



Updated working definitions and primary actions for SARS-CoV-2 variants, 4 October 2023

All viruses, including SARS-CoV-2, the virus that causes COVID-19, change over time. Most changes have little to no impact on the virus's properties. However, some changes may affect the virus's properties, such as how easily it spreads, the associated disease severity, or the performance of vaccines, therapeutic medicines, diagnostic tools, or other public health and social measures.

To assist with public discussions about significant SARS-CoV-2 variants, in May 2021, WHO in consultation with a number of stakeholders, began assigning labels - Greek letters - to both variants of concern (VOCs) and variants of interest (VOIs)¹.

On 15 March 2023, WHO announced that, going forward, the Greek letters will only be assigned to VOCs, while VOIs will be referred to using established scientific nomenclature systems such as those used by Nextstrain and Pango (e.g. XBB.1.5/23A for the latest VOI). WHO and TAGVE will undertake regular risk assessments for both VOIs and VOCs.

Variant Under Monitoring (VUM)

Working definition (updated on 4 October 2023):

A SARS-CoV-2 variant with genetic changes that are suspected to affect virus characteristics and early signals of growth advantage relative to other circulating variants (e.g. growth advantage which can occur globally or in only one WHO region), but for which evidence of

¹ Konings et al. SARS-CoV-2 Variants of Interest and Concern naming scheme conducive for global discourse, *Nature Microbiology* 2021 Jul;6(7):821-823.

phenotypic or epidemiological impact remains unclear, requiring enhanced monitoring and reassessment pending new evidence. If a variant has an unusually large number of mutations in known antigenic sites, but with very few sequences and not possible to estimate its relative growth advantage, such a variant can be designated a VUM, if there is also evidence of community transmission* in ≥ 2 countries within a 2-4 week period.”

** evidence of community transmission could include that cases are not known to be travel related; there are no known transmission links between cases, variant is detected in waste water, preferably at more than one sampling point and/ or there is an upward trend.*

Primary actions by WHO for a variant under monitoring

- Review global epidemiology of the VUM;
- Monitor and track global spread and characteristics of the VUM.

Primary actions by a Member State, if a variant under monitoring is identified:

- Inform WHO through established WHO Country or Regional Office reporting channels with supporting information;
- Submit complete genome sequences and associated metadata to a publicly available database, such as GISAID.

Variant of Interest (VOI)

Working definition (updated 15 March 2023):

- A SARS-CoV-2 variant with genetic changes that are predicted or known to affect virus characteristics such as transmissibility, virulence, antibody evasion, susceptibility to therapeutics and detectability; AND
- identified to have a growth advantage over other circulating variants in more than one WHO region with increasing relative prevalence alongside increasing number of cases

over time, or other apparent epidemiological impacts to suggest an emerging risk to global public health.

Actions taken by WHO and Member States:

Primary actions by WHO for a potential VOI:

- Review global epidemiology of VOI;
- Monitor and track global spread of VOI;
- Comparative assessment of variant characteristics and public health risks by WHO;
- Facilitate sharing of virus isolates via WHO Biohub;
- If determined necessary, coordinated laboratory investigations with Member States and partners.

Primary actions by a Member State, if a new potential VOI is identified:

- Inform WHO through established WHO Country or Regional Office reporting channels with supporting information about VOI-associated cases (person, place, time, clinical and other relevant characteristics);
- Submit complete genome sequences and associated metadata to a publicly available database, such as GISAID;
- Perform field investigations to improve understanding of the potential impacts of the VOI on COVID-19 epidemiology, severity, effectiveness of public health and social measures, or other relevant characteristics;
- Perform laboratory assessments according to capacity or contact WHO for support to conduct laboratory assessments on the impact of the VOI on relevant topics;
- Share virus isolates via WHO Biohub and/or other virus sharing initiatives.

Variant of Concern (VOC)

Working definition (updated 15 March 2023):

A SARS-CoV-2 variant that meets the definition of a VOI (see above) and, through a risk assessment, conducted by WHO TAG-VE, and determined to be associated with a moderate or high level of confidence, meets at least one of the following criteria when compared with other variants:

- Detrimental change in clinical disease severity; OR
- Change in COVID-19 epidemiology causing substantial impact on the ability of health systems to provide care to patients with COVID-19 or other illnesses and therefore requiring major public health interventions; OR
- Significant decrease in the effectiveness of available vaccines in protecting against severe disease.

Actions taken by WHO and Member States:

Primary actions by WHO for a potential VOC:

- Comparative assessment of variant characteristics and public health risks by WHO and the Technical advisory Group on Virus Evolution;
- Coordinate additional laboratory investigations with Member States and partners.
- Communicate new designations and findings with Member States and public through established mechanisms;
- Evaluate WHO guidance through established WHO mechanisms and update, if necessary;
- Facilitate sharing of virus isolates via WHO Biohub.

Primary actions by a Member State, if a VOC is identified:

- Submit complete genome sequences and associated metadata to a publicly available database, such as GISAID;
- Report initial cases/clusters associated with VOC infection to WHO through the IHR mechanism;
- Share virus isolates via WHO Biohub and/or other virus sharing initiatives;

- Where capacity exists and in coordination with the international community, perform field investigations and laboratory assessments to improve understanding of the potential impacts of the VOC on COVID-19 epidemiology, severity, effectiveness of public health and social measures, diagnostic methods, immune responses, antibody neutralization, or other relevant characteristics.