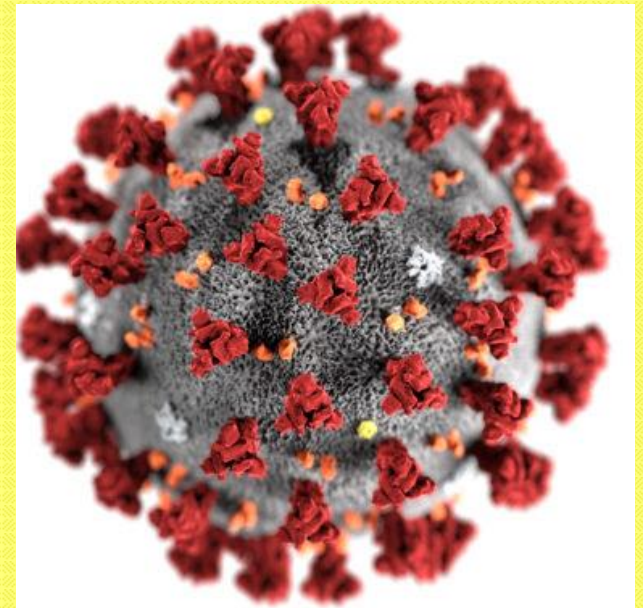


# Ain't Nothing Like the Real Thing: Teaching Under COVID-19



MARK A. STRAND  
NDSU FACULTY CONFERENCE  
AUGUST 19, 2020



# COVID-19 Update

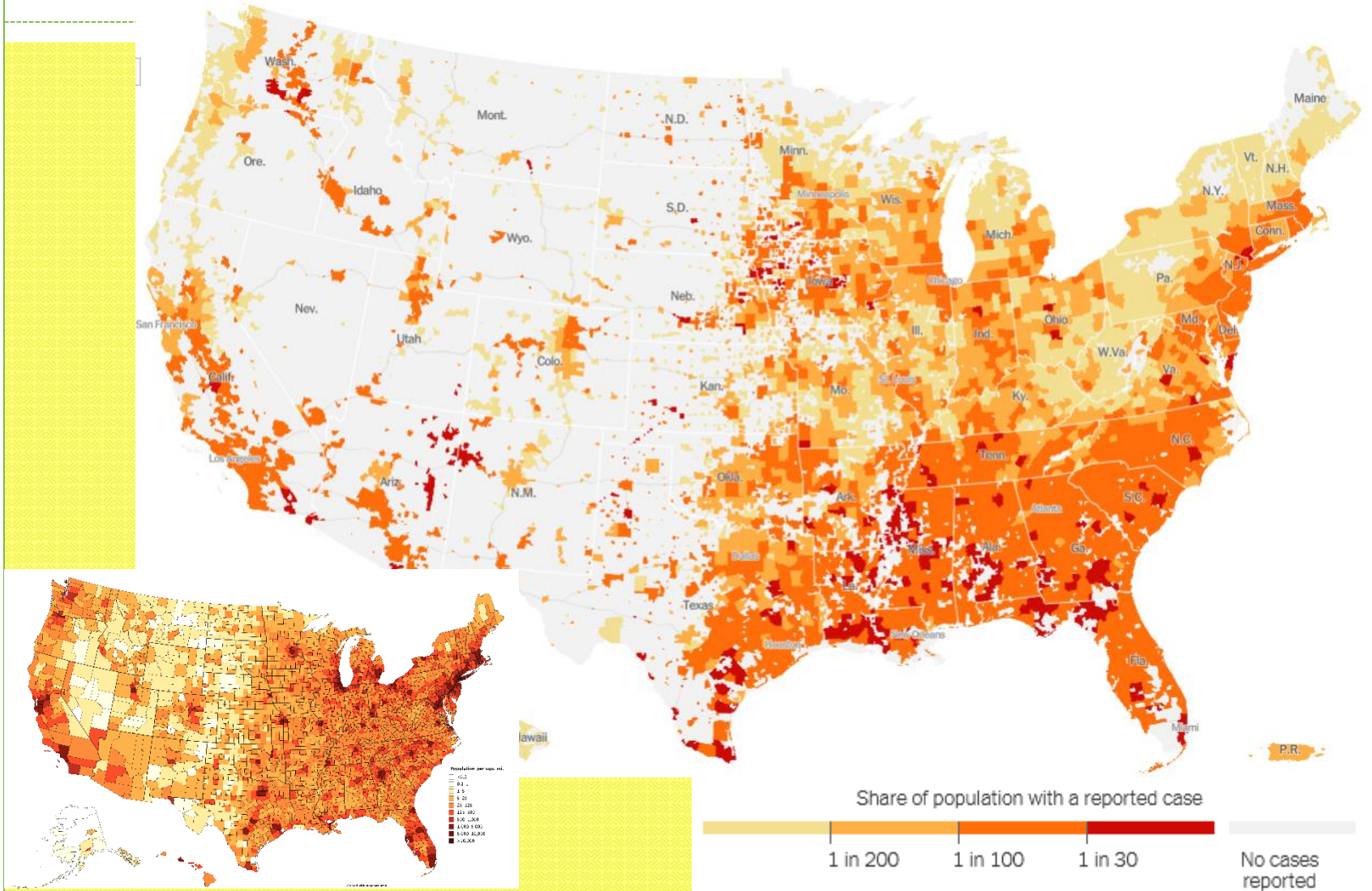


# The Numbers

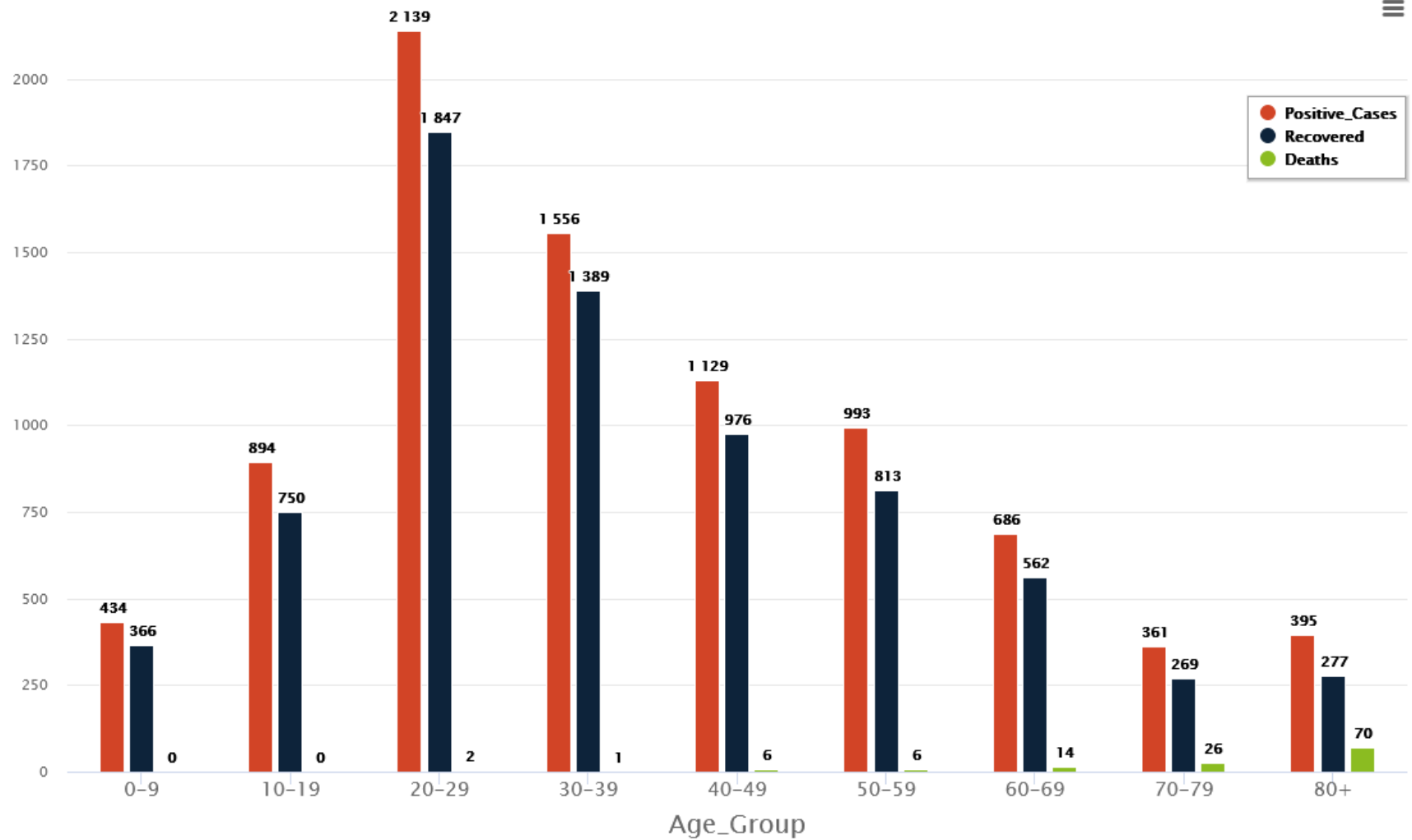


	<b>Globally</b>	<b>United States</b>	<b>U.S. %</b>	<b>North Dakota</b>
Infected	21,869,976	5,569,520	25.5%	8,587
Deaths	773,741	173,143	22.4%	125
<i>CFR</i>	3.5%	3.1%		1.5%
Recovered	14,591,932	2,922,936		7,249
<i>Recovery</i>	66.7%	52.5%		84.4%

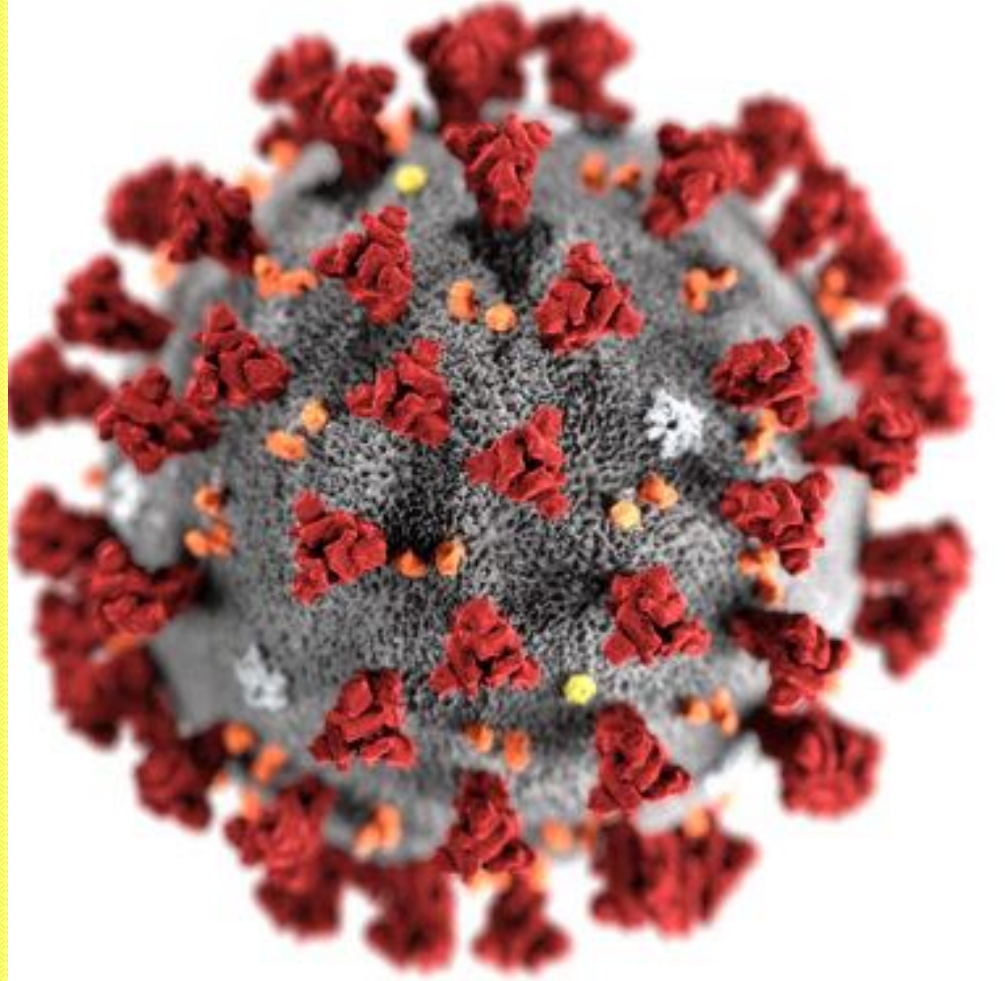
# Number of COVID-19 Cases Per Capita



# North Dakota Cases by Age



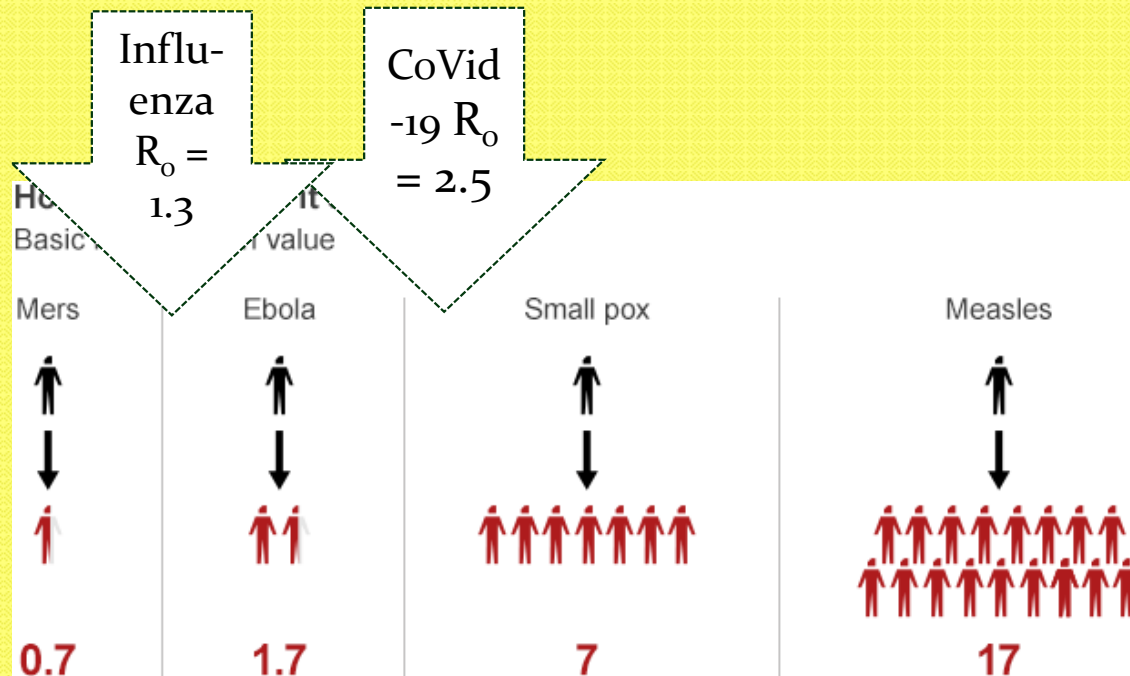
# SARS CoV-2



# The Reproductive Number

$R_0$  – how many people are infected by one person with the disease

- When  $R_0 < 1$  the infection will die out in the long run.
- But if  $R_0 > 1$  the infection will require control measures



# Case Fatality Ratio



1.	SARS 2003, China	10 <sup>0</sup> %	
2.	MERS 2012, Saudi Arabia	30 <sup>0</sup> %	
3.	CoViD-19 2019, China	1.4 <sup>0</sup> %	} 3.5X
4.	Seasonal influenza	0.4 <sup>0</sup> %	



# COVID-19 Transmission Concerns

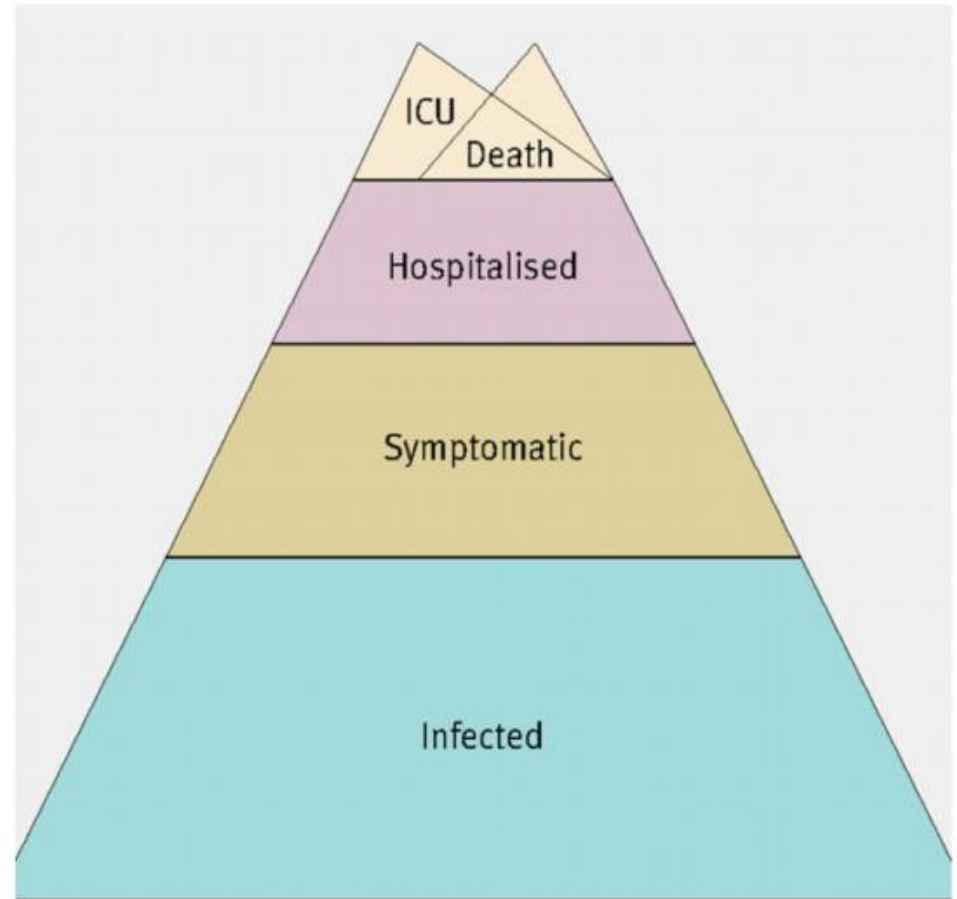
Factor	Low risk	High risk
Location	Outdoors	Indoors
Air quality	External air exchange, filtered air	Stagnant air, no filters
Human density	>6 ft, communities of <1000/sq km	<6 ft, high population density cities
Self-protection	Mask, distance, no contact, hand hygiene	Unmasked, close, intimate contact
Exposure time	< 15 min	>15 min
Personal risk level	Young, healthy	> Age 65, Chronic disease
Likelihood of compliance	Libraries, museums, clinic, offices	Bars, concerts, sports stadiums

# Clinical Presentation



## COVID 19 Clinical presentation

- **Mild** (no or mild pneumonia) reported in about **80 percent**.
- **Severe disease** (e.g., with dyspnea, hypoxia, or >50 percent lung involvement on imaging within 24 to 48 hours) reported in about **15 percent**.
- **Critical disease** (e.g., with respiratory failure, shock, or multiorgan dysfunction) reported in **5 percent** (these complications **mainly in elderly and those with other health problems**)

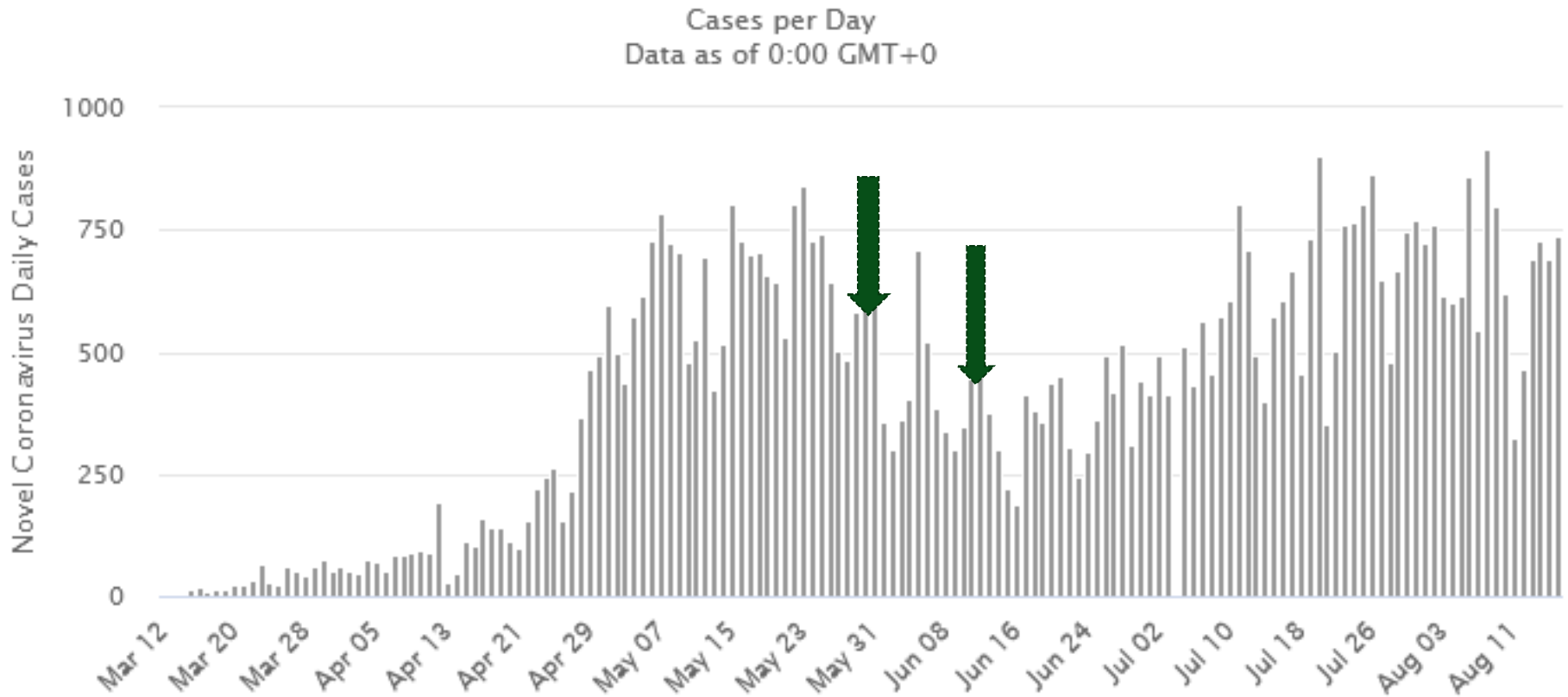


# What about masks?



- Masks provide an additional level of protection along with social distancing and good hand hygiene.
- "States that put in mandates saw a 2% drop, per day, in the number of cases occurring." Dr. Gregory Poland, Mayo Clinic, Journal of Health Affairs
- Face coverings go back over 100 years
- Most of the data on the benefits of face coverings is lab-based testing, comparing what is expired, exhaled with and without a mask, and it is significant.

# Minnesota COVID-19 Epidemiology Curve



# Flattening the Curve



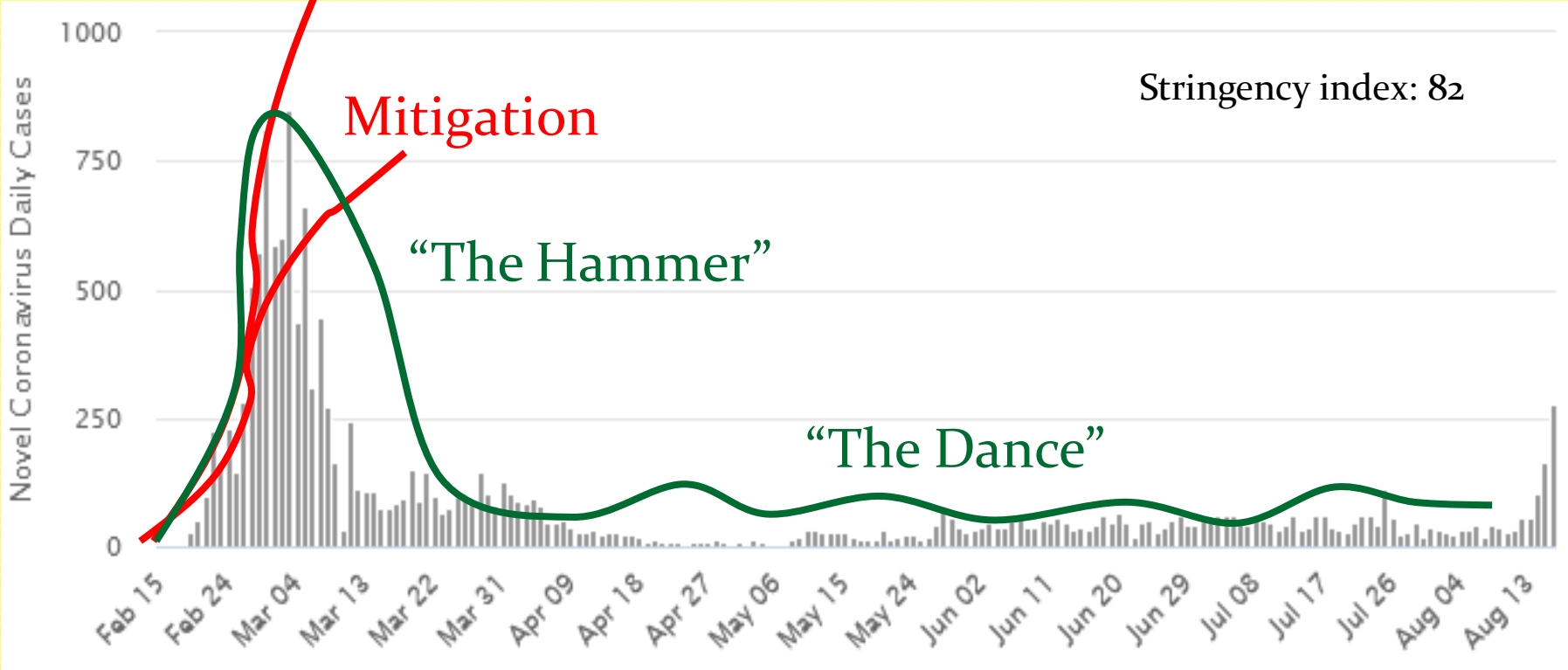
Do nothing

Mitigation

“The Hammer”

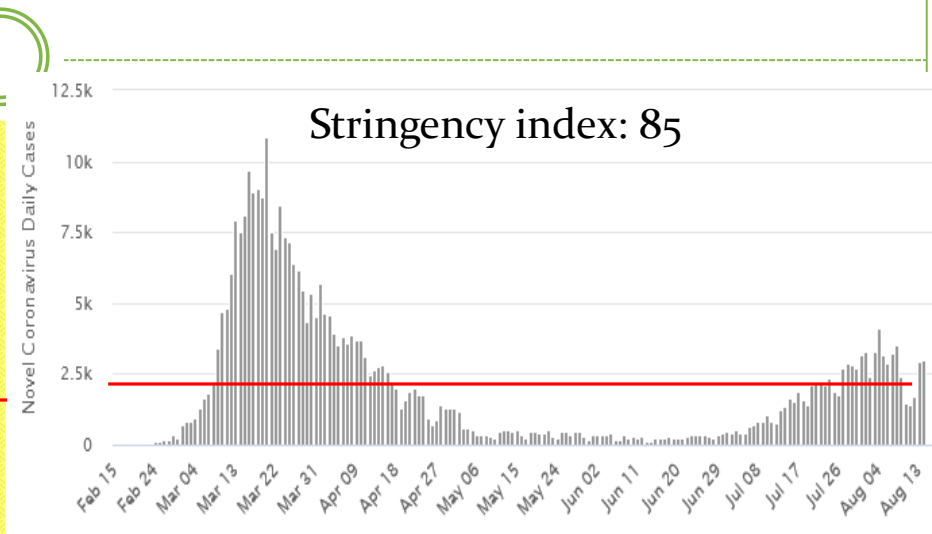
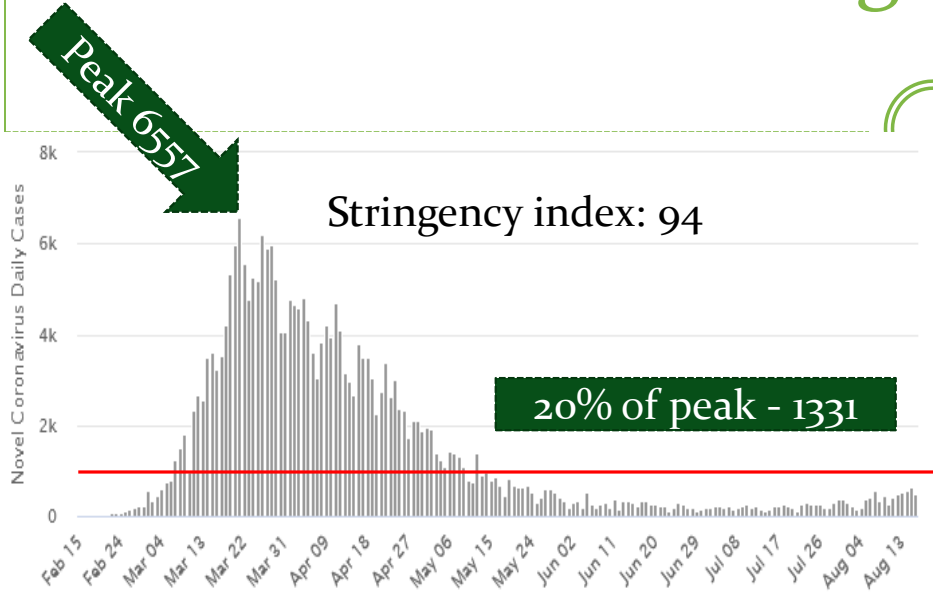
“The Dance”

Stringency index: 82



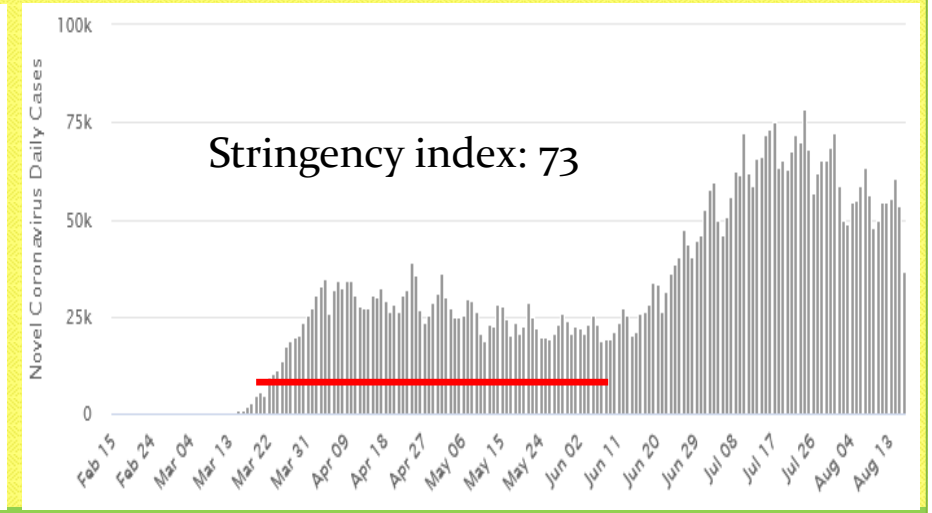
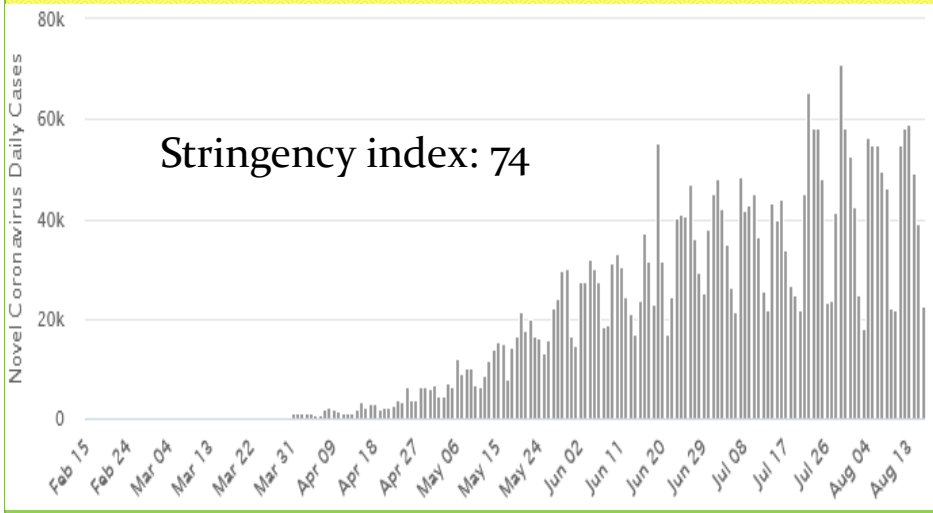
South Korea's Experience

# Flattening the Curve



Italy

Spain



Brazil

United States

# Testing and Contact Tracing



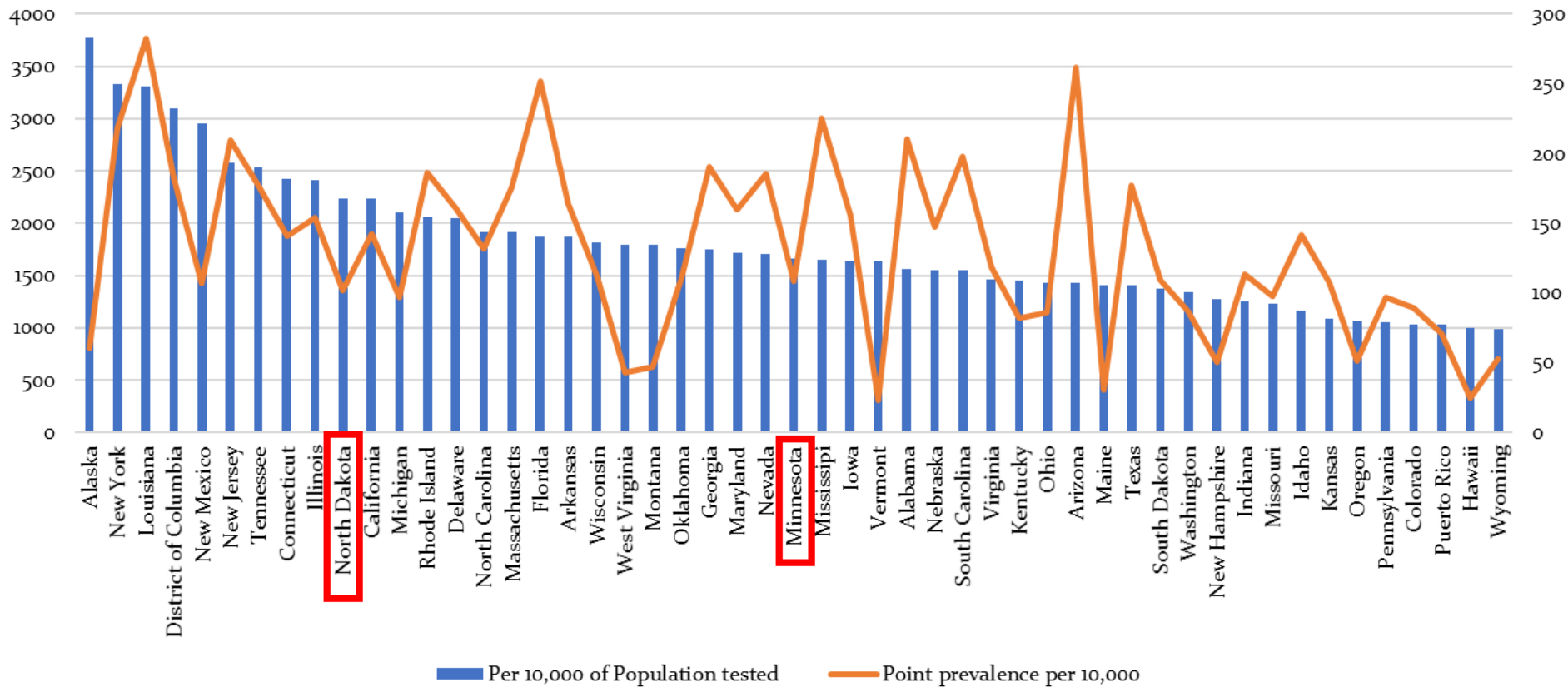
- Once fall semester begins, NDSU may be asked by the North Dakota Department of Health to assist with contact-tracing if someone in one of our classrooms is diagnosed with COVID-19.
- To assist in this effort in identifying individuals who may have been in proximity to infected individuals keep seating charts and take daily attendance.
- A close contact is currently defined as those within 6' for 15 minutes or more.
- Download Care19 Alert app.
- <https://ndresponse.gov/covid-19-resources/care19>



# Nationwide Testing and Prevalence

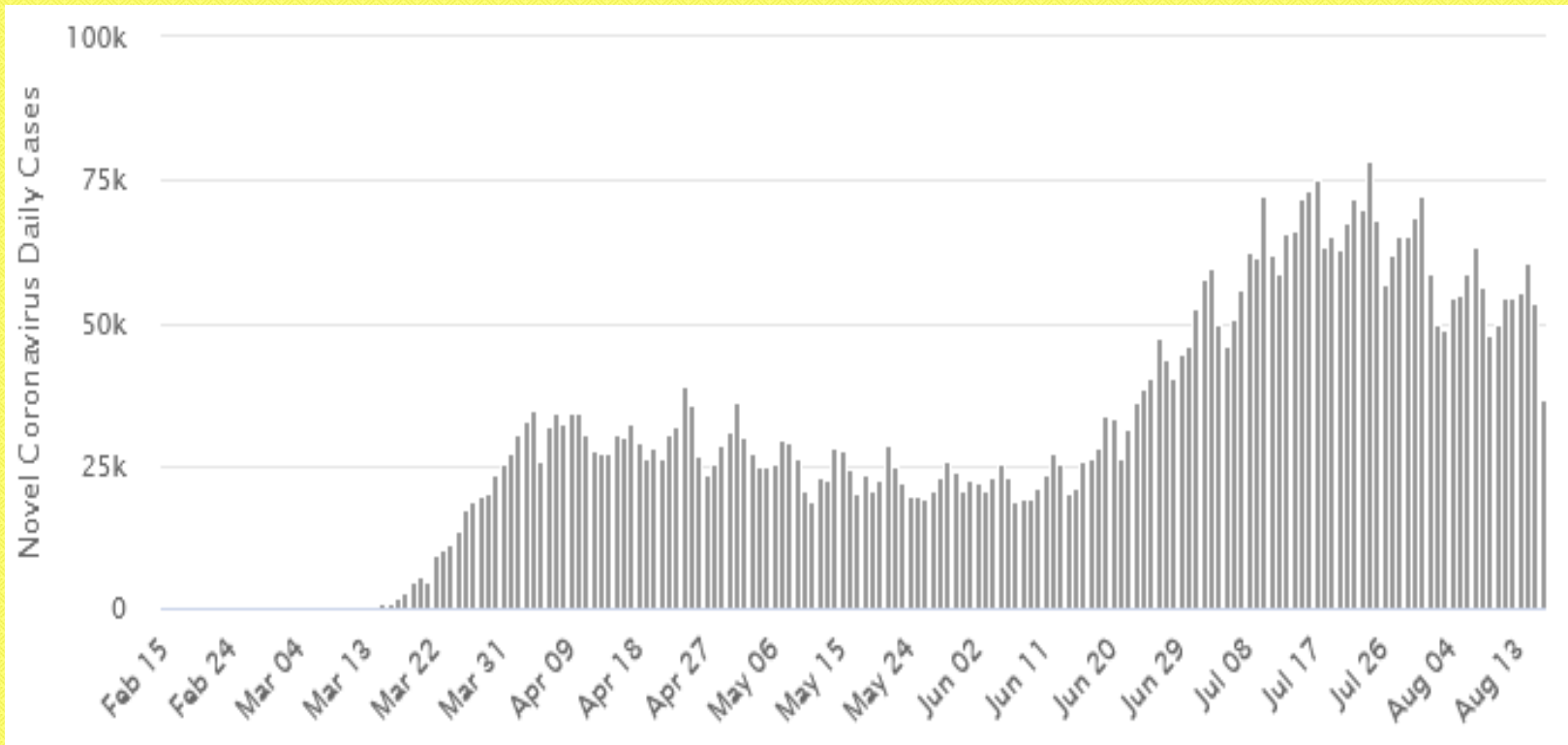


## State Performance Managing COVID-19








# Future for the U.S.

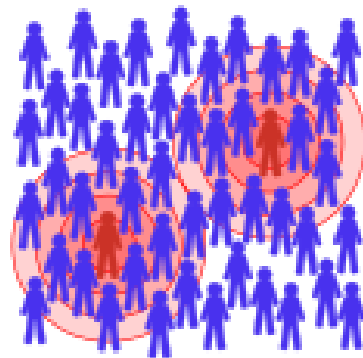


# Herd Immunity

 = not immunized,  
but still healthy

 = immunized  
and healthy

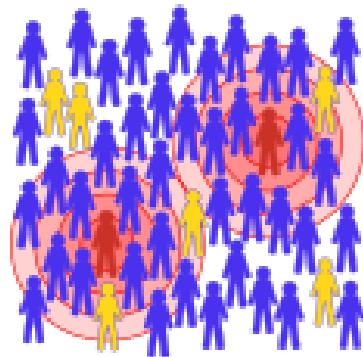
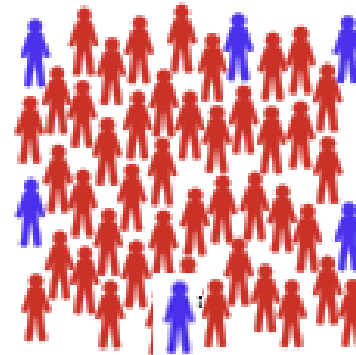
 = not immunized,  
sick, and contagious



No one  
is immunized.



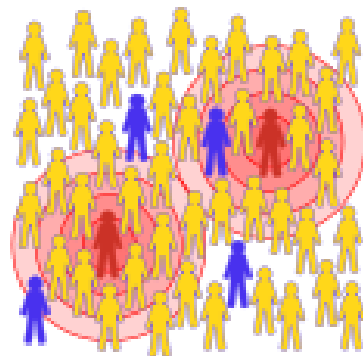
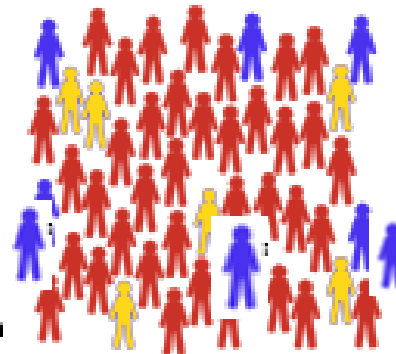
Contagious  
disease spreads  
through the  
population.



Some of the  
population gets  
immunized.



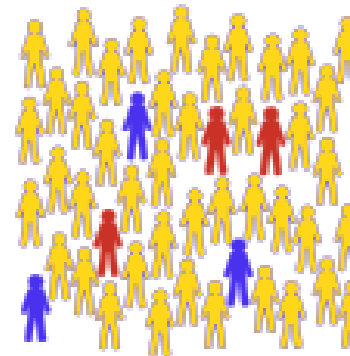
Contagious  
disease spreads  
through some  
of the population



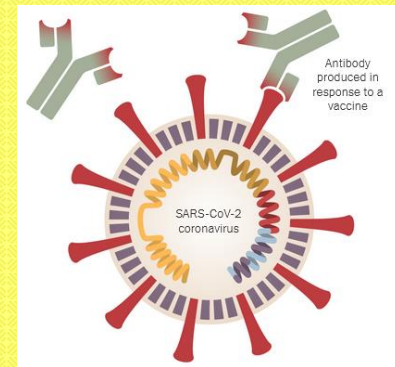
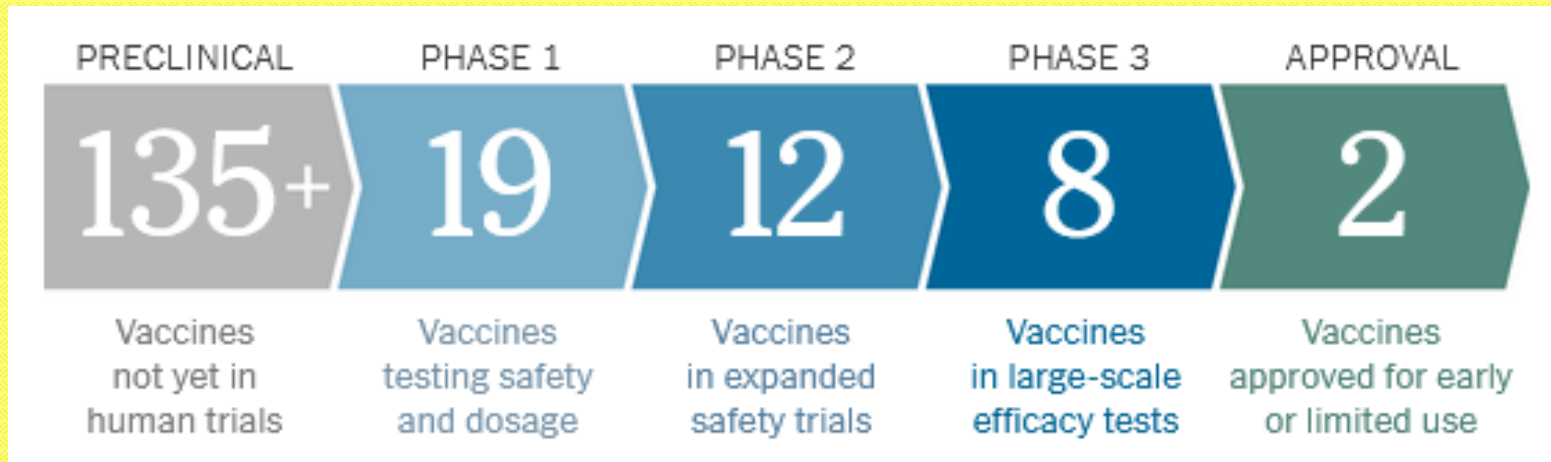
Most of the  
population gets  
immunized.



Spread of  
contagious  
disease is  
contained.



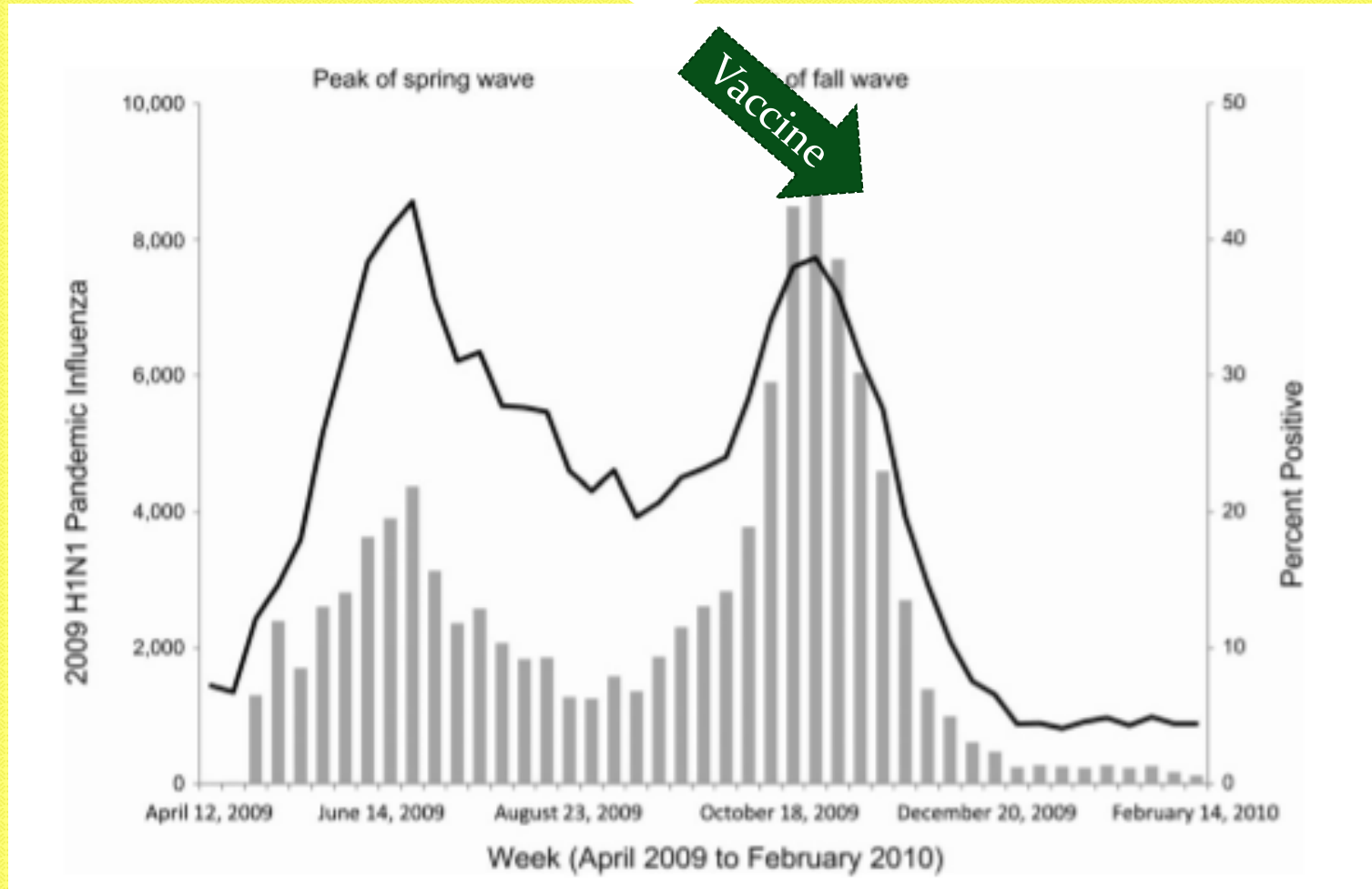
# Vaccines



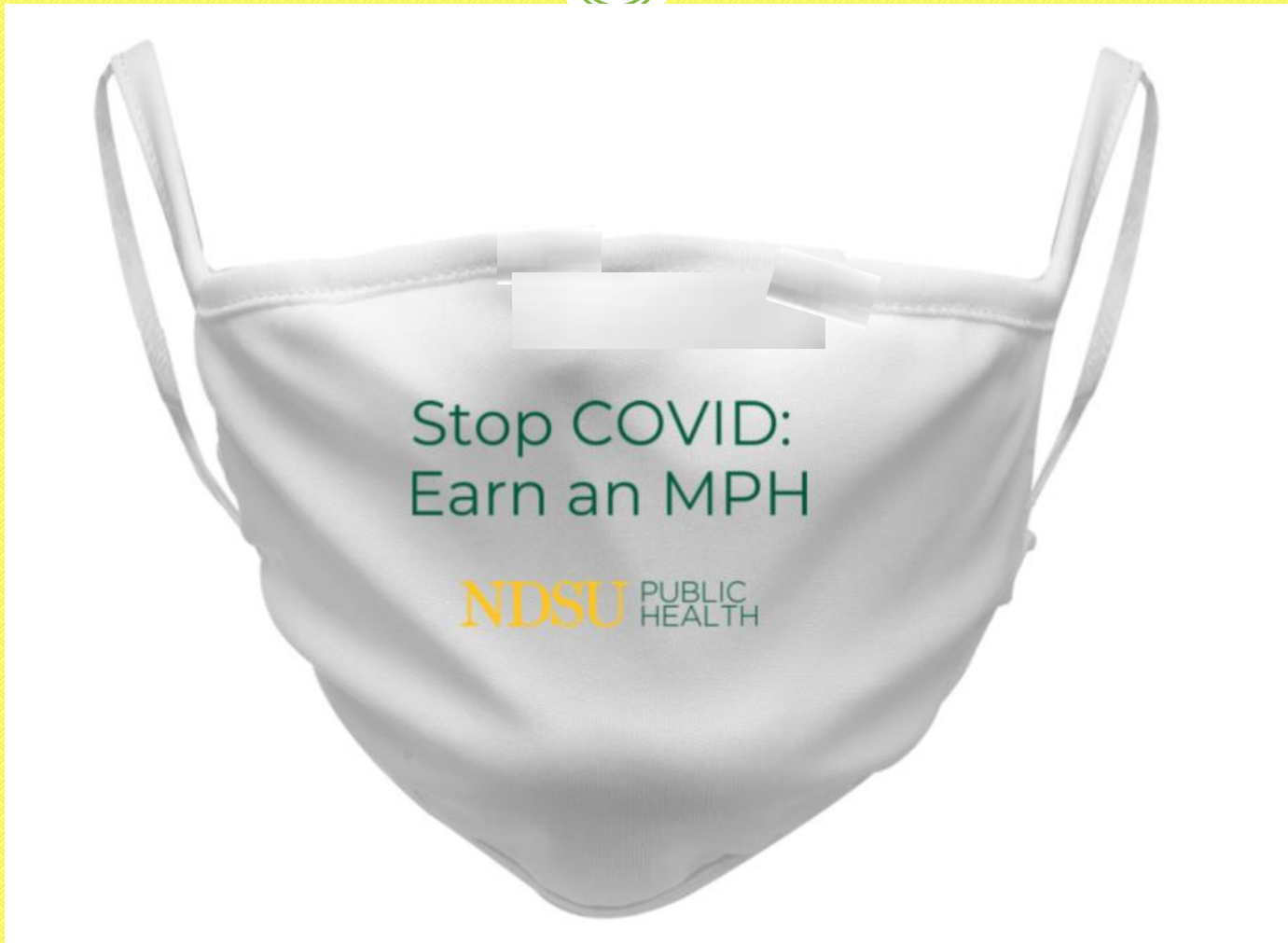
Coronavirus Vaccine Tracker (as of 8/16/20)

<https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>

# 2009 H1N1 Epidemiology



# Careers in Public Health



Stop COVID:  
Earn an MPH

**NDSU** PUBLIC  
HEALTH

# Guarding Our Well-being



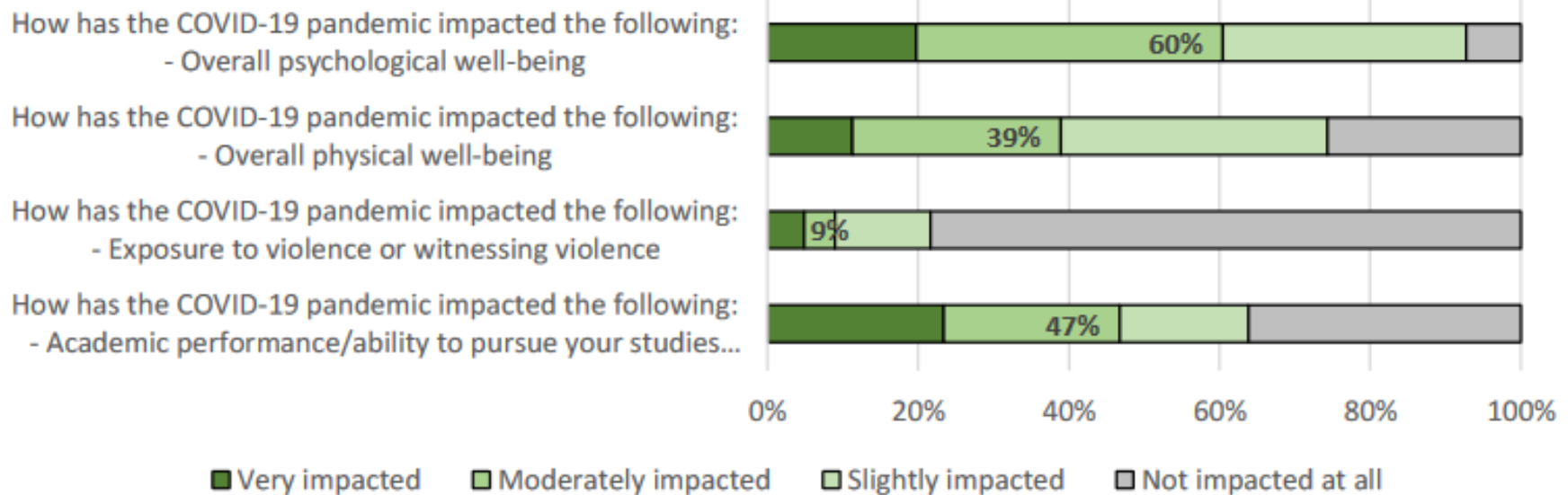
# Physics Class, University of Montana, 1919



# COVID Campus Well-being Survey

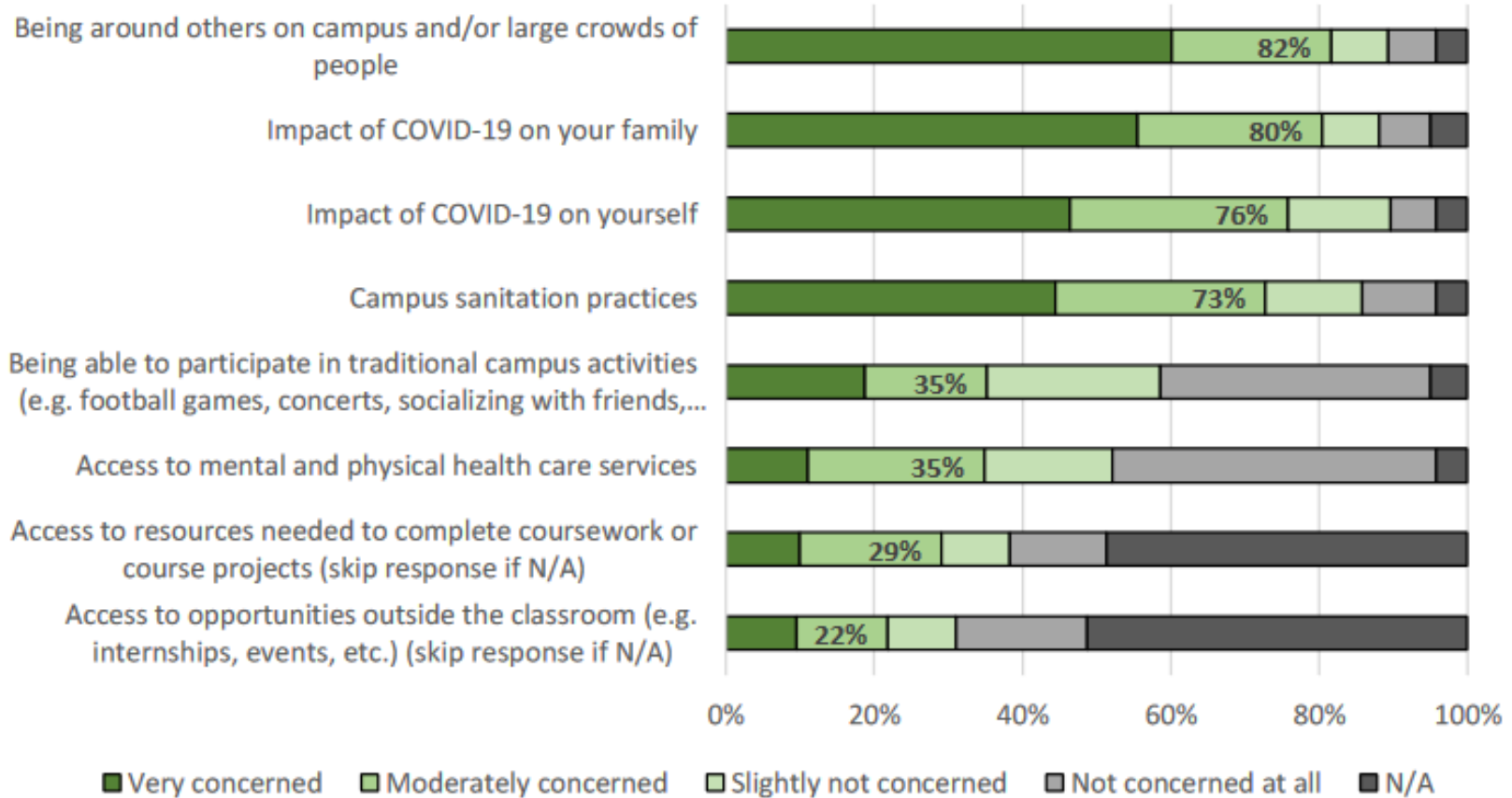


## COVID-19 Impact: Faculty





## Concerns with returning to campus Group: Faculty\*



# Best Practices



- Give yourself and your students sufficient margin to cope with inefficiencies, technical glitches, and unexpected disruptions.
- Remain active and tend to your mental and physical health.
- Create boundaries for social media consumption to avoid information overload.
- Maintain connections with friends and colleagues.
- Consider some of the surprises that have enriched you, and will continue to do so.



Crisis

危机

危险

机会

Danger

Opportunity

