Omicron and COVID-19 vaccines: Efficacy and safety

Omicron variant: Public Health, Clinical, and Vaccine implications

PAHO | 10 February 2022
Overview

1. Current epidemiological situation
2. COVID-19 vaccination rates worldwide and in the Americas
3. COVID-19 vaccines against Omicron
4. How we can stop the emergence of new variants of concern
COVID-19 vaccination at the global level

10,095,615,243 vaccine doses administered
4,807,478,149 persons vaccinated with at least one dose
4,159,125,676 persons fully vaccinated

https://covid19.who.int/
COVID-19 vaccination in the Americas

- **51/51** countries and territories introduced COVID-19 vaccines.
- **>1.58 billion** doses were administrated to date.
- In LAC countries, **62.9%** of the population received a complete vaccination series against COVID-19.

**Nonetheless:**
- 14 countries and territories (mostly in the Caribbean) report coverage rate <40%.
- Haiti reports a coverage rate <10%
- In low/middle income countries, >50% of the population received 0 doses of COVID-19 vaccine.

## COVID-19 vaccine effectiveness against VOC

### WHO Emergency Use Listing (EUL) Qualified Vaccines

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### Alpha, Beta, Gamma

**Summary of VE**

*(see update from 11 January 2022 for details of vaccine performance against Alpha, Beta, and Gamma variants of concern)*

#### Delta

**Summary of VE**

<table>
<thead>
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<th>Protection retained against severe disease; possible reduced protection against symptomatic disease and infection</th>
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<td>- Severe disease*</td>
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#### Omicron

**Summary of VE**

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Available evidence – primary series

• To date, there are 14 vaccine effectiveness studies against the Omicron variant.

• Early data suggest:
  • A reduction in neutralizing titers against Omicron in individuals who received a primary vaccination series or in those who have had prior SARS-CoV-2 infection.
  • The protection of the primary series against infection trends towards 0 within 15 weeks.
  • The protection of the primary series against severe disease is higher compared to mild/asymptomatic disease.
  • No data on the long-term duration of protection against hospitalization, severe disease, death
  • Vaccine effectiveness against Omicron is always lower than vaccine effectiveness against Delta at all time points.

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

- The booster dose improves vaccine effectiveness against both Delta and Omicron variants.
- Booster doses (homologous or heterologous) improve vaccine effectiveness beyond 80% against disease and hospitalization (compared to the primary series).
- However, there is evidence of *waning* in the months following the booster dose (1 study).
- Duration of increased protection is *unknown*, since studies only consider a short follow-up time.
Public health measures

Regardless of which variant is circulating, all public health and social measures (PHSM) are effective and must be maintained.

- The use of established response measures (ex., contact tracing, quarantine and isolation) must continue to be adapted to the existing epidemiological and social context.
- These measures may need to be enhanced to further limit interpersonal contact to control transmission with a more transmissible variant.
- Countries should be ready to escalate PHSMs in a timely manner to avoid overwhelming demands on health care services.

https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states
How can we stop new variants from emerging?

- The more a virus circulates, the more opportunities it has to mutate and generate variants of concern.
- Therefore, to minimize the chances that new variants will emerge, we must limit transmission of the SARS-CoV-2 virus.

Effective strategies are:
- Maintain and expand mitigation measures (ex., hand washing, mask wearing, social distancing, indoor ventilation, avoiding crowds, etc.)
- Limit travel where possible
- Test whenever there is the risk of contact with a case
- Quarantine known contacts and isolate cases (even if asymptomatic)
- Vaccinate, vaccinate, vaccinate – and encourage others to receive their vaccine doses.
Thank You
Epidemiological situation

COVID-19 cases = 394,381,395

COVID-19 deaths = 5,735,179
SARS-CoV-2 variants

• A variant is considered a variant of interest (VOI) if there is initial scientific evidence of mutations that are suspected to cause significant changes and is circulating widely.
  • There are 2 variants of interest (Mu and Lambda) that PAHO/WHO continues to monitor in case they become variants of concern.

• A variant of interest becomes a variant of concern if it is known to spread more easily, cause more severe disease, escape the body’s immune response, change virus symptoms, or decrease effectiveness of known tools. There are 5 variants of concern (VOC):
  • Alpha (first identified in the UK)
  • Beta (first identified in South Africa)
  • Gamma (first identified in Brazil)
  • Delta (first identified in India)
  • Omicron (first identified in South Africa).
Transmissibility

- Omicron has a **substantial growth advantage** over Delta, and it is rapidly replacing Delta globally.
- There is now significant evidence that **immune evasion** contributes to the rapid spread of Omicron.

- Non-peer reviewed analyses report that:
  - Omicron is **36.5%** more transmissible than Delta.
  - Omicron erodes **63.7%** of the population immunity accumulated from prior infection and vaccination.
  - The serial interval of Omicron was **2.2 days** compared to Delta’s 3.3 days.
  - Higher proportions of asymptomatic infection may further contribute to transmission.
**Severity**

- Epidemiological trends continue to show a decoupling between incident cases, hospital admissions and deaths, compared to epidemic waves due to previous variants.
- This is likely due to:
  - Lower intrinsic severity of Omicron
  - Vaccine effectiveness is more preserved against severe disease than against infection.
- However, high levels of hospital and ICU admission are being reported in most countries, given that levels of transmission are higher than ever seen before during the pandemic.

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

• The diagnostic accuracy of routinely used PCR and antigen-detection rapid diagnostic tests (Ag-RDT) assays does not appear to be impacted by Omicron.

• **RT-PCR**: No impact on the recommended RT-PCR protocol (Charité, Berlin) nor on WHO EUL assays.

• **Ag-RDT**: Preliminary data from WHO CC at Erasmus MC testing show no impact on the two recommended tests (Abbott Panbio and SD Biosensor). All WHO EUL assays are under review.
Therapeutics

• Therapeutic interventions for the management of patients with severe or critical Omicron-associated COVID-19 that target host responses (such as corticosteroids, and interleukin-6 receptor blockers) are expected to remain effective.

• However, 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.

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