

INNOVATIVE APPROACHES FOR THE PREVENTION OF CHILDHOOD MALNUTRITION: THE PROMIS PROGRAM¹

Acute malnutrition: a major public health challenge

Globally, 49 million children suffer from acute malnutrition. Acute malnutrition dramatically increases the risk of death: compared to well-nourished children, children with moderate acute malnutrition are 3.4 times more likely to die, increasing to a staggering 11.6 times for children with severe acute malnutrition.² Acute malnutrition kills 875,000 children under the age of five annually.

Until a decade ago, acute malnutrition screening and treatment were largely restricted to health facilities. The introduction of Community-based Management of Acute Malnutrition (CMAM), endorsed by the World Health Organization, brought the screening and treatment of children with severe acute malnutrition closer to their homes: community health workers, often volunteers, conduct first-line screening in the community and refer identified cases to a health facility to enroll in treatment. Severe acute malnutrition cases without medical complications are treated through an outpatient program using ready-to-use therapeutic foods (RUTF), energy-dense supplements providing all necessary micronutrients. Some countries have modified and extended the CMAM approach to include treatment of children with moderate acute malnutrition.

The effectiveness of CMAM in the field is limited due to two key barriers: low participation in screening for acute malnutrition and low uptake and adherence to CMAM treatment. Key underlying factors causing low screening participation and low treatment uptake and adherence include lack of recognition of the symptoms and risks of severe acute malnutrition, associated stigma, and the high opportunity costs for caregivers of participating in screening sessions and attending weekly checkups for treatment. Another factor limiting the regular participation of mothers in screening is that if their child is diagnosed as not acutely malnourished, they are sent home without any advice, praise, or intervention, thus discouraging attendance at future screenings.

The PROMIS program

The PROMIS program sought to overcome these two key barriers to CMAM effectiveness by integrating two preventive interventions into screening for acute malnutrition: (1) behavior change communication (BCC) on essential actions to improve child nutrition and health-seeking behavior to increase awareness and recognition of the problem of childhood malnutrition and to improve practices; and (2) the provision of a small-quantity

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² Moderate acute malnutrition is defined as having a weight-for-length z-score (WLZ) between -3 and -2; severe acute malnutrition is defined as WLZ below -3.

lipid-based nutrient supplement (SQ-LNS) to all children to increase intake of essential nutrients and prevent malnutrition. The overall goal was to test and evaluate the integrated model's impact on:

- participation in screening—and referral, uptake of, and adherence to treatment—for acute malnutrition;
- the prevalence and incidence of acute malnutrition;
- infant and young child feeding practices and appropriate use of SQ-LNS; and
- child linear growth and anemia.

The program was implemented by Helen Keller International in Burkina Faso, Mali, and Senegal between 2014 and 2017. IFPRI conducted a cluster-randomized study in Burkina Faso and Mali to assess the program's impact. In both countries, clusters (health centers) were randomly allocated to either the PROMIS program (treatment) or the national program (control). BCC and the distribution of SQ-LNS were done monthly at the time of screening for acute malnutrition, and children identified as being acutely malnourished were referred to treatment. In Mali, PROMIS was implemented through a community-based delivery platform: community health volunteers were responsible for screening and referral. In Burkina Faso, the program used a facility-based delivery platform: PROMIS was offered through monthly preventive well-baby consultations.



The impact of PROMIS

A combined longitudinal and cross-sectional study design allowed for separately identifying the impact on the incidence (occurrence of new cases) and prevalence (percentage of children affected at a given time) of acute malnutrition. In both countries, PROMIS increased the percentage of children screened for acute malnutrition by an impressive 20 to 40 percentage points, reaching 51 percent in Burkina Faso and 63 percent in Mali. The findings suggest that the preventive intervention (BCC and SQ-LNS) provided a strong incentive for caregivers to attend the monthly screening sessions. Despite the increased screening, PROMIS had no effect on the unacceptably low percentage of children with acute malnutrition who received treatment at endline (26 percent in Burkina Faso and 15 percent in Mali).

The impact on acute malnutrition was modest: PROMIS lowered the incidence by 30 percent in Mali, but no effect was found in Burkina Faso; and no effect was found on the prevalence of acute malnutrition in either country. PROMIS, however, reduced child stunting by 5 to 7 percentage points and child anemia by 6 to 13 percentage points in both countries. The program also increased the timely introduction of complementary foods; the effect on other infant and young child feeding practices was limited.

Summary of impacts of PROMIS in Mali and Burkina Faso

	MALI <i>Age Range: 6-23 mo</i>	BURKINA FASO <i>Age Range: 0-17 mo</i>
Participation in screening	↑ 30–40 pp	↑ 20–35 pp (after 6 mo of age)
Proportion of acutely malnourished children with treatment in past month	No impact	No impact
Incidence of acute malnutrition	↓ 30%	No impact
Prevalence of acute malnutrition	No impact	No impact
Child anemia	↓ 12 pp	↓ 6 pp
Child stunting	↓ 6 pp (at 24 mo of age)	↓ 4 pp (at 18 mo; marginal)
Timely introduction of complementary food	↑ 24 pp	↑ 17 pp

Note: Values in bold are statistically significant ($p < 0.05$); other values marginally significant ($p < 0.10$).

Implications and future research

In both countries, the addition of a preventive package to screening for acute malnutrition had a large impact on screening coverage and reduced child stunting and anemia. The program reduced the barriers to caregivers' participation in screening but did not begin to address the alarmingly low levels of treatment for acute malnutrition: caregivers either did not take their acutely malnourished children to the health center for outpatient treatment at all or abandoned treatment prematurely. The main hypothesis underlying the PROMIS program was that if screening coverage could be increased, the following steps in CMAM—referral, enrollment, adherence to, and completion of treatment—would be achieved. These steps, unfortunately, saw no improvement in either country, and consequently, the prevalence of acute malnutrition failed to improve.

Future programs should build on PROMIS's success by implementing preventive packages that foster caregivers' participation in screening and improve linear growth and micronutrient status in young children. The model, however, should also focus on strengthening the remaining steps of the CMAM continuum and ensure that acutely malnourished children are promptly referred to treatment, that caregivers are incentivized to enroll in treatment, and that they are supported, encouraged, and monitored to ensure that they comply with the expected number of visits, and ensure that their children adhere to and complete the treatment. This will require further research on innovations related to the integration of prevention in CMAM screening and treatment (See Box 1).



Box 1: Key Research Priorities

Increase CMAM effectiveness and lower barriers to participation

- To achieve even greater coverage of screening, test the effectiveness of putting screening into the hands of community members and parents.
- Test different approaches to also bring treatment to the communities (e.g., set up mobile screening and treatment units that visit communities on a regular basis, or shift responsibility for treatment in part to community health workers).
- Test different ways to improve communication between community health workers and facility-based health staff to ensure effective follow-up of children diagnosed with acute malnutrition.
- Design and evaluate simplified protocols and tools for diagnosis and treatment.
- Compare different approaches to ensure that caregivers and communities are sensitized and familiar with the symptoms and risks of acute malnutrition and contribute to detection; and ways to support parents to attend screening, enroll their child, and adhere to treatment.
- Identify bottlenecks at the household and health system level in the whole CMAM continuum from screening to successful completion of treatment and recovery.

Focus on effective prevention of acute malnutrition by developing and testing more effective BCC strategies and social mobilization approaches to improve infant and young child feeding and caregiving practices and optimizing use of preventive and curative health services. Explore and document impacts of using multiple delivery platforms including interpersonal communication, community gatherings, and mass media targeting multiple audiences.