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## THE SURVEILLANCE AND MANAGEMENT ESTIMATES OF ROTA VIRUS DIARRHEA; THE EPIDEMIOLOGY STATES OF DISEASE

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### ABSTRACT

Rotavirus diarrhea occurs as endemic in underdeveloped regions of the world and lead to severe diarrhea in infants and children less than five years of age. Indeed, the virus is often accountable for outbreaks of diarrhea in daycares. It has established as the most common cause of inflammation of the stomach and intestines. The present research is conducted to make out and estimate the frequency of rotavirus diarrhea, the grounds of diarrhea and about acquaintances and approaches pro the management of symptoms of disease specifically regarding the cases observed in Karachi, Pakistan. The study data reveals that non vaccinated children were found to be victimized from the disease, mostly under the age of two years. The foremost roots of the disease were conventional as the unavailability of hygienic drinking water, ignorance of proper timely vaccination that lead to serious complications and high mortality rate. The situation have to focus on strategies to minimize the jeopardy of disease as the early recognition of signs like dehydration, management through oral rehydration remedy, hygienic water and food and to improve maternal knowledge regarding vaccination and healthy standards of living.

**Keywords: Rotavirus, Diarrhea, inflammation, non vaccinated, Karachi**

## INTRODUCTION

Rota virus, the most common root of diarrhea and sever gastrointestinal infections (fig. 1) throughout the world and causes the death of about 500,000 children worldwide annually and has become accountable for high prevalence rate in children approximately one out of three [1, 2].

The rate of has been controlled to some extent through vaccination since 2006. The two commonly used are RotaTeq and Rotarix. Vaccines should be completed before an infant reaches eight months of age. In the U.S., rotavirus infections usually peak in the fall months in the Southwest and spread to the Northeast by spring. Rotavirus causes fever, vomiting, watery diarrhea [3]. According to WHO estimates in 2004 over five million children aged less than five years died from Rota virus infection and the mortality is 95/100,000. About half of these deaths occurred in India, Nigeria, the Democratic Republic of the Congo, Ethiopia, China and Pakistan [4]. Recent estimates show that about 65,000 children die each year in the Eastern Mediterranean Region (EMR) which also includes Pakistan. Although the mortality is higher in the low-income countries of the region,

the burden of severe Rota virus disease among less than 5 years old children requiring hospitalization and clinical visits is equally shared by all the countries of the region. World Health Organization estimates that globally 215000 (197 000 - 233 000) child deaths occurred during 2013 due to rotavirus infection compared to 528 000 (465 000 – 591 000) in 2000 (fig. 2) [5].

In Pakistan, there is no well-developed surveillance system for rotavirus strain identification although country's Ministry of Health has initiated a hospital based surveillance network to serologically test the stool samples from children presented with gastroenteritis at central district hospitals in 3 major cities; Karachi (Sindh province), Lahore and Rawalpindi (Punjab province) [6].

Different research studies have been done in different areas of Pakistan about management of diarrhea, knowledge about diarrhea, making of oral rehydration solution but very few studies have been done to assess knowledge, attitude regarding management of diarrhea [7]. Therefore the present study was conducted to identify the major causes of rotavirus diarrhea leading to increased mortality and the level of knowledge and

attitude regarding management of diarrhea in different areas of Karachi, Pakistan.

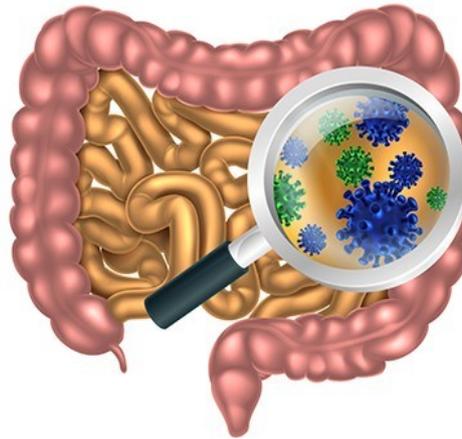


Figure 1: Gastrointestinal Infection in Children

## 215 000 global child rotavirus deaths, 2013

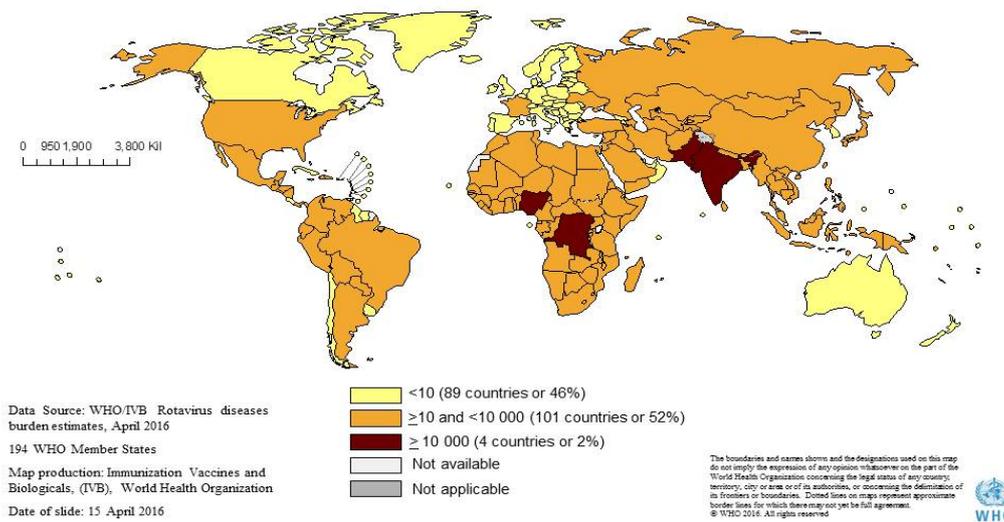


Figure 2

## METHODOLOGY

A cross sectional study was conducted to identify the prevalence of rotavirus diarrhea in children less than 5 years of age, major cause of diarrhea and knowledge about the management of diarrhea and attitude of mother's having children of less than five years of age. The data has been collected during the month of March and June, 2016 by survey with the help of questionnaires from a number of two hundred and fifty participants (n=250). The participants from which the data was collected belong to low socioeconomic status and most of the families were not very qualified and they were living in different areas of Karachi. The questionnaire includes demographic data and to assess the prevalence rate in gender, knowledge and perspective related to the management of diarrhea.

## RESULT AND DISCUSSION

The present study was proved helpful to expose the foremost root cause of the disease that is inappropriate drinking water and insufficient responsiveness regarding the prevention and management of the threatening gastric disorder leading to children severe complications and ultimately high mortality rate that was also observed elevated among infants. On the basis of collected data, 70% mothers were not aware

for the management of diarrhea however 30% mother had enough knowledge about preventive measures of diarrhea but their negligence might due to different socioeconomic problems as likely lack resources and time. Moreover identified 75% mothers are not familiar of making ORS at home properly due to which children suffer from severe dehydration whereas 75% mothers were not used to of boiling water due to lack of awareness. It has been documented that there are high chances of contamination and greater risk of diarrhea. The results of this study showed that most of the children affected by RV are under age group of 2 years that was 87% (table 1), similar to that described from other Asian settings [8]. Consequently another similar study reported that Rotavirus infection was most prevalent in children in the group ages 13 to 24 month and was the second most prevalent in children 12 months of age and children from 25 to 36 months of age [9].

The study results showed that diarrhea was significantly associated with the maternal knowledge about the use of boiling water. Considering this study findings, 25% mothers had knowledge about the use of boiling water because they knew about the open sources of water, which are prone to

contamination and the source of knowledge was electronic and social media.

Furthermore educational programs also played beneficial role in this community. Consider this study findings, 75 % of mothers in that community have lack of awareness about the method of making ORS because they did not attend any teaching sessions or awareness programs but 25% mothers have knowledge about method of making ORS solution because they had awareness and they attended the teaching sessions in the primary health care in that community. This research showed that 75% children were suffering from dehydration in this community because most of the families were not giving the fluids such as ORS to prevent the children from dehydration and other reason of dehydration was vomiting which was a very common symptom of diarrhea and 25% children were suffering from vomiting in that community. National survey of Pakistan shows use of ORS in 33% under 5 children [10]. Very low knowledge about ORS and the duration of administration along with method of making make from home ingredients [11] however ORS utilization usage was below 50% in Pakistan this year where [12]. Another similar study reported correct preparation by merely 43% residents

which was lower compared to studies in Karachi where 75% were cognizant [13, 14]. A study conducted in two villages of Pakistan showed that improving water quality reduces diarrheal incidence [15] and additionally Lack of maternal awareness concerning safe drinking water, defecation practices, attitude towards hygiene and feeding hygienic food to children is implicated as a major cause [16]. A study conducted in Africa and Asia including Pakistan showed only 20% children receiving ORS at home while only 50% were given more fluids [17]. Different studies reported that quality of water consumed in different parts of the world varies considerably. Conventionally treated and disinfected water is supplied in major cities of the western world. Untreated water from canals, streams and rivers is often a source of drinking water in small towns and villages in developing countries and in Pakistan as well, hence the data concerning the presence of viruses in conventionally purified and chlorinated water for drinking purpose is a strong evident [18, 19].

Table 1: Distribution of Rota virus according to age groups and gender (n=250)

Age group (Age in months)	No. of Patients	Male	Female
1-11	70	40	30
12-23	140	80	60
24-35	25	12	13
36-47	10	4	6
48-59	5	2	3

Table 2: Clinical Symptoms of Rotavirus diarrhea (n=250)

Clinical Symptoms	Yes	No
Fever	200	50
Dehydration	188	62
Vomiting	63	187
Watery Stool	250	0

**CONCLUSION****RECOMMENDATIONS**

Diarrheal diseases continued to be an enormous problem. The estimated number of cases of diarrhea every year is alarming and does not seem to be declining. For children under five years of age, diarrhea is one of the leading causes of death. Results of the study indicate that lack of awareness was the major contributing factor for causing diarrhea because it leads to the mismanagement of the early symptoms of disease that needs to aware mothers of children under five years of age about the management of diarrhea to decrease the morbidity and mortality among children less than five years of age. The survey provided vital information enough to design models and preventive measures for handling and case management of diarrhea in the home and provision of community based healthcare facilities. Moreover to achieve fruitful outcome health messages and

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education should be spread through electronic and print media.

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