What we know about new COVID-19 Variants of Concern

THE LATEST ON THE GLOBAL SITUATION & OMICRON BA.4/5
Current global situation
as of 25 September 2022

Confirmed cases: > 612 million
Deaths: > 6.5 million

* Data are incomplete for the current week. Cases depicted by bars; deaths depicted by line.
COVID-19 cases reported in the last 7 days per 100,000 population

as of 25 September 2022
COVID-19 deaths reported in the last 7 days per 100,000 population

as of 25 September 2022
The virus continues to circulate at a very intense level

The virus continues to evolve, and new variants are constantly emerging

- **Omicron** is currently the highest circulating Variant of Concern (VoC) and has many sub-variants
- Currently **the most dominant sub-variant is BA.5**, identified from 85% of available sequences
Global prevalence of emerging variants

as of 5 September 2022

- As of 4 September 2022, descendent lineages of BA.5 show the highest global prevalence of 76.6%, followed by BA.4. with 7.5% prevalence.

- Global prevalence of BA.2.75 is low but has been rising over the last weeks.

Why Variants of Concern matter for public health

The more the virus circulates, the more the virus will evolve

- Emerging variants may affect
  - transmissibility
  - severity
  - ability to evade the immune response

- Changes in the virus’s characteristics can have an impact on public health interventions such as the effectiveness of diagnostics, vaccines and treatments
What we know about BA.5 transmissibility

BA.5 is more transmissible than other Omicron sub-variants

- Mutations in BA.4 and BA.5 subvariant spike protein make it easier for them to infect people
- Omicron sub-variants are likely to partially evade the immunity built due to vaccines (vaccine breakthrough) or by prior SARS-CoV-2 infections
What we know about BA.5 severity

While more transmissible than other Omicron subvariants, BA.5 does not appear to be causing a more severe form of COVID-19

- However, people over 60 years and immunocompromised, especially without the full course of COVID-19 vaccination, are still at a higher risk of having severe disease, being hospitalized and even death.

- Currently available vaccines appear to have reduced effect to prevent the infection, but they **do** protect against serious COVID-19 illness and complications that can lead to death.
A three-pronged global approach to monitor and assess SARS-CoV-2 variants

WHO has established a strong, multidisciplinary mechanism of external experts for evidence-based decision making on SARS-CoV-2 and its variants

1. Monitoring & surveillance
   - Technical Advisory Group on SARS-CoV-2 Virus Evolution (TAG-VE)
     - Determines which variants warrant further investigations
     - Assesses whether variants alter
       - transmission or disease characteristics or
       - impact vaccines, therapeutics, diagnostics or
       - effectiveness of public health and social measures

2. Research, evidence & assessment
   - Technical Advisory Group on COVID-19 Vaccine Composition (TAG-CO-VAC)
     - Assesses the impact of variants of concern on current COVID-19 vaccines
     - Determines whether changes to vaccine composition are needed

3. Policy
   - Strategic Advisory Group of Experts on Immunization (SAGE)
     - Advises on vaccine use and implementation

R&D blueprint for epidemics
- COVID-19 Vaccines Research Expert Group
The role of TAG-CO-VAC & SAGE

To respond to COVID-19 virus emerging variants, TAG CO-VAC and SAGE scientific advisory groups are discussing whether COVID-19 vaccines need to be updated.

**Technical Advisory Group on COVID-19 Vaccine Composition (TAG-CO-VAC)**

Ensures COVID-19 vaccines continue to safely provide WHO-recommended levels of protection against VOCs by:

- Reviewing and interpreting available evidence on how VOCs impact the efficacy and effectiveness of COVID-19 vaccines
- **Issues timely recommendations on potential modifications to vaccine composition**

**Strategic Advisory Group of Experts on Immunization (SAGE)**

Advises WHO on:

- overall global vaccination policies and strategies
- issues guidance and strategies on the programmatic use of authorized COVID-19 vaccines.
- **provides recommendations on the use of vaccines against COVID-19 and revise/update recommendations as new data emerges**
The primary goals of COVID-19 vaccination using currently licensed vaccines continue to be to reduce hospitalization, severe disease and death, and to protect health systems.

- The use of currently licensed vaccines based on the index virus (i.e. the virus that was identified from the first cases of COVID-19 in December 2019) confers high levels of protection against severe disease outcomes for all variants, including Omicron with a booster dose.

- SARS-CoV-2 virus evolution and emergence of the new variants is continuing and it’s trajectory of remains uncertain, and the genetic and antigenic characteristics of future variants cannot yet be predicted.

- Given the uncertainties of further evolution, it may be prudent to pursue an additional objective of COVID-19 vaccination of achieving broader immunity against circulating and emerging variants while retaining protection against severe disease and death.

- Available data indicate that the inclusion of Omicron, as the most antigenically distinct SARS-CoV-2 Variant of Concern, in an updated vaccine composition may be beneficial if administered as a booster dose to those who have already received a COVID-19 vaccination primary series.


June 17, 2022
SAGE current recommendations on COVID-19 vaccines

Current COVID-19 vaccines, which are based on the ancestral strain of the SARS-CoV-2 virus, continue to exhibit strong protection against severe disease and death across all virus variants seen to date

- However, the emergence of variants of concerns has resulted in a rapid decline of the protection against symptomatic illness. There is therefore a need to assess whether variant-updated COVID-19 vaccines, especially to Omicron, would improve vaccine performance.

- Variant-updated vaccines are under clinical development and will in due course be assessed by regulatory authorities. Once these vaccines have received WHO emergency use authorization or approval by a stringent national regulatory authority, they will be considered by SAGE for policy recommendations.

- The full public health benefit of variant-updated vaccines and their value proposition over current vaccines can only be quantified once vaccine effectiveness data have been obtained.


June 17, 2022
Bi-valent vaccines status at present

The new bi-valent vaccines contain the original virus plus parts of Omicron sub variants (BA.1 or BA.4/5)

- The bivalent vaccines have been authorized by US Food and Drug Administration (FDA) and UK medicines regulator but currently are not granted Emergency Use Listing (EUL) by WHO
- Updated vaccines showed to have higher antibody response against Omicron
- Those vaccines are only being considered for use for booster doses
- The effectiveness of these new vaccines on preventing the infection by Omicron variants is still uncertain
In summary

• The increase in cases continues to be partly driven by the circulation of the BA.5 descendant lineages against the background of possible waning immunity and/or low coverage of booster doses among vulnerable groups

• The COVID-19 vaccines are updated with Omicron variants to prevent new infections
## Additional resources

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