Pre-Analysis Plan

Persuasion in Medicine: Experimental Evidence on Sender and Signal Effects

This Draft: October 30, 2019

1. Introduction

The aim of the project described in this pre-analysis plan is to identify what sender/signal combinations are most persuasive in encouraging low socioeconomic males living in the U.S. to take-up seasonal flu vaccination. We plan to recruit male subjects and randomly assign them to three persuasion treatments: two of which vary dimensions of the sender of medical recommendation (concordance and authority treatments) and one which varies the signal (validation). Specifically, we will show subjects videos of either black or white male "actors" providing scripted information on the flu vaccination. We will cross-randomize race with authority as the actor will portray either an actor or a layperson. In addition, we will vary the script used in the experiment between one that acknowledges past injustices and one that does not. Lastly, we will randomize offer prices for a free flu shot coupon. The design requires collection of baseline and endline surveys combined with administrative data from pharmacies about coupon redemption. The outcomes of interest are posterior beliefs about seasonal flu vaccination, demand and WTP for a free flu shot coupon and redemption of the coupon.

Our field experiment has the following structure:

1. Recruitment and Baseline survey
   (a) Recruit via Qualtrics at the beginning of the flu season.
   (b) Collect demographic information and healthcare experience.
   (c) Elicit priors from 50% of the subjects about flu shot safety.
   (d) Assign video treatment.
   (e) Elicit willingness-to-pay (WTP) for a flu shot coupon with a multiple price list.[1]
   (f) Elicit posteriors about flu shot safety
   (g) Elicit ratings on the sender in the video.
   (h) Elicit attention to signal in the video.
   (i) Distribute flu shot coupons by email.
2. Endline survey, 3 months after Baseline

[1] The algorithm will oversample 0$ USD WTP in which case the coupon will be provided for free.

(a) Elicit posteriors about flu shot safety.

(b) Elicit self-report on whether received flu shot.

(c) Elicit recall of information from Baseline video.

(d) Debrief subjects.

3. Between Baseline and Endline

   (a) Collect information on flu shot coupon redemption from corporate partner.

2. Research Strategy

2.1 Recruitment and Sampling

Recruitment will be performed using a Qualtrics survey panel.[2] Our target population includes adult US males without a college degree. We aim to recruit 70% African Americans, and 30% Caucasians. We chose to oversample minority men from a low socio-economic background because their flu vaccination receipt is lower than that of other demographic groups.

The target population is defined by the following criteria:

I. Demographic criteria for inclusion in our study are the following:

- Age: born between 1968-1990.
- Education: Less than a college degree.
- Gender: Male.
- Race: Caucasian or African American.
- Miscellaneous: Has not received the flu shot in the current flu season yet.

II. Data quality checks
Among the subjects who complete the Baseline survey, we will further exclude subjects from the analysis if they satisfy the following indicator for low-quality survey responses:

- Fast survey-taking: Within race and treatment group, is among the 5% fastest in terms of total time spent on survey.

III. Flu shot coupon assignment

- Non-zero price draw: Among the subjects who complete the Baseline survey, we will further exclude subjects from the analysis if they received a non-zero price draw in the WTP elicitation for the flu shot coupon.[3]

[2] We are considering a second recruitment platform using targeted advertising on social media (Facebook and/or Twitter). The second channel would allow us to scale the results to a wider audience but would come with at a cost of less flexibility to randomize at an individual level.

[3] The probability of receiving a non-zero price draw is $\frac{1}{1000}$.

2.2 Statistical Power

For the purposes of this study – which is our first trial (i.e. pilot), the sample size is determined by the budget. We have very little literature we can draw upon for an effect size in a full-scale study so this study will be informative in this regard. Using a sample size of 1000 we can detect a difference in means (in standard deviation units) of 0.17 for both races and 0.21 within the African-American sample with 80% power and at a significance level of 0.05. For a sample size of 1400, these effect sizes are 0.15 and 0.18, respectively.

2.3 Treatment

Within each respondent arm, we will randomize across three different treatments, two with respect to variation in the sender and one with respect to the signal. Each treatment will involve an infomercial video in which a male actor gives information about the safety and efficacy of the flu shot. We will experimentally vary the: 1) race of the sender (either African American or Caucasian), 2) the sender "authority" (either doctor or layperson), and 3) the signal. One variant of the signal (message 2, M2) acknowledges past medical injustices while the other does not (M1). Both messages provide the same informational content with respect to the safety and effectiveness of the flu shot (see scripts below).

We will produce videos with a total of 5 African American and 5 Caucasian actors. All actors will wear the exact same clothes, and they will record the video four times representing the experimental variation discussed above. All actors will be recruited from the same casting agency and have separately been rated on attractiveness etc via Mturk. We will also pull data from imdb.com and mandy.com. In the doctor role, the actors will wear a button-down blue shirt, striped tie, a lab coat and stethoscope. In the layperson role, they will wear a white T-shirt. The baseline script video is about 40 seconds long, and the validation-script video is approximately one minute long.[4]

Message 1 (M1) script reads:

The Centers for Disease Control and Prevention, or CDC, recommends everyone 6 months and older get the flu shot. The shot protects you from getting sick by cutting your chance of catching the flu in half. It's also very safe: less than 1 in 100 vaccinated people experiences a side effect such as fever or chills. The flu shot does not contain an active flu virus, so you cannot get the flu virus from the shot. I get the flu shot every year to protect myself, my family, and my community. I recommend you look into getting vaccinated as soon as possible.

Message 2 (M2) script is identical to the above, except that we added three more sentences acknowledging historical injustices committed by the medical establishment. They are highlighted in bold-face below:

The Centers for Disease Control and Prevention, or CDC, recommends everyone 6 months and older get the flu shot. ***I know some people are nervous to follow medical advice about vaccines. In the past, there may have been times when the medical community broke your trust. But I hope that sharing some information with you can help you understand how important the flu shot is.*** *The shot protects you from getting*

[4]See appendix materials to this pre-analysis plan for two examples of the videos we recorded.

sick by cutting your chance of catching the flu in half. It's also very safe: less than 1 in 100 vaccinated people experiences a side effect such as fever or chills. The flu shot does not contain an active flu virus, so you cannot get the flu virus from the shot. I get the flu shot every year to protect myself, my family, and my community. I recommend you look into getting vaccinated as soon as possible.[5]

We include as a screening question the capability to turn the sound on so individuals can hear the video.

2.4 Assignment to Treatment

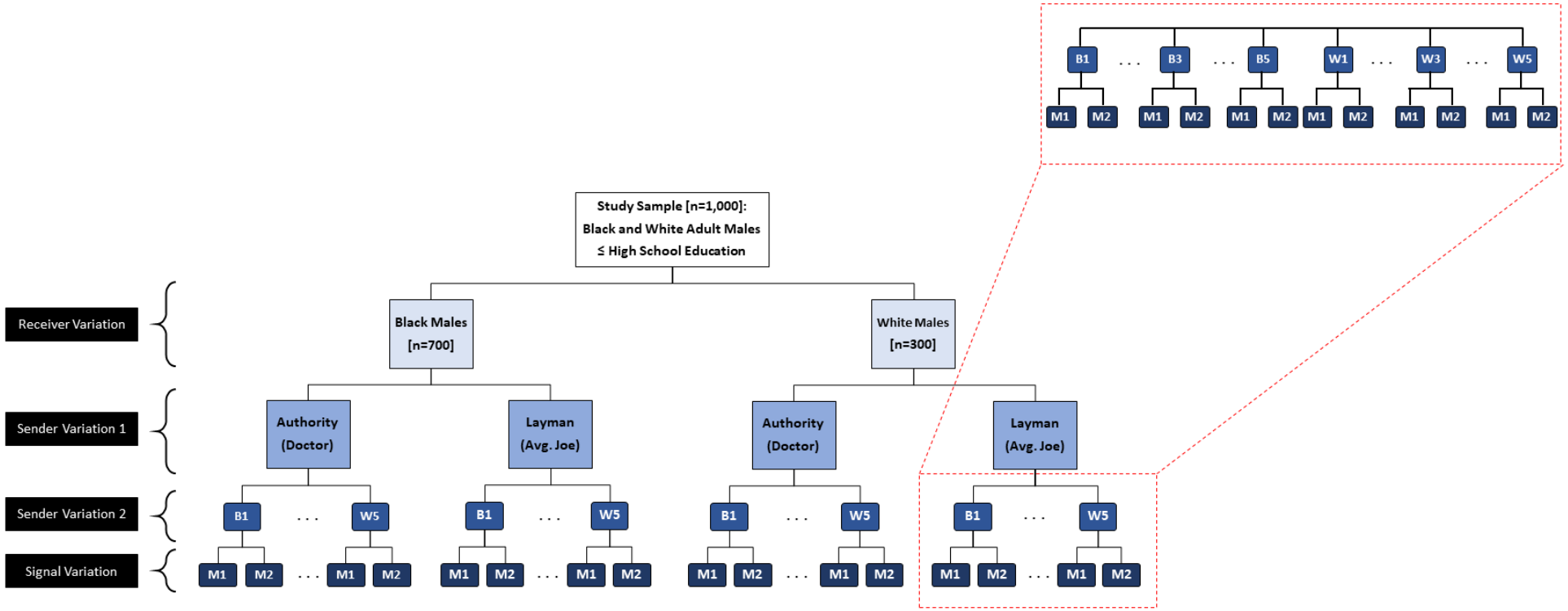
Subjects will be randomly assigned to one of eight main treatment groups that differ in the three dimensions described in Section 2.3. There will be an equal draw for black and white senders, an equal draw of M1 and M2, and a skewed draw of 70/30 towards doctors vs. layperson. We chose to have more subjects assigned to the doctor treatment because of prior research showing the importance of race concordance among men and their physicians (Alsan et al. 2019). Within each treatment group, subjects will be randomly assigned to one of the 5 recorded actors of the assigned race; we will assign subjects to each actor with equal proportion.

All subjects with a price draw of \$0 in the WTP elicitation will receive a free flu shot coupon. We will draw the price of \$0 with a probability $\frac{999}{1000}$. This is so that we can measure redemption in the majority of the sample.

We will elicit priors only from a random half of the subjects. This gives us the opportunity to check whether simply asking about beliefs prior to the information treatment changes behaviors via a "doubling down effect" or engaging System II vs. System I in decision-making.

Please see Figure 1 for the overview of the study design. The cutout shows the treatments in greater detail.

[5]For the layperson video - we replaced the word "cannot" with "can't" for the phrase "cannot get the flu virus from the shot."



Study Design

2.5 WTP elicitation

Redemption rates of the flu shot coupon (Redemption) as well as willingness to pay (WTP) for the coupon are the main outcomes of interest in this study. We will use the following method to elicit flu shot coupon valuations in an incentivized manner.

Immediately after the video treatment stage, we will use a multiple price list to elicit WTP. The price list includes prices $1, $2, $5, and $10. Prices will be presented as a take-it-or-leave-it offers. Subjects will be asked whether they prefer to receive or not receive the coupon at each price.

Subjects will be made aware that the amount would be deducted from their overall survey earnings. They will also be informed that the computer will randomly draw one of the prices after they made their decision, and that a price of $0 might also be drawn. At price $0, the coupon would be handed out for free. If the price drawn is above $0 and a subject accepted at that price, he will receive the coupon and pay that amount out of his survey earnings. If the subject rejected the price, he will not receive the coupon and will keep his entire survey earnings. We will skew towards drawing a $0 price so that we can observe redemption decisions for most subjects.

Since our target population is expected to have lower literacy and numeracy then other experimental samples – we have striven to keep our questions about WTP straightforward and provide an explanation in words of the consequences of each decision.[6]

2.6 Attrition from the Sample

The vast majority of our outcome variables will be collected in the Baseline survey, and thus will not be subject to attrition. That is, we expect few, if any, people to drop out after watching the video but before completing the survey, since they would lose the $10 survey incentive. We have some secondary outcome variables that can be impacted by attrition, though. Namely, all variables that will be collected in the Endline survey. The variables are: "Flu shot - self report / spouse / child", all secondary outcomes in the "Beliefs about the flu and flu shot" section, and all attention/recall questions elicited at Endline.

3. Fieldwork

3.1 Instruments

We will collect data from two major sources: Online surveys and administrative data on flu coupon redemption from the pharmacies. The surveys will be hosted by the survey platform Qualtrics. Individual-level data on flu shot coupon redemption will come from TotalWellness, the company that will provide the flu shot coupons to us. The coupons are redeemable at all major pharmacies, such as CVS, Walgreens, Kroger, and Wal-Mart, in the US.[7]

[6] We also wanted to keep the survey length manageable and hence we do not have training/understanding questions in the survey.

[7] See list of participating pharmacies here: https://www.totalwellnesshealth.com/pharmacy-2/.

3.2 Incentives

With respect to incentives, we will pay each subject $10 for completing the Baseline survey, and $5 for completing the Endline survey.

3.3 Data Collection

The field experiment will take place during the flu season, that is between November and January. Our pilot will commence with the Baseline survey around the second or first week of November and data collection is projected to be completed with an Endline survey in March 2019. Dates for a scale-up using social media are TBD.

Data collection will entail three components: Baseline survey responses, Endline survey responses, and data on flu shot coupon redemption. We will link the data across the three components using a unique numeric study identifier (ID) for each subject. In practice, we will assign the ID in the Baseline survey, where we also collect subjects' email addresses. After a participant who is eligible for the coupon completes the Baseline survey, he will receive the coupon immediately by email. The coupon has the subject's study ID printed on it. When a coupon is redeemed at a pharmacy, the pharmacist will record the ID and automatically pass it on electronically to TotalWellness for billing. TotalWellness in turn will collect the IDs of redeemed flu shot coupons and pass the list on to the research team for billing.

In addition to the above, we will collect data from a separate sample of low-income men regarding feedback on the actors including their attractiveness, tone and trustworthiness.

3.4 Data processing

Survey responses collected on Qualtrics will be downloaded as a .csv file, and then cleaned and analyzed in STATA. Data on flu shot coupon redemption will be merged with the unique study ID of each subject. Any PII will be dropped from the dataset, since it is not needed for the analysis. It is anticipated that do files that create and analyze the data will be made available to other research teams. The clean data (without identifiers) will also be made available. Only non-PII information on the actors will be released.

4. Empirical Analysis

4.1 Outcome Variable Construction

4.1.1 Flu shot take-up

Primary outcomes:

- **Flu shot coupon redemption**: Indicator for whether a flu shot coupon was redeemed. Coded 1 if yes, and 0 if no.

Secondary outcomes:

- **Link click**: Collected at Baseline. Indicator for whether subject clicked on link to look up participating pharmacies where one can redeem the flu shot coupon. The link is provided on the screen right after the zero price draw is revealed to subjects.

- **Flu shot intention - self**: Collected at Baseline. Measured by answer to the survey question *"Do you intend to get the flu shot between now and February 2020? - Definitely/Probably/Maybe/Probably not/Definitely not"*. Coded -2, -1, 0, 1, 2.

- **Flu shot - self report**: Collected at Endline. Indicator based on answer to the survey question *Did you get the flu shot since you completed our first survey (i.e. since October 2019)? - Yes/No.*

- **Flu shot - spouse**: Collected at Endline. Based on answer to the survey question *Did your spouse get a flu shot this season? - Yes/No/Don't have a spouse/Don't know.* - Coded 1 if "Yes", 0.5 if "Don't know", 0 if "No", and missing if "Don't have a spouse".

- **Flu shot - child**: Collected at Endline. Based on answer to the survey question *Did your children get a flu shot this season? - Yes/No/Don't have children/Don't know.* - Coded 1 if "Yes", 0.5 if "Don't know", 0 if "No", and missing if "Don't have children".

- **Flu shot - household**: Collected at Endline. Based on answer to the survey question *Did anyone in your household get a flu shot this season? - Yes/No/Live alone/Don't know.* - Coded 1 if "Yes", 0.5 if "Don't know", 0 if "No", and missing if "Live alone".

Index of flu shot take-up:

- Includes all primary and secondary outcomes listed above that are measured at Baseline.[8]

4.1.2 Flu shot valuation (WTP)

- **Flu shot coupon WTP**: Measured using the WTP elicitation as detailed in Section 2.5. Coded as the maximum price at which a subject opted to receive the coupon. If a subject preferred not to receive the coupon at all prices, WTP will be coded as 0.

4.1.3 Beliefs about flu shot safety

Primary outcomes:[9]

- **Flu shot safety**: Collected before and after display of the video. Measured by answer to survey question *"Take 100 adult men, selected from your community at random. Let's say all of the 100 adult men receive a flu shot at the start of the flu season. How many of them do you believe get the flu from the flu shot?"*. Coded as 100 minus the subject's answer. [10]

[8]The index is based on Baseline responses only to reduce any bias due to selective attrition between Baseline and Endline.

[9]Note we also considered incentivizing the belief elicitation, whereby people would make predictions and their guesses would be rewarded if correct. However we found it challenging to find an accepted arbitrator of the "truth".

[10]We have developed a novel interactive graphic for this and the question above that use a frequentist interpretation of probability and involves highlighting gray individual stick men with blue shading. This form of probability has been found to be easier to understand than others – see work by Gerd Gigerenzer.

- **Flu shot safety confidence 1**: Measured by answer to survey question *"You answered that you believe X out of 100 vaccinated men from your community will get the flu from the flu shot. How certain are you about your answer? - Very Certain/Certain/Neutral/Uncertain/Very uncertain."* Coded as 2, 1, 0 , -1, -2.

- **Flu shot safety confidence 2**: Collected before and after display of the video. Measured by answer to survey question that asks subject to distribute 10 balls over 10 different bins. Each bin represents a range of people, out of 100, who get sick from the flu shot. Coded as total number of balls that are put into the "0-9" bin. [11]

Index of beliefs - primary:

- Includes all variables from Section 4.1.3.

Secondary outcomes:[12]

- **Flu shot safety - endline**: Answer to the survey question phrased exactly as the question described in "Flu shot safety".

- **Flu shot safety confidence 1 - endline**: Answer to the survey question phrased exactly as the question described in "Flu shot safety confidence 1".

- **Flu shot safety confidence 2 - endline**: Answer to the survey question phrased exactly as the question described in "Flu shot safety confidence 2".

Index of beliefs - secondary:

- Includes all variables from the "Secondary outcomes" section of Section 4.1.3.

4.1.4 Messenger and message rating

All of the outcomes listed will be collected at Baseline.

- **Trustworthiness**: Answer to survey question *"How much do you agree or disagree with the following statement?: I trust the person in the video to give me medical advice. - Disagree strongly/Disagree/Neither agree nor disagree/Agree/Agree strongly"*. Coded as -2, -1, 0, 1, 2.

- **Qualification**: Answer to survey question *"How much do you agree or disagree with the following statement?: The person in the video is qualified to give me medical advice. - Disagree strongly/Disagree/Neither agree nor disagree/Agree/Agree strongly"*. Coded as -2, -1, 0, 1, 2.

- **Applicability**: Answer to survey question *"How much do you agree or disagree with the following statement?: The information provided in the video applies to people like me. - Disagree strongly/Disagree/Neither agree nor disagree/Agree/Agree strongly"*. Coded as -2, -1, 0, 1, 2.

Index of messenger rating:

- Includes all variables from the Section 4.1.4.

[11] We have developed a new graphic interface for this question based on work by Delavande and Rohwedder (2008). See a picture of the graphic in the Appendix.

[12] All of the outcomes listed will be collected at Endline

4.1.5 Attention / Recall

Primary outcomes:[13]

- **Frequency recall**: Measured by answer to the survey question *What did the person in the video say about who should get the flu shot?* - Everyone 6 months and older/Everyone 5 years and older/Everyone 18 years and older/I don't know. Coded 1 if selected "Everyone 6 months and older", and 0 otherwise.
- **Flu shot ingredient recall**: Measured by answer to the survey question *What did the person in the video say about what the flu shot contains?* - Contains active flu virus/Contains no active flu virus/I don't know. Coded 1 if selected "Contains no active flu virus", and 0 otherwise.
- **Background color recall**: This question is incentivized: Subjects will earn an extra $ if they answer correctly. Measured by answer to the survey question *What color was background displayed in the video?* - Gray/White/Blue/I don't know. Coded 1 if selected "Blue", and 0 otherwise.

Index of attention/recall - primary:

- Includes all variables from the Section 4.1.5.

Secondary outcomes:[14]

- **Gender recall**: Measured by answer to the survey question *Was the person in the video a man or a woman?* - Man/Woman/I don't know. Coded 1 if "Man", and 0 otherwise.
- **Race recall**: Measured by answer to the survey question *What was the race of the person in the video?* - Black/White/Other/I don't know. Coded 1 if selected correct answer, and 0 otherwise.
- **Authority recall**: Measured by answer to the survey question *What was the person in the video wearing?* - A doctor's coat/Casual clothes/I don't know. Coded 1 if selected correct answer, and 0 otherwise.

Index of attention/recall - secondary:

- Includes all variables from the "Secondary outcomes" section of Section 4.1.5.

4.2 Index construction

We plan to construct all indices listed in Section 4.1 according to the procedure outlined in Anderson et al. (2008) and Kling Liebman and Katz (2007).

[13] All of the outcomes listed will be collected at Baseline.
[14] All of the outcomes listed will be collected at Endline.

4.3 Balance Checks

We will conduct a series of balance tests across treatment arms to ensure that there are no chance differences between subjects in the various arms. We will regress characteristics on indicators for the arms and test their individual and joint significance. Balance tests will be conducted using the following subject background covariates:

- Race
- Age
- Married
- Unemployed
- High School Diploma
- Low Income
- Health Insurance
- Ever Vaccinated
- Reasons for Avoiding Vaccination
- Belief of Cost of Flu Shot
- Prior Belief on Flu Effectiveness and Safety

[15]

4.4 Treatment Effects

We intend to test the following hypotheses:

H1(a): Posteriors on flu shot safety will be higher for subjects randomized to one or more of the persuasion conditions: concordance, authority or validation.

$$\mu_i^1 = \alpha\mu_i^0 + \beta_1\mathbb{1}_i^c + \beta_2\mathbb{1}_i^a + \beta_3\mathbb{1}_i^v + X_i'\Omega + \epsilon_i$$

where μ^0 is patient i's prior belief on the perceived safety of the flu vaccine. In case no prior was elicited for a given subject, we will predict the prior of the subject using ML techniques and the prior responses for those that are elicited. The outcome μ^1 is patient i's updated belief on the perceived safety. $\mathbb{1}_i^c$ is an indicator for random assignment to a concordant actor, $\mathbb{1}_i^a$ is an indicator for random assignment to authority and $\mathbb{1}_i^v$ is an indicator for random assignment to validation signal. For now, we assume that, for each i, $\mu^0 < \mu^{true}$, i.e. the perceived prior mean benefit is less than the true benefit, and that the

[15] We will also have a balance test for the actors across race. Caucasian respondents are included reducing the chance that a concordance effect for African-American subjects, for example, is being driven by the African-American actors being more attractive, higher quality etc than the Caucasian actors. This is because the same set of African-American actors/videos would not have the same predicted effect on Caucasian subjects. It's also possible that if there are differential perceptions across doctor race by respondent race, this is mediating any concordance effect we find.

information (which is being held constant across doctor types) is intended to shift priors towards the truth.

X is a vector of attributes of the subjects and of the actors they are assigned to. We will obtain perceptions of the actors from a separate sample of men that are similar to the target population.[16] Ideally these subject and actor characteristics would be balanced across arms but it's possible there is imbalance by chance. Additional important controls in our context may be the timing in which recruitment occurs relative to the flu season and the local intensity of the flu virus nationally or at a more local geographic level. We will use double-selection LASSO to choose a control set in that event.[17]

The coefficients of interest are the βs. If concordant pairs update more than discordant conditional on the prior, then β_1 should be positive (negative) and significant for the outcomes of effectiveness (harm).[18] If β_2 is of the expected sign and significant, this suggests that authority is important for updating beliefs, and if β_3 is positive for effectiveness (negative for beliefs about flu shot harm) and significant, then validating perceived mistreatment in the past is important. Joint tests for the significance of the trio of persuasion treatments as well as the two involving the sender characteristics will be reported.

If people are not only "far from the truth" with respect to their priors, and have strong conviction in their wrongness, then it will be more difficult to shift their beliefs. To account for this, we propose both removing these individual from the sample (assuming they are balanced across treatment groups) as well as checking for a weaker treatment effect among such individuals.

$$\mu_i^1 = \alpha\delta_i^0 + \sum_{p=c,a,v} \beta_p \mathbb{1}^p + + \sum_{p=c,a,v} \gamma_p(\delta_i^0 \times \mathbb{1}^p) + X_i'\Omega + \epsilon_i$$

where δ is an indicator or continuous variable indicating that a subject is far from the true prior mean of effectiveness or safety and is very confident in their prior.

H1(b): Accuracy (posterior precision and mean) will be higher for subjects randomized to one of the persuasion treatments.

$$Accuracy_i^{post} = \alpha\mu_i^0 + \sum_{p=c,a,v} \beta_p \mathbb{1}^p + \epsilon_i$$

where the outcome is defined as correctness *and* confidence about the posterior mean and variance of the safety and effectiveness of the flu shot. To code this we may use greater than the majority of balls in the lowest bin. Another approach would be to define the variable based on the sample mean or mode in the ball-bin implied distribution. Finally, the likert score gives us another measure of certain and

[16] A subset of these questions are also asked in the baseline survey to the experimental sample. These variables include perceived age, qualifications, education, attractiveness, and trustworthiness. We will also use a voice analytic software to characterize the actors' voices.

[17] http://www.nber.org/programs/dev/slides/18Duflo.pdf.

[18] This follows Hjort et al. (2019) who examine posterior beliefs based on the signal (re: early childhood intervention effect size) and the prior.

very certain. **Note that regressions can only be run for those that were asked explicitly prior and posteriors *or* if we predict priors using split sample techniques.**

H2: WTP is higher for subjects randomized to persuasion conditions.

$$WTP_i = \alpha\mu_i^0 + \sum_{p=c,a,v} \beta_p \mathbb{1}^p + \Gamma' X_i + \epsilon_i$$

where WTP_i is Flu shot coupon WTP.

H3: Coupon redemption is higher for subjects randomized to persuasion conditions.

$$Redemption_i = \alpha\mu_i^0 + \sum_{p=c,a,v} \beta_p \mathbb{1}^p + \Gamma' X_i + \epsilon_i$$

H4: Secondary outcomes may vary by persuasion treatments.

$$Y_i = \alpha\mu_i^0 + \sum_{p=c,a,v} \beta_p \mathbb{1}^p + \Gamma' X_i + \epsilon_i$$

where Y_i includes secondary outcomes such as ratings of the sender, attention to the video, flu shot intent, and endline outcomes such as reported flu shot vaccination this season and among social network.

4.5 Heterogeneous Effects

Important secondary analyses will include investigating variation in the treatment response through interaction effects and sample splits. In particular, we are interested in whether the:

- persuasion treatment effects (TE) (concordance authority and/or validation) are different for black and white respondents
- TE vary by level of attention[19]
- TE vary by priors (beliefs about safety of shot)
- TE vary by perceived cost of flu shot
- TE vary by sociodemographic characteristics or medical history of the respondent (e.g. insurance status, marital status, has PCP, education)
- TE vary by "social distance" between the sender and receiver.[20]
- TE vary by local conditions, such as flu severity, flu shot availability, perceived and actual number of individuals vaccinated in community
- TE vary by distance to nearest pharmacy
- TE vary by double selection LASSO for finding heterogeneous treatment effects

[19] Attention may also be an outcome, if so we would be estimating complementary effects.
[20] Social distance proxied by age, education, race, income.

4.6 Standard Error Adjustments

Although the level of randomization is the individual (respondent) there could be correlation across individuals randomized to the same actor-script-authority combination. Since we have 40 such treatment clusters we will plan to cluster at this level. We will also use randomization inference to calculate p-values (i.e. RI-test command developed by Simon Heß).[21]

5. Research Team

The principal investigators of this study are Marcella Alsan and Sarah Eichmeyer. They will contribute equally to all stages of the project - that is the design and execution of the field experiment, as well as to the analysis of the collected data. Min Jeong (Joyce) Kim will support the project as a research assistant. She will assist in all aspects of the project implementation.

6. Funding and Ethics

Funding is provided by the J-PAL Health Care Delivery Initiative from MIT as well as Harvard Kennedy School. The IRB at Harvard is serving as the primary institution of record and has entered into a reliance agreement with Stanford and MIT.

7. References

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[7] Kling, Jeffrey R., Jeffrey B. Liebman, and Lawrence F. Katz. 2007. "Experimental analysis of neighborhood effects." *Econometrica* 75(1): 83-119.

[21] See https://github.com/simonheb

Appendix

A. Baseline Survey Link

https://www.dropbox.com/s/otlvqtgx357cwu6/qualtrics_survey_30oct2019.pdf?dl=0

B. Infomercial Video Link

- Version Message 1: https://youtu.be/CxxWBTOew-U
- Version Message 2: https://youtu.be/TlruIaBOk3o

C. Distribution of Beliefs