BCFG Work Sample Write-Up

Table 1:

Regression-estimated impact of each of our simulated megastudy's 7 intervention conditions on RSV vaccine uptake

Condition	Beta	SE	P-value	Adjusted P-value
Says vaccination is 'easy, quick, and painless'	0.086	0.004	<0.001	<0.001
Says vaccination is 'reserved' and includes image of vial with their name on it	0.070	0.004	<0.001	<0.001
Says friends and family will be 'healthier and safer'	0.068	0.004	<0.001	<0.001
Says getting vaccinated is 'good for society'	0.042	0.004	<0.001	<0.001
Highlights dangers of not getting vaccinated	0.026	0.004	<0.001	<0.001
Shows map to nearest pharmacy	0.021	0.004	<0.001	<0.001
Says vaccine is 'new and improved'	0.00014	0.004	0.97	1.00
Adjusted R-squared	0.0355			
Baseline Vaccination Rate (control condition)	32.7%			
Observation	199,164			

Note:

The above table shows the results of an OLS regression, which predicts whether a given participant received an RSV vaccination within one month of the patients receiving the intervention. The primary predictors were the 7 indicators representing our experimental conditions, with the reference group being the business-as-usual control condition. Our control variables included age, gender (indicator for male; female omitted), race (indicators for African American, Asian, Other/Unknown; white omitted), ethnicity (indicator for Hispanic; Non-Hispanic omitted), pharmacy region (indicators for Midwest, Southeast, West, Southwest; Northeast omitted), and median household income of the county in which the pharmacy is located. We used the Benjamini-Hochberg method to calculate the adjusted P-values, accounting for multiple comparisons.

Table 2:

Participant characteristics by condition

Condition	All participants	Business as usual text	Says vaccine is 'new and improved'	Highlights dangers of not getting vaccinated	Shows map to nearest pharmacy	Says getting vaccinated is 'good for society'	Says friends and family will be 'healthier and safer'	Says vaccination is 'reserved'	Says vaccination is 'easy, quick, and painless'
N	199,164	24,684	25,271	24,929	24,868	24,988	24,903	24,782	24,739
Average Age	64.95	64.99	64.87	65.02	64.88	65.04	64.95	64.72	65.13
Male	42.9%	43.3%	43.2%	42.9%	42.5%	43.1%	43.2%	43.0%	42.3%
Female	54.7%	54.4%	54.3%	54.7%	55.2%	54.4%	54.4%	54.7%	55.2%
Other / Unknown Gender	2.4%	2.3%	2.5%	2.4%	2.2%	2.5%	2.4%	2.3%	2.5%
African American	19.9%	19.9%	19.7%	19.8%	19.7%	20.0%	20.3%	19.8%	19.6%
Asian	5.0%	5.1%	5.2%	5.0%	5.2%	4.9%	5.0%	5.0%	4.8%
White	59.8%	59.6%	60.4%	59.7%	59.8%	59.3%	59.5%	59.7%	60.3%
Other / Unknown Race	15.3%	15.5%	14.7%	15.5%	15.2%	15.7%	15.2%	15.5%	15.3%
Hispanic	15.0%	14.9%	14.8%	15.1%	15.0%	15.0%	14.6%	15.1%	15.1%
Non-Hispanic / Unspecified	84.6%	84.7%	84.8%	84.5%	84.5%	84.6%	85.0%	84.5%	84.4%
Midwest	21.5%	21.5%	21.7%	21.3%	21.8%	21.6%	21.7%	21.5%	21.2%
Southeast	21.2%	21.4%	21.1%	21.0%	21.3%	21.2%	21.0%	20.9%	21.6%
West	17.3%	17.4%	17.0%	17.8%	17.5%	17.1%	16.9%	17.6%	17.1%
Southwest	19.6%	19.6%	20.1%	19.2%	19.4%	19.5%	19.8%	20.0%	19.5%
Median income of pharmacy county	68354.26	68217.07	68251.1	68392.7	68576.19	68467.02	68302.79	68389.54	68237.25

Note:
This table summarizes patient characteristics for participants overall, within the control group, and within each experimental condition.

Methods

To test the effects of our seven interventions, we ran an ordinary least squares (OLS) regression to predict whether a participant received an RSV vaccination. The primary predictors were the seven indicators representing our experimental conditions, with the reference group being the business-as-usual control condition. Our control variables included age, gender (indicator for male; female omitted), race (indicators for African American, Asian, Other/Unknown; white omitted), ethnicity (indicator for Hispanic; Non-Hispanic omitted), pharmacy region (indicators for Midwest, Southeast, West, Southwest; Northeast omitted), and median household income of the county in which the pharmacy is located.

Results

Through our analysis, we found that six of the seven primary predictors led to a significant increase in vaccination rates when compared to our control condition. Some conditions, however, were more effective than others. The condition stating that the vaccination would be "quick, easy, and painless" had the greatest effect, leading to an 8.6% increase in vaccination rates (a 26% increase in comparison to the control

condition). Of the effective conditions, the least effective was the text showing a map to the nearest pharmacy, which still led to a 2.1% increase. The only condition that did not have a significant effect was the message stating that the vaccine was "new and improved."

From this analysis, we can conclude that sending behaviorally informed, text-based nudges to patients can greatly improve vaccination rates. One possible explanation for why the top two performing nudges had the greatest effects is that people have a psychological bias toward doing things that are easy and convenient—the first nudge directly states that the vaccination process is "easy, quick, and painless," while the second nudge states that vaccine is "reserved" for the patient, implying that the process would be easy upon arriving at the pharmacy.