Humanity and the science of our current public health situation

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Yale SCHOOL OF PUBLIC HEALTH

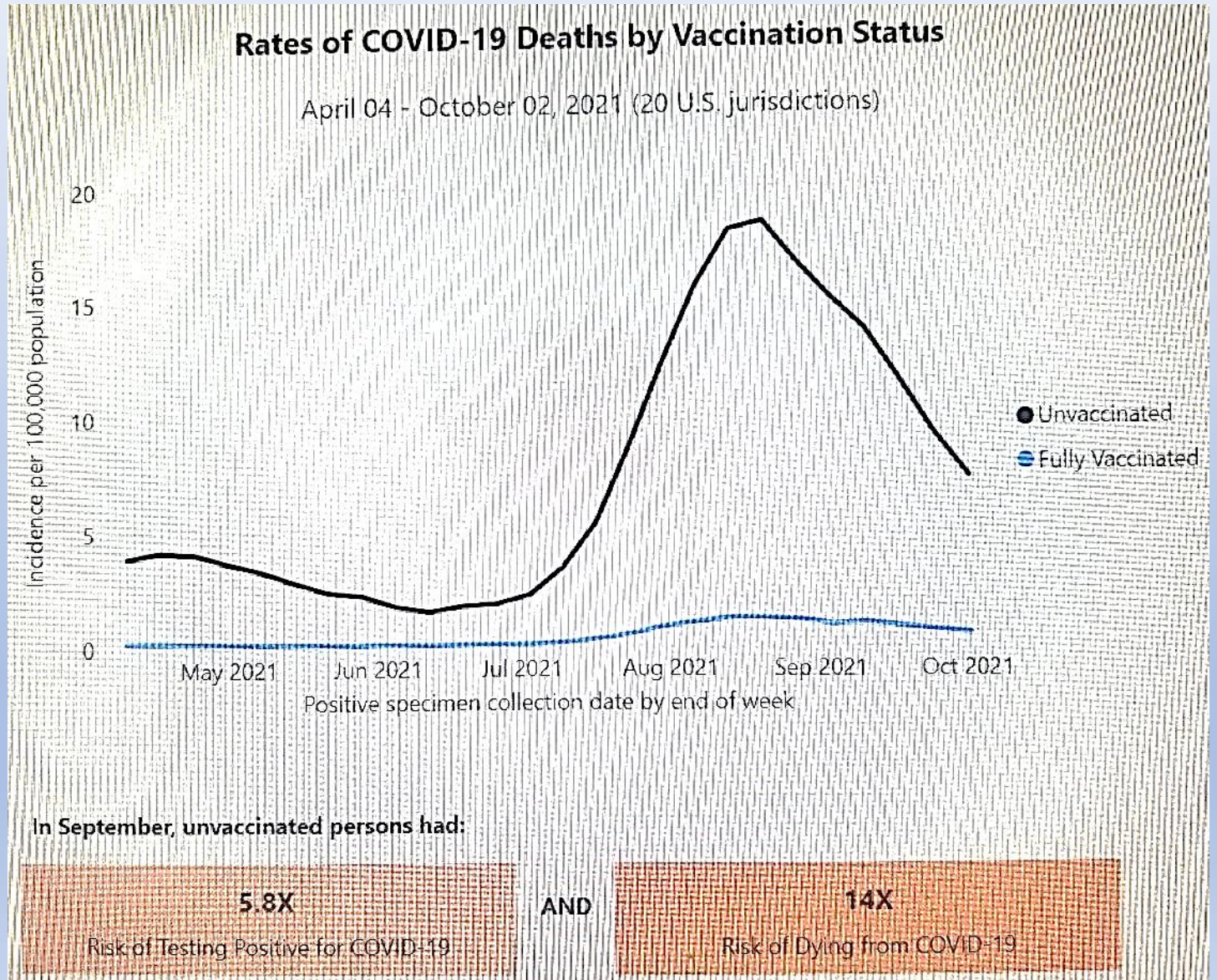
Yale Class of ’60 Tuesday Tea
December 2021

Controlling for population differences, COVID-19 has killed about 50% as many persons as in the 1918-1919 influenza pandemic (would be higher if not for prevention, vaccine, & treatment successes)

- COVID-19 with 809,000 deaths as of Dec. 6, 2021
- CDC estimates 675,000 deaths from 1918-1919 flu

USA death by vaccine status data from CDC

through Oct. 2, 2021, as of Dec. 7, 2021



Deaths now 95%+ in the unvaccinated

More than 95% of the 443 people under age 60 who have died from COVID-19 in Kentucky since early July were unvaccinated….

Of 443 people who died, only 21 had been inoculated.

https://www.kentucky.com/news/coronavirus/article254827797.html#storylink=cpy
Lexington Herald-Leader Oct. 7, 2021

Public spaces, e.g., schools & the arts - the COVID-19 era

Crowding

Mixing

Oversight

Adherence

Education

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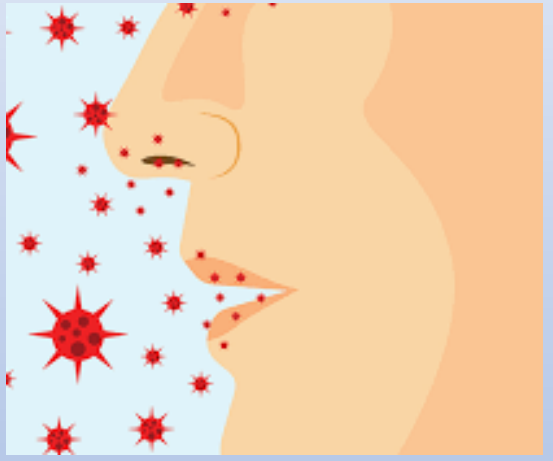
What's new?

- Mask and Vaccine effectiveness in real world conditions
  - Efficacy
  - Coverage
- Utility of other measures
  - Surface cleansing
  - Physical distancing
- Variants of Concern
  - Delta
  - Omicron
- What does the crystal ball say about the impact of all of this?
  - Public spaces
  - Risk for the aged
  - Risk for the unvaccinated

COVID-19 mRNA vaccines remarkably effective!

- ***Breakthrough infections are rare:***
  - Real-world (HEROES) study of 4,000 healthcare and essential workers: 161 infections in the unvaccinated workers, compared with 3 infections in fully vaccinated people, a 57:1 ratio
  - Overall in the USA, CDC estimates 11:1 ratio

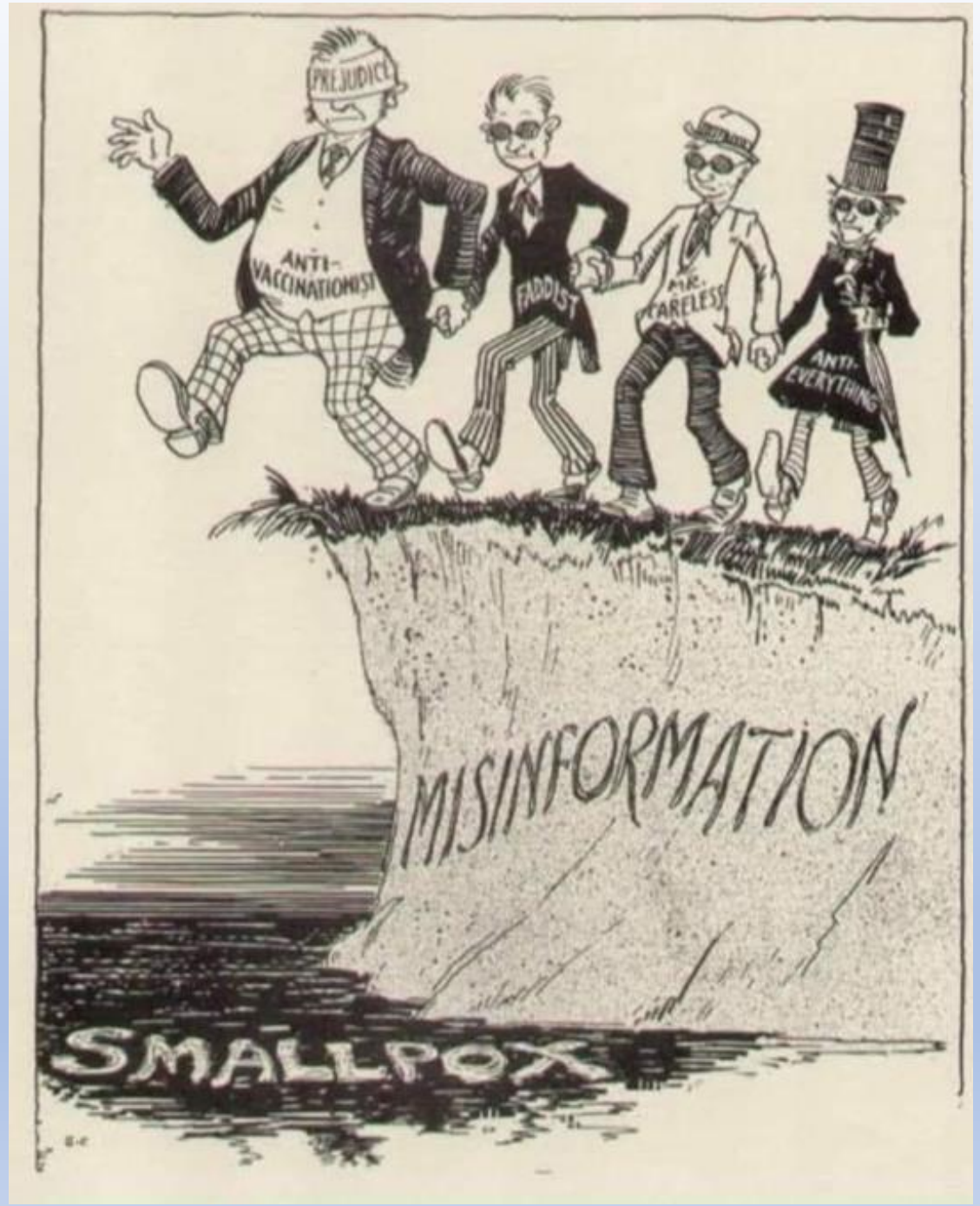
- ***Serious breakthrough infections are EXTREMELY rare***
  - Death rates in fully vaccinated people from COVID-19 are <0.001%
  - CDC: 199.3 of 330 million Americans (60%) fully vaccinated as of Dec. 7, 2021
  - 471,700,443 Total Vaccine Doses Administered
  - 47.0 million (14%) have received a booster dose as of Dec. 7, 2021



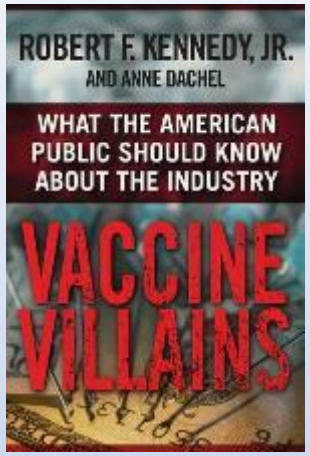
- ***Vaccinated individuals are unlikely to pass the virus on to unvaccinated individuals, though Delta and Omicron are more transmissible***

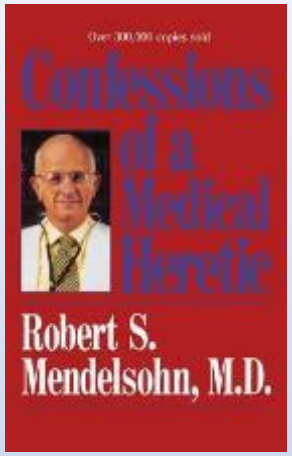
- ***Vaccines protect against infection with all known "variants of concern", though we need more data***

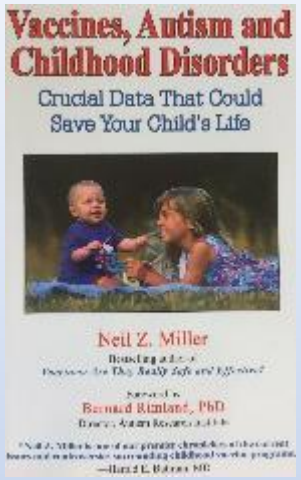
Refs: Thompson MG et al. *MMWR* 2021; 70(13):495-500.
Levine-Tiefenbrun M et al. *Nature Med* 2021:27:790–2
Keehner J et al. *N Engl J Med* 2021. PMID: 34469645
Stamatatos L et al. *Science* 2021; PMID: 33766944
Skelly DT et al. *Nat Commun* 2021;12(1):5061.
Geers D et al. *Sci Immunol* 2021;6:eabj1750.
Tarke A et al. *Cell Rep Med* 2021;2:100355

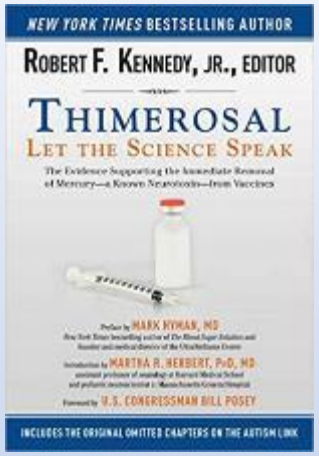


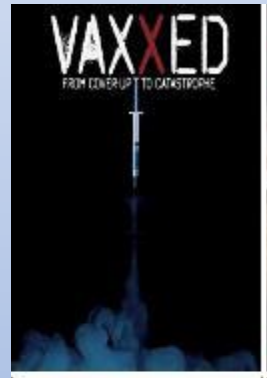
Vaccine confidence issues/Vaccine hesitancy are also no surprise

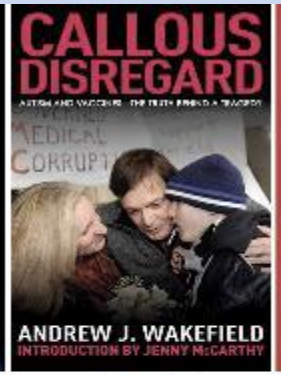


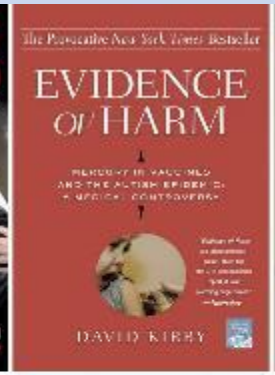


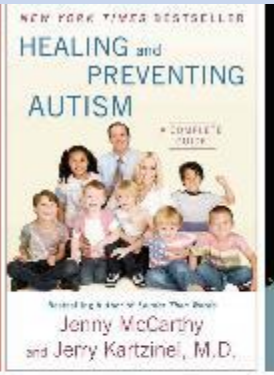


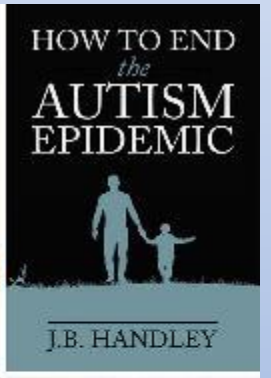


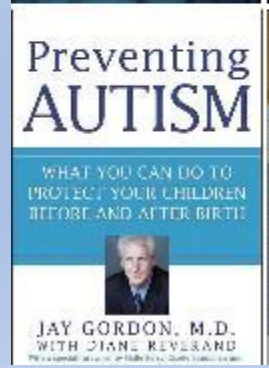


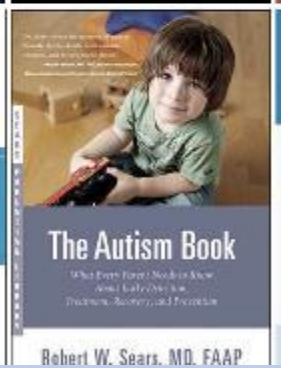


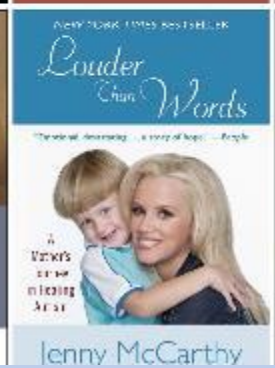


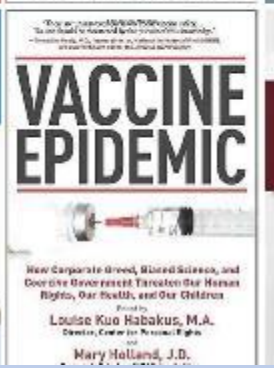


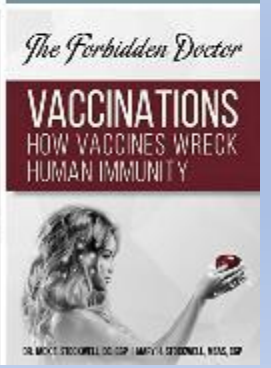












Vaccine enthusiasm vs. hesitancy

- If a coronavirus vaccine is determined to be safe by scientists and is available for free to everyone who wanted it, would you
  - definitely get it
  - probably get it
  - probably not get it
  - definitely not get it?

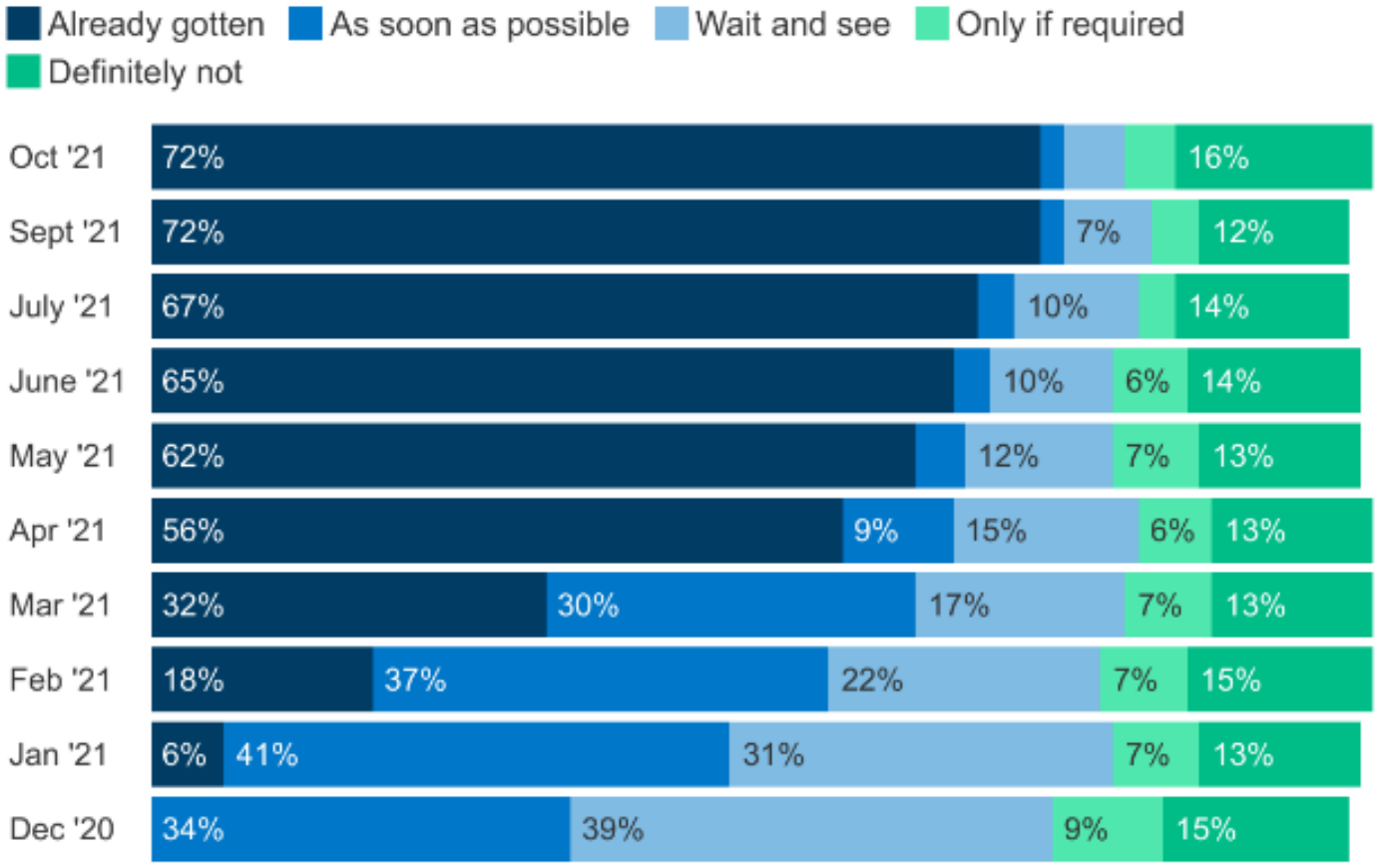
REF: *KFF COVID-19 Vaccine Monitor*

Began in December 2020; Most recent survey October 2021

https://www.kff.org/coronavirus-covid-19/poll-finding/kff-covid-19-vaccine-monitor-october-2021/

One In Five Adults Continue To Say They Will Definitely Not Get The COVID-19 Vaccine Or Will Only Do So If Required

Have you personally received at least one dose of the COVID-19 vaccine, or not? As you may know, an FDA-authorized vaccine for COVID-19 is now available for free to all adults in the U.S. Do you think you will…?



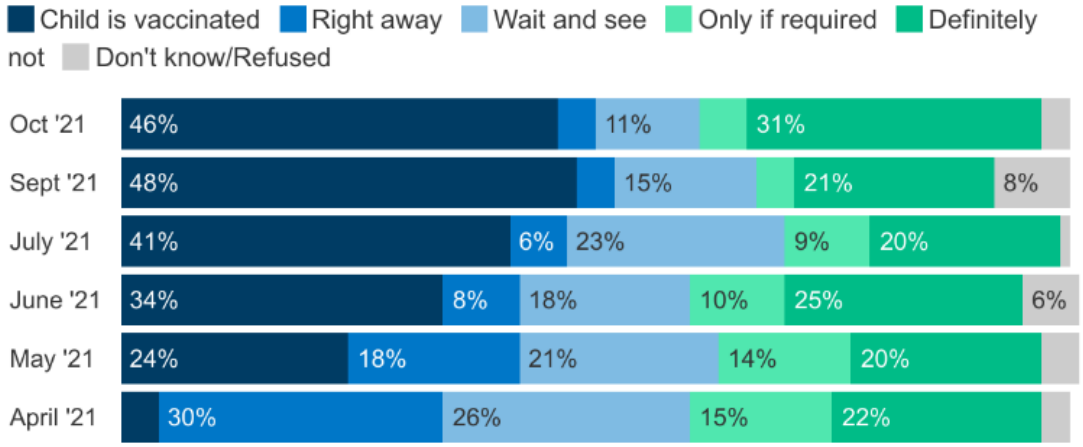
NOTE: December 2020 survey did not have an option for respondents to indicate they had already been vaccinated. Jan-Apr 2021 question wording: "When an FDA authorized vaccine for COVID-19 is available to you for free, do you think you will…?" See topline for full question wording.

KFF COVID-19 Vaccine Monitor

Figure 4

Nearly Half Of Parents Say Their 12-17 Year Old Has Gotten The Vaccine, Yet About Three In Ten Say They Won't Get Their Teen Vaccinated

Thinking about your child between the ages of 12 and 17, have they received at least one dose of a COVID-19 vaccine, or not? IF NOT: As you may know, the FDA has authorized the Pfizer COVID-19 vaccine for use in children ages 12 and up. Thinking about your child between the ages of 12 and 17, do you think you will get them vaccinated...?



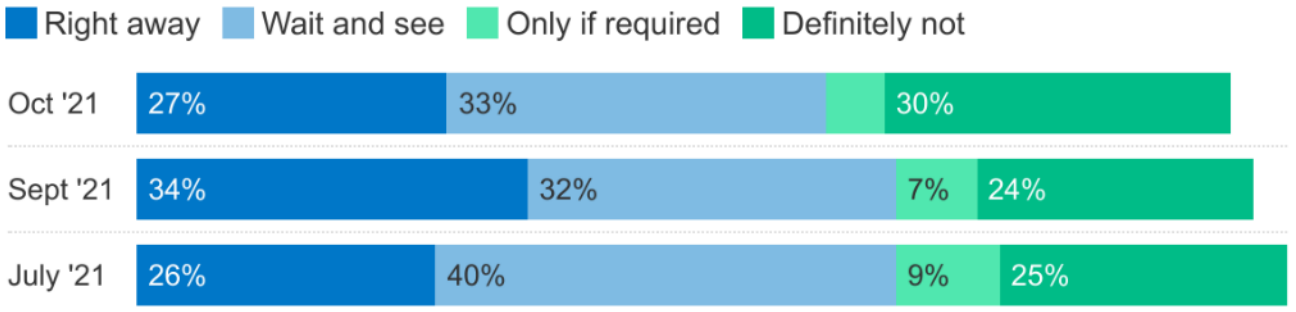
NOTE: Among parents or guardians of children ages 12-17. April 2021 question wording: "Once there is a COVID-19 vaccine authorized and available for your child's age group, do you think you will…?" See topline for full question wording.
SOURCE: KFF COVID-19 Vaccine Monitor

KFF COVID-19 Vaccine Monitor

Figure 1

Three In Ten Parents Say They Will Definitely Not Get Their 5 To 11 Year Old Vaccinated

Thinking about your child **between the ages of 5 and 11**, once there is a COVID-19 vaccine authorized and available for your child's age group, do you think you will get them vaccinated…?

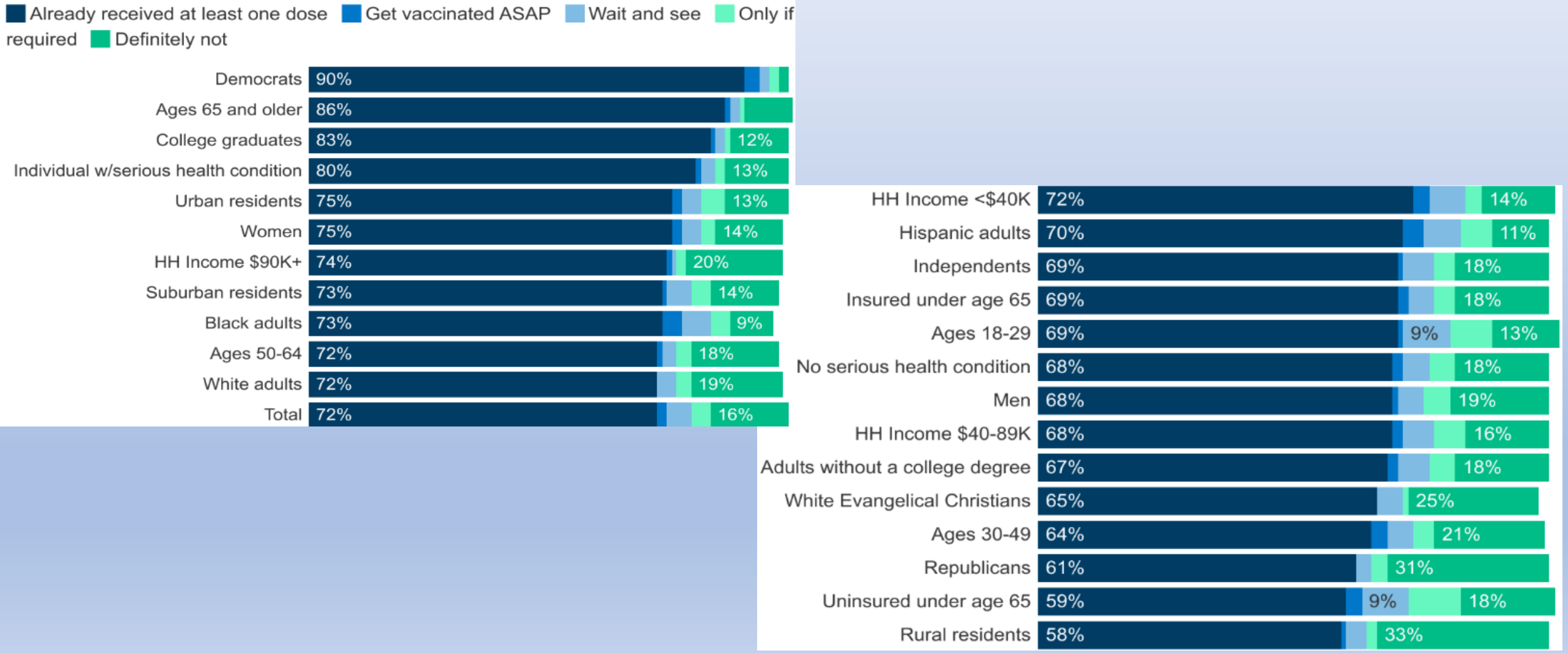


NOTE: Among parents or guardians of children ages 5-11. See topline for full question wording.
SOURCE: KFF COVID-19 Vaccine Monitor

KFF COVID-19 Vaccine Monitor

Large Gaps In Vaccine Uptake Remain Across Partisans, Educational Attainment, Age, And Community Type

Have you personally received at least one dose of the COVID-19 vaccine, or not? As you may know, an FDA-authorized vaccine for COVID-19 is now available for free to all adults in the U.S. Do you think you will…?



Personality and COVID-19 Protection

- ✓ Individuals who resent authority are twice as likely to never wear a mask.
- ✓ Individuals who believe the truth about coronavirus is being kept from the public are twice as likely to never wear a mask.

Source: Resnicow K et al. *J Med Internet Res* 2021;23(4):e23488.

Persuading the Resistant and Conspiratorial - I

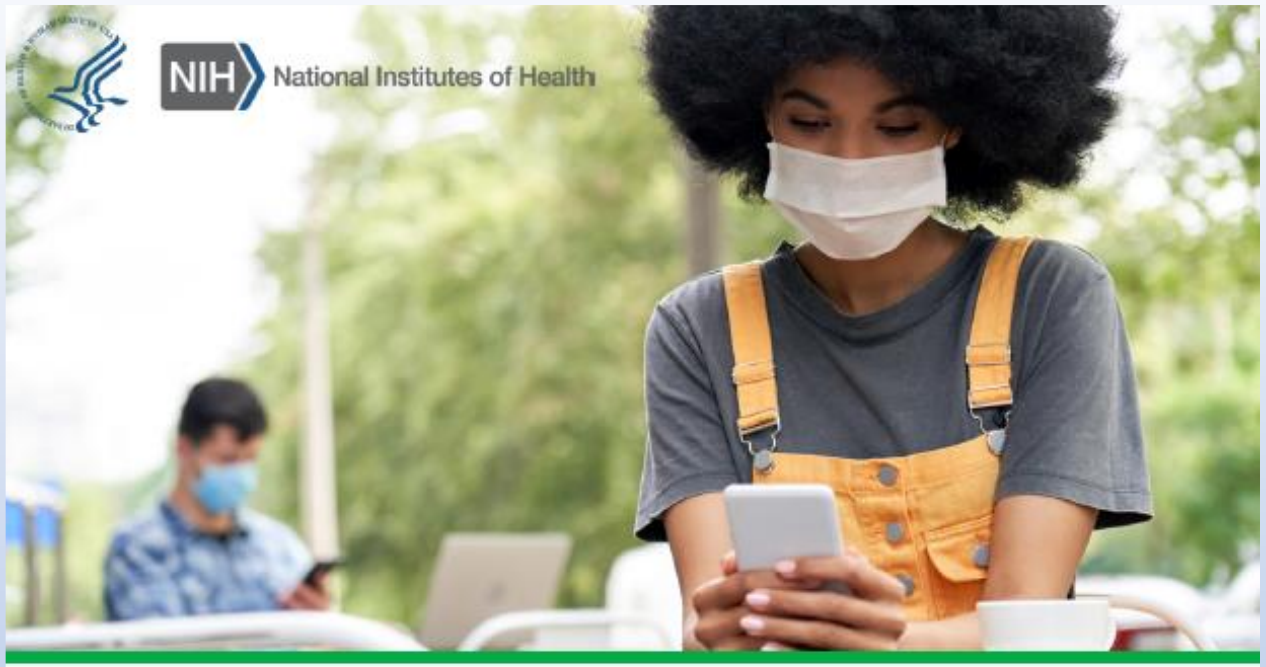
- Affirm/Agree As Far As You Can → Validating and respecting concerns
  1. You're right the pharmaceutical industry is making a lot of money on this
  2. You're right the vaccine was developed in record time
  3. You're right the government has historically treated African Americans horribly
  4. You've thought about this a lot
  5. You value your freedom

Persuading the Resistant and Conspiratorial - II

- Move the motive from Protecting Self to Helping Others in the Family or “Clan”
- Dolly Parton and Morgan Freeman on YouTube!

Keep in mind:

- Counterarguing likely counterproductive
- Information alone will likely not convert



COVID-19 Vaccination* Communication: Applying Behavioral and Social Science to Address Vaccine Hesitancy and Foster Vaccine Confidence

NCI/NIH and Office of Behavioral and Social Science Research, Division of Program Coordination, Planning, and Strategic Initiatives, NIH

https://obssr.od.nih.gov/wp-content/uploads/2020/12/COVIDReport_Final.pdf

https://www.cdc.gov/vaccines/covid-19/health-systems-communication-toolkit.html

YSPH activities in addressing vaccine hesitancy

- Collaborations and engagement in webinars/media invitations for communities and policymakers
  - Governor's Task Force; schools, museums, arts, health & assisted care organizations
  - Facebook; NASEM ("the National Academies"); WHO; Gavi; USAID
  - The Creative Coalition; USC Hollywood Health and Society; Rotary International; Shoreline Arts Alliance

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Thank you for inviting me

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