

# **Cholera Admissions in Adults 1989-1994: A Hospital Based Study**

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## **Abstract**

In order to gain insight into the distribution of cholera over the years and proportion of monthly admissions under our adult medical services, we scrutinized our records of hospital discharges between 1989 and 1994. Only culture positive cases were included. Each year most of the cases of cholera are admitted between May and November with almost disease free interval from December to April. In 1992 admission rate was 4.24/1000 medical admissions which increased to 12.65 in 1993 and 13.73 in 1994. Though the *Vibrio cholerae* 01 Ogawa was the major isolate up to May, 1993, *Vibrio cholerae* non-O1 serogroup 0139 dominated between June and August, 1993. Ogawa strain re-established itself in October, 1993. In August, 1994, non-O1 strain reappeared and became the major isolate in September. Cholera has caused multiple epidemics throughout the Indian subcontinent, Since 1800, there have been seven pandemics of cholera, The seventh pandemic originated in Indonesia and continues today<sup>1</sup> (JPMA 45:91, 1995).

## **Introduction**

Cholera has been an important enteric infection and significant health problem in Pakistan. We reviewed our records to gain insight into the distribution of cholera over the years and proportion of monthly admissions under our adult medical services.

## **Patients and Methods**

Data was obtained from the hospital discharge data file on patients aged 15 or older admitted under adult medical services between 1989 and 1994, with primary diagnosis of cholera. In our hospital coding of diseases is done according to The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). The records were scrutinized to include culture positive cases only. The type of the strain of *vibrio cholerae* between 1993 and 1994 was recorded.

## **Results**

Monthly distribution of cases is depicted in Figure 1 and Table;

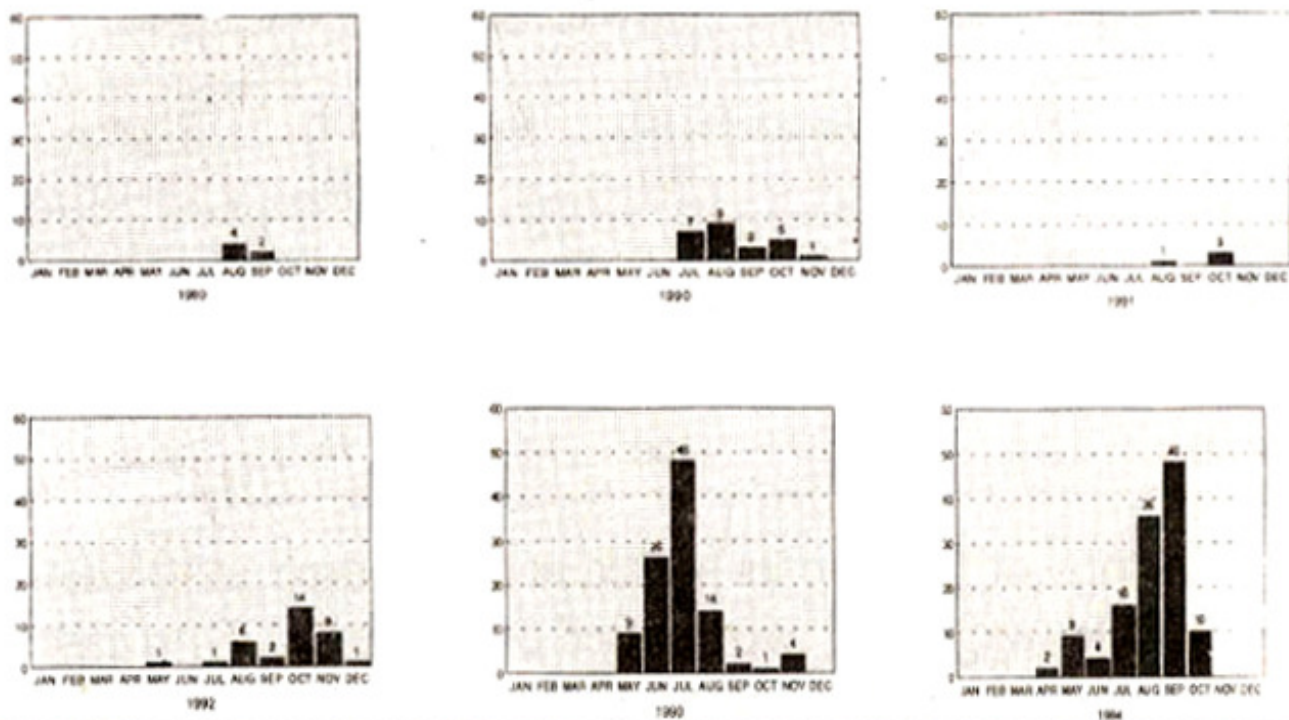


Figure 1. Monthly admissions of cholera in the Medical Unit.

Table. Cholera admissions in the medical unit of AKUH

Month	1989	1990	1991	1992	1993	1994
January						
February						
March						
April						2 (0.29)
May				1 (0.16)	9 (1.26)	9 (1.40)
June					26 (3.48)	4 (0.54)
July		7 (1.43)		1 (0.16)	48 (6.44)	16 (2.13)
August	4 (0.79)	9 (1.67)	1 (0.16)	6 (0.81)	14 (1.93)	36 (4.36)
September	2 (0.44)	3 (0.52)		2 (0.28)	2 (0.29)	48 (5.50)
October		5 (0.88)	3 (0.50)	14 (1.98)	1 (0.17)	10 (1.24)
November		1 (0.18)		8 (1.13)	4 (0.65)	
December				1 (0.14)		
Admission rate (per 1000/year)	1.13	4.14	0.59	4.24	12.65	13.73

Figures in paranthesis represent percentage.

later also shows the proportion of cholera admission under the medical services. Distribution of *Vibrio cholerae* serotypes O1 and non-O1 has been shown in Figure 2.

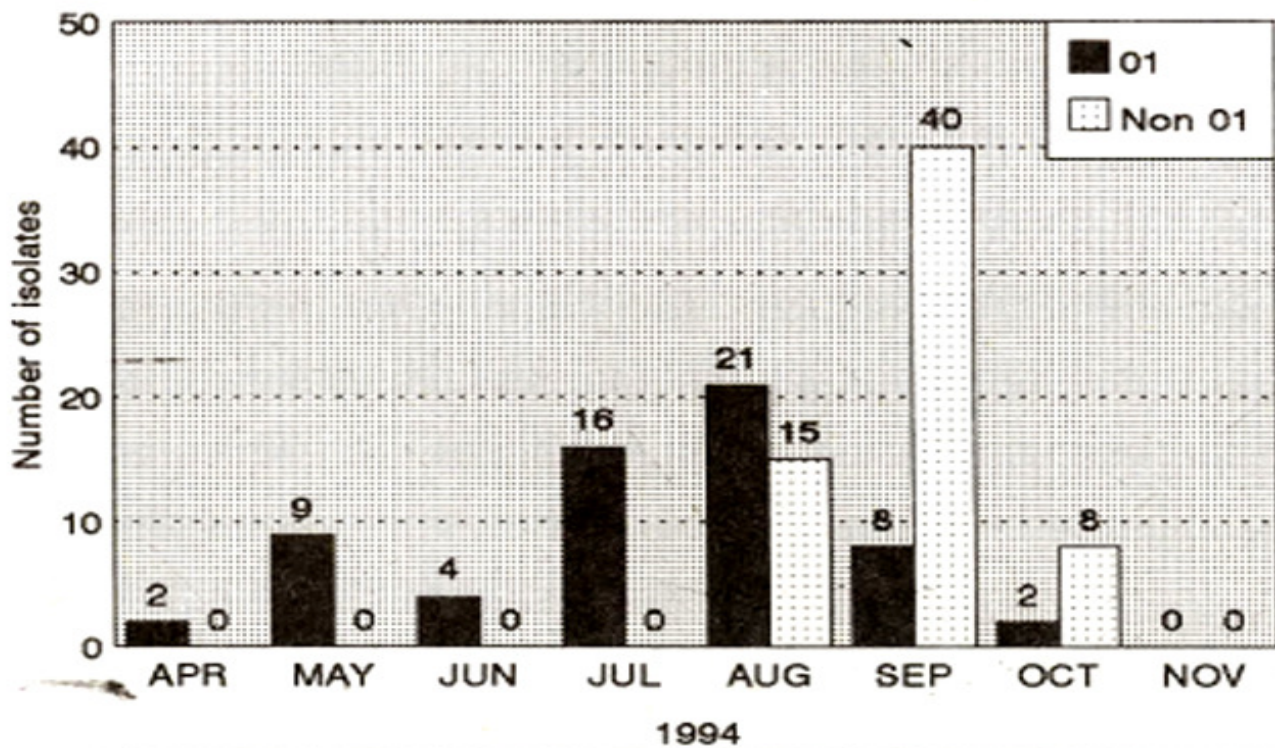
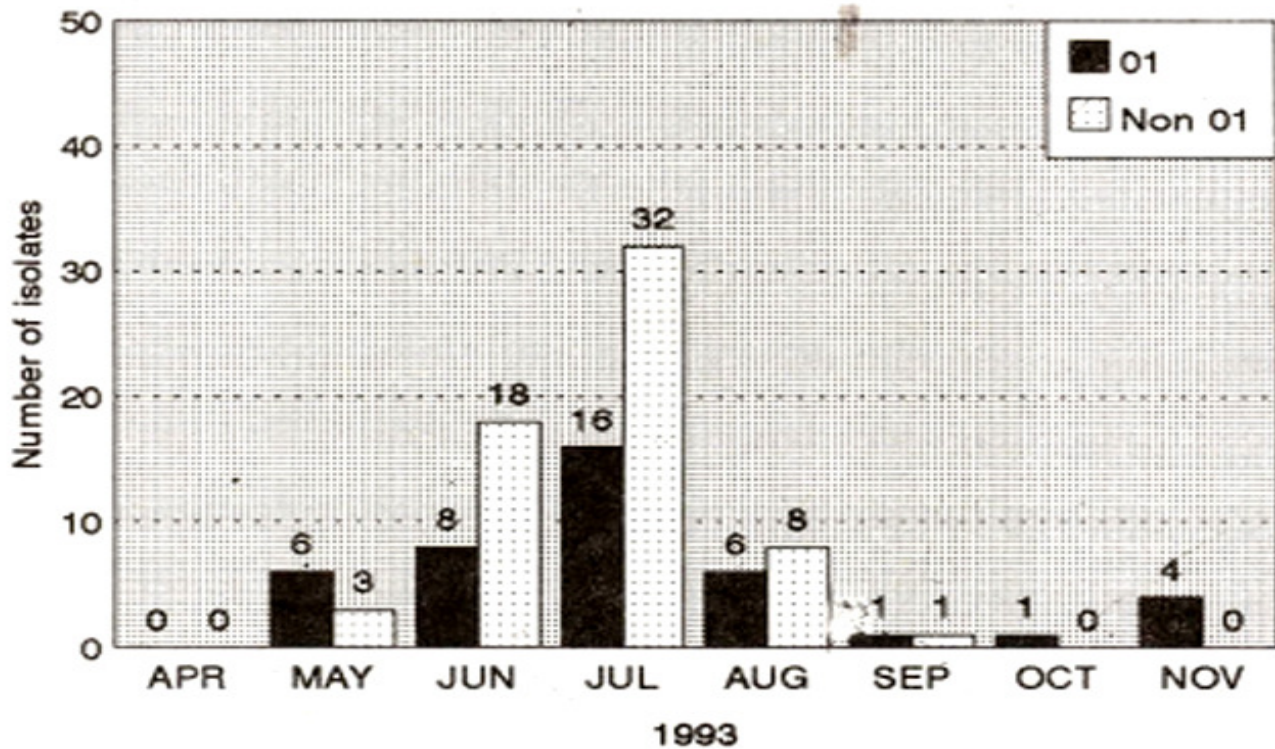


Figure 2. Serogroups of vibrio cholerae isolated from patients admitted in the Medical Unit.

Though the serotype 01 Ogawa was the major cause of diarrhoea upto May, 1993, *Vibrio cholerae* non-O1 serogroup 0139 was dominating between June and August. Again from October, 1993 to July, 1994 Ogawa infection became responsible for all hospital admissions. In August 1994, non-O1 strain reappeared and became the major isolate in September.

## Discussion

*Vibrio cholerae* biotype Eltor serotype O1 is responsible for the 7th pandemic of cholera. Sporadic cases of diarrheal disease caused by *Vibrio cholerae* non-O1 have been reported from many parts of the world. In the last trimester of 1992, a novel strain of *Vibrio cholerae* non-O1 caused the outbreak of cholera in Southern India<sup>2</sup> and Bangladesh<sup>3</sup>. This strain designated as serogroup O139, later disseminated to involve the neighbouring countries. It was reported from Bangkok<sup>4</sup> and later our Department of Microbiology isolated the same strain<sup>5</sup>. As shown in Figure 2, this serogroup was the major isolate between June and August, 1993. Later it was replaced again by *Vibrio cholerae* O1 Ogawa, the predominant strain of the past. In August, 1994 this strain appeared again and pattern of isolates in the next few years would be informative to determine whether epidemic of cholera caused by O139 strain is over or whether it has established itself along the Ogawa strain as a cause of endemic cholera. We have observed that the cases of cholera start coming from May. The season goes up to November with maximum admissions in the monsoon months of July, August and September. The period between December and April is almost disease free. Hot and humid season may be favourable for the transmission of the disease. Increase in the incidence of cholera in 1994 might have been related to the heavy monsoons in Karachi. There are underlying economic and social causes associated with spread of this infection and increasing number of patients. Deteriorated public water supply contaminated with forces and inappropriate sewage and excreta disposal may be contributing. There is lack of control on food products and paucity of awareness of hygienic principles. Population density of Karachi is increasing day by day and housing and living conditions are being affected. Illegal immigration from Bengal, the home of the disease, might be a contributing factor. Many of these settlers are involved in food handling. All the steps taken to control the spread of this disease should be focused on these issues.

## References

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