



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health, Nutrition & Indigenous Medicine

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Vol. 50 No. 29

15th– 21st July 2023

Human Metapneumovirus Infection: An Emerging Respiratory Pathogen

Introduction

Human Metapneumovirus (HMPV) is a newly emerging respiratory pathogen that can cause upper and lower respiratory disease in people of all ages, especially among young children, older adults, and people with weakened immune systems. HMPV was first discovered in 2001 and is in the Pneumoviridae family along with the respiratory syncytial virus (RSV). HMPV is a single-stranded RNA virus that is highly contagious and can spread through respiratory secretions, such as coughing and sneezing. The virus is primarily associated with bronchiolitis and pneumonia, and it poses a potential risk for bacterial pneumonia. The coexistence of HMPV with respiratory syncytial virus can lead to more severe clinical symptoms, along with complications such as asthma and exacerbations of chronic obstructive pulmonary disease. Given the potential impact on patients, enhancing our understanding of this virus is crucial to improve patient care.

Epidemiology

HMPV has a global distribution and is responsible for a substantial burden of respiratory tract infections. It exhibits a seasonal pattern, with peak activity observed during winter and spring in temperate regions. HMPV infection commonly leads to localized outbreaks in communities, healthcare settings, and long-term care facilities. Understanding the epidemiology of HMPV is crucial for implementing appropriate preventive and control measures. The COVID-19 pandemic has changed the epidemiology of respiratory viral infections, modifying the classic seasonality of respiratory syncytial virus (RSV), influenza, and other viruses. A recent study in Spain found an unusual outbreak of respiratory infections caused by hMPV in children during the sixth wave of COVID-19, associated with the Omicron variant. Patients in this outbreak were older than usual and showed more hypoxia and pneumonia, longer length of stay, and greater need for intensive care. HMPV is an important emerging respiratory pathogen that has been reported in many countries around the world. In Sri Lanka, HMPV has

been identified as a significant cause of acute respiratory infections (ARI) in children under five years of age. A study conducted in 2006 found that HMPV was detected in 10.8% of children with ARI in Sri Lanka. Another study conducted in 2017 found that HMPV was detected in 13.6% of children with ARI in Sri Lanka. The increasing prevalence of HMPV infection in Sri Lanka highlights the need for increased awareness and surveillance of this emerging respiratory pathogen.

Although the description of this viral pathogen was first described in children, subsequent reports have highlighted the importance of human metapneumovirus as a cause of respiratory illness in adults of all ages, in patients with cancer, in the elderly population (as a cause of serious lower respiratory tract infection), and in adults with underlying chronic medical conditions.

Pathophysiology

HMPV is a negative-sense RNA virus that is similar to RSV in its structure and pathogenesis. The virus infects the respiratory epithelium, causing inflammation and damage to the airways. The virus can also infect immune cells, leading to a dysregulated immune response that can exacerbate the severity of the disease. The role of human metapneumovirus in causing respiratory illness in adults has been increasingly recognized in recent years.

Clinical Presentation

HMPV infection manifests as a spectrum of respiratory illnesses, ranging from mild upper respiratory tract infections to severe lower respiratory tract diseases. The clinical presentation of HMPV infection is similar to that of other respiratory viruses, making it challenging to differentiate clinically. Common symptoms include cough, nasal congestion, sore throat, fever, and malaise. In severe cases, respiratory distress may occur, necessitating hospitalization and intensive care. It can even lead to death, particularly in young children, older adults, and individuals with weakened immune systems.

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Diagnosis

Laboratory diagnosis of HMPV infection relies on the detection of viral nucleic acids in respiratory specimens. Molecular techniques such as reverse transcription-polymerase chain reaction (RT-PCR) are the gold standard for HMPV detection. Serological tests can be employed to detect HMPV-specific antibodies, aiding in retrospective diagnosis and epidemiological studies. Rapid antigen tests, although convenient, may vary in sensitivity and specificity.

Management and Prevention

There is currently no specific antiviral treatment for HMPV infection, and management primarily revolves around supportive care. Adequate hydration, fever management, and respiratory support are essential components of patient management. In severe cases, hospitalization may be required for oxygen supplementation and intensive care. Vaccines against HMPV are under development and hold promise for reducing the burden of HMPV infection.

Prevention strategies mainly focus on infection control measures to limit the spread of HMPV. Strict adherence to hand hygiene, respiratory etiquette, and appropriate isolation precautions in healthcare settings is crucial. Public health campaigns and education aimed at raising awareness among healthcare professionals and the general population are instrumental in preventing HMPV transmission.

Impact on Public Health

HMPV infection exerts a significant impact on public health globally. In children, it ranks as one of the leading causes of hospitalization for respiratory infections, second only to respiratory syncytial virus (RSV). Severe complications and increased mortality rates have been observed in older adults and immunocompromised individuals. The economic burden of HMPV infection is substantial due to healthcare costs, including hospitalizations, laboratory testing, and loss of productivity.

Future Directions

The development of effective vaccines and antiviral therapies remains a priority in the field of HMPV research. Ongoing efforts to understand the immune response and viral pathogenesis will contribute to the development of targeted interventions. Enhanced surveillance systems and increased awareness among healthcare professionals are essential for monitoring the epidemiology of HMPV and implementing appropriate preventive measures.

Conclusion

Human Metapneumovirus (HMPV) infection is an emerging respiratory pathogen that poses significant challenges to the medical community. Its clinical presentation overlaps with other respiratory viruses, necessitating accurate diagnostic techniques. Supportive care and appropriate management strategies are crucial in addressing HMPV infection. The development of effective vaccines and antiviral therapies remains a key area of research. Furthermore, enhancing surveillance systems and promoting awareness among healthcare professionals can aid in the timely diagnosis and implementation of preventive measures. As HMPV continues to emerge as a significant respiratory pathogen, collaboration among researchers, healthcare providers, and public health authorities is vital in minimizing its impact on global public health. By staying updated with the latest research and maintaining a vigilant approach, the medical community can effectively tackle the challenges posed by HMPV and improve patient outcomes.

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Sources:

- Pediatric Human Metapneumovirus: Practice Essentials, Pathophysiology, Etiology. Medscape. Available from: [medscape.com/article/972492-overview](https://www.medscape.com/article/972492-overview)
- Human Metapneumovirus: An Emerging Respiratory Pathogen. ScienceDirect. Available from: <https://www.sciencedirect.com/science/article/pii/S0736467908001133>
- Human Metapneumovirus Infection as an Emerging Pathogen Causing Acute Respiratory Distress Syndrome. The Journal of Infectious Diseases. Available from: <https://academic.oup.com/jid/article/203/2/294/912105>
- Human Metapneumovirus: An Emerging Respiratory Pathogen. PMC - NCBI. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7127528/>
- A newly discovered human pneumovirus isolated from young children with respiratory tract disease. Nature Medicine. Available from: https://www.nature.com/articles/nm0601_719
- Severe Respiratory Illness Associated with Human Metapneumovirus in Nursing Home, New Mexico, USA. CDC. Available from: https://wwwnc.cdc.gov/eid/article/25/2/18-1298_article

**Table 1 : Water Quality Surveillance
Number of microbiological water samples June 2023**

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	0
Gampaha	15	90	NR
Kalutara	12	72	62
Kalutara NIHS	2	12	16
Kandy	23	138	24
Matale	13	78	0
Nuwara Eliya	13	78	67
Galle	20	120	NR
Matara	17	102	12
Hambantota	12	72	34
Jaffna	12	72	NR
Kilinochchi	4	24	2
Manner	5	30	NR
Vavuniya	4	24	49
Mullatvu	5	30	31
Batticaloa	14	84	0
Ampara	7	42	37
Trincomalee	11	66	0
Kurunegala	29	174	NR
Puttalam	13	78	3
Anuradhapura	19	114	NR
Polonnaruwa	7	42	0
Badulla	16	96	NR
Moneragala	11	66	58
Rathnapura	18	108	NR
Kegalle	11	66	3
Kalmunai	13	78	0

* No of samples expected (6 / MOH area / Month)
NR = Return not received

Table 1: Selected notifiable diseases reported by Medical Officers of Health 08th- 14th July 2023 (28th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral		Human		Chickenpox		Meningitis		Leishmania-		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	T*	C**			
Colombo	304	9691	0	7	0	10	0	1	0	7	4	194	0	0	0	3	0	0	3	0	0	3	172	0	27	0	5	27	100
Gampaha	308	10108	1	12	0	13	0	3	0	3	5	341	0	7	0	11	0	0	11	0	0	12	170	2	47	0	29	3	100
Kalutara	128	3312	0	14	1	2	0	0	1	6	19	525	0	1	1	5	0	1	5	0	1	20	283	1	58	0	1	2	100
Kandy	262	3938	2	27	0	0	0	7	3	15	5	168	2	41	0	3	0	1	3	0	1	6	162	0	18	2	22	86	100
Matale	60	936	0	2	0	0	0	1	0	8	3	113	1	12	0	3	0	0	3	0	1	32	0	4	9	193	23	100	
NuwaraEliya	10	157	3	86	1	3	0	3	0	40	4	76	1	49	0	4	0	0	4	0	3	84	0	8	0	1	60	100	
Galle	92	1581	2	34	0	12	0	5	0	21	13	571	1	30	0	1	0	1	1	0	10	214	0	14	0	2	36	100	
Hambantota	41	1081	1	7	0	3	0	1	0	8	5	207	2	53	0	8	0	0	8	0	2	96	0	16	27	383	26	100	
Matara	62	1183	0	19	0	6	0	1	0	12	12	382	0	20	0	3	0	2	3	0	7	172	0	15	1	111	53	100	
Jaffna	38	1701	2	54	0	2	0	9	1	17	0	8	2	478	0	2	0	1	2	0	6	120	3	9	0	2	64	93	
Kilinochchi	0	76	0	7	0	0	0	0	0	16	0	7	0	6	0	0	0	0	0	0	1	13	0	0	0	0	21	100	
Mannar	0	73	0	6	0	0	0	1	0	0	0	30	0	5	0	0	0	0	0	0	0	1	0	7	0	0	38	100	
Vavuniya	1	116	0	5	0	1	0	0	0	0	2	27	0	8	0	1	0	0	1	0	0	19	0	3	1	9	12	100	
Mullaitivu	11	104	0	9	0	0	0	3	0	12	0	29	0	5	0	1	0	0	1	0	0	12	0	0	1	6	23	100	
Batticaloa	53	1970	7	142	1	7	0	5	0	18	3	67	0	1	0	5	0	1	5	0	3	49	1	25	0	1	58	100	
Ampara	1	114	0	1	0	1	0	0	0	0	0	22	0	1	0	1	0	0	1	0	0	24	0	22	0	2	12	48	
Trincomalee	28	1912	0	14	0	1	0	0	0	64	1	56	0	14	0	0	0	0	0	0	2	38	2	22	0	1	25	100	
Kurunegala	56	2170	5	31	1	8	0	0	0	6	7	241	0	9	0	9	0	2	2	22	320	3	101	14	299	24	100		
Puttalam	27	2680	0	8	1	2	0	1	0	1	2	38	1	8	0	1	0	0	1	0	3	80	1	37	0	16	22	99	
Anuradhapur	20	581	0	6	0	0	0	1	0	2	6	224	0	28	1	3	0	0	3	0	9	156	4	34	13	331	24	98	
Polonnaruwa	6	450	1	11	0	5	0	0	0	6	2	131	0	5	0	12	0	0	1	53	2	15	2	255	2	35	98		
Badulla	30	730	0	26	0	5	0	0	5	32	10	221	1	31	4	68	0	0	6	113	2	32	3	26	64	100			
Monaragala	27	421	0	15	0	5	0	0	0	0	7	403	0	30	0	17	0	1	0	50	2	47	10	114	26	100			
Ratnapura	43	1491	0	29	0	13	0	2	0	14	23	758	3	21	1	13	0	2	5	112	1	110	0	110	34	100			
Kegalle	84	2061	2	16	0	2	0	2	2	10	20	452	2	24	1	4	0	0	7	263	4	43	2	25	30	100			
Kalmune	19	1557	0	44	0	10	0	0	0	0	35	0	1	0	0	0	0	0	2	47	0	22	0	0	42	99			
SRILANKA	1711	50194	26	632	5	111	0	46	12	318	15	5326	16	888	8	178	0	12	131	2855	28	736	85	1944	37	98			

Source: Weekly Returns of Communicable Diseases (esurveillance.avid.gov.lk). T=Timeliness refers to returns received on or before 14th July, 2023. Total number of reporting units 358. Number of reporting units data provided for the current week: 343. C**=Completeness. A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

08th– 14th July 2023 (28th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2023	Number of cases during same week in 2022	Total number of cases to date in 2023	Total number of cases to date in 2022	Difference between the number of cases to date in 2023 & 2022
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	00	01	01	50	44	13.6 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	03	00	00	00	00	01	03	00	01	08	00	121	35	245.7 %
Measles	07	00	00	06	00	00	01	00	01	15	01	61	14	335.7 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
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	06	05	20 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	02	07	- 71.4 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	05	01	400 %
Tuberculosis	110	28	27	21	09	18	13	08	20	254	84	5043	3134	60.9 %

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

Influenza Surveillance in Sentinel Hospitals - ILI & SARI								
Month	Human				Animal			
	No Total	No Positive		Infl A	Infl B	Pooled samples	Serum Samples	Positives
June								

Source: Medical Research Institute & Veterinary Research Institute

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

ON STATE SERVICE

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