Thursday, November 19, 2020

Greetings Long-Term Care and Residential Care Facilities of San Diego County,

Please find information below regarding the latest guidance and resources from county, state, and federal organizations, including **new updates**:

- All Facilities Letter (AFL) provides COVID-19 infection control recommendations during holiday celebrations **(AFL 20-86)**
- California Department of Public Health (CDPH) **COVID-19 and Memory Care Units Reference Sheet**
- CDPH's letter to all Californians provides updated guidance mandates for use of **face coverings** for the general public
- Community Care Licensing Division's **Winter 2020/2021 Quarterly Update**
- CDC's Morbidity and Mortality Weekly Report article, **"Characterization of COVID-19 in Assisted Living Facilities – 39 States, October 2020"**
- Case Rate by **Zip Code Map**
- **PowerPoint slides**: Dr. Sayone Thihalolipavan, County of San Diego, Medical Consultant, COVID-19 Update from the telebriefing on November 13, 2020
- **PowerPoint slides**: Dr. Raymond Chinn, County of San Diego, Medical Consultant, Improving Indoor Air Quality from the telebriefing on November 13, 2020
- Updated **Public Health Order** effective November 14, 2020
- County of San Diego Thanksgiving and Winter **Holiday Guidance**

- **Reminder**: Older Adult and Disability Service Providers telebriefing tomorrow, Friday, November 20, 4:00-5:00 pm

As a reminder, if you have a positive COVID-19 case at your facility, please report it by calling the County Epidemiology Unit phone line at (619) 692-8499 or (858) 565-5255 for after-hours or on the weekend. The County as well as your State licensing departments are here to support you.

For additional information, please see our website www.coronavirus-sd.com/LTC. Please email us at moc.logs.hhsa@sdcounty.ca.gov if you need personal protective equipment.

Thank you for your continued efforts and partnership with the County of San Diego!

Announcements and News

California Department of Public Health

CDPH publishes news and All Facilities Letters (AFLs) regularly. If you would like to receive email notifications of AFLs, please submit your request to LNCPolicy@cdph.ca.gov.

NEW! Letter to Long-Term Care Facilities: **AFL 20-86** – November 16, 2020
This AFL provides COVID-19 infection control recommendations during holiday celebrations for residents, families, and facilities. This includes guidance for private gatherings, resident placement after returning to the facility, and communal activities in facilities. Click here to read AFL 20-86

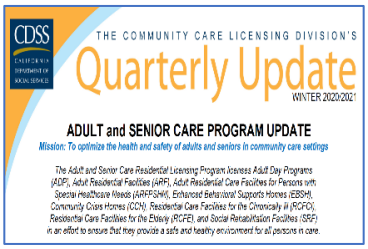
NEW! **COVID-19 and Memory Care Units Reference Sheet**– October 2020
This CDPH reference sheet includes information on managing memory care residents with behavioral techniques; reasonable exceptions for a residents with dementia to not wear a face covering; individualized attention during COVID-19; maintaining spatial distancing; creative solutions to mask wearing; managing stress among staff; additional resources. **Please see attached PDF "**ReferenceSheet_COVIDandMemoryCareFINAL_Oct2020"

NEW! **CDPH Letter to All Californians** – November 16, 2020
The Use of Face Coverings guidance supersedes face coverings guidance released on June 18, 2020. This updated guidance mandates that a face covering is required at all times when outside of the home, with some exceptions. It does not substitute for existing guidance about physical distancing and hand hygiene. Click here to read the guidance

Click here to see a full list of recent AFLs

California Department of Social Services

The Community Care Licensing Division (CCLD) of the California Department of Social Services (CDSS) publishes Provider Information Notices (PINs) to communicate important license related information to CCLD-licensed providers. The local San Diego Adult and Senior Care Regional Office can be reached at (619) 767-2300 or CCLASCPSanDiegoRO@dss.ca.gov.



NEW! The Community Care Licensing Division's **Winter 2020/2021 Quarterly Update** is now available and provides important Adult and Senior Care Program updates. Inside this issue: Deputy Director's Message, Take Steps to Prevent Colds & Flu, Reviewing and Updating of Facility Files, Ways Checklists are Used to Ensure Compliance, Holiday Blues, Roles of Virtual Tools in Today's Environment, Exercise for Seniors, Supporting Residents in Managing Diabetes and COVID-19, and Caregiver Background Check Bureau Guardian System Update. Click here for CCLD's Winter 2020/2021 Quarterly Update.

Click here to browse the full list of recent PINs

MMWR Morbidity and Mortality Weekly Report

Characterization of COVID-19 in Assisted Living Facilities – 39 States

NEW! The Centers for Disease Control and Prevention's Morbidity and Mortality Weekly Report includes an important article, "Characterization of COVID-19 in Assisted Living Facilities – 39 States, October 2020".

What is already known about this topic?

Although the spread of SARS-CoV-2 in nursing homes is well documented, relatively little has been reported on COVID-19 among residents and staff members in U.S. assisted living facilities (ALFs).

What is added by this report?

By October 15, 2020, in 39 states with available data, 22% of ALFs reported one or more cases of COVID-19 among residents and staff members. Among ALF residents with COVID-19, 21% died, compared with 3% who died among the general population with COVID-19.

What are the implications for public health practice?

With ongoing community transmission, ALFs should take actions to prevent the spread of SARS-CoV-2 in their facilities, including rapid identification and response to residents and staff members with suspected or confirmed COVID-19.

Click here to read Characterization of COVID-19 in Assisted Living Facilities – 39 States, October 2020.

Case Rate by Zip Code Map

NEW! As COVID-19 cases continue to rise in the state of California, the County of San Diego is working closely with federal and state agencies and the local healthcare community to monitor and test for the spread of COVID-19 virus in the region. To view an interactive COVID-19 case rate by ZIP code map, click here.

PowerPoint Slides from the Long-Term Care & Residential Care Facilities Telebriefing on November 13, 2020

NEW! Dr. Sayone Thihalolipavan, County of San Diego, Medical Consultant, provided a COVID-19 Update. **Please see attached PowerPoint** titled "LTC Sector Telebrief 11_13_20_COVID19_Dr Sayone".

NEW! Dr. Raymond Chinn, County of San Diego, Medical Consultant, provided a presentation, "Improving Indoor Air Quality as a Strategy to Reduce Transmission of SARS COV-2 in Long-Term Care Facilities". **Please see attached PowerPoint** titled "LTC Sector Telebrief 11_13_20 Indoor Air_Dr Chinn".

San Diego County Public Health Order

Updated! The Public Health Order has been updated and is effective November 14, 2020. Read the latest order.

COVID-19 Holiday Guidance

Steps to Stay Healthy

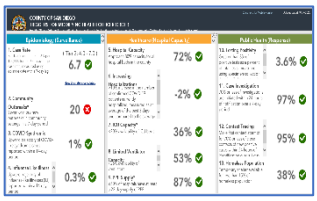
NEW! To minimize the spread of COVID-19 and keep families safe during the upcoming holidays, the County of San Diego has issued guidance that outlines recommendations, what's not recommended, what's not allowed, and safer alternatives for traditional activities that can be high-risk for spreading viruses.

- **Guidance for Celebrating Thanksgiving flyer** (PDF)
- **Celebrating Winter Holidays Guidance** (PDF)

For more information on steps to stay safe during the entire holiday season, visit the County of San Diego's Holidays and COVID-19 webpage here.

Flu Vaccine Information

The influenza vaccine is available at doctors' offices and pharmacies throughout San Diego County and is covered by medical insurance. For **Flu Season 2020-2021 information**, check out the County of San Diego Immunization Program influenza webpage and find information on **Flu Vaccine Locations**. For additional information, click here for the Centers for Disease Control and Prevention ways to protect your health this season.



REMINDER to check the County Triggers Dashboard for the Testing Positivity Rate

The frequency of routine testing of skilled nursing facility staff depends on the San Diego County Positivity Rate. Please click the link below to access the **COVID-19 Testing Positivity Rate.**

View the current Positivity Rate here (**Item #10: Testing Positivity**).

Upcoming Telebriefings

REMINDER Telebriefing for **Older Adult and Disability Service Providers**

WHEN: Friday, November 20, 2020, at 4:00 p.m.

This Friday, November 20 at 4:00 pm

Joining us will be two special guest speakers, Gary Johnston, the County's Chief Resilience Officer/Agency Representative and Planning Lead for County Reopening who will discuss the San Diego County's Purple Tier status, and Suzette Southfox, the Director of Education from National Alliance on Mental Illness (NAMI) San Diego who will discuss mental health, in addition to providing resources and self-care tips for caregivers during these difficult times.

Join the telebriefing by using the Zoom Meeting Link or Dial-In for listen mode only:

Zoom Meeting Link | Submit Telebriefing Questions

Meeting ID: 218 631 109

Dial-In number: 1 (669) 900-6833 or 1 (346) 248-7799

Visit the Older Adult and Disability Service Providers Sector Support webpage to learn more.

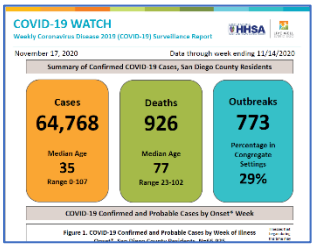
Friday, December 11 at 4:00 pm

Telebriefing for **Long-Term Care and Residential Care Facilities** with Special Guest, Dr. Michael Krelstein, County of San Diego Behavioral Health Services.

WHEN: Friday, December 11, 2020, at 4:00 p.m.

Click here to learn more about the telebriefing, submit questions before each telebriefing, and visit the **Long-Term Care and Residential Care Facilities** sector support webpage.

Ongoing Programs, Services, and Resources

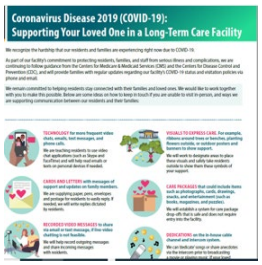


County of San Diego COVID-19 Dashboard and Weekly "COVID-19 Watch" Report

The County of San Diego publishes a weekly surveillance report on the coronavirus-sd.com website called "COVID-19 Watch".

Click here to review the report.

Visualize and track data real time on the interactive web-based dashboard developed by the County of San Diego Epidemiology and Immunization Services Branch. See the dashboard here.


Coronavirus Disease 2019 (COVID-19):
Supporting Your Loved One in a Long-Term Care Facility

Supporting Your Loved One in a Long-Term Care Facility

Nursing homes and long-term care facilities can communicate actions the facility is taking to protect them and/or their loved ones, any visitor restrictions that are in place, and actions residents and families should take to protect themselves in the facility, emphasizing the importance of hand hygiene and source control. Please click here to access this document.

- COVID-19 in Nursing Homes and Long-Term Care Facilities
- Considerations for Use of SARS-CoV-2 Antigen Testing in Nursing Homes
- Printable Algorithm for considerations for testing asymptomatic and symptomatic residents or HCP.
- Guidelines on Masks, How to Select, Wear, and Clean Your Mask
- Guidelines for Group Homes for Individuals with Disabilities
- Guidelines for Direct Service Providers of Individuals with Disabilities
- Considerations When Preparing for COVID-19 in Assisted Living Facilities
- Considerations for Memory Care Units in Long-term Care Facilities

For general information about COVID-19 from the CDC, please visit www.cdc.gov/coronavirus.

211 San Diego

For health or testing related questions, contact your healthcare provider. For general questions about COVID-19, information about community resources, or if you are uninsured, call **2-1-1 San Diego.** Click here for free COVID-19 testing information.

General COVID-19 Information from Federal and State Organizations

- Centers for Disease Control and Prevention – COVID-19
- California Department of Public Health, Immunization Branch – COVID-19
- California Department of Social Services – COVID 19

Recent Email Updates from the County of San Diego Long-Term Care and Residential Care Sector

- November 10, 2020 Update
- November 5, 2020 Update
- October 29, 2020 Update

Click here to browse all past email updates.

Stay Connected

For questions related to long-term care and residential care facilities, please email: COVID-LTC@sdcounty.ca.gov.

Get the latest information about what's happening across the county with COVID-19.

Text **COSD COVID-19** to **468-311**
to get text alert updates from the County of San Diego.

COUNTY OF SAN DIEGO HHSA HEALTH AND HUMAN SERVICES AGENCY

LIVE WELL SAN DIEGO

California Department of Public Health

COVID-19 and Memory Care Units Reference Sheet

Background

Many COVID-19 prevention and mitigation strategies are difficult to implement in the memory care setting. Consult with the HAI Program as needed.

Managing Memory Care Residents with Behavioral Techniques

- Use white boards, signs, reminders for *why* it is important to wear a mask
- Activities to reduce wandering, for example exercises in room or walking in hallway or outside
- Important to anticipate behaviors and plan proactively rather than responding reactively; disruption in routine sets the residents off
- Do not overmedicate residents
- Promote culture change of staff; various leaders within their own work community can be champions

Reasonable Exceptions for a Resident with Dementia to Not Wear a Face Covering

- Cannot physically put on or wear a face covering
- Wearing the face covering would cause them severe distress
- Someone with them needs to read their lips to communicate
- They need to remove the face covering temporarily to eat, drink, or take medication
- Medical exemptions

Individualized Attention During COVID-19

- Resident exhibiting anxiety and agitation will need gentle reassurance along with behavioral techniques – may require individual assessment by trained psychologist
- Important to identify the triggers and time of day when undesirable behaviors occur
- Know the person: each person may need individualized interventions
    - Put yourself in the person's shoes
    - Try to understand their surroundings from their perspective
    - How would you feel?
- Contact family members who are supportive to explain to the resident the reason for mask wearing, if the resident refuses to wear their mask; a virtual visit or phone call, if visitation is not possible, could be arranged
- Contact their therapist or counselor for ideas to help the resident cope and accept mask wearing; a video conference or telephone call may also be helpful

Maintaining Spatial Distancing

Signage

- Use clear signage
- Consider markings on the floor in common spaces that indicate where they can sit or stand; or remove chairs from areas where residents are not permitted to sit
- Prevent residents from going into areas where they shouldn't be, e.g., traveling/movement between zones
- Block exits, e.g., with furniture, to deter wandering
- Use signage in different languages

Physical Distancing

- Model staying outside of an individual's "space"
- Sending non-verbal "messages"

Coping with Isolation

- Consider alternative ways to reduce feelings of isolation, e.g., music, art

Creative Solutions to Mask Wearing

- *Do they simply forget why it's needed?* Consider a sign by the door for when you go out. You may need to gently remind the person we're still in a pandemic.
- *Does the mask fit comfortably?* Try different styles or looser fastenings if it's too tight.
- *Are they unhappy with the feel of the fabric?* Try different materials, maybe one made from a familiar garment (check with them first before cutting the fabric).
- *Do they pull the mask down?* Try some distraction or positive reinforcement; describe how wearing a face covering helps to stop the spread of COVID-19 and keep people well.
- *Are they anxious it will stop them from breathing?* Offer reassurance and show them that it won't.
- *Is there a past experience that might make them fearful about wearing a mask (perhaps as a young child in the war)?* Talk to them about it and try to find ways to reassure them.
- *Are they lip readers?* Clear masks may be an option.
- *Is the mask unappealing?* Try using masks with themes that would appeal to individuals, such as a sports team, hobby, color, animals, flowers, etc.
- Masks distort the ability to recognize faces or facial expressions and more time may be required for the residents to understand what is being said or asked.

Managing Stress Among Staff

- Body language is important. Individuals with dementia pick up on depression and stress in staff.
- Facility infection preventionist should engage staff: What are you concerned about? What worries you? What do you know about the virus? What would you like to learn? In terms of hand hygiene, pose the question, "What do you think happens if we're not washing our hands properly?"
- Be patient and offer encouragement – if you show frustration or irritation, the person will pick up on this.

Additional Resources

- Considerations for Wearing Masks (https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-guidance.html)
- Mental Health and Resiliency Tools for Health Care Workers: COVID-19 (https://www.health.state.mn.us/diseases/coronavirus/hcp/mh.html)
- The Dice Approach (https://diceapproach.com/)
- How to Select, Wear, and Clean Your Mask (https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html)

COVID-19

CORONAVIRUS DISEASE 2019 (COVID-19) UPDATE 11/13/20

SAYONE THIHALOLIPAVAN, MD, MPH, MEDICAL CONSULTANT

COSD HEALTH & HUMAN SERVICES AGENCY

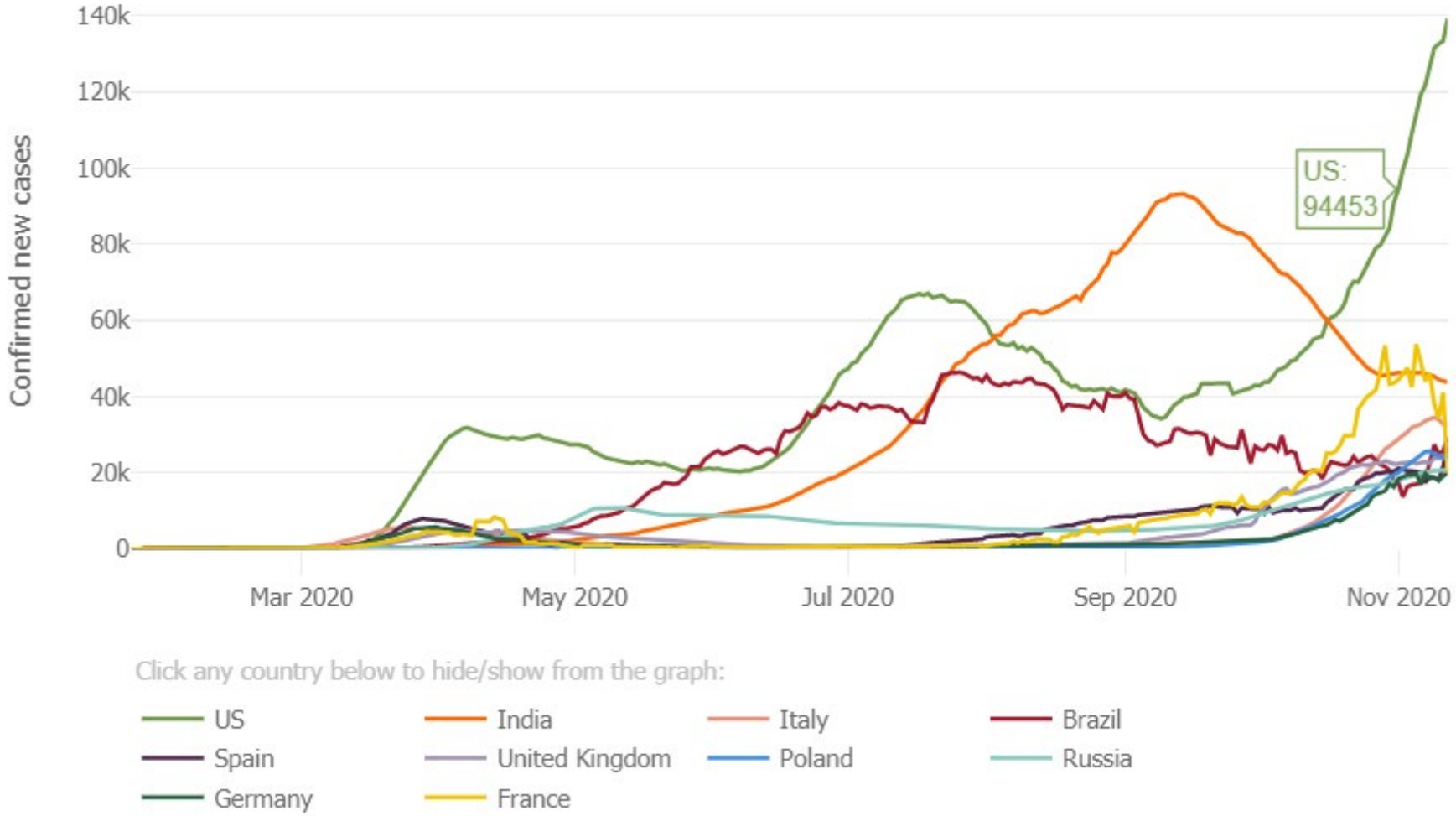
COUNTY OF SAN DIEGO HHSA HEALTH AND HUMAN SERVICES AGENCY

LIVE WELL SAN DIEGO

ACCREDITED HEALTH DEPARTMENT · PUBLIC HEALTH ACCREDITATION BOARD · PHAB Advancing public health performance

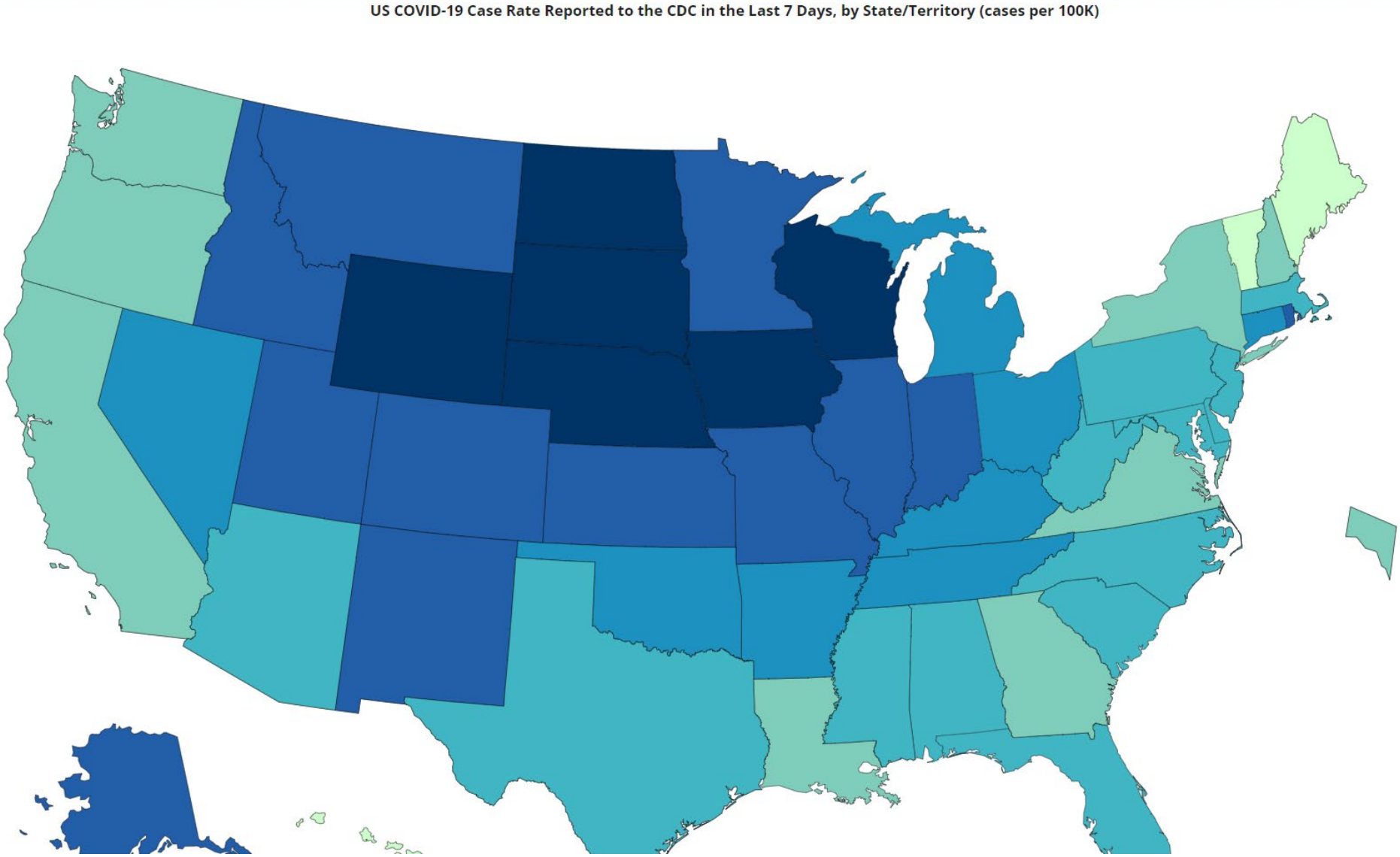
WWW.CORONAVIRUS-SD.COM

INTERNATIONAL COMPARISON



https://coronavirus.jhu.edu/data/new-cases

US CASE RATE IN LAST 7 DAYS



https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days

DAYS TO MILLION CASES DECREASING

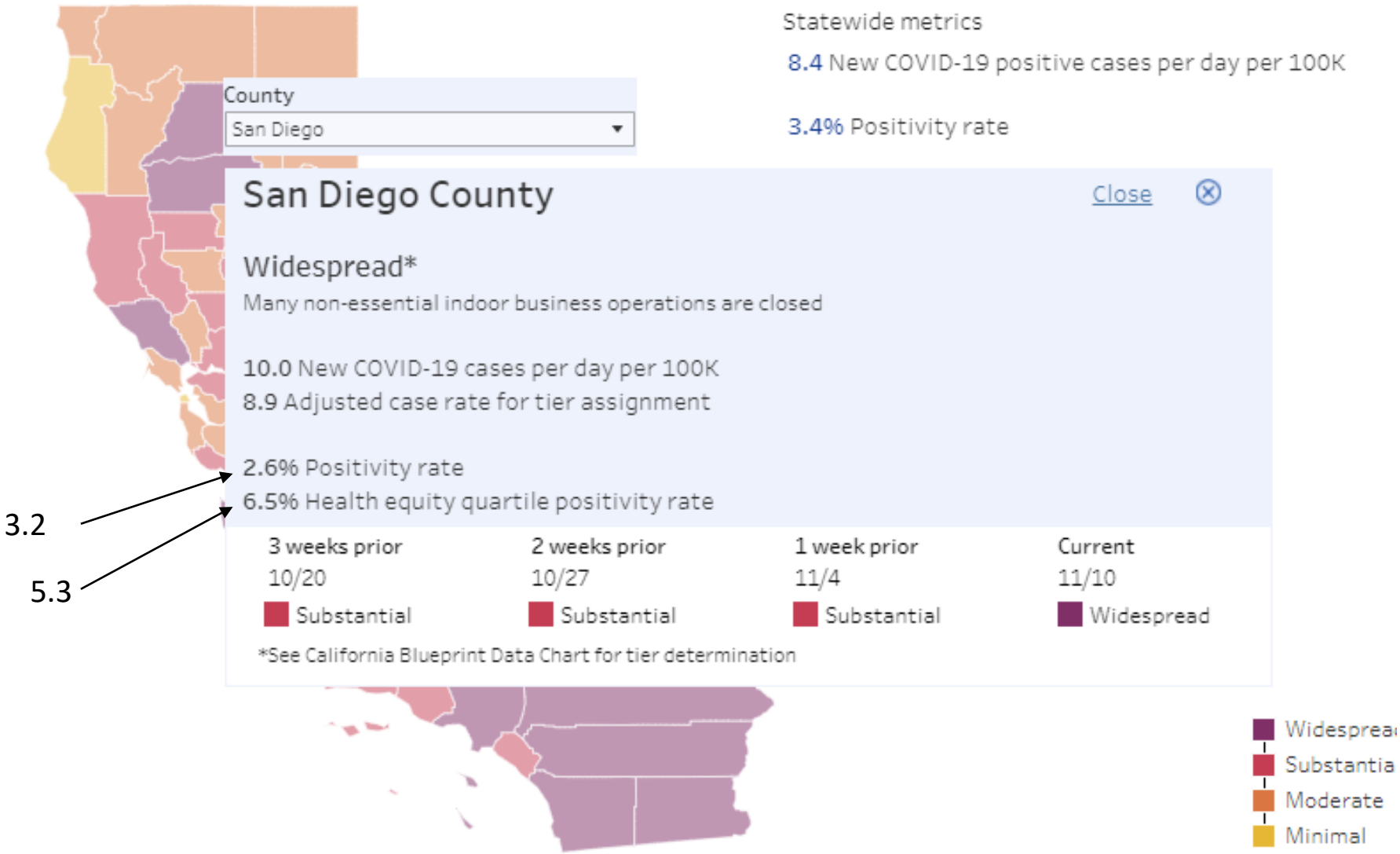
PLEASE NOTE IN BEGINNING TESTING WAS VERY LIMITED

1 million to 2 million- 44 days
2 million to 3 million- 27 days
3 million to 4 million- 15 days
4 million to 5 million- 17 days
5 million to 6 million- 22 days
6 million to 7 million- 25 days
7 million to 8 million- 21 days
8 million to 9 million- 14 days
9 million to 10 million- 10 days

Source: Johns Hopkins

Current tier assignments as of November 10, 2020

All data and tier assignments are updated weekly every Tuesday.



https://covid19.ca.gov/safer-economy/

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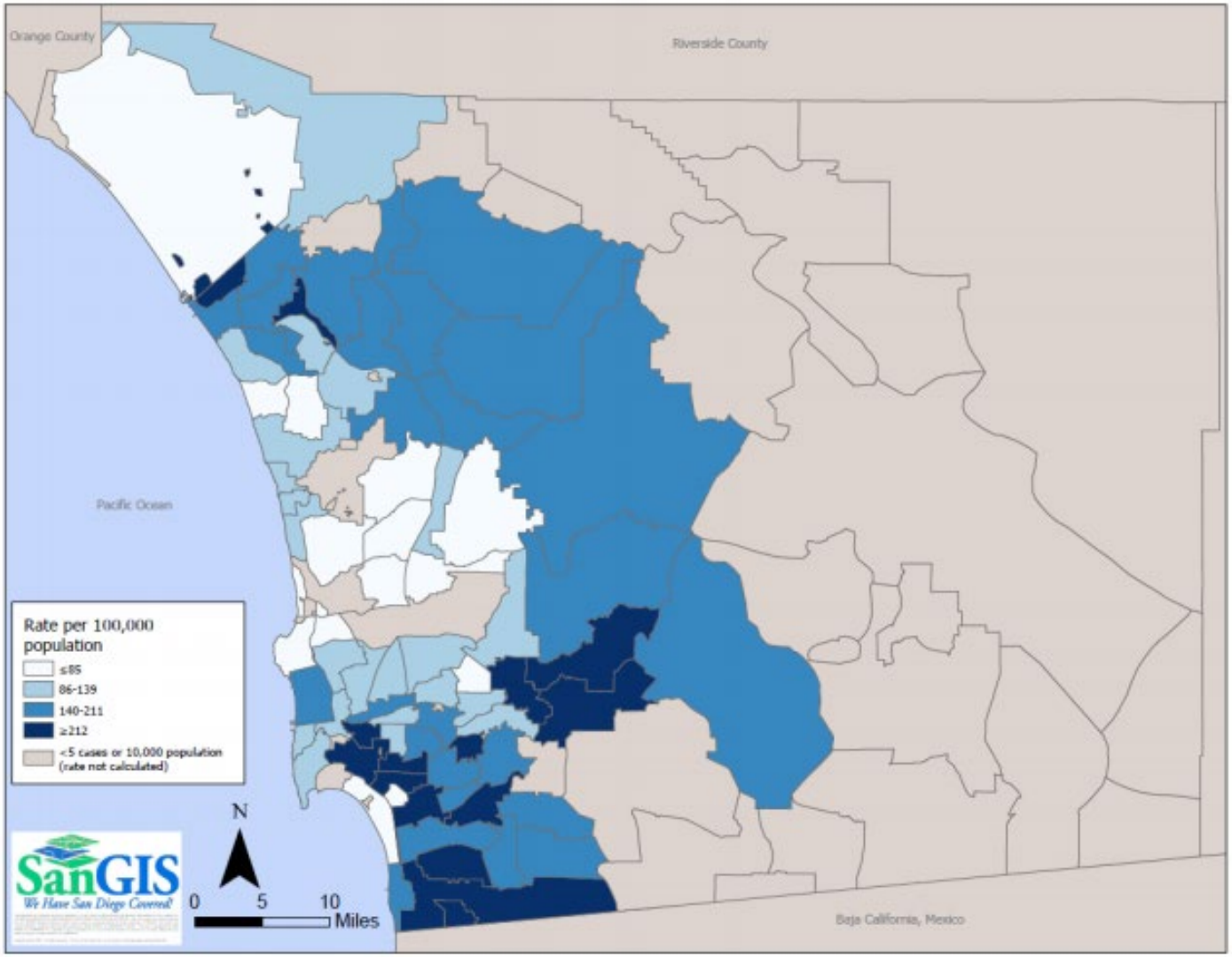
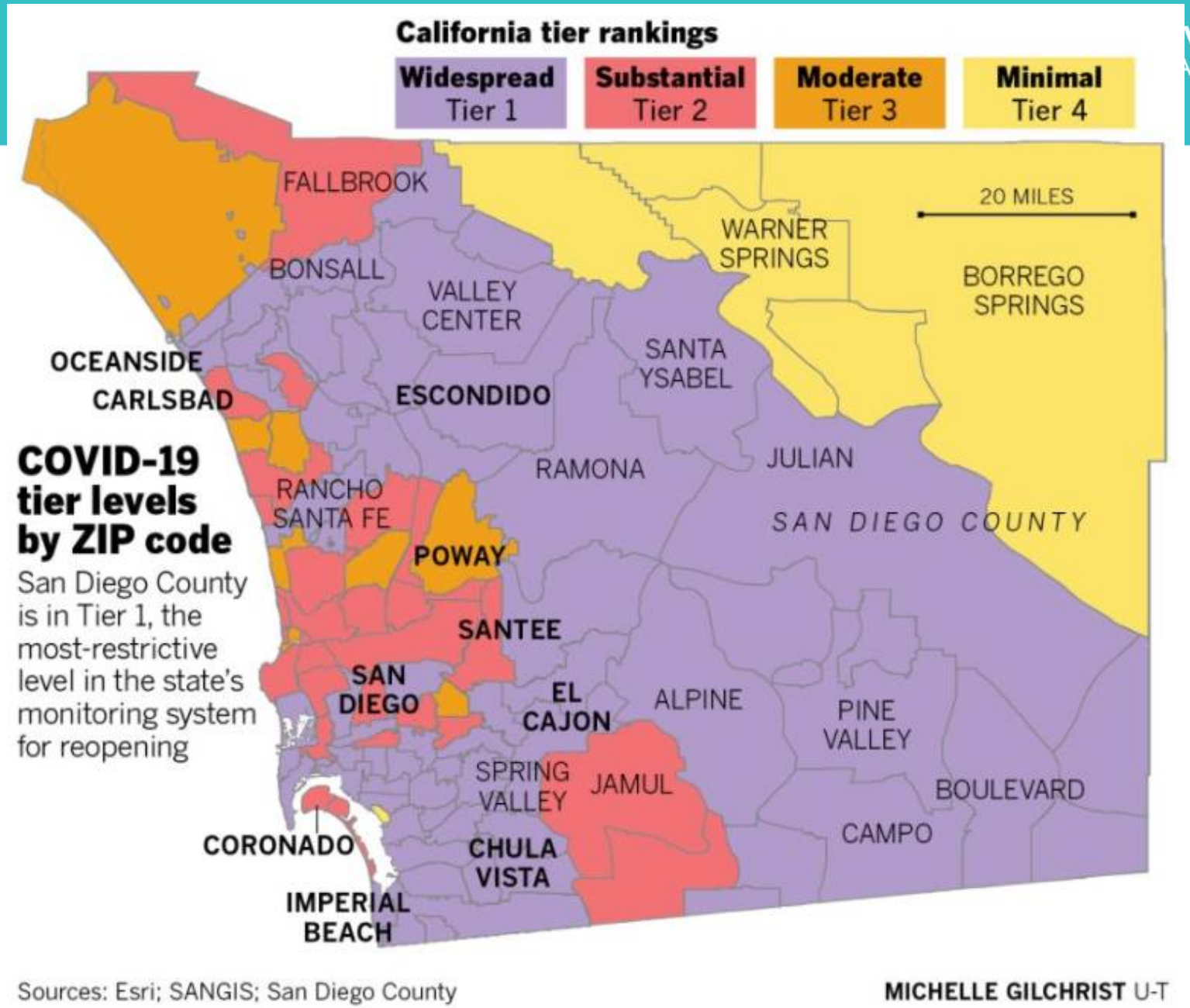
SAN DIEGO

Figure 11. COVID-19 Rates by Zip Code of Residence, 10/25/2020-11/07/2020, San Diego County (Countywide Rate = 166 per 100,000 Population)



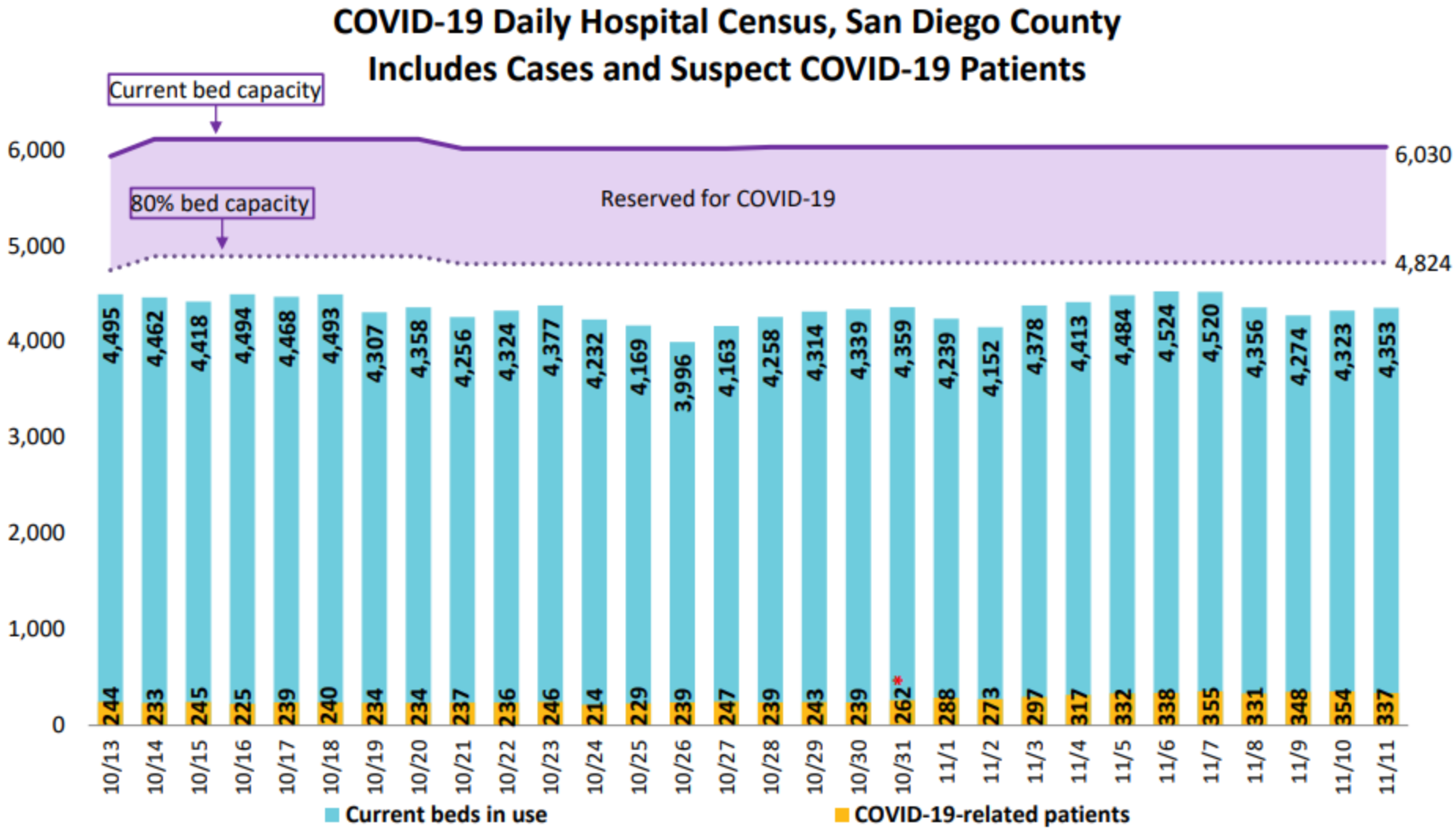
Rates calculated using 2019 population estimates from the San Diego Association of Governments. Rates not calculated for counts under 5 cases or populations less than 10,000. Zip code is zip code of residence, which may not be location of exposure.
Case counts and rates for each zip code are updated routinely on the County of San Diego COVID-19 website.

https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/Epidemiology/COVID-19%20Watch.pdf



- https://www.sandiegouniontribune.com/news/health/story/2020-11-12/covid

COVID-19 Daily Hospital Bed Census



*Data are preliminary and subject to change; data from hospitals reporting directly to the County of San Diego; include cases and suspect patients for non-federal hospitals for San Diego County residents and non-residents; current bed capacity for non-federal hospitals in San Diego County; *Starting 10/31, COVID hospital census numbers will show an increase due to a change in the hospital census definition. Prepared by County of San Diego, Emergency Operations Center, 11/12/2020*

LOCAL UPDATES

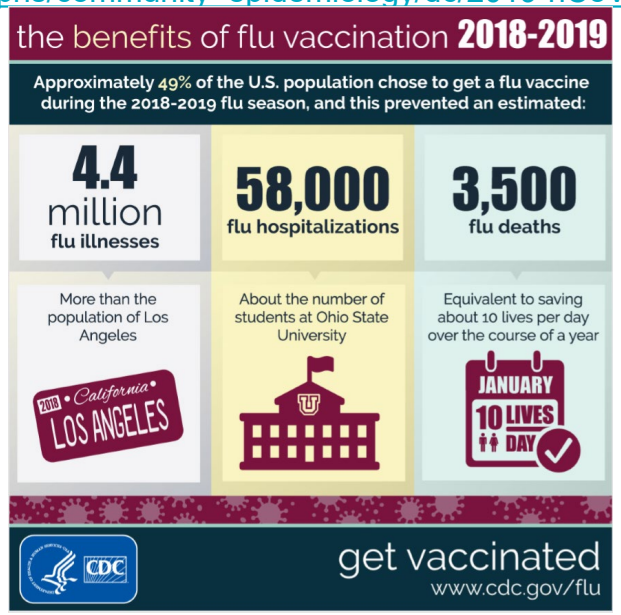
- Public Health Officer Order – Updated Nov 3rd
  - Updates to Section 3 for school reporting

- Isolation and Quarantine Orders
  - Updated to align with new CDC "close contact" or exposure definition

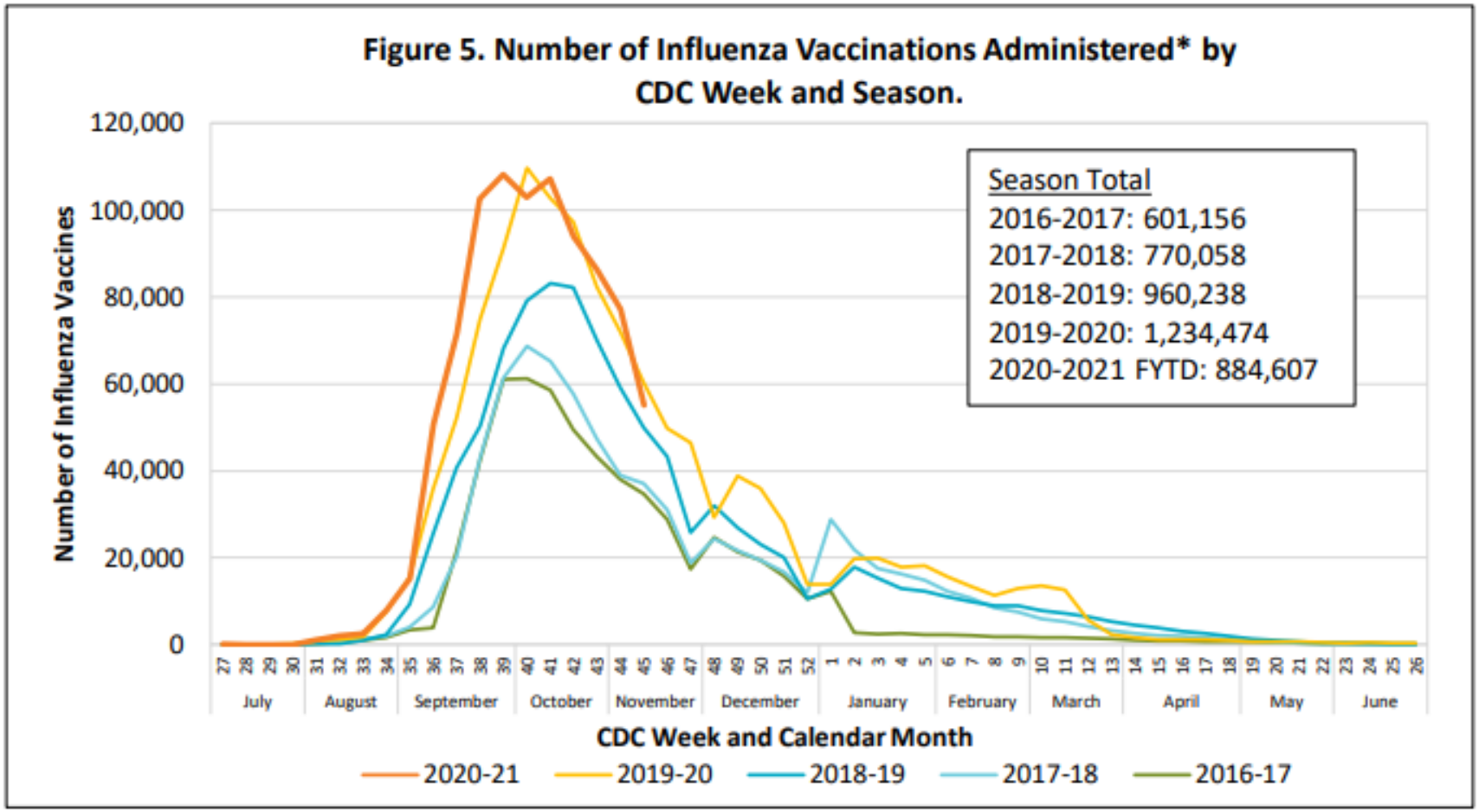
https://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs/community_epidemiology/dc/2019-nCoV/health-order.html#AdditionalHealthOrders

- COVID-19 case rate map

- Influenza Watch – 27 flu cases reported
  - Encourage flu **and other** vaccines



NUMBER OF FLU VACCINES ADMINISTERED IS DECREASING



* Influenza vaccinations administered and entered into the San Diego Immunization Registry (SDIR)

LIVE WELL SAN DIEGO

FLU VACCINATION BY RACE/ETHNICITY

Percentage of San Diego County and U.S. Adults that had a Seasonal Flu Vaccination by Race/Ethnicity, 2018						
Percent Vaccinated	Race/Ethnicity					
	Hispanic Americans	Whites	African Americans	Asian Americans	American Indians/Alaskan Natives	Other
San Diego County	22.9%	41.4%	24.6%*	32.9%	37.4%*	41.3%*
U.S.	37.1%	48.7%	39.4%	44.0%	37.6%	39.7%

Source: Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2017.

**Unstable estimates (unweighted total response < 50).*

FLU VS. COVID

FLU

Caused by:
Influenza virus

Transmitted Through:
Respiratory droplets

Illness: Begins 1-4 days after exposure

Contagious:
1 day before symptoms begin and about 7 days after illness begins.

Prevention: Flu Shot

BOTH

Transmitted Through:
Respiratory droplets from an infected person

Symptoms:
- Fever
- Cough
- Difficulty breathing
- Fatigue
- Body aches
- Runny nose
- Headache
- Sore throat

Possible to have no symptoms

Complications:
Pneumonia, among others*, including death

COVID-19

Caused by:
SARS-CoV-2 virus

Transmitted Through:
Respiratory droplets AND air in enclosed spaces

Illness: Begins 2-14 days after exposure

Symptoms:
- Loss of taste or smell

Contagious:
2 days before symptoms begin and 10 days (up to 20 days) after symptoms appeared.

Complications:
- Blood clots
- Multisystem Inflammatory Syndrome in Children (MIS-C) and Adults (MIS-A)

Prevention:

- Stay home if sick
- Cover your cough or sneeze
- Avoid touching your face
- Wash your hands
- Clean and disinfect surfaces often
- Wear a face covering
- Practice Social/ Physical Distancing

***Complications:** Pneumonia, respiratory failure, heart problems, organ failure, worsening of chronic medical conditions, inflammation of heart, brain, or muscle tissue.

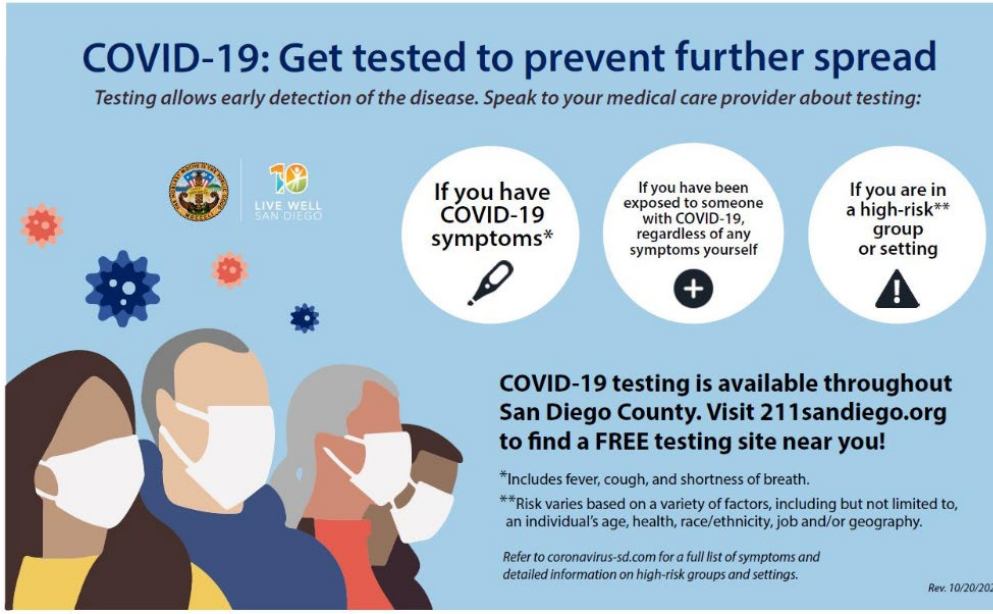
https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/Immunizations/Flu%20vs%20COVID-19.pdf

WHAT DOES THE PURPLE TIER 1 MEAN?

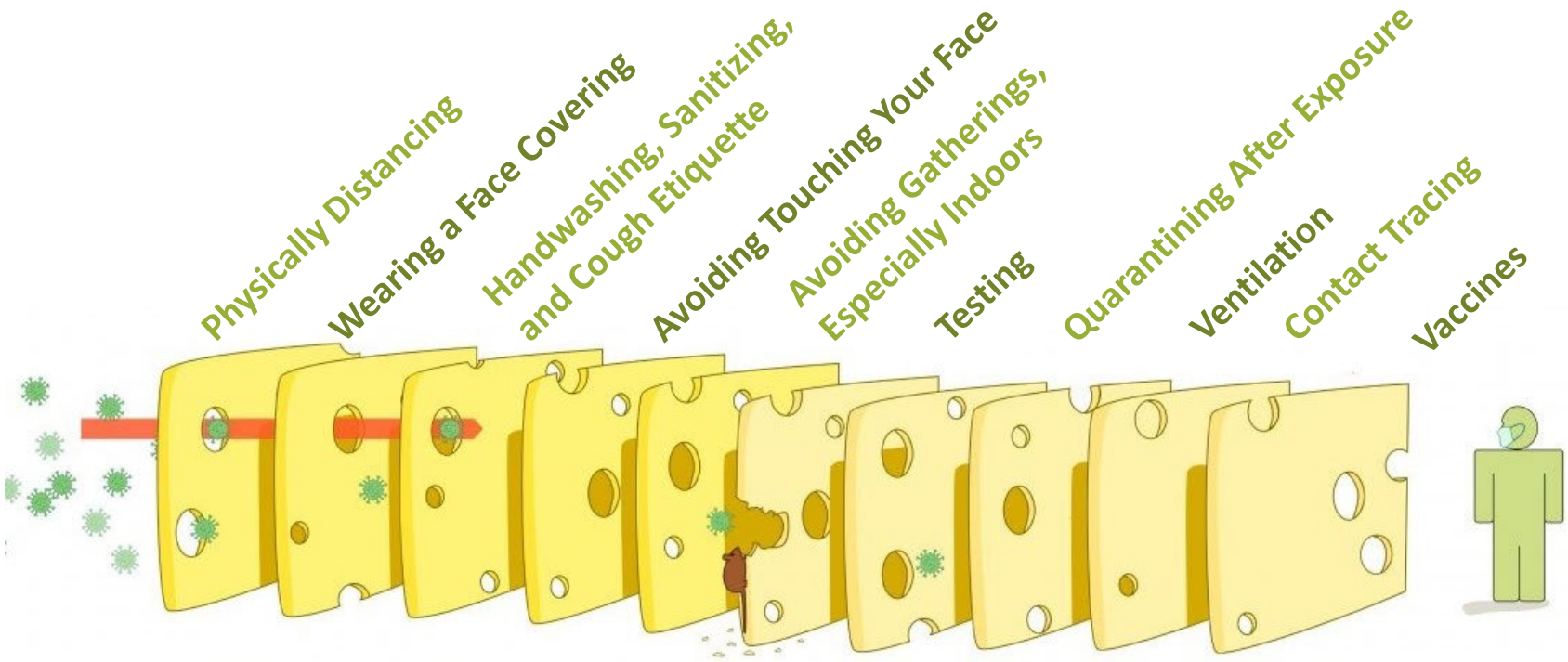
- As per the state's Blueprint for a Safer Economy, the following need to STOP indoor operations starting Nov. 14.
  - Restaurants
  - Places of worship
  - Gyms and fitness centers, including yoga studios
  - Movie theaters
  - Museums
  - Zoos and aquariums
- Services with essential critical infrastructure workers are permitted to continue indoor operations, when remote operations are not practical (i.e., human services providers)
  - https://covid19.ca.gov/essential-workforce/

WHAT CAN WE DO?

- Wear a mask to protect yourself and others
  - CDC now says masks protects the user too!
- Wash hands, stay home if sick or exposed
- Minimize mixing and travel
  - Note new travel advisory
- Testing – don't delay if 1+ symptoms
  - Avg case waits over 3 days before testing
- Plan differently this holiday season
- Take care of your and others' mental health
  - 11/13 CDC report: Children's mental health-related ED visits have increased since April and remained elevated



NO SINGLE PREVENTION STRATEGY IS ENOUGH



EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).
MULTIPLE LAYERS IMPROVE SUCCESS.

Adapted from: https://www.pslhub.org/learn/coronavirus-covid19/tips/the-swiss-cheese-respiratory-virus-pandemic-defence-r3379/

QUESTIONS?

IMPROVING INDOOR AIR QUALITY AS A STRATEGY TO DECREASE TRANSMISSION OF SARS COV-2 IN LONG-TERM CARE FACILITIES

November 13, 2020

Raymond Chinn, MD, FIDSA, FSHEA

Epidemiology Unit, Epidemiology & Immunization Services Branch

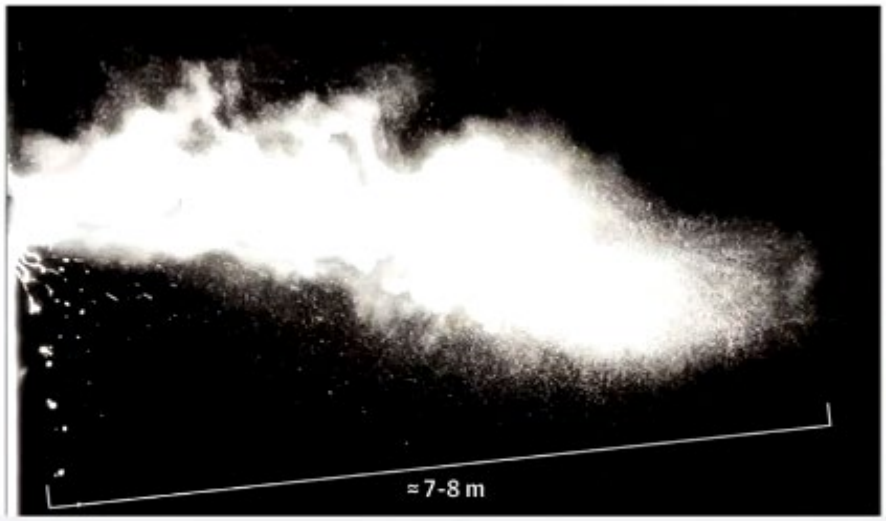
Health & Human Services Agency, County of San Diego

COUNTY OF SAN DIEGO
HHSA
HEALTH AND HUMAN SERVICES AGENCY
PUBLIC HEALTH SERVICES

LIVE WELL SAN DIEGO

ACCREDITED HEALTH DEPARTMENT • PUBLIC HEALTH ACCREDITATION BOARD •
PHAB
Advancing public health performance

AEROSOL TRANSMISSION



Bourouiba, L. JAMA. 2020;323(18):1837-1838.
doi:10.1001/jama.2020.4756

- **Enclosed spaces** within which an infectious person either exposed susceptible people at the same time or to which susceptible people were exposed shortly after the infectious person had left the space.
- **Prolonged exposure to respiratory particles**, often generated with expiratory exertion (e.g., shouting, singing, exercising) that increased the concentration of suspended respiratory droplets in the air space.
- **Inadequate ventilation or air handling** that allowed a build-up of suspended small respiratory droplets and particles.

ENGINEERING CONTROLS

- Ventilation
  - Air changes per hour
  - Fresh air vs. recirculated air
  - Air cleaners, e.g. portable HEPA filters
- Air Distribution
  - Fans; evaporative coolers
- Filtration

https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html
https://www.ncbi.nlm.nih.gov/pubmed/33087517external icon
https://www.sfdph.org/dph/files/ig/COVID-19-Ventilation-Guidance.pdf.

“The solution to pollution is dilution”

VENTILATION

- Dilutes contaminants
- Increase exposure time to an infectious dose

LIVE WELL SAN DIEGO

IMPROVING VENTILATION

- Windows and door
  - Increase natural ventilation of the facility by opening windows and doors when weather and safety considerations allow
  - Do risk assessment of residents: outside AIR can increase risk of opportunistic fungal infections in the susceptible patient
- HVAC systems:
  - infectious aerosols are diluted by introducing new, clean air into an indoor environment
  - Infectious aerosols are removed or filtered out of an indoor environment
- Portable air cleaners with HEPA to increase air change per hour (about 6); note square feet coverage
- Ideal air change per hour: 4-6, with 2 being outside air

USING FANS FOR VENTILATION

- Fans should be mounted in open windows, or placed near open windows to direct indoor airflow outside to remove air
- Fans can be oriented to promote airflow into portable air cleaners

VENTILATION AND VIRAL ILLNESS

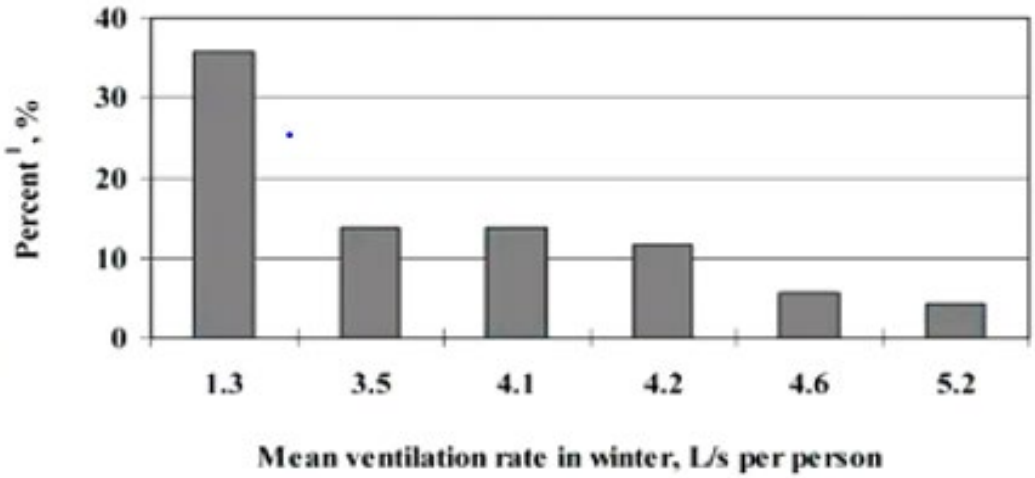


Figure 4. Associations between common cold infection rates and mean ventilation rate in winter in buildings constructed after year 1993. [1] Proportion of occupants with ≥6 common colds in the previous 12 months.

Sun, et al. (2011)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3217956/

A higher ventilation rate is associated with a lower common cold infection rate

AIR DISTRIBUTION

Velocity

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OUTBREAK IN GUANGHOU, CHINA

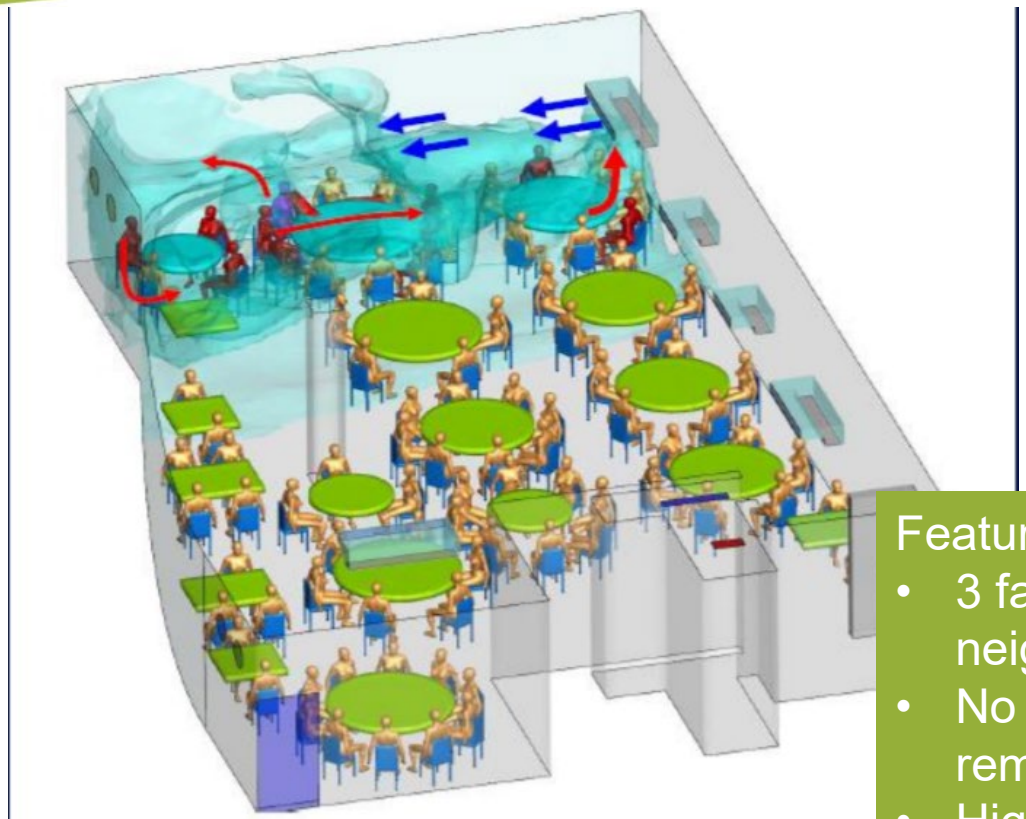
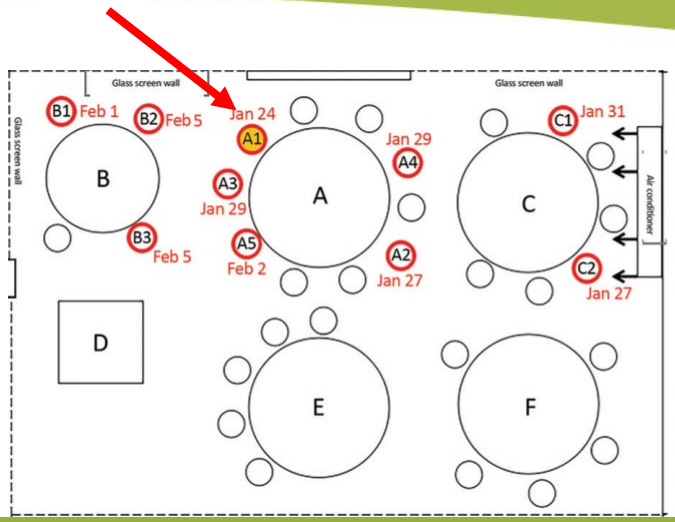


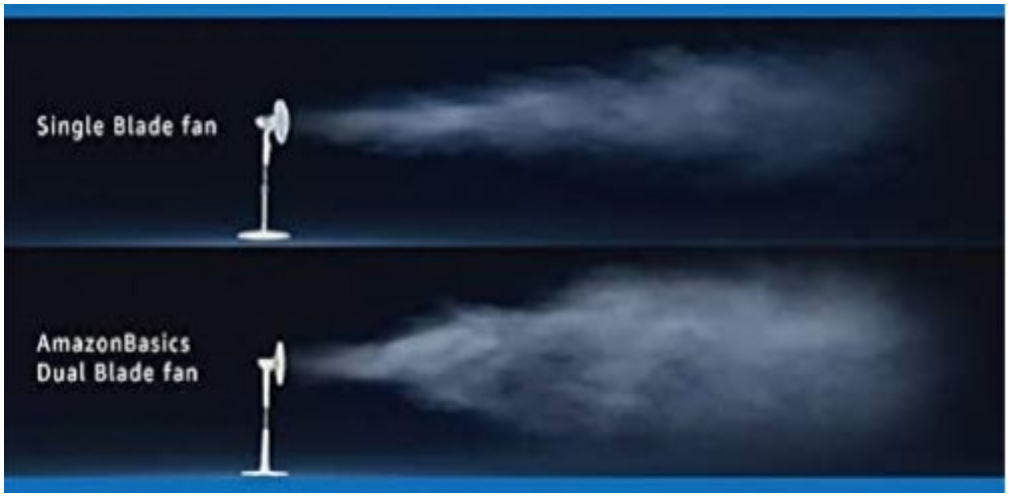
Figure 3. Simulated dispersion of fine droplets exhaled from index Patient A1 (mag
which are initially confined within the cloud envelope due to the zoned air-c
arrangement. The fine droplets eventually disperse into the other zones via air ex
are eventually removed via the restroom exhaust fan. The ABC zone clearly h
concentration of fine droplets than the non-ABC zone. Other infected patients are shown in red
and other non-infected in gold color. Only a single human body is used to represent all patrons.



Features:

- 3 families: 10 members infected in neighboring tables
- No waiters or 68 other patrons of remaining tables infected
- High air velocity
- Poor ventilation: exhaust fans off
- Ventilation rate 1/10 of what is recommended

AIR DISTRIBUTION



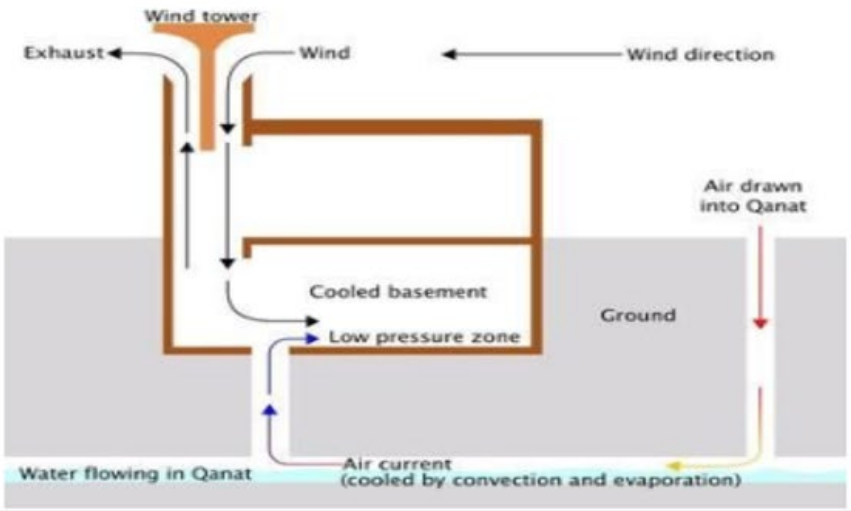
Fans used for cooling

- Airflow from fans should **NOT** be oriented from the breathing zone of residents/HCWs towards the breathing zone of other individuals
- If fans are used in rooms, avoid directing airflow towards the door or to roommates

EVAPORATIVE (SWAMP COOLERS)

Evaporative cooler

Device that cools air through the evaporation of water



Evaporative coolers cool air through evaporation of water: water will absorb a relatively large amount of heat to evaporate

- Not for use in patient care areas: need waiver
- Does not generate aerosol
- Best in dry climates
- Increases humidity that might predispose to fungal growth
- Routine maintenance to discourage grow of microorganisms in water

FILTRATION

LIVE WELL
SAN DIEGO

MINIMUM EFFICIENCY REPORTING VALUES (MERV):

REPORT A FILTER'S ABILITY TO CAPTURE LARGER PARTICLES BETWEEN 0.3 AND 10 MICRONS (MM).

	Minimum % of particles removed by air filter		
MERV Rating	E1 particles (0.3 - 1.0 microns)	E2 particles (1.0 - 3.0 microns)	E3 particles (3.0 - 10.0 microns)
MERV-1	-	-	<20%
MERV-2	-	-	<20%
MERV-3	-	-	<20%
MERV-4	-	-	<20%
MERV-5	-	-	>20%
MERV-6	-	-	>35%
MERV-7	-	-	>50%
MERV-8	-	>20%	>70%
MERV-9	-	>35%	>75%
MERV-10	-	>50%	>80%
MERV-11	>20%	>65%	>85%
MERV-12	>35%	>80%	>90%
MERV-13	>50%	>85%	>90%
MERV-14	>75%	>90%	>95%
MERV-15	>85%	>90%	>95%
MERV-16	>95%	>95%	>95%

HEPA (**high efficiency particulate air**) filter - can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (µm).

SUMMARY

- **Ventilation**
  - Air changes per hour – ideal around 6 with 2 consisting of fresh air
  - Complete fresh air (energy intensive) vs. recirculated air
  - Air cleaners, e.g. portable HEPA filters – removes microorganisms and increases ACH
  - Exhaust fans can remove indoor air
  - “Open ventilation” an option unless there are contraindications
- **Air Distribution - velocity**
  - Fans
  - Evaporative coolers

SUMMARY

- **Filtration**
  - Use equivalent to MERV 13
  - Portable HEPA filters will enhance removal of microorganisms
- **Hierarchy of controls**
  - **Source control – reduction of 50%**
  - Portable air cleaners – further reduction of 50% = total reduction of 75%
  - Increased ventilation – further increase reduction to 85-90%

CDC: The relationship between source control and personal protection is likely complementary and possibly synergistic