ECDC SARS-CoV-2 variant classification criteria and recommended EU/EEA Member State actions

- ECDC works closely with WHO to compare assessments and classifications of circulating SARS-CoV-2 variants. The aim of classification is to communicate information about variants which emerge that may impact the epidemiological situation.
- ECDC and WHO utilise three categories of variant classification to communicate increasing levels of concern about a new or emerging SARS-CoV-2 variant: variant under monitoring (VUM), variant of interest (VOI) and variant of concern (VOC).
- WHO updated its variant classification criteria in March 2023 (with a minor modification in October 2023). The classification used by WHO is closely aligned with that used by ECDC. Both organisations focus on classification that include major evolutionary steps, with a more specific focus on variants requiring major public health interventions.
- ECDC provides a weekly update on variant classifications in the publicly available Communicable Disease Threat Report and on its variant web page. Variant surveillance data, including the distribution of VOC and VOI variant proportions in the EU/EEA, and detailed country-specific COVID-19 updates are available as part of the European Respiratory Virus Surveillance Summary (ERVISS).

Variant classification criteria

ECDC criteria as of 29/06/2023	**VUM**	**VOI**	**VOC**
Genetic changes predicted/known to impact virus characteristics: transmissibility, virulence, immune evasion, therapeutics, detectability Strength of evidence	**Yes** **(Weak)**	**Yes** **(Low-Mod)**	**Yes** **(Mod-High)**
Predicted growth advantage in the EU/EEA	**Yes**	**Yes**	**Yes**
Predicted EU/EEA epi impact (increases in cases or other measure)	**Unclear**	**Possible**	**Likely**
ECDC risk assessment to be undertaken	**No**	**Yes**	**Yes**
Risk assessment confirms with moderate/high certainty *any* of - increased severity - risk of healthcare system compromise - reduced vaccine effectiveness	**N/A**	**No**	**Yes**

Recommended EU/EEA Member State actions

Variants under monitoring (VUM)

ECDC actions

1. Monitor global and EU/EEA COVID-19 epidemiology, with EU/EEA data refreshed weekly in ERVISS.
2. Evaluate available virus characterisation data.

EU/EEA Member State actions

1. Undertake representative genomic surveillance as per ECDC guidance.
2. Timely submission of complete genome sequences and associated metadata to GISAID and/or TESSy.

Variants of interest (VOI)

ECDC actions

1. Monitor global and EU/EEA COVID-19 epidemiology, with EU/EEA data refreshed weekly in ERVISS.
2. Evaluate available virus characterisation data.
3. Establish a variant-specific EpiPulse Event to facilitate sharing of epidemiological and antigenic characterisation data by Member States.
4. Complete a risk assessment to determine if evidence of moderate/high certainty for increased severity, risk of healthcare system compromise or reduced vaccine effectiveness is available for the VOI.

EU/EEA Member State actions

1. Undertake representative genomic surveillance as per ECDC guidance.
2. Timely submission of complete genome sequences and associated metadata to GISAID and/or TESSy.
3. Undertake antigenic characterisation locally (if possible) or alternatively share specimens with the ECDC-funded AURORAE laboratory network.
4. Undertake epidemiological investigations to assess the impact of the VOI in terms of severity, healthcare system impact, and the effectiveness of public health interventions.
5. Report epidemiological and antigenic characterisation data to ECDC via EpiPulse.

Variants of concern (VOC)

ECDC actions

1. Monitor global and EU/EEA COVID-19 epidemiology, with EU/EEA data refreshed weekly in ERVISS.
2. Evaluate available virus characterisation data.
3. Establish a variant-specific EpiPulse Event to facilitate sharing of epidemiological and antigenic characterisation data by Member States.
4. Complete a risk assessment communicating the risk to the EU/EEA and options for response.

EU/EEA Member State actions

1. Undertake representative genomic surveillance as per ECDC guidance.
2. Timely submission of complete genome sequences and associated metadata to GISAID and/or TESSy
3. Undertake antigenic characterisation locally (if possible) or alternatively share specimens with the ECDC-funded AURORAE laboratory network.
4. Undertake investigations to assess the epidemiological impact of the VOC in terms of severity, healthcare system impact, and the effectiveness of public health interventions.
5. Report epidemiological and antigenic characterisation data to ECDC via EpiPulse.