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# Public Health Emergency: COVID-19 Variants

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## BLOG

In recent periods, we have faced several new diseases occurred in various areas geographically, by pathogens counting Ebola virus, Zika virus, Nipah virus, and most recent coronavirus (CoV). It is entirely different viral infection emerged in Wuhan City, China, and it is highly mutated virus and its genomic data of this virus does not match with the previous sequenced genome of CoV, and suggest a novel CoV strain (2019-nCoV), which has now been named Severe Acute Respiratory Syndrome CoV-2 (SARS-CoV-2).

Though coronavirus disease COVID-19 shows less severe pathogenesis but higher transmission competence whereas (SARS-CoV-2) is a highly transmissible and pathogenic coronavirus that emerged in late 2019 which threatens human health and public safety. In this blog, we describe that in the past few decades, the virus has been able to mutate and adapt to infect humans, resulting in an animal-to-human species barrier jump.

The emergence of a novel coronavirus poses a serious global public health threat and possibly carries the potential of causing a major pandemic outbreak in the naïve human population. The recent outbreak of COVID-19 has infected over hundred million individuals as of September 2021.

To this end, current up-to-date information on the coronavirus evolution and SARS-CoV-2 modes of transmission, and the constant developments in our understanding of the impacts of variants, these working definitions may be periodically adjusted [1]. The constant evolution of the virus that leads to SARS-CoV-2 poses the fading risk relative to the other variants through the comparative assessment. These variants have subsequent changes like increase in transmissibility in covid-19 epidemiology, increase in virulency and decrease in efficiency of the public health and social measure or accessible diagnostics and vaccines [1].

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| WHO label | Pango lineage• | GISAID clade | Nextstrain clade | Additional amino acid changes monitored° | Earliest documented samples | Date of designation |
|---|---|---|---|---|---|---|
| Alpha | B.1.1.7 | GRY | 20I (V1) | +S:484K<br>+S:452R | United Kingdom, Sep-2020 | 18-Dec-2020 |
| Beta | B.1.351 | GH/501Y.V2 | 20H (V2) | +S:L18F | South Africa, May-2020 | 18-Dec-2020 |
| Gamma | P.1 | GR/501Y.V3 | 20J (V3) | +S:681H | Brazil, Nov-2020 | 11-Jan-2021 |
| Delta | B.1.617.2 | G/478K.V1 | 21A, 21I, 21J | +S:417N<br>+S:484K | India, Oct-2020 | VOI: 4-Apr-2021<br>VOC: 11-May-2021 |

**Figure 1:** Currently designated variants of concern (VOCs) [1].

## REFERENCES

1. https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/