

Building Vaccine Confidence and Easing Return-to-Work Anxieties

VANDERBILT  HEALTH



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House Keeping

- Please submit your questions throughout the presentation.
- We invite you to participate in the polls featured during today's presentation.
- An email of the video recording will be sent via email after today's session and it will be posted on our blog at:
EmployerSolutions.VanderbiltHealth.com
- We'd love to hear from you! If we don't cover something — or if your question isn't answered — send us an email at employersolutions@vumc.org and we will send you a response as soon as possible.



Poll

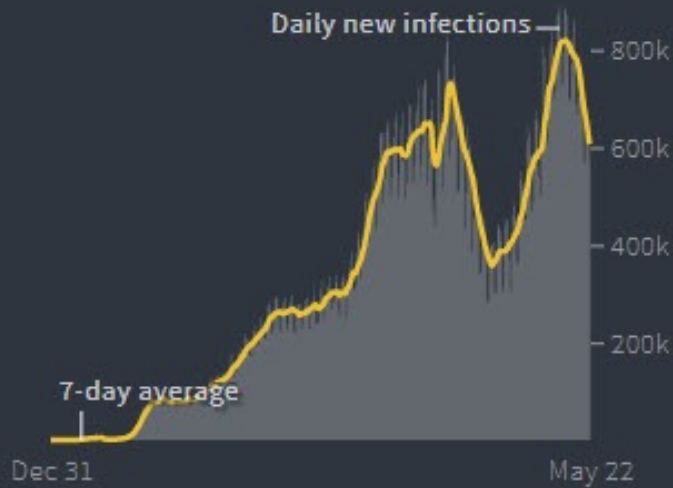
Have you received your
COVID-19 vaccine?

Where We Are Today

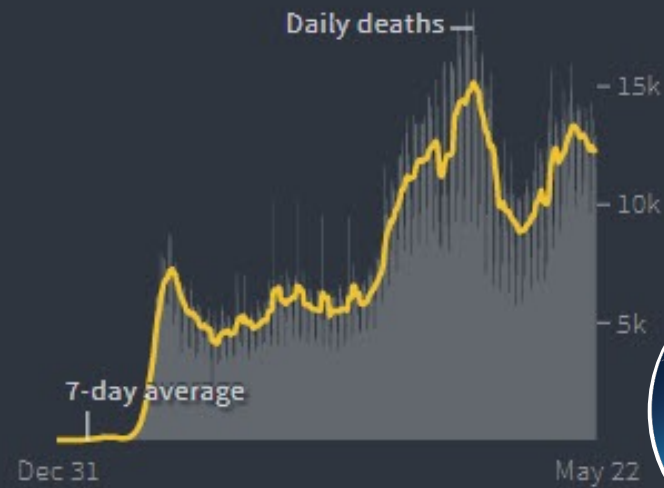
Where We Are Today: Global

COVID-19 infections are still rising in **33** countries. There have been at least **167,240,000** reported infections and **3,614,000** reported deaths caused by the new coronavirus so far.

New reported infections



Reported deaths

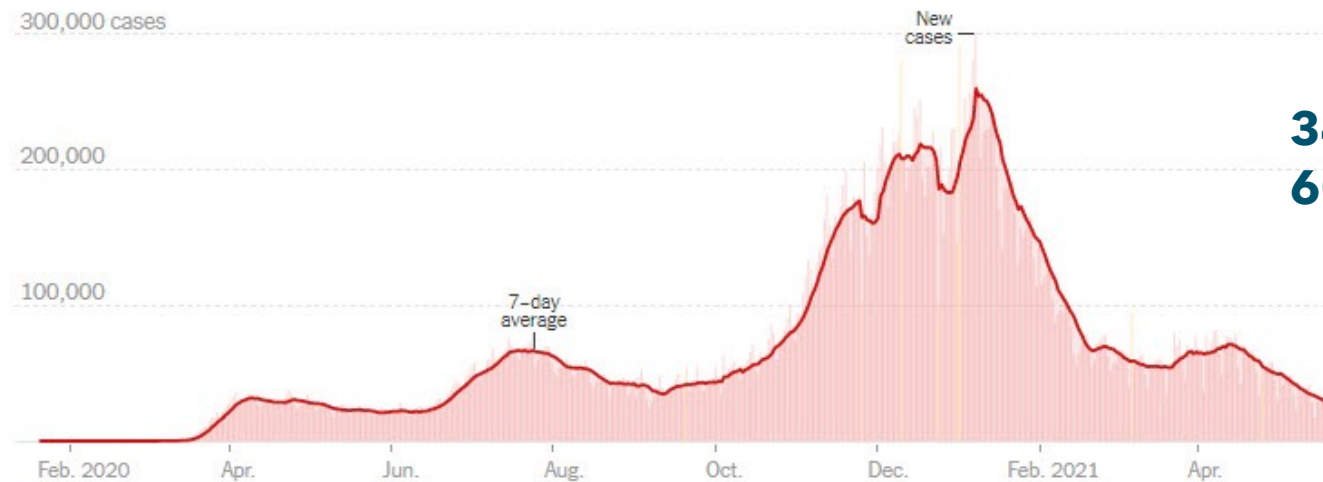


(These data accessed on 05/24/2021)

<https://graphics.reuters.com/world-coronavirus-tracker-and-maps/>

Where We Are Today: USA

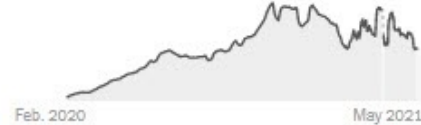
New reported cases



34 M cases
604 K deaths

These are days with a reporting anomaly. Read more [here](#).

Tests



Hospitalized



Deaths



(These data accessed on 05/24/2021) <https://www.nytimes.com/interactive/2021/us/covid-cases.html>

Where We Are Today: Tennessee

New reported cases



860,000 cases
12,380 deaths

■ These are days with a reporting anomaly. Read more [here](#).

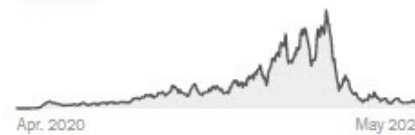
Tests



Hospitalized



Deaths



(These data accessed on 05/24/2021)

<https://www.nytimes.com/interactive/2021/us/covid-cases-deaths-tracker.html>

Prevention

Prevention: Bottom Line

Multiple public health measures layered together are needed to slow this virus down



Prevention

The Swiss Cheese Respiratory Virus Defense

Recognizing that No Single Intervention is Perfect

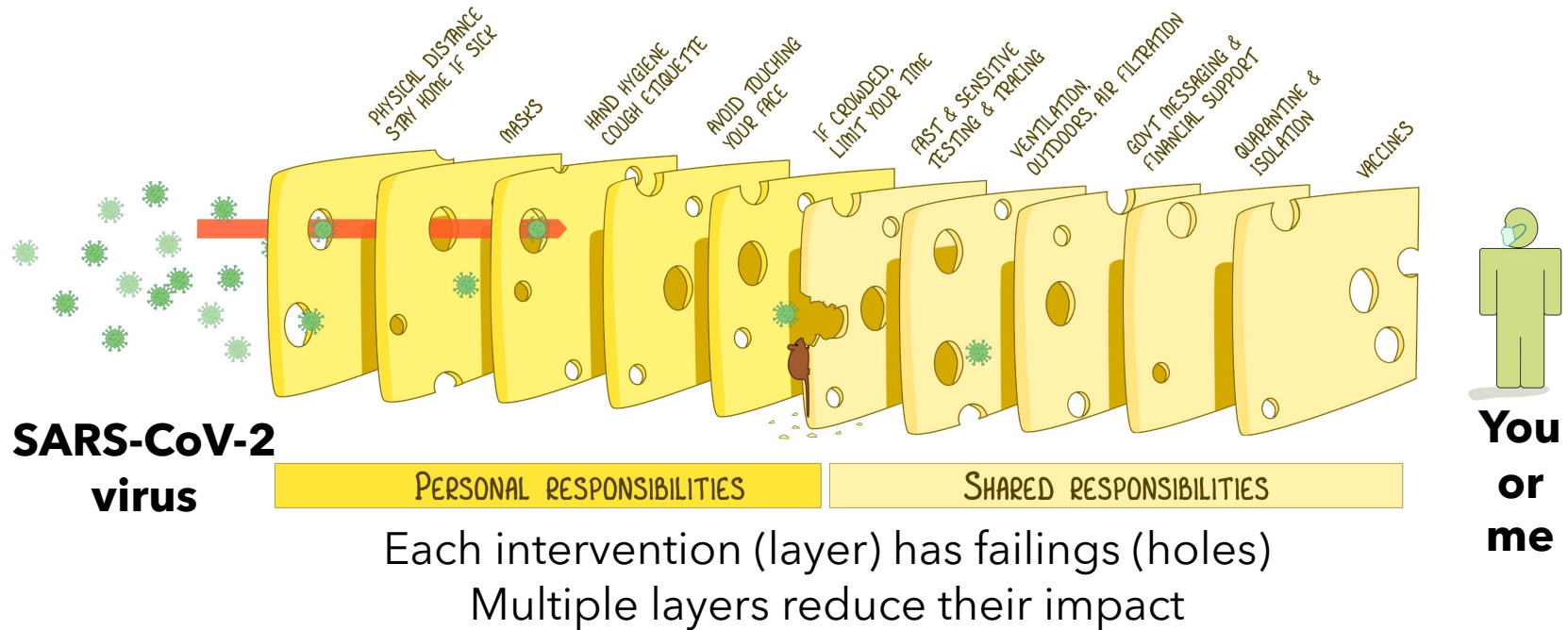


Figure drawn by Dr. Ian M. Mackay (2020)

Evidence to Support the Swiss Cheese Model

Science

REPORTS

Cite as: J. Lessler *et al.*, *Science* 10.1126/science.abh2939 (2021).

Household COVID-19 risk and in-person schooling

Justin Lessler^{1*}, M. Kate Grabowski^{1,2}, Kyra H. Grantz¹, Elena Badillo-Goicoechea³, C. Jessica E. Metcalf¹, Carly Lupton-Smith⁵, Andrew S. Azman^{1,6}, Elizabeth A. Stuart^{2,5,7}

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In-person schooling was proved contentious and difficult to study throughout the SARS-CoV-2 pandemic. A study of 500,000 households in the United States indicates an increased risk of COVID-19 infections among adults at home when their children attend in-person school.



Large study of >500,000 households examining relationships among in-person schooling, mitigation efforts & COVID-19 infections of adults at home

Do mitigation factors* reduce the risk of an adult at home getting COVID-19 if their kids attend in-person school?

*Things like mask wearing, spacing of desks, symptom screening, same/many teachers, outdoor instruction, reduced class size, closing cafeterias, etc.



Evidence to Support the Swiss Cheese Model

■ Results

- Living with a child doing in-person schooling increased the risk for an adult at home getting COVID-19 by about 30-40%
- Each separate mitigation factor reduced this risk by 5-10%
- Daily symptom screening, teacher mask mandate & cancelling extra-curricular activities assoc. with greatest risk reduction
- **When 7 or more mitigation measures were in place the association between in-person schooling & COVID-19 disappeared**

Mask Guidance

- Once you are fully vaccinated (2 weeks after 2nd dose of mRNA vaccine or after single-dose adenovirus vaccine)
 - You can resume activities that you did prior to the pandemic
 - You can resume activities without wearing a mask or staying 6 feet apart
 - If you've been around someone who has COVID-19, you do not need to stay away from others or get tested unless you have symptoms, unless you work or live in a correctional or detention facility or a homeless shelter
- You will still need to follow guidance at your workplace and local businesses.

Important Update for Schools

CDC recommends schools continue to use the current COVID-19 prevention strategies for the 2020-2021 school year.+

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated.html>

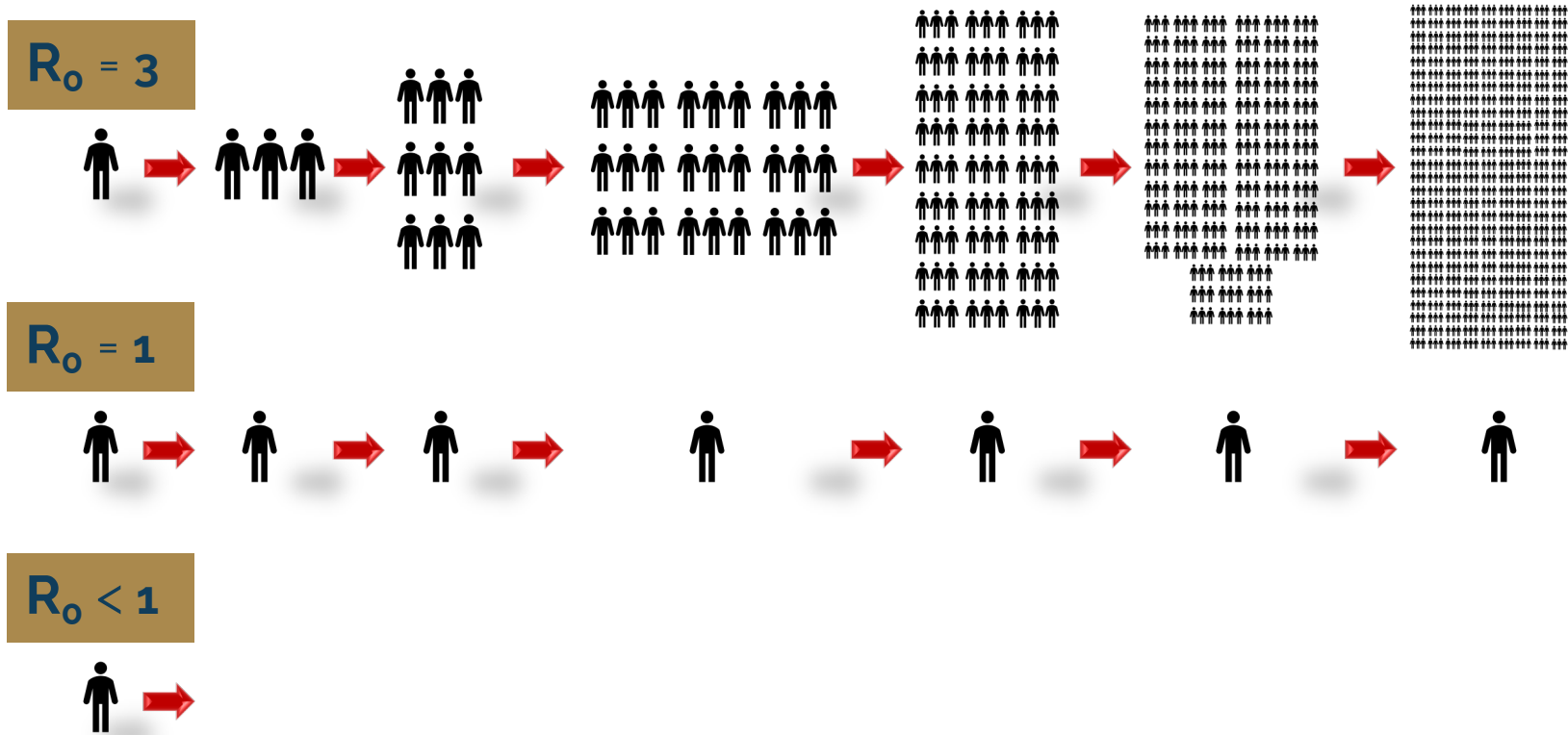
	Unvaccinated People	Examples of Activities	Fully Vaccinated People
		Outdoor	
Safest		Walk, run, wheelchair roll, or bike outdoors with members of your household	
		Attend a small, outdoor gathering with fully vaccinated family and friends	
		Attend a small, outdoor gathering with fully vaccinated and unvaccinated people	
Less Safe		Dine at an outdoor restaurant with friends from multiple households	
Least Safe		Attend a crowded, outdoor event, like a live performance, parade, or sports event	
		Indoor	
Less Safe		Visit a barber or hair salon	
		Go to an uncrowded, indoor shopping center or museum	
		Attend a small, indoor gathering of fully vaccinated and unvaccinated people from multiple households	
Least Safe		Go to an indoor movie theater	
		Attend a full-capacity worship service	
		Sing in an indoor chorus	
		Eat at an indoor restaurant or bar	
		Participate in an indoor, high intensity exercise class	

Vaccination

Herd Immunity

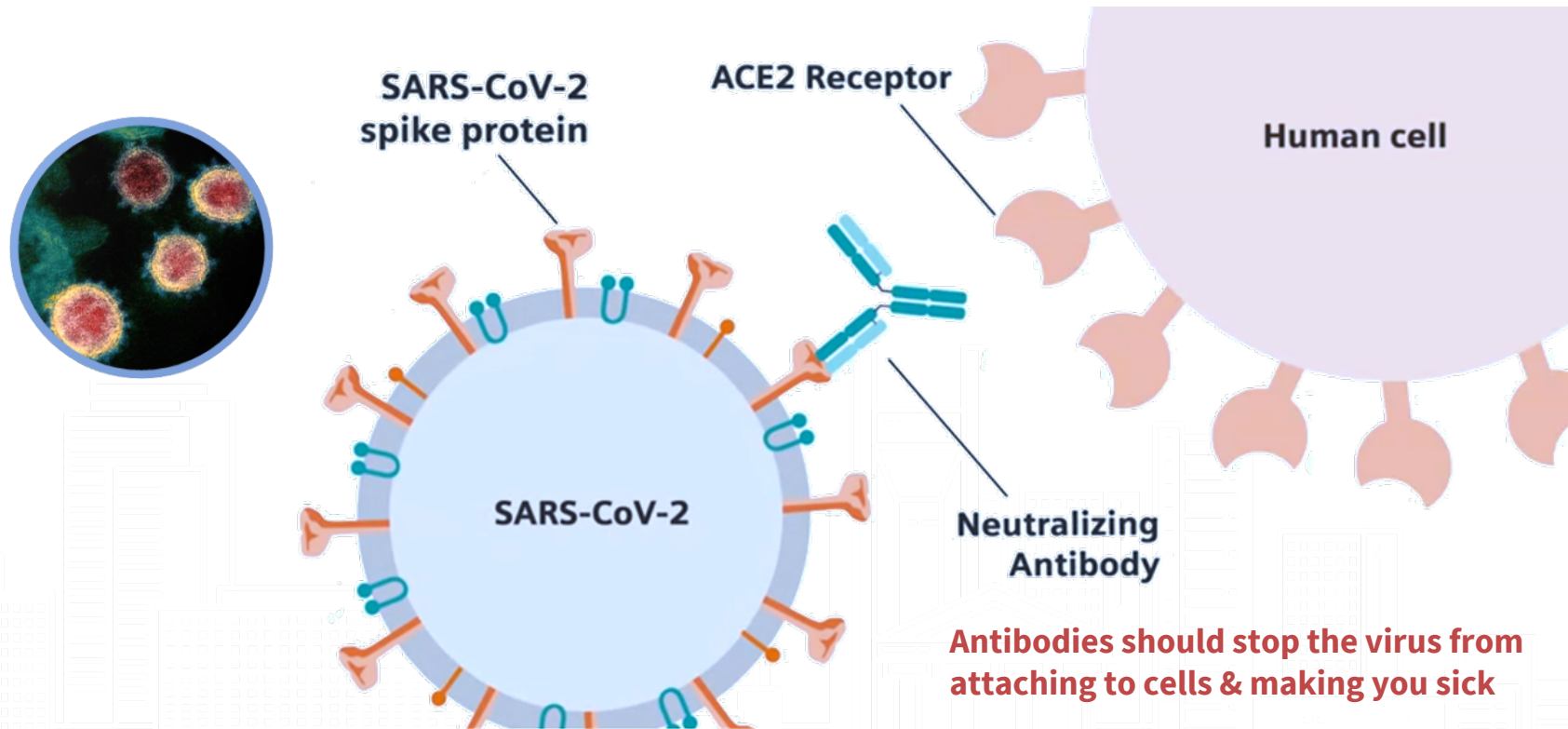
- Herd Immunity = % of the population that needs to have immune protection against the virus to end the pandemic
- >70% is best estimate needed to end the pandemic
- Vaccines will help us get there
 - Two mRNA vaccines
 - One adenovirus vector vaccine

Herd Immunity



Initial R_0 estimate of 2-3: <https://moffitt.org/endeavor/archive/the-science-behind-covid-19/>

How Vaccines Work



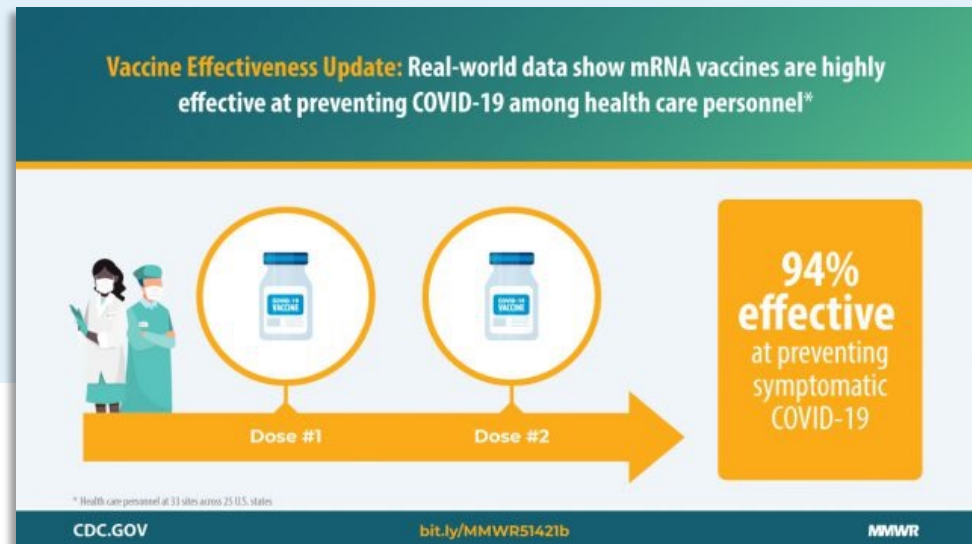
Figures from <https://www.nih.gov/news-events/nih-research-matters/novel-coronavirus-structure-reveals-targets-vaccines-treatments> & <https://www.siemens-healthineers.com/press-room/press-releases/covid-19-antibody-phe.html>

Vaccines Work!

Study of COVID-19 cases in healthcare workers from 33 sites in the US from January-March, 2021

82% effective after 1 shot

94% effective after 2 shots

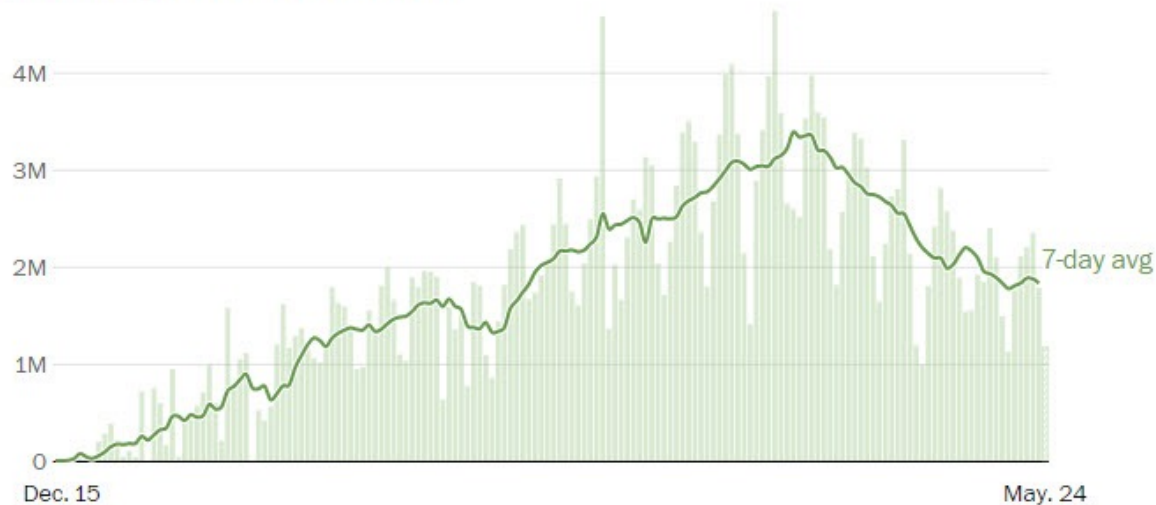


https://www.cdc.gov/mmwr/volumes/70/wr/mm7020e2.htm?s_cid=mm7020e2_x

Getting People Immunized

Reported doses administered by day

In the last week, an average of **1.78 million** doses per day were administered, a **3% decrease** ↓ over the week before.



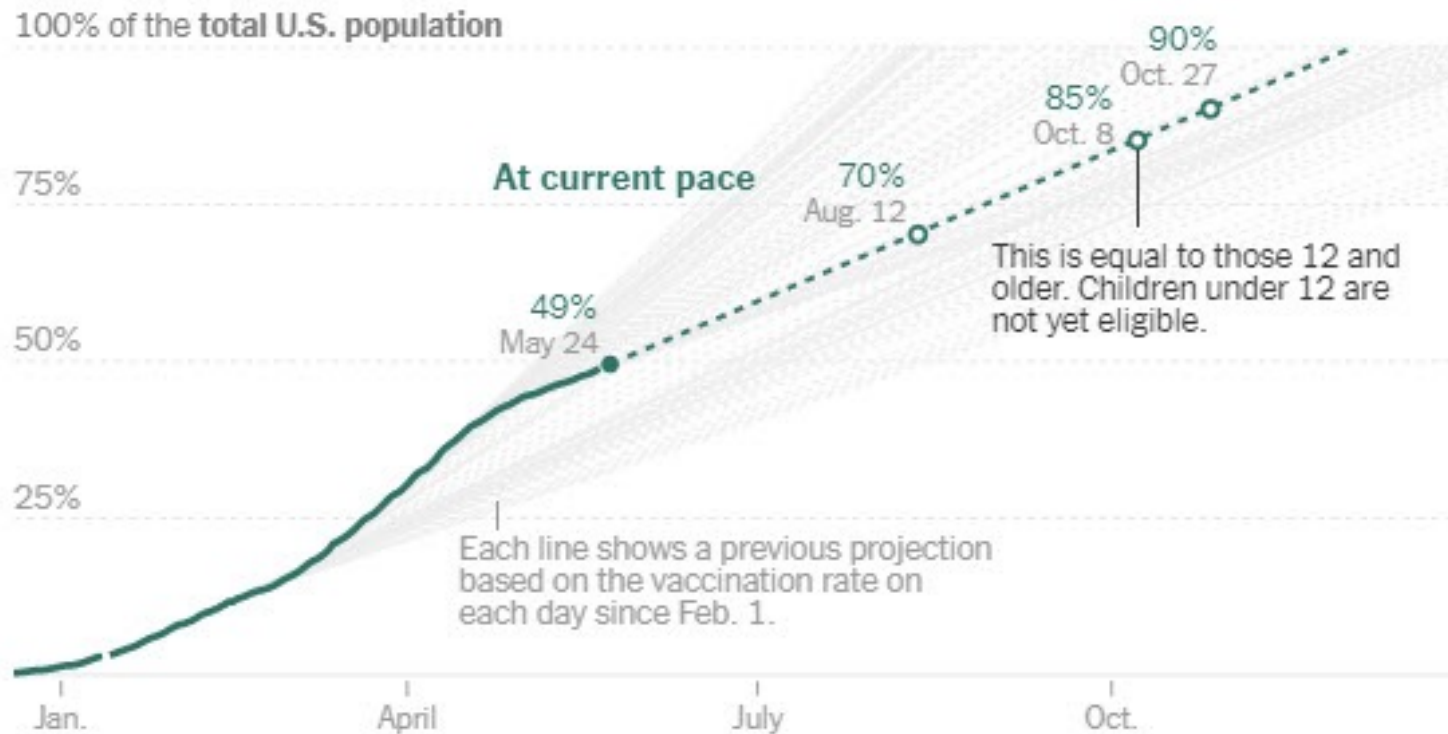
Vaccinations are slowing, impeding our quick arrival at herd immunity

**49% of the US population has started immunization
39% have completed vaccination**

These data accessed May 24, 2021

https://www.washingtonpost.com/graphics/2020/health/covid-vaccine-states-distribution-doses/?itid=sf_coronavirus_sn_covid-vaccine-states-distribution-doses_3

Getting People Immunized



These data accessed May 24, 2021

<https://www.nytimes.com/interactive/2020/us/covid-19-vaccine-doses.html?action=click&module=Top%20Stories&pgtype=Homepage>

Why Get Vaccinated?

Protect yourself:


- ✓ Vaccines **reduce the risk of infection** (asymptomatic & symptomatic)
- ✓ Vaccines **prevent hospitalization & death** from COVID-19

Protect others:

- ✓ Vaccines likely **reduce transmission**
- ✓ Vaccinated people **clear infection** more quickly & **shed less virus** than unvaccinated people

Tande AJ., et al. Clinical Infectious Diseases (2021); Thompson MG, et al. MMWR Morb Mortal Wkly Rep (2021); McEllistrem MC, et al. Clinical Infectious Diseases (2021); Levine-Tiefenbrun M, et al. Nature Medicine (2021); Emary KRW, et al. Lancet preprint (2021); Petter E, et al. medRxiv (2021)

Vaccine Safety

- COVID-19 vaccines are safe & effective
 - Vaccines do not cause infertility & appear quite safe in pregnancy & breastfeeding
 - Risk of immediate anaphylaxis from mRNA vaccine: ~2-5 events per million doses
 - Risk of severe blood clot & low platelets from J&J vaccine: ~9 events per million doses in women 18-49 years of age
 - Long-term side effects are highly unlikely
 - Hundreds of millions of people have received COVID-19 vaccines
- 

Vaccine Safety

Common Side Effects

On the arm where you got the shot:



- Pain
- Redness
- Swelling

Throughout the rest of your body:



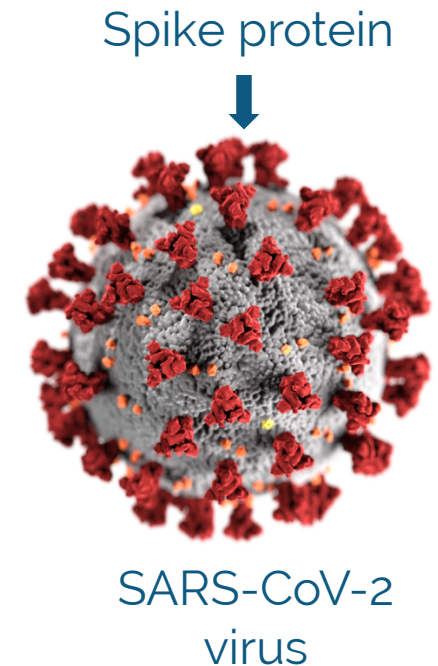
- Tiredness
- Headache
- Muscle pain
- Chills
- Fever
- Nausea

[CDC source link](#)

Variants

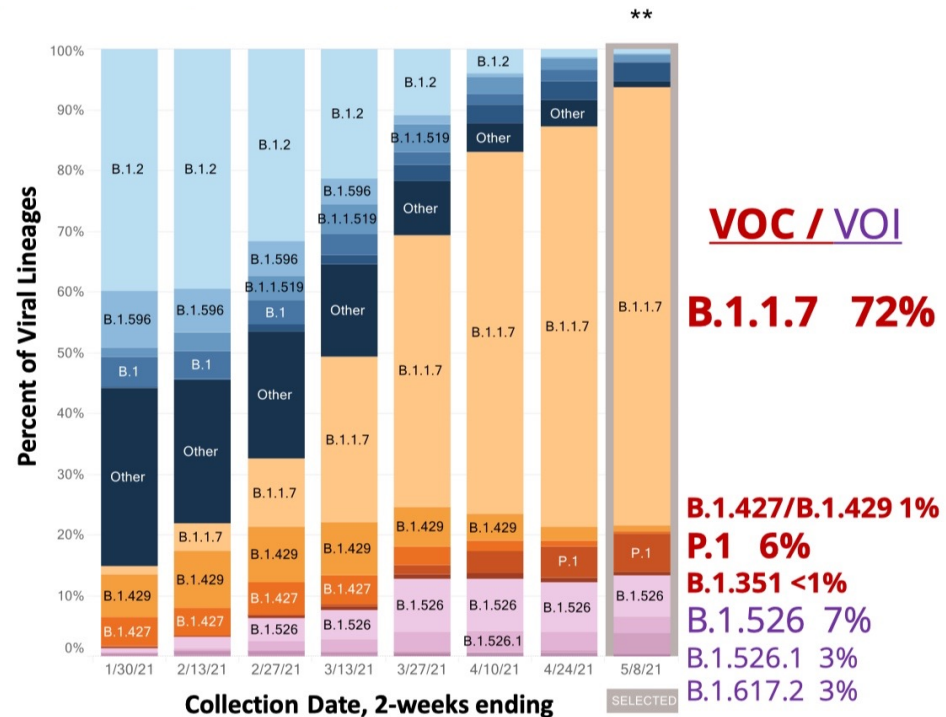
Virus Variants

- Viruses like SARS-CoV-2 constantly change through mutation
- Some variants (“mutants”) emerge & disappear, others persist
- Changes to the spike protein can help the virus cause infections more easily & evade our immune system
- Multiple variants are circulating globally including strains from UK, South Africa, Brazil, India, California, & New York



SARS-CoV-2 Variants

The "UK" B.1.1.7 variant is now dominant in the USA



CDC COVID Data Tracker As of 5/11/21; VOC=Variant of Concern; VOI=Variant of Interest

What We Need to Do



Continue non-pharmacological interventions to slow the spread of the virus!

- Distance
- Masks
- Ventilation
- Hygiene




Get people immunized!



The Future

The Future

- Global control of COVID-19
 - **Surveillance:** global, sequencing, data sharing
 - **Testing:** cheap, available, frequent, self-administered
 - **Treatment:** possibly closer to oral antivirals
 - **Vaccines:** targeting variants; children; boosters
 - **“Long COVID”:** better understanding/treatments/preventions
 - Improve **public health** systems
 - Improve **population health** to reduce inequities & disparities
- 



Poll

Have you returned to work
in office or plan to return to
your office soon?

The New Normal

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February 2020 – May 2021

- Nothing Has Been Normal
- “100-year flood”
- OK not to be OK

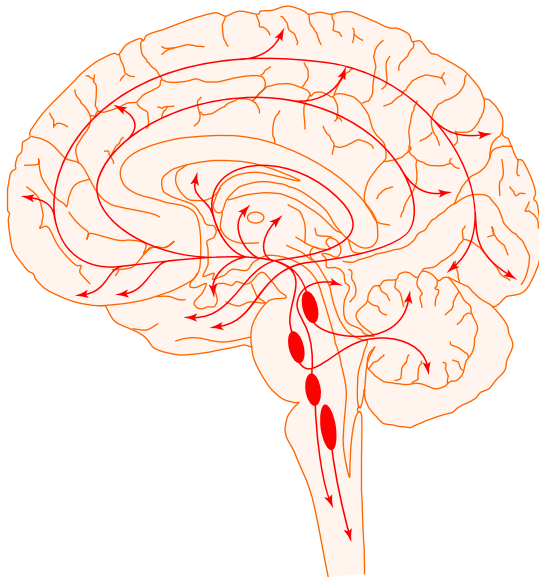


Anxiety has a Protective Role

- Anxiety Is Not All Bad
- Safety
- Anticipation
- Fear vs. Anxiety



Neurobiology

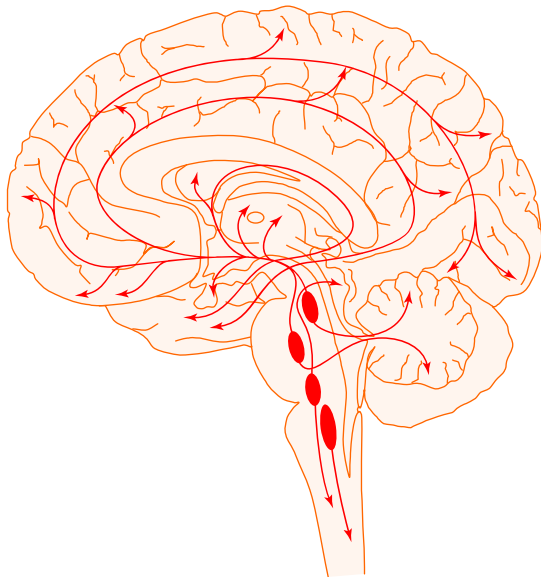


Amygdala: Hypertrophy after stress = anxiety

- **Lateral Hypothalamus** : heart rate, blood pressure
- **Dorsal Vagal N.**: bradycardia, ulcers
- **Parabrachial N.**: panting, respiratory distress
- **Basal Forebrain**: arousal, vigilance, attention
- **Retic. Pontis Caudalis**: increased startle response
- **Central Gray Area**: freezing, social interaction
- **Paraventricular N.**: corticosteroid release

Slide from Dr. Jenni Blackford, Vanderbilt University

Neurobiology



Prefrontal Cortex: Decreased functioning

- Value calculations
- Probability assessment
- Anticipated cost of future events

Trauma

- Personal
- No concrete definition
- Repeated, micro
- Never ending series of adjustments



Value

- Core parts of our system were put on hold or temporarily eliminated to us
- Simple tasks took on new risk
- Already busy lives had things added
- Rethinking



Getting Back in the Game

- Know Yourself
- Patience
- Large variation of “normal”
- Be Kind & Understanding

Trial Runs

- Off Hours Practice
- Exposure
- Hybrid
- Branch Out Slowly



Basics

- Sleep
- Hygiene
- Nutrition/Balance
- Fun
- Faith/Spiritual



Multiple Roads to Happiness

- Continuously Take Stock
- Adjust/Adapt
- Be Intentional
- Boundaries
- Know Limits
- Ask For Help





**We're all in
this together**

Questions & Answers

Thank You

EmployerSolutions@vumc.org

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