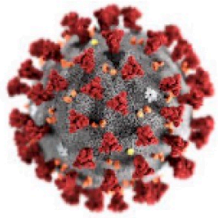

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COVID-19 Webinar Series

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Albert Lam, MD
Dominic Lim, MPH
Jay Luxenberg, MD
Noah Marco, MD
Karl Steinberg, MD, CMD, HMDC
Michael Wasserman, MD, CMD

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3

4

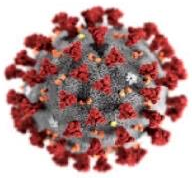
Infection Preventionist Orientation Program

All the foundational information and processes an IP needs to start a successful Infection Prevention & Control Program.

Dolly Greene,
RN, BSN, CIC

5

Next Webinar



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Webinar Faculty

Alex Bardakh, MPP, CAE

Director of Public Policy

AMDA-The Society for Post-Acute and Long-Term Care Medicine (AMDA)

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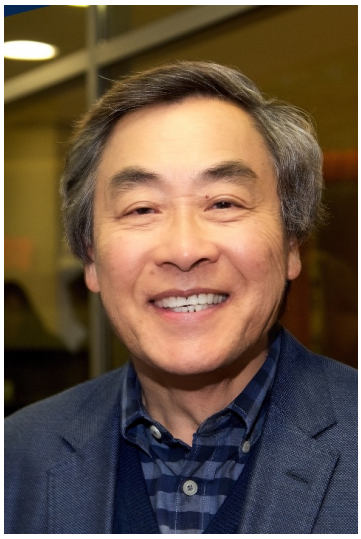

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County of San Diego

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Webinar Moderator

Jay Luxenberg, MD
Retired Geriatrician
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San Francisco, CA

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Webinar Faculty

Kyle Peerless
Occupational Health Branch
California Department of Public Health
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Webinar Faculty

Elon Ullman
Occupational Health Branch
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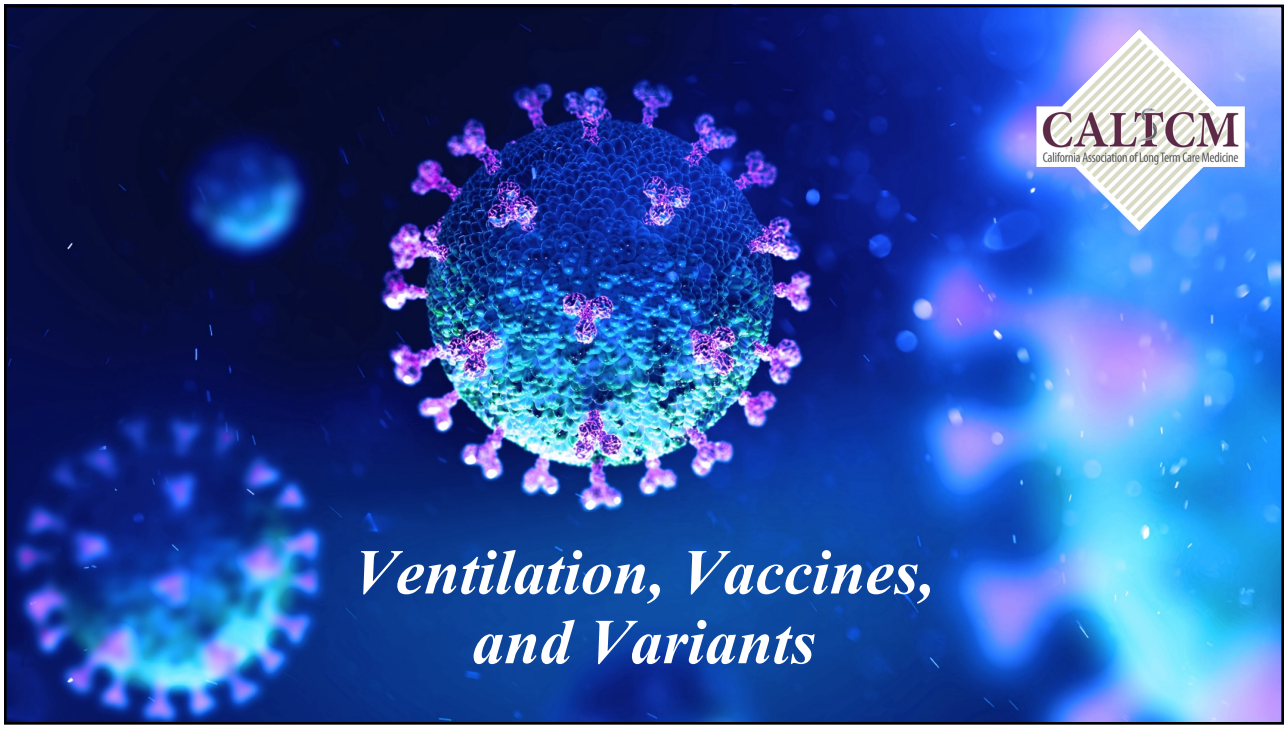
11



12

Ventilation Strategies to Control COVID-19 Transmission in Long Term Care Facilities

Kyle Peerless and Elon Ullman
CDPH Occupational Health Branch
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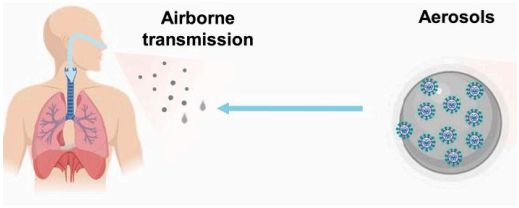
13

Dominant Transmission Routes of COVID-19

- Inhalation of virus particles from close contact

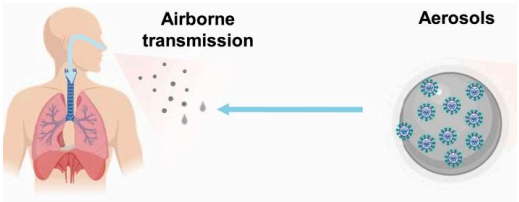


- Inhalation of virus particles that have remained suspended in air and "built up" because of poorly-ventilated indoor environments (not necessarily from close contact)

14

What Will Better IAQ Help Most With?

- Inhalation of virus particles from close contact



- Inhalation of virus particles that have remained suspended in air and "built up" because of poorly-ventilated indoor environments (not necessarily from close contact)

15

Cigarette Smoke Analogy

Image Credit: Wikimedia Commons

16

What Would Reduce Smoke Inhalation Risk?

- **Isolate/separate** the "smoker" from others
- **Exhaust/remove** the smoke from the indoor space
- **Dilute** the smoke with outdoor air, opening the windows, etc.
- **Filter** out smoke particles in the air with air filter/HEPA filter

17

How Do We Improve Indoor Air Quality (IAQ)?

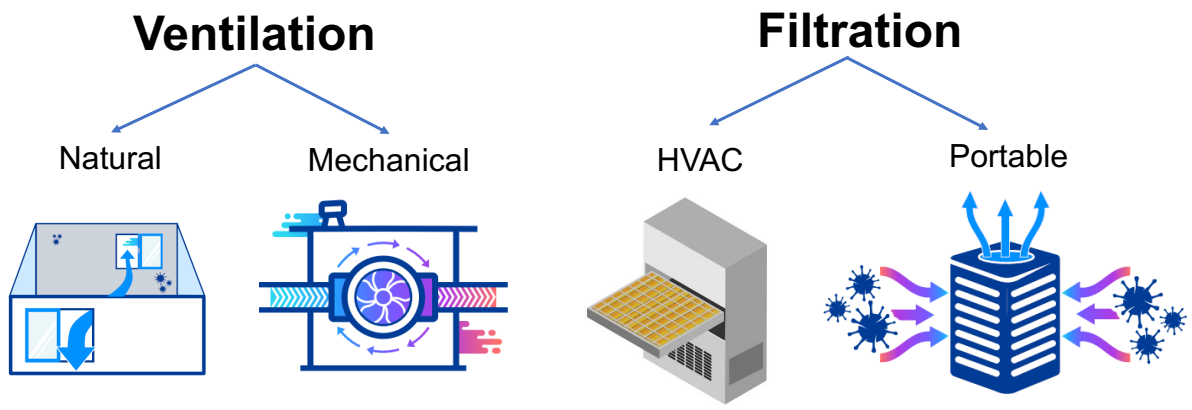


Image Credit: California Department of Public Health and UC Davis

18

Strategies to Reduce Risk

Exhaled virus will behave like invisible smoke in the air. Regardless of circumstances in a SNF, the same best practices apply:

- Exhaust “dirty” air directly to the outside if possible
- Dilute indoor air with as much fresh air as possible using natural or mechanical ventilation
- Filter indoor air that is being recirculated and use portable filters to supplement other strategies
- Isolate persons known or suspected to be COVID-19 positive

19

Dilution

- Bring in as much fresh air as possible from the outside to dilute and reduce the concentration of virus particles suspended in air
- Maximize outdoor air being brought in by mechanical ventilation system; run system on extended hours/continuously
- If no HVAC system, open windows & doors and place fans near windows/doors to promote fresh air entering SNF
- Ceiling fans do not dilute indoor air; they are not bringing fresh air in

20

Maximizing Outdoor Air Explained

- Ventilation systems supply buildings with a mixture of fresh and recirculated air
- Ventilation outdoor air damper can be adjusted to supply more fresh air
- Systems should be run continuously

Adjustable Ventilation Damper

Image Credit: Wikimedia Commons

21

Running System Continuously

- To run continuously, set system to “ON” instead of “AUTO” on thermostat
- To prevent excessive cost/wear on system: run continuously during day, let system rest at night

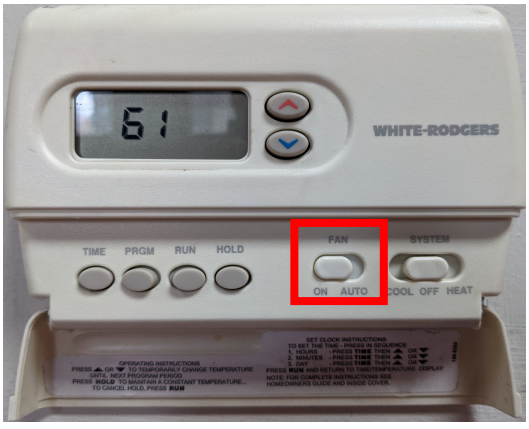


Image Credit: Elon Ullman, CDPH

22

Maintenance

- Important but often overlooked
- Need to maintain regularly like a car
- Filter changes, ducts checked
- Outdoor air dampers

Image Credit: Wikimedia Commons

23

Filtration

- Upgrade filtration in ventilation system to as high as possible if facility recirculates indoor air (goal is to have MERV-13 or higher)
- Filter upgrade may not be possible in some facilities
- Use portable HEPA air cleaner to filter indoor air
  - ❑Particularly useful to supplement other strategies in red/yellow areas with poor ventilation
  - ❑Place in visitation areas or other areas with potential crowding (dining, activity)

24

Portable Air Cleaners

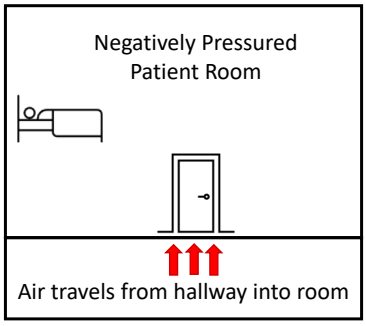
- Equipped with HEPA filters (99.97% capture efficiency)
- Designed to take in "dirty air," filter contaminants, and release fresh air back into the room
- HEPA filtration is proven; ozone and "ionizers" not recommended

See CDPH guidance on ventilation for selecting and sizing portable air cleaners.

Image Credit: Elon Ullman, CDPH OHB

25

Ideal for Isolation: Negative Pressure



26

Simple Negative Pressure Tests

Smoke test: Use non-toxic smoke to see if it gets sucked into the room

Tissue test: Place tissue outside door and see if it gets sucked into the room

Image Credits: Elon Ullman, CDPH OHB (left); Southeastern National TB Center (right)

27

Recommended Isolation Set-up

- Single resident or patient room with dedicated bathroom
- Closed door creates barrier to hallway
- **Increase filtration using portable HEPA-filtered air cleaner in room**
- **Supplement with bathroom exhaust fan running**

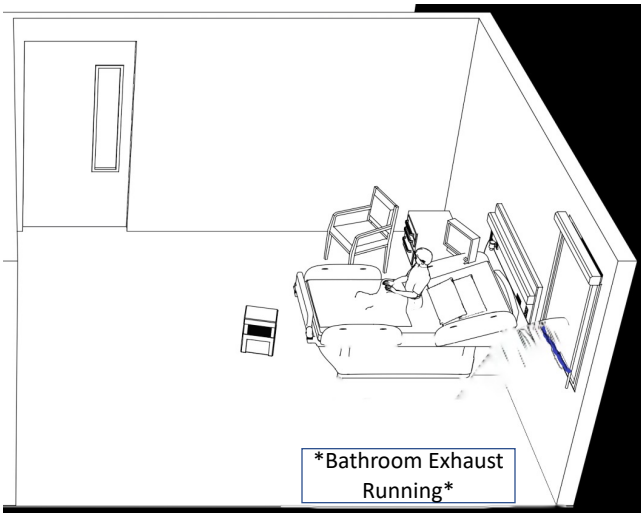


Image Credit: NETEC, "Engineering Controls for Long-term Care"

28

4 Steps You Can Take to Improve Ventilation at Your Facility Right Now

Run HVAC system continuously (instead of temp. setpoint)

Increase outdoor air & check all outside dampers

Prioritize Portable Air Cleaners in high-risk areas (red zone, dining, break rooms)

Upgrade to MERV 13 filters

29

Free Ventilation Assessments with CDPH

CDPH OHB is offering free ventilation assessments for interested facilities in California

Visits are non-regulatory, and recommendations are non-binding (you are not penalized for not implementing recommendations)

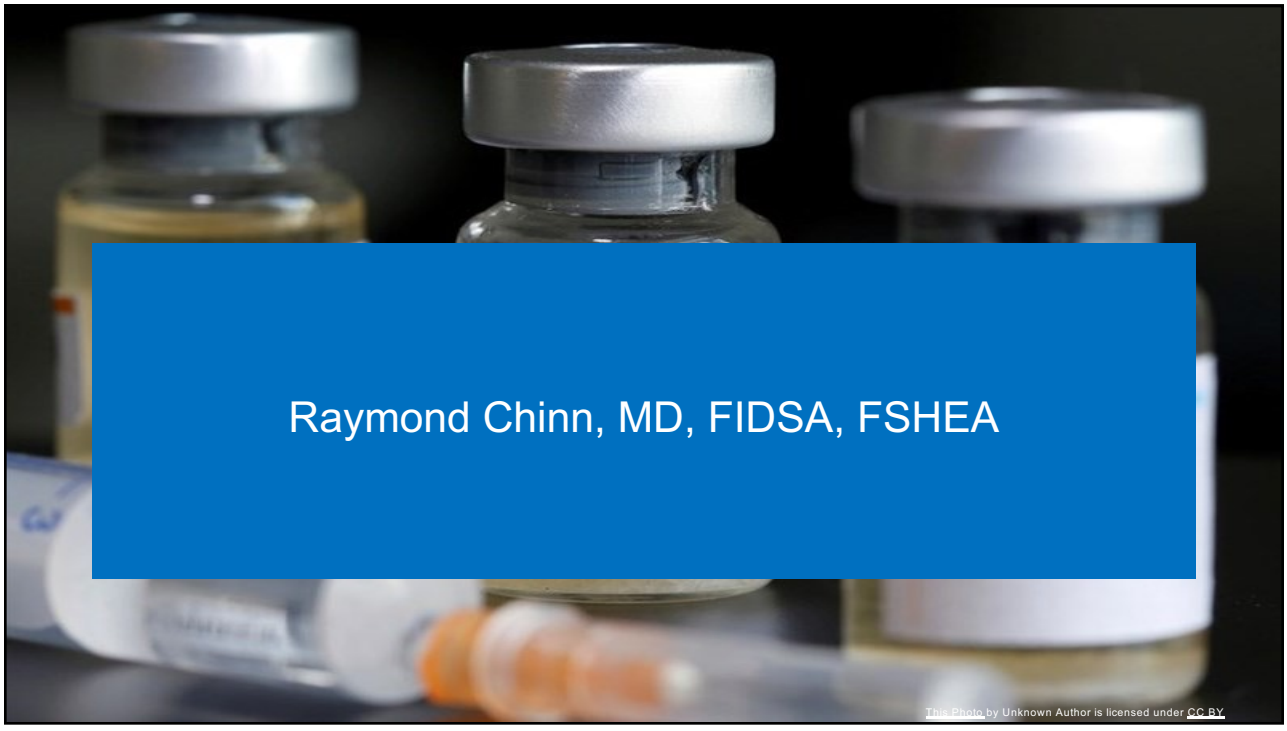
Contact kyle.peerless@cdph.ca.gov

30

References and Resources

- WHO - Roadmap to improve and ensure good indoor ventilation in the context of COVID-19
- ASHRAE- HVAC Strategies for LTC Infection Management & Prevention
- CDPH - Interim guidance for Ventilation, Filtration, and Air Quality in Indoor Environments
- Cal/OSHA-Aerosol Transmissible Diseases Standard
- Cal/OSHA - Aerosol Transmissible Diseases Standard Guide

31

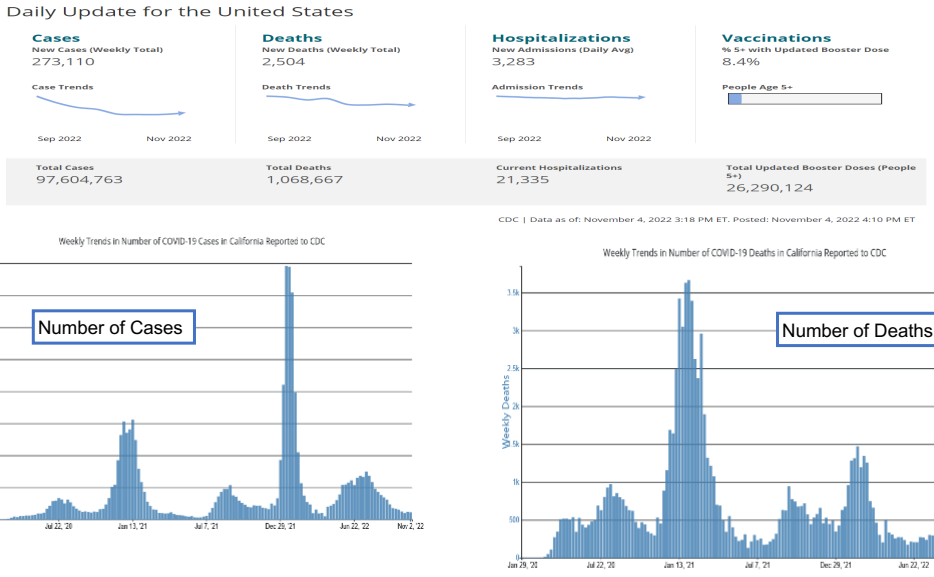


32

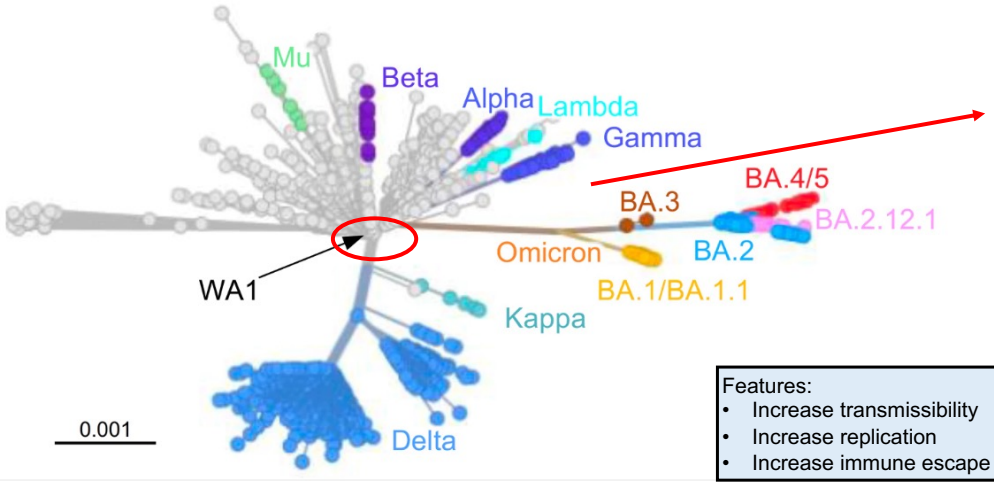
Topics for Discussion

- Provide update on the COVID-19 emerging variants
- Discuss the data on efficacy of the bivalent booster
- Characterize the upcoming influenza and respiratory virus season

COVID-19 In the United States



Genetic Distance of SARS-CoV-2 Variants



Features:
- Increase transmissibility
- Increase replication
- Increase immune escape

Erictopol.substack.com "The BA.5 Story"

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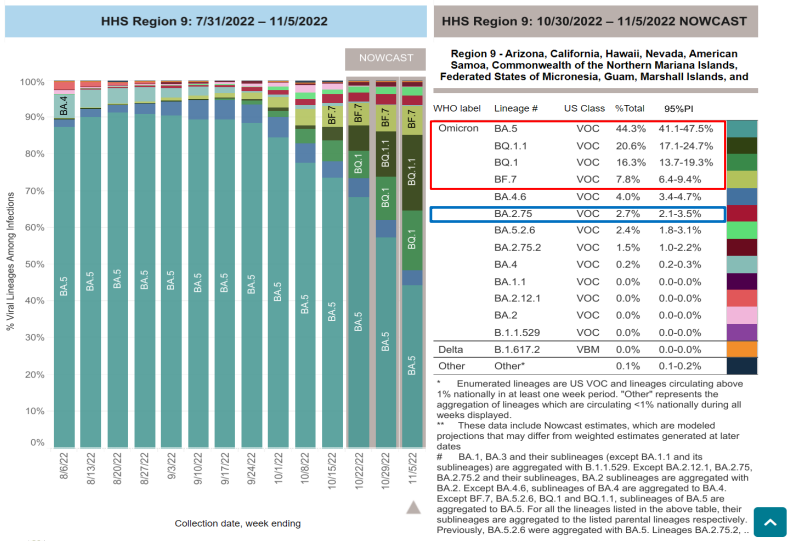
35

COVID-19 Variants



Key Messages:
- BQ.1, BQ.1.1 and BF.7 (all BA.5 decendants: 89%) continue to expand nationally.
- BQ.1.1 is predicted to have the fastest growth rate.
- BQ would likely serve as the primary force behind the next U.S. wave of COVID cases*
- XBB—a new, extremely immune-evasive variant is surging in Singapore but has not been detected in US yet, however, it's decendant XBB.1 has started to appear
- XBB and BQ.1.1 are known to escape antibody immunity
- BA.4.6 is predicted to decline

*Eric Topol

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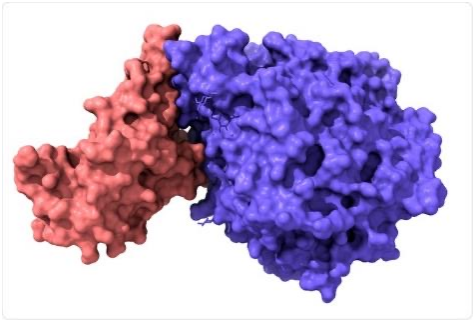
36

Convergent Evolution Defined….

- Convergent variants are multiple independent lineages that are developing the same or similar mutations
- Multiple parent lineages that are accumulating similar mutations in the receptor binding domain
- A receptor-binding domain (RBD) is a short immunogenic fragment from a virus that binds to a specific endogenous receptor sequence to gain entry into host cells.
- Strong selective pressure (host immunity) for these mutations to accumulate as a viral adaptive strategy



Model of structure of novel coronavirus spike receptor-binding domain (pink) complexed with its receptor ACE2 (blue). Image Credit: Volodymyr Dvornyk/Shutterstock.com

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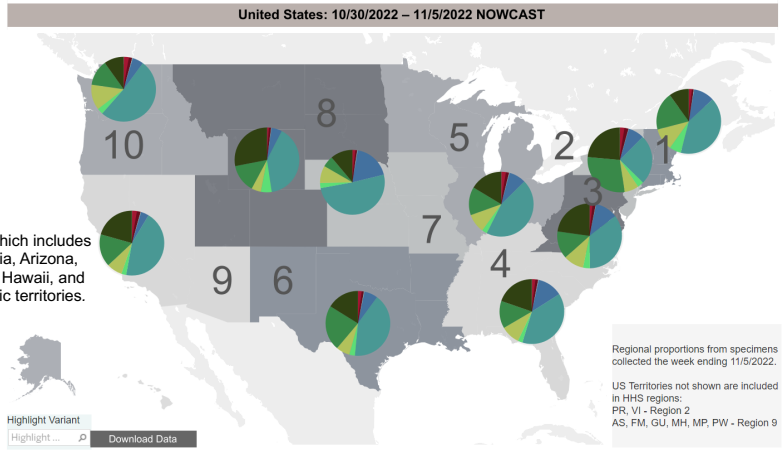
37



- The prevalence of emerging variants in our HHS region continues lag other part of the country.
- BQ.1 and BQ.1.1 are rapidly increasing in HHS 9 that includes CA
- Despite the increasing prevalence of these new variants, wastewater levels and cases at least in San Diego are not rising.

BA.5.2.6 BF.7 BQ.1 BQ.1.1 BA.2.75 BA.2.75.2 BA.4 BA.4.6 BA.5

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38

Efficacy of the Covid Bivalent Vaccine

- Moderna released data from a clinical trial (European) showing their Omicron (BA.1) booster:
  - Higher levels of neutralizing antibodies were detected against multiple Omicron variants (BA.1, **BA.2.75**, **BA.4/BA.5**) at 90 days post boost than the original vaccine formulation.
- This is not the bivalent vaccine currently used in the US that targets both the ancestral WA1 strain and the Omicron variants BA.4/BA.5
- Since the US bivalent vaccine contains the Omicron BA.4/BA.5 variants and all the **emerging variants** are of Omicron lineage, the development of neutralizing antibodies after the bivalent booster should mirror the results of the Omicron BA.1 booster
- Conclusion: Data to date show production of high levels of neutralizing antibodies to Omicron variants including BA.4/BA.5 after an Omicron BA.1 booster at 90 days.

Moderna BA.1 booster 90-day analysis

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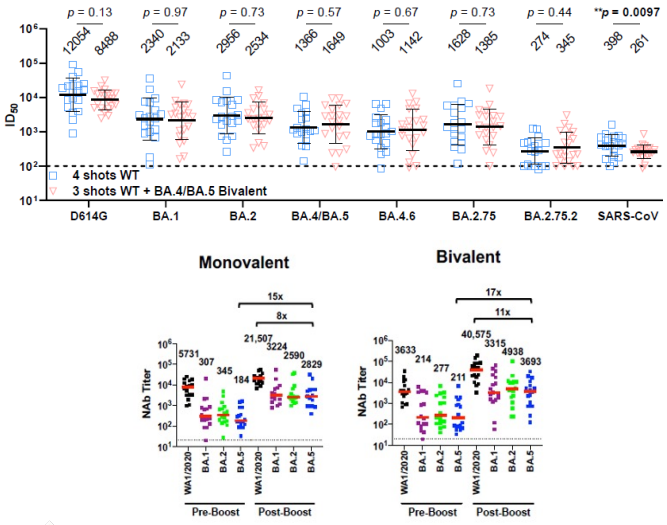
39

Efficacy of the Bivalent COVID-19 Vaccine



Summary:

- Both monovalent and bivalent mRNA boosters markedly increased antibody responses but at similar levels to each other.
- T cell responses were not substantially augmented by either vaccine*
- Not peer reviewed and results are preliminary.
- Regardless, vaccination still elicits a strong immune response in those and is the best protection currently available should there be another surge due to the sublineages of BA4/5

Antibody responses to Omicron BA.4/BA.5 bivalent mRNA vaccine booster shot; BioRxiv Oct. 24th
*Immunogenicity of the BA.5 Bivalent mRNA Vaccine Boosters; BioRxiv Oct. 25th

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40

Miscellaneous

- Paxlovid treatment is expected to be effective against all the COVID variants currently circulating – no resistance found to date
- Bebtelovimab (monoclonal antibody) is currently effective against BA.4/5; however certain subvariants of BA.5 may evade antibody immunity more effectively, thereby rendering bebtelovimab ineffective (BQ.1, BQ.1.1, XBB)
- Despite natural infection with COVID or prior treatment for COVID, the bivalent COVID vaccine is recommended.

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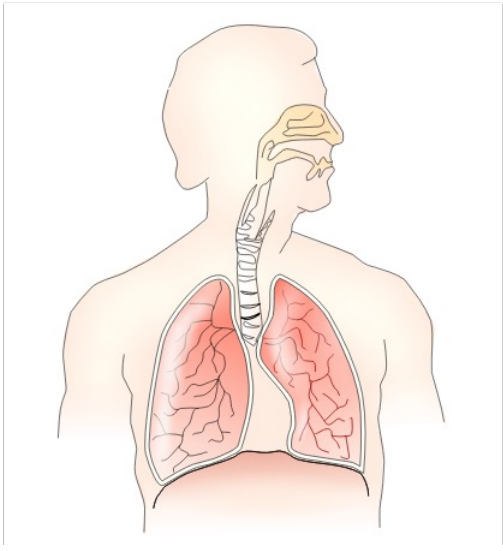
41

Influenza and Respiratory Viruses



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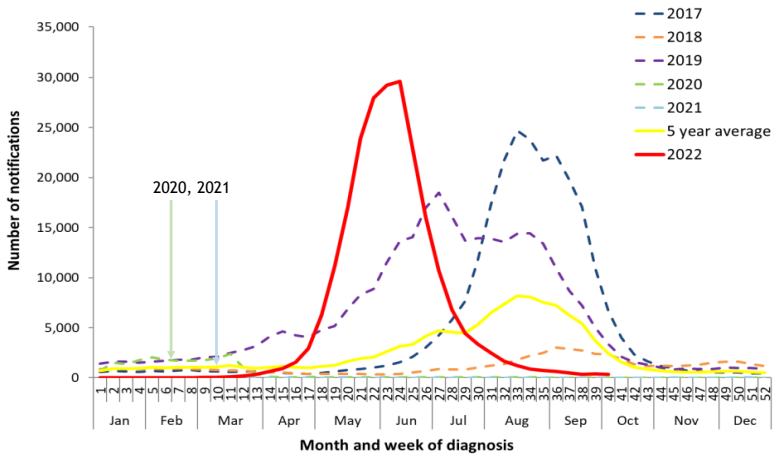
42

Influenza Season 2022 in the Southern Hemisphere

Figure 4. Notifications of laboratory-confirmed influenza, Australia, 01 January 2017 to 09 October 2022, by month and week of diagnosis*



https://www.health.gov.au/sites/default/files/documents/2022/10/aisr-fortnightly-report-no-14-26-september-to-9-october-2022.pdf

43

Take home messages from Australia's Influenza 2022 Season

Incidence of influenza

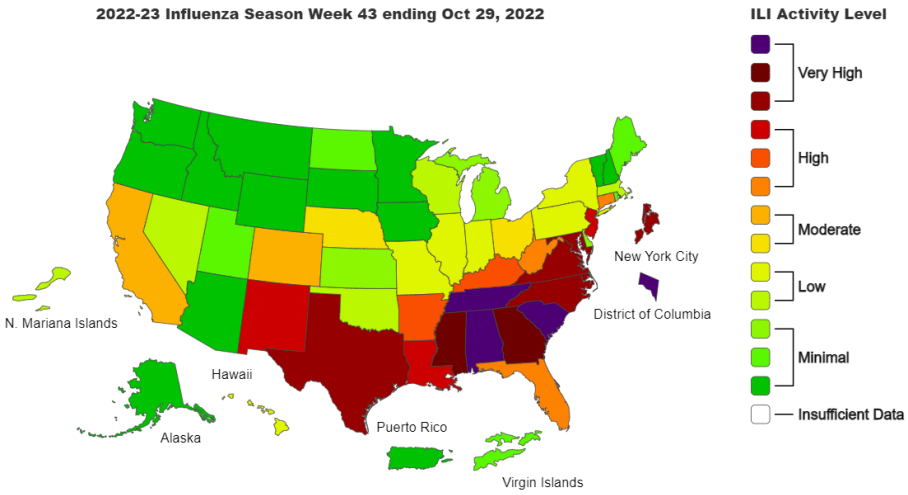
- The low incidence influenza during the 2020 and 2021 seasons likely resulted from behaviors such as masking, avoidance of large crowds etc. and other recommendations targeted to prevent transmission of COVID-19 during the winter months.
- In 2022 to date, people aged 5–9 years, children aged younger than 5 years, and people aged 10–19 years have the highest notification rates.

Vaccine match and effectiveness:

- Of the 2,570 samples referred to the WHOCC to date, 92.4% of influenza A(H1N1), 94.5% of influenza A(H3N2), and the six influenza B/Victoria samples, were antigenically similar to the corresponding vaccine components.
- Vaccine effectiveness is typically around 40–60%. Based on preliminary estimates from sentinel hospitals (FluCAN), vaccine effectiveness appears at the lower end of the moderate range in 2022.

44

Influenza-like Illnesses, United States, 2022-2023 Season



https://www.cdc.gov/flu/weekly/index.htm

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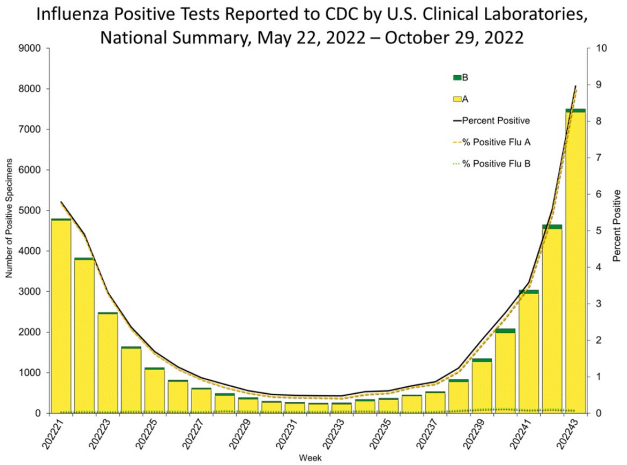
45

Number of Positive Influenza Specimens in the United States



- Regions 4 (Southeast) and 6 (South-Central) are reporting the highest levels of flu activity, followed by regions 3 (Mid-Atlantic) and 9 (south-central West Coast).
- The majority of viruses detected so far this season have been influenza **A(H3N2),** however the proportion of influenza **A(H1N1)** viruses is increasing nationally. In Region 5, the majority of viruses detected during week 43 were influenza A(H1N1).

Region 5

https://www.cdc.gov/flu/weekly/index.htm

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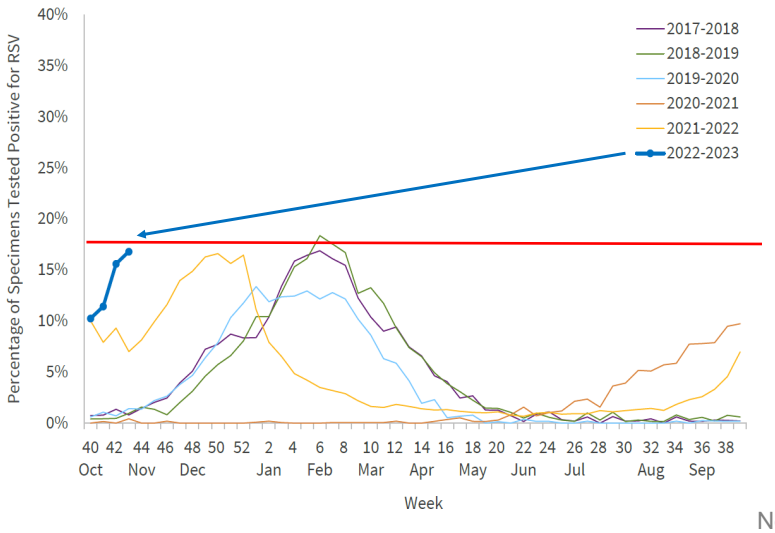
46

Respiratory Syncytial Virus Test Positivity

Figure 13. Percentage of RSV Detections at Clinical Sentinel Laboratories, 2017–2023 Season to Date



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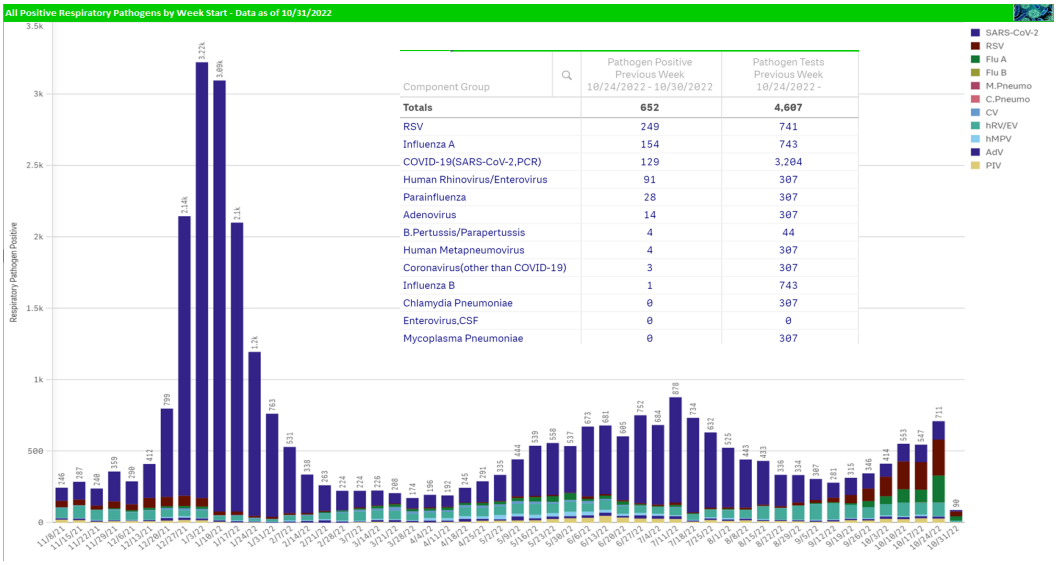
47

Data from Rady's Children Medical Center, San Diego



Component Group	Pathogen Positive Previous Week 10/24/2022 - 10/30/2022	Pathogen Tests Previous Week 10/24/2022 -
Totals	**652**	**4,607**
RSV	249	741
Influenza A	154	743
COVID-19(SARS-CoV-2,PCR)	129	3,204
Human Rhinovirus/Enterovirus	91	307
Parainfluenza	28	307
Adenovirus	14	307
B.Pertussis/Parapertussis	4	44
Human Metapneumovirus	4	307
Coronavirus(other than COVID-19)	3	307
Influenza B	1	743
Chlamydia Pneumoniae	0	307
Enterovirus,CSF	0	0
Mycoplasma Pneumoniae	0	307

Dual or multiple respiratory viral infections may occur

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48

Respiratory Syncytial Virus (RSV) in Adults

- **Adults at highest risk for severe RSV infection include:**
  - Older adults, especially those 65 years and older
  - Adults with chronic heart or lung disease and weakened immune systems
  - Each year an estimated 177,000 older adults are hospitalized and 14,000 of them die in the United States due to RSV infection.
- **Severe RSV infection:**
  - When an older adult gets RSV infection, they typically have mild cold-like symptoms including runny nose, sore throat, cough, and headache. But RSV can sometimes lead to serious conditions such as:
    - Pneumonia More severe symptoms for people with asthma, for people with chronic obstructive pulmonary disease (COPD), and congestive heart failure

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49

Key Takeaway Messages

- The incidence of COVID-19 is decreasing in US: however, the vaccination status, the use of mask for source control, and the COVID-19 predominating variant will dictate whether we will experience another surge during the winter months
- The new variants are characterized with increased infectivity, increased replication, and enhanced immune escape
- From Moderna data, it appears the Omicron booster (targeted against BA.1) marketed in Europe does increase neutralizing antibody of the Omicron subvariants
- Two preprint articles suggest that both the monovalent and bivalent mRNA boosters markedly increased antibody responses but at similar levels to each other.
- The respiratory virus season is expected to a severe one: COVID-19, influenza, respiratory syncytial virus (RSV) and other respiratory viruses; however, vaccination should cover 2 of these illnesses

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50

Policy Update

51

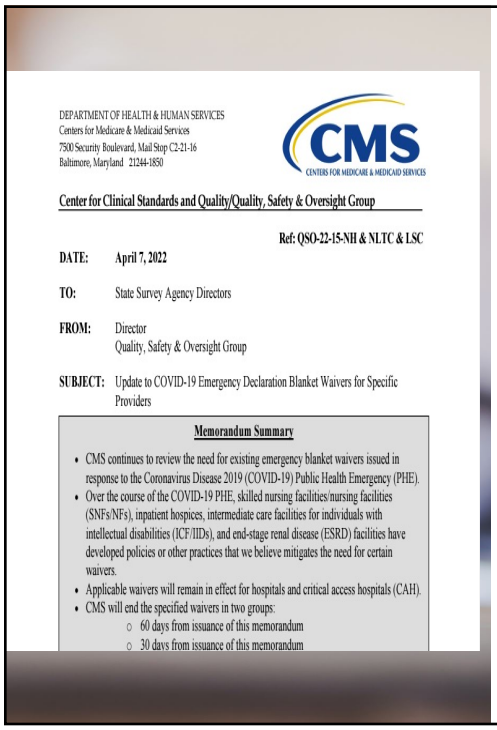
Public Health Emergency (PHE)

October 13, 2022 – Biden administration officially extended the PHE another 90 days.

Government will provide at least 60 days notice before PHE ends.

- Some roll backs in spring 2022
  - Physician and APP services

52



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Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Center for Clinical Standards and Quality/Quality, Safety & Oversight Group

Ref: QSO-22-15-NH & NLTC & LSC

DATE: April 7, 2022

TO: State Survey Agency Directors

FROM: Director
Quality, Safety & Oversight Group

SUBJECT: Update to COVID-19 Emergency Declaration Blanket Waivers for Specific Providers

Memorandum Summary

- CMS continues to review the need for existing emergency blanket waivers issued in response to the Coronavirus Disease 2019 (COVID-19) Public Health Emergency (PHE).
- Over the course of the COVID-19 PHE, skilled nursing facilities/nursing facilities (SNFs/NFs), inpatient hospices, intermediate care facilities for individuals with intellectual disabilities (ICF/IIDs), and end-stage renal disease (ESRD) facilities have developed policies or other practices that we believe mitigates the need for certain waivers.
- Applicable waivers will remain in effect for hospitals and critical access hospitals (CAH).
- CMS will end the specified waivers in two groups:
  - 60 days from issuance of this memorandum
  - 30 days from issuance of this memorandum

PHE Roll Backs

1) Physicians must personally see and evaluate all skilled nursing residents for an initial comprehensive visit within 30 days of admission.

This visit must be completed onsite and may not be completed by telemedicine. An APP may see a resident prior to the physician, but the physician must still complete a comprehensive initial visit within 14 days.

2) Physicians must personally sign each resident's admission orders per state regulations.

An APP can review medications and make necessary changes, but the physician must still sign the admission order set in the timeline defined by the state.

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53

PHE Roll Backs

3) All required regulatory visits for <u>skilled</u> residents must alternate between a physician and an APP.

APP can no longer perform all visits for skilled residents.

4) Required regulatory visits may not be performed by telemedicine.

All required regulatory visits must now be completed in person at the facility. Until the PHE ends (currently set for 7/15/22), any non-regulatory visits (e.g. urgent visits) may be completed by telemedicine. After the PHE ends, telemedicine visits for urgent issues will be limited to once every 14 days.

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November 7, 2022

54

PHE Roll Backs

1. CMS Update to COVID-19 Emergency Declaration Blanket Waivers for Specific Providers (QSO-22-15-NH & NLTC & LSC)

https://www.cms.gov/files/document/qso-22-15-nh-nltc-lsc.pdf

2. AMDA Policy Advisory April 29, 2022

https://paltc.org/?q=publications/important-please-read-cms-clarifies-use-telehealth-after-waivers-lifted

3. Appendix PP, State Operations Manual

https://www.cms.gov/medicare/provider-enrollment-and-certification/guidanceforlawsandregulations/downloads/appendix-pp-state-operations-manual.pdf

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November 7, 2022

55

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November 7, 2022

56