

Timing of COVID-19 Vaccine Approval and Endorsement by Public Figures

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Research Article

Keywords: COVID-19, vaccine, endorsements, politicization of science

DOI: <https://doi.org/10.21203/rs.3.rs-95823/v1>

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Abstract

The global spread of COVID-19 has created an urgent need for a safe and effective vaccine. However, even if a safe and medically effective vaccine is developed, hesitancy by citizens to receive it would undercut its effectiveness as a tool for limiting the spread of COVID-19.^{1,2,3} A potential driver of hesitancy in the United States is the politicization of a potential vaccine, including when one might be approved with respect to the presidential election and which public figures are endorsing its safety and efficacy.^{4,5} Using a pair of randomized survey experiments, we show that announcing approval of a COVID-19 vaccine one week before the election compared to one week after considerably reduces both beliefs about its safety and efficacy and willingness to receive it. However, endorsement by Dr. Anthony Fauci increases reported beliefs about safety and willingness to receive a vaccine among all partisan subgroups. Further, an endorsement by Dr. Fauci increased uptake and confidence in safety even if a vaccine receives pre-election approval. The results here suggest that perceptions of political influence in COVID-19 vaccine approval could significantly undermine the viability of a vaccine as a strategy to end the pandemic.

Main Text

The true value of a vaccine in controlling an infectious disease is a combination of the vaccine's efficacy and the willingness of individuals to vaccinate. If enough individuals refuse to receive a vaccine, the protection afforded to the population at large is considerably diminished. Past research has documented the challenges that vaccine hesitancy poses for the medical community.^{1,2,3} COVID-19 presents a unique challenge given that the need to rapidly develop a vaccine could broadly undermine the public's beliefs that one will be safe. Recent survey evidence has shown that only 51% of US adults indicate they are likely to accept a COVID-19 vaccine with only 19% of the public having a "great deal" of confidence that the process to create a vaccine will produce one that is safe and effective.⁶

Hesitancy to receive a COVID-19 vaccine may also be driven, in part, by public concerns that political considerations are affecting when a vaccine is approved and whether it is approved before proven to be safe and effective. A majority of Americans report that they are worried that political pressure could cause a vaccine to be approved before it is safe and effective and a majority of both Republicans and Democrats express concerns that approval of the vaccine will be based more on politics than science.^{4,5} Further, in the 2020 Vice Presidential Debate, Senator Kamala Harris stated that she would not receive a vaccine if it was endorsed by President Trump, but she would receive it if NIAID (National Institute of Allergy and Infectious Diseases) director Dr. Anthony Fauci advised that it was safe and effective.⁷ Taken together, this fits into a broader pattern of the politicization of the COVID-19 pandemic and responses to it among political elites and in mass public opinion.^{8,9,10}

While approval of a COVID-19 vaccine prior to the November presidential election could affect the outcome, it is not known whether the timing of a COVID-19 vaccine approval coinciding with the presidential election would undermine the public confidence that the vaccine is safe and effective and

willingness to receive it. Further, we also do not know whether endorsements of the vaccine by politicians, like President Donald Trump and House Speaker Nancy Pelosi, and health experts, like Dr. Anthony Fauci, would have consequences for beliefs about safety and efficacy and individuals' willingness to receive a vaccine.

Design

We use two randomized, controlled experiments fielded on a nationally representative sample of adult U.S. residents to examine how timing and elite endorsement effect public opinion about a COVID-19 vaccine. Prior to our randomized treatments, respondents were asked about their background, including a generic vaccine confidence battery.¹¹ The first experiment was a vignette in which respondents were asked to consider a vaccine with a particular approval date: "Suppose a COVID-19 vaccine receives approval from the FDA on [DATE]." DATE was randomly assigned to be "October 27, 1 week before the election", "November 10, 1 week after the election", or "December 15." Respondents were then asked their likelihood of getting the vaccine ("How likely would you be to get this COVID-19 vaccine within the first 3-months of it becoming available to you?" measured on a 5-point scale running from 0 [Extremely unlikely] to 1 [Extremely likely]) and their confidence in its safety and efficacy ("How confident are you that this COVID-19 vaccine would be safe and effective?" measured on a 4-point scale running from 0 [Not confident at all] to 1 [Extremely confident]). For subsequent analyses, we dichotomized the measure of the likelihood that respondents would receive the vaccine, such that likely and extremely likely were coded 1 and the other responses were coded 0.

The second experiment followed the first and held fixed the date of approval but added a third-party statement about the approved vaccine's safety and efficacy. The statement was randomly assigned to one of six values, (1) a positive or (2) negative statement by Dr. Anthony Fauci, (3) a positive or (4) negative statement by President Trump, (5) a joint positive statement by Trump and Speaker of the House Nancy Pelosi, or (6) a positive Trump statement and a negative Pelosi statement. Respondents were then asked the same outcome questions.

Results

Using the data from the first experiment, Figure 1 shows how vaccine timing affects stated willingness to vaccinate and confidence. Panel A shows the results for the overall sample. Compared to a baseline announcement one week after the election, as well as an approval in December, approval before the election reduced willingness to vaccinate and confidence. An announcement of approval one week prior to the election was estimated to decrease the reported likelihood of receiving a COVID-19 vaccine within the first three months of availability by 4.2 points (95% C.I. = -1.6 to -6.8, $p < .01$), a 14% reduction from reported intentions to vaccinate if announced one week after the election ($.042 / .298 = .14$). Respondents were also less confident that the vaccine would be safe and effective if approved before the election (difference = .049 for scale outcome ranging from 0 to 1, 95% C.I. = -.030 to -.069, $p < .001$). A vaccine

approved in December compared to the week after the election increased willingness to vaccinate by 1.7 points (95% C.I. = -1.5 to 5.0, $p = .30$) and confidence by .41 units (95% C.I. = .18 to .63, $p < .001$).

The subsequent panels of Figure 1 show that the effect of the politicized context is based on a strong response among respondents with high general vaccine confidence (Panel B, for high confidence respondents the early announcement reduced uptake intentions by 8.2 points (95% C.I. = -4.0 to -12.4, $p < .001$) and confidence by .085 units (95% C.I. = -.058 to -.113, $p < .001$)) and was heavily concentrated among Democrats (Panel C, uptake reduced by 8 points (95% C.I. = -3.9 to -12.1, $p < .001$) and confidence by -.086 units (95% C.I. = -.058 to -.116, $p < .001$); Effects for Republicans and Independents smaller and not statistically significant).

For the second experiment, compared to the baseline condition of a positive statement by President Trump, Dr. Fauci's statements had dramatic effects on public reactions (Figure 2). For vaccine uptake and confidence, respectively, the effects of a positive rather than negative endorsement by Dr. Fauci were very large, approximately 21.6 points (95% C.I. = 17.6 to 25.5, $p < .001$) and .234 units (95% C.I. = .204 to .264, $p < .001$). President Trump's statement in favor rather than opposed was not statistically significant for either outcome. Speaker Pelosi's co-endorsement with President Trump versus contradicting the President with a negative statement had effects approximately one-third to one half as large as that of Dr. Fauci (vaccine uptake difference = 5.7 points, 95% C.I. = 1.7 to 9.8, $p < .001$; confidence difference = .067, 95% C.I. = .037 to .098, $p < .001$).

The effects of Fauci and Pelosi were concentrated among those with a high vaccine confidence (Figure 2), although there was a positive effect from a positive rather than negative statement from Dr. Fauci among both groups. In contrast, the overall null effect of President Trump's positive rather than negative statement is shown to be a combination of a positive (not significant) increase in confidence among those low in baseline confidence and a *negative* (significant) effect among those high in confidence.

All groups indicated more willingness to receive a vaccine if Dr. Fauci supported it rather than opposed it, but the effect was 4 times larger for Democrats than Republicans, with the effect for Independents in between. In contrast, President Trump had a polarized effect; his statement in support of versus opposition to vaccine approval raised vaccine confidence among Republicans about as much as Dr. Fauci, but *lowered* confidence among Democrats and had no effect among independents. Speaker Pelosi's impact was concentrated among Democratic respondents, with effects near zero for both Republicans and independents.

Given the sensitive nature of pre-election approval, we more closely examine the effect of endorsement by public figures of an approval one week prior to the election (Table S3). Even in the most politicized window for approval, Dr. Fauci's support increased reported uptake intentions and confidence in safety and efficacy compared to Dr. Fauci opposing a vaccine (vaccine uptake difference = 15.4 points, 95% C.I. = 9.2 to 21.6, $p < .001$; confidence difference = .201 units, 95% C.I. = .152 to .251, $p < .001$). Notably, endorsement by political figures does not appear to move vaccine uptake or confidence in safety and efficacy in the pre-election window.

Conclusions

There are several key conclusions from our experiments. First, public confidence in a COVID-19 vaccine is significantly affected by the political context of vaccine approval. Second, and consistent with our evidence about the importance of political context, endorsements of the vaccine by political leaders have a polarized response, increasing confidence among co-partisans while being ignored or undermining confidence among respondents affiliated with the other party. In contrast, Dr. Fauci's endorsement (versus skepticism) increases confidence among Democrats, Republicans, and Independents, but the effect is greatest for Democrats and smallest for Republicans. Third, those who have a high level of baseline vaccine confidence appear to be especially sensitive to political context and endorsements suggesting that the politicization of a COVID-19 vaccine may be particularly detrimental to achieving a high rate of take-up.

In sum, these experiments demonstrate that public opinion toward the efficacy and safety of the COVID-19 vaccine is responsive to perceptions of political motivation and endorsements. While it is common for politicized issues to display polarized beliefs, the evidence that vaccine approval has become politicized suggests that there is great value in understanding how to communicate factual information about vaccine safety and efficacy, including the importance of independent public figures who are not perceived in partisan terms. Further research is needed to develop strategies to provide accurate information that is not ignored or exaggerated due to the political dispositions of the public and their perceptions of the political motives of those overseeing this key public medical and public health issue.

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Methods

Both Experiment 1 and Experiment 2 were part of the same survey. This survey of American adults ($N = 5,014$) was fielded by the vendor YouGov between September 9 and September 22, 2020. YouGov recruits participants from its online panel to match Census and American Community Survey benchmarks and provides weights to account for any differences between the realized sample and the target sample. The experiments were fielded under an IRB exemption granted by a university IRB.

Data availability

The raw data and code to reproduce the analyses presented in this manuscript will be made publicly available upon publication.

Declarations

Notes and Acknowledgments: The authors declare that there are no conflicts of interest related to this work. We would like to acknowledge the generous support of the Tobin Center for Economic Policy, the Center for the Study of American Politics, the Institution for Social and Policy Studies at Yale University and the Yale Institute for Global Public Health in funding this research.