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Stay Prepared
Stay Informed
CALTCM.org**

COVID-19 Webinar Series

February 14, 2022

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Webinar Planning Committee

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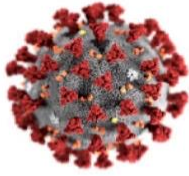


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Upcoming Webinars & Events

COVID Webinar: March 7

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PALTC22
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 THE SOCIETY
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March 11

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ACCEPTED FOR MOC CREDIT

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Save the Date

2022 CALTCM

Summit for Excellence

Annual Meeting
October 6-7 | Pacific Palms Resort & Spa
www.calctcm.org



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Committee Work

- If you are interested in joining one of CALTCM's many committees, please email info@caltcm.org.
 - Clinical Practice
 - Education
 - Marketing & Membership
 - Public Policy
 - Wave Committee
 - CALTCM Wellness
 - Currently planning future activities and would like your input via the following poll.



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Poll

CALTCM Social
Networking Events
Open to Members &
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Webinar Faculty

Raymond Chinn, MD, FIDSA, FSHEA

Epidemiology & Immunization Services
Branch

County of San Diego Health & Human
Services Agency

San Diego, CA



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Webinar Faculty

Dolly Greene RN, BSN, CIC

Infection Prevention & Control Resources

Expert Stewardship

Los Angeles, CA



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Webinar Faculty

Jay Luxenberg, MD

Chief Medical Officer, On Lok
CALTCM, Wave Editor-in-Chief
San Francisco, CA



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Webinar Faculty

Heather D'Adamo, MD

Staff Attending Physician, Community Living
Center, VA Greater Los Angeles; Assistant
Professor, UCLA Geriatrics; Director of SNF
and LTC Curriculum of the VA UCLA Geriatrics
Fellowship



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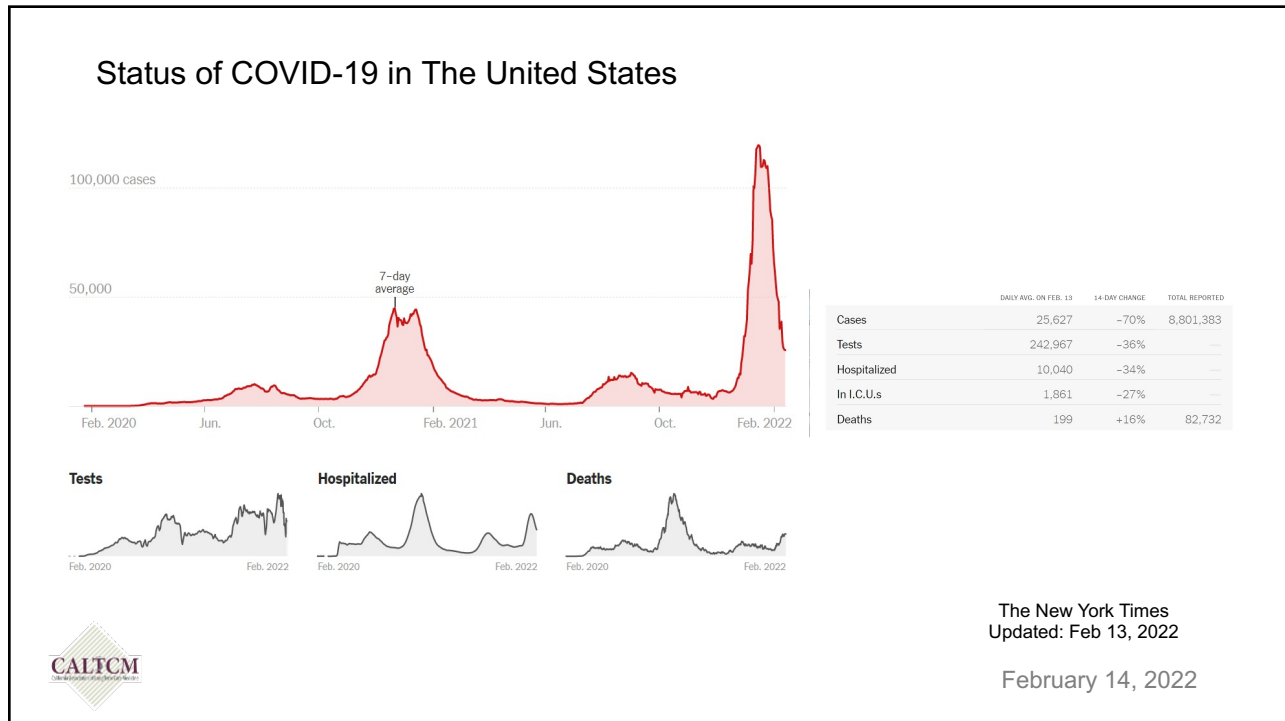
Topics for Discussion

- Review status of the pandemic
- Characterize the Omicron sublineage variant, the BA.2: an emerging threat?
- Discuss the benefits of COVID-19 vaccine boosters in those who are booster eligible
- Update the therapeutic options for management of COVID-19 in long-term care facilities

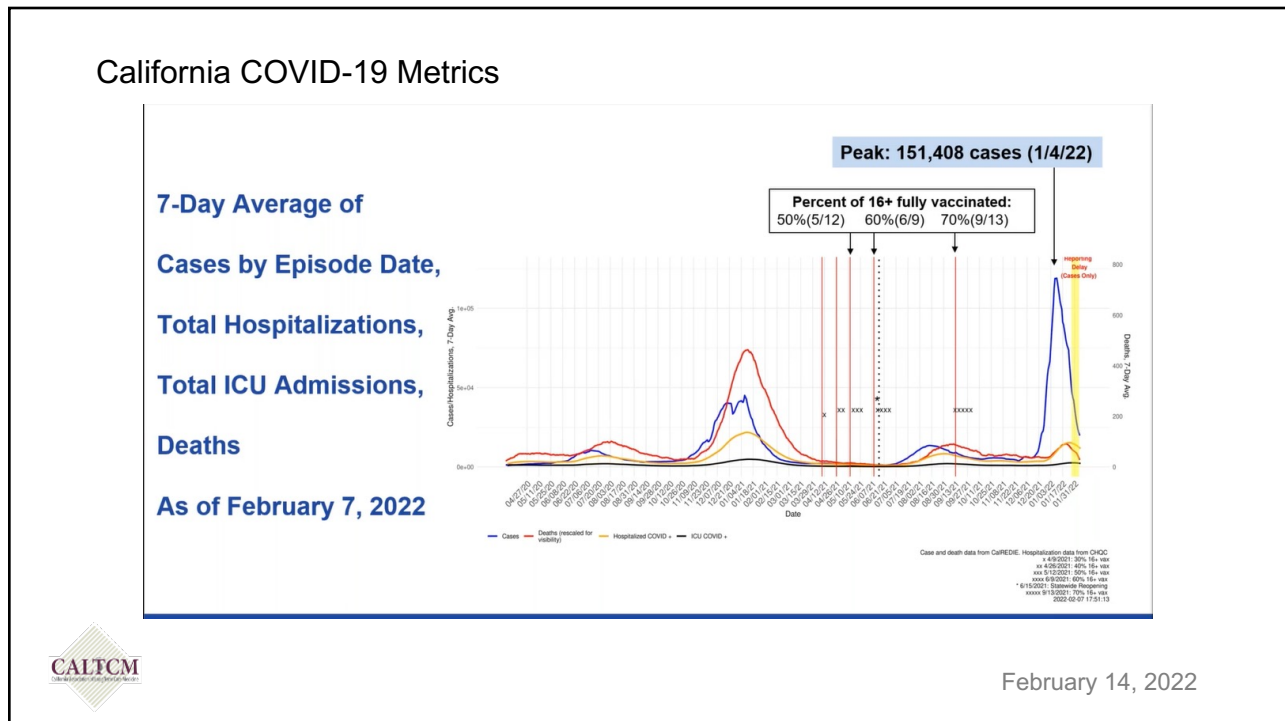


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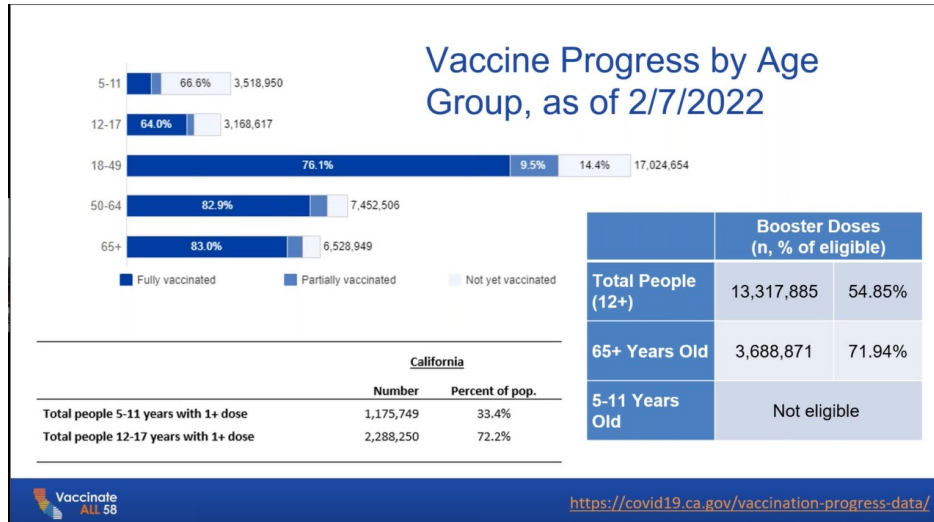


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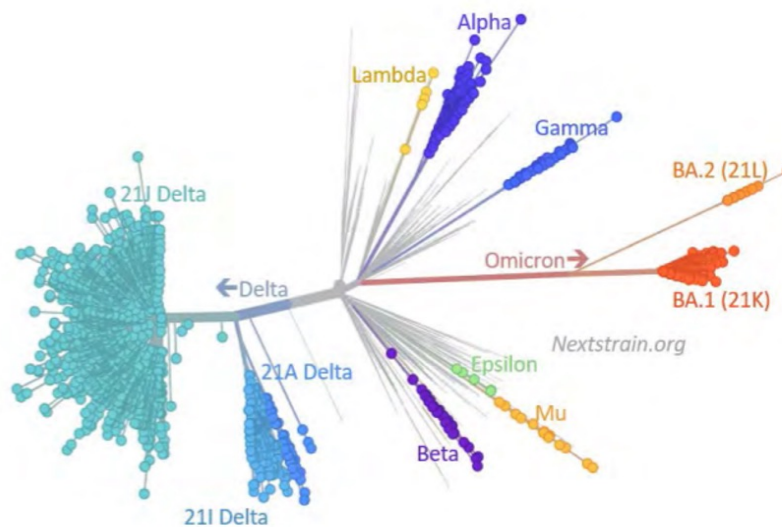
California COVID-19 Metrics



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The Omicron Variant



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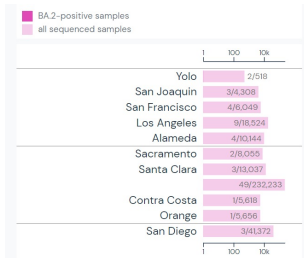
The Omicron Subvariants



Summary

As of 8 February 2022 12:26 AM, 47,134 sequences in the BA.2 lineage have been detected since the lineage was identified:

location	BA.2 found		when found**	
	total	cumulative prevalence*	first	last
Worldwide	47,134	2%	15 Nov 2021	3 Feb 2022
California, United States	81	< 0.5%	24 Dec 2021	26 Jan 2022
United States	460	< 0.5%	14 Dec 2021	30 Jan 2022



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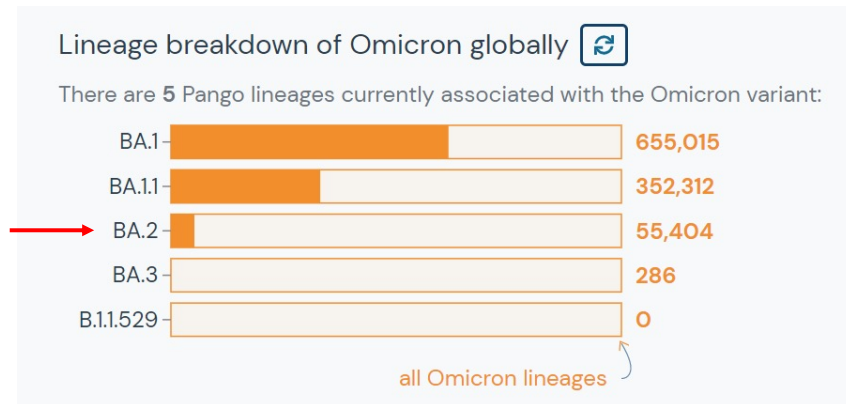
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Omicron Sublineage: BA.2 – The Stealth Variant, a Cause for Concern?

Results

COVID-19 : Positive SARS-CoV-2

C_T values for viral gene targets : Orf1ab (31.9), N (32.93), S (0)



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The Danish Study: A Comparison of Omicron Subvariants BA.1 and BA.2

- Household study in Denmark comparing two Omicron subvariants: BA.1 and BA.2 from late December 2021 to early January 2022
- BA.2 has rapidly replaced BA.1
- The secondary attack rate (SAR) was estimated as 29% and 39% in households infected with Omicron BA.1 and BA.2, respectively
- BA.2 was associated with an increased **susceptibility** of infection for unvaccinated individuals (Odds Ratio (OR) **2.19**; 95%-CI 1.58-3.04), fully vaccinated individuals (OR **2.45**; 95%-CI 1.77-3.40) and booster-vaccinated individuals (OR **2.99**; 95%-CI 2.11-21 4.24), compared to BA.1.
- Increased **transmissibility** from unvaccinated primary cases in BA.2 households when compared to BA.1 households, with an OR of **2.62** (95%-CI 1.96-3.52). The pattern of increased transmissibility in BA.2 households was **not observed for fully vaccinated and booster-vaccinated** primary cases, where the OR of transmission was below 1 for BA.2 compared to BA.1.



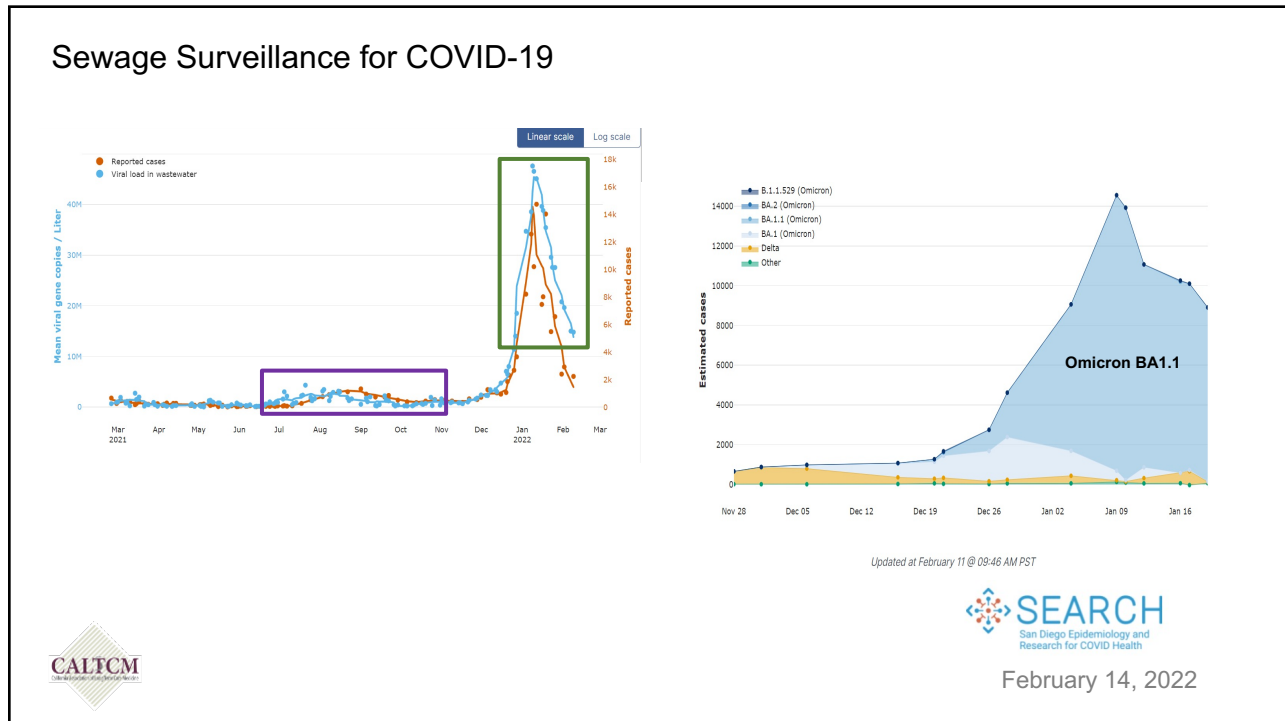
Lyngse FP, et al. <https://doi.org/10.1101/2022.01.28.22270044doi>

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Sewage Surveillance for COVID-19

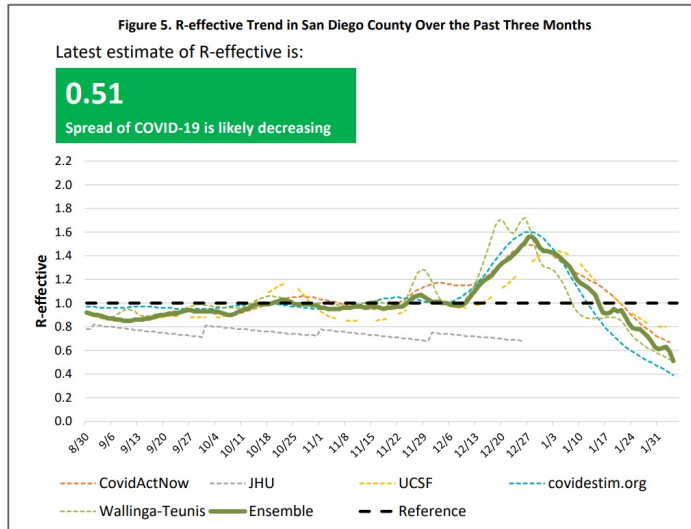
Sewer ID	County	Population	Date Start	Date End	% change 15d days	Detect Ct value < 40
	Imperial	40,000	1/27/2022	02/10/2022	-91.0%	100%
	San Diego	2,200,000	1/27/2022	02/10/2022	-98.0%	100%
	Los Angeles	3,500,000	1/27/2022	02/10/2022	-9.0%	100%
	Humboldt	45,000	1/27/2022	02/10/2022	-52.0%	100%
	Orange	1,800,000	1/27/2022	02/10/2022	1259.0%	100%
	San Francisco	750,000	1/27/2022	02/10/2022	-84.0%	100%
	San Mateo	199,000	1/27/2022	02/10/2022	-11.0%	100%
	Santa Clara	110,338	1/27/2022	02/10/2022	-12.0%	100%

<https://data.cdc.gov/Public-Health-Surveillance/NWSS-Public-SARS-CoV-2-Wastewater-Data/2ew6-ywp6/data>

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R-Effective Trend: Prediction for the Future



- The effective reproduction number (R effective or R-*eff*) is the average number of people each infected person will pass the virus onto and represents the rate at which a virus is spreading. If R-*eff* > 1, the number of infected persons will increase; if R-*eff* < 1, the number of infected persons will decrease; if R-*eff* = 1, the number of infected persons is constant.
- R effective should be interpreted with caution. It is based on a theoretical set of assumptions to derive an average number across San Diego County. It does not take into account factors such as local population density or social behavior.
- These R effective estimates come from the California COVID Assessment Tool Nowcasts (<https://calcat.covid19.ca.gov/cacovidmodels/>). Each estimate on the graph comes from a different group with different modeling methods. The ensemble takes the median of all the nowcasts available on a given date and smooths it with a three-day moving average.



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Treatment and Prophylaxis

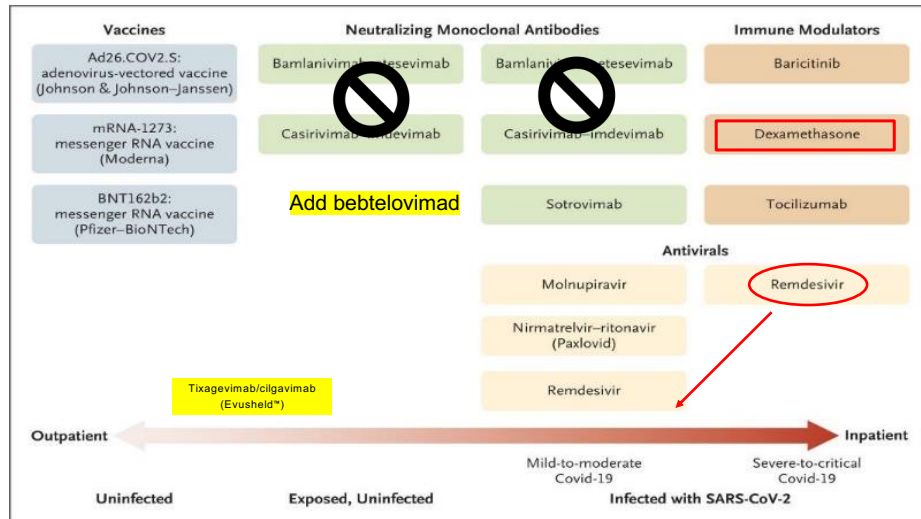


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COVID-19 Therapeutics



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Advanced Therapeutics for Omicron

Rx	Risk Reduction	When Requires (+) Test	Route	Duration	Availability
Sotrovimab	79%	Within 10 days of symptom onset	IV	Single Infusion	Pharmacies and local health departments
Bebtelovimab	??	Within 10 days of symptom onset	IV over 30 secs	Single Infusion	Pharmacies and local health departments
Paxlovid (nirmatrelvir/ritonavir)	89%	Within 5 days of symptom onset	PO	5 days	COVID-19 Therapeutics Locator (arcgis.com)
Remdesivir	87%	Within 7 days of symptom onset	IV	3 days	Order through AmeriSource Bergen
Molnupiravir	30%	Within 5 days of symptom onset	PO	5 days	COVID-19 Therapeutics Locator (arcgis.com)
Pre-exposure Prophylaxis	Risk Reduction	When	Route	Duration	Availability
Evusheld (tixagevimab/cilgavimab)	77%	Q 6 mo; for the immunocompromised	IM	2 Consecutive Injections	Healthcare systems; local health department



Slide adapted from Albert Lam, MD

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Bebtelovimab: A New Monoclonal Antibody

- No change in pseudotyped virus-like particle neutralization data for Omicron BA.1, BA.1.1, BA.2
- Clinical studies were conducted BEFORE the Omicron variant
- Efficacy shown in non-high-risk individuals
- Efficacy analyses for high-risk individuals are limited by lack of a concurrent placebo control arm

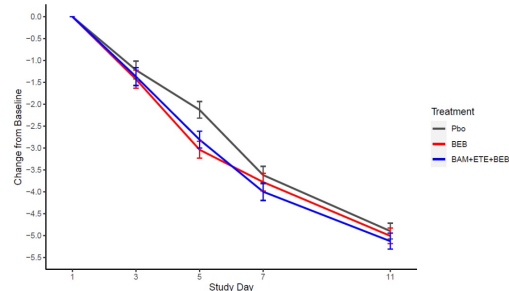


Figure 1: SARS-CoV-2 Viral Load Change from Baseline (Mean ± SE) by Visit from the Placebo-Controlled Portion of BLAZE-4 in Low Risk Adults (700 mg bamlanivimab, 1,400 mg etesevimab, 175 mg bebtelovimab together and 175 mg bebtelovimab alone).

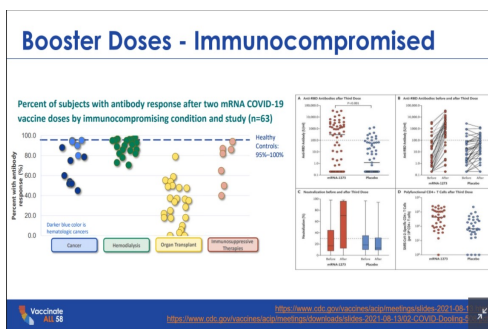
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Evusheld™ (tixagevimab/cilgavimab) for Pre-exposure Prophylaxis

- Limited Supply: 2 IM injections once, then q 6 months
- High risk patients who are 12 years or older, weighing at least 40kg and who would not have a robust response to immunization



Tier	Characteristics
1	<ul style="list-style-type: none"> • Immunocompromised, not expected to mount an adequate immune response to COVID-19 vaccine or SARS-CoV-2 infection due to their underlying conditions, regardless of vaccine status; or • Unvaccinated individuals at the highest risk of severe disease (anyone aged ≥75 years or anyone aged ≥65 years with additional risk factors).

- **AND**, not currently infected with COVID-19 or exposed to COVID-19
- Slight increased cardiac complications in those who preceding cardiac disease



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Update on Vaccination in Skilled Nursing Facilities Booster Hesitancy



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Death Statistics and Booster Doses for COVID-19 in the United States

[U.S. Has Far Higher Covid Death Rate Than Other Wealthy Countries](#)

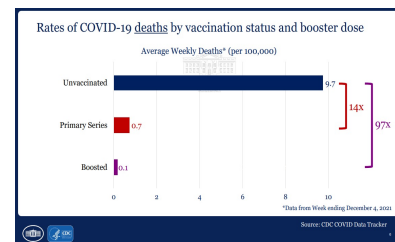
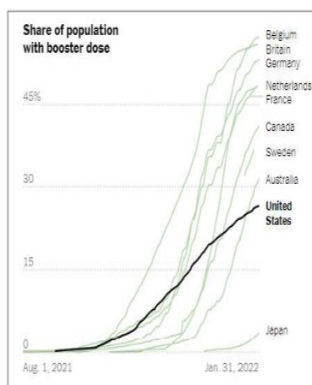
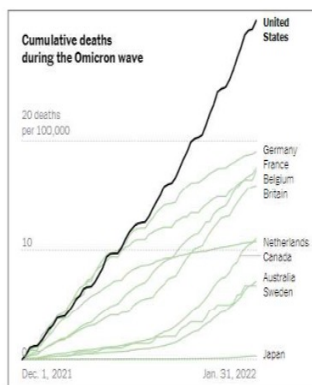
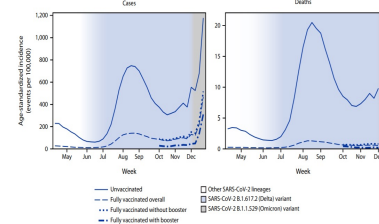


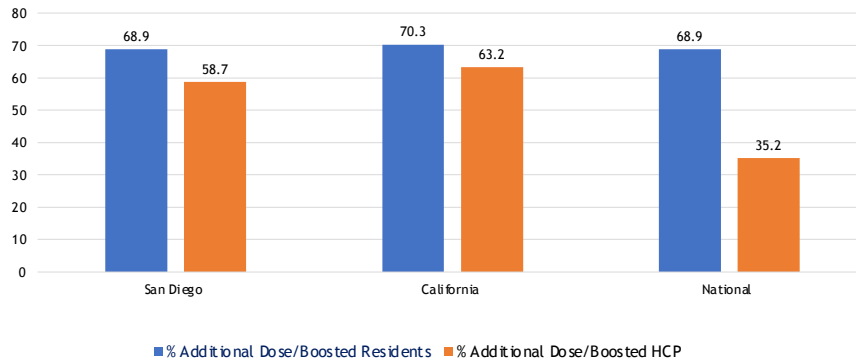
FIGURE Weekly trends in age standardized incidence of COVID-19 cases (April 4-December 21, 2021) and deaths (April 4-December 4, 2021) for unvaccinated compared with fully vaccinated persons, "overall and by receipt of booster dose" and national-weighted estimates of variant proportions* — 21 U.S. jurisdictions



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Booster Doses In Skilled Nursing Facilities



[Nursing Home COVID-19 Vaccination Data Dashboard | NHSN | CDC](#) data through 2.7.22



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Summary: Booster Hesitancy

- Being “fully vaccinated” confers minimal or no protection against the Omicron variant; however,
- A booster dose has been shown to restore neutralization of pseudovirus (a correlate of protection)
- Vaccination reduces the risk of the long-hauler syndrome, even after 1 dose in those with COVID-19 infection. The lowest risk of long haul COVID-19 was among those with breakthrough infections (vaccinated, then infected)
- Despite the absence of long haul COVID-19 symptoms, a “brain fog” (reduced attention duration and ability to retain) develops but dissipates over 6-9 months
- Parental vaccination/booster (cocoon effect) is protective of children from COVID-19

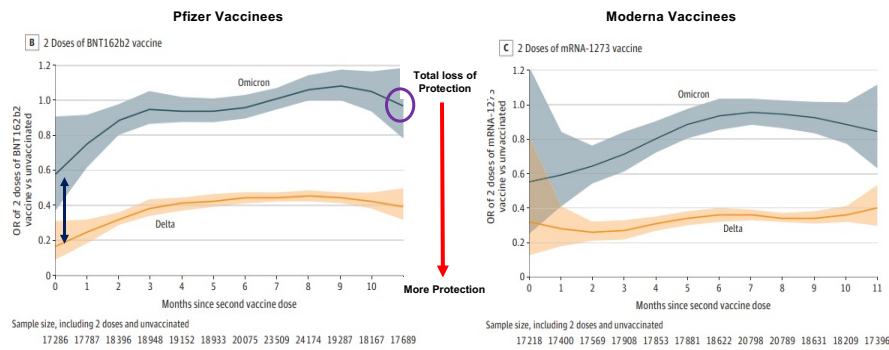


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Why is a Booster Necessary After the Primary Series of mRNA COVID-19 Vaccines?

Two Doses are **NOT** Adequate: the Continued Loss of Efficacy Over Time: A Comparison of Omicron with the Delta Variant



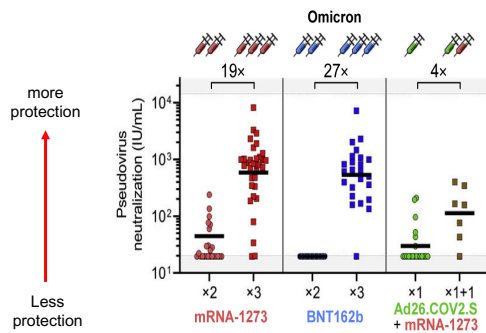
Garcia-Beltran et al. Cell. Dec 23, 2021
[https://www.cell.com/cell/fulltext/S0092-8674\(21\)01496-3](https://www.cell.com/cell/fulltext/S0092-8674(21)01496-3)



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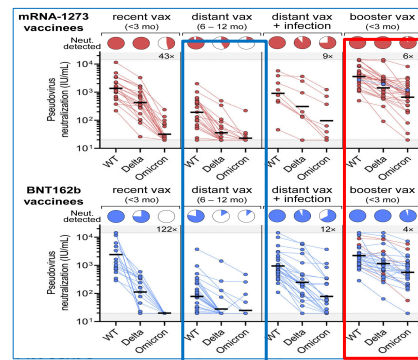
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The Impact of Vaccine Boosters on the Omicron Variant



Key Points:

- After primary vaccine series (x2 for Moderna (in red) and Pfizer (in blue) and x1 for J&J – in green): no neutralization, i.e., no protection
- After booster (x3 for Moderna and Pfizer and x1 (J&J) + 1 (Moderna) – substantial neutralization
- Cell mediated immunity not measured



WT = wild type

- Vaccination series most effective for WT, then Delta, and least effective for Omicron
- Protection wanes with time
- Vaccination followed by infection (breakthrough infection) confers better protection
- Measurement of protective antibody within 3 months of receiving booster doses of mRNA vaccine restores protective antibody

Garcia-Beltran et al. Cell. Dec 23, 2021
[https://www.cell.com/cell/fulltext/S0092-8674\(21\)01496-3](https://www.cell.com/cell/fulltext/S0092-8674(21)01496-3)



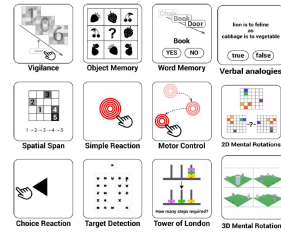
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Post COVID-19 Impact on Memory and Attention Span

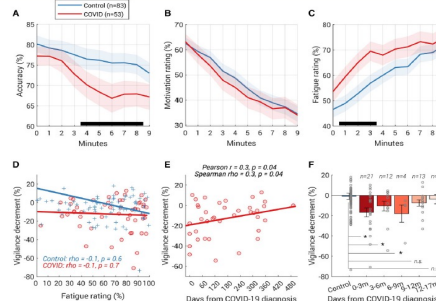
155 UK Participants

- Recruited for brain games
- Did not disclose intent
- Did ask about recent COVID
- None had been hospitalized; none had perceived symptoms of long haul COVID
- Matched on age



Results:

- Cognitive abilities (working memory, executive function, and planning) were normal; **however**, there were:
 - Reduced attention duration
 - Reduced ability to retain
 - Persisted for 6-9 months; but overall recovery with time



Zhao S et al. Brain Communications. Dec 2021
<https://doi.org/10.1093/braincomms/fcab295>

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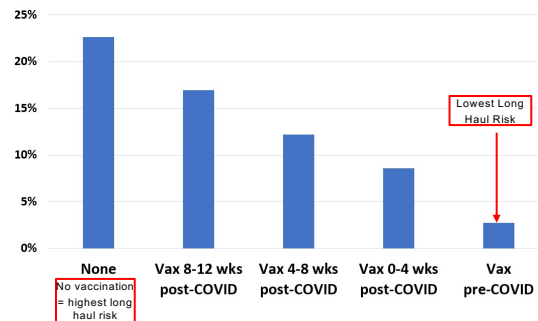
“I’ve Already Had COVID-19, Why Do I Still Need the Vaccine? What about Natural Immunity

Prevention of Long Haul Covid-19 After COVID-19 Infection
with Vaccination

Arcadia Research Data Set

- A review of 25,804,278 persons
- ~ 4% COVID = 1,065,626
- Study Period: Feb 2020 - May 2021
- ~ 23% (240,64) of persons infected with COVID-19 developed long haul COVID-19 – symptoms lasting beyond 12-20 weeks.
- **91.6% unvaccinated**
- Best protection: vaccinated then subsequent breakthrough infection
- Even after 1 dose of vaccine up to 12 weeks post-COVID was protective

Long Haul COVID Risk After COVID by Timing of First Dose COVID Vaccine



Graph courtesy of Dr. Susan Hwang



Simon MA et al. medRxiv preprint, Nov 2021 <https://doi.org/10.1101/2021.11.17.21263608>

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The Impact of Parental Cocoons on COVID-19 in Children

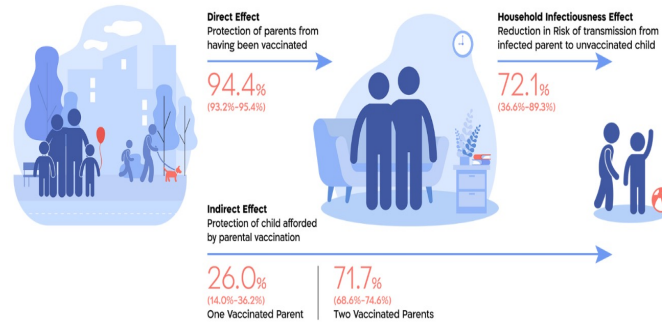
Science

REPORTS

Cite as: S. Hayek et al., *Science* 10.1126/science.aba3087 (2022).

Indirect protection of children from SARS-CoV-2 infection through parental vaccination

Samah Hayek¹, Galit Shaham¹, Yotri Ben-Shlomo¹, Eldad Kepten¹, Noa Dagan^{1,2,3,4}, Daniel Nevo¹, Marc Lipsitch¹, Ben Y. Reis^{5,6}, Ron D. Balicer^{2,7}, Noam Barda^{1,2,3,4,8}



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Miscellaneous

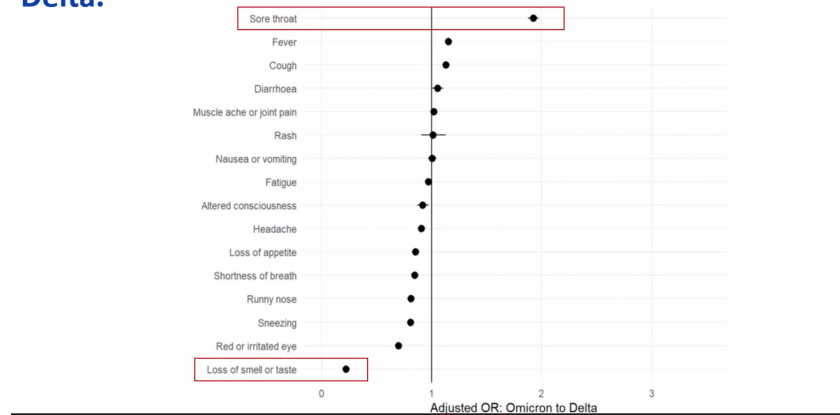


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Difference in Clinical Presentation: Delta vs. Omicron

Clinical presentation may differ for Omicron compared to Delta.

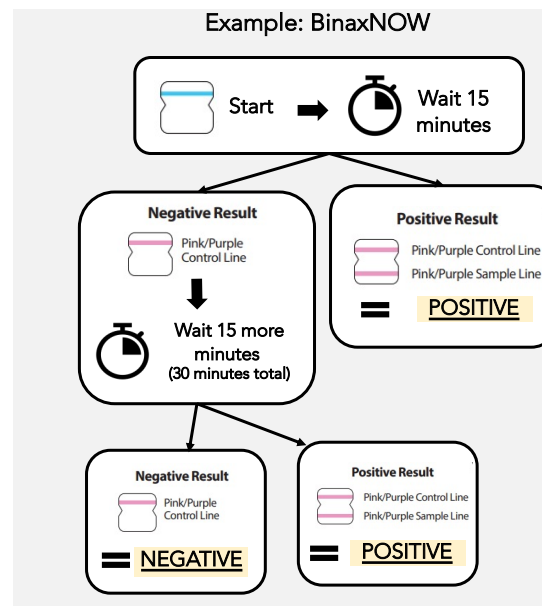


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Rapid Antigen Tests –WAIT !

- When using a rapid antigen test kit, wait the **full window** to read the result before determining it is **negative**.
 - For example, the BinaxNOW test kits instruct users to read the results after 15-30 minutes, so you should wait the **full 30 minutes** before determining it is negative.
- If, after the minimum amount of time, your test reads **positive**, you do not need to wait any longer.



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The Evidence for Masking

California COVID-19 Case Control Study

Frequency of Mask Use

All study respondents
N = 1947

At all the indoor public settings we discussed, did you wear a face mask all, most, some, or none of the time?

Never Sometimes Mostly Always

Type of mask

All participants enrolled after Sept 9
N = 580

At all the indoor public settings we discussed, what type of face mask did you typically wear?

N95/ KN95 Surgical Fabric

Effectiveness of Face Mask or Respirator Use in Indoor Public Settings for Prevention of SARS-CoV-2 Infection — California, February–December 2021

Kristin L. Andrieko^{1,2*}, Jake M. Pyy, PhD^{2,3}; Jennifer F. Myers, MPH²; Nozomi Fukui²; Jennifer L. DeGuzman, MPH²; John Openshaw, MD²; James P. Watt, MD²; Joseph A. Lewnard, PhD^{1,3,4}; Seema Jain, MD²; California COVID-19 Case-Control Study Team

Morbidity and Mortality Weekly Report

Summary

What is already known about this topic?

Face masks or respirators (N95/KN95) effectively filter virus-sized particles in laboratory settings. The real-world effectiveness of face coverings to prevent acquisition of SARS-CoV-2 infection has not been widely studied.

What is added by this report?

Consistent use of a face mask or respirator in indoor public settings was associated with lower odds of a positive SARS-CoV-2 test result (adjusted odds ratio = 0.44). Use of respirators with higher filtration capacity was associated with the most protection, compared with no mask use.

What are the implications for public health practice?

In addition to being up to date with recommended COVID-19 vaccinations, consistently wearing a comfortable, well-fitting face mask or respirator in indoor public settings protects against acquisition of SARS-CoV-2 infection; a respirator offers the best protection.



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Timing of Vaccination After Monoclonal Antibodies

• PREVIOUS

- Defer vaccination for 90 days post mAb **treatment**

• New

- No deferral period
- For **preexposure prophylaxis**: Evusheld™: administer 2 weeks **AFTER** vaccination



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Summary

- The incidence of COVID-19 appears to be decreasing
- The Omicron BA.2 sublineage has emerged; it has increased susceptibility, but NOT transmissibility in those who are vaccinated/boosted.
- A booster dose has been shown to restore neutralization of pseudovirus (a correlate of protection)
- Vaccination reduces the risk of the long-hauler syndrome, even after 1 dose in those with COVID-19 infection.
- Despite the absence of long haul COVID-19 symptoms, a “brain fog” (reduced attention duration and ability to retain) develops but dissipates over 6-9 months
- Parental vaccination/booster (cocoon effect) is protective of children from COVID-19
- Therapeutic options are available, as well as pre-exposure prophylaxis for the highly venerable population



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Q & A



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