

# Diarrhoea and dehydration in India- a case review

## Abstract

Diarrhea and dehydration are significant health challenges in India, particularly among children. Here are some key points.

**Prevalence:** Diarrhea is a leading cause of morbidity and mortality among children under five in India. The prevalence is higher in rural areas compared to urban areas.

**Causes:** Diarrhea is often caused by contaminated food or water, poor sanitation and hygiene practices, and inadequate access to healthcare.

**Dehydration:** Diarrhea can lead to dehydration, which is particularly dangerous for children. Dehydration can occur quickly and can be life-threatening if not treated promptly. Children face lot of challenges due to the immature system and the changes that happen during their growth and development. Any illness adds up stress to them. Diarrhoea is the most common cause of mortality and morbidity in India. Most of the time its preventable and hence measures need to be taken by the health care professionals to prevent diarrhoe. Mass media communication is the best mode of communication to disseminate health information's. Pediatric nurses need to address this issue as a top priority one. They need to empower the parents and community to initiate preventive measures so that the need for hospitalization may be prevented or minimized. This is a case review article with the ethical permission is presented in the article to emphasise on the nursing perspective in the prevention and management of diarrhea and dehydration

**Keywords:** diarrhoea, dehydration, mortality, morbidity

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## Introduction

Diarrhea is a leading cause of morbidity and mortality among children under five in India. The prevalence is higher in rural areas compared to urban areas. Causes: Diarrhea is often caused by contaminated food or water, poor sanitation and hygiene practices, and inadequate access to healthcare. Dehydration: Diarrhea can lead to dehydration, which is particularly dangerous for children. Dehydration can occur quickly and can be life-threatening if not treated promptly.

## Background



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**Prevalence:** Diarrhea is a leading cause of morbidity and mortality among children under five in India. According to the World Health Organization (WHO), there were an estimated 115,000 deaths due to diarrhea in children under five in India in 2016.

**Incidence:** The incidence of diarrhea in children under five in India is high, with an estimated 1.7 episodes per child per year.

**Risk Factors:** Factors such as poor sanitation, unsafe drinking water, lack of hygiene practices, and malnutrition contribute to the high prevalence of diarrhea in children in India.

**Impact:** Diarrhea can have significant consequences for children's health and development. It can lead to dehydration, malnutrition, and stunted growth, and in severe cases, it can be life-threatening.

**Preventive measures:** Efforts to reduce the burden of diarrhea in children in India include improving access to clean water and sanitation, promoting good hygiene practices, and increasing vaccination coverage against rotavirus, a common cause of severe diarrhea in children. Prevention strategies include improving access to clean water and sanitation, promoting good hygiene practices, breastfeeding infants exclusively for the first six months, and vaccination against rotavirus, a common cause of severe diarrhea in children.

**Government Initiatives:** The Government of India has implemented various public health programs to address diarrhea in children, such as the Integrated Management of Neonatal and Childhood Illness (IMNCI) program and the National Rural Health Mission (NRHM).

**Progress:** While progress has been made in reducing the burden of diarrhea in children in India, more work is needed to achieve further reductions in morbidity and mortality.

**Treatment:** The treatment of diarrhea and dehydration involves rehydration therapy, which can be oral rehydration solution (ORS) for mild to moderate dehydration or intravenous fluids for severe cases.<sup>1,2</sup>

**Healthcare infrastructure:** Improving healthcare infrastructure, including access to healthcare facilities and trained healthcare professionals, is crucial for the effective management of diarrhea and dehydration in India.

**Public health initiatives:** The government of India has implemented various public health initiatives to address diarrhea and dehydration,

such as the Integrated Management of Neonatal and Childhood Illness (IMNCI) program and the National Rural Health Mission (NRHM).<sup>3</sup>

**Community education:** Educating communities about the importance of hygiene, safe drinking water, and early recognition of diarrhea symptoms can also help prevent and manage these conditions.

### Care study on age with severe dehydration

#### Day 1

Master R, a 3 years old boy from Tamil Nadu got admitted in ward .he was apparently well till 1 day back, were he developed loose stools , 10 episodes per day associated with low grade intermittent fever that relieved temporarily on medications. There was a history of decreased activity, lethargy, and reduced urine output. He looks tired, drowsy and dehydrated, RL correction given. Maintenance IV fluids started, on NG feeds. Oxygen 2l/min via nasal prong started. At the age of 2yrs he had loose stools for 20 days with fever, which does not required admission following that mother noticed regression of developmental milestones, initially he could walk with support then slowly stopped walking, became unable to sit and lost neck control, over a period of 1 yr. He was under follow up with dept of developmental peds and peds neuro, CMC Vellore and was diagnosed to have metachromatic leukodystrophy. On physical assessment Temperature: 101 F, PR: 156 /min, RR: 34/min BP: 91/62mm of Hg CRT: 3 sec length: 92cms

Weight: 14kg MAC: 14cms, General appearance: drowsy, lethargic and dehydrated, Skin: cold peripheries, Abdomen: liver 1cm palpable. Tone is increased in all 4 limbs,

Deep tendon reflexes right left

Biceps 2+ 2+

Knee 2+ 2+

Ankle 2+ 2+

Other physical findings are normal.

**Note:** child has attained normal growth and development till the age of 1 year, after that child was unable to walk, kindly fill in the details as per the given age group comparing the patient and book picture as expected in the care study!!!!!!

**No. of tooth:** 12

#### Family history

He is from a lower middle class with Rs. 10,000/month, his father is the bread winner of the family. Has no significant family history of any chronic illness. Has an adequate facility at home with water sealed latrine and 3 rooms. Playground around 3 km away from home is from Hindu religious background.

No.	Name of the family member	Relationship to the patient	Age	Sex	Education	Occupation	Health status
1	Mr T	Father	30	M	degree	Manager	Good
2	Mrs D	Mother	25	F	degree	Housewife	good
3	Master R	Self	3	M	Nil	Nil	AGE

#### Personal history

**Diet:** veg/non veg; NA child is on NG feeds from the age of 1 year. Likes: NA dislikes: NA

**Sleep:** 2-3 hrs/day 6-8 hrs /night, Bowel frequency: 1-2 times / day, bladder frequency: 4-5 times/ day, Hygienic practices: he depends on his mother for hygienic practice.

**Birth history:** (antenatal, intranatal and postnatal history should be written under separate heading!!!!!!!!!!!!)

Mother had uneventful antenatal period. He is the 1st born to a 3r degree consanguineously married couple. Received 2 doses of TT. Term baby by LSCS with birth weight of 3.3 kg cried at birth.

**Immunization:** Adequately immunized up to the age

#### 24hr recall:

100ml of HCCM q2h via NG tube

Note- write the nutritional values for each item as given in the care study. Write a proper nutritional assessment!!!!!!

Find out DOM!!!!!!!!!!!!!!

Lab investigation

6/4 Platelet -401000/cumm; SGPT-54 U/L; SGOT-32 U/L; Na -158 mmol/L; K+-2.7mmol/L

**Special investigation:** Culture faeces-No growth

#### Medications

Inj. Cefotaxime -300mg, Iv ,Q6h; Inj.meropenem-280mg, Iv, Q8h; Inj.vacomycin-200mg, Iv, Q6h, Inj.amikacin-180mg, Iv, Od ; Syp. Azithromycin-150mg, NG, Od

**Day 2:** he looks mildly dehydrated. Slightly febrile temp: 100 F PR: 138/min RR: 36/min BP: 90/50 mm of hg. IV fluids and NG feeds HCCM changed to rice conjee, had two episodes of diarrhoea.

**Day 3 – Day 5:** IV fluids, IV antibiotic continued. Afebrile

#### Nursing management of a child with diarrhoea and dehydration



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The nursing management of a child with diarrhea and dehydration involves several key steps to assess, treat, and monitor the child's condition. Here is a general outline of the nursing management:

#### Assessment

Assess the child's hydration status using clinical signs such as sunken eyes, dry mucous membranes, decreased skin turgor, and decreased urine output.

Monitor vital signs, including temperature, heart rate, respiratory rate, and blood pressure.

Assess the frequency and consistency of the child's stools and any associated symptoms such as vomiting or fever.<sup>4,5</sup>

### Fluid management

Administer oral rehydration solution (ORS) to replace lost fluids and electrolytes. ORS should be given frequently in small, age-appropriate amounts.

Monitor the child's intake and output of fluids and electrolytes.

In severe cases of dehydration, intravenous (IV) fluids may be necessary. Monitor the child's response to IV fluids closely.

### Nutritional support

Continue breastfeeding for infants. Breast milk is easily digestible and provides important nutrients.

For older children, offer small, frequent meals that are easily digestible, such as rice, bananas, applesauce, and toast (BRAT diet).

Avoid giving dairy products, fatty foods, or foods high in sugar, as these can worsen diarrhea.

### Monitoring and evaluation

Monitor the child's hydration status, vital signs, and symptoms regularly.

Assess for signs of complications such as hypovolemic shock, electrolyte imbalances, or sepsis.

Evaluate the effectiveness of treatment and adjust the plan as needed.

### Hygiene and infection control

Practice good hand hygiene before and after caring for the child.

Use personal protective equipment, such as gloves, when handling feces or contaminated items.

Ensure proper disposal of contaminated materials to prevent the spread of infection.

### Education and support

Educate caregivers about the importance of ORS and fluid replacement therapy.

Provide guidance on when to seek medical attention if the child's condition worsens.

Offer support and reassurance to caregivers, as caring for a sick child can be stressful.

### Follow-up

Schedule follow-up visits to monitor the child's progress and ensure adequate hydration and nutrition.

Provide education on preventive measures, such as improving sanitation and hygiene practices.

Child got discharged on the fifth day no complaints of loose stools, revived and restored back to normal.

### Conclusion

Efforts to address these challenges are ongoing, but more work is needed to reduce the burden of diarrhea and dehydration in India, especially among vulnerable populations such as children. The nursing management of a child with diarrhea and dehydration requires careful assessment, monitoring, and treatment to ensure a positive outcome. Collaboration with other healthcare team members is essential to provide comprehensive care to the child.

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### Conflicts of interest

The author declares that there are no conflicts of interest.

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