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## QUICK GUIDANCE ON SIMPLIFIED APPROACHES FOR THE MANAGEMENT OF WASTING **MODIFIED DOSAGE**

### INTRODUCTION

Standard Community Based Management of Acute Malnutrition (CMAM) recommends the systematic treatment of children classified with uncomplicated severe wasting using Ready-to-Use Therapeutic Foods (RUTFs) combined with routine medication in an outpatient setting. The amount of RUTFs given depends on the weight of the child and the dosage of RUTF is increased as the child gains weight until the child is classified as recovered and discharged.<sup>1</sup> The standard protocol classifies weight in to 8 different categories for the purpose of dosage, starting at 3kg. The protocol also states that overall dosage can be reduced by 15-20% where there are shortages of stock.<sup>1</sup>

RUTFs, whilst highly effective, are a significant cost driver for CMAM services<sup>2</sup>. In addition, a recent study points

towards the fact that current standard dosage exceeds the calorific needs for wasting children to recover.<sup>3</sup> As such, in recent years, implementers and researchers have been exploring the possibility of optimising the dosage of RUTFs per child throughout the course of recovery. Conversely to the standard protocol, most of these recent trials have reduced the dosage over the course of recovery due to an identified reduction in the energy needs of the child through recovery.<sup>3</sup> Further to the cost reduction component, another key element of a modified dosage has been to facilitate the dosage process for health workers by adopting simple dosages which do not need calculations and can be used by low-literate staff.

## OVERVIEW OF THE EVIDENCE

A recent evidence review conducted by UNICEF identified 22 unique projects which have implemented a modified dosage<sup>4</sup>. These projects all reduced the dosage of RUTFs however took different approaches to the calculation of these reduced dosages either using MUAC, MUAC and weight or weight only. The most common modified dosages, which have been implemented in multiple settings, are the following.

**1. CompPAS dosage:** This approach uses two MUAC categories to determine dosage of RUTFs; (1) <115mm and/or bilateral oedema (2) 115-124mm. All children admitted at <115mm are given 2 sachets per day, which is then reduced to 1 sachet per day once the child reaches 115mm for 2 consecutive visits until recovery ( $\geq 125$ mm). These children also receive routine medication as outlined

in the standard protocol. All children admitted between 115-124mm receive 1 sachet per day until discharge. For more details, [please see this summary published by the IRC](#). This approach is very straightforward, requiring minimal calculations by health workers administering the treatment and helps to simplify outpatient treatment for the caregivers.

**2. OptiMA dosage:** This approach uses a combination of MUAC and weight to determine dosage. Rather than two categories in the CompPAS approach, this approach uses three MUAC categories: (1) <115mm, (2) 115-119mm and (3) 120-124mm. These categories are triangulated with weight to identify the appropriate dosage. The amount of RUTF gradually decreases over the course of recovery, as the child's weight increases and as they transition through MUAC categorisations.

Year	Country	Organisation	Type	Results
2017-2018	Kenya	IRC*	Randomised Control Trial	CompPAS dosage non-inferior to standard protocol
2017-2018	South Sudan	ACF*	Randomised Control Trial	CompPAS dosage non-inferior to standard protocol
2018-present	Mali	IRC	Single arm proof of concept	Recovery rates: 96%
2019	Somalia	IRC	Operational intervention	Recovery rates: 98%
2019-2020	Nigeria	UNICEF	Operational intervention	Recovery rates: >90%
2020	Chad	IRC, UNICEF & WFP	Operational intervention	Not yet published
2020	Burkina Faso	ALIMA	Operational intervention	Not yet published
2020	Somalia	IRC	Single arm proof of concept	Recovery rates: >80%
2021	Central African Republic	IRC, UNICEF & WFP	Single arm proof of concept	Not yet published
2021	Mali	ACF	Randomised control trial	Not yet published

Table 1: Implementation of the CompPAS dosage

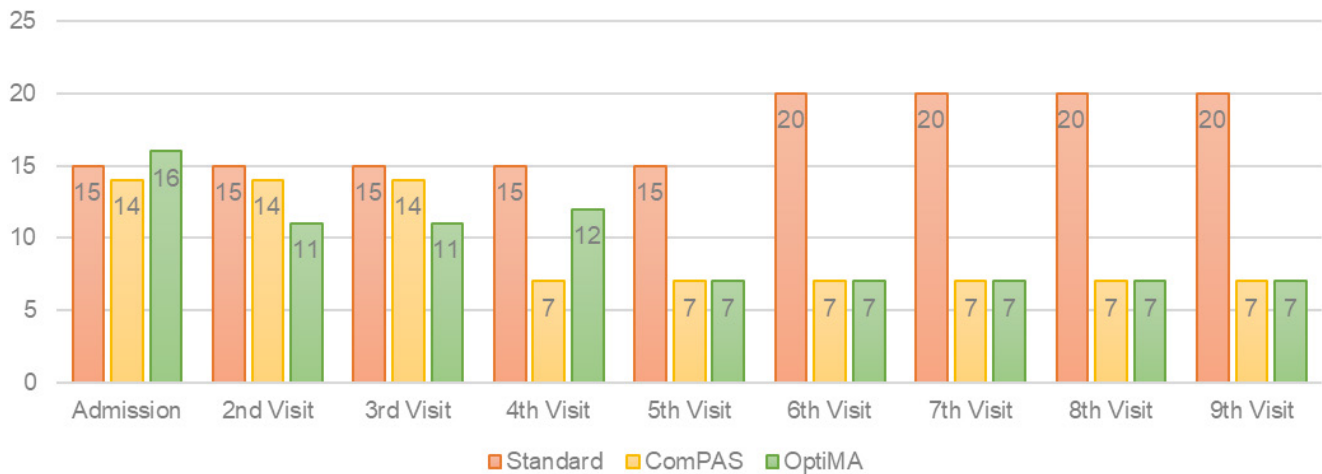
Year	Country	Organisation	Study Design	Results
2016-2018	Burkina Faso	ALIMA	Single arm proof of concept	86.3%
2019-2020	DRC	ALIMA	Randomised Control Trial	Not yet published
2019-2020	Mali	ALIMA	Single arm proof of concept	Not yet published
2020	Niger	ALIMA	Pre-trial pilot	81.8%
2021	Niger	ALIMA	Randomised Control Trial	Not yet published

Table 2: Implementation of the OptiMA dosage

### Comparing Standard, CompPAS and OptiMA dosages

The below graph demonstrates a fictitious example of a child, admitted with a MUAC of 114mm and a weight of 6kg. In the standard protocol the child's weekly ration is increased at their 6<sup>th</sup> visit as the child moves from one weight category to another. In the CompPAS protocol, the child starts at 14 sachets per week and transitions to 7 sachets at week 4 after 2 consecutive visits at MUAC  $\geq 115$ mm. In the OptiMA protocol the child's ration is decreased at the 2<sup>nd</sup> week as they pass 115mm MUAC and again at the 5<sup>th</sup> visit as they pass 120mm MUAC.

## # Sachets per Week



	Admission	2nd Visit	3rd Visit	4th Visit	5th Visit	6th Visit	7th Visit	8th Visit	9th Visit
MUAC (mm)	114	115	116	118	120	121	124	125	125
Weight (kg)	6	6.2	6.4	6.6	6.8	7	7.2	7.5	7.6

In the standard protocol, this child would have received 155 sachets of RUTF, whilst in the ComPAS protocol would have received 84 sachets and in OptiMA 85 sachets. Both ComPAS and OptiMA protocols reduce overall consumption significantly.

### Additional studies

Other studies and operational interventions have taken varying approaches to modifying dosage. Two trials of note are:

- Maust et al.<sup>5</sup> tested a modified dosage in Sierra Leone for all children <125mm MUAC. 175 kcal/kg/day was given to all children <115mm, and 75kcal/kg/day to all children 115-124mm MUAC. This intervention also demonstrated non inferiority when compared to the standard protocol.
- Kangas et al.<sup>6,7</sup> tested a reduced dosage based on weight (<7kg = 1 sachet/day, >7kg = 2 sachet/day) for severely wasted children in Burkina Faso. The dosage was kept standard for the first two weeks after admission, and then reduced in the intervention group. Results demonstrated non-inferiority of this reduced dosage compared to the standard protocol.

### CONSIDERATIONS FOR IMPLEMENTATION

As can be seen, a variety of different dosages have been tested across a variety of contexts. Research results have demonstrated non-inferiority of modified dosages when compared to the standard protocol and in operational settings, recovery rates have been above international SPHERE standards. These results are very promising and indicate that it is indeed possible to optimise the dosage of RUTF whilst maintaining quality recovery rates.

It is important to note that across all projects and trials, recovery rates are dependent on multiple factors not just dosage of RUTFs and comparing results across contexts is therefore complicated. In addition, recovery rates for the most severely wasted tend to be generally poorer<sup>4</sup>, irrespective of the dosage given, particularly children with low MUAC and WHZ concurrently. Finally, emerging evidence is indicating that a reduced dosage may lead to a reduced height gain velocity<sup>6</sup>.

At global level there is still no consensus on which dosage is the optimal dosage for treatment of severe wasting. As such, careful consideration for the context and monitoring of the programme is extremely important where modifications to dosage take place. Where modifications to dosage are implemented in emergency settings, priority should be given to the simplest and most operationally friendly approaches.

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