WEEKLY EPIDEMIOLOGICAL REPORT

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231, de Saram Place, Colombo 01000, Sri Lanka
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk
Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk
Web: http://www.epid.gov.lk

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Norovirus: A Global Health Concern - Part II

This is the second article of two in a series on "Norovirus: A Global Health Concern"

Norovirus and Waterborne Transmission

Noroviruses are frequently detected in raw sewage, treated wastewater, surface water, and occasionally in groundwater and drinking water. They can persist in water for long periods and are resistant to many environmental stresses. Outbreaks linked to contaminated drinking water have been reported in many countries, usually due to sewage intrusion into water supplies combined with failures in disinfection systems. Because of their stability and low infectious dose, noroviruses are considered. Controlling them requires systematic approaches to reduce faecal contamination along the sanitation chain, as well as ensuring safe drinking water treatment and distribution.

Symptoms and Clinical Features

Norovirus infection usually appears 12 to 48 hours after exposure. The illness begins suddenly and typically lasts one to three days. The most common symptoms include:

- Nausea
- Vomiting (more common in children)
- Diarrhoea (more common in adults)
- Stomach pain and cramps
- Headache
- Fever
- Muscle aches

Although norovirus is usually self-limiting, dehydration can occur, especially in children, older adults, and immunocompromised patients. Severe cases require hospitalisation for intravenous fluids and supportive care. Importantly, the virus continues to be shed in stool for several days after symptoms end, which contributes to ongoing transmission.

Treatment and Management

There is no specific antiviral drug or vaccine for norovirus at present. Treatment focuses on supportive care, especially rehydration. Mild cases can be managed at home with oral rehydration solutions, while severe cases may need intravenous fluids in hospitals. Antibiotics are not useful.

Prevention and Control

Because norovirus spreads so easily, prevention relies on good hygiene, sanitation, and safe food handling practices. Key measures include:

- Handwashing: Wash hands thoroughly with soap and water, especially after using the toilet, changing diapers, and before eating or preparing food.
- Food safety: Wash fruits and vegetables, cook seafood and shellfish thoroughly, and avoid preparing food while sick.
- Cleaning and disinfection: Clean frequently touched surfaces with bleach-based disinfectants, particularly in outbreak settings.
- Laundry hygiene: Wash contaminated clothing and linens thoroughly.
- Avoiding exposure: Limit contact with infected individuals until at least 48 hours after symptoms resolve.

Sanitation and Water Safety

Sanitation systems play a critical role in reducing norovirus transmission. However, wastewater treatment and drinking-water treatment vary in effectiveness against viruses. Processes based on size exclusion, such as simple filtration, are not fully effective for removing viral particles.

Disinfection methods like chlorination and UV light have been shown to inactivate noroviruses effectively. Still, complete removal is challenging, and viral reductions are usually lower than those seen for bacterial indicators like *E. coli*.

Water Safety Plans (WSPs) and **Sanitation Safety Plans (SSPs)** are practical tools recommended by the World Health Organisation to protect communities from diseases.

A **Water Safety Plan** looks at the entire drinking water supply system from the source, through treatment, to the tap to find where contamination might occur and to put in place measures like filtration, disinfection, and regular monitoring. This helps ensure that people always have safe water to drink.

A **Sanitation Safety Plan,** on the other hand, focuses on how human waste is collected, transported, treated, and safely disposed of or reused. Since norovirus is shed in large amounts in faeces and vomit, poor sanitation can easily contaminate water, food, and the environment. By applying Sanitation Safety Plans, risks are identified at each step of the sanitation chain, and actions are taken to prevent leaks, unsafe handling, or direct contact with waste. Together, Water Safety Plans and Sanitation Safety Plans break the faecal–oral transmission cycle of norovirus and other pathogens, providing a strong foundation for healthier communities.

Immunity and Reinfection

One of the most challenging features of norovirus is the limited and short-lived immunity it provides. After infection, a person may have temporary protection against the same strain, but this immunity often wanes within months. Because of the many different strains circulating worldwide, people can be infected multiple times throughout life. This explains why norovirus is common across all age groups and continues to cause large outbreaks year after year.

Conclusions:

Norovirus is a leading cause of acute gastroenteritis worldwide, responsible for significant illness, hospitalisations, and economic costs. Its small infectious dose, environmental persistence, and genetic diversity make it especially difficult to control. Outbreaks occur in healthcare facilities, schools, and communities, as well as through contaminated water and food.

Although the illness is usually self-limiting, it poses a serious threat to vulnerable populations, particularly young children, the elderly, and immunocompromised individuals. With no specific treatment or vaccine available, prevention relies on effective sanitation, safe water supply, proper food handling, and rigorous hand hygiene.

Global health strategies such as the WHO's Sanitation Safety Plans and Water Safety Plans are essential tools to manage norovirus risks through safe wastewater management and drinking water protection. A combination of public health measures, hygiene promotion, and improved sanitation will remain the most effective ways to reduce the burden of norovirus worldwide.

Compiled by:

Dr S Charuhasini
Medical Officer
Epidemiology Unit
Ministry of Health

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 26th–01st Aug 2025 (31st Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poisoning		Leptospirosis		Typhus F.		Viral Hep.		H. Rabiies		Chickenpox		Meningitis		Leishmania-		Tuberculosis		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	246	8020	0	20	0	6	0	9	0	30	2	301	0	5	0	13	0	0	11	351	0	42	0	3	33	1215	94	100
Gampaha	148	5215	0	30	0	25	0	1	0	126	7	507	0	8	0	13	0	0	14	550	4	103	0	28	19	710	93	100
Kalutara	30	1652	0	28	0	6	1	14	1	43	3	425	1	2	1	5	0	0	6	573	1	33	0	1	7	362	87	99
Kandy	107	2909	0	38	0	3	0	6	0	22	9	198	2	36	0	7	0	0	23	348	0	18	3	45	11	406	100	100
Matale	19	866	0	19	1	2	0	0	0	50	7	168	0	4	0	7	0	0	0	85	0	7	6	188	0	95	100	100
Nuwara Eliya	9	227	2	62	0	5	0	4	0	50	6	92	3	40	0	1	0	0	4	180	2	23	0	0	4	169	100	100
Galle	44	1407	2	30	0	3	1	5	0	49	15	543	3	51	0	8	0	1	8	502	3	111	0	3	9	302	90	100
Hambantota	24	644	3	23	0	5	0	0	0	4	6	275	0	20	1	10	0	0	5	225	0	18	8	194	12	102	100	100
Matara	30	1129	1	12	0	2	0	1	1	11	9	331	0	12	1	12	0	0	4	263	1	29	3	69	0	101	100	100
Jaffna	15	869	4	64	0	2	0	11	0	39	0	125	9	375	0	2	0	2	2	251	1	20	0	0	3	137	86	93
Kilinochchi	0	70	2	13	0	1	0	4	0	5	1	62	0	11	0	1	0	0	0	4	0	0	0	2	2	33	100	100
Mannar	2	123	0	5	0	0	0	0	0	2	1	22	0	14	0	0	0	0	0	17	1	13	0	4	8	39	100	100
Vavuniya	1	65	0	9	0	0	0	1	2	38	2	69	0	7	0	0	0	0	2	35	1	16	1	15	5	40	100	100
Mullaitivu	0	48	0	5	0	0	0	1	0	23	1	53	0	7	0	0	0	0	7	29	0	5	0	3	0	21	100	100
Batticaloa	6	1508	3	104	0	14	1	1	6	152	2	85	1	2	0	20	0	0	2	140	0	25	0	1	2	91	79	100
Ampara	6	189	1	36	0	10	0	0	0	17	3	163	0	2	2	8	0	1	5	146	2	33	0	20	1	36	100	100
Trincomalee	9	885	0	35	0	2	0	1	6	71	0	115	0	9	0	5	0	0	2	87	0	11	0	5	0	85	100	100
Kurunegala	39	1184	2	36	0	13	0	1	18	47	15	525	1	23	0	6	0	1	12	559	6	112	15	385	7	216	93	100
Puttalam	15	462	0	22	0	3	0	0	0	5	1	198	1	31	0	1	0	1	3	108	1	64	0	22	13	129	92	99
Anuradhapura	3	418	0	26	0	6	0	3	0	27	0	300	1	17	0	12	0	0	5	222	1	47	2	489	17	195	78	100
Polonnaruwa	8	261	1	13	0	5	0	1	0	8	7	215	0	1	0	18	0	0	4	127	1	16	13	279	6	61	75	90
Badulla	16	566	0	22	0	8	0	3	0	6	4	211	1	18	1	45	0	0	2	275	2	50	2	39	8	190	94	100
Monaragala	17	615	0	17	0	3	0	0	0	4	9	428	0	23	3	24	0	0	3	116	0	37	6	133	8	89	55	100
Ratnapura	91	3539	0	82	0	6	0	3	0	50	23	1028	0	19	0	11	0	1	8	305	1	80	7	130	9	266	100	100
Kegalle	29	1054	1	48	0	12	0	9	0	32	5	513	0	8	0	15	0	0	17	589	1	77	0	22	3	177	82	100
Kalmunai	5	302	1	25	1	6	0	0	0	18	0	79	0	1	0	3	0	1	7	116	1	36	0	0	3	84	100	100
SRILANKA	**919**	**34227**	**23**	**824**	**2**	**148**	**3**	**79**	**34**	**929**	**138**	**7031**	**23**	**746**	**9**	**247**	**0**	**8**	**156**	**6203**	**30**	**1026**	**66**	**2080**	**190**	**5351**	**92**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 27th June, 2025 Total number of reporting units 360 Number of reporting units data provided for the current week: 358. **C****-Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

26th – 01st Aug 2025 (31th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2025	Number of cases during same week in 2024	Total number of cases to date in 2025	Total number of cases to date in 2024	Difference between the number of cases to date in 2025 & 2024
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	01	00	00	00	00	0	00	00	01	02	01	39	42	-7.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	01	00	01	00	00	00	00	00	00	02	04	155	174	-10.9 %
Measles	00	00	00	00	00	00	00	00	00	00	02	01	233	-99.5%
Rubella	00	00	00	00	00	00	00	00	00	00	00	04	02	-100%
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	05	04	25 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Enceph-alitis	00	00	00	00	00	00	00	00	00	00	00	04	06	33.3 %
Whooping Cough	00	00	00	00	00	00	00	00	00	01	01	15	37	-59.4 %

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.

RDHS 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.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

NA = Not Available

Take prophylaxis medications for leptospirosis during the paddy cultivation and harvesting seasons.

It is provided free by the MOH office / Public Health Inspectors.

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. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

ON STATE SERVICE

Dr. H. A. Tissera
Actg. CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10