



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health & Indigenous Medical Services

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

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## Long Term Complications of Covid-19

The current global pandemic of Covid-19 illness is caused by a corona virus named as SARS-CoV-2. There are several members within the corona virus family and most of them cause respiratory illnesses, ranging from the common cold to rare and serious diseases such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Latter two diseases identified within humans in the year 2003 and 2012 respectively and both of which have high mortality.

Most of the common symptoms of the acute episode of Covid 19 illness can range from asymptomatic to symptomatic such as fever, body aches, headaches, sore throat. Most of the patients with Covid 19, completely recovered within weeks without any signs or symptoms. However, some patients are continuing to suffer from symptoms such as fatigue, cough, joint pain, headache, and shortness of breath over an extended period. The primary organ affected by the SARS Covid 2 virus is lungs, but the involvement of other organs has also been reported by scientists across the world. The common extra pulmonary sites that reported are the heart and nervous system. Impact on these two organs together with the lungs as the primary organ involved can cause long term complications, due to structural and functional abnormalities resulted from the Covid-19 illness.

### The impact of Covid 19 cause long term effects on the Nervous system

A group of researchers from Chicago, USA documented that, 40% of patients admitting with Covid-19 were having neurologic manifestations at the time of admission (Iadecola, Anrather, & Kamel, 2020). These manifestations are ranging from myalgia, headache, dizziness, encephalopathy, anosmia to rare stroke as well. Current pieces of evidence are suggestive of that some of these acute neurologic manifestations could lead to long term effects.

The Covid 19 infection now considered as a risk factor for stroke. A group of Canadian doctors

initially reported that Covid 19 as a risk factor for stroke among patients above 70 years of age, but now stroke reported among the younger age group population too.

Research evidences are suggestive that one-third of ICU survivors, recorded with cognitive impairment, comparable to the findings from neuropsychological testing among traumatic brain injury patients. Therefore, it is estimated that Covid 19 ICU survivors with cognitive impairments may in risk having disabilities in memory, attention and executive function can lead to difficulties managing medications, managing finances, comprehending written materials, and even carrying on conversations with friends and family. Up to now, the number of patients requiring ICU in care in Sri Lanka is very minimal. However, global evidences suggest that 5% of all covid-19 patients require life support in ICU, during the illness.

In addition, long term psychological effects of ICU care such as anxiety, depression, and Post Traumatic Stress Disorder (PTSD), also expected to prevalent among recovered patients.

### Long Term Cardiac effects of Covid-19

Several research studies demonstrated that 20% -30% of patients admitted to hospitals with Covid 19 is reported to have some form of cardiac involvement. This is manifested by the elevated levels of troponin levels. Multiple pathways have been identified among the patients with elevated troponin levels such as Myocardial Infarction, myocarditis, vasculitis, or other mechanisms related to the inflammation, thrombosis and or stress (Mitrani, Dabas, & Goldberger). Depending on the type of injury, there may be important sequel, if residual inflammation or fibrosis exists. As SARS-CoV-2 is a new pathogen, there are no long-term data on cardiovascular abnormalities or dysrhythmias that may occur in the convalescent phase. In patients with COVID-19, it is plausible that myocardial involvement can be the initiator of a pathway of inflammation and subsequent fibrosis. Such changes can lead to arrhythmias and electrophysiological changes de-

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pending on the extent and site of the fibrosis of the myocardial muscle. As with other viral infections, myocarditis is another phenomenon that need to keep in mind in accessing the patients recovered from Covid-19 infection.

**Long term effects of Covid 19 on Lungs**

Even though it is too early to observe the long term implications of the Covid-19 virus on the lungs, it is widely expected that they follow similar long term complications as SARS and MERS which are also types of respiratory adeno viruses. It is reported that approximately 30% of people with SARS or Middle East respiratory syndrome had persisting lung abnormalities after their acute illness.

The early evidences are suggestive of having a majority of symptomatic patients are having persistent symptoms and radiologic abnormalities consistent of interstitial thickening and evidence of fibrosis of lungs.

**Long term effects of Covid 19 on Kidneys**

It is also reported that kidneys also damaged due to Covid 19. Renal involvement is frequent in COVID-19, and the clinical presentation ranges from mild proteinuria to progressive acute kidney injury (The Lancet, 2020). SARS-CoV-2 might attack the kidneys directly, but the kidneys are also vulnerable to the uncontrolled inflammation and blood clots that are caused by the virus. The International Society of Nephrology reported that kidney abnormalities are observed in 25% - 50% of patients with severe COVID-19 who require hospitalization. The number of patients who will go on to develop chronic kidney disease is currently unknown; however, a significant number might require dialysis or transplantation in future.

**Multisystem Inflammatory Syndrome (MIS)**

This is a rare condition seen among patients recovered from Covid-19 in different parts of the world. MIS is caused by post covid-19, inflammatory reactions within heart, kidneys, intestines and liver, which leads to multiple organ failure, something similar to Kawasaki disease seen among children.

**In Summary**

As Covid 19 is relatively a new disease to the world, 10 months are insufficient for identifying and characterizing long-term effects, but in the unique case of the corona virus epidemic, with 44 million infected people around the globe, there is ample room for recording long-term effects. There are several cohort studies are ongoing to gather information about the progress and the long term sequel of the Covid 19. These research studies are still in the early stages, but experts can already say that such effects – with their diversity and wide range of severity – are surprisingly different from long-term effects of other viruses in the corona virus family, or than other viral infections.

**Compiled by** – Dr. Nalinda Wellapuli, Senior Registrar in Community Medicine, Epidemiology Unit, Ministry of Health

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**Table 1 : Water Quality Surveillance  
Number of microbiological water samples Aug 2020**

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	NR
Gampaha	15	90	NR
Kalutara	12	72	NR
Kalutara NIHS	2	12	NR
Kandy	23	138	NR
Matale	13	78	NR
Nuwara Eliya	13	78	0
Galle	20	120	NR
Matara	17	102	NR
Hambantota	12	72	NR
Jaffna	12	72	171
Kilinochchi	4	24	75
Manner	5	30	10
Vavuniya	4	24	NR
Mullatvu	5	30	NR
Batticaloa	14	84	0
Ampara	7	42	NR
Trincomalee	11	66	NR
Kurunegala	29	174	14
Puttalam	13	78	NR
Anuradhapura	19	114	NR
Polonnaruwa	7	42	0
Badulla	16	96	NR
Moneragala	11	66	NR
Rathnapura	18	108	NR
Kegalle	11	66	6
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 12<sup>th</sup>- 18<sup>th</sup> Sep 2020 (38<sup>th</sup> Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		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	44	3917	0	29	0	9	1	7	0	16	32	308	1	3	0	3	0	0	6	200	0	40	0	2	56	100
Gampaha	34	2438	0	12	1	8	0	7	0	19	36	257	1	8	0	6	0	1	1	248	2	33	0	60	42	98
Kalutara	13	1660	1	16	0	6	0	6	0	6	61	713	0	14	0	6	0	2	6	275	0	37	0	0	48	97
Kandy	69	3017	0	25	0	1	0	9	0	15	8	198	5	103	1	5	0	0	2	152	2	26	6	63	63	100
Matale	7	554	1	9	0	4	0	5	0	6	0	92	1	8	2	9	0	1	0	55	0	5	9	267	63	100
NuwaraEliya	3	165	0	34	0	1	0	5	0	9	2	111	2	85	0	3	0	0	0	74	1	15	0	0	22	100
Galle	10	1580	2	36	0	18	0	4	0	48	34	625	1	54	1	5	0	0	2	297	3	60	0	4	33	99
Hambantota	2	341	0	12	0	4	0	2	0	48	6	205	2	60	0	4	0	1	1	173	0	46	8	577	70	100
Matara	4	489	0	25	0	17	0	1	0	3	10	459	2	15	2	13	0	0	1	124	0	22	3	322	20	100
Jaffna	19	2030	2	83	0	0	0	20	4	65	1	24	7	531	0	0	0	2	2	102	0	12	0	2	27	93
Kilinochchi	0	126	1	40	0	2	0	11	4	21	0	19	1	36	0	1	0	0	3	16	0	11	0	13	65	100
Mannar	0	133	0	0	0	0	0	1	0	2	0	6	0	2	0	0	0	1	0	2	1	9	0	0	41	100
Vavuniya	0	248	0	13	0	0	0	6	0	3	0	43	0	3	0	0	0	0	2	32	0	4	0	1	64	100
Mullaitivu	0	85	0	14	0	0	0	6	0	5	0	26	2	13	0	3	0	2	0	12	0	7	0	6	39	100
Batticaloa	9	2349	2	86	1	7	0	1	1	49	0	31	0	0	0	5	0	1	2	88	2	32	0	1	50	100
Ampara	0	309	1	20	0	4	0	0	0	0	1	88	0	0	0	4	0	0	0	116	0	15	0	5	69	100
Trincomalee	0	2278	1	15	0	0	0	0	0	2	0	31	0	9	8	8	0	0	0	98	0	9	0	1	42	99
Kurunegala	12	883	1	23	0	12	1	4	0	36	15	217	0	30	1	7	0	3	4	301	1	36	17	399	48	99
Puttalam	0	458	1	10	0	4	0	3	0	1	0	60	0	17	0	2	0	1	1	75	1	50	0	10	57	100
Anuradhapur	3	403	0	17	0	3	0	4	0	30	4	242	0	25	0	13	0	2	0	176	0	58	1	214	40	99
Polonnaruwa	1	227	0	7	0	0	0	0	0	5	1	125	0	1	0	18	0	1	2	131	1	16	10	235	56	91
Badulla	1	439	3	21	0	5	0	3	0	4	7	311	3	89	0	13	0	0	0	133	0	32	0	18	59	87
Monaragala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ratnapura	17	1824	2	85	0	28	0	5	0	35	26	1307	2	49	1	16	1	1	0	166	2	98	5	113	51	99
Kegalle	11	756	0	18	0	10	0	3	0	18	17	456	0	40	4	20	0	0	3	162	1	59	3	36	54	100
Kalmune	11	915	0	53	0	3	0	1	0	6	1	20	0	2	0	3	0	0	0	272	2	39	0	0	62	100
<b>SRILANKA</b>	<b>270</b>	<b>27624</b>	<b>18</b>	<b>703</b>	<b>2</b>	<b>146</b>	<b>2</b>	<b>114</b>	<b>9</b>	<b>452</b>	<b>26</b>	<b>5974</b>	<b>30</b>	<b>1197</b>	<b>20</b>	<b>167</b>	<b>1</b>	<b>19</b>	<b>38</b>	<b>3480</b>	<b>19</b>	<b>771</b>	<b>62</b>	<b>2349</b>	<b>49</b>	<b>95</b>

Source: Weekly Returns of Communicable Diseases (WRCD).  
 \*T=Timeliness refers to returns received on or before 18<sup>th</sup> Sep, 2020 Total number of reporting units 356 Number of reporting units data provided for the current week: 322 C\*\*=Completeness

**Table 2: Vaccine-Preventable Diseases & AFP**

**12<sup>th</sup>– 17<sup>th</sup> Sep 2020 (38<sup>th</sup> Week)**

Disease	No. of Cases by Province									Number of cases during current week in 2020	Number of cases during same week in 2019	Total number of cases to date in 2020	Total number of cases to date in 2019	Difference between the number of cases to date in 2020 & 2019
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	01	00	00	00	00	00	00	02	02	33	60	- 45 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	01	02	01	01	01	00	00	00	00	07	06	141	256	- 44.9 %
Measles	00	00	00	00	00	00	00	00	00	00	01	41	245	- 83.2 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	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	03	17	- 82.3 %
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	31	11	181.8 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	07	36	- 81.0 %
Tuberculosis	66	15	23	10	15	28	11	07	17	192	244	4717	6281	- 24.9 %

**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
September							

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](mailto:chepid@sitnet.lk). **Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

**ON STATE SERVICE**

**Dr. Sudath Samaraweera**  
 CHIEF EPIDEMIOLOGIST  
 EPIDEMIOLOGY UNIT  
 231, DE SARAM PLACE  
 COLOMBO 10