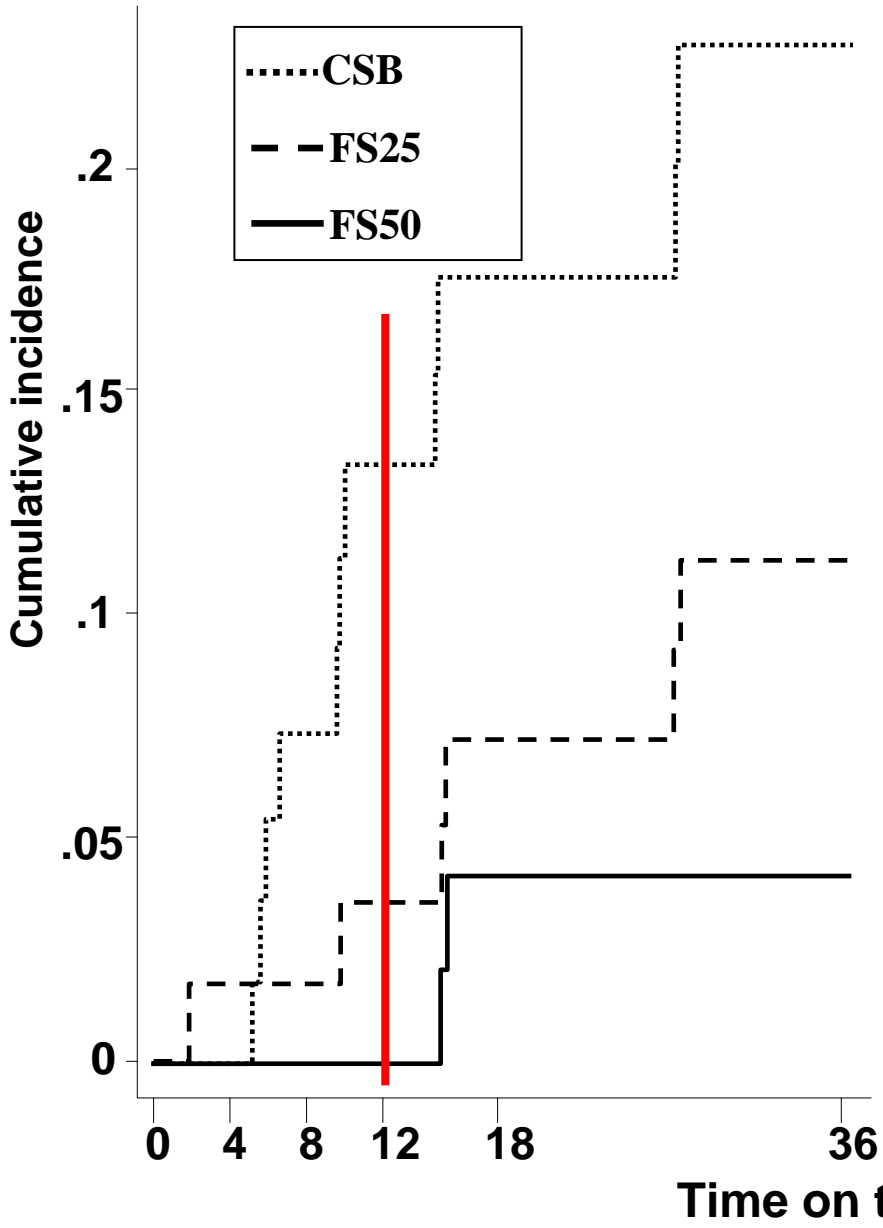


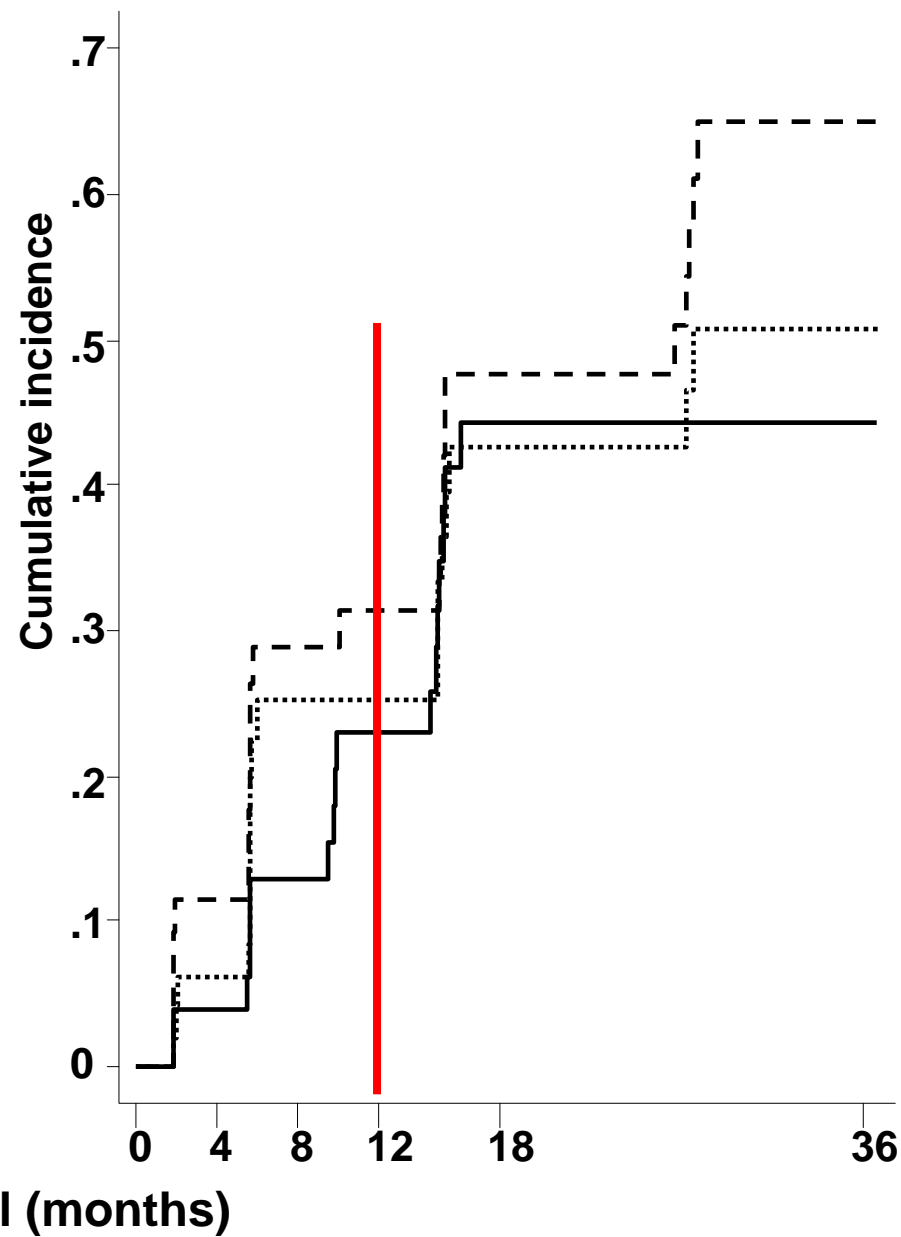
(a) Severe stunting incidence cases

Logrank p = 0.0293



(b) Moderate-to-severe stunting

Logrank p = 0.5043



| Nutrient | CSB | FS50 | FS25 |
|------------------------|-------------|-------------|-------------|
| Weight (g) | 71 | 50 | 25 |
| Energy (kcal) | 282 | 264 | 130 |
| Protein (g) | 10.3 | 7.6 | 3.8 |
| Fat (g) | 3.1 | 15.4 | 8.3 |
| Folate (µg) | 19 | 160 | 160 |
| Niacin (mg) | 3 | 6 | 6 |
| Riboflavin (mg) | 0.3 | 0.5 | 0.5 |
| Thiamin (mg) | 0.1 | 0.5 | 0.5 |
| Vit. B6 (mg) | 0.3 | 0.5 | 0.5 |
| Vit. B12 (µg) | 0.9 | 0.9 | 0.9 |
| Fe (mg) | 5 | 8 | 8 |
| Zn (mg) | 3.6 | 8.4 | 8.4 |



LCNI-5

5.50 – 6.49 –month old infants in Lungwena and Malindi villages (n = appr. 1000)

Interview, medical examination, growth measurements (Weight-for-height, WHM)

WHM < 80% or oedema
Exclude + refer

No consent / other criteria
Exclude / refer

Randomise into 4 groups

210 infants per group

ST-DI group (standard treatm, delayed intervention)
(Maize-soy flour 71 g / day between 18 and 30 mo)

FSm group: milk-powder containing fortified spread
750 g / 2 weeks (54 g / day) between 6 and 18 mo

FSs group: soy-protein containing fortified spread
750 g / 2 weeks (54 g / day) between 6 and 18 mo

LP group (control 2): Maize-soy flour
1000 g / 2 weeks (71 g / day) between 6 and 18 mo

Defined inclusion and exclusion criteria
Signed informed consent
Enroll at least 840 children

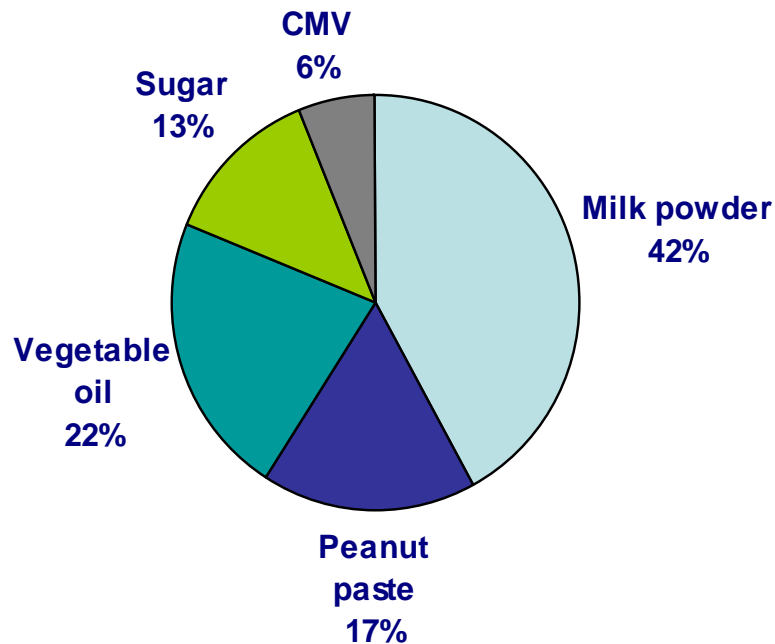
| Visit information | Visit number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|--|----------------|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|
| | Weeks in study | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 | 48 | 50 | 52 | 65 | 78 | 104 | 130 |
| | Age (months) | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 17 | 17 | 17 | 18 | 21 | 24 | 30 | 36 |
| Counselling and vitamin A | | x | | | | | | | | | | | | x | | | | | | | | | | | | | | x | | x | x | x |
| Food supplement delivery | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | |
| Length, weight, MUAC, head circumfer. | | x | | | | | | x | | | | | | x | | | | | | x | | | | | | | | x | x | x | x | x |
| Development (motor, language, soc) | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| Morbidity and adverse events | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | | | |
| Blood haemoglobin concentration | | x | | | | | | x | | | | | | x | | | | | | x | | | | | | | | x | | | | |
| Serum ferritin, Vit. A, zinc, CRP concentr. | | | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | |
| Background interview | | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medical examination | | x | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | x |
| Maternal breast milk analysis | | x | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B-malaria parasitemia | | x | | | | | | x | | | | | | x | | | | | | x | | | | | | | | x | | | | |
| Parasitological analysis, stools | | x | | | | | | x | | | | | | x | | | | | | x | | | | | | | | x | | | | x |
| Viral and bacterial analysis, stools | | x | | | | | | x | | | | | | x | | | | | | x | | | | | | | | x | | | | |
| Red blood cell essential fatty acid analysis | | x | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | |
| B-growth related hormones | | | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | |
| Coeliac disease genetics | | | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | |
| Food frequency questionnaire | | x | | | | | | x | | | | | | x | | | | | | | x | | | | | | | x | | | | |
| 24-h recall for dietary intakes | | | | | | | | | | | | | | | | | | | | | | | x | | | | | | | | | |
| Interview of trial contents | | | | | | | | x | | | | | | | | | | | | | | | | | | | | x | | | | |
| Participant experience interview | | | | | | | | | | | | | | | | | | | | | | | | | | | | x | | | | |

| | Maize-soy flour (LP) | F5m | F5s |
|-----------------|----------------------|------|------|
| Weight | 71g | 54 g | 54 g |
| Energy (kcal) | 284.4 | 282 | 277 |
| Protein (g) | 10.44 | 8.2 | 8.0 |
| Fat (g) | 3.08 | 18.1 | 18.6 |
| Retinol (µg RE) | 139 | 400 | 400 |
| Folate (µg) | 43.2 | 160 | 160 |
| Niacin (mg) | 3.456 | 6 | 6 |
| Ca (mg) | 72 | 450 | 450 |
| Cu (mg) | | 0.4 | 0.4 |
| I (µg) | | 90 | 90 |
| Fe (mg) | 5.46 | 6 | 6 |
| Mg (mg) | | 78.5 | 78.5 |
| Zn (mg) | 3.6 | 6.0 | 6.0 |

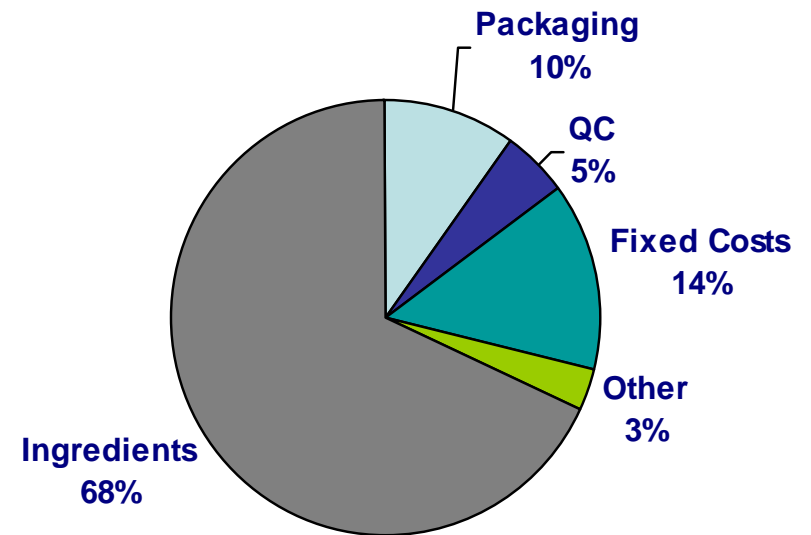
| | Maize-soy flour (LP) | F5m | F5s |
|------------------|----------------------|------|------|
| Niacin (mg) | 3.456 | 6 | 6 |
| Panthot. ac.(mg) | | 2 | 2 |
| Riboflavin (mg) | 0.322 | 0.5 | 0.5 |
| Thiamin (mg) | 0.128 | 0.5 | 0.5 |
| Vit. B6 (mg) | 0.336 | 0.5 | 0.5 |
| Vit. B12 (µg) | 0.86 | 0.9 | 0.9 |
| Vit. C (mg) | 48 | 30 | 30 |
| Vit. D (µg) | | 5 | 5 |
| Se (µg) | | 20 | 20 |
| Phosphoru (mg) | | 285 | 285 |
| K (mg) | | 450 | 450 |
| Manganeze (mg) | | 0.60 | 0.60 |

Ingredients make up two thirds of the national production cost of RUTF, almost half of which is (imported) milk powder

Cost structure of RUTF ingredients



Cost structure of RUTF production



LNS network

- ✓ Milk vs no milk LNS
 - 20 g / day, 40 g / day
- ✓ Dose finding
 - None, 10 g mLNS, 20 g mLNS, 40 g mLNS
 - 20 g nLNS, 40 g nLNS

