

On 9/17/2018, we (Heck, Meyer, Chabris) distributed by email a voluntary, anonymous Qualtrics survey to 4,200 primary care clinic healthcare providers (physicians, physician assistants, nurses, nurse practitioners, and licensed practical nurses) employed at Geisinger Health System. We intend to close this survey on 10/8/2018 and begin analyzing the responses. As of 10/8/2018, we have received 617 responses (including an unknown number of partial responses), with an additional 13 responses listed as “in progress.” This purpose of this survey was, broadly, to measure healthcare provider attitudes and responses to a series of health-related scenarios that were presented verbatim or as modified versions of stimuli related to three research projects in the Meyer-Chabris Lab. A separate preregistration document will be prepared for each project and frozen before any data are analyzed. We have not yet conducted analyses on these data. These projects (and their corresponding preregistrations) include:

**The A/B Illusion: Objecting to Experimentally Comparing Two Unobjectionable Policies**

Document title: ABI\_ProviderSurveyPreregistration18.10.4

**Information Avoidance in Genetic Health: Perceptions, Norms, and Preferences**

Document title: IAperceptions\_ProviderSurveyPreregistration18.10.4

**Behavioral Strategies to Reduce Information Avoidance in Cascade Testing and Attitudes About These Strategies**

Document title: CascadeNudgePerceptions\_ProviderSurveyPreregistration18.10.4

A complete export of the Qualtrics survey contains all questions and survey logic.

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**A/B Illusion Preregistration: Geisinger Provider Survey**

Checklist and Drug Effectiveness (Walk-in Clinic) Scenarios

10/8/2018

In our survey, we included two A/B Illusion scenarios that were previously run on Amazon Mechanical Turk and Pollfish: the safety checklist procedure and the drug effectiveness (walk-in clinic) scenario. The text and response options to each stimulus were exactly the same as previously preregistered and reported in our MTurk and Pollfish experiments, and are included at the end of this document. Responses to the primary dependent variable, appropriateness, were made on a 1–5 scale (1 = “very inappropriate,” 5 = “very appropriate”).

**Design & Logic:** The experimental design differed from what we have previously run (fully between-subjects; each participant reads only a single scenario; participants are unselected for professional background) in two ways. First, in this survey, each participant received two A/B Illusion scenarios, with a series of 9 unrelated questions presented in between these scenarios. The randomization logic was specified based on the following rules:

Participants were first randomized to receive one of six possible stimuli: Checklist A, Checklist B, Checklist A/B, Drug A, Drug B, or Drug A/B. Upon completing the unrelated interim questions, participants were randomized to read an A/B Illusion scenario that differed both in domain (checklist; drug) and experimental condition (policy; experiment). For example, a

participant initially randomized to [Checklist A] would subsequently read [Drug A/B]. A participant randomized first to [Drug A/B] would subsequently be randomly assigned to read either [Checklist A] or [Checklist B]. This logic was prespecified so that participants would be guaranteed not to see two policy conditions, two experimental conditions, two checklist scenarios, or two drug scenarios.

Second, participants in this survey were recruited on the basis of their professional status as practicing professional healthcare providers and asked two A/B Illusion questions about the appropriateness of A/B tests in medical settings. Although, as detailed below, we will analyze these results using the same analysis protocol we use for other A/B Illusion data, the extent to which the A/B Illusion we have detected in MTurk and Pollfish samples generalizes to participants with domain-specific expertise is an exploratory research question this study seeks to answer.

**Analysis:** As in our related experiments, for each domain/vignette, we will ask whether the A/B condition is judged to be less appropriate than its corresponding A or B condition. To estimate an overall measure of effect size, we will test the average appropriateness rating of the A and B conditions within each scenario against the rated appropriateness of the A/B condition for that scenario. As this is the first experiment during this project to specify a within-subjects design, we will also test for an A/B Illusion effect using a random-effects model to account for within-participant variance. We collected free response text explaining participants' reasoning for the appropriateness rating they chose for each scenario. We will treat these qualitative data as in our previous experiments using a free-response coding framework. Finally, we will conduct exploratory analysis as in our previous experiments with regard to participant demographics, professional experience, and specific role (e.g., physicians vs. others) in the context of healthcare.

## Stimuli

### Checklist A:

Some medical treatments require a doctor to insert a plastic tube into a large vein. These treatments can save lives, but they can also lead to deadly infections. A hospital director wants to reduce these infections, so he decides to give each doctor who performs this procedure a new ID badge with a list of standard safety precautions for the procedure printed on the back. All patients having this procedure will then be treated by doctors with this list attached to their clothing.

How appropriate is the director's decision?

### Checklist B:

Some medical treatments require a doctor to insert a plastic tube into a large vein. These treatments can save lives, but they can also lead to deadly infections. A hospital director wants to reduce these infections, so he decides to hang a poster with a list of standard safety precautions for this procedure in all procedure rooms. All patients having this procedure will then be treated in rooms with this list posted on the wall.

How appropriate is the director's decision?

### Checklist A/B:

Some medical treatments require a doctor to insert a plastic tube into a large vein. These treatments can save lives, but they can also lead to deadly infections. A hospital director thinks of two different ways to reduce these infections, so he decides to run an experiment by randomly assigning patients to one of two test conditions. Half of patients will be treated by doctors who have received a new ID badge with a list of standard safety precautions for the procedure printed on the back. The other half will be treated in rooms with a poster listing the same precautions hanging on the wall. After a year, the director will have all patients treated in whichever way turns out to have the highest survival rate.

How appropriate is the director's decision?

### Drug A:

Several drugs have been approved by the US. Food and Drug Administration as safe and effective for treating high blood pressure. Doctor Jones works in a multi-doctor walk-in clinic where patients see whichever doctor is available. Some doctors in the clinic prescribe drug A for high blood pressure, while others prescribe drug B. Both drugs are affordable and patients can tolerate their side effects. Doctor Jones wants to provide good treatment to his patients, so he decides that his patients who need high blood pressure medication will be prescribed drug A.

How appropriate is Doctor Jones's decision?

### Drug B:

Several drugs have been approved by the US. Food and Drug Administration as safe and effective for treating high blood pressure. Doctor Jones works in a multi-doctor walk-in clinic where patients see whichever doctor is available. Some doctors in the clinic prescribe drug A for high blood pressure, while others prescribe drug B. Both drugs are affordable and patients can tolerate their side effects. Doctor Jones wants to provide good treatment to his patients, so he decides that his patients who need high blood pressure medication will be prescribed drug B.

How appropriate is Doctor Jones's decision?

**Drug A/B:**

Several drugs have been approved by the U.S. Food and Drug Administration as safe and effective for treating high blood pressure. Doctor Jones works in a multi-doctor walk-in clinic where patients see whichever doctor is available. Some doctors in the clinic prescribe drug A for high blood pressure, while others prescribe drug B. Both drugs are affordable and patients can tolerate their side effects. Doctor Jones thinks of two different ways to provide good treatment to his patients, so he decides to run an experiment by randomly assigning his patients who need high blood pressure medication to one of two test conditions. Half of patients will be prescribed drug A, and the other half will be prescribed drug B. After a year, he will only prescribe to new patients whichever drug has had the best outcomes for his patients.

How appropriate is Doctor Jones's decision?

**In all cases,** participants then saw the following prompt:

“In a couple of sentences, please tell us why you chose the option you chose.”