

**Assessing Recall and Recognition for Important Safety Information in Digital
Promotion for Pharmaceutical Products: Implications for Website Design**

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Declaration of Conflicting Interests

Michael Polster is employee of Naxion and does not hold stock in any companies that are members of the DTC Working Group.

Clifford Thumma is an employee of Pfizer and holds company stock.

Pamela Trainer is an employee of Janssen Pharmaceuticals and holds company stock.

Kathleen Pearson is an employee of Eli Lilly and Company and holds company stock.

Nicole Dianno is an employee of Naxion and does not hold stock in any of companies that are members of the DTC Working Group.

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Abstract

Background. To date, there has been little research with *digital* direct-to-consumer (DTC) communication regarding pharmaceutical products (e.g., product websites), so this study was designed to measure perception and recall of Important Safety Information (ISI) in websites viewed on desktops and smartphone devices.

Methods. A quantitative survey was conducted with 1,600 self-identified asthma patients. Participants viewed one of four mocked-up websites for a fictitious asthma product in either a desktop or smartphone format that varied in the way in which risk information was presented and accessed. The “websites” were embedded in survey software that enabled behavior to be tracked and facilitated presentation of questions designed to assess memory and user experience.

Results. Statistically significant differences in likelihood of interacting with, and memory of, the ISI were observed across the four different presentation formats – two typical of existing website formats and two representing alternative formats – for both desktop and smartphone media. The traditional formats consistently outperformed the alternative formats overall, but when analyses are restricted to the subset of participants who view ISI, elements of one of the alternative formats proved to be superior.

Conclusions. digital presentation of different formats of risk information has a significant effect on recall and recognition of ISI associated with pharmaceutical

products, and the interactive nature of digital material adds a layer of complexity to assessing the performance of the various formats.

Keywords: Direct-to-Consumer Advertising, Digital Media, Regulatory Policy

Introduction

Direct-to-consumer advertisements and promotional labeling, commonly referred to together as direct-to-consumer (DTC) promotion or communication, for prescription pharmaceuticals are subject to regulation that require manufacturers to provide information about the risks when they discuss the benefits of a product. Pharmaceutical manufacturers have complied with that mandate, but questions have been raised about how effectively the risks, often in the form of important safety information (ISI), are being communicated. Several studies have demonstrated that both the amount of safety information presented and the manner in which it is presented influence how much of it participants are able to remember. For example, when the number of side effects presented in print ads was *increased* from 4 to 12 the percentage of participants who recalled one or more side effects *decreased* from 73% to 47%.¹ Similarly, in studies of brief summaries of drug information, alternatives to traditional text (e.g., question and answer, highlights, and drug facts box) have been demonstrated to improve recall of risks, and are associated with greater participant preference.² Findings of that nature led FDA to circulate revised draft guidance in August 2015, recommending that manufacturers provide consumers with a brief summary of “the most important risk information rather than an exhaustive list of risks... presented in a way most likely to be understood by consumers.”³ Notably, those studies – and the recent guidance – focus on *print* DTCAs, and do not address *digital* communications despite longstanding evidence that consumers are likely to use websites as a source of information about prescription medications⁴ – a finding confirmed by annual increases in traffic to product websites.

There is a small body of literature regarding *digital* DTC communication that includes a controlled study that found ISI was located faster and remembered more often when it was placed closer to a website's landing page and separated from benefit information.⁵ In another study, the authors determined that it required more clicks to find risk information than benefit information in a set of 20 randomly selected websites.⁴ Those studies are now over a decade old, during which time internet access and content have evolved substantially. In addition, the controlled study was based on research with college students (as opposed to patients seeking information about a drug), used a task that entailed actively searching for information, and asked participants to compare how noticeable risks were when presented in different formats. As a result, there has not yet been a systematic investigation of the impact that different *digital* presentation formats have on memory for ISI among *patients* (who would actually be seeking the information) when they interact with a website in a natural fashion. To that end, this research examined interactions with, and memory for, ISI presented in four digital DTC websites for a fictitious asthma product. The research also varied digital platform (i.e., desktop vs. smartphone) because platform/screen size is known to influence how people interact with digital material.⁶ Indeed, most products now have smartphone-optimized websites that account for a substantial portion of website traffic.

The ISI section of DTC websites is designed to inform patients of the potential risks of using the product, with the expectation that they will understand and ideally remember those risks. Applying an information-process approach to acquiring ISI from a digital DTC website yields four distinct stages: noticing the information, interacting with/reading it, understanding it, and remembering it. This research focused on the first,

second, and fourth stages because the goal was to measure the impact of presentation format when *content is held constant*, not to assess comprehension of different information. The objectives of the research, therefore, were to measure the extent to which formatting of digital information presented on a desktop or smartphone has an impact on whether or not: (a) ISI is noticed; (b) patients interact with ISI; (c) patients recall and recognize ISI; and (d) patients' experience with the website. Note that the research was not designed to compare performance across platforms because the expectation is that both platforms will continue to be available to consumers for the foreseeable future.

Materials and Methods.

Design Overview.

Four versions of websites that differ in how ISI could be accessed and displayed were created for a fictitious product to treat asthma, *Breelia*. Two of the versions (A and B) represented how ISI is commonly displayed on websites today (e.g., ISI at the bottom of the landing page), and Versions C and D required participants to click on a link to see full ISI presented in either a question and answer (Q&A) format (Version C) or the traditional formal (Version D). (See Appendix A for copy of actual materials.) Creation of the websites was informed by a 3-hour Advisory Panel with six communication and digital media experts.* A 4 x 2 experimental design was employed in which website version (A, B, C, or D) was crossed with presentation platform (desktop vs. smartphone) to create eight independent conditions. (See *Figure 1*)

*We would like to thank the following individuals for participating in the Advisory Panel: Dr. Baruch Fischhoff, John Kamp, Marc Monseau, Dr. Linda Neuhauser, Jillian Roberts, and Dr. Kathy Straub.

- Insert Figure 1 About Here -

Participants.

A total of 1,600 self-identified patients with asthma from the ResearchNow online panel* who met the following eligibility criteria participated in the research:

- self-reported asthma patient diagnosed by an MD
- at least 25 years old
- has or had a prescription to treat asthma
- at least 3 on a 5-point scale of likelihood to visit a website to learn about a new asthma product
- not employed as a doctor, nurse or pharmacist
- not employed by a pharmaceutical manufacturer, market research company, or ad agency.

The research was conducted in two phases – an initial phase consisting of three versions and a supplemental phase consisting of a fourth version. In the initial phase, one version represented the way in which many websites are currently formatted with ISI at the bottom of the landing page, and two versions represented alternative formats (questions with links to a question and answer presentation of ISI vs. presentation of brief statement about risks at the top of the page that then required clicking a link to read complete ISI). Each participant was randomly assigned to see one of the three website versions for the type of device he/she used to reply to the survey invitation (as

*IRB approval was not obtained because a voluntary opt-in panel was used.

determined by programming software). In the supplemental phase, another version of current websites that required participants to click to expand ISI at the bottom of the landing page was tested. Because content and dependent variables were unchanged across the two phases, all four versions are included in the analyses. For clarity of presentation, the two versions similar to current websites are labeled A and B, and the alternative versions are labeled C and D.

Weighting.

To maximize the representativeness of the findings, and minimize potential confounds across the survey arms, each of the eight survey arms was weighted to the estimated population of asthma patients (as defined by census, CPS, NHIS, and NHANES data) by age, gender and education level. Table 1 provides weighted demographic data for each of the eight survey arms.

- Insert Table 1 About Here -

Procedure.

Upon entering the survey, participants were advised that clicking the forward button would send them to a “website” to learn about a new asthma product. In fact, the “website” was embedded in the survey software so that scrolling and clicking behavior, as well as time spent on various pages, could be captured for subsequent analysis. Participants were told that each page of the website would enable them the opportunity to leave the website and return to the survey, but that once they leave the website they could not return to learn more about the product. This methodology was adopted to

maximize the ecological validity of the study, and prevent participants from returning to the website to look up answers to comprehension questions. After leaving the website, all participants were presented with the same series of questions:

- Open-end questions about risks and benefits, the order of which was randomized across participants so that approximately half were asked about risks first and the other half were asked about benefits first.
- Recognition of individual risks and benefits (yes/no/don't know)
- Recognition of appropriate behaviors associated with use (true/false/not sure)
- Ratings of likelihood to take various actions (5-point scales)
- Ratings of experience with website (5-point scales)

Pre-Test.

Prior to fielding the survey online, an in-person pre-test was conducted with 14 patients with asthma – nine using a smartphone and five using a desktop computer. For the pre-test, participants were allowed to complete the survey as they would if they were doing so at home while researchers observed from behind a one-way mirror. After completing the survey, a professional interviewer conducted a cognitive debrief with the participant to identify any aspects of the materials or survey that were unclear or confusing. None of the participants reported any difficulty understanding the material or answering any of the assessment questions.

Measures.

Data analyses are restricted to three ISI-related dependent variables – percent of participants engaging in clicking and scrolling behavior that can be used to identify who actually saw the ISI, percent of participants providing at least one correct risk of Breelia in the open ended question*, and mean percent of risks correctly identified in the recognition test – and diagnostic ratings of the “websites” (e.g., ease of finding information, clarity of information, etc.) on a 5-point scale. Data regarding recall of benefits are not presented because content of the benefit information was held constant across the versions, and no differences were observed.

Statistical Analyses.

Separate one-way analyses of variance were conducted to test for differences between the four different versions within the desktop and smartphone platforms. When a significant main effect was observed, *post-hoc* pairwise comparisons using Tukey-Kramer correction to account for multiple comparisons were conducted to identify the source of the effect. Analyses of co-variance that included demographic variables yielded a similar pattern of results, and therefore, the results of the bivariate analyses are presented.

Results

Does presentation format influence the frequency with which participants notice and interact with ISI?

*Sets of codes were developed for risks and benefits based on the open-ended answers of 100 participants, and data for other participants were coded accordingly.

Table 2 shows the percent of participants who, based on scrolling and/or clicking behavior, saw *any* of the Important Safety Information (ISI) for each condition in the desktop and smartphone platforms, and reveals significant differences across the four versions for both platforms (Desktop: $F_{3,796} = 551.47$, $p < .001$; Smartphone: $F_{3,798} = 174.86$, $p < .001$). Post-hoc t-tests reveal statistically significant differences on every pairwise comparison. Analyses for all subsequent questions are provided for both the entire sample, and the subset of participants who saw any ISI in each condition.

- Insert Table 2 About Here -

Does presentation format influence whether or not participants recall and recognize ISI?

Table 3 shows the percent of participants who recall at least one relevant side effect for Breelia when all the participants are part of the analysis, and when the analysis is restricted to the subset of participants who saw at least some of the ISI. Separate one-way analyses of variance reveal significant differences when all participants are included (Desktop: $F_{3,796} = 36.1$, $p < .001$; Smartphone: $F_{3,798} = 14.19$, $p < .001$). All desktop post-hoc comparisons are significant except between the two versions representing formats used today (A vs. B). Smartphone post-hoc comparisons reveal that version A is different from the other versions, which do not differ from each other. When the analysis is restricted to the subset of participants who saw any of the ISI, the main effect of the ANOVA is not significant for Desktop ($F_{3,465} = 0.81$, n.s.), but

is significant for Smartphone ($F_{3, 477} = 5.75, p < .001$). Post-hoc comparisons reveal that Version B is different from Versions A and D.

- Insert Table 3 About Here -

Table 4 provides the percent of participants who correctly answered “yes” to all 12 Breelia side effects for all participants and the subset of participants who saw any ISI, and reveals a similar pattern of results: When all participants are considered, one-way ANOVAs are significant for Desktop ($F_{3, 796} = 20.66, p < .001$) and Smartphone ($F_{3, 798} = 11.71, p < .001$). Post-hoc comparisons for Desktop reveal that version D is different than all other versions, and versions A and C are significantly different from each other. Post-hoc comparisons for Smartphone reveal that version A is different from the other versions, which do not differ from each other. When the analysis is restricted to participants who saw any ISI, performance on the four Desktop versions is not significantly different ($F_{3, 465} = 2.33, n.s.$), but performance on the four Smartphone versions is statistically significant ($F_{3, 477} = 3.35, p < .05$). Post-hoc comparisons reveal that the only significant difference is between Versions A and B.

- Insert Table 4 About Here -

Does presentation format influence perceptions of the website?

Table 5 provides mean ratings of the Desktop websites on three key dimensions – ease of finding risk information, clarity of risk information, and overall experience – for

all participants and for the subset of participants who saw some ISI. One-way ANOVAs reveal significant main effects of version on all three dimension for all participants (Ease: $F_{3, 698} = 5.2$, $p = .001$; Clarity: $F_{3, 698} = 5.87$, $p < .001$; Overall: $F_{3, 796} = 3.48$, $p < .05$), and for the subset who saw any ISI (Ease: $F_{3, 448} = 4.52$, $p < .01$; Clarity: $F_{3, 448} = 11.05$, $p < .001$; Overall: $F_{3, 465} = 6.52$, $p < .001$). Post-hoc comparisons for the entire sample reveal that ratings of Version D are lower than Versions A and C for Ease of Finding, and lower than A, B, and C for Clarity, and that Version C is higher than Version B on the Overall dimension. Post-hoc comparisons for participants who saw any ISI reveal that ratings of Version C are higher than Versions A and B for Ease of Finding and Clarity, and Version B on the Overall dimension.

- Insert Table 5 About Here -

Table 6 provides mean ratings of the Smartphone websites on three key dimensions – ease of finding risk information, clarity of risk information, and overall experience – for all participants and for the subset of participants who saw some ISI. One-way ANOVAs reveal significant main effects of version on all three dimensions for all participants (Ease: $F_{3, 735} = 4.732$, $p < .01$; Clarity: $F_{3, 734} = 5.68$, $p < .001$; Overall: $F_{3, 798} = 4.03$, $p < .01$), but only for the Overall dimension for the subset of participants who saw any ISI (Ease: $F_{3, 477} = 3.18$, $p < .05$). Post-hoc comparisons for the entire sample reveal that ratings of Version D are lower than A and C for Ease of Finding and the Overall dimension, and lower than A, B, and C for Clarity. Post-hoc comparisons for the Overall dimension for those who saw any ISI reveal only lower ratings for B vs. C.

- Insert Table 6 About Here –

Discussion.

These findings provide clear evidence that the format in which ISI are presented in digital media has a significant effect on whether or not patients with asthma attend to, and subsequently recall and recognize the information. Participants are significantly more likely to view and remember ISI when it is presented at the bottom of a website's homepage (i.e., typical of current format) than if they need to click to another page (alternative formats). This research was not designed to address reasons for the differences, but one likely hypothesis is that clicking requires people to notice the link in order to act. Comparing performance on Versions A and B, which differ only in how participants accessed ISI at the bottom of the page (scrolling in Version A vs. clicking in Version B), lends credence to that hypothesis because participants are significantly more likely to see the ISI when scrolling is required than when clicking is required. Although the difference in performance on the memory tests did not always rise to statistical significance, it was numerically higher in every instance for Version A. That pattern of performance has been observed in usability studies⁷.

On the surface, these findings appear to be at odds with the existing print DTCA literature, which suggests that question and answer formats are associated with better performance than traditional presentation formats.² Closer examination, however, suggests that the discrepancy is likely attributable to the difference between static print and interactive digital formats. In the case of printed materials, participants were shown

the ISI in the Q&A format, whereas in the digital format, participants were required to click on one of the questions on the landing page to see the ISI in the Q&A format. Because many participants did not click on a question in the Q&A format (Version C), performance on the memory tests was significantly poorer than in the traditional versions. Restricting the analysis to the subset of participants who did click, however, yields findings more consistent with the print DTCA literature; that is, consistently strong performance of the Q&A format, even though it may not always rise to statistical superiority. Taken together then, these observations support that Q&A is a valuable format -- so long as participants see the information. Given that more than half of participants *did not* click on the Q&A section, one way to leverage the Q&A format today may be to replace the current ISI format at the bottom of the landing page with the Q&A format so that when patients engage in scrolling behavior, they see information in a more patient-friendly format. Looking ahead, it will be valuable to explore whether or not the format can be developed to promote engagement with ISI when it is displayed on a separate Q&A page.

From a methodological perspective, these findings highlight the value of testing digital materials in a naturalistic manner. If static screens representing the different pages on the website had been presented, the difference between scrolling and clicking behavior would not have been observed. Survey software – and even eye-tracking software, which was not employed in this study – now make it possible to gain a more complete understanding of how individuals interact with digital media, and represent important tools to be used in research designed to compare digital presentation formats. For example, in a recent study, 80% of participants reported reading risk information on

a drug website for a fictional seasonal allergy drug, but eye-tracking data revealed little or no time spent on the risk information.⁸

As with any research, this research has limitations. First, and foremost, it includes only self-identified patients with asthma who are members of a web-panel and who indicate that they would likely visit a website to learn more about an asthma product. The desire to maximize the ecological validity of the task necessitated restricting the sample in that fashion, but doing so makes it impossible to know how the findings generalize to the population at-large or to patients with any other condition. There is, however, no reason to believe that patients with asthma interact with digital media differently from patients with other chronic conditions. It is, of course, possible that engaged patients are more knowledgeable about the risks of products that treat their condition, but there is no evidence that the level of knowledge would interact with presentation format. In addition, the fact that memory performance on the recognition never exceeds 50% eliminates ceiling or floor effects from consideration. Two minor limitations of the research are that participants were randomly assigned only to the three versions in the initial phase of the research and that there was 3-month lag until the supplemental phase was conducted, opening the possibility of sample bias between the versions even though the entire sample was secured from the ResearchNow Panel. Finally, the methodology precluded assessing the extent to which participants *read and understood* the important safety information before they were asked to remember it, which leads to another limitation: it is unclear if performance on the memory tasks across all four conditions reflects the fact that participants did not read all the information, did not understand some or all of the information, or did not remember it.

Note, however, that it is difficult to attribute any of the differences to a comprehension problem because the ISI was identical for Versions A, B, and D, and performance on those versions frequently differed significantly, highlighting the impact of presentation format.

Conclusion.

Presentation format has a significant impact on perception of, and memory for, ISI presented on websites. Participants appear more likely to scroll to ISI than to click a link to see it, but when they do click a link, a Q&A format appears to yield slightly better performance on memory tests and ratings of user experience. These observations may help pharmaceutical manufacturers as they try to optimize the display of ISI to ensure patients are well-informed about the risks of prescription medications.

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Figure 1: Design Overview

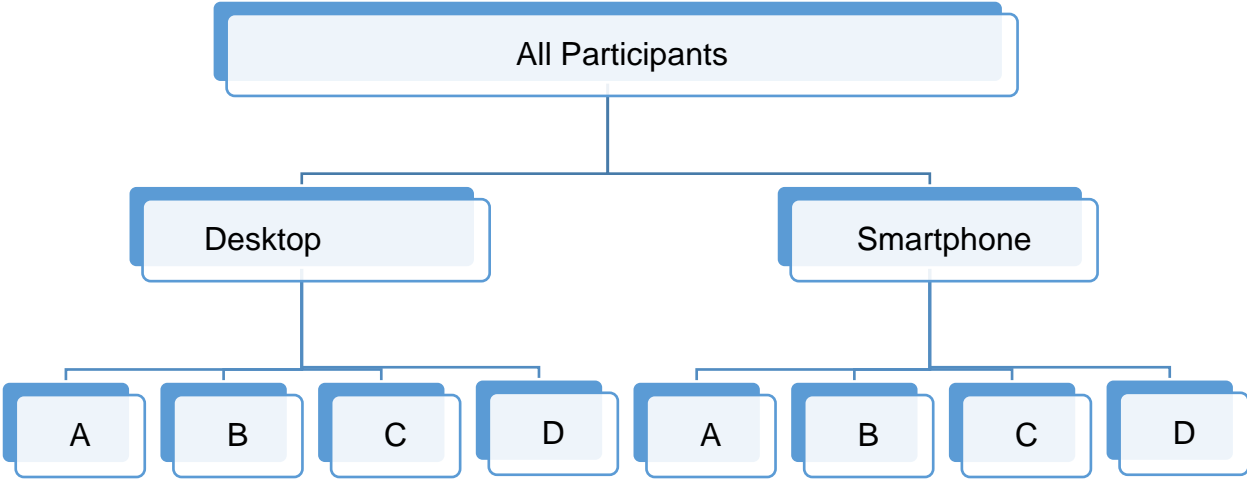


Table 1: Sample Description*

| Desktop Computer | | | | | Smartphone | | | |
|---------------------------------------|----------|----------|----------|----------|-------------------|----------|----------|----------|
| Version: | A | B | C | D | A | B | C | D |
| n = | 198 | 200 | 195 | 206 | 200 | 200 | 200 | 201 |
| % Female | 57% | 59% | 61% | 62% | 56% | 59% | 54% | 49% |
| Age | | | | | | | | |
| 25-40 | 31% | 31% | 31% | 31% | 31% | 31% | 31% | 31% |
| 41-64 | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% |
| 65+ | 19% | 19% | 19% | 19% | 19% | 19% | 19% | 19% |
| Race/Ethnicity | | | | | | | | |
| Non-Hispanic White/Caucasian | 91% | 92% | 91% | 89% | 89% | 88% | 90% | 88% |
| Non-Hispanic Black/African - American | 5% | 4% | 6% | 5% | 7% | 8% | 7% | 8% |
| Hispanic | 6% | 7% | 4% | 5% | 8% | 11% | 11% | 11% |
| Non-Hispanic Other | 7% | 8% | 5% | 9% | 6% | 10% | 6% | 10% |
| Employment | | | | | | | | |
| Full- or part-time | 52% | 62% | 56% | 56% | 57% | 60% | 57% | 57% |
| Not currently employed | 19% | 12% | 20% | 17% | 20% | 20% | 18% | 17% |
| Retired | 28% | 26% | 24% | 26% | 23% | 20% | 25% | 26% |
| | | | | | | | | |
| Mean Asthma Knowledge | 3.8 | 3.7 | 3.7 | 3.8 | 3.7 | 3.8 | 3.9 | 3.9 |
| Education | | | | | | | | |
| High school or less | 9% | 3% | 14% | 11% | 11% | 8% | 7% | 8% |
| Some college | 31% | 23% | 28% | 29% | 31% | 23% | 25% | 23% |
| College grad | 35% | 39% | 39% | 39% | 37% | 30% | 39% | 30% |
| Grad school | 25% | 34% | 19% | 21% | 21% | 39% | 29% | 39% |
| Health Insurance | | | | | | | | |

| | | | | | | | | |
|------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Managed Care | 54% | 64% | 55% | 52% | 59% | 61% | 52% | 61% |
| Medicare/Medicaid/ Other Gov't | 36% | 31% | 36% | 37% | 31% | 30% | 41% | 33% |
| Other | 5% | 3% | 2% | 5% | 5% | 5% | 3% | 3% |
| None/Not Sure | 4% | 2% | 6% | 5% | 5% | 5% | 4% | 3% |
| Time Since Asthma Diagnosis | | | | | | | | |
| Within past year | 2% | 2% | 2% | 5% | 6% | 7% | 9% | 3% |
| 1 to 2 years | 3% | 6% | 2% | 6% | 4% | 5% | 5% | 5% |
| 3 to 5 years | 13% | 7% | 14% | 6% | 12% | 7% | 9% | 13% |
| More than 5 years | 82% | 85% | 82% | 83% | 78% | 82% | 77% | 79% |
| Annual Household Income | | | | | | | | |
| Under \$25,000 | 14% | 7% | 16% | 16% | 10% | 11% | 14% | 10% |
| \$25,000 to \$49,999 | 24% | 21% | 21% | 24% | 28% | 17% | 16% | 24% |
| \$50,000 to \$74,999 | 21% | 27% | 27% | 23% | 21% | 21% | 20% | 17% |
| \$75,000 to \$99,999 | 16% | 16% | 13% | 17% | 11% | 17% | 19% | 16% |
| \$100,000 or more | 26% | 29% | 23% | 20% | 29% | 33% | 31% | 33% |

*Questions associated with this table:

S1: What is your age? (*Under 25; 25-40; 41-60; 65-75; Over 75*)

S3: How long ago were you diagnosed with [asthma]? (*Within the last year; 1-2 years ago; 3-5 years ago; More than 5 years ago*)

S6: My gender is... (*Male; Female*)

S7: What is the highest level of education you have completed? (*Less than high school graduate; High school graduate; Some college or technical/vocational training; College graduate; Graduate school*)

D1: Which of the following best describes your current employment status? (*Employed full-time; Employed part-time; Currently unemployed; Not working because of disability; Student; Homemaker/stay at home parent; Retired*)

D2: Which of the following best describes your total household income? (*Under \$25,000; \$25,000 to \$49,999; \$50,000 to \$74,999; \$75,000 to \$99,999; \$100,000 or more*)

D3: Which best describes the type of health insurance you have? (*Managed care, including HMO, or PPO; Medicare with or without supplemental; Medicaid; Government; Other, No insurance; I'm not sure*)

D5: Are you Hispanic/Latino? (*Yes; No*)

D5a: Which of the following best describes your race/ethnicity? (*White/Caucasian; Black/African American; Native American; Asian or Pacific Islander; Other*)

D6: On a scale from 1 to 5, where "1" means "Not at all knowledgeable" and "5" means "Extremely knowledgeable", in general, how knowledgeable are you about treatments for asthma?

Table 2: Percent of Participants Seeing Any ISI and All ISI*

| | Version | | | | Pairwise Comparisons | | | | | | |
|-------------|---------|-----|-----|-----|----------------------|-------|-------|-------|-------|-------|-------|
| Desktop: | A | B | C | D | F-statistic | A-B | A-C | A-D | B-C | B-D | C-D |
| Saw Any ISI | 98% | 83% | 44% | 9% | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| Smartphone: | | | | | | | | | | | |
| Saw Any ISI | 100% | 89% | 40% | 22% | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.05 |

*Analysis of clicking/scrolling behavior while viewing the website

Table 3: Mean Percent of Participants who Recall at Least One Relevant Side Effect of Breelia*

| | Version | | | | Pairwise Comparisons | | | | | | |
|------------------|---------|-----|-----|-----|----------------------|-------|-------|-------|-------|-------|------|
| Desktop: | A | B | C | D | F-statistic | A-B | A-C | A-D | B-C | B-D | C-D |
| All Participants | 78% | 73% | 52% | 35% | <.001 | n.s. | <.001 | <.001 | <.001 | <.001 | <.01 |
| Saw Any ISI | 79% | 77% | 85% | 83% | n.s. | | | | | | |
| Smartphone: | | | | | | | | | | | |
| All Participants | 81% | 61% | 53% | 49% | <.001 | <.001 | <.001 | <.001 | n.s. | n.s. | n.s. |
| Saw Any ISI | 81% | 64% | 79% | 89% | <.001 | <.01 | n.s. | n.s. | n.s. | <.001 | n.s. |

*Q1a: What are the side effects of Breelia? Please list all the side effects or risks you can remember. (Open-end)

Table 4: Mean Percent Correct Recognition of Breelia Side Effects*

| | Version | | | | Pairwise Comparisons | | | | | | |
|------------------|---------|-----|-----|-----|----------------------|------|-------|-------|------|-------|-------|
| Desktop: | A | B | C | D | F-statistic | A-B | A-C | A-D | B-C | B-D | C-D |
| All Participants | 41% | 34% | 32% | 22% | <.001 | n.s. | <.05 | <.001 | n.s. | <.001 | <.001 |
| Saw Any ISI | 41% | 38% | 47% | 44% | n.s. | | | | | | |
| Smartphone: | | | | | | | | | | | |
| All Participants | 46% | 37% | 35% | 30% | <.001 | <.01 | <.001 | <.001 | n.s. | n.s. | n.s. |
| Saw Any ISI | 46% | 38% | 46% | 36% | <.05 | <.05 | n.s. | n.s. | n.s. | n.s. | n.s. |

* Q2a: Can using Breelia be associated with the following risks? (Fungal infection; Nose and throat irritation; Muscle pain and weakness; Inflammation of the sinuses; Serious allergic reaction; Stomach discomfort; Back pain; Swelling of blood vessels; Weakened immune system; Reduced adrenal function may result in loss of energy; Eye problems including glaucoma and cataracts; Lower bone mineral density; High cholesterol^; Difficulty falling asleep^; Lung cancer^)

^Distraction items that did not appear on the website

Table 5: Mean Ratings of Desktop Website*

| | Version | | | | Pairwise Comparisons | | | | | | |
|------------------------------------|---------|-----|-----|-----|----------------------|------|-------|-------|-------|------|------|
| | A | B | C | D | F-statistic | A-B | A-C | A-D | B-C | B-D | C-D |
| All Participants: | | | | | | | | | | | |
| Ease Finding Risks | 3.9 | 3.7 | 3.8 | 3.5 | =.001 | n.s. | n.s. | <.001 | n.s. | n.s. | <.05 |
| Clarity of Risks | 4.1 | 4.0 | 4.1 | 3.7 | <.001 | n.s. | n.s. | <.001 | n.s. | <.05 | <.05 |
| Overall | 3.4 | 3.1 | 3.4 | 3.2 | <.05 | n.s. | n.s. | n.s. | <.05 | n.s. | n.s. |
| Participants Seeing any ISI | | | | | | | | | | | |
| Ease Finding Risks | 3.9 | 3.8 | 4.2 | 4.1 | <.01 | n.s. | <.05 | n.s. | <.01 | n.s. | n.s. |
| Clarity of Risks | 4.2 | 4.1 | 4.6 | 4.3 | <.001 | n.s. | <.001 | n.s. | <.001 | n.s. | n.s. |
| Overall | 3.4 | 3.1 | 3.6 | 3.3 | <.001 | n.s. | n.s. | n.s. | <.001 | n.s. | n.s. |

*Questions associated with this table:

Q5: On a scale from 1 to 5 where “1” means “Extremely Difficult” and “5” means “Extremely Easy,” how difficult or easy was it to find the following information on the website? (*Information about drug risks; Information about drug benefits*)

Q5a: On a scale from 1 to 5 where “1” means “Extremely Unclear” and “5” means “Extremely Clear,” how clearly was each type of information presented on the website? (*Information about drug risks; Information about drug benefits*)

Q6: Overall, how would you rate this website? (*5-point Likert: “1” is “Poor”; “2” is “Fair”; “3” is “Good”; “4” is “Very Good”; “5” is “Excellent”*)

Table 6: Mean Ratings of Smartphone Website*

| | Version | | | | Pairwise Comparisons | | | | | | |
|------------------------------------|---------|-----|-----|-----|----------------------|------|------|-------|-------|-------|-------|
| | A | B | C | D | F-statistic | A-B | A-C | A-D | B-C | B-D | C-D |
| All Participants: | | | | | | | | | | | |
| Ease Finding Risks | 4.1 | 3.9 | 4.0 | 3.6 | < .01 | n.s. | n.s. | <.01 | n.s. | n.s. | < .05 |
| Clarity of Risks | 4.3 | 4.2 | 4.1 | 3.8 | <.001 | n.s. | n.s. | <.001 | n.s. | = .01 | < .05 |
| Overall | 3.7 | 3.4 | 3.6 | 3.3 | < .01 | n.s. | n.s. | <.05 | n.s. | n.s. | < .05 |
| Participants Seeing any ISI | | | | | | | | | | | |
| Ease Finding Risks | 4.1 | 3.9 | 4.3 | 4.1 | n.s. | | | | | | |
| Clarity of Risks | 4.3 | 4.2 | 4.5 | 4.2 | n.s. | | | | | | |
| Overall | 3.7 | 3.4 | 3.8 | 3.3 | < .05 | n.s. | n.s. | n.s. | < .05 | n.s. | n.s. |

*Questions associated with this table:

Q5: On a scale from 1 to 5 where “1” means “Extremely Difficult” and “5” means “Extremely Easy,” how difficult or easy was it to find the following information on the website? (*Information about drug risks; Information about drug benefits*)

Q5a: On a scale from 1 to 5 where “1” means “Extremely Unclear” and “5” means “Extremely Clear,” how clearly was each type of information presented on the website? (*Information about drug risks; Information about drug benefits*)

Q6: Overall, how would you rate this website? (*5-point Likert: “1” is Poor; “2” is Fair; “3” is Good; “4” is Very Good; “5” is Excellent*)