The large number of people who have remained unvaccinated during the Covid-19 pandemic, despite sufficient vaccine supply, has generated interest in incentives and nudges that may encourage vaccine uptake among the vaccine hesitant. In this study, researchers evaluated the impact of financial incentives, public health video messages, and access to a vaccine scheduling link on Covid-19 vaccination intentions and vaccine uptake. Researchers found that after thirty days none of the interventions led to increases in vaccine uptake among those who received them compared to those who did not. Additionally, in exploratory analysis, financial incentives were found to reduce vaccination rates among certain subgroups, highlighting the potential for financial nudges to backfire.

**Policy issue**

Despite ample supply of the Covid-19 vaccine in the United States, millions of Americans remain unvaccinated. Vaccine hesitancy in the United States is affected by many complex factors including political beliefs, concerns about safety, and mistrust of the medical profession. The large proportion of Americans who have remained unvaccinated during the Covid-19 pandemic has generated interest in how to encourage vaccine uptake and dispel vaccine hesitancy.

To combat Covid-19 vaccine hesitancy, many local governments and employers have offered financial incentives and implemented other behavioral nudges to increase vaccine uptake. Such strategies have been successfully employed to increase
vaccinations for other infections such as influenza. However, evidence on the effectiveness of nudges at increasing Covid-19 vaccinations remains limited. Furthermore, most of the current evidence focuses on vaccine intentions rather than vaccine uptake.

**Context of the evaluation**

Contra Costa County is a racially diverse suburban county in the Bay Area of California. At the time of the study, it had one of the highest countywide vaccination rates in California. Due to receiving increased vaccine supply from the federal government, the county was able to open eligibility for vaccinations to all adults by the end of March 2021, several weeks before the State of California.

Individuals selected for the study sample were unvaccinated members of the Contra Costa Health Plan (CCHP), the public Medicaid managed care plan in Contra Costa County. As a result, this study focused on individuals who had delayed receiving a vaccine despite weeks of eligibility and sufficient vaccine supply. The average age of an individual in the study sample was 36 years old and 74 percent of the study sample was female, which reflects the higher representation of adult women in the Medicaid program. The median household income was between $20,000 to $29,999.

**Details of the intervention**

In this study, researchers evaluated the impact of public health video messages, financial incentives, and a vaccine scheduling link on Covid-19 vaccination intentions and vaccine uptake.
First, individuals were invited to complete a short internet-based survey. All survey participants were then randomized to watch one of three public health video messages (California Department of Health message, safety message, health consequences message) or no video. The safety message and health consequences message were randomized to be race and gender concordant/discordant between the participant and the physician in the video.

In addition, survey participants were randomly assigned to receive either a financial incentive of $10 or $50 or no financial incentive for getting vaccinated within two weeks of survey completion.

Lastly, participants were also randomly assigned to receive either a link to the county's public vaccination appointment scheduling system or a message about getting vaccinated without a link.

Figure 1. Intervention arms

Results and policy lessons

After thirty days, none of the interventions (video messages, financial incentives, scheduling link) led to increases in vaccine uptake among those who received them compared to those who did not.

In the comparison group, 8.8 percent of participants were vaccinated within thirty days of survey completion. All of the intervention groups experienced small, close to zero treatment effects that did not improve upon the comparison group's rate. Furthermore, exploratory analysis showed that among older individuals and those who supported Trump in the 2020 presidential election, financial incentives actually reduced vaccination rates, highlighting the potential for financial nudges to backfire. For respondents aged 40 and over, thirty day vaccination rates declined by 4.5 percentage points and 4.7 percentage points in response to the $10 and $50 incentives respectively. For respondents who indicated they supported Trump in the 2020 presidential election, vaccination rates declined by 4.2 percentage points in response to the $50 incentive.

Vaccination intentions increased by 5.5 percentage points in response to the safety video message and 8.6 percentage points in response to the health consequences video message. However, the relationship between vaccination intentions and vaccine uptake was relatively weak, with a 10 percentage point increase in vaccination intention associated with a 1.5 percentage point increase in vaccine uptake. While vaccination intentions may be a useful way to study the impact of different policies and can be illuminating in other contexts (e.g., influenza vaccinations), such studies may have limited value for Covid-19 vaccinations.
Race concordance between physicians in the video messages and study participants was found to not affect vaccination intentions or vaccine uptake. Gender concordance did not have an effect on vaccination intentions but did seem to matter for vaccine uptake. For example, assignment to a gender-discordant physician decreased thirty day vaccination rates for the health consequences video message by 2.9 percentage points.

Based on these results, Contra Costa Health Services de-emphasized financial rewards for Covid-19 vaccinations. This study suggests that strategies that have proved popular in the past, such as financial incentives, are unlikely to yield the high vaccination rates needed to reduce transmission and morbidity of Covid-19. As a result, policymakers and practitioners should set realistic expectations of what nudges are able to accomplish during this pandemic and understand that achieving high vaccination rates will likely require much stronger policy actions.