



# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit  
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## Cancer and Covid-19 Vaccination

Cancer is the uncontrolled growth of abnormal cells in the body. It develops when the body's normal control mechanism stops working. Cancer is one of the leading causes (14%) of mortality among the Sri Lankan population. Leading cancer sites for Sri Lankan female are breast (24.1%), thyroid (9.1%), cervix uteri (7.2%), ovary (6.9%) and oesophagus (5.6%), while mouth (16.6%), respiratory tract (10.1%), colon and rectum (8.1%), oesophagus (7.8%) and prostate (6.4%) are leading cancer sites for Sri Lankan male.

Protective immunity against viral infections provides humoral immunity and cell-mediated immunity (Fig. 1). Humoral immunity is provided by B lymphocytes which produce antibodies and may neutralize the virus by binding the virus and preventing its entry into host cells. Cell-mediated immunity includes macrophages and CD8+cytotoxic T lymphocytes, which eliminate infected cells. CD4+T lymphocytes help to activate B and CD8+T cells, which promote the generation of highly effective antibody responses and memory. Cancer patients often take a hit to the immune system, typically because treatments used to fight the disease

may deplete the white blood cells that help ward off infection, impairing the body's ability to protect itself due to the acquired low immunity status. Therefore, cancer patients are more vulnerable to Covid-19 infection. Considering the continuing Covid-19 outbreak situation in the country, the Ministry of Health has taken appropriate measures to initiate Covishield vaccination for cancer patients.

Patients with cancer are at increased risk of severe illness from Covid-19. In a study of 73 million patients in the USA, of whom 273,000 had been diagnosed with cancer in the last year and 16,570 were diagnosed with Covid-19, patients with cancer had greatly increased odds of Covid-19 infection adjusted odds ratio (aOR) of 7. Odds of infection were highest for patients with recently diagnosed leukaemia (aOR 12.2), non-Hodgkin's lymphoma (aOR 8.5), and lung cancer (aOR 7.7). Mortality is also higher in patients with cancer who develop Covid-19: patients with cancer and Covid-19 have a greater risk of mortality (14.9%) than patients with Covid-19 without cancer (5.3%) and patients with cancer without Covid-19 (4.0%). For the patients diagnosed with hematologic malignancy in the last 5 years, the increased risk of death has been estimated to be at least 2.5-fold, and for other cancers, at least 1.2-fold. Because of the increased vulnerability of patients with cancer to COVID-19 infections and mortality, there is urgent interest in vaccinating this population expeditiously. Considerations around expected safety and efficacy differ by therapy based on their general mechanisms and associated immune alterations.

There are different types of vaccines. Covaxin is an inactivated vaccine which means that it is made up of killed coronaviruses, making it safe to be injected into the body. Covaxin is India's first indigenous vaccine against Covid-19. It has been developed by Bharat Biotech in collaboration with the Indian Council of Medical Research and the National Institute of Virology. Covishield uses a replication-deficient chimpanzee viral vector based on a weakened version of a common cold virus. Covishield has been developed by Oxford University in collaboration with pharmaceutical major AstraZeneca. India's Serum Institute is their manufacturing and trial partner. A majority of the doctors recommended the Covishield vaccine for cancer patients by pointing out that Covaxin was still being used under clinical trial mode. It's generally recommended not to give vaccines during chemo or radiation treatments and the only exception to this is the flu shot (the flu shot is a vac-

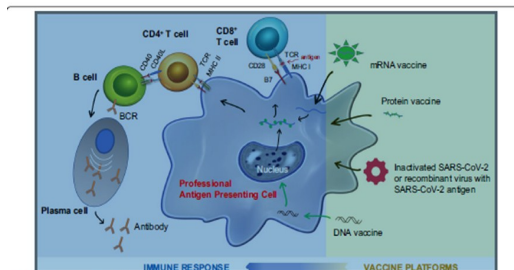


Fig. 1 Different types of COVID-19 vaccines in development, mechanisms of antigen presentation, and generation of protective immunity

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cine that is given to reduce your risk of getting influenza). This is mainly because vaccines need an immune system response to work, and you may not get an adequate response during cancer treatment. In general, anyone with a weak immune system should **not** get any vaccines that contain **live** virus.

*Cancer patients given a single coronavirus vaccine develop significantly inferior protection against the illness than those who receive a booster shot, according to a UK study that called for a reassessment of the gap between jabs for vulnerable individuals. A new study revealed that Covishield, the vaccine against coronavirus, has an 81.3 percent efficacy if two doses are administered 12 weeks apart. The study demonstrated that people younger than 55 develop a two-fold antibody response against the virus if the doses were taken 12 weeks apart.*

Overall, except for during periods of intensive chemotherapy, patients undergoing chemotherapy are expected to generate protective responses with Covid-19 vaccination. A vaccine was effective for cancer patients, except for a couple of scenarios, where they were undergoing a specific type of treatments, particularly in case of haematological malignancies. Patients with hematologic malignancies have increased susceptibility to viral infections and sub-optimal immunologic responses to current vaccines due to both disease-associated and therapy-related immune dysfunction. These considerations may impact the efficacy of emerging Covid-19 vaccines in this patient population as well and warrant the need to systematically study natural and vaccine-induced virus-specific immunity in these patients.

Radiation therapy is commonly used for patients with malignancies both in the curative and palliative settings. While it is known that radiation involving a large part of the body can indeed have an impact on the bone marrow, it is rare for radiation to have a significant impact on the immune system to the point where vaccination would not be recommended. The main situation for radiation to affect immune cell generation is in the event of total body irradiation (TBI) given for marrow suppression before stem cell transplantation or other rare situations where patients are receiving total lymph node or spine irradiation. Therefore, most patients treated with radiation should generate protective immunity responses to Covid-19 vaccines.

A vaccine would be lifesaving for patients with cancer, who are at higher risk for severe Covid-19 disease and mortality than the general population. Expedited vaccination of cancer patients is therefore urgent given the continuing rise in community transmission of the disease. Patients on cancer treatments have been excluded from Covid-19 vaccine trials thus far. Thus, we make recommendations based on what we know of the safety and efficacy of the leading vaccine candidates, the performance of other vaccines in patients with cancer, and the immune alterations inherent in current cancer treatments.

**Sources;**

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**Table 1 : Water Quality Surveillance  
 Number of microbiological water samples December 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	18
Galle	20	120	NR
Matara	17	102	NR
Hambantota	12	72	16
Jaffna	12	72	75
Kilinochchi	4	24	NR
Manner	5	30	0
Vavuniya	4	24	NR
Mullatvu	5	30	NR
Batticaloa	14	84	NR
Ampara	7	42	NR
Trincomalee	11	66	NR
Kurunegala	29	174	NR
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	NR
Kalmunai	13	78	NR

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

Table 1: Selected notifiable diseases reported by Medical Officers of Health 09<sup>th</sup> - 15<sup>th</sup> Jan 2021 (3<sup>rd</sup> Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus Fe-		Viral Hep-		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	15	80	0	2	0	0	0	0	0	0	5	11	0	0	0	0	0	0	0	1	2	1	1	0	0	54	95
Gampaha	19	56	0	0	0	1	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	1	1	0	1	18	84
Kalutara	17	53	0	0	0	0	0	0	0	0	1	15	0	0	0	0	0	0	0	3	5	0	0	0	0	29.5	100
Kandy	9	37	0	1	0	1	0	0	0	0	14	30	0	4	0	0	0	0	1	4	0	1	4	4	61	100	
Matale	5	8	0	0	0	0	0	0	0	0	8	8	2	3	1	1	0	0	1	1	1	1	7	14	72	100	
NuwaraEliya	3	3	0	0	0	0	0	0	0	0	4	7	2	7	0	0	0	0	1	4	0	0	0	1	28	100	
Galle	4	14	0	0	1	1	0	0	0	0	16	59	0	4	0	2	0	0	0	0	0	0	6	1	47	100	
Hambantota	4	10	1	1	1	1	0	0	0	0	2	10	1	5	1	4	0	0	2	2	1	1	9	25	78	100	
Matara	9	19	0	0	0	0	0	0	0	0	6	16	0	2	0	0	0	0	2	6	0	0	3	9	31	100	
Jaffna	8	19	5	5	0	0	2	3	0	0	1	5	22	83	0	0	0	0	0	1	0	0	0	0	14	88	
Kilinochchi	2	5	1	2	0	0	0	0	0	0	6	10	6	8	0	0	0	0	0	0	0	0	0	0	58	100	
Mannar	0	2	0	0	0	0	0	2	0	0	3	7	0	1	0	0	0	0	0	0	0	0	6	0	25	80	
Vavuniya	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	8	100	
Mullaitivu	0	2	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	1	0	1	0	0	6	100	
Batticaloa	173	646	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	1	3	0	50	100	
Ampara	0	0	0	1	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	6	0	1	0	0	57	100	
Trincomalee	4	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	2	0	0	0	0	25	100	
Kurunegala	13	39	0	0	0	0	0	0	1	7	44	1	4	1	4	0	0	0	1	3	1	19	3	23	52	100	
Puttalam	9	28	0	1	0	1	0	0	0	2	6	6	0	3	0	0	0	0	0	1	0	7	0	1	51	100	
Anuradhapur	4	8	0	1	0	0	0	0	0	8	36	4	9	4	0	0	0	0	1	3	1	4	8	37	38	96	
Polonnaruwa	0	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	2	16	38	100	
Badulla	4	11	0	0	0	0	0	0	0	3	24	1	6	0	1	0	0	0	0	1	0	0	2	3	53	98	
Monaragala	1	2	0	1	0	0	0	1	0	0	6	8	2	3	1	3	0	0	1	1	1	1	0	2	0	100	
Ratnapura	7	11	0	4	0	0	0	0	0	9	53	0	0	0	0	0	0	0	6	6	2	8	0	4	33	100	
Kegalle	1	15	0	1	0	0	0	0	0	7	17	0	0	0	0	0	0	0	5	9	1	1	0	0	48	100	
Kalmune	8	19	2	3	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	41	100	
<b>SRI LANKA</b>	<b>319</b>	<b>1093</b>	<b>9</b>	<b>23</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>112</b>	<b>385</b>	<b>41</b>	<b>143</b>	<b>3</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>60</b>	<b>11</b>	<b>62</b>	<b>39</b>	<b>141</b>	<b>43</b>	<b>98</b>	

Source: Weekly Returns of Communicable Diseases (esurveillance.epid.gov.lk).

\*T= Timeliness refers to returns received on or before 15<sup>th</sup> January, 2021. Total number of reporting units 357. Number of reporting units data provided for the current week: 352. C\*\*=Completeness

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

**09<sup>th</sup> – 15<sup>th</sup> Jan 2021 (3<sup>rd</sup> Week)**

Disease	No. of Cases by Province									Number of cases during current week in 2021	Number of cases during same week in 2020	Total number of cases to date in 2021	Total number of cases to date in 2020	Difference between the number of cases to date in 2021 & 2020
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	00	01	01	02	02	0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	01	00	00	00	00	00	01	00	02	01	05	02	150%
Measles	00	01	00	00	00	00	00	00	00	01	01	02	01	100%
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	00	01	-100%
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	00	01	-100%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Tuberculosis	45	02	57	06	04	00	10	00	00	124	145	305	317	-3.78%

**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

**Dengue Prevention and Control Health Messages**

**Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them**

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**

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