WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiological Unit,

Ministry of Healthcare & Nutrition

231, de Saram Place,Colombo 01000, Sri Lanka.

Tele:(+94-011)2695112/681548/4740490/4740492,E-Mail:epidunit@sltnet.lk

Epidemiologist:(+94-011) 4740491,E-mail:chepid@sltnet.lk, Web: www.epid.gov.lk

Vol. 35 No. 4 **19th -25th January 2008**

WER SRI LANKA 2008

Surveillance of Rotavirus diarrhoea in Sri Lanka

South Asia remains a high risk area in terms of morbidity and mortality due to rota virus diarrhoea, and is a prime target for intervention .This is associated with the dense population, low socio economic status of the majority of people and prevailing unsanitary conditions. More than 50 percent of deaths due to rota virus occur in the Asian continent. Six out of 10 countries with the highest number of deaths due to rota virus are located within Asia. Therefore, in terms of reduction of the burden of rota virus disease and deaths, Asia is a key centre of action. Keeping this in mind, Asian Rotavirus Surveillance Network (ARSN) was initiated to establish foundation of epidemiological data and facilitate exchange of expertise with a view to helping decision making regarding prevention of rota virus diarrhoea. Primary prevention of the disease through vaccination has been promoted as the key tool in this regard.

Secular trend analysis of diarrhoeal diseases morbidity and mortality in Sri Lanka indicates that there has been a dramatic reduction in diarrhoea specific mortality and case fatality ratio in Sri Lanka over the years. This is attributed to the improvement of case management, use of Oral Rehydration Solution (ORS) to prevent dehydration and improved health seeking behaviour of the population. Despite the above mentioned achievements in terms of reduction of diarrhoea associated deaths, proportionately diarrhoea specific morbidity rate has not declined. Diarrhoea specific morbidity rate has remained high and static over the last two decades. The admission rates to government hospitals for diarrhoea were in the range of 676.1-961.3 per 100000 admissions during this period. Moreover, according to Indoor Morbidity and Mortality Data, diarrhoeal disease is the sixth leading cause of hospitalisation in Sri Lanka. Thus, it is quite obvious that diarrhoeal diseases continue to be a public health problem in the country. With looming unplanned urbanisation resulting in deteriorating sanitary conditions, it is assumed that this trend will continue to be a challenge for public health practitioners in Sri Lanka.

It is quite certain that policy makers, and public health practitioners will have to address this issue in the future in a setting where many communicable diseases including traditional, vaccine preventable diseases have been contained. Immunisation against Rota virus will be one of the measures in a multiple intervention package to address control of diarrhoeal diseases. This will be a reality rather than a dream as there is a global movement to advocate for introducing benefits of vaccines offered to children in developed countries to children in developing countries. International agencies such as the World Health organisation , Global Alliance for Vaccines and Immunisations (GAVI) and the Children's Vaccine programme of the Program for Appropriate Technology in Health (PATH) have identified the accelerated development and introduction of rotavirus vaccines as a priority. Several new safe and effective ,live oral vaccine candidates are already available while others are being field tested. Sri Lanka is in a unique position to consider these vaccine options, if necessary, in the future as our mature EPI has achieved universal coverage for basic antigens and experts have already looked into the

Contents ***Page***

possibility of introducing new vaccines and the financial sustainability of their introduction in the country. Sri Lanka needs evidence of the burden of the rotavirus diarrhoea , cost of the disease burden and cost effectiveness data on the rotavirus vaccine before making a policy decision on introduction of rota vaccine. However, there is a paucity of data on the disease in the country. Though it is obvious that diarrhoeal diseases continue to be a public health problem, the proportion of rotavirus diarrhoea among them is not known, nor is the local epidemiology of rotavirus diarrhoea. With the exception of a handful of cases, diagnosis of rota virus is rarely made. On the other hand ,as diarrhoea is managed with ORS regardless of the cause , diagnosis may not be required . As a result, no specific preventive and control measures against rotavirus are carried out. Thus, if we are to consider new vaccine options such as Rota vaccine, initiation of surveillance to determine the local epidemiology of the disease and disease burden is paramount. Understanding the importance of bridging the existing gap in data pertaining to rota virus diarrhoea, Epidemiology Unit of the Ministry of Health in collaboration with the International Vaccine Institute (IVI) has initiated Rota Virus surveillance activities at the Lady Ridgeway Hospital in 2005.

The objectives of surveillance were to describe the local epidemiology of Rota viral diarrhoea among children under five years of age admitting to the LRH with diarrhoea. This includes determination of the proportion of rota virus diarrhoea among diarrhoeal cases and determination of serotypes. Rotavirus strain surveillance is important, in a setting like ours where vaccine has not been introduced, to determine prevalent serotypes and to see if rare sero- types are present. After the introduction of vaccine, surveillance will indicate the impact of the vaccine on changes in serotypes, emergence of new sero types, circulation of vaccine strains among children, breakthrough strains that appear and re assorted vaccine and wild virus strains .

At the LRH, stool samples were collected as a part of ongoing survey from all inpatient, under five children hospitalised for diarrhoeal episodes during a period of 24 months in April 2005 to March 2007. These specimens were sent to the Medical Research Institute where faecal specimens were frozen to -20C. Rotavirus aetiology was then confirmed by Rotavirus antigen detection enzyme immunoassay. The subsequent stage was determination of strains at the laboratory of the Royal Children Hospital in Melbourne, Australia.

At the end of the conclusion of the first phase of the Rotavirus surveillance at the LRH, proportion of rota viral diarrhoea among diarrhoeal children admitted to the LRH was 23.9%. The commonest G serotypes detected were G3 and G9 while P8 was the predominant P serotype. In contrast to surveillance data from the Asian Rotavirus Surveillance Network (ARSN) in which Sri Lanka is a member, a unique feature was the unusual high number of Non Typeable (NT) strains. In relation to phenotype, every third detected rotavirus strain in Sri Lanka was a non typeable strain while for the genotype ,every sixth detected strain was non typeable. Epidemiologically, the rota viral diarrhoea was mostly present among children aged 6-11 months followed by those who were in the age group of 1- 2 years. There was a seasonal pattern in hospitalisation of rota viral diarrhoea cases. Unlike in temperate countries, surveillance data demonstrated that children with rota viral diarrhoea were hospitalised throughout the year. However , there was a prominent

increase in rota viral diarrhoea episodes during the period from January to March. This increase was consistent with the increase in the number of hospitalised diarrhoea patients.

Nearly a half of the patients tested positive for Rota virus (41%) had a temperature recording below 37.5 C. The majority (65%) of rota virus diarrhoea cases were admitted with vomiting. However, the duration of vomiting was less than 3 days in a great majority of them (80%). The same applied for the duration of diarrhoea. In fifty six percent of children with rotavirus diarrhoea, the duration of diarrhoea was less than 3 days while 11% had diarrhoeal episodes lasting over five days. Two thirds of the children tested positive for rotavirus had no dehydration while those who manifested severe dehydration were negligible (0.7%). Ninety percent of these patients had been treated with Oral Rehydration Solution (ORS). Intravenous fluid administration was present in 16% of the patients while 5% had been treated with antibiotics.

As a result of the collaborative work, Sri Lanka now has preliminary data pertaining to rota virus diarrhoea. Ensuing question that arises is " What will be the future directions of Rotavirus surveillance in Sri Lanka? ". This direction was discussed in the National Immunization Summit held on 5th January 2007. In this summit, stakeholders decided that Sri Lanka needs to continue surveillance at the LRH with possible extension to other sites depending on the availability of financial resources. For the purposes stated above in this article, even continuation of surveillance in the post vaccine implementation stage is essential. Conducting a morbidity cost studies and a cost effectiveness studies are also vital before making a decision and the Epidemiology Unit is , currently, engaged in this sphere.

Reference:

Bresee J S, Hummelman E, Nelson E A S and Glass R I. Rotavirus in Asia: The value of surveillance for Informing Decisions about the Introduction of New Vaccines. The Journel of Infectious Diseases 2005;192 [Supplement 1] : S1—S5.

This article was prepared by Dr Ranjan Wijesinghe, consultant Epidemiologist and coordinator Rotavirus surveillance project in Sri Lanka.

Table 1: Vaccine-preventable Diseases & AFP

12th - 18th Jan 2008 (3rdWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	01 GL=1	00	00	00	00	00	00	01	02	06	06	00.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	01	00	00	00	01	00	04	00	+400.0%
Tetanus	00	00	00	00	00	00	00	00	01 RP=1	01	00	02	02	00.0%
Whooping Cough	01	00	00	00	00	00	00	00	00	01	00	01	00	+100.0%
Tuberculo-sis	52	07	80	66	03	00	08	03	00	219	92	774	526	+47.1`%

12th - 18th Jan 2008 (3rdWeek)

Table 2: Newly Introduced Notifiable Diseases

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	16	02	12	01	01	08	03	05	05	53	23	226	86	+162.6%
Meningitis	06 GM=1 KL=2 CO=3	00	12 GL=8 MT=2 HB=2	00	00	01 PU=1	00	01 BD=1	12 RP=3 KG=9	32	12	107	34	+214.7%
Mumps	04	01	06	00	01	05	01	02	03	23	18	124	29	+327.6%

Key to Table 1 & 2

Provinces: W=Western, C=Central, S=Southern, N=North, E= East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.

DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 3: Laboratory Surveillance of Dengue Fever

12th - 18th Jan 2008 (3rdWeek)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	06	00	00	00	00	00	00
Total number to date in 2008	12	00	00	00	00	00	00

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

NA= Not Available.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephali - tis, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

12th - 18th Jan 2008 (3rd Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephal-itis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Returns Re-ceived Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	23	116	05	13	01	02	02	10	41	44	04	09	00	00	06	10	00	00	**100**
Gampaha	24	105	03	05	02	02	00	03	00	00	03	14	00	00	07	14	00	00	**86**
Kalutara	12	30	10	16	00	00	02	04	00	00	05	12	01	01	01	04	00	00	**100**
Kandy	02	13	06	16	00	00	00	02	01	03	02	15	01	02	01	11	00	00	**67**
Matale	02	07	05	16	00	00	00	04	00	00	21	53	01	01	00	01	00	00	**83**
Nuwara Eliya	00	00	00	01	00	00	01	03	00	00	00	01	00	01	02	06	00	00	**44**
Galle	03	15	01	11	00	00	00	03	00	00	04	31	00	01	00	01	00	00	**81**
Hambantota	03	06	04	12	01	01	00	01	00	00	08	10	01	05	00	00	00	00	**91**
Matara	07	23	02	11	00	00	00	10	00	00	04	12	07	16	01	01	00	01	**88**
Jaffna	02	16	03	06	00	00	06	17	00	02	00	00	08	38	01	07	00	00	**75**
Kilinochchi	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00	00	**00**
Mannar	00	00	00	00	00	00	04	16	00	00	00	00	00	00	00	01	00	00	**50**
Vavuniya	02	05	00	04	00	00	00	00	00	00	00	00	00	00	01	01	00	00	**75**
Mullaitivu	00	00	01	01	00	00	00	01	00	00	00	00	00	00	00	01	00	00	**60**
Batticaloa	00	01	01	05	00	00	00	01	00	00	00	00	00	00	01	07	00	00	**100**
Ampara	00	00	04	17	00	00	00	00	00	00	00	01	00	00	00	00	00	00	**43**
Trincomalee	01	06	00	04	00	00	00	00	00	01	00	00	00	00	01	02	00	00	**44**
Kurunegala	12	54	04	42	00	02	01	05	00	00	01	02	00	02	01	03	00	00	**94**
Puttalam	10	37	02	12	00	00	02	09	00	01	00	02	02	02	00	02	00	00	**89**
Anuradhapur	08	30	03	10	01	02	00	01	00	02	01	04	01	03	00	00	00	00	**68**
Polonnaruwa	02	10	00	08	00	00	01	01	00	00	00	00	00	00	00	02	00	00	**71**
Badulla	02	07	04	27	00	00	01	06	00	01	00	03	01	06	08	13	00	00	**87**
Monaragala	00	01	02	16	00	00	02	02	00	03	02	09	01	06	00	01	00	00	**80**
Ratnapura	03	16	00	11	00	01	02	05	00	41	01	03	01	03	00	02	00	00	**50**
Kegalle	07	27	14	36	01	05	00	01	00	00	01	09	01	01	07	13	00	00	**82**
Kalmunai	00	00	02	05	00	00	00	00	00	00	00	00	00	00	02	03	00	00	**62**
SRI LANKA	**125**	**525**	**76**	**305**	**06**	**15**	**24**	**105**	**42**	**98**	**57**	**190**	**26**	**88**	**40**	**107**	**00**	**01**	**76**

Source: Weekly Returns of Communicable Diseases (WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 26 January. 2008 Total number of reporting units =290. Number of reporting units data provided for the current week: 238

PRINTING OF THIS PUBLICATION IS FUNDED BY THE UNITED NATIONS CHILDREN'S FUND (UNICEF).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

ON STATE SERVICE

Dr. M. R. N. ABEYSINGHE
EPIDEMIOLOGIST
EPIDEMIOLOGICAL UNIT
231, DE SARAM PLACE
COLOMBO 10