Epidemiology of Omicron variant of SARS-CoV-2

Dr. Boris Pavlin, WHO HQ Epidemiology Pillar Lead

28 January 2022
Key Messages on the global epidemiologic situation

1. Globally, the number of cases of COVID-19 has been increasing, largely driven by Omicron

2. Omicron is now present in almost every country

3. Omicron has a significant growth advantage over Delta

4. The relative risk of severe disease due to Omicron appears to be lower than against Delta, but it is not “mild”

5. Large Omicron outbreaks are showing the potential to overwhelm health services
Current global situation

In the past week:
> 21 million new confirmed cases
> 49,000 new deaths

Cumulative as of 23 January 2022:
> 346 million confirmed cases
> 5.5 million deaths

Globally, the number of cases of COVID-19 has been increasing largely driven by Omicron
Weekly situation by WHO region

As of 23 Jan 2022

*Data are incomplete for the current week. Cases depicted by bars; deaths depicted by line. Note different scales for y-axes.*
Prevalence of Delta and Omicron in the last 30 days as of 25 January 2022

Proportion of VOC among total sequences (countries with ≥200 sequences in last 30 days)*
- ≤1.00
- 1.01 - 5.00
- 5.01 - 10.00
- 10.01 - 50.00
- >50.00
- VOC detected, proportion not estimated**

Situation as of January 25, 2022

*Prevalence calculated as a proportion of VOC sequences among total sequences uploaded to GISAID with sample collection dates within the past 30 days prior to the latest date of collection, excluding non-coverage sequences, data for countries with ≥200 total sequences in the same period. Countries assigned by location of sample collection.

**Includes both official reports to WHO and unofficial reports of VOC detections.

The designation employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization, GISAID
Map Production: WHO Health Emergencies Programme

©WHO 2022, all rights reserved.
Variant proportions globally: GISAID and other sources

- Belgium
- Botswana
- Brazil
- Cambodia
- Colombia
- Denmark
- Germany
- India
- Israel
- Kenya
- Mexico
- Nigeria
- South Africa
- United Kingdom
- USA

Proportion of sequences over time.
Transmission: Relative Rt (based on GISAID)

Number of sequences submitted (x1,000)

- EMRO
- AFRO
- SEARO
- EURO
- WPRO
- PAHO

Change in R_t of Omicron relative to Delta

Country estimates

Meta estimate

Source: WHO HQ COVID-19 Analytics team | Estimates reported as of 11 Jan 2022
### Denmark: Secondary infection in the household (Dec 2021)

<table>
<thead>
<tr>
<th>Odd Ratio</th>
<th>Unvaccinated</th>
<th>Completed primary series</th>
<th>Booster vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omicron households</td>
<td>1.17 (0.99 - 1.38)</td>
<td>2.61 (2.34 - 2.90)</td>
<td>3.66 (2.65 - 5.05)</td>
</tr>
<tr>
<td>Delta households</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
</tbody>
</table>

*Number of observations: N=27,874*

Source: [https://www.medrxiv.org/content/10.1101/2021.12.27.21268278v1.full.pdf](https://www.medrxiv.org/content/10.1101/2021.12.27.21268278v1.full.pdf)
Risk for reinfection in England (study period 23/11/2021 – 11/12/2021)

• Omicron: reinfection risk 5.4 (95% CI: 4.87-6.00) fold higher than for Delta. accounting for vaccine status, 10-year age-band, sex, ethnicity, asymptomatic status, region and specimen date

• The relative risk was 6.4 (95% CI: 5.2-7.7) for unvaccinated cases and 5.0 (95% CI: 4.5-5.7) for vaccinated cases.

Impact on hospitalization and severe disease


London, United Kingdom - cases and hospitalization trends

COVID-19 metrics in London, UK
Using 5, 20, and 15-day lags for admissions, MV, and deaths respectively as of 07 Jan 2022

percent of alpha peak
0%  50%  100%  150%

01 Dec  01 Feb  01 Apr  01 Jun  01 Aug  01 Oct  01 Dec

source: UKHSA

- New cases
- New hospital admissions
- Patients on Mechanical Ventilation
- New deaths
Argentina – cases, death and hospitalization trends

COVID-19 metrics in Argentina

Using 14-day lag for ICU and deaths as of 08 Jan 2022

Source: Ministerio de Salud, Argentina; WHO

Source: https://www.argentina.gob.ar/coronavirus/informes-diarios/sala-de-situacion/enero-2022
New York State, USA – cases and hospitalization trends

COVID-19 metrics in New York State, USA

Using 7-day lag for admissions, ICU, and deaths as of 07 Jan 2022

source: New York State department of health
Impact of Omicron on healthcare services

- At the end of December 2021, 1 in 10 healthcare staff in the UK were absent due to sickness\(^1\) with similar numbers in Canada\(^2\)
- Number of COVID-19 absences in England doubled since mid-December\(^3\)
- 24% of US hospitals report critical staff shortages (highest since the start of the pandemic with elective surgery limited)\(^4\)

\(^1\)https://www.bmj.com/content/376/bmj.o18
\(^4\)https://www.cidrap.umn.edu/news-perspective/2022/01/omicron-surge-sweeps-through-us-hospital-staff
Summary of global situation

1. Globally, the number of cases of COVID-19 has been increasing, largely driven by Omicron

2. Omicron is now present in almost every country

3. Omicron has a significant growth advantage over Delta

4. The relative risk of severe disease due to Omicron appears to be lower than against Delta

5. Large Omicron outbreaks are showing the potential to overwhelm health services
Thank you