Update on the SARS-CoV-2 omicron variant

Los Angeles City Health Commission

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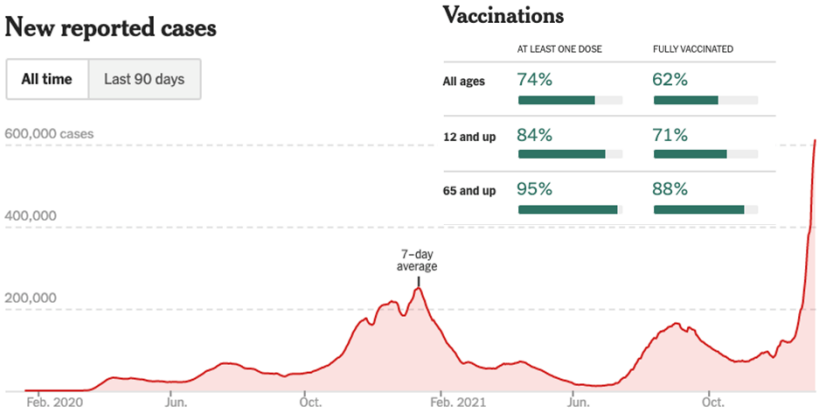
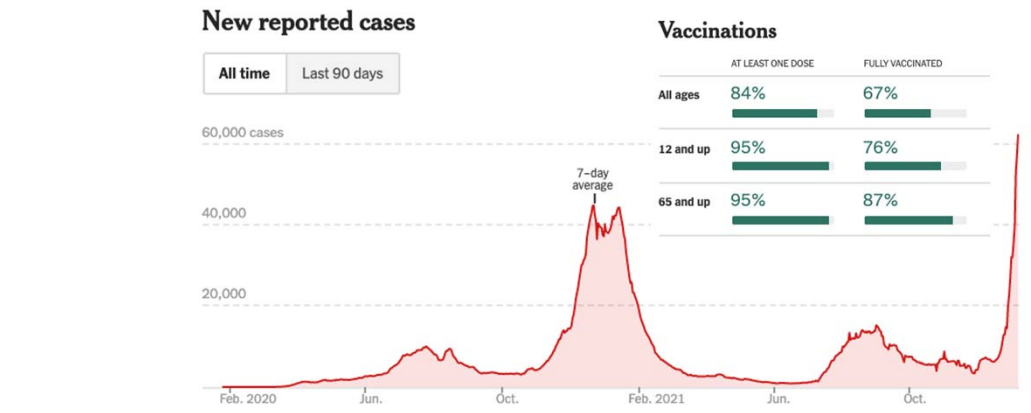
Five questions

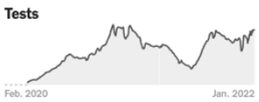
- Is there a significant difference in the quality and accuracy of at-home testing versus testing at centers with the Omicron variant?
- What is the severity of the Omicron variant among vaccinated and unvaccinated people?
- What are your major concerns about the Omicron surge in California and Los Angeles?
- Should hospitals be preparing for an influx in COVID-19 patients?
- Do you have any policy recommendations to LA City Council regarding COVID-19?

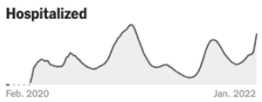
COVID-19 cases and hospitalizations are increasing in the US and California, January 2022

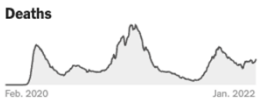
United States





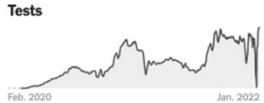


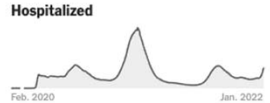


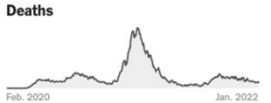


	DAILY AVG. ON JAN. 6	14-DAY CHANGE	TOTAL REPORTED
Cases	610,989	+227%	58,473,822
Tests	1,748,049	+20%	—
Hospitalized	116,029	+65%	—
Deaths	1,404	+2%	832,392

California



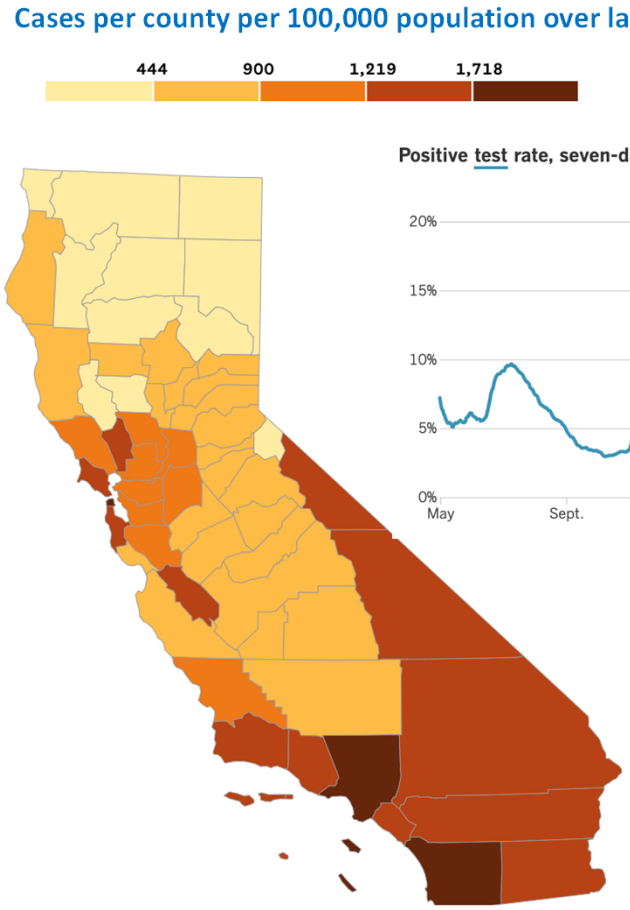


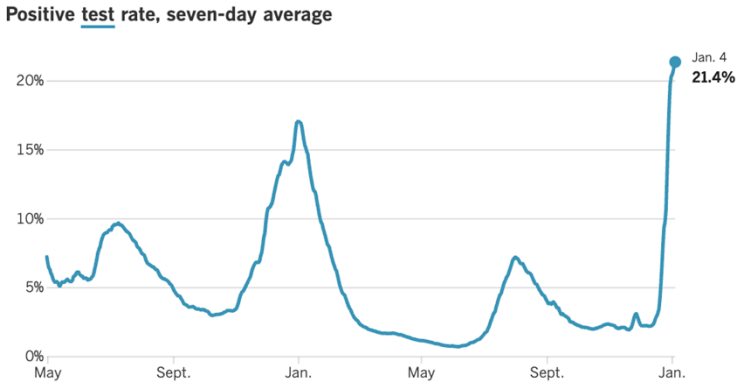


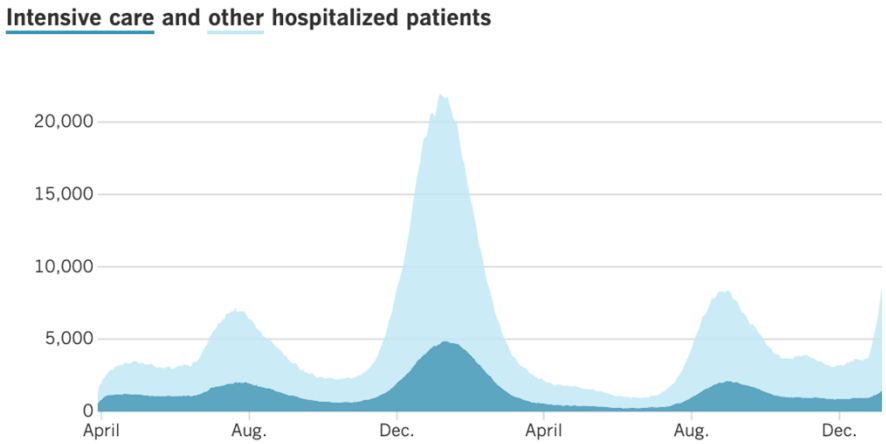
	DAILY AVG. ON JAN. 6	14-DAY CHANGE	TOTAL REPORTED
Cases	62,097	+455%	5,892,644
Tests	361,613	+22%	—
Hospitalized	7,901	+99%	—
Deaths	57	-13%	77,042

7 January 2022

Statewide indicators, SARS-CoV-2 infection, California, 2022







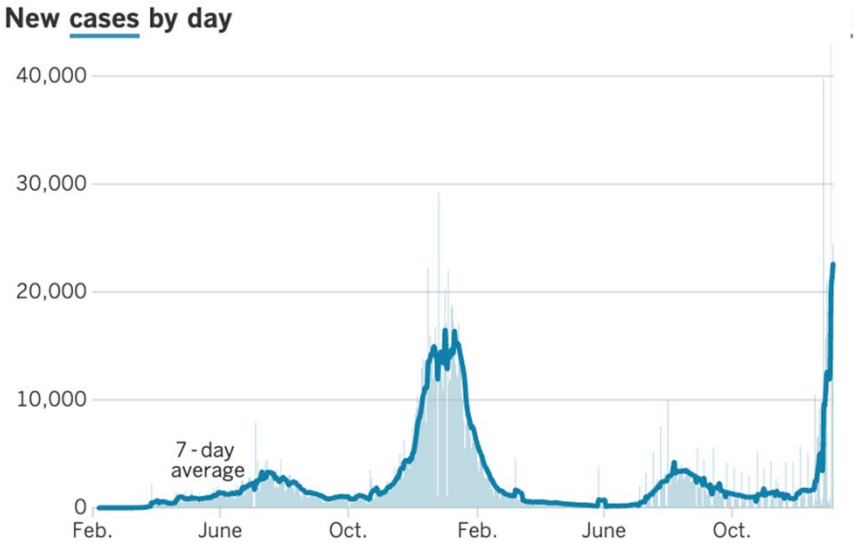
- R_e = 1.53
- 21.4% test positivity
- Hospitalizations 8671 (14-day change: +139%)
- Highest incidence in Los Angeles County (24 911 cases per day in the last 7 days, 245 cases per day per 10^5)

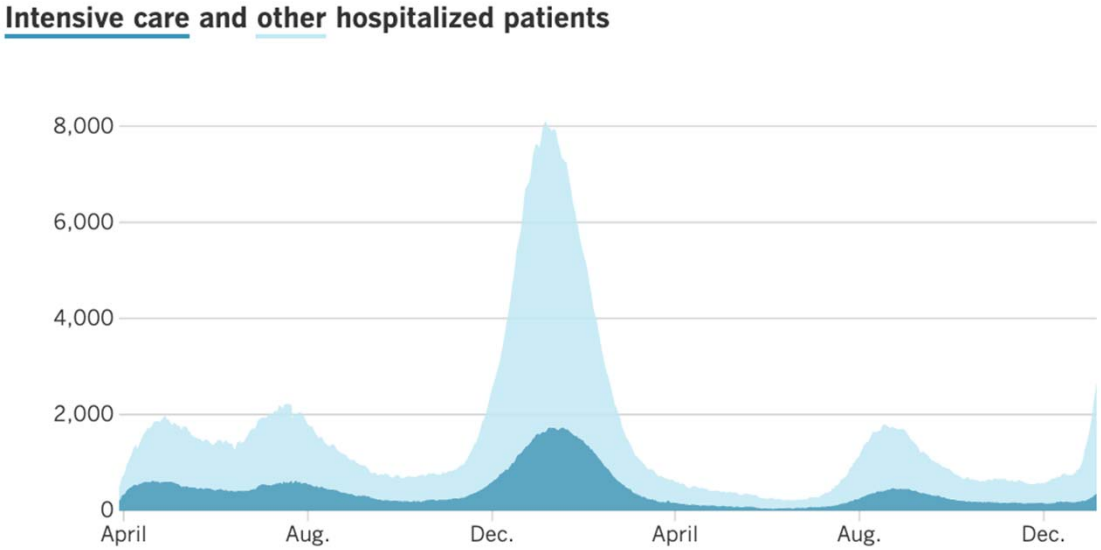
4 January 2022

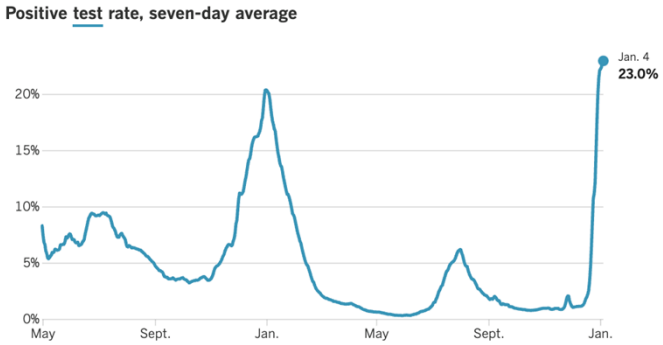
Where is most of the transmission taking place?

	CASES ▾ DAILY AVG.	PER 100,000	14-DAY CHANGE	HOSPITALIZED AVG. PER 100,000	14-DAY CHANGE	DEATHS DAILY AVG.	PER 100,000	FULLY VACCINATED
California	62,097	157	+455%	20	+99%	56.9	0.14	67%
Los Angeles ›	24,911	248	+446%	12	+54%	14.7	0.15	68%
San Diego ›	6,819	204	+491%	13	+19%	4.9	0.15	58%
Orange ›	4,610	145	+674%	12	+75%	1.9	0.06	68%
San Bernardino ›	3,300	151	+468%	25	+14%	5.1	0.24	53%
Riverside ›	3,266	132	+395%	17	+27%	5.0	0.20	55%
Santa Clara ›	2,693	140	+687%	8	+9%	0.9	0.05	82%
Alameda ›	2,056	123	+537%	8	+39%	2.4	0.14	78%
Sacramento ›	1,507	97	+428%	13	+23%	2.4	0.16	63%
Contra Costa ›	1,362	118	+601%	8	+61%	0.4	0.04	77%
San Francisco ›	1,336	152	+314%	6	+16%	0.7	0.08	81%

Countywide indicators, SARS-CoV-2 infection, Los Angeles County California, 2022







- R_e = 1.39
- 23.0% test positivity
- Hospitalizations 2 661 (14-day change: +232%)
- 76.7% have received ≥1 vaccine dose, 68.8% fully vaccinated

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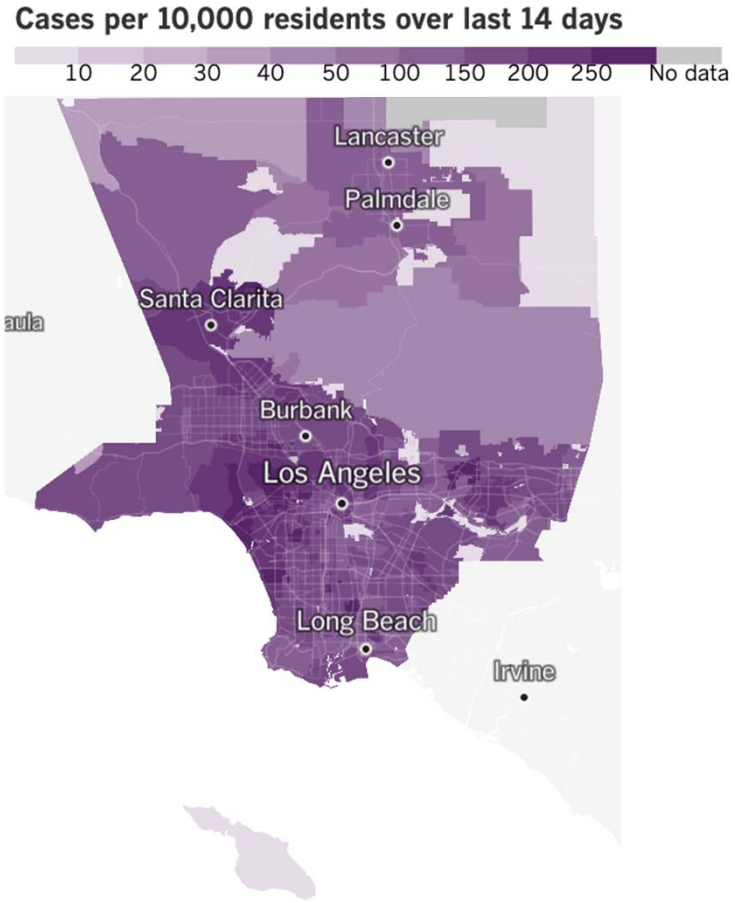
Countywide indicators, SARS-CoV-2 infection, Los Angeles County California, 2022



Area	Cases	Per 10k	▼ Last 14 days	Per 10k
Santa Clarita	34,139	1,549	4,406	200
Glendale	30,289	1,467	3,809	184
North Hollywood	29,564	1,952	3,017	199
Pomona	33,418	2,143	2,593	166
Santa Monica	10,245	1,108	2,522	273
Torrance	12,869	862	2,277	153
Inglewood	19,799	1,743	2,218	195
Downey	23,609	2,066	2,192	192
West Covina	18,294	1,690	2,191	202
Sherman Oaks	11,341	1,300	2,155	247

Fewer More

Mar 16 Jan 4

7 January 2022

COVID-19 vaccine doses administered, California, 2022

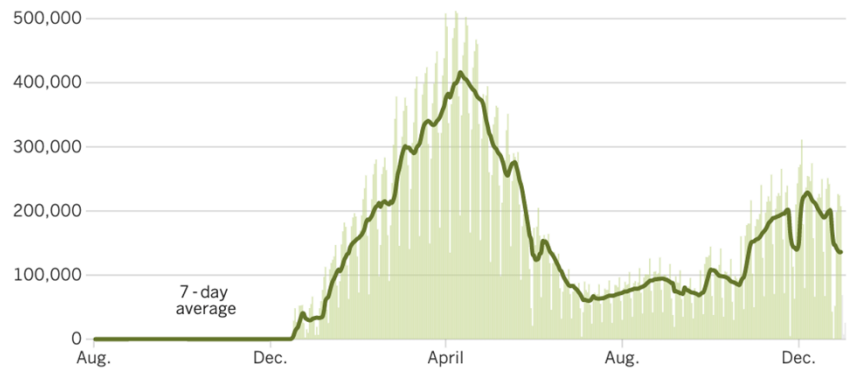
Currently vaccinating

- All Californians ≥5 years old
- Those requiring booster (≥12) and third doses

- 63 949 851 doses administered
- 136 855 average per day for the last 7 days
- 75% of Californians have received ≥1 dose
- 67.5% have been fully vaccinated
- 10 286 391 boosters administered (48.2% of those eligible)
- San Francisco: 88.4% with ≥1 dose, 81.9% fully vaccinated

Share of completed vaccinations by Pfizer, Moderna or Johnson & Johnson

Vaccine doses administered by day



County	Doses administered	At least 1 dose	▼ Fully vaccinated
Marin »	557,155	90.5%	84.1%
Santa Clara »	3,933,129	87.9%	82.0%
San Francisco »	1,816,122	88.4%	81.9%
Imperial »	353,482	105.8%	80.9%
San Mateo »	1,549,363	87.3%	80.1%
Contra Costa »	2,215,027	85.3%	79.8%
Alameda »	3,163,289	85.0%	78.7%
San Diego »	5,824,161	88.7%	76.9%
Sonoma »	916,245	80.1%	73.4%
Napa »	254,913	81.4%	73.2%

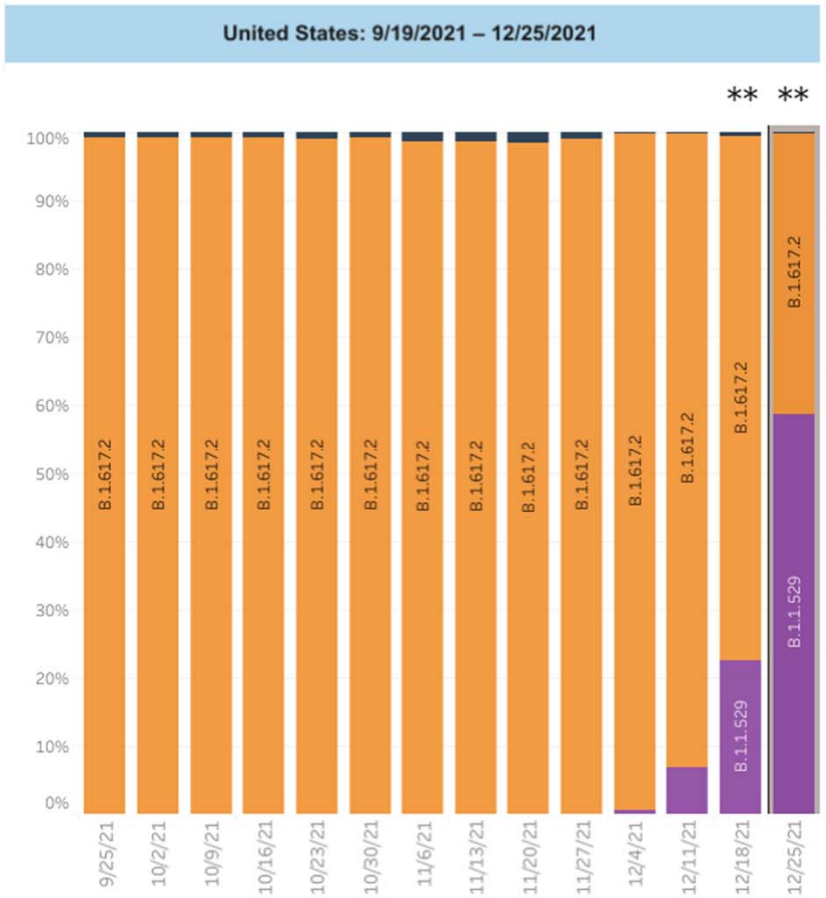
4 January 2022

SARS-CoV-2 variants of concern, United States and Region IX, 2021

Region IX including:

California, Arizona, Hawaii, Nevada and all territories

B.1.1.529 (o)	54.5%
B.1.617.2 (δ)	45.2%
Delta Plus (δ+)	0.1%
AY.2	0.0%
AY.1	0.1%
B.1.1.7 (α)	0.0%
P.1 (γ)	0.0%
B.1.621	0.0%
Other	0.5%



United States: 12/19/2021 – 12/25/2021 NOWCAST

USA

WHO label	Lineage #	US Class	%Total	95%PI
Delta	B.1.617.2	VOC	41.1%	25.8-58.2%
Omicron	B.1.1.529	VOC	58.6%	41.5-74.0%
Other	Other*		0.2%	0.1-0.4%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.

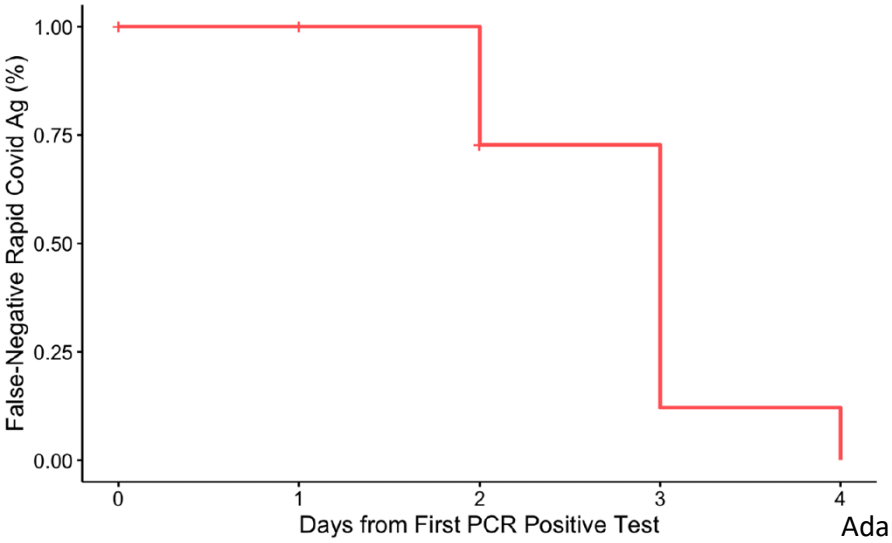
** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates

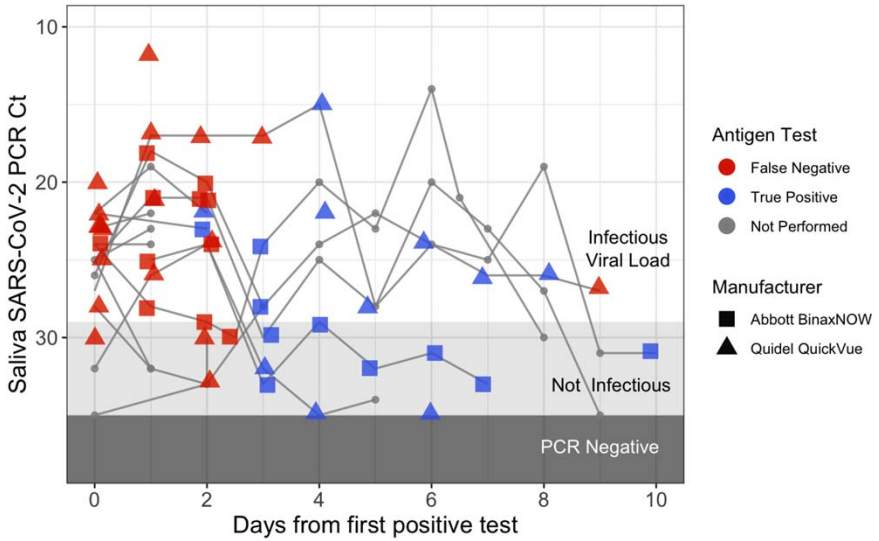
AY.1-AY.127 and their sublineages are aggregated with B.1.617.2. BA.1, BA.2 and BA.3 are aggregated with B.1.1.529.

3 January 2022

Performance characteristics of rapid antigen tests vs PCR for omicron variant

- Convenience sample of 30 matched rapid antigen and PCR test results from New York, Los Angeles and San Francisco





- Poor performance on days 0-2
- Nasal v salivary swabs?
- Small study, needs to be repeated
- No conclusion possible at this time re: negative predictive value of rapid antigen test

Adamson B, Sikka R, Wyllie AL, Premsrirut P. Discordant SARS-CoV_2 PCR and rapid antigen test results when infectious: a December 2021 occupational case series. medRxiv 2022 Jan 5 [Preprint].

Severity of omicron variant

- Series from South Africa, U.S., England, Scotland and Denmark have consistently found lower than expected hospitalization rates with the omicron variant
- Lower than expected oxygen utilization
- Lower than expected mortality
- Anecdotally vaccinated patients have less severe disease than unvaccinated patients
- Shorter incubation period (3 days as opposed to 4-5 with d and earlier variants

Table 1. Multivariable logistic regression analysis evaluating the association between S gene target failure (SGTF) infection, compared to non-SGTF infection, and hospitalisation, South Africa, 1 October – 30 November 2021[a] (N=11,255)

		Hospital admission[b] n/N (%)	Adjusted odds ratio (95% CI)	P-value
SARS-CoV-2 variant		N=11,495		
	SGTF	256/10,547 (2)	0.2 (0.1-0.3)	**<0.001**
	Non-SGTF	121/948 (13)	Ref	-

Wolter N, Jassat W, Walaza S, et al. Early assessment of the clinical severity of the SARS-CoV-2 omicron variant in South Africa. Med Rxiv 2021 Dec 21 [Preprint].

Concerns and policy considerations

- Omicron is surging statewide with highest incidence in Los Angeles County
- Suboptimal vaccination coverage and even lower booster coverage have facilitated this
- Hospitalizations have exceeded those in the summer 2021 surge but are far below winter 2021 surge
- Concern needs to focus on hospital capacity – keeping patients out and keeping staff working
- Mandatory vaccination and boosting are key
- Pay particular attention to health care facilities, including nursing homes
- Do not underemphasize the ability of the omicron variant to cause hospitalization and severe disease
  - While it may be less risky per person, there are so many more people getting infected
  - We have no idea about risk of post-acute COVID (long-haul) with omicron