cumulative, inadequate dietary intake and/or poor utilization of nutrients due to infections and illnesses. Chronic under-nutrition has immediate and life-long consequences, including permanent cognitive impairment, a weakened immune system, and susceptibility to chronic diseases such as obesity and heart disease in adulthood.¹ Adult women who were stunted as children have a higher risk of delivering low birthweight babies and infants who die in infancy.² For these reasons, stunting reduction has become a centerpiece of multi-sectoral nutrition and development agendas, and the ambitious goal of preventing 20 million children from stunting is among the United Nation's Sustainable Development Goals (SDG).

The “first 1,000 days” from the start of a woman’s pregnancy until the child’s second birthday is a critical period for healthy child growth. Although all children have the ability to grow well during the first 1,000 days, in Cambodia, one in three children under age five are stunted and therefore do not meet their full developmental potential.³ The causes include inadequate diets in mothers and children, infections, and poor sanitation and hygiene.⁴ Children’s linear growth is not tracked routinely in health centers because height boards require time and specialized training to use or in communities due to a lack of appropriate tools.

THE CHILD LENGTH MAT

The USAID-funded NOURISH Project (2014-2020), led by Save the Children works with the Royal Government of Cambodia to accelerate the reduction of malnutrition, including stunting. The project focuses on ensuring healthy growth of every child during the “first 1,000 days” through multi-sectoral actions in health, WASH and agriculture. NOURISH works to: 1) strengthen community platforms for improved nutrition, 2) increase the demand for and supply of health, WASH and agriculture practices, services and products, 3) expand the supply of agriculture and WASH products, and 4) enhance the capacity of government and civil society in integrated nutrition.

The Length Mat is a non-clinical, community tool developed by the Manoff Group (TMG), a NOURISH partner, to help families visualize linear growth and to encourage timely action to prevent malnutrition. In communities where stunting is common, families do not recognize poor growth or attribute it to genetics and believe that nothing can be done.⁵ The Child Length Mat allows families and communities to understand to what extent a child is on target for normal length-for-age progress over time. This enables them to address behaviors in time to promote optimal child growth. Girls’ and boys’ measurements appear side by side on the mat (see Figure 1

¹ Victoria CG, et al. 2008. “Maternal and child undernutrition: consequences for adult health and human capital.” *Lancet*. 271(9609):340-57.

² Ozaltin, E, et al. 2010. “Association with maternal stature with offspring mortality, underweight and stunting in low- to middle-income countries.” *JAMA* 303(15):1507-16.

³ National Institute of Statistics/Cambodia, Directorate General for Health/Cambodia, and ICF International. 2015. “Cambodia Demographic and Health Survey 2014.” Phnom Penh, Cambodia.

⁴ Lucy Bassett and Julie Ruel-Bergeron. 2012. “Promoting Healthy Child Growth and Development: Advances and Opportunities for Community-based Nutrition Programs in Central America.” The World Bank: Washington, D.C.

⁵ de Onis, Mercedes and Francesca Branca. “Childhood stunting: a global perspective.” *Matern Child Nutr*. 2016 May; 12(Suppl): 12–26.

for the Cambodia version). Markings denote the cut-off lengths for stunting using the latest (2006) World Health Organization (WHO) standards at pre-determined age intervals.⁶ The use of one cut-off offers a binomial or yes/no result, omitting the need to look up a child’s measurements on a growth table so that community members can use it. Early versions of the length mat, including the NOURISH-supported adaptation, have six-month age intervals to allow enough time for a child’s length to be affected by her diet and environment. (Recent scientific studies on linear growth are directing trends in greater frequency of measures.)

APPLICATION IN CAMBODIA

The NOURISH Project introduced the length mat in 2016 to offer communities in rural Cambodia a way to visualize their children’s growth and take timely action. Before introduction, NOURISH validated a prototype of the length mat for accuracy of measurement, understanding, and usability. Health workers, community agents and trained anthropometrists worked together to validate the prototype. The first pretest used length bars measured to -2SD height-for-age for each age interval based on the cut-off for low height-for-age at 6, 12, 18 and 24 months. After adjustments were made based on the results, a second pretest, conducted with a revised design using -1.9 SD to be able to identify children who are on the line of the cut-off, resulted in a sensitivity and specificity equal to the height board, the gold standard tool in assessing children’s length.

NOURISH produced mats locally made from a tarpaulin material so that they could be cleaned after each use and were easily portable. NOURISH initially selected 41 villages in Pursat Province with the provincial health department to pilot the length mat, soon expanding to all 70 villages of five communes of Kandieng and Bakan districts at the request of district health officials. With the aim of helping families and communities understand and appreciate linear growth and increase demand for health services, NOURISH supported communities to introduce the length mat as part of monthly community-led growth monitoring and promotion (GMP) activities for all children under two years. NOURISH trained Village Health Support Group Members (VHSG), Village Chiefs, and health workers through a three-day hands-on training and conducted quarterly follow-up coaching sessions for VHSG. The VHSG, called community agents within the multi-sectoral nutrition program context, have traditionally been the community extension of the health system and are now supported through the local government system. Within community GMP, community agents use a Salter scale to weigh every child every month and use the length mat to measure children at specific age intervals. Using the growth data, community agents offer caregivers tailored interpersonal communication (IPC) counseling on optimal child care, feeding, and hygiene practices and behaviors.

After one year of implementation, an independent consultant reviewed experiences through a survey with a random sample of 149 caregivers of children under two years and 10 focus group discussions (FGD) with 70 community agents and caregivers. The findings suggest that the objectives of the pilot to generate demand for health services through community action and greater attention to children’s linear growth were achieved.

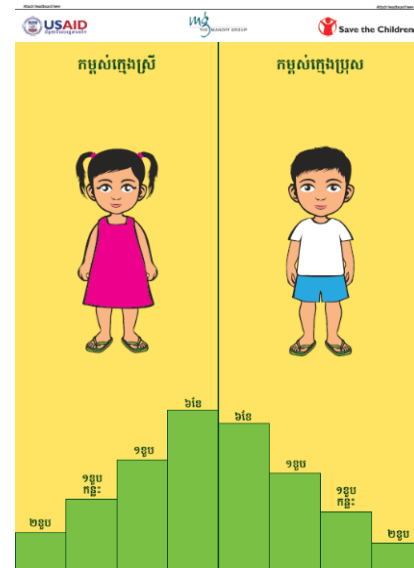


FIGURE 1. CAMBODIA LENGTH MAT

⁶ de Onis, Mercedes et al. 2006. “WHO Child Growth Standards Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development.” Geneva: World Health Organization Department of Nutrition for Health and Development. ISBN 92 4 154693 X

Integration into community activities: Community agents integrated the length mat seamlessly into community GMP, using it with all children without adding time or task burdens. Participation in the community sessions was high; registers confirmed that participation ranged between 100% of children under two years in the community to 72% of children in April and May, months of long holidays. Community agents felt that the length mat added value to the interactions with caregivers during GMP. As one explained, *“It is helpful to use this [mat] to give counseling to caregivers to take action according to the child’s growth. Also, this length mat has beautiful colors and attractive images that make children like to lay on it without crying when their mothers put them down.”*

Demand for health services: As standard practice, community agents encourage caregivers to bring children to health centers. Health workers confirmed that they see more children as a result of community GMP with the length mat. Some health workers noted that more caregivers come to health centers for GMP and bring their child’s yellow card, the child’s health card that tracks child growth for all types of visits at health centers. A health worker explained, *“Before having the length mat, caregivers brought their children for vaccinations, but they never wanted to measure their children, but now they ask for measurement every time.”* Caregivers shared that seeing their child’s growth in the community makes them also want the clinical assessment. As a mother asserted, *“Now I also ask health workers to check her weight and length growth each time I go to the health center.”* These reported changes are consistent with NOURISH midterm and endline survey data which showed significant increases in caregivers reporting GMP at health centers in the past month, although survey sample size limitations do not enable disaggregating by province to attribute to the length mat.

Attention to linear growth: Most caregivers (85%) sampled in the process review after one year of implementation could clearly describe the length mat and its use for understanding child growth. Almost half said that they discussed the length measurement and children’s growth with family members and neighbors. Most caregivers said that they felt happy when their child was growing well and appreciated being able to see progress in their growth. Community agents also noticed that caregivers’ ability to visualize linear growth helped to motivate their response. One said, *“It is good when caregivers can see the results themselves. They feel very satisfied and more pay attention to their child growth. And they appreciate us, the volunteers.”*

CHALLENGES AND LOCAL SOLUTIONS

Several common challenges around correct use observed during the initial pilot resulted in changes in training and supervision. Observation during the initial pilot revealed an inadvertent tendency of community volunteers to pull children’s toes to reach the green age bar. Community agents wanted to tell caregivers that their child was not stunted so they tried to get the child’s feet over the top line of the bar. As it is a non-clinical tool, community agents are not in a position to diagnose stunting. Therefore, NOURISH worked with community agents and health workers to test appropriate and effective feedback to caregivers whose child does not reach the age bar. They determined that they could encourage caregivers to give ‘extra attention’ to the child who reaches the top of the age bar and to give ‘special attention’ to a child whose heels did not reach the bar at all. Although these phrases are similar, these are meaningful to caregivers. In addition, two people were



PHOTO 1. COMMUNITY AGENTS TESTING THE LENGTH MAT

Photo: Jeunsaaty Sen

recommended to use the length mat with each child, one to ensure that the child's head stays on the top and one to help the child's toes point up so that their heels can rest on the mat. NOURISH incorporated these key changes into the training guide for community agents and regular supportive supervision provided by NOURISH staff and health workers.

Many community agents observed that the six-month interval between assessments with the length mat makes it difficult for caregivers to track progress in linear growth. Several caregivers brought their children periodically to see how they were growing, even when the child was not at the specific age intervals. *“There are some caregivers who wish to put their child on the Mat although the child is not at the age yet for measurement. It is because they want to know how much the child should grow until that age.”* Community agents felt that adding additional age bars at three-month intervals would make the information more actionable for all children. This recommendation should be considered and validated should the Ministry of Health and communities continue to use the Length Mat in Cambodia.

Other challenges are relevant to community GMP overall, including complete participation each month. Consistent participation by all children under two years is needed to ensure growth trends inform interpersonal communication with caregivers and families. The dip in participation below 80% during the months of April and May, during holidays, was addressed through NOURISH through targeted home visits by community agents.

RECOMMENDATIONS

After the second year of implementation, the NOURISH Project handed over the length mat to the subnational and local governments to ensure local ownership and sustainability: the Pursat Provincial Health Department (PHD), health workers and community leaders. Local officials decided to continue beyond project support to benefit all children in their communities. They also recommended expansion to other provinces. One health worker stated, *“It is not that it ‘should be introduced’ but that it ‘must be’ introduced.”*

They recognized that the length mat gave an added boost to the program because families could visualize linear growth, rapidly identify their child's trends and address growth faltering in time. This near real-time awareness of healthy growth brought renewed accountability for acting to prevent stunting and drove demand for health services.

If scaled up beyond this pilot area, additional age categories could be added to the length mat to be able to assess children every three months per the new global standard and validated by comparing to the height board as the gold standard. The additional age intervals would enable children to be assessed more frequently to maintain caregivers' attention and interest, and their ability to take action to ensure healthy growth trends. If expanded to areas where community GMP is not operational, the length mat could be introduced through a variety of community platforms, such as outreach or support groups. As long as the platform allows trained community agents to see all children under two on a regular basis, the length mat could be incorporated as an additional tool.

The potential of this community tool to support nutrition programming warrants more rigorous evidence generation to better understand the impact of the tool. Further research designed to compare areas that use the tool to areas that do not use the tool would document outcomes attributable to the tool and inform national plans and programming to the continue accelerating efforts to reduce malnutrition in Cambodia.