

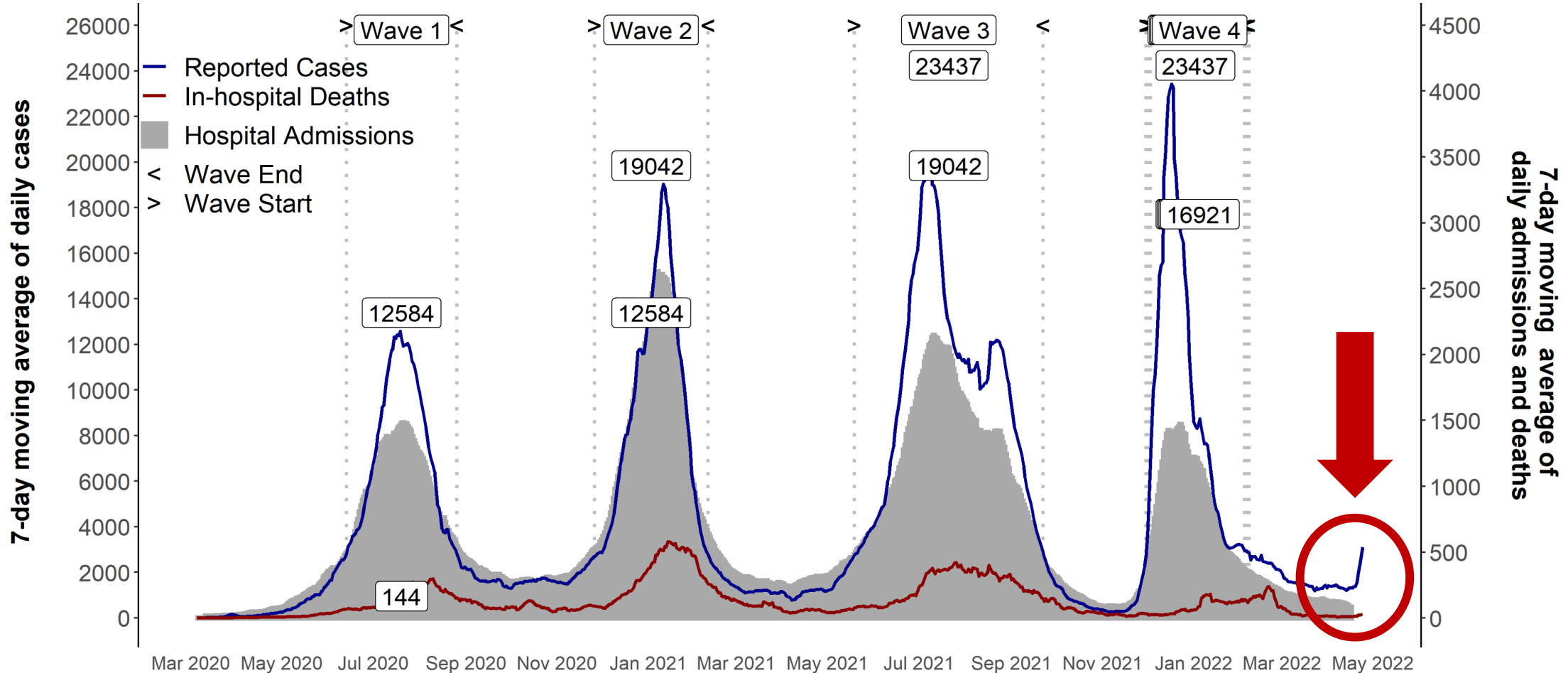


COVID-19 UPDATES

24 April 2022

Covid-19 in South Africa

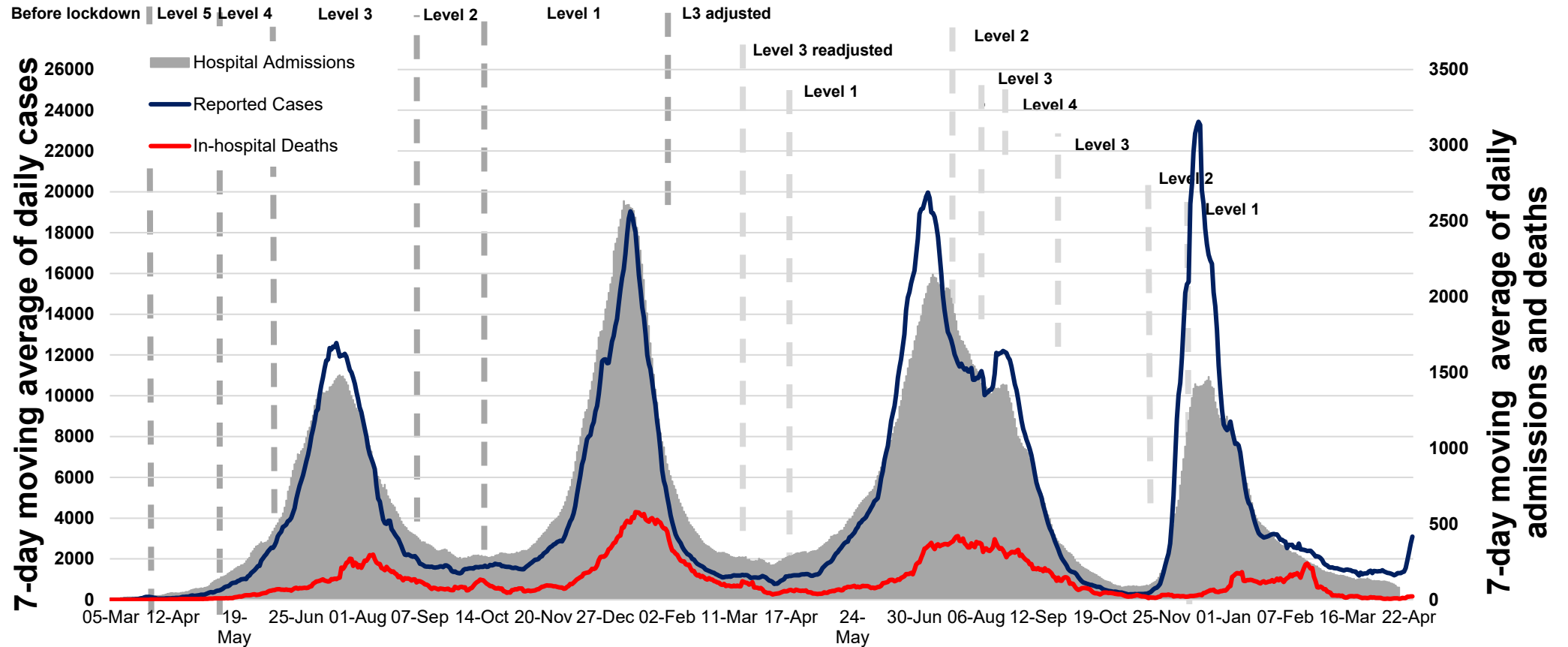
up to – 24 April 2022



Source of hospital admissions data: Lucille Blumberg, Richard Welch and Waasila Jassat – DATCOV, NICD

Covid-19 in South Africa

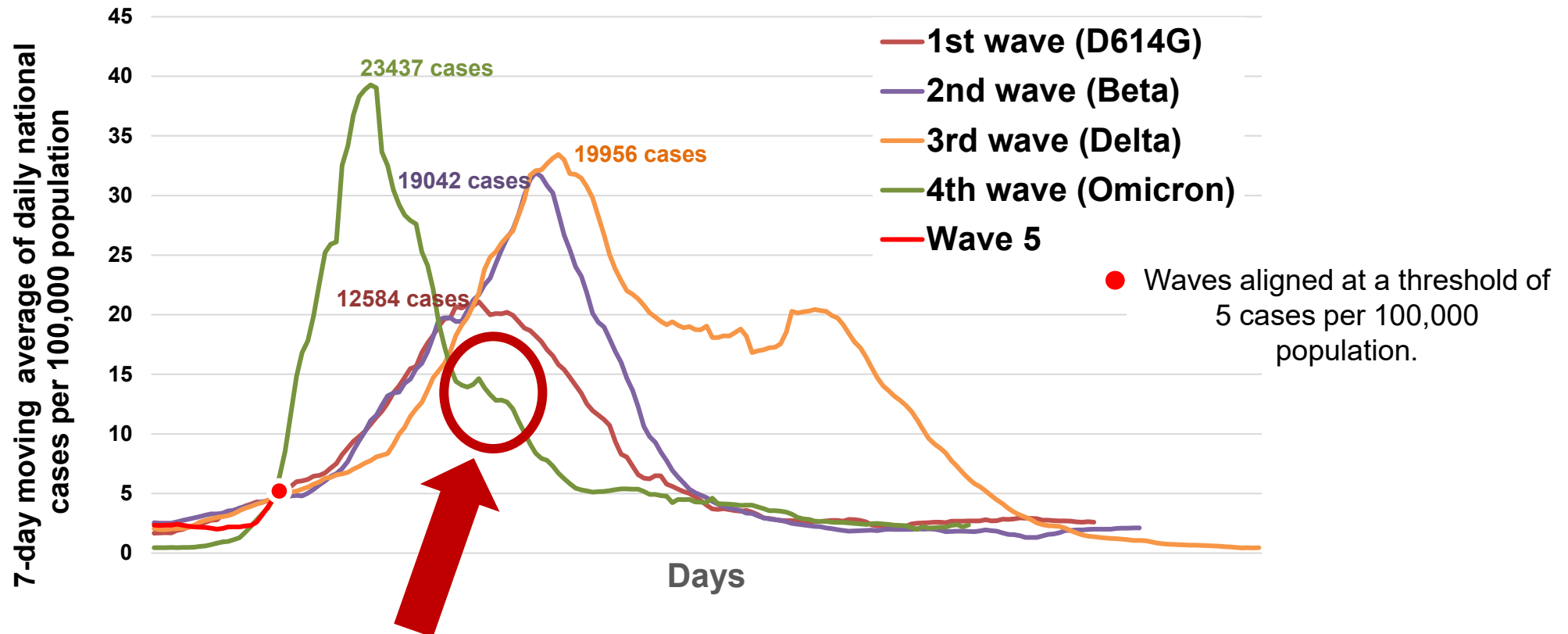
7-day moving average of new cases, hospital admissions and in-hospital Covid-19 deaths up to – 24 April 2022



Source of hospital admissions data: Lucille Blumberg, Richard Welch and Waasila Jassat – DATCOV, NICD

SARS-Cov-2 cases in 1st, 2nd, 3rd, 4th & 5th waves: South Africa

7-day moving average cases per 100,000 population
up to – 24 April 2022



Data source: Department of Health; Analysis: Marothi LETSOALO; Ande MCHUNU

Estimated effective reproduction rate (R) of Covid-19 in South Africa

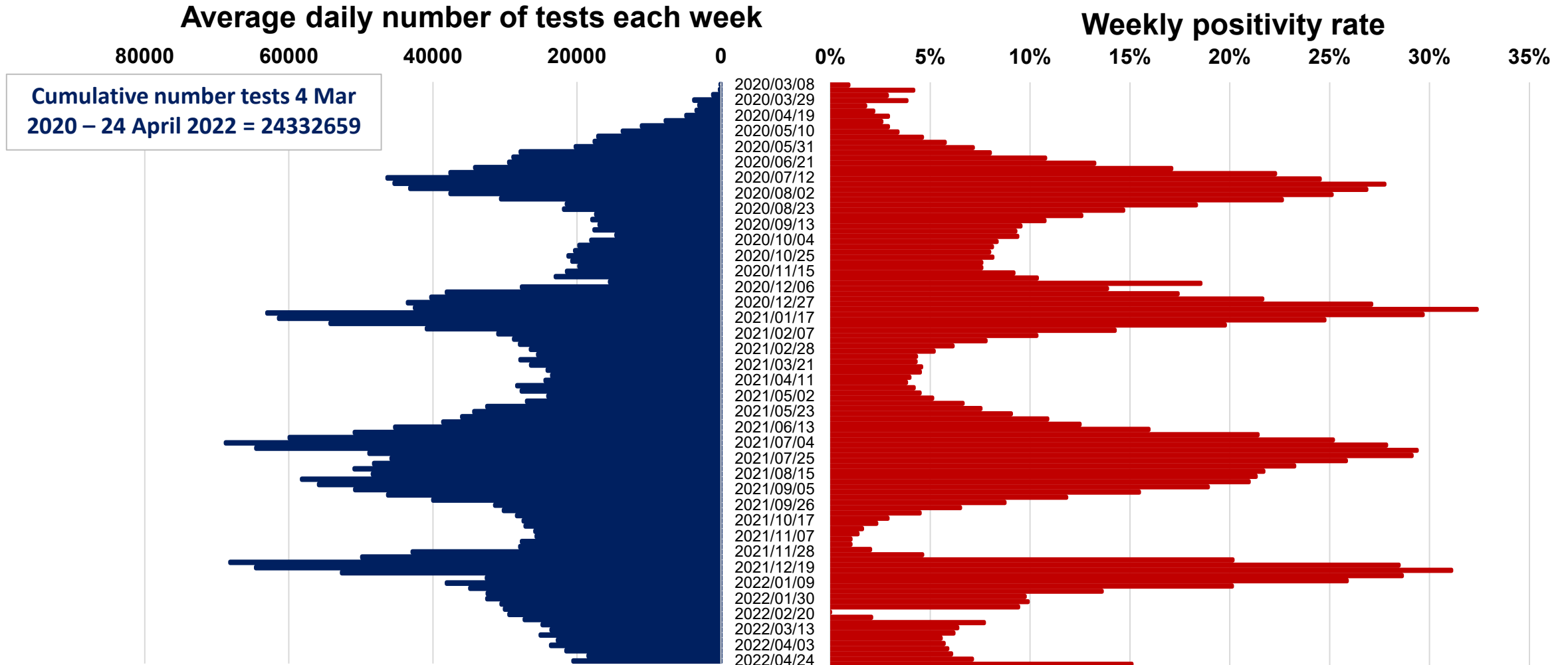
up to - 19 April 2022



Source: Our World in Data; data explorer; Johns Hopkins University [COVID-19 Dashboard](#)

Average daily tests and proportion of positive tests

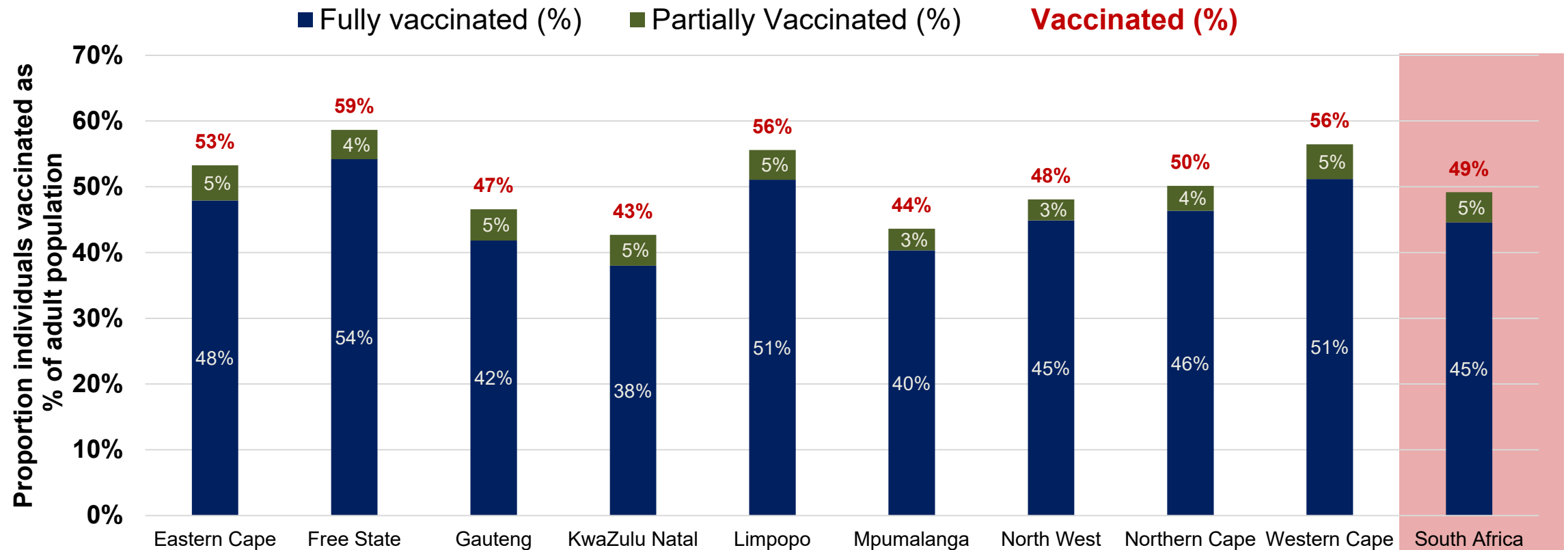
up to - 24 April 2022



Data source: Department of Health

Proportion of individuals vaccinated as % of adult population

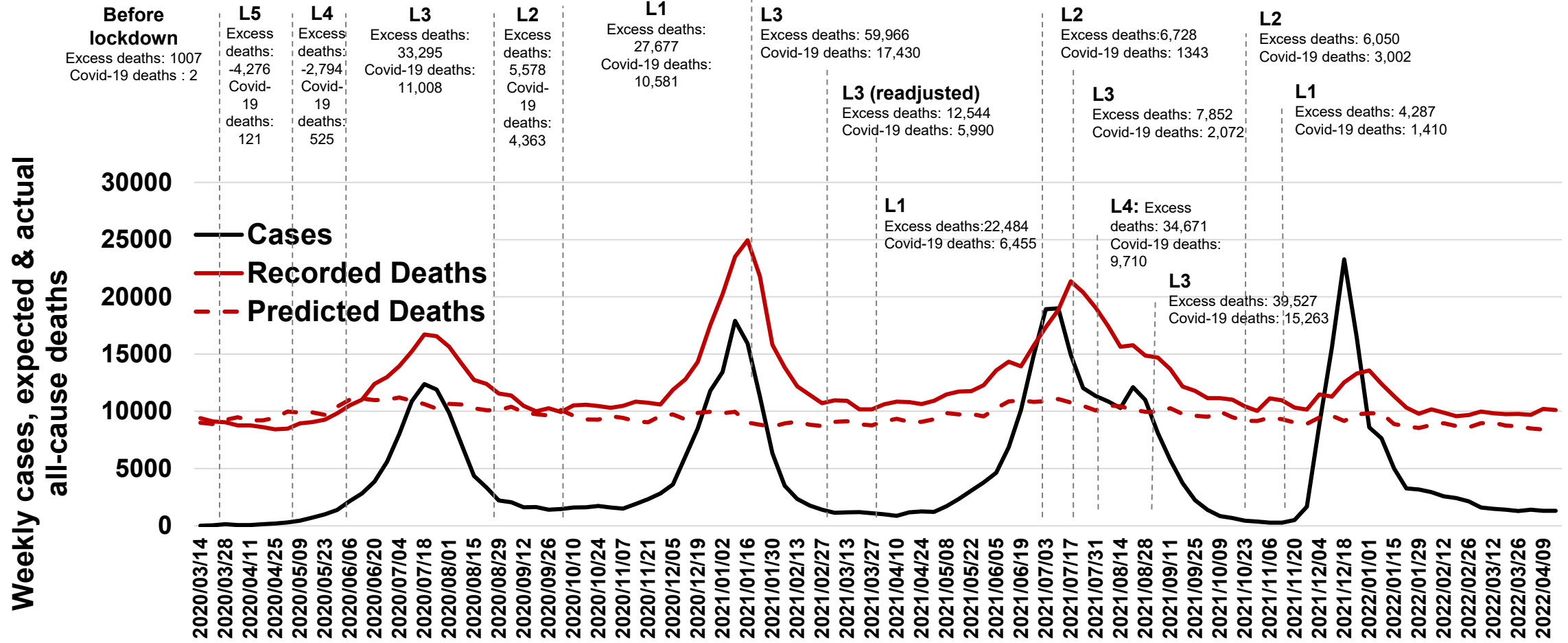
up to – 24 April 2022



Source: Department of Health. <https://sacoronavirus.co.za/latest-vaccine-statistics/>

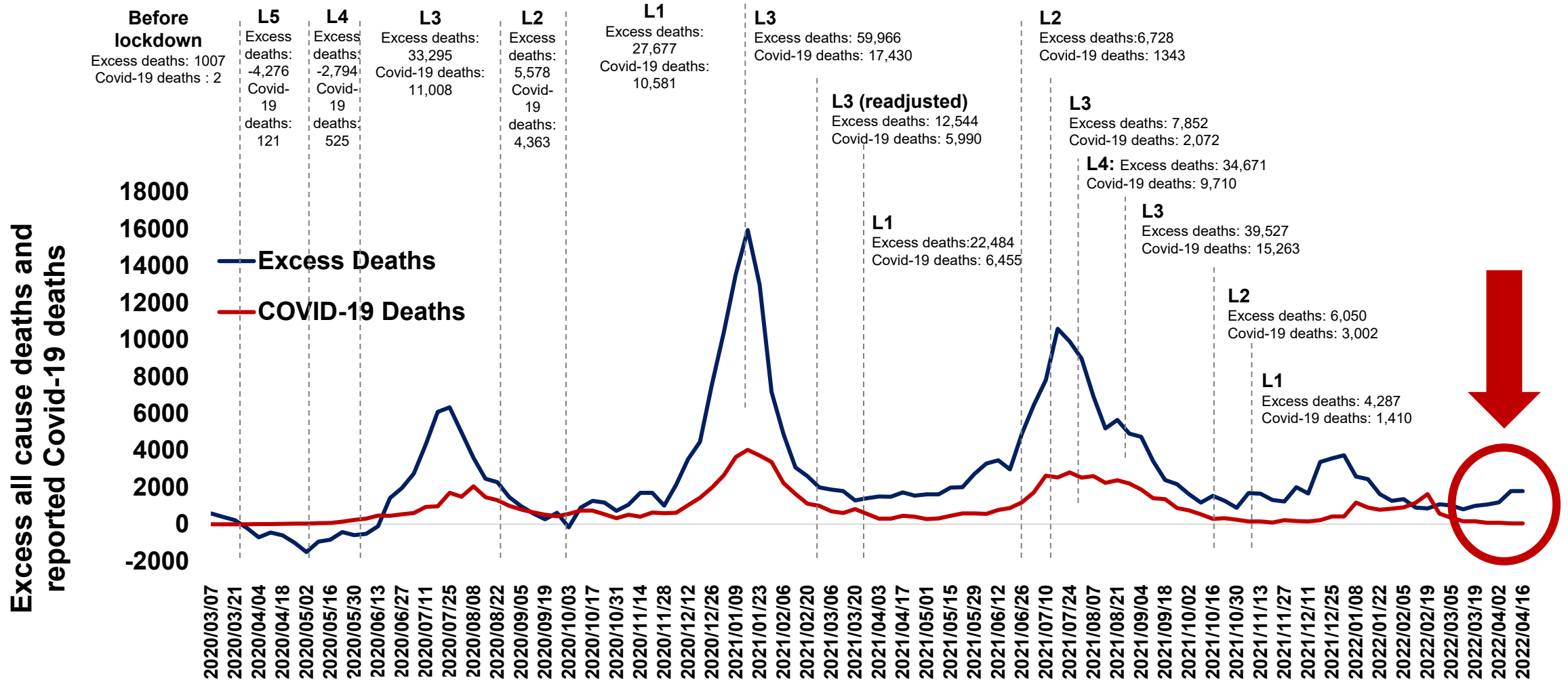
Expected & actual all-cause deaths during Covid-19

up to – 16 April 2022



Weekly excess all cause deaths & reported Covid-19 deaths

up to – 16 April 2022



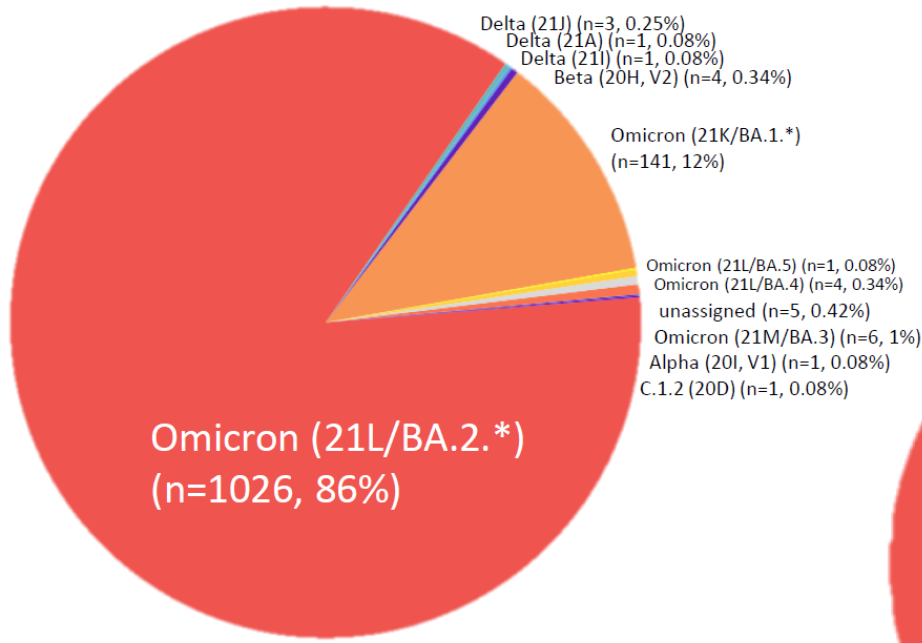
Source: Bradshaw D, et al



**SARS-CoV-2 mutations:
Understanding the underlying
biology and dynamics in the variants
and sub-variants**

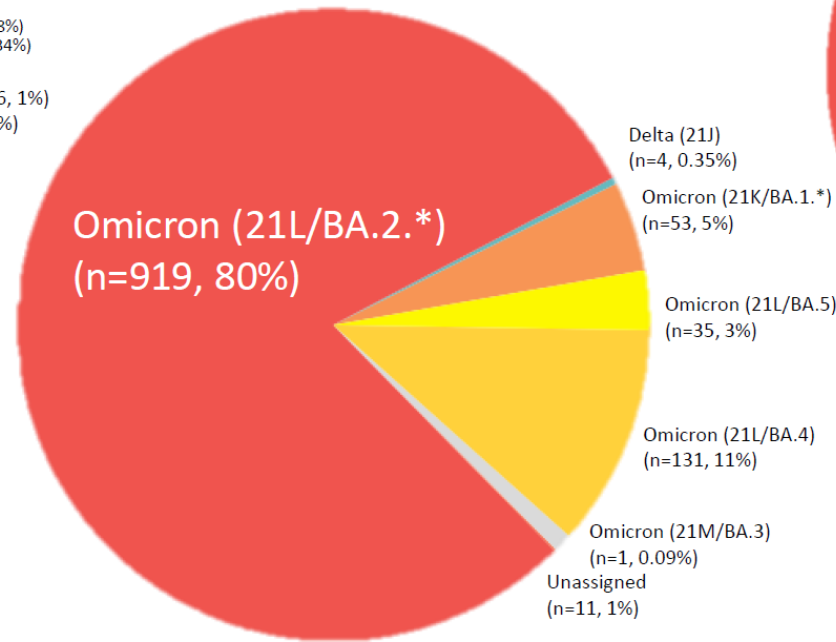
Prevalence of Variants of Concern (VOC) and Variants of Interest (VOI) in Feb – Apr 2022

February (N=1194)



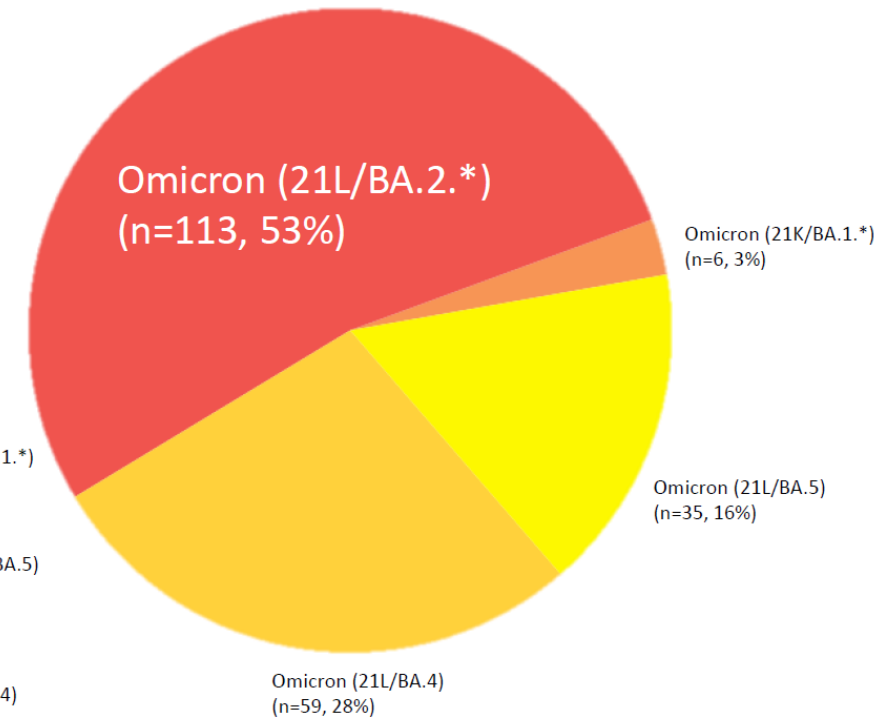
Total Omicron in Feb: 1178 (98.6%)

March (N=1154)

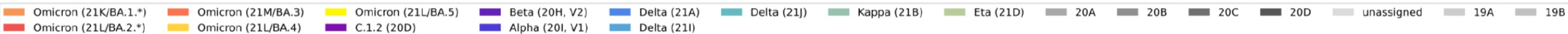


Total Omicron in Mar: 1139 (98.7%)

April (N=213)



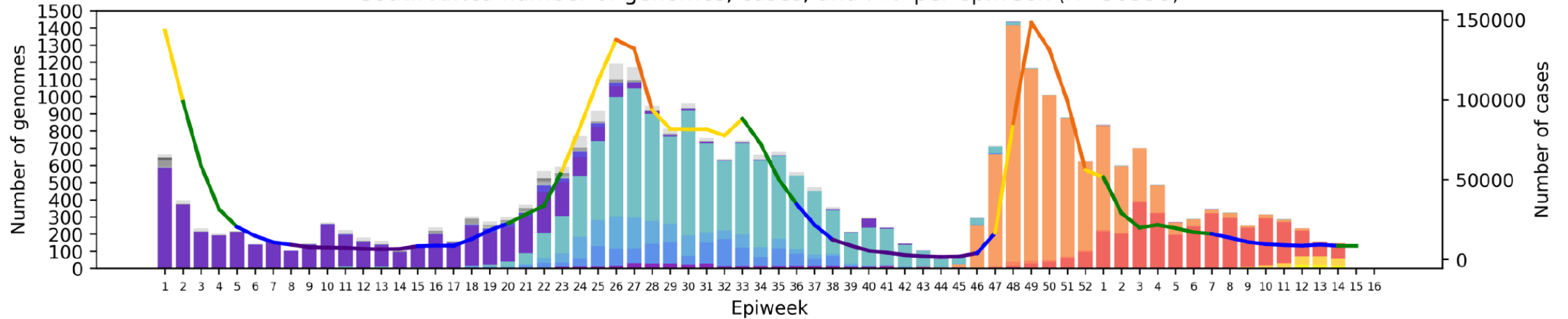
Total Omicron in Apr: 213 (100%)



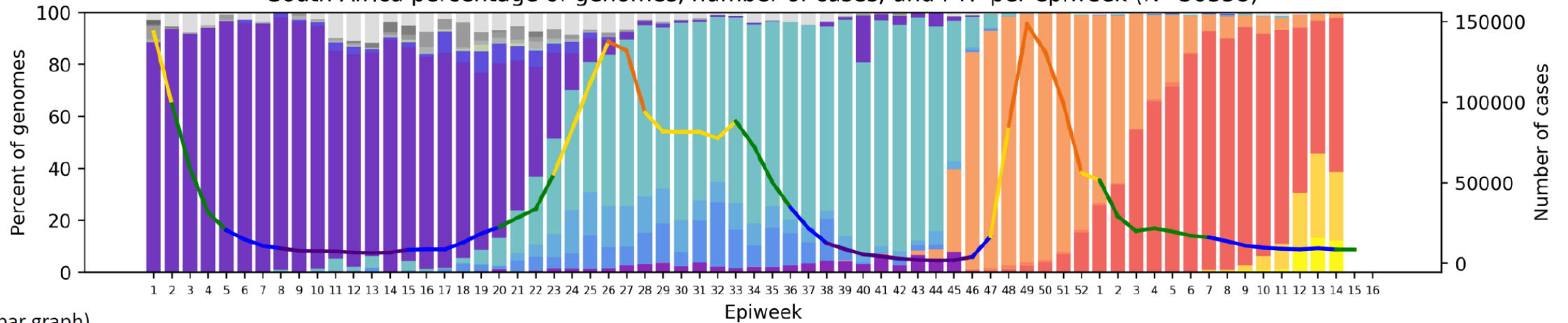
Omicron dominated in February (98.6%, 1178/1194), March (90%, 1039/1154) and April (100%, 213/213), . BA.2 increased was dominant in February and March while the prevalence of the newly assigned BA.4 and BA5 lineages increasing from February to April.

South Africa, 2021-2022, n = 30358*

South Africa number of genomes, cases, and PTP per epiweek (N=30358)



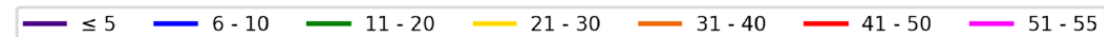
South Africa percentage of genomes, number of cases, and PTP per epiweek (N=30358)



Clade key (bar graph)



Weekly percentage testing positive key (line graph)

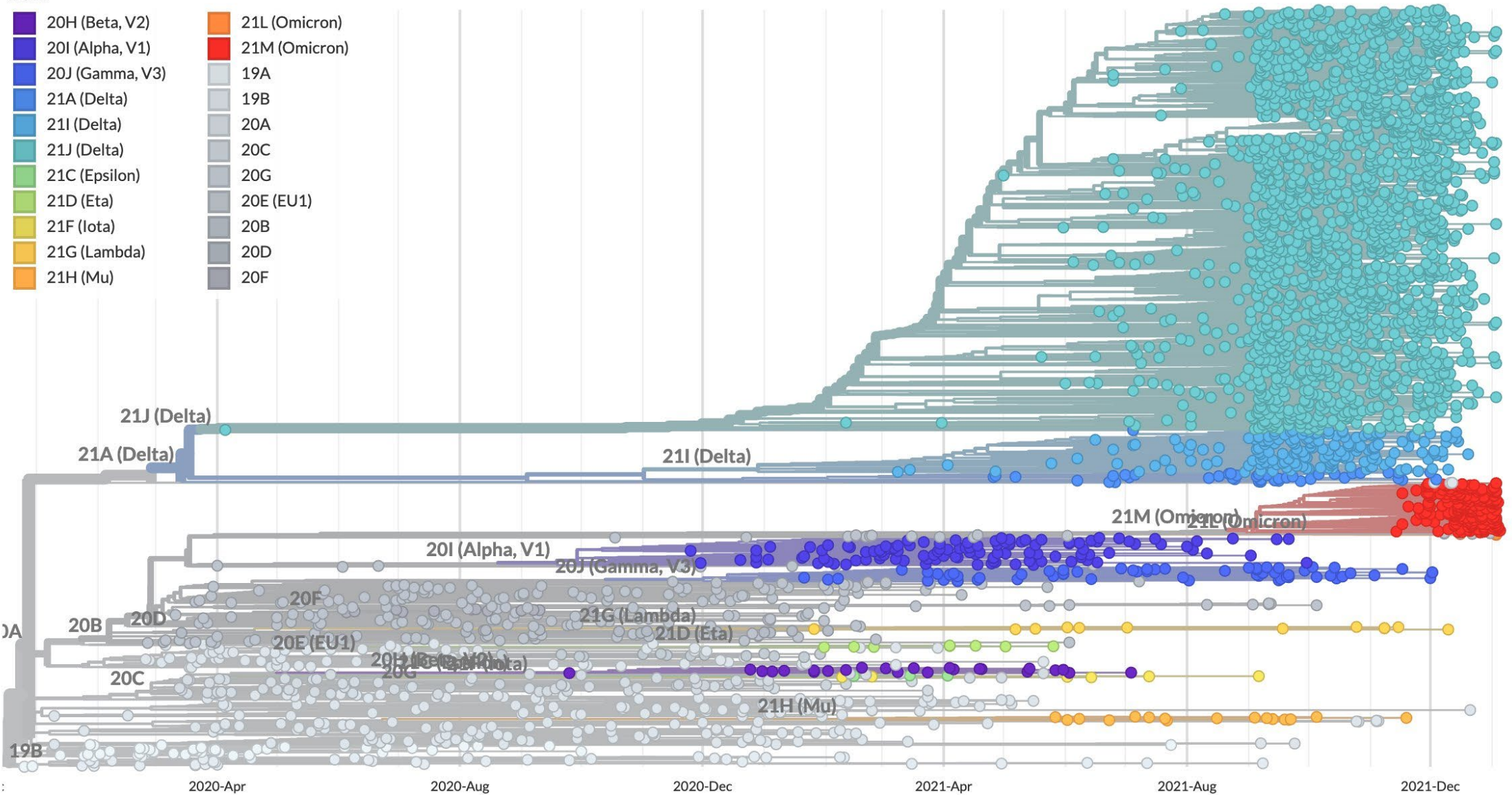


*Excludes sequences missing collection dates, as well as those collected January 1st and 2nd 2021 as they are part of epiweek 53 of 2020.

Phylogeny

Clade ^

- | | |
|-----------------|---------------|
| 20H (Beta, V2) | 21L (Omicron) |
| 20I (Alpha, V1) | 21M (Omicron) |
| 20J (Gamma, V3) | 19A |
| 21A (Delta) | 19B |
| 21I (Delta) | 20A |
| 21J (Delta) | 20C |
| 21C (Epsilon) | 20G |
| 21D (Eta) | 20E (EU1) |
| 21F (Iota) | 20B |
| 21G (Lambda) | 20D |
| 21H (Mu) | 20F |



SEARCH ZOOM TO SELECTED RESET LAYOUT

GISAID. Genomic epidemiology of SARS-CoV-2 with global subsampling. <https://nextstrain.org/ncov/gisaid/global>. [Last accessed April 2022]

MAT-GLB-2201287 – v1.0 – April 2022

This slide is courtesy of Allison McGeer of the University of Toronto – presented at the SANOFI CoVoices Symposium at ECCMID 2022

Antigenic Cartography of SARS-CoV-2 variants reveals amino acid substitutions governing immune escape and immunodominance patterns

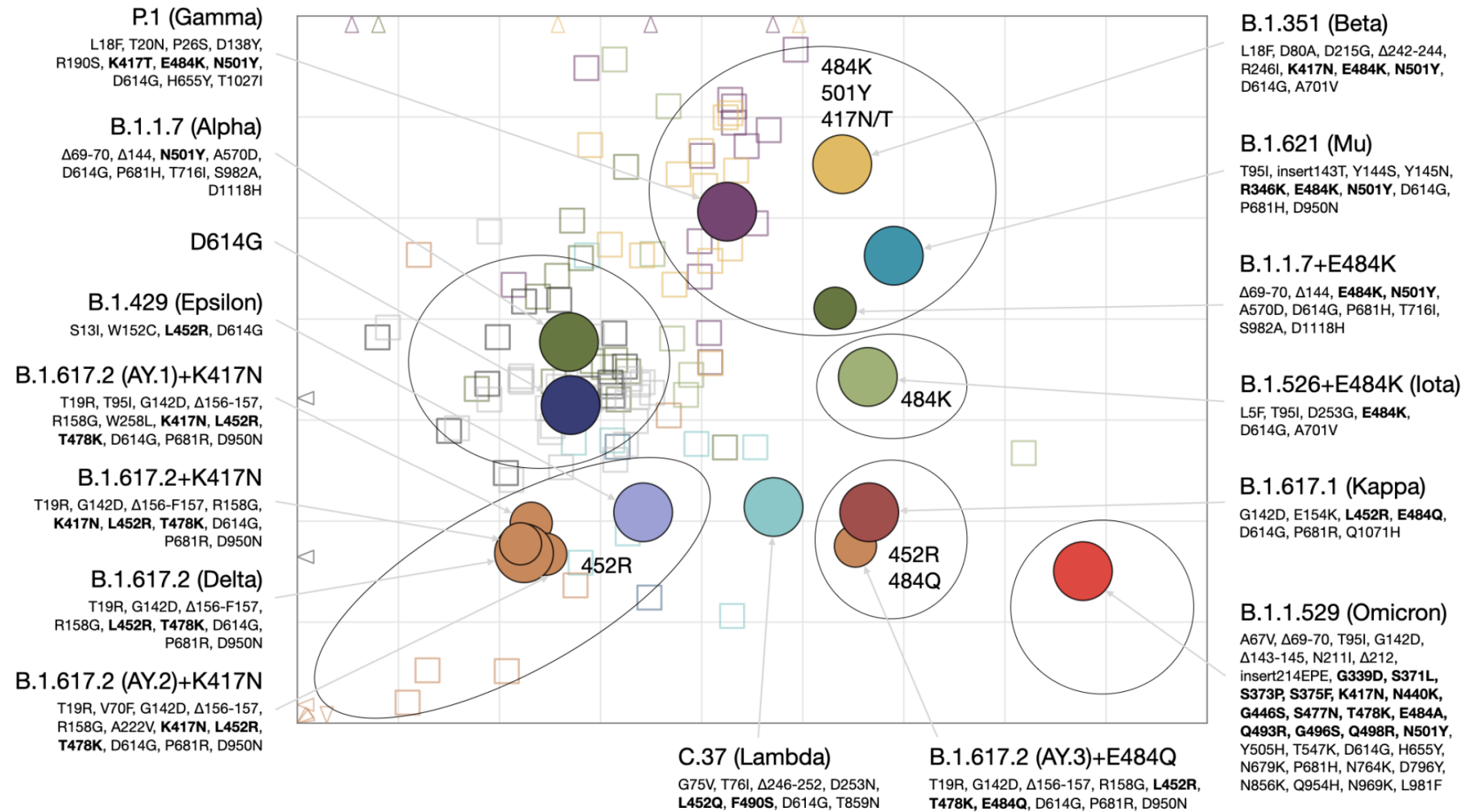
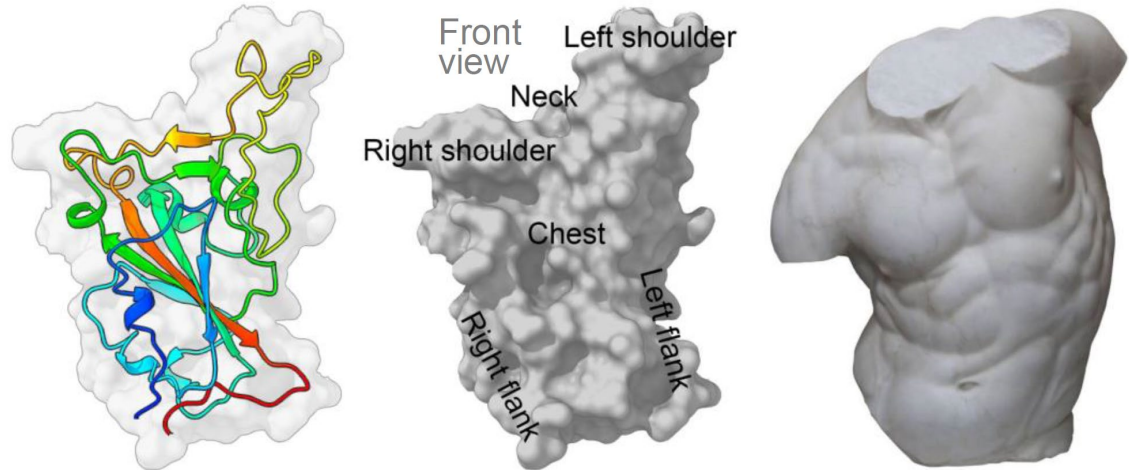
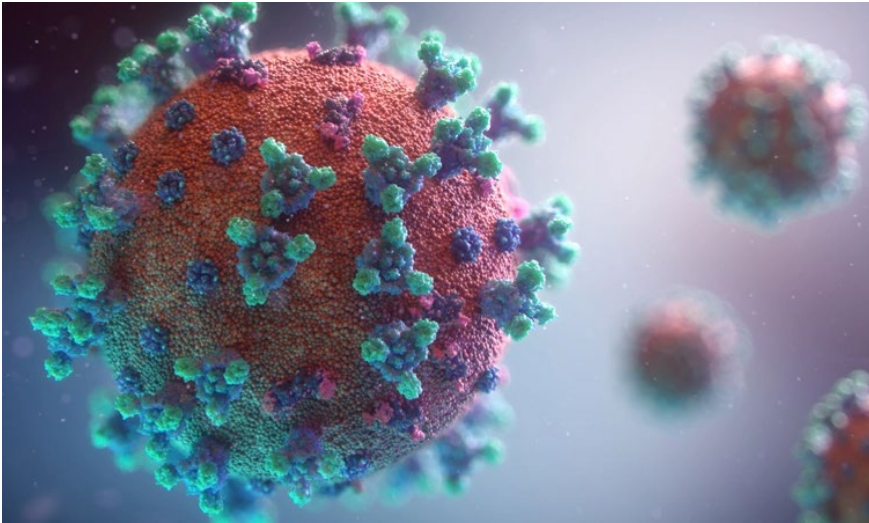
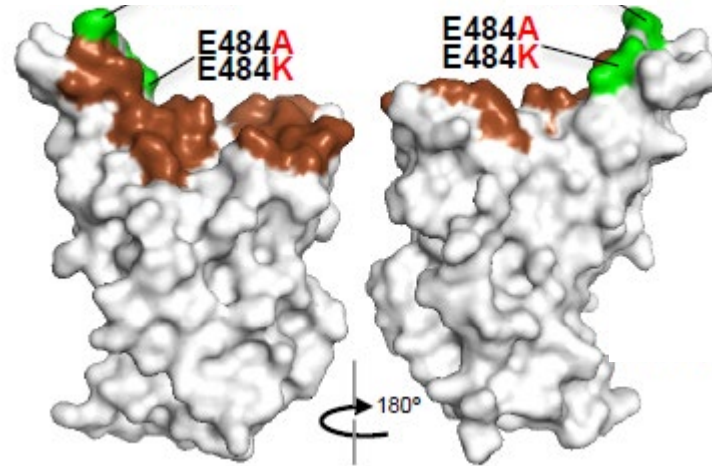
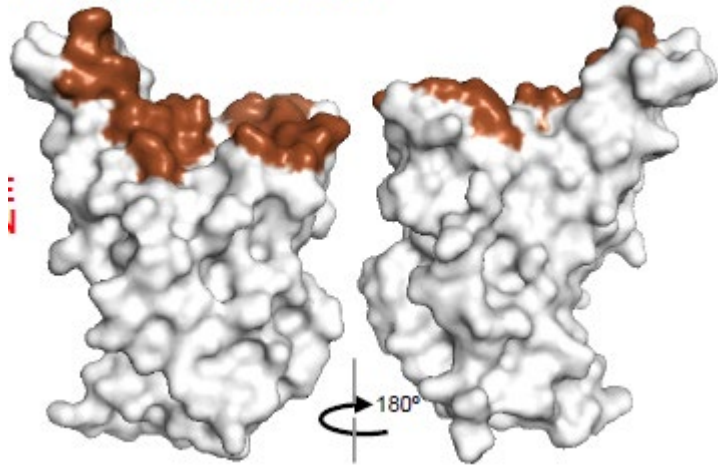


Fig. 2: Antigenic map of SARS-CoV-2 variants and selected substitutions. Variants are shown as circles, sera as squares. Variants with additional substitutions from a root variant are denoted by smaller circles, in the color of their root variant. The x and y-axes both represent antigenic distance, with one grid square corresponding to one two-fold serum dilution in the neutralization assay. Therefore, two grid squares correspond to a four-fold dilution, three to an eight-fold dilution and so on. The orientation of the map within the x and y axes is free, as only the relative distances between variants and sera can be inferred.



hACE2 Contact sites



Landscape analysis of escape variants identifies SARS-CoV-2 spike mutations that attenuate monoclonal and serum antibody neutralization



Zhuoming Liu^{1,6}, Laura A. VanBlargan^{2,6}, Paul W. Rothlauf^{1,3}, Louis-Marie Bloyet¹, Rita E. Chen^{2,4}, Spencer Stumpf¹, Haiyan Zhao⁴, John M. Errico⁴, Elitza S. Theel⁵, Ali H. Ellebedy^{1,4}, Daved H. Fremont⁴, Michael S. Diamond^{1,2,4,*}, and Sean P. J. Whelan^{1,7*}



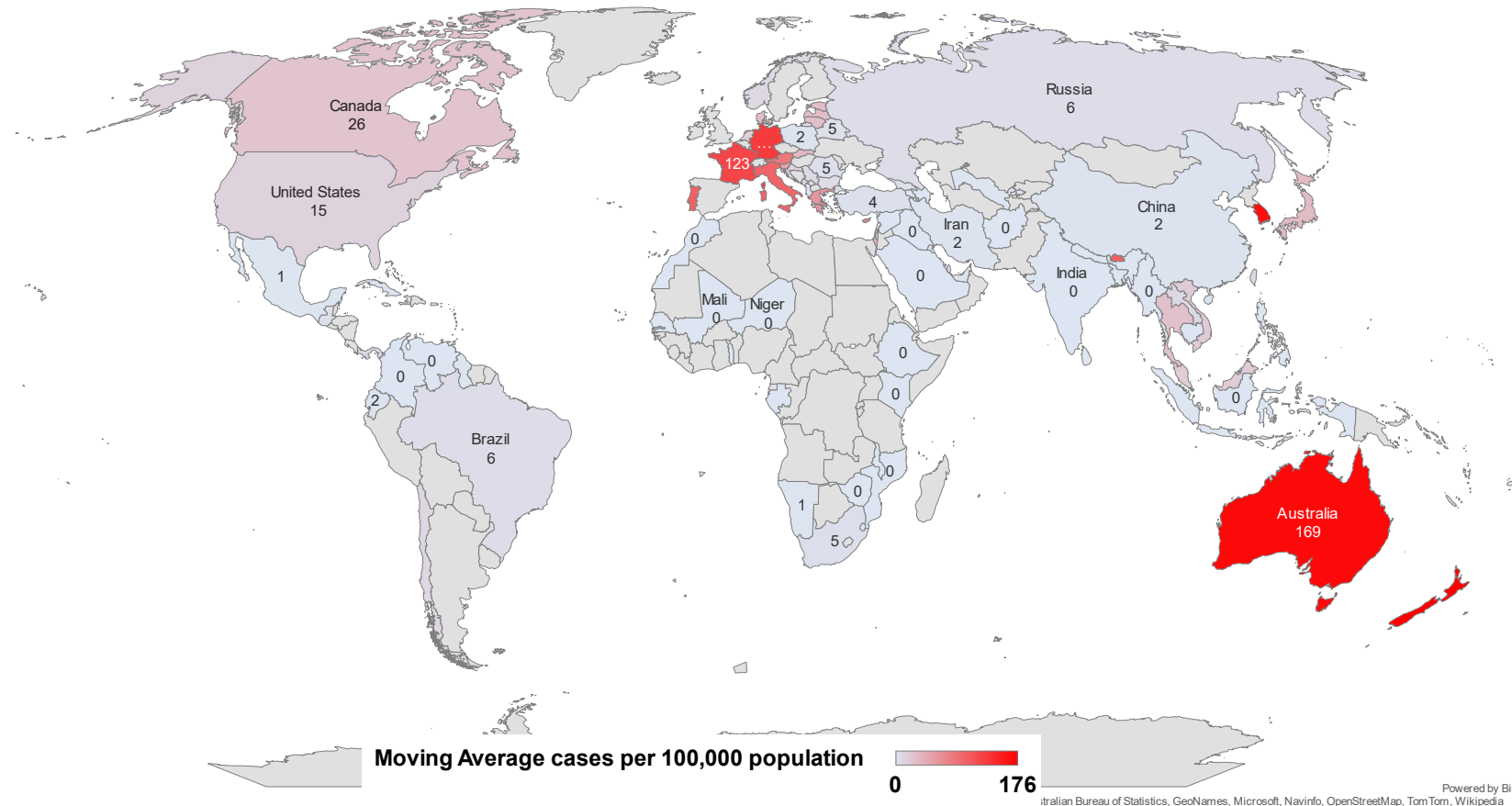
Comprehensive mapping of mutations to the SARS-CoV-2 receptor-binding domain that affect recognition by polyclonal human serum antibodies

Allison J. Greaney^{1,2}, Andrea N. Loes^{1,3}, Katharine H.D. Crawford^{1,2}, Tyler N. Starr^{1,3}, Keara D. Malone¹, Helen Y. Chu⁴, Jesse D. Bloom^{1,3,#}

Global epidemiology: Reported cases by country, region and the world

Global Covid-19 epidemic

7-day moving average cases per 100,000 population
up to – 23 April 2022



Source: Our World in Data

Covid-19 in Africa

Omicron variant drives 4th wave

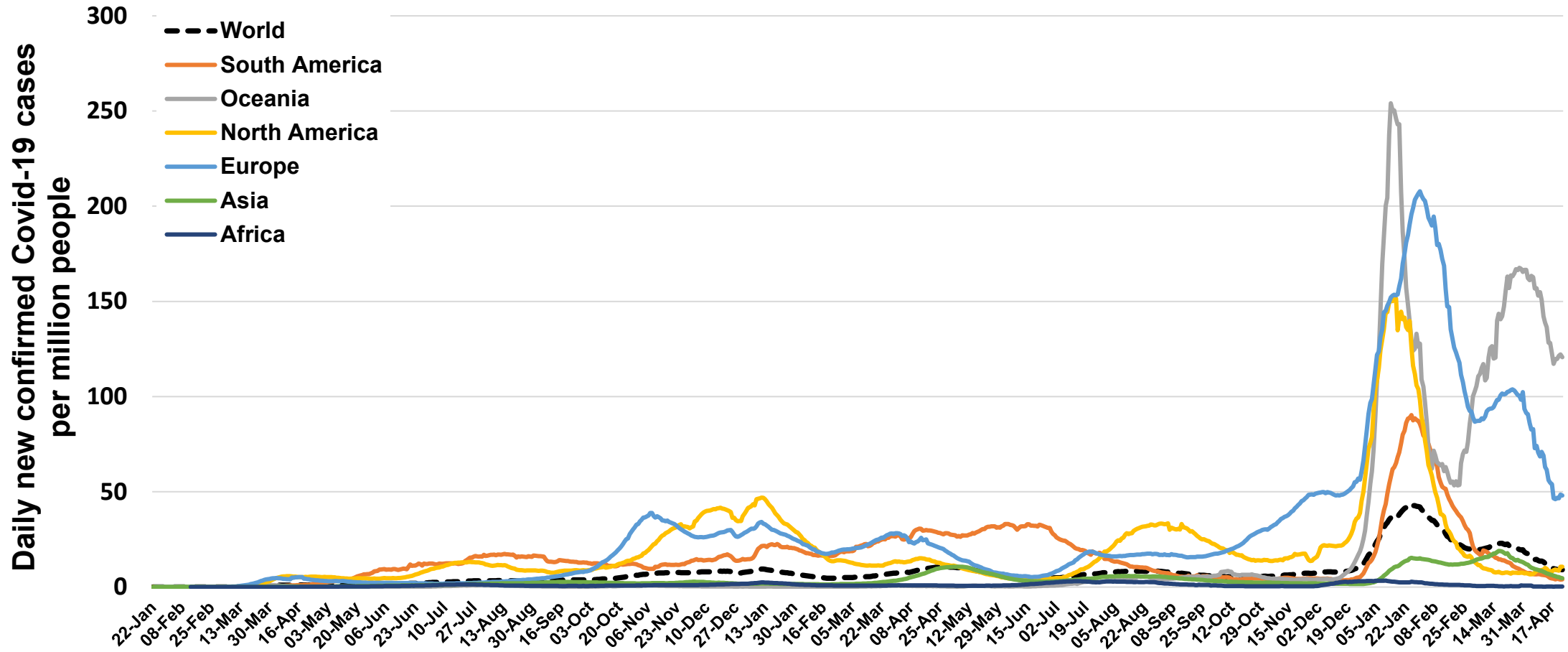
up to – 23 April 2022



Covid-19

Global and Continents waves

up to - 23 April 2022



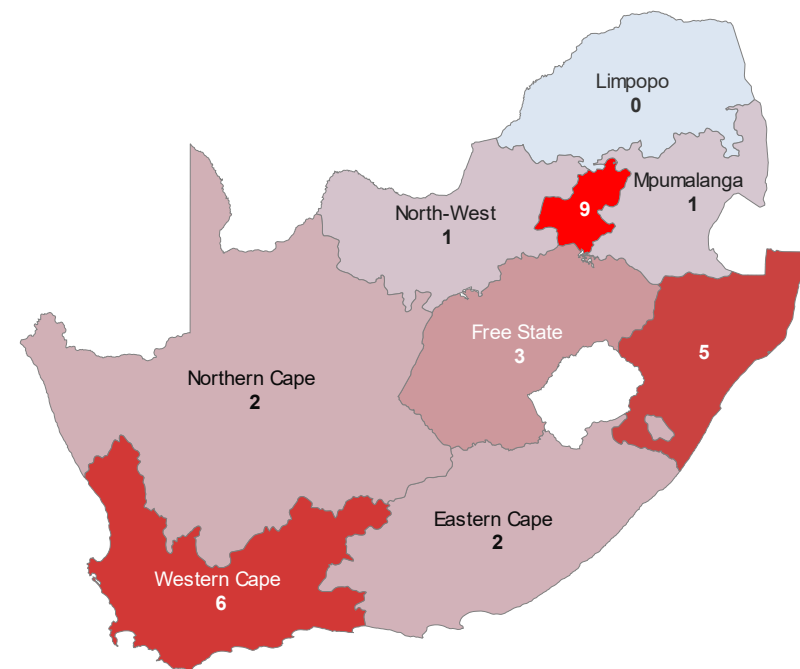
Data Source: Our World in Data; NICD

**South Africa:
Trends in reported provincial
SARS-CoV-2 cases**

Daily new cases over last 7 days/100,000

up to – 24 April 2022

Province	Population per 100,000	7 Days Moving Average				Increase / Decrease
		at 7 days back	Per 100K at 7 days back	at a day back	100K at a day back	
Eastern Cape	67	62	1	126	2	102%
Free State	29	31	1	76	3	144%
Gauteng	155	655	4	1361	9	108%
KwaZulu Natal	115	237	2	613	5	158%
Limpopo	59	11	0	25	0	131%
Mpumalanga	47	28	1	60	1	110%
North West	41	23	1	57	1	149%
Northern Cape	13	10	1	25	2	157%
Western Cape	71	250	4	413	6	65%
South Africa	597	1308	2	2756	5	111%
Africa	13410	2988	0	4157	0	39%
World	77952	821214	11	714063	9	-13%

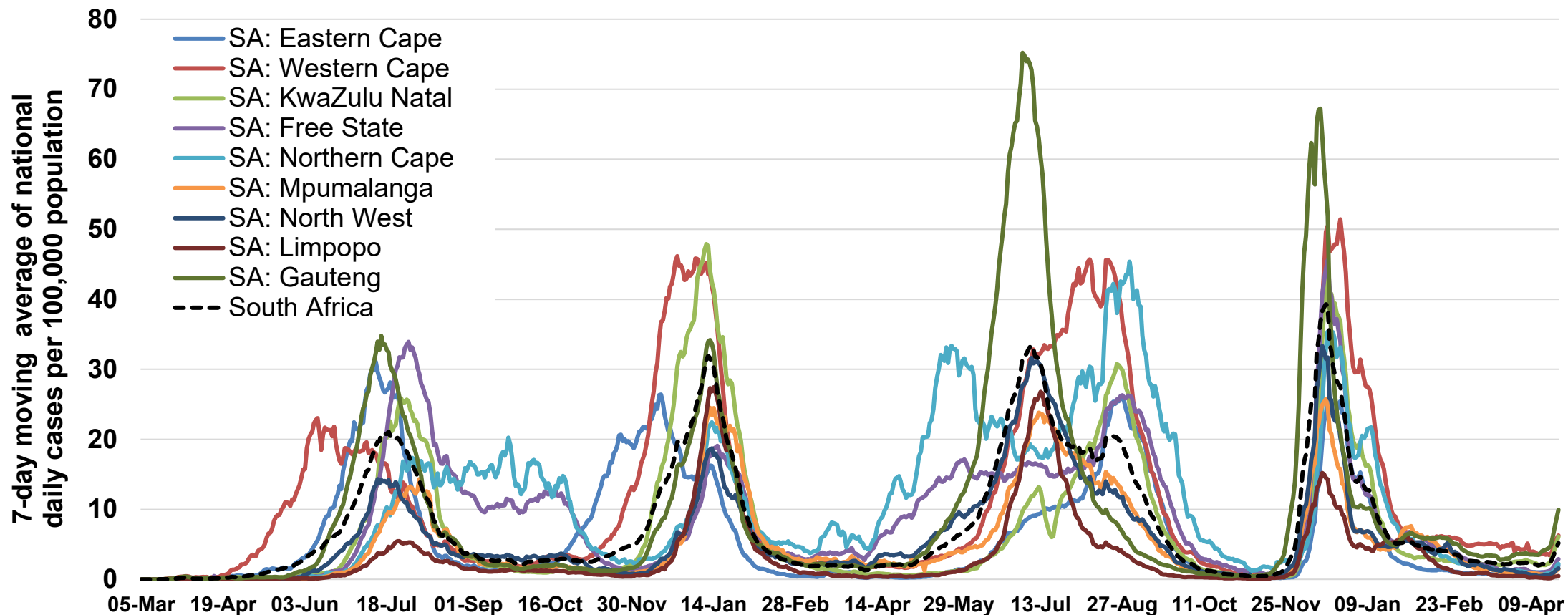


7 days moving average per 100K population
0 5 9

Data source: Department of Health

Confirmed SARS-Cov-2 cases by province

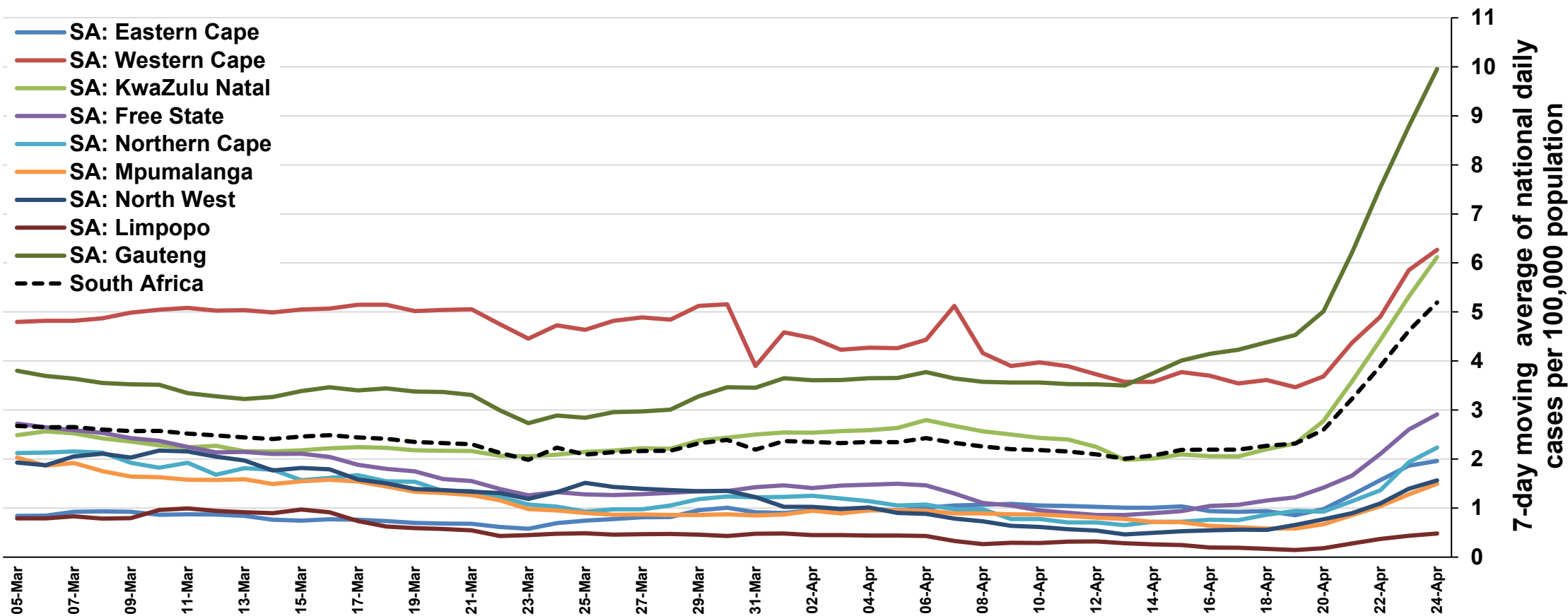
7-day moving average cases per 100,000 population
up to – 24 April 2022



Data source: Department of Health; Analysis

Confirmed SARS-Cov-2 cases by province

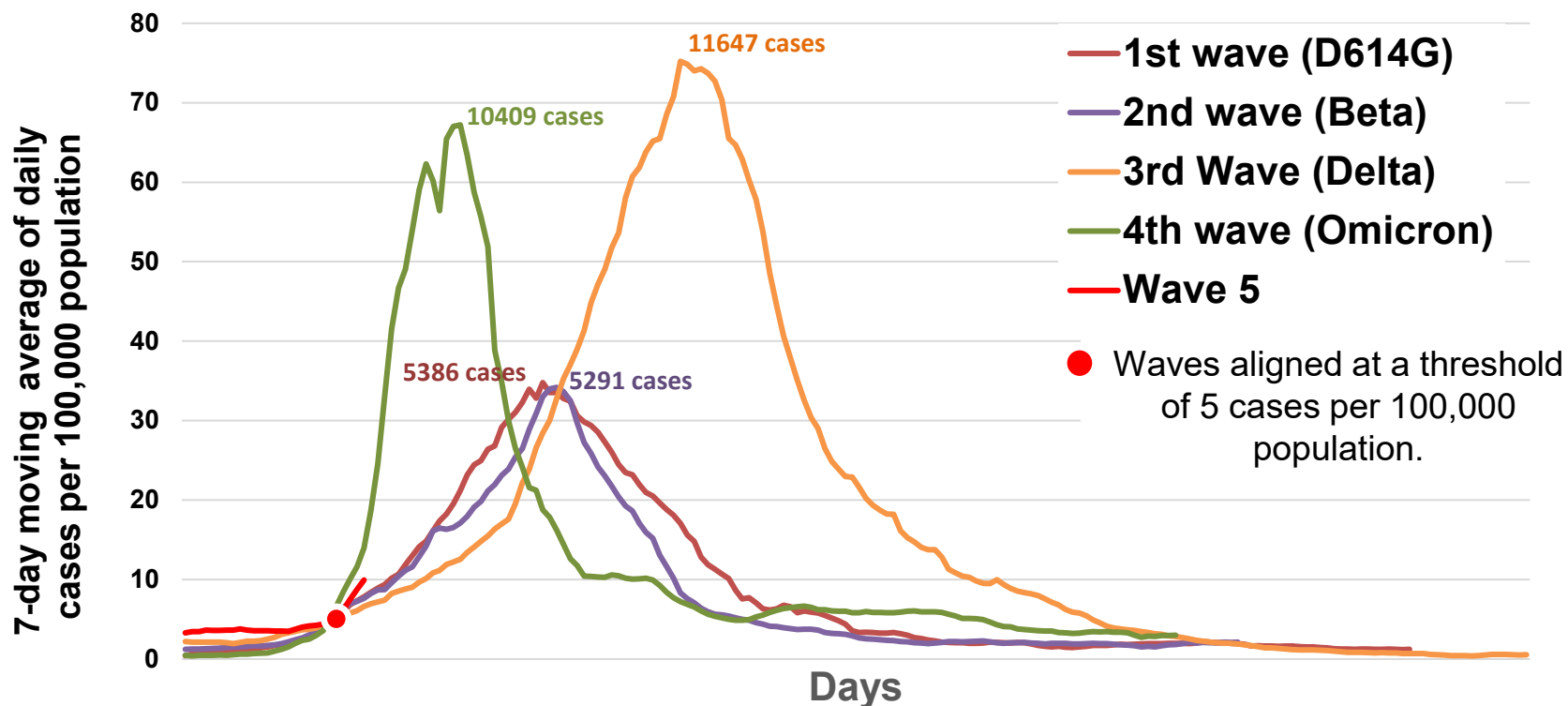
7-day moving average cases per 100,000 population
up to – 24 April 2022



Data source: Department of Health; Analysis

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Gauteng

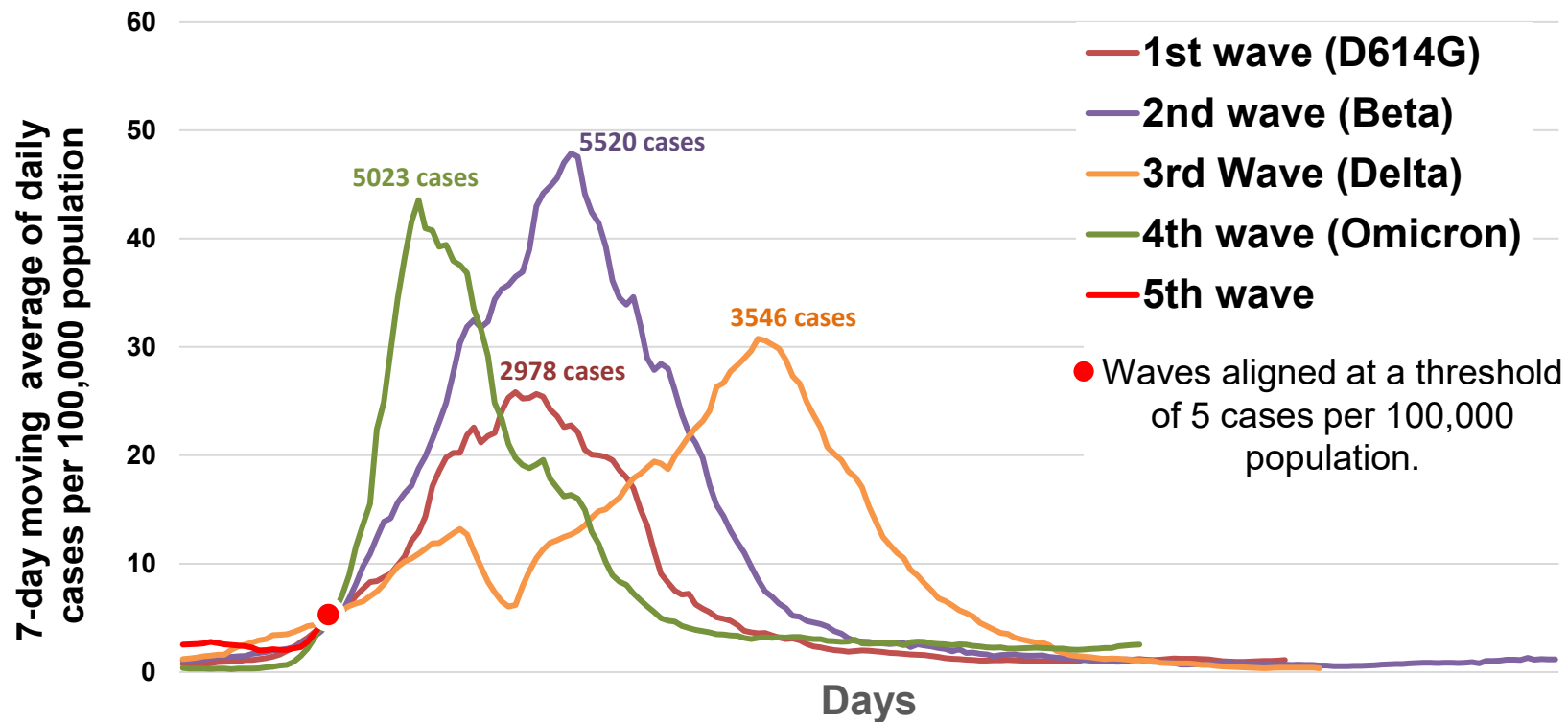
7-day moving average cases per 100,000 population
up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: KwaZulu Natal

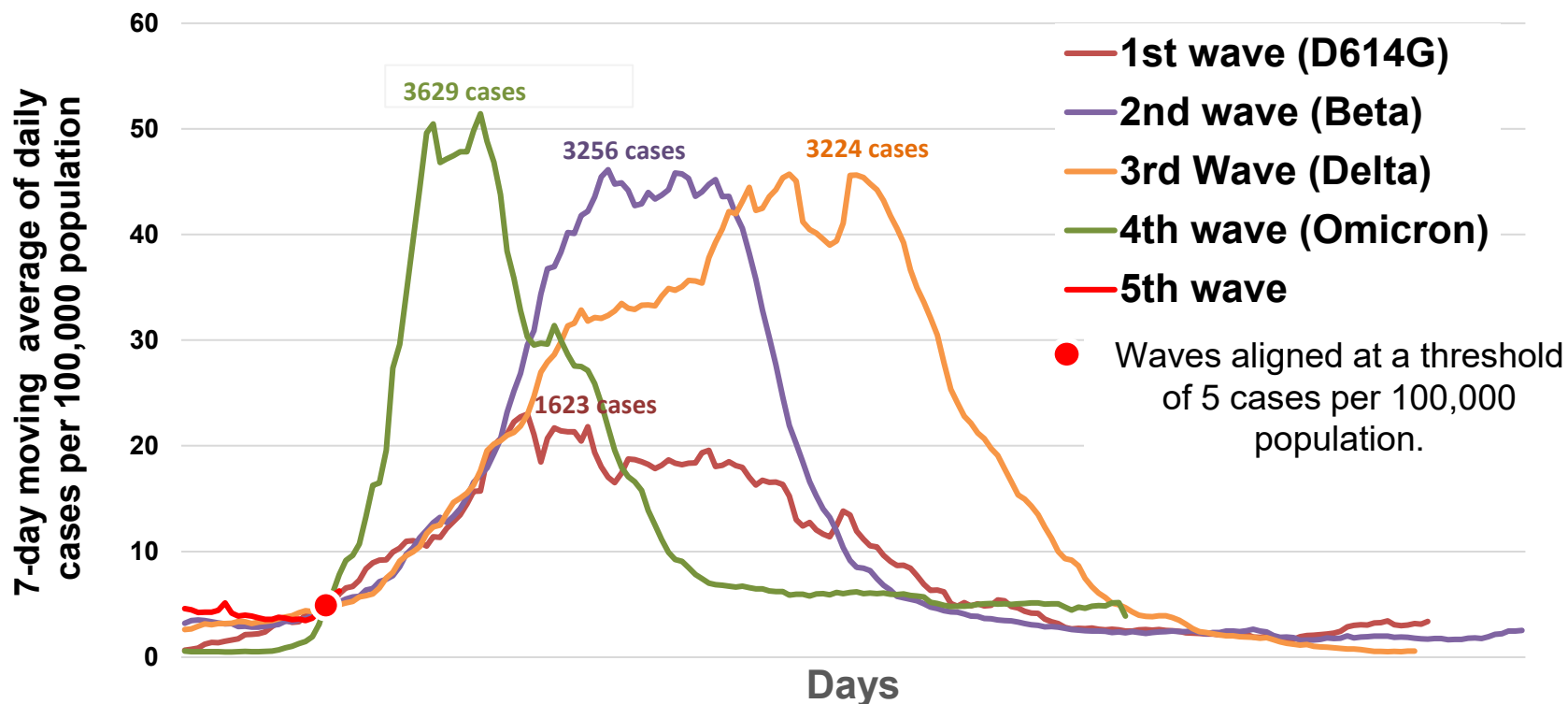
7-day moving average cases per 100,000 population
up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Western Cape

7-day moving average cases per 100,000 population
up to - 24 April 2022

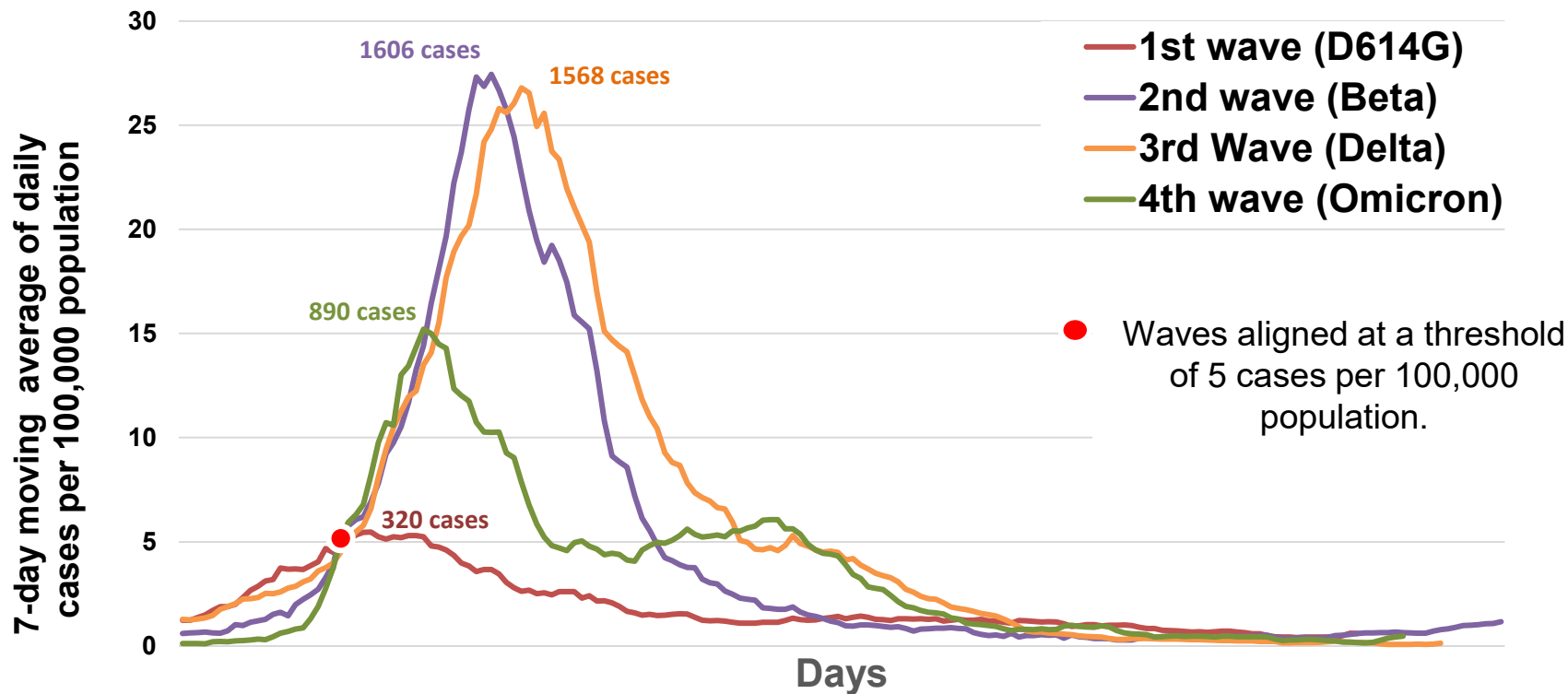


Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Limpopo

7-day moving average cases per 100,000 population

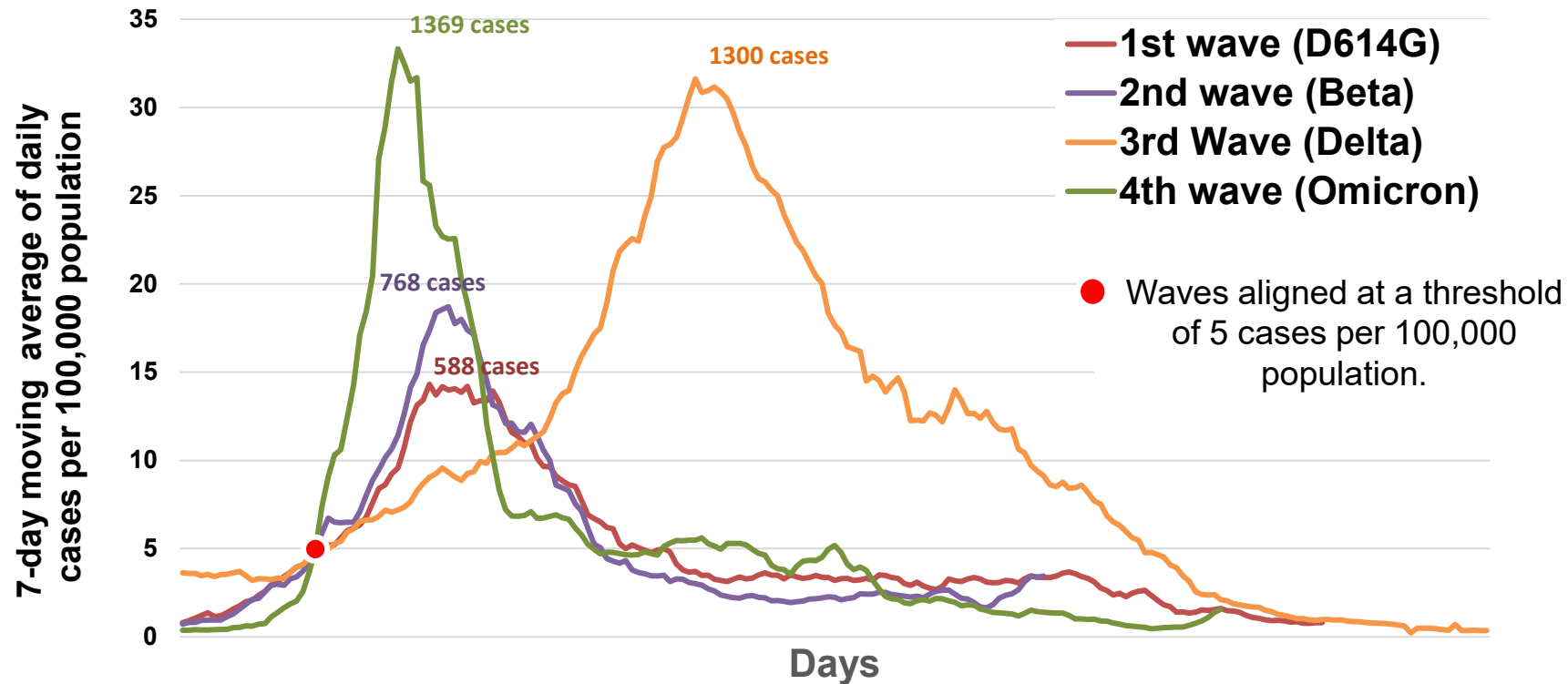
up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: North West

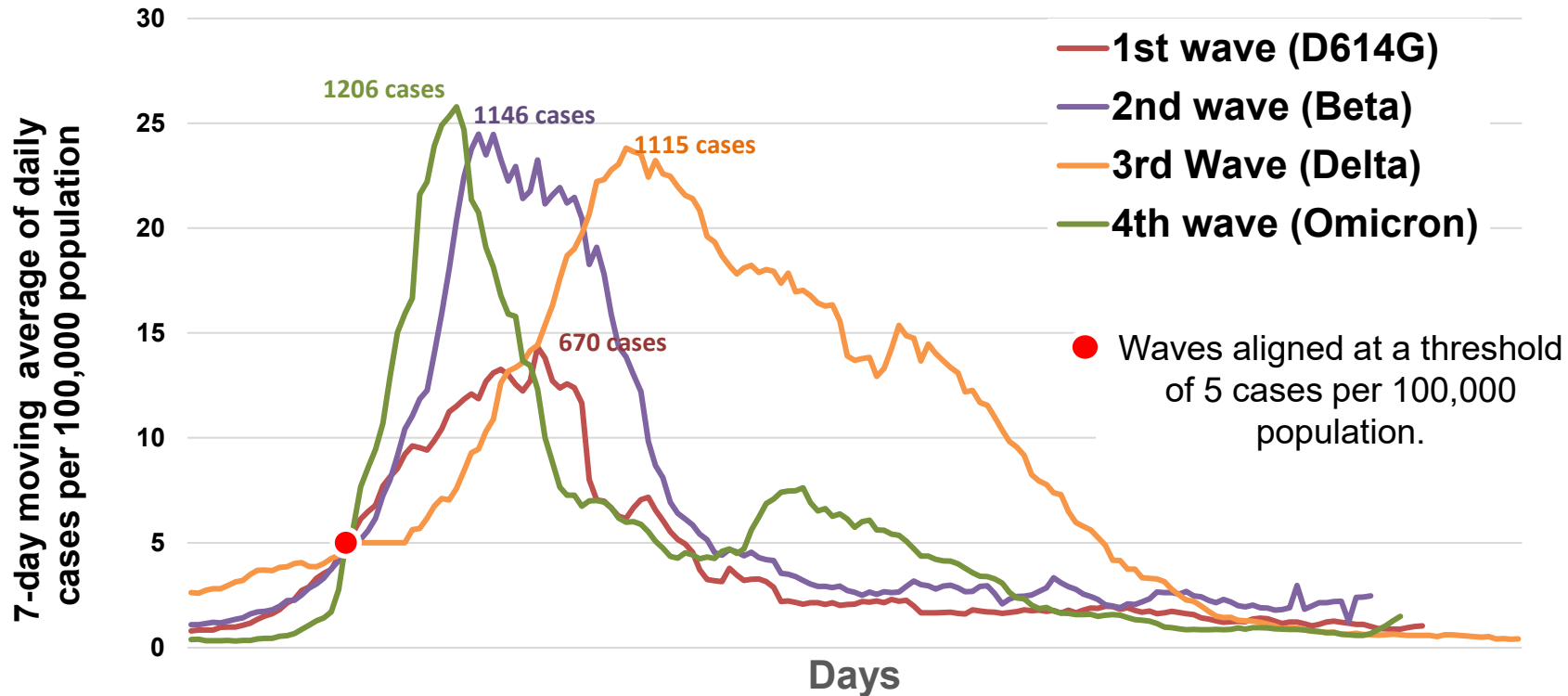
7-day moving average cases per 100,000 population
up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Mpumalanga

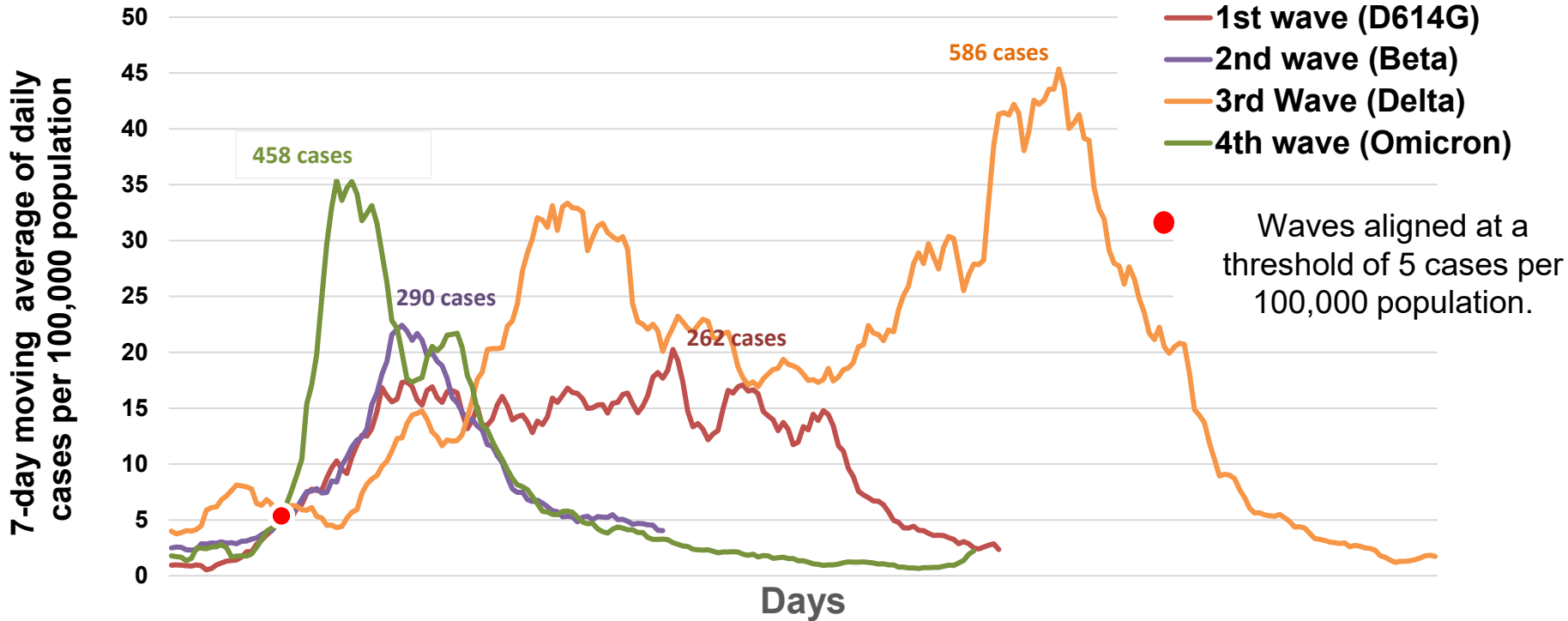
7-day moving average cases per 100,000 population up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Northern Cape

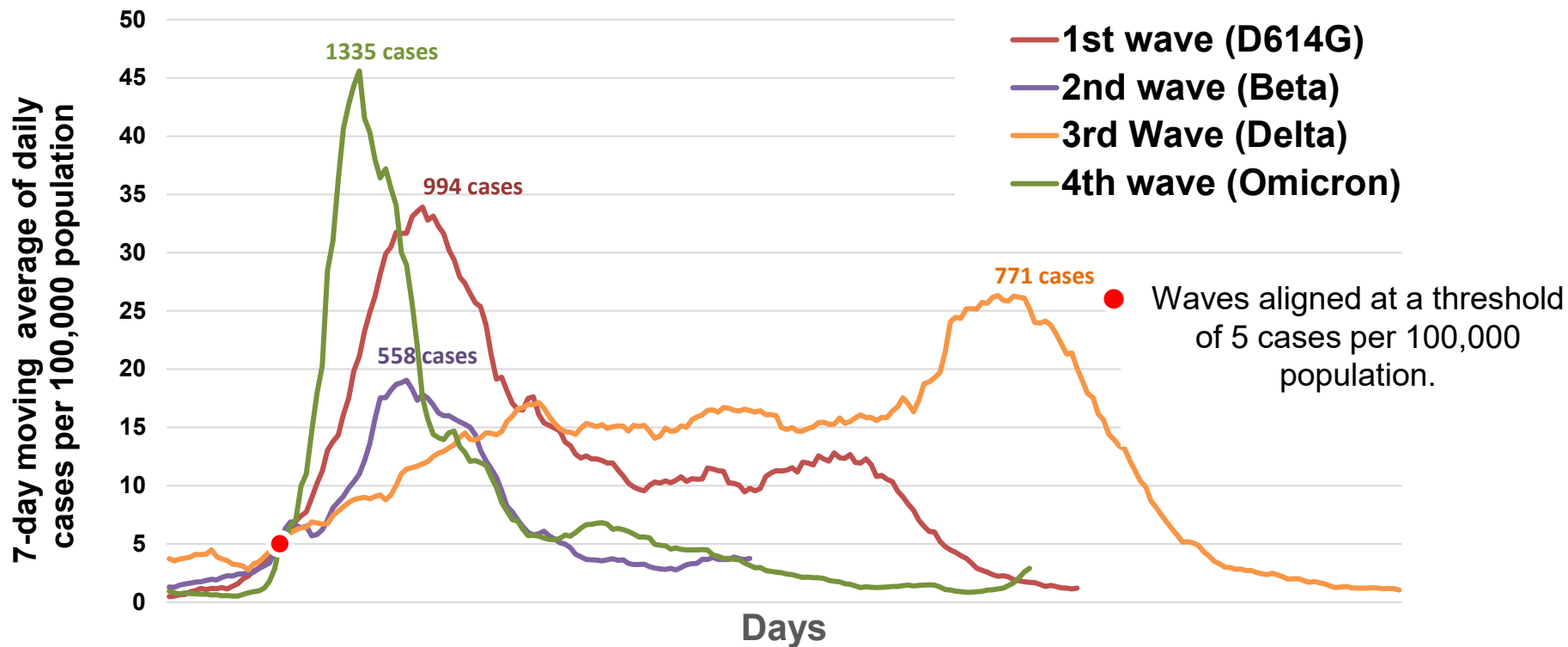
7-day moving average cases per 100,000 population
up to – 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Free State

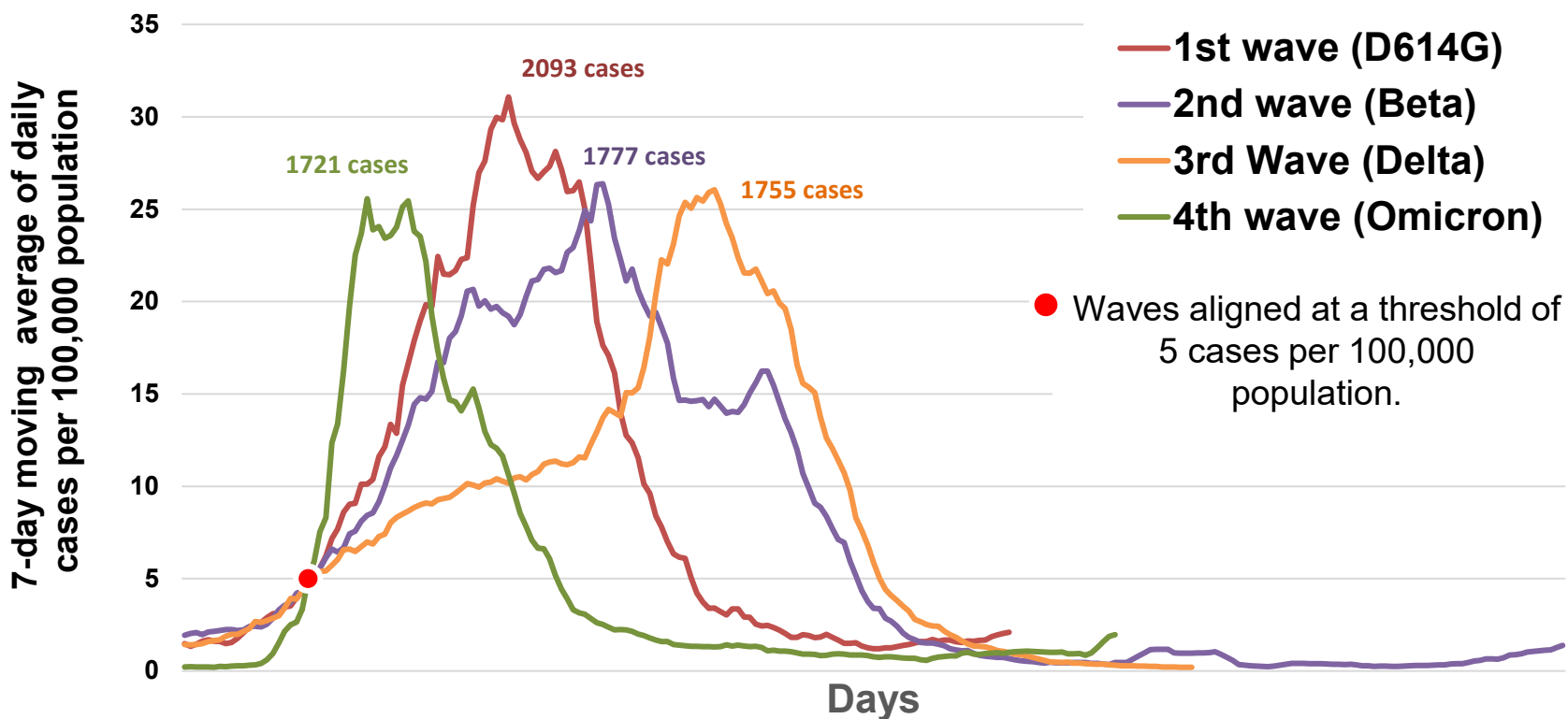
7-day moving average cases per 100,000 population up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu

SARS-Cov-2 cases in 1st, 2nd & 3rd and 4th waves: Eastern Cape

7-day moving average cases per 100,000 population
up to - 24 April 2022



Data source: Department of Health; Analysis: Marothi Letsoalo; Ande Mchunu