

# What Can I Do? Confronting Health Misinformation in Digital Media

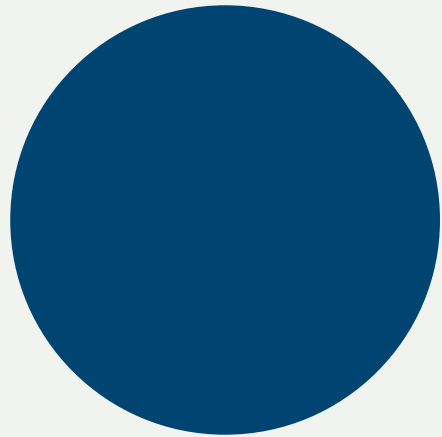
Dr. Emily Vraga, Ph.D.

University of Minnesota



# Presentation highlights

1. Cognitive & social factors shape processing
2. Journalistic norms produce misinformation
3. Social media reinforce misinformation spread



# Why People Believe Misinformation

# Why people believe misinformation

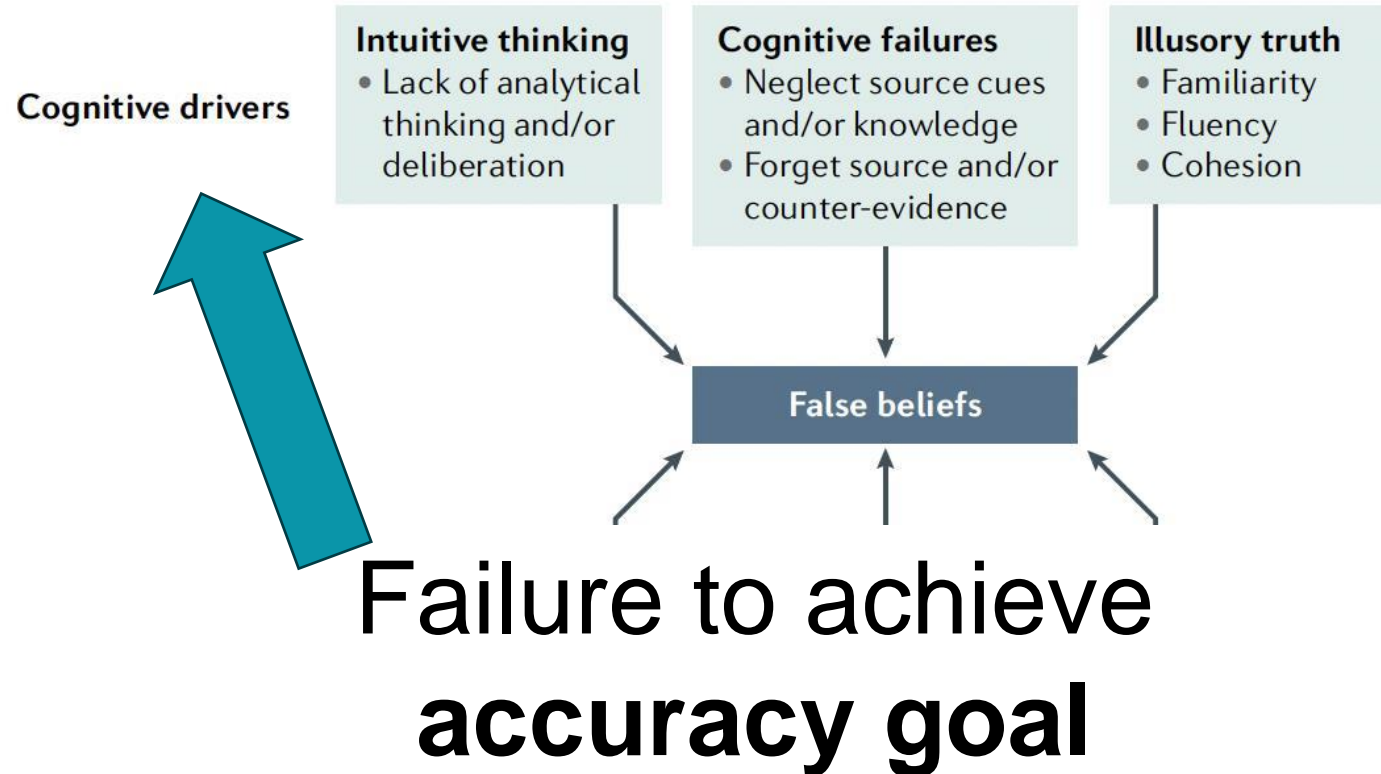


Fig. 1 | **Drivers of false beliefs.** Some of the main cognitive (green) and socio-affective (orange) factors that can facilitate the formation of false beliefs when individuals are exposed to misinformation. Not all factors will always be relevant, but multiple factors often contribute to false beliefs.

Ecker, U. K., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology*, 1(1), 13-29.

# Why people believe misinformation

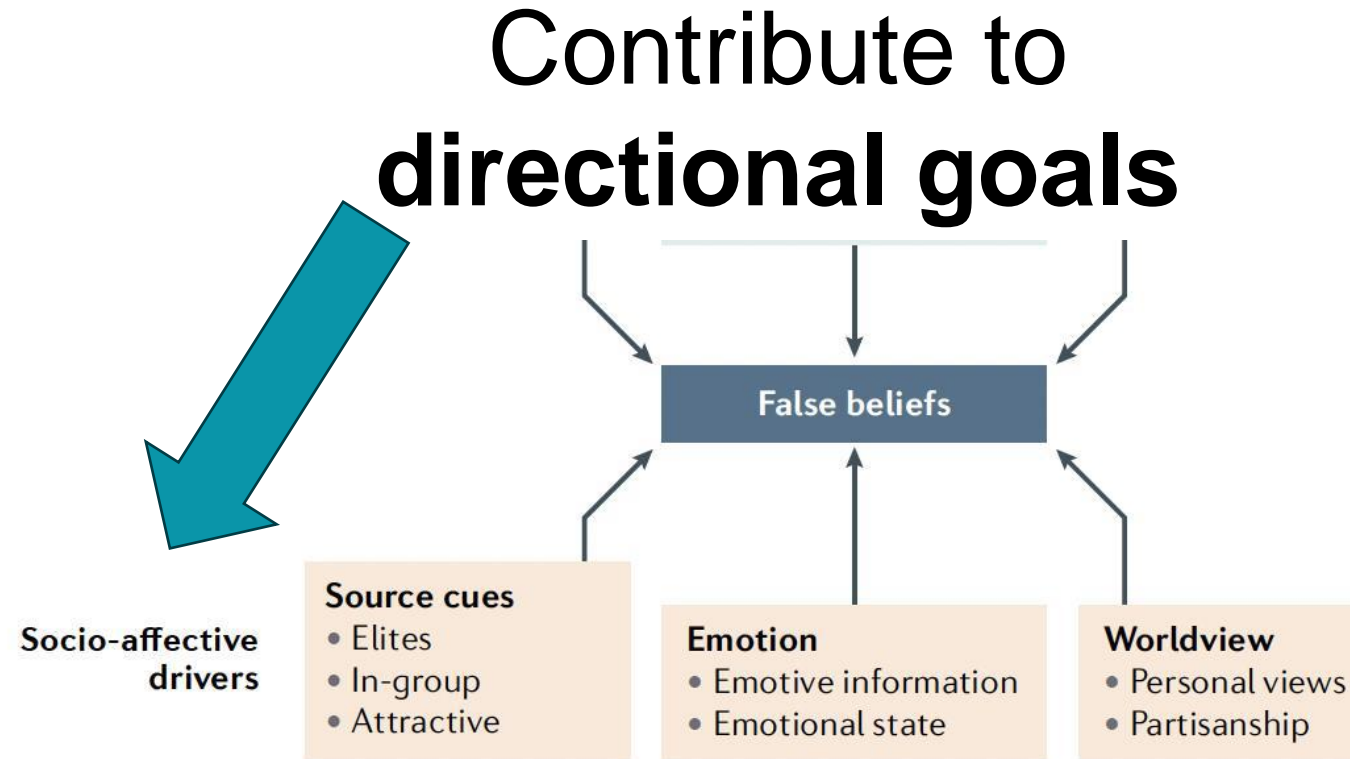


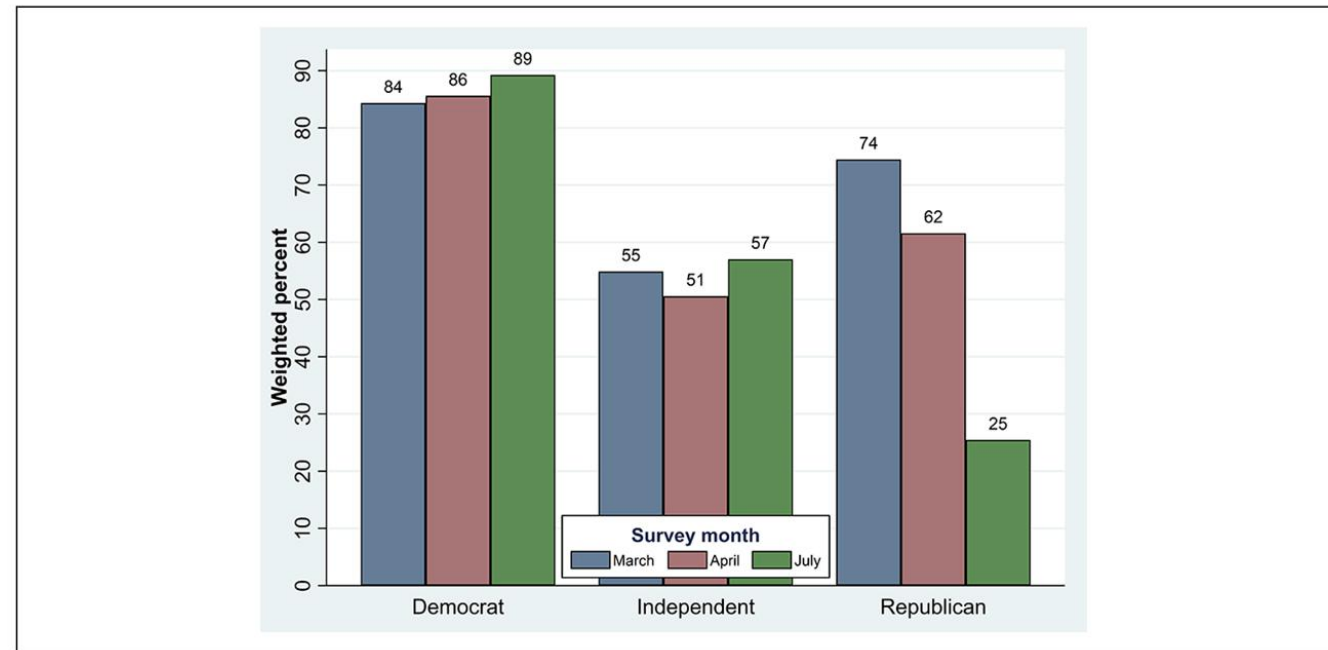
Fig. 1 | **Drivers of false beliefs.** Some of the main cognitive (green) and socio-affective (orange) factors that can facilitate the formation of false beliefs when individuals are exposed to misinformation. Not all factors will always be relevant, but multiple factors often contribute to false beliefs.

Ecker, U. K., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L. K., Brashier, N., Kendeou, P., Vraga, E. K., & Amazeen, M. A. (2022). The psychological drivers of misinformation belief and its resistance to correction. *Nature Reviews Psychology*, 1(1), 13-29.

# Trust as fundamental

- Role of **trust** is centrally important to both goals
- “Misinformation is information that is false, inaccurate, or misleading according to the **best available evidence** at the time”
  - U.S. Surgeon General, 2021
- Who produces the **best available evidence**?

# Distrust



**Figure 4.** Percentage who trust science agencies such as Centers for Disease Control and Prevention for coronavirus information, by survey month and respondent political party.

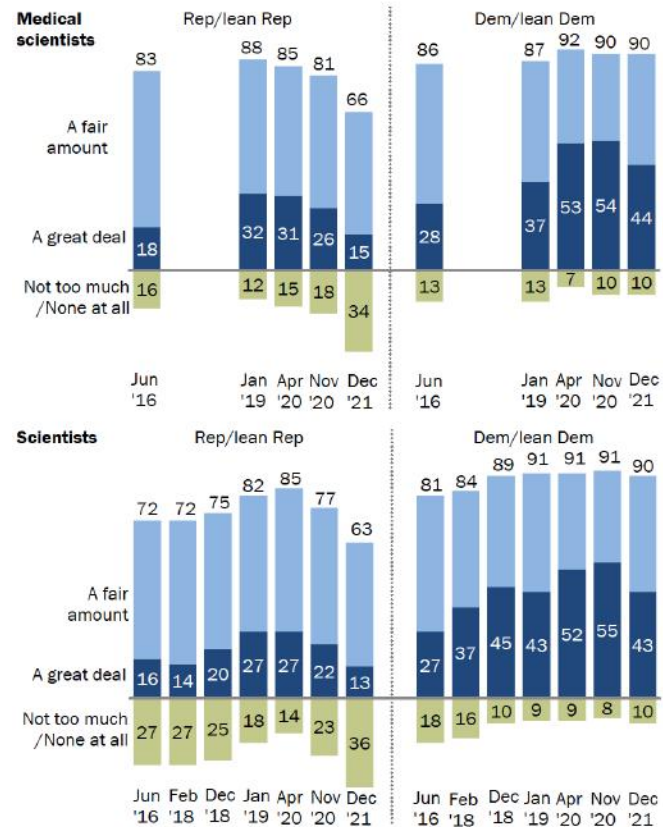
Hamilton, L. C., & Safford, T. G. (2021). Elite cues and the rapid decline in trust in science agencies on COVID-19. *Sociological Perspectives*, 64(5), 988-1011.



# Distrust

## Democrats remain more confident than Republicans in medical scientists; ratings fall among both groups

% of U.S. adults who have \_\_\_\_ of confidence in the following groups to act in the best interests of the public



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted Nov. 30–Dec. 12, 2021.

"Americans' Trust in Scientists, Other Groups Declines"

PEW RESEARCH CENTER



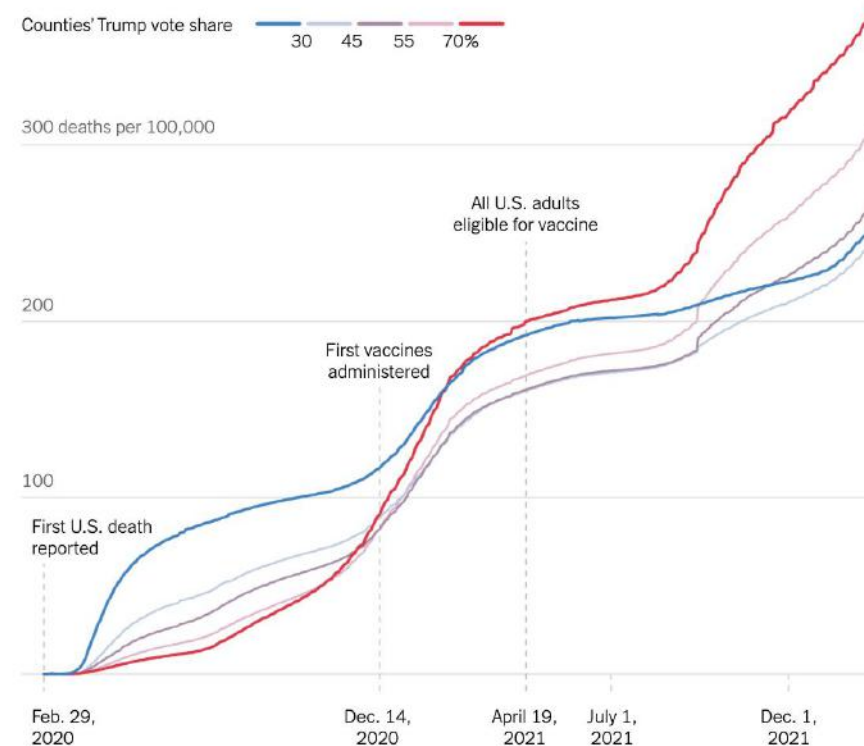
# Distrust and polarization

## *Red Covid, an Update*

The New York Times

The partisan gap in Covid deaths is still growing, but more slowly.

Cumulative U.S. deaths per capita



Note: Data as of Feb. 13, 2022. Sources: New York Times database; Edison Research By Ashley Wu

# 2

## How Journalists and Media Contribute

# Conflict and balance

**The New York Times**

## ***These Health Care Workers Would Rather Get Fired Than Get Vaccinated***

Monday is the vaccination deadline for New York State health care workers. Thousands of refusers have failed to meet it.

State vacc      The dispute is dividing hospitals, where most workers are

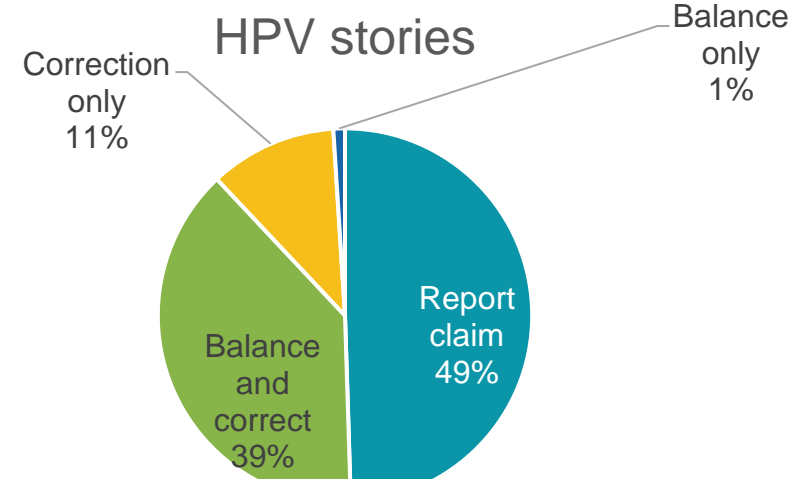
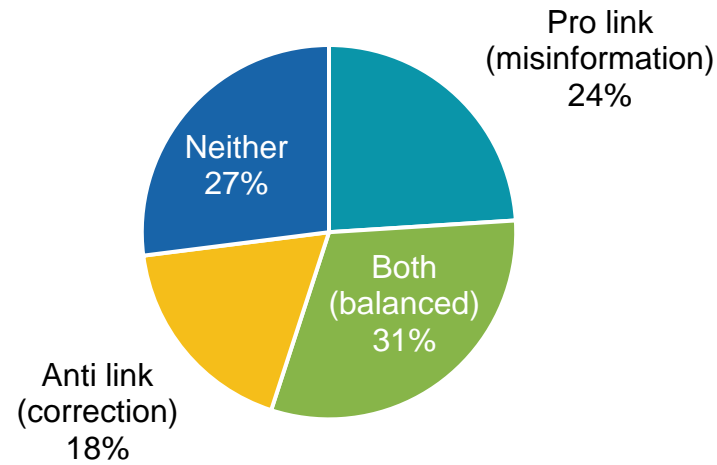
**By Anne Barnard, Grace Ashford and Neil Vigdor**

Published Sept. 26, 2021    Updated Oct. 18, 2021

*Update: As the mandate deadline approached, thousands of resistant health care workers got vaccinated.*

# False balance

Autism stories



HEALTH COMMUNICATION  
2017, VOL. 32, NO. 2, 152-160  
<http://dx.doi.org/10.1080/10410236.2015.1110006>

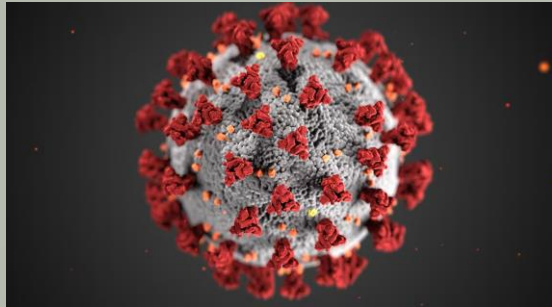


**A Question  
The Autism-  
the British at**  
Christopher E. C  
Cornell University

## False Balance in Public Health Reporting? Michele Bachmann, the HPV Vaccine, and “Mental Retardation”

Ryan J. Thomas<sup>a</sup>, Edson C. Tandoc, Jr.<sup>b</sup>, and Amanda Hinnant<sup>a</sup>

<sup>a</sup>School of Journalism, University of Missouri; <sup>b</sup>Wee Kim Wee School of Communication and Information, Nanyang Technological University

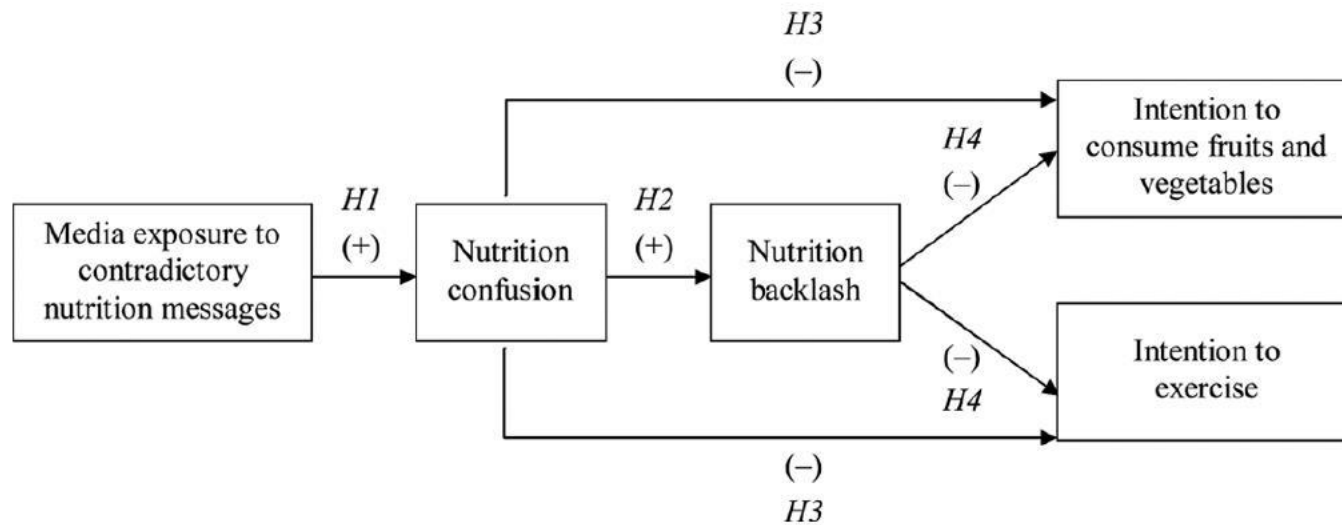


# 72%

Heard at least some conflicting information about  
COVID-19 in April of 2020

Nagler, R. H., Vogel, R. I., Gollust, S. E., Rothman, A. J., Fowler, E. F., & Yzer, M. C. (2020). Public perceptions of conflicting information surrounding COVID-19: Results from a nationally representative survey of US adults. *PloS one*, 15(10), e0240776.

# Conflict leads to backlash



**Figure 1.** Predicted relationships between media exposure to conflicting nutrition information, nutrition confusion, nutrition backlash, and intentions to adhere to healthy lifestyle recommendations (e.g., fruit/vegetable consumption, exercise). H = Hypothesis.

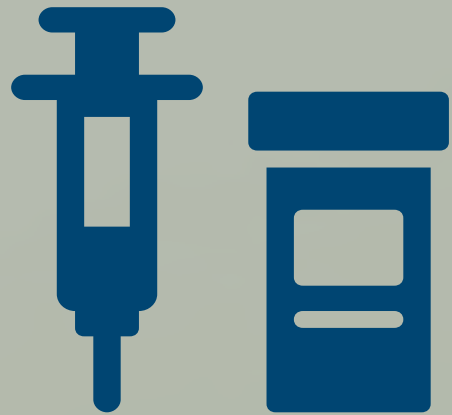
Nagler, R. H. (2014). Adverse outcomes associated with media exposure to contradictory nutrition messages. *Journal of health communication*, 19(1), 24-40.



# 3

## Why Misinformation Spreads Online





33%

Of vaccine content on social media is  
misinformation

# Misinformation is more viral

- Truth takes 6x longer to reach 1500 people
- Misinformation 70% more likely to be retweeted
- Linked to emotionality, novelty of misinformation

# Information overload

My search:  
February 18, 2023

covid-19 vaccine availability for 2 year olds ideal gap fourth booster



All

Shopping

News

Images

Books


More


Tools

About 48,200,000 results (1.05 seconds)

# Information voids and overload

covid-19 Español | Other Languages

 Centers for Disease Control and Prevention  
CDC 24/7: Saving Lives, Protecting People™

 Vaccines

Pfizer-BioNTech

## Find COVID-19 Vaccines

Powered by [VaccineFinder](#)

**New: Updated COVID-19 Vaccines for Children and Adults**

Select the “newly authorized” location near you. If you are a health care provider, see [our booster recommendations](#).

**5-digit Zip Code**

Zip Code

COVID-19

AGE GROUP

6 MONTHS–4 YEARS

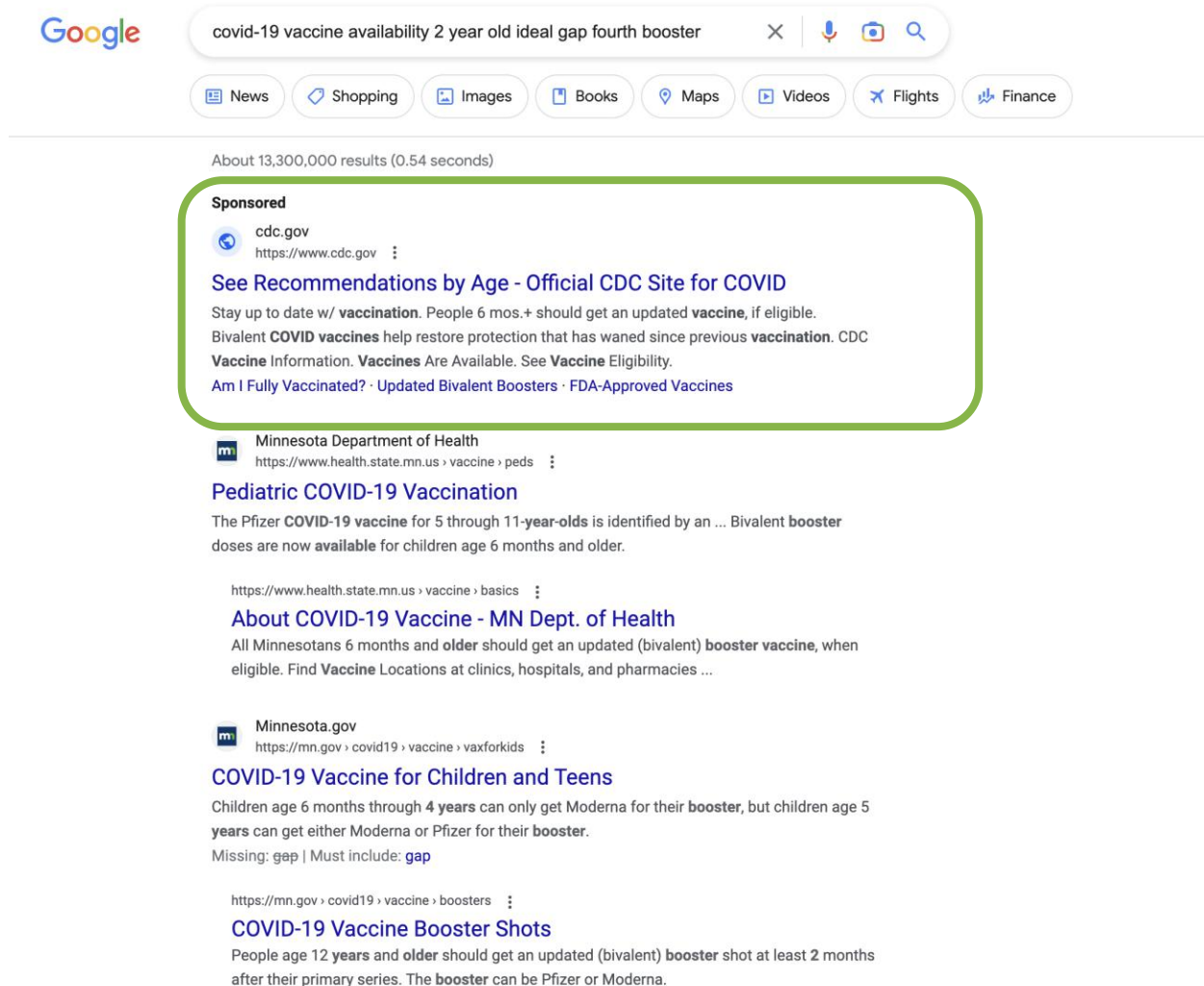
Dose	Series	Timing
1st Dose	Pfizer-BioNTech PRIMARY SERIES	
2nd Dose	Pfizer-BioNTech PRIMARY SERIES	3–8 weeks after 1st dose <b>More details:</b> <a href="#">Getting your 2nd dose</a>
3rd Dose	Pfizer-BioNTech UPDATED PRIMARY SERIES	At least 8 weeks after 2nd dose

**Up to Date:** 2 weeks after 3rd dose; there is not a recommendation for an updated Pfizer-BioNTech booster for this age group  
**More details:** [Staying up to date](#)

**Ad · Prescription Drug**  
**COVID-19 Vaccines**  
See Emergent

**Ad · https://www.cdc.gov**  
**Moderna**

# Changing environment



Google covid-19 vaccine availability 2 year old ideal gap fourth booster

News Shopping Images Books Maps Videos Flights Finance

About 13,300,000 results (0.54 seconds)

**Sponsored**

**cdc.gov**  
https://www.cdc.gov

**See Recommendations by Age - Official CDC Site for COVID**  
Stay up to date w/ **vaccination**. People 6 mos.+ should get an updated **vaccine**, if eligible.  
Bivalent **COVID vaccines** help restore protection that has waned since previous **vaccination**. CDC **Vaccine** Information. **Vaccines** Are Available. See **Vaccine** Eligibility.  
Am I Fully Vaccinated? · Updated Bivalent Boosters · FDA-Approved Vaccines

**Minnesota Department of Health**  
https://www.health.state.mn.us > vaccine > peds

**Pediatric COVID-19 Vaccination**  
The Pfizer **COVID-19 vaccine** for 5 through 11-year-olds is identified by an ... Bivalent **booster** doses are now **available** for children age 6 months and older.

https://www.health.state.mn.us > vaccine > basics

**About COVID-19 Vaccine - MN Dept. of Health**  
All Minnesotans 6 months and **older** should get an updated (bivalent) **booster vaccine**, when eligible. Find **Vaccine** Locations at clinics, hospitals, and pharmacies ...

**Minnesota.gov**  
https://mn.gov > covid19 > vaccine > vaxforkids

**COVID-19 Vaccine for Children and Teens**  
Children age 6 months through 4 years can only get Moderna for their **booster**, but children age 5 years can get either Moderna or Pfizer for their **booster**.  
Missing: **gap** | Must include: **gap**

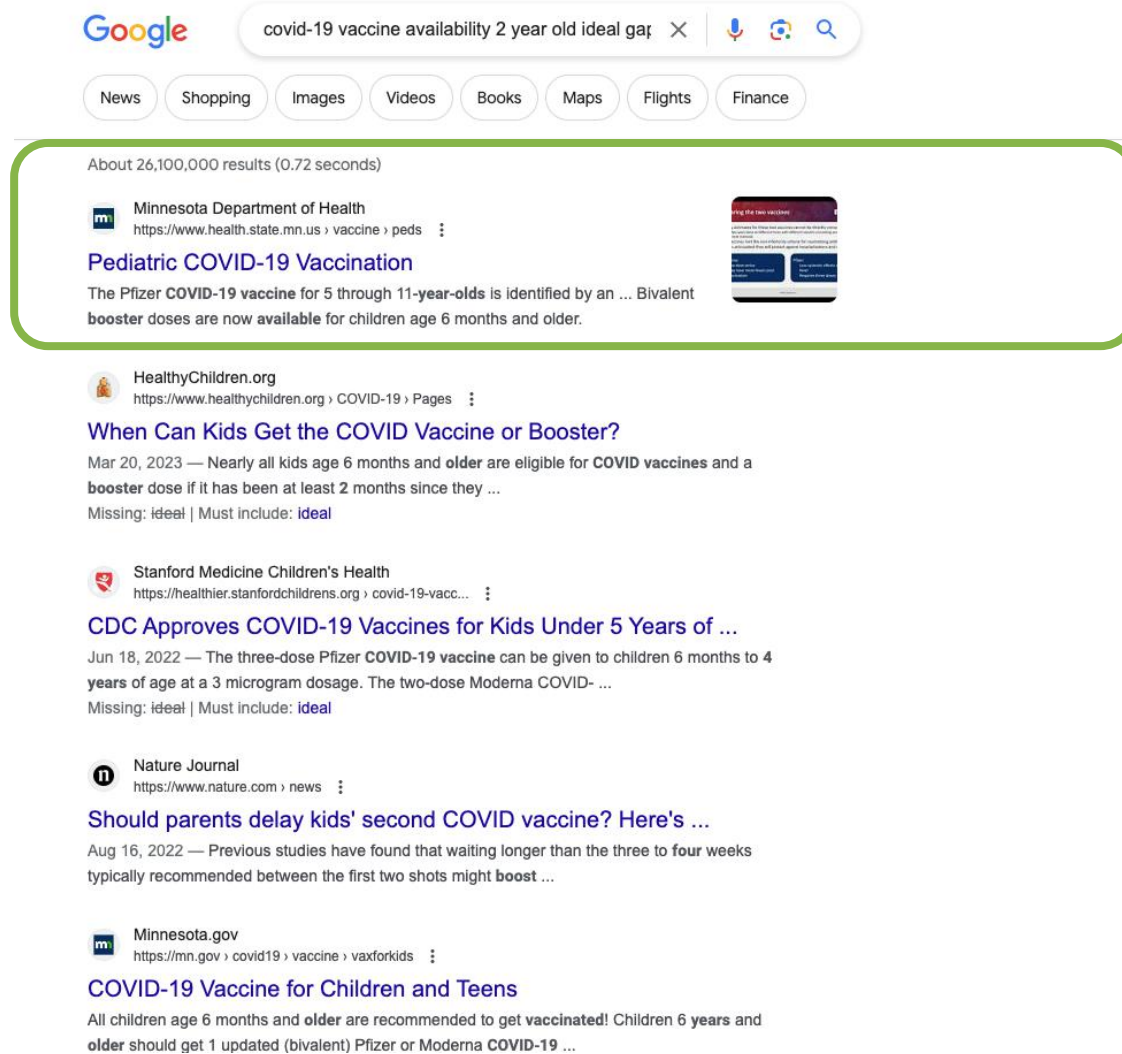
https://mn.gov > covid19 > vaccine > boosters

**COVID-19 Vaccine Booster Shots**  
People age 12 years and **older** should get an updated (bivalent) **booster** shot at least 2 months after their primary series. The **booster** can be Pfizer or Moderna.

My search:  
April 3, 2023

# Changing environment

My search:  
May 15, 2023  
Incognito



Google covid-19 vaccine availability 2 year old ideal gap

News Shopping Images Videos Books Maps Flights Finance

About 26,100,000 results (0.72 seconds)

**Minnesota Department of Health**  
https://www.health.state.mn.us › vaccine › peds

### Pediatric COVID-19 Vaccination

The Pfizer COVID-19 vaccine for 5 through 11-year-olds is identified by an ... Bivalent booster doses are now available for children age 6 months and older.

**HealthyChildren.org**  
https://www.healthychildren.org › COVID-19 › Pages

### When Can Kids Get the COVID Vaccine or Booster?

Mar 20, 2023 — Nearly all kids age 6 months and older are eligible for COVID vaccines and a booster dose if it has been at least 2 months since they ...  
Missing: ideal | Must include: ideal

**Stanford Medicine Children's Health**  
https://healthier.stanfordchildrens.org › covid-19-vacc...

### CDC Approves COVID-19 Vaccines for Kids Under 5 Years of ...

Jun 18, 2022 — The three-dose Pfizer COVID-19 vaccine can be given to children 6 months to 4 years of age at a 3 microgram dosage. The two-dose Moderna COVID- ...  
Missing: ideal | Must include: ideal

**Nature Journal**  
https://www.nature.com › news

### Should parents delay kids' second COVID vaccine? Here's ...

Aug 16, 2022 — Previous studies have found that waiting longer than the three to four weeks typically recommended between the first two shots might boost ...

**Minnesota.gov**  
https://mn.gov › covid19 › vaccine › vaxforkids

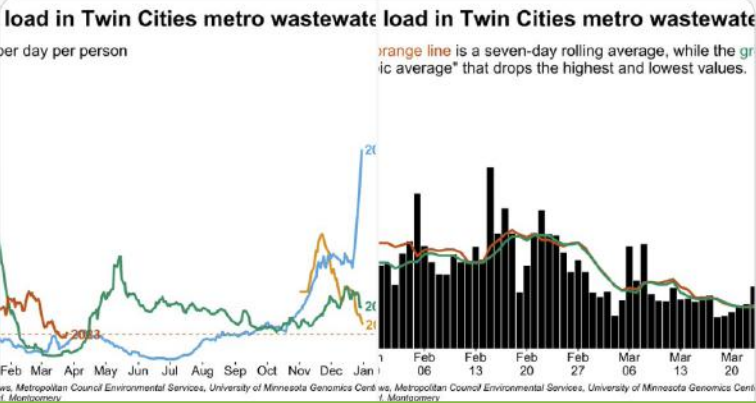
### COVID-19 Vaccine for Children and Teens

All children age 6 months and older are recommended to get vaccinated! Children 6 years and older should get 1 updated (bivalent) Pfizer or Moderna COVID-19 ...

# Source cues

**David H. Montgomery** @dhmontgomery · 4h

I was a little busy last Friday, but the latest COVID data shows levels in Twin Cities wastewater generally trending down. A slight bump at the tail end, but looking at daily figures there's good reason to believe this is just noise & that the trend remains down.



load in Twin Cities metro wastewater load in Twin Cities metro wastewater  
per day per person

orange line is a seven-day rolling average, while the blue line is the daily average\* that drops the highest and lowest values.

Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan 1 Feb 06 Feb 13 Feb 20 Feb 27 Mar 06 Mar 13 Mar 20

1 2 36 4,044

**Chief Nerd** @TheChiefNerd · 58m

"Perhaps the most extraordinary thing about this state of affairs is that most Americans don't know it's happening. Every day, young people are dying from heart attacks, strokes, and seizures caused by COVID-19 vaccines. Most of their families and friends are led to believe..."



EPOCH HEALTH

### Analysis: COVID Vaccines Caused 300,000 Excess Deaths in 2022 Alone

HEALTH VIEWPOINTS

John Leake  
Dr. Peter A. McCullough, MD  
Apr 1 2023

23 537 1,007 53.8K

Show this thread

My search:  
February 18, 2023

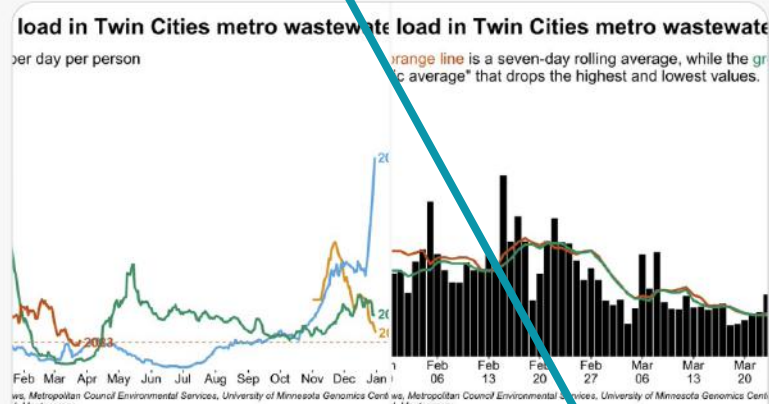


# Changing environment

My search:  
February 18, 2023

**David H. Montgomery** @dhmontgomery · 4h

I was a little busy last Friday, but the latest COVID data shows levels in Twin Cities wastewater generally trending down. A slight bump at the tail end, but looking at daily figures there's good reason to believe this is just noise & that the trend remains down.




load in Twin Cities metro wastewater load in Twin Cities metro wastewater  
per day per person  
orange line is a seven-day rolling average, while the green line is a 30-day rolling average\* that drops the highest and lowest values.

1 2 36

**Chief Nerd** @TheChiefNerd · 58m

"Perhaps the most extraordinary thing about this state of affairs is that most Americans don't know it's happening. Every day, young people are dying from heart attacks, strokes, and seizures caused by COVID-19 vaccines. Most of their families and friends are led to believe...



**EPOCH HEALTH**

### Analysis: COVID Vaccines Caused 300,000 Excess Deaths in 2022 Alone

HEALTH VIEWPOINTS

John Leake  
Dr. Peter A. McCullough, MD  
Apr 1 2023

77 53.8K

**BREAKING**

## Twitter Launches \$8-A-Month Blue Check Days After Musk's Promise

**Brian Bushard** Forbes Staff  
*I cover breaking news for Forbes*

Follow

# What can we do?

- **Promoting** high quality information
  - Especially scientific consensus
- **Prebunking** common misinformation techniques and claims
- **Debunking** circulating misinformation
  - Leveraging community networks



# Thank you

Emily Vraga

Hubbard School of Journalism  
and Mass Communication,

University of Minnesota

[ekvraga@umn.edu](mailto:ekvraga@umn.edu)



# Acknowledgments

- Overall support for the HIV Prevention Trials Network (HPTN) is provided by the National Institute of Allergy and Infectious Diseases (NIAID), Office of the Director (OD), National Institutes of Health (NIH), National Institute on Drug Abuse (NIDA), the National Institute of Mental Health (NIMH), and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) under Award Numbers UM1AI068619-17 (HPTN Leadership and Operations Center), UM1AI068617-17 (HPTN Statistical and Data Management Center), and UM1AI068613-17 (HPTN Laboratory Center).
- The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.