

**Demographic Statistical Methods Division  
Survey Methodology ADC**

# **Evaluation of the Household Pulse Survey Experiments**

**Version 01  
November 28, 2023**

**Renee Reeves  
Kayla Varela**

**Jennifer Tancreto, ADC  
Rachel Horwitz, Lead Scientist**



## Table of Contents

Executive Summary.....	1
1. Background on the Household Pulse Survey.....	2
1.1 Week 47 (June 29 – July 11, 2022).....	2
1.2 Week 48 (July 27 – August 8, 2022).....	3
1.3 Week 49 (September 14 – September 28, 2022).....	5
1.4 Week 50 (October 5 – October 17, 2022).....	7
2. Analysis Limitations .....	8
3. Results .....	10
3.1 Email Contacts .....	10
3.2 URL Length.....	19
3.3 Reminder Contact Timing .....	24
4. Conclusions.....	25
5. References .....	26
Appendix A Survey Variables.....	27
Appendix B Sample Email Template – Weeks 47 and 49 .....	32
Appendix C Additional Demographic Characteristic and Language Distributions .....	35

## Table of Tables

Table 1: Week 48 Text Message Content and Schedule.....	5
Table 2: Week 49 Text Message Content and Schedule.....	6
Table 3: Contact Strategies and Analysis Characteristics by Week.....	8
Table 4: Response Rates – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only) .....	11
Table 5: Age – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only) .....	12
Table 6: Race – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only).....	12
Table 7: Marital Status – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only) .....	13
Table 8: Educational Attainment – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only).....	13
Table 9: Sex at Birth – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only) .....	14
Table 10: Sexual Orientation – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only).....	14

Table 11: Language – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)	15
Table 12: Response Rates – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	16
Table 13: Age – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	16
Table 14: Hispanic Origin – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	17
Table 15: Marital Status – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	17
Table 16: Educational Attainment – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	18
Table 17: Sex at Birth – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	18
Table 18: Gender – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)	19
Table 19: Response Rates – URL Length (Week 48)	19
Table 20: Age – URL Length (Week 48)	20
Table 21: Race – URL Length (Week 48)	20
Table 22: Marital Status – URL Length (Week 48)	21
Table 23: Educational Attainment – URL Length (Week 48)	21
Table 24: Number of Adults in the Household – URL Length (Week 48)	22
Table 25: Sex at Birth – URL Length (Week 48)	22
Table 26: Sexual Orientation – URL Length (Week 48)	22
Table 27: Language – URL Length (Week 48)	23
Table 28: Response Rates – URL Length (Week 49)	23
Table 29: Sex at Birth – URL Length (Week 49)	23
Table 30: Gender – URL Length (Week 49)	24
Table 31: Response Rates – Reminder Contact Timing (Week 50)	24
Table 32: Response Variables used for Demographic Characteristic Analyses	27
Table 33: Hispanic Origin – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)	35
Table 34: U.S. Armed Forces Status – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)	35
Table 35: Number of Children in the Household – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)	36

Table 36: Number of Adults in the Household – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only) .....	36
Table 37: Gender – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)..	37
Table 38: Race – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email) .....	37
Table 39: U.S. Armed Forces Status – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email).....	38
Table 40: Number of Children in the Household – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email).....	38
Table 41: Number of Adults in the Household – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email) .....	38
Table 42: Sexual Orientation – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email) .....	39
Table 43: Language – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email) .....	39
Table 44: Hispanic Origin – URL Length (Week 48) .....	40
Table 45: U.S. Armed Forces Status – URL Length (Week 48) .....	40
Table 46: Number of Children in the Household – URL Length (Week 48).....	40
Table 47: Gender – URL Length (Week 48).....	41
Table 48: Age – URL Length (Week 49) .....	41
Table 49: Race – URL Length (Week 49).....	41
Table 50: Hispanic Origin – URL Length (Week 49) .....	42
Table 51: Marital Status – URL Length (Week 49) .....	42
Table 52: U.S. Armed Forces Status – URL Length (Week 49) .....	42
Table 53: Educational Attainment – URL Length (Week 49).....	43
Table 54: Number of Children in the Household – URL Length (Week 49).....	43
Table 55: Number of Adults in the Household – URL Length (Week 49) .....	44
Table 56: Sexual Orientation – URL Length (Week 49).....	44
Table 57: Language – URL Length (Week 49) .....	44
Table 58: Age – Reminder Contact Timing (Week 50) .....	45
Table 59: Race – Reminder Contact Timing (Week 50) .....	45
Table 60: Hispanic Origin – Reminder Contact Timing (Week 50) .....	45
Table 61: Marital Status – Reminder Contact Timing (Week 50).....	46
Table 62: U.S. Armed Forces Status – Reminder Contact Timing (Week 50) .....	46
Table 63: Educational Attainment – Reminder Contact Timing (Week 50) .....	46
Table 64: Number of Children in the Household – Reminder Contact Timing (Week 50) .....	47
Table 65: Number of Adults in the Household – Reminder Contact Timing (Week 50).....	48

Table 66: Sex at Birth – Reminder Contact Timing (Week 50).....	48
Table 67: Gender – Reminder Contact Timing (Week 50) .....	48
Table 68: Sexual Orientation – Reminder Contact Timing (Week 50) .....	49
Table 69: Language – Reminder Contact Timing (Week 50).....	49

**Table of Figures**

Figure 1: Sample long URL text message.....	3
Figure 2: Excerpt from Sample Email .....	3
Figure 3: Week 48 sample short URL text message.....	4

## Executive Summary

The Household Pulse Survey is an online survey that was developed in 2020 to measure household experiences during the coronavirus pandemic. Iterative changes have been made to several aspects of the survey, such as data collection lengths, contact strategies, and survey content. The Household Pulse Survey conducted experiments along with some of the changes. Our research analyzed response rates, demographic characteristics, and language chosen to take the survey for three experiments: email contacts (sent and withheld), URL length (short and long), and reminder contact timing (two days and seven days).

Although there were numerous limitations to these analyses and the differences were generally small, we found that sending text messages without emails resulted in higher response rates than sending text messages and emails together; the short URL that contained “census.gov” had a higher response rate than the long URL; and the two-day reminder timing had a higher response rate than the seven-day reminder timing. Additionally, using different contact strategies affected the demographic distributions, particularly for age and marital status; however, some of this variation could be attributed to the limitations of these analyses. The comparisons with fewer limitations showed little to no differences between the demographic characteristic distributions.

Currently, the Household Pulse Survey is sending both text messages and emails (to email addresses with at least a 90 percent deliverability rate), using a short URL, and sending reminders after two days. As alluded to above, we found in our email analysis that having more contacts and two different types of contacts resulted in lower response rates. Because of this surprising finding, we suggest experimenting with sending text messages without emails in a controlled experiment that does not include confounding factors to determine if email contacts should be removed from the contact strategy. For this experiment, the emails should not mention a sensitive topic like COVID-19 if the text messages also do not. Additionally, we recommend the analysis examine how often emails are opened to determine if unopened emails are contributing to differences in response rates and/or demographic distributions. Lastly, given the results of the other two analyses, we recommend continuing to use the short URL and sending reminders after two days. However, the Household Pulse Survey could also experiment with sending two reminders; one after two days and another after seven days, or experiment with the time of day that contacts are sent.

## 1. Background on the Household Pulse Survey

The Household Pulse Survey (HPS) is an online survey originally designed to measure household experiences during the coronavirus pandemic. It has since expanded to include questions on other emergent social and economic issues that impact households across the country (Household Pulse Survey, 2023). The HPS began in 2020 as a weekly survey but has since been lengthened to a two-week data collection period. Despite this change, the collection periods are still referred to as weeks for continuity (U.S. Census Bureau, 2023). Sample cases are contacted via SMS (text) and/or email messages that provide a URL to complete the survey online. During the weeks analyzed (week 47 to week 50), cases could have up to five phone numbers and five email addresses, which were all sent an initial contact unless otherwise specified in the sections below.<sup>1</sup> The HPS experimented with email contacts (sent and withheld),<sup>2</sup> URL length (short and long), and reminder contact timing (two days and seven days) (Household Pulse Survey Public Use File, 2023). Our analysis compares response rates, demographic characteristics, and chosen language across treatments using data from weeks 47 through 50. The following sections outline any differences between the contact strategies across the four weeks. Table 3 summarizes the key contact strategy and analysis characteristics for each week.

### 1.1 Week 47 (June 29 – July 11, 2022)

In week 47, cases were contacted by text and/or email messages, which included a long URL ([https://covid.census.gov/jfe/form/several random characters](https://covid.census.gov/jfe/form/several_random_characters)) to access the survey. In text messages, the full URL appeared (Figure 1); however, in emails, the URL was embedded within a clickable button and also appeared in its entirety below the button. Figure 2 shows an excerpt from a sample email to highlight how the button and URL appeared. A full sample email can be found in Appendix B. Reminder text messages were sent to the first two phone numbers and reminder emails were slated to be sent to the first three email addresses, each of which were sent an initial contact seven days earlier. Unfortunately,

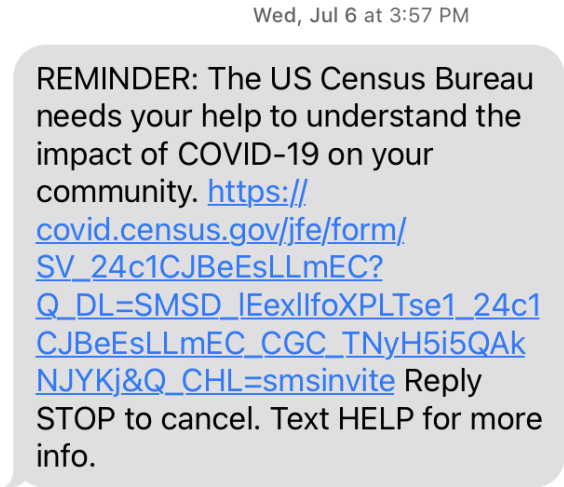
---

<sup>1</sup> The URL sent is unique to each phone number and email address but remains the same when a specific phone number or email address is contacted more than once.

<sup>2</sup> This was not a planned experiment but instead was a naturally occurring one. Emails were not sent in week 48 because Qualtrics stopped email distribution on July 6, 2022, after Spamhaus issued a warning.

reminder emails were not sent in week 47 because Qualtrics stopped email distribution on July 6 after receiving a warning from Spamhaus. Without reminder emails, a case still could have been contacted up to 12 times. All contacts mentioned COVID-19 or the coronavirus in some capacity.

**Figure 1: Sample long URL text message**



Source: U.S. Census Bureau, Household Pulse Survey

**Figure 2: Excerpt from Sample Email**

The Census Bureau is asking for you to participate in a special COVID-19 survey, called the Household Pulse Survey. Your response to this survey is critical to understanding the ongoing impact of the pandemic across our country. Please click the button below by `#{date://OtherDate/FL/+12%20day}` to start the survey.



Or paste the following URL into your web browser: `#{1://SurveyURL}`

Source: U.S. Census Bureau, Household Pulse Survey

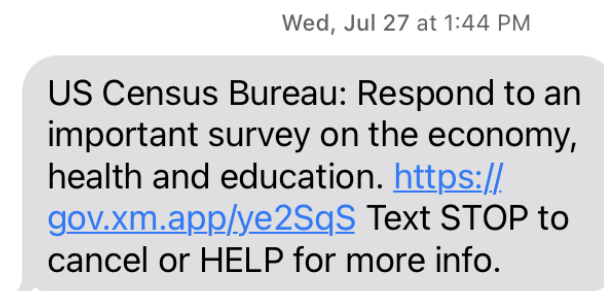
**1.2 Week 48 (July 27 – August 8, 2022)**

In week 48, the HPS experimented with using a shortened URL (Figure 3), which allowed more text messages to be sent at a reduced cost. The sample was split



between two treatment groups: those who received a short URL (<https://gov.xml.app/6> characters) and those who received a long URL (<https://covid.census.gov/jfe/form/several> characters). The HPS had originally intended to send text messages and emails; however, emails were not sent in week 48 due to the warning issued by Spamhaus. Reminder text messages were sent to the first two phone numbers, two days after the initial contact. A case could have been contacted up to seven times if they had five phone numbers available. Due to the functionality of Qualtrics,<sup>3</sup> all contacts for the short URL group were sent first. For the fifth phone number in both treatment groups, only the long URL was sent. In other words, for the short URL group a long URL text message was sent to the fifth phone number as the last contact attempt, at the same time the long URL group was sent their first contact attempt.<sup>4</sup> For a full text message contact schedule and message content, see Table 1. The message content for the short URL and long URL groups was unintentionally different (Table 1). Additionally, none of the contacts mentioned COVID-19 or the coronavirus.

**Figure 3: Week 48 sample short URL text message**



Source: U.S. Census Bureau, Household Pulse Survey

---

<sup>3</sup> Qualtrics is the web-based survey platform used to administer the HPS.

<sup>4</sup> It is not immediately clear why the fifth phone number was contacted first for the long URL group.

**Table 1: Week 48 Text Message Content and Schedule**

Day	Text Message Content	Contact Information
July 27, 2022	US Census Bureau: Respond to an important survey on the economy, health and education. <i>{Short URL}</i> Text STOP to cancel or HELP for more info.	Short URL group: Phone numbers 1 and 2
July 28, 2022	The US Census Bureau needs your help to understand challenges in the current economy. <i>{Short URL}</i> Text STOP to cancel or HELP for more info.	Short URL group: Phone numbers 3 and 4
July 29, 2022	REMINDER: Your household was selected to represent your community in a Census Bureau survey. <i>{Short URL}</i> Text STOP to cancel or HELP if needed.	Short URL group: Phone numbers 1 and 2
August 1, 2022	The US Census Bureau needs your help to understand challenges in the current economy. <i>{Long URL}</i> Text STOP to cancel or HELP for more info.	Short and Long URL groups: Phone number 5
August 2, 2022	You were selected to represent your community in a survey from the US Census Bureau. <i>{Long URL}</i> Text STOP to cancel or HELP for more info.	Long URL group: Phone numbers 1 and 2
August 3, 2022	Please complete the short survey from the US Census Bureau. Your response is critical. <i>{Long URL}</i> Text STOP to cancel or HELP for more info.	Long URL group: Phone numbers 3 and 4
August 4, 2022	REMINDER: Your household was selected to represent your community in a Census Bureau survey. <i>{Long URL}</i> Text STOP to cancel or HELP if needed.	Long URL group: Phone numbers 1 and 2

Source: U.S. Census Bureau, Results for the Evaluation of the Household Pulse Survey Experiments

### 1.3 Week 49 (September 14 – September 28, 2022)

Similar to week 48, week 49 also tested a short and long URL. However, in week 49, both text and email messages were sent, the short URL was updated to include “census.gov” ([https://survey.census.gov/s/6\\_characters](https://survey.census.gov/s/6_characters)), and the

message content was consistent between the two treatment groups. Additionally, for the fifth phone number and email address, all cases received the long URL regardless of treatment group. This was the first contact for the long URL group.<sup>5</sup> See Table 2 for a full text message contact schedule and message content. All contacts for the short URL group were sent first. Reminder text and email messages were sent to the first two phone numbers and the first two email addresses, two days after the initial contact. A case could be contacted up to 14 times. Starting in week 49, email contacts were only sent to those email addresses with at least a 90 percent deliverability rate. All other email addresses were not used.

**Table 2: Week 49 Text Message Content and Schedule**

Day	Text Message Content	Contact Information
September 14, 2022	US Census Bureau: Respond to a survey on the economy, health & education. <i>{Short URL}</i> Text STOP to cancel or HELP for more info.	Short URL group: Phone numbers 1 and 2
September 15, 2022	Help the US Census Bureau understand challenges in the current economy. <i>{Short URL}</i> Text STOP to cancel or HELP for more info.	Short URL group: Phone numbers 3 and 4
September 16, 2022	REMINDER: You were selected to represent your community in a Census Bureau survey. <i>{Short URL}</i> Text STOP to cancel or HELP if needed.	Short URL group: Phone numbers 1 and 2
September 19, 2022	Your response is critical for this short US Census Bureau survey. <i>{Long URL}</i> Text STOP to cancel or HELP for more info.	Short and Long URL groups: Phone number 5

---

<sup>5</sup> It is not immediately clear why the fifth phone number was contacted first for the long URL group.

Day	Text Message Content	Contact Information
September 20, 2022	US Census Bureau: Respond to a survey on the economy, health & education. {Long URL} Text STOP to cancel or HELP for more info.	Long URL group: Phone numbers 1 and 2
September 21, 2022	Help the US Census Bureau understand challenges in the current economy. {Long URL} Text STOP to cancel or HELP for more info.	Long URL group: Phone numbers 3 and 4
September 22, 2022	REMINDER: You were selected to represent your community in a Census Bureau survey. {Long URL} Text STOP to cancel or HELP if needed.	Long URL group: Phone numbers 1 and 2

Source: U.S. Census Bureau, Results for the Evaluation of the Household Pulse Survey Experiments

#### 1.4 Week 50 (October 5 – October 17, 2022)

Week 50 experimented with reminder contact timing by sending reminders after two days or seven days, depending on the treatment group. All cases received the short URL for text and email messages. Reminders were sent to the first four phone numbers and first four email addresses; therefore, cases could be contacted up to 18 times if they had five phone numbers and five email addresses available. Again, only email addresses with at least a 90 percent deliverability rate were used. Message content was the same for both treatment groups.

**Table 3: Contact Strategies and Analysis Characteristics by Week**

Week	URL Length	Email Contacts	Reminder Contacts	Exclusions from Analysis
47	Long URL	All available email addresses	7 days apart Text only	None
48	<ul style="list-style-type: none"> <li>Short and long URL groups</li> <li>Short URL did not include "census.gov"</li> </ul>	No emails sent	2 days apart	<ul style="list-style-type: none"> <li>Cases that had five phone numbers</li> <li>Cases whose only contact information was an email address</li> </ul>
49	<ul style="list-style-type: none"> <li>Short and long URL groups</li> <li>Short URL included "census.gov"</li> </ul>	Only email addresses with at least a 90 percent deliverability rate	2 days apart	<ul style="list-style-type: none"> <li>Cases that had five phone numbers and/or five email addresses</li> <li>Cases whose only contact information was an email address with a deliverability rate of less than 90 percent</li> </ul>
50	Short URL	Only email addresses with at least a 90 percent deliverability rate	2 days apart group and 7 days apart group	Cases whose only contact information was an email address with a deliverability rate of less than 90 percent

Source: U.S. Census Bureau, Results for the Evaluation of the Household Pulse Survey Experiments

## 2. Analysis Limitations

- Because the sample size is so large, differences in response rates and distributions can be very small yet still have statistically significant differences.
- We're unable to account for the natural variation that may occur between weeks. The time of year and current political climate are just a few of the factors that could cause variation in the results.

- In weeks 48, 49 and 50, there were cases sampled where an attempt to contact them was never made.<sup>6</sup> These cases had no opportunity to respond, yet adjustments were not made to the base weights to account for this.
- Week 47 Text and Email vs. Week 48 Long URL Text Only
  - All week 47 contacts mentioned COVID-19 or the coronavirus while week 48 contacts did not.
  - After removing cases with five phone numbers in week 48 due to confounding (i.e., the short URL group was sent a long URL text message to their fifth phone number), the cases included could have received up to five contacts while week 47 cases could have received up to 12 contacts.
  - Reminder contacts were sent seven days apart in week 47 but only two days apart in week 48.
- Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email
  - After removing cases with five phone numbers and/or five email addresses due to confounding (i.e., the short URL group was sent a long URL text message to their fifth phone number and/or fifth email address), the remaining cases could have been contacted up to five times in week 48 while those in week 49 could have received up to 12 contacts.
  - The text messages sent in both weeks did not mention COVID-19; however, the email messages, which were only sent in week 49, did refer to COVID-19.
- Week 48 Short vs. Long URL
  - The messaging between the short and long URL groups was different (See Table 1).
  - The short URL messages were sent six days prior to the long URL messages.
- Week 49 Short vs. Long URL
  - The short URL messages were sent six days prior to the long URL messages.

It is important to keep these limitations in mind when interpreting the results.

---

<sup>6</sup> These are cases whose only contact information available was an email address (in week 48) or an email address with a less than 90 percent deliverability rate (in weeks 49 and 50).

### 3. Results

This section outlines the research questions and results for each experiment. Our analyses examined response rates, demographic characteristic distributions, and language chosen to complete the survey for experiments involving email contacts, URL length, and reminder contact timing. The demographic characteristic distributions analyzed included age, race, Hispanic origin, marital status, U.S. Armed Forces status, educational attainment, number of children in the household, number of adults in the household, sex at birth, gender, and sexual orientation. See Appendix A for more information about these demographic variables and the language variable. Response rates were weighted using base weights and their replicate weights. Demographic characteristics and language were weighted using final person-level weights. All comparisons were made using a Rao-Scott Chi-Square test with an alpha of 0.1, with the null hypothesis that the distributions are equal. Rao-Scott Chi-Square test p-values are listed in the notes below each table. Tables for distributions that were not significantly different are in Appendix C.<sup>7</sup>

#### 3.1 Email Contacts

*Research Question: Is there a difference in response rates, demographic characteristic distributions, and chosen language when contacting sample cases by text and email compared to using text only?*

We compared response rates, demographic characteristic distributions, and language selected for two weeks that received emails (weeks 47 and 49) to the week that did not (week 48).<sup>8</sup>

##### 3.1.1 Week 47 Text and Email vs. Week 48 Long URL Text Only

While we found significantly different response rates between the week 47 and week 48 groups ( $p=0.0413$ ) (Table 4), the difference was very small (0.112

---

<sup>7</sup> Results were verified using double programming, a process in which multiple staff develop program code independently to produce results. This practice helps ensure the quality of deliverables.

<sup>8</sup> We did not compare to week 50 because of the large number of limitations associated with that analysis.

percentage points) and not practically meaningful. Week 48, which did not send emails, had a slightly higher response rate.

**Table 4: Response Rates – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Treatment Group	Number of Respondents	Response Rate (%)
Week 47 Text & Email	58,500	5.67 (0.03)
Week 48 Long URL Text Only	27,000 <sup>a</sup>	5.78 (0.05)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. (p=0.0413)

<sup>a</sup> When comparing week 47 to week 48, we only used the long URL group for week 48 because all week 47 contacts received the long URL.

Additionally, age, race, marital status, educational attainment, sex at birth, sexual orientation, and language all had significantly different distributions between the two groups (Table 5 through Table 11). Across these distributions, the largest percentage point difference was in the “Never Married” marital status category and the “18-24” age group, of which there was much overlap (i.e., the vast majority of 18 to 24-year-olds have also never been married). Both categories made up a smaller percentage of respondents when text and email were used compared to texting alone, possibly because younger people are less likely to read their email. It’s also possible including emails as part of the contact strategy appealed to the older age groups who were also less likely to have never been married and may have more difficulty responding on their phone.



**Table 5: Age – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Age	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
18-24	1,300	1,100	6.66 (0.21)	9.42 (0.41)
25-39	12,000	7,200	27.59 (0.29)	28.77 (0.55)
40-54	16,000	7,500	26.29 (0.17)	24.97 (0.44)
55-64	12,000	4,800	17.44 (0.15)	17.02 (0.34)
65 and above	17,500	6,100	22.03 (0.09)	19.82 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups ( $p < 0.0001$ ).

**Table 6: Race – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Race	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
White, alone	47,500	22,000	75.45 (0.15)	75.37 (0.48)
Black, alone	4,700	2,200	12.38 (0.14)	12.17 (0.29)
Asian, alone	3,200	1,300	5.85 (0.13)	5.30 (0.27)
Any other race alone, or race in combination	2,800	1,400	6.32 (0.20)	7.17 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups ( $p = 0.0128$ ).

**Table 7: Marital Status – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Marital Status	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Now married	33,000	14,500	55.05 (0.37)	53.14 (0.62)
Widowed	3,400	1,300	4.59 (0.13)	4.10 (0.24)
Divorced	9,200	3,900	12.18 (0.24)	11.70 (0.34)
Separated	1,100	450	2.49 (0.15)	2.17 (0.26)
Never married	11,000	6,300	25.70 (0.31)	28.89 (0.51)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.0001).

**Table 8: Educational Attainment – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Educational Attainment	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Less than high school	400	150	2.89 (0.17)	1.77 (0.20)
Some high school	750	400	5.00 (0.21)	5.37 (0.26)
High school graduate or equivalent (for example GED)	6,800	3,000	31.05 (0.21)	29.92 (0.49)
Some college, but degree not received or is in progress	11,500	5,600	20.52 (0.15)	21.55 (0.38)
Associate’s degree (for example AA, AS)	5,900	2,800	9.68 (0.15)	9.62 (0.30)
Bachelor’s degree (for example BA, BS, AB)	17,000	7,700	16.93 (0.12)	16.96 (0.24)

Educational Attainment	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Graduate degree (for example master's, professional, doctorate)	16,000	7,200	13.93 (0.12)	14.81 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p<0.0001).

**Table 9: Sex at Birth – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Sex at Birth	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Male	23,500	11,500	48.72 (0.00)	49.84 (0.41)
Female	34,500	15,500	51.28 (0.00)	50.16 (0.41)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.0058).

**Table 10: Sexual Orientation – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Gay or lesbian	1,900	950	3.06 (0.14)	3.35 (0.21)
Straight, that is not gay or lesbian	51,500	23,000	87.71 (0.29)	87.12 (0.41)
Bisexual	2,200	1,300	4.79 (0.21)	5.73 (0.28)
Something else	850	550	2.02 (0.14)	1.97 (0.13)

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
I don't know	850	400	2.42 (0.15)	1.84 (0.18)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.0046).

**Table 11: Language – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Language	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
English	57,000	26,500	96.81 (0.21)	97.79 (0.28)
Spanish	600	200	3.19 (0.21)	2.21 (0.28)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.0118).

### 3.1.2 Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email

Because the short URL in week 48 performed sub-optimally (Section 3.2.1) and did not indicate that it was from the U.S. Census Bureau ([https://gov.xm.app/6 characters](https://gov.xm.app/6characters)), we only compared the week 48 long URL to the week 49 long URL. We found significantly different response rates between the two groups (p<0.0001) (Table 12). Week 48 (without email) had a significantly higher response rate than week 49 (with email) with a difference of 0.84 percentage points. The emails, but not the text messages, mentioned COVID-19 so it's possible that mentioning this topic was a deterrent to some at this point in time.

**Table 12: Response Rates – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Treatment Group	Number of Respondents	Response Rate (%)
Week 48 Text Only	27,000	5.78 (0.05)
Week 49 Text & Email	24,000	4.94 (0.04)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. ( $p < 0.0001$ )

We found significant differences in the distributions for age, Hispanic origin, marital status, educational attainment, sex at birth, and gender (Table 13 through Table 18). The largest percentage point difference was in the “Never Married” marital status category followed by the “Female” Gender category. Both made up a smaller percentage of respondents when text and email were used compared to text alone. It’s unclear why these categories were most affected by the use of email, although, as mentioned above, the COVID-19 topic in the week 49 emails may have deterred these groups from responding. While the differences are smaller than between weeks 47 and 48, we still see younger people responding at a higher rate when only texts were sent and older people responding at a higher rate when emails were offered.

**Table 13: Age – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Age	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
18-24	1,100	950	9.42 (0.41)	8.77 (0.44)
25-39	7,200	5,800	28.77 (0.55)	26.50 (0.44)
40-54	7,500	6,500	24.97 (0.44)	26.04 (0.49)
55-64	4,800	4,400	17.02 (0.34)	17.64 (0.40)
65 and above	6,100	6,200	19.82 (0.34)	21.06 (0.36)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups ( $p = 0.0050$ ).

**Table 14: Hispanic Origin – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Hispanic Origin	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Hispanic, Latino, or Spanish Origin	24,500	22,000	82.60 (0.34)	83.64 (0.49)
Not of Hispanic, Latino, or Spanish Origin	2,300	2,000	17.40 (0.34)	16.36 (0.49)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.0722).

**Table 15: Marital Status – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Marital Status	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Now married	14,500	13,500	53.14 (0.62)	54.92 (0.69)
Widowed	1,300	1,300	4.10 (0.24)	4.70 (0.24)
Divorced	3,900	3,600	11.70 (0.34)	12.74 (0.38)
Separated	450	400	2.17 (0.26)	2.16 (0.21)
Never married	6,300	5,000	28.89 (0.51)	25.49 (0.59)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.0011).

**Table 16: Educational Attainment – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Educational Attainment	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Less than high school	150	200	1.77 (0.20)	2.58 (0.25)
Some high school	400	300	5.37 (0.26)	4.19 (0.32)
High school graduate or equivalent (for example GED)	3,000	2,800	29.92 (0.49)	31.73 (0.62)
Some college, but degree not received or is in progress	5,600	5,100	21.55 (0.38)	21.37 (0.43)
Associate’s degree (for example AA, AS)	2,800	2,500	9.62 (0.30)	9.25 (0.27)
Bachelor’s degree (for example BA, BS, AB)	7,700	6,900	16.96 (0.24)	16.70 (0.25)
Graduate degree (for example master’s, professional, doctorate)	7,200	6,100	14.81 (0.23)	14.17 (0.26)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.0001).

**Table 17: Sex at Birth – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Sex at Birth	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Male	11,500	10,500	49.84 (0.41)	47.51 (0.50)
Female	15,500	13,000	50.16 (0.41)	52.49 (0.50)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.0002).

**Table 18: Gender – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Gender	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Male	11,000	10,500	48.62 (0.41)	46.46 (0.54)
Female	15,000	12,500	49.00 (0.39)	51.38 (0.54)
Transgender	150	100	0.81 (0.11)	0.74 (0.14)
None of these	300	250	1.56 (0.15)	1.42 (0.18)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.0503).

### 3.2 URL Length

*Research Question: Is there a difference in response rates, demographic characteristic distributions, and chosen language when using a short URL compared to a long URL?*

We compared response rates, demographic characteristic distributions, and language selected for the short URL group and the long URL group in weeks 48 and 49.

#### 3.2.1 Week 48 Short vs. Long URL

With a difference of 1.54 percentage points, the long URL group had a significantly higher response rate than the short URL group in week 48 (p<0.0001) (Table 19). The difference is most likely due to the short URL not including “census.gov” along with the limitations discussed in Section 2.

**Table 19: Response Rates – URL Length (Week 48)**

Treatment Group	Number of Respondents	Response Rate (%)
Short URL	19,500	4.24 (0.04)
Long URL	27,000	5.78 (0.05)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. (p<0.0001)



Additionally, age, race, marital status, educational attainment, number of adults in the household, sex at birth, sexual orientation, and language had significantly different distributions between the two groups (Table 20 through Table 27). The largest percentage point differences were in the “Never Married” marital status category and the “65 and above” age group. The “Never Married” and younger population had a higher percentage of respondents for the long URL group compared to the short URL group and the opposite was true for the “65 and above” age group. It appears the “gov.xm.app” URL deterred the younger population from responding more than the older population.

**Table 20: Age – URL Length (Week 48)**

Age	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
18-24	650	1,100	6.47 (0.29)	9.42 (0.41)
25-39	4,700	7,200	25.40 (0.52)	28.77 (0.55)
40-54	5,400	7,500	26.39 (0.45)	24.97 (0.44)
55-64	3,800	4,800	18.30 (0.41)	17.02 (0.34)
65 and above	5,000	6,100	23.45 (0.44)	19.82 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p<0.0001).

**Table 21: Race – URL Length (Week 48)**

Race	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
White, alone	16,000	22,000	76.91 (0.55)	75.37 (0.48)
Black, alone	1,600	2,200	11.60 (0.33)	12.17 (0.29)
Asian, alone	950	1,300	5.88 (0.34)	5.30 (0.27)
Any other race alone, or race in combination	1,000	1,400	5.62 (0.33)	7.17 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0064).

**Table 22: Marital Status – URL Length (Week 48)**

Marital Status	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Now married	11,000	14,500	55.53 (0.60)	53.14 (0.62)
Widowed	1,100	1,300	5.11 (0.27)	4.10 (0.24)
Divorced	3,100	3,900	13.23 (0.34)	11.70 (0.34)
Separated	400	450	2.82 (0.28)	2.17 (0.26)
Never married	4,100	6,300	23.31 (0.57)	28.89 (0.51)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups ( $p < 0.0001$ ).

**Table 23: Educational Attainment – URL Length (Week 48)**

Educational Attainment	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Less than high school	150	150	2.80 (0.39)	1.77 (0.20)
Some high school	300	400	5.33 (0.47)	5.37 (0.26)
High school graduate or equivalent (for example GED)	2,400	3,000	31.26 (0.73)	29.92 (0.49)
Some college, but degree not received or is in progress	4,300	5,600	20.48 (0.51)	21.55 (0.38)
Associate's degree (for example AA, AS)	2,100	2,800	10.22 (0.38)	9.62 (0.30)
Bachelor's degree (for example BA, BS, AB)	5,400	7,700	16.05 (0.33)	16.96 (0.24)
Graduate degree (for example master's, professional, doctorate)	5,000	7,200	13.87 (0.25)	14.81 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups ( $p = 0.0107$ ).

**Table 24: Number of Adults in the Household – URL Length (Week 48)**

Number of Adults	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
One	4,700	6,100	12.22 (0.40)	10.98 (0.36)
Two	11,000	15,000	49.55 (0.78)	47.90 (0.65)
Three	2,700	3,700	21.31 (0.67)	20.74 (0.53)
Four	1,000	1,500	10.28 (0.56)	12.58 (0.58)
Five	350	500	3.96 (0.32)	4.83 (0.33)
Six	80	100	1.26 (0.20)	1.50 (0.22)
Seven	20	30	0.36 (0.09)	0.48 (0.12)
Eight, Nine, or Ten	40	50	1.07 (0.22)	0.97 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0207).

**Table 25: Sex at Birth – URL Length (Week 48)**

Sex at Birth	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Male	8,100	11,500	47.47 (0.54)	49.84 (0.41)
Female	11,500	15,500	52.53 (0.54)	50.16 (0.41)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0116).

**Table 26: Sexual Orientation – URL Length (Week 48)**

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Gay or lesbian	650	950	2.82 (0.22)	3.35 (0.21)
Straight, that is not gay or lesbian	17,500	23,000	88.24 (0.46)	87.12 (0.41)
Bisexual	850	1,300	4.86 (0.32)	5.73 (0.28)
Something else	350	550	1.88 (0.20)	1.97 (0.13)
I don't know	300	400	2.20 (0.20)	1.84 (0.18)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0656).

**Table 27: Language – URL Length (Week 48)**

Language	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
English	19,500	26,500	96.31 (0.38)	97.79 (0.28)
Spanish	200	200	3.69 (0.38)	2.21 (0.28)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0027).

### 3.2.2 Week 49 Short vs. Long URL

Using the updated short URL that contained “census.gov,” the short URL group had a significantly higher response rate compared to the long URL group in week 49 (p<0.0001) (Table 28) with a difference of 0.47 percentage points. Again, this is a small difference, but does suggest that the higher response rate for the long URL seen in Week 48 was likely due to the make-up of the URL and not its length.

**Table 28: Response Rates – URL Length (Week 49)**

Treatment Group	Number of Respondents	Response Rate (%)
Short URL	26,000	5.41 (0.04)
Long URL	24,000	4.94 (0.04)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. (p<0.0001)

Only sex at birth and gender had significantly different distributions across the two groups (Table 29 and Table 30); however, we do not see enough variation to draw meaningful conclusions.

**Table 29: Sex at Birth – URL Length (Week 49)**

Sex at Birth	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Male	12,000	10,500	49.81 (0.44)	47.51 (0.50)
Female	14,000	13,000	50.19 (0.44)	52.49 (0.50)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.0141).

**Table 30: Gender – URL Length (Week 49)**

Gender	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Male	11,500	10,500	48.89 (0.48)	46.46 (0.54)
Female	13,500	12,500	49.32 (0.47)	51.38 (0.54)
Transgender	100	100	0.52 (0.09)	0.74 (0.14)
None of these	250	250	1.26 (0.15)	1.42 (0.18)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups ( $p=0.0485$ ).

### 3.3 Reminder Contact Timing

*Research Question: Is there a difference in response rates, demographic characteristic distributions, and chosen language when the timing between contacts is two days compared to seven days?*

We compared response rates, demographic characteristic distributions, and language selected between the treatment group who received reminder contacts after two days and those who received reminders after seven days during week 50.

The two-day contact reminder treatment group had a significantly higher response rate than the seven-day group ( $p<0.0001$ ) (Table 31), but with a difference of only 0.21 percentage points.

**Table 31: Response Rates – Reminder Contact Timing (Week 50)**

Treatment Group	Number of Respondents	Response Rate (%)
Two-day	21,500	4.35 (0.03)
Seven-day	20,500	4.14 (0.04)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. ( $p<0.0001$ )

There were no significantly different demographic characteristic distributions between the two groups. The chosen language was also not significantly different.

#### 4. Conclusions

Although there were numerous limitations to these analyses and the differences were generally small, we conclude that sending text messages without emails resulted in higher response rates than sending text messages and emails together; the short URL that contained “census.gov” had a higher response rate than the long URL; and the two-day reminder timing had a higher response rate than the seven-day reminder timing.

Using different contact strategies affected the demographic distributions; however, some of this variation could be attributed to the limitations discussed in Section 2. The week 49 URL experiment and the week 50 reminder contact experiment had very few limitations and the only significant differences we saw in these two experiments were in week 49 for sex at birth and gender.

At the time of this writing, the HPS is sending text messages and emails to email addresses with at least a 90 percent deliverability rate, using a short URL, and sending reminders after two days. It was surprising that having more contacts and two different types of contacts resulted in lower response rates. Therefore, we suggest experimenting with sending text messages without emails in a controlled experiment that does not include confounding factors to determine if email contacts should be removed from the contact strategy. In this experiment, the emails should not mention a sensitive topic like COVID-19 if the text messages also do not. Additionally, we recommend the analysis examine how often emails are opened to determine if unopened emails are contributing to differences in response rates and/or demographic distributions. Lastly, given the results of the other two analyses, we recommend continuing to use the short URL and sending reminders after two days. However, HPS could also experiment with sending two reminders; one after two days and another after seven days, or experiment with the time of day that contacts are sent.

## 5. References

*Household Pulse Survey*. (2023, August 08). Retrieved from Household Pulse Survey: Measuring Social and Economic Impacts during the Coronavirus Pandemic:

<https://www.census.gov/programs-surveys/household-pulse-survey.html>

*Household Pulse Survey Public Use File*. (2023, July 12). Retrieved from Household Pulse Survey:

<https://www.census.gov/programs-surveys/household-pulse-survey/datasets.html>

U.S. Census Bureau. (2023). *Source of the Data and Accuracy of the Estimates for the 2020 Household Pulse Survey - Phase 3*. Retrieved from U.S. Census Bureau:

[https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Phase3\\_Source\\_and\\_Accuracy\\_Week\\_18.pdf](https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Phase3_Source_and_Accuracy_Week_18.pdf)

## Appendix A Survey Variables

Table 32 includes select rows from the Household Pulse Survey Data Dictionary for CSV – Week 50. It contains the variables used in our analyses. We recoded TBIRTH\_YEAR and ACTVDUTY1-ACTVDUTY5 to create the age and U.S. Armed Forces status variables. Age is calculated by subtracting TBIRTH\_YEAR from 2022. U.S. Armed Forces Status is equal to “Self or spouse on active duty or in the reserves” if ACTVDUTY2, ACTVDUTY3, ACTVDUTY4, or ACTVDUTY5 = 1. U.S. Armed Forces Status is equal to “Self or spouse not on active duty or in the reserves” if ACTVDUTY1 = 1. Additionally, for the number of adults in the household (THHLD\_NUMADLT), we combined eight, nine, and ten into one category due to small cell sizes. The language variable is the respondent’s selection to the initial request to choose a language.<sup>9</sup> The demographic characteristic distributions and language calculations removed any value equal to -99 (i.e., question seen but category not selected).

**Table 32: Response Variables used for Demographic Characteristic Analyses**

Instrument Q #	Variable	Description		Question Wording
D1	TBIRTH_YEAR	Description Values Universe Internal Notes	Year of birth 1934-2004 All persons born before 2004 Topcoded 1934-2004	What year were you born? Please enter a number.
Recode of D2	RHISPANIC	Description Values Universe Internal Notes	Hispanic origin 1) No, not of Hispanic, Latino, or Spanish origin 2) Yes, of Hispanic, Latino, or Spanish origin All persons born before 2004	Are you of Hispanic, Latino, or Spanish origin? - Selected Choice

---

<sup>9</sup> The following is requested at the beginning of the survey: “This survey is available in English and Spanish. Please select the language in which you prefer to complete the survey. If you would like to change your language selection later, please use the drop down menu in the upper right corner of each page to select the language in which you prefer to complete the survey.” Radio button response options are English and Español.



Instrument Q #	Variable	Description		Question Wording
Recode of D3	RRACE	Description Values  Universe Internal Notes	Race 1) White, Alone 2) Black, Alone 3) Asian, Alone 4) Any other race alone, or race in combination  All persons born before 2004	What is your race? Please select all that apply. - Selected Choice
D4	EEDUC	Description Values  Universe Internal Notes	Educational attainment 1) Less than high school 2) Some high school 3) High school graduate or equivalent (for example GED) 4) Some college, but degree not received or is in progress 5) Associate's degree (for example AA, AS) 6) Bachelor's degree (for example BA, BS, AB) 7) Graduate degree (for example master's, professional, doctorate)  All persons born before 2004	What is the highest degree or level of school you have completed? Select only one answer.
D5	MS	Description Values  Universe Internal Notes	Marital status 1) Now married 2) Widowed 3) Divorced 4) Separated 5) Never married -99) Question seen but category not selected -88) Missing / Did not report  All persons born before 2004	What is your marital status? Select only one answer.

Instrument Q #	Variable	Description		Question Wording
D6	EGENID_BIRTH	Description Values  Universe Internal Notes	Gender at birth 1) Male 2) Female  All persons born before 2004	What sex were you assigned at birth, on your original birth certificate?
D7	GENID_DESCRIBE	Description Values  Universe Internal Notes	Current gender identity 1) Male 2) Female 3) Transgender 4) None of these -99) Question seen but category not selected -88) Missing / Did not report  All persons born before 2004	Do you currently describe yourself as male, female or transgender?
D9	SEXUAL_ORIENTATION	Description Values  Universe Internal Notes	Sexual orientation 1) Gay or lesbian 2) Straight, that is not gay or lesbian 3) Bisexual 4) Something else 5) I don't know -99) Question seen but category not selected -88) Missing / Did not report  All persons born before 2004	Which of the following best represents how you think of yourself?
D10	THHLD_NUMPER	Description Values Universe Internal Notes	Total number of people in household (1-40) number of people (whole number) All persons born before 2004	How many total people – adults and children – currently live in your household, including

Instrument Q #	Variable	Description		Question Wording
				yourself? Please enter a number.
D11	THHLD_NUMKID	Description Values Universe Internal Notes	Total number of people under 18-years-old in household (0-40) number of people under 18 (whole number) All persons born before 2004	How many people under 18 years-old currently live in your household? Please enter a number.
Recode of D10 and D11	THHLD_NUMADLT	Description Values Universe Internal Notes	Recode for the number of Adults in the household 1-40) number of people (whole number) All persons born before 2004	<Recode for the number of Adults in the household>
D14	ACTVDUTY1	Description Values Universe Internal Notes	Active duty or reserves self or spouse 1) No -99) Question seen but category not selected -88) Missing / Did not report All persons born before 2004	Are you or your spouse currently serving in the U.S. Armed Forces (Active Duty, Reserve, or National Guard)?
D14	ACTVDUTY2	Description Values Universe Internal Notes	Active duty or reserves self or spouse 1) Yes, I'm serving on active duty -99) Question seen but category not selected -88) Missing / Did not report All persons born before 2004	Are you or your spouse currently serving in the U.S. Armed Forces (Active Duty, Reserve, or National Guard)?
D14	ACTVDUTY3	Description Values	Active duty or reserves self or spouse 1) Yes, I'm serving in the Reserve or National Guard -99) Question seen but category not selected -88) Missing / Did not report	Are you or your spouse currently serving in the U.S. Armed Forces (Active Duty, Reserve, or National Guard)?

Instrument Q #	Variable	Description		Question Wording
		Universe Internal Notes	All persons born before 2004	
D14	ACTVDUTY4	Description Values  Universe Internal Notes	Active duty or reserves self or spouse 1) Yes, my spouse is serving on active duty -99) Question seen but category not selected -88) Missing / Did not report All persons born before 2004	Are you or your spouse currently serving in the U.S. Armed Forces (Active Duty, Reserve, or National Guard)?
D14	ACTVDUTY5	Description Values  Universe Internal Notes	Active duty or reserves self or spouse  1) Yes, my spouse is serving in the Reserve or National Guard -99) Question seen but category not selected -88) Missing / Did not report All persons born before 2004	Are you or your spouse currently serving in the U.S. Armed Forces (Active Duty, Reserve, or National Guard)?

Source: U.S. Census Bureau, Household Pulse Survey Data Dictionary for CSV – Week 50

## Appendix B Sample Email Template – Weeks 47 and 49

### Email Invite Day 1

Official COVID-19 Survey from U.S. Census Bureau (Encuesta Oficial del COVID-19 de la Oficina del Censo de los EE.UU.)



**A Message from the U.S. Census Bureau**

**(Para más información en español, vea al final de este mensaje)**

The Census Bureau is asking for you to participate in a special COVID-19 survey, called the Household Pulse Survey. Your response to this survey is critical to understanding the ongoing impact of the pandemic across our country. Please click the button below by `{date://OtherDate/FL/+12%20day}` to start the survey.

**Take the Survey**

Or paste the following URL into your web browser: `{1://SurveyURL}`

Your answers, combined with other households across the country, can help federal, state and local policymakers better understand the impact that the COVID-19 pandemic has had on people like you. Your answers are vital to help guide their decisions on where additional support is needed.

More information regarding the Household Pulse Survey can be found at:

<https://www.census.gov/programs-surveys/household-pulse-survey.html>

This survey provides information to policymakers and community leaders that cannot be found elsewhere. While your participation is voluntary, it is very important.

Thank you in advance for your time and participation.

DRB Clearance Number - CBDRB-FY24-POP001-0003

*OMB Number*

*This collection has been approved by the Office of Management and Budget (OMB). The eight-digit OMB approval number is 0607-1013 and appears at the bottom of each screen. Without this approval, we could not conduct this survey.*

*Authority and Confidentiality*

*Title 13, United States Code, authorizes the U.S. Census Bureau to conduct this collection and to request your voluntary assistance.*

**Mensaje de la Oficina del Censo de los Estados Unidos**

La Oficina del Censo de los Estados Unidos le invita a participar en una encuesta especial del COVID-19, la Encuesta del Pulso de los Hogares. Su respuesta a esta encuesta es clave para entender el impacto continuo de la pandemia en todo el país. Por favor, haga clic en el botón abajo antes del  $\${date://OtherDate/FL/+12\%20day}$  para comenzar la encuesta.

**Comenzar la encuesta**

O pegue el siguiente enlace en su navegador de internet:  $\${1://SurveyURL}$

Sus respuestas, combinadas con las de otros hogares de todo el país, pueden ayudar a los legisladores federales, estatales y locales a mejor entender el impacto de la pandemia de COVID-19 en personas como usted. Sus respuestas son de suma importancia para guiar las decisiones acerca de donde se necesita apoyo adicional.

Se puede encontrar más información en inglés acerca de la Encuesta del Pulso de los Hogares en:

<https://www.census.gov/programs-surveys/household-pulse-survey.html>

Esta encuesta provee información a legisladores y líderes de la comunidad que no se puede encontrar en ningún otro lado. Aunque su participación es voluntaria, es muy importante.

Gracias de antemano por su tiempo y por su participación.

*Número de la OMB*

*Esta recopilación ha sido aprobada por la Oficina de Administración y Presupuesto (OMB por sus siglas en inglés). El número de ocho cifras de aprobación de la OMB es 0607-1013 y aparecerá al final de cada pantalla. Sin este número de aprobación, no podríamos llevar a cabo esta encuesta.*

*Autoridad y Confidencialidad*

*El Título 13 del Código de los Estados Unidos autoriza a la Oficina del Censo a llevar a cabo esta recopilación y a pedirle su ayuda voluntaria.*

`#{1://OptOutLink?d=Click here to unsubscribe}`

**Appendix C Additional Demographic Characteristic and Language Distributions**

**Email Contact – Week 47 Text and Email vs. Week 48 Long URL Text Only**

**Table 33: Hispanic Origin – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Hispanic Origin	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Hispanic, Latino, or Spanish Origin	53,000	24,500	82.51 (0.10)	82.60 (0.34)
Not of Hispanic, Latino, or Spanish Origin	5,200	2,300	17.49 (0.10)	17.40 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.8063).

**Table 34: U.S. Armed Forces Status – Email Contact (Week 47 Text and Email vs. Week 48 Long URL) Text Only**

U.S. Armed Forces Status	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Self or spouse on active duty or in the reserves	600	350	1.32 (0.09)	1.40 (0.15)
Self or spouse not on active duty or in the reserves	57,000	26,500	98.68 (0.09)	98.60 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.6409).



**Table 35: Number of Children in the Household – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Number of Children	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
None	40,000	17,500	62.33 (0.36)	61.79 (0.57)
One	8,200	4,100	16.89 (0.28)	17.54 (0.49)
Two	6,400	3,200	12.17 (0.25)	12.57 (0.44)
Three	2,400	1,200	5.24 (0.21)	5.06 (0.32)
Four	800	400	1.73 (0.13)	1.47 (0.14)
Five	450	250	1.64 (0.16)	1.58 (0.14)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.5835).

**Table 36: Number of Adults in the Household – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Number of Adults	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
One	14,000	6,100	11.64 (0.30)	10.98 (0.36)
Two	32,000	15,000	48.92 (0.44)	47.90 (0.65)
Three	7,900	3,700	20.43 (0.33)	20.74 (0.53)
Four	3,200	1,500	11.82 (0.33)	12.58 (0.58)
Five	950	500	4.57 (0.27)	4.83 (0.33)
Six	250	100	1.33 (0.13)	1.50 (0.22)
Seven	70	30	0.44 (0.09)	0.48 (0.12)
Eight, Nine, or Ten	100	50	0.84 (0.13)	0.97 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.6593).

**Table 37: Gender – Email Contact (Week 47 Text and Email vs. Week 48 Long URL Text Only)**

Gender	Number of Respondents		Percent of Respondents	
	Week 47 Text & Email	Week 48 Long URL Text Only	Week 47 Text & Email	Week 48 Long URL Text Only
Male	23,000	11,000	47.47 (0.13)	48.62 (0.41)
Female	33,500	15,000	50.03 (0.12)	49.00 (0.39)
Transgender	200	150	0.69 (0.09)	0.81 (0.11)
None of these	700	300	1.81 (0.13)	1.56 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 47 and week 48 treatment groups (p=0.1400).

### Email Contact – Week 48 Long URL vs. Week 49 Long URL

**Table 38: Race – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Race	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
White, alone	22,000	20,000	75.37 (0.48)	75.41 (0.44)
Black, alone	2,200	1,700	12.17 (0.29)	11.81 (0.41)
Asian, alone	1,300	1,100	5.30 (0.27)	6.03 (0.27)
Any other race alone, or race in combination	1,400	1,200	7.17 (0.34)	6.75 (0.29)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.1461).

**Table 39: U.S. Armed Forces Status – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

U.S. Armed Forces Status	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Self or spouse on active duty or in the reserves	350	350	1.40 (0.15)	1.49 (0.15)
Self or spouse not on active duty or in the reserves	26,500	23,500	98.60 (0.15)	98.51 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.6673).

**Table 40: Number of Children in the Household – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Number of Children	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
None	17,500	16,000	61.79 (0.57)	61.49 (0.59)
One	4,100	3,500	17.54 (0.49)	17.81 (0.47)
Two	3,200	2,700	12.57 (0.44)	12.07 (0.33)
Three	1,200	1,100	5.06 (0.32)	5.03 (0.31)
Four	400	350	1.47 (0.14)	1.84 (0.17)
Five	250	200	1.58 (0.14)	1.75 (0.19)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.5713).

**Table 41: Number of Adults in the Household – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Number of Adults	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
One	6,100	5,600	10.98 (0.36)	11.58 (0.42)
Two	15,000	13,500	47.90 (0.65)	48.92 (0.66)
Three	3,700	3,100	20.74 (0.53)	21.06 (0.66)

Number of Adults	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Four	1,500	1,100	12.58 (0.58)	10.74 (0.43)
Five	500	400	4.83 (0.33)	4.88 (0.37)
Six	100	90	1.50 (0.22)	1.06 (0.14)
Seven	30	30	0.48 (0.12)	0.60 (0.16)
Eight, Nine, or Ten	50	50	0.97 (0.23)	1.16 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.1472).

**Table 42: Sexual Orientation – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
Gay or lesbian	950	800	3.35 (0.21)	2.88 (0.18)
Straight, that is not gay or lesbian	23,000	21,000	87.12 (0.41)	87.67 (0.42)
Bisexual	1,300	1,000	5.73 (0.28)	5.27 (0.28)
Something else	550	400	1.97 (0.13)	2.01 (0.18)
I don't know	400	300	1.84 (0.18)	2.17 (0.22)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.2624).

**Table 43: Language – Email Contact (Week 48 Long URL Text Only vs. Week 49 Long URL Text and Email)**

Language	Number of Respondents		Percent of Respondents	
	Week 48 Text Only	Week 49 Text & Email	Week 48 Text Only	Week 49 Text & Email
English	26,500	23,500	97.79 (0.28)	97.59 (0.27)
Spanish	200	200	2.21 (0.28)	2.41 (0.27)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the week 48 and week 49 treatment groups (p=0.5773).

## URL Length – Week 48 Short URL vs. Long URL

**Table 44: Hispanic Origin – URL Length (Week 48)**

Hispanic Origin	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Hispanic, Latino, or Spanish Origin	18,000	24,500	83.30 (0.49)	82.60 (0.34)
Not of Hispanic, Latino, or Spanish Origin	1,700	2,300	16.70 (0.49)	17.40 (0.34)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.3709).

**Table 45: U.S. Armed Forces Status – URL Length (Week 48)**

U.S. Armed Forces Status	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Self or spouse on active duty or in the reserves	250	350	1.40 (0.18)	1.40 (0.15)
Self or spouse not on active duty or in the reserves	19,500	26,500	98.60 (0.18)	98.60 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.9954).

**Table 46: Number of Children in the Household – URL Length (Week 48)**

Number of Children	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
None	13,000	17,500	61.56 (0.74)	61.79 (0.57)
One	2,900	4,100	17.41 (0.56)	17.54 (0.49)
Two	2,400	3,200	12.75 (0.47)	12.57 (0.44)
Three	950	1,200	4.93 (0.26)	5.06 (0.32)
Four	350	400	1.94 (0.18)	1.47 (0.14)
Five	150	250	1.42 (0.17)	1.58 (0.14)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.4579).

**Table 47: Gender – URL Length (Week 48)**

Gender	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Male	7,900	11,000	46.36 (0.56)	48.62 (0.41)
Female	11,500	15,000	51.14 (0.57)	49.00 (0.39)
Transgender	80	150	0.81 (0.14)	0.81 (0.11)
None of these	250	300	1.70 (0.20)	1.56 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.1356).

## URL Length – Week 49 Short URL vs. Long URL

**Table 48: Age – URL Length (Week 49)**

Age	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
18-24	950	950	8.33 (0.40)	8.77 (0.44)
25-39	6,100	5,800	26.94 (0.42)	26.50 (0.44)
40-54	6,900	6,500	24.70 (0.46)	26.04 (0.49)
55-64	5,000	4,400	17.40 (0.33)	17.64 (0.40)
65 and above	7,000	6,200	22.63 (0.28)	21.06 (0.36)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.1669).

**Table 49: Race – URL Length (Week 49)**

Race	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
White, alone	22,000	20,000	76.84 (0.42)	75.41 (0.44)
Black, alone	1,700	1,700	11.12 (0.32)	11.81 (0.41)
Asian, alone	1,100	1,100	5.34 (0.27)	6.03 (0.27)
Any other race alone, or race in combination	1,400	1,200	6.70 (0.32)	6.75 (0.29)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.2588).

**Table 50: Hispanic Origin – URL Length (Week 49)**

Hispanic Origin	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Hispanic, Latino, or Spanish Origin	24,000	22,000	82.27 (0.47)	83.64 (0.49)
Not of Hispanic, Latino, or Spanish Origin	2,200	2,000	17.73 (0.47)	16.36 (0.49)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.1346).

**Table 51: Marital Status – URL Length (Week 49)**

Marital Status	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Now married	14,500	13,500	54.41 (0.61)	54.92 (0.69)
Widowed	1,400	1,300	4.95 (0.26)	4.70 (0.24)
Divorced	3,900	3,600	12.31 (0.33)	12.74 (0.38)
Separated	400	400	2.29 (0.23)	2.16 (0.21)
Never married	5,500	5,000	26.04 (0.63)	25.49 (0.59)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.8236).

**Table 52: U.S. Armed Forces Status – URL Length (Week 49)**

U.S. Armed Forces Status	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Self or spouse on active duty or in the reserves	350	350	1.32 (0.15)	1.49 (0.15)
Self or spouse not on active duty or in the reserves	25,500	23,500	98.68 (0.15)	98.51 (0.15)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.4208).

**Table 53: Educational Attainment – URL Length (Week 49)**

Educational Attainment	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Less than high school	150	200	2.56 (0.30)	2.58 (0.25)
Some high school	350	300	4.65 (0.38)	4.19 (0.32)
High school graduate or equivalent (for example GED)	3,000	2,800	31.68 (0.54)	31.73 (0.62)
Some college, but degree not received or is in progress	5,600	5,100	20.98 (0.41)	21.37 (0.43)
Associate’s degree (for example AA, AS)	2,700	2,500	8.96 (0.27)	9.25 (0.27)
Bachelor’s degree (for example BA, BS, AB)	7,600	6,900	17.44 (0.25)	16.70 (0.25)
Graduate degree (for example master’s, professional, doctorate)	6,600	6,100	13.71 (0.23)	14.17 (0.26)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.8026).

**Table 54: Number of Children in the Household – URL Length (Week 49)**

Number of Children	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
None	17,500	16,000	62.72 (0.53)	61.49 (0.59)
One	3,800	3,500	18.03 (0.47)	17.81 (0.47)
Two	3,000	2,700	11.37 (0.37)	12.07 (0.33)
Three	1,100	1,100	4.47 (0.22)	5.03 (0.31)
Four	350	350	1.72 (0.14)	1.84 (0.17)
Five	200	200	1.69 (0.24)	1.75 (0.19)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.4942).



**Table 55: Number of Adults in the Household – URL Length (Week 49)**

Number of Adults	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
One	6,200	5,600	12.11 (0.42)	11.58 (0.42)
Two	14,500	13,500	50.10 (0.57)	48.92 (0.66)
Three	3,300	3,100	19.58 (0.56)	21.06 (0.66)
Four	1,300	1,100	11.41 (0.43)	10.74 (0.43)
Five	350	400	4.44 (0.41)	4.88 (0.37)
Six	90	90	1.10 (0.15)	1.06 (0.14)
Seven	30	30	0.35 (0.08)	0.60 (0.16)
Eight, Nine, or Ten	50	50	0.92 (0.19)	1.16 (0.23)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.3113).

**Table 56: Sexual Orientation – URL Length (Week 49)**

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
Gay or lesbian	900	800	3.52 (0.23)	2.88 (0.18)
Straight, that is not gay or lesbian	23,000	21,000	87.45 (0.44)	87.67 (0.42)
Bisexual	1,100	1,000	5.29 (0.31)	5.27 (0.28)
Something else	400	400	1.94 (0.18)	2.01 (0.18)
I don't know	300	300	1.81 (0.17)	2.17 (0.22)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.2238).

**Table 57: Language – URL Length (Week 49)**

Language	Number of Respondents		Percent of Respondents	
	Short URL	Long URL	Short URL	Long URL
English	25,500	23,500	97.18 (0.28)	97.59 (0.27)
Spanish	200	200	2.82 (0.28)	2.41 (0.27)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the short and long URL groups (p=0.3175).

## Reminder Contact Timing – Week 50

**Table 58: Age – Reminder Contact Timing (Week 50)**

Age	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
18-24	950	800	9.71 (0.46)	8.87 (0.42)
25-39	4,900	4,700	25.44 (0.45)	26.28 (0.55)
40-54	5,500	5,200	25.57 (0.48)	25.07 (0.59)
55-64	4,200	3,900	17.70 (0.37)	17.17 (0.43)
65 and above	6,100	5,900	21.59 (0.35)	22.61 (0.35)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups ( $p=0.3459$ ).

**Table 59: Race – Reminder Contact Timing (Week 50)**

Race	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
White, alone	18,000	17,000	75.84 (0.49)	75.63 (0.40)
Black, alone	1,500	1,500	11.88 (0.36)	11.83 (0.40)
Asian, alone	900	800	5.52 (0.29)	5.77 (0.35)
Any other race alone, or race in combination	1,100	1,100	6.76 (0.35)	6.77 (0.36)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups ( $p=0.9638$ ).

**Table 60: Hispanic Origin – Reminder Contact Timing (Week 50)**

Hispanic Origin	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Hispanic, Latino, or Spanish Origin	19,500	19,000	82.85 (0.58)	82.90 (0.63)
Not of Hispanic, Latino, or Spanish Origin	1,900	1,700	17.15 (0.58)	17.10 (0.63)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups ( $p=0.9641$ ).

**Table 61: Marital Status – Reminder Contact Timing (Week 50)**

Marital Status	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Now married	12,000	11,500	54.21 (0.56)	54.81 (0.61)
Widowed	1,300	1,200	4.64 (0.22)	4.75 (0.27)
Divorced	3,300	3,100	12.29 (0.31)	12.23 (0.49)
Separated	350	350	2.32 (0.29)	2.13 (0.18)
Never married	4,600	4,300	26.54 (0.41)	26.07 (0.56)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.9193).

**Table 62: U.S. Armed Forces Status – Reminder Contact Timing (Week 50)**

U.S. Armed Forces Status	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Self or spouse on active duty or in the reserves	300	250	1.34 (0.12)	1.18 (0.13)
Self or spouse not on active duty or in the reserves	21,000	20,000	98.66 (0.12)	98.82 (0.13)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.3220).

**Table 63: Educational Attainment – Reminder Contact Timing (Week 50)**

Educational Attainment	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Less than high school	150	150	2.27 (0.25)	2.58 (0.34)
Some high school	300	250	4.56 (0.39)	4.45 (0.42)
High school graduate or equivalent (for example GED)	2,500	2,400	30.70 (0.50)	32.33 (0.73)
Some college, but degree not received or is in progress	4,800	4,600	21.81 (0.39)	21.00 (0.38)
Associate’s degree (for example AA, AS)	2,300	2,200	9.32 (0.29)	9.26 (0.28)

Educational Attainment	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Bachelor's degree (for example BA, BS, AB)	6,200	5,700	17.11 (0.28)	16.43 (0.31)
Graduate degree (for example master's, professional, doctorate)	5,400	5,200	14.22 (0.25)	13.95 (0.31)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.6417).

**Table 64: Number of Children in the Household – Reminder Contact Timing (Week 50)**

Number of Children	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
None	15,000	14,000	63.63 (0.59)	63.07 (0.59)
One	3,100	3,000	17.33 (0.55)	17.14 (0.55)
Two	2,200	2,100	11.99 (0.43)	11.76 (0.41)
Three	800	800	4.19 (0.24)	4.55 (0.26)
Four	300	250	1.65 (0.16)	1.80 (0.22)
Five	150	150	1.21 (0.14)	1.68 (0.27)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.3690).

**Table 65: Number of Adults in the Household – Reminder Contact Timing (Week 50)**

Number of Adults	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
One	5,200	4,800	11.75 (0.38)	11.97 (0.40)
Two	12,000	11,500	48.94 (0.68)	48.79 (0.57)
Three	2,800	2,700	19.62 (0.53)	20.30 (0.58)
Four	1,100	1,000	10.56 (0.49)	10.97 (0.52)
Five	350	350	5.11 (0.49)	4.74 (0.39)
Six	100	100	2.07 (0.29)	1.83 (0.27)
Seven	20	20	0.48 (0.19)	0.66 (0.20)
Eight, Nine, or Ten	60	40	1.47 (0.31)	0.74 (0.12)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.2664).

**Table 66: Sex at Birth – Reminder Contact Timing (Week 50)**

Sex at Birth	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Male	9,800	9,400	48.74 (0.46)	48.70 (0.48)
Female	11,500	11,000	51.26 (0.46)	51.30 (0.48)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.9613).

**Table 67: Gender – Reminder Contact Timing (Week 50)**

Gender	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Male	9,600	9,100	47.72 (0.47)	47.55 (0.48)
Female	11,500	10,500	49.84 (0.47)	49.79 (0.48)
Transgender	100	90	0.97 (0.19)	0.70 (0.11)
None of these	250	250	1.47 (0.15)	1.97 (0.27)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.1171).

**Table 68: Sexual Orientation – Reminder Contact Timing (Week 50)**

Sexual Orientation	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
Gay or lesbian	750	750	3.47 (0.34)	3.63 (0.25)
Straight, that is not gay or lesbian	19,000	18,000	86.88 (0.49)	85.93 (0.55)
Bisexual	1,000	900	5.42 (0.35)	5.43 (0.34)
Something else	350	350	2.28 (0.22)	2.64 (0.29)
I don't know	300	250	1.94 (0.20)	2.38 (0.33)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.5780).

**Table 69: Language – Reminder Contact Timing (Week 50)**

Language	Number of Respondents		Percent of Respondents	
	Two-day	Seven-day	Two-day	Seven-day
English	21,000	20,000	97.50 (0.42)	97.64 (0.33)
Spanish	150	150	2.50 (0.42)	2.36 (0.33)

Source: U.S. Census Bureau, Household Pulse Survey

Note: Standard errors are in parentheses. A Rao-Scott Chi-Square test compared the distributions of the two-day and seven-day groups (p=0.8153).