

Treatment of children with cholera and severe acute malnutrition (SAM)

1. ASSESS NUTRITIONAL STATUS

Only use this protocol if child has severe acute malnutrition (SAM), otherwise use standard protocols.

SAM criteria: Mid-upper arm circumference <11.5 cm (only for 6-59 months) OR weight for height z score < -3 OR bilateral pitting oedema

2. ASSESS LEVEL OF DEHYDRATION

Note that the usual signs of dehydration may be present in children with SAM even when not dehydrated, which can lead to overdiagnosis of dehydration.

NO DEHYDRATION	SOME DEHYDRATION	SEVERE DEHYDRATION
<ul style="list-style-type: none"> • Awake and alert • Normal pulse • Normal thirst • Eyes not sunken • Skin pinch normal 	<p>At least 2 of the following:</p> <ul style="list-style-type: none"> • Irritable or restless • Sunken eyes • Rapid pulse • Thirsty (drinks eagerly) • Skin pinch goes back slowly 	<p>At least 2 of the following:</p> <ul style="list-style-type: none"> • Lethargic or unconscious • Sunken eyes • Absent or weak pulse • Not able to drink or drinks poorly • Skin pinch goes back very slowly <p>The only indication for IV therapy is circulatory collapse where the child is lethargic or unconscious</p>

3. TREAT ACCORDING TO LEVEL OF DEHYDRATION

Malnourished children with cholera should be given WHO standard low-osmolarity ORS (NOT ReSoMal).

Malnourished children are particularly susceptible to certain conditions including hypoglycaemia and hypothermia.

This should be monitored and therapy adapted appropriately as per WHO guidelines on management of children with SAM.

No signs of dehydration - Plan A	Some signs of dehydration - Plan B	Signs of severe dehydration - Plan C
<ul style="list-style-type: none"> • Replace fluid losses with standard ORS: ≤2 years old: 50 ml per loose stool >2 years old: 100 mls per loose stool • As soon as possible, initiate F-75 feeding. Follow WHO SAM management guidelines. Use F-75 reference card to determine amount per feed (for children who have been successfully rehydrated, use rehydrated weight). When the child shows signs of readiness for transition, initiate ready-to-use therapeutic food (RUTF) or F-100. 	<ul style="list-style-type: none"> • Step 1: Rehydrate slowly with standard ORS, orally or by nasogastric tube (if the child is not able to drink): 5 ml/kg every 30 min for the first 2 hours. • Step 2: If the child is still dehydrated after Step 1, give 5-10 ml/kg standard ORS in alternate hours with F-75 until child is fully rehydrated (up to a maximum of 10 hours). Increase ORS volumes to compensate for ongoing fluid losses (for children <2 years give an additional 50 ml after each loose or watery stool, for children 2 years and older give an additional 100 ml after each loose or watery stool). • Note: there is serious risk of overhydration among children with SAM. Check for signs of improved hydration status or overhydration every 30 mins for the first 2 hours, then hourly. Stop ORS if overhydration signs appear. Breastfeeding and therapeutic milk should continue throughout rehydration. 	<ul style="list-style-type: none"> • Give IV fluids, 15ml/kg over 1 hour using either Ringer's lactate solution with 5% glucose or half-strength Darrow's solution with 5% glucose. If neither is available, use 0.45% saline with 5% glucose. • Monitor every 5-10 min for signs of overhydration and signs of congestive heart failure. Stop IV therapy immediately if these develop. • If child does not improve after 1 hour of rehydration, assume septic shock and treat accordingly. • If child improves, repeat same amount of IV fluids for a second hour and at the same time give 5-10 ml/kg standard ORS until child is fully rehydrated (up to a maximum of 10 hours); alternate ORS with F-75. Adjust ORS volumes to compensate for ongoing fluid loss (for children <2 years give an additional 50 ml after each loose or watery stool, for children 2 years and older give an additional 100 ml after each loose or watery stool). • Initiate oral antibiotics as soon as vomiting stops.

4. FOLLOWING REHYDRATION REASSESS NUTRITIONAL STATUS

Once the child is successfully rehydrated, re-screen for SAM.

If the child is still classified as SAM, continue follow treatment plan A as described in this document.

If following rehydration the child is no longer classified as SAM, follow standard treatment protocols.

SIGNS OF OVER-HYDRATION

- Increased respiratory rate and pulse (both must increase to consider it a problem)
- Jugular veins engorged (pulse wave can be seen in the neck)
- Increasing oedema (e.g. puffy eyelids)
- Child's weight exceeds the target weight

RECOMMENDED ANTIBIOTICS FOR CHILDREN <12 YEARS OLD

First-line drug choice and dose (if local strain sensitive):

Doxycycline 2-4mg/kg, p.o., single dose

Alternative drug choices:

Azithromycin 20 mg/kg (max 1g) p.o., single dose

or

Ciprofloxacin 20 mg/kg (max 1g) p.o., single dose

When the child is discharged to a nutritional centre, make sure the centre knows that the child has already received antibiotics and which one was given.

ZINC SUPPLEMENTS

WHO-recommended therapeutic foods already contain adequate zinc. Children with severe acute malnutrition who are given F-75, F-100 or ready-to-use therapeutic food should therefore not receive additional zinc supplements.

REFERENCE

WHO. Updates on the management of severe acute malnutrition in infants and children. 2013. http://www.who.int/nutrition/publications/guidelines/updates_management_SAM_infantandchildren/en/

Other rehydration and treatment protocols could be considered in the context where highly experienced and closely supervised staff (both in cholera treatment AND the management of SAM) are treating patients. This should be implemented with close monitoring and recording of treatment outcomes.