Whole genomic sequencing of the SARS-CoV-2 variants in Sri Lanka

27.08.2021

94 samples were sequenced from the third week of August 2021. The results of these 94 samples is as follows:

B.1.617.2 (delta): 91/94 were delta. Identified from Colombo (CMC and various areas, Hanwella, Kaduwela), Nuwaraeliya (Bogawantalawa, Dikoya, Lindula), Embilipitiya, Matara (Dickwella,), Gampaha (Ganemulla, Makola, Ragama, Weyangoda), Kegalle, Point Pedro, Puliyakulam, Vaviniya,

B.1.1.7 (alpha): 3/94 were alpha. Identified from Anuradhapura, Bohawantalaka, Kandawalai,

Distribution of alpha and delta variant in Sri Lanka by 3rd week of August

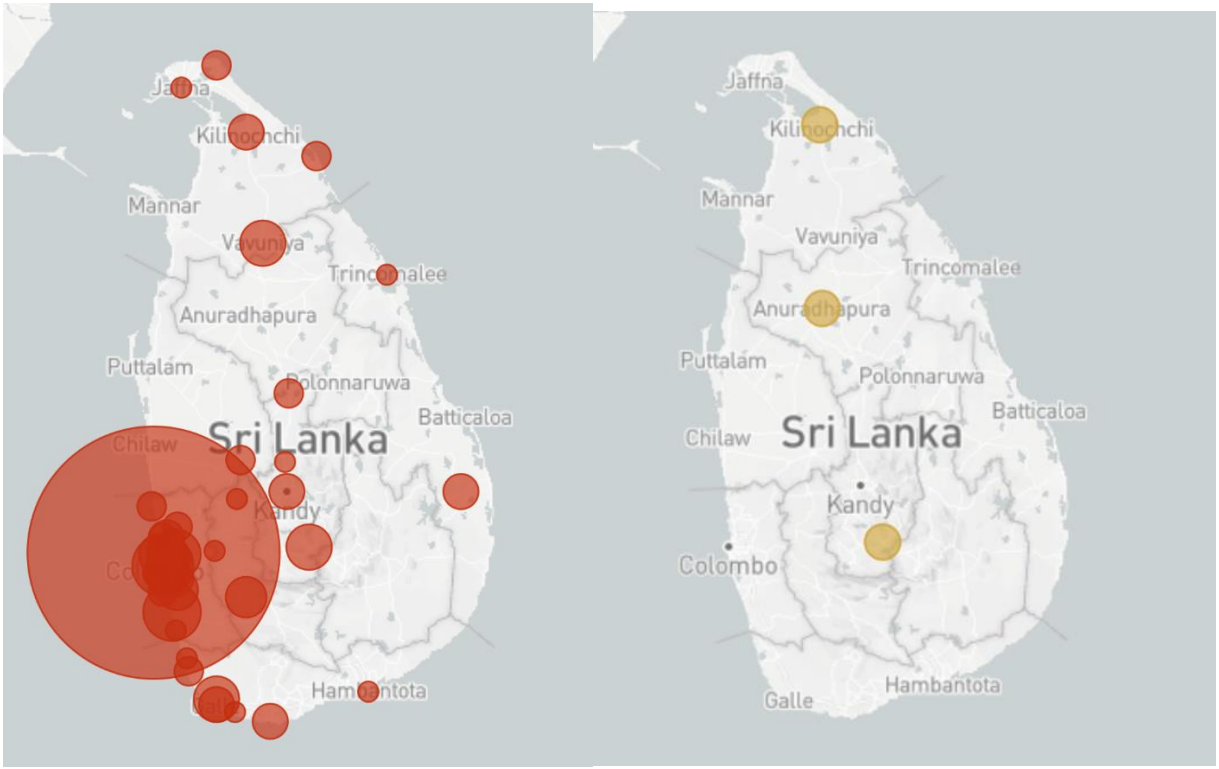

Figure 1: Distribution of delta (red, left) and alpha (yellow, right) by the 2nd week of August

WGS data from the Allergy Immunology and Cell Biology Unit of the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura.

Timeline of the emergence and displacement of different variants in Sri Lanka

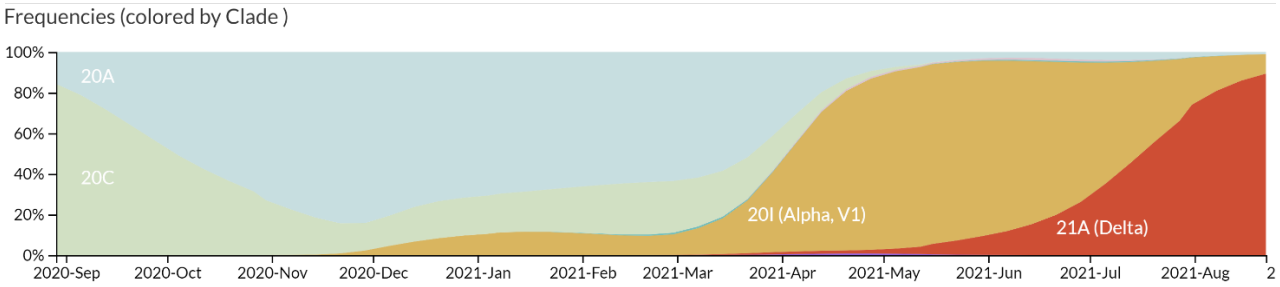

Figure 2: Change in the SARS-CoV-2 variants in Sri Lanka over time

Mutations detected in delta

The delta variant in Sri Lanka only has all three mutations and not seen elsewhere. The relevance of these are under investigation.

- A222V: present in many countries. A common mutation in delta. This mutation is associated with a possible higher transmissibility.
- A701S: Present only in Sri Lanka.
- A1078S: Present in Malaysia and Sri Lanka only so far.
- R24C: Present in Sri Lanka

The delta lineage with these 4 mutations, is the dominant delta lineage in the Western Province now. 70% of delta variants have these 4 mutations. The frequency of this mutated delta, appears to increase over time, suggesting that it could be more transmissible than the original delta (delta without these 4 mutations). More data is required before we can conclude.

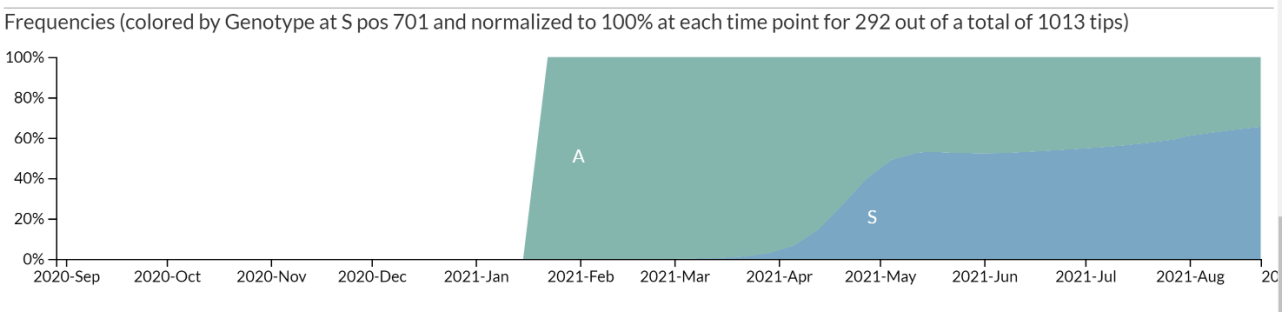

Figure 3: The frequency of the mutated delta (blue) in relation to the original delta (green)

WGS data from the Allergy Immunology and Cell Biology Unit of the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura.

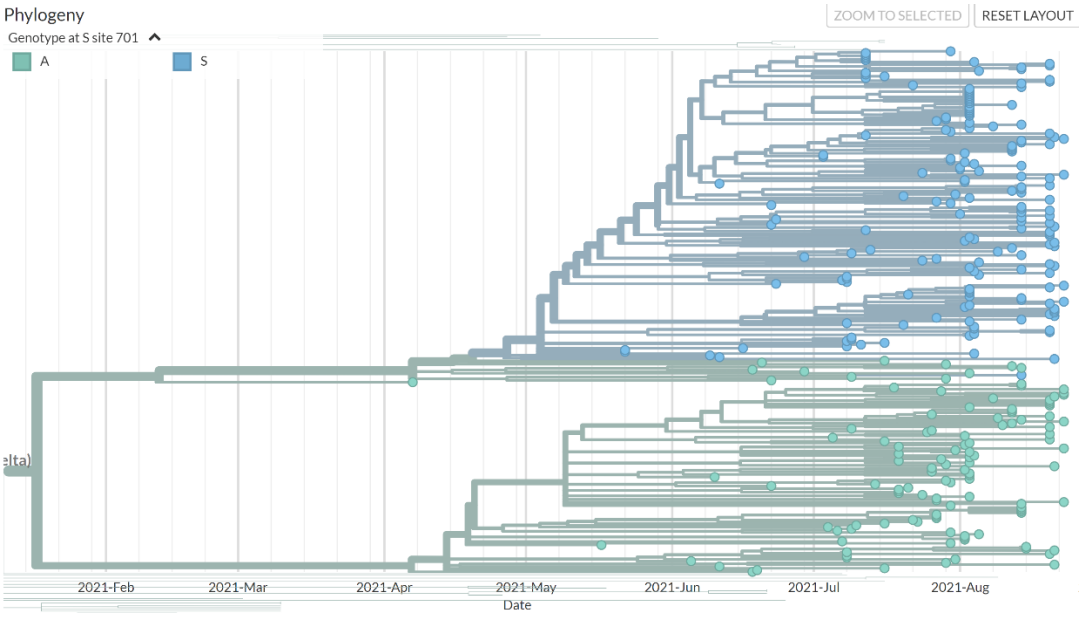

Figure 5: Phylogenetic tree of the mutated delta lineage (blue) and the original delta lineage (green)

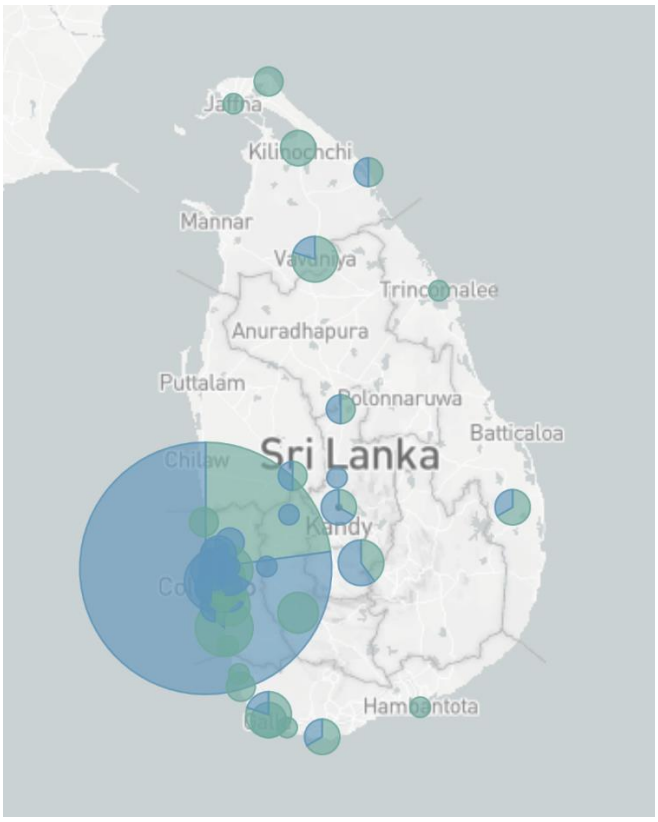

Figure 6: Locations of the mutated delta (blue) compared to the original delta (green)

WGS data from the Allergy Immunology and Cell Biology Unit of the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura.

Locations of viruses sequenced in Sri Lanka (from the beginning)

While the vast majority of viruses have been sequenced in the Colombo district, sequencing has been carried out from many areas from all over Sri Lanka.

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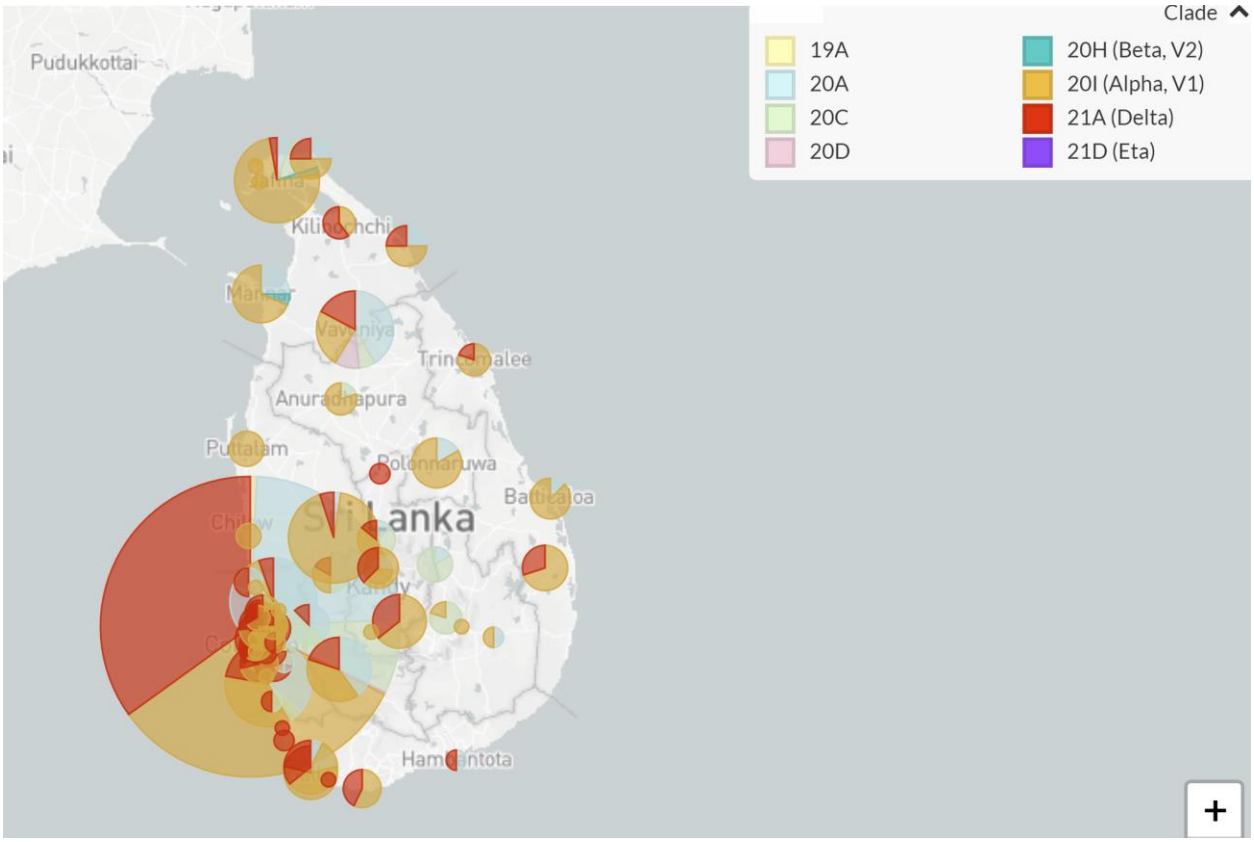

Figure 7: Sequencing of viruses carried out in Sri Lanka so far.

Other variants identified within Sri Lanka: B.1.411: Sri Lankan variant**,** B.1.1.25**,** B.1.258**,** B.1.428**,** B.4, B.4.7**,** B.1.1.365**,** B.1.525**,** B.1, B.1.1

WGS data from the Allergy Immunology and Cell Biology Unit of the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura.

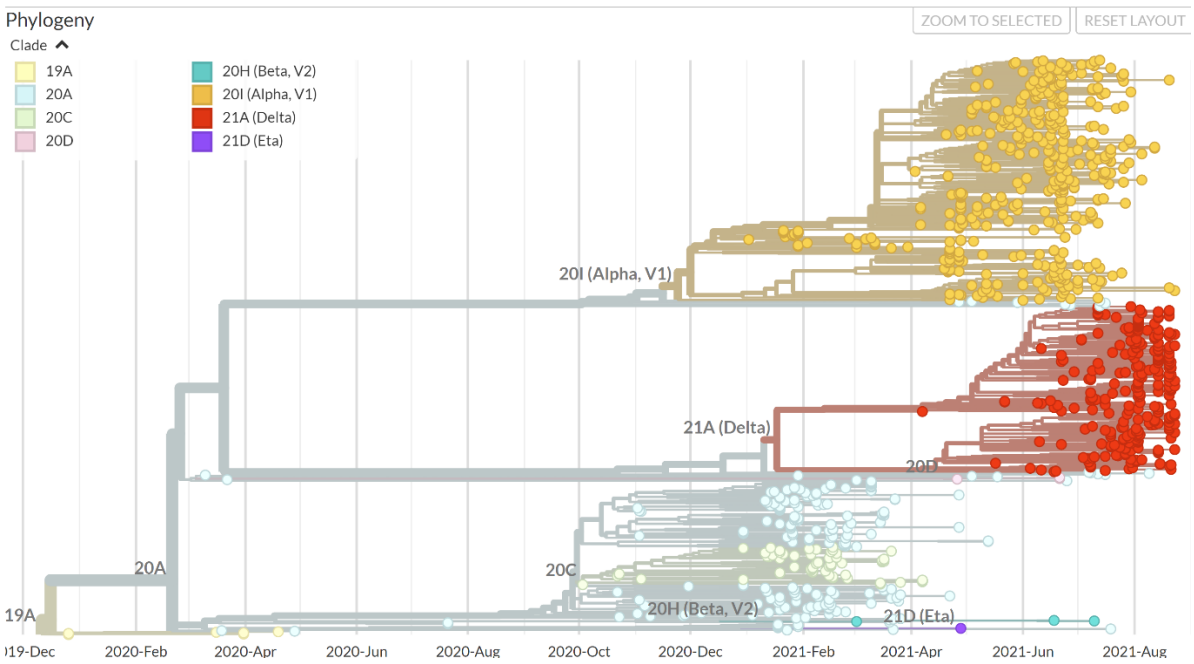

Figure 8: Phylogenetic tree of all SARS-CoV-2 sequences identified in Sri Lanka so far (n=1013).

WGS data from the Allergy Immunology and Cell Biology Unit of the Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura.