Annex 18: Sugared Water Protocol

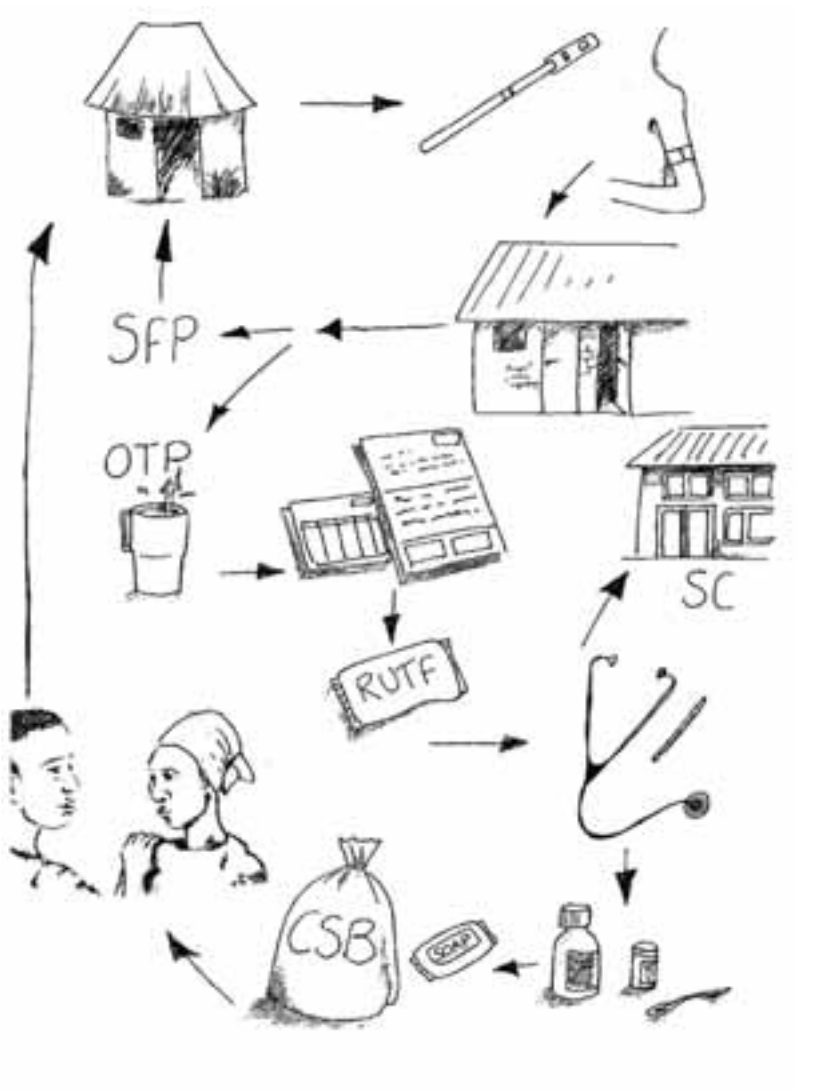
SUGARED WATER 10% DILUTION

Quantity of Water	Quantity of Sugar	
100 ml	10 g	2 heaped teaspoons
200 ml (average cup)	20 g	4 heaped teaspoons
500 ml (small bottle)	50 g	10 heaped teaspoons
1 litre	100 g	20 heaped teaspoons

Notes:

- Take clean drinking water (slightly warm if possible to help dilution). Add required amount of sugar and shake or stir vigorously.
- Give immediately to ALL children refusing RUTF or being transferred to inpatient care.
- If possible, especially when very hot, give to all OTP children while awaiting OTP treatment.

Annex 19: OTP Flow Diagram



Annex 20: OTP RUTF Ration

Plumpy'nut® (92g packets containing 500 kcal)
(average 200kcal/kg/day)

Weight of Child (kg)	Packets per Day	Packets per Week
3.5 – 3.9	1.5	11
4.0 - 5.4	2	14
5.5 – 6.9	2.5	18
7.0 – 8.4	3	21
8.5 – 9.4	3.5	25
9.5 – 10.4	4	28
10.5 – 11.9	4.5	32
≥ 12	5	35

Locally Produced RUTF (100g packets containing 545 kcal/100g)
(average 200kcals/kg/day)

Weight of Child (kg)	Packets per Day	Packets per Week
3.5 – 3.9	1.3	9
4.0 – 5.4	1.5	11
5.5 – 6.9	2	15
7.0 – 8.4	2.5	18
8.5 – 9.4	3	22
9.5 – 10.4	3.5	25
10.5 – 11.9	4	28
≥ 12	4.5	32

Locally Produced RUTF (250g pots containing 545 kcal/100g)
(average 200kcals/kg/day)

Weight of Child (kg)	Pots per Day	Pots per Week
3.5 – 3.9	0.5	4
4.0 – 4.9	0.66	5
5.0 – 5.9	0.75	5
6.0 – 7.9	1	7
8.0 – 9.4	1.25	9
9.5 – 10.9	1.5	11
11.0 – 11.9	1.75	12
≥ 12	2	14

Annex 21: Mixed Ration Protocol – Locally Produced RUTF (100g packets) and BP100

Weight of Child (kg)	Ration per Day		Ration per Week	
	RUTF (packets)	BP100 (tablets)	RUTF (packets)	BP100 (boxes)
3.5 – 3.9	1.3	none	9	none
4.0 – 5.4	1.5	none	11	none
5.5 – 6.9	132	3	13	1
7.0 – 8.4	2.5	3	16	1
8.5 – 11.9	3	3	20	1
>12.0	3	5	20	2

Notes:

- If child refuses locally produced RUTF, give three boxes of BP100 for weekly ration.
- One packet RUTF = 545kcal; 1 bar BP100 (2 tablets) = 300kcal.

Annex 22: Key Messages for OTP

- RUTF is a food and medicine for very thin children only. It should not be shared.
- Sick children often do not like to eat. Give small regular meals of RUTF and encourage the child to eat often (if possible eight meals a day). Your child should have ___ packets a day.
- RUTF is the only food sick/thin children need to recover during their time in OTP.
- For young children, continue to put the child to the breast regularly.
- Always offer the child plenty of clean water to drink while he or she is eating RUTF.
- Use soap for children's hands and face before feeding if possible.
- Keep food clean and covered.
- Sick children get cold quickly. Always keep the child covered and warm.
- When a child has diarrhoea, never stop feeding. Give extra food and extra clean water.

Notes:

The carer should be asked to repeat back to check that the messages have been correctly understood.

These key messages can be supplemented with more detail and more messages if time allows.

Where a ration of supplementary food is given to carers to avoid sharing of the RUTF, the message should be made clear that it is for the other children in the family not the severely malnourished child.

As the child nears the end of their treatment in OTP, other foods (supplementary food, local food) can start to be given in addition to the RUTF.

Annex 23: Routine Medicine Protocol for Severe Malnutrition (OTP)

Name of Product	When	Age / Weight	Prescription	Dose
VITAMIN A*	At admission (EXCEPT children with oedema)	< 6 months	50 000 IU	Single dose on admission (for children with oedema – single dose on discharge).
		6 months to 12 months	100 000 IU	
		> 12 months	200 000 IU	
		DO NOT USE WITH OEDEMA		
AMOXYCILLIN	At admission	All beneficiaries	See protocol	3 times a day for 7 days
ANTI MALARIAL (follow national protocol)	At admission in malarial areas	All beneficiaries	See protocol	Single dose on admission (when using ACT treat only Paracheck positive cases).
MEBENDAZOLE**	Second visit	< 12 months	**DO NOT GIVE**	None
		12-23 months	250 mg	Single dose on second visit
		3 - ≥ 24 months	500 mg	
MEASLES VACCINATION	On week 4	From 6 months	Standard	Once on week 4

* VITAMIN A: Do not give, if the child has already received Vitamin A in the last one month. Do not give to children with oedema until discharge from OTP, unless there are signs of Vitamin A deficiency.

** MEBENDAZOLE: Or other antihelminth according to national guidelines e.g. ALBENDAZOLE: 12-23 months 200mg, ≥ 24 months 400mg: both can be given again after 3 months if signs of re-infection appear.

IRON and FOLIC ACID: Not to be given routinely. Where anaemia is identified according to IMCI Guidelines treatment should begin after 14 days in the programme and not before and given according to National/WHO Guidelines (INACG, 1998). For severe anaemia refer to inpatient care.

Annex 24: Drug Dosages

AMOXYCILLIN DOSAGES

Systematic treatment for all beneficiaries EXCEPT for those of less than 2 kg.

Give 3 times a day for 7 days (10 days if needed).

Syrup - 125 mg / 5 ml	
Weight of Child kg	**Dose**
≤ 9.9	125 mg (5 ml) three times per day
10.0 - 30.0	250 mg (10 ml) three times per day
> 30.0	Give Tablets

Syrup - 250 mg / 5 ml	
Weight of Child kg	**Dose**
≤ 9.9	125 mg (2.5 ml) three times per day
10.0 - 30.0	250 mg (5 ml) three times per day
> 30.0	Give Tablets

Tablets - 250 mg	
Weight of Child kg	**Dose**
≤ 9.9	125 mg (½ tablet) three times per day
10.0 - 30.0	250 mg (1 tablet) three times per day
> 30.0	500 mg (2 tablets) three times per day

Note:

- Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

ARTESUNATE AND FANSIDAR DOSAGES

Give Artesunate 3 days + Fansidar single dose day 1

Artesunate tablets – 50 mg

Fansidar tablets – 500 mg + 25 mg

Dose		
Weight of Child kg	**Artesunate Day 1, Day 2, Day 3**	**Fansidar Day 1 Tablets**
< 5	1/4	1/4
5 – 7	1/2	1/2
7.1 – 12	1	1/2
12.1 – 20	2	3/4
20.1 – 30	2	1
30.1 – 40	3	1 1/2
40.1 – 50	4	2
50.1 – 60	4	2 1/2
> 60	5	3

Note

Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

CHLORAMPHENICOL DOSAGES

Use for second line antibiotic treatment for children who have not responded to Amoxycillin, e.g. continued fever that is not due to malaria.

Give 3 times a day for 7 days.

Syrup - 125 mg / 5 ml	
Weight of Child kg	**Dose**
2.0 - 5.9	62.5 mg (2.5 ml) three times per day
6.0 - 9.9	125 mg (5 ml) three times per day
10.0 - 30.0	250 mg (10 ml) three times per day

Capsules - 250 mg	
Weight of Child kg	**Dose**
2.0 - 5.9	Give syrup
6.0 - 9.9	125 mg ($^1/_2$ capsule) three times per day
10.0 - 30.0	250 mg (1 capsule) three times per day

NOTE:

Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

FANSIDAR DOSAGES

Sulfadoxine-pyrimethamine

(contains 500 mg sulfadoxine + 25 mg pyrimethamine)

For systematic treatment in malarial areas. Can be repeated after four weeks if symptoms reoccur.

A single dose immediately (stat dose) (25mg/kg/day) on admission.

Tablets 525mg		
Weight of Child kg	**Dose**	
< 2.0 (< 2 months old)	Do Not Give	
< 5.0	125 mg	(1/4 tablet)
5.0 - 15.9	250 mg	(1/2 tablet)
16.0 - 24.9	500 mg	(1 tablet)
25.0 - 34.9	750 mg	(1 1/2 tablets)
35.0 - 44.9	1000 mg	(2 tablets)
>= 45	1500 mg	(3 tablets)

NOTE:
Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

PARACETAMOL DOSAGES

For severely malnourished children use with extreme caution. Give **one time treatment only** and start antibiotic or anti-malarial immediately. Monitor child - if the fever is greater than **38.5°C**, where possible, refer to inpatient care. If inpatient care is not possible, give a single dose of Paracetamol and tepid sponge the child until fever subsides. Return to clinic if high fever continues at home.

Give a single dose immediately (stat dose) for symptomatic treatment of fever.

Syrup - 125 mg / 5 ml	
Weight of Child kg	**Dose**
< 4.0	25 mg (1 ml) single dose
4.0 - 7.9	60 mg (2.5 ml) single dose
8.0 - 14.9	120 mg (5 ml) single dose
> 15.0	240 mg (10 ml) single dose

Tablets - 100 mg	
Weight of Child kg	**Dose**
< 4.0	25 mg (1/4 tablet) single dose
4.0 - 7.9	50 mg (1/2 tablet) single dose
8.0 - 14.9	100 mg (1 tablet) single dose
> 15.0	200mg (2 tablets) single dose

Note:

Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

Give ONE DOSE only and start antibiotic or anti-malarial.

PIPERAZINE DOSAGES

Piperazine - 750 mg / 5 ml

Systematic antihelminth treatment of children between one and two years of age. Give 0.8ml/kg/day in one SINGLE dose

Weight of Child kg	Dose ml
4.0 - 4.4	3.0
4.5 - 4.9	3.5
5.0 - 5.5	4.0
5.6 - 6.1	4.5
6.2 - 6.7	5.0
6.8 - 7.4	5.5
7.5 - 8.0	6.0
8.1 - 8.6	6.5
8.7 - 9.3	7.0
9.4 - 9.9	7.5

Note:

Always check label on bottles for dosages and dilution of syrups as this can change between different manufacturers.

QUININE DOSAGES

Quinine – 300 mg salt

If malaria still suspected after Fansidar, refer to Health Centre for testing, if referral not possible give Quinine.

Give 3 times a day for 7 days

Weight of Child kg	Dose
3.0 - 9.9	(1/4 tablet) three times per day
10.0 - 19.9	(1/2 tablet) three times per day
20.0 - 24.9	(3/4 tablet) three times per day
25.0 - 35.0	(1 tablet) three times per day

ReSoMaL Protocol

Rehydration solution for severely malnourished children in inpatient facilities.

To be used ONLY after careful diagnosis of dehydration (history and clinical signs).

Monitor regularly. If respiratory rate increases or there is increasing oedema (e.g. of eyelids) or neck veins become distended, stop ReSoMaL. Reassess after the first hour.

Weight of Child kg	First 30 Minutes ml	Second 30 Minutes ml	2nd Hour ml
2.0 - 2.9	10	10	20
3.0 - 3.9	15	15	30
4.0 - 4.9	20	20	40
5.0 - 5.9	25	25	50
6.0 - 6.9	30	30	60
7.0 - 7.9	35	35	70
8.0 - 8.9	40	40	80
9.0 - 9.9	45	45	90
10.0 - 10.9	50	50	100
11.0 - 11.9	55	55	110
12.0 - 12.9	60	60	120
13.0 - 13.9	65	65	130
14.0 - 14.9	70	70	140
15.0 - 15.9	75	75	150

Annex 25: Supplemental Medicines (OTP)

Name of Product	When to Give	Prescription	Special Instructions
Chloramphenicol	To be given as second line antibiotic for children not responding to Amoxycillin ie: continued fever that is not due to malaria.	See separate protocol.	Continue for 7 days.
Tetracycline eye ointment	For treatment of eye infection.	Apply 3 times a day, morning afternoon and at night before sleep.	Wash hands before and after use. Wash eyes before application. Continue for 2 days after infection has gone.
Nystatin	For treatment of candida.	100,000 units (1 ml) 4 times a day after food (use dropper and show the carer how to use it).	Continue for 7 days.
Paracetamol	For children with fever over 38.5°C.	See separate protocol.	Single dose only - DO NOT give to take home.
Benzyl Benzoate	For treatment of scabies.	Apply over whole body. Repeat without bathing on following day. Wash off 24 hours later.	Avoid eye contact. Do not use on broken or secondary infected skin.
Whitfields	For treatment of ringworm or other fungal infections of the skin.	Apply twice a day.	Continue treatment until condition has completely resolved.

Name of Product	When to Give	Prescription	Special Instructions
Gentian Violet	For treatment of minor abrasions or fungal infections of the skin.	Apply on lesion.	Can be repeated at next visit and continued until condition resolved.
Quinine	2nd line anti-malarial treatment for children who have not responded to fansidar.	See separate protocol.	
Ferrous Sulphate	Treatment for anaemia identified according to IMCI guidelines.	According to WHO protocols (INACG 1998 and Donnen et al, 1998).	ONLY to be given after 14 days in the programme.

Annex 26: Medicine Protocol Rationale (OTP)

Vitamin A

Vitamin A should only be given if it has not been received in the last 30 days (WHO, 2000/a). Vitamin A should not be given to children with oedema related to malnutrition (research has concluded that children with Kwashiorkor who receive high dose Vitamin A therapy suffer five times greater mortality than the control group) (Donnen et al., 1998) and (Donnen et al., 2003). RUTF contains enough Vitamin A (0.91mg/100g) to satisfy a daily low dose requirement. Oedematous children should therefore only be given Vitamin A if they show any signs of Vitamin A deficiency (night blindness, Bitot's spots, corneal xerosis), if there is currently a measles outbreak or if there is a high prevalence of Vitamin A deficiency in the area.

Dosages should follow WHO or national guidelines (WHO, 1999/b).

Amoxycillin

Amoxycillin is given routinely on admission to treat underlying infections as the presence of such infections may be masked due to immunosuppression which limits response such as fever. Amoxycillin is also effective in reducing the overgrowth of bacteria in the GI tract, (Meyers et al., 2001) commonly associated with severe malnutrition. It is able to cross the wall of the GI tract into the blood stream passively, and does not rely on active transport mechanisms that may be inefficient in severely malnourished individuals. If signs and symptoms of infection continue beyond the initial treatment, a second line antibiotic should be started.

Chloramphenicol

While the simultaneous use of several antibiotics may be justified in an inpatient setting, a simpler regime is required in an outpatient setting. Chloramphenicol is a sufficiently broad spectrum antibiotic to fulfil this need and is therefore given as a second line treatment if Amoxycillin fails to cure the infection. Dosage and timing are dependent on the specifically identified infection (WHO, 1999/a and WHO, 1999/b). The use of Chloramphenicol is associated with a very small risk of aplastic anaemia leading to lethal bone marrow failure. The medicine is used in the UK and is believed to be a valuable treatment for dangerous conditions. Its use is therefore appropriate for the treatment of potentially life-threatening infection in malnourished children.

Additional Antibiotics

Antibiotics other than those mentioned above should be given only when specifically indicated by the presence of an infection and should be given according to the drug protocol and in consideration of national drug protocols. In the case of severe infections requiring referral to an inpatient unit, second line antibiotics may be added to Amoxycillin according to standard WHO inpatient protocols (WHO, 1999/a). The choice of additional antibiotics is indicated by national protocols or according to local antibiotic resistance information.

Measles Vaccination

Evidence shows that an early two-dose strategy from the age of six months is very effective. All children entering inpatient care (except those in shock or those with evidence of previous vaccination) should be given the vaccination on entry to the programme and this should be repeated on exit from the OTP. This should be coordinated with the EPI programme where applicable. The first vaccination in the inpatient setting is to ameliorate the severity of incubating measles and reduce the severity of the episode if the child is exposed to measles in the SC. It does not however, give adequate immunity in many children requiring inpatient care due to insufficient antibody response and therefore the second injection is needed to give future protection.

In the OTP, children are at less risk of exposure to active measles cases and are also less severely affected by malnutrition. It is therefore recommended that they receive one measles vaccination only after they have sufficiently recovered from their malnutrition to ensure a sufficient antibody response to the vaccine to produce immunity i.e. on week 4.

Referral of other siblings for measles vaccination increases herd immunity in overcrowded conditions in the home setting and can reduce the mortality of even those who are unvaccinated.

Anti-Malarial Therapy

National protocols should guide the anti-malarial therapy used. However Valid recommends that paracheck is carried out then Fansidar given as a combination therapy with Artesunate for positive cases. Paracheck should be carried out on all children in a malaria endemic area. In other areas, testing should be carried out only on those with a strong index of suspicion.

The therapy can also be given without Paracheck if there is a strong index of suspicion of malaria and signs and symptoms cannot be attributed to any other cause. This protocol is designed to prevent overuse of the anti-malarial therapy and the malarial parasite becoming resistant to the new drug regimen. Do not give Fansidar within seven days of folic acid (see below).

Folic Acid

The quantity of folic acid present in RUTF and F75 is sufficient for the needs of the malnourished child. Folic acid can therefore be only given to children showing signs of anaemia. Giving folic acid within seven days of Fansidar can make the Fansidar ineffective as the malarial parasite can use folic acid to overcome the effect of Fansidar (Wang et al., 1999). Folic acid for children showing signs of anaemia should therefore be given on the second visit to the OTP, if Fansidar is part of the malaria therapy on admission. As folic acid is present in RUTF, priority is given to treating the life-threatening malaria.

Iron

High dose iron tablets may increase the risk of severe infections in the severely malnourished. The giving of iron tablets in severe malnutrition is therefore contraindicated. The presence of free iron in the blood is often a limiting substrate to infective organisms. In a normal functioning liver, the enzyme transferrin is able to 'mop-up' this free iron. In the severely malnourished, poor liver function and the reduced levels of transferrin allow iron to remain free for use by these organisms. Although there is some iron content in RUTF, the levels are lower than in high dose tablets, and therefore insufficient to allow the formation of free iron in the same way.

There is currently no research to document the bioavailability of iron in RUTF. RUTF is given only to those with an appetite. However, good appetite correlates with good liver function and consequently transferrin activity.

Where moderate anaemia is identified according to IMCI guidelines, treatment should be provided according to WHO guidelines (INACG 1998) after day 14 in the programme, ideally through referral to a health clinic. Where anaemia is severe the child should be referred to an inpatient facility according to the action protocol (see Annex 10).

Mebendazole/Albendazole

Mebendazole/Albendazole is best absorbed after reconditioning of the GI tract with Amoxycillin. Mebendazole/Albendazole is actively absorbed from the intestine and is more effective when the GI tract is free of other infections, and is therefore given on the second visit. Worm infection is less common in infants due to reduced exposure to potential contaminants (e.g. soil). Indications are that Mebendazole/Albendazole is metabolised efficiently by children over twelve months (Montresor et al., 2003). Routine treatment should therefore be given only to children over twelve months of age.

Paracetamol

Paracetamol should be used with caution in severely malnourished children because it is metabolised by the liver and there is a high possibility of reduced liver function in severe malnutrition. Irreversible liver damage and death can occur with relatively small overdoses in susceptible people, and Paracetamol should therefore not be given unless there is a documented fever of over 38.5 degrees centigrade. It should never be dispensed to take home. A low-grade fever less than 38.5 degrees centigrade is usually beneficial in helping the body to fight infection and is a normal immune response; Paracetamol should therefore not be given in these cases.

ORS / ReSoMal

Oral Re-hydration Salts (ORS) are not part of the CTC protocols. The patho-physiology of severe malnutrition causes an inability to regulate and excrete sodium normally that can lead to fluid retention, oedema, heart failure and death. This deterioration can happen very quickly. ORS is therefore contraindicated in OTP and SC children.

Re-hydration solution for marasmic children (ReSoMaL) has been specially formulated with a low sodium and high potassium content to fulfil the requirement of severely malnourished individuals. ReSoMal is only used strictly in accordance with WHO protocols as overuse can cause over hydration and its associated risks of heart failure and death. It is given in strictly controlled amounts while the child is in the SC under medical supervision only.