# MANGO PROJECT

## RANDOMIZED CONTROL TESTING IN NON-INFERIORITY

**Where:** 10 health centers in the district of Fada N'Gourma, Burkina Faso
**When:** 2015-2020
**Who:** 801 children aged 6 to 59 months
SAM according to WHZ< -3 and/or MUAC< 115mm with appetite

Standard Dose
n=399

Reduced Dose
n=402

Reduced dose from 3rd week onward, according to the child's weight.

**What:** To prove under ideal conditions the efficacy of a reduced dose of RUTF compared to a standard dose during the treatment of uncomplicated Severe Acute Malnutrition in children aged 6-59 months.

**Scientific Partners :**
Univ. of Copenhagen, Centers for Disease Control and Prevention (CDC, USA), Univ. of Ouagadougou (Burkina Faso) and Univ. of Abomey-Calavi (Benin)

**Funders :**
CIFF, ECHO, HIF- ELRHA, AAH Foundation

# STATUS IN B12 VITAMIN AND FACTORS ASSOCIATED WITH DEFICIENCY

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## Data collection

Using blood sera from children in the MANGO clinical trial, the BEVITAL laboratory (Norway) analyzed 3 biomarkers of vitamin B12 status and their combined score (3cB12)/

- serum cobalamin
- methyl malonic acid
- homocysteine.

The authors identified risk factors for vitamin B12 deficiency on the basis of these biomarkers and the children's other parameters.

## Results

Among 374 children with blood serum (47% of MANGO children), the median age was 11 months, 49% were girls and 85% were still breast-feeding. The two groups were similar at baseline, with around 25% of children presenting with diarrhea or fever, and over 30% with iron-deficiency anemia.

As shown in the accompanying figure, all children improved their vitamin B12 status from admission to discharge, whether they received a reduced dose or the standard dose of therapeutic nutritional product. In both groups, the dose of vitamin B12 received corresponded to the children's daily requirements, i.e. between 0.7-1.2 µg/d.

The main risk factors for low vitamin B12 status are :

- being breast-fed, as the mother is probably deficient,
- or suffering from iron-deficiency anemia.

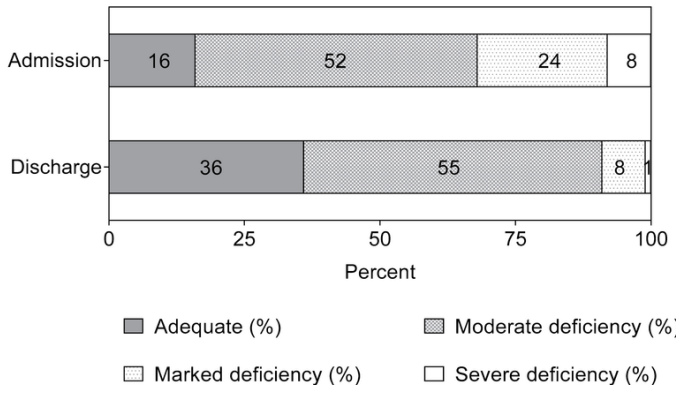
On the other hand, receiving a reduced dose or having a treatment duration ≥ 8 weeks showed no association with B12 status.

<u>These results point to possible solutions</u>:

- revise the amount of vitamin B12 in the RUTF,
- improve dietary diversity after treatment to improve B12 status,
- or supplement again after treatment,
- and improve nutrition for breast-feeding mothers.

*Please note that these B12 values may be extrapolated with caution to children suffering from SAM who are breast-feeding.*

**Vitamin B12 status of MANGO children**
(N=374) between October 2016-January 2019




The proportion of children with marked or severe vitamin B12 deficiency fell from 24+8=32% at admission to 8+1=9% at discharge. The proportion of children with adequate vitamin B12 status rose from 16% to 36% at discharge.

## Key takeaways

**A** total of 67% of children suffering from SAM had low vitamin B12 status.
This improved with treatment, but did not completely normalize. Complementary strategies are needed to achieve this.

## GLOSSARY

| | |
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| MUAC | Mid Upper Arm Circumference |
| RUTF | Ready-to-Use Therapeutic Food |
| SAM | Severe Acute Malnutrition |
| WHZ | Weight For Height Z-score |