LAST UPDATE: 14 JANUARY 2022

CORONAVIRUS
UPDATE
72

Update on
SARS-CoV-2 variant of concern Omicron

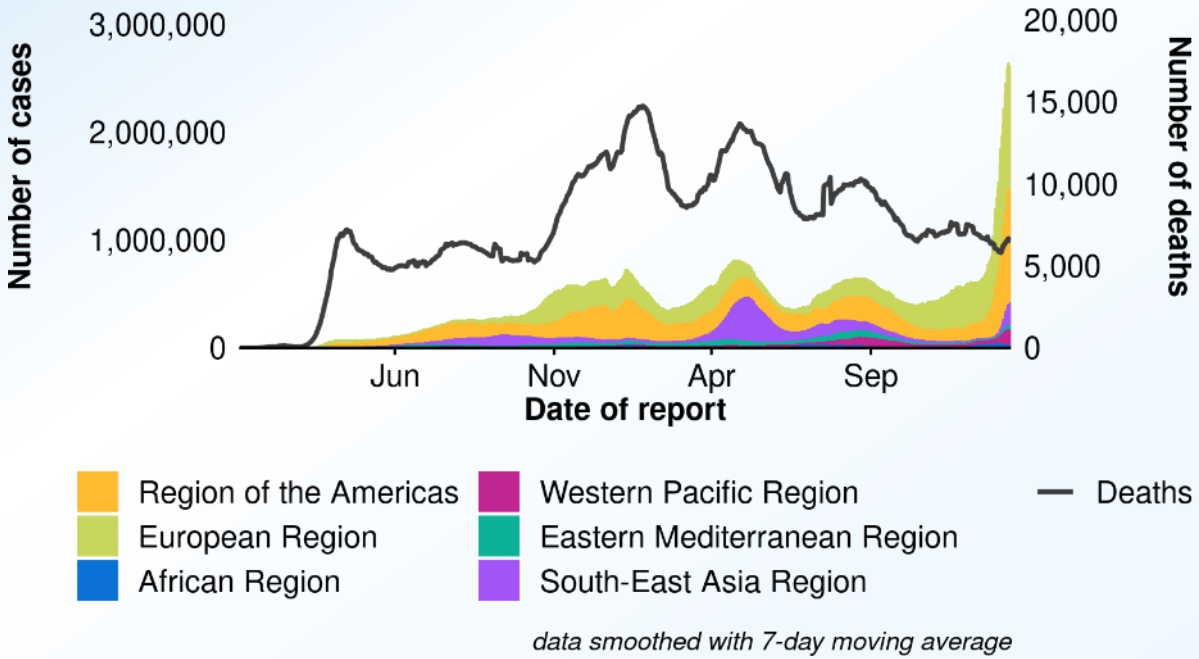
THE LATEST ON THE COVID-19 GLOBAL SITUATION
& SARS-CoV-2 VARIANT OF CONCERN OMICRON

World Health Organization | EPI•WiN | infodemic MANAGEMENT

Current global situation

CASES REPORTED TO WHO AS OF 13 JANUARY 2022 10h CET

- **Cases: > 315 million**
- **Deaths: > 5.5 million**



CHECK OUT THE LATEST GLOBAL SITUATION

WHO Coronavirus Disease (COVID-19) Dashboard

** Cases depicted by bars; deaths depicted by line*

Omicron has many key mutations compared to Delta

- On 26 November, WHO designated SARS-CoV-2 variant B.1.1.529 a **variant of concern (VOC)** and named it **Omicron**
- Omicron has **> 30 genetic mutations of the spike protein.** The SARS-CoV-2 spike protein acts like a 'key" and allows the virus to bind to ACE-2 receptor and enter and infect cells in humans.
- **The spike protein of SARS-CoV-2 is targeted by some currently approved COVID-19 vaccines;** therefore, mutations in the spike protein need to be closely monitored

Fig: Delta compared to Omicron with mutations in the S1 domain of the spike protein

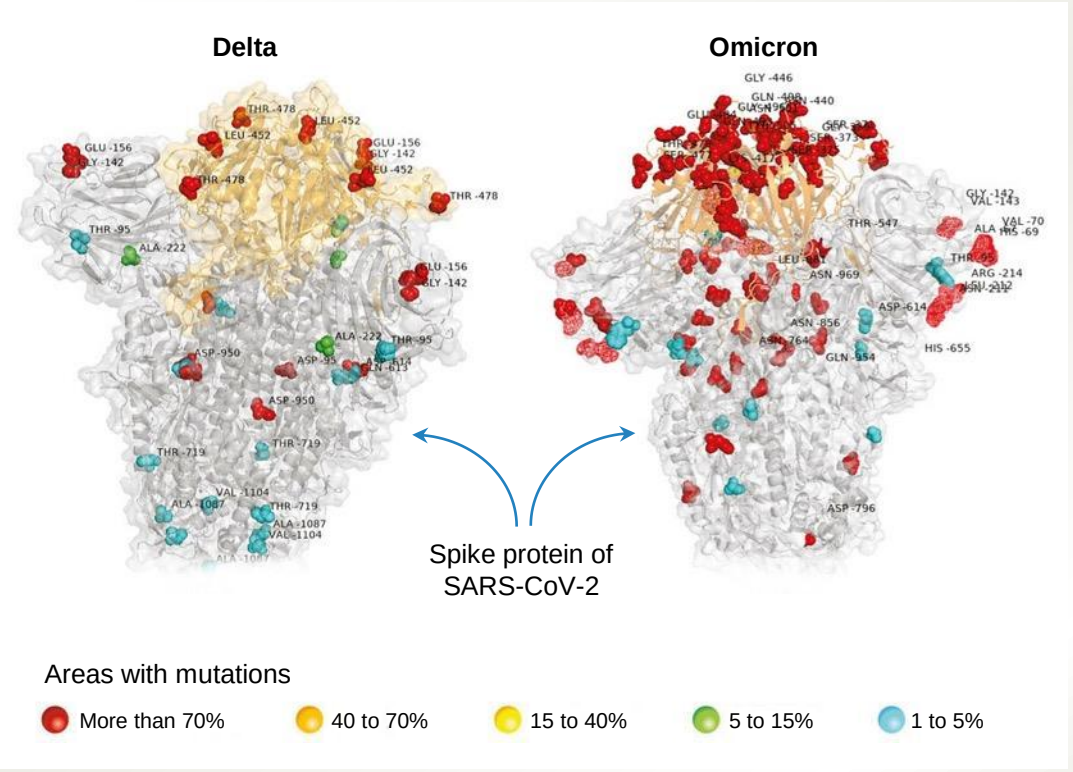
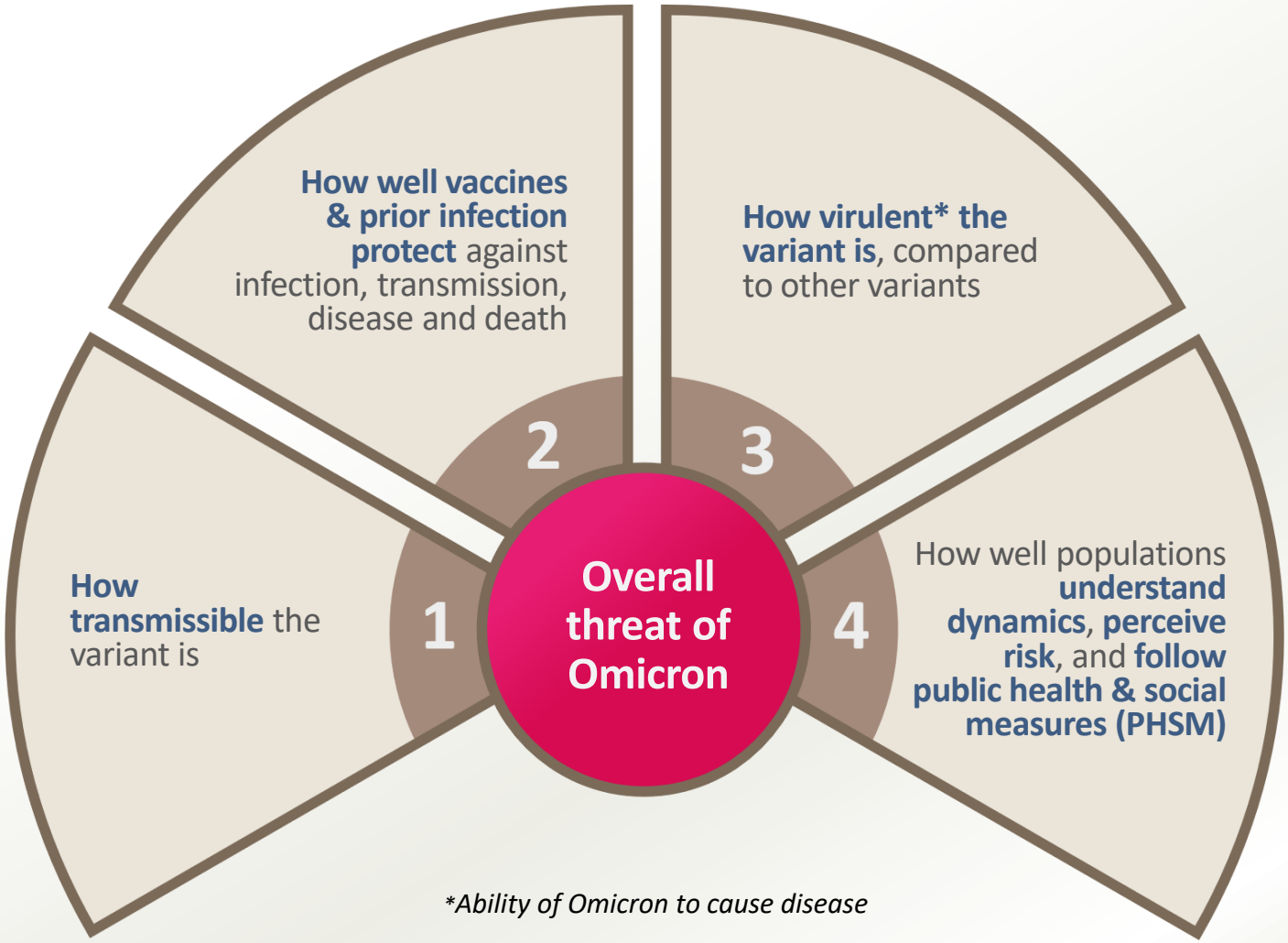


Image: AFP

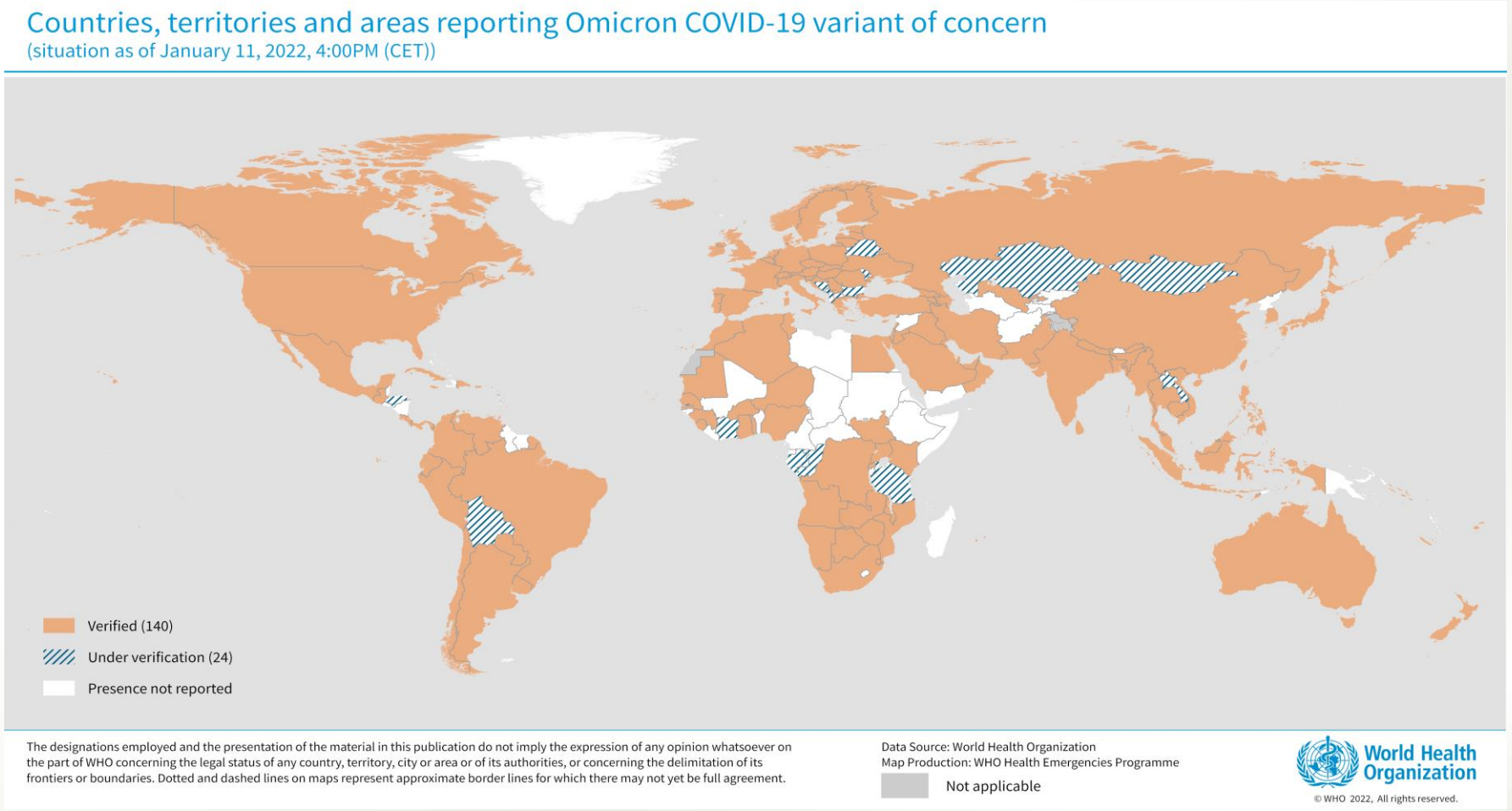
https://www.who.int/news/item/26-11-2021-classification-of-omicron-(b.1.1.529)-sars-cov-2-variant-of-concern

Overall threat of Omicron depends on four key issues



*Ability of Omicron to cause disease

Omicron variant is now present in almost every country



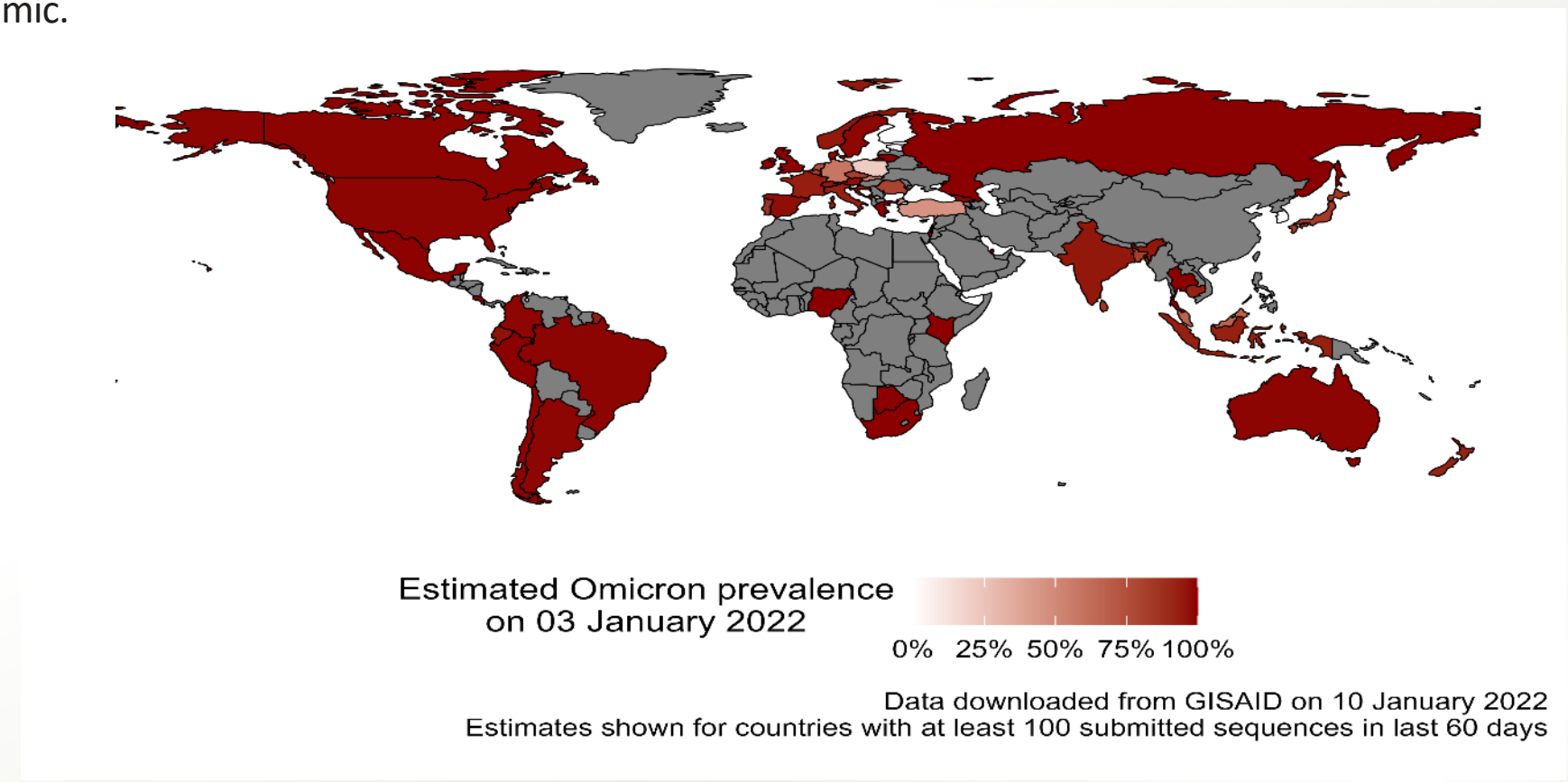
Omicron is highly transmissible

- **Omicron shows**
  - **significant increase** in growth rate;
  - **increased risk of a close contact becoming a secondary case**; and
  - **increase in observed number of people infected** by index case compared to Delta
- **High growth rate likely due to** a combination of factors including:
  - **immune evasion** (virus evades the protective immune system) and
  - **potential intrinsic increased transmissibility**
- Omicron has a clear growth advantage over Delta and **is rapidly replacing** other variants **that are circulating in countries**

Source:
Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)

Omicron is rapidly replacing Delta everywhere

Omicron is rapidly replacing Delta everywhere, with faster replacement effects than ever seen before in the pandemic.

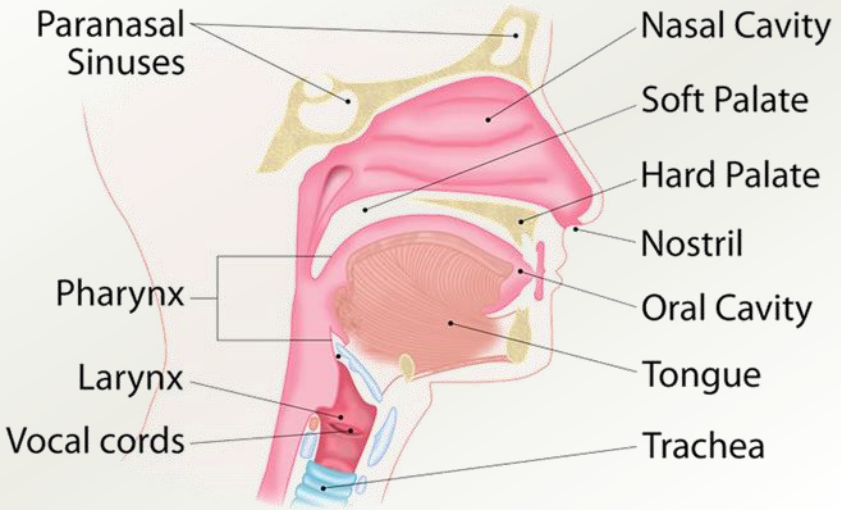


Source:
Analysis by WHO HQ COVID-19 analytics team | Variant data downloaded from GISAID on 21 Dec 2021

Omicron shows preference for upper respiratory tract infection

- Omicron appears to **show preference for infecting and replicating in the upper respiratory tract**, compared to Delta and other strains which prefer the lower respiratory tract.
- This may confer a **transmission advantage** independent of immune evasion
- Preliminary studies suggest that **Omicron appears to have decreased ability to infect lung tissue,** which may be a reason why people infected with Omicron have a less severe disease compared to Delta
- Early studies from animal models show that Omicron-infected animals show fewer clinical signs and have less severe disease

Fig: Upper respiratory tract



Omicron has reduced risk of hospitalization

- **Omicron has reduced risk of hospitalization compared to Delta**, suggest early studies from several countries including Denmark, South Africa, UK, Canada and the USA
- There is **decoupling between case reports and hospitalization** in places of high levels of population immunity
- Omicron infection appears to be associated with lower severity and lower proportion of hospitalized patients compared to previous variants, **but the large number of people being infected with it translates into significant number of patients requiring hospital admission, putting strain on healthcare systems.**

©WHO

Routine diagnostics continue to detect Omicron

- Routinely used **diagnostic tests**, including PCR and antigen detection rapid diagnostic tests (Ag-RDT), **continue to detect infection with Omicron**
- Studies of the **comparative sensitivity of Ag-RDTs** are ongoing

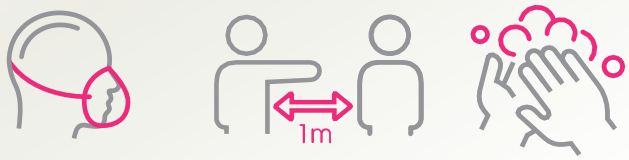
WHO

Source:
Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)

Omicron shows increased re-infection risk after previous SARS-CoV-2 infection

- There is evidence that Omicron has some **immune evasion***
- **Increased trend in re-infection** cases** have been reported by some countries including South Africa, UK, Denmark, Israel
- The **risk of reinfection with the Omicron variant was estimated to be 5.4 fold higher** in comparison with the Delta variant in England, show UK studies
- **Significant reduction in antibody neutralization***** with Omicron may contribute to increased risk of re-infection

Public health and safety measures such as:
wearing a mask properly, keeping distance and washing hands regularly , continue to protect against infection by all SARS-CoV-2 variants



Immune evasion refers to the ability of the virus to evade a person's protective immune system

***Re-infection refers to infection after previous SARS-CoV-2 infection, while breakthrough infection refers to infection after vaccination.*

****Test to detect levels of antibodies that bind the virus and prevent its infection*

Source: [Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)]

Preserved cellular immune process protects against severe disease

- **Protection through cellular immunity*** appears to be preserved in Omicron infection
- In those who have been previously infected, and/or previously vaccinated, **70-80% of certain cells involved in the protective immune process** (CD4+ and CD8+) **were maintained** for Omicron infection
- This likely translates to **protection against severe disease and death after vaccination and after previous infection, remaining high**

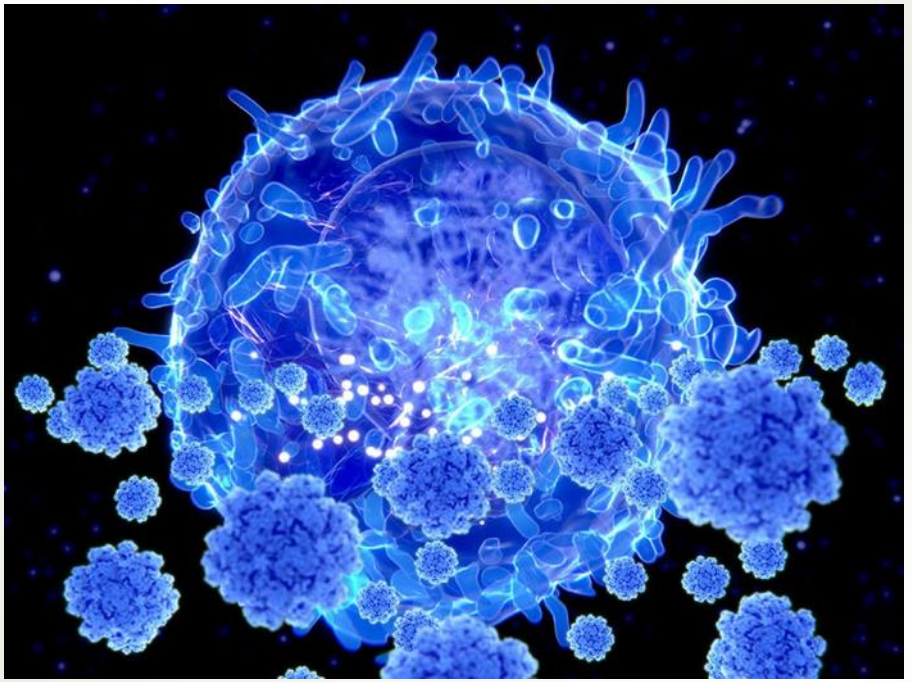


Image: Juan Gaertner / Science Photo Library

**Cellular immunity is a protective (non-antibody) immune process involving immune cells which kill virus-infected cells.*

Source: [Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)]

Vaccines protect against hospitalization but are less effective against Omicron symptomatic disease

- There are many studies underway that are looking at the effectiveness of COVID-19 vaccines and Omicron
- All initial vaccine effectiveness* estimates **show reduced effectiveness against infection and symptomatic disease** than for Delta**; However, estimates of protection remain high for severe end of disease spectrum
- This means that **current COVID-19 vaccines are providing strong protection against severe disease and death** if infected with all variants circulating, including Omicron
- Preliminary **vaccine effectiveness estimates appear greater following booster** than primary series for most products; no data on inactivated vaccines
- **Unvaccinated cases were more likely to infect household members** than those vaccinated or with previous infection. Booster doses further lowered of risk for household members.

- *Vaccine effectiveness refers to its ability to reduce disease*

*** Studies from United Kingdom, Denmark, Canada and South Africa, vaccines studied were mRNA vaccines, AD26..COV2.S, and AstraZeneva Vaxzevria*

Source: Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)

Therapeutics and Omicron

- **Interleukin-6 receptor blockers** and **corticosteroids** are expected to remain effective in the management of patients with severe and critical disease
- Preliminary data from non-peer reviewed publications suggest that **some of the monoclonal antibodies developed against SARS-CoV-2 may have impaired neutralization** against Omicron

©WHO

Older people and those with underlying conditions remain at risk

- Older people continue to be at greater risk for developing severe disease
- Those with underlying conditions, of any age, are also at risk for developing severe disease

People at greater risk of COVID-19 include those: unvaccinated, with obesity, people over the age of 60, hypertension, Diabetes mellitus, cardiac disease, chronic lung disease, cerebrovascular disease, dementia, mental disorders, chronic kidney disease, immunosuppression, cancer, HIV/AIDS, pregnancy.

©WHO

Settings with higher risk of contracting COVID-19

- The following settings increase the risk of contracting COVID-19 and **should be avoided**:
  - Closed spaces with poor ventilation
  - Crowded areas with many people around
  - Close contact with others, such as close-range conversations

Priority actions for Member States: surveillance, testing and vaccination

- **Report all initial cases/clusters associated with Omicron variant infection to WHO** through the International Health Regulations (IHR) mechanism
- **Report (publicly or through IHR) the weekly relative prevalence** of Omicron
- **Intensify COVID-19 vaccination coverage** in at-risk and particular high priority populations
- Implement comprehensive, multi-layered and targeted use of **public health and social measures (PHSM)** to reduce the spread of all variants of SARS-CoV-2

Source: Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)

Actions for Member States: clinical management, travel and updated national plans for surge

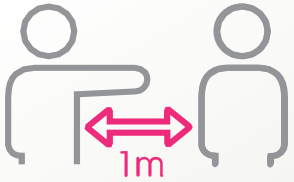
- **Administer clinical care of patients with COVID-19** infected with any SARS-CoV-2 variant; according to evidence-based guidelines, such as the *WHO living guidelines for clinical management and therapeutics*; adapted appropriately for local context and resource settings
- **Follow a risk-based approach** to adjust international travel measures in a timely manner is recommended
- Blanket travel bans will not prevent international spread of any SARS-CoV-2 variants of concern, including Omicron; and can place a heavy burden on lives and livelihoods
- **Regularly reassess and revise national plans** based on current situation and capacities
- **Ensure mitigation plans and surge capacity are in place** to maintain essential health services

Source: Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States (who.int)

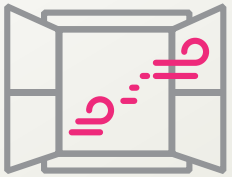
Preventive measures effectively reduce the risk of COVID-19, including Delta and Omicron

Preventive measures continue to be effective and should continue to be implemented to reduce the spread of COVID-19

Stay at home
if you feel unwell



Keep a physical distance of at
least 1 metre from others



Open windows to
improve ventilation

Cough or sneeze into a
bent elbow or tissue

Wash hands
frequently

When indoors, avoid crowded
or poorly ventilated areas

Wear a
well-fitting mask

Characteristics of Delta and Omicron

	Delta	Omicron
Transmissibility	Increased transmissibility compared to wild-type SARS-CoV-2, Variants of Interest (VOIs) and Variants of Concern (VOCs) Alpha, Delta and Gamma	Increased growth rate as compared to Delta because of intrinsic characteristics of Omicron and immune escape
Disease severity	Possible Increased risk of hospitalization as compared to early pandemic SARS-CoV-2 and other VOCs	Reduced risk of hospitalization compared to Delta; upper respiratory tract infection compared with lower respiratory tract infection by Delta
Risk of reinfection	Reduction in antibody neutralizing activity reported	Reduced antibody neutralizing activity reported; increased risk of reinfection
Impact on diagnostics	None reported to date	RT PCR and Ag RDTs continue to detect Omicron. Studies on Ag RDT sensitivity are ongoing
Impact on therapeutics	None reported to date	No impact on effectiveness of corticosteroids and Il-6 blockers; Reduced effectiveness of some monoclonal antibodies; limited evidence
Effectiveness of COVID-19 vaccines	Protection retained against severe disease; possible reduced protection against symptomatic disease and infection; limited evidence	Reduced protection against symptomatic disease and infection; booster doses increase vaccine effectiveness; limited and non-peer reviewed evidence

https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states

Summary

- **Omicron is highly transmissible** and is rapidly replacing Delta as the dominant SARS-CoV-2 variant
- Omicron appears to show **preference for infecting the upper respiratory tract**, unlike other SARS-CoV-2 variants of concern
- There is increasing evidence of **immune evasion** as Omicron shows increased risk of both re-infection and breakthrough infection after vaccination
- Vaccines protect against hospitalization but are **less effective against Omicron symptomatic disease**; and booster doses increase vaccine effectiveness
- In places with high population immunity, Omicron also appears to have a **reduced risk of severe disease and hospitalizations**
- Higher incidence of cases and milder infection with Omicron has led to a decoupling of cases and hospitalization rates, but there are significant numbers of hospitalized patients as a result of the high levels of transmission
- Older persons and those with underlying conditions continue to be at high risk of severe disease
- Measures such as wearing a well-fitting mask properly, keeping physical distance and other public health and social measures continue to protect against all SARS-CoV-2 variants

Additional resources

- Enhancing Readiness for Omicron (B.1.1.529): Technical Brief and Priority Actions for Member States

- www.gisaid.org

  The GISAID Initiative promotes the rapid sharing of data from all influenza viruses and the coronavirus causing COVID-19

  https://www.gisaid.org/

- Tracking SARS-CoV-2 variants

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

- Classification of Omicron (B.1.1.529): SARS-CoV-2 Variant of Concern (who.int)

  https://www.who.int/news/item/26-11-2021-classification-of-omicron-(b.1.1.529)-sars-cov-2-variant-of-concern

- COVID-19 weekly epidemiological update & weekly operational update

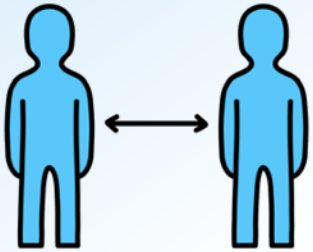
  https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

- WHO issues best practices for naming new human infectious diseases

  https://www.who.int/news/item/08-05-2015-who-issues-best-practices-for-naming-new-human-infectious-diseases

COVID-19 protective measures

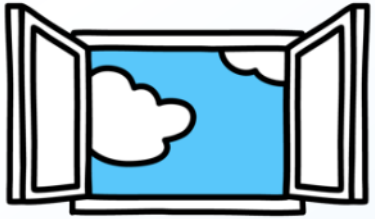
Protect yourself & others



Keep your distance

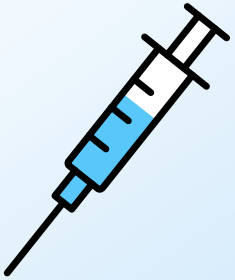
Wash your hands frequently

Cough & sneeze into your elbow



Ventilate or open windows

Wear a mask



Get vaccinated

EPI•WiN

infodemic
MANAGEMENT

We are **#InThisTogether** against COVID-19

www.who.int/epi-win