WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
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WER SRI LANKA 2021

Vol. 48 No. 27 **26th –02nd July 2021**

Delta variant (B.1.617.2) – SARS-CoV-2 virus

Even many countries began to feel some rest and relief, threatening episodes of SARS-CoV-2 come in another round while in a rapid and successful process of vaccination against the virus by almost all health authorities. Coming months would not be less challenging than previous months with the new mutation of Delta, which is a highly contagious SARS-CoV-2 virus strain. Given that neither practicing all preventing strategies nor new-normal-lifestyle is as fundamental measures, recovering today activities to basic levels would be a miracle in foreseeable time.

Delta variant was first identified in India in December though, it swept rapidly through that country, Great Britain, United Status before reaching Sri Lanka, where it seems now the predominant variant manifesting as hyperlocal outbreaks all over the country. However various countries explain that vaccinated people are more likely to have symptoms after suffering from the delta variant compared with earlier forms of the virus.
The latest data from the Office for National Statistics in England for the week to 29 May show that numbers of cases of covid-19 have been rising fastest in school children in years 7 to 112. Data from Public Health England show that the number of outbreaks involving variants managed by health protection teams in educational settings have been rising for some weeks and trebled in the last two weeks of May.

Sequencing

Referring to the sequencing conducted in Laboratories in Sri Lanka for SARS-CoV-2 to isolate Delta variant, Illumina-50 following fragmentation and Oxford Nanopore machines work to support for identifications. NextSeq 1000 and Illumina 1000 machines, which can be utilized for other purposes like cancer cell sequencing will appear in the laboratories in a couple of months times in Sri Lanka. These sequencing methods are followed testing by PCR and it was used as a second approach for identifying each variant. Laboratories used the TaqPath assay (Thermo Fisher Scientific) to test for three gene targets: spike (S), nucleocapsid (N), and open reading frame lab (ORF1ab).

Vaccine effectiveness over Delta variant

Unvaccinated people are at higher risk and it has been continuously providing adequate evidence from all over the global experiences. With higher coverage of elderly people over 60 years with vaccination, more young population become vulnerable to the new variants. Only modest differences in vaccine effectiveness were noted with the delta variant as compared with the alpha variant after the receipt of two vaccine doses. Absolute differences in vaccine effectiveness were more marked after the receipt of the first dose. Data from Public Health England (PHE) reveal that of all the people who died within 28 days of testing positive for the delta variant between 1 February and 19 July, 49% (224) had had two vaccine doses. Almost all of these people, 220, were aged 50 or older. Data up to 4 August from Imperial College London's React study found that people who said they had received two vaccine doses were half as likely to test positive for covid-19, adjusting for other factors such as age and whether or not they had symptoms. The researchers estimated a 50-60% lower risk of infection from the delta variant if a person was double vaccinated.

But data published by the Israeli govern-

Contents **Page**

1. Leading Article –Delta variant (B.1.617.2) – SARS-CoV-2 virus 1
2. Summary of selected notifiable diseases reported (19th – 25th Jun 2021) 3
3. Surveillance of vaccine preventable diseases & AFP (19th – 25th Jun 2021) 4

ment explain the reduction of efficacy against symptomatic infection fell from 94% to 64% for Pfizer BioNTech jabs after the delta variant began spreading in the country3. Further by the publication in the Lancet from Public Health Scotland, show a drop in protection against symptomatic illness, from 92% against the alpha variant, which was first detected in the UK, to 79% against delta among people with two doses of the Pfizer BioNTech vaccine4. For the Oxford AstraZeneca vaccine, the reduction was from 73% to 60%1. As of July 6, figures revealed that 86% of adults in England had received at least one shot of the COVID-19 vaccine, and 64% were fully vaccinated. But nowhere near high enough to control the spread of the Delta variant

that is now responsible for 95% of sequenced cases in the country.

According to Public Health England, a single dose of either the AstraZeneca or the Pfizer-BioNTech vaccine is only 33% effective against the Delta variant, compared with 50% for the Alpha variant. Fortunately, the full schedules are highly protective against hospitalisation and symptomatic disease for both variants. WHO has confirmed that all the vaccines it has listed for emergency use are effective against the Delta variant. But the vaccines do not prevent people from becoming infected with SARS-CoV-2, and it is unclear how efficiently they protect against long COVID.

Expected Herd Immunity Coverage

It was known that the reproductive number (R0) for the original strain of SARS-CoV-2 is roughly 2.5 and the Alpha variant (B.1.1.7), which was previously dominant in the UK, was assumed to be more transmissible, around 60%, than the parental virus. The Delta variant is roughly 60% more transmissible than the Alpha variant, which translates to an R0 of nearly 7. Experts of Infectious Diseases suggest that for the virus with R0 of 6 or 7, the herd immunity point should be stationed somewhere in the region of 85%5.

Way forward

Witnessing infection among the highly vaccinated population, the risk of developing resistance to vaccine protection might be an upcoming concern. Meanwhile, the Delta variant looks set to continue its rapid global spread, at least until it is stopped by an even more transmissible variant6.

All governments must continue to provide vaccination centers for easy access, paid leave to get vaccinated and support packages for people asked to self-isolate.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 19th - 25th Jun 2021 (26th 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	191	1884	0	8	0	0	1	4	0	3	1	101	0	1	0	2	0	2	0	20	0	6	0	1	54	89
Gampaha	86	852	0	1	0	1	0	1	0	0	2	132	0	2	0	3	1	3	1	17	0	6	0	11	32	71
Kalutara	39	592	0	11	0	2	0	0	0	0	11	304	0	3	0	1	0	1	2	59	0	9	0	0	38.5	100
Kandy	20	333	0	15	0	1	0	1	0	2	0	75	0	26	0	1	0	0	0	27	0	9	0	16	60	100
Matale	7	60	0	10	0	4	0	0	0	0	8	42	0	4	0	1	0	0	1	11	0	1	10	110	57	100
NuwaraEliya	0	30	0	11	0	2	0	2	0	0	1	35	1	33	0	2	0	0	0	22	0	4	0	1	31	93
Galle	21	144	0	2	0	1	0	5	0	5	30	399	0	20	0	2	0	0	1	29	1	19	0	1	47	93
Hambantota	17	183	0	7	0	2	0	2	0	4	9	151	4	45	1	7	0	0	8	37	3	19	23	247	74	100
Matara	55	255	0	3	0	1	0	1	0	0	11	156	1	13	0	2	0	0	1	43	1	5	4	175	42	100
Jaffna	3	116	0	33	0	3	0	12	0	25	1	15	3	423	0	0	0	2	0	24	0	3	0	2	20	88
Kilinochchi	0	22	1	18	0	0	0	0	0	10	1	43	0	58	0	0	0	0	0	10	0	0	0	1	53	100
Mannar	1	20	0	0	0	0	0	4	0	0	0	23	0	2	0	0	0	0	0	3	0	12	0	1	51	80
Vavuniya	2	32	0	2	0	1	1	1	0	0	1	18	0	2	0	1	0	0	0	5	0	1	0	1	41	100
Mullaitivu	0	5	1	2	0	0	0	0	0	0	2	25	0	7	0	0	0	0	0	9	0	4	0	0	25	94
Batticaloa	10	2960	2	20	0	3	0	2	0	15	1	36	0	0	0	1	0	0	1	11	0	19	0	0	48	100
Ampara	4	26	0	5	0	0	0	1	0	0	1	42	0	0	0	1	0	0	3	35	0	9	0	3	59	100
Trincomalee	0	95	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	14	0	2	0	0	37	78
Kurunegala	30	553	0	11	0	3	0	0	0	3	4	173	0	8	0	0	0	1	0	34	1	74	8	206	45	91
Puttalam	13	218	0	2	0	1	0	0	0	0	1	17	0	14	0	0	0	1	0	16	1	24	0	9	44	93
Anuradhapur	11	122	1	9	0	0	0	1	0	3	7	190	1	21	0	2	0	0	0	22	2	21	5	122	34	76
Polonnaruwa	5	47	0	3	0	0	1	3	0	2	3	86	0	2	0	2	0	0	1	22	0	1	9	236	38	100
Badulla	21	125	0	9	0	0	0	1	0	0	14	187	2	32	0	15	0	0	1	30	1	12	0	13	46	100
Monaragala	8	66	1	6	0	0	1	3	0	5	18	232	1	15	4	47	0	0	0	20	1	37	2	15	47	100
Ratnapura	5	287	0	21	0	5	0	0	0	4	25	477	0	16	0	6	0	1	0	39	1	47	7	59	39	96
Kegalle	8	264	0	4	2	9	0	0	1	2	9	175	0	8	0	1	0	0	2	72	2	18	0	11	44	100
Kalmune	2	260	0	11	0	2	0	1	0	1	0	15	0	0	0	2	0	2	0	14	0	7	0	2	44	100
SRILANKA	**559**	**9551**	**6**	**224**	**2**	**41**	**4**	**45**	**1**	**84**	**161**	**3152**	**13**	**755**	**5**	**101**	**1**	**13**	**22**	**645**	**14**	**369**	**68**	**1243**	**45**	**93**

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

*T=Timeliness refers to returns received on or before 25 th June , 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

19th – 25th Jun 2021 (26th 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	00	01	00	00	00	00	00	00	01	01	24	19	26.315%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	00	00	00	00	00	01	00	00	00	01	05	46	92	-50%
Measles	00	00	00	00	00	00	00	00	00	00	01	10	31	-67.74%
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	02	03	-33.33%
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	02	00	16	-100%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	00	05	-100%
Tuberculosis	00	00	00	09	05	04	09	08	00	35	121	2626	2713	-3.206%

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

Number of Malaria Cases Up to End of June 2021,

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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**

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