



## Summary of SARS-CoV-2 variants of concern for increased infectivity/transmissibility and antigenic changes (no. 27)

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National Institute of Infectious Diseases, Japan

\*This is a provisional translation of the summary of the report entitled "*kansendensei no zokuya kougenseino henkaga kenensareru SARS-CoV-2 no henikabunituite (dai27hou)*" (<https://www.niid.go.jp/niid/ja/2019-ncov/2551-cepr/11879-sars-cov-2-27.html>). In the case of any dispute over translation, Japanese text prevails.

### Overview of SARS-CoV-2 variants

The Omicron variant, along with its B.1.1.529 lineage and descendant sub-lineages, remains dominant globally among SARS-CoV-2 variants, and there have been no significant changes in epidemiological trends since the No. 26 report. Several sub-variants and recombinant omicron variants have been reported. The WHO has classified XBB.1.5 as a currently circulating variant of interest (VOI) and BA.2.75, CH.1.1, BQ.1, XBB, XBB.1.16, XBB.1.9.1, and XBF as currently circulating variants under monitoring (VUMs) since April 12, 2023.

However, there were no significant changes in viral characteristics, such as severity and infectivity/transmissibility, apart from an increase in the number of infected cases and the possibility of immune escape between subvariants. Thus, NIID continues to classify the subvariants as before. It is important to continue monitoring and collecting information on subvariant outbreaks through genomic analysis in the country and quarantine.

According to the WHO weekly epidemiological updates on COVID-19 (April 13,

2022), 47.9% of XBB.1.5 sequences, 7.6% of XBB.1.9.1 and 17.6% of the other XBB variant (excluding XBB.1.5, XBB.1.16, and XBB.1.9.1) were reported in the 12th week of 2023 (March 20-26, 2023).

In Japan, BA.5 replaced BA.2 around July 2022, and the relative sequence prevalence among circulating variants has been dominated by BA.5, followed by an increasing proportion of BQ.1 (a sub-lineage of the BA.5.3 lineage) and BA.2.75 (a sub-lineage of the BA.2 lineage) since October 2022. The proportion of XBB variants has increased since January 2023.

Some subvariants, such as BQ.1 and XBB, exhibit characteristic mutations in the spike protein that allow the virus to evade neutralizing antibodies generated through vaccination or previous infection and may have a growth advantage. Some subvariants, such as XBB.1.5 in North America, XBB.1.9 in Europe, and XBB.1.16 in India, may have a growth advantage over existing sub-lineages in certain regions. However, there is no evidence that these variants spread more rapidly than other variants.

Omicron sub-variants have emerged with specific characteristics that primarily contribute to immune escape. There were no significant differences compared with the other variants, except for this feature. Global immunity and several public health interventions in each country have resulted in less of an impact of the variant-specific nature on epidemic dynamics. Regular monitoring of variant prevalence and changes in variant-specific features, including pathogenicity, virulence, transmissibility, vaccine and antiviral resistance, and clinical presentation, is crucial for determining appropriate interventions and rapid risk assessment for each variant.