



Comparison of four different supplementary foods in the treatment of moderate acute malnutrition (MAM) in children in Sierra Leone

Summary of a Report by the Food Aid Quality Review (FAQR) Project

BACKGROUND

Child wasting remains a serious public health challenge, with 47 million children under 5 years of age too thin relative to their height globally in 2019. The optimal protocol for treating moderate wasting (also known as moderate acute malnutrition (MAM)), has still to be determined. To test the effectiveness of 4 different food products used in treatment of MAM in a real-world setting, a study was undertaken in Sierra Leone wrapped around a supplementary feeding program (SFP). The study focused on the comparative effectiveness and cost-effectiveness of four supplementary foods in treating children 6-59mo with MAM, defined as having mid-upper arm circumference (MUAC) ≥ 11.5 cm and < 12.5 cm without edema. Recovery was defined as reaching a MUAC of 12.5 cm within 12 weeks of treatment. The study also assessed how the presence of environmental enteric dysfunction (EED) or gut dysfunction affected recovery. The foods consisted of 3 fortified blended flours (FBFs) requiring preparation as a porridge – (1) Corn-soy blend Plus (CSB+) delivered with fortified vegetable oil (FVO); (2) Super Cereal Plus (SC+) with amylase, a novel product introduced by the World Food Programme; (3) Corn-soy Whey Blend (CSWB) delivered with FVO, a modified version of CSB+ with a dairy component (whey protein concentrate) added; and (4) Ready to use Supplementary Food (RUSF), a lipid-based product delivered in single serving packets. All rations provided ~ 500 kcal/day and were delivered in a clinic setting. Recovered children were measured at 1, 3, and 6 months post-graduation. EED was assessed for a sub-sample of children at enrolment and 4 weeks later; and interviews and 5-day in-home observations were conducted.

KEY TAKE-AWAYS

- No one food performed better than the others in achieving recovery within 12 weeks. The rate of recovery was relatively low, at between 60% and 64%, and mean time to recovery was about 5 weeks.
- Recovered children in the RUSF arm were slightly less likely to sustain recovery at one month (73% compared with 79-80% for the FBFs).
- Cost per recovered child was not significantly different across foods. CSB+ w/oil was the most cost-effective product in achieving sustained recovery at one month.
- Food delivery was the largest component of program cost. Caregiver cost was lowest for RUSF because the food did not require preparation or time spent feeding the child.
- All 4 foods were shared with other family members; the sharing ranged from 19% of households receiving SC+ to 27% for RUSF.
- Sharing and strict adherence to preparation instructions were not associated with a child's likelihood of recovery; but recovery was significantly associated with the child actually consuming the food.
- Children with EED were less likely to recover from MAM, but there was no difference across foods in achieving recovery in the presence of EED.

IMPLICATIONS FOR PROGRAMMING

Since all foods performed comparably in achieving recovery and were equally cost-effective, selection of a food for use in SFPs for treating MAM should be based on the logistics, feasibility, and budgetary considerations relevant to the local context. Reasons behind the lower rate of sustained recovery for RUSF should be explored, as this influences cost-effectiveness. All foods were shared, suggesting that adjusting ration sizes to account for sharing is equally relevant for any of the foods tested. While no food was better than another in achieving recovery in the presence of EED, the effect of EED on rate of recovery suggests that water and sanitation interventions could increase the effectiveness of a supplementary feeding program in achieving recovery from MAM.