In January 2018, the Council of Research & Technical Advice on Acute Malnutrition (CORTASAM) and the No Wasted Lives Coalition published a global Research Agenda for Acute Malnutrition, outlining seven priority research areas to drive the use of evidence to support scale-up and impact for children with wasting globally. This Research Agenda included an initial mapping of the evidence that was conducted in 2017 to identify outstanding research questions and research needs in each area as well as outcomes to be achieved by 2020.

In 2019, recognising the significant research efforts that have progressed since the original Research Agenda was released, CORTASAM initiated a Research Landscape Review to evaluate the progress made towards the outcomes specified in the Research Agenda. The objectives of the Landscape Review in 2020 were to:

1. Review completed, ongoing, or planned research in the seven research priority areas of the Research Agenda, building on the original mapping of evidence and focusing on new efforts since 2017; and
2. Evaluate outstanding research needs and progress made to date towards the 2020 outcomes specified in the Research Agenda.

The Landscape Review was not intended to be a systematic review to synthesise all research and evidence in the priority areas. Rather, the Landscape Review can be considered an integrative review with elements of a semi-systematic review aiming to provide an overview of a research area, including developments over time, and to create a critical narrative of research progress and outstanding gaps in each area.

The results of the Landscape Review on completed, ongoing, and planned research in the priority research areas can be accessed here. Details on the methodology of the Landscape Review can be accessed here. For further information, contact us at info@nowastedlives.org.

RESEARCH AREAS

1. Effective approaches to detect, diagnose, and treat acute malnutrition in the community
2. Appropriate entry and discharge criteria for treatment of acute malnutrition to ensure optimum outcomes
3. Optimum dosage of ready-to-use food (RUF) for treatment of acute malnutrition
4. Effective treatment of diarrhoea in children with severe acute malnutrition (SAM)
5. Rates and causal factors of post-treatment relapse to acute malnutrition across contexts
6. Identification and management of at-risk mothers and infants <6 months of age (MAMI)
7. Alternative formulations for ready-to-use foods for acute malnutrition

1 While the term ‘wasting’ will be predominantly used in these landscape reviews, there are sources cited that use the term ‘acute malnutrition’ as this was the predominant terminology used at the time of publication of the original Research Agenda. Both ‘wasting’ and ‘acute malnutrition’ are defined here as weight-for-height z-score (WHZ) <-2, oedema and/or mid-upper arm circumference <125mm.
RESEARCH AREA:
REDUCED DOSAGE OF READY-TO-USE FOOD (RUF) FOR TREATMENT OF ACUTE MALNUTRITION

KEY RESEARCH QUESTION

What is the most cost-effective and safe dosage of the standard ready-to-use therapeutic food (RUTF) for treatment of uncomplicated severe acute malnutrition (SAM) in children 6-59 months of age?

SUMMARY

Several robust observational and experimental studies that change standard RUTF dosage protocols for treatment of severe wasting have been recently completed. The MANGO study was a randomised controlled trial (RCT) in Burkina Faso that found non-inferior weight gain between standard and reduced RUTF dosage. There is a growing evidence base on combined and simplified approaches that commonly change or reduce RUTF dosage. The OptiMA strategy in Burkina Faso, which gradually reduced RUTF dosage based on weight and mid-upper arm circumference (MUAC), found lower recovery among children with MUAC<115mm compared to children with MUAC 115-124mm. The reduced dosage may have contributed to sub-optimal recovery, so the dosage table was amended in subsequent studies, although other factors could have contributed to low recovery. Several high-quality studies are ongoing or have been recently completed, with further results becoming available in 2020. Studies are largely implemented in sub-Saharan Africa. Questions remain regarding longer-term impact of reduced dosage, including on height, body composition, and risk of relapse. The MANGO study found lower height and height gain among children receiving the reduced dosage but the clinical significance of this is unclear.

RECENTLY EMERGING EVIDENCE

TREATMENT OUTCOMES OF REDUCED RUTF DOSAGE

- The MANGO study in Burkina Faso was the first scientifically robust evaluation of the efficacy of reduced RUTF dose for treating children with severe wasting, reducing dosage after 2 weeks of treatment. Among 801 severely wasted children, the study found no difference in weight gain velocity between admission and discharge and time to recovery, length of treatment, and risk of relapse. A small but significant difference in height at discharge in the reduced dosage arm was found that persisted 12 weeks post recovery and height gain was lower the in reduced dosage group, particularly in children under 12 months of age. A body composition analysis (measured at admission and discharge) suggested no differential effect of the reduced dosage schedule on tissue accretion compared to standard treatment. Cost-effectiveness analyses are pending.

- The OptiMA strategy by ALIMA uses a single RUTF product at gradually reduced dosage based on weight and MUAC. It was evaluated in a large observational study in Burkina Faso, which found high recovery rates for children with MUAC 120-124mm (n=3064, 91.4%) and MUAC 115-119mm (n=1070, 84.1%) but lower recovery for MUAC<115mm (n=824, 70.4%) due to high non-response (10.6%) and defaulting (9.3%). The lower recovery for children with MUAC<115mm suggests that the dosage was insufficient (and the dosage table was amended in subsequent studies), although other factors could have contributed to low recovery. The overall amount of RUTF used for treatment was halved (72.2 sachets/child treated vs. 140/sachets as per UNICEF plans).

- The OptiMA strategy is being further evaluated in a number of contexts including: In Burkina Faso to take into account closures of health facilities, in an urban setting in Mali, in an operational pilot in Niger in an area of high levels of wasting and stunting that is planned to be expanded into a RCT in 2020-21, and a RCT in DRC, which includes a 6-month post-discharge follow-up.

- The Combined Protocol for Acute Malnutrition Study (ComPAS) uses a protocol that treats children with uncomplicated severe and moderate wasting diagnosed by MUAC<125mm with one RUTF product (2 sachets/day for MUAC<115mm; 1 sachet/day for MUAC 115-124mm). It was first evaluated in cluster-randomised trial in South Sudan and Kenya (study protocol published). Preliminary results suggest non-inferiority of the protocol in terms of recovery and mortality for moderate and severe wasting. Effectiveness and cost-effectiveness analyses are submitted for publication. A 4-month follow-up study (FU-ComPAS) will evaluate longer term outcomes, including body composition.

- A combined protocol similar to ComPAS is being implemented within the health system in one district in Mali. Preliminary results of a large observational study of about 7000 children admitted between December 2018 and November 2019 suggests high cure rates (93.5% for severe wasting; 97.3% for moderate wasting). The study continues into 2020 and will include a 9-month post-discharge follow-up to evaluate relapse.

- Similar ComPAS protocols are being implemented by IRC and evaluated in Somalia, with operational experiences shared.
in a Field Exchange article⁶, and a large operational pilot in Chad. A WFP- and UNICEF-supported trial will start in the Central African Republic in 2020.

- A study in Lahore, Pakistan⁷, treated 100 severely wasted children in an outpatient programme with a 50% reduced dosage of RUTF (+ home-based food)⁸ and found non-inferiority for MUAC and weight gain compared to standard RUTF. A larger study is being implemented.
- An analysis of data collected from treatment of severely wasted children in Niger⁹ suggests that current therapeutic feeding protocols provide insufficient energy early during the treatment and excess energy later during the treatment. Some feeding protocols currently under investigation did not meet energy requirements. The publication of this analysis is pending.

REFERENCES