CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

COVID-19 UPDATE

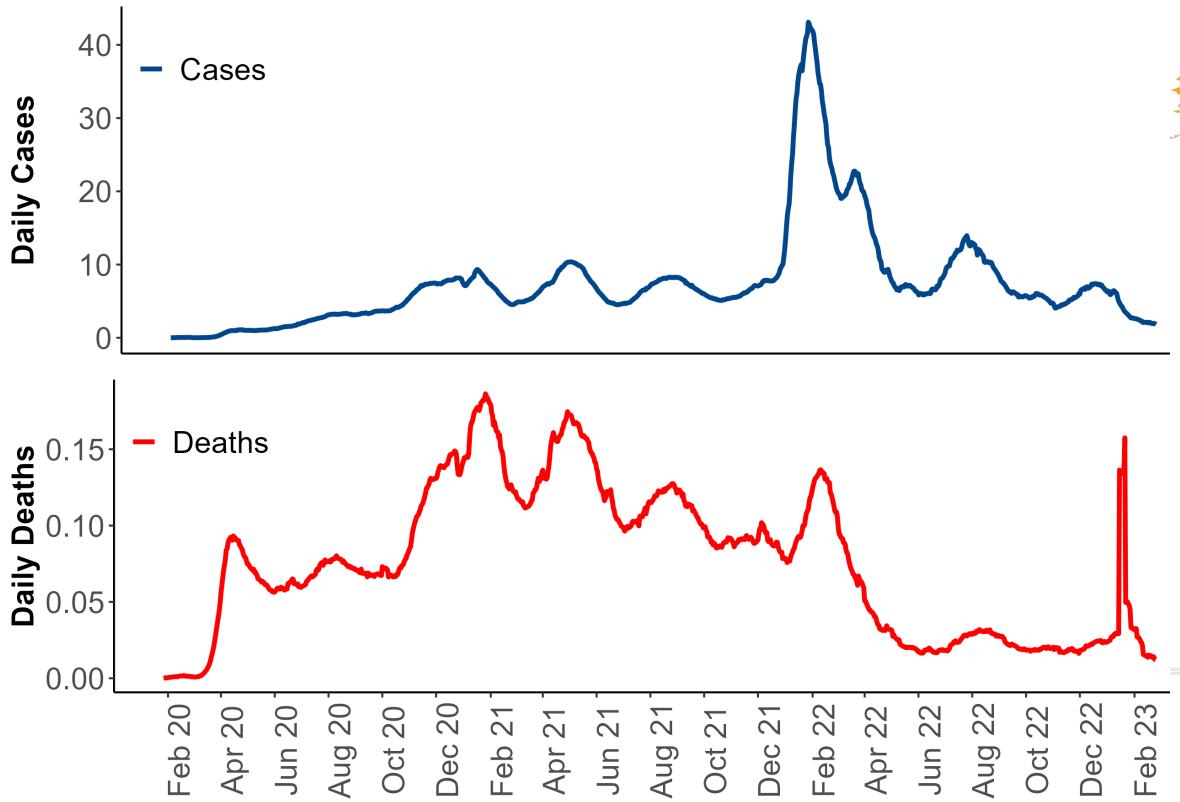
27 February 2023

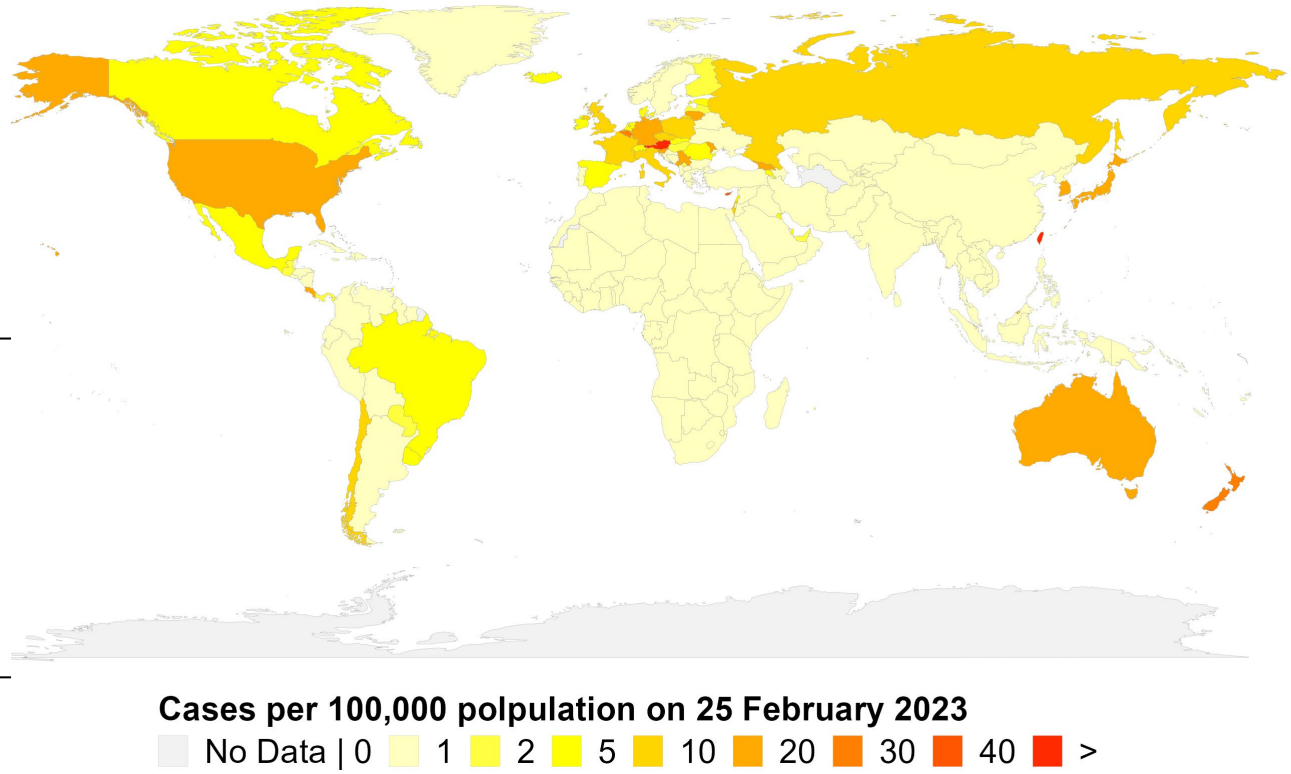
CAPRISA hosts a DSI-NRF Centre of Excellence in HIV Prevention
CAPRISA is the UNAIDS Collaborating Centre for HIV Research and Policy
CAPRISA has a GIZ-funded Epidemic Intelligence Unit
CAPRISA hosts a MRC HIV-TB Pathogenesis and Treatment Research Unit
CAPRISA hosts a DoH-MRC Special Initiative for HIV Prevention Technology

1. Global COVID-19 pandemic at a glance

Time series of reported cases & deaths

7-day rolling average per 100,000 population





Source: Our World in Data | Data to 25 February 2023

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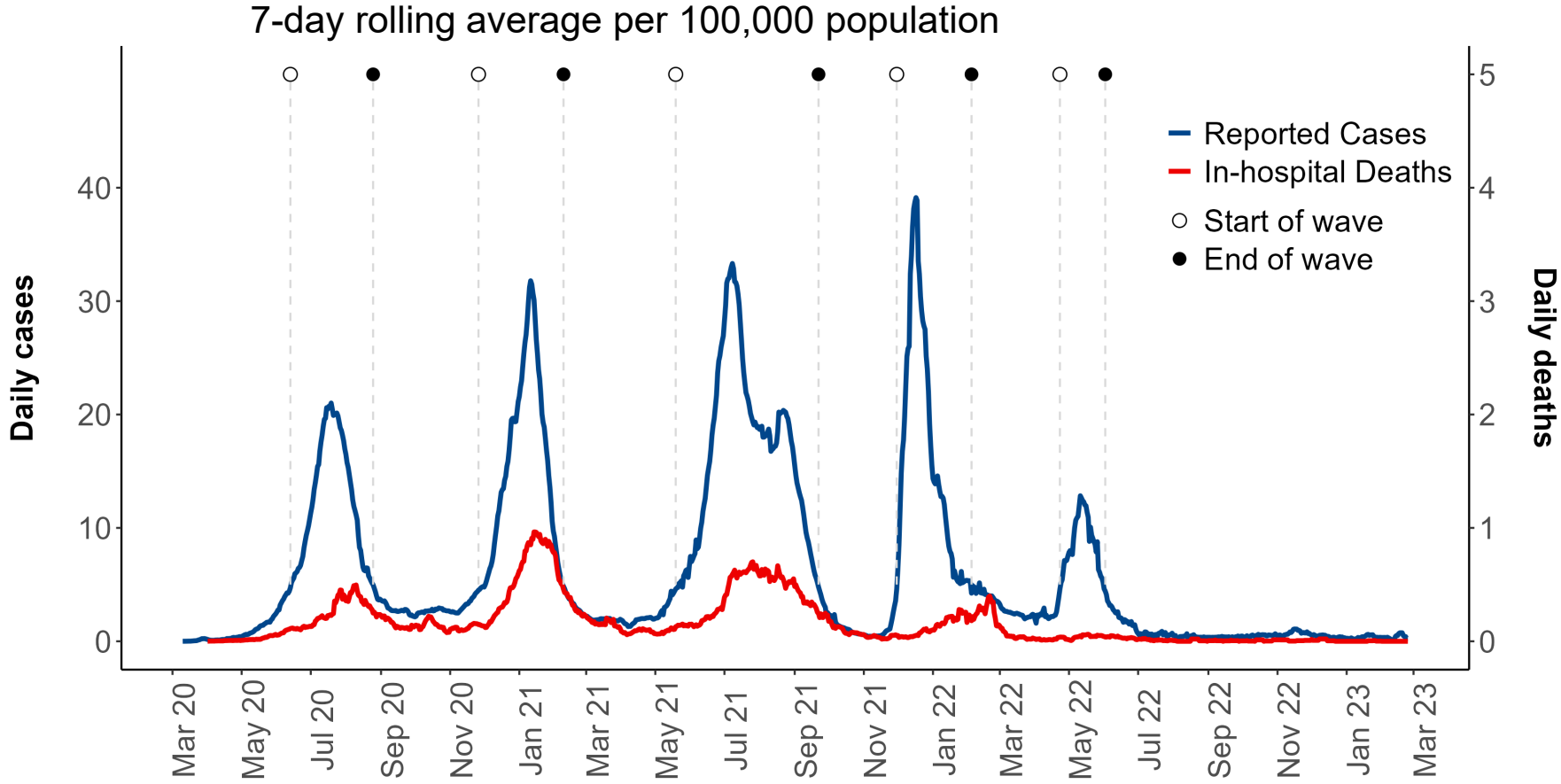
2. COVID-19 in South Africa

Time series of reported cases & deaths

4,061,383
Cases

102595
Deaths



Source: Our World in Data | Data to 25 February 2023

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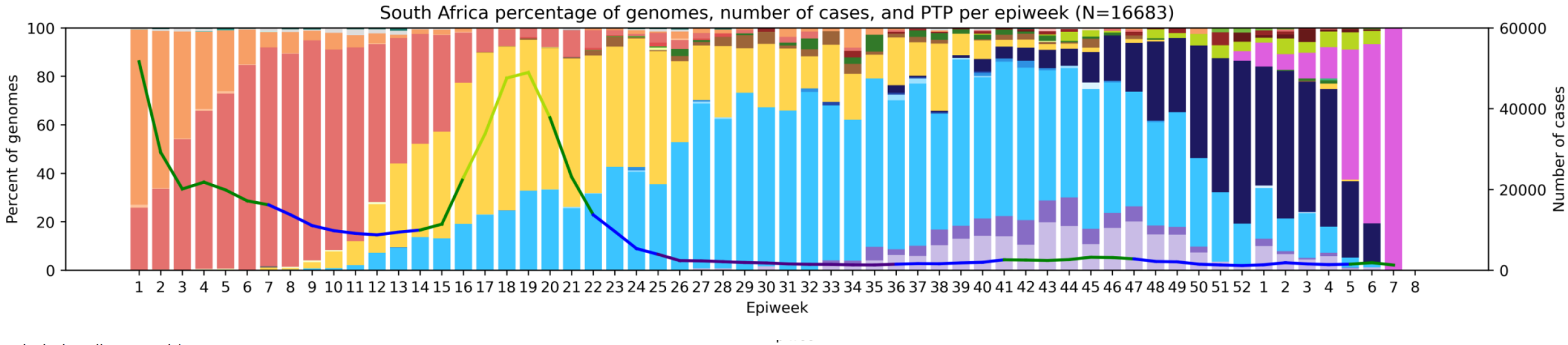
3. Variants in South Africa – XBB.1.5 dominant



*Excludes sequences missing collection dates. Lineages of particular interest (mainly WHO Omicron subvariants under monitoring) are separate from the main clade groupings.

NGS-SA
Network for Genomic Surveillance in South Africa

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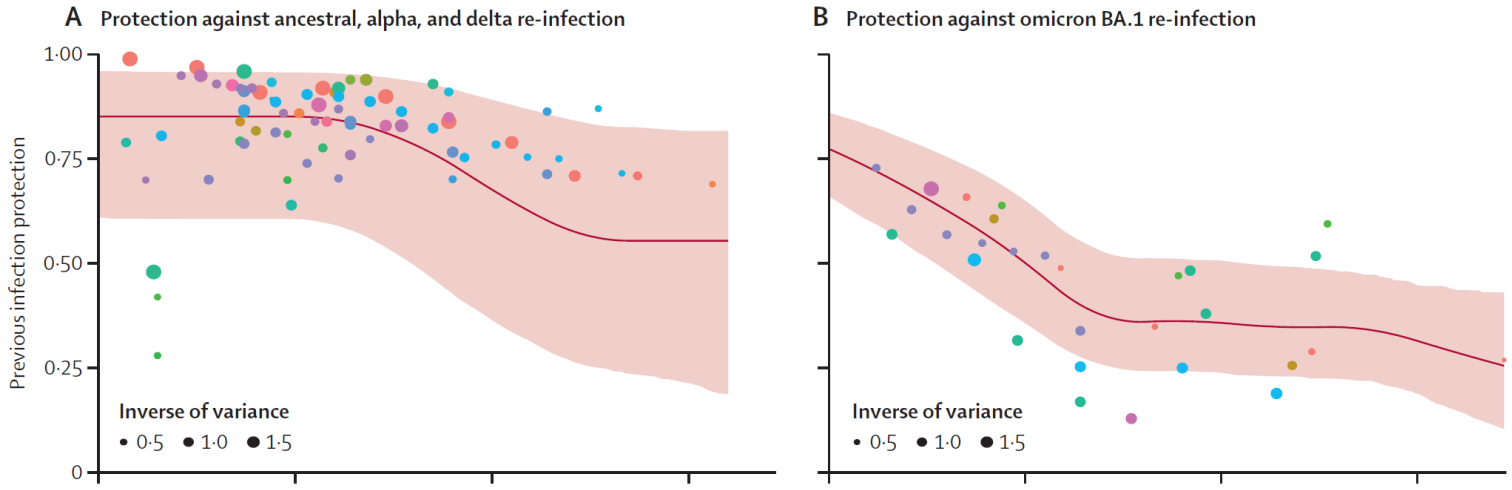
4. Good protection from past infection against α, β, & delta but not against omicron

THE LANCET

Past SARS-CoV-2 infection protection against re-infection: a systematic review and meta-analysis

*COVID-19 Forecasting Team**

- **65 studies; 19 different countries**
- **Protection from past infection and any symptomatic disease at 40 weeks**
  - **78% for ancestral, alpha, beta, and delta variants**
  - **36% for omicron BA.1**



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5. Good protection against BA.4 & BA.5 from prior omicron infection but not other variant infections

The NEW ENGLAND JOURNAL of MEDICINE

Protective Effect of Previous SARS-CoV-2 Infection against Omicron BA.4 and BA.5 Subvariants

Heba N. Altarawneh, Hiam Chemaitelly, Houssein H. Ayoub, Mohammad R. Hasan, Peter Coyle, Hadi M. Yassine, Hebah A. Al-Khatib, Maria K. Smatti, Zaina Al-Kanaani, Einas Al-Kuwari

Table 1. Effectiveness of Previous SARS-CoV-2 Infection in Preventing Reinfection with Omicron BA.4 and BA.5 Subvariants.*

Type of Analysis	Effectiveness of Previous Infection (95% CI)†
SGTF status as proxy for BA.4 or BA.5 infection‡	
Effectiveness against symptomatic BA.4 or BA.5 infection	
Pre-omicron previous infection	35.5 (12.1–52.7)
Post-omicron previous infection	76.2 (66.4–83.1)
Effectiveness against any BA.4 or BA.5 infection	
Pre-omicron previous infection	27.7 (19.3–35.2)
Post-omicron previous infection	78.0 (75.0–80.7)
Any infection during BA.4 and BA.5 dominance§	
Effectiveness against symptomatic BA.4 or BA.5 infection	
Pre-omicron previous infection	38.1 (27.7–46.9)
Post-omicron previous infection	84.5 (81.1–87.2)
Effectiveness against any BA.4 or BA.5 infection	
Pre-omicron previous infection	33.5 (29.3–37.5)
Post-omicron previous infection	80.2 (78.7–81.7)

- **Case-control study (May – July 2022, Qatar)**
  - **5,673 Covid-positive patients (BA.4 or BA.5 infection) & 23,241 Covid-negative patients**
- **27% effectiveness of pre-omicron infection against any BA.4 or BA.5 reinfection**
- **78% effectiveness of post-omicron infection against any BA.4 or BA.5 reinfection**
- **Effectiveness somewhat higher in vaccinated persons**

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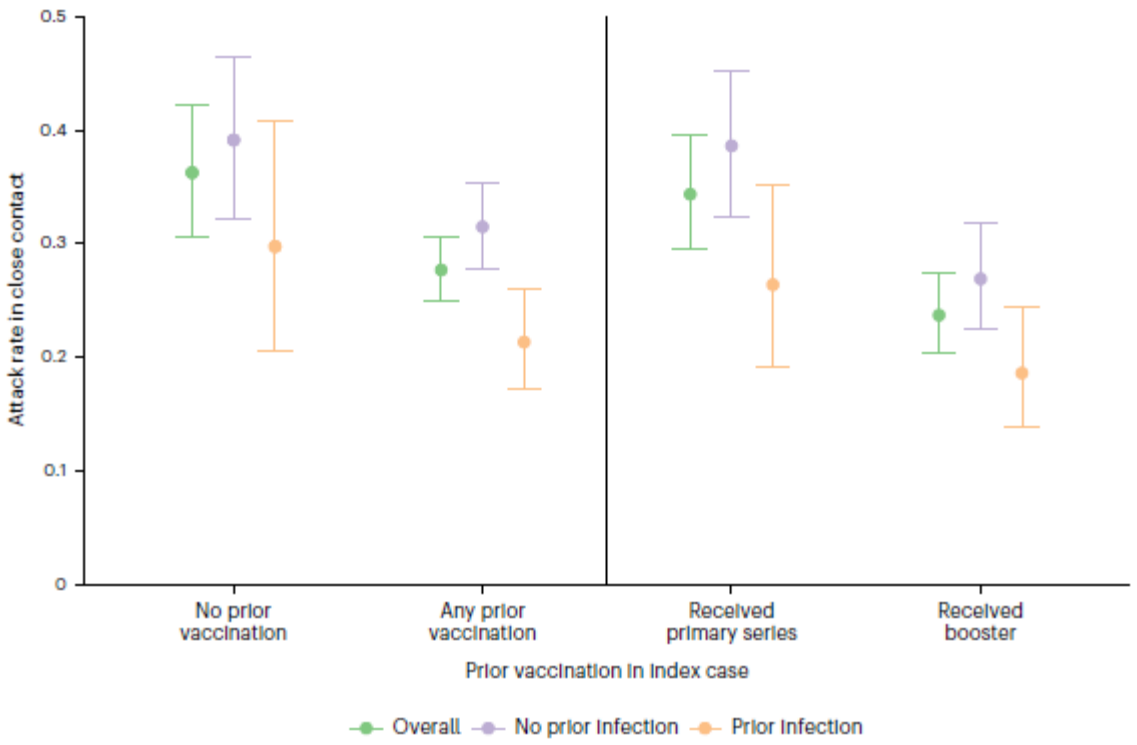
6. Vaccine and natural immunity independently & jointly reduce infectiousness

nature medicine

Infectiousness of SARS-CoV-2 breakthrough infections and reinfections during the Omicron wave

Sophia T. Tan[1], Ada T. Kwan[2,3], Isabel Rodríguez-Barraquer[1,3], Benjamin J. Singer[1], Hailey J. Park[1], Joseph A. Lewnard[4,5,6], David Sears[3,7] & Nathan C. Lo[1,3]

- **35 California state prisons** (Dec 21- May 22)
- **28% risk of transmitting Omicron infection to close contacts among vaccinated vs 36% among unvaccinated**
- **Any vaccination →** 22% reduced risk of transmitting infection
- **Prior infection alone →** 23% reduced risk o transmitting infection
- **Both vaccination and prior infection →** 40% reduced risk of transmitting infection



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7. Too early to conclude: no novel variants in China

THE LANCET

Characterisation of SARS-CoV-2 variants in Beijing during 2022: an epidemiological and phylogenetic analysis

Yang Pan, Liang Wang*, Zhaomin Feng, Hui Xu, Fu Li, Ying Shen, Daitao Zhang, William J Liu, George F Gao, Quanyi Wang*

THE LANCET

So far, no novel SARS-CoV-2 variants from Beijing—and hopefully better scientific cooperation going forward

Wolfgang Preiser, Tongai Maponga

- **2881 complete SARS-CoV-2 genome sequences** (Jan-Dec 2022)
- **14 Nov - 20 Dec → 413 sequences BA.5.2 and BF.7 dominant**
  - **All derived from 123 Pango lineages**

→ **No evidence that novel variants emerged**

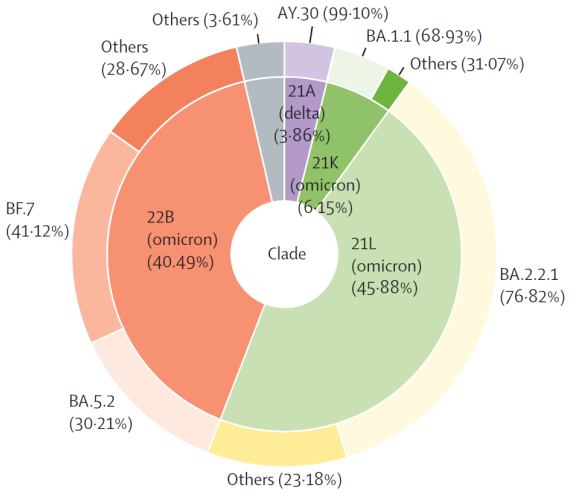

Figure 1. Composition of SARS-CoV-2 variants circulating in Beijing during the whole year 2022.

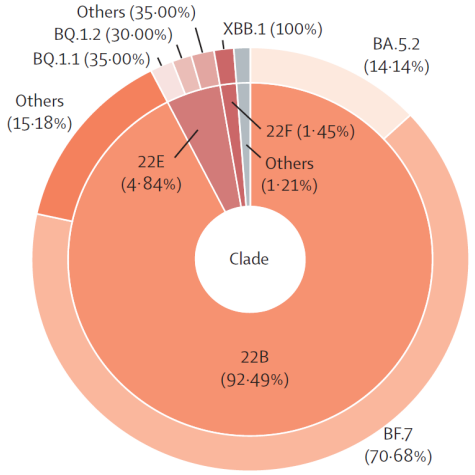

Figure 2. Composition of SARS-CoV-2 variants circulating in Beijing after Nov 14, 2022.

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