

# Role of General Practitioners in Prescribing Drugs, ORS and Zinc in the Management of Acute Watery Diarrhea for Children Under 5 Years of Age

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## ABSTRACT

**Aim:** To appraise general practitioners in the management of acute watery diarrhea for children under 5 years of age and to identify various factors contributing in the gaps of current practices of general practitioners for the case management of diarrhea.

**Study design:** Cross-sectional analytical study

**Setting:** Lahore city

**Study population:** The study population comprised the General Practitioners working in the private clinics in the Lahore city.

**Observational units:** General Practitioner working in the Private Settings of Lahore city.

**Sample size:** 380

**Sampling technique:** Simple random sampling (SRS)

**Methods:** This cross-sectional study was conducted on 380 general practitioners (GPs) selected through simple random sampling from the list of GPs working in the private sector in Lahore city with the objective to appraise the GPs in the management of acute watery diarrhea (AWD) for children under 5 years of age and to identify various factors contributing in the gaps of current practices of general practitioners for the case management of diarrhea.

**Results:** Of the 380 GPs working in the private sector at Lahore city, 339(89%) were males and 41(11%) were females, result showed that GPs with MBSS only prescribed  $2.3 \pm 1.6$  drugs /prescription whereas pediatricians with minor diploma prescribed  $1.9 \pm 1.6$  drugs/prescription. There was statistically significant difference between qualification of GPs, experiences as GPs, read WHO guidelines, attended course at DTU and their prescribing trend for ORS, antimicrobials, antidiarrheals while a statistically significant difference was also seen between qualification of GPs, year since graduation.

**Conclusion:** Information Education Communication (IEC) strategies should be devised for implementation of the new diarrhea management recommendations.

**Keywords:** GPs, CME, IEC, STGs, IMCI, Children U5, Stakeholders

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## INTRODUCTION

The World Health Organization (WHO) suspects that there are more than 700 million episodes of diarrhea annually in children less than 5 years of age in developing countries<sup>1</sup>. Although most cases only require supportive management and are self limited, diarrheal diseases remain the fifth leading cause of death among the global population<sup>3</sup>. According to the USAID Micronutrient Program, 11 million child deaths occur each year, two thirds of these are preventable, with widespread use of oral rehydration salt (ORS) and Zinc supplementation for diarrhea treatment; and many lives can be saved if these advances are used

in conjunction with effective management both in the home and the health facility<sup>4</sup>. In Pakistan, under 5 mortality rate is 100/1000 live births and deaths due to diarrheal diseases among children under 5 years is 14% of total deaths in this age group, whereas in the Eastern Mediterranean region (EMRO), average is 15%<sup>5</sup>. As far as top ten causes of deaths, all ages in Pakistan are concerned, deaths due to diarrheal diseases is 118/1000 (9%) and Years of life lost are 12%<sup>6</sup>. This gives the indication not only of the high incidence of the disease but also the poor management of diarrhea in the country.

## MATERIALS AND METHODS

This cross-sectional analytical study was conducted on 380 general practitioners (GPs) selected through simple random sampling from the list of GPs working in the private sector in Lahore city with the objective to appraise the GPs in the management of acute watery diarrhea (AWD) for children under 5 years of

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age and to identify various factors contributing in the gaps of current practices of general practitioners for the case management of diarrhea. Their knowledge and practices regarding management of AWD for the children under 5 years of age was determined by using semi structured questionnaire and data was analyzed using SPSS version 16.0 The data was collected after obtaining fully informed, understood and voluntary consents of the respective General Practitioners by explaining the objectives of the study with the assurance of ensuring confidentiality of the data as per four main principles of ethical research i.e. respect of person, beneficent, non maleficent and justice.

## RESULTS

Table 1: Distribution of GPs according to their practice regarding prescription of anti diarrheal drugs in relation to work in a pediatric unit.

Worked in pediatrics	Prescribed anti diarrheal drugs	Did not prescribe anti diarrheal drugs	Total
Worked	90(42.3%)	120(57.7%)	210
Did not work	54 (31.8%)	116 (68.2%)	170
Total	144 (37.9%)	236 (62.1%)	380

Chi-Square test value = 4.91, p-value = 0.02 at 1 df

Table 2: Distribution of GPs according to their practice regarding prescription of anti diarrheal drugs in relation to attended diarrhea management training course

Training	Prescribed anti diarrheal drugs	Did not prescribe anti diarrheal drugs	Total
Attended	25 (17.4)	119 (82.6)	144
Not attended	104 (44.1)	132 (55.9)	236
Total	129 (33.9)	251 (66.1)	380

Chi-Square test value = 28.45, p-value = 0.0001 at 1 df

Table 3: Distribution of GPs according to their practice regarding prescription of anti-microbial drugs for children below 5 years suffering from AWD in relation to qualification.

Medical qualification	Prescribed anti diarrheal drugs	Did not prescribe anti diarrheal drugs	Total
MBBS (only)	232 (74.4%)	80(25.6%)	312
MBBS + Minor Diploma in pediatrics	7(100.0%)	-	07
Others	57(93.4%)	4(6.6%)	61
Total	296 (77.9%)	84 (22.1%)	380

Fisher's Two tailed exact test, p-value = 0.001 at 2 df

Table 4: Distribution of GPs according to their practice regarding prescription of antimicrobial drugs in relation to work in a pediatric unit

Worked in pediatrics	Prescribed anti diarrheal drugs	Did not prescribe anti diarrheal drugs	Total
Worked	143 (67.1%)	70 (32.9%)	213
Did not work	153 (91.6%)	14 (8.4%)	167
Total	296 (77.9%)	84 (22.1%)	380

Fisher's Two tailed exact test , p=-value = 0.0001 at 1 df

Table 5: Distribution of GPs according to their practice regarding prescription of ORS in relation to knowledge regarding WHO Guideline on Management of Diarrhea

Knowledge	Prescribed ORS	Did not prescribe ORS	Total
Read	102 (99%)	1 (01%)	103
Did not read	247 (89%)	30 (11%)	277
Total	349 (91.8%)	31 (8.2%)	380

Fisher's Two tailed exact test, p = 0.00 at 1 df

Table 6: Distribution of GPs according to their practice regarding prescription of ORS in relation to their work in a pediatric unit

Knowledge	Prescribed ORS	Did not prescribe ORS	Total
Worked	196 (92%)	17(8%)	213
Did not work	153(91.6%)	14 (8.4%)	167
Total	349 (91.8%)	31(8.2%)	380

Chi-Square test, p = 0.51 at 1 df

Table 7: Distribution of GPs according to their practice regarding prescription of micronutrients (zinc) for children below 5 years suffering from AWD in relation to qualification.

Medical Qualification	Prescribed ORS	Did not prescribe ORS	Total
MBBS(only)	150 (48.1)	162 (51.9)	312
MBBS and Minor Diploma pediatrics	7 (100)	-	07
Others	3 (4.9)	58 (95.1)	61
Total	160 (42.1)	220 (57.9)	380

Fisher's Two tailed exact test, p-value = 0.001 at 2 df

Table 8: Distribution of GPs according to their practice regarding prescription of micronutrients (zinc) in relation to work in a pediatric unit

Worked pediatrics	Prescribed zinc	Did not prescribe zinc	Total
Worked	95 (44.6)	118 (55.4)	213
Did not work	65 (38.9)	102 (61.1)	167
Total	160 (42.1)	220 (57.9)	380

Chi-Square test value = 1.24, p-value = 0.296 at 1 df

The distribution of GPs on the basis of prescription of anti diarrhea drugs, in the management of AWD for children U 5 years of age having dehydration and independent variables

studied showed that statistically significant association was observed between GPs prescription of anti diarrheal drugs and their working in pediatric unit ( $p = 0.02$ ), their training at DMT units ( $p=0.0001$ ). A Statistical significant difference was also seen between qualification and work experience of GPs in Pediatrics and their prescribing practice of anti microbial ( $p < 0.05$  / tables 1-4).

A statistically significant difference was seen between GPs knowledge regarding WHO guideline for management of AWD and their prescribing trend for ORS ( $p=0.00$ ) while no such association was established with their work in a pediatric unit and prescribing ORS ( $p=0.51$ ). A statistically significant difference was observed between qualification of GPs and their prescribing trend for zinc ( $p =0.001$ ), whereas no statistical association was observed among GPs prescription of zinc in AWD for such children and their working in pediatric unit (tables 5-8).

## DISCUSSION

In order to appraise the general practitioners about their management strategy for AWD in children below 5 years of age, various treatment modalities were studied to estimate their prescribing trends. Analysis of results pertaining to prescription of ORS by GPs and different factors studied showed that there was a statistically insignificant difference between prescribing trend of GPs and their medical qualification, a statistically significant association was found on the basis of year of graduation, the experience in child care and their knowledge about WHO guide lines for the management of diarrhea, while no specific statistically significant difference was seen between GPs prescribing ORS and their working experience in a pediatric unit. In order to assess knowledge of diarrhea management by GPs, a study by Patwari et al showed that 91% of GPs were prescribing ORS in various combinations, but only 9.8% were advising ORS and feeding as standard management of diarrhea<sup>4</sup>.

Incumbent study showed that only 144 (38%) GPs would recommend anti diarrhea (anti motility/ adsorbents) drugs for the children presenting with acute diarrhea and it is pertinent to mention that 236 (62%) would not prescribe such drugs in AWD for children. Moreover, 220 (58%) of GPs in our study had no idea about the role of micronutrient like zinc in reducing the duration as well as severity of AWD. The findings of our study are consistent with the study conducted by Nizami S et al which depicted that inconsistencies exist in stated attitudes of health

professionals toward prescribing antispasmodics and antimotility agents and their actual prescribing behavior<sup>5</sup>.

Similarly, the results of a study by Baqui AH et al are comparable to our study which was conducted about drug prescribing practices of general practitioners and paediatricians for childhood diarrhea in Karachi, Pakistan and it was revealed that oral rehydration salt (ORS) was prescribed in more than 50% of encounters by 53% of general practitioners (GPs) and 61% of paediatricians. 66% of GPs and 50% of paediatricians prescribed antibacterials, 60% of GPs and 28% of paediatricians prescribed antidiarrhoeals and 39% of GPs and 32% of paediatricians prescribed antiamoebics. These results indicate inadequate prescription of ORS and excessive prescription of antibacterial, antidiarrhoeals and antiamoebics. Intervention strategies need to be planned to improve the prescribing practices of both groups.<sup>7</sup>

A double-blind placebo-controlled study was designed by Strand TA et al to evaluate the effects of zinc supplementation on the clinical course and duration of diarrhea in malnourished Turkish children. The mean duration of diarrhea was shorter and the percentage of children with consistent diarrhea for more than 3-7 days was lower in the study subgroups than in the control subgroups.<sup>6</sup> Similarly, a recent meta-analysis demonstrated that a two-week course of zinc tablets once daily significantly reduces the severity and duration of diarrhea and mortality in young children.<sup>8</sup>

## CONCLUSION

Statistically significant difference was found between management by General Practitioners for acute watery diarrhea in children of this age group and many socio demographic variables included in the study. Results have shown lack of interest by GPs in enhancing their postgraduate qualification in pediatrics, attending diarrhea management training courses and workshops, reading literature for getting knowledge of latest innovations developed in the management of AWD for this highly vulnerable age group. Although the information that AWD should be managed with ORS, and without use of drugs, seemingly has reached the majority of GPs but their practices is not according to this knowledge. The reason behind this could be lack of awareness in the fact that ORS plus zinc alone can manage AWD which is further strengthened by the demand of drugs by parents, competition in practice, influence of pharmaceutical representatives coupled with

absence of supervisory control on prescription. DTU course, training workshops have not been able to produce any significant effect on GP's knowledge and practices for the management of AWD.

## REFERENCES

1. Bhutta ZA. Acute gastroenteritis in children. In: Nelson textbook of pediatrics. 18<sup>th</sup> ed. Philadelphia: Saunders, 2008; p.1605.
2. Camelleri M, Murray JA. Diarrhea and constipation. In: Braunwald E, Hauser SL, Fauci AS, Longo DL, Jameson JL editors. Harrison's principles of internal medicine. 17<sup>th</sup> ed. New York: McGraw-Hill, 2008; p. 245.
3. WHO/UNICEF. Joint statement on the clinical management of acute diarrhea. 2004.
4. Patwari A.K, Kumar H, Anand V.k. Diarrhea training and treatment Centre, Indian J of Paediat. 2008; 58: 775-81.
5. Nizami S, Khan I.A, Bhutta ZA. Risk factors of acute watery diarrhea, Pak J Med Res, 2001; 40: 126.
6. Strand, T.A. , Chandyo RK, Bahl R, Effectiveness and efficacy of zinc for the treatment of acute diarrhea in young children. Ind J Pediat, 2002; 109: 898-903.
7. Polat, Metin U, Feyzullah C, Efficacy of zinc supplementation on the severity and duration of diarrhea in malnourished Turkish children. J Pediat Inter. 2003; 45: 555-9.
8. Baqui AH, Black RE, E1 Arifeen S, Yunus M, Zaman K, Begum N, et al. Zinc therapy for diarrhoea increased the use of oral rehydration therapy and reduced the use of antibiotics in Bangladesh children, J Health Popul Nutr 2004; 22: 440-2.
9. Valls V. Acute gastrointestinal infections. In: Robert B, Wallace editors. Maxcy-Rosenau-Last. Public health & preventive medicine. 15<sup>th</sup> ed. New York: McGraw Hill, 2008; p.263-9.
10. Mortality country fact sheet, WHO Eastern Mediterranean Region Pakistan; World Health Statistics: 2006.
11. The state of World's Children, Child Survival. 2009; p.8.