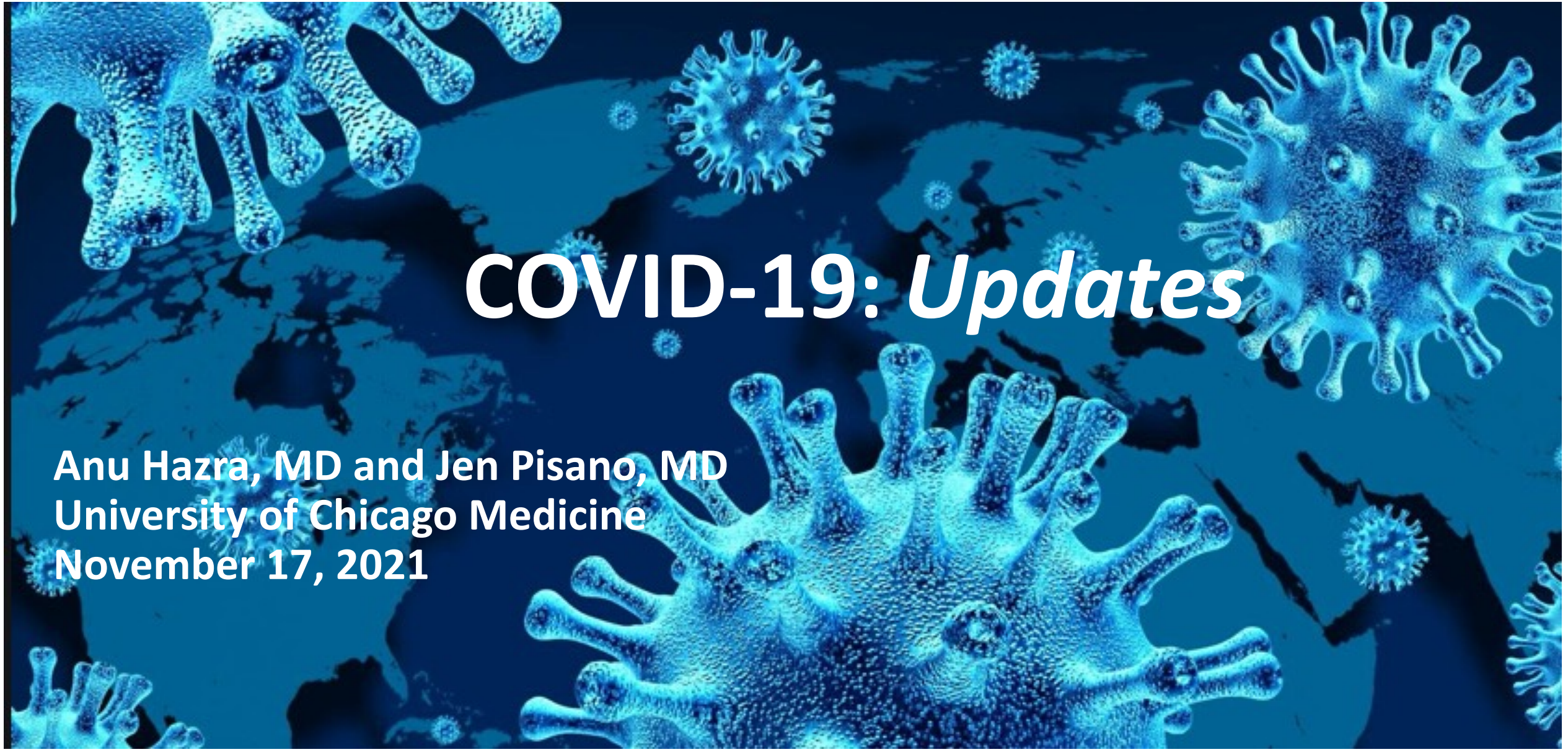


COVID-19: *Updates*

Anu Hazra, MD and Jen Pisano, MD
University of Chicago Medicine
November 17, 2021

ECHO CHICAGO

AT THE FOREFRONT
UChicago Medicine

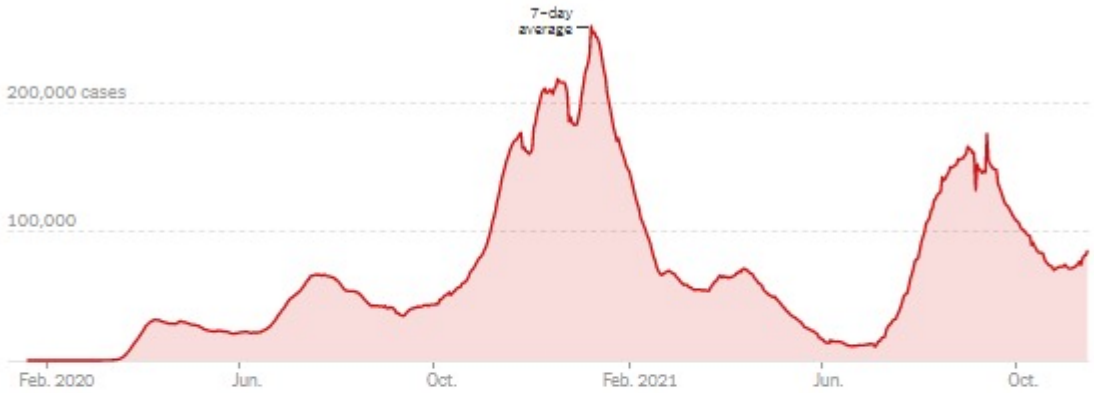
Disclosures

- We have no relevant financial interests to disclose.

Coronavirus in the U.S.: Latest Map and Case Count

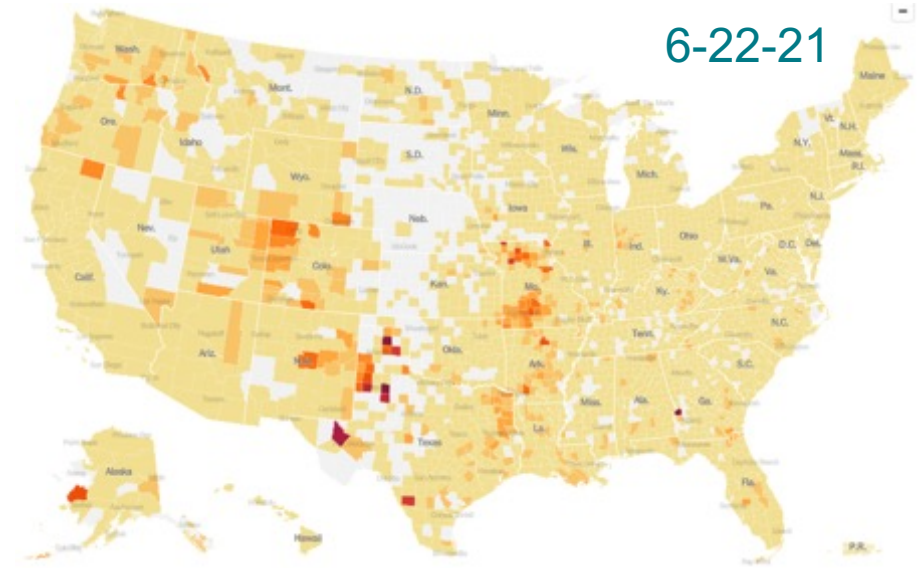
New reported cases

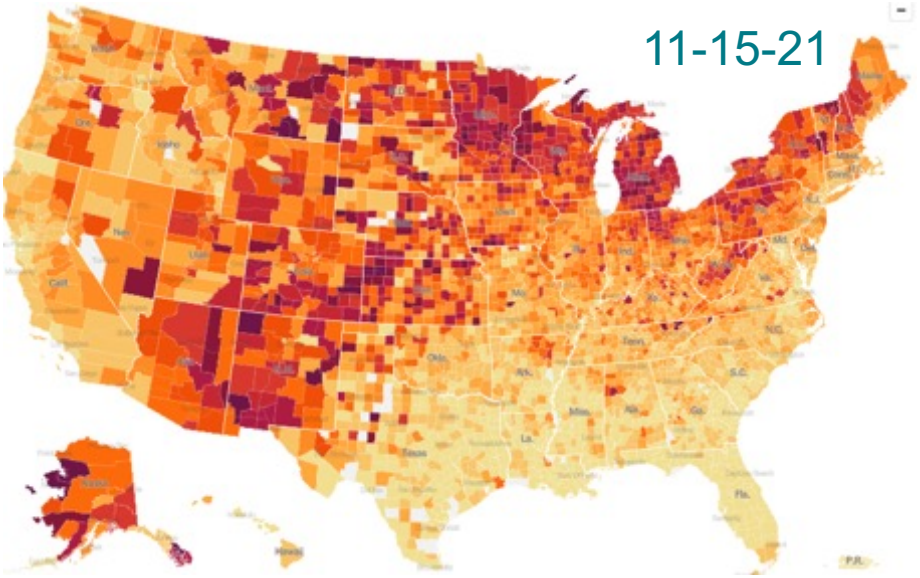
All time | Last 90 days



	DAILY AVG. ON NOV. 15	14-DAY CHANGE	TOTAL REPORTED
Cases	84,863	+14%	47,185,246
Tests	1,425,447	+13%	—
Hospitalized	47,119	-5%	—
Deaths	1,129	-14%	763,178

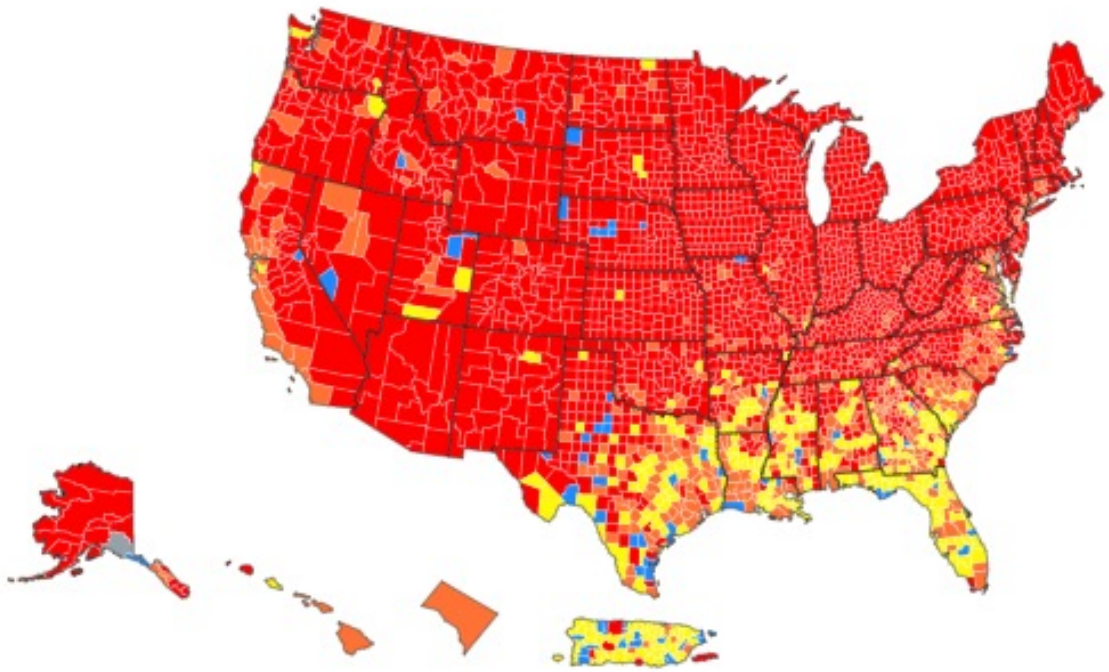
About this data





https://www.nytimes.com/interactive/2021/us/coronavirus-us-cases.html

Level of Community Transmission of All Counties in US



Community Transmission in US by County

	Total	Percent	% Change
High	2301	71.42%	1.64%
Substantial	485	15.05%	-2.2%
Moderate	356	11.05%	0.34%
Low	77	2.39%	0.22%

How is community transmission calculated?

High Substantial Moderate Low No Data

CHICAGO | COVID-19 Summary

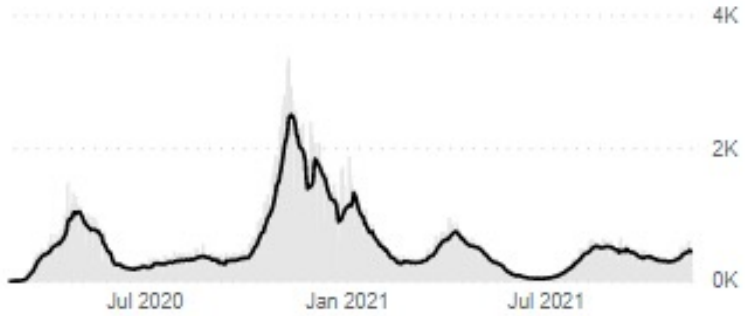
Data current as of Nov 15, 2021.
Data are updated M-F at 5:30 p.m., except for City holidays.
All data are provisional and subject to change.

SUMMARY | CASES | CASES BY ZIP | TESTS | VACCINES | VACCINES BY ZIP

Learn how to use this dashboard.

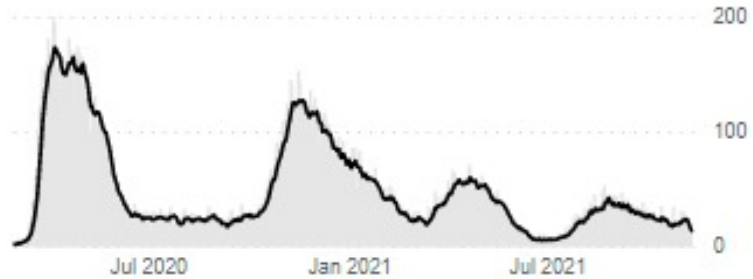
CASES

445 ▲	403 (+10%)	333,793	16.4
Current daily avg	Prior week	Cumulative	Daily rate per 100,000



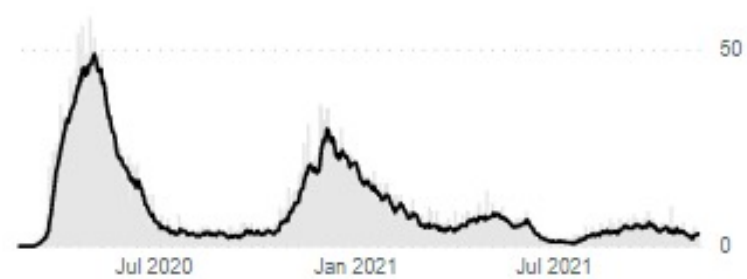
HOSPITALIZATIONS

14 ▼	23 (-41%)	30,967	0.5
Current daily avg	Prior week	Cumulative	Daily rate per 100,000



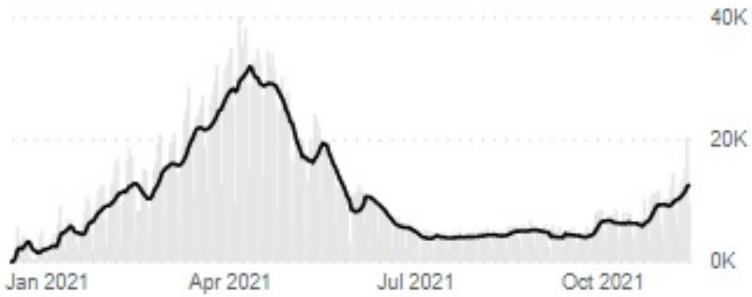
DEATHS

3.14 ▲	2.00 (+57%)	6,138	0.1
Current daily avg	Prior week	Cumulative	Daily rate per 100,000



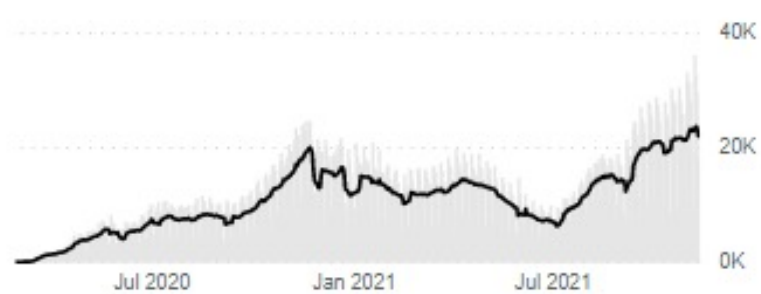
VACCINATIONS ADMINISTERED

12,484 ▲	3,554,693	60.1%	66.7%
Current daily avg	Cumulative	Completed series	At least one dose



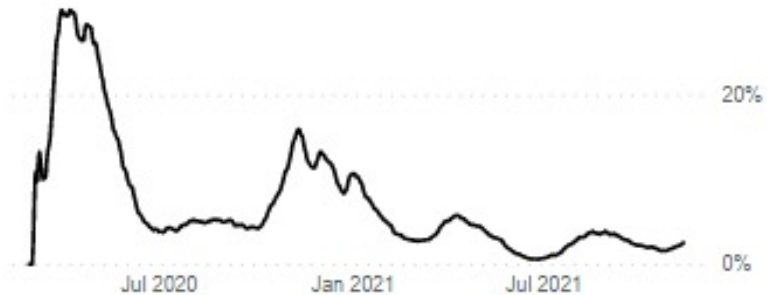
TESTS PERFORMED

21,889 ▼	23,123 (-5%)	6,722,249
Current daily avg	Prior week	Cumulative



POSITIVITY RATE

2.5% ▲	2.0%
Current daily avg	Prior week



built by

United States | All Ages

New Admissions of Patients with Confirmed COVID-19 per 100,000 Population by Age Group, United States

Aug 01, 2020 - Nov 14, 2021

3,320,189
Total Admissions
Aug 01, 2020 - Nov 14, 2021

5,333
Current 7-Day Average
Nov 08, 2021 - Nov 14, 2021

5,057
Prior 7-Day Average
Nov 01, 2021 - Nov 07, 2021

16,478
Peak 7-Day Average
Jan 03, 2021 - Jan 09, 2021

+5.4%
Percent change from prior 7-day avg. of Nov 01, 2021 - Nov 07, 2021

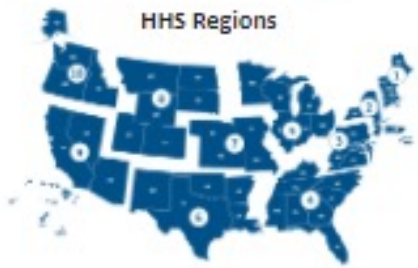
-67.6%
Percent change from peak 7-day avg. of Jan 03, 2021 - Jan 09, 2021

By Jurisdiction and Age Group | By Jurisdiction

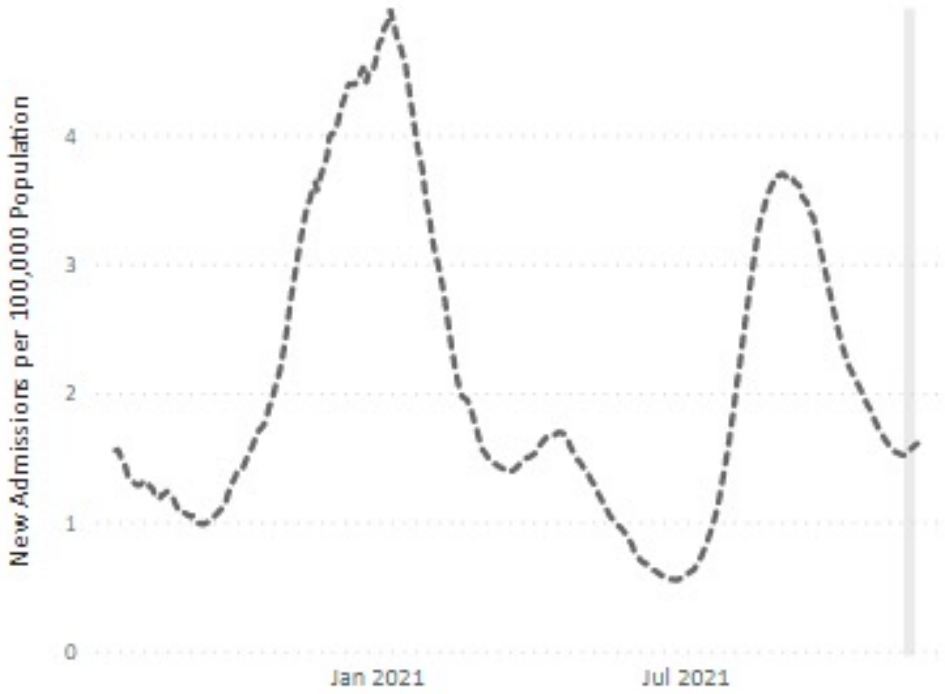
Select a Jurisdiction: United States

Select an Age Group: All Ages

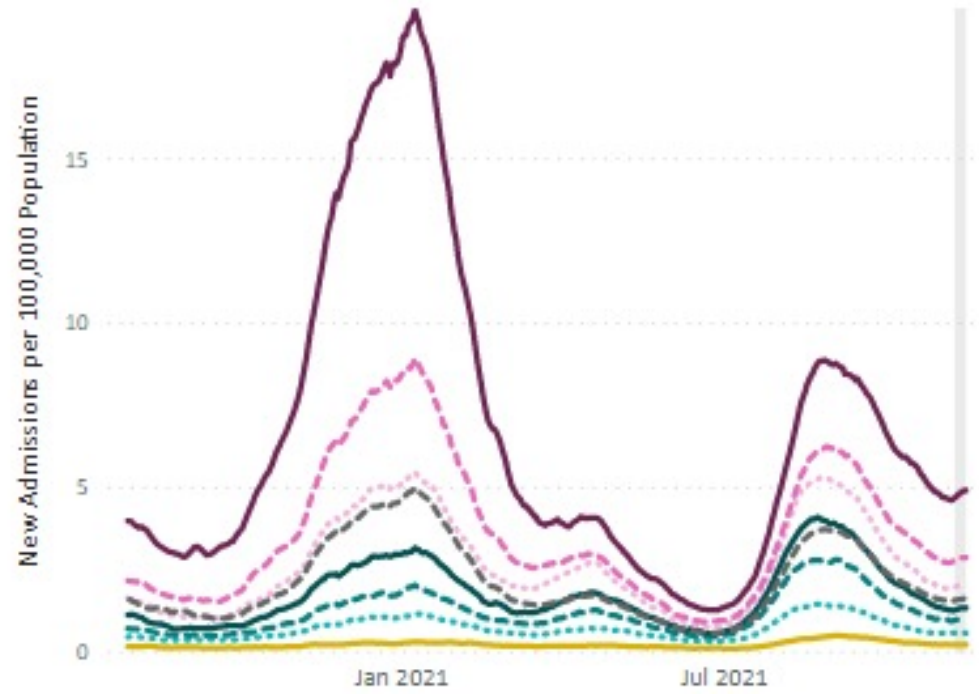
HHS Regions



United States | All Ages



United States | All Age Groups



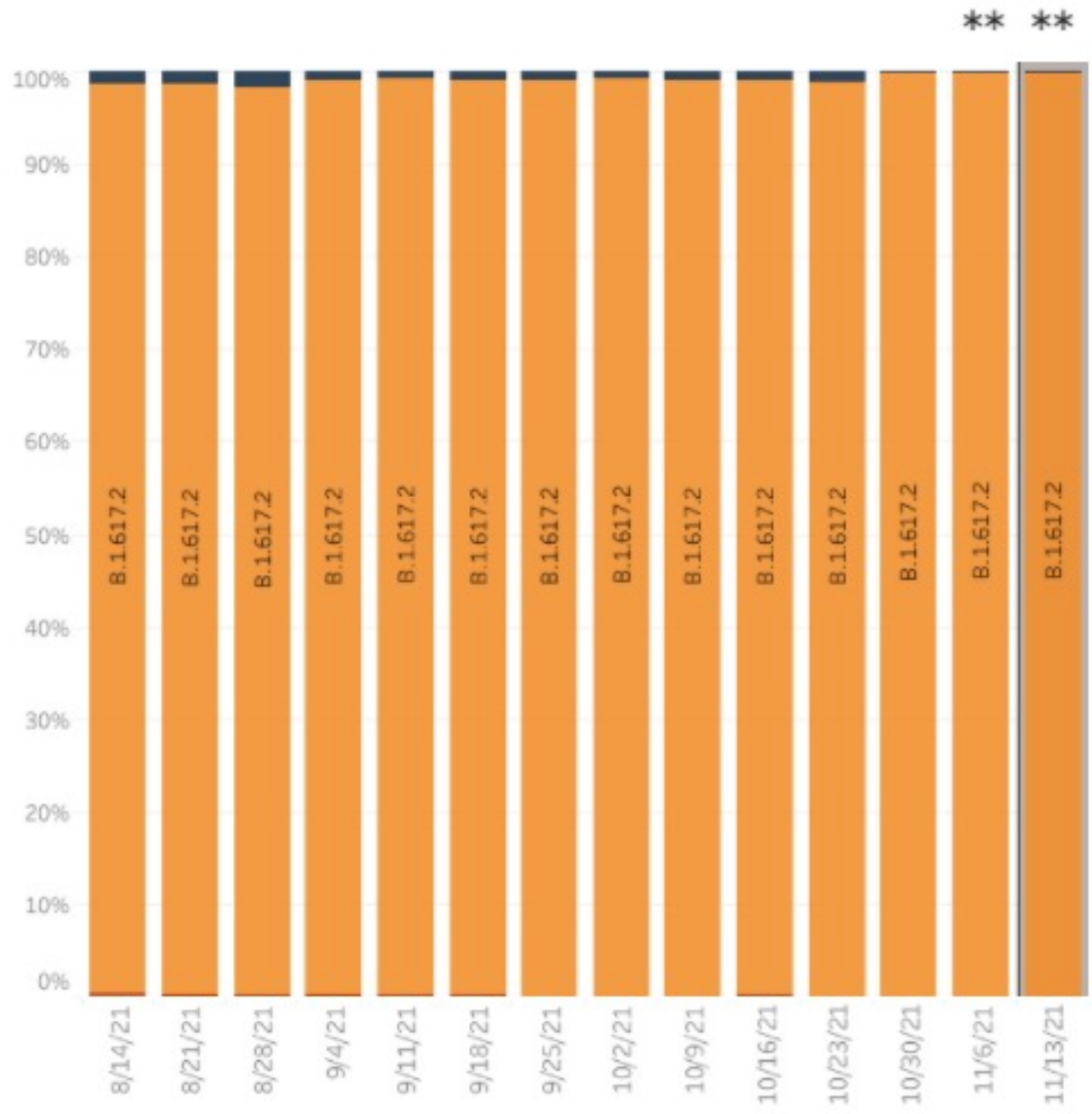
Age Group — 0 - 17 Years · 18 - 29 Years - - 30 - 39 Years — 40 - 49 Years · 50 - 59 Years - - 60 - 69 Years — 70+ Years - - All Ages

Based on reporting from all hospitals (N=5,259). Due to potential reporting delays, data reported in the most recent 7 days (as represented by the shaded bar) should be interpreted with caution.
Small shifts in historic data may occur due to changes in the CMS Provider of Services file, which is used to identify the cohort of included hospitals. Data since December 1, 2020 have had error correction methodology applied. Data prior to this date may have anomalies that are still being resolved. Note that the above graphs are often shown on different scales. Data prior to August 1, 2020 are unavailable.

Last Updated: Nov 16, 2021

Unified Hospital Dataset, White House COVID-19 Team, Data Strategy and Execution Workgroup

United States: 8/8/2021 – 11/13/2021



United States: 11/7/2021 – 11/13/2021 NOWCAST

USA

WHO label	Lineage #	US Class	%Total	95%PI
Delta	B.1.617.2	VOC	99.9%	99.9-100.0%
	AY.1	VOC	0.1%	0.0-0.1%
	AY.2	VOC	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.1%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.

** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates

\# AY.3-AY.47 and their sublineages are aggregated with B.1.617.2.

Total Vaccine Doses

Delivered	556,077,145
Administered	443,374,199

Learn more about the distribution of vaccines.

195.4M
People fully vaccinated

30.7M
People received a booster dose**

At Least One Dose | Fully Vaccinated | Booster Dose

Fully Vaccinated* People	Count	Percent of US Population
Total	195,435,688	58.9%
Population ≥ 12 Years of Age	195,297,762	68.9%
Population ≥ 18 Years of Age	182,447,095	70.6%
Population ≥ 65 Years of Age	47,174,536	86.1%

***For surveillance purposes, COVID Data Tracker counts people as being "fully vaccinated" if they received two doses on different days (regardless of time interval) of the two-dose mRNA series or received one dose of a single-dose vaccine.**

****The count of people who received a booster dose includes anyone who is fully vaccinated and has received another dose of COVID-19 vaccine since August 13, 2021. This includes people who received booster doses and people who received additional doses.**

About these data

CDC | Data as of: November 16, 2021 6:00am ET. Posted: Tuesday, November 16, 2021 1:52 PM ET

CHICAGO | COVID-19 Vaccines

Data current as of Nov 15, 2021.
Data are updated M-F at 5:30 p.m., except for City holidays.
All data are provisional and subject to change.

DAILY TRENDS TOTALS BY PHASE

Cumulative totals are since 12/15/2020. Daily averages are a 7-day average as of 11/13/2021 to account for reporting lags.

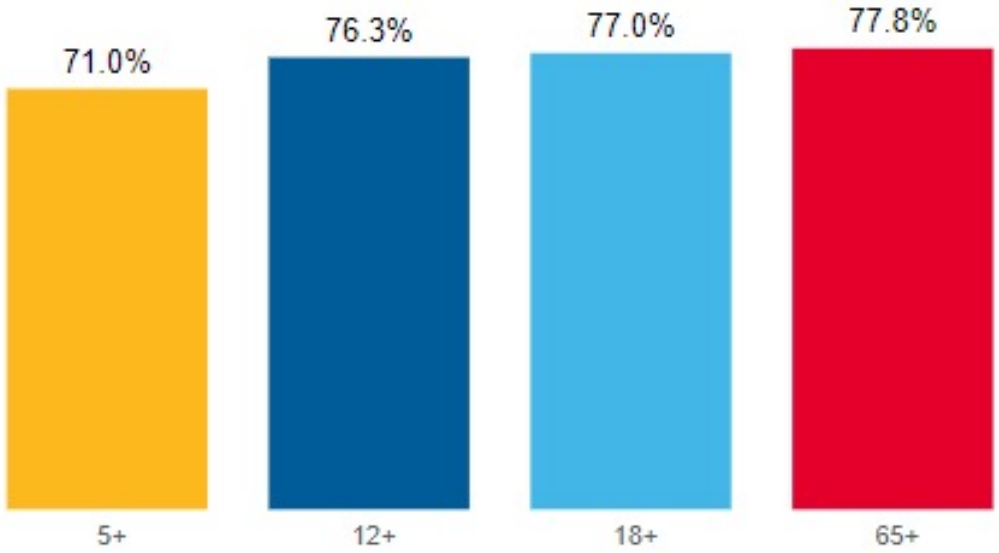
Citywide | Age | Gender | Race-Ethnicity

Select subgroup(s)

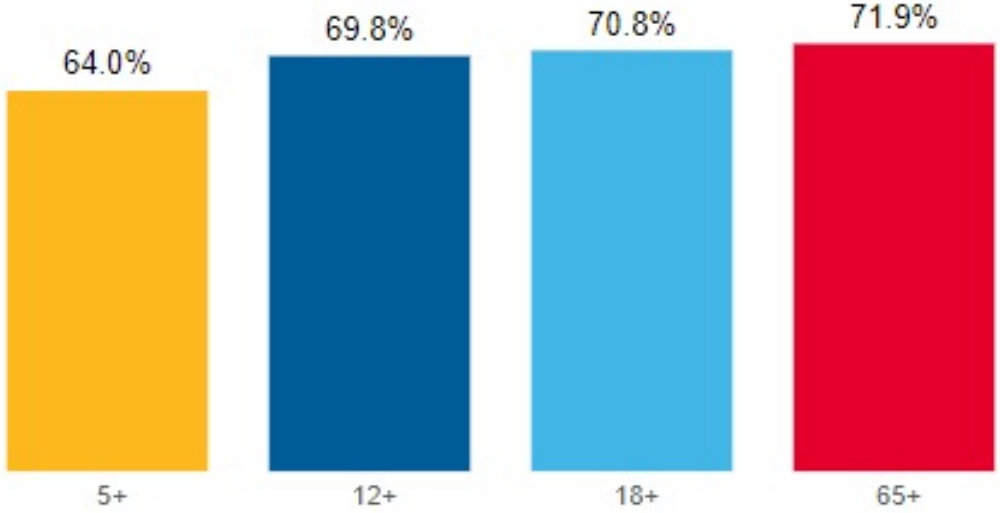
All

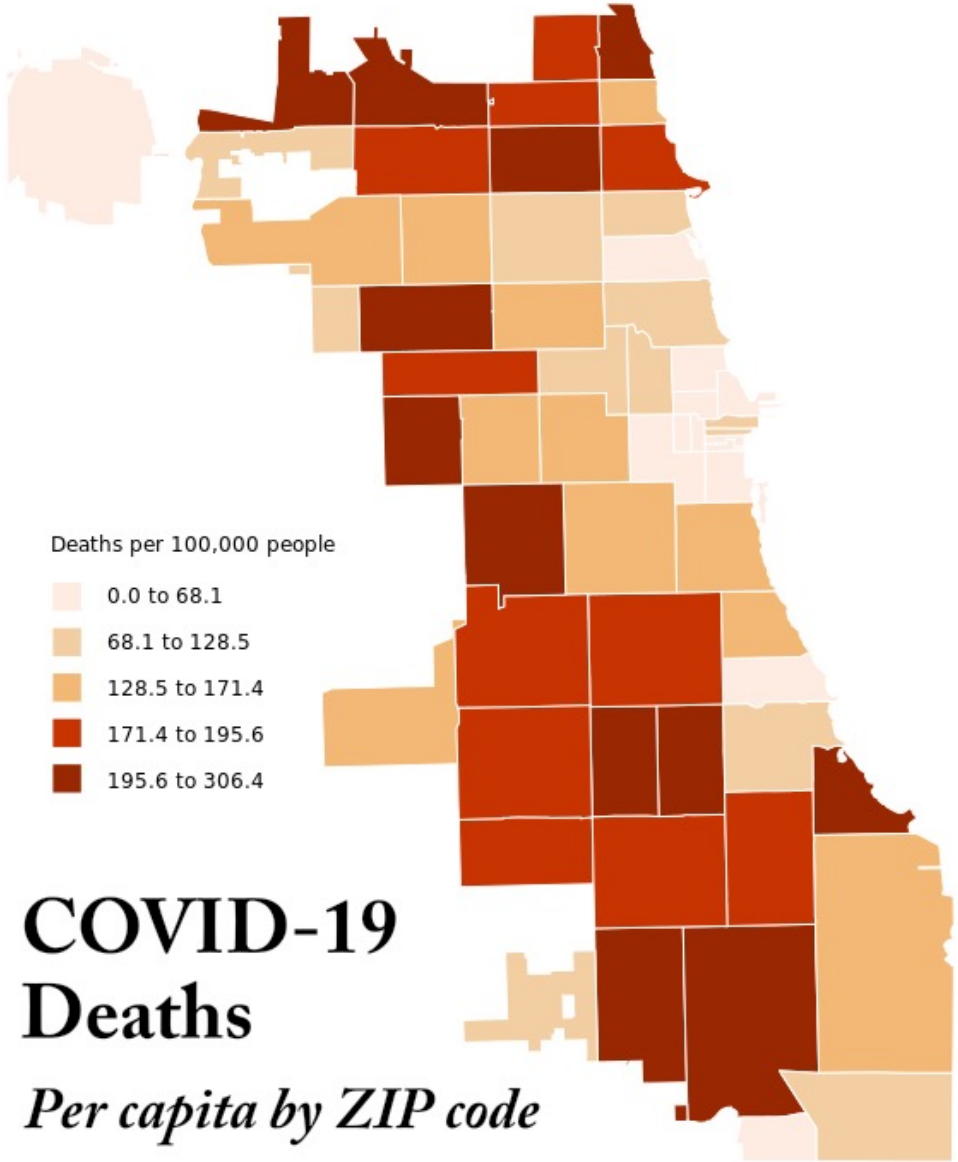
PERCENT VACCINATED % VACCINATED OVER TIME DAILY AVERAGE DOSES

At least one dose (% vaccinated as of 11/14/2021)



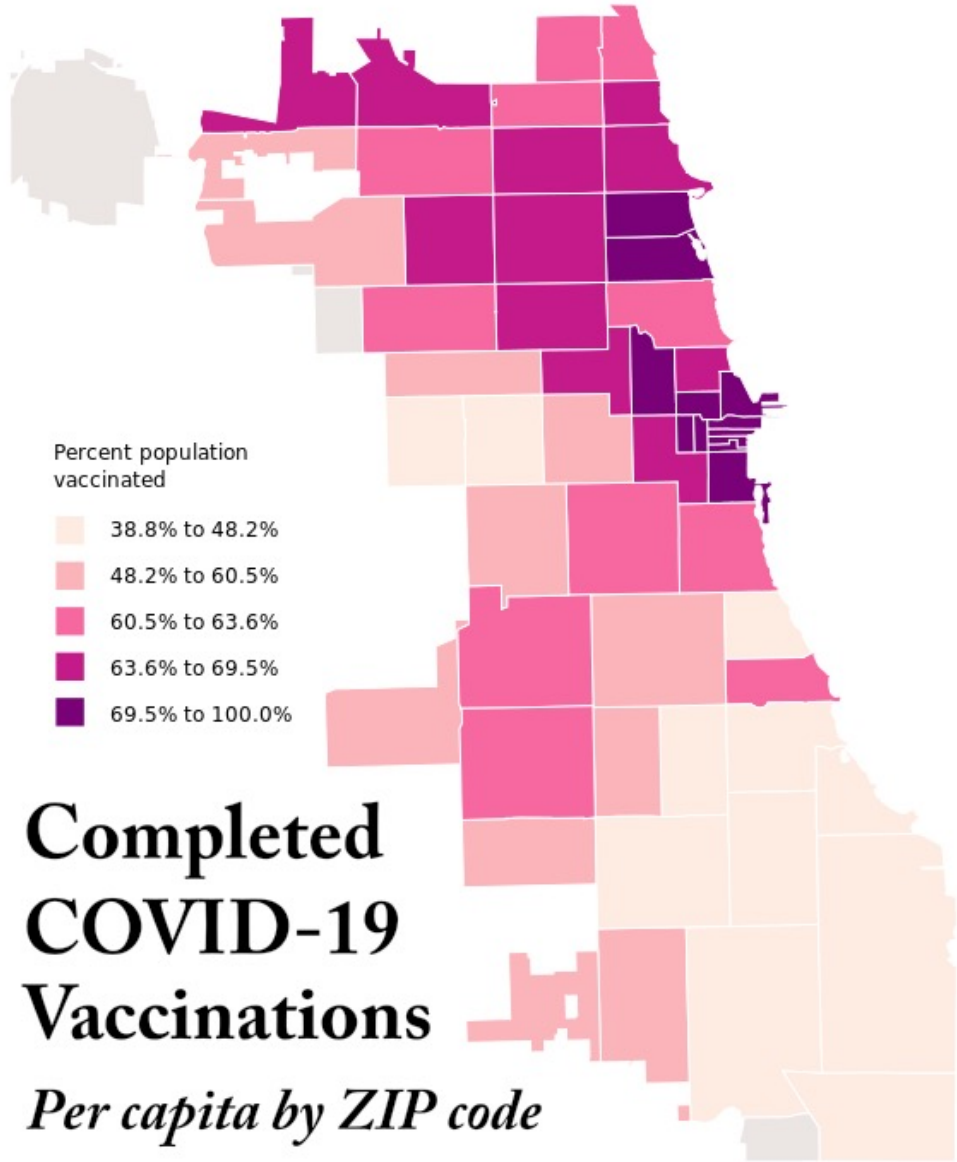
Completed vaccine series (% vaccinated as of 11/14/2021)





COVID-19 Deaths

Per capita by ZIP code

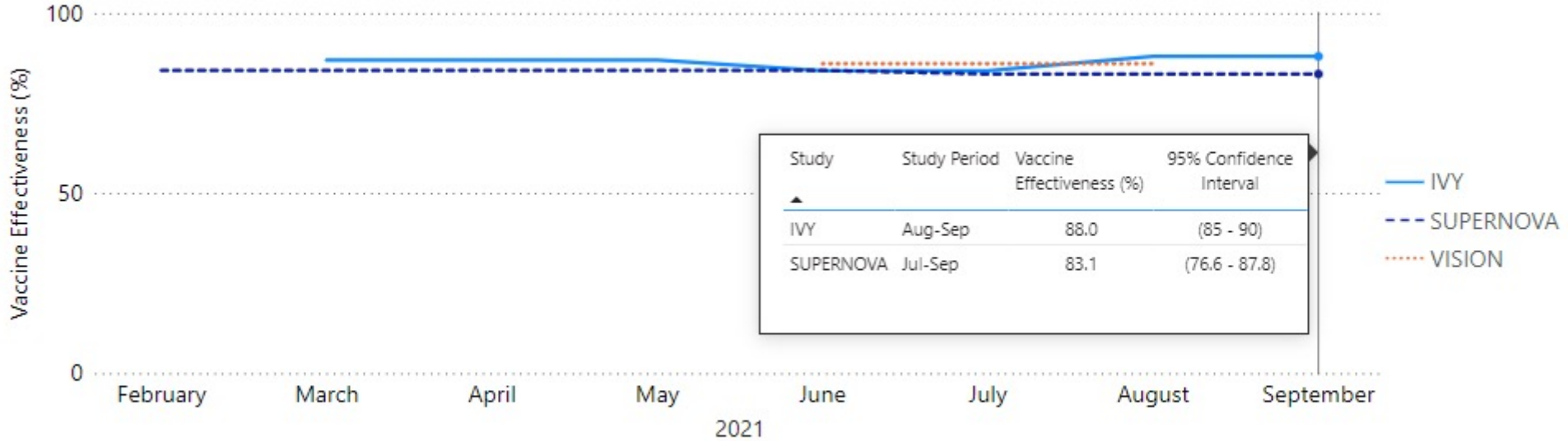


Completed COVID-19 Vaccinations

Per capita by ZIP code

@ChiVaxBot

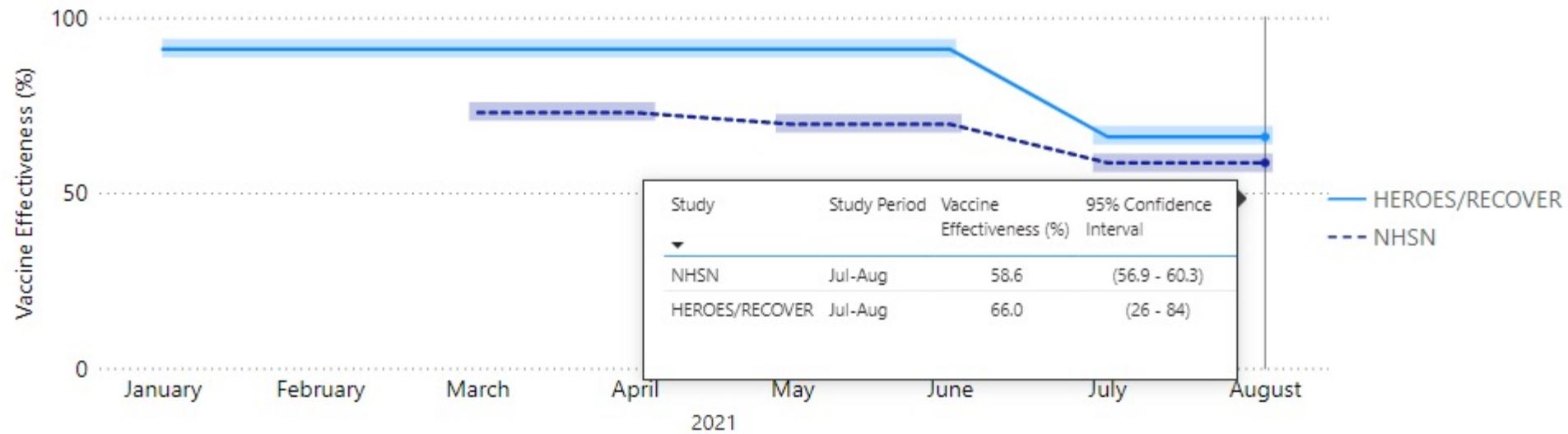
Vaccine effectiveness against **hospitalization**



Study	Study Period	Vaccine Effectiveness (%)	95% Confidence Interval
IVY	Aug-Sep	88.0	(85 - 90)
SUPERNOVA	Jul-Sep	83.1	(76.6 - 87.8)

COVID-19 vaccines are effective at protecting people from being hospitalized with COVID-19. The vaccines help protect against Delta and other variants and continue to prevent COVID-19 hospitalizations even though time has passed since many people got vaccinated.

Vaccine effectiveness against **infection**

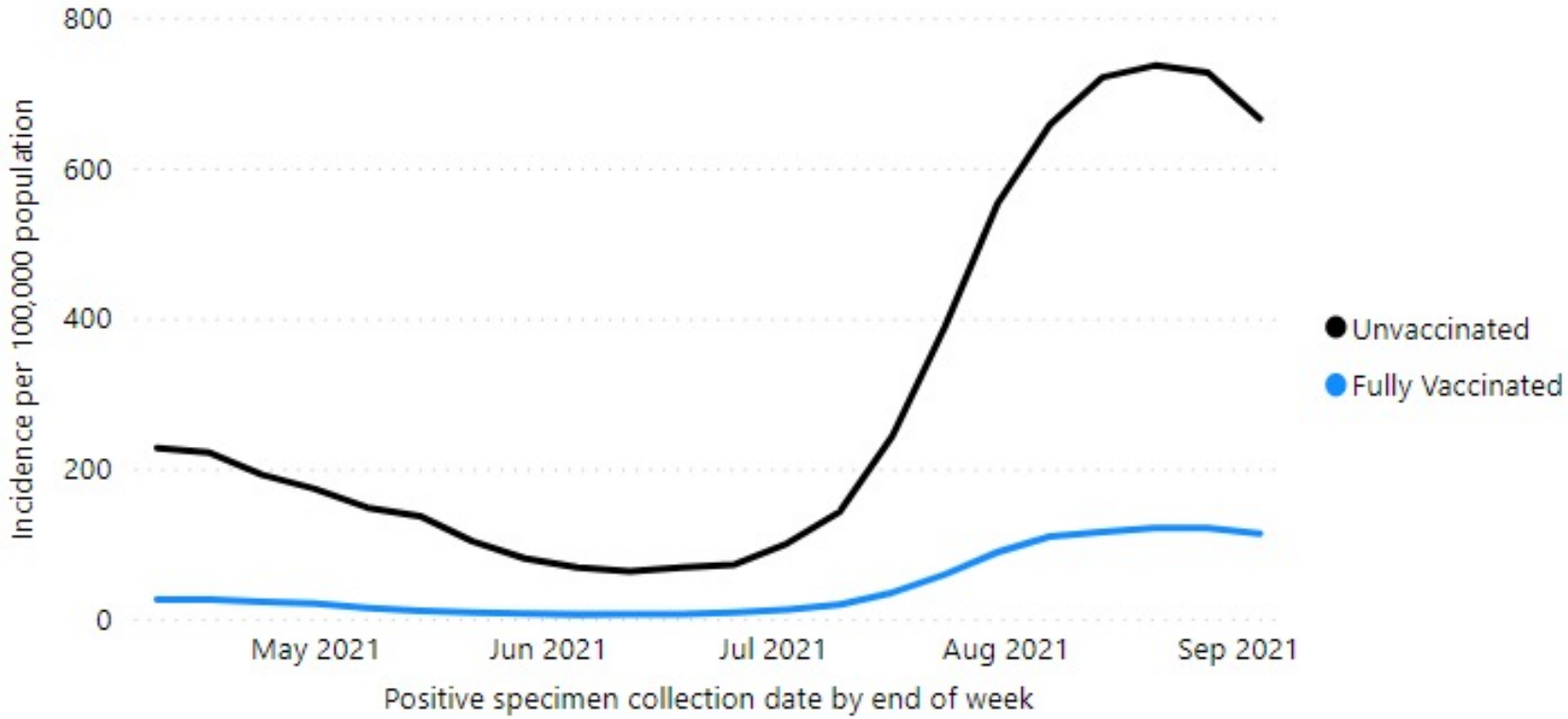


Study	Study Period	Vaccine Effectiveness (%)	95% Confidence Interval
NHSN	Jul-Aug	58.6	(56.9 - 60.3)
HEROES/RECOVER	Jul-Aug	66.0	(26 - 84)

COVID-19 vaccines were less effective at preventing COVID-19 infection in July and August compared to earlier months. Time has passed since people got vaccinated, and Delta became the predominant variant during this time period.

Rates of COVID-19 Cases by Vaccination Status

April 04 - September 04, 2021 (16 U.S. jurisdictions)

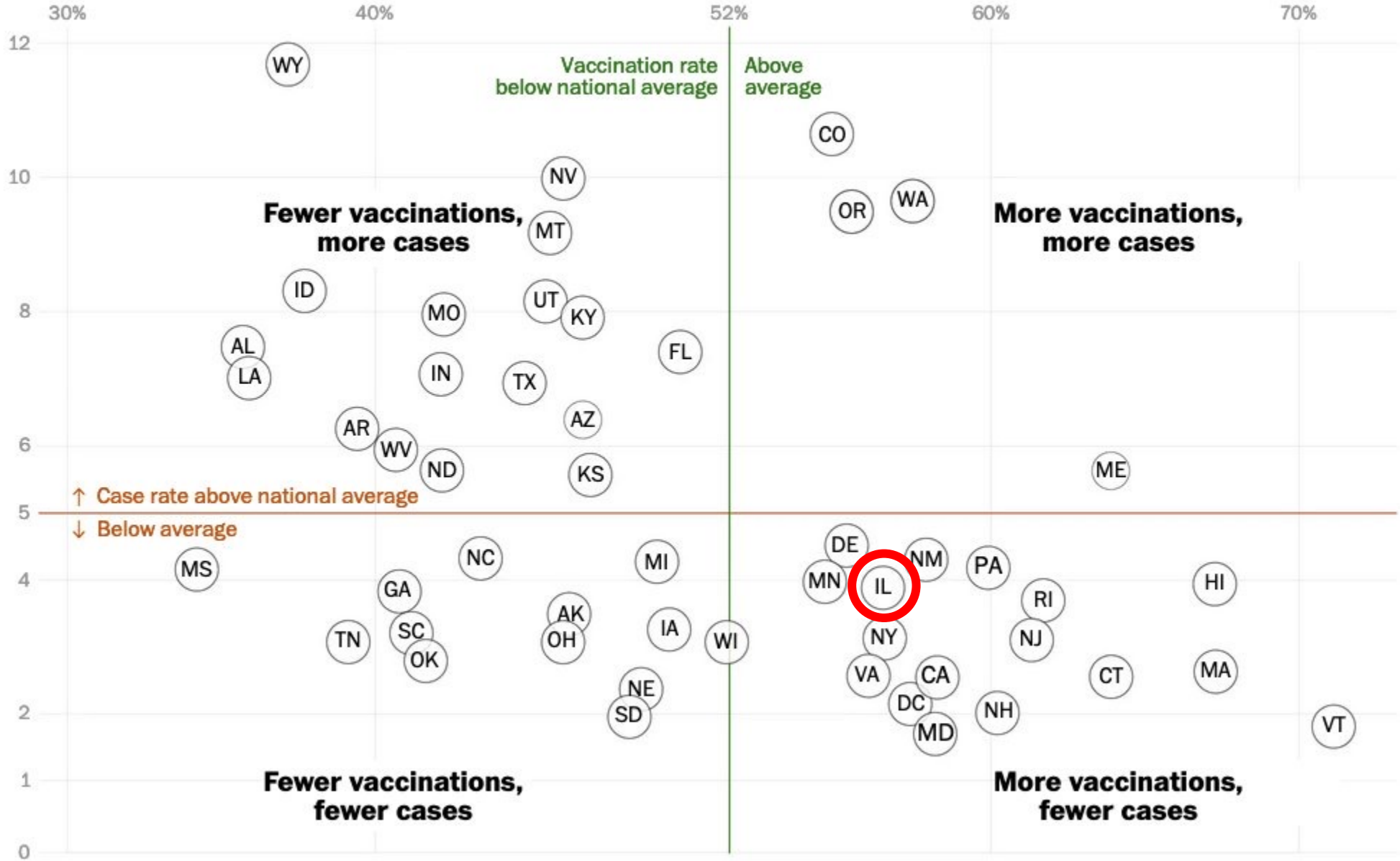


In August, unvaccinated persons had:

6.1X	**AND**	**11.3X**
Greater Risk of Testing Positive for COVID-19		Greater Risk of Dying from COVID-19

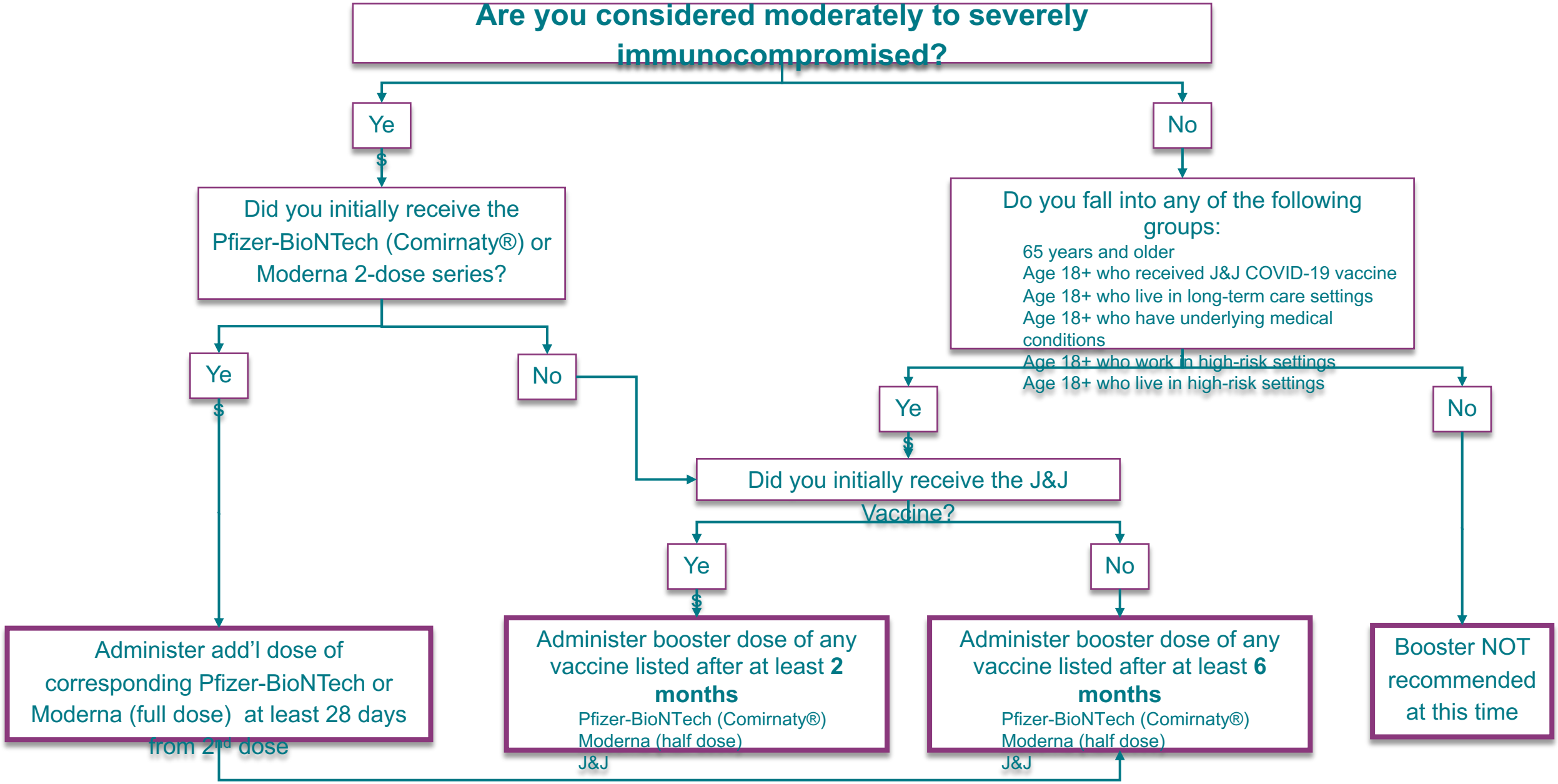
compared to fully vaccinated persons

States where a larger share of the population have received at least one vaccine dose have significantly lower current case rates.



Source: Centers for Disease Control and Prevention

COVID-19 Vaccine Third Dose/Booster Dose Workflow



COVID-19

Am I eligible for a booster shot?

Who?

If you received a Pfizer or Moderna series:

- 65 years and older
- Age 18+ who live in long-term care settings
- Age 18+ who have underlying medical conditions
- Age 18+ who work or live in high-risk settings

If you received a J&J vaccine:

- Age 18+

When?

- At least 6 months after Pfizer or Moderna
- At least 2 months after J&J

Which booster shot do I get?

- You may have a preference, but you can get any booster shot.

FIND OUT MORE AT CDC.GOV & VACCINES.GOV

CDC

326830-BE

How do Covid-19 vaccine boosters compare?[1]

Initial Vaccine Administered	Pfizer BioNTech			moderna			janssen Johnson & Johnson		
Initial Dose Regime	2			2			1		
Booster Shot Type	moderna	Pfizer BioNTech	janssen Johnson & Johnson	Pfizer BioNTech	moderna	janssen Johnson & Johnson	moderna	Pfizer BioNTech	janssen Johnson & Johnson
Binding & Neutralizing Antibody Assays (*Geometric mean fold rise*)	17.3 x	14.9 x	6.2 x	9.7 x	7.9 x	4.7 x	56.1 x	32.8 x	4.6 x
Rank	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd

[1] **Reference:** "*Heterologous SARS-CoV-2 Booster Vaccinations – Preliminary Report*" (SARS-CoV-2 Vaccine Booster Trial), Table 2, SARS-CoV-2 IgG Binding and Neutralizing Antibody Assays, Geometric mean fold rise

drswanda.com

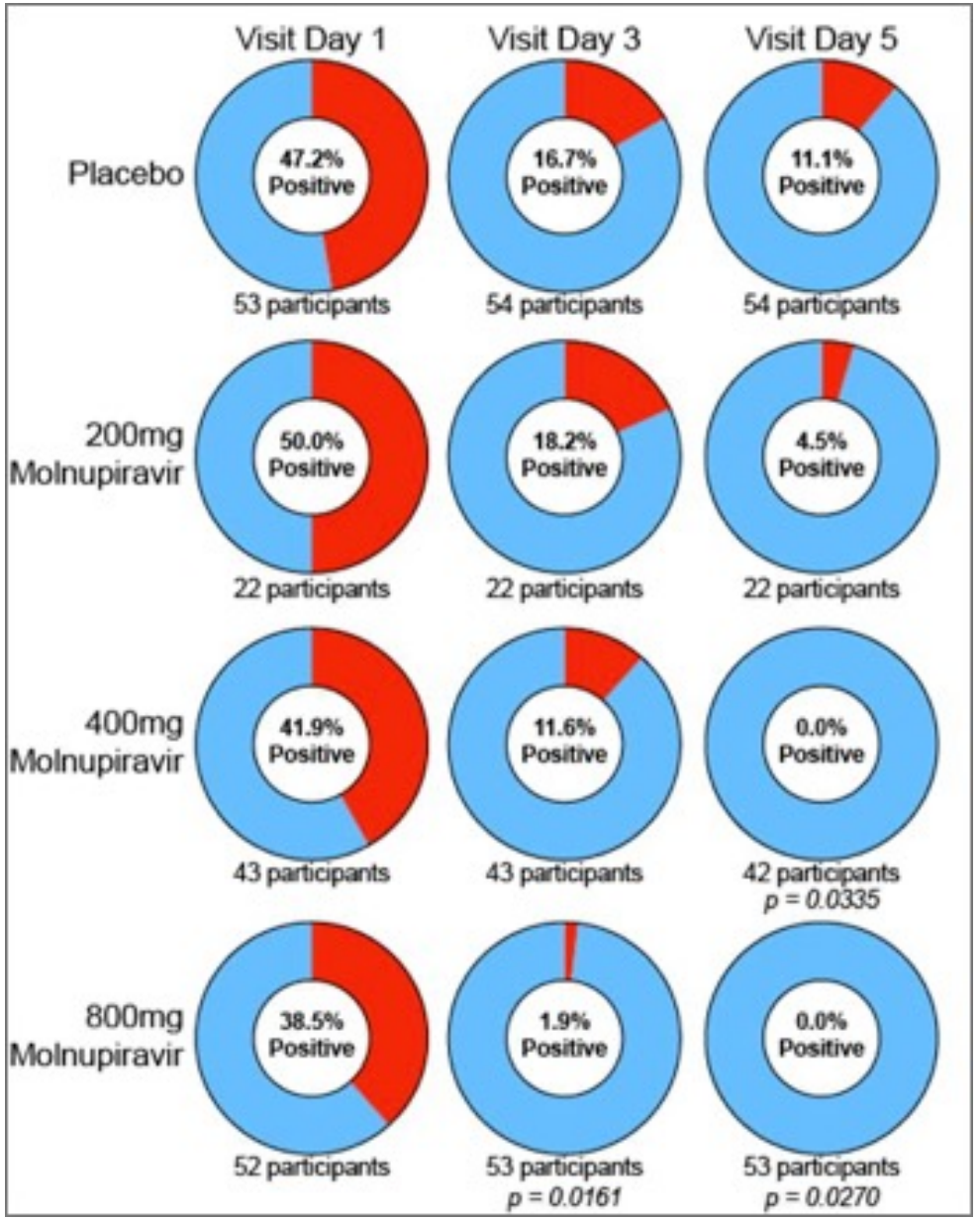
medRxiv
THE PREPRINT SERVER FOR HEALTH SCIENCES

Molnupiravir, an Oral Antiviral Treatment for COVID-19

William Fischer, Joseph J. Eron Jr, Wayne Holman, Myron S. Cohen, Lei Fang, Laura J. Szewczyk, Timothy P Sheahan, Ralph Baric, Katie R. Mollan, Cameron R. Wolfe, Elizabeth R. Duke, Masoud M. Azizad, Katyna Borroto-Esoda, David A. Wohl, Amy James Loftis, Paul Alabanza, Felicia Lipansky, Wendy P. Painter

doi: https://doi.org/10.1101/2021.06.17.21258639

- Phase 2a clinical trial
- Prodrug of ribonucleoside analog -> serves as a competitive substrate for RNA polymerase
  - Once incorporated into viral RNA, induces accumulations of mutations that increase with each viral replication cycle.
- Enrolled outpatients with confirmed SARS-CoV-2 infection and symptom onset within 7 days
- Randomized 1:1 to 200mg molnupiravir or placebo, or 3:1 to molnupiravir (400 or 800mg) or placebo BID x 5 days
- **Among 200 treated participants, virus isolation was significantly lower in 800mg molnupiravir (1.9%) versus placebo (16.7%) at Day 3 (p=0.02)**
- **At Day 5, virus was not isolated from any participants receiving 400 or 800mg molnupiravir versus 11.1% of those receiving placebo (p=0.03)**
- Generally well tolerated, similar adverse events across all groups



Molnupiravir

- The UK's Medicines and Healthcare Products Regulatory Agency approved Merck & Co. and Ridgeback Biotherapeutics' molnupiravir for the treatment of COVID-19 on 11/4 -> first to authorize the use of the oral medication
- Reported to reduce risk of hospitalization and death in at-risk patients.
  - **Phase 3 MOVe-OUT trial – reduced the risk of hospitalization or death by approximately 50%**
    - **7.3% of patients who received molnupiravir were either hospitalized or died through Day 29 following randomization compared with 14.1% of placebo (p=0.0012)**
  - No deaths were reported in patients who received molnupiravir as compared to 8 deaths in patients who received placebo
  - Recruitment was stopped early after 775 patients (full expected 1550)
  - Symptom onset within 5 days of randomization
  - Consistent efficacy across all variants
- Licensed for adults 18 and older who have tested positive for COVID-19 and have at least one risk factor for developing severe disease, such as obesity or heart disease
- Course: Four pills of the drug twice a day for five days
- External advisory committee to FDA to discuss Nov 30, 2021

https://www.merck.com/news/merck-and-ridgebacks-investigational-oral-antiviral-molnupiravir-reduced-the-risk-of-hospitalization-or-death-by-approximately-50-percent-compared-to-placebo-for-patients-with-mild-or-moderat/

PF-07321332 (Paxlovid)+ ritonavir

- 3CL protease inhibitor
- 1219 non-hospitalized adults >18y with COVID-19 at risk of progressing to severe disease
- Interim analysis of phase 2/3 EPIC-HR study **89% reduction in risk of COVID-19 related hospitalization or death from any cause in patients treated with paxlovid compared to placebo within 3 days of symptom onset**, with no deaths in the treatment group.
  - 1% of patients who received Paxlovid were hospitalized through Day 28 following randomization (6/607 hospitalized, with no deaths) compared to 6.7% of patients who received a placebo (41/612 hospitalized with 10 subsequent deaths (p,0.0001).
  - In the overall study population through Day 28, no deaths were reported in patients who received Paxlovid as compared to 10 (1.6%) deaths in patients who received placebo.
- Treatment-emergent adverse events comparable with placebo (19% v 21%, 1881 patients)
  - Most were mild
- **Co-administration with a low dose of ritonavir** helps to slow the metabolism of PF-07321332
- 2 tabs of PF-07321332 + 1 tab ritonavir BID x 5 days
- Applying for EUA

https://www.pfizer.com/news/press-release/press-release-detail/pfizer-seeks-emergency-use-authorization-novel-covid-19

Effect of early treatment with fluvoxamine on risk of emergency care and hospitalisation among patients with COVID-19: the TOGETHER randomised, platform clinical trial

*Gilmar Reis, Eduardo Augusto dos Santos Moreira-Silva, Daniela Carla Medeiros Silva, Lehana Thabane, Aline Cruz Milagres, Thiago Santiago Ferreira, Castilho Vitor Quirino dos Santos, Vitoria Helena de Souza Campos, Ana Maria Ribeiro Nogueira, Ana Paula Figueiredo Guimaraes de Almeida, Eduardo Diniz Callegari, Adhemar Dias de Figueiredo Neto, Leonardo Cançado Monteiro Savassi, Maria Izabel Campos Simplicio, Luciene Barra Ribeiro, Rosemary Oliveira, Ofir Harari, Jamie I Forrest, Hinda Ruton, Sheila Sprague, Paula McKay, Alla V Glushchenko, Craig R Rayner, Eric J Lenze, Angela M Reiersen, Gordon H Guyatt, Edward J Mills, for the TOGETHER investigators**

SSRI and s1Receptor agonist
Potential MOA vs. SARS-CoV-2
- Anti-inflammatory
- Anti-viral
- Anti-platelet?

- Placebo-controlled, randomized, adaptive platform trial in high-risk symptomatic Brazilian adults with a known risk factor for progression to severe disease
- Fluvoxamine 100mg BID x 10 days vs placebo
- Primary outcome
  - Composite endpoint of hospitalization defined as either retention in a COVID-19 emergency setting or transfer to a tertiary hospital due to COVID-19 up to 28 days post-randomization on the basis of intent to treat (ITT)

	Intention-to-treat analysis			Modified intention-to-treat analysis		
	N	n (%)	Relative risk (95% BCI)	N	n (%)	Relative risk (95% BCI)
Fluvoxamine	741	79 (11%)	0·68 (0·52–0·88)	740	78 (11%)	0·69 (0·53–0·90)
Placebo	756	119 (16%)	1 (ref)	752	115 (15%)	1 (ref)

BCI=Bayesian credible interval.

Table 2: **Proportion of primary outcome events and relative risk of hospitalisation defined as either retention in a COVID-19 emergency setting or transfer to tertiary hospital due to COVID-19 for patients allocated fluvoxamine versus placebo**

Per protocol - patients with high level of adherence (>80%)

mITT – received 24h of treatment before a primary outcome event

The Lancet https://doi.org/10.1016/S2214-109X(21)00448-4
https://blogs.jwatch.org/hiv-id-observations/index.php/could-this-be-our-first-effective-inexpensive-widely-available-outpatient-treatment-for-covid-19/2021/08/12/ -- for commentary on initial data

Fluvoxamine

- Trial arm stopped early
- One death in the fluvoxamine group and 12 in the placebo group for the per-protocol population [OR 0.09 ; 95% CI 0.01-0.47]
- No differences in number of treatment emergent adverse events in either group

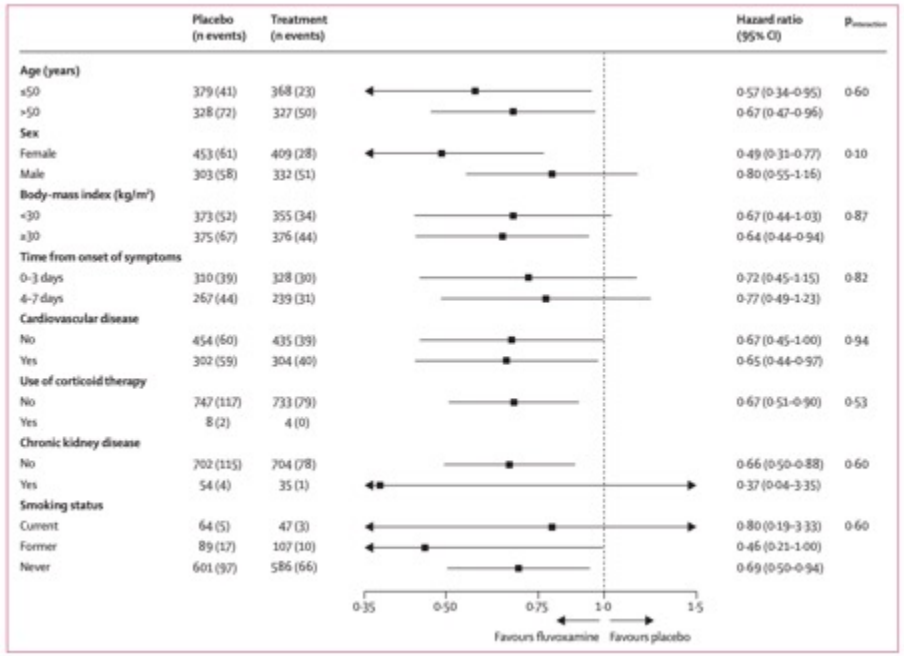


Figure 3: Subgroup analyses of fluvoxamine versus placebo in the TOGETHER Trial

	Fluvoxamine	Placebo	Estimated treatment effect (95% CI)	p value
Viral clearance (day 7)	40/207 (19%)	58/221 (26%)	0·67 (0·42–1·06)*	0·090
Hospitalised for COVID	75/741 (10%)	97/756 (13%)	0·77 (0·55–1·05)*	0·10
All-cause hospitalisation	76/741 (10%)	99/756 (13%)	0·76 (0·58–1·04)*	0·088
Time to hospitalisation, days	5 (3–7)	5 (3–7·5)	0·79 (0·58–1·06)†	0·11
Period of hospitalisation, days	8 (5–13)	6 (3–10·75)	1·23 (0·99–1·53)‡	0·059
Emergency setting visit for at least 6 h	7/741 (1%)	36/756 (5%)	0·19 (0·08–0·41)*	0·0001
Time to the emergency visit for at least 6 h, days	4 (3–7)	5 (3–8·25)	0·20 (0·09–0·44)†	0·002
Death, intention to treat	17/741 (2%)	25/756 (3%)	0·69 (0·36–1·27)*	0·24
Time to death, days	17 (9–21)	14 (8–20)	0·80 (0·43–1·51)†	0·49
Mechanical ventilation	26	34	0·77 (0·45–1·30)	0·33
Time on mechanical ventilator, days	5·5 (3–12·75)	6·5 (2·25–12)	1·03 (0·64–1·67)‡	0·90
Adherence	548/741 (74%)	618/738 (82%)	0·62 (0·48–0·47)*	0·0003
Death, per protocol	1/548 (<1%)	12/618 (2%)	0·09 (0·01–0·47)	0·022
Treatment emergent adverse event				
Grade 1	20/741 (3%)	11/756 (1%)	1·88 (0·91–4·09)*	0·096
Grade 2	72/741 (10%)	81/756 (11%)	0·91 (0·64–1·25)*	0·52
Grade 3	38/741 (5%)	50/756 (7%)	0·76 (0·49–1·18)*	0·22
Grade 4	21/741 (3%)	20/756 (3%)	1·07 (0·58–2·01)*	0·82
Grade 5	18/741 (2%)	26/756 (3%)	0·70 (0·37–1·28)*	0·25

Data are n/N (%) or median (IQR) unless otherwise stated. *Unadjusted odds ratio. †Unadjusted hazard ratio. ‡Exponentiated unadjusted estimates from a log-transformed linear regression.

***Table 3*: Secondary outcomes of fluvoxamine versus placebo in the TOGETHER trial**

Don’t forget about mABs!

Bamlanivimab 700mg plus etesevimab 1400mg IV x 1
OR Casirivimab 600mg plus indevimab 600mg IV or as SC x 1
OR Sotrovimab 500mg IV x 1

- Treatment should be started ASAP and within 10 days of symptom onset

- High risk outpatients with conditions that were represented in patients in clinical trials and other medical conditions and factors that had limited representation in patients in clinical trials
- High risk inpatients with mild to moderate COVID-19 admitted for a reason other than COVID-19
- Available for patients admitted with severe COVID-19 who have not developed an antibody response (or are not expected to mount a response) through expanded access protocols
- As post-exposure prophylaxis (C/I) in high risk persons with significant exposures who are not fully vaccinated or not expected to mount a full immune response to vaccination

COVID-19 Vaccine Booster Shots

Updated Nov. 17, 2021 Languages Print

IF YOU RECEIVED

Pfizer-BioNTech or Moderna

You are eligible for a booster if you are:

- 65 years or older
- Age 18+ who live in long-term care settings
- Age 18+ who have underlying medical conditions
- Age 18+ who work or live in high-risk settings

When to get a booster:
At least 6 months after completing your primary COVID-19 vaccination series

Which booster should you get?
Any of the COVID-19 vaccines authorized in the United States

IF YOU RECEIVED

Johnson & Johnson's Janssen

You are eligible for a booster if you are:
18 years or older

When to get a booster:
At least 2 months after your shot

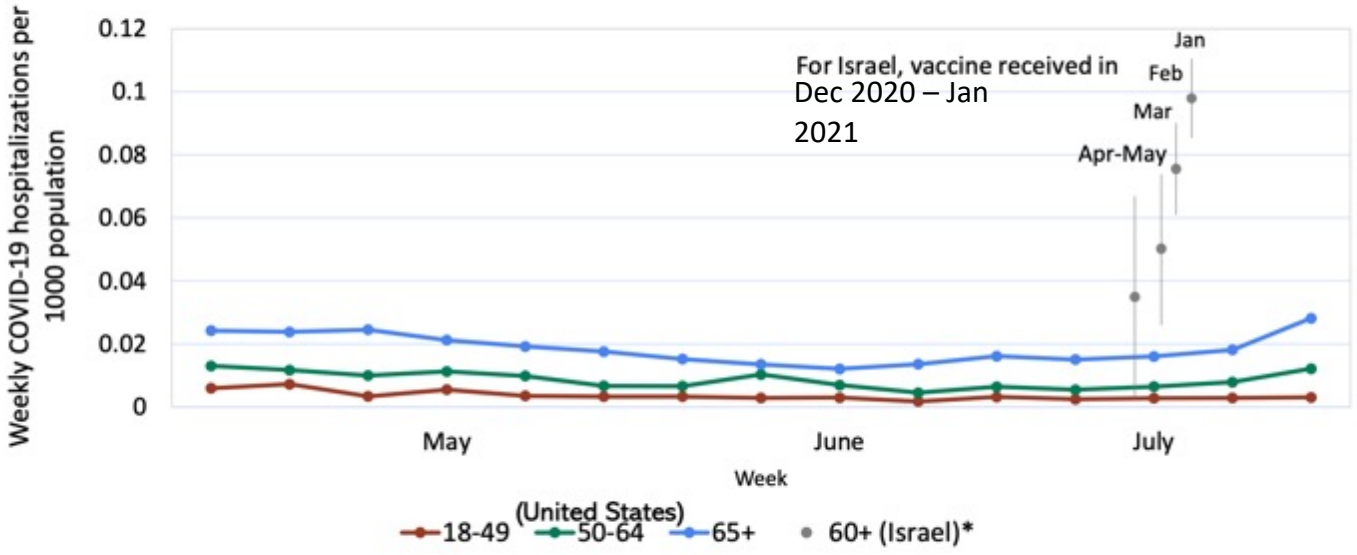
Which booster should you get?
Any of the COVID-19 vaccines authorized in the United States

Awaiting updates on continued expansion as early as 11/19/21!

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html

Vaccine efficacy wanes overtime, especially for older adults

Incidence among vaccinated people, for hospitalization by month in United States and for severe disease by time since 2nd dose in Israel

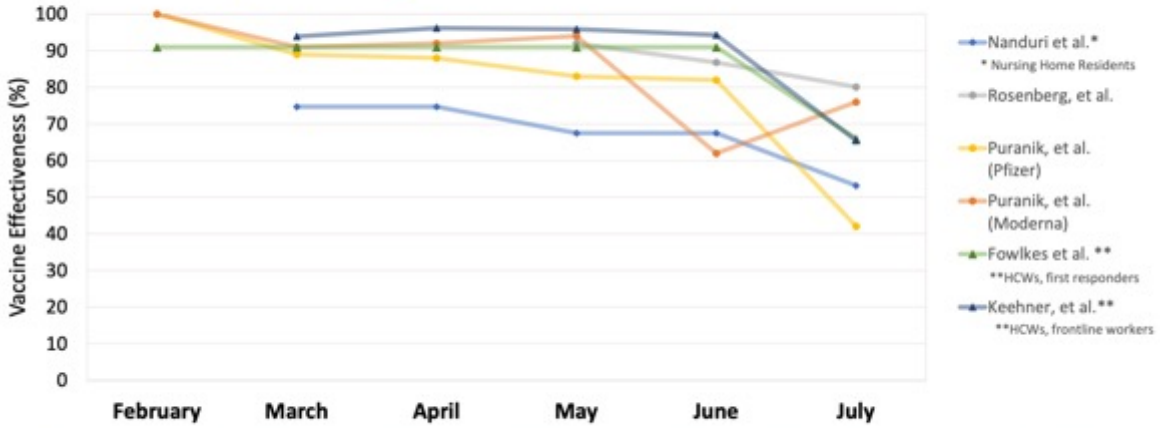


*Israel estimates were derived from rate of severe COVID-19 (per 1,000 persons) from July 11, 2021 to July 31, 2021.
Each data point represents all person stratified by when second dose of COVID-19 vaccine received.

Scobie HM, Johnson AG, Suthar AB, et al. Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021. MMWR Morb Mortal Wkly Rep 2021;70:1284–1290.
Goldberg et al. Waning immunity of the BNT162b2 vaccine: A nationwide study from Israel. https://www.medrxiv.org/content/10.1101/2021.08.24.21262423v1.full-text

Despite declines in VE, especially in older age groups, protection vs. hospitalization remains

Vaccine effectiveness against **infection** over time
Adults ≥18 years of age



Rosenberg ES, Holtgrave DR, Dorabawila V, et al. New COVID-19 Cases and Hospitalizations Among Adults, by Vaccination Status — New York, May 3–July 25, 2021. MMWR Morb Mortal Wkly Rep. ePub: 18 August 2021.
Nanduri S. Effectiveness of Pfizer-BioNTech and Moderna Vaccines in Preventing SARS-CoV-2 Infection Among Nursing Home Residents Before and During Widespread Circulation of the SARS-CoV-2 B.1.617.2 (Delta) Variant — National Healthcare Safety Network, March 1–August 1, 2021. MMWR Morbidity and Mortality Weekly Report. 2021 2021;70.
Fowlkes A, Gaglani M, Groover K, et al. Effectiveness of COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Frontline Workers Before and During B.1.617.2 (Delta) Variant Predominance — Eight U.S. Locations, December 2020–August 2021. MMWR Morb Mortal Wkly Rep. ePub: 24 August 2021.
Puranik A, Lenehan PJ, Silvert E, et al. Comparison of two highly-effective mRNA vaccines for COVID-19 during periods of Alpha and Delta variant prevalence. medRxiv 2021.08.06.21261707.
Keehner J, Horton LE, Binkin NJ et al. Resurgence of SARS-CoV-2 Infection in a Highly Vaccinated Health System Workforce. NEJM, September 1, 2021. DOI: 10.1056/NEJMc2112981

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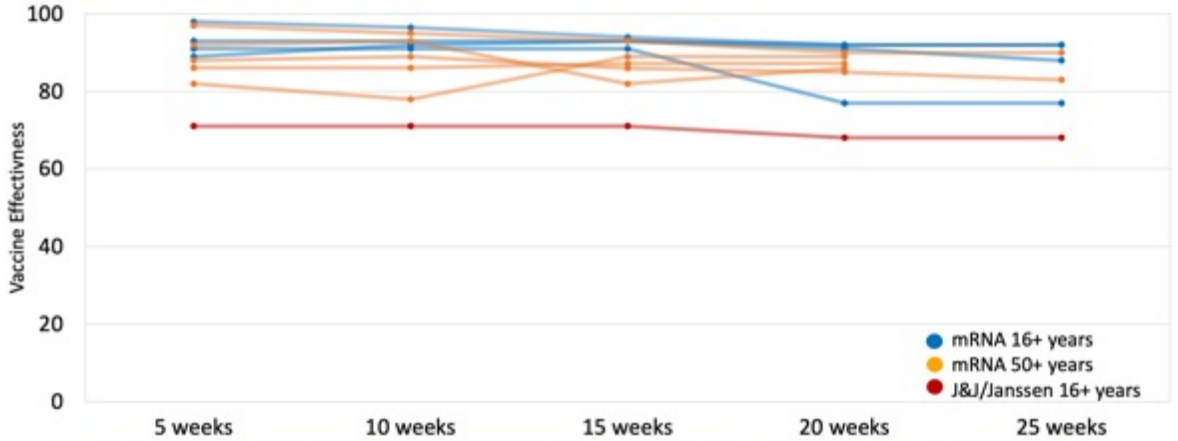
Vaccine effectiveness against **hospitalization** over time
Adults ≥16 years of age



Bajema KL, Dahl RM, Prill MM, et al. Effectiveness of COVID-19 mRNA Vaccines Against COVID-19–Associated Hospitalization — Five Veterans Affairs Medical Centers, United States, February 1–August 6, 2021. MMWR Morb Mortal Wkly Rep.
Thompson MG, Burgess JL, Naleway AL, et al. Prevention and attenuation of Covid-19 with the BNT162b2 and mRNA-1273 vaccines. N Engl J Med 2021;385:320–9.
Self WH, Tenforde MW, Rhoads JP, et al. Comparative Effectiveness of Moderna, Pfizer-BioNTech, and Janssen (Johnson & Johnson) Vaccines in Preventing COVID-19 Hospitalizations Among Adults Without Immunocompromising Conditions — United States, March–August 2021. MMWR Morb Mortal Wkly Rep. ePub: 17 September 2021.
Nunes et al. mRNA vaccines effectiveness against COVID-19 hospitalizations and deaths in older adults: a cohort study based on data-linkage of national health registries in Portugal. MedRXiv preprint.
Andrews et al. Vaccine effectiveness and duration of protection of Comirnaty, Vaxzevria and Spikevax against mild and severe COVID-19 in the UK. Preprint.
Tartof SY, Slezak JM, Fischer H, Hong V, Ackerson BK, Ranasinghe ON, et al. Six-month effectiveness of BNT162b2 mRNA COVID-19 vaccine in a large US integrated health system: a retrospective cohort study.

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https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2021-9-23/03-COVID-Oliver.pdf

Effectiveness of a third dose of the BNT162b2 mRNA COVID-19 vaccine for preventing severe outcomes in Israel: an observational study

Noam Barda*, Noa Dagan*, Cyrille Cohen, Miguel A Hernán, Marc Lipsitch, Isaac S Kohane, Ben Y Reis†, Ran D Balicer†

- Participants receiving a 3rd vaccine dose between 7/30 and 9/23/21 were matched 1:1 to demographically and clinically similar controls who did not receive a third dose.
- Participants received the 2nd vaccine dose at least 5 months before the recruitment date, no prior COVID-19 infection, no contact with healthcare system in 3 days prior to recruitment
- 728,321 individuals included following matching
- Mean age 52y, 51% female

	Vaccinated with two doses		Vaccinated with three doses		1 – risk ratio (95% CI)	Risk difference per 100 000 individuals (95% CI)
	Events	Risk per 100 000 individuals	Events	Risk per 100 000 individuals		
Admission to hospital	231	220·8	29	14·4	93% (88–97)	206·4 (146·1–275·1)
Severe disease	157	158·9	17	12·9	92% (82–97)	145·9 (93·1–207·7)
Death	44	31·9	7	6·1	81% (59–97)	25·8 (13·0–38·5)

Estimates were obtained using the Kaplan-Meier estimator starting from day 7 after receipt of the third dose, in those who received it.

Table 2: **Effectiveness of the third vaccine dose versus two vaccine doses of the BNT162b2 mRNA COVID-19 vaccine**

https://www.thelancet.com/action/showPdf?pii=S0140-6736%2821%2902249-2

Values and Acceptability

- In published surveys completed in August (n=5), **76%-87%** of vaccinated adults reported they would get a booster dose, if available[1-5]
  - In one survey, this increased to 93% of surveyed adults if it was recommended by their primary care provider

No Decrease in Effectiveness of COVID-19, Influenza vaccines when given together

1. Axios Ipsos Poll. August 2, 2021.
2. Axios Ipsos Poll. August 30, 2021.
3. Marist Poll. September 3, 2021. https://maristpoll.marist.edu/polls/npr-pbs-newshour-marist-national-poll-covid-september-3-2021/
4. Morning Consult Poll. August 25, 2021. https://morningconsult.com/2021/08/25/covid-booster-shot-poll/
5. Reuters/Ipsos Poll. September 1, 2021. https://www.reuters.com/business/healthcare-pharmaceuticals/most-vaccinated-americans-want-covid-19-booster-shots-reutersipsos-poll-2021-09-01/

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3931758

Anti-SARS-CoV-2 spike protein antibody responses after vaccination

Condition	Solid Organ Transplant (SOT) Recipient [1,2,3,4]	Autoimmune/ Rheumatic Disease [5]	Cancer [6,7]	Hemodialysis [8]
Incidence of anti-spike antibody response	14%–58%	74%–100%	51%–95%	96%
Risk factors for diminished antibody response	Antimetabolites (e.g., mycophenolate mofetil) Shorter time after transplant Older age	Antimetabolites (e.g., methotrexate) B-cell depletion Corticosteroids	B-cell chronic lymphocytic leukemia (CLL) Older age On therapy Poor disease response	Older age Lower lymphocyte counts
Comment	No clear surge in severe COVID-19 among vaccinated SOT recipients so far	Modest impact of tumor necrosis factor (TNF) inhibitors Lower titers in responders than in healthy controls	Most with solid tumors had good response	Not immuno-compromised, but chronic disease has been associated with weaker response to vaccines

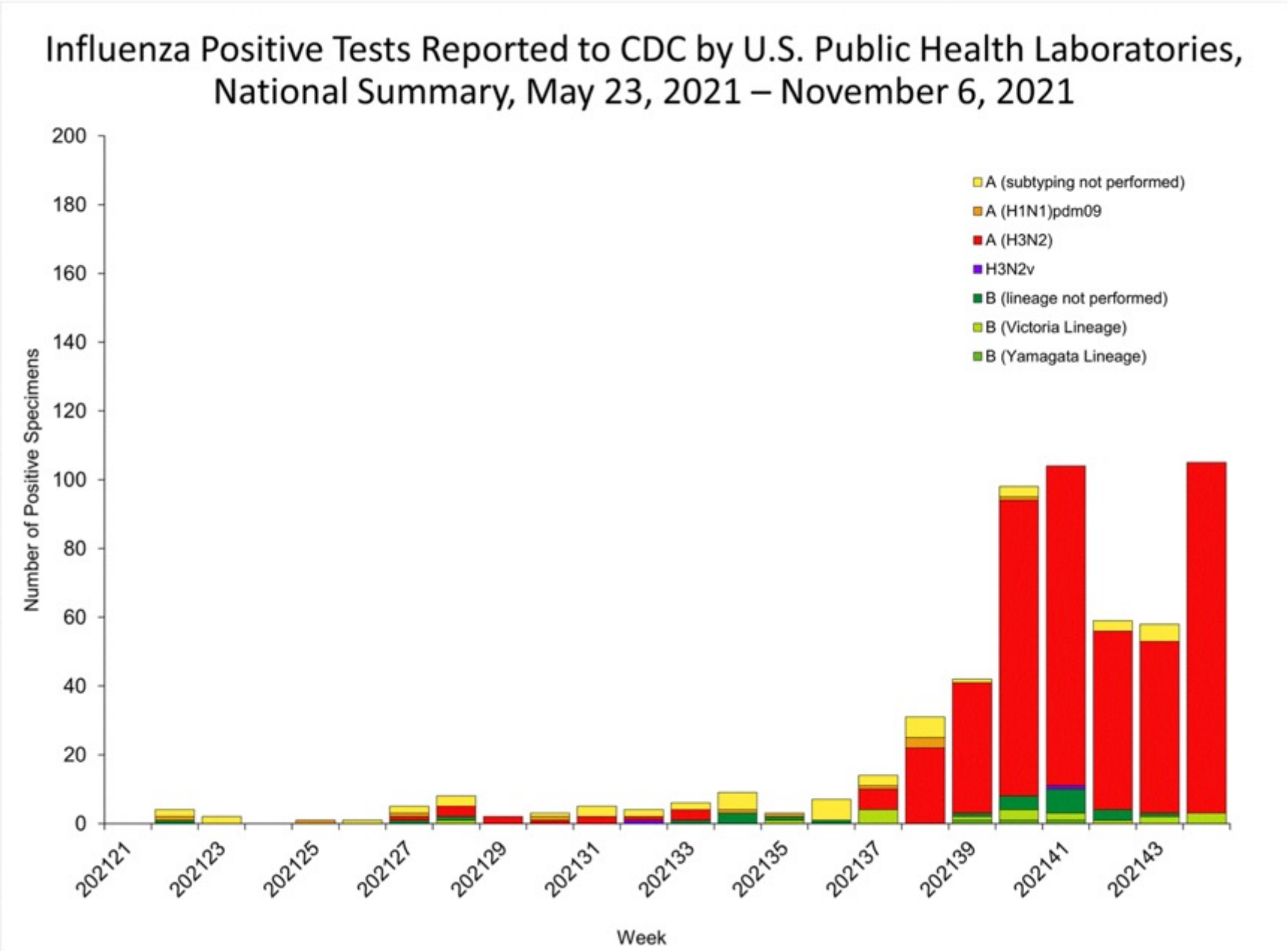
NEJM Journal Watch

Remember! Serologic responses to not reflect potential T-cell responses to vaccines

Kaul D, NEJM Journal Watch, June 2021

Current approach to IC patients

- **Recommendation for a 3rd dose of COVID-19 vaccine in immunocompromised hosts**
- There are no current recommendations in routinely checking spike-protein antibody titers after vaccination
  - **Spike protein Ab (+ after vaccination and natural infection)** vs. nucleocapsid antigen Ab (+ *only* after natural infection)
  - Do not know clinical implications of titers at this time
- Because vaccination may be unreliable in IC patients, behavioral mitigation strategies of masking and social distancing should continue
- **Vaccinate household/close contacts**
- Vaccinate at times of reduced immunosuppression
  - Professional societies have specific guidelines that are evolving



Influenza activity is low nationally, but the numbers of influenza viruses detected by labs has increased in recent weeks
Majority are A (H3N2)
>90% children and young adults ages 5-24

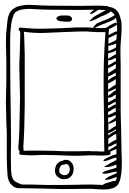
Last updated
Nov 12, 2021

https://www.cdc.gov/flu/weekly/

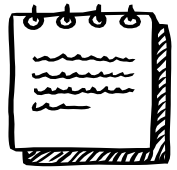
I-VAC
ILLINOIS VACCINATES AGAINST COVID-19

Foundational Training

Learning Collaboratives



Technical Assistance



Toolkit & Outreach Materials

Website: https://www.illinoisvaccinates.com/

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