



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
Ministry of Health, Nutrition & Indigenous Medicine  
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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## The link between COVID-19 infection and Cardio-vascular disease Part II

This is the last of a article that The link between COVID-19 infection and Cardio-vascular disease.

### Arrhythmias

As per the clinical case series, the occurrence of cardiac arrhythmia in patients with COVID-19 was 16.7% and it is more prevalent among patients who are admitted to intensive care units. Although mechanisms underlying the impact of COVID-19 on cardiac arrhythmias remain unclear, arrhythmia in COVID-19 patients might be caused by MI, cardiogenic shock, hypoxia, acid-base imbalance, and electrolyte disturbance <sup>7</sup>.

### Heart failure –

Heart failure is a common complication of COVID-19. The possible causes for heart failure in COVID-19 infection may include reduced diastolic function, pre-existing cardiovascular diseases, acute MI triggered by COVID-19, and sepsis-associated cardiac dysfunction <sup>7</sup>.

### Abnormalities in coagulation–

Abnormalities in coagulation as evident by disseminated intravascular coagulation (DIC) and thromboembolic events are commonly present in COVID-19 patients. Furthermore, it was documented that abnormal coagulation parameters have a strong association with severe complications in COVID-19 patients. Furthermore, deep vein thrombosis and pulmonary embolism are also associated with COVID-19 infection <sup>7</sup>.

### Patients with pre-existing cardiovascular disease

Patients who are diagnosed with pre-existing cardiovascular diseases such as hypertension, diabetes mellitus and other

cardiovascular diseases are at high risk of acquiring SARS- CoV-2 <sup>7</sup>. In patients with SARS-CoV-2 infection, underlying cardiovascular disease can provoke pneumonia and increase the severity of symptoms and eventually result in death. Cardiac insufficiency is a possible complication in patients with SARS-CoV-2. For patients with cardiac insufficiency who have underlying heart disease, SARS-CoV-2 infection might act as a trigger to worsen the condition and ultimately lead to death <sup>6</sup>. It is thought that SARS-CoV-2 infection superimposed on pre-existing CVD may exacerbate the injury already present in the cardiovascular system. Thus, patients with pre-existing CVD should be triaged and treated with priority. However, it has not been shown any causative role of such co-morbidities to SARS-CoV-2 infection <sup>7</sup>

### COVID-19 pandemic effects on cardiovascular disease prevention

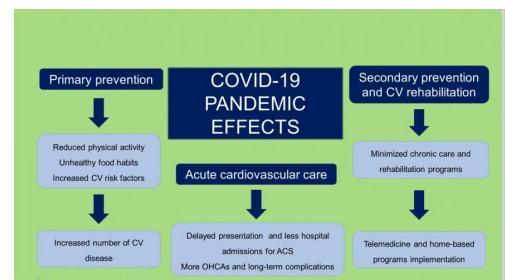


Figure 2 – COVID-19 pandemic effects<sup>5</sup> (CV – Cardiovascular; ACS – Acute coronary syndrome; OHCA – Out-of-hospital cardiac arrest)

### The effect on Primary Cardiovascular Prevention - Risk Factors (Primary prevention)

Regular physical activity is considered an

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important factor for the primary and secondary prevention of cardiovascular disease. It lowers the mortality not only from cardiovascular causes but also from mortality from all other causes as well. It is recommended to engage in moderate exercise on most days of the week, amounting to a minimum of 150 min/week. However, the steps taken by the governments to stop the spread of COVID-19 infection banned all recreational activities, including sports clubs and sports events, and resulted in mandatory homestays. Inactive individuals have about a two-fold higher relative risk of coronary artery disease when compared with physically active people. Considering all the beneficial effects of physical activity on metabolic disorders, the immune system, mental health and several non-cardiovascular diseases, the impact of this forced lockdown may be detrimental. The food habits of the people have changed during the COVID-19 pandemic. A review of twelve articles analyzing the preliminary effects of the quarantine on dietary habits revealed a sharp rise in carbohydrate sources consumption, especially those with a high glycemic index, such as home-made pizza, as well as frequent snacks. Eating more and eating junk food and fried foods more than before have also been noted during the pandemic<sup>5</sup>.

### The effect on acute cardiac care

During the COVID-19 pandemic, the number of persons who are presenting to emergency departments of hospitals has reduced. It was due to the fear of contracting the COVID-19 infection in a hospital setting and their willingness not to add an extra burden to the healthcare system. It revealed some persons' hesitancy to activate the emergency medical system (EMS), which itself has been focused on managing the pandemic. The coronavirus pandemic has changed the population's approach to the health system and the way healthcare services are delivered<sup>5</sup>. Admission rates due to acute myocardial infarction had reduced during the COVID-19 outbreak compared to a control period in 2019 according to a study done in Italy. They found a 50% reduction of admissions due to acute myocardial infarction across Italy, together with an increase in fatality and complication rates. This trend was more significant for Non-ST-elevation myocardial infarction (NSTEMI) than for ST-elevation myocardial infarction (STEMI)<sup>8</sup>. Furthermore, hospitalization due to heart failure, arrhythmias, valvular heart disease, arterial hypertension, and peripheral vascular disease had reduced. The reduction was 40% according to a study done in Germany<sup>9</sup>. Another study done in London showed a marked decline in hospitalization rates for acute heart failure. Also, they had presented with higher rates of more severe symptoms and NYHA class III/IV. It showed that the patients with milder clinical conditions have avoided presenting to the hospital<sup>10</sup>.

Out-of-hospital cardiac arrest (OHCA), had also increased as documented in several studies. It is strongly associated with the progressive outbreak of COVID-19<sup>11</sup>.

### The effect on cardiac rehabilitation programmes

It is very important to assure appropriate chronic clinical care following a cardiac event. It is well established that delaying the start of cardiovascular rehabilitation may

result in less improvement after a cardiac event. When facing the COVID-19 pandemic, many hospitals had to close non-urgent outpatient care, day cases, and also centre-based cardiovascular rehabilitation programmes. When these programmes aiming at exercise-based rehabilitation were not conducted following a MI the mortality and re-hospitalization following discharge increased. Also, people with heart failure had a 40% higher risk of hospitalization if a proper rehabilitation programme is lacking<sup>5</sup>.

Home-based cardiac rehabilitation, centre-based rehabilitation and hybrid cardiac rehabilitation (a combination between centre-based and home-based rehabilitation) show that home-based cardiac rehabilitation can be a valid alternative program for patients with heart failure. In this circumstance, telemedicine helps to make sure constant monitoring of patient's activity and safety during exercise. It was observed that an alternative home-based cardiac telerehabilitation model designed for people with coronary heart disease, during the period of COVID-19 quarantine was able to increase cardiorespiratory fitness

**Compiled by:** Dr Morina Fernando  
Epidemiology Unit

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**Table 1: Selected notifiable diseases reported by Medical Officers of Health 17<sup>th</sup>- 23<sup>rd</sup> Sep 2022 (38<sup>th</sup> Week)**

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hepa-		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	81	10023	0	4	0	3	0	1	0	6	6	156	1	1	0	5	0	2	3	36	1	11	0	2	15	97
Gampaha	58	6345	0	5	0	1	0	1	0	12	7	176	0	0	0	10	0	4	1	46	0	33	0	29	6	86
Kalutara	39	3184	0	24	0	1	0	2	0	6	33	334	0	4	0	5	0	4	1	59	2	22	0	2	15	52
Kandy	90	4228	0	19	0	1	0	3	0	11	9	133	0	31	0	9	0	0	4	63	1	8	0	33	12	98
Matale	43	940	0	8	0	0	0	0	0	0	3	83	0	5	0	5	0	1	2	35	0	1	3	262	18	100
NuwareEliya	2	192	0	21	0	0	0	3	0	5	3	75	1	13	0	6	0	0	2	35	0	6	0	0	27	94
Galle	39	3070	1	10	0	1	0	0	0	0	20	358	2	29	0	6	0	0	1	62	0	18	0	0	13	100
Hambantota	16	1377	2	32	0	0	0	0	0	2	1	196	3	41	0	6	0	0	3	28	0	17	8	410	16	100
Matara	25	1432	0	12	0	2	0	0	0	1	7	215	0	12	0	1	0	0	0	39	0	6	6	220	31	100
Jaffna	47	2642	11	63	1	3	0	58	21	60	0	20	9	432	1	7	0	4	4	93	0	11	1	1	64	93
Kilinochchi	4	107	0	7	0	0	0	3	0	24	0	11	0	12	0	0	0	0	0	4	1	3	0	2	26	100
Mannar	0	178	0	2	0	0	0	0	0	0	0	23	0	3	0	2	0	0	6	0	0	15	0	0	18	80
Vavuniya	0	71	0	3	0	1	0	2	0	0	0	18	0	1	0	0	0	0	0	27	0	0	0	4	1	94
Mullaitivu	1	56	0	5	0	0	0	2	0	6	0	25	0	5	0	0	0	0	0	7	0	2	0	1	21	93
Batticaloa	13	1051	4	58	0	8	0	0	0	21	0	37	0	0	0	1	0	1	0	27	0	30	0	1	38	99
Ampara	3	140	0	11	0	1	0	0	0	17	0	87	0	1	0	1	0	0	0	43	2	24	0	13	10	94
Trincomalee	5	1005	1	25	0	0	0	1	0	2	0	25	0	3	0	4	0	0	1	38	0	8	0	1	17	86
Kurunegala	23	2257	0	20	0	2	0	0	0	4	0	127	0	27	0	1	0	2	2	75	4	36	11	378	10	98
Puttalam	35	1755	0	3	0	1	0	1	0	0	1	25	0	8	0	1	0	0	3	18	0	24	0	4	15	91
Anuradhapur	1	394	0	11	0	2	0	1	0	7	0	154	0	22	0	2	0	1	0	61	1	46	12	316	9	97
Polonnaruwa	5	129	0	6	0	1	0	0	0	2	2	100	0	0	0	5	0	0	2	19	0	4	13	406	15	99
Badulla	14	878	2	23	0	2	0	1	1	14	8	209	2	48	3	124	0	0	1	47	0	13	1	19	17	100
Monaragala	7	408	0	6	0	1	0	4	0	3	4	241	0	28	3	51	0	0	3	55	4	43	2	116	11	99
Ratnapura	22	2460	0	40	0	6	0	3	0	28	14	788	0	21	0	24	0	0	1	66	1	51	1	174	13	93
Kegalle	36	2407	0	14	0	8	0	1	0	8	15	414	0	18	0	8	0	0	2	84	0	41	0	18	10	98
Kalmune	20	955	0	31	0	1	0	2	0	6	1	23	0	1	0	1	0	0	1	49	2	34	0	0	30	100
<b>SRI LANKA</b>	<b>62</b>	<b>47684</b>	<b>21</b>	<b>463</b>	<b>1</b>	<b>46</b>	<b>0</b>	<b>89</b>	<b>22</b>	<b>245</b>	<b>13</b>	<b>4053</b>	<b>18</b>	<b>766</b>	<b>7</b>	<b>285</b>	<b>0</b>	<b>19</b>	<b>37</b>	<b>1122</b>	<b>19</b>	<b>507</b>	<b>58</b>	<b>2412</b>	<b>18</b>	<b>96</b>

Source: Weekly Returns of Communicable Diseases (esurveillance.epid.gov.lk). T=Timeliness refers to returns received on or before 23<sup>rd</sup> Sep , 2022 Total number of reporting units 357 Number of reporting units data provided for the current week 293 C\*\*=Completeness

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

17<sup>th</sup>– 23<sup>rd</sup> Sep 2022 (38<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2022	Number of cases during same week in 2021	Total number of cases to date in 2022	Total number of cases to date in 2021	Difference between the number of cases to date in 2022 & 2021
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	02	53	48	10.4 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	00	00	00	01	00	00	00	00	01	00	68	58	17.2 %
Measles	00	00	00	00	00	00	00	00	00	00	00	17	11	54.5 %
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	05	02	150 %
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	01	01	04	- 75 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tuberculosis	00	00	50	04	07	44	43	02	12	162	83	5006	3708	35.0 %

**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 September 2022,**  
03  
**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@slt.net.lk](mailto:chepid@slt.net.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