WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health
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

WEEKLY EPIDEMIOLOGICAL REPORT SRI LANKA 2024

Vol. 51 No. 26 **22nd – 28th June 2024**

Clostridium difficile

Key facts:

* *Clostridium difficile* is one of the most common and antibiotic associated diarrhoea
* Patients present nosocomial infections with symptoms such as diarrhoea, abdominal pain, leucocytosis, and often report recent antibiotic usage.
* Clinical signs typically manifest between day 4 and 9 of antibiotic therapy, though they can appear as late as eight weeks after discontinuation of antibiotics.
* Management involves discontinuing the responsible antimicrobial agent and initiating therapy with oral metronidazole/ vancomycin or fidaxomicin. Surgical intervention may be required for severe cases
* Proper hand washing is paramount in preventing infection transmission.

Clostridium difficile (C. difficile) is a motile, spore-forming, Gram-positive anaerobic bacillus. It commonly appears in the faeces of neonates and infants until the age of weaning but is generally not found in adult faeces. *C. difficile* is present in the normal intestinal microbiota of 1–3% of healthy adults and 15–20% of infants. These percentages can increase during extended hospitalization and after surgery. Clinical symptoms range from an asymptomatic carrier state to varying degrees of diarrhoea, and in the most severe cases, life-threatening colitis. Pseudomembranous colitis signifies an advanced stage of the disease and in some instances, colonic distension can develop, which is referred to as toxic megacolon. However, the bacterium can also reside in the gut without causing symptoms, potentially leading to silent transmission.

Clostridium difficile infection (CDI) remains a significant and evolving challenge for global healthcare systems. The bacterium was first isolated from stool samples of neonates in 1935. Over the last decade, the frequency and severity of CDI have risen globally, making it one of the most common hospital-acquired infections. *Clostridium difficile*–associated diarrhoea (CDAD) has emerged as a major healthcare-associated infection in North America, Europe, Western and South East Asian countries. It is estimated that 15,000 to 20,000 patients die annually from CDI in the United States. In some regions, it has surpassed methicillin-resistant *Staphylococcus aureus* (MRSA) as the most common cause of healthcare-associated infections. However, specific epidemiological data may vary by region and over time.

A study conducted in 2011-2012 at the National Hospital Colombo among all patients admitted with acute severe ulcerative colitis (ASUC) concluded that there is a high prevalence of Clostridium difficile infection among Sri Lankan patients with ASUC.

CDAD has not been extensively studied in Sri Lanka, but existing data indicate that CDAD cases are seen but the prevalence remains relatively low compared to global figures. Furthermore, advanced age and the use of cephalosporins, carbapenems, extended-spectrum penicillins, and macrolides are identified as the factors associated with CDAD. Diagnosing CDAD is becoming increasingly important, as the rates can be raised due to the uncontrolled use of broad-spectrum antibiotics.

Risk factors for CDI include advanced age (over 65 years), recent antibiotic use (within the last 2 months), gastric acid suppression, recent hospitalization, immunosuppression (such as from HIV, cancer, or organ transplantation), and infection with highly virulent strains. The organism produces an enterotoxin (toxin A) and a cytotoxin (toxin B), and some strains produce a third toxin known as binary toxin.

Contents **Page**

The severity of CDI can be classified as follows.

* Mild infection: Not associated with an elevated white cell count (WCC). Typically involves fewer than 3 episodes of loose stools per day (loose enough to take the shape of the container used for sampling).
* Moderate infection: Associated with an elevated WCC (but less than 15 × 10^9 per litre). Typically involves 3 to 5 loose stools per day.
* Severe infection: Characterized by a WCC greater than 15 × 10^9 per litre, a rapid increase in serum creatinine concentration (over 50% above baseline), a temperature exceeding 38.5 degrees Celsius, or signs of severe colitis (abdominal or radiological evidence). The stool count may be a less reliable indicator of severity.
* Life-threatening infection: Characterized by symptoms and signs such as hypotension, partial or complete ileus, toxic megacolon, or CT evidence of severe disease.

Laboratory diagnosis of CDI involves:

Faecal samples should be as fresh as possible and submitted in a clean, watertight container. Specimens should be transported immediately and stored at 2°C to 8°C until tested because the toxin can be inactivated at room temperature. Phosphate buffer solution (PBS) can preserve *C. difficile* viability during transport and storage. For long-term storage, faecal samples should be kept in PBS at 4°C. For outbreak investigations, toxin-positive samples should be stored at 4°C or −20°C. One or two specimens from a patient with diarrhoea are usually sufficient for the detection of *C. difficile.* Testing three stool samples can increase the likelihood of detecting a positive result by 10%.

Detection methods for C. difficile toxins include:

⇒ Cell Culture Neutralization Assay (CCNA): highly sensitive and specific test that detects *C. difficile* toxin B in cell culture

⇒ Immunoassays: Enzyme Immunoassay (EIA) and Immunochromatography are main types used. Can detect either toxin A alone or both toxins A and B.

⇒ Nucleic Acid Amplification Tests (NAATs): these include PCR, real-time PCR, and loop-mediated isothermal amplification (LAMP).

⇒ The Latex Agglutination Assay

⇒ Other tests: Gram staining, Counter immunoelectrophoresis, Chromatography, Rapid membrane tests, Analysis of faecal leukocytes and blood

Treatment:

Discontinuation of the antibiotic presumed to have caused the disease is essential. Treatment is not recommended for asymptomatic individuals. Metronidazole and oral vancomycin are the recommended antibiotics for the initial episode. Oral vancomycin is used for the patients intolerant to metronidazole. The routine use of vancomycin is not advised due to the risk of developing vancomycin resistance. However, oral vancomycin is recommended for treating severe CDI. Fidaxomicin, a new macrocyclic antibiotic, might be preferred over oral vancomycin in patients with multiple recurrences.

Surgical Treatment: Surgery is an option for treating fulminant colitis or for patients not responding to medical therapy

Prevention:

Clinical awareness is crucial. *C. difficile* is the most common cause of hospital-acquired diarrhoea. If a patient develops diarrhoea after at least 48 hours in the hospital, specially while taking antibiotics, CDI should be considered. In cases of multiple occurrences in a hospital unit, cross-infection should be suspected. Antimicrobial stewardship is crucial. It helps prevent antibiotic resistance by reducing the misuse and overuse of antibiotics, which in turn prevents the development of resistant bacteria.

Patients with CDAD should ideally be isolated to prevent the spread of the infection to other patients. Strict infection control measures are necessary, including barrier nursing, wearing personal protective equipment (PPE), following contact precautions (to prevent direct transmission), and thorough environmental disinfection (cleaning surfaces to remove the bacteria).

Implementing proper infection control measures to prevent spread of infection among hospitalized patients will certainly reduce healthcare costs. Hand washing with soap and water is essential in preventing transmission of CDAD, as alcohol-based hand rubs are ineffective against spores. Staff education on this issue is vital to prevent harm caused by reliance on alcohol-based hand rubs, which can give a false sense of security.

Compiled by:

Dr Aruni Hathamuna
Senior Registrar in Community Medicine
Epidemiology Unit

References:

1. Fern, Anr, O., Pb, M., & Nmm, N. (2014). The Prevalence of *Clostridium difficile* Infection in a Cohort of Sri Lankan Patients with Acute Severe Ulcerative Colitis.
2. Goudarzi, M., Seyedjavadi, S. S., Goudarzi, H., Mehdizadeh Aghdam, E., & Nazeri, S. (2014). *Clostridium difficile* Infection: Epidemiology, Pathogenesis, Risk Factors, and Therapeutic Options. Scientifica, 2014, 1–9. https://doi.org/10.1155/2014/916826
3. Heinlen, L., & Ballard, J. D. (2010). *Clostridium difficile* Infection. The American Journal of the Medical Sciences, 340(3), 247–252. https://doi.org/10.1097/maj.0b013e3181e939d8
4. NICE. (2021, July 23). Recommendations | *Clostridioides difficile* infection: antimicrobial prescribing | Guidance | NICE. Www.nice.org.uk. https://www.nice.org.uk/guidance/ng199/chapter/Recommendations
5. Medical Microbiology. (2012). https://shop.elsevier.com/books/medical-microbiology/greenwood/978-0-7020-4089-4

Table 1: Selected notifiable diseases reported by Medical Officers of Health 15th – 21st June 2024 (25th 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	218	5592	2	13	1	6	2	42	4	10	10	225	0	8	0	7	0	0	15	255	1	16	0	0	26	1036	**95**	**100**
Gampaha	81	2472	4	22	0	10	0	8	3	69	12	365	0	3	0	2	0	0	10	189	6	71	0	10	16	579	**73**	**100**
Kalutara	46	1601	0	16	0	1	0	26	1	17	30	377	0	5	0	8	1	1	8	348	0	33	0	1	0	242	**87**	**100**
Kandy	85	2332	0	19	0	2	0	6	3	40	3	139	0	21	0	8	0	1	1	261	2	13	1	24	46	323	**100**	**100**
Matale	15	402	1	4	0	0	0	2	0	17	6	65	0	1	0	4	0	0	3	75	0	6	4	143	0	67	**100**	**100**
Nuwara Eliya	2	206	4	72	0	4	0	8	1	189	4	108	0	28	0	3	0	0	4	135	0	9	0	0	5	148	**100**	**100**
Galle	26	1237	1	27	1	11	0	7	2	53	13	405	0	60	0	6	0	1	17	371	1	44	0	3	4	211	**0**	**100**
Hambantota	8	565	0	23	0	2	0	3	2	38	5	303	2	24	0	3	0	1	4	168	0	19	3	273	1	77	**100**	**100**
Matara	5	483	0	4	0	3	0	2	0	7	13	223	0	10	0	2	0	0	6	201	0	49	2	60	5	75	**94**	**100**
Jaffna	11	5063	1	40	0	2	0	5	0	24	0	13	3	379	0	3	0	1	0	137	0	7	0	1	8	156	**100**	**93**
Kilinochchi	0	269	0	7	0	0	0	2	0	2	0	16	1	8	0	0	0	0	0	5	0	4	0	0	0	13	**100**	**100**
Mannar	1	190	0	4	0	0	0	1	0	0	0	18	0	7	0	1	0	0	1	5	0	3	0	1	0	35	**100**	**100**
Vavuniya	1	139	0	6	0	1	0	1	0	14	3	65	0	4	0	4	0	0	1	26	1	11	0	7	4	20	**100**	**100**
Mullaitivu	1	183	1	5	0	0	0	0	4	16	1	58	0	11	0	0	0	0	0	3	0	0	0	6	1	17	**100**	**100**
Batticaloa	14	1171	2	79	0	9	0	5	1	19	5	49	0	2	0	13	0	0	4	68	1	26	0	2	4	76	**100**	**100**
Ampara	3	170	0	20	0	2	0	0	0	13	1	136	0	1	0	5	0	0	1	65	0	26	0	8	1	82	**86**	**100**
Trincomalee	12	522	0	11	0	0	0	2	2	4	4	121	1	12	1	2	0	0	1	34	0	9	1	11	2	51	**92**	**100**
Kurunegala	21	1512	1	26	2	21	0	3	0	344	12	353	0	17	1	3	0	2	7	272	5	159	18	324	2	264	**90**	**100**
Puttalam	9	702	0	4	0	1	0	3	0	1	1	142	0	6	0	1	0	1	0	79	3	36	0	20	5	98	**100**	**100**
Anuradhapura	5	529	0	9	0	3	0	1	8	26	4	268	0	25	0	7	0	1	3	149	0	24	12	467	9	148	**91**	**100**
Polonnaruwa	5	227	0	14	0	0	0	1	0	2	8	179	0	1	1	5	0	0	1	81	0	20	10	288	3	55	**100**	**100**
Badulla	12	551	0	15	0	4	0	4	0	24	13	310	0	18	1	13	0	0	6	188	0	18	0	16	7	109	**88**	**100**
Monaragala	16	490	1	9	0	2	0	2	1	77	10	508	0	21	2	17	0	1	1	65	3	58	10	135	5	56	**91**	**100**
Ratnapura	57	1565	4	59	0	3	0	7	1	10	43	970	0	14	0	17	0	2	10	182	2	74	3	101	1	160	**80**	**100**
Kegalle	24	1306	1	10	0	6	0	6	0	8	23	370	1	18	0	6	0	1	17	462	0	38	0	16	7	167	**91**	**100**
Kalmunai	5	558	0	15	0	0	0	0	0	5	0	47	0	2	0	3	0	0	2	132	0	9	0	0	4	76	**85**	**100**
SRILANKA	**683**	**30037**	**23**	**533**	**4**	**93**	**2**	**147**	**33**	**1029**	**224**	**5833**	**8**	**706**	**6**	**143**	**1**	**13**	**123**	**3956**	**25**	**782**	**64**	**1917**	**166**	**4341**	**90**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 21st June, 2024 Total number of reporting units 358 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

15th – 21st June 2024 (25th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2024	Number of cases during same week in 2023	Total number of cases to date in 2024	Total number of cases to date in 2023	Difference between the number of cases to date in 2024 & 2023
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	01	00	00	00	00	00	00	01	02	36	45	-20 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	02	01	00	00	01	00	00	00	01	05	06	144	107	34.5 %
Measles	00	00	00	00	00	00	00	00	01	01	06	213	13	1538.4 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	02	01	100 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	04	05	-20 %
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	01	02	-50 %
Whooping Cough	07	00	00	00	00	00	00	00	00	07	00	25	04	525 %

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

Number of Malaria Cases Up to End of June 2024,

04

All are Imported!!!

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. Samitha Ginige
Actg. CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10