

PRESCRIPTION AUDIT FOR ACUTE DIARRHEA IN CHILDREN UNDER FIVE IN TERTIARY, SECONDARY AND PRIVATE CARE HOSPITALS IN AMRITSAR, PUNJABGayatri Devi¹, Jaswant Rai², Aseem Singh³, Karnail Singh⁴**HOW TO CITE THIS ARTICLE:**

Gayatri Devi, Jaswant Rai, Aseem Singh, Karnail Singh. "Prescription Audit for Acute Diarrhea in Children under Five in Tertiary, Secondary and Private Care Hospitals in Amritsar, Punjab". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 50, June 22; Page: 8753-8758, DOI: 10.14260/jemds/2015/1268

ABSTRACT: OBJECTIVES: To analyze adherence of prescribers to treatment guidelines by W.H.O for childhood diarrhea and to assess the cost of various treatment modalities in diarrhea. **MATERIAL AND METHODS:** A cross sectional study was carried out between April 2012 to December 2012 and 547 prescriptions of acute diarrhea of children up to five years of age were collected randomly from main pharmacy outlets and OPDs of pediatric departments of government tertiary care, private tertiary care, government secondary care and private pediatric hospitals in Amritsar, Punjab. Data collected were tabulated and analyzed; also a structured proforma was prepared to assess the knowledge of 22 pediatricians working in various sectors. **RESULT:** It was seen that adherence of government tertiary care hospital to WHO guidelines was 83% while private tertiary care, government secondary care and private care hospitals were not adherent to the guidelines as all these are prescribing probiotics in 100 % of prescriptions and antibiotics in 25%, 78% and 97% of prescriptions. Knowledge of pediatricians regarding acute diarrhea and WHO recommendations for it's management was excellent, but there is a dichotomy between knowledge and attitude/practice in treating acute diarrhea in children. **CONCLUSION:** This study showed that there is a clear-cut mismatch between recommendations and practical care in treating children with acute diarrhea that warrants interventional strategies.

KEYWORDS: Acute diarrhea, Prescriptions, Probiotics, Antibiotics, Treatment guidelines.

INTRODUCTION: BACKGROUND: Globally diarrhea continues to be a leading cause of morbidity and mortality in pediatric population and causes 2.5 million deaths every year in children under five.¹ In approximately 80% of children, the causative agent is rotavirus while in 20% of children, enterotoxigenic E. coli is responsible for acute childhood diarrhea.² In India it is the second leading cause of child mortality after respiratory tract infections like pneumonia.³ Diarrhea kills nearly 650 children every day.⁴ Dehydration is the most common cause of death in acute diarrhea.⁵ States with highest under five child mortality are Gujarat, Andhra Pradesh, Arunachal Pradesh, Jammu and Kashmir, Himachal Pradesh and Karnataka.⁶

In 2004, a joint statement by WHO and UNICEF recommended the use of zinc for 14 days as an adjunct therapy along with low osmolality oral rehydration solution (ORS) to decrease diarrheal deaths.^{7,8} Based upon various efficacy studies, zinc has been found to decrease the incidence, frequency, severity, persistence and recurrence of diarrhea in next three to four months and ultimately mortality. Zinc is a simple, inexpensive and new tool for treating diarrheal episodes in children.⁹

Zinc was introduced in WHO essential drug list in 2005.¹⁰ The Indian Academy of Pediatrics focused on the use of low osmolality ORS and zinc and the guidelines were published in 2004¹¹ and further revised in 2006.¹²

ORIGINAL ARTICLE

Government of India introduced zinc as an adjunct to low osmolality ORS in 2007 for more effective management of diarrhea and made its availability through National Rural Health Mission.¹³ Zinc was introduced in Diarrheal Disease Control Programme in 2008.¹⁴

It has been found that adherence to treatment guidelines in treating acute diarrhea is low in India while medicines like antibiotics, probiotics and antispasmodics are being prescribed. This study was conducted in the city of Amritsar, Punjab to assess the prescribers' adherence to treatment guidelines and further to explore the reasons for prescribing antibiotics and probiotics or other medicines despite the proven success of zinc and low osmolality ORS in diarrheal episodes.

OBJECTIVES:

- To analyse adherence of prescribers to treatment guidelines by W.H.O for childhood diarrhoea.
- To assess the difference in prescribing pattern among paediatricians working in various sectors.
- To assess the cost of various treatment modalities in diarrhoea.

Study Design: A cross sectional study was carried out between April 2012 and December 2012.

Inclusion Criteria: Prescriptions for children of either sex up to 5 years of age with acute diarrhea.

Exclusion Criteria: Children with severe dehydration, age more than five years and acute dysentery.

MATERIAL AND METHODS: Informed consent was taken from parents of the children involved in the study. A total of 547 prescriptions of acute diarrhea were collected randomly without prescribing pediatricians being aware of it from main pharmacy outlets and OPDs of pediatric departments of one government tertiary care, one private tertiary care, two government secondary care and three leading private pediatric hospitals in Amritsar, Punjab. Data collected were tabulated and analyzed.

Knowledge Assessment of Pediatricians: A structured proforma was prepared to assess the knowledge of 22 pediatricians working in various sectors. A total of 16 questions related to their qualification, their knowledge about acute diarrhea according to WHO guidelines, frequently used medicines and advice regarding feeding practices and other questions related to acute diarrhea were incorporated.

Medicines used n percent	Government tertiary care hospital	Private tertiary care hospital	Government Secondary care hospitals	Private care hospitals
ORS	100	100	100	95
Zinc	100	100	35	9
Antibiotics	15	25	78	97
Probiotics	17	99	100	100
Injectable antibiotics	3	3	9	11
Antiprotozoals, Anthelminthics	4	6	67	95
Others Antispasmodics, vitamins, antiemetics	2	3	7	12

Table 1: Frequently Prescribed Medicines in Treatment of Acute Diarrhea

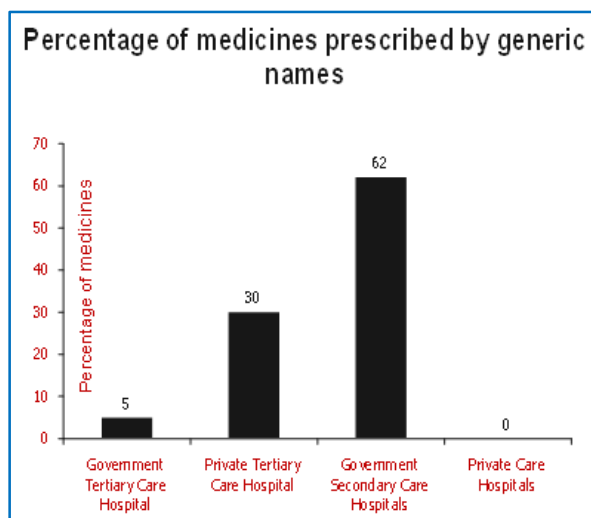
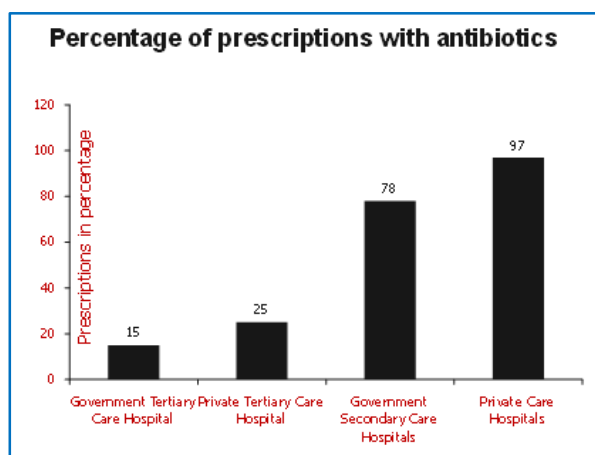
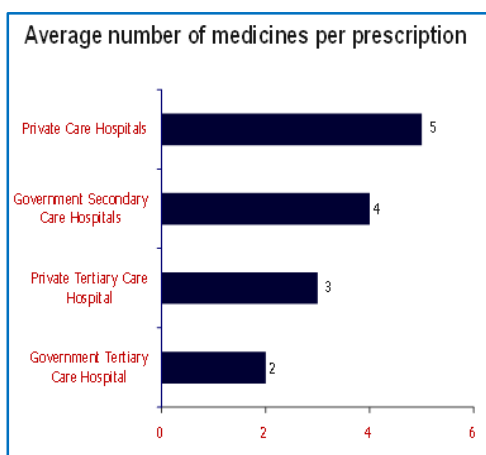
ORIGINAL ARTICLE

Prescription Analyses Were Done Based upon Core Indicators Provided By WHO as follows:

- 1. Prescribing indicators:** Average number of medicines per prescription, percentage of medicines prescribed by generic name, percentage of prescriptions with antibiotics or injections, percentage of medicines from essential medicine list.
- 2. Patient care indicators:** Average consultation time, average dispensing time.
- 3. Facility indicator:** Availability of a copy of essential medicine list.
- Based upon these core indicators prescription analyses were done and some important parameters were evaluated.

Analysis: A total of 547 prescriptions of acute diarrhea were collected randomly from the above said set-ups and analyzed.

Important Parameters for Prescription Analysis:



RESULT: It was seen that adherence of government tertiary care hospital to WHO guidelines was 83% while private tertiary care, government secondary care hospitals and private care hospitals were not adherent to the guidelines as all these are prescribing probiotics in 100 % of prescriptions.

ORIGINAL ARTICLE

STATISTICAL ANALYSIS: The result of government tertiary care hospital was highly significant as compared to private tertiary, secondary and private care hospitals ($p < 0.0001$).

KNOWLEDGE ASSESSMENT RESULT: Knowledge of pediatricians regarding acute diarrhea and WHO recommendations for its management was excellent, however knowledge regarding intake of milk in non-breast feeding infants during acute diarrheal episode was not adequate except in tertiary care pediatricians despite adequate knowledge, there is a dichotomy between knowledge and attitude/ practice in treating acute diarrhea in children.

Difference in Cost in Various Treatment modalities,

Average cost per day	
ORS+ Zinc	₹12
ORS+ Zinc + Probiotic	₹82
ORS+ Zinc + Probiotic + Antibiotic	₹95
ORS + Zinc + Probiotic + Antibiotic + Antiprotozoal + Antihelminthics	₹103

Addition of probiotics and antibiotics increases the health care cost to the family and society. Also, indiscriminate use of antibiotics increases the chances of antibiotic resistance which is difficult to manage. The most commonly used combination of antibiotics was of ofloxacin and ornidazole which is irrational.

Reasons for Non-Adherence to Standard Treatment Guidelines:

1. Pressure by pharmaceutical retailers to promote prescription of their products.
2. Parents' demand for injections and antibiotics as they think these lead to fast recovery of their children.
3. Lack of confidence on the part of prescribers.
4. Monetary consideration on the part of prescribers.

DISCUSSION: The present study analyzed the adherence of prescribers to treatment guidelines and compared the difference in prescribing pattern in various pediatric set-ups and has provided evidence of irrational use of antibiotics for acute diarrhea in children especially in secondary care and private care hospitals. The WHO guidelines and Indian guidelines clearly mention that antibiotics should not be used routinely as most episodes of diarrhea are caused by viruses. Use of probiotics adds to the cost of treatment. Use of antibiotics, apart from increasing the cost of treatment increases risk of adverse drug reactions and antibiotic resistance. The cost spent in antibiotics could be saved if prescribers fully adhere to the guidelines. The poorer prescribing in private set-up has been demonstrated widely in developing countries.¹⁵

A recent cross sectional study conducted in India showed that six prescriptions out of 843 were adherent to the recommended treatment of ORS along with Zinc for the treatment of acute diarrhea and antibiotics were prescribed to 71%.¹⁶ Another study conducted in New Delhi showed that doctors working in public sectors are prescribing antibiotics to a lesser number of patients as compare to the doctors working in private sectors.¹⁷

ORIGINAL ARTICLE

A number of studies are conducted in other countries which have shown frequent prescriptions of antibiotics for treatment of acute diarrhea in children. A study from Bangladesh showed that only 27% of children received treatment for acute watery diarrhea.¹⁸ A study conducted in Peru showed that prescribers practices of prescribing antibiotics seemed to be more related to agreement with social expectations rather than their knowledge and standard treatment guidelines.¹⁹ A cross sectional study conducted in Thailand also showed overuse of antibiotics in treatment of acute diarrhea.²⁰

CONCLUSION:

1. This study showed that maximum adherence to standard treatment guidelines are seen in tertiary government care hospitals.
2. Private tertiary care, government secondary care and private care hospitals showed least adherence.
3. There is a clear cut mismatch between recommendations and practical care in treating children with acute diarrhoea in Amritsar, Punjab.
4. Continued medical education of professionals working outside teaching institutions is necessary to keep them updated with Standard Treatment Guidelines.

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