

Do You Need A Foot-In-The-Door Or Is A Toe Enough? Scripting Introductions That Induce Tailoring and Increase Participation In Telephone Interviews

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Abstract

This paper presents a randomized experiment comparing a traditional introductory script with two new scripts that included aspects of tailored responses. Using the Washington Behavioral Risk Factor Surveillance System (BRFSS), a random digit dial (RDD) phone survey, sampled household received either the standard BRFSS introduction or a new script. The first experimental script included three “hook questions” designed to engage the household informant in conversation (e.g., “Have you heard of the survey?”). The second experimental script instructed interviewers to prioritize asking for a good call-back time to complete the interview instead of pushing for a complete on that call. This approach shows respect for the respondent’s time, and changes a large, unexpected request to a small one that the respondent can plan around. Call-backs can be a “toe-in-the-door” to full cooperation later. Our primary outcomes were eligibility rate, contact rate, interview completion rate, cooperation rate, refusal rate, and response rate. The findings suggest that that traditional introductory scripts, which can sound awkward on the phone, may be no worse than those scripted to sound better.

Key Words: survey introduction, CATI, BRFSS, interviewers

1. Introduction: The Catch-22 of Scripted v. Unscripted Introductions

Interviewers have two job roles that sometimes seem in conflict (Fowler & Mangione, 1990; West, Conrad, Kreuter, & Mittereder, 2018). On the one hand, interviewers are expected to be “sales persons”, developing rapport with household informants and convincing reluctant sampled persons to respond by emphasizing the importance of their survey. This usually requires tailoring their approach to the person on the phone or at the door by intuiting or uncovering their questions and reasons for resistance. On the other hand, once a respondent is recruited, interviewers are expected to be “questionnaire technicians”, administering consent interview scripts and survey questions in a very specific way (e.g., reading questions and response options verbatim, asking questions in a specific order, and probing in a neutral manner). These two roles map to nonresponse and measurement error avoidance respectively.

It can be difficult for interviewers to balance these roles, and challenging for supervisors to monitor. Some interviewers might not understand when they should be scripted and when they should be building rapport. Thus, to be safe, some surveys script the entire introduction, and enforce, as best they can, reading this script verbatim. While some interviewers are able to deliver scripted text that sounds natural, many cannot. Emphasizing scriptedness over delivery style can have a negative effect on cooperation because interviewers who sound scripted are less likely to gain cooperation (Benki, 2011; Broome, 2014, 2017; Conrad et al., 2013; Groves, O'Hare, Gould-Smith, Benkí, & Maher, 2007).

1.1 Dissecting Interviewers' Dual Roles: Sales Person V. Survey Technician

For general population household interviews, an interviewer's first job is to gain cooperation with a household informant. Once a household member is selected, their job is to gain cooperation from that person. If the survey samples multiple people in the household, the interviewer has a particularly challenging job. These recruitment stages may occur on a single contact or over multiple contacts, but the goal of obtaining cooperation remains the primary goal upon first contact with a household. In addition to their personal abilities and talents, interviewers have support materials and information such as the survey sponsor, frequently-asked-questions (FAQ), information about how the data are used, and practiced rebuttals (i.e., tailored responses) for resistant respondents. In the language of survey methodology theory, interviewers have the job of making these features salient to the respondent (Groves, Singer, & Corning, 2000). In telephone surveys, they may also have an introductory script that spells out important information about the survey. While such scripting could potentially support interviewers' persuasion efforts, this approach makes several assumptions characteristic of so-called "message in a bottle" communication theories. First, when using a scripted introduction, the researcher assumes they know what respondents need to hear to convince them to participate. Second, they assume that the order in which that information is presented is optimal for that goal. Third, they assume that all persuasive power is carried in this information, or at least that this information is more important than other interviewer factors such as likability and perceived trust. Under the scripted approach, interviewers simply need to relay provided information to the informant or respondent and cooperation will magically be gained. Alternatively, in a tailored introduction approach, the researcher provides interviewers with multiple pieces of information that respondents may want to know, but does not assume that any individual respondent wants or needs to know all of it. Interviewers are trained to use this information to tailor their responses while interacting with the household informant to motivate response, sometimes receiving explicit training not to read from their screens.

1.2 A Misapplication of Standardization?

At first, the conflict between scripting and tailoring described above may appear to be an over-application of Fowler and Mangione's (1990) guidance that interviewers read questions as worded to reduce measurement error. A close read of their guidance makes clear that it applies only to interviewers' questionnaire technician role, and not to recruitment. Despite their focus on questionnaire administration, Fowler and Mangione forward two insights or "principles" about the participation stage. Principle #1 says that respondents often participate in surveys without knowing much about the survey itself. Based on follow-up interviews the day after participating, they found confusion or misunderstandings about key aspects of the survey, such as its sponsor and the interviewer's employer. Thus, it can be inferred that the "cold hard facts" that interviewers share about that survey are less important for cooperation than how interviewers are perceived by respondents on dimensions like trustworthiness and likability, competence, and professionalism (Jäckle, Lynn, Sinibaldi, & Tipping, 2012). Certainly this does not

mean that surveys should not present this important information, but rather that simply presenting it does not motivate response.

Principle #2 states that “interviews are not a very important event in most respondents’ lives,” (p. 60). By this the authors seem to mean two things. First that the interview, while being a rare and novel experience, is not particularly memorable. This seems to be true from the findings discussed above. The other meaning is that the importance of the research itself does not seem to motivate participation. More important are a sense of being of service and the ability to talk to the interviewer (35% each of all reasons for participation recorded). When respondents are asked for reasons people do not participate in surveys, the most frequent reasons were being too busy (37%), not knowing enough about the survey’s purpose (29%), and have concerns with or objections to the questions to be asked (20%). Only 14% of respondents said that the survey not being worthwhile was a reason people would not participate. All of this points to personal reasons, rather than characteristics of the survey itself as cooperation motivators.

These principals have several logical extensions that motivate the current research. First, while researchers can do many things do to increase cooperation (i.e., call at certain times of day, provide incentives, design shorter interviews), no two sampled persons will have the exact same resistance reasons or perceptions of the interviewer and their request. Respondents have a wide range of personal reasons for participating in surveys or refusing to participate. Thus, interviewers should listen to the respondent’s reaction and be prepared to mention multiple persuasive reasons for participation. Such tailoring has been found to improve cooperation and reduce refusals (Couper & Groves, 2004; Groves & Couper, 1998; Groves & McGonagle, 2001). However, this is incompatible with standardization at the survey introduction and recruitment stage.

Second, if any specific pieces of information about the survey should be prioritized in the introduction, these should be the purpose of the survey, how the data will be used, and the overall importance of the research. This is different from some introductory scripts which focus on facts, such as the sponsor, interviewing company, interview duration, number of people sampled, or scope of the study (e.g., national).

Third, realizing that surveys are not important or memorable experiences for respondents can shape how survey designers approach contact and cooperation strategies. As methodologists, scientist, and sponsors, we know that the data being collected are essential for some policy decision or scientific advancement, and are only available through our survey. The respondent does not know these things, and many probably does not care. Thus, in addition to providing motivational messages, interviewers should highlight the logistical components of the participation request. This may involve offering to call back at a convenient time, and doing so before a hard refusal is received. Anyone who has been interrupted during their busy day knows how easy it can be to reflexively refuse a new request, and how to avoid refusals by saying “I don’t need your answer now, but...” before providing the details of their request. This same phenomenon occurs in survey interviews, where interviewer responsiveness can make the difference between a participation deferral and a refusal. Specifically, interviewers who are more responsive tend to produce deferrals, and interviewers who are less responsive tend to produce refusals (Broome, 2014). This contemporary finding supports a long history of research showing that responsiveness and tailoring increase cooperation (Groves & McGonagle, 2001; O’Muircheartaigh & Campanelli, 1998).

1.3 Contemporary Best Practices for Introductions

Broome (2017) proposes the following best practices for improving phone survey introductions (see Table 1).

Table 1. Contemporary Findings and Best Practice Recommendations for Telephone Interview Introductions and Interviewer Training

<i>Research Finding</i>	<i>Recommendation</i>
<ul style="list-style-type: none"> • Tailoring, responsiveness, and recognizing “conversation starters” all improve response, particularly when those conversation starts are “red flags” or “green lights” that hint at the householder’s intentions. 	“Emphasize responsiveness to answerer concerns”
<ul style="list-style-type: none"> • Providing answers and information tailored to the respondent’s request or comment is more important than responsiveness alone 	“Train interviewers to be aware of and respond to both ‘red flags’ and ‘green lights’ from answerers”
<ul style="list-style-type: none"> • Speech rate of about 3.5 words per second • Warmth and confidence result in cooperation 	“Train interviewer speech rates; consider implementing hiring criteria around vocal pitch”
<ul style="list-style-type: none"> • Starting scripting is okay as long as the interviewer does the other things listed above (particularly tailoring, which may require “breaking script”) 	“Train interviewers to switch gears from conversational introductions to standardized interviews”

Another emerging best practice involves using a “progressive involvement” or “progressive engagement” approach, which engages the household informant or selected respondent in an interaction designed to build rapport and provide opportunities for the interviewer to tailor their response by answering questions and persuading the householder to respond. Studies using this approach have found cooperation increases of up to 30% (Burks, Camayd-Freixas, Lavrakas, & Bennett, 2007; Lavrakas, Kelly, & McClain, 2016; Myers, Lavrakas, Pennay, & Vickers, 2016).

1.4 Research Questions: How Do We Move Toward a Tailored Approach Within a Script-Enforced Environment?

When forced to standardize introductions, what should a survey designer do? From the literature reviewed above, at least two avenues seem reasonable. Create a script that a) engenders a dynamic between the interviewer and respondent that gets the respondent talking and piques their interest in the survey, or b) removes the immediate pressure to agree or hang-up by explaining that the interview can be done at the household's convenience. Creating such scripts, we attempt to answer the following research questions.

- 1) Can we create a scripted introduction that engages the potential respondent, gets a foot-in-the-door, and facilitates interviewer tailoring?
- 2) With respect to nonresponse, will these scripts...
 - a. increase cooperation rates and response rates, and decrease refusal rates,
 - b. increase scheduled callbacks, and
 - c. recruit respondents with different characteristics?
- 3) Are there other efficiency gains or losses from the new scripts?

2. Methods

2.1 Brief Background on BRFSS and How Cooperation is Gained

The Washington State Behavioral Risk Surveillance System (WA BRFSS)¹ is a dual-frame random digit dial (RDD) phone survey of the Washington general population.² Because there is no prior relationship with the household, once a household informant is reached, the interviewer must explain the purpose of the call and answer any questions. The default WA BRFSS introduction scrip for cell phone calls (specified by the CDC) is below.

*"Hello, I am calling for the **Washington State Department of Health**. My name is _____. We are gathering information about the health of **Washington** residents. This project is conducted by the health department with assistance from the Centers for Disease Control and Prevention. Your telephone number has been chosen randomly, and I would like to ask some questions about health and health practices. This call may be monitored or recorded for quality control."*

If the person answering the phone does not hang up and is determined to be 18 years old or older, they are selected to participate in the full BRFSS interview.

2.2 Developing Alternative WA BRFSS Introductions and Experimental Design

Washington Department of Health (WA DOH) and ICF created two alternate "progressive" introductory scripts to test in production BRFSS sample in 2018; a "hook questions" script and a call-back scheduling scrip. Interviewers using the "hook questions" script introduced the BRFSS survey and asked one of 3 hook questions to engage the house hold member in discussion. This is intended to allow additional time and input the interviewer can use to craft tailored responses (Lavrakas et al, 2016). Each sampled cell phone number was randomly assigned to either the conventional BRFSS or hook question script, and each call

¹<https://www.doh.wa.gov/DataandStatisticalReports/DataSystems/BehavioralRiskFactorSurveillanceSystemBRFSS>

² This study focuses on the cell phone sample of the dual frame design because a WA BRFSS pilot study in 2017 found that a progressive introduction only had an effect in the cell phone sample.

that received the experiment introduction was randomly assigned to one of the three hook questions below (see Appendix A for the complete introductory script):

Hook 1: “Have you heard of this survey?”

Hook 2: “Can I take a minute to tell you about it?”

Hook 3: “Have you seen any news stories about this survey recently? It’s often published in major newspapers and reported in the nightly news because it’s such a large and important survey about health in Washington.”

The scheduled callback script, which was completed in a different production month than the hook questions script, instructed interviewers to prioritize setting a callback over completing the interview on that call. This was achieved with the script below. The experimental portion of the script is in bold.

“Good Morning/Afternoon/Evening/Hi/Hello.

My name is [INTERVIEWER NAME], and I’m calling for the Washington State Department of Health. We’re conducting the Behavioral Risk Factor Survey to gather information on the health of Washington residents.

INTERVIEWER NOTE 1: MAKE YOUR INTRODUCTION SOUND INVITING BUT MOVE TO SCHEDULING A CALLBACK TIME IF YOU FEEL THEY WILL HANG UP OR REFUSE. OFFER A TIME TO CALL BACK IF RESPONDENT DOESN’T GIVE YOU ONE.

If you have time, we can do the survey right now. If you don’t have time now, we can schedule a time for you to complete the survey. Which would you prefer?”

Figure 1 describes the sample design and random assignment for the 2018 WA BRFSS pilots. As shown in Table 2, the cell phone RDD sample in August and September was randomly assigned to either the conventional BRFSS script or the modified introduction script. Random assignment was at the sample unit level. Table 2 shows the sample sizes in experimental and control conditions.

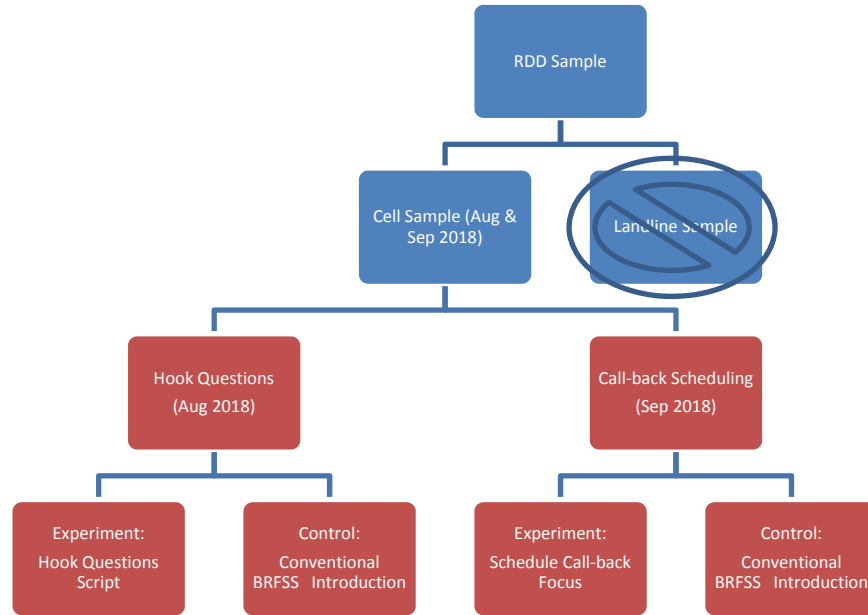


Figure 1: 2018 progressive introduction script experimental design

Table 2: Cell Phone Sample Allocation to Experimental Introductions by Month

<i>Introduction Protocol</i>	<i>Hook Questions (August 2018)</i>	<i>Call-back Scheduling (September 2018)</i>	<i>Total Sample</i>
Experimental	4,265	4,946	9,211
Conventional	4,212	4,945	9,157
Total Sample	8,477	9,891	18,368

2.3 Interviewer Training and Data Collection Process

Interviewers were trained for the hook questions experiment on July 31, 2018 in two groups, each of which lasted 30-45 minutes ($n = 45$ interviewers). The training involved an overview of the goals of the experiment, and partnered practice reading the experimental introduction script and responding to potential questions from householders. Based on performance in the first two weeks data collection and feedback from interviewers, the script was further modified. The original third hook question “*You may have seen a news story last year about getting kids to eat their vegetables that used our data*” was perceived as being ineffective and was replaced with the question included above (“*Have you seen any news stories about this survey recently? It’s often published in major newspapers and reported in the nightly news because it’s such a large and important survey about health in Washington.*”). Additionally, the phrase about the call being recorded was moved down in the script because interviewers felt that providing that information too early interfered with establishing rapport. Interviewers were retrained on August 16, 2018. Training for the September experiment was carried out similarly, with interviewers being trained on August 30, 2018 ($n = 36$ interviewers). No changes to the progressive appointment script were made during September fielding.

3. Results

3.1 Response and Outcome Rates³

3.1.1 Overall Response and Outcome Rates – Hook Questions

The hook question introduction did not affect official BRRSS response rates, refusal rates, cooperation rate, or interview completion rate (see Table B-1 in Appendix B for complete results). However the experimental introduction did reduce the eligibility factor⁴ by about 4 percentage points (Figure 2; $z = 2.805$, $p = 0.005$). It also reduced the contacted eligible rate by about 2 percentage points (Figure 3; $z = 3.794$, $p = 0.0002$).

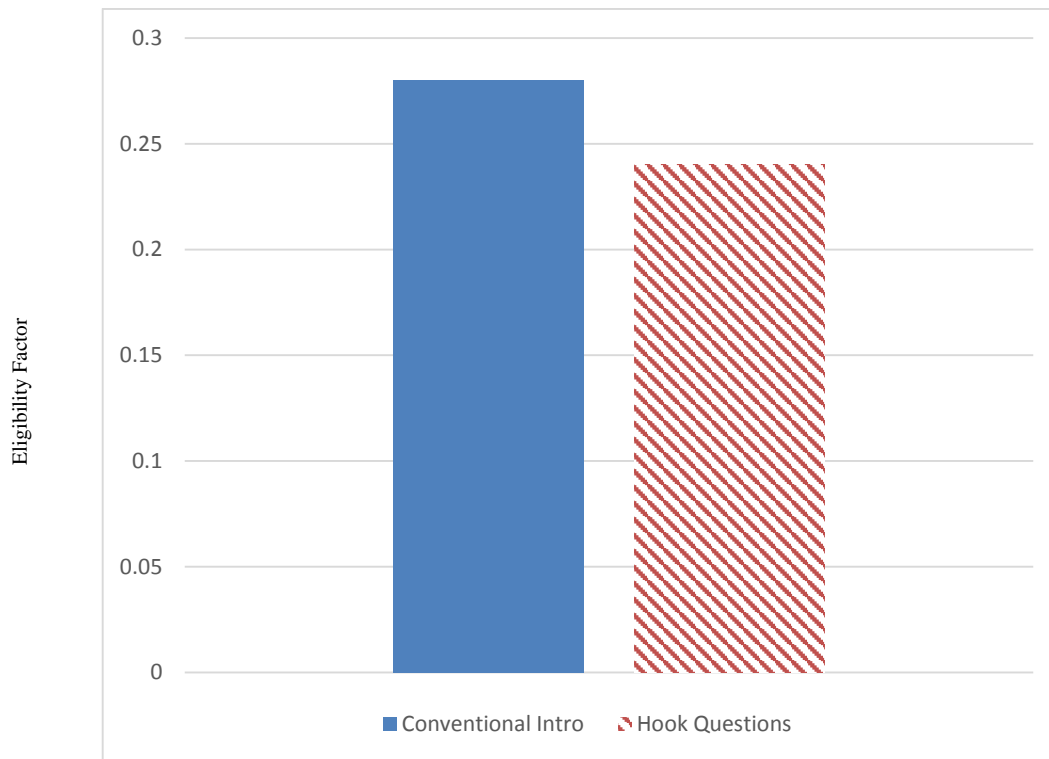


Figure 2: Effect of hook question introduction on eligibility factor

³ The primary focus of the statistical testing in this report was on the effect of the experimental introduction scripts on household response dispositions (i.e., were there differences in BRFSS outcome rates such as response rates, individual household dispositions, or respondent characteristics between households receiving the conventional introduction and the experimental introduction, in each respective month). All results in this report are unweighted. For all statistical tests, statistical significance was assessed at the conventional $\alpha = 0.05$ level. Significant results (i.e., those with a p -value < 0.05) were plotted in the body of the text. If a comparison or association test had a p -value between 0.051 and 0.1, the result is discussed in text as “approaching significance” or “borderline significant” but no plot is presented. All statistical results, significant and nonsignificant are presented in appendices.

⁴ The eligibility factor is calculated as $ELIG/(ELIG + INELIG)$, or eligible respondents/(eligible respondents + ineligible respondents).

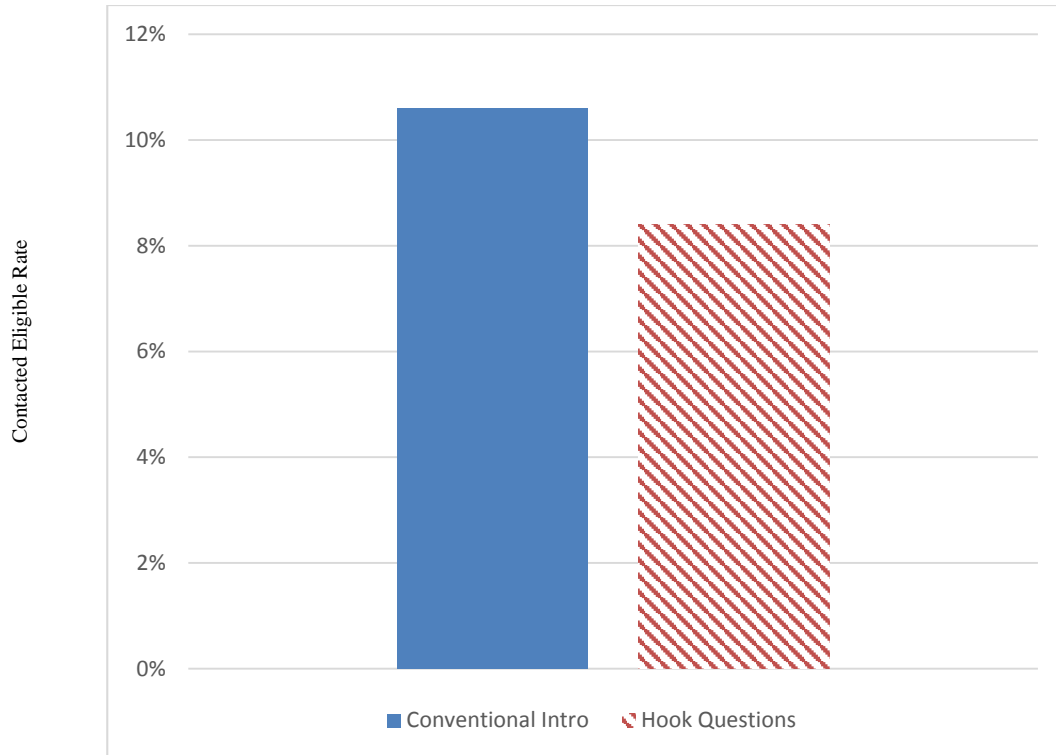


Figure 3: Effect of hook question introduction on contacted eligible rate (%CONELIG)

To explore the source of these effects, the impact of the experimental hook question introduction on individual dispositions was explored. The ELIG and INELIG BRFSS dispositions include the following raw dispositions:

ELIG: 1000 (complete) and 2000 dispositions

- 1100: Complete
- 1200: Partial Complete
- 2111: Household refusal
- 2112: Selected resp refusal
- 2120: Midterminate
- 2210: Selected resp unavailable
- 2220: Ans device, def private res
- 2320: Selected has Impairment
- 2330: Selected has Lang Barrier

INELIG: All 4000 level disposition codes

- 4100: Reached wrong geographic location
- 4200: Dedicated fax/data/modem line
- 4300: Nonworking
- 4400: Busy, fast busy, circuit busy
- 4430: Call forwarding/Pager
- 4450: Cell (on LL study)
- 4460: Rings to LL (on Cell study)

4500: Business or organization
 4510: Group home
 4700: No adults, or teen/child line

Additionally, the contacted eligible rate (CONELIG) is calculated as the sum of this particular constellation of the BRFSS and raw dispositions listed above:

CONELIG

1100: Complete
 1200: Partial Complete
 2111: Household refusal
 2112: Selected resp refusal
 2120: Midterminate
 2210: Selected resp unavailable
 2320: Selected has Impairment
 2330: Selected has Lang Barrier

Testing the individual dispositions involved in the eligibility factor found the following:

- 1) About 1 percentage point lower rate of Completes (1100) in the hook question condition.
- 2) About half a percentage point lower rate of 2000s series dispositions (refusals and other nonresponse) in the hook question condition.
- 3) No effect of hook questions on INELIG (4000) dispositions.

Further analysis found no significant impact of individual hook questions on outcome rates. When the hook questions were analyzed at the call level, rather than the aggregate level as done above, only marginally significant results were observed. Asking “...*can I take a minute...*” is potentially the worst performer in obtaining completed interviews (see Appendix Table B-8 for details).

3.1.2 Overall Response and Outcome Rates – Call-back Scheduling

The call-back scheduling script, fielded in September, had no significant impact on outcome rates. However, similar to the hook question results, it reduced the eligibility factor by about 3 percentage points, but that difference only approached significance at the 0.05 alpha level ($z = 1.889$, $p = 0.059$). Testing the individual dispositions involved in the eligibility factor in September found the following:

- 1) Borderline fewer partial completes (about half a percentage point) in the call-back scheduling condition.
- 2) About half a percentage point increase in cases reaching the wrong geographic area (4100) in the call-back scheduling condition.
- 3) Borderline significant increase of about 1.5 percentage points in nonworking numbers (4300) in the call-back scheduling condition.

3.1.3 Outcome Rates at Different Times of Day – Hook Questions & Call-back Scheduling

Figure 4 presents eligibility factor by interview time of day for the hook question experiment. Compared to the conventional introduction, hook questions led to an eligibility factor that was about 4% lower in the afternoon ($z = 2.213$, $p = 0.027$). While only the difference in the afternoon was significant, likely due to sample size, there is a clear pattern of hook questions leading to lower eligibility rates during all parts of the day. The eligibility factor appears to decline over time of day by almost 50%. However, this trend was not tested in the current analysis.

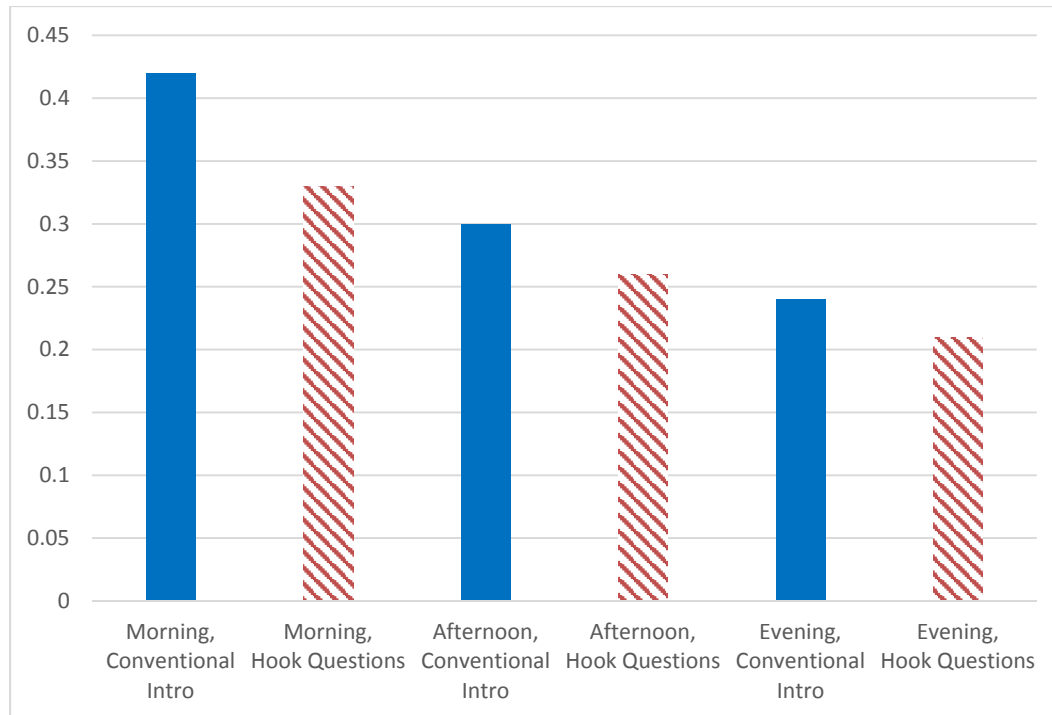


Figure 4: Effect of hook question introduction on eligible factor over times of day⁵

Figure 5 shows similar results for the contacted eligible rate (%CONELIG). Again, the only significant relationship was a lower contacted eligible rate in the afternoon (about 2.5 percentage points lower than in the conventional condition, $z = 3.577$, $p = 0.0004$). But, again, there is a clear trend of lower %CONELIG under the hook question introduction across the day. Unlike the eligibility factor, this rate is relatively stable across time of day, with perhaps a slight increase. However, time of day itself was not tested in this analysis.

⁵ Morning is After 12 AM, before 12 PM; Afternoon is 12 pm to 5 pm; Evening is 5 PM to before 12 PM.

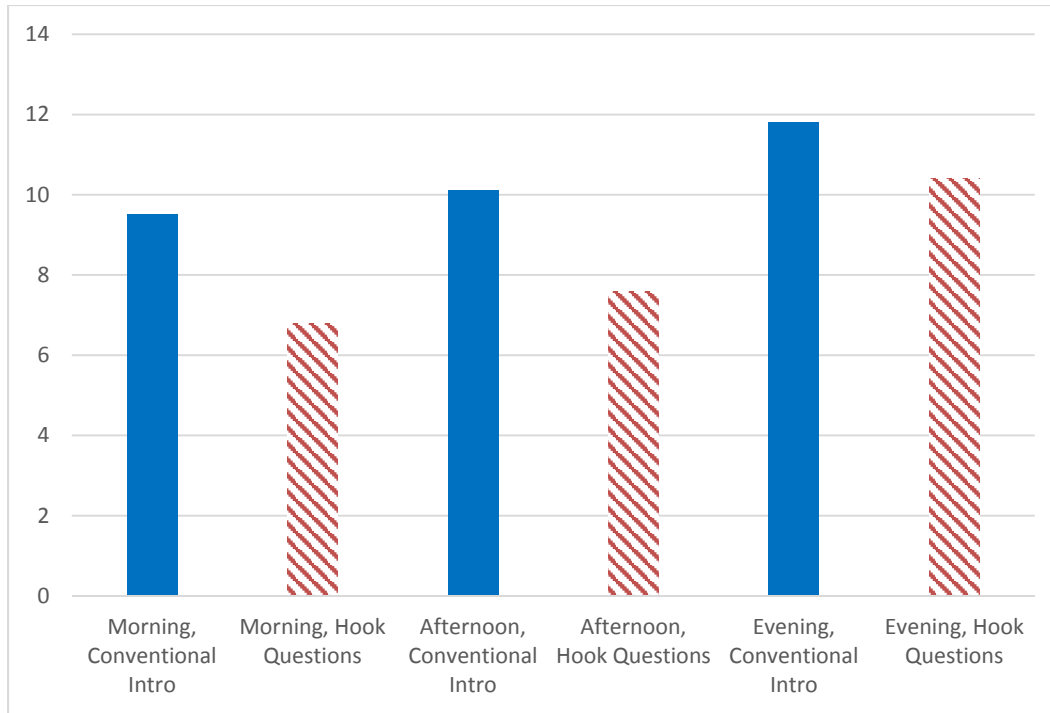


Figure 5: Effect of hook question introduction on contacted eligible rate (%CONELIG) over times of day⁶

Table B-2 in Appendix B provides the detailed counts and rates on which the figures and tests above were based.

There were no significant differences in effects across call time windows related to the call-back scheduling script. Table B-3 in Appendix B provides the detailed counts and rates on which these tests were based.

3.1.4 Increasing Scheduled Call-Backs

The call-back scheduling script performed as expected significantly increasing the percentage of contacts (out of all contact attempts) that ended in a scheduled call-back. Figure 6 shows the rate of scheduled call-backs to screener calls and calls to a sampled adult for the conventional and modified script, with the same trends for the August sample included for comparison. In addition to the higher rate of scheduled callbacks due to the modified script, there are clear monthly differences in the scheduled callback rate. On calls 2-3, September sample had a higher rate of scheduled callbacks than August in both the conventional and modified script conditions. This could be due to experimental condition contamination due to the fact that interviewers worked both types of scripts each month. There is also a large jump in the number of callbacks at the end of August which is unexplained.

⁶ Morning is After 12 AM, before 12 PM; Afternoon is 12 pm to 5 pm; Evening is 5 PM to before 12 PM.

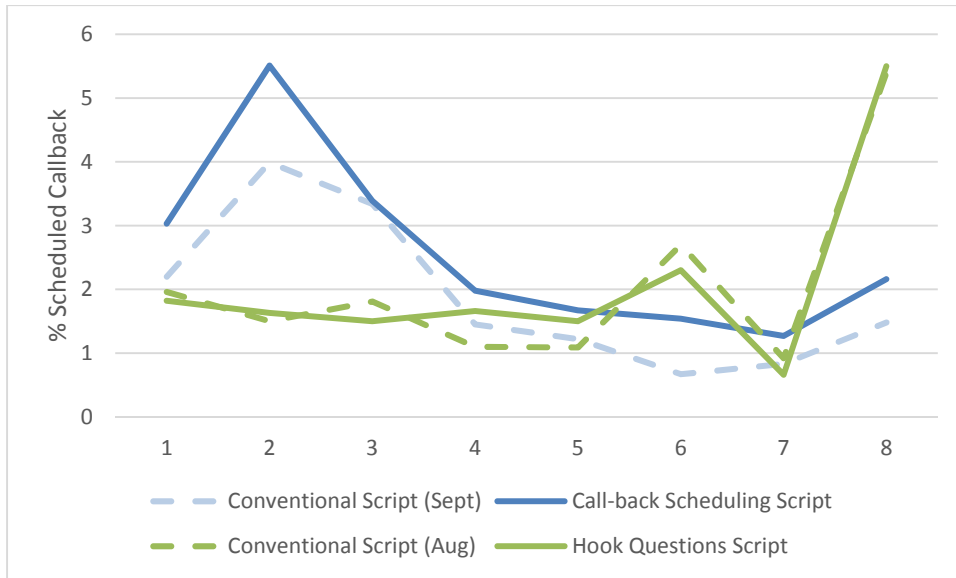


Figure 6: Effect of call-back scheduling script on scheduled call-backs over calls

3.1.5 Sample Efficiency (Sample Records and Attempts per Complete) - Hook Questions & Call-back Scheduling

Across both months, the experimental scripts required more sampled phone numbers to obtain a complete than the conventional script, ($z = -2.062$, $p = 0.03923$), which was driven by the increased effort required for the hook question sample experiment in August ($z = -3.656$, $p = 0.00026$). The call-back scheduling (i.e., “progressive scheduling”) script performed as well as the standard in sample efficiency. Figure 7 shows the differences by condition for sample overall and by month. Table B-4 in Appendix B shows the counts and rates on which these tests were based.

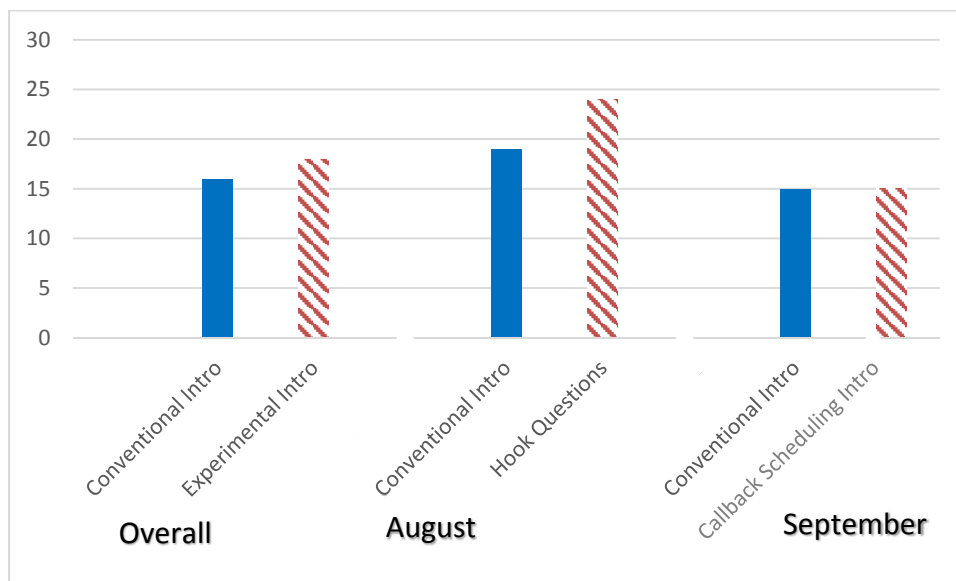


Figure 7: Sampled phone numbers per complete

3.1.6 Demographic and Health Characteristics of Respondents

To assess whether the scripts were bringing different types of people into the final respondent pool, the effect of the experimental introductions on key demographics was tested: sex, age, race/ethnicity, sexual orientation, income and region. Neither experimental introduction had a significant effect on demographics, suggesting that, despite the difference in eligibility factor due to hook questions, the types of people being interviewed were similar to each other.

Only household income showed a significant effect (chi-sq = 28.69, $p < 0.001$), and that effect only appeared with the call-back scheduling introduction. Figure 8 shows this result. The call-back scheduling introduction produced a greater number of lower income and mid-range income responses than the conventional introduction. At \$50-75k, however, the call-back scheduling introduction brought in fewer respondents than the conventional introduction. Thus, the trend seems to be that the call-back scheduling introduction brings in more lower-income respondents than the conventional introduction. Further recoding would be needed to verify this effect.

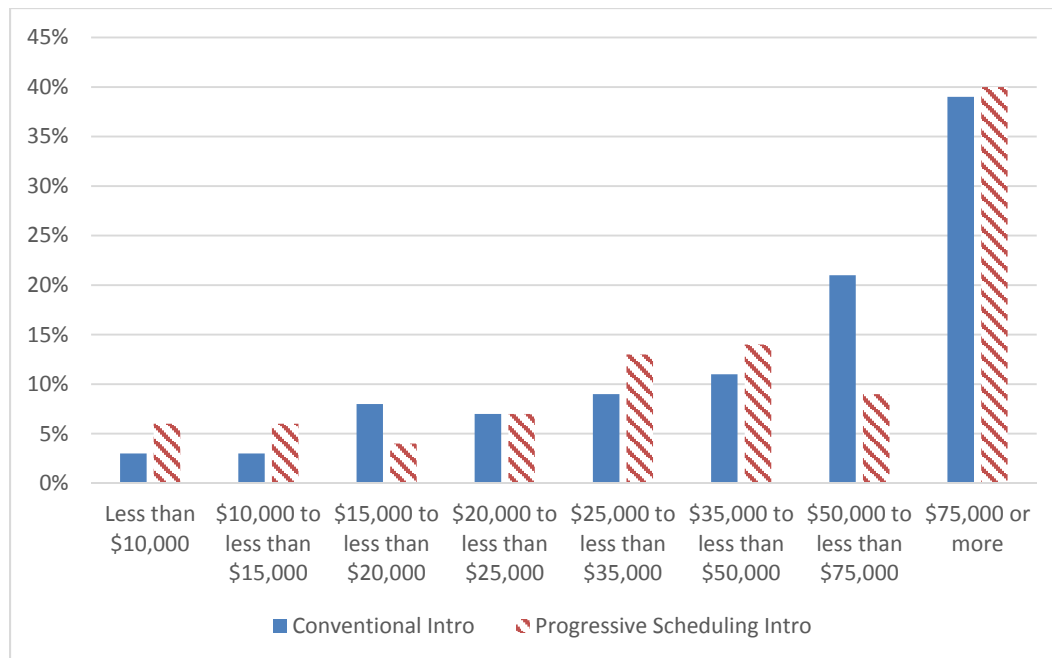


Figure 8: Effect of call-back scheduling on annual household income

Table B-7 in the Appendix shows the percentages on which these tests were based. Note that some demographic questions are below in the social desirability section.

The effects of the experimental scripts on several other key survey outcomes were tested as well. These included:

- Days where poor health interfered (S2Q3)
- Have health insurance (S3Q1)
- Have been told have diabetes (S6Q2)
- Employment status (S8Q12)
- Number of days drank alcohol (S11Q1)
- Sexual orientation (MOD26_1)

- Age first used marijuana (WA10_1)
- Worried about money for rent (WA12_1)
- Worried about money for food (WA12_1)
- Number of days the respondent drank alcohol in the past 30 days,
- marijuana use (ever and age at first us), and
- HIV testing.

Only borderline significant effects were observed (e.g., $p < 0.1$ but not < 0.05), so bar charts are not displayed. These include:

- 1) Possible higher rate of diabetes reported in conventional introduction v. hook questions.
- 2) Possible relationship between hook question and reported worries about money for food (WA17_1) and rent (WA17_2). Borderline significant effects were present when results were analyzed as a five-response category variable (meaning separate responses of Always, Usually, Sometimes, Rarely, Never), but not as a three-response category variable with the extremes collapsed (meaning Always and Usually were collapsed, and Rarely and Never were collapsed). Further recoding of these variables would be required to explore any real effects.
- 3) The call-back scheduling introduction had a borderline significant effect on reports of having ever using marijuana, with potentially fewer “ever users” in the call-back scheduling introduction condition.

Appendix Tables B-6 and B-7 show the percentages on which the tests for these characteristics were based.

3.1.7 Feedback from Interviewers and Reflection on Design and Training

Throughout this pilot test, the entire ICF and DOH staff were conscientious about how interviewers might perceive two mid-year changes in their standard operating procedures. We sought interviewer feedback on the potential new scripts, and adjusted phrasing based on their feedback. One salient observation was that some interviewers were very uncomfortable with the possibility of anything being different than their usual WA BRFSS interview experience and were very in-tune to places in the script where it was not 100% clear what to do or say. This level of attentiveness was priceless for script development.

However, we also noticed that some interviewers were very comfortable with this new approach, and the fact that we were trying to make the initial exchange less scripted. As a testament to our interviewing staff, on at least one occasion we noticed interviewers who were more comfortable in this situation mentoring those that were less comfortable.

4. Discussion, Limitations, and Future Research

This study assessed the effect of a modified survey introduction script on phone survey unit response rates, related outcome rates, individual dispositions, unit nonresponse bias (i.e., representativeness of the respondent pool), and efficiency of sample management. The experimental introductory scripts, which were designed to encourage rapport-building and tailoring, had no effect on response rates and most other BRFSS standard outcome

rates. Despite reports that a progressive engagement introduction can produce a large increase in cooperation, we did not find that. There was a significant but small reduction in the eligibility factor and contacted eligible rate due to the hook question script, but no effect of the call-back scheduling introduction. Exploring individual dispositions found that the hook question effect came from a small reduction in the number of completed interviews (disposition 1100). While the call-back scheduling script resulted in up to twice as many call-backs on some calls, those call-backs did not result in improved response or cooperation rates, suggesting that this is not a good technique for gaining cooperation. It appears that household informants who are “let off-the-hook” for the moment are never recaptured.

With respect to nonresponse bias, neither experimental introduction script had a systematic effect on the types of people who participated in BRFSS. While there was a significant association between introductory script and income, the relationship and its causes are not clear.

Finally, with respect to efficiency, the hook questions, but not the call-back scheduling script led to a higher number of sampled phone numbers (about 5) required to obtain each completed interview. Perhaps the simplest explanation is that the inefficiency occurred in the first month during which a new script was used. This could also be due to one of the hook questions being significantly longer than others. Further, from the standardization perspective, the hook question script was a larger change to protocol than the call-back scheduling script. In the latter, the interviewers simply had to read a different script, but that script was the same on all experimental cases. Once the interviewer knew they were working an experimental case, they knew exactly what they were supposed to say. The hook question script, however, had a second level of randomization. Within each hook question case, each call was randomly assigned to one of the three hook questions. Thus, interviewers could be working one of three different experimental scripts when they accessed a hook question case. This additional uncertainty may have affected their inefficiency. While 5 additional records per complete may not seem like much, it is a reminder that attempts to reduce survey error often come with cost trade-offs. In this case we had a slight increase in cost for no error reduction pay-off.

Avenues for future research with these data fall into two broad categories. First, there are several logical extensions of the current analyses, such as exploring individual interviewers’ differential effectiveness with the revised scripts. Some interviewers likely did better with the experimental scripts than the conventional one, while others excelled with scripting. Some may have done better with the hook question scripts (or individual hook questions), while others may have done better with the call-back scheduling. From conducting interviewer training and monitoring production, it seemed as though interviewers with more experience are more comfortable with the new scripts than newer interviewers, but there were also one or two new interviewers who performed very well. While some contemporary research shows that interviewer variance due to measurement error is a larger problem than variance due to nonresponse (West, Conrad, Kreuter, & Mittereder, 2018), other research finds that interviewer variance due to nonresponse can be a concern (West & Olson, 2011). Exploring interviewer effects as a whole, and the role of interviewer characteristics (particularly experience and past performance) would shed light into whether the revised scripts did not work for all interviewers, or just some. Should some interviewers be allowed to use a scripted introduction, while others are given more freedom with their approach? Tailoring scripts and protocols to interviewers’ demonstrated talents is an unexplored research area. Such research would be enhanced by using digital

audio recordings that were collected for interview quality control. This would make it possible to determine how well interviewers adhered to the revised scripts, how much they tailored, and how much they employed any other behaviors vocal characteristics that can increase response.

Second, abandoning scripted introductions altogether, and experimenting with training methods and techniques that emphasize and develop interviewers' tailoring and rebuttal skills would likely improve cooperation. . Such an approach has been found to increase cooperation and is standard practice in some telephone surveys, and most face-to-face surveys. Although there is little research on which training methods work best (e.g., paired practice v. round-robin v. live practice with feedback), these are some potential methods to test in the future. Any modifications to training and would also benefit from the following things:

- 1) Engaging experienced interviewers earlier and more often to help shape training and support materials.
- 2) Providing more training time than usual, and splitting training over multiple days to give interviewers more practice and exposure before live calling. Further, conduct the experiment over longer period to give interviewers time to get comfortable with the alternative script and to collect data from a larger sample.
- 3) Seeking volunteer interviewers who are interested in testing alternative introductions. Particularly for proof-of-concept tests, it may make sense to use interviewers who are excited to try the new technique to increase the likelihood of successful implementation.

Surveys are not dead, and there is much to learn about interviewers' roles in gaining cooperation, and how survey designers and methodologists can best support them.

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Appendix A. Experimental Introductory Scripts

1. Interviewer's Introduction for Hook Question Experiment (August 2018)

Good Morning/Afternoon/Evening/Hi/Hello.

My name is [INTERVIEWER NAME], and I'm calling for the Washington State Department of Health. We're conducting the Behavioral Risk Factor Survey to gather information on the health of Washington residents.

INTERVIEWER NOTE: Text on this screen does not have to be read exactly as worded but be sure to include all key points. Hook question will be randomly assigned. But I was wondering...

Hook1: "Have you heard of this survey?"

Hook2: "Can I take one minute to tell you about it?"

Hook3: "if you've seen any news stories about this survey recently? It's often published in major newspapers and reported in the nightly news because it's such a large and important survey about health in Washington."

INTERVIEWER NOTE: Focus on making your introduction sound inviting. Build rapport before moving forward.

INTERVIEWER NOTE: Pause to allow respondent to answer and then respond appropriately.

First, I just need to tell you that this call may be monitored and recorded for quality control.

Intro1: Is this a safe time to talk with you? I don't want to distract you if you're driving.

INTERVIEWER NOTE: If no, say: "Thank you very much. We will call you back at a more convenient time. **[go to call back screen]**"

01 Yes – Continue
02 No – Not a safe time
10 Callback
20 Refusal
D3 Answering Machine
B2 Busy
DA Dead Air
HU Hand up
NA No Answer
NW Non-Working Number
//if intro1=1//

Questions: Do you have any questions about the survey?

01 Yes – Address questions with text below
02 No – Continue to PHONE

INTERVIEWER NOTE: Pause to allow respondent to answer and then tailor your response using the BRFSS information below or the FAQ.

INTERVIEWER NOTE: Use some or all of this description of the BRFSS to address questions and/or convey the importance of taking the survey. You do not need to read all these.

- 1) The Behavioral Risk Factor Survey is a yearly survey that measures changes in the health of people in our state.
- 2) It is the longest continuously running phone survey in the world.
- 3) This survey is an important source of health-related data, and it is the only survey that collects information on certain health factors like tobacco use and insurance coverage.
- 4) Your answers are combined with answers from other Washington residents, and the information is used to guide public health programs, measure the extent of health changes, and evaluate public health policies and programs across the state.
- 5) The interview takes on average 27 minutes depending on your answers.
- 6) If you have any questions about this study, you can call the study coordinator at the Washington State Department of Health, Wendi Gilreath. You can call her toll-free at 1-866-871-5405.
- 7) Your phone number will be erased from the data in one year.

//if Questions=2//

PHONE: We'll get to the health questions soon. First I need to check that I dialed [INSERT \$N]?

INTERVIEWER NOTE: Pause briefly, in case respondent wasn't to say or ask something.

INTERVIEWER NOTE: Please confirm negative responses to ensure that respondent has heard and understood correctly.

- 1 Yes [Go to CELLFON2]
- 2 No
- 3 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure [Go to CELLFON2]
- 9 Refused [Go to CELLFON2]

//ask if PHONE=2//

XPHONE: Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time.

01 Continue [go to termination screen]

//ask if PHONE=1, 7, 9//

CELLFON2: And, is this a cell phone? Are you on a cell phone right now?

READ ONLY IF NECESSARY: By cell telephone, we mean a telephone that is mobile and usable outside of your neighborhood.

INTERVIEWER NOTE: Please confirm negative responses to ensure that respondent has heard and understood correctly.

- 1 Yes [Go to CADULT]
- 2 No
- 3 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//ASK IF CELLFON2=2//

NOTCELL1: Thank you very much, but we are only interviewing cell telephones at this time.

1 Continue [Assign dispo M2]

//ASK IF CELLFON2=7,9//

NOTCELL2: Thank you for your time. [assign dispo M2]

//ask if CELLFON2=1 //

CADULT: Next, I need to know, are you 18 years of age or older?

DO NOT READ: Sex will be asked again in demographics section.

- 1. Yes, respondent is male
- 2. Yes, respondent is female
- 3 No [GO TO CADULT2]
- 4 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//IF CADULT = 1, SET HGENDER = 1 MALE //

//if CADULT = 2, SET HGENDER = 2 FEMALE//

//If CADULT=7, 9//

AGEREF: Thank you very much for your time.

1 Continue [Assign dispo M3]

//ASK If CADULT=3//

CADULT2: That's fine. Is there an adult that also uses this cell phone?

- 1 Yes [GO TO CADULT3]
- 2 No

//ASK if CADULT2=2//

NOTOLD: Thank you very much, but we are only interviewing persons aged 18 or older at this time.

1 Continue [assign dispo M6]

//ASK if CADULT2=1//

CADULT3: Ok. May I speak with him or her?

- 1 SWITCHING TO RESPONDENT [Go to INTRO1]
- 2 RESPONDENT NOT AVAILABLE/CALLBACK [Assign

dispo C4]

// ASK IF CADULT=1, 2 //

PVTRES2: Thanks. My next question is: Do you live in a private residence?

READ ONLY IF NECESSARY: By private residence, we mean someplace like a house or apartment.

INTERVIEWER NOTE: Private residence includes any home where the respondent spends at least 30 days including vacation homes, RVs or other locations in which the respondent lives for portions of the year.

- 1 Yes [Go to CSTATE]
- 2 No [Go to COLLEGE]
- 3 Not a safe time / driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//if pvtresd2=2//

COLLEGE: In that case, do you live in college housing?

READ ONLY IF NECESSARY: By college housing we mean dormitory, graduate student or visiting faculty housing, or other housing arrangement provided by a college or university.

INTERVIEWER NOTE: If no, probe to find out if business or group home

- 1 Yes [Go to CSTATE]
- 2 No – business
- 3 No – group home
- 4 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure

9 Refused

//ASK if college = 2,3 //

NOTARES: Thank you very much, but we are only interviewing persons who live in a private residence or college housing at this time.

1 Continue [assign dispo M8]

//ask If PVTRES2=7,9 or college = 7, 9//

X4: Thank you very much for your time.

1 Continue [ASSIGN DISPO M8]

// ASK IF PVTRES2=1 or COLLEGE = 1//

CSTATE: I also need to know: Do you currently live in Washington ?

- | | | |
|---|--|------------------|
| 1 | Yes | [Go to LANDLINE] |
| 2 | No | [Go to RSPSTATE] |
| 3 | Not a safe time / driving [go to call back screen] | |
| 7 | Don't know / Not sure | |
| 9 | Refused | |

//ASK if CSTATE=7,9//

X5: Thank you very much for your time.

1 Continue [ASSIGN DISPO M7]

//ask if cstate = 2//

RSPSTATE: Ok. In what state do you currently live?
_____ ENTER FIPS STATE

99 Refused

//ask if RSPSTATE = 99//

REFSTATE: I'm sorry, but our data is compiled by state. In order to qualify for the interview we need to know which state you live in. Thank you for your time.

1 Continue [ASSIGN DISPO M7]

//ask if samptype=2//

LANDLINE: And, do you also have a landline telephone in your home that is used to make and receive calls?

READ ONLY IF NECESSARY: By landline telephone, we mean a regular telephone in your home that is used for making or receiving calls. Please include landline phones used for both business and personal use.

INTERVIEWER NOTE: Telephone service over the internet counts as landline service (includes vonage, magic jack and other home-based phone services.).

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

CATI NOTE: IF COLLEGE = 1 (YES), DO NOT ASK NUMADULT, GO TO SVINTRO2.

//ask if pvtresd2 = 1//

NUMADULT: Thanks. I would also like to know how many members of your household, including yourself, are 18 years of age or older?

- Number of adults [**Range = 1-18**]
- 99 Refused

CATI NOTE: IF COLLEGE = 1 (YES) THEN NUMADULT IS AUTOMATICALLY SET TO 1.

//ask if samptype=2//

svintro2: Thank you. I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will not be connected to any personal information. If you have any questions about the survey, please call 1-866-784-7151.

INTERVIEWER NOTE:

- The interview takes on average 27 minutes depending on your answers.
- If you have any questions about this study, you can call the study coordinator at the Washington State Department of Health, Wendi Gilreath. You can call her toll-free at 1-866-871-5405. Si tiene alguna pregunta sobre este estudio, puede llamar al coordinador del estudio en el Departamento de Salud del Estado de Washington, Wendi Gilreath. Puede llamarla gratis al 1-866-871-5405.
- Your phone number will be erased from the data in one year. Su número de teléfono se borrará de los datos en un año.

1. Continue
2. Driving / Not a Safe Time [**go to call back screen**]
3. Refused [**go to termination screen**]

2. Interviewer's Introduction for Call-back Scheduling Experiment (September 2018)

Good Morning/Afternoon/Evening/Hi/Hello.

My name is [INTERVIEWER NAME], and I'm calling for the **Washington State Department of Health**. We're conducting the Behavioral Risk Factor Survey to gather information on the health of Washington residents.

Is this a safe and convenient time to talk? [PAUSE...IF ANYTHING OTHER THAN YES, SAY: "If not, I can schedule a more convenient time to call you back."]

[OPTIONAL: I don't want to distract you if you're driving.]

[OPTIONAL: The first part only takes about 5 minutes to make sure you're eligible to participate.]

[OPTIONAL: What's a better time to call you back?]

INTERVIEWER NOTE 1: Make your introduction sound inviting, but move to scheduling a callback time if you feel they will hang up or refuse. Offer a time to call back if respondent doesn't give you one.

Schedule1: If you have time, we can do the survey right now. If you don't have time now, we can schedule a time for you to complete the survey. Which would you prefer?

01 Continue
10 Callback
20 Refusal
D3 Answering Machine
B2 Busy
DA Dead Air
HU Hand up
NA No Answer
NW Non-Working Number

INTERVIEWER NOTE: Pause to allow respondent to answer.

INTERVIEWER NOTE: If participant asks how long the survey is say, "The interview takes on average 25 minutes depending on your answers."

//if Schedule1=1//

Intro2: Great. First of all, this call may be monitored and recorded for quality control. Secondly, is this a safe time to talk with you? I don't want to distract you if you're driving.

INTERVIEWER NOTE: If no, say: "Thank you very much. We will call you back at a more convenient time. **[go to call back screen]**"

01 Yes – Continue
02 No – Not a safe time

10 Callback
20 Refusal
D3 Answering Machine
B2 Busy
DA Dead Air
HU Hand up
NA No Answer
NW Non-Working Number

//if Intro2=01 AND INTRO_VER=2//

QUESTIONS. First I just need to tell you that this call may be monitored and recorded for quality control. Do you have any other questions about the survey?

01 Yes – Address questions with text below

02 No – Continue to PHONE

INTERVIEWER NOTE: Pause to allow respondent to answer and then tailor your response using the BRFSS information below or the FAQ.

INTERVIEWER NOTE: Use some or all of this description of the BRFSS to address questions and/or convey the importance of taking the survey. You do not need to read all these.

- 1) The Behavioral Risk Factor Survey is a yearly survey that measures changes in the health of people in our state.
- 2) It is the longest continuously running phone survey in the world.
- 3) This survey is an important source of health-related data, and it is the only survey that collects information on certain health factors like tobacco use and insurance coverage.
- 4) Your answers are combined with answers from other Washington residents, and the information is used to guide public health programs, measure the extent of health changes, and evaluate public health policies and programs across the state.
- 5) The interview takes on average 27 minutes depending on your answers.
- 6) If you have any questions about this study, you can call the study coordinator at the Washington State Department of Health, Wendi Gilreath. You can call her toll-free at 1-866-871-5405.
- 7) Your phone number will be erased from the data in one year.

//if Questions=2//

PHONE: We'll get to the health questions soon. First I need to check that I dialed [INSERT \$N]?

INTERVIEWER NOTE: Pause briefly, in case respondent wasn't to say or ask something.

INTERVIEWER NOTE: Please confirm negative responses to ensure that respondent has heard and understood correctly.

- 1 Yes [Go to CELLFON2]
- 2 No
- 3 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure [Go to CELLFON2]
- 9 Refused [Go to CELLFON2]

//ask if PHONE=2//

XPHONE: Thank you very much, but I seem to have dialed the wrong number. It's possible that your number may be called at a later time.

01 Continue [go to termination screen]

//ask if PHONE=1, 7, 9//

CELLFON2: And, is this a cell phone? Are you on a cell phone right now?

READ ONLY IF NECESSARY: By cell telephone, we mean a telephone that is mobile and usable outside of your neighborhood.

INTERVIEWER NOTE: Please confirm negative responses to ensure that respondent has heard and understood correctly.

- 1 Yes [Go to CADULT]
- 2 No
- 3 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//ASK IF CELLFON2=2//

NOTCELL1: Thank you very much, but we are only interviewing cell telephones at this time.

1 Continue [Assign dispo M2]

//ASK IF CELLFON2=7,9//

NOTCELL2: Thank you for your time. [assign dispo M2]

//ask if CELLFON2=1 //

CADULT: Next, I need to know, are you 18 years of age or older?

DO NOT READ: Sex will be asked again in demographics section.

- 1. Yes, respondent is male
- 2. Yes, respondent is female
- 3 No [GO TO CADULT2]

- 4 Not a safe time/driving **[go to call back screen]**
- 7 Don't know / Not sure
- 9 Refused

//IF CADULT = 1, SET HGENDER = 1 MALE //
//if CADULT = 2, SET HGENDER = 2 FEMALE//

//If CADULT=7, 9//

AGEREF: Thank you very much for your time.

1 Continue **[Assign dispo M3]**

//ASK if CADULT=3//

CADULT2: That's fine. Is there an adult that also uses this cell phone?

- 1 Yes **[GO TO CADULT3]**
- 2 No

//ASK if CADULT2=2//

NOTOLD: Thank you very much, but we are only interviewing persons aged 18 or older at this time.

1 Continue **[assign dispo M6]**

//ASK if CADULT2=1//

CADULT3: Ok. May I speak with him or her?

- 1 SWITCHING TO RESPONDENT **[Go to INTRO1]**
- 2 RESPONDENT NOT AVAILABLE/CALLBACK **[Assign dispo**

C4]

// ASK IF CADULT=1, 2 //

PVTRES2: Thanks. My next question is: Do you live in a private residence?

READ ONLY IF NECESSARY: By private residence, we mean someplace like a house or apartment.

INTERVIEWER NOTE: Private residence includes any home where the respondent spends at least 30 days including vacation homes, RVs or other locations in which the respondent lives for portions of the year.

- 1 Yes **[Go to CSTATE]**
- 2 No **[Go to COLLEGE]**
- 3 Not a safe time / driving **[go to call back screen]**
- 7 Don't know / Not sure

9 Refused

//if pvtresd2=2//

COLLEGE: In that case, do you live in college housing?

READ ONLY IF NECESSARY: By college housing we mean dormitory, graduate student or visiting faculty housing, or other housing arrangement provided by a college or university.

INTERVIEWER NOTE: If no, probe to find out if business or group home

- 1 Yes [Go to CSTATE]
- 2 No – business
- 3 No – group home
- 4 Not a safe time/driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//ASK if college = 2,3 //

NOTARES: Thank you very much, but we are only interviewing persons who live in a private residence or college housing at this time.

1 Continue [assign dispo M8]

//ask If PVTRES2=7,9 or college = 7, 9//

X4: Thank you very much for your time.

1 Continue [ASSIGN DISPO M8]

// ASK IF PVTRES2=1 or COLLEGE = 1//

CSTATE: I also need to know: Do you currently live in Washington?

- 1 Yes [Go to LANDLINE]
- 2 No [Go to RSPSTATE]
- 3 Not a safe time / driving [go to call back screen]
- 7 Don't know / Not sure
- 9 Refused

//ASK If CSTATE=7,9//

X5: Thank you very much for your time.

1 Continue [ASSIGN DISPO M7]

//ask if cstate = 2//

RSPSTATE: Ok. In what state do you currently live?
 _____ ENTER FIPS STATE

99 Refused

//ask if RSPSTATE = 99//

REFSTATE: I'm sorry, but our data is compiled by state. In order to qualify for the interview we need to know which state you live in. Thank you for your time.

1 Continue [ASSIGN DISPO M7]

//ask if samptype=2//

LANDLINE: And, do you also have a landline telephone in your home that is used to make and receive calls?

READ ONLY IF NECESSARY: By landline telephone, we mean a regular telephone in your home that is used for making or receiving calls. Please include landline phones used for both business and personal use.

INTERVIEWER NOTE: Telephone service over the internet counts as landline service (includes vonage, magic jack and other home-based phone services.).

- | | |
|---|-----------------------|
| 1 | Yes |
| 2 | No |
| 7 | Don't know / Not sure |
| 9 | Refused |

CATI NOTE: IF COLLEGE = 1 (YES), DO NOT ASK NUMADULT, GO TO SVINTRO2.

//ask if pvtresd2 = 1//

NUMADULT: Thanks. I would also like to know how many members of your household, including yourself, are 18 years of age or older?

- | | |
|----|---------------------------------|
| — | Number of adults [Range = 1-18] |
| 99 | Refused |

CATI NOTE: IF COLLEGE = 1 (YES) THEN NUMADULT IS AUTOMATICALLY SET TO 1.

//ask if samptype=2//

svintro2: Thank you. I will not ask for your last name, address, or other personal information that can identify you. You do not have to answer any question you do not want to, and you can end the interview at any time. Any information you give me will not be connected to any personal information. If you have any questions about the survey, please call 1-866-784-7151.

INTERVIEWER NOTE:

- The interview takes on average 27 minutes depending on your answers.
- If you have any questions about this study, you can call the study coordinator at the Washington State Department of Health, Wendi Gilreath. You can call her toll-free at 1-866-871-5405. Si tiene alguna pregunta sobre este estudio, puede

llamar al coordinador del estudio en el Departamento de Salud del Estado de Washington, Wendi Gilreath. Puede llamarla gratis al 1-866-871-5405.

- Your phone number will be erased from the data in one year. Su número de teléfono se borrará de los datos en un año.
1. Continue
 2. Driving / Not a Safe Time **[go to call back screen]**
 3. Refused **[go to termination screen]**

Appendix B. Introductory Scripts Experimental Result Tables

Table B-1 displays resulting counts and outcome rates by month (experiment) and introduction type (progressive vs. conventional). Outcome rates were calculated using standard BRFSS definitions and are therefore comparable to other WA BRFSS reports. In addition to the usual BRFSS outcome rates, Table B-1 presents average duration of the completed interviews by sample and introduction type.

Table B-1: Effect of Hook Question and Call-back Scheduling Introductions on WA BRFSS Outcome Rates

		<i>Hook Questions (August 2018)</i>		<i>Call-back Scheduling (September 2018)</i>	
		<i>Conventional Intro</i>	<i>Hook Questions</i>	<i>Conventional Intro</i>	<i>Call-back Scheduling</i>
Completed interviews	COIN	430	351	389	357
Completes	Complete	378	312	337	321
Partials (CDC Core/S8Q16)	Partial	52	39	52	36
Eligible	ELIG	537	427	475	435
Contacted Eligible	CONELIG	537	427	475	435
Terminations and Refusals	TERE	82	73	72	65
Ineligible Phone Numbers	INELIG	1,359	1,335	1,190	1,262
Unknown Eligibility	UNKELIG	3,218	3,352	3,280	3,249
Eligibility Factor[†]	E	0.28	0.24	0.29	0.26
Contacted Eligible Rate[†]	%CONELIG	10.6	8.4	9.6	8.8
Interview Completion Rate[†]	COMP	84.0	82.8	84.4	84.6
Cooperation Rate[†]	COOP	80.1	82.2	81.9	82.1
Refusal Rate[†]	REF	5.7	5.9	5.1	5.1
Response Rate[†]	RR	29.7	28.3	27.6	28.2
Interview Duration, Average (in minutes)		23	23	23	24

[†]Significance testing for difference in the rates is based on z-test.

Significance testing for difference is based on z-test.

Bold indicates P-value <0.05.

Table B-1a: Effect of Specific Hook Text on WA BRFSS Outcome Rates

		<i>Hook Questions</i> (August 2018)		
		<i>“...have you heard...?”</i>	<i>“...can I take a minute...?”</i>	<i>“...saw any news...?”</i>
Completed interviews	COIN	102	86	91
Completes	Complete	89	70	82
Partials (CDC Core/S8Q16)	Partial	13	16	9
Eligible	ELIG	122	114	117
Contacted Eligible Terminations and Refusals	CONELIG	122	114	117
Ineligible Phone Numbers	TERE	20	27	24
Unknown Eligibility	INELIG	8	8	12
Contacted Eligible Rate[†]	UNKELIG	6	5	10
Interview Completion Rate[†]	%CONELIG	0.94	0.93	0.91
Cooperation Rate[†]	COMP	89.7	90.5	85.4
Refusal Rate[†]	COOP	83.6	76.1	79.1
Response Rate[†]	REF	83.6	75.4	77.8
	RR	15.7	22.8	19.0

Table B-2 breaks out the standard BRFSS cell phone outcome rates by morning, afternoon, and evening. Table B-3 presents the same information for the landline sample.

Table B-2: Differences in the Effect of Hook Questions on Outcome Rates at Different Times of Day*[†]

		<i>Morning, After 12 AM, Before 12 PM</i>		<i>Afternoon, 12 PM to 5 PM</i>		<i>Evening, After 5 PM, Before 12 AM</i>	
		<i>Conventional Intro</i>	<i>Hook Questions</i>	<i>Conventional Intro</i>	<i>Hook Questions</i>	<i>Conventional Intro</i>	<i>Hook Questions</i>
Completed Interviews	COIN	21	14	258	207	151	130
Completes	Complete	18	11	225	185	135	116
Partials (CDC Core/S8Q16)	Partial	3	3	33	22	16	14
Eligible	ELIG	32	20	332	256	173	151
Contacted Eligible	CONELIG	32	20	332	256	173	151
Terminations and Refusals	TERE	9	6	58	46	15	21
Ineligible Phone Numbers	INELIG	44	40	758	726	557	569
Unknown Eligibility	UNKELIG	263	233	2,213	2,385	742	734
Eligibility Factor	E	0.42	0.33	0.30	0.26	0.24	0.21
Contacted Eligible Rate	%CONELIG	9.5	6.8	10.1	7.6	11.8	10.4
Interview Completion Rate	COMP	70.0	70.0	81.6	81.8	91.0	86.1
Cooperation Rate	COOP	65.6	70.0	77.7	80.9	87.3	86.1
Refusal Rate	REF	6.3	6.1	5.8	5.2	4.3	6.9
Response Rate	RR	14.7	14.3	25.6	23.6	43.3	42.6

*Excluding pre-screened ineligible sample.

[†]Significance testing for difference in the rates is based on z-test.

Bold indicates P-value <0.05.

Table B-3: Differences in the Effect of Call-back Scheduling Script on Outcome Rates at Different Times of Day *†

		<i>Morning, After 12 AM, Before 12 PM</i>		<i>Afternoon, 12 PM to 6 PM</i>		<i>Evening, After 6 PM, Before 12 AM</i>	
		<i>Call-back Scheduling</i>	<i>Conventional Intro</i>	<i>Call-back Scheduling</i>	<i>Conventional Intro</i>	<i>Call-back Scheduling</i>	<i>Conventional Intro</i>
Completed Interviews	COIN	18	21	251	233	120	103
Completes	Complete	12	14	217	213	108	94
Partials (CDC Core/S8Q16)	Partial	6	7	34	20	12	9
Eligible	ELIG	18	21	251	233	120	103
Contacted Eligible	CONELIG	36	34	302	282	137	119
Terminations and Refusals	TERE	36	34	302	282	137	119
Ineligible Phone Numbers	INELIG	14	12	42	38	16	15
Unknown Eligibility	UNKELIG	79	66	674	730	437	466
Eligibility Factor	E	0.31	0.34	0.31	0.28	0.24	0.20
Contacted Eligible Rate	%CONELIG	6.5	7.0	9.1	8.6	12.8	10.2
Interview Completion Rate	COMP	56.3	63.6	85.7	86.0	88.2	87.3
Cooperation Rate	COOP	50.0	61.8	83.1	82.6	87.6	86.6
Refusal Rate	REF	8.0	7.2	4.1	4.1	6.3	6.3
Response Rate	RR	10.3	12.6	24.4	25.4	47.1	43.4

Table B-4 displays cell phone completes and sample records per complete for both interview types, in total and in each month of the experiment.

Table B-4: Records and Attempts Per Complete[†]

	<i>Completes</i>	<i>Sample size*</i>	<i>Records per Complete</i>
<i>Overall</i>			
Experimental Introduction	498	9211	18
Conventional	560	9157	16
August 2018			
Hook Questions	177	4265	24
Conventional	223	4212	19
September 2018			
Call-back Scheduling	321	4946	15
Conventional	337	4945	15

*Excluding pre-screened ineligible sample.

[†]Significance testing is based on z-tests of proportions.

Bold indicates P-value <0.05.

Table B-5 shows demographic categories by sample and experimental condition.

Table B-5: Demographics Comparison[†]

	<i>Hook Questions (August 2018)</i>	<i>Conventional Intro</i>	<i>Call-back Scheduling (September 2018)</i>	<i>Conventional Intro</i>
Sex (S8q1)				
Male	50%	51%	50%	51%
Female	50%	49%	50%	49%
Total	100%	100%	100%	100%
Age group (age_7cat)				
18-24	9%	11%	9%	7%
25-34	19%	16%	21%	20%
35-44	18%	15%	19%	15%
45-54	13%	16%	13%	18%
55-64	20%	21%	17%	19%
65-74	15%	14%	15%	14%
75+	5%	7%	7%	6%
Total	100%	100%	100%	100%
Race/ethnicity				
Hispanic (s8q3)	12%	9%	12%	10%
Non-Hispanic White (s8q3)	79%	81%	77%	76%
Non-Hispanic Black (s8q3)	2%	3%	2%	3%
Non-Hispanic AIAN (s8q3)	2%	2%	2%	3%
Non-Hispanic API (s8q3)	4%	4%	5%	6%
Non-Hispanic other/multi (s8q3)	1%	1%	2%	1%
Total	100%	100%	100%	100%
Region*				
North Sound Region	10%	13%	11%	10%
King County	20%	24%	19%	24%
Pierce County	7%	10%	9%	7%
All Other Counties	63%	53%	62%	58%
Total	100%	100%	100%	100%

[†]Significance testing for categorical variables is based on Pearson chi-square test. There were no significant differences between the experiment and the control at 0.05 significance level.

*North Sound Region include Island and Snohomish counties.

Table B-6 shows responses to key questions by sample and experimental condition.

Table B-6: Key Variables Comparison[†]

	Hook Questions		Call-back Scheduling	
	(August 2018)		(September 2018)	
	Hook Questions Overall	Conventional Introduction	Prog Sched.	Conventional Introduction
Days where poor health interfered (S2Q3)				
Mean (std. dev.)	9	10	10	10
Have health insurance (S3Q1)[†]				
Yes	91%	90%	88%	91%
No	9%	10%	12%	9%
Total	100%	100%	100%	100%
Have been told have diabetes (S6Q12)[†]				
Yes	8%	11%	13%	11%
Yes, but only during pregnancy	0%	1%	1%	1%
No	91%	86%	85%	86%
No, pre-diabetes or borderline diabetes	29%	1%	1%	1%
Total	100%	100%	100%	100%
Employment status (S8Q15)[†]				
Employed for wages	51%	53%	47%	50%
Self-employed	9%	9%	7%	9%
Out of work for less than 1 year	2%	1%	3%	2%
Out of work for 1 year or more	3%	1%	4%	2%
A homemaker	6%	3%	6%	6%
A student	3%	4%	5%	5%
Retired	19%	21%	21%	20%
Unable to work	6%	8%	8%	6%
Total	100%	100%	100%	100%
Worried about having enough money for rent (WA17_1)[†]				
Always or Usually	14%	13%	7%	4%
Sometimes	12%	14%	8%	20%
Rarely or Never	74%	72%	85%	76%
Total	100%	100%	100%	100%
Worried about having enough money for food (WA17_2)[†]				
Always or Usually	5%	6%	5%	5%
Sometimes	8%	16%	8%	5%
Rarely or Never	87%	78%	88%	91%
Total	100%	100%	100%	100%

[†]Significance testing is based on Pearson Chi-square test. There were no significant differences between the experiment and the control at 0.05 significance level.

Significance testing for difference is based on z-test. There were no significant differences between the experiment and the control at 0.05 significance level.

Table B-7 shows responses to WA BRFSS questions expected to be sensitive to social-desirable responding questions by sample and experimental condition.

Table B-7: Progressive Introduction Effect on Social Desirability

	<i>Hook Questions</i> (August 2018)		<i>Call-back Scheduling</i> (September 2018)	
	<i>Hook Questions Overall</i>	<i>Conventional Introduction</i>	<i>Prog Sched.</i>	<i>Conventional Introduction</i>
Number of days drank alcohol (S11Q1)^u				
Mean (std. dev.) per 30 days	10	11	10	10
Sexual Orientation (MOD26_1)[†]				
Lesbian or gay	4%	2%	1%	1%
Straight	93%	96%	97%	98%
Bisexual	2%	1%	2%	1%
Something else	1%	1%	1%	1%
Total	100%	100%	100%	100%
Marijuana use (WA10_1)[†]				
Never used	42%	39%	43%	36%
Used	58%	61%	57%	64%
Total	100%	100%	100%	100%
Average age at first use	18	18	19	19
Annual household income (income)[†]				
Less than \$10,000	4%	5%	6%	3%
\$10,000 to less than \$15,000	6%	4%	6%	3%
\$15,000 to less than \$20,000	5%	5%	4%	8%
\$20,000 to less than \$25,000	7%	9%	7%	7%
\$25,000 to less than \$35,000	9%	10%	13%	9%
\$35,000 to less than \$50,000	10%	14%	14%	11%
\$50,000 to less than \$75,000	17%	17%	9%	21%
\$75,000 or more	41%	36%	40%	39%
Total	100%	100%	100%	100%
Have been tested for HIV (S16Q1)[†]				
Yes	43%	38%	41%	45%
No	57%	62%	59%	55%
Total	100%	100%	100%	100%

[†]Significance testing for difference is based on Pearson Chi-square test.

^uSignificance testing for difference is based on z-test.

Bold indicates P-value <0.05.

The table below presents the percentage of calls resulting in an interview by hook question script. The first column shows the percentage interviewed out of calls that became an interview or a refusal. The second column adds appointments to the denominator because they are another potential outcome of each call that could be influenced by the script.

Only the comparisons between “...have you heard...?” and “...can I take a minute...?” approached significance in both percentages ($z = 1.67$, $p = 0.099$ and $z = 1.86$, $p = 0.063$ respectively).

Table B-8: Hook Question Performance at the Call Level

Hook question script	<i>% interviewed (of interviews + refusals)</i>	<i>% interviewed (of interviews + refusals + appointments)</i>
“...have you heard...?”	96%	8%
“...can I take a minute...?”	88%	6%
“...saw any news...?”	94%	8%

◆Significance testing for difference is based on z-test.