



The Front Lines of the Fight Against COVID-19

# A TOWN HALL CONVERSATION XX

We will begin at 10 a.m.

Hosted by the Houston Methodist Behavioral Health Task Force



# Psychiatry and Behavioral Health Update

Ben Weinstein, MD

December 9, 2021

The COVID-19 pandemic has massive impact

- 1 of 7 Americans have been infected
- 1 in 500 Americans have died
- 1 of 3 Americans report depression and anxiety
- Rate of depression 28% increased, anxiety 26% increased worldwide
- Hardest hit demographic groups....
  - Children
  - Millennials
  - Women
  - Healthcare and other frontline workers
- In hard hit nations, 1 in 5 physicians report depression and 1 in 4 report anxiety
- 1 in 5 healthcare workers have quit

- Complexity Clinic

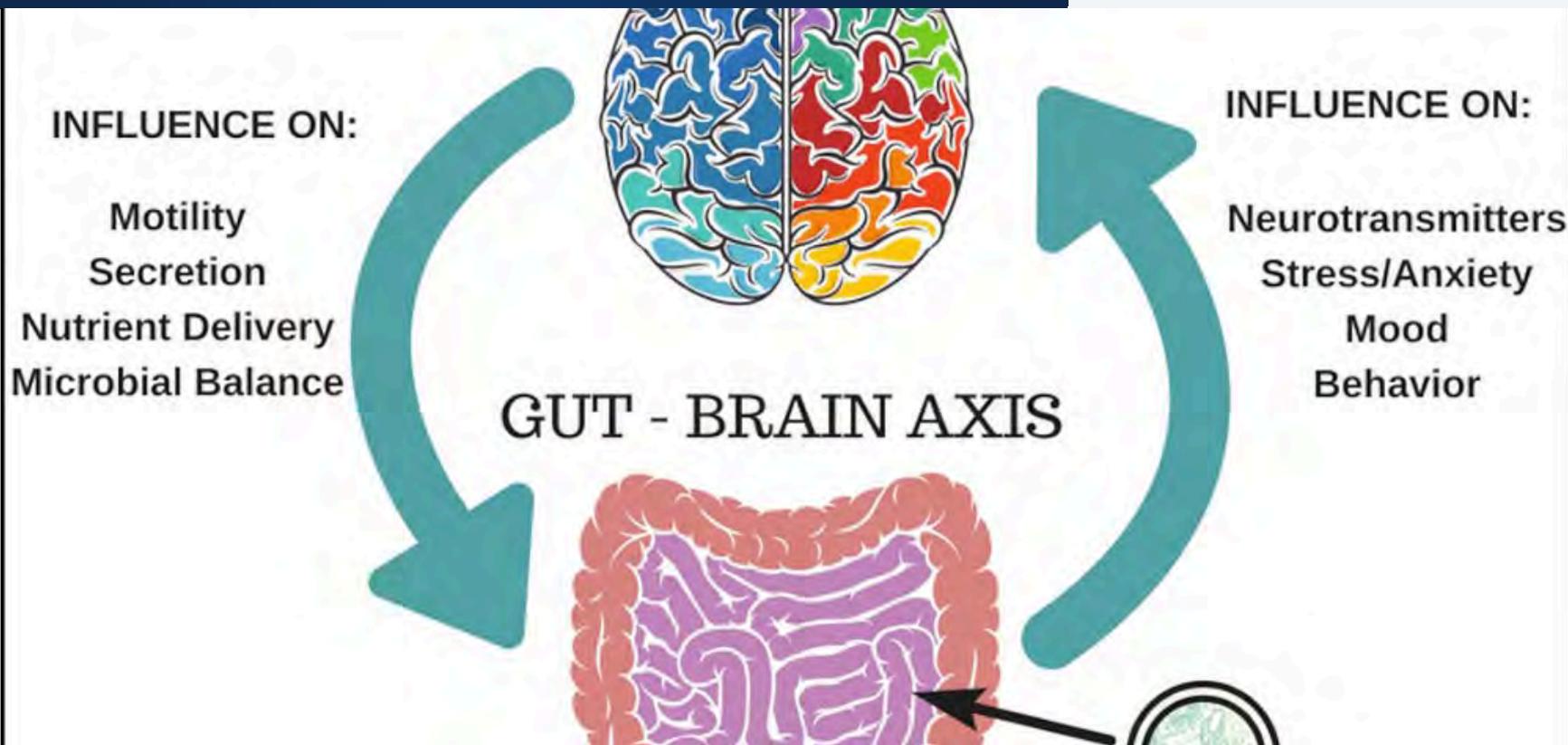
- Therapeutic Assessment Program: comprehensive evaluation and diagnostic program: Medical, Neurological, and Psychological evaluations, brain imaging, and pharmacogenetic assessment
- One of a kind program for intensive treatment of complex physical and mental illness: Functional Rehabilitation
- Growing national reputation for the highest quality work
- Call 346-238-2040, unfortunately not covered by most insurance

- Emotional Health and Wellbeing
  - First in the nation health system to offer comprehensive behavioral health treatment to every employee and dependent on the health plan – free of charge
  - In-person and virtual care offered by the best clinicians in Texas
  - Group therapy starting soon. Participating in outreach across the system

- Collaborative Care
  - How can we reach as many people in need and hopefully before people are desperate?
  - Embed therapists within clinics. Provide psychiatric supervision
  - Hybrid in-person and virtual model
  - Successful pilot project in Primary Care. Expanding to additional primary care clinics and possibly specialty clinics

- Focus on Women's Mental Health
  - Recruited Jessica Rohr, PhD as Director of Women's Mental Health
  - Collaborating with Ob-Gyn to provide care for pregnant patients both in and out of hospital
- Expand Continuum of Care
  - Continue to explore residential and independent living options
  - Hospitals are for safety, Outpatient is where people get well

- Research and education programs are recovering after move to virtual care due to COVID-19
- Trainees now include Houston Methodist Psychology Fellows, BCM Residents and medical students, UT Residents, TAMU medical students, UH Clear Lake Psychology interns
- First in the world Fellowship in Psychiatric Microbiology



- Gut Microbiome and Mental Health
  - Our studies have shown that lack of diversity in gut microbiome is linked to poorer mental health
  - Identified a bacterium that is associated with depression (coprococcus). Now repeated in two other populations
  - Starting studies of gut microbiome in psychosis and in opioid dependence

- On the Horizon....
  - Psychedelics for treatment of mental illness
    - MDMA for PTSD
    - Ketamine and Psilocybin for depression
  - Brain Stimulation
    - Recent study using high dose rTMS over 5 days shows 80% remission rate for severe depression
    - Hope to replicate with the HMH TRPMS device

- Stay connected with friends and loved ones even if virtually
- Slow down
  - You cannot do everything at the same time
- Be present
  - Use mindfulness to connect to the moment
- Be open
  - To experiences good and bad, accept what we cannot control
- Do what matters
  - Act in accordance with your values
  - Show kindness and gratitude
- Self care
  - Sleep, eat well, and exercise

If you are a patient or family member or friend in need of immediate assistance:

- **Disaster Distress Helpline**  
Call 1-800-985-5990 or text TalkWithUs to 66746
- **National Suicide Prevention Lifeline**  
Call 800-273-8255
- **Physician Support Line**  
Call 1-888-409-0141
- **Crisis Textline**  
Text TALK to 741741
- **Veterans Crisis Line**  
Call 800-273-8255 or text 838255
- **Texas COVID-19 Mental Health Support Line**  
Call 833-986-1919
- **Hope and Healing Center Warm Line**  
Call 832-831-7337 5-8pm 7 days a week

The Houston Methodist Hospital  
Department of Psychiatry and Behavioral Health  
*invites you to*

# ADDICTION AND RECOVERY DURING A GLOBAL PANDEMIC

— A VIRTUAL EVENT —

WEDNESDAY, JANUARY 26, 2022 | 12 - 1 P.M.

Scan the QR code below to RSVP



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# Omicron and Living with COVID-19: A User's Guide

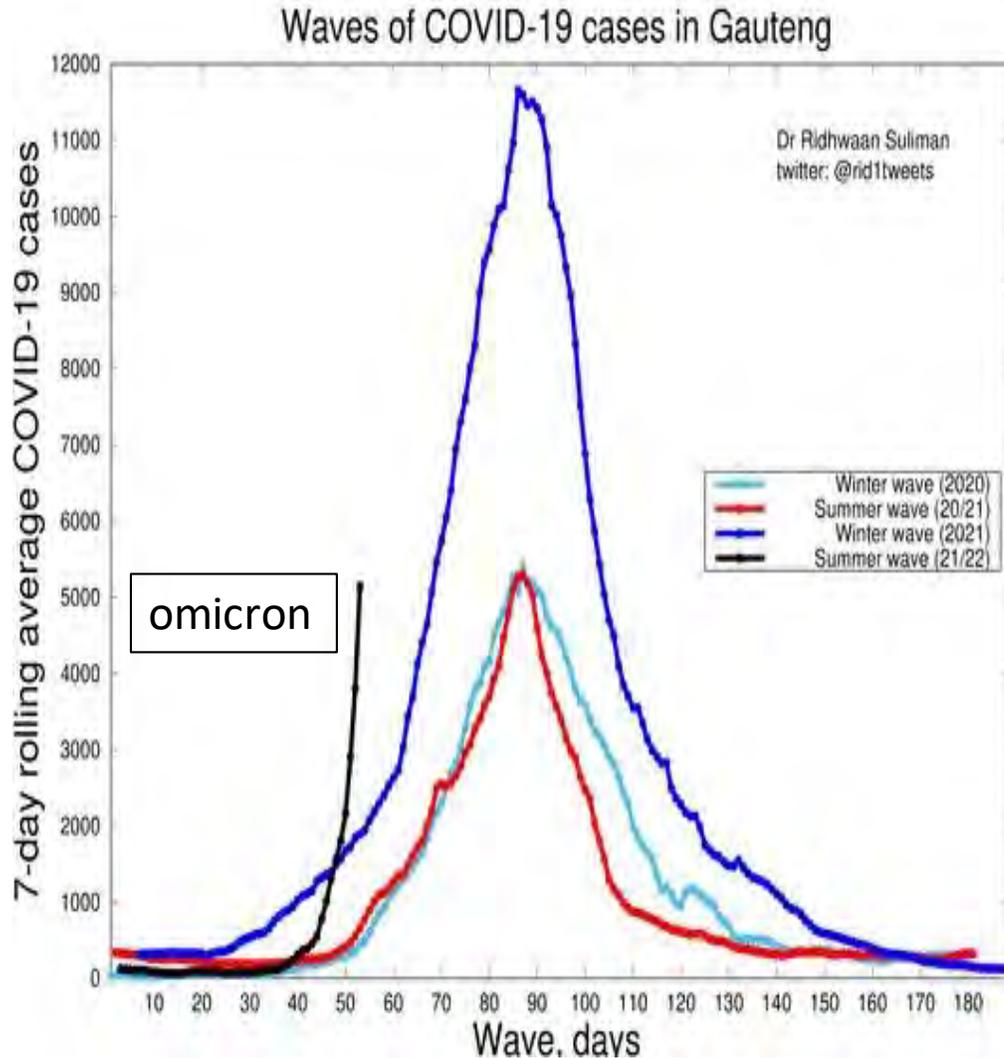
Town Hall, December 9, 2021

H. Dirk Sostman, MD FACR, Ernest Cockrell, Jr. Presidential Distinguished Chair, EVP & Chief Academic Officer

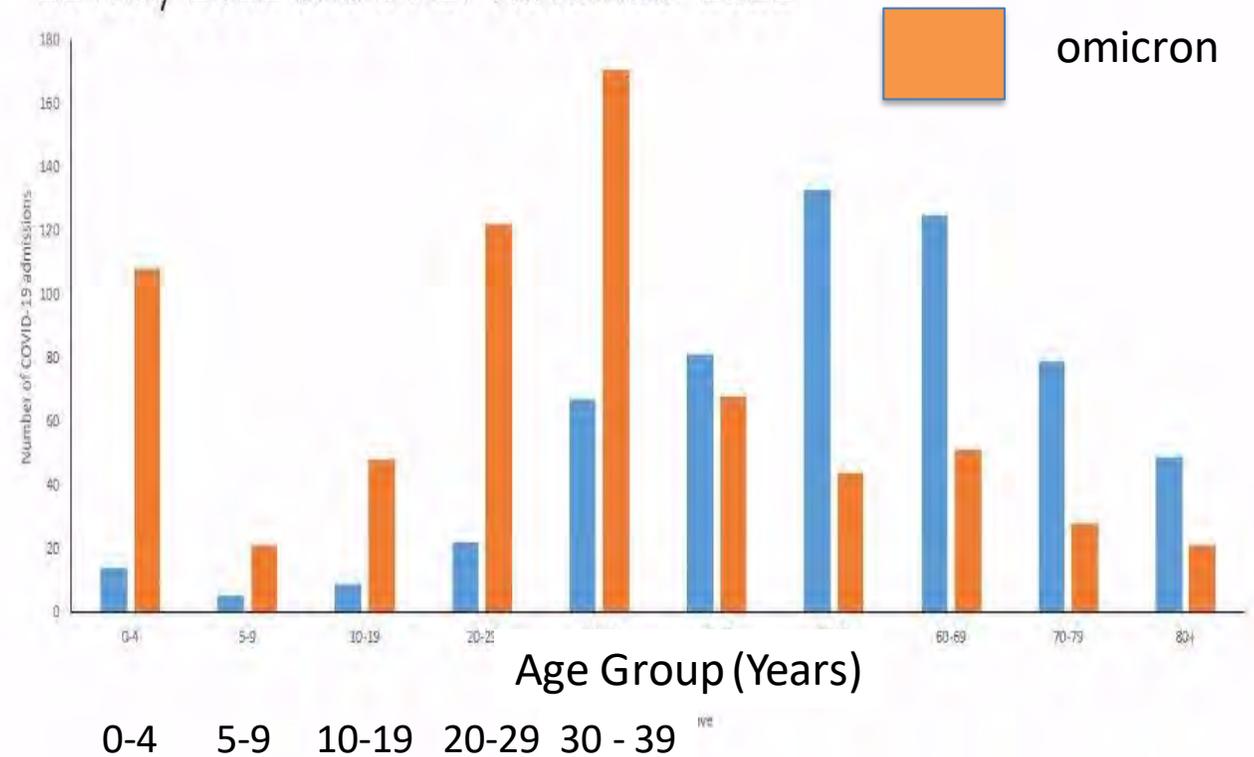


- Exceptional number of mutations – 35 in S protein alone
- Early indications of omicron characteristics:
  - More transmissible than delta
  - Less severe illness than delta
  - More cases among younger people including infants and toddlers
  - Greater resistance to antibodies (mAbs, vaccines)
  - Continued vaccine protection from severe disease (T cell epitopes 80% preserved)
- What does this mean for us?
  - Nothing completely new but less margin of safety for infection
  - Need to be diligent about existing measures until we understand more
- We'll know more in 10 – 14 days

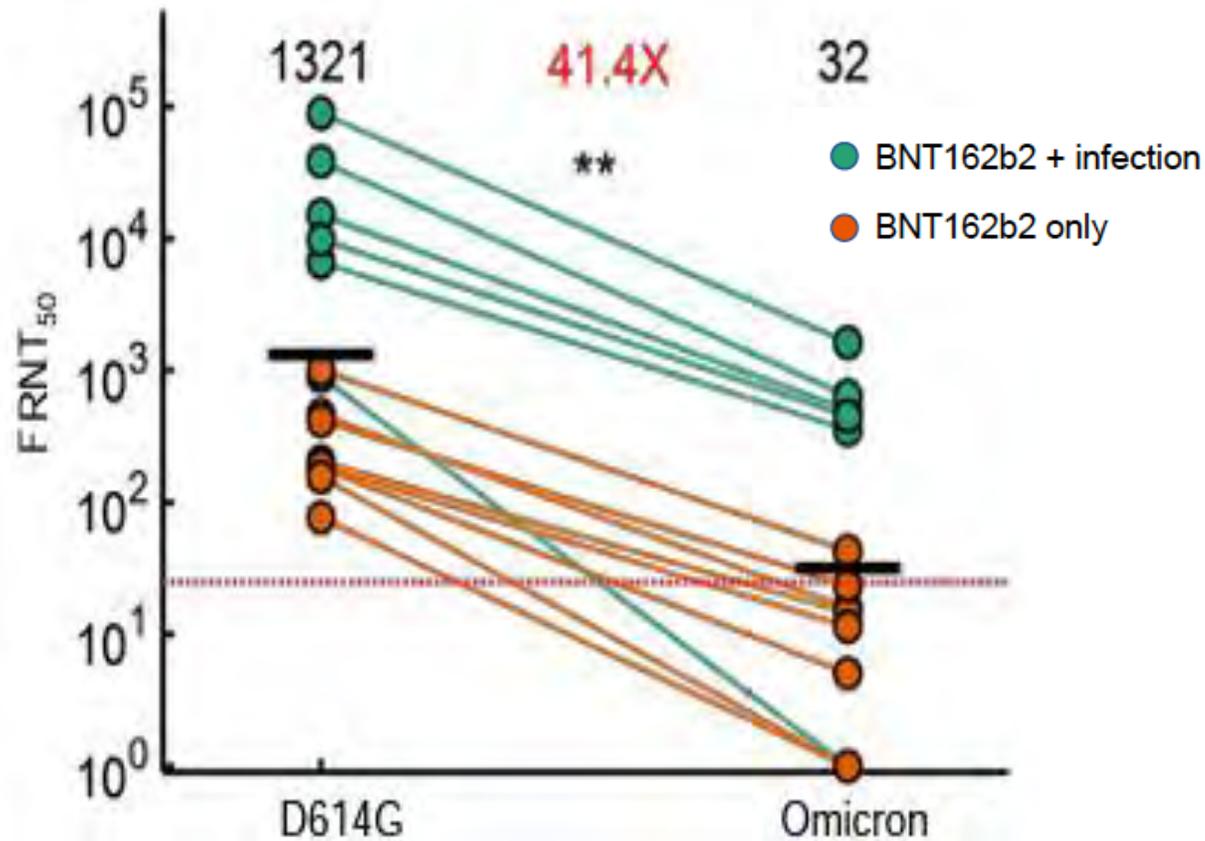
# Omicron Variant



Number of COVID-19 admissions in first two weeks of third and fourth wave, by age group in years, City of Tshwane Metro, 9-22 May 2021 and 14-27 November 2021

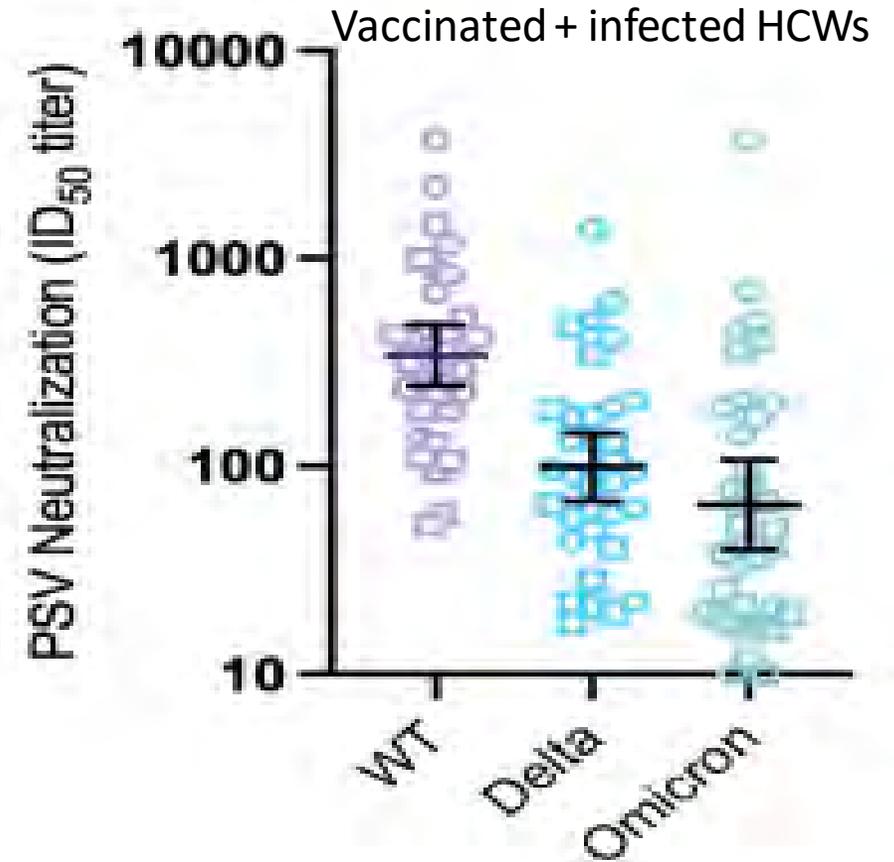


# Omicron: Lower Sensitivity to mAb Neutralization



SA study: 41x worse

Pfizer study (not shown): 25 x worse



Swedish study: variable, 5 x to 40 x worse

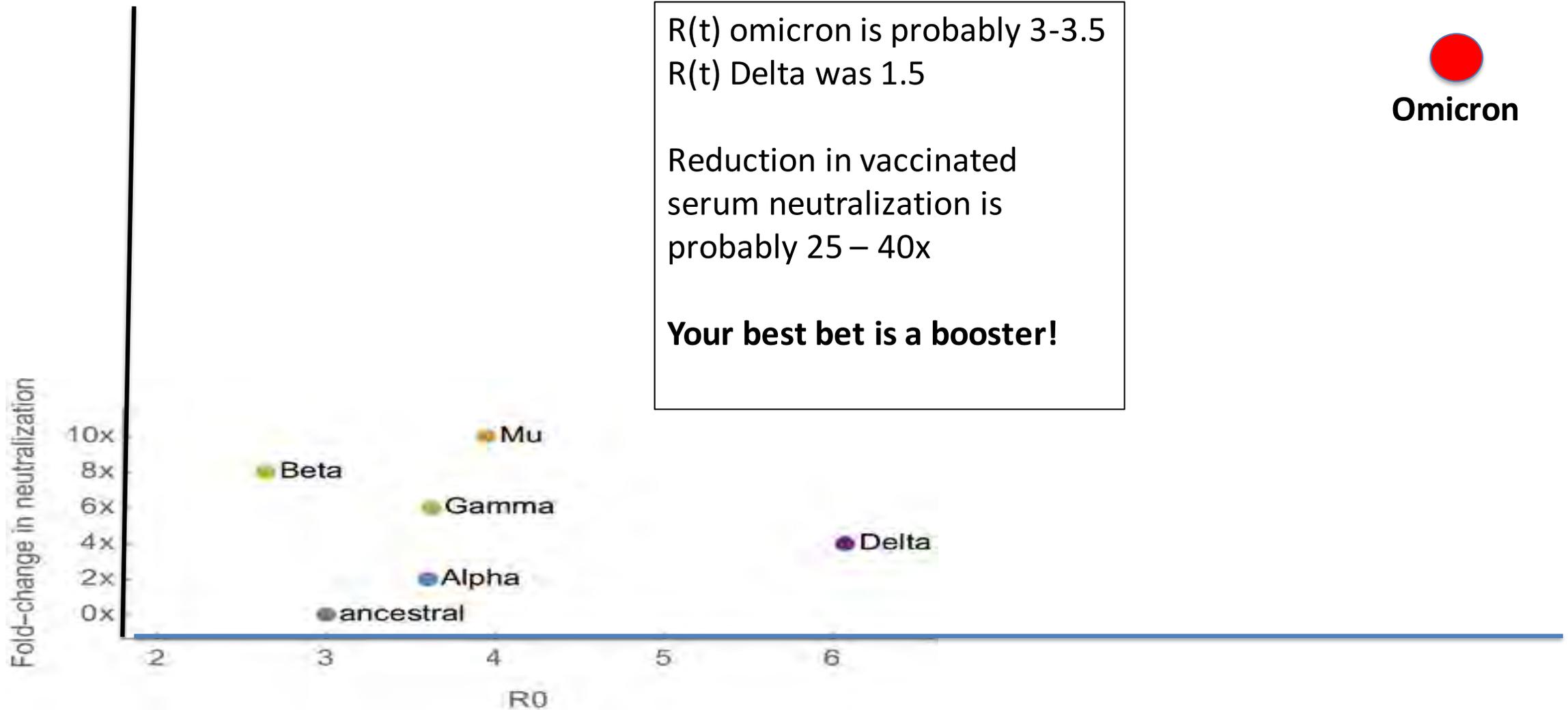
# Omicron is Off the Chart

R(t) omicron is probably 3-3.5  
R(t) Delta was 1.5

Reduction in vaccinated  
serum neutralization is  
probably 25 – 40x

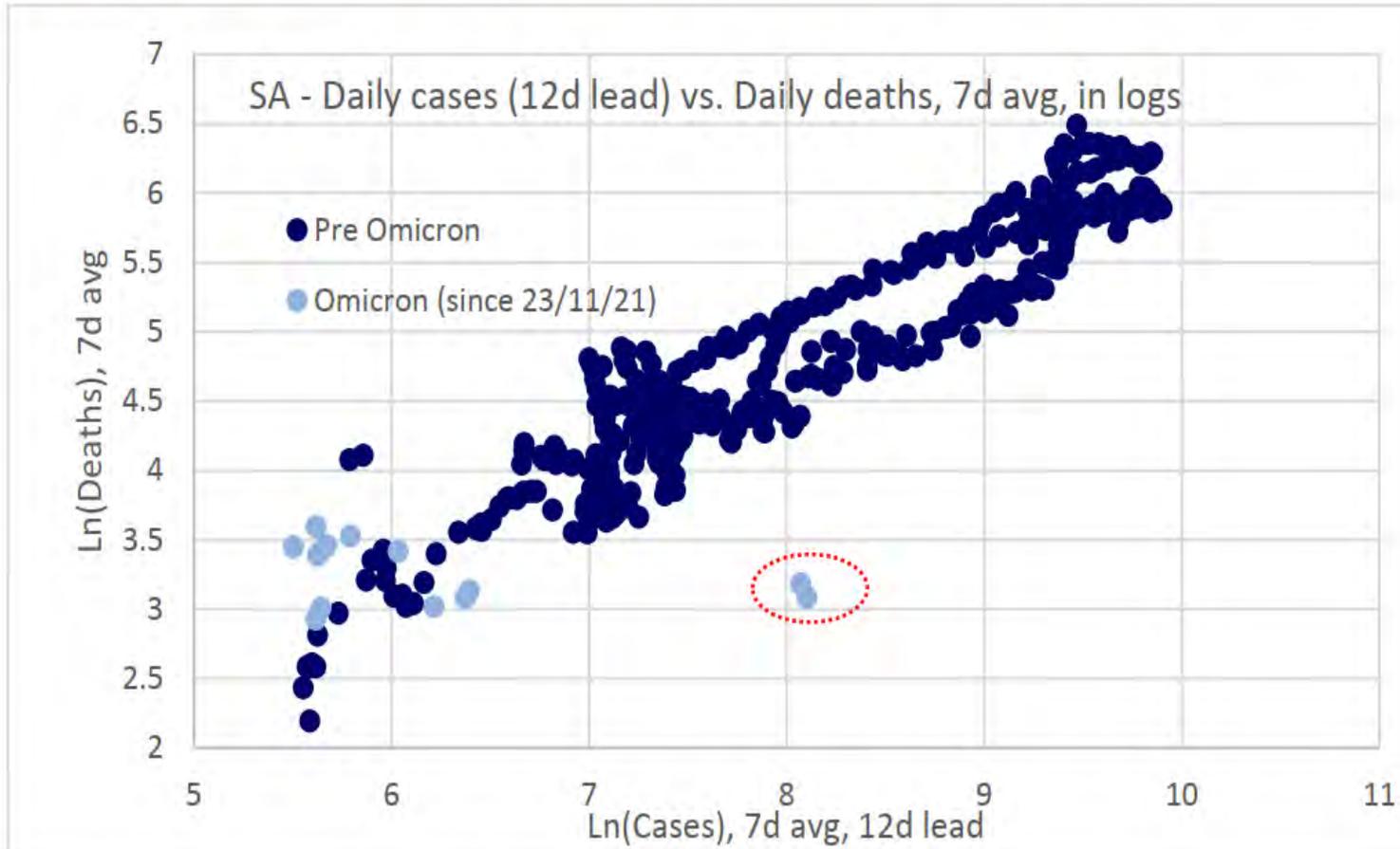
**Your best bet is a booster!**

  
**Omicron**



# How Severe is Omicron?

Figure 1: Omicron: more cases but less deaths?



Source : Deutsche Bank, Bloomberg Finance LP, JHU

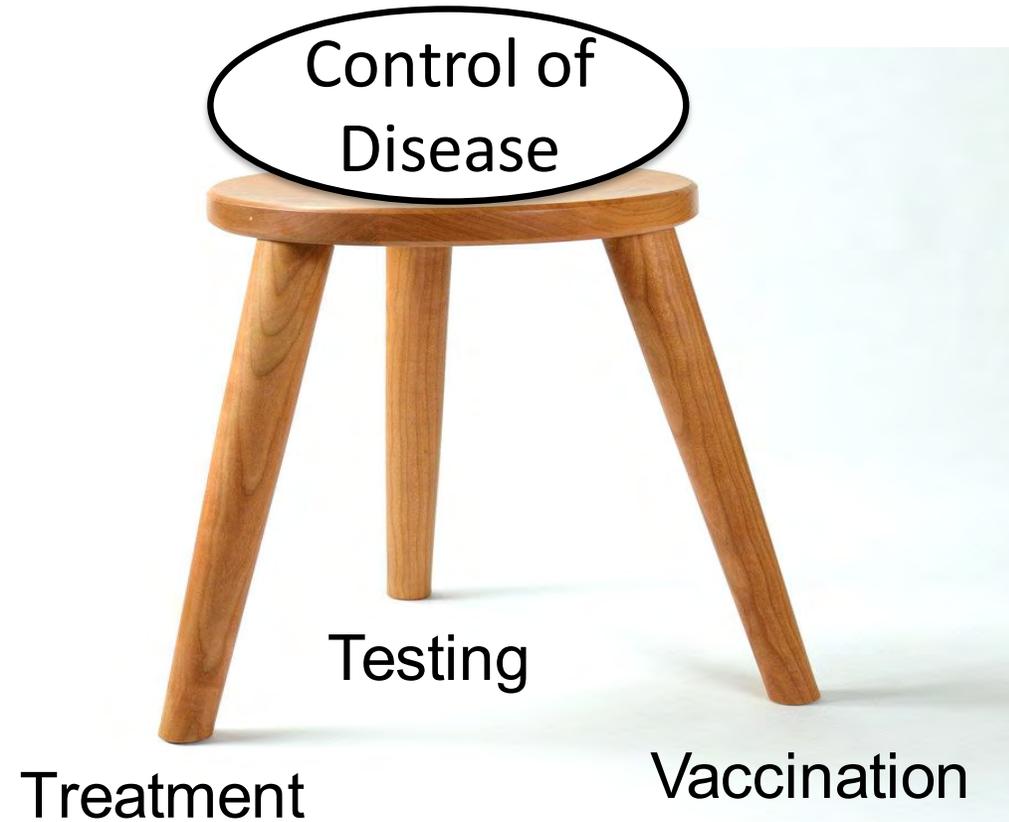
Anecdotal reports from SA

- Many hospitalized for other reasons, incidental positive COVID test
- Shorter LOS (3 vs 8 d) than before
- Fewer patients on oxygen than before

# Living with COVID

We now have all of these measures available to prevent COVID-19 infections and reduce severity of infections.

If everyone used them we would be much better off.



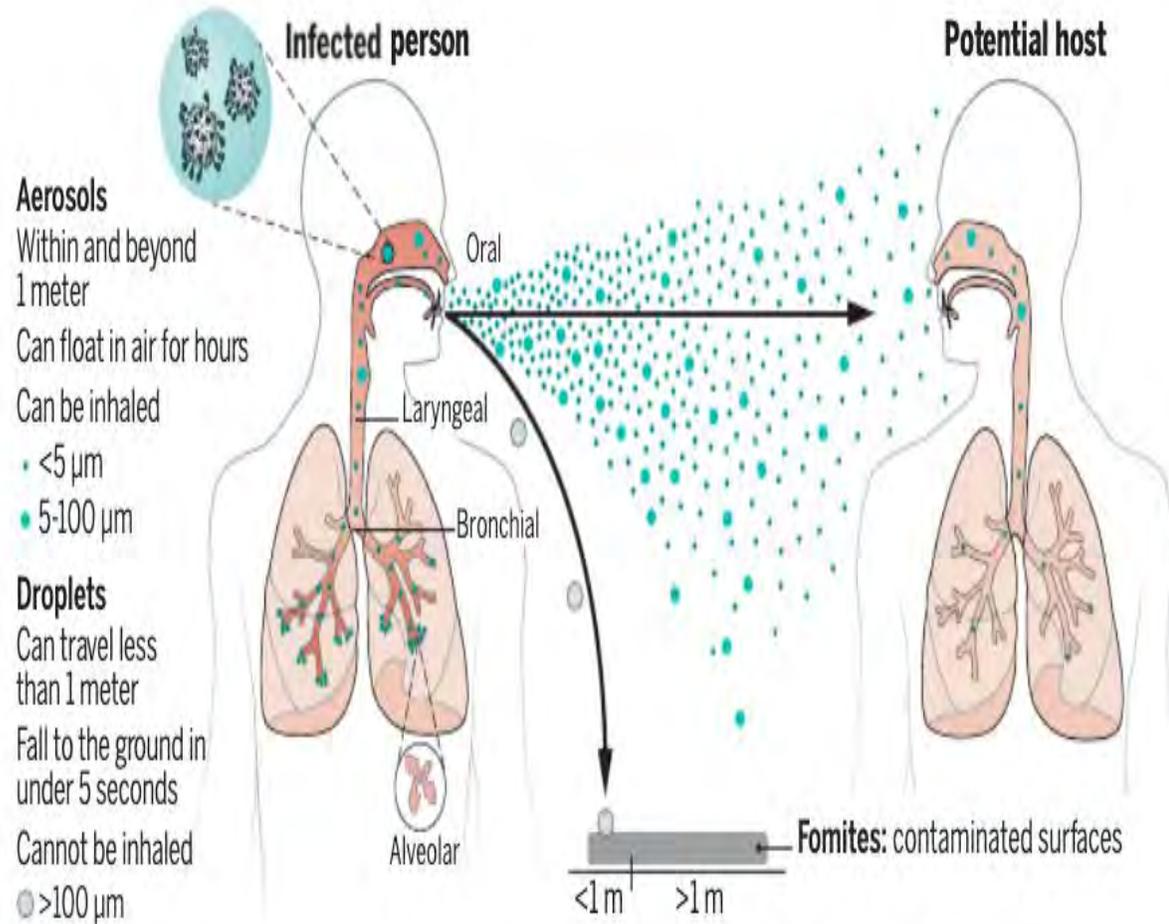
Masks, Hand Hygiene & Other Precautions

# Preventing Infection

Airborne and droplet transmission are principal risks – use good-quality, well-fitting masks & hand hygiene

Follow common-sense approach to using precautions

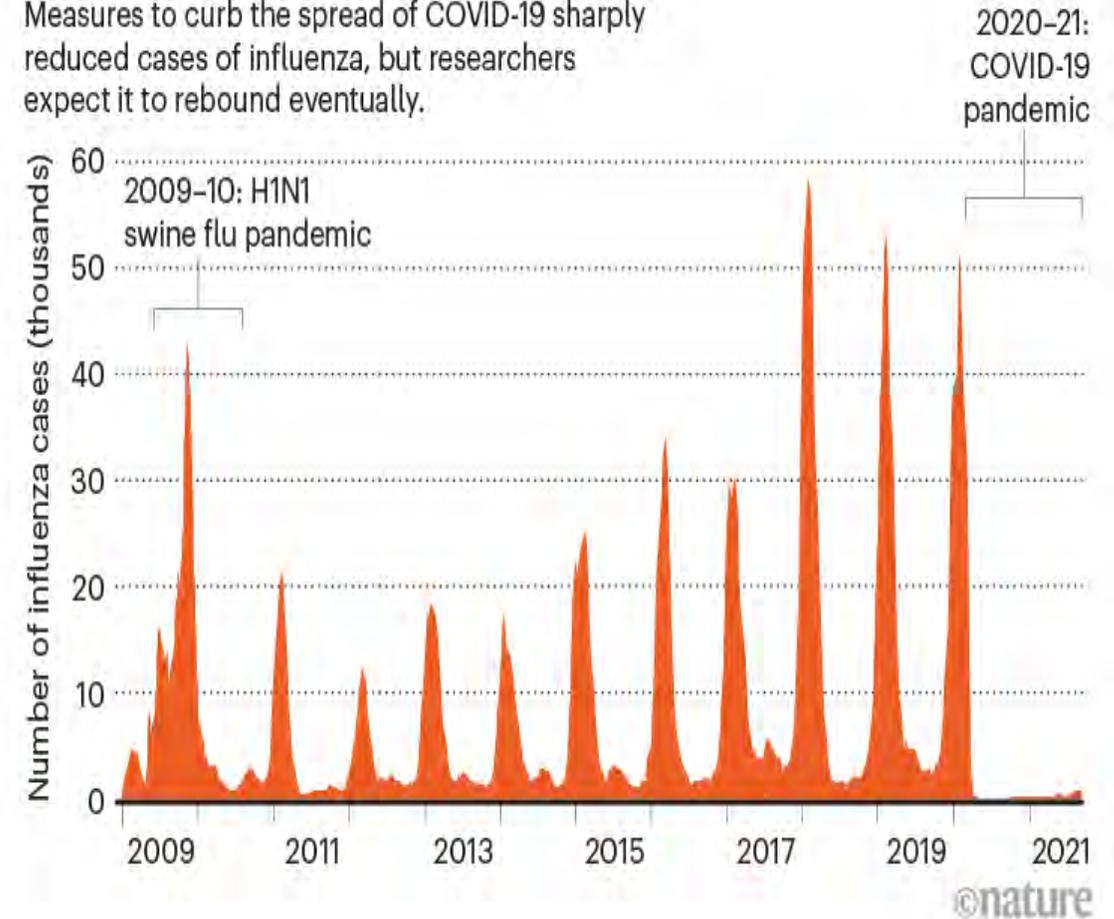
# Precautions Work for All Respiratory Viruses



## Influenza

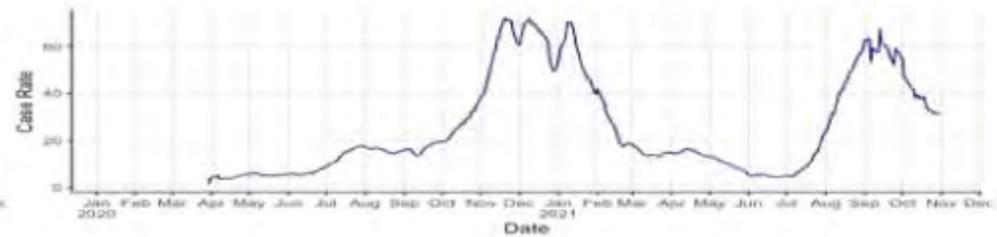
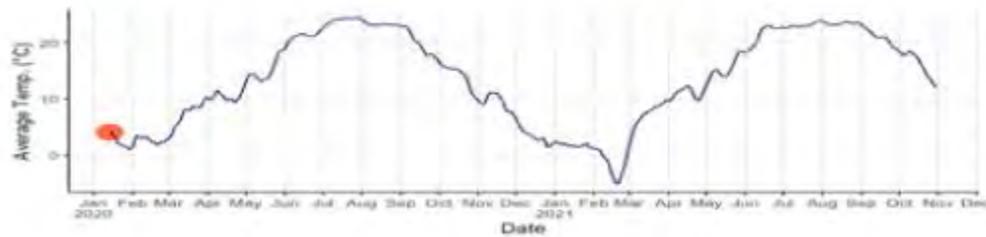
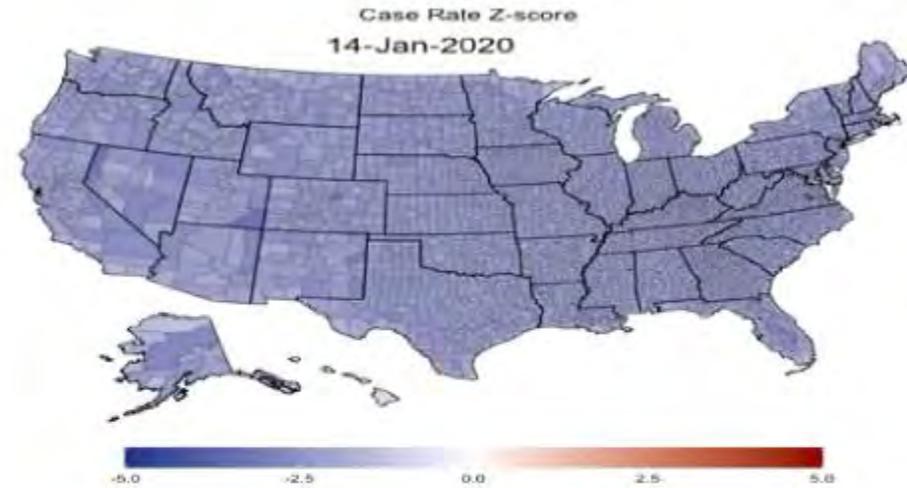
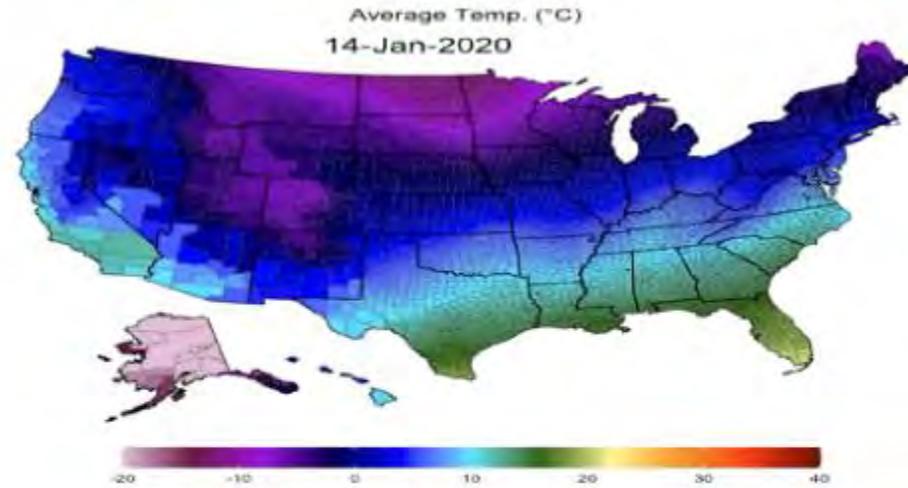
### VIRAL SHIFT

Measures to curb the spread of COVID-19 sharply reduced cases of influenza, but researchers expect it to rebound eventually.



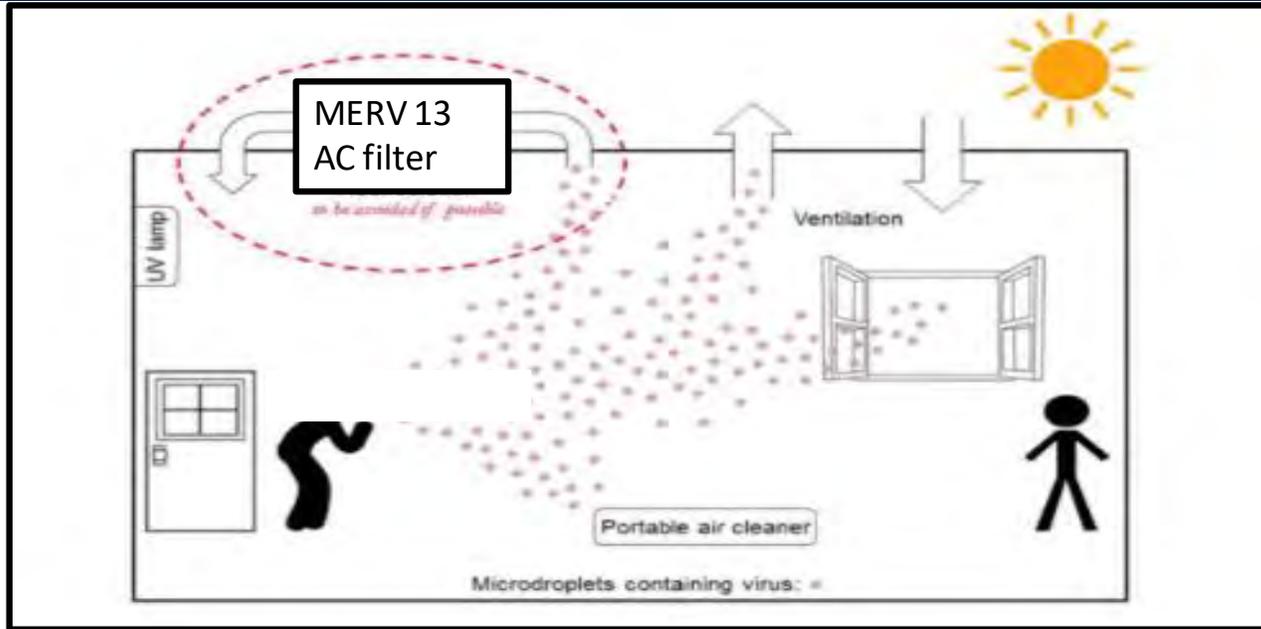
# COVID is Seasonal

The Atlantic November 20 2021



# The Air You Breathe: Filters, Ventilation, Masks

<https://tinyurl.com/FAQ-aerosols>

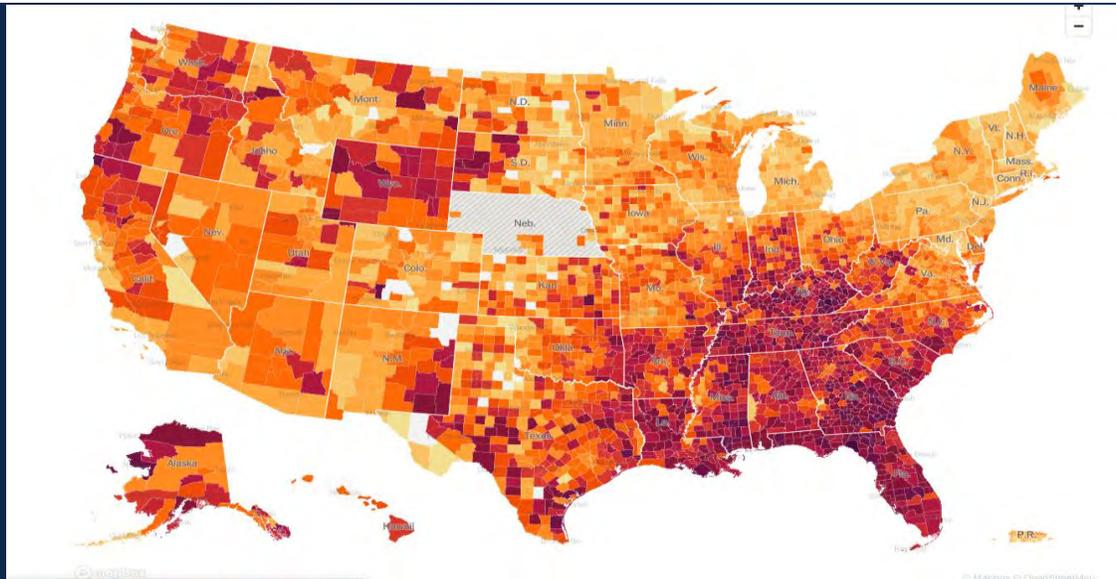


N95, KF94,  
KN95 for high  
risk

ASTM Level 3 for  
normal use

# Common Sense Approach to Precautions

- How susceptible are you?
  - 😊 vaccinated?
  - 🙅 risk factors for severe disease?
- How prevalent is infection in the community?
- What kind of exposure will you encounter?
  - 😊 vaccinated small gathering
  - 🙅 restaurant
  - 😞 indoors
  - 😊 outdoors
  - 😊 quiet time (watching TV)
  - 🙅 aerosol generating (choir practice)
  - 😊 brief exposure
  - 😞 extended exposure
- Remember that unvaccinated people are a danger to you



# Vaccine Updates

# Summary: What's Happening with Vaccines?

- As time passes, vaccines offer less protection against infection
  - Related to lower levels of circulating antibodies
  - mRNA more potent initially, slightly less durable than viral vector vaccines
- Protection against severe disease seems to be more durable
  - Likely related to cellular immunity
  - Will this continue? Time will tell
- Boosters restore antibody levels and full (85 – 90%) protection from infection
  - About the same as two doses plus prior infection
  - Will this be more durable than first two doses? Time will tell
- Prior infection alone
  - About 80% effective (lower quality data than for vaccines)
  - Less effective in older people
  - Less effective if infection was mild
  - Seems to reinforce vaccination

- Best population-level measure is neutralizing antibody levels (titers)
  - Not all antibodies are neutralizing
  - Houston Methodist data: overall antibody titers correlate well with neutralizing antibodies
  - Therefore, higher antibody titer is better protection – hence, boosters
- Problems in applying this to individuals:
  - No data on individual correlations between antibodies and infection
  - Cell mediated immunity is important, hard to measure
  - Antibody levels change over time, no standard time to measure them
  - Different viral variants have different sensitivity to antibodies
  - Many labs only report semi-quantitative values
- At this time, there is no FDA-authorized or approved test that providers or the public can use to determine whether a person is protected from infection

# Outpatient Treatments

Early treatment of high-risk outpatients is a critical need

- Sotrovimab
  - Pan-sarbecovirus mAb (isolated from SARS patient)
  - Neutralizes alpha, beta, gamma and delta SARS-CoV-2 variants
  - Clinical trial (NEJM October 2021)
    - Treatment within 5 days, high risk
    - 85% RR for hospitalization or death
  - 3x reduced effectiveness with omicron (press release, 12/7/21)
- Other mAbs
  - Lilly, Regeneron
  - Not clear how effective they will be against omicron

# “COVID Pills”: Molnupiravir Trial UPDATE

Merck press release and ISDA conference presentation

- 1433 people with mild / moderate COVID
  - +At least one risk factor for progression
  - +Within five days of symptom onset
- Consistent efficacy across viral variants
- No safety signals
- Could be combined with other therapy
  - Protease inhibitor
  - mAb

Outcomes	Treated	Placebo
Hospitalized	7.3%	14.1%
Death	0	2.1%
<b>Combined UPDATE</b>	<b>6.8%</b>	<b>9.7%</b>

**November 3:**

U.K.'s Medicines and Healthcare Products Regulatory Agency Authorizes Molnupiravir for the Treatment of Mild-to-Moderate COVID-19 in Adults With a Positive SARS-CoV-2 Diagnostic Test and at Least One Risk Factor

# “COVID Pills”: Paxlovid Trial

Pfizer press release

- 1219 people with mild / moderate COVID
  - +At least one risk factor for progression
  - +Within three or five days of symptom onset
- No safety signals
- Could be combined with other therapy
  - Polymerase inhibitor
  - mAb

Treated within 3 days	Treated	Placebo
Hospitalized	0.8%	7.0%
Death	0	1.8%

Treated within 5 days	Treated	Placebo
Hospitalized	1.0%	6.7%
Death	0	1.6%

# Testing

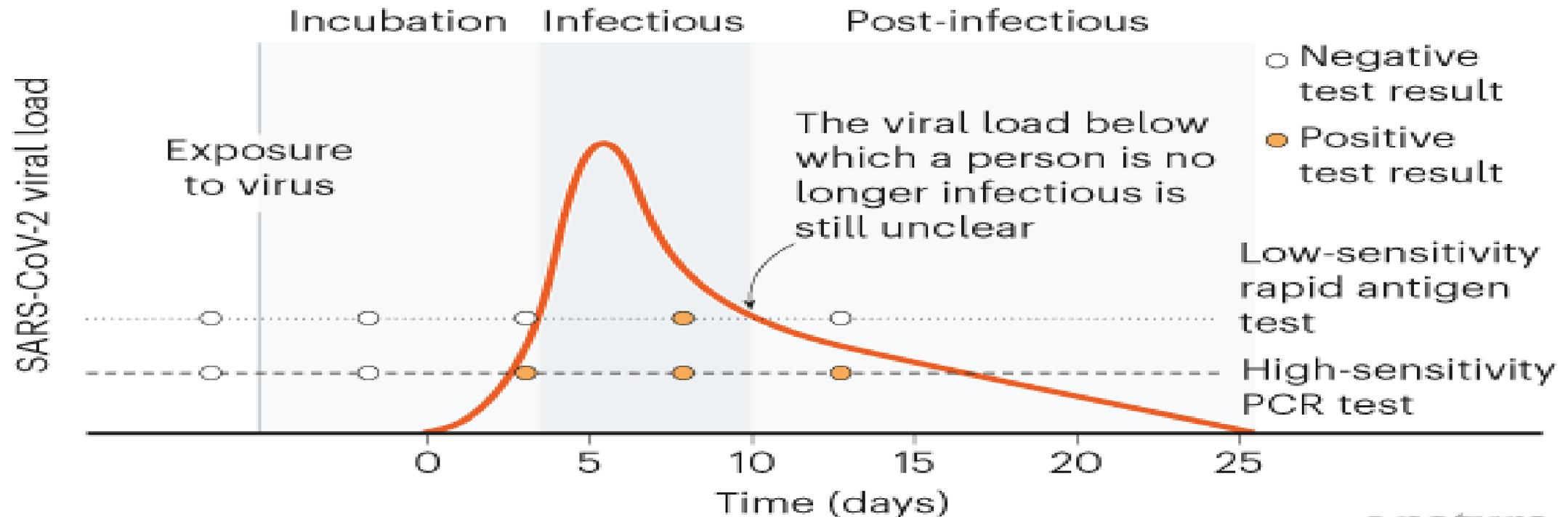
At-home testing less sensitive but can rapidly identify those who have high viral loads

Potentially major effect on transmission of infection & early treatment

## CATCHING COVID-19

During a SARS-CoV-2 infection, the amount of virus in the body rises and falls. PCR-based tests can pick up small amounts of viral genetic material, so can be positive even after a person stops being infectious.

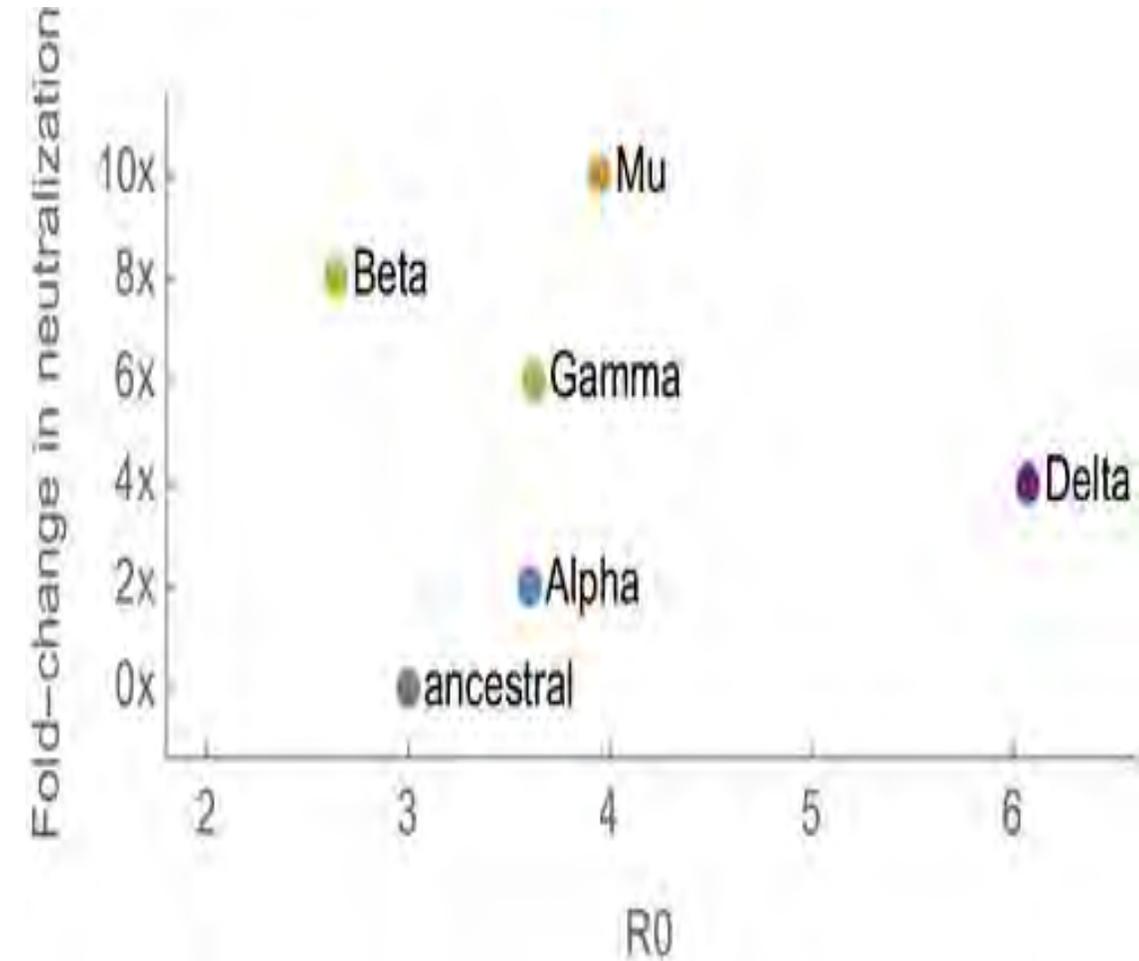
Rapid antigen tests detect the presence of viral proteins and can be positive when a person is most infectious.



# What Could Happen Next?

“We’re better at explaining the past than at predicting the future.”  
– Andrew Read, viral evolutionary biologist

- We can expect variants to continue to appear
- No guarantees of what’s in store
- For example, omicron’s many mutations
  - Chronic infection in immune compromised host??
    - *Prolonged dwell time in body allowed continued mutation*
  - Viral recombination??
    - *SARS-CoV-2 swapped genetic material with HCoV-229E (common cold)*
  - Reverse zoonosis??
    - *SARS-CoV-2 jumped to an animal host and back to humans*
- Severity, transmissibility, immune escape are uncorrelated



# What Could Happen Next?

“The curve is shaped by public awareness. We’re sort of lurching between crisis and complacency.” Jennifer Nuzzo, epidemiologist

- Human behavior continues to be a “wild card”
  - Social behavior
  - Vaccine uptake
  - Social media disinformation
  - Irresponsible political stunts

Facebook Takes Down Anti-Vax Hoax Network 'Primarily Conducted From Russia'



Facebook says that a marketing group was using its influence to push anti-vax messages targeting audiences in India, Latin America, and the United States. (file photo)

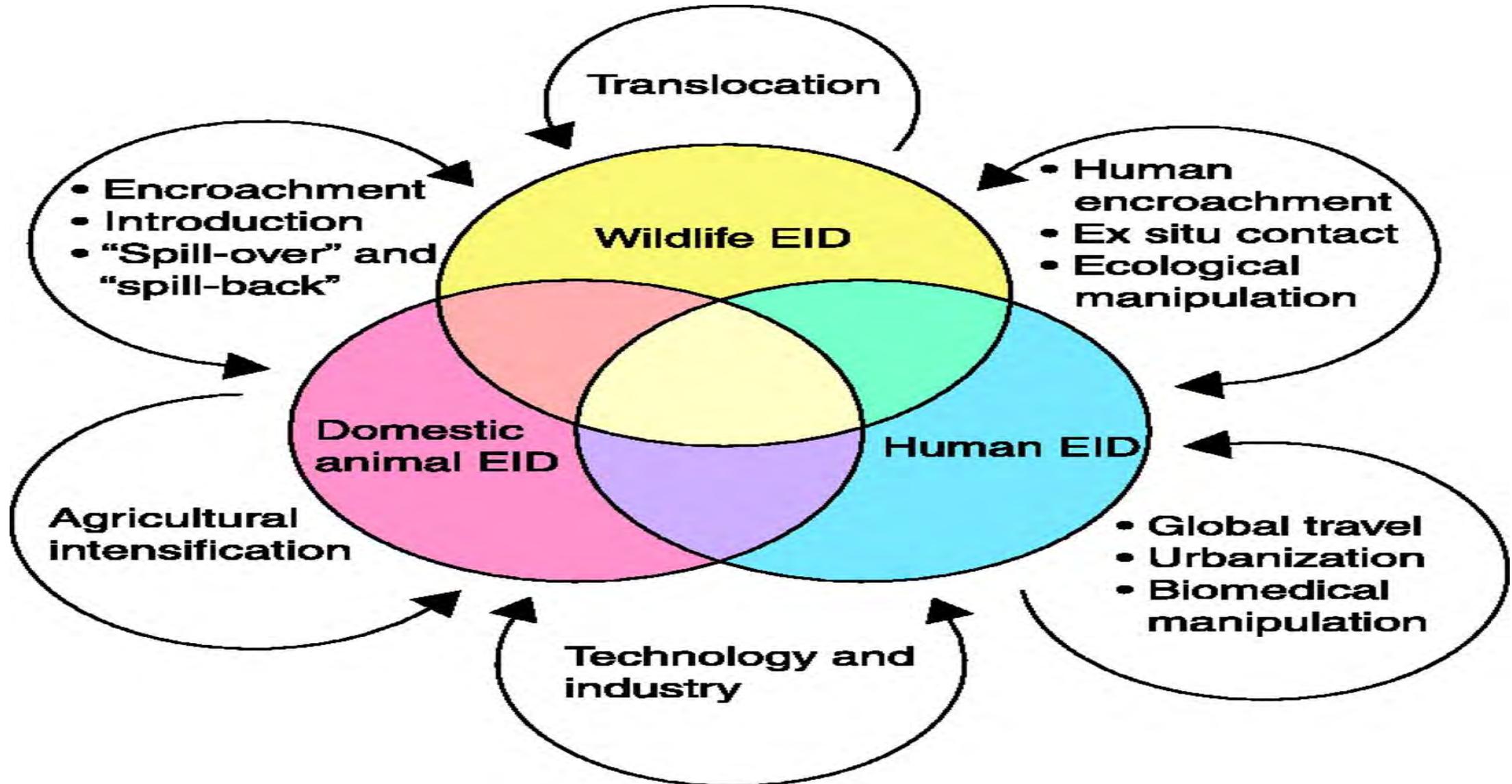
## Lawsuit: Doc Using Old Baylor Affiliation While Dishing COVID Vax Falsehoods

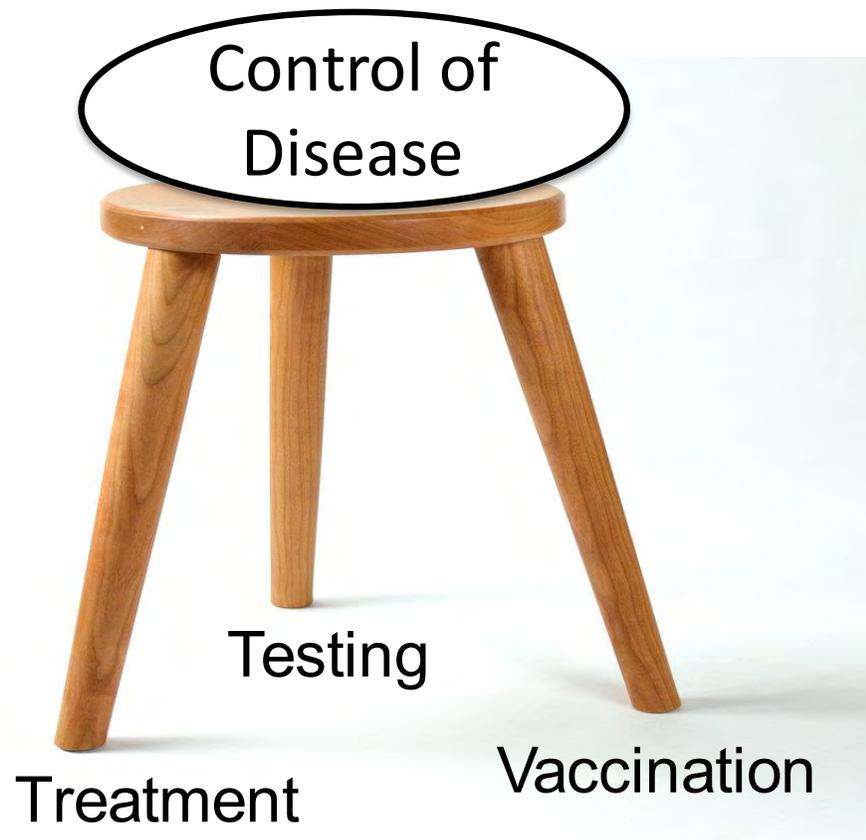
— Baylor Scott & White Health says Peter McCullough, MD, used former title during media interviews

by Amanda D'Ambrosio, Enterprise & Investigative Writer, MedPage Today August 6, 2021



# Potential for “Disease X”





Masks, Hand Hygiene & Other Precautions

Tools to control the pandemic exist now – if we would use them correctly and consistently. These are the same tactics we'll need in case of future pandemics.

# Houston Methodist Update

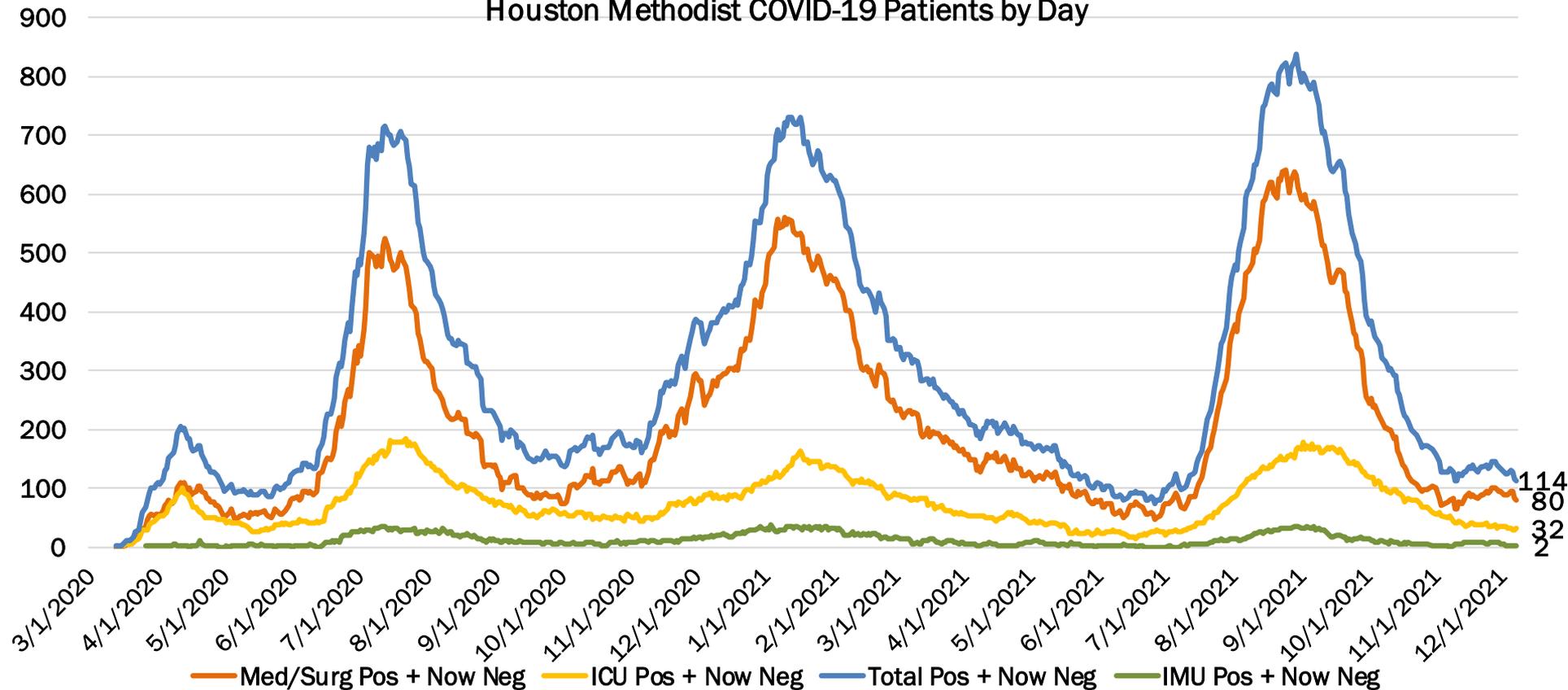
Marc L. Boom, MD  
December 9, 2021

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# Houston Methodist COVID-19 Cases By Day

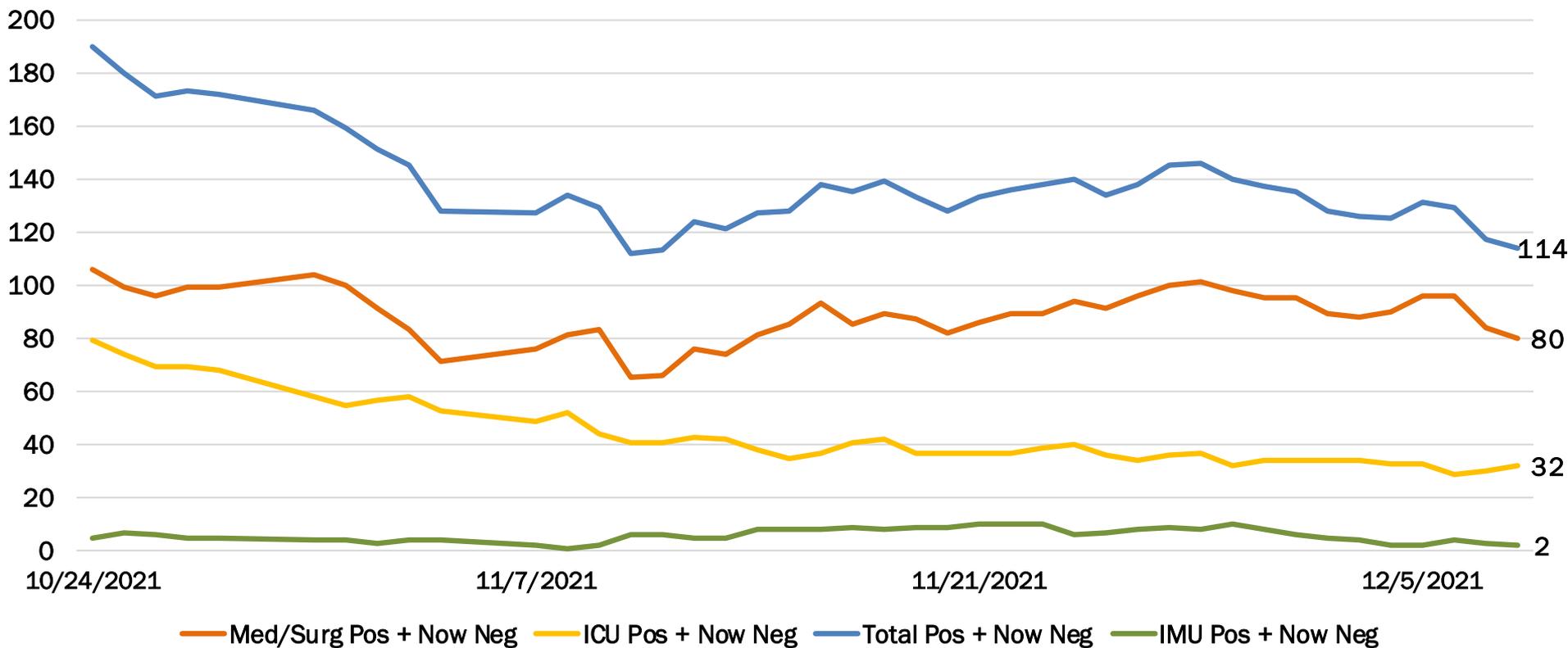
## Houston Methodist COVID-19 Patients by Day



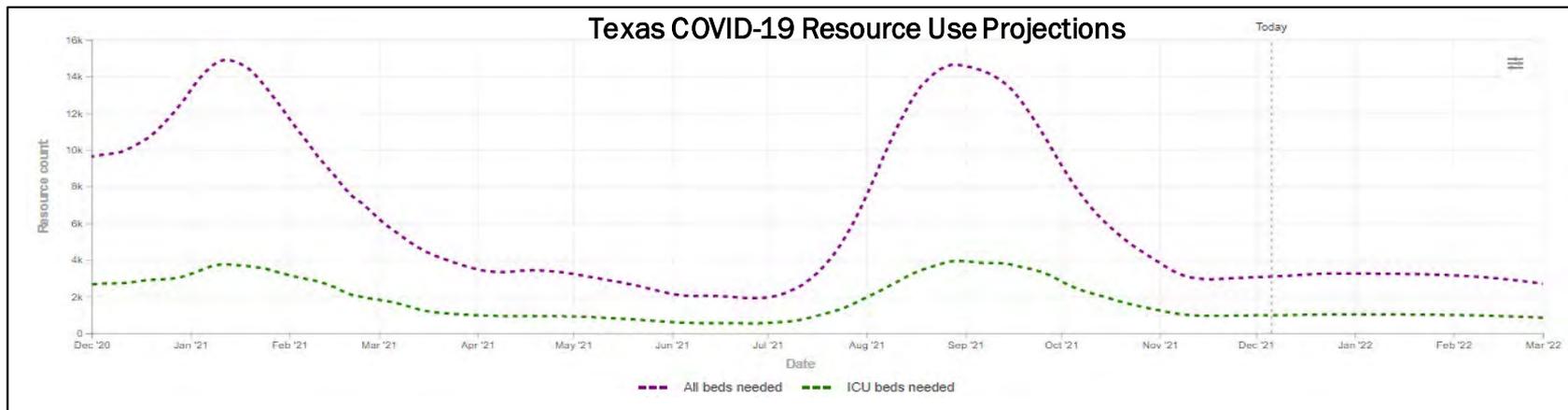
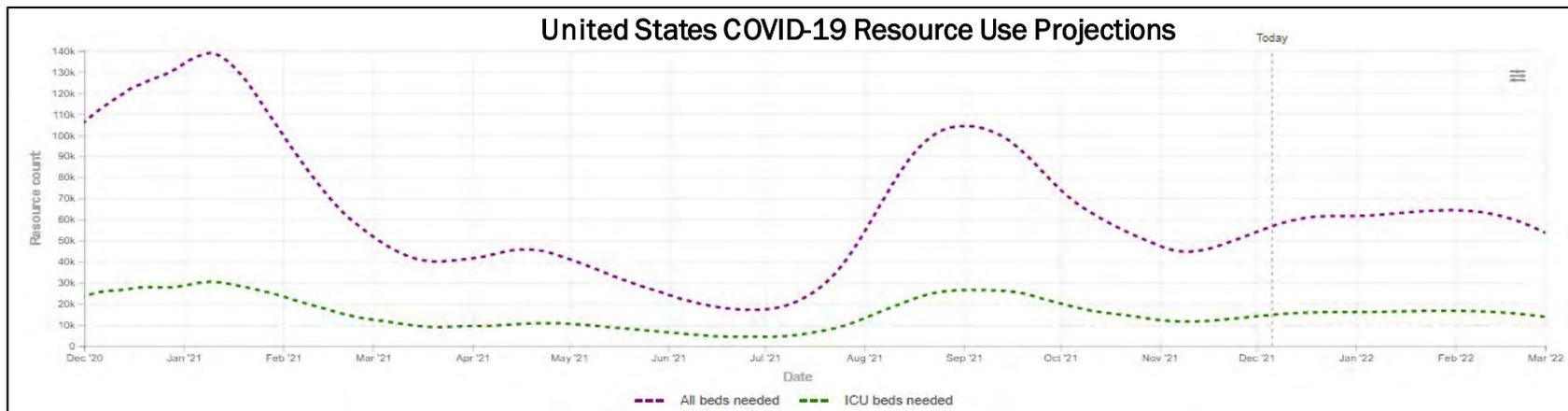
Data as of December 8, 2021

# Houston Methodist COVID-19 Cases By Day: October 2021 – Current

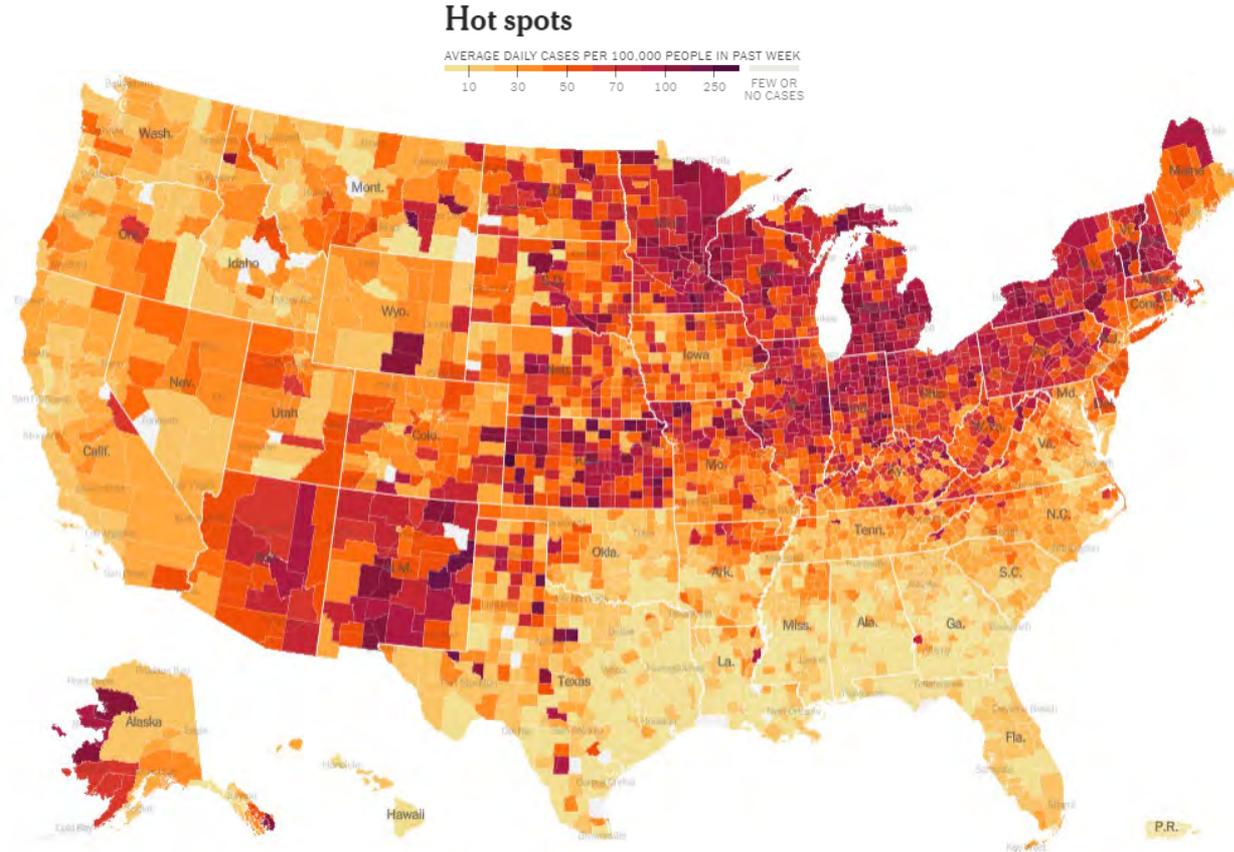
Houston Methodist COVID-19 Patients by Day



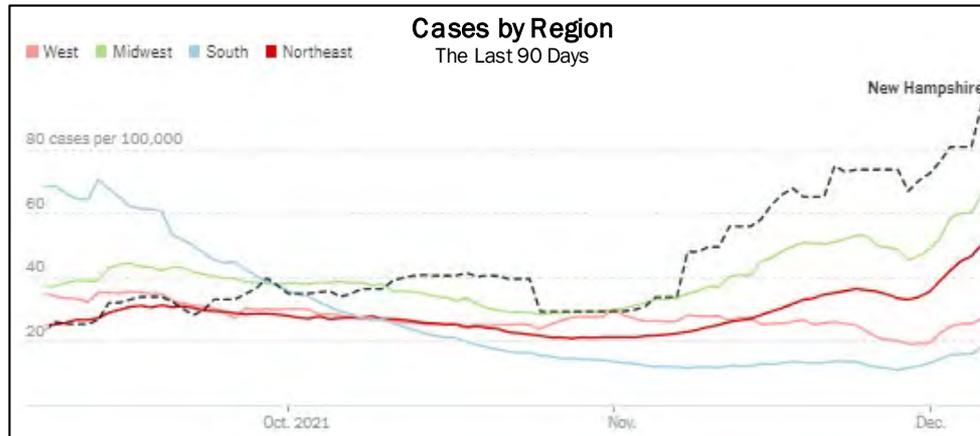
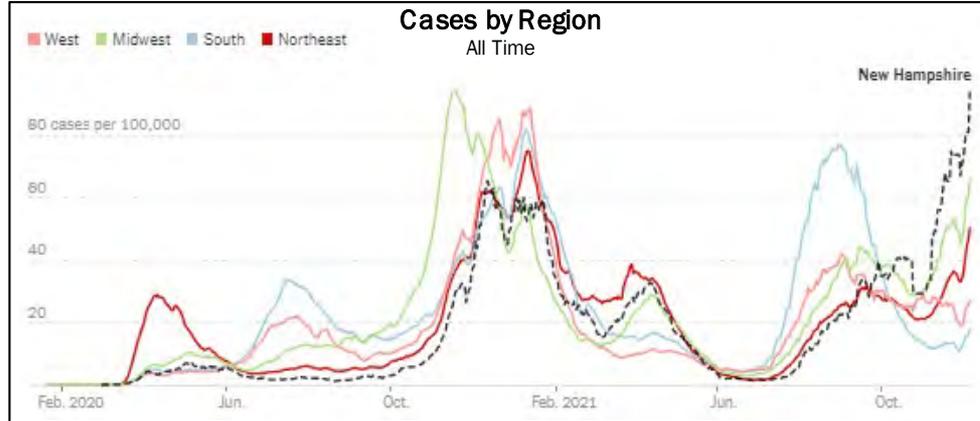
# IHME COVID-19 Resource Use Projections



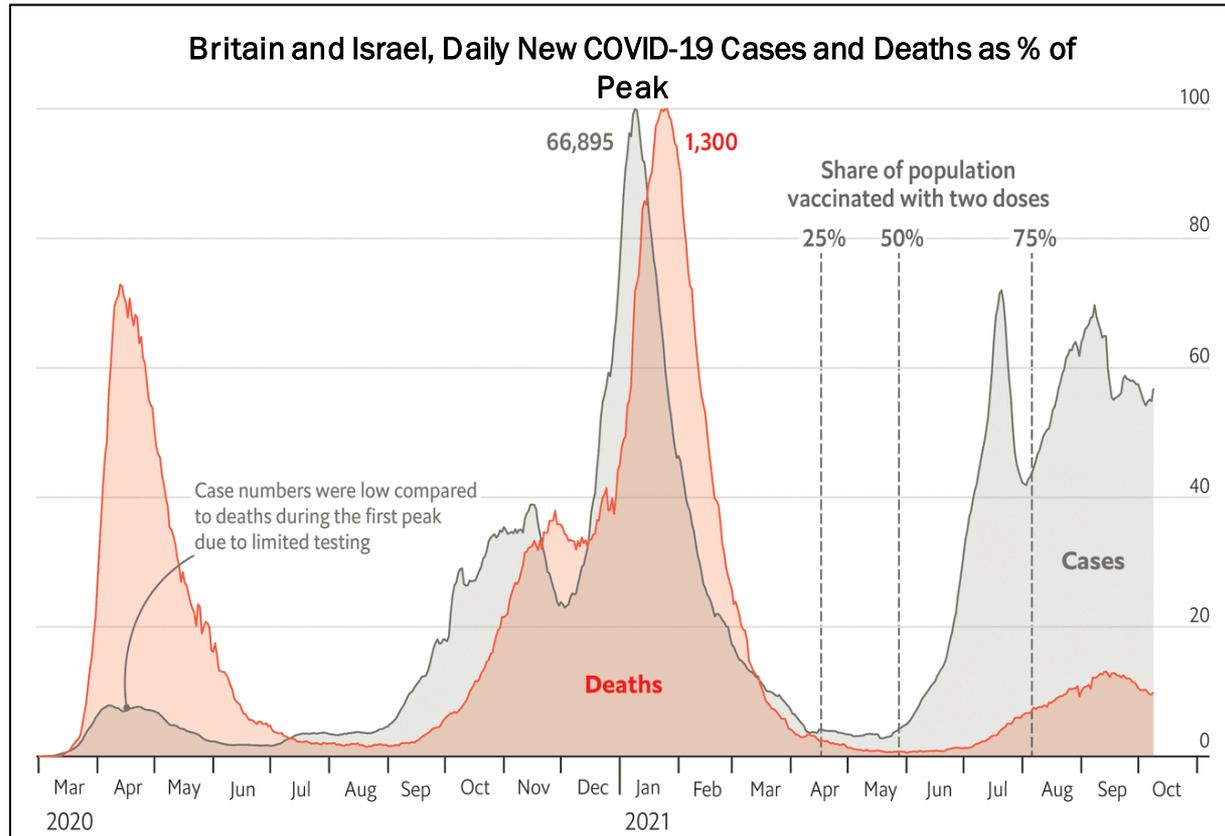
# United States COVID-19 Hot Spots



# United States COVID-19 Cases by Region

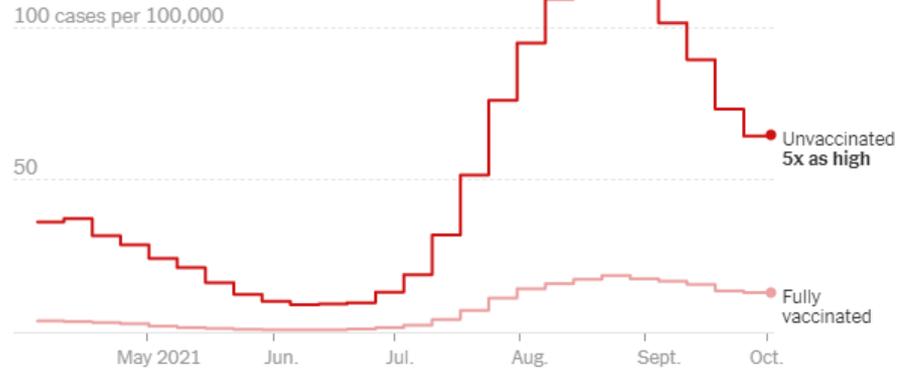


# Impact of Vaccinations on Cases and Deaths in Britain and Israel

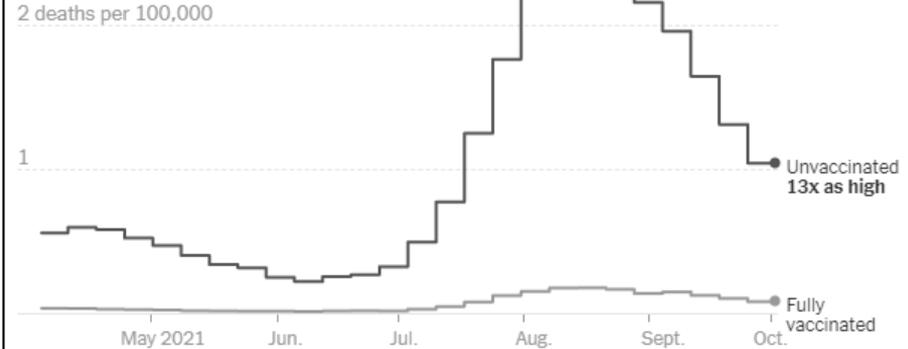


# Average Daily Cases and Deaths in Vaccinated vs. Unvaccinated

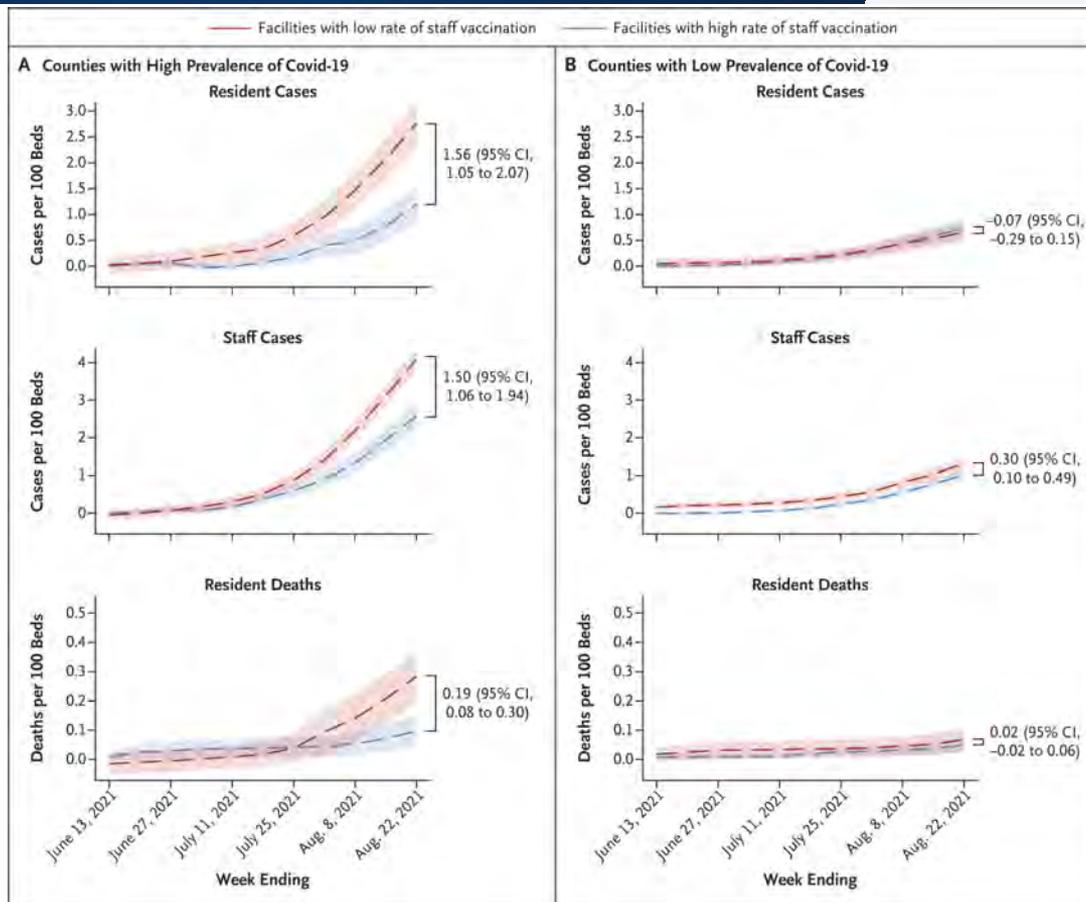
### Average Daily Cases – Vaccinated vs. Unvaccinated



### Average Daily Deaths – Vaccinated vs. Unvaccinated



# Nursing Home Staff Vaccination and COVID-19 Outcomes



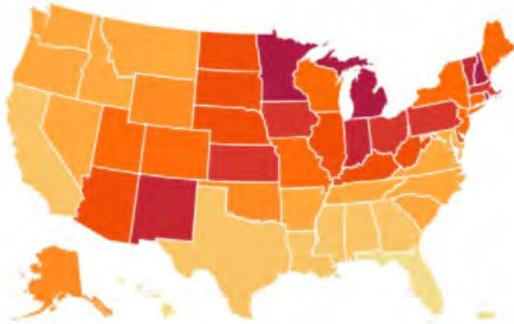
IT'S NICE THE PANDEMIC IS  
ALL BEHIND US NOW AND WE  
CAN GET TOGETHER AGAIN!



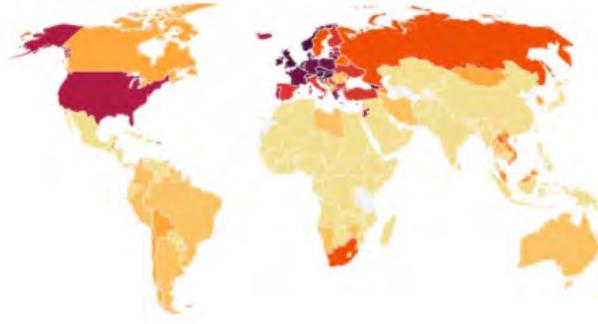
WHAMND

# Tracking COVID-19 and Omicron Variant

## U.S. hot spots >



## Global hot spots >



## Tracking the Coronavirus >

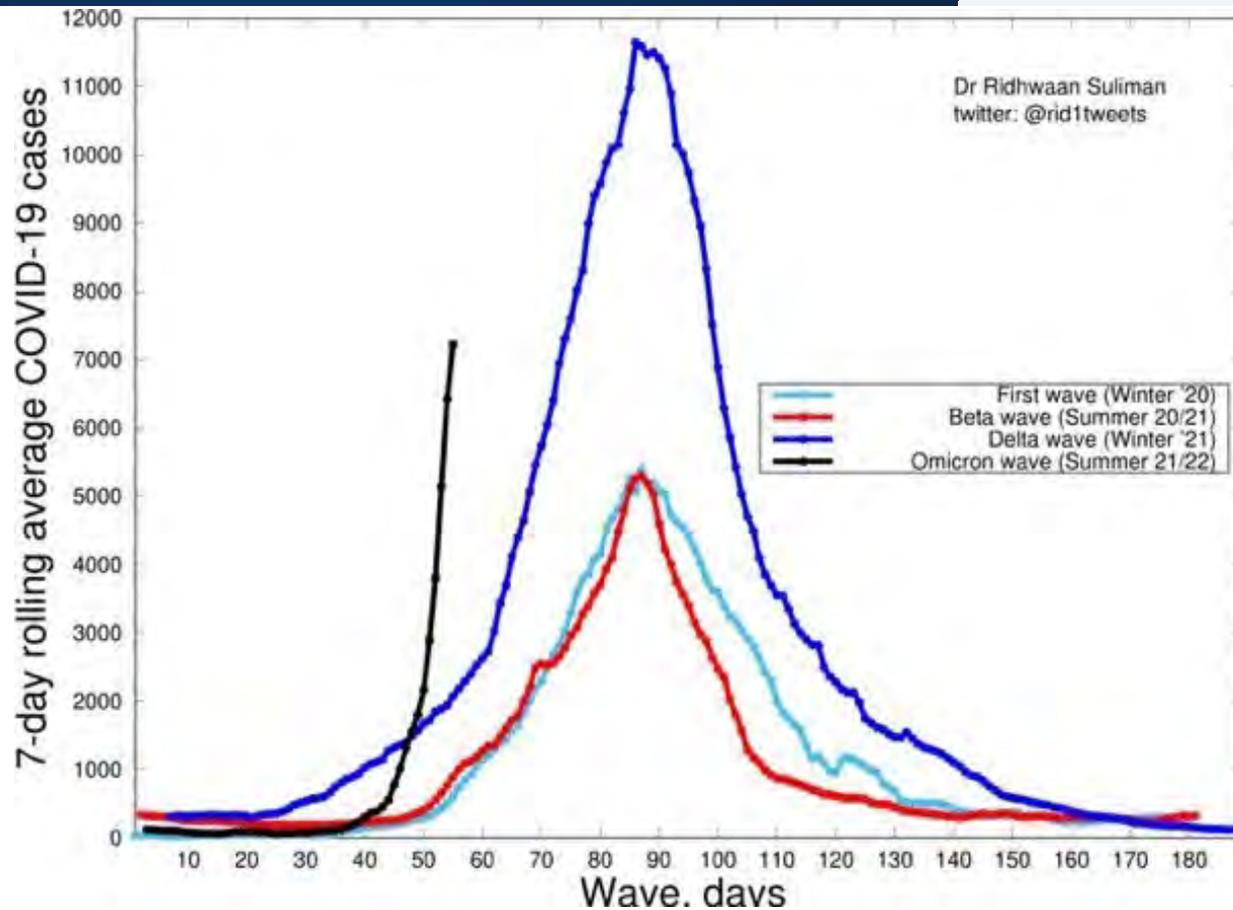
	United States	Avg. on Dec. 7	14-day change
New cases	120,071	+27%	
New deaths	1,298	+13%	

## Where has Omicron been detected >



	World	Avg. on Dec. 7	14-day change
New cases	621,800	+10%	
New deaths	7,647	Flat	

# Waves of COVID-19 Cases in Gauteng, South Africa



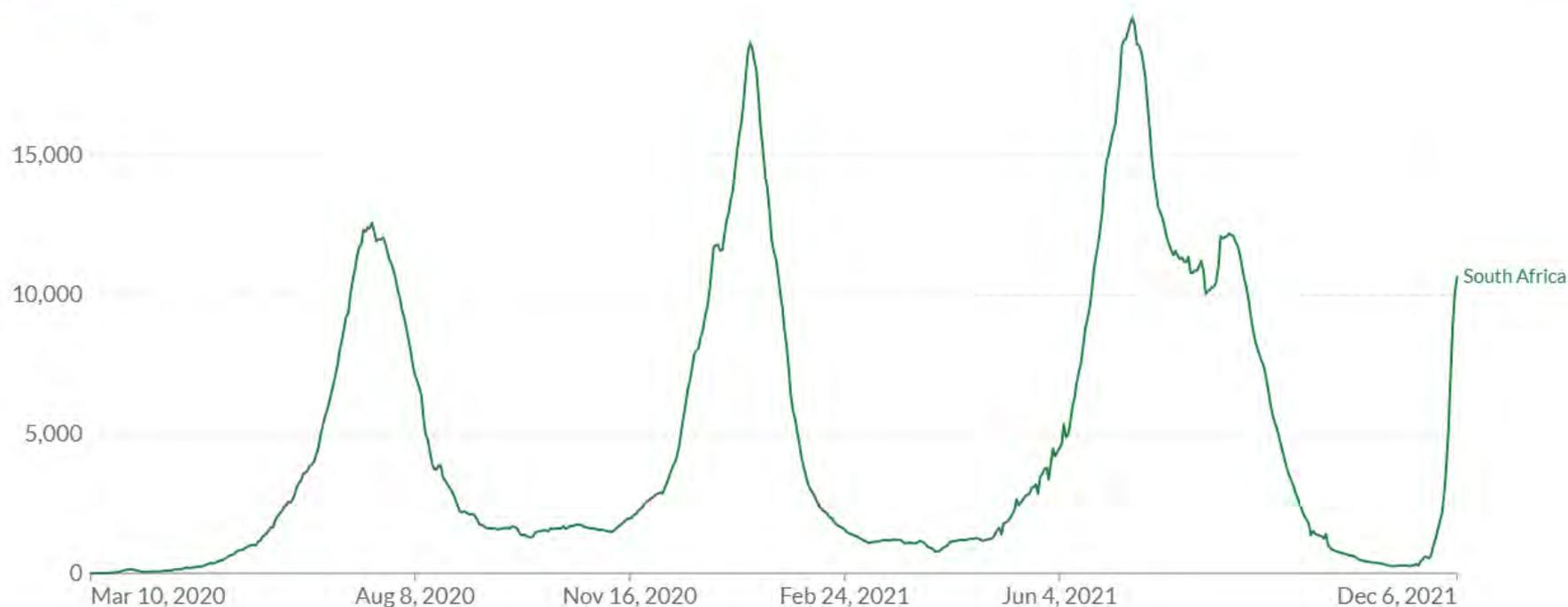
# Daily New COVID-19 Cases in South Africa

## Daily new confirmed COVID-19 cases

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.

Our World  
in Data

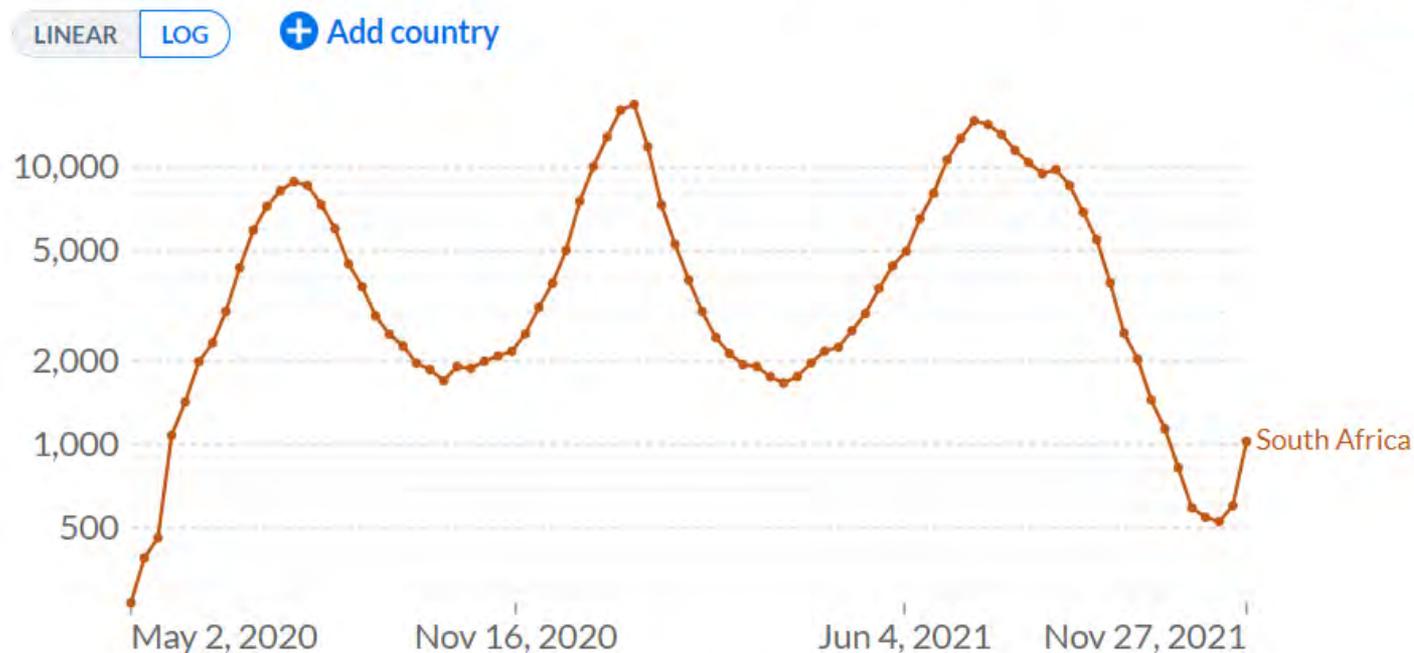
LINEAR LOG



# Weekly New Hospital Admissions in South Africa

## Weekly new hospital admissions for COVID-19

Our World  
in Data



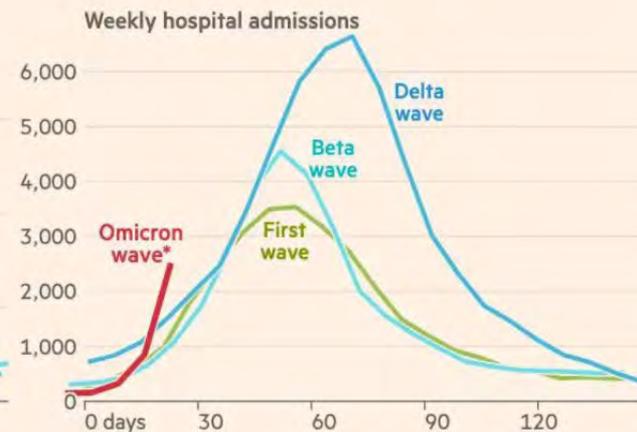
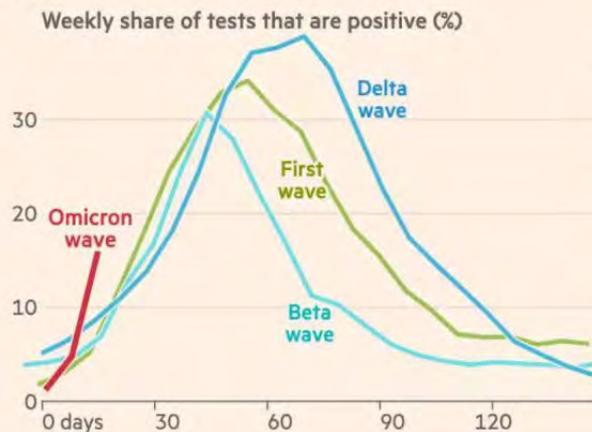
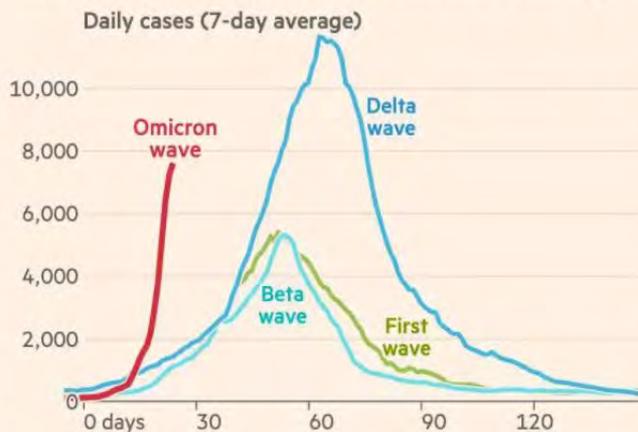
Source: European CDC for EU countries, government sources for other countries - Last updated 8 December 2021, 12:54 (London time)

OurWorldInData.org/coronavirus • CC BY

# Weekly New Hospital Admission Surge Comparison

## Covid cases, test positivity and hospital admissions in Gauteng are rising far faster than in past waves

Cases, test positivity and hospital admissions in Gauteng province, by number of days since each wave began



\*Hospital admissions adjusted to account for delay in data reporting

Source: FT analysis of data from South Africa's National Institute for Communicable Diseases

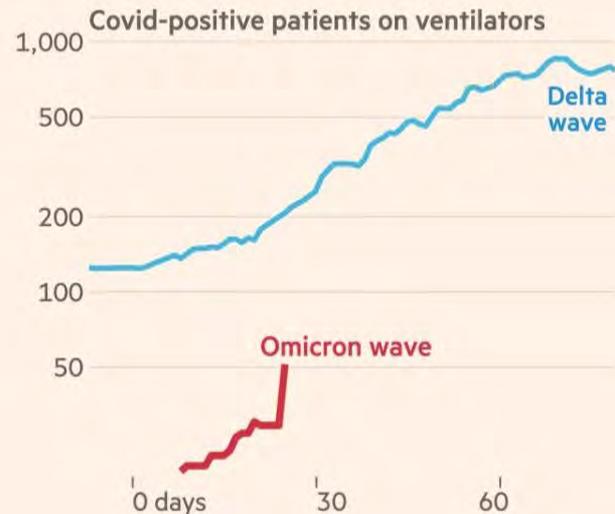
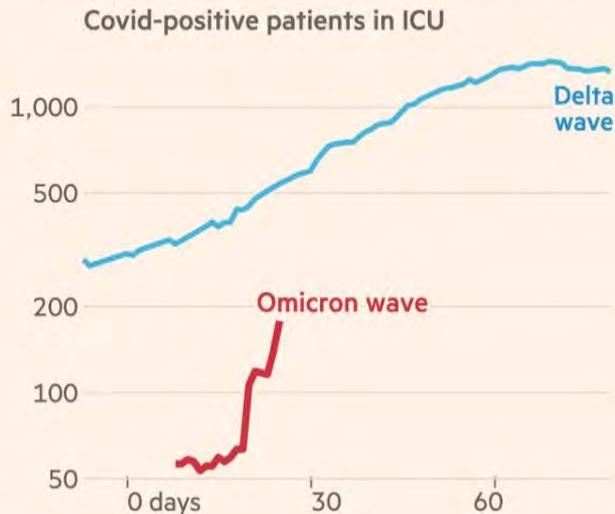
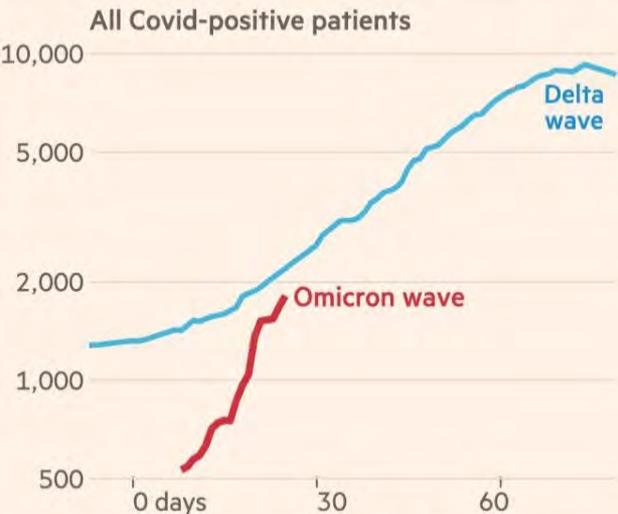
FT graphic by John Burn-Murdoch / @burnmurdoch

© FT

# Weekly New Hospital Admission Surge Comparison

But plotted on a log scale, the number of Omicron patients in ICU or on ventilators does seem to be rising faster than in the Delta wave

Number of Covid-positive patients requiring different levels of care, by days since each wave began



\*Start of wave defined as when 7-day average of cases rose for 7 successive days  
Source: FT analysis of data from South Africa's National Institute for Communicable Diseases  
FT graphic by John Burn-Murdoch / @jburnmurdoch  
© FT

# Four Key Questions

- Is Omicron more infectious?
- Does Omicron cause more or less severe disease than Delta?
- Will vaccinations work against Omicron?
- Will treatments work against Omicron?

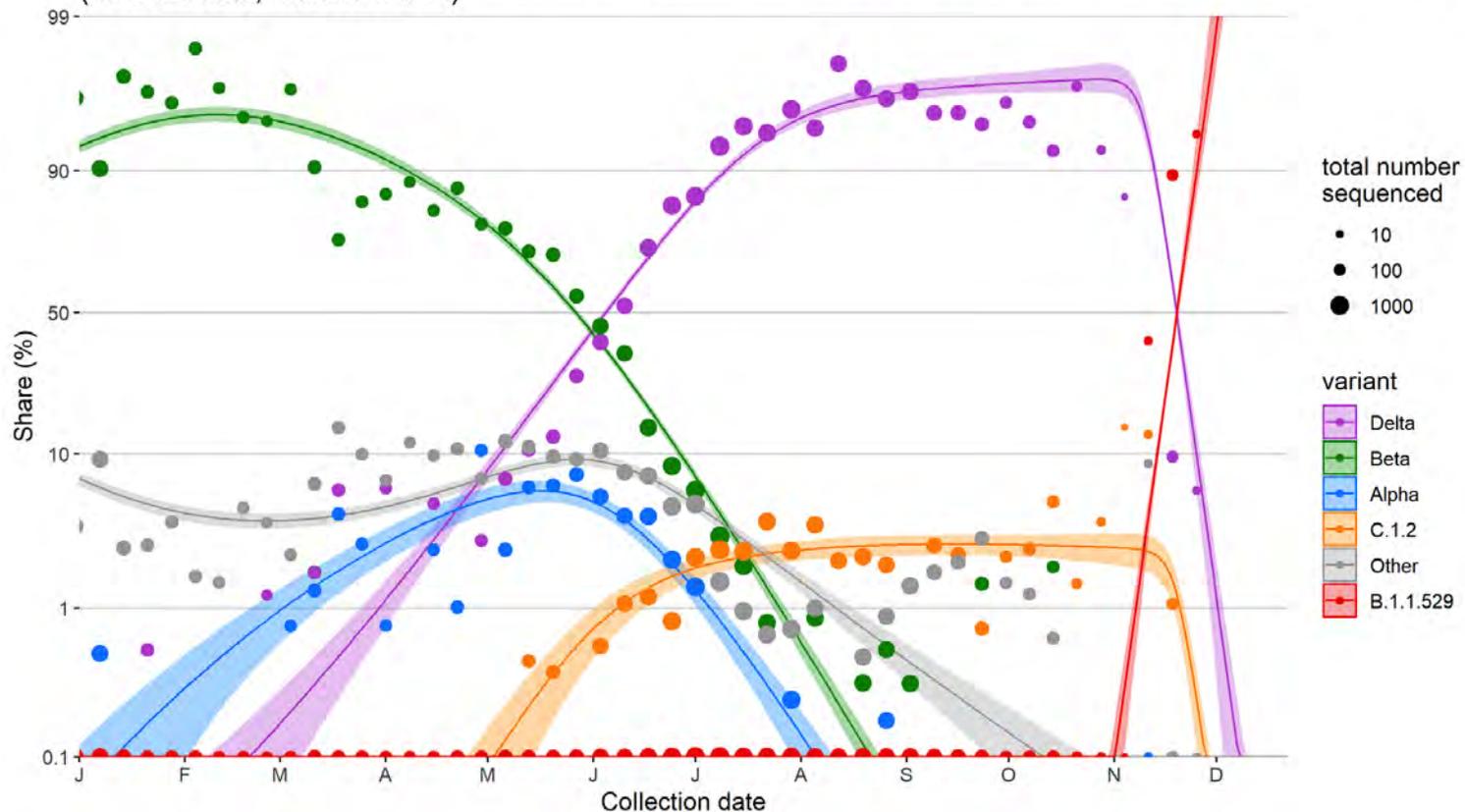
# Four Key Questions

- Is Omicron more infectious? *high probability*
- Does Omicron cause more or less severe disease than Delta?
- Will vaccinations work against Omicron?
- Will treatments work against Omicron?

# Spread of COVID-19 Variants in South Africa

SPREAD OF SARS-CoV2 VARIANTS OF CONCERN IN SOUTH AFRICA  
(GISAID data, multinomial fit)

@TWenseleers



# Omicron is Spreading in Houston

## Omicron variant found spreading in city

By Dylan McGuinness  
STAFF WRITER

Houston has detected the omicron variant of the virus that causes COVID-19 in eight of its wastewater treatment facilities, confirming the new strain is spreading in the city.

A Harris County resident was the first person in Texas to test positive for the variant Monday. She was fully vaccinated and did not report any recent travel history, officials have said.

LOCAL // HEALTH

## Omicron variant found in Houston wastewater, confirming spread of new strain locally



Dylan McGuinness, Staff writer

Dec. 7, 2021 | Updated: Dec. 7, 2021 6:35 p.m.



## Houston Methodist reports 8 cases of omicron variant

Houston Methodist reports 8 cases of omicron variant



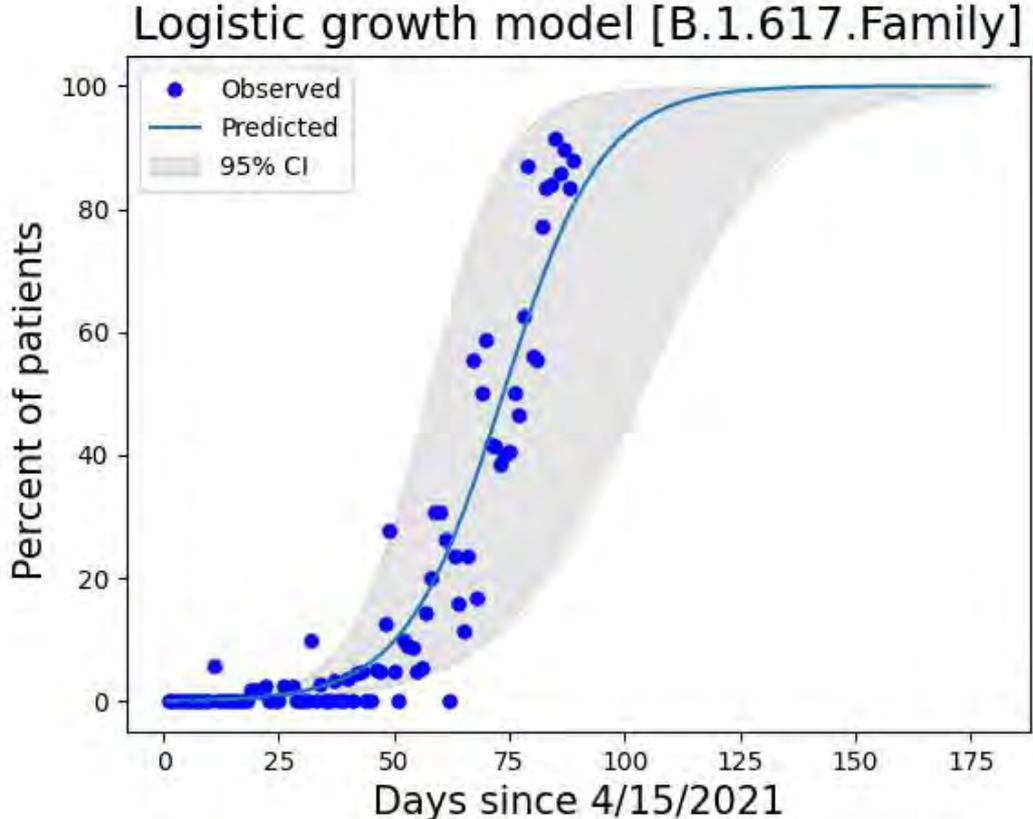
Houston Methodist experts have identified eight cases of the COVID omicron variant through virus genome sequencing, the hospital said tonight.

Author: khou.com

Published: 10:10 PM CST December 8, 2021

Updated: 10:10 PM CST December 8, 2021

# Delta Growth Curve



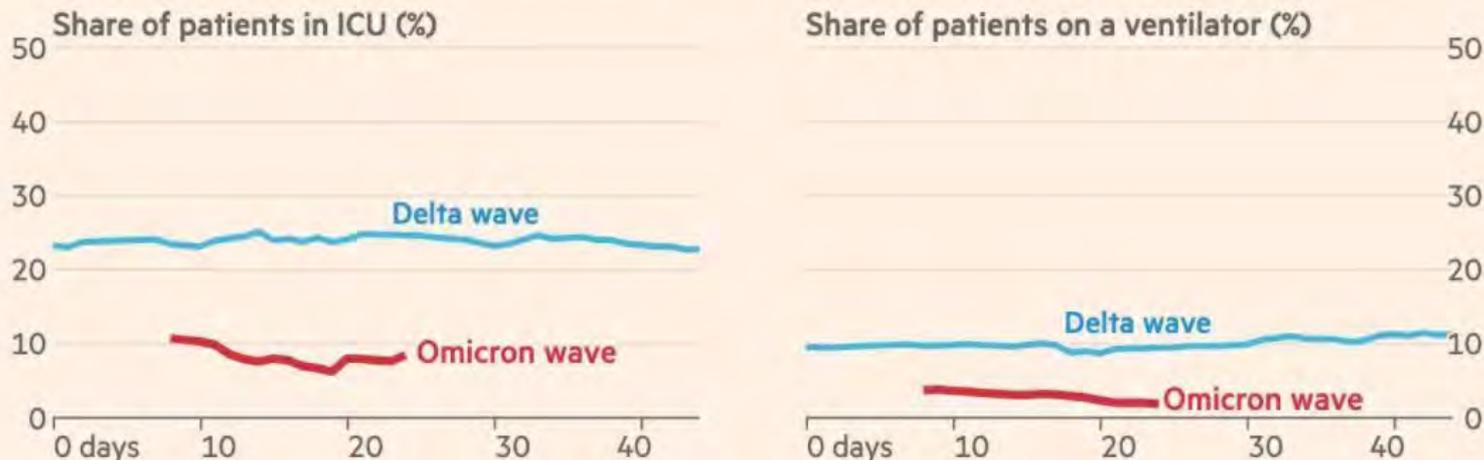
# Four Key Questions

- Is Omicron more infectious? *high probability*
- Does Omicron cause more or less severe disease than Delta? *unknown*
- Will vaccinations work against Omicron?
- Will treatments work against Omicron?

# Share Of COVID-Patients In ICU And On Ventilators in Gauteng

The share of Covid-positive hospital patients in Gauteng that require intensive care is much lower than at the same stage of the Delta wave

Share of Covid-positive patients requiring different levels of care, by days since each wave began



\*Start of wave defined as when 7-day average of cases rose for 7 successive days

Source: FT analysis of data from South Africa's National Institute for Communicable Diseases

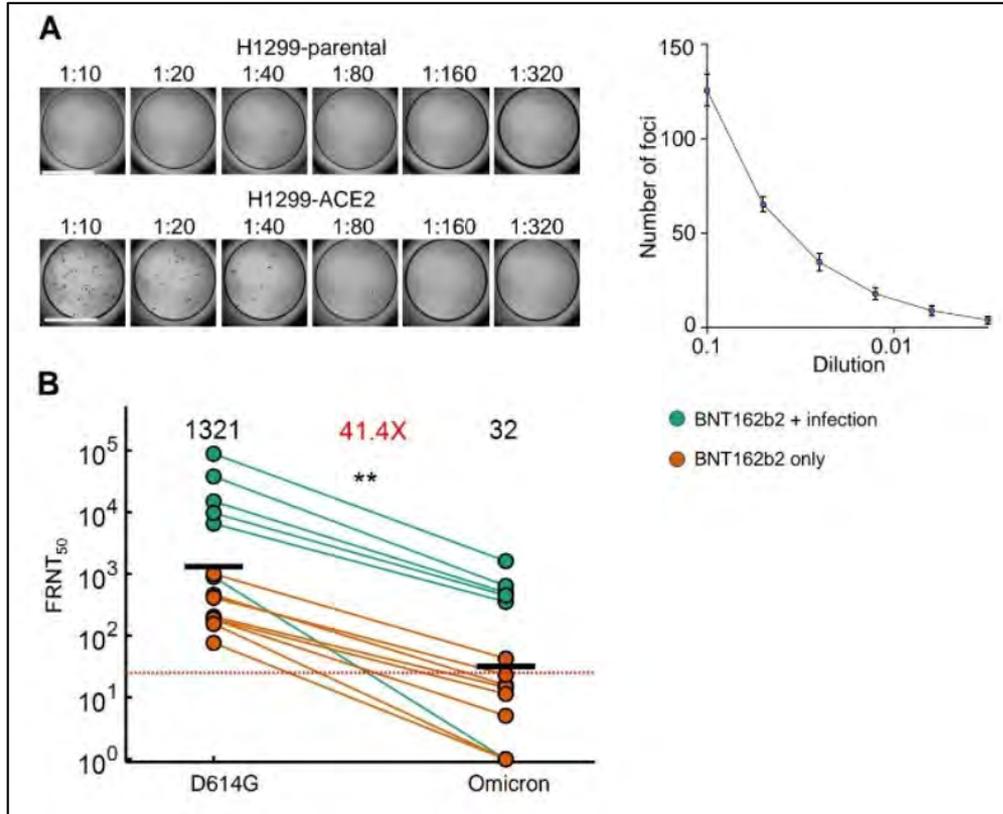
FT graphic by John Burn-Murdoch / @jburnmurdoch

© FT

# Four Key Questions

- Is Omicron more infectious? *high probability*
- Does Omicron cause more or less severe disease than Delta? *unknown*
- Will vaccinations work against Omicron? *probable, with booster*
- Will treatments work against Omicron?

# Will vaccines work against the Omicron variant?



## Small South African Study:

“Among people with the 2-dose Pfizer series (orange dots), neutralizing antibodies took a significant hit — 40-fold reduction — with Omicron compared to the original virus. (Delta had a 5-fold decrease; Beta had an 8-fold decrease).”

Among people with the 2-dose series + previous infection (green dots), neutralizing antibodies took a hit from Omicron but are still relatively high.”

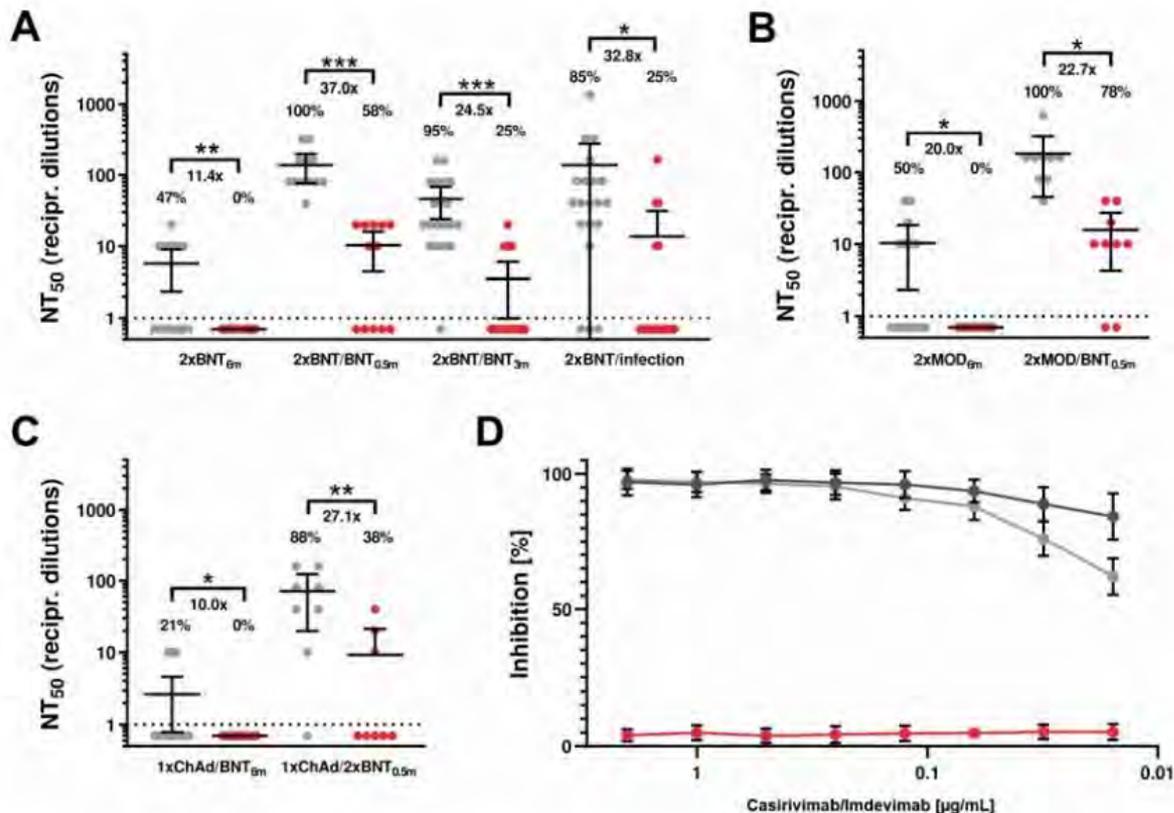
# Will vaccines work against the Omicron variant?

“Our preliminary, first data set indicates that a third dose could still offer a sufficient level of protection from disease of any severity caused by the Omicron variant”



- Preliminary laboratory studies demonstrate that three doses of the Pfizer-BioNTech COVID-19 Vaccine increase the neutralizing antibody titers by 25-fold compared to two doses against the Omicron variant
- As 80% of epitopes in the spike protein recognized by CD8+ T cells are not affected by the mutations in the Omicron variant, two doses may still induce protection against severe disease
- The companies continue to advance the development of a variant-specific vaccine for Omicron and expect to have it available by March in the event that an adaption is needed

# Antibody-Mediated Neutralization Efficacy Against Delta and Omicron



# Four Key Questions

- Is Omicron more infectious? *high probability*
- Does Omicron cause more or less severe disease than Delta? *unknown*
- Will vaccinations work against Omicron? *probable, with booster*
- Will treatments work against Omicron? *mixed*

# Available COVID Treatments and Suggested Effectiveness Against Omicron

HEALTH • COVID-19

## GSK says its COVID antibody therapy works against Omicron. Here's what other drugmakers say about their treatments

BY SOPHIE MELLOR  
December 7, 2021 8:38 AM CST



Subscribe to *Fortune Daily* to get essential business stories delivered straight to your inbox each morning.

British drugmaker GlaxoSmithKline announced today that its antibody-based COVID-19 therapy, made in partnership with Vir Biotechnology, is effective against the new Omicron variant.

The data from early-stage studies, which has yet to be peer reviewed, shows that their treatment, called sotrovimab, is effective against all mutations in the spike protein of Omicron. Most of Omicron's 37 mutations—the highest number in any variant to date—are concentrated on the spike protein, the part of the virus that binds to cells in our bodies.

HEALTH

		Likely To Remain Effective Against Omicron
Monoclonal Antibodies	Sotrovimab (GSK)	☑
	REGEN-COV (Regeneron)	✗
	Bamlanivimab and Etesevimab (Eli Lilly)	✗
Approved Treatments	Remdesivir (Gilead)	☑
	Molnupiravir (Merck)	☑
Not Yet Approved	ADG20 (Adagio)	☑
	Paxlovid (Pfizer)	☑

# COVID-19 Oral Antiviral Treatments

NEWS EXPLAINER | 10 November 2021

## COVID antiviral pills: what scientists still want to know

Drugs such as molnupiravir and Paxlovid could change the course of the pandemic if clinical trial results hold up in the real world.

Heidi Ledford



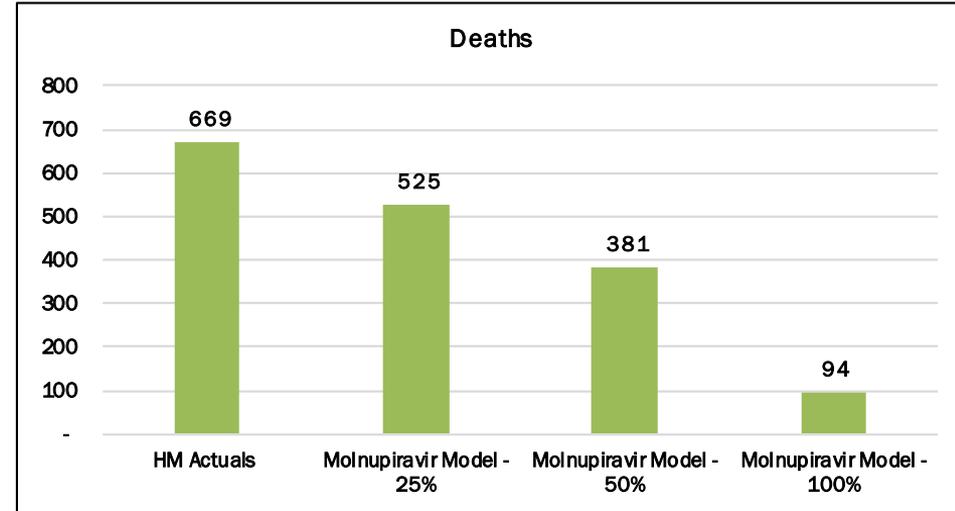
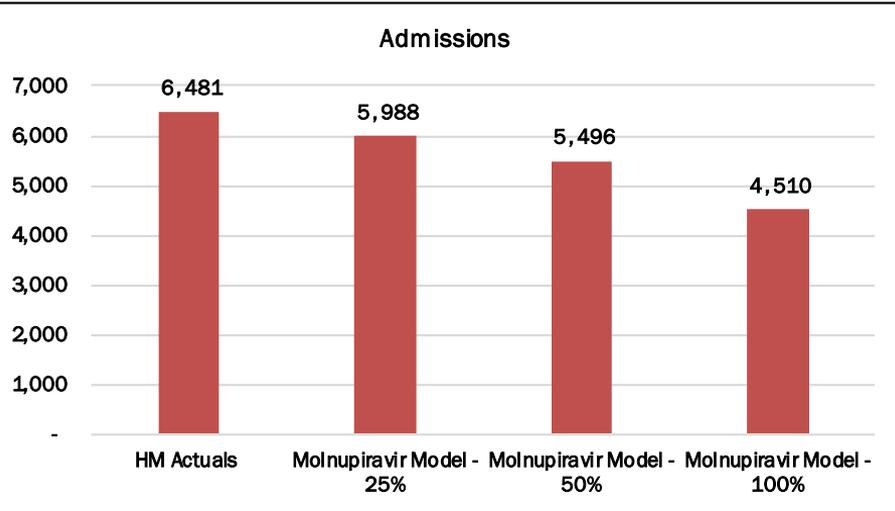
The antiviral drugs molnupiravir and Paxlovid can cut COVID-19 hospitalizations when people are treated soon after becoming infected with the coronavirus. Credit: Sergei Supinsky/AFP via Getty

“If the results hold up in the real world, the medicines could be game-changers for the pandemic.”

Merck & Ridgeback:  
Molnupiravir

Pfizer:  
Paxlovid

# What if Molnupiravir had been available during surge 4?



## Model Assumptions:

### *HM Data:*

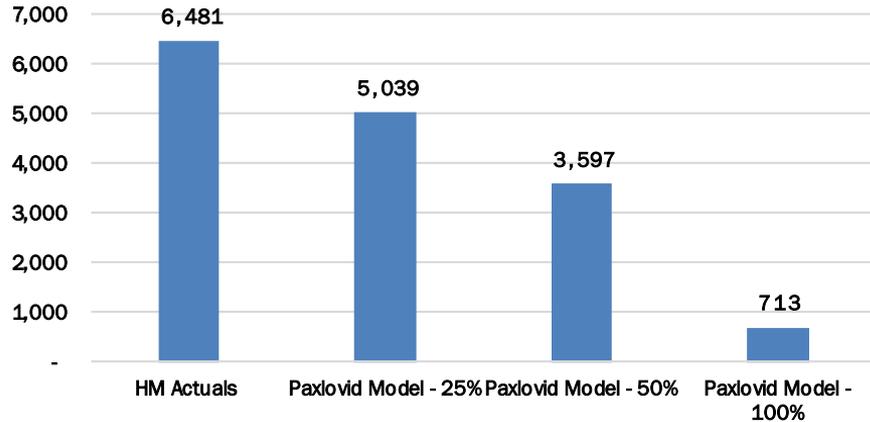
- Actuals: July 2021 – September 2021

### *Molnupiravir Clinical Trial Results:*

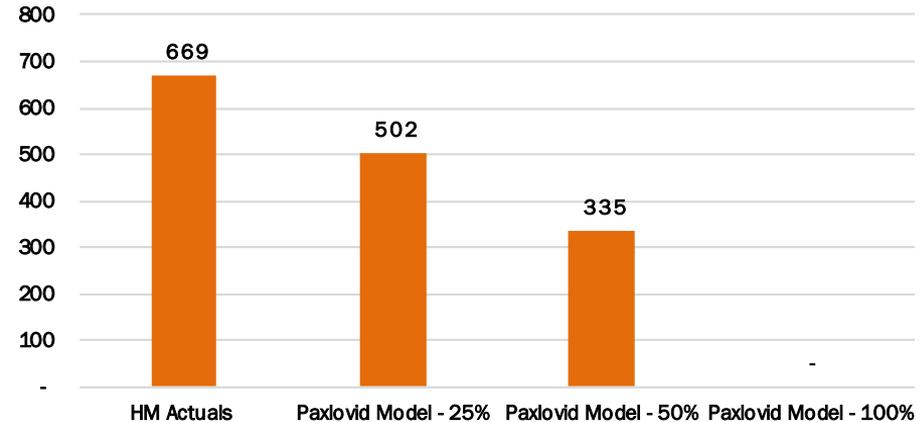
- Hospitalization Results: Placebo 9.7% (68/699) vs. Treatment 6.8% (48/709)
- Deaths: Placebo 1.28% (9/699) vs. 0.14% Treatment (1/699)

# What if Paxlovid had been available during surge 4?

Admissions



Deaths



## Model Assumptions:

### *HM Data:*

- Actuals: July 2021 – September 2021

### *Paxlovid Clinical Trial Results:*

- Hospitalization Results: Placebo 7% (27/385) vs. Treatment 0.8% (3/389)
- Deaths: Placebo 1.81% (7/385) vs. 0% Treatment (0/385)

HAVE WE SOCIETALLY DONE EVERYTHING  
WE CAN DO TO WEATHER ANOTHER SURGE?

# Americans Lack Easy, Inexpensive Access to COVID-19 Rapid Tests

## America has been failing on access to COVID-19 testing



USA TODAY

### The White House is making at-home COVID testing free: Here's what travelers should know

While PCR tests are used to identify if someone has been infected, many of the over-the-counter home testing kits are rapid antigen tests that...



Medpage Today

### COVID Rapid Test Prices 'Ridiculous' | MedPage Today

"Frankly, it's a travesty that in the middle of a pandemic we have such poor access to rapid testing." "They should cost \$5 for two tests," he...



The Boston Globe

### 'Should we just send one to every American?': Psaki faces backlash over response to whether rapid tests should be mailed to all

In a testy exchange with NPR reporter Mara Liasson over whether the Biden administration should be delivering rapid coronavirus tests to...

The New York Times

### In Biden's Plan for Free Rapid Tests, Legwork Will Be Required

Over-the-counter rapid coronavirus tests will soon become a much ... at the Kaiser Family Foundation, who has studied rapid testing access.

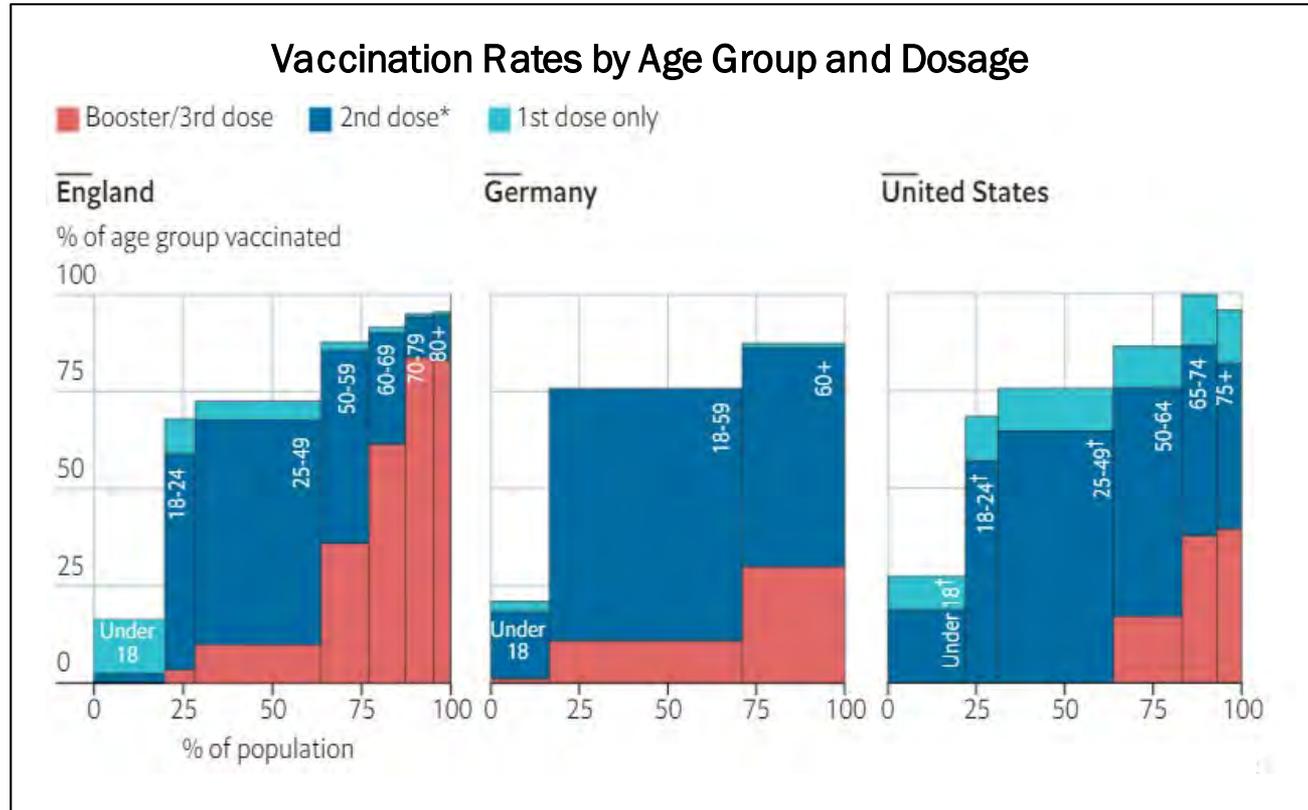


# United States Vaccination Status Update

Vaccination Rank	Name	Given at least one shot	Fully vaccinated
	<b>U.S. total</b>	<b>71%</b>	<b>60%</b>
1	New Hampshire	90%	65%
2	Massachusetts	87%	72%
3	Vermont	86%	74%
4	Connecticut	85%	73%
5	Rhode Island	84%	74%
*	Washington, D.C.	83%	65%
6	Hawaii	83%	62%
7	Maine	83%	73%
8	Pennsylvania	83%	59%
9	New Jersey	80%	69%
10	California	80%	64%
11	New York	79%	69%
12	Maryland	78%	68%
13	New Mexico	78%	64%
14	Virginia	76%	66%
15	Delaware	74%	62%
16	Washington	73%	65%
17	Florida	72%	62%
18	Colorado	72%	64%
19	Oregon	72%	65%
20	North Carolina	71%	55%
21	Illinois	70%	62%
22	Minnesota	70%	63%
23	West Virginia	69%	49%
24	South Dakota	68%	55%

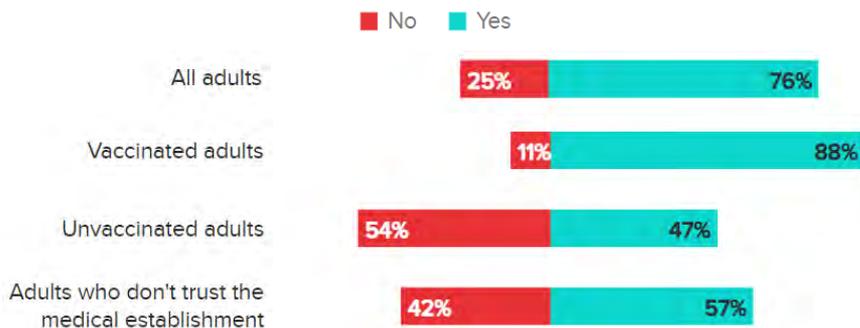
Vaccination Rank	Name	Given at least one shot	Fully vaccinated
25	Nevada	67%	55%
26	Kansas	67%	55%
27	Wisconsin	66%	60%
28	Arizona	65%	55%
29	Utah	65%	56%
30	<b>Texas</b>	<b>65%</b>	<b>55%</b>
31	Nebraska	65%	58%
32	Oklahoma	64%	52%
33	Alaska	64%	55%
34	Iowa	63%	57%
35	Michigan	62%	55%
36	Arkansas	61%	50%
37	South Carolina	61%	52%
38	Kentucky	61%	53%
39	Missouri	61%	52%
40	Montana	60%	52%
41	Georgia	59%	49%
42	Ohio	59%	54%
43	North Dakota	59%	49%
44	Tennessee	57%	50%
45	Alabama	57%	47%
46	Indiana	56%	51%
47	Louisiana	56%	49%
48	Wyoming	54%	46%
49	Mississippi	54%	47%
50	Idaho	51%	46%

# Vaccination Booster Rates by Country

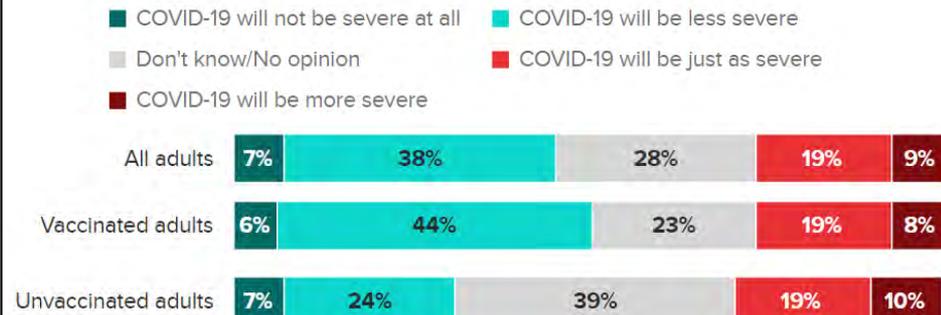


# Will Americans Utilize the COVID-19 Antiviral Pills?

## Would you take a COVID-19 antiviral pill if it was FDA-authorized and prescribed by a doctor?



## How would the availability of the antiviral pill affect COVID-19's severity around the world?



MIKE LUCKOVICH ATC (cov)  
©11-30-21  
The Atlanta  
Journal-Constitution



WHACK!  
WHACK!  
WHACK!

Whack-A-  
Variant!



# GET YOUR FREE COVID-19 BOOSTER TODAY



## NOW ACCEPTING WALK-INS

Visit any of our 7 vaccination locations:  
Monday - Thursday: 8 a.m. - 5 p.m.  
Friday: 8 a.m. - Noon



## PREFER AN APPOINTMENT?

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# THANK YOU FOR ATTENDING OUR TOWN HALL CONVERSATION

If you'd like additional information about Behavioral Health,  
please contact us at [foundation@houstonmethodist.org](mailto:foundation@houstonmethodist.org).

*Take care and be well*

