

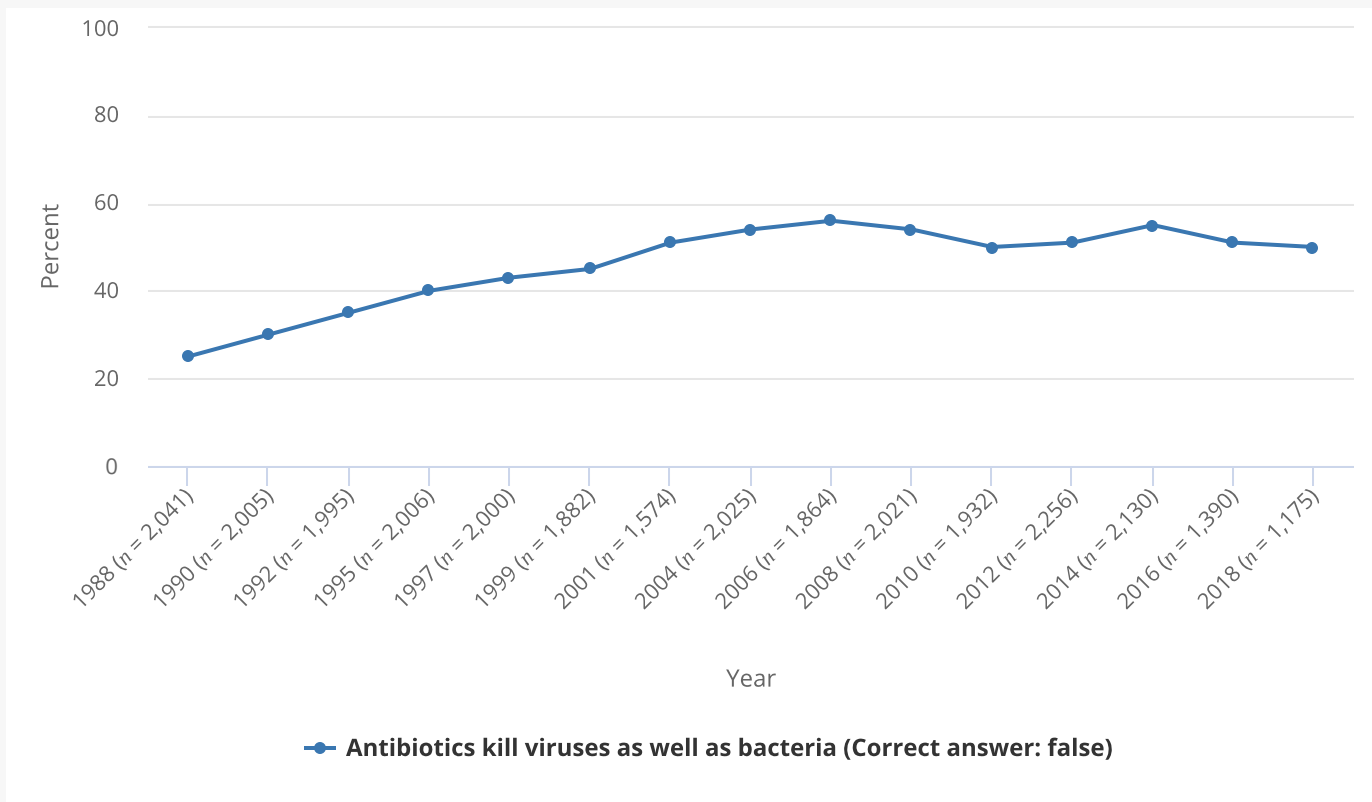
SIDEBAR

U.S. Public Perceptions of COVID-19 Research

Evidence on public perceptions of the COVID-19 pandemic and related research is useful for assessing public understanding of and support for COVID-19 science and can inform thinking about public perceptions of science and technology (S&T) more broadly, including the possibility for public perceptions to change over a relatively short period. Two striking themes related to COVID-19 that emerge from recent work are the potential for changes in public perceptions and the potential influence of information context and framing.

During earlier periods without pandemic circumstances in the United States, public understanding of viruses changed slowly over time. For example, various surveys (see Figure PPS-A) have assessed the extent to which Americans believe that antibiotics similarly kill both viruses and bacteria—an inaccurate claim that has been discredited by peer-reviewed studies (Kenealy and Arroll 2013). Although the percentage of Americans who believe this claim has dropped over time, half of Americans held this belief in 2018.

Figure PPS-A

Respondents who correctly answered factual knowledge question about whether antibiotics kill viruses: Selected years, 1988–2018

n = number of survey responses.

Note(s):

See Table SPPS-12 for standard errors. Figure displays data for years when the question was proffered.

Source(s):

Data are sourced from multiple surveys that used either identical or similar survey items. National Center for Science and Engineering Statistics, Survey of Public Attitudes Toward and Understanding of Science and Technology (1988–2001); University of Michigan, Survey of Consumer Attitudes (2004); NORC at the University of Chicago, General Social Survey (2006–18).

Science and Engineering Indicators

National research on U.S. perceptions of COVID-19 transmission, prevention, and treatment conducted early in the pandemic revealed widespread public uncertainty. For example, McCormack et al. (2021) surveyed Americans regarding COVID-19 from late February through early March 2020 and found considerable uncertainty and confusion:

- In February and March 2020, more than 30% of respondents did not know whether antibiotics can be used to prevent COVID-19 infection, and another 7% incorrectly believed antibiotics could be used for that purpose.
- In February and March 2020, more than 25% did not know whether a vaccine to prevent COVID-19 infection was available at the time of the survey.
- The majority of respondents in February and March 2020 did not know that most people infected with COVID-19 have only mild symptoms.

Evidence also suggests public perceptions of COVID-19 did not form in a vacuum devoid of existing perceptions, conflicting information, or public considerations of information sources. Some evidence suggests that in the early months of the pandemic, American perceptions of coronaviruses reflected past experiences with other viruses such as influenza viruses (Southwell et al. 2020). Americans also have reported challenges with a complicated COVID-19 information environment, including the existence of directly conflicting information about COVID-19 in their usual encounters with mass media and their social network interactions. In the first year of the pandemic, Nagler and colleagues (2020) found that the majority of respondents in a national survey of U.S. adults self-reported having seen or heard conflicting reports about COVID-19.

The way in which media outlets and research spokespeople present COVID-19 research has affected public confidence in research outcomes as well. For example, Kreps and Kriner (2020) found that the way COVID-19 research is framed predicted whether study participants would use that research for decision-making. Explicit references to uncertainty in COVID-19 study results had a detrimental short-term impact on the perceived credibility of research for participants, but descriptions of COVID-19 research that delineated the uncertainty of infection forecast models appeared to bolster, or at least maintain, longer-term public support when initial research results were supplanted by new evidence. Such results are consistent with earlier recommendations by scholars, such as Druckman (2015), for proactive disclosure of uncertainty in presenting results.

Perceived confidence in R&D for COVID-19 vaccines also has been a focal point for investigation. The Pew Research Center reported that in November 2020, 75% of U.S. adults expressed at least a fair amount of confidence that research would produce a safe and effective vaccine, a percentage that appears to have increased relative to earlier polling by the center (Funk and Tyson 2020). At least some evidence suggests increased American confidence during the first year of the pandemic in scientific research processes related to vaccines.

Public acceptance of COVID-19 vaccination in 2021 appeared to reflect considerable confidence in science. In January 2021 and September 2021, the U.S. Census Bureau collected responses to its Household Pulse Survey (HPS) on COVID-19 vaccination intention; Table PPS-A and Figure PPS-B highlight these data (Census Bureau 2021a, 2021b).^{*} In January 2021, the majority of respondents reported that they definitely or probably would get a COVID-19 vaccine when available. Those who said they would not or definitely would not get a COVID-19 vaccine (which constituted 22% of all respondents) had a variety of justifications. For example, 21% did not believe the vaccine was personally necessary, and 7% said their doctor had not yet recommended it. Around a third reported a lack of trust in COVID-19 vaccines (34%) or lack of trust in government (28%) as considerations in their decision not to get vaccinated. By September 2021, many American adults who had intended to get vaccinated in January had received a COVID-19 vaccine; the pool of respondents who had not been vaccinated decreased dramatically in September relative to January. Among those not intending to get vaccinated, concerns about side effects were a prominent reason cited in both January and September. In addition, a greater percentage of those not intending to get vaccinated cited trust in COVID-19 vaccines as a concern in September relative to January, although fewer unvaccinated people (in absolute number) remained in September relative to January and fewer respondents overall expressed lack of intention to get vaccinated against COVID-19 in September relative to January.

Table PPS-A

COVID-19 vaccination status and intent to get a COVID-19 vaccine, Household Pulse Survey: January 2021 and September 2021

(Percent)

Characteristic	January 2021	September 2021
Received a COVID-19 vaccine ^a (January, <i>n</i> = 80,567; September, <i>n</i> = 63,536)		
Yes	13	82
Intent to get a COVID-19 vaccine among those who have not ^b (January, <i>n</i> = 65,539; September, <i>n</i> = 7,001)		
Definitely yes	54	8
Probably yes	23	10
Unsure	na	20
Probably no	12	18
Definitely no	10	38

na = not applicable; response option not on the survey.

n = number of survey responses.^a "Yes" indicates survey respondents who reported receiving at least one dose.^b Percentages may not add to 100% because nonresponse category is not shown. "Unsure" response option was unavailable in January data collection.**Note(s):**

See Table SPPS-13 for standard errors. Survey population includes those aged 18 years or older. The self-reported vaccination data in this table differ from Centers for Disease Control and Prevention (CDC) data. According to CDC, the percentage of U.S. adults aged 18 years or older who had received at least one dose of a COVID-19 vaccine was 76% as of 12 September 2021 (<https://data.cdc.gov/Vaccinations/COVID-19-Vaccinations-in-the-United-States-Jurisdictional-Data>). Responses are to the following:

- Have you received a COVID-19 vaccine? (January data collection)

- Have you received at least one dose of a COVID-19 vaccine? (September data collection)

- Once a vaccine to prevent COVID-19 is available to you, would you...

Definitely get a vaccine.

Probably get a vaccine.

Be unsure about getting a vaccine (response option unavailable in January data collection).

Probably NOT get a vaccine.

Definitely NOT get a vaccine.

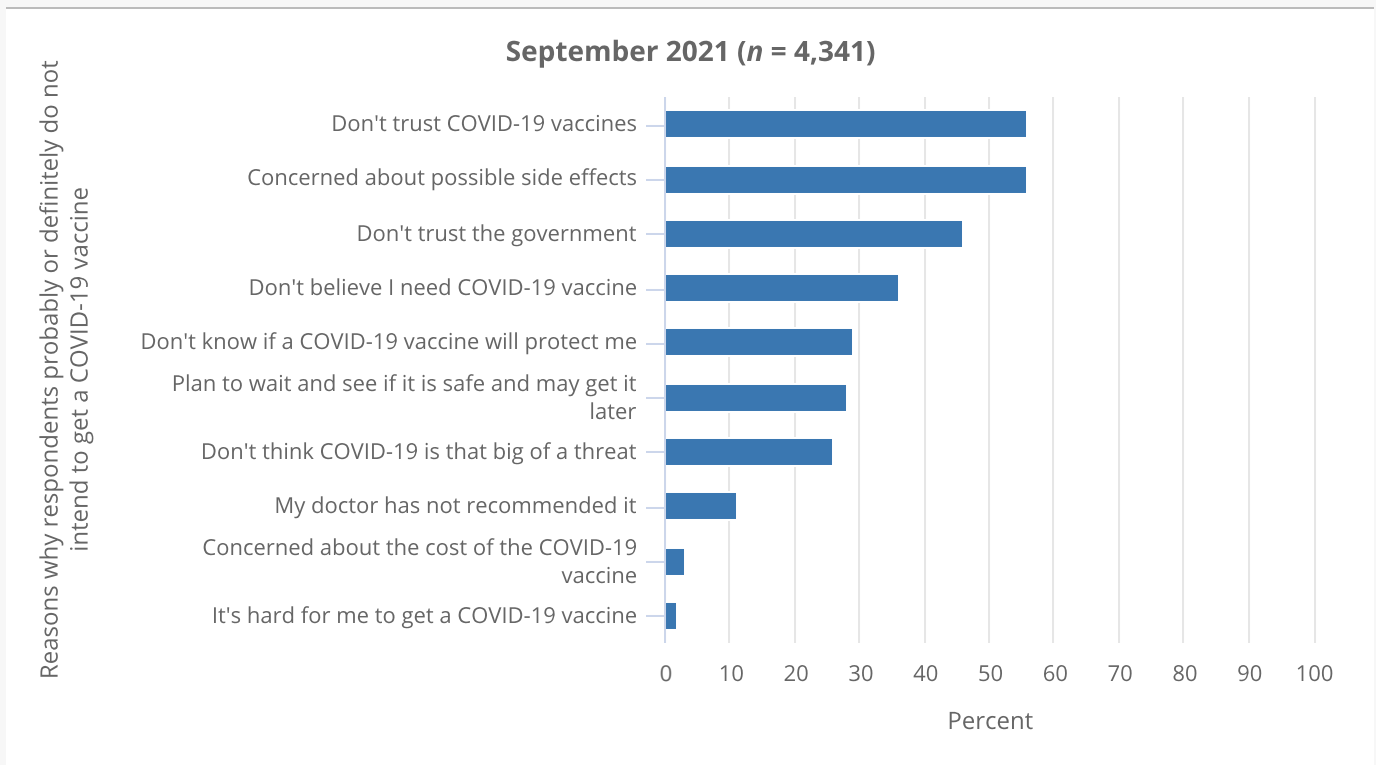
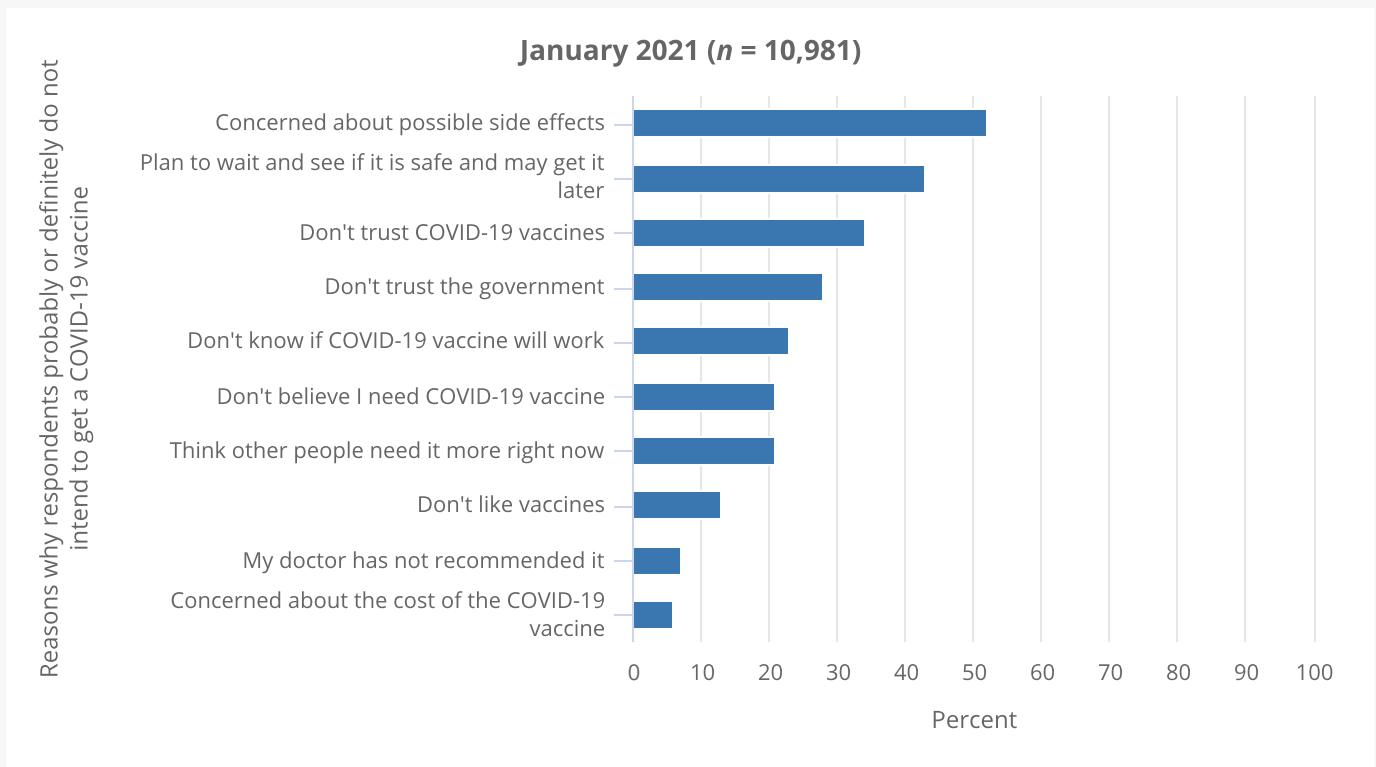
Source(s):

U.S. Census Bureau, Household Pulse Survey, Phase 3, Week 23 (20 January–1 February 2021), and Phase 3.2, Week 37 (1–12 September 2021).

Science and Engineering Indicators

Figure PPS-B

Among those who have not received a COVID-19 vaccine, reasons for intending to get a vaccine: January 2021 and September 2021



n = number of survey responses.

Note(s):

See Table SPPS-14 for standard errors. Survey population includes those 18 years old or older who reported not having received a COVID-19 vaccine and who responded that they probably or definitely did not intend to get a vaccine. Reasons offered differed slightly in the January and September questionnaires. Respondents could select multiple reasons. Reasons do not sum to 100%. January and September surveys reflect two different cross-sectional samples. Responses are to the following: *Which of the following, if any, are reasons that you [probably won't/definitely won't] [get a COVID-19 vaccine]? (Select all that apply).*

Source(s):

U.S. Census Bureau, Household Pulse Survey, Phase 3, Week 23 (20 January–1 February 2021), and Phase 3.2, Week 37 (1–12 September 2021).

Science and Engineering Indicators

Social science research on interventions to affect COVID-19 perceptions demonstrates that beliefs and behaviors related to COVID-19 are amenable to change through communication efforts. Breza et al. (2021), for example, reported that messages recorded by health professionals and posted to social media sites discouraged November and December 2020 holiday travel in the United States and reduced COVID-19 infections. Insights on communication intervention possibilities (see Brunson et al. 2021) also have been reported by the Societal Experts Action Network, an initiative formed by the National Academies of Sciences, Engineering, and Medicine with support from the National Science Foundation and the Alfred P. Sloan Foundation.

Taken together, evidence of public perceptions of COVID-19 research suggest some positive changes in perceptions of pandemic-related science over time as the pandemic has unfolded. Trust in science, complexity of the information environment, and lack of transparency in research descriptions appear to have affected Americans' perceptions of infectious disease during this time. Evidence in 2021 nonetheless suggested that the majority of Americans had confidence in research related to COVID-19 prevention and mitigation.

* The U.S. Census Bureau conducted the HPS, in collaboration with multiple federal statistical agencies, to quickly and efficiently assess "how the coronavirus pandemic is impacting households across the country from a social and economic perspective." The HPS was conducted in three phases. Data presented here is from Phases 3 and 3.2, which were conducted in 2-week periods, with data released the week following the end of the period. As part of the Census Bureau's Experimental Data Series, data products from the HPS may not meet some of the agency's statistical quality standards; provided confidence intervals do not account for nonsampling errors that may occur due to the speed at which the survey was conducted. The survey provides an indicator of how Americans' circumstances and opinions have evolved during the pandemic. For more information, see <https://www.census.gov/programs-surveys/household-pulse-survey/technical-documentation.html>.