October 5, 2015

Dear Colleagues,

We've decided to do something slightly different with the draft we are circulating. For this conference, we are conducting a survey experiment we have designed to test how the formal properties of privacy disclosures influence respondents’ willingness to share personal information. Since both of us are skeptics about the potential for such disclosures to make a meaningful difference, we are worried that if the experiment were to yield results consistent with our priors, that our readers would view them with suspicion. After all, how often do you see people report empirical results that conflict with their own previously published conjectures?

As a form of pre-commitment, and to increase the credibility of our results, we have decided to circulate this draft that explains the design of the experiment and of our analysis before actually conducting the experiment and before we view the result. Once this paper is circulated, we will conduct our pilot survey experiment and present the results for the first time in the Contracting Over Privacy conference. We look forward to any feedback you have.

- Adam & Omri
“Best Practices” in the Design of Privacy Disclosures:
An Experimental Test*

Omri Ben-Shahar† & Adam Chilton‡

Abstract

One of the primary goals of privacy regulations is to transform privacy disclosure into relevant, accessible, and clearer information aids for consumers. Laws, industry standards, and consumer groups have coalesced around a list of “best practice” guides that advocate several formal properties to be used in drafting privacy disclosure. But would such formal properties actually change behavior? This question has not been rigorously studied. We conducted a survey experiment designed to test whether altering the formal properties of privacy disclosures affects respondents’: (1) willingness to disclose personal information; (2) comprehension of the disclosure; and (3) understanding of their legal rights. Our results reveal that altering the formal properties of privacy disclosures have [no / a limited / a substantial] effect on the information respondents understanding, willingness to disclose information, or understanding of their rights.

* This paper was prepared for the Contracting Over Privacy conference held at the University of Chicago Law School on October 16-17, 2015. We would like to thank Marcos Garcia Dominguez, Lisa Fan, and Patrick Maxwell for helpful research assistance. Financial support for this project was provided by the Coase-Sandor Institute of Law & Economics at the University of Chicago Law School.
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1. Introduction

Mandated disclosure is the most commonly used regulatory device in privacy protection. Disclosure seems a sensible tool because it provides a simple and proportional solution to the underlying problem. If people surrender much of their personal information because they are unaware that it will be broadly used and broadly shared, then the solution is to make them aware. Equipped with the knowledge that disclosures afford them, people would make wiser information sharing choices. Thus, laws regulating financial and medical services, for example, specifically require privacy disclosures to be made in prominent ways, and provide precise guidelines what needs to be included in the notices.¹

Disclosure is widely embraced to advance the ideal of “transparency.” The White House recently issued a “Consumer Privacy Bill of Rights” declaring “Consumers have a right to easily understandable and accessible information about privacy and security practices.”² The Federal Trade Commission (FTC) promotes transparency as a “baseline principle,” instructing firms “to present choices to consumers in a prominent, relevant, and easily accessible place . . . and undertake consumer education efforts to improve consumers’ understanding of how companies collect, use, and share their data.”³ In its widely accepted “Fair Information Practice Principles” the FTC requires privacy disclosures to be “clear and conspicuous,” which means that “a disclosure be readily understandable, likely will communicate effectively the information needed by consumers to make an informed choice about the privacy of their information, including whether to transact business with a financial institution.”⁴

¹ See, e.g., The Gramm-Leach-Bliley Act, 12 C.F.R. § 1016.5 (“You must provide a clear and conspicuous notice to customers that accurately reflects your privacy policies and practices not less than annually during the continuation of the customer relationship.”); Health Insurance Portability and Accountability Act (HIPAA) § 164.520 (Guidelines for Notice Of Privacy Practices For Protected Health Information).
But despite the allure and wide embrace of transparency as a guiding principle, it has proven hard to accomplish effectively. Firms, of course, comply with the letter of the “shine the light” requirements, posting their privacy notices with all their magnificent detail. But consumers remained largely ignorant of the specific uses done with their data and continued to divulge personal information. Even if they tried, consumer could not feasibly make informed choices. According to one estimate, reading the privacy disclosures an average person encounters every year would take 76 days (McDonald & Cranor 2008).

The failure of disclosure mandates poses a challenge: could privacy disclosures be reengineered to make them more useful? If consumers care about privacy but don’t read the disclosures because they are poorly drafted, the solution—which is part of a more general trend in disclosure law towards “smarter disclosures”—seems inevitable: simplify the presentation and make it more user-friendly.

But how do you simplify the complex? The underlying information included in privacy disclosures is complex because companies collect many types of personal data and use or share it in numerous ways. In other areas, disclosure reforms abandoned the paradigm of “full disclosure” so as to achieve greater simplification. For example, nutrition facts boxes on packaged foods provide only a few standardized items of disclosure. But in the privacy area, lawmakers continue to demand that the privacy disclosures be “comprehensive” because, they correctly recognize, without full information people might fail to anticipate the true risk to their privacy. In search for ways to present the comprehensive disclosures more effectively, the solution of “Best Practices” has risen to the fore.

Best Practices are not a regulatory requirement. Rather, these are proposals made in recent years by lawmakers, advocacy groups and privacy experts, for an informal “code of conduct.” The goal is to provide consumers “enhanced transparency” so that they can “meaningfully” compare and choose on the basis of, among other things, the privacy aspect.\(^5\) Some of the best practices address the substance of privacy

practices, imploring firms not to collect unnecessary information, to diligently protect it, or to tell people how to contact the firm. But the bulk of the best practices deal with formal properties: how to present the information clearly and succinctly.

What is not known, however, is whether the use of these best practices in privacy disclosures actually changes behavior. In this paper, we present the results of a survey experiment that we designed to test that question. In the experiment, subjects were told (deceptively) that they were participating in a survey on risky sexual practices that would be used to help develop personalized policies to combat the spread of sexually transmitted diseases. Before beginning the survey, the respondents were presented with a data privacy disclosure, which listed all the ways that their personal information will be collected and shared.

To see whether best practices matter, we randomized the format of the privacy disclosures. These privacy disclosures covered the same topics and adopted the same substantive policy. For example, all of the disclosures said that we share their personal data with collaborators. Our experiment was thus not about the substantive of the privacy disclosures, but instead our experiment varied the formal properties of the disclosures. More specifically, each of the disclosures employed a different set of the best practices that are most commonly found in guides for developing model disclosures.

After being randomly exposed to one of six treatments—five privacy disclosures and a control treatment that did not include a disclosure—our survey proceeded to ask questions designed to test whether the formal properties of the privacy disclosure influenced the respondents’ behavior in three ways. First, we tested whether the formal properties of the disclosure influenced respondents’ willingness to disclosure sensitive personal information. We did so by measuring the number of risky sexual practices that respondents in each treatment group admitted to have engaged in previously, and also by measuring the number of questions requesting personal identifying information that respondents were willing to answer. Second, we tested whether the formal properties of the disclosure influenced respondents’ comprehension of the disclosure. We tested
this by both measuring the amount of time the respondents spent on the screen that presented our privacy disclosure and by asking a series of questions that asked respondents what policies we had adopted. Third, we tested whether the formal properties of the disclosure influenced respondents’ understanding of their legal rights. We specifically tested this by asking respondents a series of questions about whether they believed they had legal recourses if we violated our privacy policy and whether they were satisfied about the steps we were taking to protect their privacy. Taken together, our results reveal that altering the formal properties of privacy disclosures have [no / a limited / a substantial] effect on the information respondents understanding, willingness to disclose information, or understanding of their rights.

Our paper proceeds as follows. We begin with a brief survey of best practices. We then explain the survey experiment we designed to test whether the formal properties of privacy disclosure influence behavior. After doing so, we present the results of our experiment. We conclude by briefly discussing the implications of our results for future research and policy.

2. Best Practices

There is a widespread consensus among privacy experts, lawmakers, and advocates that an important component of firms’ information practices is good disclosure of these practices. “The issue of giving meaningful notice of privacy policies and practices concerns the most basic Fair Information Practices Principle: Openness.”

What good disclosure is thought to mean, in the privacy context, it to package the specific and comprehensive information in a well-designed sheet that helps readers find the relevant information and understand it. These are the “best practices.”

We reviewed ten guides that articulate such disclosure-design best practices. Some are part of statutory or regulatory requirements. Others are voluntary codes of

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conduct drafted by lawmakers. And some are complied by private groups. While there is no universal list of such best practices, we found the following recommendations to be the most common.\textsuperscript{7}

1. **Titles** – use clear titles and headers for the specific provisions.
2. **Layered Information** – provide a short-form summary for each provision, followed by the more comprehensive information. The long-form should appear in smaller font and may even be posted elsewhere, but in such case a clear reference or link to it must accompany the short-form summary.
3. **Font** – use easily readable type, in a legible size and in a distinct color that contrasts distinctly with the background.
4. **Literary Style** – use active, not passive, language; short sentences with plain, straightforward language.
5. **Examples** – when listing categories of personal information that is being collected or shared, give concrete examples, rather than ambiguous statements, of the type of information in each category.
6. **Names** – if the notice refers to partner and affiliated companies, provide their names.

Other best practices recommendations are also common, but they do not directly deal with the presentation format. For example, firms are encouraged to use consumer input (collected through surveys) when drafting or revising their policies. We thus decided to focus on these six common recommendations when designing our experimental test of the effectiveness of the formal properties of disclosure.

3. Research Design

   A. Survey Recruitment

We recruited ~600 respondents to take our survey through Amazon’s Mechanical Turk (mTurk) service. mTurk is a service that pays individuals a small fee for completing short tasks. In the last few years, the service has become a popular means of recruiting subjects for academic research. It is important to note, however, that using mTurk for academic research has been criticized both because the users are unrepresentative and because they may behave differently than other subjects due to their frequent exposure to academic research (Chandler et al. 2014; Kahan 2013). That said, a number of studies have suggested that samples recruited through mTurk and other online services behave similarly to samples recruited through other methods (Weinberg et al. 2014; Berinsky et al. 2012; Germine 2012).

Table 1 provides the demographic breakdown of our sample compared the adult population of the United States. As Table 1 shows, our sample [discuss differences between our sample and U.S. population].

<table>
<thead>
<tr>
<th>Table 1: Demographic Statistics of Our Sample</th>
</tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Our sample</strong></td>
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<tr>
<td><strong>U.S. Adult Population</strong></td>
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<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Male</td>
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<td>--</td>
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<tr>
<td>48.3%</td>
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<tr>
<td>Female</td>
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</tr>
<tr>
<td>51.7%</td>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>18-24</td>
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<td>13.1%</td>
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<td>25-34</td>
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<td>17.5%</td>
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<td>35-44</td>
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<tr>
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<td>45-54</td>
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<tr>
<td>19.2%</td>
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<td>55-64</td>
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<tr>
<td>15.6%</td>
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<tr>
<td>65+</td>
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</tr>
<tr>
<td>17.2%</td>
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<tr>
<td><strong>Race/Ethnicity</strong></td>
</tr>
<tr>
<td>White</td>
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<tr>
<td>69.0%</td>
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<tr>
<td>Hispanic</td>
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<td>--</td>
</tr>
<tr>
<td>13.6%</td>
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<tr>
<td>Black</td>
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<td>--</td>
</tr>
<tr>
<td>11.2%</td>
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<tr>
<td>Asian</td>
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<td>--</td>
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<tr>
<td>4.3%</td>
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<tr>
<td>Other</td>
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</tr>
<tr>
<td>1.9%</td>
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<tr>
<td><strong>Region</strong></td>
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<tr>
<td>Northeast</td>
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<tr>
<td>--</td>
</tr>
<tr>
<td>18%</td>
</tr>
<tr>
<td>Midwest</td>
</tr>
<tr>
<td>--</td>
</tr>
<tr>
<td>22%</td>
</tr>
</tbody>
</table>
B. Experimental Design

We designed our survey experiment to test the impact of the formal properties of privacy disclosures on respondents’ behavior. To do so, we wanted to find a topic for our survey that met three criteria. First, we wanted a topic where the answers to the questions would be sensitive and where respondents may be apprehensive about sharing personal information. Second, we wanted a topic where we could credibly tell respondents that the stakes of the research were high, and as a consequence, that truthful answers are important. Third, we wanted a topic where prior research had been conducted so we could follow best practices on how to word sensitive questions and would have baselines against which to compare our responses.

Ultimately, we elected to frame our survey as a study examining risky sexual behavior. More specifically, we told our respondents that our survey is part of an effort to develop new medical treatments to combat a sexually transmitted disease. This topic satisfies all three of our criteria. First, research has consistently shown that sexual practices are a sensitive topic, and respondents are often concerned about sharing private information about risky sexual practices (e.g. Kays, Gathercoat, & Burhow 2012). Second, the topic is high stakes: the purpose of the study is stated to be the development of programs and treatments to help combat the spread of sexually transmitted diseases. Third, a great deal of previous survey and experimental research on willingness to answer sensitive questions has looked at risky sexual behavior (e.g. John, Acquisti, & Loewenstein 2011).

In order to represent that our research focused on developing treatments for sexually transmitted diseases to our respondents, we started our survey by providing all respondents with the same prompt telling them that was the purpose of our research. Specifically, on the first screen respondents were told “[t]his survey is conducted by a research group in Chicago developing a new medical treatment for sexually transmitted diseases. The research examines risky sexual behavior. The results will be used to design
programs to help halt the spread of sexually transmitted disease. It is important that you answer all questions honestly.” After reading this prompt, the respondents were asked to click “Next” to start the survey.

We included this initial prompt for both substantive and practical reasons. The substantive reason is that we wanted respondents to believe that there were important stakes to our survey. Informing the respondents that the study would help to halt the spread of diseases could advance this goal. The practical reason is to allow us to measure the time respondents spent reading the privacy policy disclosures that we presented on the following screen. By including this initial screen, we were able to use the click “Next” as a start time.

After reading the initial prompt, respondents were directed to a screen presenting a privacy disclosure. This is our key experimental treatment. Respondents were randomly presented with one of five different privacy disclosures. 8 Our experimental disclosures were based on actual privacy disclosures and best practice guidelines. More specifically, we developed these disclosures after reading the privacy statements of dozens of companies and canvassing ten best practice guides. In addition to designing our disclosures to be realistic, we also designed them to all share four things in common.

First, all of the privacy disclosures began with the title “Your Privacy Rights.” This title was in bold and centered at the top of the page. We included the title in all prompts because we wanted to accurately replicate the way that most users experience privacy policies on websites and mobile apps.

Second, all of the privacy disclosures began by informing the respondents the purpose of the disclosure. Specifically we informed respondents that: “We value your privacy. In this page, we explain our data privacy practices, how we collect, use, disclose, transfer, and store the information about you that you reveal in the survey. Continuing past this page means that you grant us permission to engage in these practices.” 9

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8 For a control group, a sixth treatment condition presented respondents with blank page on this screen.
9 The wording of this sentence was changed slightly for the disclosures that do not use a clear literary style.
included this information in all prompts to inform all respondents at the start what the disclosure includes.

Third, all of the privacy disclosures covered the same four topics. Those topics are: (1) “the Data We Collect”; (2) “Data Use”; (3) “Disclosure of Data to Third Parties”; (4) “Protection of Personal Information.” These are standard topics for privacy disclosures. This uniformity made sure that the substance was standardized, allowing us to vary only the style.

Fourth, all of the privacy disclosures adopted the same basic policy for each of the four topics we discussed. For those four topics, the substantive policies that each privacy disclosure adopted are as follows:

1. **The information we collect:**
   - Responses to our survey questions
   - Respondents’ IP Addresses
   - Personal Information on respondents other data sources

2. **The information is used for:**
   - Academic research
   - Development of future medical treatments
   - Follow up communications with respondents

3. **The information may be shared with or disclosed to:**
   - Academic research partners
   - Partners in commercializing medical treatments
   - Insurance companies

4. **The Information is protected by:**
   - Keeping our data on password protected computers
   - Keeping identifying data encrypted
   - Requesting whoever we disclose data to keep it password protected
In short, each of the five privacy disclosures that respondents randomly received had the same title, presented the same introduction, covered the same topics, and adopted the same substantive policies.

The experimental treatment was randomly varying the formal properties used to present this information. As we previously noted, our research revealed that there are six best practices that are most commonly suggested: (1) providing titles; (2) layering information; (3) using a clear font; (4) using a clear literary style; (5) providing examples; and (6) using specific names. It would be impractical to test every possible combination of these best practices, but also unrealistic. Not every possible combination of these treatments would be used by actual privacy disclosures.

Instead, we developed six versions of a privacy disclosure for our treatment conditions (summarized in Table 2):

1. **Best Practice Treatment.** All six best practices were used.
2. **Organization Treatment.** The best practice treatment is altered by removing the two best practices that are related to document organization: providing titles and layering information.
3. **Presentation Treatment.** The best practice treatment is altered by removing the two best practices related to ease of read: using a clear font and using a clear literary style.
4. **Specification Treatment.** The best practice is altered by removing the two best practices that make the information less vague and more concrete: using examples and providing specific names for other entities and organizations.
5. **Worst Practice Treatment.** None of the six best practices are followed.
6. **Control Treatment.** This version simply displayed a blank page on the screen that contained a privacy disclosure for the other five treatment groups.

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10 Exact wording of the privacy disclosures is presented in Appendix A.
Table 2: Summary of Treatment Conditions

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Formal Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Titles</td>
</tr>
<tr>
<td>1. Best Practice</td>
<td>✔</td>
</tr>
<tr>
<td>2. Organization</td>
<td>❌</td>
</tr>
<tr>
<td>3. Presentation</td>
<td>✔</td>
</tr>
<tr>
<td>4. Specification</td>
<td>✔</td>
</tr>
<tr>
<td>5. Worst Practice</td>
<td>❌</td>
</tr>
<tr>
<td>6. Control</td>
<td>--</td>
</tr>
</tbody>
</table>

After being presented with one of these six treatments, the respondents were asked to click “Next” at the bottom of the disclosure page to continue the survey. The remainder of our survey was designed to test the effects of the privacy disclosures on the behavior of the respondents. We will discuss the way our survey tested these questions as we discuss our results below.

C. A Note on Deception

It is important to acknowledge that our experiment directly deceived the respondents. As previously noted, even though we are studying privacy disclosures, we informed the respondents that they were asking about risky sexual behavior in order to develop new medical treatments to combat the spread of sexually transmitted disease. Our decision to use deception, however, is hardly unique. For example, one study found that in the years from 1986 to 1997, between 31% and 47% of papers in a top social psychology journal used deception in their research design (Hertwig & Ortmann 2001).

The pervasiveness of deception in experimental research is based on the belief that it is acceptable when it is essential to the research design and the risks are minimal (see generally Morton & Williams 2010, at 500-521). In our case, we believe that
distracting respondents from the fact that we were studying privacy disclosures is the only way to ensure that they would react to those disclosures in a normal way. Moreover, we took three steps to minimize the risks to respondents. First, we based the sensitive questions we asked on prior survey research on privacy to make sure we were not moving beyond excepted research standards. Second, all respondents were provided with a debriefing statement after the conclusion of the experiment that informed them about the true purpose of our research. Third, we followed a data security plan to minimize the risk that any sensitive information would be compromised.

D. Demographic Balance

Before analyzing the results of our survey, we tested to make sure that the groups that received each of our six treatments were similar. To do so, we used the balance test from Hansen & Bowers (2008) to evaluate whether there was any evidence of imbalance among demographic variables reported in Table 1. Using this test, the overall \( \chi^2 \) statistic and the associated overall p-values for each group are: Worst Practice, XX.XX (p = 0.XX); Organization, XX.XX (p = 0.XX); Presentation, XX.XX (p = 0.XX); Specification, XX.XX (p = 0.XX); Best Practice, XX.XX (p = 0.XX); and Control, XX.XX (p = 0.XX). There suggests that there [is / is not] evidence of demographic imbalance between the subjects in our six treatment groups.

4. Results

After randomly providing respondents with different privacy disclosures, the remainder of survey was designed to test how the formal properties of privacy disclosures influenced respondents' (1) willingness to share personal information; (2) comprehension of our disclosure; and (3) beliefs about their legal rights. In this section we both describe how our survey tested each of those questions and the results we received.
A. Willing to Share Personal Information

The first thing we tested is whether the formal properties of our privacy disclosures affected the respondents’ willingness to share personal information. We did so in two ways. First, we asked respondents a series of sensitive personal questions about their risky personal behavior. Second, we asked respondents to provide us with personal identifying information.

One method that has previously been used to test the effects of the formal properties of surveys is how they influence the respondents’ willingness to provide sensitive personal information. In our case, we asked respondents a series of questions about their risk sexual behavior. These questions were either taken from or based on questions used in other research on sensitive survey research (e.g. Johns et al. 2009). We specifically identified 10 questions that asked about risky sexual behavior that we believed both requested sensitive personal information and could plausibly be related to efforts to prevent the spread sexually transmitted diseases (although, admittedly, some questions are more relevant than others). These questions are listed in Table 3. To avoid any ordering effects, the respondents were asked these questions in random order. For each, the respondents were asked to answer either “Yes” or “No”.

<table>
<thead>
<tr>
<th>Table 3: Questions on Risky Sexual Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever had sex with someone you met the same day?</td>
</tr>
<tr>
<td>2. Have you ever had sex with someone you met the same day without using a condom?</td>
</tr>
<tr>
<td>3. Have you ever cheated on your partner</td>
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<tr>
<td>4. Have you ever had anal sex?</td>
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<tr>
<td>5. Have you ever had sexual thoughts about a member of your same sex?</td>
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<tr>
<td>6. Have you ever used sex toys?</td>
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<tr>
<td>7. Have you ever taken nude pictures of yourself or of a sexual partner?</td>
</tr>
<tr>
<td>8. Have you ever been diagnosed with a sexually transmitted disease?</td>
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<tr>
<td>9. Have you ever lied about how recently you were tests for STDS?</td>
</tr>
<tr>
<td>10. Have you ever neglected to tell a partner about a sexually transmitted disease from which you were suffering?</td>
</tr>
</tbody>
</table>

11 We specifically randomly asked one of these 10 questions per screen. If a respondent attempted to move to the next screen without answering, they were asked, but not required, to provide a response. Respondents that either answered “No” or advanced without answering were coded the same for our analysis.
Figure 1: Mean Number of Risky Behaviors Disclosed

Figure 1 presents the responses to these 10 questions for each of our treatment six treatment groups. The dot provides the mean number of “Yes” responses and the bars provide the 90% confidence intervals. [Insert discussion of Figure 1 here.]

Additionally, after asking respondents these sensitive questions about their risky sexual behavior, we next asked the respondents a series of standard demographic questions. Within these questions, we asked respondents to provide us with several pieces of personal information: (1) the state they took the survey in; (2) the zip code where they took the survey; (3) their phone number; (4) their email address; and (5) their mailing address. For each of these questions, we gave respondents two options for answering. The first option was filling in a blank answer space. The second option was click “I prefer not to say.”

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12 The figures reported in this paper simply report the mean responses for each of the treatment groups. Appendix X reports the results of regressions that also control for the demographic variables reported in Table 1.
Figure 2 reports our respondents’ willingness to provide identifying information. Once again, the dots represent the mean number of questions that respondents filled in an answer in the space provided and the dots represent the 90% confidence intervals. [Insert discussion of Figure 1 here.]

**B. Comprehension of the Disclosure**

Next, we tested respondents’ comprehension of our disclosure in two ways. First, we measured the amount of time that respondents spent on the screen displaying our privacy disclosure. Second, we asked respondents questions to measure their comprehension of our privacy disclosure.

One goal of encouraging companies to make the formal properties of their privacy disclosures is to make them easier for consumers to understand. Whether this alters the amount of time consumers spend reading the disclosures, however, is unclear. It may be the case that respondents spend less time reading clear disclosures because they are easier to follow. Alternatively, it may be the case that consumers spend more time reading disclosures because they are less daunting than poorly drafted disclosures. Finally, it may be the case that the formal properties of disclosures do not effect the amount of time consumers spend reading disclosures because they are always clicked through as fast as possible.
We set out to test which of these effects the formal properties of privacy disclosures has. To do so, we measured the number of seconds that elapsed between when respondents clicked “Next” on the initial disclosure screen and when respondents clicked “Next” after the privacy disclosure screen.

**Figure 3: Average Time Each Group Spent on the Disclosure Screen**

![Figure 3: Average Time Each Group Spent on the Disclosure Screen](image)

Figure 3 reports the mean number of seconds (and 90% confidence intervals) that the respondents’ in each treatment group spent on the page with our privacy disclosure. [Insert discussion of Figure 3 here.]

In addition to measuring the time respondents spent on our privacy disclosure, we also directly asked them questions designed to assess their understanding of the disclosures. After our questions asking respondents about their risky sexual practices and our questions asking respondents to provide us with personal information, we specifically asked respondents five questions about the contents of our privacy disclosure. We asked one question about our policy on each of the four topics we discussed in our privacy disclosure: (1) what data we collect; (2) what we use the data for; (3) sharing the data with third parties; and (4) how we keep the data secure. In addition, we added a fifth question asking respondents about our policy on protecting the privacy of children. We did so because this is a commonly covered topic in privacy disclosures, and asking respondents for our policies on it is a good test of whether our disclosure was actually read.
Figure 4 reports the mean number of questions (and 90% confidence intervals) that the respondents’ correctly answered about the contents of our privacy disclosures. [Insert discussion of Figure 4 here.]

C. Understanding of Rights

Finally, the last questions in our survey were designed to test whether the formal properties of privacy disclosures impacted the respondents’ beliefs on their legal rights. One open question is why companies and other organization provide more disclosures than they are required to do so. It may be the case that posting disclosure statements alters users’ perceptions about their legal rights, or posting disclosure improves users’ perceptions about how seriously their privacy is being taken. We asked questions to test both of these possibilities.

To test whether the formal properties of disclosures alter perceptions about legal rights, we asked respondents two questions. First, we asked respondents, if we are acting consistently with out privacy policy, whether they believed they had a legal claim if we disclosed their data to a third party. Second, we asked our respondents if we ARE NOT acting consistently with our privacy policy, whether they believed they had a legal claim if we disclosed their data to a third party. For these questions, respondents how certain they were on a five-point scale ranging from very certain to not at all certain.
The top panel of Figure 5 reports the mean level of certainty (and 90% confidence intervals) that respondents had over whether they had a legal claim if we disclosed their data in a way that was consistent with our privacy statement. The bottom panel of Figure 5 reports the level of certainty that respondents had over whether they had a legal claim if we disclosed their data in a way that was inconsistent with our privacy statement. [Insert discussion of Figure 5 here.]

Finally, even if including drafting privacy disclosures that follow best practices does not change the information that consumers disclose, their compression, or their beliefs about their legal rights, it may increase consumer satisfaction. To test this, we ended by asking respondents two questions about their level of satisfaction with our survey. First, we asked respondents: “[h]ow satisfied are you that we take your privacy seriously?”. Second, we asked respondents: “[h]ow satisfied are you with your experience taking this survey?” For both questions, we asked respondents to provide answers on five part likert scales from “very satisfied” to “very dissatisfied”.
The top panel of Figure 6 reports the mean level of satisfaction (and 90% confidence intervals) that respondents had with how we were treating their policy. The bottom panel of Figure 6 reports the mean level of satisfaction that respondents had while taking our survey. [Insert discussion of Figure 6 here.]

5. Discussion and Conclusion

[To be written].
References


Appendix A: Privacy Disclosures

1. Best Practice Treatment

Your Privacy Rights

We value your privacy. In this page, we explain our data privacy practices. We explain how we collect, use, disclose, transfer, and store the information about you that you reveal in the survey. Continuing past this page means that you grant us permission to engage in these practices, including the permission to share the information with others as explained below.

The Information We Collect

• We collect information on your sexual practices based on your responses to questions in this survey.  
  For Example: In the survey, you will be asked how your sexual behavior is affected by risks of transmitted diseases. You do not have to provide responses, but if you do we collect your answers.

• We collect personal information that can identify you through this online interaction with your computer.  
  For Example, we collect information about your IP address, geographical location, zip code, the type of computer you use in this survey.

• We collect additional information about you from other public and private data sources.  
  For Example, we collect information about you from social media sites and insurance databases.

How We Use the Information

• We use the information for academic research.  
  For Example, we use statistical tools to measure the potential effectiveness of the medical treatments we are developing.

• We use the information to develop future medical treatments.  
  For Example, we develop medical treatments that depend on each patient’s personal medical history.

• We use the information to follow up with you on future communications.  
  For Example, we might send you offers to access to our new medical treatments. We will also communicated with you if there are changes to this Privacy Policy.

Disclosure of Data to Third Parties

• We share the information with research partners to improve the accuracy of our findings.  
  For Example, we share the information with an outside research companies that performs some analysis for us and with other researchers in academic institutions that study sexually transmitted diseases.

• We share the data with our partners that work with us on developing a new medical treatment and making it available for patients.
  For example, we disclose the information to iMed Solutions, Inc., a commercial company affiliated with our study that is developing personalized medical treatments. iMed Solutions, Inc., may further share the information with its affiliates and partners or sell it to others.

• We share the data with insurance companies that partner with us in developing the new medical treatment.
  For Example, we disclose the information to MHM Company (Midwestern Health Mutual Company), a health insurance company specializing in personalized health policies. MHI may share the information with its affiliates and partners, beyond our control, and use it for the development of its health insurance business.

These disclosures of your data and personal information may be done without requesting additional consent from you. Additional disclosures of you information to government agencies will be made to the extent permitted or required by law.

Protection of Personal Information

• We keep the personal information protected.  
  For Example, files containing your personal information will be locked at specially designated file cabinet in our office.

• We secure any communication that contains your personal information.  
  For Example, we encrypt any files containing personal information when we share or transmit them among our research and commercial partners.

• We hold our research partners to equally high data security standards.  
  For Example, we request that any of our partners receiving your personal information protect it by password.
2. Organization Treatment

Your Privacy Rights

We value your privacy. In this page, we explain our data privacy practices. We explain how we collect, use, disclose, transfer, and store the information about you that you reveal in the survey or in any other interaction, transaction, or engagement that links, references, or presents this policy. Continuing past this page means that you grant us permission to engage in these practices, including the permission to share the information with others as explained below.

This policy covers the survey as well as any interactions you may have with us. When you review this survey, please keep in mind that it is intended for a U.S. audience and the information may processed or transferred in the United States. Our survey is not intended for children under 13. We do not knowingly collect personal information from children under 13. If you have any relation with the survey group and any of its affiliates, we may collect information about you. If you have any questions after reviewing this policy, please address them according to the direction provided below.

We collect information on your sexual practices based on your responses to questions in this survey. You do not have to provide responses, but any response you provide is collected and stored. This includes information about sexual behavior in the present and in the past, how your behavior is affected by risks including risks of sexually transmitted diseases, and other information related to sexual conduct that you provide us. For Example, in the survey you will be asked how your sexual behavior is affected by risks of sexually transmitted diseases. You do not have to provide responses, but if you do we collect your answers. We also collect personal information that can identify you, including but not limited to your location information, the type of device you are using to respond to this survey, the web browser software, and the IP address of your computer. This information is collected through this online interaction with your computer and is intended to customize in a statistical and automated manner your profile. For Example, we collect information about your IP address, geographical location, zip code, the type of computer you use in this survey. In addition, we may collect and supplement or substitute the personal information collected through this online transaction with additional personal and non-personal information available from affiliated entities, research partners, and other independent third-party sources. These include but are not limited to social media sites, public and private databases, and insurance records, all in accordance with these providers’ policies. We acquire information from other trusted sources to update or supplement the information you provided or we collected automatically. Local law may require that you authorize the third party to share your information with us before we can acquire it. We may also collect other personal information when you provide such information or where we believe it is reasonably required for ordinary completion of the research that is part of this study. For Example, we collect information about you from social media sites and insurance databases.

We use the information for academic research, operating and improving our line of research, including the development of new products and services, the improvement of existing products and services, the performance of data analytics, and other internal function. For Example, we use statistical tools to measure the potential effectiveness of the medical treatments we are developing. The main use of the information is in developing a new medical treatment for sexually transmitted diseases. The research examines risky sexual behavior. The results will be used to design programs to help halt the spread of sexually transmitted diseases. We employ statistical tools in the analysis of the answers we receive from you and other survey subjects to measure the potential effectiveness of the medical treatments we are developing. We also use the information to develop future medical treatments in partnership with our research affiliates. The medical treatments we are developing are personalized, which means that they depend on each patient’s personal medical history. We also use the information in complying with and enforcing applicable legal requirements, relevant industry standards, contractual obligations and our policies; and for any other purposes that we may specifically disclose at the time you provide or we collect your information. We may also use data that we collect on an aggregate or anonymous basis (such that it does not identify any individual respondent) for various research purposes, where permissible under applicable laws and regulations. For Example, we develop medical treatments that depend on each patient’s personal medical history. Finally, we use the information to follow up with you on future communications, and we might send you offers to access to our new medical treatments. We will also communicate with you if there are changes to this Privacy Policy. For Example, we might send you offers to access to our new medical treatments. We will also communicated with you if there are changes to this Privacy Policy.

We share the information we collect from and about you with our affiliates and other third parties. We share some of the information with research partners to improve the accuracy of our findings, to help us perform some of the analytics of this study, and to collaborate with researchers that study related topics. For Example, we share the information with an outside research companies that performs some analysis for us and with other researchers in academic institutions that study sexually transmitted diseases. We also share the data with our partners that work with us on developing a new medical treatment and making it available for patients, which includes companies that offer commercial services, products, or programs in the area of personalized medical treatments, and affiliates and partners of such companies. For example, we disclose the information to iMed Solutions, Inc., a commercial company affiliated with our study that is developing personalized medical treatments. iMed Solutions, Inc., may further share the information with its affiliates and partners or sell it to others. We also share the data with insurance companies that partner with us in developing the new medical treatment, including companies specializing in health and wellness, and affiliates and partners of such companies. Where appropriate, we will limit sharing of your information in accordance with the policies specified in this notice and in accordance with applicable laws and regulations, industry practices, and contractual obligations. These disclosures of your data and personal information may be done without requesting additional consent from you. Additional disclosures of you information to government agencies will be made to the extent permitted or required by law. For Example, we disclose the information to MHM Company (Midwestern Health Mutual Company), a health insurance company specializing in personalized health policies. MHM may share the information with its affiliates and partners, beyond our control, and use it for the development of its health insurance business.

Residents of Vermont: We will not share personally identifiable information unless authorized by you. This does not limit us from sharing certain information about your response to the survey as permitted by law.
We want you to feel confident about using this website to respond to the survey, and we are committed to protecting the information we collect. While no online platform can guarantee security, we have implemented appropriate administrative, technical, and physical security procedures to help protect the personal information you provide to us. We use reasonable physical, electronic, and procedural safeguards that comply with safety standards to protect and limit access to personal information. This includes device safeguards and secured files and buildings. For example, files containing your personal information will be locked in a specially designated file cabinet in our office. We lock the information in secure locations, and require our partners and affiliates to do the same and to password protect the files when necessary. For example, we request that any of our partners receiving your personal information protect it by password. When we transmit the information, we encrypt any files containing personal information, and we employ firewalls and intrusion detection systems to help prevent unauthorized persons from gaining access to your information. For example, we encrypt any files containing personal information when we share or transmit them among our research and commercial partners protect it by password.
3. Presentation Treatment

Your Privacy Rights

Your privacy is valued by us. In this page, our data privacy practices are explained. It is explained how we collect, use, disclose, transfer, and store the information about that is being revealed by you in the survey. Continuing past this page means that permission to engage in these practices is granted to us, including the permission to share the information with others, as explained below.

The Information We Collect

- Based on your responses to questions in this survey, information on your sexual practices will be collected by us. For Example: In the survey, you will be asked how your sexual behavior is affected by risks of transmitted diseases. Responses do not have to be provided by you, but if you are, they will be collected by us.

- Through this online interaction with your computer, personal information that can identify you will be collected by us. For Example, information about your IP address, geographical location, zip code, the type of computer being used in this survey is collected.

- Additionally, from other public and private data sources, personal information that can identify you will be collected by us. For Example, information about you from social media sites and insurance databases may be collected.

How We Use the Information

- Academic research is how your the information will be used by us. For Example, statistical tools to analyze the information and to measure the potential effectiveness of the medical treatments we are developing will be used.

- Developing future medical treatments is another way that the information will be used by us. For Example, medical treatments that depend on each patient’s personal medical history are being developed.

- To follow up with you on future communications is another way that your information may be used by us. For Example, offers to access to our new medical treatments may be sent to you. Also, changes to this Privacy Policy will be communicated.

Disclosure of Data to Third Parties

- To improve the accuracy of our findings, the information will be shared by us with research partners. For Example, information will be shared with an outside research companies that performs some analysis for us and with other researchers in academic institutions that study sexually transmitted diseases.

- Our partners that work with us on developing a new medical treatment and making it available for patients will have the data shared with us. For example, information will be disclosed to iMed Solutions, Inc., a commercial company affiliated with our study that is developing personalized medical treatments. iMed Solutions, Inc., may further share the information with its affiliates and partners or sell it to others.

- Insurance companies that partner with us in developing the new medical treatment will have the data shared with us. For Example, information will be disclosed to MHM Company (Midwestern Health Mutual Company), a health insurance company specializing in personalized health policies. MIH may share the information with its affiliates and partners, beyond our control, and use it for the development of its health insurance business.

These disclosures of your data and personal information may be done without requesting additional consent from you. Additional disclosures of you information to government agencies will be made to the extent permitted or required by law.

Protection of Personal Information

- Your personal information will be protected by us. For Example, files containing your personal information will be locked at specially designated file cabinet in our office.

- Any communication that contains your personal information will be secured by us. For Example, any files containing personal information will be encrypted when we share or transmit them among our research and commercial partners.

- Our research partners will be held to to equally high data security standards by us. For Example, any of our partners receiving your personal information will be requested to protect it by password.
4. Specification Treatment

Your Privacy Rights

We value your privacy. In this page, we explain our data privacy practices. We explain how we collect, use, disclose, transfer, and store the information about you that you reveal in the survey. Continuing past this page means that you grant us permission to engage in these practices, including the permission to share the information with others as explained below.

The Information We Collect

• We collect information on your sexual practices based on your responses to questions in this survey. You do not have to provide responses, but any response you provide is collected and stored.

• We collect personal information that can identify through this online interaction with your computer. This information is collected through this online interaction with your computer and is intended to customize in a statistical and automated manner your profile.

• We collect additional information about you from other public and private data sources. We may collect and supplement or substitute the personal information collected through this online transaction with additional personal and non-personal information available from affiliated entities, research partners, and other independent third-party sources.

How We Use the Information

• We use the information for academic research, operating and improving our line of research, including the development of new products and services, the improvement of existing products and services, the performance of data analytics, and other internal functions.

• We use the information to develop future medical treatments. We employ statistical tools in the analysis of the answers we receive from you and other survey subjects to measure the potential effectiveness of the medical treatments we are developing.

• We use the information to follow up with you on future communications. We use the information to follow up with you on future communications, and we might send you offers to access to our new medical treatments.

Disclosure of Data to Third Parties

• We share the information with research partners to improve the accuracy of our findings. We share some of the information with research partners to improve the accuracy of our findings, to help us perform some of the analytics of this study, and to collaborate with researchers that study related topics.

• We share the data with our partners that work with us on developing a new medical treatment and making it available for patients. This includes companies that offer commercial services, products, or programs in the area of personalized medical treatments, and affiliates and partners of such companies.

• We also share the data with insurance companies that partner with us in developing the new medical treatment, including companies specializing in health and wellness, and affiliates and partners of such companies.

These disclosures of your data and personal information may be done without requesting additional consent from you. Additional disclosures of you information to government agencies will be made to the extent permitted or required by law.

Protection of Personal Information

• We keep the personal information protected. We use reasonable physical, electronic, and procedural safeguards that comply with safety standards to protect and limit access to personal information.

• We secure any communication that contains your personal information. When we transmit the information, we encrypt any files containing personal information, and we employ firewalls and intrusion detection systems to help prevent unauthorized persons from gaining access to your information.

• We hold our research partners to equally high data security standards. We require our partners and affiliates to implement the same high data security standards that we do.
5. Worst Practice Treatment

Your Privacy Rights

Your privacy is valued by us. In this page, our data privacy practices are explained. It is explained how we collect, use, disclose, transfer, and store the information about you that is being revealed by you in the survey or in any other interaction, transaction, or engagement that links, references, or presents this policy. Continuing past this page means that permission to engage in these practices is granted to us, including the permission to share the information with others as explained below.

This policy covers the survey as well as any interactions you may have with us. When this survey is being reviewed by, please keep in mind that it is intended for a U.S. audience and the information may be processed or transferred in the United States. Our survey is not intended for children under 13. Personal information from children under 13 is not knowingly collected by us. If you have any relation with the survey group and any of its affiliates, we may collect information about you. If you have any questions after reviewing this policy, have them addressed according to the direction provided below.

Information on your sexual practices based on your responses to questions in this survey will be collected by us. Responses do not have to be provided, but any response that is provided is collected and stored. This includes information about sexual behavior in the present and in the past, how your behavior is affected by risks including risks of sexually transmitted diseases, and other information related to sexual conduct that you provide us. Also collected is personal information that can identify you, including but not limited to your location information, the type of device you are using to respond to this survey, the web browser software, and the IP address of your computer. This information is collected through this online interaction with your computer and is intended to customize in a statistical and automated manner your profile. In addition, the personal information collected through this online interaction with additional may be supplemented or substituted with personal and non-personal information available from affiliated entities, research partners, and other independent third-party sources. These include but are not limited to social media sites, public and private databases, and insurance records, all in accordance with these providers’ policies. In addition, information from other trusted sources is acquired to update or supplement the information you provided or that is collected automatically. Local law may require that you authorize the third party to share your information with us before we can acquire it. Other personal information may be collected when you provide such information or where we believe it is reasonably required for ordinary completion of the research that is part of this study.

Your information will be used by us for academic research and for operating and improving our line of research, including the development of new products and services, the improvement of existing products and services, the performance of data analytics, and other internal functions. The main use of the information is in developing a new medical treatment for sexually transmitted diseases. The research examines risky sexual behavior. The results will be used to design programs to help halt the spread of sexually transmitted diseases. Statistical tools in the analysis of the answers we receive from you and other survey subjects will be employed to measure the potential effectiveness of the medical treatments we are developing. The information will also be used to develop future medical treatments in partnership with our research affiliates. The medical treatments that are being developed are personalized, which means that they depend on each patient’s personal medical history. The information is also used in complying with and enforcing applicable legal requirements, relevant industry standards, contractual obligations and our policies; and for any other purposes that would be specifically disclosed at the time you provide or we collect your information. The information that is being collected may also be used on an aggregate or anonymous basis (such that it does not identify any individual respondent) for various research purposes, where permissible under applicable laws and regulations. Finally, the information is used to follow up with you on future communications, and offers to access to our new medical treatments might be sent to you. If there are changes to this Privacy Policy, they will be communicated to you.

To improve the accuracy of our findings the information will be shared by us with research partners. Some of the information is shared with research partners to improve the accuracy of our findings, to help us perform some of the analytics of this study, and to collaborate with researchers that study related topics. The data is also shared with our partners that work with us on developing a new medical treatment and making it available for patients, which includes companies that offer commercial services, products, or programs in the area of personalized medical treatments, and affiliates and partners of such companies. The data is also shared with insurance companies that partner with us in developing the new medical treatment, including companies specializing in health and wellness, and affiliates and partners of such companies. Where appropriate, sharing of your information will be limited in accordance with the policies specified in this notice and in accordance with applicable laws and regulations, industry practices, and contractual obligations. These disclosures of your data and personal information may be done without requesting additional consent from you. Additional disclosures of your information to government agencies will be made to the extent permitted or required by law.

Residents of Vermont: Unless authorized by you, personally identifiable information will not be shared by us. This does not limit us from sharing certain information about your response to the survey as permitted by law.

We want you to feel confident about using this website to respond to the survey and we are committed to protecting the information being collected by us. While no online platform can guarantee security, appropriate administrative, technical, and physical security procedures have been implemented by us to help protect the personal information that is being provided to us. Reasonable physical, electronic, and procedural safeguards that comply with safety standards are used to protect and limit access to personal information. This includes device safeguards and secured files and buildings. Your information is locked in secure locations, and our partners and affiliates are required to do the same and to have the files password protected when necessary. When the information is being transmitted, any files containing personal information are encrypted, and firewalls and intrusion detection systems are employed to help prevent unauthorized persons from gaining access to your information.