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Stay Informed
CALTCM.org**

COVID-19 Webinar Series

July 18, 2022

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Webinar Planning Committee

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The banner features a dark blue background with a faint architectural pattern. On the left, the CALTCM logo is at the top, followed by the text "Download Our App" in large white font. Below this, it says "Download our App and get quick and easy access to forums and resources." A yellow button with the text "Download Today" is positioned below. At the bottom left, it says "Search for CALTCM in your App Store." In the center, a smartphone displays the CALTCM app interface. On the right side, there are two QR codes. The top one is associated with the "Download on the App Store" logo, and the bottom one is associated with the "GET IT ON Google Play" logo. At the bottom of the banner, there is a yellow bar with a globe icon and the text "Visit Our Website for More www.caltcm.org" and a phone icon with the text "More Information Call Us 888-332-3299".

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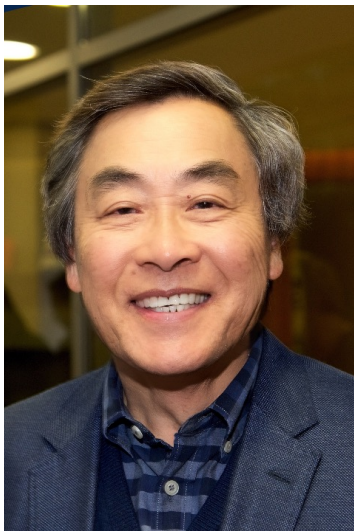
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Webinar Faculty

Raymond Chinn, MD, FIDSA, FSHEA

Epidemiology & Immunization Services
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Services Agency

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Webinar Faculty

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Infection Prevention & Control Resources
Expert Stewardship

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Webinar Faculty

Ashkan Javaheri, MD, CMD

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Webinar Faculty

Jay Luxenberg, MD

Retired Geriatrician
CALTCM, Wave Editor-in-Chief
San Francisco, CA



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Webinar Moderator

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Immediate Past-President, AMDA: The
Society for Post-Acute and Long-Term
Care Medicine

CALTCM BOD Member

Chief Medical Officer, Mariner Health Care
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San Diego, CA



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Webinar Faculty

Michael Wasserman, MD, CMD

Geriatrician

CALTCM, Immediate Past-President and
Chair, Public Policy Committee

Newbury Park, CA



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Topics for Discussion

- COVID-19 variants: A cause for alarm?
- COVID-19 vaccines: What we know and what we don't know
- Monkeypox: What is the threat?



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SARS CoV-2 Variants

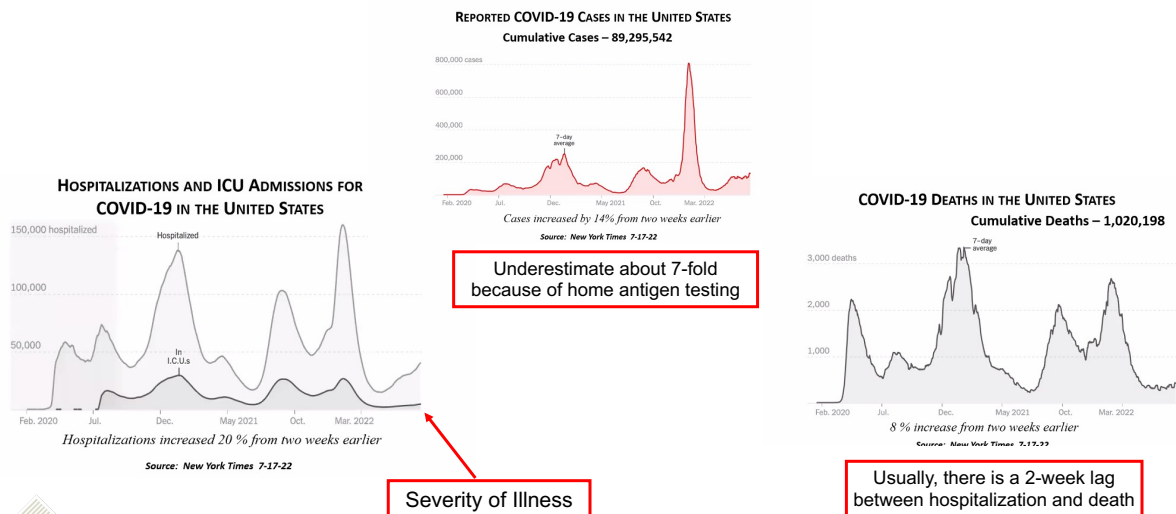
Omicron BA.4, BA.5, and BA.2.75

“America has decided the pandemic is over. The coronavirus has other ideas.”

The Washington Post

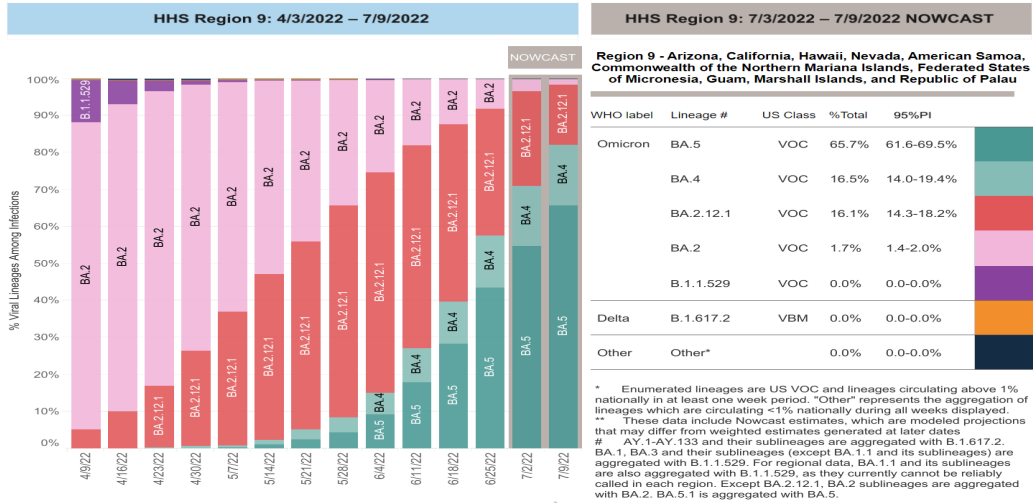
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The Status of COVID-19 in the United States



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SARS CoV-2 Surveillance: Emerging Variants



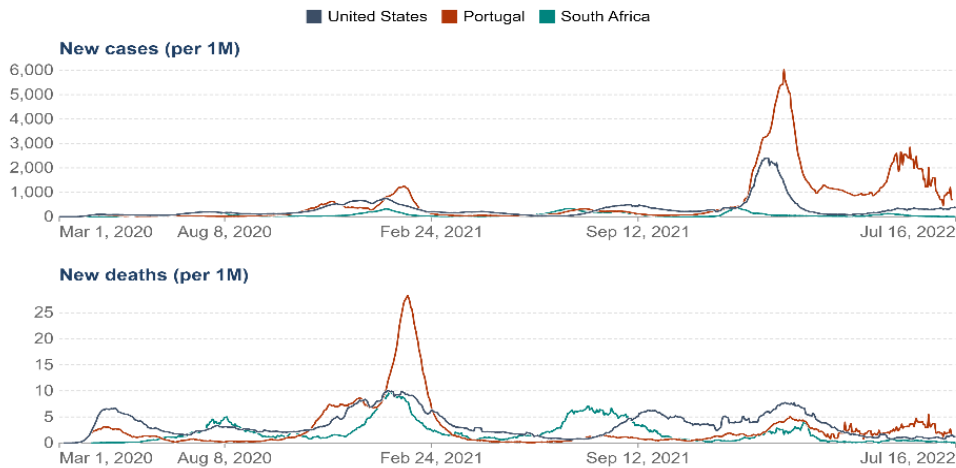
<https://covid.cdc.gov/covid-data-tracker/#additional-covid-data>

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Omicron BA5: A Tale of Three Countries

Daily new confirmed COVID-19 cases & deaths per million people
7-day rolling average. Limited testing and challenges in the attribution of cause of death means the cases and deaths counts may not be accurate.



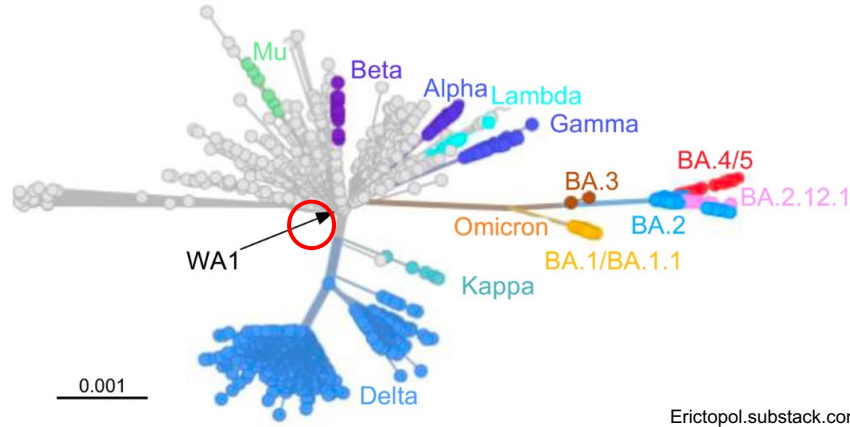
Source: Johns Hopkins University CSSE COVID-19 Data

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The Genetic Distance

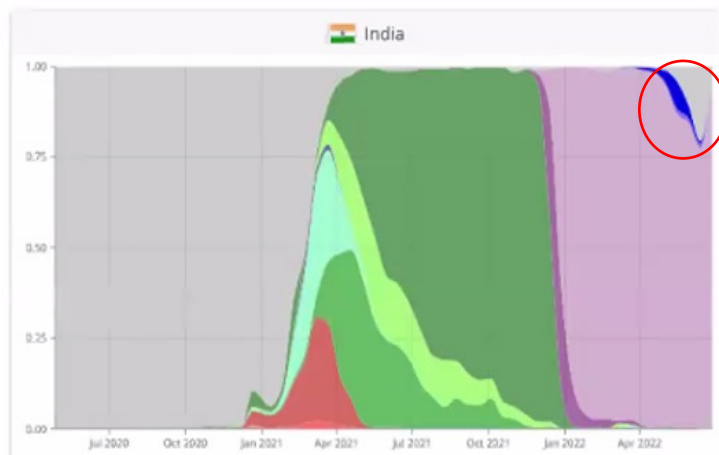
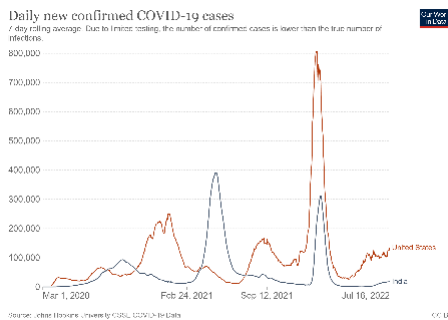
Genetic Distance of SARS-CoV-2 Variants



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Omicron BA.2.75 Variant



Comments:

- About 25% of all cases in India are now attributed to BA.2.75
- This variant is out-competing BA.5
- There have been rare cases documented in US and reported from 14 countries
- Mutations in spike protein may increase virus capability to immune evasion
- Too early to know whether this variant will replace BA.4/5



Courtesy of David Weber, MD

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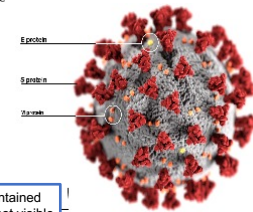
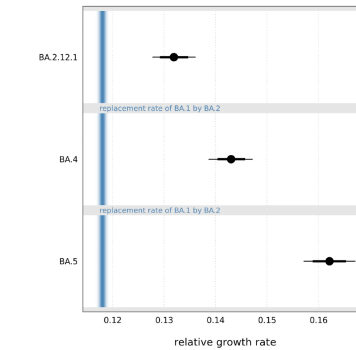
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Summary: A Very “Fit” Variant

- The Omicron BA.5 variant has a higher growth rate, a higher reproduction number, and generation time compared resulting in its survival advantage
- BA.5 mutations extend beyond the spike protein (non-spike mutations) and may result in further immune-escape
- BA.5 has a robust ability evading immunity – either from natural immunity or immunity acquired by vaccination compared to the Delta variant or earlier BA variants: “immune escape”
- Prior infection with the Delta variant is not very effective in preventing reinfection with BA.5; prior infection with BA.1 provides better, albeit incomplete protection
- Hospitalizations in the US appear to be increasing. It is unclear whether BA.5 will follow the path of South Africa or Portugal
- To date, there has been no increases of BA.2.75 outside of India; but this variant has the survival advantage of immune escape due to its mutations

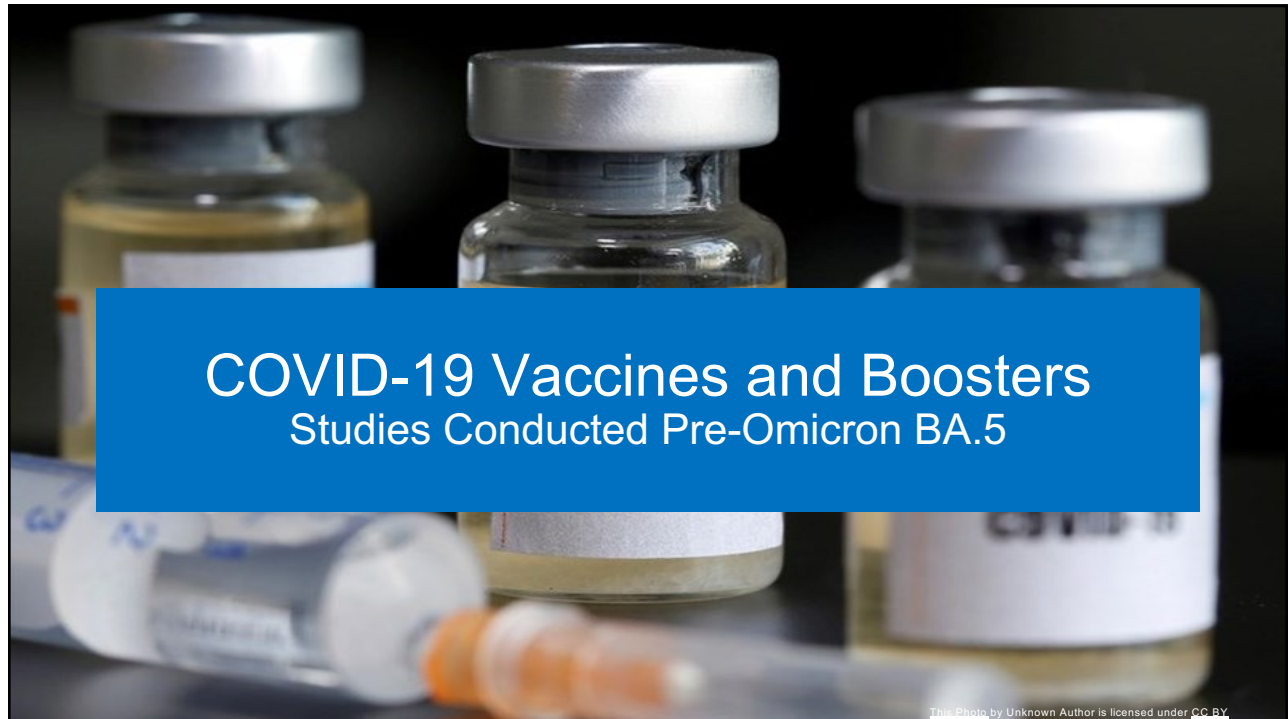


Figure 7. Estimated relative growth rates for BA.4, BA.5 and BA.2.12.1 from a multinomial model of sequenced cases in England



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Novavax Vaccine



The FDA Advisory Panel [unanimously approved the recommendation](#) for the **Novavax COVID-19 vaccine** on 6/7/22.

Next steps: FDA approval, CDC Advisory Panel (ACIP), CDC Approval, Western States Scientific Review Board

- The Novavax COVID-19 vaccine is for adults ages 18 and older, with two doses given 21 days apart.
- The vaccine was found to be 90.4% effective at preventing infection.
- The vaccine benefits outweigh the risks, including rare occurrences of heart inflammation that may be associated with the vaccine.
- Outcomes were based on COVID-19 strains (alpha and beta) that are not currently circulating.
- The Novavax COVID-19 vaccine is based on a "classic" vaccine technology.



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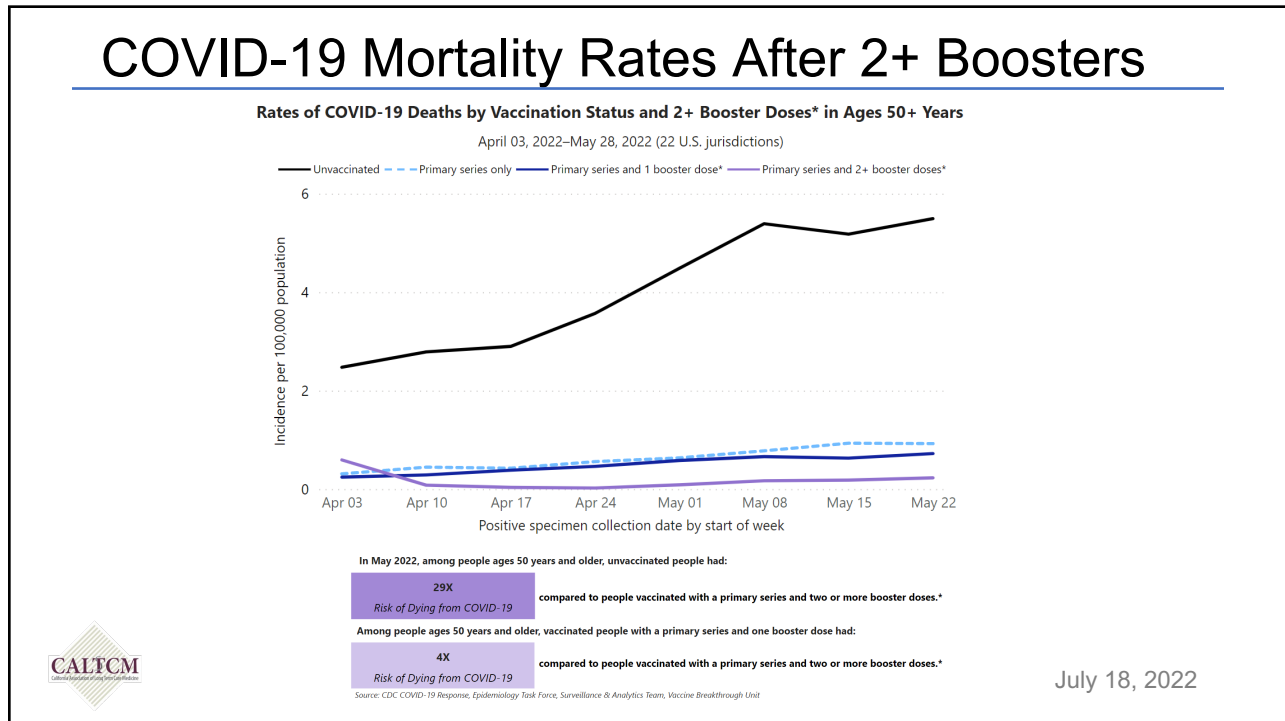
The Bivalent SARS CoV-2 Vaccine

- Originally, the booster was to target the original wild strain and the beta variant that was circulating around April 2022
- The new booster now targets the original wild strain and Omicron BA.4/5, resulting in a fivefold increase in neutralizing antibodies.
- However, the new booster appears less effective against the original Omicron strains
- Unknown: how long will antibodies last?
- Possibility that it may be too late to prevent BA.4/5 infections should the next variant concern (e.g. BA.2.75) predominant

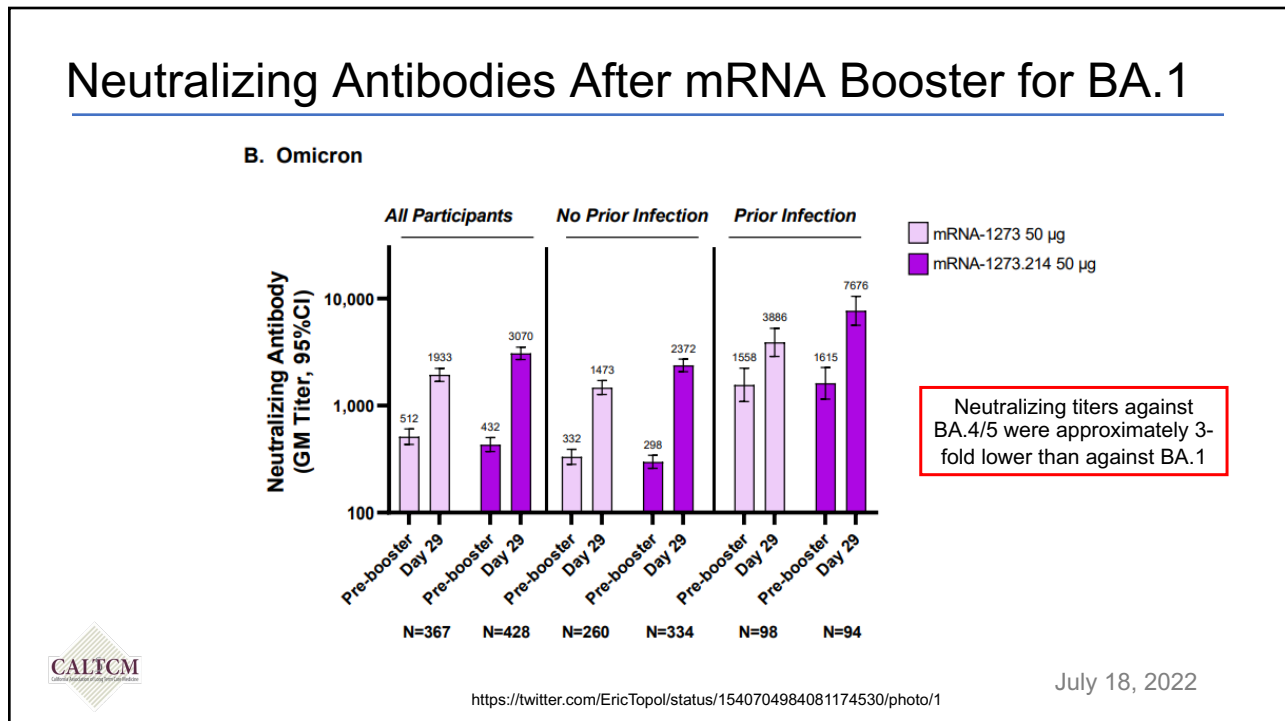


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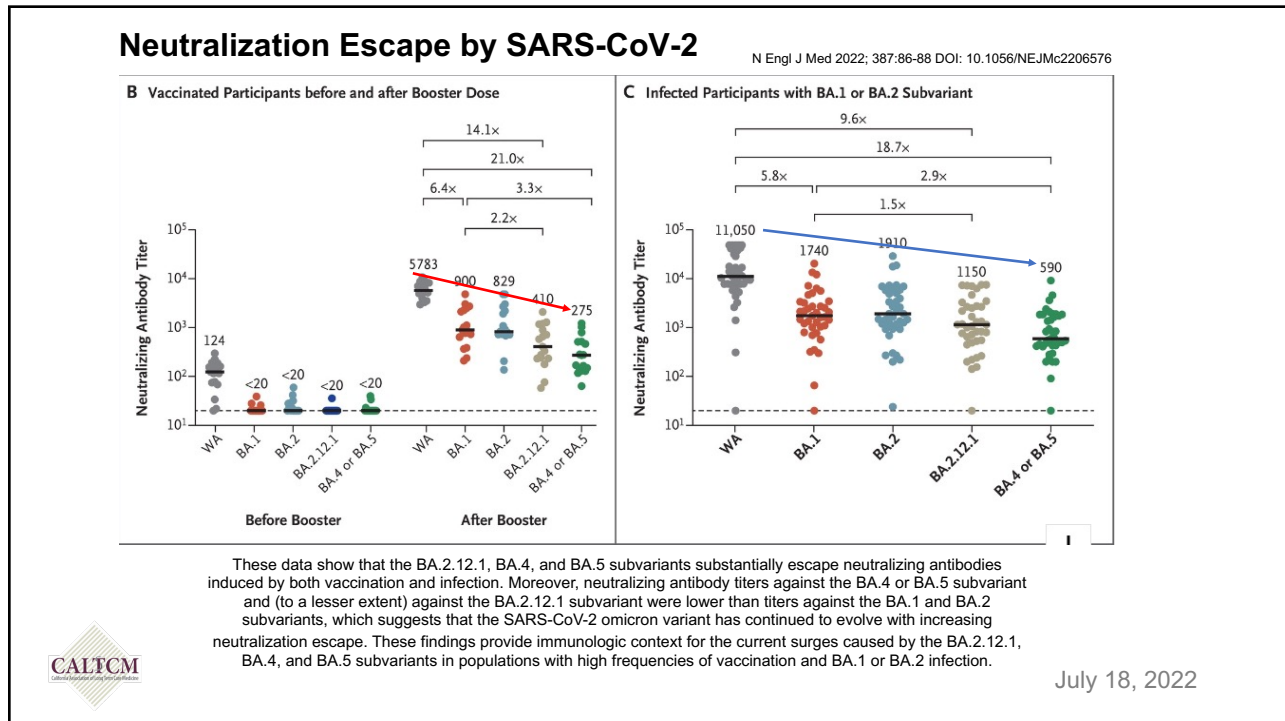
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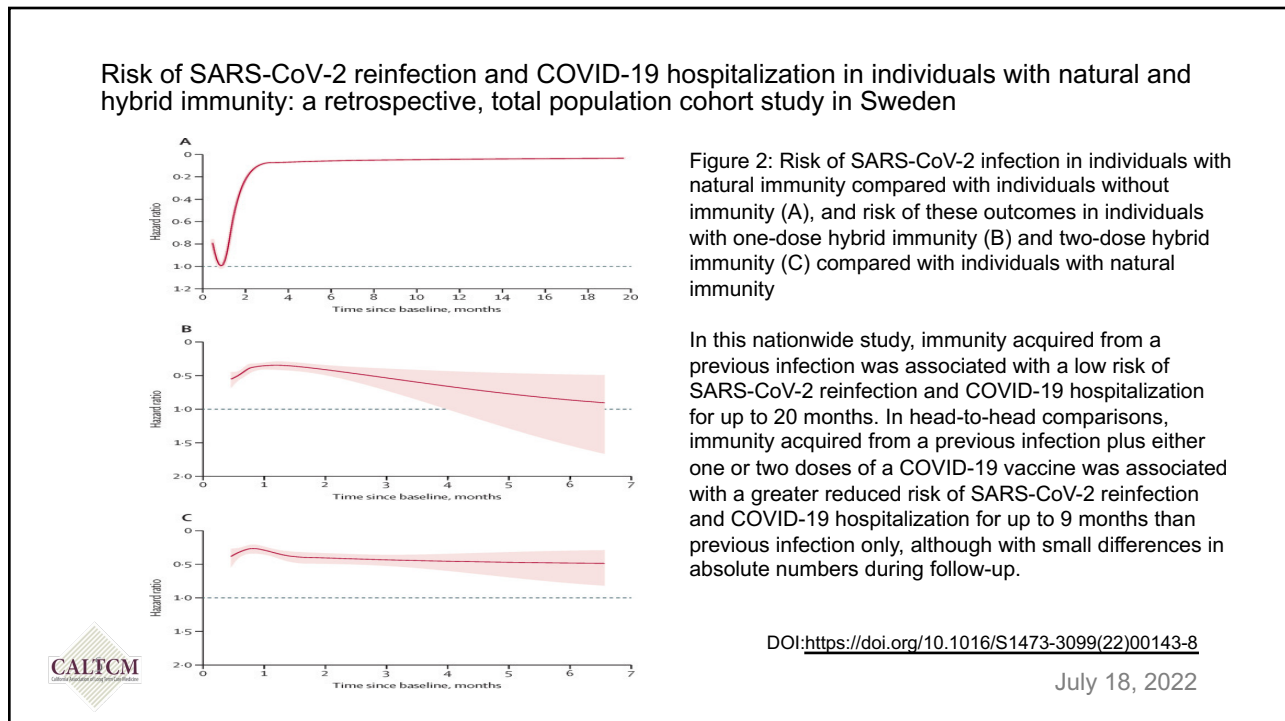
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Persistent COVID-19

- Parallel pandemic
- Terms:
 - Long “long haulers” COVID-19
 - Post-acute sequelae of SARS CoV-2 infection (PASC)
 - Post acute COVID-19
 - Chronic COVID-19
 - Post-COVID-19 syndrome
- Definition: CDC ≥ 4 weeks; WHO ≥ 2 months (occurring within 3 months of COVID infection)
- > 200 symptoms associated with PASC: fatigue, “brain fog”, cough headache, myalgias, lost of taste and/or smell (anosmia/ageusia), sore throat, shortness of breath

Potential Etiologies:

- Persistent virus/virus particle
- Autoimmune conditions
- Change of gut microbiome – associated with inflammatory conditions; harbors mechanisms for development of host immune system
- Latent virus like cytomegalovirus (CMV) or Epstein-Barr virus (EBV)

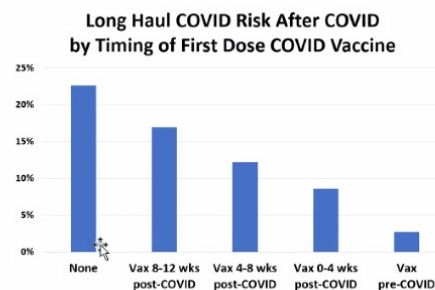


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Vaccine Impact on Long-Haul COVID

- Arcadia Research Data Set
 - Mar 2020-May 2021
 - 26 million persons
 - 4% COVID
 - If COVID, 23% long-haul COVID
 - ✓ Symptom beyond 20 weeks



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

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Outcomes of SARS-CoV-2 Reinfection

- Veterans Affairs studied a cohort of people with first infection (n = 257,427), reinfection (2 or more infections, n = 38,926), and a non-infected control group (n = 5,396,855) to estimate risks and 6-month burdens of all-cause mortality, hospitalization, and a set of pre-specified incident outcomes.
- Compared to people with first infection, reinfection contributes additional risks of all-cause mortality, hospitalization, and adverse health outcomes in the pulmonary and several extrapulmonary organ systems (e.g., cardiovascular, coagulation/hematologic, gastrointestinal, kidney, mental health, musculoskeletal, and neurologic disorders, diabetes, fatigue,)
- The risks were evident in those who were unvaccinated, had 1 shot, or 2 or more shots prior to the second infection; the risks were most pronounced in the acute phase, but persisted in the post-acute phase of reinfection, and most were still evident at 6 months after reinfection.
- Reducing overall burden of death and disease due to SARS-CoV-2 will require strategies for reinfection prevention.
- Caveat: one population studied – might mirror those in skilled nursing facilities



DOI: <https://doi.org/10.21203/rs.3.rs-1749502/v1>

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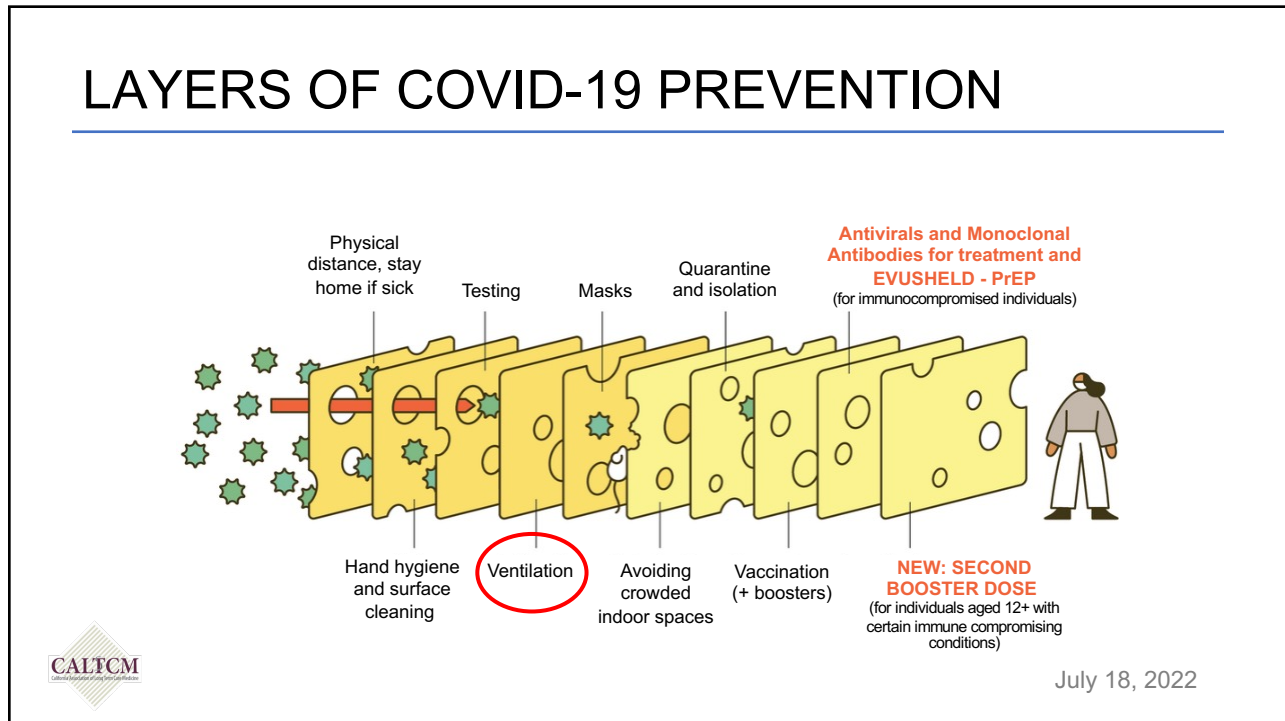
Summary: COVID-19 Vaccinations

- By extrapolation, vaccines are effective in preventing severe disease, hospitalization, and death. For those ≥ 50 , 2 boosters result in protective neutralizing antibodies.
- Vaccine breakthrough cases may result from: waning immunity; variants that spread more easily may be playing a role; people are returning to various states of normalcy – this will result in varying levels of disease transmission and test seeking behaviors.
- Some breakthrough infection rates may appear equal or higher for people who are fully vaccinated: positive antigen tests may not be reported or counted; people with underlying health conditions who are at higher risk for a vaccine breakthrough infection; persons who are not boosted and who have had natural infection may have better protection than with vaccination/booster
- Vaccination before or after a bout of COVID-19 can decrease the risk of long COVID
- The bivalent vaccine will likely arrive in the fall; rather than wait for the bivalent vaccine, for those ≥ 50 years of age, a 2nd booster is recommended

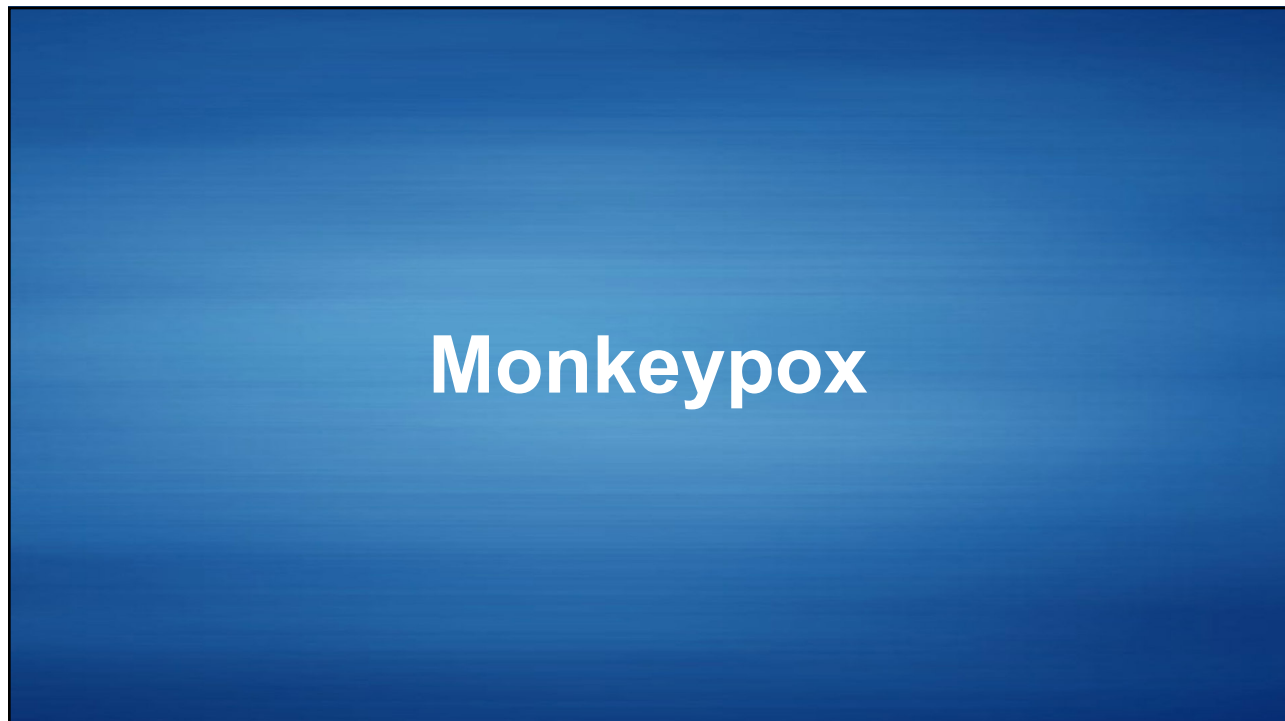


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Monkeypox


<https://www.cdc.gov/poxvirus/monkeypox/response/2022/us-map>. Updated July 15, 2022

State	Number of Cases
New York	489
California	266
Illinois	174
District Of Columbia	108
Florida	154

Data as of 15 Jul 2022 5:00 PM EDT

	Total Confirmed Cases	Number of Locations
Has historically reported monkeypox	223	6
Has not historically reported monkeypox*	12333	62
Total	12556	68

Location Total Confirmed Cases




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Monkeypox: Q&A

Question	Answer
What is monkeypox?	It is a member of the orthopox family that includes smallpox (variola) and vaccinia (cowpox, camelpox, horsepox)
Where does it come from?	Endemic in Africa countries: last cluster in US in prairie dogs imported from Gambia in 2003
What are the symptoms	<ul style="list-style-type: none"> Historically: characteristic rash preceded by prodromal symptoms (e.g., fever, chills, fatigues, headache, myalgias, lymphadenopathy, flu-like symptoms) Current cases: atypical features, atypical rash Lasts about 2-4 weeks
When is a person contagious?	With symptoms onset until lesions scab and scabs fall off and new skin is present
How is it transmitted? – Not easily transmitted	<ul style="list-style-type: none"> Direct or indirect contact with body fluids or lesion materials Contact with fomites (linen, towels) Exposure to respiratory secretions Being inside the patient's room or within 6 feet of a patient during any procedures that may create aerosols from oral secretions, skin lesions, or resuspension of dried exudates, without wearing an N95 or equivalent respirator (or higher) and eye protection
What are the infection control precautions needed?	Follow CAL-OSHA's Aerosol Transmissible Disease Standard
Vaccination (JYNNEOS) and Treatment (Tecovirimat)	PrEP: laboratory staff; PEP: given within 4 days of high-risk exposure; if given 4-14 days after exposures, may not prevent infection, but will reduce severity. Generally, infection is self-limiting and does not require treatment



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Monkeypox Cases, 2022

- Reported cases primarily are in men who report sexual contact with other men
- Differing presentation?
 - Genital and/or perianal lesions
 - Proctitis (other infectious disease: gonorrhea, HSV, chlamydia (LGV))
 - Prodromal symptoms may not have appeared
 - Individuals may present to sexual health clinics for care
 - Monkeypox is not a sexually transmitted infection in the typical sense, but it can be transmitted during sexual and intimate contact: oral, anal, and vaginal sex; touching the genitals; hugging, massage, and kissing; prolonged face-to-face contact; touching fabrics etc., that were used by a person with monkeypox
- Infectious genital ulcer disease: HSV, syphilis, chancroid, lymphogranuloma venereum (LGV), granuloma inguinale



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Monkeypox Rashes

Centrifugal Distribution:
face/trunk

Centripetal Distribution:
face/extremities

Chickenpox (varicella)



Classic chickenpox lesions

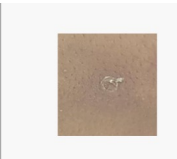
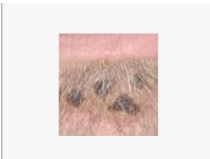
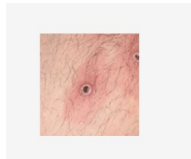
Typical chickenpox rash distribution

(variola) **Smallpox**



Typical smallpox rash distribution

Classic smallpox lesions



Secondary syphilis



Herpes simplex



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Monkeypox Summary

- To date, cases are confined to persons who have sex with men; therefore, a sexual history is essential in assessing the risk of monkeypox
- Signs and symptoms may be atypical than what has been observed in smallpox in that patients may not have prodromal symptoms and the rash can have differing appearances
- The rash can mimic other infectious disease, esp. sexually transmitted disease
- Education is paramount in early recognition of monkeypox to prevent transmission <https://www.cdc.gov/poxvirus/monkeypox/pdf/What-Clinicians-Need-to-Know-about-Monkeypox-6-21-2022.pdf>
- Post-exposure prophylaxis is available for high-risk exposures



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Q & A



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