







#### SARS-CoV-2 Town Hall VMeeting

HANK WEISS PHD, MPH, MS UW ADJUNCT ASSOCIATE PROFESSOR BRITTANY GROGAN MPH, PHMDC

MEG TAYLOR - PANEL HOST PLATO REOPENING COMMITTEE



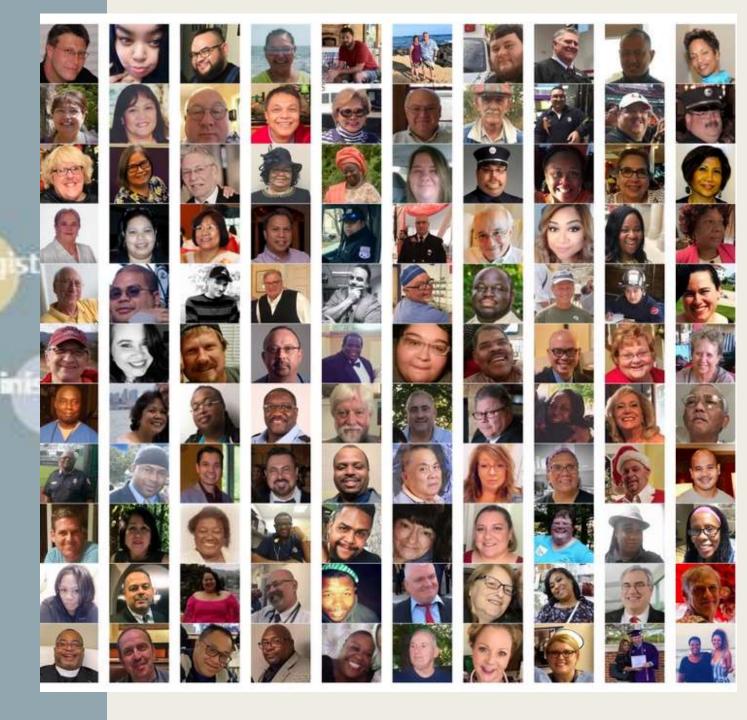
it's dry here, the sinking is an hoax if the Titanic was sinking today:

if I drink fuel.
I won't freeze

nobody can force me to wear a life jacket

only elders and non swimmers will die.

Over 1,150 US **Health Workers Have Died of** COVID-19 - So Far





Overview

#### Overview

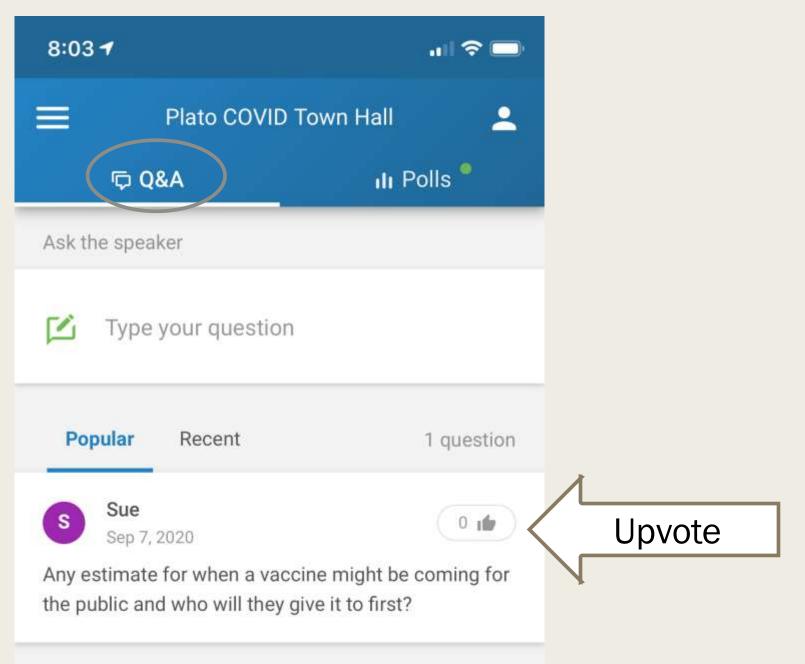
- > 10:05 How We Got Here (brief)
- What Do We Know and Not Know
- SARS-CoV-2 By the Numbers (Descriptive Epidemiology)
- PHMDC Update Brittany Grogan
- Testing (brief)
- Treatments (brief)
- Vaccines
- Disease Prevention & Control
- Staying Informed Through the Pandemic
- Summary and Conclusions
- 11:00 Expert panel Q & A (using SLIDO)
- Evaluation
- > 11:30 End



slido

## Join at **slido.com** with code





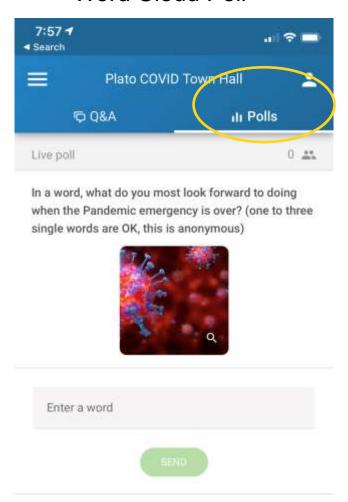
- Upvote questions by clicking the like button next to each question.
- Questions are automatically sorted by their popularity,
- You may remain anonymous if you wish.

# Share thoughts and opinions by voting in *anonymous* live polls

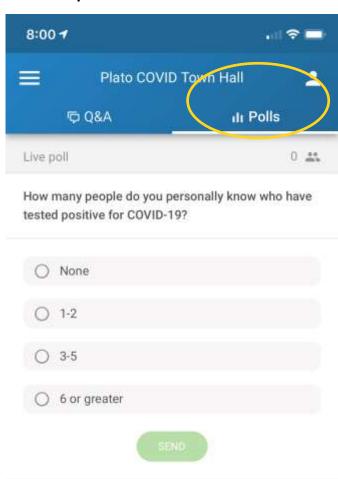
Word Cloud Result



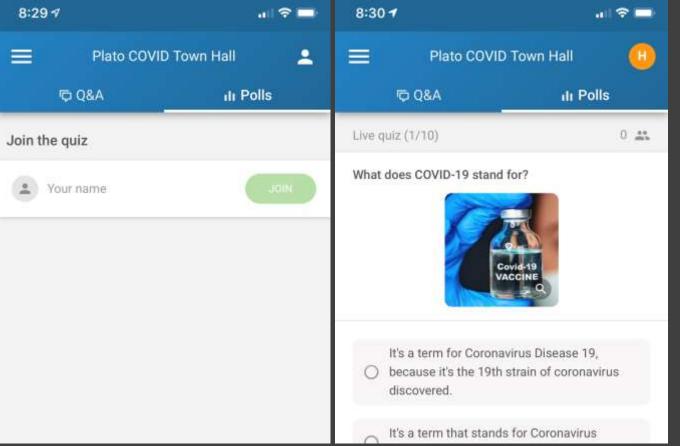
#### Word Cloud Poll



#### Multiple Choice Poll & Quiz



### Quiz Contest



#### Masks by Meg







## Novel Human Virus? Pneumonia Cases Linked to Seafood Market in China Stir Concern

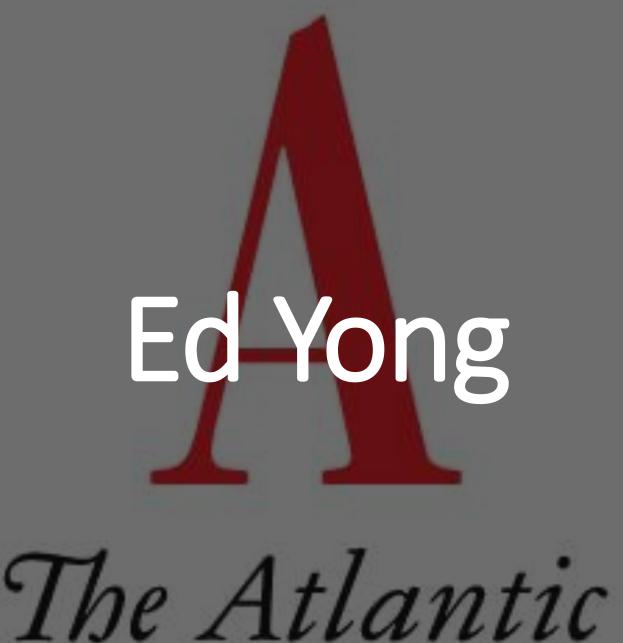
By Dennis Normile



#### The Washington Post

January 9, 2020

China Identifies New Strain of Coronavirus as Source of Pneumonia Outbreak





## "How the Pandemic Defeated America"

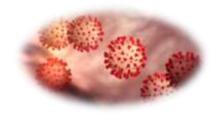
"How DID IT come to this? A virus a thousand times smaller than a dust mote has humbled and humiliated the planet's most powerful nation" — August 2020

Also: "America Is Trapped in a Pandemic Spiral", 09/09/20



#### SARS-CoV-2 The "Paradox" Virus

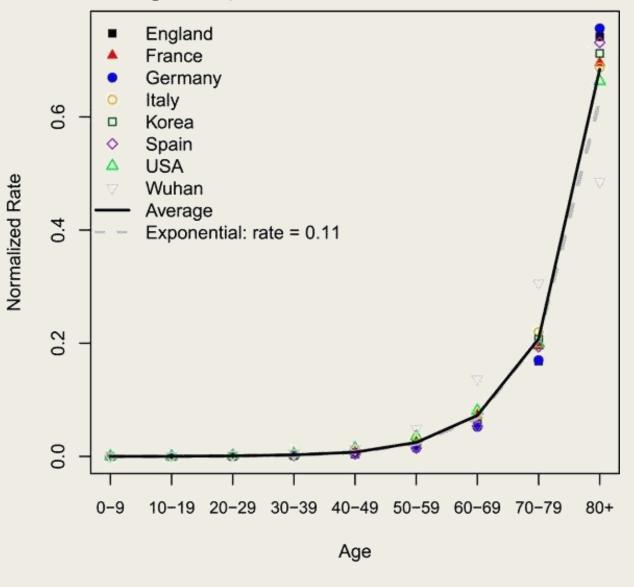
A strange duality

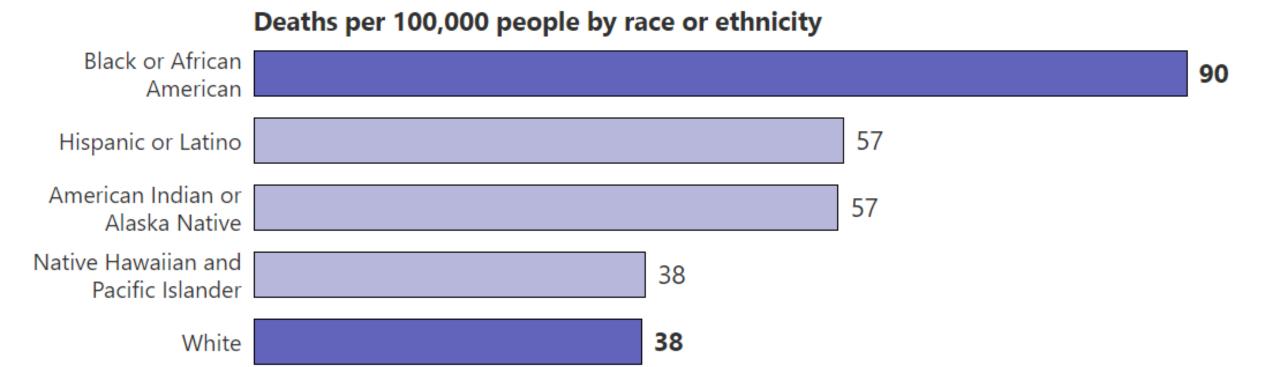


- ❖ Virulent pathogen (CFR ~1%) characterized by asymptomatic / pre-symptomatic spread.
- Tremendous variation in infectiousness: Transmission with lots of dead ends yet causes super spreader events (context specific).
- Pandemic pathogen that skips children except when resurgence is driven by school openings.

#### In Terms of Mortality, It is Devastating to the Elderly But Mostly Spares The Young

#### Normalized Death Rates by Age Group for Selected Countries



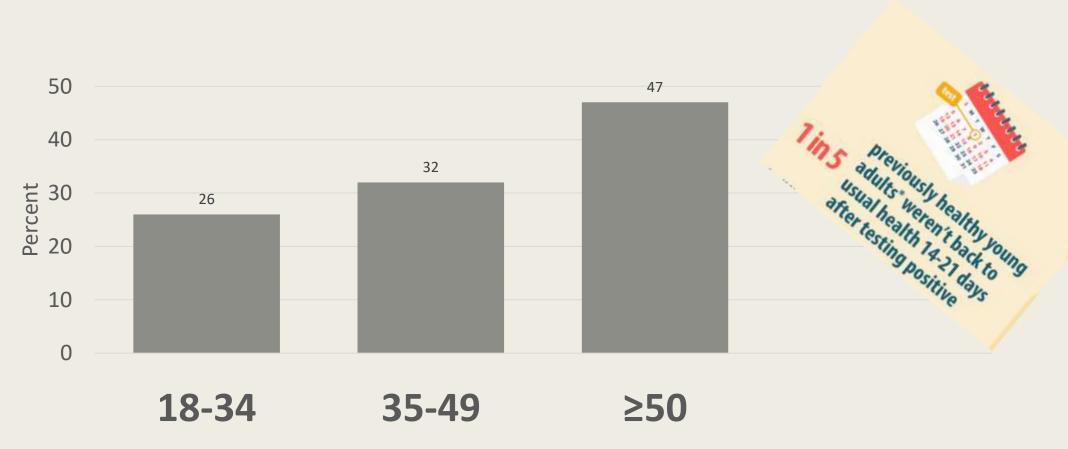


37

#### **US Minorities Disproportionately Impacted**

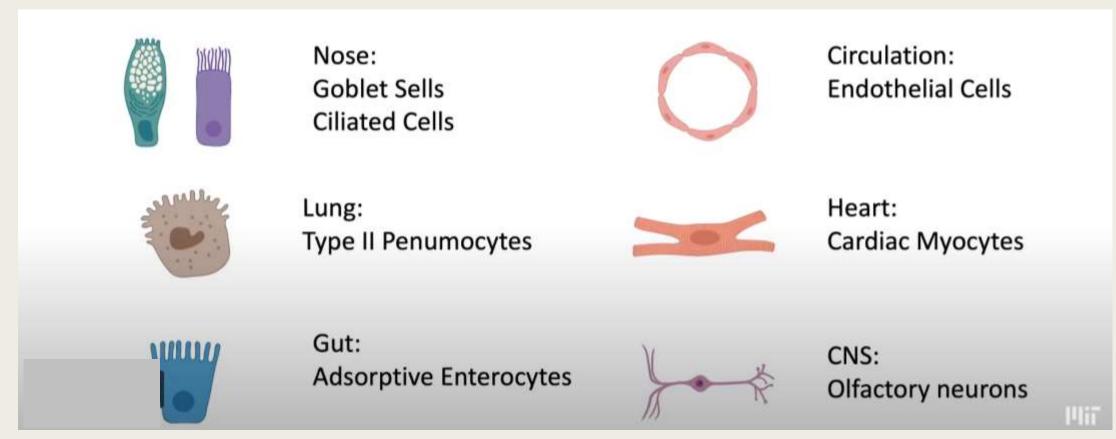
Asian

#### It Can Be A Nasty Virus in Non-fatal Cases



Still too sick to work 21 days post-test results. By age:

#### It's Not Just a Respiratory Disease



SARS-COV-2 Causes Systemic Disease Due to Affinity for Ace-2 Receptors on Various Cell Types

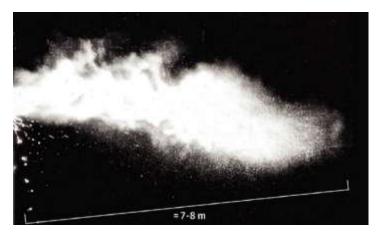
#### Kids



This Photo by Unknown Author is licensed under CC BY-S

- Deaths among children and teens are low, but they are not invulnerable.
- One in three children hospitalized ends up in intensive care.
- Highest rate of hospitalizations in children under 2 years of age.
- A small proportion of children infected with Covid-19 get a condition where multiple organs come under attack from their own immune system (multisystem inflammatory syndrome in children/MIS-C)

#### How Do You Catch It?

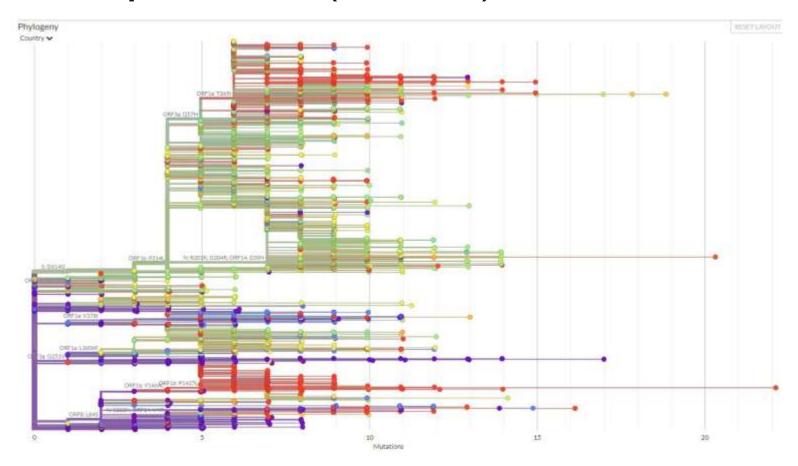


- The closer you are to someone infectious and unprotected and the longer you're in contact, the more likely you are to contract it
  - Households
  - Indoors is worse, particularly in rooms without sufficient ventilation;
  - Loud talking, heavy breathing, singing, screaming expel more virus,
  - Bars, gyms, crowded restaurants are high risk when community spread is rampant

#### People Without Symptoms Can Spread It

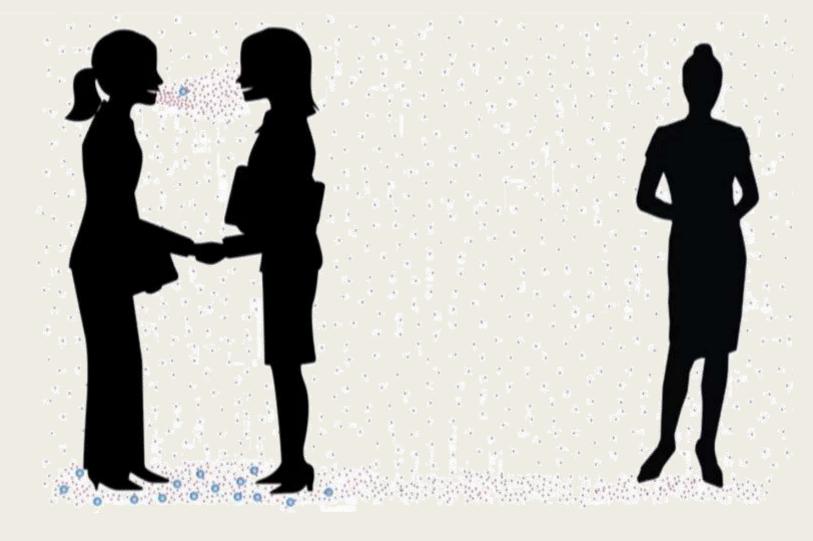
- One fifth to one-third or more of infected people show no symptoms
- Whether or not someone is asymptomatic or presymptomatic, they can still spread the virus
- Whether they spread it as efficiently as people with symptoms is still unknown

## Viral Mutations Have Not Been Consequential (so far)



#### Viruses on Surfaces Are not the Major Transmission Route

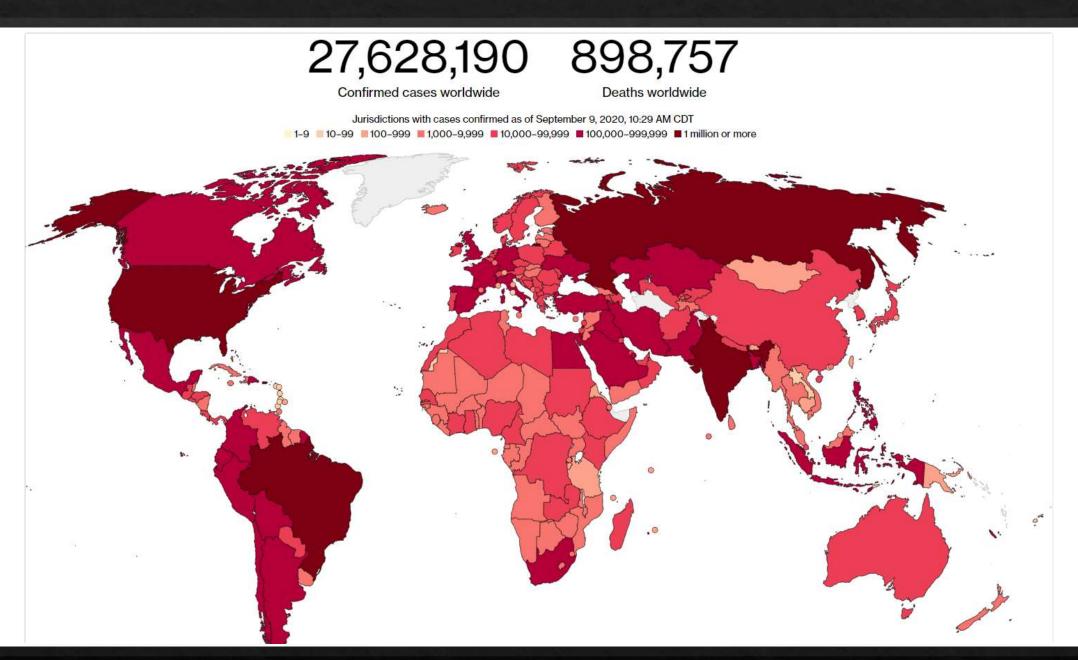
Caveat: Virus falling on indoor floors and workspaces that can be stirred up by movement into breathing spaces remain a concern.



## Somethings We Don't Know About Covid-19

- People seem to be protected from reinfection, but for how long?
- It's not yet clear why some people get really sick, and some don't (genetics, preexisting conditions, dose, exposure route, etc.)
- How much virus does it take to get infected and seriously ill?
- ????





♦US Continues to Lead the World in <u>Total</u> Deaths and Total Cases

Where deaths have occurred	Deaths	Cases
U.S.	190,885	6,363,300 ■
Brazil	128,539	4,197,889 ■
India	75,062	4,465,863 ■
Mexico	69,049	647,321 ■
U.K.	41,683	357,614 ■
Italy	35,577	281,583 ■
France	30,805	383,293 ■
Peru	30,123	696,190 ■
Spain	29,628	543,379 ■
Iran	22,798	395,488 ■
Colombia	22,053	686,851 ■
Russia	18,207	1,042,836 ■
South Africa	15,168	642,431 ■
Chile	11,702	427,027 ■
Ecuador	10,701	112,166 ■

#### ♦US 3<sup>rd</sup> in Death <u>Rate</u>, 2<sup>nd</sup> in Case <u>Rate</u>

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U.K.	Brazil	U.S.	Italy	Russia	Germany	India	Japan	Mainland China
637.0 deaths/mil.	606.1	575.2	570.7	127.4	116.3	56.3	11.2	3.3
5,464.7 cases/mil.	19,790.9	19,178.8	4,517.3	7,309.4	3,187.2	3,332.0	582.2	61.3
223.9 tests / 1,000	24.6	282.5	150.2	269.2	154.2	39.5	15.6	N/A
2.5 beds / 1,000	N/A	2.8	3.2	8.1	8.0	0.5	13.1	4.3
Began easing lockdown on June 8	No national lockdown	No national lockdown	Began easing lockdown on May 4	Began easing lockdown on May 11	Began easing lockdown on April 20	Began easing lockdown on June 8	State of emergency ended May 25	No national lockdown

## Covid-19 is now the third-leading cause of US deaths

- Behind only heart disease and cancer.
- ♦ That's more than unintentional injuries, chronic respiratory diseases, cerebrovascular diseases like strokes, drug overdoses, Alzheimer's or diabetes.

	2 Ran		Cause of death (based on International Classification of Diseases, 10th Revision [ICD-10])			
		All causes				
	1	Diseases of heart	(100-109,111,113,120-151)			
	2	Malignant neoplasms	(C00-C97) (V01-X59,Y85-Y86)			
	3	Accidents (unintentional injuries)				
	4	Chronic lower respiratory diseases	(J40-J47)			
	5	Cerebrovascular diseases	(160-169)			
	5	Alzheimer disease	(G30)			
	7	Diabetes mellitus	(E10-E14)			
	8	Influenza and pneumonia	(J09-J18)			
	8	Nephritis, nephrotic syndrome and nephrosis	(N00-N07,N17-N19,N25-N27)			
DC/NCHS	10	Intentional self-harm (suicide)	(*U03,X60-X84,Y87.0)			
	***	All other causes	(residual)			

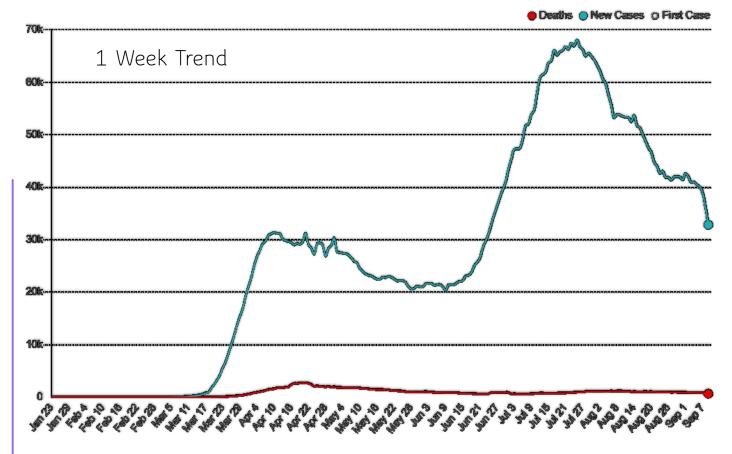
US TOTAL CASES

6.34 million+

DEATHS

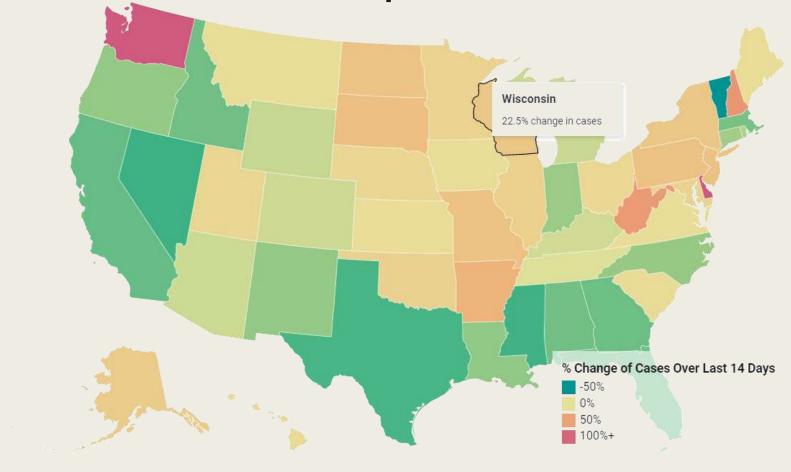
>190,885

Avg Δ cases ↓16.1%
Ave Δ Deaths ↓16.7%
(weekly average)



After the Summer, nationwide new COVID-19 infections leveled off and have been dropping. For many, the worst may be over, *for now*, but average daily infection rates remains way too high in many places and complacency likely to lead to new outbreaks.

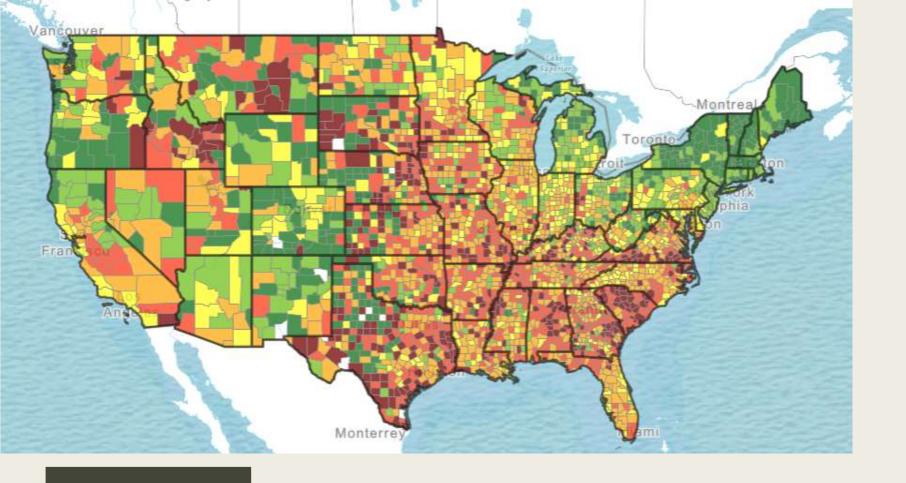
#### It's Not One Epidemic, It Is Many



% Change of Cases Over Last 14 Days

Map: covidexitstrategy.org • Source: COVID Tracking Project • Get the data • Created with Datawrapper

Spread is slowing in several states but is rising in a handful.



#### 7-DAY TEST POSITIVITY RATE - COUNTY:

COVID LAB, Coronavirus in the U.S.: Latest Map and Case Count, September 9, 2020

#### 7-DAY AVERAGE TEST POSITIVITY RATE, US TRENDS

#### The share of daily COVID-19 tests that are positive

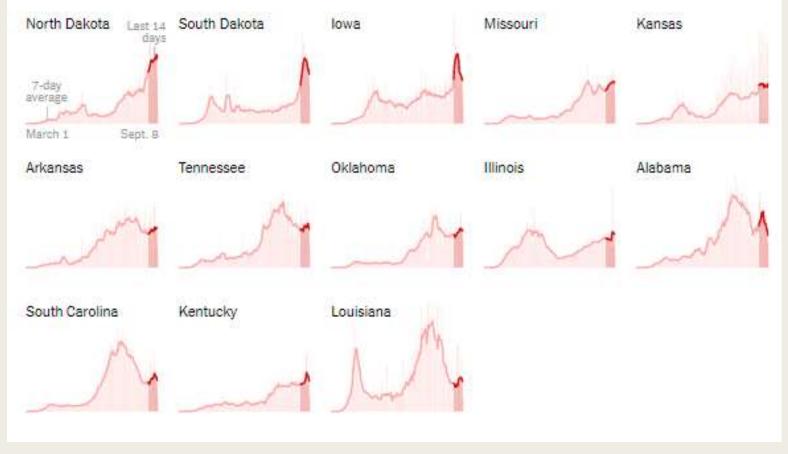


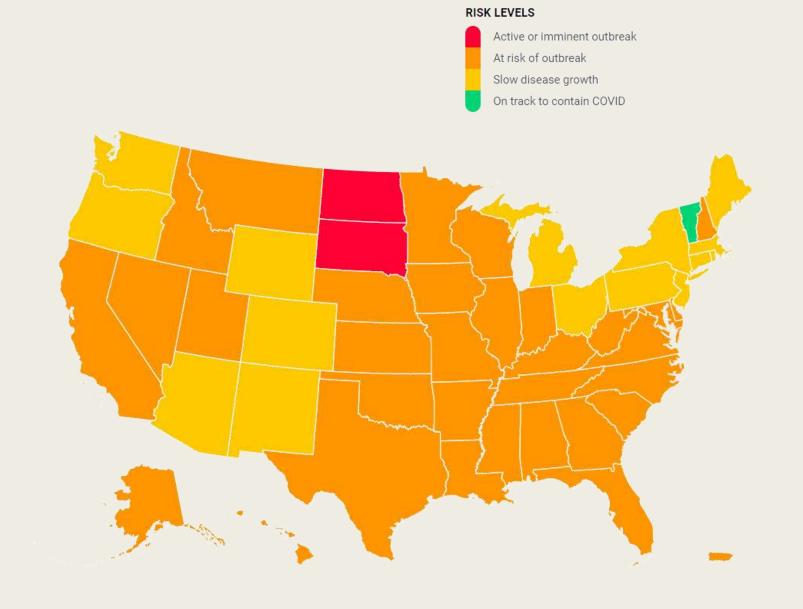
Shown is the rolling 7-day average. The number of confirmed cases divided by the number of tests, expressed as a percentage. Tests may refer to the number of tests performed or the number of people tested – depending on which is reported by the particular country.



#### WHERE NEW CASES ARE HIGHER AND STAYING HIGH

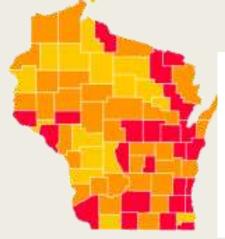
States where new cases are higher had a daily average of at least 15 new cases per 100,000 people over the past week. Charts show daily cases per capita and are on the same scale. Tap a state to see detailed map page.





America's COVID Warning System

### WI DAILY NEW CASES PER 100K POPULATION





America's COVID Warning System

#### **DAILY NEW CASES**

• 13.4 PER 100K

Very large number of new cases

### INFECTION RATE

• 1.02

COVID is still spreading, but slowly

#### POSITIVE TEST RATE

• 11.6%

Indicates insufficient testing

#### ICU HEADROOM USED

10%

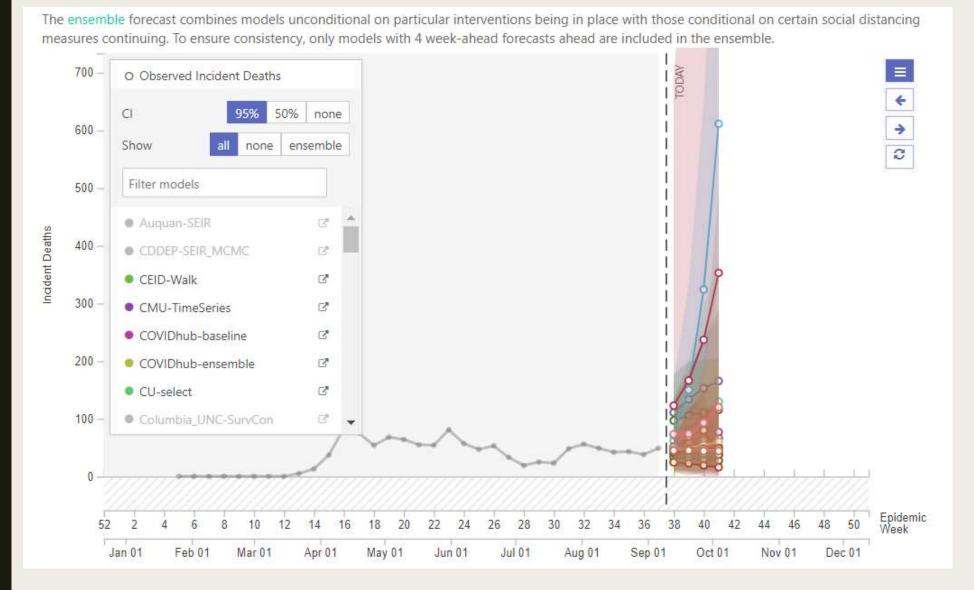
Can likely handle a new wave of COVID

Beta

### TRACERS HIRED

15%

Insufficient tracers, even if the program is run effectively



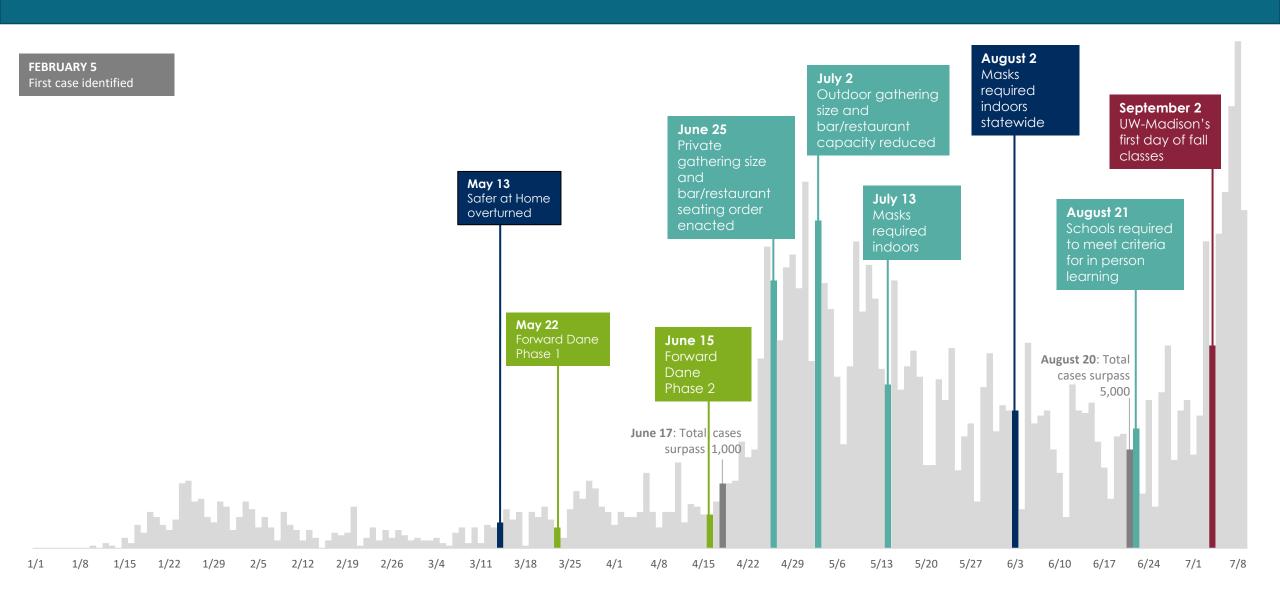
Wisconsin 1 Month Forecast Deaths
Various Ensemble Models

# Dane County COVID-19 Response

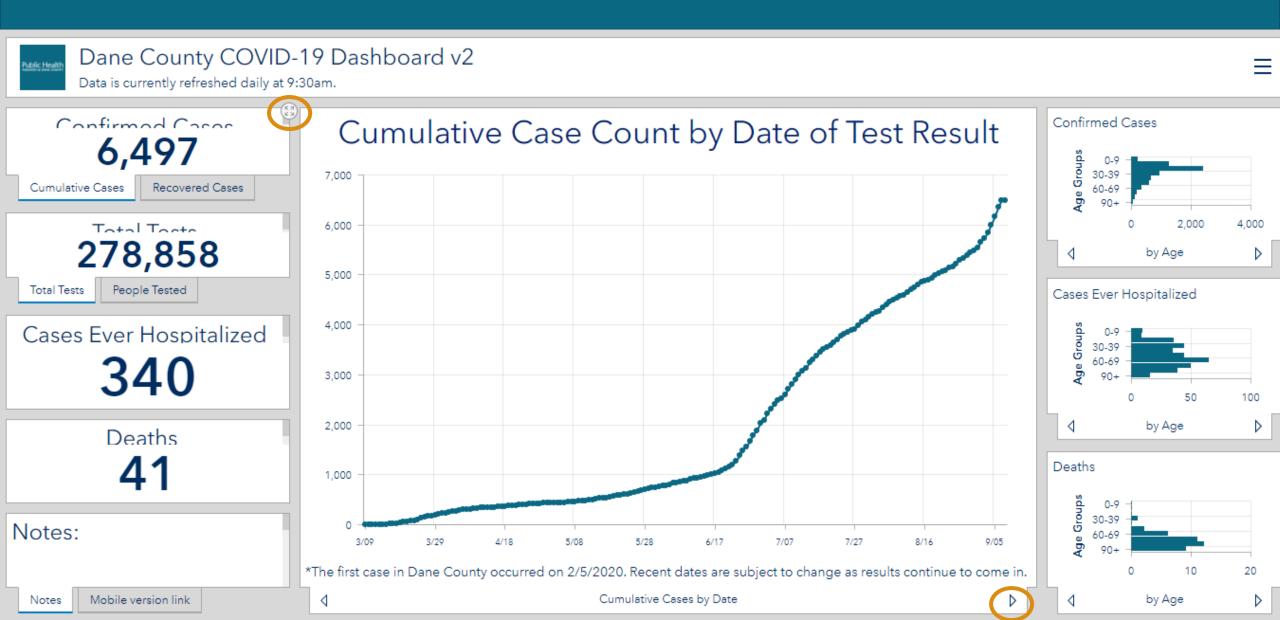
Brittany Grogan, MPH
Data Analyst
Public Health Madison &
Dane County



### Dane County Case Counts & Interventions



### Dane County Data Dashboard



## Forward Dane Status as of 9/3

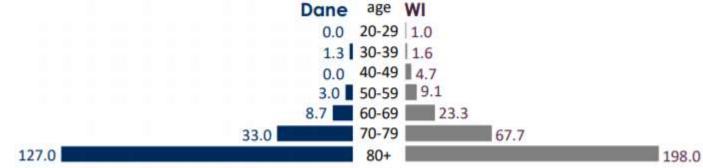
Domain	Measure	Dane County Status	Southern Region Status
Epidemiology: We must have few enough cases of COVID-19 to be swiftly contained. This is an important parameter, and our thresholds for phased reopening are set at levels that align with the progression of our epidemic locally—a lower positivity rate than what is seen at the state level and a low number of cases per 100,000 residents.	Below a threshold of 5% for positive tests as a percent of total tests averaged across most recent 14 day period	1.6%	2.5%
	2. Below a low incidence threshold of 0.71 new cases per 100,000 people per day (this is below 4 cases per day for Dane County and 8 cases per day for the Southern region)	45	113
Healthcare: A sustained, high testing level is a critical metric, as testing is how we detect active infection and prevent transmission of COVID-19. Alongside testing to monitor the course of the epidemic, it is vital that healthcare systems are equipped to manage patient care in the context of a surge caused by COVID-19 as well as protect healthcare workers from infection.	3. Testing supplies and staff facilitate adequate testing for disease control and surveillance (goal of over 800 per day for Dane County and over 1,790 per day for the Southern region)	2761	4505
	Percent of hospitals reporting robust testing in place for healthcare workers in the past week*	100%	100%
* At the time of this update, 1 hospital in the region answered "Yes" to the facility use question on at least one day. A yes response means that either the facility is damaged/unsafe or non-patient care areas are being used by the facility for patient care. The percentage was calculated based on 30 regional hospitals that submitted data.	<ul> <li>5. Percent of hospitals reporting ability to treat all cases without crisis care *</li> <li>Facility use</li> <li>Staffing</li> <li>Critical supply</li> </ul>	100%	97%
	6. Decreasing or stable numbers of infected healthcare workers	$\otimes$	0

## Forward Dane Status as of 9/3

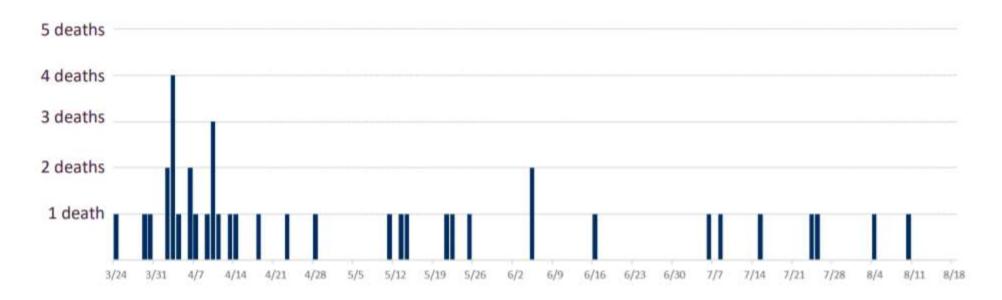
Domain	Measure	Dane County Status	Southern Region Status
Public Health: Our ability to identify and isolate infections is critical to prevent further spread. Through rapid contact tracing, we can identify and notify contacts who have been exposed. Through education and isolation assistance, we can help keep people who test positive and their contacts separated from others for the duration of the infectious period, and lower the risk of spread in the community. Monitoring community spread—the percentage of cases with an unidentified risk factor—is how we can gain a sense of the scale of undetected disease spread.	7. All positive cases be contacted quickly to facilitate rapid isolation and quarantine for disease control	73%	Not tracked at regional level
	8. Proportion of new cases over the most recent 14 day period who don't know where they could have gotten COVID	40%	37%
	9. Downward or stable trajectory of COVID-like syndromic cases reported within a 14 days period	8	0

### Dane County Deaths

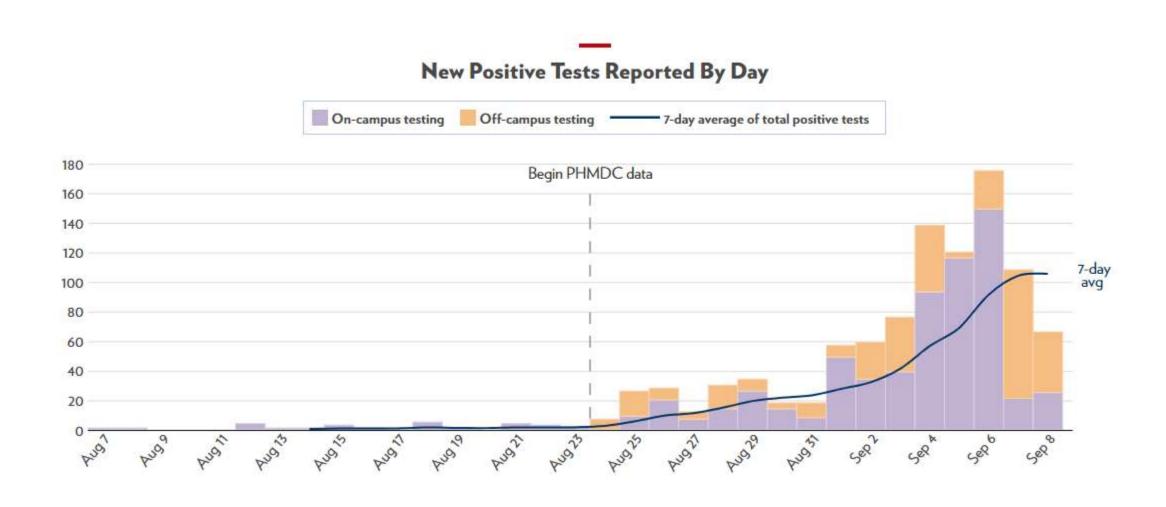




### **Date of Death**



### **UW-Madison Impact**



### **UW-Madison Impact**

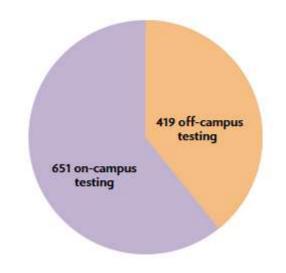
Total Positive Tests To Date

Students 1044

Employees 26

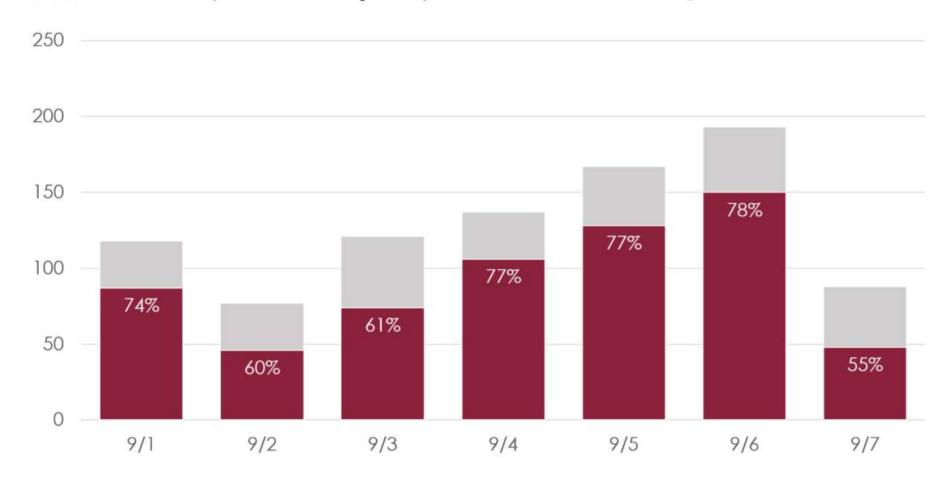
Total 1070

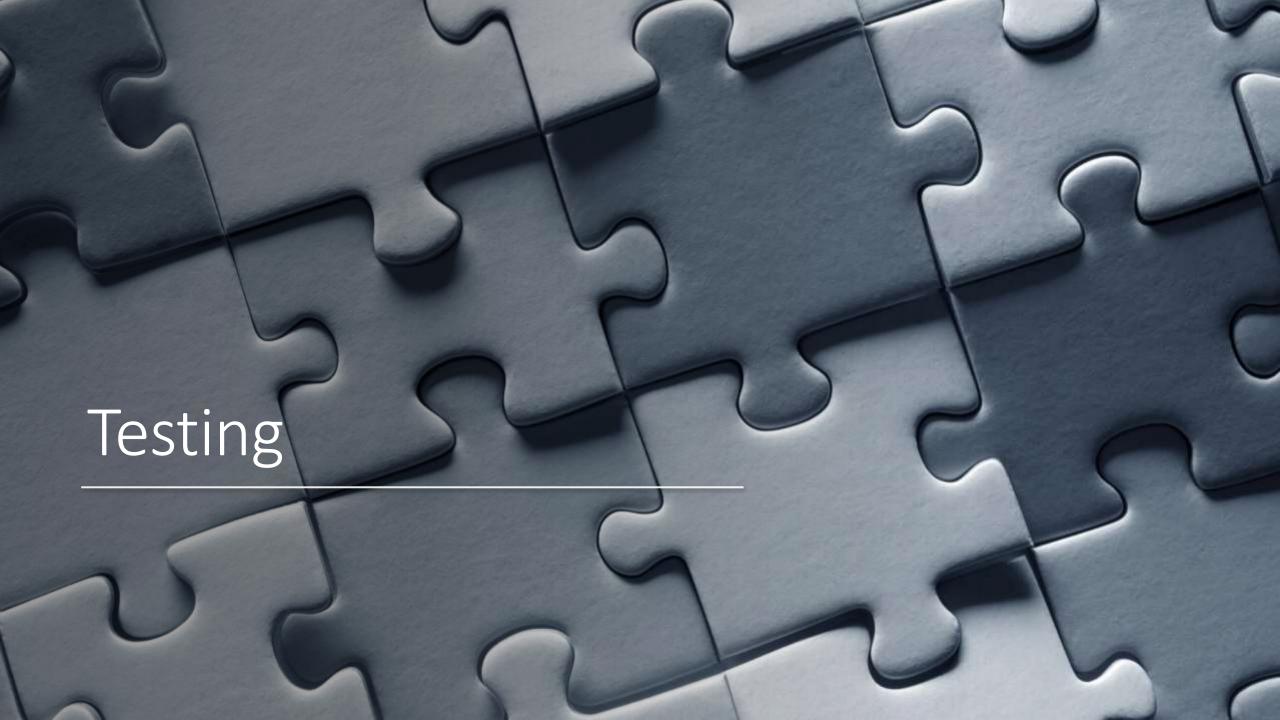
Total Positive Tests by Location Where Test Was Done



### **UW-Madison Impact**

In the past week, COVID-19 cases associated with **UW** make up the majority of **Dane County cases**.

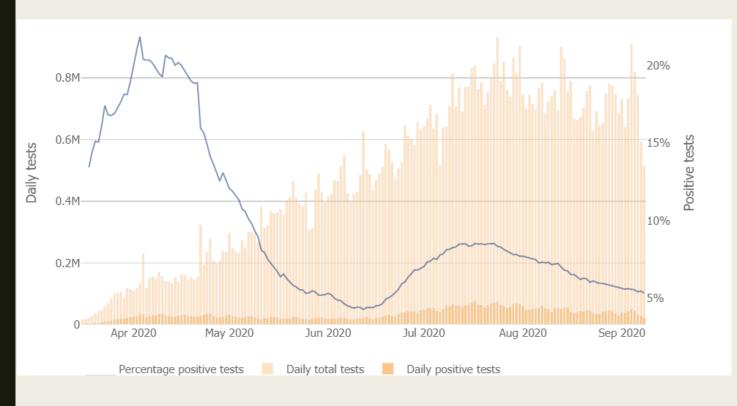


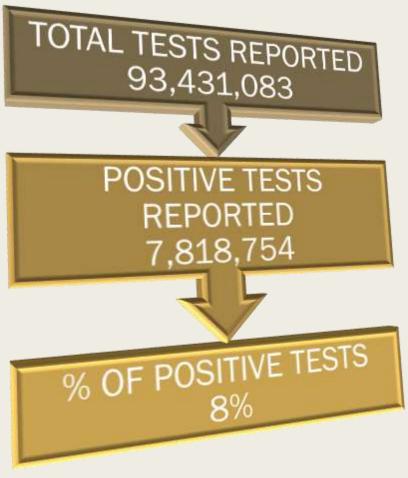


### SARS-CoV-2 Testing Purposes

- Clinical diagnosis people with signs and symptoms (PCR)
- Testing to determine resolution of infection (PCR)
- Asymptomatic individuals with recent or suspected exposure
- Testing asymptomatic individuals without known or suspected exposure in special high-risk settings (nursing homes)
- Public health Surveillance Hotspots, trends, early warning, etc. (antigen and antibody)

### SARS-CoV-2 Testing in the U.S.





### MEDICAL DISPATCH

# WE CAN SOLVE THE CORONAVIRUS-TEST MESS NOW—IF WE WANT TO

The key to taming the pandemic will be both a new commitment to "assurance testing" and a new vision of what public health really means.



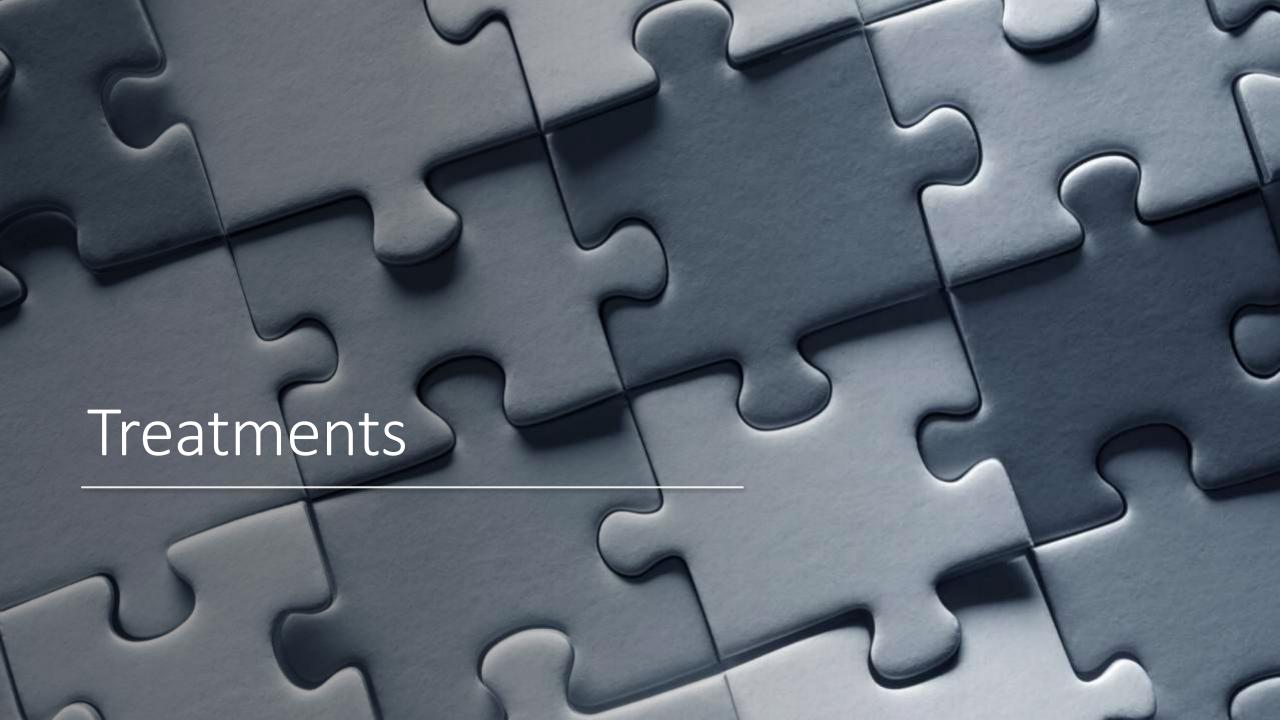
By Atul Gawande September 2, 2020



# Dane County SARS-CoV-2 Testing

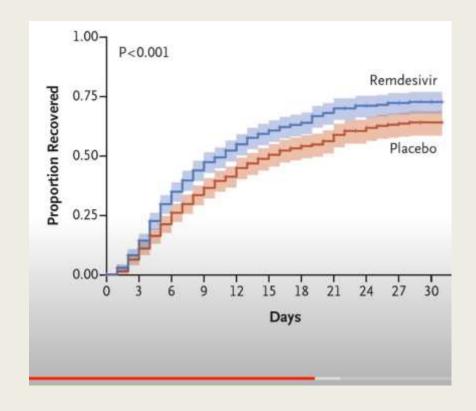
- Your healthcare provider
- Alliant Energy Center (Monday through Saturday)
- UW-Madison for students and staff members
- South Madison Community Test Site
- Community Pop-Ups
- Many Pharmacies





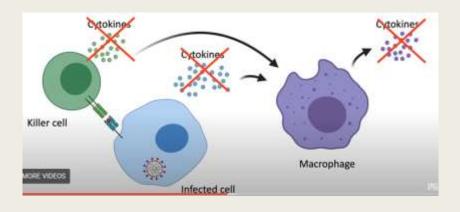
# Treatments: Remdesivir





Shortens hospital stay, IV Drug, expensive, hard to utilize before severe disease, little impact so far on mortality

# Treatments: Steroids to Reduce Cytokine Storm



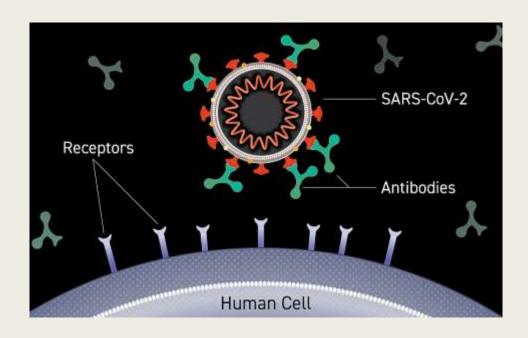
Based on recent evidence, the WHO <u>issued new treatment</u> <u>guidance</u> on Sept 2, recommending steroids to treat severely and critically ill patients, but not to those with mild disease. Analysis of pooled data found that steroids were linked with a one-third reduction in deaths among critically ill Covid-19 patients.

### Treatments: Convalescent Plasma



Evidence for robust impact is lacking

# Treatments: Monoclonal Antibodies



Promising but not here yet, hard to scale up, expensive

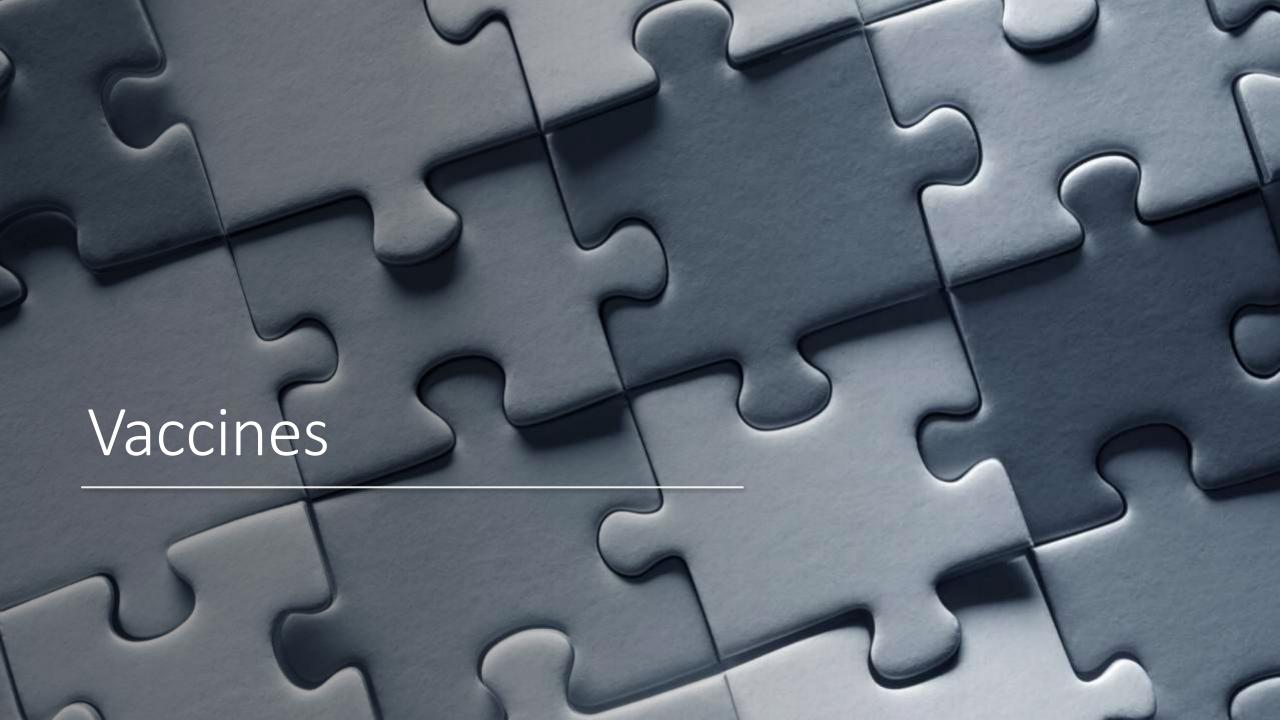
# Treatments: High Dose Vitamin D (calcifediol)

Recent evidence in small Spanish pilot study is promising. Reduced ICU admission from 50% to 2% among Covid-19 patients.



### Treatments?

- Still waiting for high impact drug(s) that are:
  - Affordable
  - Readily available
  - Orally ingestible
  - Rapid acting
  - Active during all phases of infections



### **The Development Process**

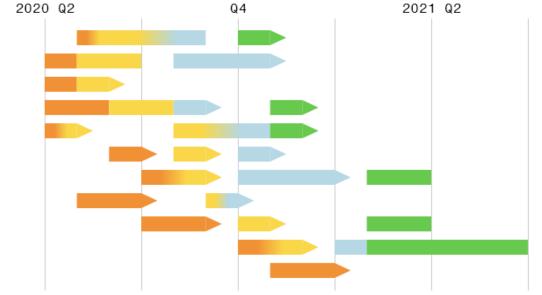
Phase 1 Testing in small groups for safety

Phase 2 Larger tests for effectiveness

**Phase 3** Large-scale efficacy and safety trials

**Approval** Allowed under emergency use authorization or other limited use authorizations.





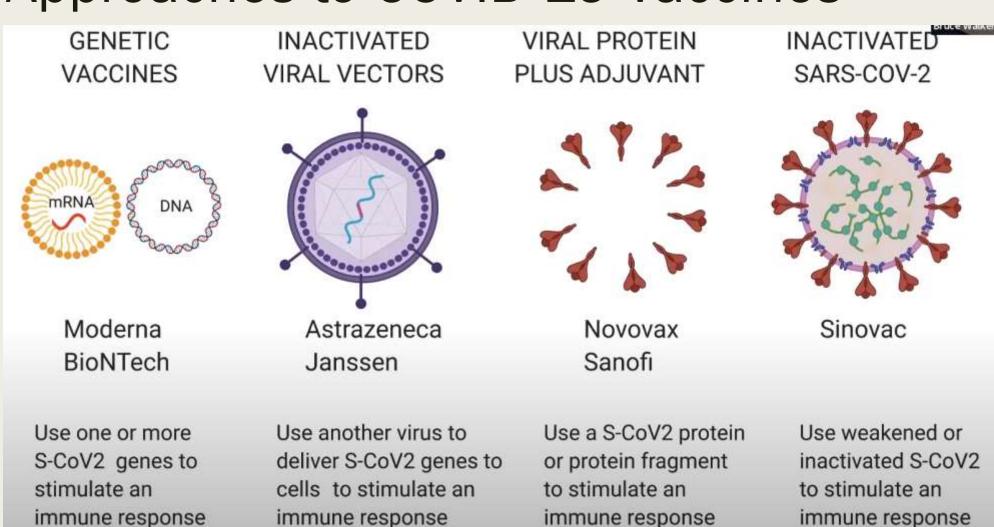
Note: ▶ indicates an ambiguous phase end date Source: Bloomberg Intelligence



### **Vaccines**

From Bruce Walker, MIT, September 2020

### Approaches to COVID-19 Vaccines



### **Key Vaccine Questions**

- How safe is it?
- Does the vaccine protect from infection or from disease?
- How durable is the immunity the vaccine induces?
- Will there be enough new infections to show it protects?
- Does the vaccine work regardless of age?
- How many doses are needed for protection?
- Can enough vaccine be made and when?
- Does the vaccine require a cold chain?
- Who may get it first? (Source: CDC draft planning document)
  - Health care professionals
  - Essential workers (e.g., health care workers, national security and public safety members, agriculture workers, education and food industry)
  - Long-term care facility residents and staff



### How Will the Public Respond?

Recent estimate: 50% of US public considering declining COVID-19 vaccine (50% efficacy times 50% vaccine coverage equals only 25% protected!) - CNN Poll

- Biden supporters:
  - 74% yes, would try to get vaccinated
  - 23% no, would not try to get vaccinated
- Trump supporters:
  - 38% yes, would try to get vaccinated
  - 60% no, would not try to get vaccinated
- Need new approaches to public outreach

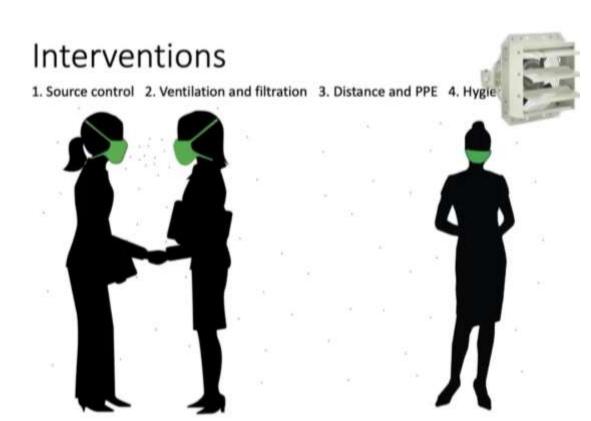




- "Two things count in a vaccine. It can end a pandemic. Done wrong, it can end vaccines."
- "Public trust is just as important as the efficacy of a vaccine."



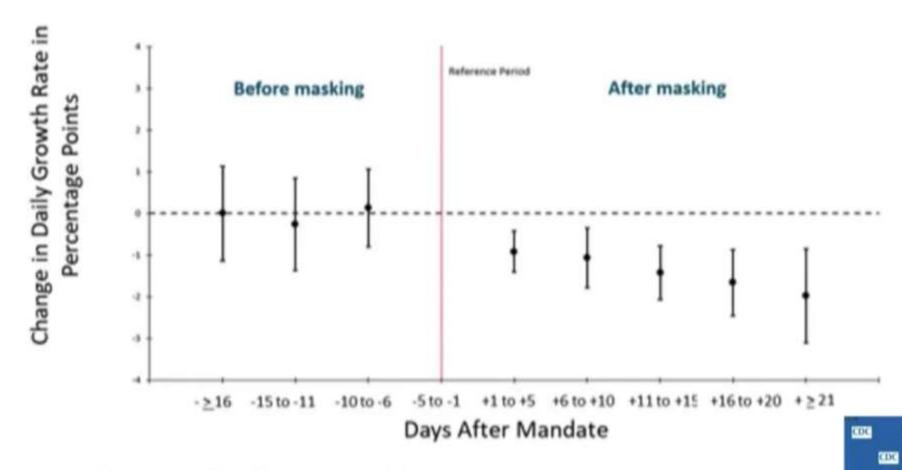
# Interventions 1. Source control 2. Ventilation and filtration 3. Distance and PPE 4. Hygiene



### Importance of Multiple Interventions

Hui-Ling Yen, University of Hong Kong

## Community Face Mask Use Associated with Slowing of Daily COVID-19 Case Growth Rate, April-May 2020





### Which Masks Are Best for COVID-19?





Surgical mask



Multi-layered cloth mask



Good fit

Can be secured over nose, behind ears or around head, and under chin



Tightly woven or high thread count cotton or cotton blend



### Good



Single-layer cloth mask



Lower thread count cotton, silk, linen, polyester



### Not recommended



Knitted mask



Mask with vents



Folded bandana



Poor fit Noticeable gaps, holes or vents



Unbreathable material such as plastic or leather



Overly porous material such as nylon or fleece





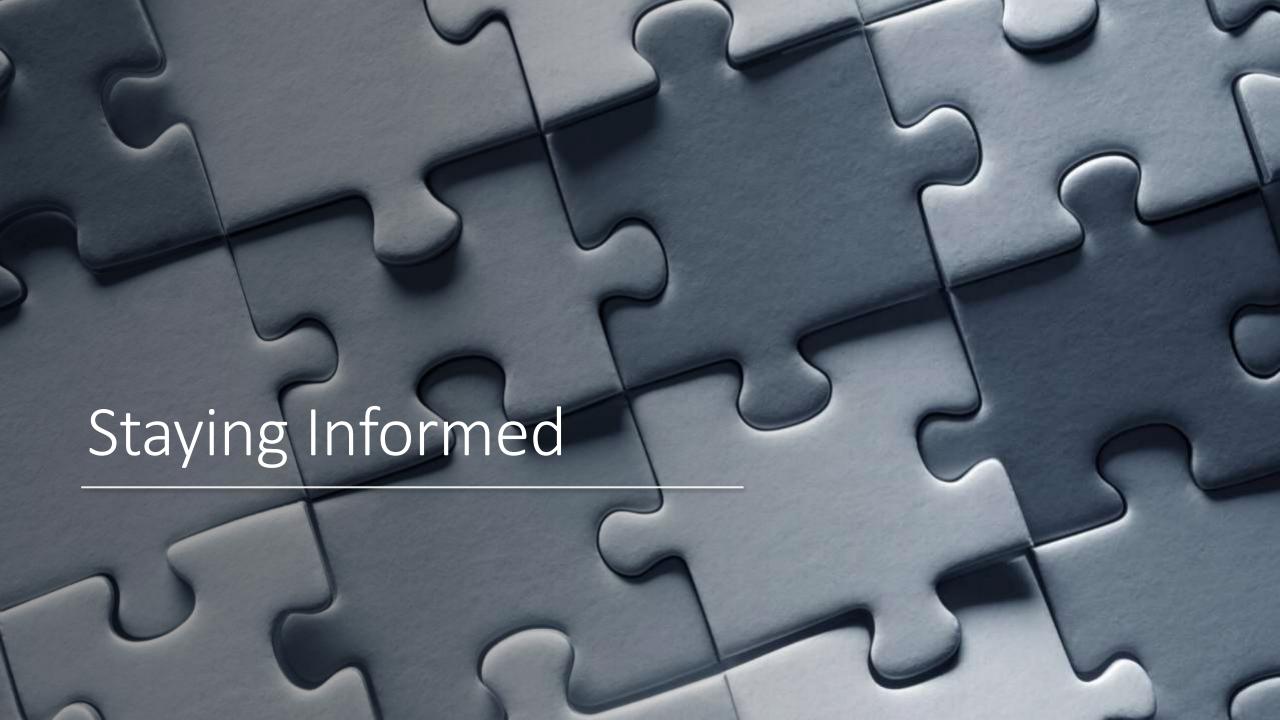


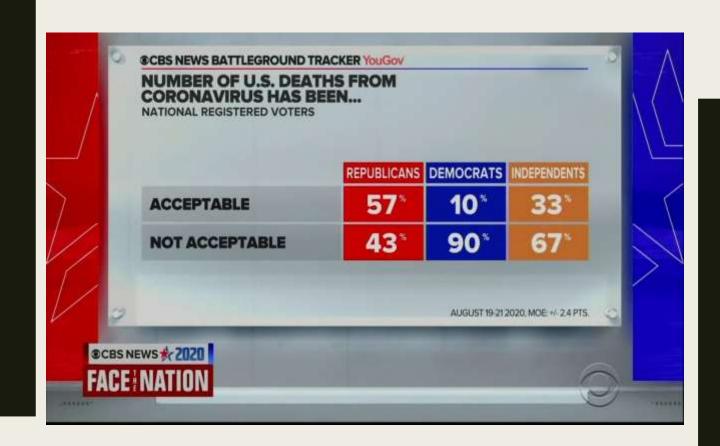


## "Getting Covid under control is hard, but it's not rocket science." - Dr. Tom Frieden

- True national 6-8 week stay at home, failing that:
  - Close bars & indoor gatherings until spread is controlled
- Wear masks near people outside the home
- Prevent clusters (test/trace/isolate)
- Effective affordable quarantine for household exposures
- Better and more appropriate and timely testing including <u>rapid tests</u>
- Protect ongoing health care system
- Protect high risk workers and people in high risk settings
- Use data to drive progress







#### SARS-COV-2 POLITICIZATION IS A DEADLY THREAT

#### Sources of Information

- CDC COVID-19 Guidance for Older Adults
- Badger Bounce Back Guidelines
- Forward Dane, Phased Reopening Plan
- Wisconsin Department of Health Services COVID Website
- Dane County COVID-19 Dashboard
- COVID Act Now- COVID data and risk level for Dane County
- COVID-19 Event Risk Assessment Planning Tool
- US COVID Atlas
- COVID-19 Impact Analysis Platform
- COVID-19 Hospitalization Tracking Project
- COVID-19 Situational Awareness Update (WHA WI Hospital Data)
- State-level multi-model forecast, REICH Lab
- IHME State Level Social Distancing and COVID Projections
- Rt Covid-1
- <u>COVID Lab</u> (CHOP Test Positivity)
- Estimates of Chronic Conditions Affecting Cononavirus Disease Risk for Complication, US.
- STAT Tracker.www.statnews.com



# Who To Follow on Twitter

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- Ashish K. Jha @ashishkjha
- Tom Frieden @DrTomFrieden
- Caitlin Rivers <a href="@cmyeaton">@cmyeaton</a>
- Ed Yong <u>@edyong209</u>

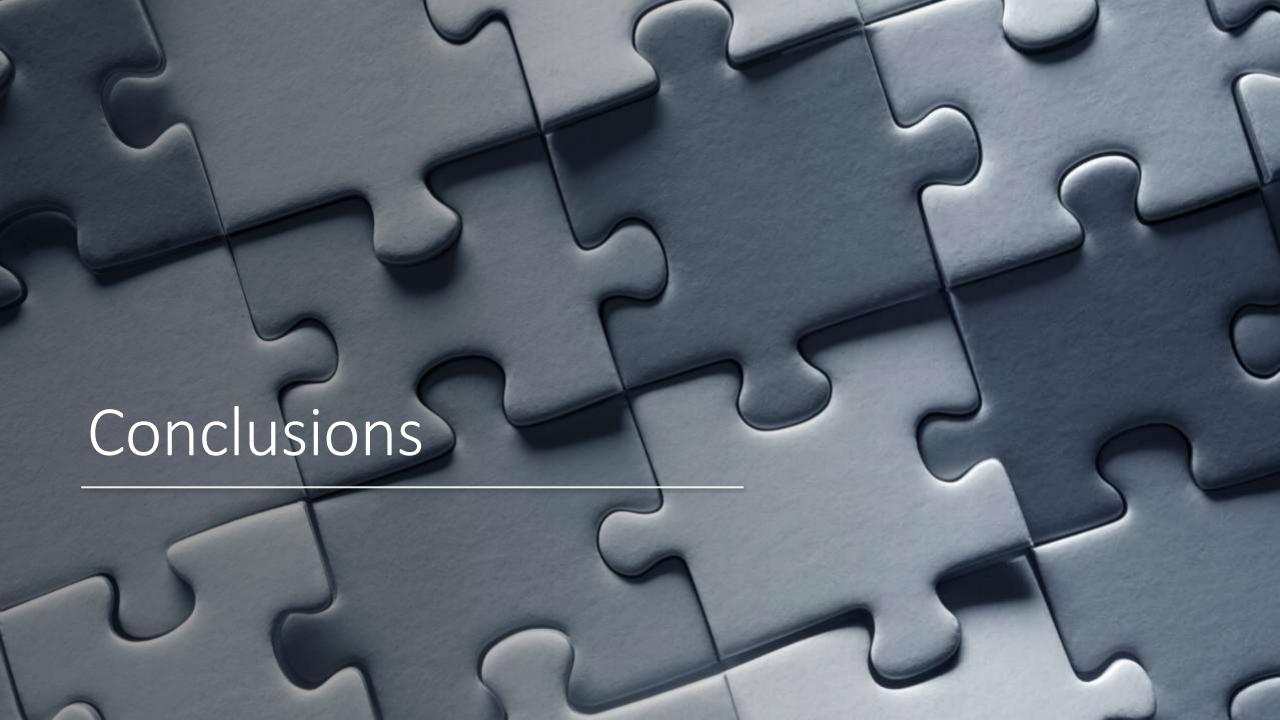
- Benhur Lee @VirusWhisperer
- Scott Gottlieb @ScottGottliebMD
- Marc Lipsitch @mlipsitch
- H Branswell @HelenBranswell
- Laurie Garrett @Laurie Garrett



## Continuing COVID Education (sample )

- Dr. John Campbell's "down home" <u>Youtube</u> updates
- Dr. Tom Frieden's <u>"COVIDView"</u> (former CDC director, weekly update, also on <u>Twitter</u>)
- APHA/NAS COVID-19 Conversations Webinars
- Andy Slavitt's "In the Bubble" <u>Podcast</u>
- The Osterholm Update UM CIDRAP <u>Podcast</u>
- EPIDEMIC with Dr. Celine Gounder and Ronald Klain Podcast
- "COVID-19, SARS-CoV-2 and the Pandemic", MIT <u>online weekly</u> <u>Tuesday course</u> (academic)

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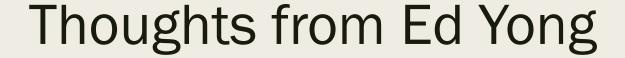




- We are still not finding most sources {<10%}, not quarantining most contacts, so risk remains.
- FUNDAMENTAL principles of communication on health emergencies: Be first. Be right. Be credible. Be empathetic. Share practical ways people can protect themselves and their families. (each of these principles violated by the current US Government response).
- Covid-19 will continue to undermine health, jobs, economy, and education. Our Fundamental error: Failure to recognize we're all n this together.

#### Thoughts from Andy Slavitt

- Places & jobs stack the risk deck-- public housing, factories, farms....
- People always believe they need to be protected from other people's dumb behavior, but no one thinks anyone ever needs to be protected from theirs..
- What happens when one group has to sacrifice but they're not the prime beneficiaries of the sacrifice but people they've never met are?
- You can't cocoon old people or people in congregate settings. People work there. Those people have families. Those families have school kids. Community spread is dangerous.
- Herd immunity How many people constitute the herd? How long does immunity last? They don't know. Because no one does. In reality, the "herd" is relative still to behavior and mobility, infection rates, superspreaders, immunities, length of immunity, and clinical advances.





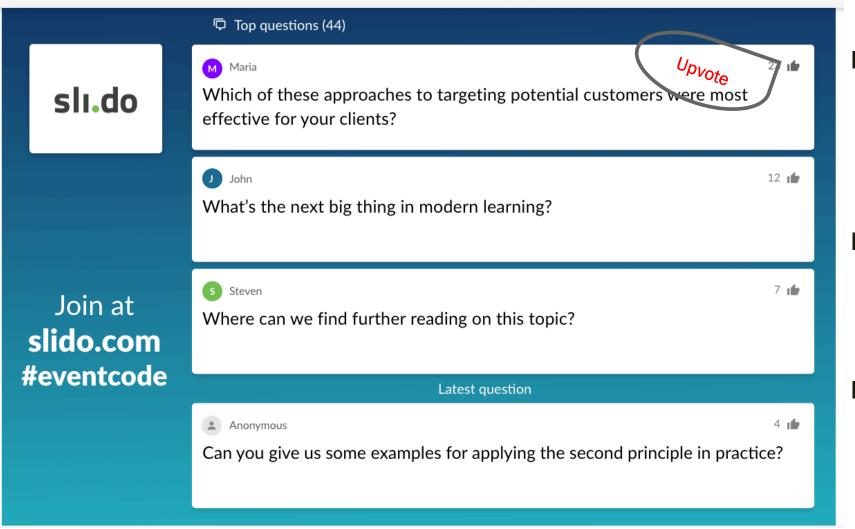
"The spiral begins when people forget that controlling the pandemic means doing many things at once. The virus can spread before symptoms appear, and does so [by] people in prolonged, poorly ventilated, protection-free proximity. To stop that spread, this country could use measures that other nations did, to great effect: close nonessential businesses and spaces that allow crowds to congregate indoors; improve ventilation; encourage mask use; test widely to identify contagious people; trace their contacts; help them isolate themselves; and provide a social safety net so that people can protect others without sacrificing their livelihood. None of these other nations did everything, but all did enough things right—and did them simultaneously."

#### Thoughts from Hank Weiss

- We cannot scrub and bleach our way to reopening ("hygiene theater").
- Unprecedented rapid progress has been achieved towards a vaccine; We can be hopeful of useful vaccine tools widely available next year, but they may not be a panacea.
- Politicization has been unprecedented and dangerous. The threat remains, partly because to many the pandemic's toll is largely invisible, that populations and institutions will be further compromised harming local, national, and international responses.
- We are at the end of the beginning, a period in which we have squandered much time. We face the looming of fall and winter with many of the same systemic problems we had in the spring and summer.
- We all want to return to normal, but we need to accept we are in the middle of a disaster. After disasters, things rarely quickly, or ever, return to normal.
- There is a real danger that in many places we might stop treating the pandemic as the emergency that it is. This is not the time to give up.
- Less than 20% of Americans have been infected. What happens next is up to us.

"I don't know where this (Covid-19) wave is taking us, but I know this: Our species is better than any other at taking care of each other. For better and worse, we are, above all, a SOCIAL species. This is why nothing alleviates anxiety and depression better than doing something for someone else. It doesn't matter whom you help, you'll end up helping yourself in the process.

~ Christopher Ryan



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### Expert Panel and Authors of "Criteria to Assist PLATO Board in Reopening In-Person Activities"

#### **Members of the Advisory Group:**

- Meg Taylor, BSN, Chair
- Hank Weiss, PhD, MPH Epidemiologist
- Henry Anderson, MD
- Theodore Goodfriend, MD
- Jim Thiel, Esq.



## THANK YOU FOR JOINING US TODAY!



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