

# Reopening Schools Safely: Best Practices

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UCSF CARES – *Collaborative Advising on Reopening Education Safely*

# Why did we close our schools?

March 2020:

- We thought kids would be the primary drivers of COVID
- We thought kids would be at risk of severe illness
- We thought schools would be super spreaders
- We thought school closures would save thousands of lives
- We were wrong....

# What we know now: 2021

- Adults are the primary drivers of COVID
- Kids extremely unlikely to have severe COVID disease
  - 11 COVID deaths versus 16 influenza deaths among CA children (<18yo)
  - 225 deaths by suicide in <18yo (2017)
  - Adolescents 10x more likely to die from suicide than COVID

## COVID-19

- 80% cases considered mild
  - ▶ "Current best estimate" of IFR from CDC for planning:
    - ▶ 0-19 years: 0.003%
    - ▶ 20-49 years: 0.02%
    - ▶ 50-69 years: 0.5%
    - ▶ 70-80 years: 5.4%

# What do we know about COVID & Schools?

- Key mitigation strategies: **masking + distancing**
- Less important: cleaning surfaces, reducing shared objects
- Adult to adult transmission is most likely source of school transmission
- Numerous reports of failures—*transmissions without adequate masking*
- Common theme among success stories— Europe, Asia, New York, North Carolina, Wisconsin, Mississippi, Marin: *good mask compliance*

# Masks + Distancing = On Par with Vaccines in Reducing Transmission



# CDC Update: Cloth mask over disposable OR tighten up (knot ear loops, tuck sides)

**Wearing a mask that fits tightly to your face can help limit spread of the virus that causes COVID-19**

In lab tests with dummies, exposure to potentially infectious aerosols decreased by **about 95%** when they both wore tightly fitted masks

Other effective options to improve fit include:



Cloth mask over medical procedure mask      Medical procedure mask with knotted ear loops and tucked-in sides      Mask fitter      Nylon covering over mask

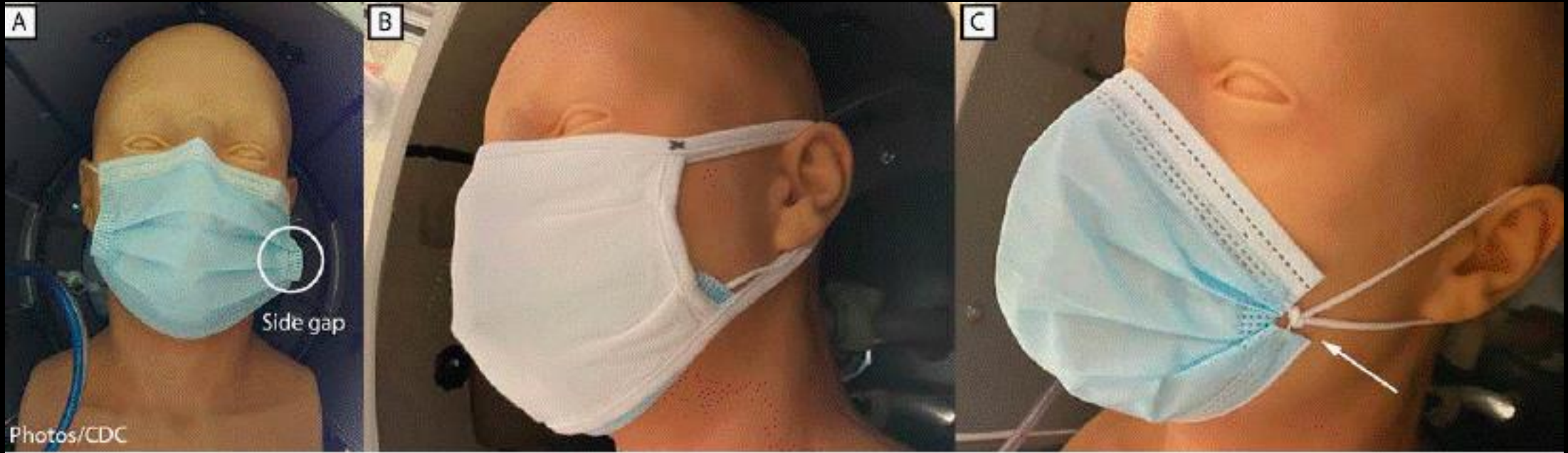
CDC.GOV      [bit.ly/MMWR21021](https://bit.ly/MMWR21021)      MMWR

# Improved masking: 84% filtration increases to 96% filtration

Side gap

Cloth on top: No gap

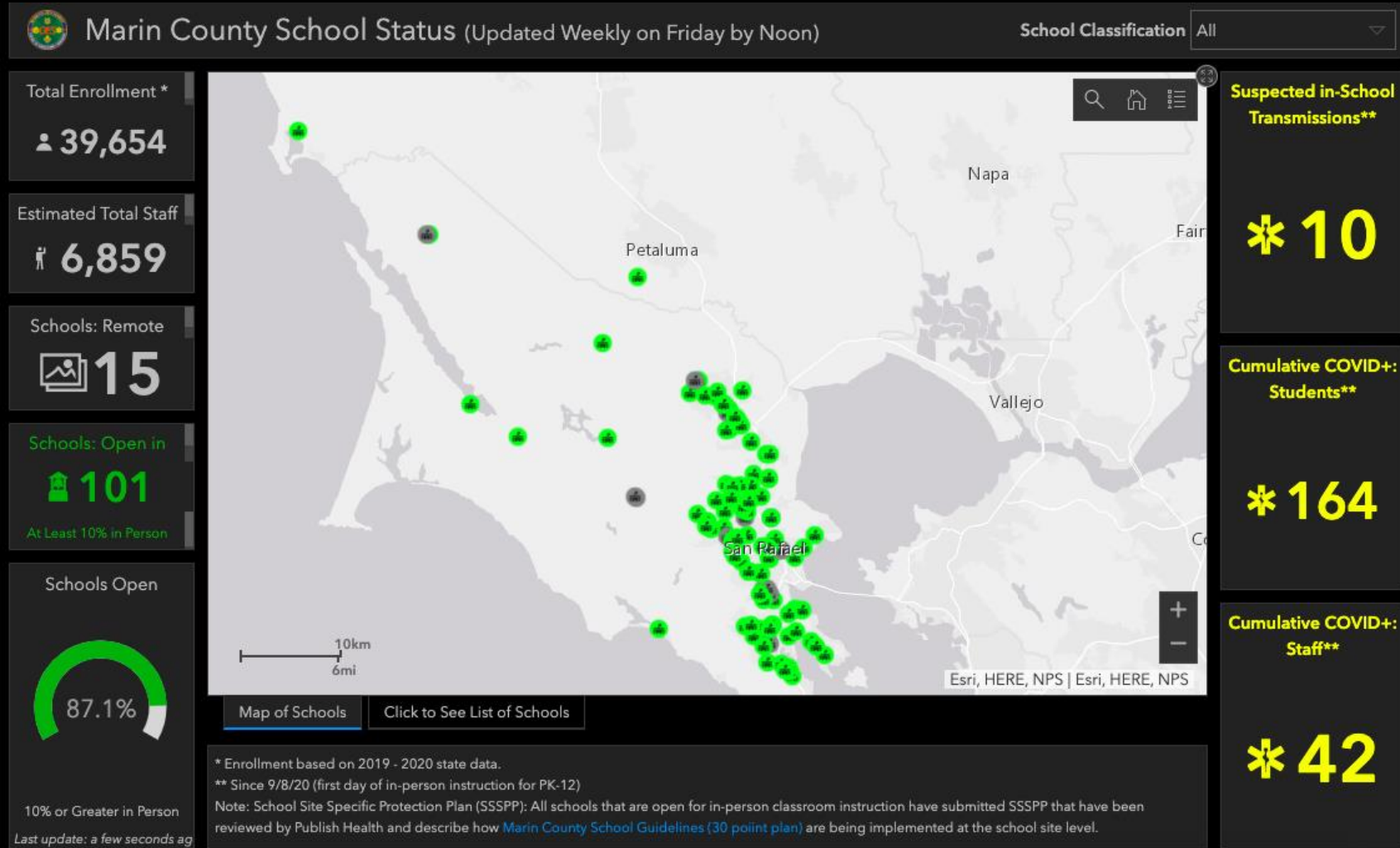
Knotted: No gap





# Ultimate measure of success = number of school-based transmissions

- Nearly 1 million “student days”
- 0 student to teacher transmissions
- 2 teacher to student transmissions
- 5 high schools open





# Public schools in North Carolina: High community rates, few school transmissions (K-12)

- 90K students, 10K teachers (K-12)
- Community daily case rate >29 /100,000
- Strategy: 3 Ws (wear your mask, watch your distance, wash your hands)
  - Near total focus on masking
- 32 in-school transmissions (predicted 900)
- Zero student to teacher transmissions
- Middle School & High School were **not** higher risk than K-6
- 3 outbreaks: all due to initial lack of masking
  - 1 in pre-K; added masks
  - 2 in special needs; added face shields



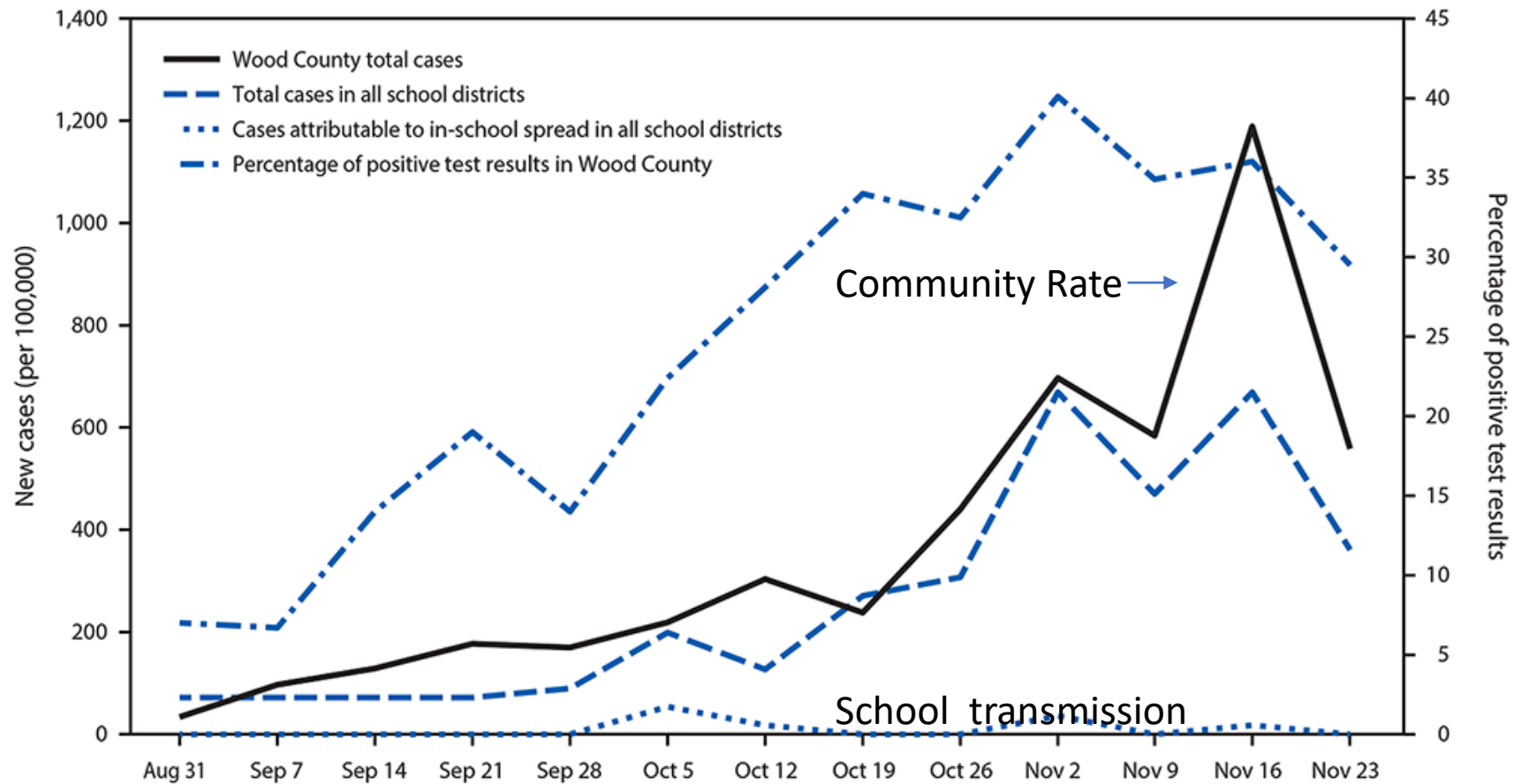
# Rural Schools in Wisconsin (K-12): High community rates, little school transmission



- 4,986 students, 654 teachers, followed for 3 months
  - Grant to ensure all students and teachers had masks
  - Class size: up to 20 students
- 7 school-based transmissions
  - Zero student to teacher transmissions
  - 67% students were 7-12 graders BUT only 2 of 7 transmissions occurred in grades 7-12 (**lower risk than K-6**)
- Low school transmissions when community positivity rate up to 40%

# Community cases do not equal school cases

**FIGURE 2. Community and school-associated COVID-19 incidence (cases per 100,000) and percentage of positive test results, by week — Wood County, Wisconsin, August 31– November 29, 2020**



# Does COVID on campus = campus spread?

- Community prevalence is not an independent predictor of school spread *in context of masking*
- Strongest predictor of school spread = adherence to masking
- A frontline perspective – masking works!

# Exposures that predict COVID in kids under age 18 (CDC data, Mississippi, Sept–Nov 2020)

- Compared exposures in past 14 days among kids testing positive versus kids testing negative for COVID
- Exposures that predicted +COVID test: playdates, having attended social gatherings, visitors in the home
- Exposures that predicted -COVID test: having attended school or childcare where mask wearing was enforced
- Lesson: social gatherings, not schools, are where COVID transmissions occur





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## Guidance from Expert Council at Harvard, Brown, Tufts and Boston University, December 2020

“We (previously) recommended that schools be closed once the average daily case rate rose above 25 cases/100,000 people, at the county level. Since July, our scientific understanding of COVID has increased significantly, as has our understanding of degrees of risk in schools.

**We can now recommend that schools be open even at the very high levels of spread we are now seeing, provided that they strictly implement strategies of infection control.”**

<https://globalepidemics.org/2020/12/18/schools-and-the-path-to-zero-strategies-for-pandemic-resilience-in-the-face-of-high-community-spread/>





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# Council Recommendations on Distancing

- 3 feet distancing for young learners at all levels of community spread
- 3ft social distancing for high schools below daily case rate of 100/100K
- 6 feet social distancing for high schools when levels of community spread rise above 100/100,000 daily new cases

<https://globalepidemics.org/2020/12/18/schools-and-the-path-to-zero-strategies-for-pandemic-resilience-in-the-face-of-high-community-spread/>

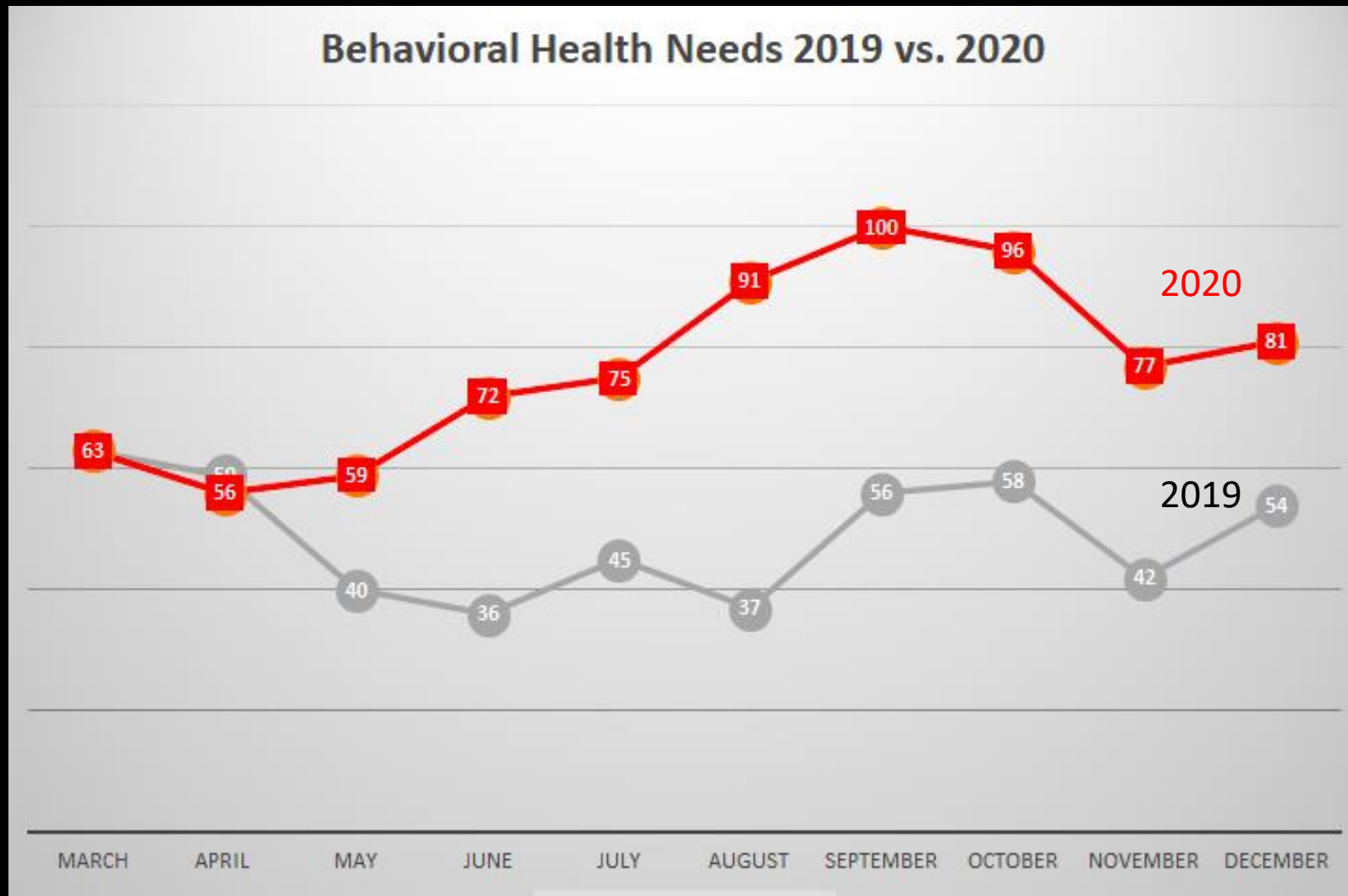
# What about ventilation?

- Most important = open doors
- Eat outside when weather allows
- Airborne versus droplet spread – focus on droplet
- Ventilation systems reduce airborne spread – small component of overall transmission
- Masks reduce droplet spread

# Why reopen now, with vaccine on the horizon?

- Masks + distancing brings similar level of protection
- Strong evidence of safety
- Strong evidence of harm from continued social isolation
  - Adolescent mental health crisis
- Worsening academic slide, life-long impact

# Increasing number of children requiring emergency mental health services, BCHO



# Mental health crisis is broad: Twofold increase in hospitalized children requiring mental health services

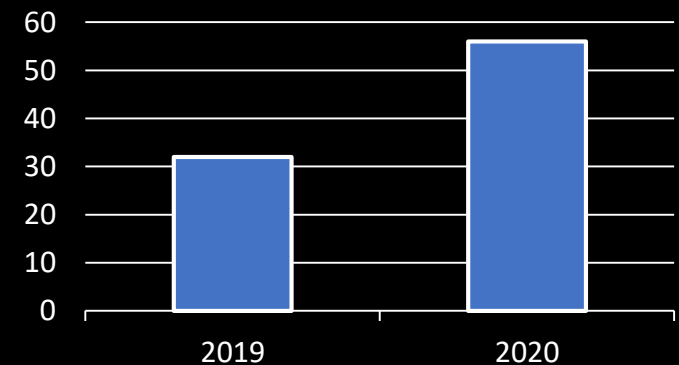


Mental health crisis is severe:

75% increase in children requiring immediate hospitalization for mental health needs

- 2019: 32% of children needing emergency mental health services required immediate hospitalization
- 2020: 56% of children needing emergency mental health services required immediate hospitalization

% Requiring Immediate Hospitalization

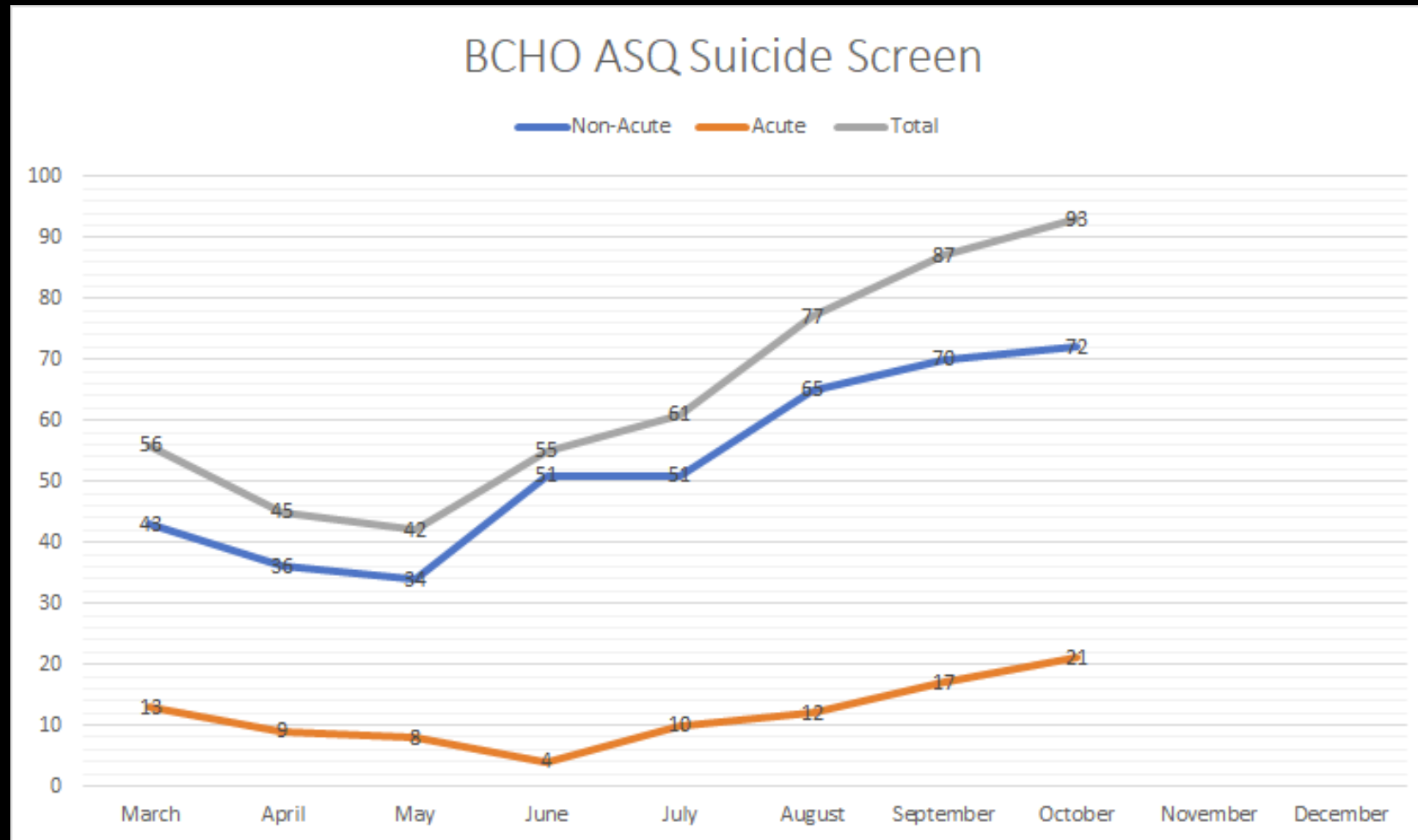




130% increase in number of children requiring hospitalization for eating disorders, BCHO

- Average daily census of adolescents hospitalized for eating disorders
  - 2019 = 3.2
  - 2020 = 7.4

# Increasing numbers of suicidal adolescents ages 10-17, in Emergency Department, BCHO



January 2021:  
UCSF Children's Emergency  
Department at Mission Bay had the  
highest number of suicidal children in  
ER on record

# Return to in-person education meets social and emotional needs of teachers too

- Fear of unknown tremendous just before return
  - Connecting with colleagues, seeing your students, establishing routines
- The science tells us you don't have to sacrifice your health or safety to reclaim your rights as a teacher.
- Mental health of teachers also seems to improve with reopening
  - "I was ready to give up on teaching until I went back to the classroom and saw my students faces...and I realized, there is no way I would give this up."

# What about medically fragile family members and the intergenerational household?

- Hospital workers have chosen various options....
- Universal masking has kept us safe
- Doubling masking is an option, providing an extra layer of reassurance and peace of mind

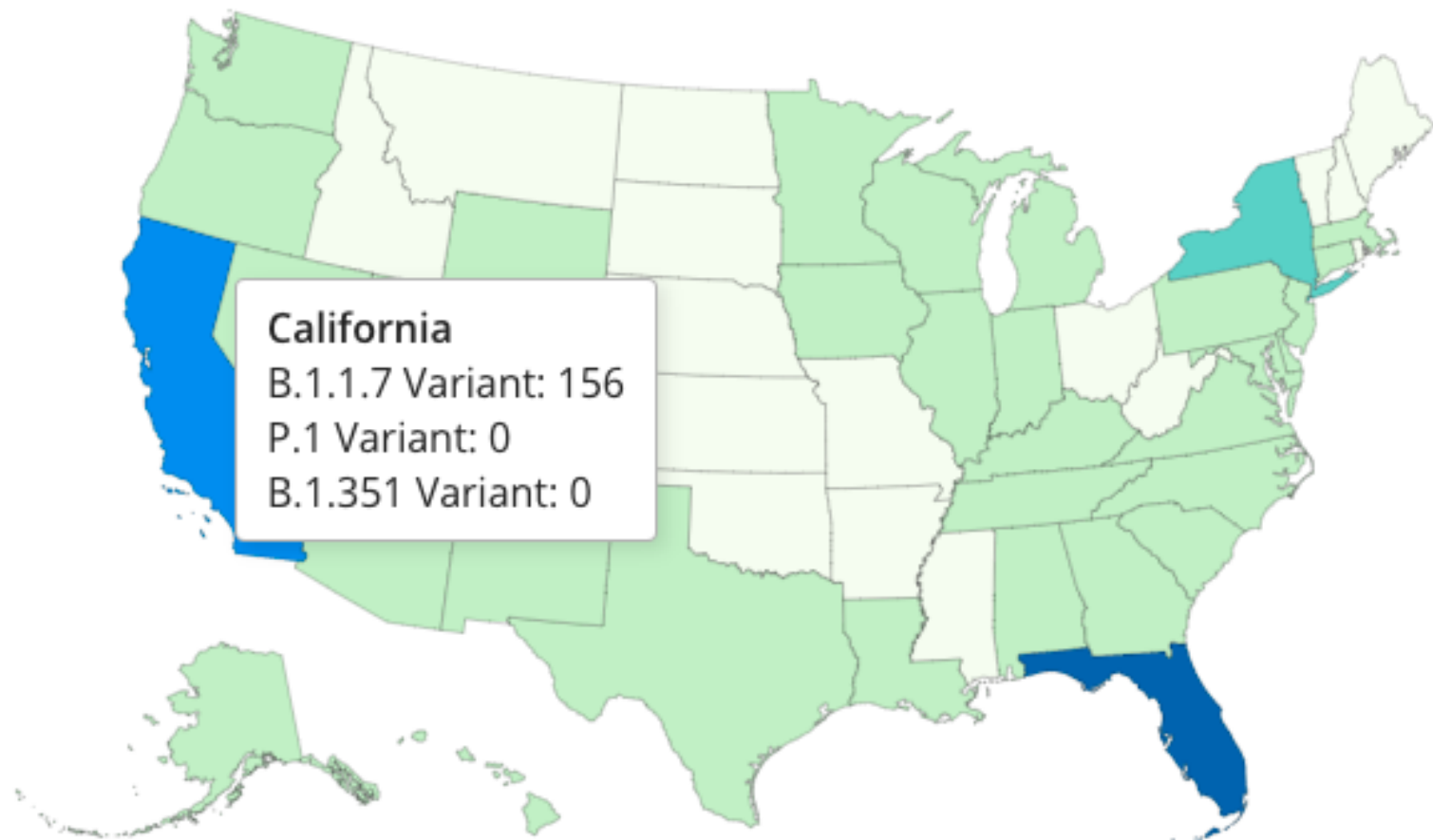
# What about the new UK Variant?

- Regular COVID: secondary attack rate = 11%
- UK Variant: secondary attack rate = 14.7%
- Absolute increase of 3.7%
- Ages 0-9: increase from 6% to 9% (3% absolute increase)
- Ages 10-19: increase from 10 to 12% (2% absolute increase)

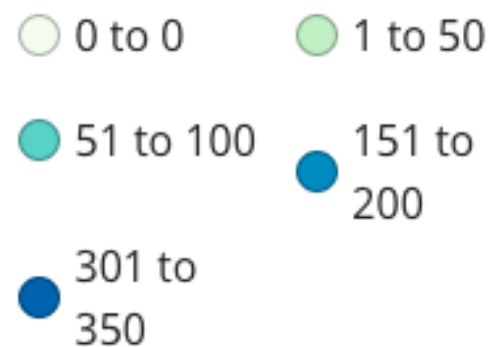
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/959360/Variant\\_of\\_Concern\\_VOC\\_202012\\_01\\_Technical\\_Briefing\\_3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/959360/Variant_of_Concern_VOC_202012_01_Technical_Briefing_3.pdf)



# Emerging Variant Cases in the United States\*†



## Number of Cases



## Filters

Variant B.1.1.7 ▾

UK: B.1.1.7  
South Africa: B.1.351•  
Brazil: P.1•  
California: CAL.20C

Territories

AS

GU

MH

FM

MP

PW

PR

VI



# Vaccines will still work – all prevent serious illness

| Vaccine           | COVID (US, now)                                | UK Variant           | SA Variant                           |
|-------------------|--|----------------------|--------------------------------------|
| Pfizer            | >90%   | >90%                 | >90%                                 |
| Moderna           | >90%   | >90%                 | >75%                                 |
| Novovax           | 90%  | 90%                  | 49%                                  |
| AstraZeneca       | 76%  | 76%                  | 10-25% (mild disease)                |
| Johnson & Johnson | 85% (severe disease),<br>72% (mild – moderate) | 85% (severe disease) | 85% (severe),<br>57% (mild-moderate) |

Q&A