

Appendix 14. WHO rehydration plan in patients with diarrhoea (2025)

Download '[WHO rehydration plan](#)' (PDF document)

Table 14.1 - Assessment of dehydration, adapted from WHO^a

Clinical features (2 or more of the following signs)	Classification		
	A No dehydration	B Dehydration	C Severe dehydration
Mental status	Normal	Restless, irritability	Lethargic or unconscious
Eyes	Normal	Sunken*	Sunken*
Skin pinch	< 1 second	Goes back slowly	Goes back very slowly (> 2 seconds)
Thirst	No thirst, drinks normally	Thirsty, drinks eagerly	Unable to drink or drinks poorly
Urine output	Normal	Reduced	Absent for several hours

*Sunken eyes may be a normal feature in some children. Ask the parent/carer if the child's eyes are the same as usual or if they are more sunken than usual.

Children with no dehydration do not require admission.

Most children with some dehydration can be managed at home after an initial period of observation (4 to 6 hours) to ensure that they are able to tolerate adequate oral rehydration treatment.

Admit:

- All children with severe dehydration.
- Children < 4 months of age and/or < 4 kg weight with some dehydration.
- Children with some dehydration if there is no possibility for short-term observation while starting rehydration treatment.

Important: *always reassess the child's hydration and clinical condition regularly – clinical improvement is the best indicator of treatment response.*

Treatment Plan A (no dehydration): treat diarrhoea at home

Rule 1 - Give the child more fluids than usual, to prevent dehydration

- Encourage
 - Breastfeeding
 - Frequent drinking: oral rehydration salts (ORS), salted drinks (e.g. salted rice water, soup etc.)

^a World Health Organization. Pocket book of hospital care for children: Guidelines for the management of common illnesses. 2nd ed. Geneva : World Health Organization; 2013.

- Give the child as much liquid as they want until diarrhoea stops. Use the amounts shown below for ORS as a guide. Describe and show the amount to be given after each stool is passed, using a local measure.

Weight (kg)	< 5	5 to < 10	10 to 20	> 20
ORS (mL) to be given after each loose stool	50	100	200	300
Quantity of ORS to provide for home treatment/day	1	1	2	4

- Show the parent/carer how to prepare ORS and how to give it
- Give a teaspoonful every 1-2 minutes to children under 2 years. Do not use a baby bottle
- Give frequent sips from a cup for older children
- If the child vomits, wait 10 minutes. Then give the solution more slowly (e.g. a spoonful every 2-3 minutes).
- If diarrhoea continues after the ORS sachets are used up, tell the parent/carer to give other fluids as described above or to return for more sachets of ORS. If symptoms persist for more than 48 hours, take the child for consultation

Rule 2 - Continue to feed the child, to prevent malnutrition

- Breastfeeding should **always** be continued.
- The infant's usual diet should be continued during diarrhoea and increased afterwards
- Most children with watery diarrhoea regain their appetite after dehydration is corrected
- Milk:
 - **Infants of any age who are breastfed** should be allowed to breast-feed as often and as long as they want. Infants will often breastfeed more than usual, encourage this.
 - **Infants who are not breastfed**, should be given their usual milk feed (formula) at least every three hours, if possible by cup.
 - **Children aged 6 months and over or who are already taking soft foods** should be given cereals, vegetables and other foods, in addition to milk. **If the child is over 6 months and such foods are not yet being given**, they should be started during the diarrhoea episode or soon after it stops.
 - ▷ Foods rich in potassium, such as bananas, coconut milk and fresh fruit juice are beneficial
 - ▷ Offer the child food every three or four hours (six times daily)

Rule 3 - Take the child to a health worker if there are signs of dehydration or other problems

The parent/carer should take the child to a health worker if the child:

- Starts to pass many watery stools
- Vomits repeatedly
- Becomes very thirsty
- Is eating or drinking very poorly
- Develops a fever
- Has blood in the stool; or
- Does not get better in three days

Treatment Plan B (some dehydration): oral rehydration treatment

If breastfeeding, encourage continuation if the child is keen and alert.

Prescribe **ORS** 75 mL/kg over 4 hours:

Weight (kg)	< 6	6 to < 10	10 to < 12	12 to < 19	19 to < 30
Total ORS (mL) over 4 hours	200-400	400-700	700-900	900-1400	1400-2200
Volume of ORS per hour (mL/hr)	50-100	100-175	175-225	225-350	350-550

How to give ORS

- Show the parent/carer how to give ORS in small, frequent quantities e.g. using a teaspoon or syringe for infants and young children (5 mL every 5 minutes), or regular sips from a cup for older children.
- If child vomits ORS, wait a few minutes (5 min) and encourage child to take smaller volumes or sips.
- In addition to rehydration with treatment plan B, give extra ORS to replace fluids lost with each loose stool according to plan A (above).
- If the child's eyelids become puffy: stop ORS, reduce liquid intake and continue breastfeeding. Weigh the child and monitor urine output.

How to monitor the progress of oral rehydration treatment

- Check the child frequently during rehydration.
- Ensure that ORS solution is being taken correctly and the signs of dehydration are not worsening.
- After four hours, reassess the child following the guidelines in Table 1 and decide appropriate treatment plan.
- If there are **no signs of dehydration**, consider the child completed rehydrated. Show the parent/carer how to treat the child at home with ORS and food following treatment plan A. Give them enough sachets of ORS for 2 days.
- Also explain to the parent/carer how to reassess for signs of dehydration and when to take the child to see a health worker (see Plan A).

Giving food

- Except for breast milk, food should not be given during the initial four-hour rehydration period.
- Children on Treatment Plan B longer than four hours should be given some food every 3-4 hours as described in Treatment Plan A.
- All children over 6 months should be given some food before being sent home. This helps to emphasize to parents/carers the importance of continued feeding during diarrhoea.

Treatment Plan C: severe dehydration, rehydration by IV route

- Obtain IV or IO access.
- Mark liver border with pen.
- Administer IV **Ringer lactate** (RL) (or alternatively **sodium chloride 0.9%** if RL not available) according to the following table:

Age	First administer 30 mL/kg* over:	Then administer 70 mL/kg over:
< 12 months	1 hour	5 hours
≥ 12 months	30 minutes	2½ hours

*Repeat this volume if radial pulse remains weak or absent.

- Monitor urine output.
- Test blood glucose levels and treat hypoglycaemia if present.
- Check Hb and blood electrolytes (where available) and treat anaemia if present.
- Monitor and record signs of dehydration and vital signs every 15 to 30 minutes until they are stable for at least an hour.
- Monitor continuously for signs of fluid overload:
 - Increased RR by ≥ 10 breaths/min from initial RR, or
 - Increased HR by ≥ 20 beats/min from initial HR.

Plus any one of the following:

- New or worsening hypoxia (decrease in SpO₂ by > 5%)
- New onset of rales and/or pulmonary oedema (fine crackles in lung fields)
- New galloping heart rhythm
- Increased liver size (liver size must have been marked with pen on arrival)
- New peripheral oedema and/or puffy eyelids

Management if signs of fluid overload present:

- Stop IV fluids.
- Administer **furosemide IV**: 0.5 mg/kg (repeat once if necessary).
- Place child into semi-sitting position and ensure high-flow oxygen via non-rebreathing mask
 - If the child’s condition is not improving, re-evaluate, consider other differential diagnoses (e.g. diabetic ketoacidosis, shock, sepsis), assess fluid losses and increase the rate of IV fluids accordingly.
 - As soon as the child is awake, alert, and can tolerate a nasogastric tube (NGT) or take oral fluids:
 - ▷ Start **ORS** at 5 mL/kg/hour in addition to the ongoing IV fluid resuscitation and encourage breastfeeding (if relevant). In addition, if tolerated, give extra ORS to replace fluids lost with each loose stool according to plan A.
 - ▷ Assess the degree of dehydration at the end of the fluid resuscitation (3 hours for children, 6 hours for infants). Continue further rehydration according to degree of dehydration following the appropriate treatment plan (A, B or C).
 - If hypokalaemia or, where potassium monitoring not available, if child develops signs of hypokalaemia including general fatigue, muscle cramps and weakness, abdominal distension and polyuria, treat for moderate hypokalaemia with **7.5% potassium chloride** syrup (1 mmol of K⁺/mL) for 2 days:
 - ▷ < 45 kg : 2 mmol/kg (2 mL/kg) daily
 - ▷ ≥ 45 kg : 30 mmol (30 mL) 3 times daily

Note: children with severe acute malnutrition (SAM)

Dehydration is difficult to assess clinically in severely malnourished children because malnutrition may mask signs of dehydration or cause over-diagnosis of severe dehydration:

- Signs of hypovolaemia or circulatory impairment can be masked by oedema.
- Skin pinch assessment has no value if the subcutaneous tissue has completely disappeared because the persistent and doughy character applies to this subcutaneous tissue (deep pinch).
- Sunken eyes can be present without dehydration.

Therefore, to diagnose dehydration and assess for severity in children with SAM, the following criteria are more reliable.

Clinical features (Two or more of the following signs)	Classification		
	No dehydration	Dehydration	Severe dehydration
Mental status	Normal	Restless, irritability	Lethargic or unconscious
Thirst	No thirst, drinks normally	Thirsty, drinks eagerly	Unable to drink or drinks poorly
Urine output	Normal	Reduced	Absent for several hours
Recent frequent watery diarrhoea and/or vomiting	Yes	Yes	Yes
Recent obvious rapid weight loss	No	Yes	Yes

In the case of SAM, the specific rehydration treatment is based on ReSoMal® PO.