RESEARCH REPORT SERIES (Survey Methodology #2019-04)

Eye Tracking, Usability and Accessibility Results from the Online Version of the 2018 National Survey of Children's Health

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Report issued: June 27, 2019

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Abstract: This report documents the usability testing evaluation of the 2018 National Survey of Children's Health. The PC-version and mobile-optimized version of the survey were pretested in both English and Spanish. The 12 English-speaking and 5 Spanish-speaking participants found similar problems. All participants found the questionnaire long with many questions seemingly unnecessary for healthy, typically developing children. While all English-speaking participants finished the survey, only one Spanish-speaking participant was able to finalize and submit the entire survey within the 90-minute usability session. The design of the page for listing the children in the household was complex. Participants did not know which button to select to add a child's name. For a few questions, participants could answer either in metric or U.S. customary units (for example, height was measured in feet or meters), or in months or years. Participants were supposed to select one of the units to answer. However, participants answered using all the options available to enter information. For example, for children's height, participants provided information in both measurement systems (meters and feet) and for age, they entered information in both years and months. Participants did not realize they needed to choose one option over the other. The spacing and size of response fields and response choices when accessed on iPhones was poor, with small and closely spaced radio buttons, which when selected did not appear selected. Participants did not use or understand the progress bar at the bottom of the screen on PCs. Like other surveys, the review screen was not helpful and not used by any participants to review their answers. In addition, many Spanish speakers did not find the language toggle to Spanish on the first page.

Keywords: online survey design, English and Spanish usability testing, effectiveness, efficiency, satisfaction

Suggested Citation: Elizabeth M. Nichols, Yazmín A. García Trejo, Adriana Hernández-Viver, Lawrence A. Malakhoff, Alda G. Rivas, Rodney Terry. (2019). Eye Tracking, Usability and Accessibility Results from the Online Version of the 2018 National Survey of Children's Health. *Research and Methodology Directorate, Center for Behavioral Science Methods Research Report Series (Survey Methodology #2019-04)*. U.S. Census Bureau. Available online at <<u>http://www.census.gov/content/dam/Census/library/working-papers/2019/adrm/rsm2019-04.pdf</u>>

Executive Summary

In 2018, staff in the Center for Behavioral Science Methods (which at that time was called the Center for Survey Measurement) of the U.S. Census Bureau conducted usability testing of the 2018 National Survey of Children's Health (NSCH) online survey in English and in Spanish. Twelve English-speaking and five Spanish-speaking participants took part in the usability testing. During the usability sessions, participants accessed the survey either on a Census Bureau provided laptop computer or on their own mobile device. During that testing, often cognitive issues arose with the questions and response choices. This report provides a summary of the usability, cognitive and accessibility methods and results from evaluating the NSCH online survey.

Similar problems were found by both the English-speaking and Spanish-speaking participants.

- All participants found the questionnaire long with many questions seemingly unnecessary for healthy, typically developing children. While all English-speaking participants finished the survey, only one Spanish-speaking participant was able to finalize and submit the entire survey within the 90 minute usability session.
- The design of the page for listing the children in the household was complex. Participants did not know which button to select to add a child's name.
- For a few questions, participants could answer either in metric or U.S. customary units (for example, height was measured in feet or meters), or in months or years. Participants were supposed to select one of the units to answer. However, participants answered using all the options available to enter information. For example, for children's height, participants provided information in both measurement systems (meters and feet) and for age they entered information both in years and months. Participants did not realize they needed to choose one option over the other.
- The spacing and size of response fields and response choices when accessed on iPhones was poor, with small and closely spaced radio buttons, which when selected did not appear selected.
- Participants did not use or understand the progress bar at the bottom of the screen on personal computers (PCs).
- Like other surveys, the review screen was not helpful and not used by any participants to review their answers.

There were a number of usability and cognitive challenges with the Spanish version of the instrument. For example, Spanish speakers had difficulty changing the instrument language to Spanish because they had trouble noticing the language toggle in the landing page of the survey (see page 11 for a more detailed explanation). While testing, researchers noted that there were misplaced response options and missing series of questions. Spanish-speaking participants found a number of grammatical errors in the online survey. A copy-editing process in Spanish is a must before finalizing the online instrument.

Other medium and low priority usability issues are reported for both languages, as well as comprehension issues regarding the questions themselves. Satisfaction ratings, which were generally high among the participants, are also reported.

Accessibility testing was conducted on the survey by a staff member familiar with the procedures of the accessibility software. The main purpose of accessibility testing was to confirm if what is vocalized by the screen-reader matches the visible text. One of the English-speaking participants for usability testing was visually impaired. She used the JAWS screen-reader for PC and confirmed many of the findings from the staff-conducted testing. Accessibility findings are document in this report.

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1. Introduction

The National Survey of Children's Health (NSCH) is sponsored by the Maternal and Child Health Bureau of the Health Resources and Services Administration, an agency of the U.S. Department of Health and Human Services (http://childhealthdata.org/learn/NSCH/resources/methods). The NSCH examines the physical and emotional health of children 0-17 years of age. This survey was conducted via an interviewer-administered telephone survey in 2003, 2007, and 2011/12 by the Centerfor Statistics at the Centers for Disease National Health Control (http://childhealthdata.org/learn/NSCH). In 2016, the U.S. Census Bureau carried out the data collection using a self-administered paper form and a Web questionnaire option for the first time. That Web questionnaire was optimized for PC only, meaning that it displayed as intended only on PCs. When displayed on a tablet or smartphone, the respondent would have to zoom in to see the questions.

For the 2018 NSCH, the survey was designed to render optimally on PC and mobile platforms, called 'PC and mobile optimization.' Optimization means that the screens automatically readjusted in size and in design depending on the display size of the device. When displayed on a tablet or smartphone, the respondent would *not* have to zoom in to see the questions.

In preparation for fielding the 2018 NSCH, usability testing of the English and Spanish versions of the proposed 2018 online Web instrument was conducted between April 11 and 30, 2018. The goal of the testing was to uncover usability issues with the current design (on both PC and mobile devices), and make recommendations for enhancements to ensure that the online survey performed optimally during data collection once the instrument was fielded in July of 2018. We also gathered feedback on new questions added in the survey. Twelve individuals participated in the usability testing of the English version of the NSCH and five individuals participated in testing the Spanish version.

As with many of our usability projects, we also evaluated the instrument for compliance to Section 508 regulations. Software applications comply if users can navigate through them and hear all visible directions and cues from a screen reader. In this study, a mobile user would hear feedback from TalkBack and a PC user would hear feedback from JAWS. The accessibility testing of the PC and mobile versions of the questionnaire was conducted only for the English version due to a lack of bilingual accessibility testing staff. A staff person trained in testing for accessibility conducted the testing and we had one English-speaking participant use assistive technology to access the questionnaire.

The NSCH online questionnaire used the same questions as in the paper questionnaire (see Attachment A for the English version and Attachment B for the Spanish version). Though the usability testing protocol targeted primarily usability issues and cognitive issues related to the new questions, during the course of testing we observed cognitive processing issues with some of the pre-existing questions from previous NSCH data collections. Testing results and recommendations for usability, cognitive and accessibility issues are described in this report.

2. National Survey of Children's Health Online Questionnaire

The 2018 NSCH online questionnaire is one of many surveys the Census Bureau developed using an in-house codebase framework called Centurion. The NSCH contains a screening survey (S1) and then depending upon the ages of the children listed in the screener, respondents are directed to one of three different modules in the NSCH—module T1 covers a child 0 to 5 years old, module T2 covers a child 6 to 11 years old, and T3 covers a child 12 to 17 years old. If more than one child is listed in the screener, only one of them is selected based upon sampling criteria. Each module covers topics appropriate for the age of the child. Module T1 has sections on infant and child developmental milestones. Modules T2 and T3 are similar to each other, covering topics such as the child's health, communication with health care providers, insurance, schooling and activities, and caregiver backgrounds. The number of questions differs by modules; T1 includes 182 questions, T2 includes 161 questions and T3 includes 171 questions. Within each module, some questions are skipped depending upon the respondent's answers.

The average expected time to answer the NSCH (with the screener and one module) is 33 minutes. The survey is available in English and Spanish with a language toggle link on the web instrument login screen where the respondent can change from the English to the Spanish version or vice versa by clicking the link. The default setting is the English version. The instrument includes functionality for respondents to save their answers, logout and return later to finish the survey. For each section of the survey, there were multiple web pages with a 'Next' button to navigate forward to the next web page and a 'Previous' button if the respondent wanted to return to a prior page. Most web pages in the survey contained only one question; however, several web pages contained multiple related questions with skip sequences built into the page where the questions would become enabled or disabled depending upon the answer to the filter question on that page. There was also some branching logic between web pages within the survey, and if that logic was triggered, whole sections of questions could be skipped. There were very few, if any, edit messages or alerts within the survey, meaning that participants could leave questions blank and navigate to the next page.

3. Methods

We conducted one round of usability testing on the English and Spanish versions of the NSCH from April 11-30, 2018. This section describes the participants, the devices they used to access the survey, and the usability evaluation methods implemented during the testing sessions. The last section of this report describes the accessibility testing methods.

3.1. Participants

As shown in Table 1, twelve participants took part in usability testing of the 2018 NSCH English version. One of the 12 participants was vision impaired and she completed the T2 instrument using the JAWS screen-reader. In terms of child health issues, participants included someone with a child with ADHD and someone with an obese child. Another participant had a child with

health issues, but that was not the selected child for the survey. Other than these participants, the remaining English speakers had healthy, typically developing children.

Five participants took part in usability testing of the 2018 NSCH Spanish version. Six participants were originally scheduled, but one Spanish-speaking participant refused to participate after signing the consent form. This participant felt uncomfortable with the equipment (e.g. laptop and recording devices) and thought the test administrators were in reality immigration enforcement officials. None of the participants for the testing in Spanish had children with health issues.

Screener and T1	Screener and T2	Screener and T3	Total
4 English	4 English	4 English	12 English
2 Spanish	1 Spanish	2 Spanish	5 Spanish
6 Participants	5 Participants	6 Participants	17 Participants

Table 1: Distribution of 2018 NSCH Usability Testing Participants across Survey Modules

Source: 2018 NSCH usability testing

Participant characteristics are described in Table 2.

Demographics	English n=12	Spanish n=5
Sex		
Female	11	4
Male	1	1
Age – Mean (Std. Deviation) (Range)	38 (8) (32-58)	38 (12) (19-52)*
Race/Hispanic origin		
White/nonHispanic	4	0
White/Hispanic	1	0
Black/nonHispanic	4	0
Black/Hispanic	1	0
Asian	2	0
Hispanic – Mexico	0	2
Hispanic – Central America	0	2
Hispanic – South America	0	1
Education		
High school	3	2
Bachelor's	5	3
Post Bachelor's	3	0
Missing	1	0

Table 2: Demographic characteristics of 2018 NSCH Usability Testing Participants

Source: 2018 NSCH usability testing

*Age calculations include four of the five participants because one person gave an unrealistic birth year and therefore it was not taken into account in the calculations.

English-speaking participants were recruited through advertisements on Craigslist, personal connections, an email blast that was distributed to all Census Bureau employees in March, and a community mom's listserv posting. Spanish-speaking participants were recruited using two sources: contacts from our existing recruitment database of potential participants screened for

previous studies; and participants recruited onsite at one local community center in Maryland that serves the local Latino community living in the Washington, DC metropolitan area.

To be selected, all participants had to have a child that fell into one of the age ranges for the modules, and they needed at least one year of experience using the Internet. All Spanish speakers selected reported being of Latino, Hispanic, or Spanish origin; that Spanish was their native language and that they spoke Spanish better than or equally well to English. All participants lived in the Washington, D.C. area.

3.2. Devices used

Six English-speaking participants answered the survey using a census-provided laptop; and six used their own smartphone. Three Spanish-speaking participants answered the survey using a census-provided laptop; and two used their own smartphone (see Table 3 for the summary of devices by module).

Device	T1	T2	Т3
Census provided laptop	2 English	2** English	2 English
Dell Latitude E6430, Windows 7	2 Spanish*		1 Spanish
Smartphone (BYOD)			
iPhone 8	0	0	1 English
iPhone 6	1 English	0	1 English
iPhone 5	1 English	0	0
iPhone – no version specified	0	1 Spanish	1 Spanish
Android one+five	0	1 English	0
Android Samsung 7	0	1 English	0

Table 3: Devices used in the usability testing of the NSCH English and Spanish versions

Source: 2018 NSCH usability testing

*Both participants started with smartphones (iPhone and Android) and switched to PC during the survey. One participant had a very slow internet connection and the other participant never could proceed past the security warning message and the researcher was unable to help the individual.

**One participant used the screen-reader JAWS to access and answer the survey.

3.3. Usability Testing Procedure

The usability test involved the participant completing the draft online version of the 2018 NSCH while being observed by a Census Bureau test administrator. All sessions included video and audio recording with participant consent. Each usability session lasted approximately one-and-a-half hours. To offset the costs of parking and travel, participants received an incentive of \$40 for their participation. Eight English sessions occurred in the usability lab at the Census Bureau's headquarters building, and the other four English sessions occurred at libraries in the Washington DC metro area. All Spanish sessions took place at two community centers in the area.

Several sessions were observed by other staff, including staff who work on the survey. Observers watched and listened in a separate area for sessions conducted at headquarters but were in the room at the sessions conducted away from headquarters.

During the usability sessions, participants were instructed to complete the survey as they would if they were home with two exceptions.

- For participants with multiple children of different ages, we had to instruct them which child to list in the screener so that the correct topical module would be triggered because the NSCH only selects one child in the household about whom to ask detailed questions. If the participant had multiple children in the same age range we let them list all of those children. Other than this instruction, participants were instructed to answer the questions as they applied in their real life circumstances.
- Approximately midway through the topical module, participants were asked to exit the survey pretending that they would resume later to complete it. This was to test the resume survey feature with the PIN and/or security question.

Participants were instructed to think aloud while completing the survey. The think-aloud technique is modeled on Ericsson and Simon's (1993) approach to collecting verbal feedback. Our think-aloud protocol was used to maintain a running verbal commentary of the participants' expectations and reasoning. A participant engaging in thinking aloud verbalizes his or her available, conscious thoughts and decisions while completing the tasks so that the researcher can understand the participants' cognitive processes as they interact with the web survey interface. The test administrator encouraged the participants to continue to think aloud using prompts such as "Keep talking" if they became silent for more than ten seconds. After the first section in the module, participants were asked to exit the survey pretending that they would resume later to complete it.

We collected eye-tracking data for three English-speaking participants who completed the survey on the census-provided laptop using the Tobii X2-60 system¹. The Tobii system was also used to record the audio and video of the participant answering the survey. We did not collect eye tracking for the mobile devices because the effort needed to analyze that data outweighed any insights learned about the design on such a small screen. Instead we used Camtasia on another Census laptop to record the screen capture of the participant answering the NSCH on their mobile device. To make the video recording, a Webcam attached to a tripod recorded participants using their hand-held device.

Eye tracking data were collected in the English-speaking sessions because these data can be useful in confirming difficulties with the design or with the question wording that are uncovered during testing. For example, unusual patterns from the eye tracking heat maps can identify challenging words, phrases, and design layouts. A more typical pattern on a screen can also confirm that there were no issues with either the words or the design used.

We decided not to gather eye-tracking data from Spanish-speakers because sessions with monolingual or Spanish-dominant Spanish-speakers take longer to conduct than English-speaking sessions and adding the eye tracking calibration task, which can sometimes take 5 minutes to

¹ We did not collect eye-tracking data from the JAWS screen reader participant. We also did not collect eye tracking in the offsite locations that used the laptop.

complete, would lengthen the session even more. Additionally, because eye-tracking is not well known, sometimes the addition of that method makes Spanish-speaking participants even more wary of participating in a government-run session.

After the participant finished the survey, he or she completed a satisfaction questionnaire including opinion questions about general usability aspects of the survey (e.g., using forward and backward navigation and comprehension of general survey terminology). Then, the participant was shown a PowerPoint presentation with some screenshots taken from the survey and asked a few questions about those screens, focusing on the new questions that were added in the 2018 NSCH. The test administrator followed a protocol during the session and the questions and protocol were approved by OMB on March 23, 2018 using the generic clearance for pretesting 0607-0725.

3.4. Accessibility Testing Procedure

Accessibility testing uses methods to determine if a disabled user can use the system. The accessibility tester is looking to see if there are any instances where the content presented on the screen visually is not presented orally; whether the tab sequence allows users to navigate to every object on the screen and whether the user can navigate both forward and back and enter data correctly. Sometimes what is spoken by the JAWS software is not seen on the screen.

Concurrent to the NSCH usability testing, accessibility testing was performed on the NSCH using the Job Access With Speech (JAWS) 18 screen-reader and the Internet Explorer 11 browser for the Windows 7 desktop platform and the Chrome 66 browser and Google TalkBack 6.1 screen-reader running on the Android 7 platform for smartphones by a staff member trained in testing for accessibility. This staff member navigated through the survey for three times on the desktop, once for each age group (0-5 years, 6-11 years, and 12-17 years), and once on the smartphone for the oldest age group. Navigation for JAWS users was accomplished through tab and arrow keys and for TalkBack users by left and right finger swipes.

Although usually there is not a need for someone with low vision to do the testing, for this testing, one participant who called to take part in the usability testing had low vision. We had her use JAWS as she completed the NSCH screener and T2 survey on a desktop.

3.5. Usability Testing Analysis

We focused our analysis on the three measures of usability: effectiveness, efficiency and satisfaction.

To measure effectiveness, we used observations of the sessions (both from real time and from the audio and video recording), heat maps of the eye-tracking data, think-aloud comments and debriefing probes. Eye tracking data were collapsed across the three English-speaking participants to form heat maps. These maps are color-coded. The colors are red, green and yellow and show the general pattern of where participants looked on the screen. Red areas are

where the participants looked the most followed by yellow and then green. The more intense the color, the more they looked at that place.

To measure efficiency, we recorded spontaneous participant comments about the length of the survey. We recorded general time to complete the survey, but we did not use an exact timing measure because our sample size was too small to make generalizations about the time needed to complete the survey.

Immediately after each usability session, the researchers summarized the usability and cognitive findings and provided the summary to the sponsor. The summary was based upon the observed behavior of the participant and the verbal feedback. These summaries were used to create a "Quick Report" which included user-centered design issues observed, cognitive problems with the questions and response options, and recommendations. Accessibility testing and analysis took place over the course of a few days by the researcher.

4. Usability Findings and Recommendations

4.1. Effectiveness

The following findings and recommendations are in order of severity from the highest priority usability issues to the lowest. Unless noted otherwise, these findings were uncovered both with English and Spanish speakers.

4.1.1. Radio buttons and field length design issues

Mobile phone users had problems selecting radio buttons because they were too close together (see Figure 1); that is, even participants with good dexterity could not always activate the small radio button they wanted because sometimes their finger press would inadvertently activate a different response. On iPhones there was not enough visual distinction between whether a radio button was selected or not selected (see the very faint distinction between the selected 'Yes' and the not selected 'No' in Figure 2). Errors were made in selection, that is, the wrong choice was selected and sometimes no choice was selected at all. Three Spanish-speaking participants spontaneously mentioned having difficulty selecting radio buttons and/or seeing their selected responses.

The lack of spacing between radio buttons was also an issue that arose for Spanish speakers using the PC, but not for English speakers on the PC.

Additionally, on iPhones some fields were not big enough to show the entire entered answer. The top arrow in Figure 2 points to an open-text box where the number '10' has been entered but the '0' is not fully-displayed; it is essentially cut in half.

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National Survey of Child	dren's Health 📃
H (9:00 a.m 9:00 p.m. ET N	lelp Telephone: 1-800-845-8241 Ion-Sat, 11:00 a.m9:00 p.m. ET Sun)
About Yo	ou - Adult 2
Complete the following o two adults in the househ caregivers. If there is jus is only one primary adult	uestions for each of the old who are J's primary it one adult, select "There caregiver for J".
How is this primary care	giver related to J?
 There is only one for J Biological or Add Step-parent Grandparent Foster Parent Other: Relative Other: Non-Relat 	e primary adult caregiver optive Parent ive
What is this primary care	egiver's sex?
Male Female	
What is this primary care	egiver's age?

Figure 1. Example of proximity of the radio buttons on an Android device Source: 2018 NSCH usability testing



Figure 2. Actual screenshot of a participant using their iPhone to complete the survey. Source: 2018 NSCH usability testing

Recommendation: We recommend increasing the space between radio buttons to match the space used in the National Sample Survey of Registered Nurses for both PC and mobile (see Figure 3). That spacing worked well during testing of that instrument (Nichols, Kephart, and Malakhoff, 2018). We recommend increasing the response field size to match the expected length of the entry.

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National Sample	e Survey of
(9:00 a.m 9:00 p.m. E	Help Telephone: 1-888-368-3598 T Mon-Sat, 11:00 a.m9:00 p.m. ET Sun)
Principal Nur	rsing Employment
Did you go through a the principal nursing December 31, 2016?	n orientation program for position you held on
O Yes	
No	
Did you have a prece this orientation progr	ptor assigned to you during ram?
O Yes	
No No	
Prev	ious Next
•	

Figure 3. The National Sample Survey of Registered Nurses radio button spacing which worked well during usability testing of that survey

Source: 2018 NSCH usability testing

4.1.2. Programming errors were found in Spanish.

In the Spanish instrument, participants were unable to enter a response in some of the fields (such as in the example in Figure 4). For this specific example, the participant was asked to report the times he or she has moved to a new address. Every time the participant tried to enter information into the response field, this person was unable to do so even after clicking several times. This barrier to enter information on the text field appeared to be an instrument programming malfunction.

Instructions	Frequently Asked Questions	Privacy Act St	itement	Logout
			(900 am-900 pm	ET hm each, 11 00 e m -0:00 p.m
-	Acerca de Usted	y Este(a) niño(a))	and said contraction
Nació Cara n los E	stados Unidos?			
 si 				
O No				
Annual semilar list sit	And the subsects transfers			
A NOS				
197				
Cuàntas veces se ha	mudado Milling a una dirección nueva de	sde que nació?		
Cares	ad de veces			
	The supervised in the supervis			

Figure 4. Example screen where the participant could not enter an answer. The arrow points to the field where participants could not enter information even though the field looks enabled. Source: 2018 NSCH usability testing

Recommendation: More robust user acceptance testing would have uncovered any inaccessible text field. During that type of testing, we recommend checking all enabled text fields to make sure that they can be accessed by the user for entering text.

4.1.3. Spanish speakers did not use the language toggle link

After starting the survey on the default English language page, three Spanish-speaking participants did not see the link to change the language (see Figure 5). This happened both with PC and mobile users. The test administrator had to lead participants to show them how to switch the language. Testing has consistently showed that this type of design is not optimal (Lykke and García Trejo, 2018).

Anneall being of Children Netcome to the 4010 National Survey of Children's Welcome to the 2018 To begin the sources, please type the Login VD to the sector reason the mail, and then the to the mail, and then one on som on: A you connet tind your Longh (U. Singley Cold up I and participation and an and a second second Health. OKE ON SUDA DI .0 12 SARIA is increase to conducting Department of He intand 0 med 5 an cost 100 ered by an oth and treak

Figure 5. The arrow points to the language toggle – (the blue link which reads in Spanish 'Para completar en español, oprima aquí [To complete in Spanish, click here] If participants clicked on this link, it would change the survey from English to Spanish. Source: 2018 NSCH usability testing

Recommendation: Create a separate page for selecting the preferred language as shown in Figure 6 and add a language toggle in the top bar as shown in Figure 7. We also recommend to continue testing how respondents react to having the separate page for selecting the preferred language. For more information about the recommendation of creating a separate page for selecting preferred language see Lykke and García Trejo (2018).

nited States 2020 Census Planning Survey	
ome! Thank you for participating in this survey sponsored by the U.S. Department of Commerce, U.S. Census Bureau. This survey is able in another language. Please select the language in which you prefer to complete the survey.	
venido(a)! Gracias por participar en esta encuesta de la Oficina del Censo y el Departamento de Comercio de los Estados Unidos. E esta está disponible en otro idioma. Por favor seleccione el idioma de su preferencia para contestar la encuesta.	sta
English	
Español	
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	mel Thank you for participating in this survey sponsored by the U.S. Department of Commerce, U.S. Census Bureau. This survey is ble in another language. Please select the language in which you prefer to complete the survey. enido(a)! Gracias por participar en esta encuesta de la Oficina del Censo y el Departamento de Comercio de los Estados Unidos. Es sta está disponible en otro idioma. Por favor seleccione el idioma de su preferencia para contestar la encuesta. English Español

Figure 6. The first page of the 2020 Census Planning Survey contains the language toggle. This design worked well for users. Source: 2020 Census Planning Survey (Lykke and García Trejo, 2018)

Census FAQ Instructions Burden Statement	Select Language -
	English Españot 파文 한국어
Example Vou will need the materials All the information that you	2016 Census Test we mailed to you in order to start. provide will remain confidential. Please Log In Please enter the 14-digit User ID found below the barcode on the materials we mailed to you. User ID: Login
¹⁴ US Census Bureau Notice and Consent Warning ¹⁶ You are accessing a United States Gevernment computer network, Any information y purposes, as well as for other uses, but as improving the efficiency of our programs valid our online privacy webpage at http://www.census.gov/about/polices/privacy/or- reccoring, and using the information that you provide. So that our velocite memory accurate and available to you and all other velotors, we in otherwise cause damage to the web service. Your usage of this systems is likely to advorted ourscence, then it is a valance of Federal area data the survived with fit.	b) you do not have a cost sequence the cost sequence here. ou enter into this system is confidential and may be used by the Census Bureau for statistical if you want to know more about the use of this system, and how your privacy is protected, acy-policy think. Use of this system indicates your consert to us collecting, monitoring, construct to use collecting, monitoring, construct to use collecting, incontoring, and they could be used of the system indicates your consert to use collecting, monitoring, or incontoring, incontor, and subject to audit if you are not using the relatence connection for is of improvement (PUBLIC LaW 96-474). You are on equivalent to respond to this collection
of information if it does not display a valid approval number from the Office of Manag	ement and Budget (OMB). The eight-digit OMB number is 0607-0969.

Figure 7. The login page of the 2016 Census Test with the language toggle in the top right corner of the blue menu bar with the black arrow pointing to it. Source: 2016 Census Test

4.1.4. Dashboard design leads to usability issues

After answering some basic questions about the household, the respondent is presented with a 'dashboard' which collects the names, ages and basic demographics of the children in the household. After the respondent enters the information about all the children in the household, the survey then selects only one child. Then, the respondent will be routed to one of three modules (depending on the age of the child) containing health-specific questions. When the respondent arrives at the dashboard, they are supposed to select 'Start' (see bottom left corner of Figure 8). Then, they will be able to enter the name, sex and age for the child(ren). If there are still more children to add when they come back to the dashboard, they are supposed to click the 'Add Child' button at the bottom of the screen. However, during the test sessions, several English-speaking participants incorrectly selected the button 'Add a Child' to begin, and one participant selected 'Continue' instead of selecting the 'Start' button. The eye tracking heat map in Figure 9 lends support to the idea that participants did not know where to look.

Three Spanish speakers also expressed confusion about what button to press and what to do next the first time they viewed the dashboard. One participant commented about whether 'Comenzar' [start] is a button that takes the user somewhere or performs an action. This participant tried to type directly below the 'First Name, Initials, or Nickname' column heading in Figure 8. Another Spanish speaker added a child by mistake as she was exploring the different buttons and clicking everywhere. On the final interaction with the dashboard, another participant was confused on what to do next or what button to press to continue. Overall, we found that there are too many buttons on this page.

While everyone ultimately selected 'Start' and then added their children from youngest to oldest, completing the task was difficult. Having such a difficult task in the beginning of the survey could be seen as a deterrent to completing the rest of the survey.

Several participants using a mobile device also commented that there was a lot of text on the screen as demonstrated in Figure 8, but PC participants seemed to read this text as shown in Figure 9.

奈 📶 54% 🖬 9:58 AM

National Survey of Children's Health

Help Telephone: 1-800-845-8241 (9:00 a.m.- 9:00 p.m. ET Mon-Sat, 11:00 a.m.-9:00 p.m. ET Sun)

Children at this Address

Answer the remaining questions for each of the children 0 - 17 years old who usually live or stay at this address by clicking on the "Start" button on each child row. If you need to add children, click the "Add a Child" button at the bottom of the page. If you need to delete one of the children, click the "X" within that child row under the "Delete" column.

Start with the YOUNGEST CHILD in your household and continue with the next oldest until you have listed all children who usually live or stay at this address. When you are finished, click the "Continue" button.

Action	Status	First Name, Initials, or Nickname	Sex	Age	Delete
Start	Not Attempted	NOT ENTERED	Not Entered	Not Entered	×
		Add a Child			

Continue

Figure 8. Screenshot of the dashboard on a mobile phone. There are three buttons at the bottom of the screen. The button labeled 'Start', in reverse print on the bottom left of the screen, is the one a respondent is supposed to select to enter a child's information. A bigger button labeled 'Add a Child' on the bottom of the screen, centered, is supposed to be used to enter information for additional children. The button below that one labeled 'Continue' Is supposed to be used to move to the next screen, after information on ALL children in the household is entered. It was unclear to participants what they should do first.

Source: 2018 NSCH usability testing



Figure 9. Three participants' eye tracking data on the dashboard on the PC. Notice that participants looked all over the screen, and at the buttons on the bottom of the screen. Source: 2018 NSCH usability testing

Below we offer three recommendations in order of our preferences, with Recommendation 1 being the most ideal.

Recommendation 1: The current dashboard used for NSCH is not intuitive for users as demonstrated during the usability testing. To avoid usability challenges and confusion, we recommend following the 2020 Census design where the total number of people is requested on one screen and the next screen includes correct number of boxes to enter their names (see Figure 10). The NSCH could be designed similarly. First, collect the number of children in the household on one page. Then, on the next page, display that exact number of fields with instructions to list the names of the children in order from youngest to oldest. After that page, we recommend using a dashboard design with all the names listed and a 'Start' button for each name (see Figure 11).

LOGIN and Address Verification	Household	O Demographic Characteristics	Completing	-
The names listed so far are:				1
🛓 John C Doe				
What is the name of each person who w	rill be living or staying at 101 M	AIN ST on April 1, 2017?		
For more information on who to include,	click here.			
Enter names until you have listed everyo	ne who will be living or staying i	there, then continue to the next page		
First Name Middle N	ame Last Name			
		Delete		
+ Add another person				
			< <p>Previous Next >></p>	
OMB NO.:0607-0996 APPROVAL EXPIRATION	DATE: 3/31/2018			

Figure 10. The 2017 Census Test screen where the respondent can enter names. The same design is used in the 2020 Census. Source: 2017 Census Test

LOGIN and Address Verification	O	O Demographic Characteristics	Completing
2017 Census Test Please continue answering the questions by Household	t selecting the start button for a per d Questions	500.	
People			
John C Doe		Start	
Press START to begin answering questions a	bout this person.		
Jane C Doe		Start Delete	
Press START to begin answering questions a	bout this person.		
Jamie Doe		Start Delete	
Press START to begin answering questions a + Add another person	bout this person.		

Figure 11. Dashboard for 2017 Census Test. The respondent selects start for a person, completes the data entry for that person, and then is taken back to the dashboard where the respondents selects another person and proceeds until he or she is finished. The same design is used in the 2020 Census. Source: 2017 Census Test

Recommendation 2: Keep the dashboard, but make the action 'Start' button more noticeable and bold or make this button more prominent in the instructions.

Recommendation 3: Consider showing a list of steps to make the instructions shorter.

Recommendation about the Spanish translation issue on the buttons: Both "Continuar' [continue] and 'Comenzar' [start] imply an action to start something in Spanish. Change 'Comenzar' [start] to 'Inicio' [start]. Change 'Continuar' [continue] to 'Siguiente' or 'Próximo'. On the final dashboard shown, change the name of the button 'Continuar' to 'Siguiente sección' [next section].

4.1.5. Errors in entering information about the adults in the household

Toward the end of the survey there were questions about the child's adult caregivers. There were separate questions for up to two adults. The questions for each caregiver were asked separately and labeled Adult 1 and Adult 2, with Adult 1 questions first, followed by the same questions for Adult 2. Participants were expected to understand who Adult 1 and Adult 2 were. However, this assumption led to user confusion. For example, during sessions, several English-speaking participants entered their information on the Adult 1 screen and then entered the same information on the Adult 2 screen (see Figure 12).

There were several reasons why these questions were confusing to participants. First, the label for the first screen in the 'Adult 2' section said, 'About You- Adult 2'. Almost always, the participant entered his or her information in the Adult 1 section, so that label implied the participant had to enter the information again. Second, the instruction on this screen said, 'Complete the following question for each of the two adults...' This instruction was incorrect at this point in the survey because the respondent has already entered information for the first adult. The instruction also assumed the household is a two-parent family household, and this household type will not always be the case. In one session, there were three adults in the household, including the parent, and the grandparents and the participant who was the parent decided not to list either one of her parents at this point in the questionnaire.

f f b 🌣 🏧 💦		10:09 AM
National Survey of Childre	en's Health	
Help (9:00 a.m 9:00 p.m. ET Mon	o Telephone: 1-80 -Sat, 11:00 a.m9:00)0-845-8241) p.m. ET Sun)
About You	- Adult 2	
Complete the following que two adults in the household caregivers. If there is just o is only one primary adult ca	estions for each I who are J's pri ne adult, select aregiver for J".	of the mary "There
How is this primary caregiv	er related to J?	
 There is only one profor J Biological or Adopt Step-parent Grandparent Foster Parent Other: Relative Other: Non-Relative 	rimary adult card	egiver
What is this primary caregi	ver's sex?	
Male Female What is this primary caregin	ver's age?	

Figure 12. Mobile phone screenshot of the Adult 2 questions. See the label towards the top of the screen with "About You - Adult 2" in reverse print (that is white font in the black header). Source: 2018 NSCH usability testing

Recommendation: Remove 'About You' in the label and use only the words 'Adult 2' in the label. Additionally, take advantage of the automated skips allowed in the online form, to ask 'Is there another primary caregiver in this household?' and then if 'Yes' is selected, enable the remaining questions. Consider allowing for more than two primary caregivers. Consider asking for the adult's name and filling that name in the appropriate questions.

4.1.6. Language response choices are not sufficient

One question in the screener (see Figure 13) asked what languages are spoken in the household, with the choices being English, Spanish, and other. The other had an open text field where the participant could enter the language. In the online survey, the responses were designed as radio buttons, where only one selection could be made. Two Spanish-speaking participants were unable to enter a complete response for the additional languages that they spoke. This happened in the screener for T1 and T3. Both participants spoke two languages: English and Spanish. They both initially selected the radio button for Spanish, but also wanted to click on the 'English' option signifying that they use both languages at home. They tried also to type in English in the open text field; however, because the question used a radio button design, only one response was allowed. They should have selected the third choice and then used the open-text field to type that they both speak English and Spanish at home but none of them did that. These participants

did not understand how the radio button design worked for this specific question and therefore did not realize they were supposed to select the third option and then type in both the languages. Because the design was not usable for these participants, incomplete data was collected and users were frustrated. We did not observe this problem for the English-speakers participants because none of them spoke more than one language.

Census Bureau	National Survey of Childro	en's Health	<mark>88</mark> 80 80
Instructions	Frequently Asked Questions	Privacy Act Statement	Logout
		(201 a.m.)	Teléfono: 1-800-845-8241
	En a	(Rovence	etarphic chiansas, maa ahoeta poit chian
¿Qué idioma se ha	ibla principalmente en el hogar?	lasa	
 Inglés 			
 Español 			
Otro idioma	0		
¿Es esta casa, apa	irtamento o casa móvil - iuya o de alguien en este hogar con una hipoter	a o préstamo? Incluya préstamos so	bre el valor liquido de la casa.
O Propiedad s	uya o de alguien en este hogar libre y sin deud	a (sin una hipoteca o préstamo)?	
Alquilada?			
 Ocupada sir 	n pago de alquiler?		
	Previo	Próximo	
En su Casa	Estado de Salud Servicio:	s de Salud Aprendizaje/Activi	dades Acerca de la Casa

Figure 13. The screen with the languages spoken at home question. Notice the red ban icon in the grey field, indicating that the field is not accessible Source: 2018 NSCH usability testing

Recommendation: There are two recommendations for this issue. If the sponsor would like to gather information on multiple languages spoken at home, replace the radio buttons with checkboxes, which allow users to choose one or more options, and add an instruction of 'Select all that apply.' If the sponsor would like to gather information on only one language, consider adding additional instructions about the type of answer that is desired such as, 'Seleccione sólo una respuesta' [Select only one answer], or if you speak more than one language please select the language you speak most often at home.

We preferred the first recommendation because it seems the intent of the question is to collect multiple languages. If the design remains the same, we predict underreporting of languages spoken as not all respondents will understand how the radio button design operates, as we observed.

4.1.7. Security/verification questions are too long to display on phones and there are too many of them.

Soon after logging into the survey, the respondent is shown a PIN number, with the vague instruction of 'make note of the PIN' immediately preceding the PIN. Below the PIN, the respondent is supposed to choose three security questions to answer (see the first security question in Figure 14). Information collected on this screen would allow the user to re-enter and resume a partially completed survey in the event the respondent needs to exit the survey prematurely. Several English-speaking participants commented that some of the security question options were truncated on their phone display so they could not read the entire questions (see Figure 14). Several participants also commented that three security questions was overkill and not typical. Several participants commented that the security questions did not apply to them, that is, they did not have a pet (question is not shown in Figure 14) or a hero. Spanish speakers did not comment on the security questions and were able to select all three questions. However, three of the five Spanish speaking participants did not 'make note of their PIN' by writing it down. The eye tracking heat map in Figure 15 shows that English-speaking participants focused on the PIN and it also shows that three different security questions are asked.



Figure 14. Screenshot shows how the security question choices are cut off on the mobile phone, so much so, that the participant cannot guess what the question is for some of them. For example, 'What was the last name of your third...' Source: 2018 NSCH usability testing



Figure 15. Three participants' eye tracking data on the PIN screen. Notice that participants focused on the PIN and then at each of the verification questions. Source: 2018 NSCH usability testing

Recommendations: 1. Reduce the number of time the participant needs to select a security question. Currently, respondents need to select three different security questions to answer and we recommend that they should only need to select one security question because only one security question is needed to re-enter the survey. 2. Choose security question choices that fit on mobile phones. 3. Change the instructions about making note of the PIN to something direct like, 'Write down this PIN' and highlight those instructions. 4. Additionally, even though it was not a usability problem, we recommend using only one term, 'Verification' or 'Security' to describe the questions. Currently both terms are used on the screen.

4.1.8. Font color was inconsistent on the Spanish version of the questionnaire

In Question A39 (see Figure 16), much of the text was in blue, not grey as on the English version.

Recommendation: Change the blue color to grey on questions where there is disabled font to ensure consistency with the rest of the instrument and with the English version of the questionnaire.

La Salud de E	ste(a) Niño(a)
ANTE LOS ÚLTIMOS 12 MESES, ¿con qué frecuencia las o cidad para hacer actividades que realizan otros(as) niños(ondiciones o problemas de salud de afectaron su as) de su edad?
R no padece ninguna afección	
no padece ninguna afección	
A Veces	
Casi siempre	
) Siempre	
ué medida las condiciones o problemas de salud de	afectan su capacidad para hacer actividades?
Muy poco	
Algo	
En gran medida	
The deficiency of the second	
Previo	Próximo

Figure 16. Example screen in the Spanish version where the disabled text is in blue and not grey. Source: 2018 NSCH usability testing

4.1.9. Banner was inconsistent in Spanish version

A banner appeared on every web page of the PC and mobile versions of the survey. In English the same banner was used on every page on the PC design; this did not happen on the Spanish version. Figures 17 and 18 show that the banner changed across web pages in the Spanish instrument. Both types of banners appeared on various screens through the Spanish version of the survey. There was no consistency on when one banner was used over the other.

National Survey of Childre	n's Health 👔	
Frequently Asked Questions	Privacy Act Statement	Logout
	(900 a.m. 900)	Teléfono: 1-800-845-6241 o.m. ET kun-aab, 11:00 a.m9:00 p.m. ET dom)
Niños en esta	a Dirección	
as restantes para cada uno(a) de los(as) niños(a	as) de 0 a 17 años de edad que usualm	ente viven o se quedan en
	National Survey of Childre Frequently Asked Questions Niños en esta as restantes para cada uno(a) de los(as) niños(National Survey of Children's Health

Figure 37. Example of the banner used for the dashboard in the Spanish version of the survey. Source: 2018 NSCH usability testing



Recommendation: Keep the banner consistent throughout both the Spanish and English versions of the survey.

4.1.10. Review screen was not used and Spanish translation on the screen is incorrect

At the end of the survey, a review screen was offered. Using this screen, participants could have navigated back into the survey to change their answers. The screen (see Figure 19) had each major questionnaire section listed with a '+' button to the left of the section description. To see the questions in that section, a respondent had to click or touch the '+' button to open the section. After touching/clicking the '+', a series of blue links for each question would appear (see the links under the section 'Experiences with this child's health care provider' as an example in Figure 19). To the right of the blue link was not the survey answer but a green check mark with the word 'Ok' if the respondent answered the question. To actually see or change an answer, the participant would have to click on the blue question link which would navigate the respondent back to the question.

During testing, none of the English-speaking participants used the review screen to change their answers and many said they would not use it. One participant clicked on some of the '+' buttons to open sections, but did not change anything. The participant commented that he/she wanted to see their answer next to the item and not the word 'Ok' as shown in Figure 19. Only one Spanish-speaker completed the entire survey (T2) and saw this page. When she received this page, she too did not make any changes, but wanted to submit her results. The submission button in the Spanish version had the wrong label. It said 'Vuelva a la revision' [Return to the revision] instead of 'Submit'. This participant was confused and did not know how to finalize and submit her answers.

Figure 20 shows the heat map from three participants' eye tracking data on the PC screen. It shows that participants did not read all the sections of the questionnaire.

	Bureau	
Instruc	tions Frequently Asked Questions Privacy Act Statement	Logout Help Telephone: 1-800
	(9:00 a.m 9:00 p.m.	ET Mon-Sat, 11:00 a.m9:00 p
sted below prrect any is Return to Re	Review Your Responses are links to completed pages. You may click on a question group to return to that set of quest ssues, or click the "Submit" button below to finalize this survey. From any page you navigate l eview" button at any time and it will bring you back to this screen.	ions and review and/o back to, you can click t
	Click the links below if you would like to review or change your answers.	Status
	+ This Child's Health	0
	+ This Child as an Infant	0
	+ Health Care Services	0
	- Experience with This Child's Health Care Providers	0
	Primary Doctor or Nurse and Referrals	O OK
	Doctor Treats Only Children or Treats Adults and Actively Works with This Child	Ok Ok
	Written Plan to Meet Health Goals and Needs and Eligibility for Health Insurance as Child becomes and Adult	Ok Ok
	+ This Child's Health Insurance Coverage	0
	+ Providing for This Child's Health	0
	+ This Child's Schooling and Activities	0
	+ About You and This Child	0
	+ About Your Family and Household	0
	Household Information	

Figure 19. The review screen on a PC with the arrow pointing to the 'Ok' button indicating that an answer was provided to the survey.

Source: 2018 NSCH usability testing



Figure 20. Three participants' eye tracking data on the Review screen. Participants looked at the beginning of the page and then at the 'Submit' button.

Source: 2018 NSCH usability testing

Recommendation: Because the review screen was not used by participants during testing, we recommend reviewing the paradata for this screen once the survey has been fielded to determine how many respondents make changes to their answers. If most respondents do not use this screen, consider deleting it. If it is used by respondents, to make it more usable, include the answers on this page instead of the word 'Ok.' On the Spanish version, change the name of the button to 'Terminar' [Finish] or 'Enviar' [Submit] or consider a combination of both 'Terminar y Enviar' [Finish and submit]. If two terms are used, we recommend that the change be implemented in both English and Spanish versions. Similarly, any changes to the English version should apply to the Spanish version.

4.1.11. Remind participants that the survey only asks questions about one child

The survey only collects detailed information about one child per household. Two Englishspeaking participants were surprised that the survey did not continue to ask about the other children in their households. One of the participants did not read/recall the information provided at the beginning of the topical module stating that only one child is selected for the survey. Figure 21 shows the arrow pointing to the statement. Although the eye tracking of that screen in Figure 22 shows that at least some of the participants read that information, it is easy to miss, especially on mobile devices.



Figure 21. The arrow points to the informational statement that only one child is selected in the survey. This statement comes at the beginning of the topical module. Source: 2018 NSCH usability testing



Figure 22. The arrow points to the informational statement that only one child is selected in the survey. This figure includes three participants' eye tracking shows that the instruction was read by at least some of the participants. Source: 2018 NSCH usability testing

Recommendation: At the thank you screen (see Figure 23 with the heat map), remind respondents that only one child was selected (if there is more than one child living in the household). If there is only one child in the household, then do not include that text. Keep the text at the beginning of the survey (Figure 21) that lets the respondent know questions will be about only one child; however, remove that instruction if there is only one child in the household (currently that text is there regardless of the number of children.)

Consider allowing respondents the ability to answer for another child if they would like.



Figure 23. Three participants' eye tracking on the thank you screen. Source: 2018 NSCH usability testing

4.1.12. Improve the visibility and labeling of the feature to exit and resume later and correct the Spanish translations of the headings.

When given the task midway through the session to stop answering the questionnaire and pretend that they would resume the next day, three of the 11 English-speaking participants did not log out because they did not know whether they could come back later. The word 'Logout' (Figure 24 shows the arrow pointing to the button) did not imply to them 'Save and logout'.

Placement of the logout feature did not seem to be where participants expected it. When presented with the task, the first action most participants did was look at the bottom of the screen for something that looked like it could help them with the task. Next, many participants looked in the FAQs to determine if they could exit and resume later. However, the instructions for that task were not in FAQs, they were in the 'Instructions' link that appears at the top of the screen.

All five Spanish speaking participants needed help to logout from the instrument. Two participants closed the window instead of selecting 'Logout'. One participant was expecting a 'Save' option before logging out. On the Spanish version of the survey, the headings are not in Spanish which makes the links useless for Spanish-only speakers.

Census Bureau	National S	Survey of Childre	en's Health		9		
Instructions	Freq	uently Asked Questions	Privacy Act	Statement		Logout	<
						Teléfono: 1-800	-845-8241
				(9.00 a.m1	9.00 p.m. ET lun-sal	b, 11:00 a.m9:00 p	m, ET dom)
	States and States and	En su	u casa			مىرىيىتى . مىرىيىتى .	
¿Qué idioma se ha	abla principalment	e en el hogar?					

Figure 24. Location of the Logout button on the banner directly below the two pictures on the right. Notice that when the survey is changed to Spanish, the button labels in the banner are not translated into Spanish; they stay in English. Source: 2018 NSCH usability testing

On the re-entry page, there is an incorrect word in the Spanish instructions. It says 'Name' [nombre] instead of 'Number' [número] when referring to the ID number. This is one example of the numerous translations issues with the survey. Although this behavior was not observed during this testing, a Spanish-speaking respondent who is attempting to log back to the instrument and reads 'Name' instead of 'number' on the log in instructions will not know what information to enter. This could block Spanish speakers from logging back into the instrument.

Recommendation: Use the phrase 'Save and Logout' or 'Guardar y salir' as the button label, put all the content in the instructions into the FAQs button and, eliminate the button called 'Instructions'. On the Spanish re-entry page, replace 'Nombre' with 'Número'. Make sure the 'Logout' button label (and all labels) are translated into Spanish when the survey switches to Spanish. Perform a copy edit process to improve the quality of the instrument.

4.1.13. Progress indicator was rarely used by participants and was not a standard design

There was a progress indicator at the bottom of the survey when accessed on a PC as shown in Figure 25. There was no such design on the mobile; however, one participant commented that she would like to see a progress indicator at the bottom of the mobile screen. The only time the progress indicator was used was when one participant, who got back into the survey to make sure she had completed it, tried to click on the progress indicator to go someplace, but it did not take her anywhere. Eye tracking across the pages in the previous and subsequent figures does not indicate that the participants looked at the progress indicator much, if at all.
		Previous Next				
In Your Home	Health Status	Health Services	Learning/Activities		Backgrour	nd
Form: NSCH-T1 OMB No.: 0607-0990 Approval Expires: 05/31/2019						
			Burden	Accessibility	Privacy	Security

Figure 25. Progress indicator appeared at the bottom of the screen on PCs below the next and previous buttons. The colors attempted to indicate where the respondent was in the survey: bright blue was topics anwered; light blue was the current topic section being answered; grey was the topics to answer. Source: 2018 NSCH usability testing

Recommendation: There are mixed results with progress indicators (Villar, Callegaro, & Yang, 2013). It might be good to include a split panel test of using a more typical progress indicator (a horizontal line as shown in Figure 26) compared with a design without a progress indicator.



Figure 26. Example of a progress indicator near the next and previous buttons.

4.1.14. Participants answered questions incorrectly with screens that scrolled in two Spanish cases

While scrolling down a page, two Spanish-speaking participants using a laptop had difficulty remembering what the question was asking about and provided incorrect answers. These screens had a stem question and multiple follow-up questions. Participants read the stem question, as this was the first thing they saw on the screen, but then needed to scroll down to keep answering all the questions on the screen. Since the content of the screen was long, as participants scrolled down they lost sight of the question. Participants kept answering but forgot what the question was about. This was noticeable in the think-aloud process because they were providing incorrect responses while at the same time trying to do multiple tasks (e.g. remembering the original question at the top of the screen, scrolling down, reading and selecting the response options). In one case, a participant was unable to scroll back to the question located at the top of the screen and started providing wrong responses (Question A4 in topical module T1). This finding was not observed in the English-speaking sessions.

Recommendation: Limit screen scrolling by reducing the number of questions on a page. Repeat the question in the middle part of the sub-sections to remind respondents about the questions they have already been asked. Other solutions such as freezing a pane on the screen would be ideal; however, we are unaware of this ability in a web form.

4.1.15. Field or text placement impedes answering questions correctly

We observed participants missing questions and entering incorrect data because of the field placement in English and the text placement in Spanish. The four instances are below.

Other specify

For several Yes/No questions, more detailed information is sought with a 'Yes' response. For example, the last question in Figure 27 asks about mental health support, including hard-coded responses such as peer/support groups. When respondents get to the last question, the 'Other' question, they are asked to specify the type of (support) in an open text box if they respond 'Yes.' On mobile phones, the specify box is between the 'Yes' and 'No' response choices (see Figure 27). One participant commented that it was an awkward placement on mobile and we observed several participants not answering the 'other' question (with either a 'Yes' or a 'No') on mobile phones perhaps because of the 'specify' field placement came directly in-between those answer fields.

f f b 🌣 🎮 🖧	🤶 🕼 55% 🖬 10:08 AM
○ Yes ○ No	
Peer support group?	
Yes	
Counselor or other mo professional?	ental health
○ Yes	
Other	
Yes - Please s	pecify
- NO	
Previous	Next
Form: NSCH-T2 OMB No.: 0607-0990 Approval Expires: 05/31/2019	
	Burden Accessibility Privacy Security

Figure 27. Screenshot shows the specify box between the 'Yes' and the 'No' response options Source: 2018 NSCH usability testing

Recommendation: Because there is item nonresponse (neither 'Yes' or 'No' are selected) to these type of questions, reorder the response options on questions E2g and H11 so that 'Yes' and 'No' follow each other, like the other response choices on the page. Place the specify field below both choices as shown in Figure 28. You might also want to add 'If yes, please specify' as the label instruction for that field. Initially, the specify field and label should be disabled and then only enabled if 'Yes' is selected. If 'No' is selected, the label and box remains disabled.

Yes	
No	
If yes, please specify	

Figure 28. Mockup of recommended reordering of response fields. The label should be disabled as well until 'Yes' is selected and then the label and the field should become enabled. Source: 2018 NSCH usability testing

Years and months

On the age question (see Figure 29), participants are given the option of recording age in terms of years OR months. This is to accommodate respondents with both older children (3 and up) whose age is generally described in terms of years, and younger children whose age is often given in terms of months. Four participants entered years and also entered months. The participants should have only entered data in one field, not both. When both are selected, an error message is triggered, and then both fields are cleared. In one case, the participant moved forward without re-entering a response. We notice in the heat map in Figure 30 that participants focused on both of the fields. Spanish participants did not have difficulty with this screen.

f f b 🌣 🎮 🚱	🤶 📶 54% 🖬 9:59 AM
National Survey of Child	ren's Health 🗮
He (9:00 a.m 9:00 p.m. ET Me	elp Telephone: 1-800-845-8241 on-Sat, 11:00 a.m9:00 p.m. ET Sun)
Child's A	ge & Sex
How old is J? Only respond in months if the child is less than 1 mon months to 1.	child is less than 1 year. If nth old, round age in
10 v Ol	R Select Months Age in Months
What is J's sex?	
MaleFemale	
Previous	Next
Form: NSCH-S1 OMB No.: 0607-0990 Approval Expires: 05/31/2019	
	Burden Accessibility Privacy Security

Figure 29. Screenshot of age question with years and months on the same horizontal line. Source: 2018 NSCH usability testing



Figure 30. Three participants' eye tracking on the age screen. Notice that participants looked at both fields, when they really only needed to answer the years field. Source: 2018 NSCH usability testing

Recommendation: We recommend testing an alternative design where the label 'Age in Years' is above the field. Next, the italicized instruction for age in months would appear below the field mentioned above followed by the label 'Age in Months' (see Figure 31). Another alternative is to disable the italicized instruction and the 'age in months' field and only enable it if the respondent selects "0" in the first field.

n n 🖗 🏷 🖬 🗞	হু 📶 54%	â 9:59 AM
National Survey	of Children's Health	=
How old is J? Age in Years	*****	
10	•	
Only respond in mo the child is less tha months to 1.	nths if child is less than 1 ; n 1 month old, round age ii	year. If n
Select Months	•	
⊘ Male ⊘ Female		
Pre	vious	
Form: NSCH-S1 DMB 1:0 :: 0607-0990 Approval Expires: 05/31/	/2019	
	Acc	Burden essibility Privacy Security

Figure 31. Example redesign of age fields. Source: 2018 NSCH usability testing

Question C5 – Height - feet and meters

For the height question shown in Figure 32, the respondent is supposed to enter feet and inches, or meters and centimeters, but not both. One participant wanted to enter 5 feet 6 inches. She entered 5 into the feet field, but then entered the 6 in the meter's field. This action then removed the 5 in the feet field. She did not realize her data had erased and she continued with the survey, leaving the item blank. Eye tracking, shown in Figure 33, also suggests that participants looked at all of the fields, not just those that were appropriate.

The second se		the set of the set of the set of the		
Instructions	Frequently	Asked Questions	Privacy Act Statem	Help Telephone: 1-800
				(9:00 a.m. 9:00 p.m. ET Mon Sat, 11:00 a.m. 9:00 p
		Health Card	e Services	
What is CU Your best estimate is toot A	RRENT height? fine. IND in Is AND/OR	centimeters		
Your best estimate is	nds	ur r		
Are you concerned	grams about weight	7		

Figure 32. Screenshot of height question showing that respondents can answer either in feet or in meters. Source: 2018 NSCH usability testing



Figure 33. Three participants' eye tracking on the height and weight screen. Notice that participants looked at feet/inches and meters/centimeters.

Source: 2018 NSCH usability testing

Below we offer three recommendations.

Recommendation 1: Consider adding an edit instead of automatically erasing the data when people fill out both fields.

Recommendation 2: Another alternative is to have only two fields, but have the user be able to select the dimensions (consider either a radio button with feet and inches as the default) or a dropdown.

Recommendation 3: The third alternative is if the user enters data into the feet or inches field then meters and centimeters disables and vice versa.

Placement of 'OR' or 'o' in Spanish on Topical Module T1/Questions B2, B5, B6, etc.

Two Spanish-speaking participants did not realize that they only need to enter information in one field because of the placement of the word 'o'. In Spanish, the word 'o' (the translation for 'or') is left justified on both PC and mobile and looks more like a bullet in the online Spanish version (see the PC version in Figure 34).

0	semanas
2 Q Incl	ué edacente de leche materna o de fórmula? Ingirió por PRIMERA VEZ otros alimentos aparte de leche materna o de fórmula? Inya jugo, leche de vaca, agua con azúcar, alimento para bebé o cualquier otra cosa que haya ingerido este(a) niño(a), incluso agua
	Marque esta casilla si FELIX nunca ingirió otro alimento aparte de leche materna o de fórmula.
0	Al nacer
0	dias
0	semanas
0	Imeses

Figure 34. Placement of 'o' is left justified making it look like a bullet instead of a word. Source: 2018 NSCH usability testing

Recommendation: Align the word 'OR' or 'O' to the open field boxes like in the paper-based questionnaire. This recommendation applies to all modules (T1, T2, T3) of the questionnaire and all questions that include the two options with the word 'OR' in between as shown in Figure 35.

B	Si la respuesta es sí, ¿qué edad tenía este(a) niño(a) cuando dejó COMPLETAMENTE de ser amamantado(a) o de tomar leche materna?
	días
	0
	semanas
	0
	meses
	0
	Marque esta casilla si este(a) niño(a) aún está amamantando

Figure 35. Paper form design in the Spanish version where the 'OR' or 'O' in Spanish is beneath the fields. In this design, the 'O' does not look like a bullet point.

Source: 2018 NSCH usability testing draft paper questionnaire

4.1.16. Low priority usability issues

Instructions are in the wrong place on Question A22.

While test participants did not have any usability issues or input incorrect answers, the instruction 'Examples of educators are teachers and school nurses' (see the arrow in Figure 36) is in the wrong place and should be below the question stem. Eye tracking shows no unusual patterns in Figure 37.

Instructions	Frequently Asked Questions	Privacy Act Statement	Logout
		(9:00 a.m. 9:0	Help Telephone: 1-800
	This Child	's Health	o pani en monoda, mas dani o oo p
Has a doctor, other healt	h care provider, or educator EVEP told a	ou that has	
has a doctor, other healt	in care provider, or educator EVER told y	nas	
Behavioral or Condu	ct Problems?		
	s are leachers and school hurses.		
⊖ Yes			
○ No			
Does	RENTLY have the condition?		
O Yes			
O No			
le it:			
15 1.			
O Mild			
O Moderate			
O Severe			
	Previous	Next	
			De character et

Figure 36. Question with example in the wrong place (denoted by the arrow). It should be below the question stem. Source: 2018 NSCH usability testing



Figure 37. Heat map of question with example in the wrong place (denoted by the arrow). It should be below the question stem.

Source: 2018 NSCH usability testing

The blood disorders question has too much greying out on one screen on mobile phones

Several participants commented that there was too much grey on the blood disorders question when they answered on their mobile phone. On mobile phones, the screen can end up looking like everything is grey if they answer the earlier filter question with 'no' that they do not have a blood disorder (see Figure 38). Consider breaking that question up into separate screens.

	奈 📶 54% 🖬 10:01 AM
Was this condition identified to done shortly after birth? These tests are sometimes cal screening.	through a blood test led newborn
⊚ Yes ⊚ No	
Was J diagnosed with:	
Sickle Cell Disease	
○ Yes○ No	
Thalassemia	
Yes	
Hemophilia	
O Yes No Other Blood Disorders	
O Yes	

Figure 38. Screenshot of the blood disorders questions when the first question (not shown) is answered a 'No' and then the subsequent questions do not enable. When scrolling down to the next button there are so many disabled questions that the entire screen can show all grey questions at one point. Source: 2018 NSCH usability testing

Use a keypad for numeric entries

The QWERTY keyboard comes up on mobile phones even when the answer must be a number. While we observed no participants answering incorrectly, the type of keyboard presented to the respondent communicates the type of answer requested. For questions requiring a number answer such as Login ID, telephone number, income, ZIP code, etc., using a keypad is better than using a QWERTY keyboard (see Figure 39). Other surveys, such as the National Survey of College Graduates, the American Community Survey and the 2016 Census Test all have adopted the keypad design.



Figure 39. Example question with QWERTY keyboard coming up even when answer must be a number. Source: 2018 NSCH usability testing

Match the field length to the estimated response length

For Questions K1 and K2, the field length is larger on mobile phones than the expected answer length. The field length should match the two digit length shown on the paper form as shown in Figure 40.

G	How many people are living or staying at this address? Include everyone who usually lives or stays at this address. Do NOT include anyone who is living somewhere else for more than two months, such as a college student living away or someone in the Armed Forces on deployment.	
ĸ	How many of these people in your household are family members? Family is defined as anyone related to this child by blood, marriage, adoption, or through foster care. Number of people	

Figure 40. Paper form design showing that the field length matches the expected value. Source: 2018 NSCH usability testing draft paper questionnaire

Consider a year dropdown field instead of an open-text field

Question J5 'When did you come to live in the United States?' is asking for a calendar year response, but one participant initially entered 20 years because she misinterpreted the question. Dropdowns have their own limitations and can take longer to answer, but using a dropdown in this question instead of an open-text field would eliminate any misunderstanding of the question intent.

Take advantage of the automation

Many of our participants answered questions about healthy children. Some questions used double-barrel response choices to capture whether the child had a health issue or was healthy as shown by the example in Figure 41 where the first response choice should be chosen if the child does not have a condition. The additional effort participants with healthy children spent on these types of questions added to the length of the survey. We recommend using a filter question for these sections to first ask is the child has any health condition, and then if not, automatically skip questions within the survey, instead of using the double-barrel response choices. If the sponsor is concerned about not identifying all health issues, then we recommend monitoring how often questions are answered consistently—that is a child is always identified as healthy at all questions; and how often questions are answered inconsistently — in some questions, the child is identified as having a health issue and at other questions they are not.

DURING THE PAST 12 MONTHS, how often have this child's health conditions or problems affected his or her ability to do things other children his or her age do?

This child does not have any health conditions → <i>SKIP to question</i> B1
Never
Sometimes
Usually
Always

Figure 41. Example of a double-barrel question with the answer choice, "This child does not have any health conditions." (This screen shot is from the paper form, but the same design was used online.) Source: 2018 NSCH usability testing draft paper questionnaire On the income question (Figure 42), if the participant had income in any of the categories, he or she selected 'Yes' and then the income field for that category became enabled and the participant entered the correct amount. The problem was the total amount did not automatically sum all the individual amounts. One participant commented that the income sources should sum automatically on the income question screen's web page. This is a user expectation. The eye tracking heat map of the page shows that participants spent time looking at the total income (Figure 43). Had this been an automated sum, participants most likely would not have spent as much time looking at that field. The fact that the field did not autosum increased respondent burden.

	Household Information
Income in 201 LAST CALENI	17 Select "Yes" for each type of income the family received, and give your best estimate of the TOTAL AMOUNT IN THE DAR YEAR. Select "No" to show types of income NOT received.
Wages, salary	y, commissions, bonuses, or tips from all jobs?
O Yes -	s00
⊖ No	TOTAL AMOUNT in the last calendar year
Self-employm	nent income from own nonfarm businesses or farm business, including proprietorships and partnerships?
O Yes -	\$00 □ Loss
O No	TOTAL AMOUNT in the last calendar year
Interest, divid	sends, net rental income, royalty income, or income from estates and trusts?
O Yes -	\$00 🔲 Loss
⊖ No	TOTAL AMOUNT in the last calendar year
Social securit	ty or railroad retirement; retirement, survivor, or disability pensions?
O Yes -	s
O No	TOTAL AMOUNT in the last calendar year
Supplementa	I Security Income (\$\$I); any public assistance or welfare payments from the state or local welfare office?
O Yes -	s
O No	TOTAL AMOUNT in the last calendar year
Any other so support, or al	urces of income received regularly such as Veterans' (VA) payments, unemployment compensation, child limony?
O Yes -	\$ 00
O No	TOTAL AMOUNT in the last calendar year
The following YEAR for all r Include money Also, Include II	g question is about your 2017 income. Think about your total combined family income IN THE LAST CALENDAR members of the family. What is that amount before taxes? y from jobs, child support, social security, retirement income, unemployment payments, public assistance, and so forth. income from interest, dividends, net income from business, fam, bitent, and say other money income received.
	Job Total Amount in the last calendar year

Figure 42. Income screen where the arrow points to the total income field Source: 2018 NSCH usability testing



Figure 43. Three participants' eye tracking data on the income screen. The incomes did not sum automatically and there are fixations near the final response box (the green heat map) indicating that the participants looked there. Source: 2018 NSCH usability testing

4.2. Efficiency

We experienced a much longer survey completion time than expected. In terms of the English speakers, a few participants commented on the length of the survey. Only one English speaker took less than the estimated 30 minutes to complete the survey on the laptop and the quickest mobile phone user took 35 minutes to complete the survey. The other five mobile phone users took one hour to an hour and a half to complete the survey. English speaking participants who completed the survey on the laptop took between 35 and 50 minutes.

All five Spanish speakers spontaneously mentioned that the survey was long. Only one of the five Spanish speakers finished the survey within the 90 minute time frame of the test session.

Recommendation: During production, keep track of the amount of time needed to complete the survey on different devices and if the average time by device exceeds 30 minutes, readjust the OMB hours or eliminate questions.

4.3. Satisfaction

Participants rated their satisfaction with the online survey immediately after completing the NSCH. Spanish speakers filled out a paper satisfaction questionnaire and English speakers completed the questionnaire online. This paper questionnaire contained 12 different measures of satisfaction for which participants rated their subjective experience on a 9-point Likert scale with only the endpoints labeled. The online questionnaire contained the same 12 different measures of satisfaction, but with a 7- point Likert scale. For the purposes of this report, this section includes only the comprehensive measure of satisfaction: overall reaction to the web survey. The results of the other satisfaction measures can be found in Attachment C, which report ratings on more specific criteria (e.g. organization of text).

Figures 44 and 45 display satisfaction reports for participants' overall reaction to the web survey for Spanish and for English. All responses were on the positive end of the scale, with most participants reporting the highest possible level of satisfaction for both the Spanish and English versions.



Figure 44. Satisfaction scores for the overall reaction of Spanish speakers to the Spanish web survey by device type Source: 2018 NSCH usability testing



Figure 45. Satisfaction scores for the overall reaction of English speakers to the English web survey by device type (the JAWS user did not complete the satisfaction questionnaire) Source: 2018 NSCH usability testing

5. Accessibility Findings

In our accessibility testing, we determine if a person with vision impairment, who needs a screen reader, can use the system. In this survey, form validation, that is when the survey provides feedback on the answers in the form of edit messages, functioned correctly because the error messages were directly above the questions with missing data. Screens with gray text functioned correctly without affecting previous/next navigation as seen in other Web survey applications tested in the past. The main issues encountered are summarized here with recommendations.

The JAWS' user had difficulty with some of the stem and leaf type questions, specifically, she had trouble remembering what the original question was asking when rating frequency or level of agreement. This problem was more prominent in questions with many leaves (sub-questions) and in the later sub-questions.

Screens that allow multiple inputs for units

During testing, our sole JAWS participant entered height or weight values in U.S. customary units (see Figure 32 for the screen) then navigated to the next question by keyboard commands. The tab sequence took the participant through the metric units fields, which she left blank because she had answered the English units. However, when tabbing through the metric unit fields, the English units data was erased without any notification. The participant never corrected her response. Users do not expect the same question to be asked again in different units after just responding, that is, asking for height and/or weight in metric units after responding with English units.

Figures 46 and 47 show other examples of this design. For example, in Figure 46, the tab sequence takes the respondent from the age in years to the age in months. After entering age in years, screen-reader users do not expect to enter the age in months. In Figure 47, after entering the weight in pounds and ounces, the respondent is asked to enter the weight in kilos and grams because of the tab sequence. When the keyboard focus is placed inside the kilograms field, pressing the down arrow once will delete the entries in the pounds and ounces fields and the user will never know this has occurred.

	Frequen	by Asked Questions	Privacy Act Stateme	nt	Logout
			(9	He 00 a.m. 900 p.m. ET MO	ip Telephone: 1-800-8 Sat, 11:00 a.m9:00 p.m
		Child's Ag	e & Sex		
Only respond in mor 4 What is 5 se O Male O Female	ths if child is less that Age in Years OR (x?	Age in	han 1 month old, round age	in months to 1.	

Figure 46. Age in years and months Source: 2018 NSCH usability testing

			(800 km-800 pm 87	Help Telephone: 1-800 Won-Sal, 11:00 a.m9:00 p
	Th	is Child as an Infant		
Was born mo	re than 3 weeks before his due	date?		
O Yes				
No				
How much did he we Answer in pounds and	igh when born? Jounces OR kilograms and grams	Your best estimate is fine.		
pours	Is AND Ources			
R	AND			
	ana year			
What was the age of	the mother when was br	pen?		
Your best estimate is I	ine.			
Age a	years			
· · · · · · · · · · · · · · · · · · ·				
		Previous Next		
		Previous Next		

Figure 47. Weight in U.S. customary units and metric units Source: 2018 NSCH usability testing

Recommendation: The alternative unit field should be disabled once an entry is made into the unit of choice. For example, in Figure 47, make the kilograms and grams fields unavailable if pounds and ounces are already entered. This recommendation was made earlier in the report.

Awkward labels for units

The JAWS participant remarked that labels for height, weight, months, and years were each announced using both the full word and an abbreviation which the participant said was confusing. The JAWS screen reader reads the title text from the source code for the web page. Title text never appears on the screen, but it is detected by JAWS. It is not the same as the label. Title text further defines the input needed. Title text comes before the field needing input. After the title text comes the word, "edit." Edit is a cue to JAWS users to enter their response. In other words, when JAWS users hear "edit" they know they should type something. After the word "edit" comes the label. There is always a label on fields, but fields do not always need title text. The question in the red box shown in Figure 48 has several labeling issues:

- When using the tab key, for the pound field the JAWS user hears 'pounds lbs edit pounds' where the title text is 'pounds lbs' and the label is the 'pounds' after the word 'edit.'
- JAWS users also hear 'ounces oz edit ounces', 'kilograms kg edit kilograms', and 'grams g edit grams'.

Questions C4 and C5 shown in Figure 32 have similar issues. When using the tab key for the meters field, the JAWS user hears 'meters m edit meters' instead of just 'meters edit meters.' Similarly, the JAWS user hears 'centimeters cm edit centimeters' instead of just 'centimeters edit centimeters.'

Questions C30 and C33 shown in Figure 48 also have a similar issue. JAWS users hear 'Month Mos edit Months' instead of just 'Months edit Months'. During testing on mobile devices, TalkBack users users hear 'Yrs' and 'Mos' for labels instead of 'Years' and 'Months.'



Figure 48. Questions C30 and C33 on desktop Source: 2018 NSCH usability testing

Recommendation: Use 'pounds' for the title text and 'pounds' for the label, so a JAWS user would hear 'pounds edit pounds' and similarly for the other examples.

Out of sequence tab orders

Problem 1: On the first screen of the survey there is a tab order problem. Once respondents navigate to the login fields, they will not proceed further. Screen-reader users (JAWS and TalkBack) will not read any of the text below the sign-in button (in the red box in Figure 49) and as an example of this issue, the participant who used a screen reader did not read that text.



Figure 49. Login page on desktop. The red box indicates the text that would not be read by the screen reader if the user selects sign in.

Source: 2018 NSCH usability testing

Recommendation: Change the tab order of the page so that the text is read first, then the login ID and then the sign in button.

Problem 2: On the income question shown in Figure 50, a series of income sources are listed and under each source (shown left to right) is the Yes/No response choice of to indicate if the respondent had that income, then the amount box, and then a checkbox if the amount was a loss. If respondents have a negative income, they are supposed to select the radio button for 'Yes', enter the negative income (without the minus sign) and check the 'Loss' box. However, the 'Loss' checkbox can be selected even if the 'No' option is selected.

			neip reiephone. 1-ouu-o+
			(9:00 a.m 9:00 p.m. ET Mon-Sat, 11:00 a.m9:00 p.m.
		Househ	old Information
Income in 20 LAST CALEN	17 Select "Yes" for each type DAR YEAR. Select "No" to sh	of income the famil ow types of income	ly received, and give your best estimate of the TOTAL AMOUNT IN THE e NOT received.
Wages, salar	y, commissions, bonuses, o	or tips from all job	s?
Yes -	\$ 100 000 .00		
O No	TOTAL AMOUNT in the last	t calendar year	
Self-employn	ent income from own nonfa	arm husinesses o	r farm business, including proprietorships and partnerships?
Yes -	\$ 5,000 .00	Loss	
O No	TOTAL AMOUNT in the last	t calendar vear	
		,	
nterest, divid	lends, net rental income, ro	yalty income, or in	ncome from estates and trusts?
O Yes -	\$00] Loss	
O No	TOTAL AMOUNT in the last	calendar year	
Social securi	ty or railroad retirement; ret	irement, survivor	, or disability pensions?
O Yes -	\$00		
O No	TOTAL AMOUNT in the last	t calendar year	
Supplementa	I Security Income (SSI); any	public assistanc	e or welfare payments from the state or local welfare office?
O Yes -	\$00		
O No	TOTAL AMOUNT in the last	t calendar year	
Any other so support, or a	urces of income received re imony?	gularly such as V	eterans' (VA) payments, unemployment compensation, child
O Yes -	\$.00		
O No			

Figure 50. Question K2 on desktop where the red box shows the income amount and the loss box Source: 2018 NSCH usability testing

Recommendation: The 'Loss' checkbox should be unavailable if the 'No' response choice is selected.

Incorrect instructions, labels and misspellings

Problem 1: The instructions on the review screen for both PC (shown in Figure 51) and mobile are incorrect. The instruction references links, but none of the controls on this page are defined as links. The instruction to select a link to make a correction is not possible unless the '+' sign is pressed first to reveal the list of links for a topic on a completed page.

Instr	uctions	Frequently Asked Questions	Privacy Act Statement	Logout	
			(9:00 a.m 9:0	Help Telephone: 10 p.m. ET Mon-Sat, 11:00 a.m	1-800
		Review Your	Responses		
isted belo	ware links to com	pleted pages. You may click on a ques e "Submit" button be ow to finalize thi	stion group to return to that set of o	questions and review a nate back to, you can	and/or
Return to	Review button at	any time and it will bring you back to t	this screen.	gute such to, jou can	onon t
	Click the links	below if you would like to review or chan	ige your answers.	Status	
	+ This Child	below if you would like to review or chan 's Health	ige your answers.	Status	
	+ This Child	below if you would like to review or chan 's Health as an Infant	ige your answers.	Status O	
	 Click the links + This Child + This Child + Health Ca 	below if you would like to review or chan 's Health as an Infant re Services	ige your answers.	Status O O	
	 Click the links This Child This Child This Child Health Ca Experience 	below if you would like to review or chan 's Health as an Infant re Services e with This Child's Health Care Providers	ige your answers.	Status O O O	
	Click the links + This Child + This Child + Health Ca - Experience Primary	below if you would like to review or chan 's Health as an Infant re Services e with This Child's Health Care Providers Doctor or Nurse and Referrals	ige your answers.	Status O O O K	

Figure 51. Review screen with incorrect instructions. Source: 2018 NSCH usability testing

Recommendation: Delete the sentence: 'Listed below are links to completed pages.' Replace it with 'To review your responses for each topic, click on the "+" sign.'

Problem 2: On the screener dashboard (see the red box on Figure 52), when the screen reader reads the label for deleting a child, it reads aloud redundant text. It says 'delete a child button button.'

maudu		requently Asked Questions	FINACY AC	L Statement		Logout
					Help Te	lephone: 1-800-8
				(9:00 a.m.	- 9:00 p.m. ET Mon-Sat,	11:00 a.m9:00 p.n
		Children at th	is Address			
Start with the stay at this a	e YOUNGEST CHILD	in your household and continue with	the next oldest u	intil you have list	ed all children who	usually live or
	adaress. When you are	e finished, click the "Continue" button				
Action	status	e finished, click the "Continue" button First Name, Initials, or Nicl	(name	Sex	Age	Delete
Action Start	Status Not Attempted	e finished, click the "Continue" button First Name, Initials, or Nick NOT ENTERED	kname	Sex Not Entered	Age Not Entered	Delete ×
Action Start	Status Not Attempted	e finished, click the "Continue" button First Name, Initials, or Nicl NOT ENTERED	kname	Sex Not Entered	Age Not Entered	Delete ×
Action Start	Status Not Attempted	e finished, click the "Continue" button First Name, Initials, or Nicl NOT ENTERED Add a C	kname hild	Sex Not Entered	Age Not Entered	Delete ×
Action Start	Status Not Attempted Iome He	e finished, click the "Continue" button First Name, Initials, or Nick NOT ENTERED Add a C Contin ealth Status Health Se	kname hild Je	Sex Not Entered	Age Not Entered	Delete ×

Figure 52. Screener dashboard where the red box indicates the element with the incorrect label Source: 2018 NSCH usability testing

Recommendation: The screen reader detects the delete button as a button and inserts the word itself, so the screen reader label should just be 'delete a child'.

Problem 3: Question I13 contains a misspelling of the word 'severely'. Question A7 contains a misspelling of the word 'decisions.'

Problem 4: On the address verification, the address is difficult to understand because of the abbreviations of Court (CT), Suite (STE), and all other address abbreviations.

Recommendation: Correct labels, misspellings and expand all abbreviations to words.

Source code in the tool tip

In the desktop version of Question B2 requesting weight in pounds, see Figure 53, source code appears in the yellow box over the field. That yellow box is called a tool tip.

United States National Survey of Children's Health National Survey o
This Child as an Infant
Was Service moves them 2 weeks before his due dete? If Yes No No No How much did he weigh when book? Answer in pounds and ounces CP Adoptions and prame. Your best estimate is fire: If yes Image: Incoment and ounces CP Adoptions and prame. Your best estimate is fire: Image: Incoment addition of Todder of Sports Sports Image: I
Next

Figure 53. Source code in the tool tip for pounds' field in Question B2 Source: 2018 NSCH usability testing

Recommendation: Reprogram the tool tip so only the label appears.

6. Cognitive Findings and Recommendations

This section includes comments about the new questions added to the 2018 NSCH. Participants made these comments in response to probes during the structured debriefing and they made spontaneous comments while completing the survey. The questions in English and in Spanish are available in the Appendices.

6.1. Debriefing responses

During the debriefing, we focused on the new questions. The comments made in this section were in response to probing questions. We highlight each new question with a summary of the participants' understanding of the question and the eye-tracking heat map, if eye-tracking was captured on that screen.

Blood disorders

This question was a Yes/No question (see Figure 54) asking whether the child had any blood disorder disease diagnosed by a health care provider. If 'Yes,' there were subsequent questions about how it was diagnosed and the specific disease. Initially, on the screen only the filter question was enabled. If the participant answered 'Yes', then all the grey text (the disabled text) became bold and enabled so the participant could record his or her answer to each of the subsequent questions. There were no cognitive difficulties found with this question other than

many English-speaking participants did not know what Thalassemia was. No one answered 'Yes' in either English or Spanish. Participants made spontaneous comments about the amount of disabled text, as described in Section 4.1.16. Eye tracking (see Figure 55) indicates that participants read the stem questions and glanced through the disabled text.

This Child's Health
Has a doctor or other health care provider EVER told you that
Blood Disorders (such as Sickle Cell Disease, Thalassemia, or Hemophilia)?
O Yes
⊖ No
11. IC:
O Mad
O Moderate
O Severe
Was this condition identified through a blood best done shortly after birth? Thise reals an emotions called newton screening
O Yes
O No
Was diagnosed with:
Sickle Cell Disease
O THE
O M
Thatas semia.
() Yes
Q Ma
Heimphilia
0.00
014
Other Blood Disorders
O Yes
O Ma

Figure 54. Blood disorder question Source: 2018 NSCH usability testing



Figure 55. Heat map using eye tracking data of the blood disorders screen Source: 2018 NSCH usability testing

Cystic Fibrosis

The cystic fibrosis question was also a Yes/No question asking whether the child has been diagnosed with cystic fibrosis by a health care provider as shown in Figure 56. No one answered 'Yes' in either English or Spanish. There were no cognitive difficulties found with this question across languages. Most English-speaking participants had heard of cystic fibrosis. Most Spanish speakers had not heard this term, however they correctly answered 'No' if they did not know the meaning, as a caregiver would certainly know the meaning if his or her child had the condition.

The eye tracking data (shown in Figure 57) suggests that participants read the stem and glanced through the disabled text.

This Child's Health
Has a doctor or other health care provider EVER told you that "has
Cystic Fibrosis?
O Yes
O No
is it:
O Mild
O Moderate
O Severe
Was this condition identified through a blood test done shortly after birth? These tests are sometimes called newborn screening.
O Yes
O No

Figure 56. Cystic fibrosis question Source: 2018 NSCH usability testing



Figure 57. Heat map using eye tracking data of the cystic fibrosis screen Source: 2018 NSCH usability testing

Other genetic condition

The final question in this series was a catchall question about any other genetic or inherited condition. It too was a Yes/No question with subsequent questions if the answer to the filter question was 'Yes.' While there were no cognitive difficulties with this question (shown in Figure 58), there was one case of measurement error. One participant said that her child could be a carrier of a serious condition. She did not know for sure, but answered the question affirmatively, which implied that the child has this condition when she does not. The addition of a 'Don't know' response option with a write-in field could possibly be an addition to this question to get at these nuanced situations. Eye tracking data in Figure 59 shows that most of the focus is on the question stem.

	This Child's Health	
a doctor or other health o	are provider EVER told you that has	
Other genetic or inherited	condition?	
() Yes		
O No		
Other genetic or inherited Please Specify	I condition?	
is it:		
O Mild		
O Moderale		
O Severe		
Was this condition identi These lesis are sometimed	ted through a blood test done shortly after birth? called newborn screening.	
O Yes		
O No		

Figure 58. Other genetic or inherited condition screen Source: 2018 NSCH usability testing



Figure 59. Heat map using eye tracking data of the other genetic disorders screen Source: 2018 NSCH usability testing

Bullying

The bullying questions appear in Figure 60. Those questions asked about whether the child had been bullied and if so, how frequently, and if the child was a bully and if so, how frequently.

During the usability sessions, these questions appeared to produce a lot of measurement error. Only one participant described a bullying situation involving her child and people outside of the family where the episode was so traumatic that the participant declined to describe it. Other participants also indicated that their children were bullied, but they seemed to focus on episodes of their child being excluded during typical play situations. When asked whether their child bullies anyone, participants focused on their child bullying siblings. Depending upon the interests of the sponsor, these could be false positive answers. We recommend reviewing the bulling questions in the 2017 School Crime Supplement of the National Crime Victimization Survey to see if that set of questions would better measure school bullying.

Results of the eye-tracking data for that screen is found in Figure 61. The bullying questions are located at the bottom of a screen about other childhood behaviors and the eye tracking data does not identify anything unusual in the reading pattern associated with the questions.

DURING THE PAST 12 If the frequency change	2 MONTHS, how often was the ed throughout the year, report the	is child bullied, picked on, on the highest frequency.	or excluded by other childrer	1?
O Never (in the particular)	ast 12 months)			
 1-2 times (in the 	e past 12 months)			
O 1-2 times per m	onth			
1-2 times per w	eek			
 Almost every data 	ay			
DURING THE PAST 12 If the frequency change	MONTHS, how often did this ad throughout the year, report the	s child bully others, pick on the highest frequency.	them, or exclude them?	
O Never (in the particular)	ast 12 months)			
 1-2 times (in the 	e past 12 months)			
O 1-2 times per m	onth			
O 1-2 times per w	eek			
 Almost every data 	ay .			
		Previous Next		
In Your Home	Health Status	Health Services	Learning/Activities	Background
Form: NSCH-T3 OMB No.: 0607-0990 Approval Expires: 05/31/2019				
			Burden Access	ibility Privacy Security

Figure 60. Bullying questions Source: 2018 NSCH usability testing



Figure 61. Heat map using eye tracking data of the screen with the bullying questions (n=2) Source: 2018 NSCH usability testing

Obesity

The obsesity questions (see Figure 62) first asked if the adult caregiver was concerned over the child's weight and then asked if a health care provider had told the caregiver that the child is overweight. There were no cognitive difficulties with this series of questions, but it seemed like participants decided how to answer after reading both questions. In one instance, the second question might have influence the answer to the first question: the father said that his daughter falls within the typical limits, but he thinks that she is slightly chubby for his culture. He responded "No, I am not concerned." to the first question even though he expressed some concern verbally. Eye-tracking data in Figure 63 shows no unusual patterns. Other participants, both English and Spanish, did not have any comments or concerns with these questions so we have no recommendations based on this testing.

ine you concerned about	and general	
 Yes, it's too high 		
Yes, it's too low		
No, I am not concerned		
Has a doctor or other health car	provider ever told you that	is overweight?
O Yes		
O No		

Figure 62. Weight questions Source: 2018 NSCH usability testing



Figure 63. Heat map using eye tracking data of the weight questions screen – they are the last two questions on the page (n=3) Source: 2018 NSCH usability testing

Overnight stays at the hospital

This question asked whether the child was admitted to the hospital and stayed overnight in the past 12 months as shown in Figure 64. We did not observe any cognitive difficulties with this question and parents appeared to remember how often their child had been to the hospital. Eye tracking shown in Figure 65 reveals participants focused on the text, "At least one night."

DURING THE PAST 12 MONTHS, was this child admitted to the hospital to stay for at least one night?
○ Yes ○ No

Figure 64. Hospital stay question Source: 2018 NSCH usability testing


Figure 65. Heat map using eye tracking data of the hospital stay questions screen – the question is the last one on the screen (n=3)

Source: 2018 NSCH usability testing

Medical History

This question asked whether the respondent and the child received a copy of the medical history. We did not observe any cognitive difficulties with the medical history question in English (see Figure 66). When asked to think aloud while answering this question, participants mentioned brochures on weight control, immunization records for school, etc. We do not have eye tracking results on this question because we did not eye track the English-speaking participant who received this question on the laptop. Participants did not know the meaning of "medical history" when translated in Spanish as "resumen medico." Further testing in Spanish is necessary for this term.



Figure 66. Medical history question Source: 2018 NSCH usability testing

Transition to adulthood

This question asked about conversations had with health care providers about older children transitioning to other doctors. While we did not observe participants having any cognitive difficulties while answering the transition to adulthood question (shown in Figure 67), the researchers observed that it was not really appropriate for younger children (for example, a 12-year-old) in the T3 module because seeing doctors who treat adults is still six or more years away. None of our participants answered 'Yes' to this question in the T3 module. We did not collect eye tracking on this screen.

Have they talked with you about when will need to see doctors or other health care providers who treat adults?
○ Yes ○ No

Figure 67. Transition to adulthood question Source: 2018 NSCH usability testing

Speech and language milestones

In the T1 module, an entire screen contained 11 questions about whether the child had made particular milestones with speech and language (see Figure 68). The participant had to answer 'Yes' or 'No' to each question. There were no cognitive difficulties with the speech and language question in either English or Spanish. One participant said the list sounded similar to what her doctor asked her at checkups. One participant spent more time answering the question of whether the child can tell a story with a beginning, middle and end. The eye tracking data shown in Figure 69 confirms this. We do not believe this is a concern.

is able to do	o the following	This Child's Learning		
Select Yes or No for ea	ch item			
Say at least one word,	, such as "hi" or "dog"?			
⊖ Yes				
⊖ No				
Use 2 words together,	, such as "car go"?			
○ Yes				
⊖ No				
Use 3 words together	in a sentence, such as, "Mo	ommy come now."?		
⊖ Yes				
⊖ No				
Ask questions like "w	ho", "what", "when", "when	e"?		
⊖ Yes				
⊖ No				
Ask questions like "w	hy" and "how"?			
⊖ Ves				
○ No				
Tell a story with a beg	inning, middle, and end?			
O Yes				
○ No				
○ Yes				
Follow a verbal direct	ion without hand destures	such as "Wash your hands "	2	
○ Yes				
0140				
Point to things in a bo	ok when asked?			
⊖ Yes				
() No				
Follow 2-step directio	ns, such as "Get your shoes	s and put them in the basket	."?	
⊖ Yes				
⊖ No				
Understand words su	ch as "in," "on," and "under	"?		
⊖ Yes				
⊖ No				
		Previous		
In Your Home	Health Status	Health Services	Learning/Activities	Backgrou
In Your Home	Health Status	Health Services	Learning/Activities	Backgrou
In Your Home	Health Status	Health Services	Learning/Activities	Backgrou

Figure 68. Speech and language milestone questions Source: 2018 NSCH usability testing



Figure 69. Heat map using eye tracking data of the speech and language milestone questions screen (n=1) Source: 2018 NSCH usability testing

Screen time

Participants spent time answering the screen-time question (see Figure 70). This question asked how much time the child spends on electronics, outside of school work, on any given weekday. English-speaking participants appeared to be able to separate screen time their child spent on homework from screen time for enjoyment. Participants reported older children as having much more screen time, with participants explaining that their kids watch TV and use their phones at the same time. These participants did not double count the number of hours when it was simultaneous. Two Spanish-speaking participants had issues calculating screen time for their children. One participant explained that it was difficult for her to calculate because the screen time was not continuous. For example, her child picked up her phone and used it and then got bored. Another participant had trouble calculating the screen time because she was unsure whether FaceTime counts as screen time and this is the way this respondent communicates with her daughter.

The eye tracking data in Figure 71 show a typical pattern of behavior, but that time was spent on this question in comparison to other questions. We have no recommendations for improving this question or response choices.

ensus	National Survey of Childre	n's Health	
Instructions	Frequently Asked Questions	Privacy Act Statement	Logout
		(9:00 a.m 9:00	Help Telephone: 1-800-8 p.m. ET Mon-Sat, 11:00 a.m9:00 p.m.
	About You an	d This Child	
daulas untables as	ers, about now mach and one and this child spen	id in front of a TV, computer, celipho	one or other electronic
device watching pr Do not include time : O Less than 11	ograms, playing games, accessing the interne spent doing schoolwork	et or using social media?	one or other electronic
device watching pr Do not include time : O Less than 11 O 1 hour	ograms, playing games, accessing the interne spent doing schoolwork	et or using social media?	one or other electronic
device watching pr Do not include time : O Less than 1 I O 1 hour O 2 hours	ograms, playing games, accessing the interne spent doing schoolwork	et or using social media?	one or other electronic
device watching pr Do not include time : O Less than 1 I O 1 hour O 2 hours O 3 hours	ograms, playing games, accessing the interne spent doing schoolwork	et or using social media?	one or other electronic
device watching pr Do not include time : O Less than 11 O 1 hour O 2 hours O 3 hours O 4 or more ho	ograms, playing games, accessing the interne spent doing schoolwork hour	et or using social media?	one or other electronic

Figure 70. Screen-time question Source: 2018 NSCH usability testing



Figure 71. Heat map using eye tracking data of the screen-time question screen. The screen-time question is at the top of the page (n=3)

Plan of care

Participants showed some confusion with the plan of care series of questions, shown in Figure 72. The question attempted to gain information on whether there was a plan of care as the child matures. Several participants answered 'Yes' to the first two questions, indicating that there was a plan of care and they had access to it, but in each instance, the plan was either an oral plan or a referral and not something with tasks and goals and a schedule. All participants answered 'No' to the third question about whether the plan addresses transitions to doctors who treat adults. We did not collect eye tracking on this screen. Spanish speakers did not know the meaning of 'plan of care' as translated in Spanish as 'plan de cuidado.' We recommend that the term 'plan of care' be changed to 'instrucciones a seguir' and be further tested.

Source: 2018 NSCH usability testing

Las de	Forework Asked Assettions			
Insurgeoons	Frequency Asked Questions	Privacy Act statem	ente	Help Telephone: 1-80
		- 0	9:00 a.m - 9:00 p.m. ET I	Mon-Sat, 11:00 a.m9:00
	Experience with This Chil	d's Health Care Prov	iders	
Have docto	rs or other health care providers worked	with you and to	create a plan of c	are to meet his
health goals and needs				
Yes				
O No				
Did you and	have access to this plan of care?			
() Yes				
O No				
Does this plan of care a	address transition to doctors and other h	health care providers who	treat adults?	
() Yes				
O No				
Eligibility for health ins an adult?	urance often changes in young adulthoo	od. Do you know how	will be insur	ed as he becomes
O Yes				
No				
Has anyone discussed adult?	with you how to obtain or keep some typ	pe of health insurance cov	erage as	becomes an
O Yes				

Figure 72. Plan of care question Source: 2018 NSCH usability testing

6.2. Spontaneous comments

While participants completed the survey, they were instructed to think aloud. A few Englishspeaking participants commented on the length of the survey. All five Spanish speakers spontaneously mentioned that the survey was long. There could be several factors contributing to these comments.

Participants with typically developing, healthy children received a lot of questions that perhaps did not need to be asked. For example, questions about coordination among doctors and the amount of care given did not seem appropriate for healthy children. For example, if a child did not see more than one health care provider, it is not apparent why the survey asks whether it was difficult to coordinate the care. There is another question about how many hours a week the provider spends administering care, but for children without any ongoing conditions, it seems

like the lack of skip patterns in the survey risks generating false positive data. Several of our participants reported spending an hour a week giving vitamins or bandages to their children. Including an earlier filter question that addresses things like how many doctors the child saw last year (excluding dentists), could be used to skip respondents appropriately.

Two Spanish speakers wondered aloud about the presence of the greyed out questions. However, they realized there was a response pattern and that questions would be activated only if they answered 'Yes' on specific questions. It could be that being able to see the extra, greyed out questions led to the perception of a long survey.

English-specific comments:

Question D5 is cognitively difficult.

This question asked 'During the past 12 months, did this child need any decisions to be made regarding his or her health care, such as whether to get prescriptions, referrals, or procedures?' At least two participants did not know what the question meant. One participant reported 'Yes,' saying that a prescription was filled, but it is not clear whether that is the intent of the question. We recommend more cognitive testing of this question.

A response option in Question E4 needs a different reference person.

This question asked about what type of health insurance covers the child. The question was, 'Is this child CURRENTLY covered by any of the following types of health insurance or health coverage plans?' It was a 'Yes/No' forced-choice question design with these categories: (a) Insurance thorugh a current or former emplotyer or union; (b) Insurance purchased directly from an insurance company; (c) Medicaid etc.; (d)TRICARE or other military health care; (e)Indian Health Service; Other. The respondent is supposed to select 'Yes' or 'No' for each of those insurance types. One participant commented that the option that says, 'Insurance through a current or former employer or union' implies that it is the child's current or former employer, and that is not correct. It should be the parent's employer. We recommend this option changing to, 'Insurance through a parent or guardian's current or former...' because the child is not the person working.

Module T3: Question C9, C11 and C12 have a skip error.

Question C9 asked if there was a place the respondent took the child when he or she was sick. If the answer was no, then the next question (C11) was if there is a regular place where the respondent took the child for well-child or preventative care. If the answer was 'Yes,' then the following question (C12) asked whether that place was the same place as the place visited when the child was sick. That question does not make sense if there was no place where the respondent takes the sick child. We recommend skipping Question C12 if C9 is answered 'No.'

Question I5 needs a reference home.

This question asked about mold in the home in the last 12 months, but for people who moved within the last 12 months, it was not clear which home they should consider. One participant had this issue. The home she moved out of had mold; but her new home did not. She answered

for the most recent home. We recommend adding an instruction specifying to report for your current home in the reference year.

Question A24 has unfamiliar terminology.

In all modules, there was a series of questions about whether the respondent had ever been told by a doctor or health care provider that the child had particular health issues. In the T2 and T3 module, Question A24 asked whether the respondent had been told that the child has 'Substance use disorder?' Two participants said they had heard of substance abuse, but not substance use disorder. Everyone appeared to answer correctly, so we have no recommendations based on this testing.

Question G5 in T2 and Question I6 in T1 have questions not relevant to small children.

Question G5 in module T2 asked whether the child has any regular paid work, such as babysitting or cutting grass. The age range for this module is 6 to 11 year olds. For children at the younger end of this age range, there typically is not any paid or volunteer work. Similarly, in Module T1, Question I6 asks, 'When your family faces problems, how often are you likely to do each of the following? (a) Talk together about what to do; (b) Work together to solve our problems; (c) Know we have strengths to draw on; and (d) Stay hopeful even in difficult times.' The reference to family was confusing for young families because these parents do not hold discussions with their very young children. At this time, we recommend more monitoring of the questions.

Spanish specific comments:

Race and ethnicity question

One participant did not know exactly how to answer the race and ethnicity question in the screener. The wording of the question is 'Es este(a) nino(a) de origen Hispano, Latino o Espanol?' The response options include 'No, no es de origen hispano, latino o espanol', 'Si, mexicano(a), mexicano(a) Americano(a), chicano(a)', 'Si, puertorriqueno(a)', 'Si, cubano(a)', 'Si, de otro origen hispano, latino, o espanol'. The participant was confused about how to answer the Hispanic origin question because she was expecting the response options to be 'Yes' or 'No' and none of the 'Yes' options specified 'Bolivian.' After reading the remaining options, the participant selected the option for another Hispanic origin. We recommend a consultation with analysts in the Census Bureau's Population Division to make sure the survey is using the standard question version to measure race/ethnicity. Figures 73 and 74 show the standard ethnicity and race questions in Spanish on the American Community Survey.

→ N Pi ¿Es	OTA: `Por favor, conteste la Pregunta 5 sobre origen hispano Y la regunta 6 sobre raza. Para esta encuesta, origen hispano no es una raza. la Persona 2 de origen hispano, latino o español?
Ъ <u>р</u>	No, no es de origen hispano, latino o español
	Sí, mexicano, mexicano americano, chicano
	Sí, puertorriqueño
	Sí, cubano
	Sí, otro origen hispano, latino o español – Escriba el origen en letra de molde, por ejemplo, argentino, colombiano, dominicano, nicaragüense, salvadoreño, español, etc. 굵

Figure 73. Ethnicity question in Spanish on the 2018 American Community Survey paper questionnaire Source: https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2018/quest18SP.pdf

¿Cu	ál es la raza de la Pe	rso	na 2? Marque	(X) ui	na o más casillas.							
	Blanca											
	Negra o africana americana											
	India americana o nativa de Alaska – Escriba en letra de molde el nombre de la tribu en la cual está inscrita o la tribu principal. 📈											
	India asiática		Japonesa		Nativa de Hawaii							
	China		Coreana		Guameña o Chamorro							
	Filipina		Vietnamita		Samoana							
	Otra asiática – Escriba en letra de molde, po hmong, laosiana, tail paquistaní, camboyar	a la r r eje lande na, e	raza mplo, esa, tc. _₩		Otra de las islas del Pacífico - Escriba la raza en letra de molde, por ejemplo, fiyiana, tongana, etc. _✔							
	Alguna otra raza – <i>Es</i> e	criba	n la raza en letra	de m	olde. 📈							
Figure 7	4. Race question in Spanish on th	e 2018	American Community	Survey	paper questionnaire							

Source: https://www2.census.gov/programs-surveys/acs/methodology/questionnaires/2018/quest18SP.pdf

Question A25

The introduction to Question A25 is confusing. The introduction in T1 and T2 reads 'Alguna vez un medico o un educador le ha dicho a usted que este(a) nino(a) padece deAlgunos ejemplos de educadores son maestros(as) y enfermeros(as) escolares.' One participant was confused by the examples because in Spanish it is just a repetition of the question. We recommend removing the examples.

The words 'conducta' and 'comportamiento' are used interchangeably in Module T1/Question C8-Figure 75.

The question in the paper version of the instrument reads 'Durante los ultimos 12 meses, le preguntaron los medicos o proveedores de atencion medica de este(a) nino(a) si usted estaba preocupado(a) por el aprendizaje, el desarrollo o la conducta de este(a) nino(a)?'. The word 'comportamiento' [behavior], as it appears in the online instrument, is closer to the meaning in the English instrument. We recommend choosing 'comportamiento' as it is the closest term to the English wording.

Census Bureau	National Survey of Childr	en's Health 🎉	
Instructions	Frequently Asked Questions	Privacy Act Statement	Logout
		(900 am - 900 p	Teléfono: 1-800-845-6241 (m. ET lun-sab, 11:00 a m9:00 p.m. ET dom)
	Servicios de A	tención Médica	
DURANTE LOS ÚL usted estaba preo	.TIMO5 12 MESES, ¿le preguntaron los méd cupado(a) por el aprendizaje, el desarrollo o	icos o proveedores de <u>atención médica.</u> el comportamiento de	de si
OSI			
No			
	Previo	Próximo	
En su Casa	Estado de Salud Servicio	s de Salud Aprendizaje/Actividade	s Acerca de la Casa
Form: NSCH-S-T1 OMB No.: 0607-0990 Approval Expires: 05/31/2019			
		Burden Ac	cessibility Privacy Security

Figure 45. Question 8 in the T1 module in Spanish Source: 2018 NSCH usability testing

Mode differences in Spanish paper and online forms

The usability testing team for the Spanish cases found wording differences in at least six questions between paper and online forms. The mode differences were reported promptly and the NSCH survey team addressed them properly.

7. Limitations

Due to time limitations we were not able to recruit participants with many of the health issues that are included in the questions. Thus, not every question was tested. We did not prepare vignettes ahead of time for every question as these vignettes would be difficult to administer if the participant did not have direct knowledge of the condition.

8. Future usability research on designing for branching logic

This survey used disable and enable branching logic, where questions are grey until a filter question is answered in such a way to make them applicable, and then they turn black and can be answered. This design allows skip sequences to be on the same page and it allows the respondent to see all the questions to help them shape their understanding of the filter question.

We did not experience any usability issues with this design in the English testing; nor did we experience any usability issues when we tested this design with the National Sample Survey of Registered Nurses (Nichols, Kephart, and Malakhoff, 2018). However, the disabled text does make the questionnaire look longer than it would be for some respondents. In the case of the Spanish testing, participants commented often about the length of the survey and we do not know up to what extent the branching design contributed to this.

Further testing about the relationship between grey out areas and length of the instrument is necessary before reaching out to conclusions on this topic. It is unclear if this design adds to the time it takes to complete the survey compared to unfolding the questions or paginating the questions where each question is on a different screen. Eye tracking with English speaking test participants on the NSSRN instrument showed that participants did not spend much time reading the greyed out questions. While we did not observe participants reporting in such a way to avoid answering subsequent questions (and in fact observed the opposite), further study with real respondents in a situation where there is no payment is needed in order to confirm that respondents do not modify their answers so that they do *not* have to answer subsequent questions.

We recommend testing different types of conditional branching options for online, selfadministered questionnaires (e.g. automatic graying out of skipped questions vs. selective revealing (expand-contract options)). Quantitative analysis can examine any human errors when using conditional branching, such as the tendency of respondents to answer in ways to avoid long sections, time-on-tasks differences, user satisfaction and likelihood to break off before finishing the questionnaire (Norman, 2001).

9. Acknowledgements

We thank the staff of Leah Meyer in ADDP for the opportunity to usability test the NSCH. We also thank our reviewers including Leah Meyer, Lin Wang, Patricia Goerman, Joanne Pascale, and Paul Beatty. We also thank Kevin Younes, our recruiter for this project.

10. References

- Ericsson, K. A., & Simon, H. A. (1993). *Protocol Analysis: Using Verbal Reports as Data*. Cambridge, MA: The MIT Press.
- Lykke, L. & García-Trejo, Y. (2018). Results from the Usability Testing of the Spanish Language Version of the 2020 Census Planning Survey (CBAMS). U.S. Census Bureau. https://www.census.gov/content/census/en/library/workingpapers/2018/adrm/rsm2018-19.html
- Nichols, E.M., Kephart, K. M., and Malakhoff, L. A. (2018) Implementing Branching Logic by Enabling and Disabling Questions in the Online Version of the National Sample Survey of Registered Nurses – Results of a Usability Evaluation. U.S. Census Bureau.

http://www.census.gov/content/dam/Census/library/working-papers/2018/adrm/rsm2018-13.pdf

Norman, K. L. (2001). Implementation of Conditional Branching in Computerized Self-Administered Questionnaires. University of Maryland

https://drum.lib.umd.edu/bitstream/handle/1903/1173/CS-TR-4319.pdf?sequence=1&isAllowed=y

Villar, A., Callegaro, M., and Yang, Y. (2013). Where Am I? A Meta-Analysis of Experiments on the Effects of Progress Indicators for Web Surveys. *Social Science Computer Review*. 31(6). 744-762. <u>http://journals.sagepub.com/doi/pdf/10.1177/0894439313497468</u>

Screener







Module T1 (for children 0-5 years old)



Attachment A: 2018 NSCH draft paper questionnaires – English version







DURING THE PAST 12 MONTHS, did this child's health: care provider communicate with the child's school, child care provider, or special education program? Yes No - \$KIP to question 3 Did not and health area	0	20018101 Is this child CURRENTLY covered by ANY kind of health insurance or health coverage plan? Yes No → SKIP to question (3) on page 12 Is this child CURRENTLY covered by any of the	G	ET Inc He Ac chi	F. Providing for 1 Child's Health luding co-pays and amounts reimburs stuff Savings Accounts (IRS) and Flex counts (ISA), how much money did yy (if s medical, health, dental, and vision	ed from ble Spendi ou pay for t		NAN AVERACE WEEK, how many how other family members spend providing 1 home for this child? Care might include or giving medication and therapies when ne or giving medication and therapies when ne This child does not need health care jo on a weekly basis Less than 1 hour per week	rs do you ealth car hanging l eded. provided	i or 'e at)andage
Constant for communication with these provides - > SAUP to question with these provides - > SAUP to question yes, during this time, how satisfied were you with health care provider's communication with the school, child care provider, or special education program? Very satisfied Somewhat disatisfied Somewhat disatisfied Very dissatisfied E. This Child's Health		following types of health insurance or health coverage plans? Mark (N) view or No for EACH with view New a. Insurance through a current or forme employee or union b. Insurance purchased directly from an insurance company or any kind of government assistance plan for those with low income or a disability d. TRI/LARE or other military health care of the resonance or a disability d. TRI/LARE or other military e. Indian Health Service	6		RING THE PAST 12 MONTHSY Do not any strategy perpending of costs hard verse or a 10 (Dr modical or health-related expensions) + SKIP to question \$1-32249 \$250-5499 \$1,000-5099 \$1,000-5,000 More than 35,000 worth are these costs reasonable?	include hea ill be	¢	1-4 hours per week 5-10 hours per week 11 or more hours per week 11 or more hours per week NAVERAGE WEEK, how many hour other family memoisr spend arranging a sappointments or locating services? This child does not need health care a a weekly basis Less than 1 hours per week 1-4 hours per week	s do you r coordi h as mai	i or nating king
Insurance Coverage URING THE PAST 12 MONTHS, was this child EVER covered by AVI kind of hashit insurance or health coverage plan?	6	How often does this child's health insurance offer benefits or cover services that meet this child's needs? Always Usually Sometimes Never	G		Always Usually Sometimes Never RINO THE PAST 12 MONTHS, did you blomes paying for any of this child's in this care builty Yes	r family ha ledical or	/e	S-10 hours per week It or more hours per week G. This Child's Lee Answer the following question only if the least it yes of Cherwise skip to the the start yes of Cherwise skip to the following high (X) Yes or No for each term. Mark (X) Yes or No for each term.	arnin is child i n page 1 Yes	g sat 5. No □
DURING THE PAST 12 MONTHS: Yes No a. Change in employer or employment status Image: Im	Ð	How often does this child's health insurance allow him or her to see the health care providers he or she needs? Always Usually Never Never Thisking specifically about this child's mental or behavioral health needs, how often does this child's health insurance ofter benefits or cover services that meet these needs? This child does not use mental or behavioral health services Never Usually Sometimes Never	G	DU far a. b.	No RING THE PAST 12 MONTHS, have you may members Left pibor taken a leave of absence because of this child's health or health conditions? Cut down on the hours you work because of this child's health or health conditions? Avoided changing jobs because of concerns about mantaining health insurance for this child?	Yes		 Use 2 works together, such as core go? Use 3 works together in a sentence, such as Mormy come now? Ask questions like "huty" and "how?? Ask questions like "huty" and "how?? Ask questions like "huty" and "how?? Fail a story with a beginning, mode, and end? Usepectatory the maning of the Failware and deciden without hands,"? Failware averall deciden without hands." Follow averand deciden without hands." 		

Attachment A: 2018 NSCH draft paper questionnaires - English version









Module T2 (for children 6-11 years old)













Attachment A: 2018 NSCH draft paper questionnaires – English version



NSCH-T2

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NSCH-T2





Module T3 (for children 12-17 years old)











Attachment A: 2018 NSCH draft paper questionnaires - English version



NSCH-T3

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NSCH-T3

15





Screener(Spanish)





Attachment B: 2018 NSCH draft paper questionnaires - Spanish version





98

26118232 26118240 Suspective Cesi Simple A vaces Nunce Simple A Comienze Aquí 💩 ¿Con qué frecuencia.. Recientemente, usted completó una encuesta con preguntas sobre los(as) niños(as) que usualmente viven o se quedan en esta dirección. Gracias por tomar de su tiempo para completar esta encuesta. Encuesta Nacional de Salud de los Niños Un estudio realizado por el Departamento de Salud y Servicios Humanos de los EE. UU. para entender mejor los problemas de salud que enfrentan actualmente los(as) niños(as) en los Estados Unidos. Ahora le haremos algunas preguntas de seguimiento sobre: c. Este(a) niño(a) muestra interés y D D D curiosidad por aprender cosas nuevas? nombre que aparece anteriormente es incorre corresponde a un(a) niño(a) que viva en este ; llame al 1-800-845-8241. d. Este(a) niño(a) sonrio y se rie mucho? DURANTE LOS ÚLTIMOS 12 MESES, ¿este(a) niño(a) ha tenido dificultades CRONICAS o FRECUENTES con esta deberá ser completada por un adulto zado con la salud y atención médica de alquiera de los(as) siguiente Su participación es importante. Gracias. Respirar u otros problemas respiratorios (como respiración sibilante o falta de aire) A. La salud de este(a) niño(a) b. Comer o tragar debido a una condición médica Digerir la comida, incluyendo problemas estomacales o intestinales, estreñimiento o diarrea En general, ¿cómo describiría la salud de este(a) niño(a) (cuyo nombre aparece más arriba)? Excelente d. Dolor físico crónico o recurrente, incluyendo dolor de cabeza, dolor de espalda o dolor corporal. Muy buena Buena e. Usando sus manos Regular f. Coordinación o moviéndose Deficiente g. Dolor de muelas
 h. Sangrado en las encias ¿Cómo describiría la salud dental de este(a) niño(a)? na del Censo de los EE. U.U. está obligada por ley a proteger su información y no se la permite divulgar sus responstas repue usido o su hogar pudieran en el demificados La Oficina del Censo de los Estados Unidos está liverando a cabo la Encose de los del cabo de la conso de las del cabo de la como esta de la cabo d i. Dientes deteriorados o caries Este(a) niño(a) no tiene dientes Excelente As ¿Presenta este(a) niño(a) alguno de los siguientes problemas? Muy buena Sí No Buena a. Sordera o problemas de audición Ceguera o problemas de la vista, incluso cuando usa anteojos o lentes Cualquier información que proporcione será compartida para fines relacionados con el trabajo identificado anteriormente y según lo permitido por la Ley de Privacidad de 1974 (Sección 557 del Thulo 5, Código de los Estados Unidos) y SORN COMMERCE/CURSUS3, Recolatición de la Encuesta Demográfica (Marco Muestral de la Óficina del consol. Regular Deficiente La participación en esta encuesta es voluntaria y no hay sanciones por negarse a responder a las preguntas. Sin embargo, su cooperación en la obtención de esta información necesaria es de suma importancia a fin de garantizar resultados completos y NSCH-S-T1 (04/04/2018) Draft 13

Module T1 (for children 0-5 years old; Spanish)

	26118224		26118216
ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dícho a usted que este(a) niño(a) padece de	ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dicho a usted que este(a) niño(a) padece de	ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dicho a usted que este(a) niño(a) padece de	ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dicho a usted que este(a) niño(a) padece de
¿Alergias (incluyendo alimentos, medicamentos,	Jui ¿Diabetes?	All ¿Problemas de ansiedad?	¿Fibrosis quistica?
insectos o de otro tipo)?		SI No	
	→ Si la respuesta es sí, ¿padece este(a) niño(a) la	→ Si la respuesta es sí, ¿padece este(a) niño(a) la	→ Si la respuesta es sí, la condición es:
Si la respuesta es si, ¿padece este(a) nino(a) la condición ACTUALMENTE?	condición ACTUALMENTE?	condición ACTUALMENTE?	🗆 Leve 🔲 Moderada 🗔 Grave
🔲 Sí 🔲 No			Esta condición, ¿fue identificada por medio de
Si la respuesta es sí, la condición es:		I lovo Moderata Gravo	del nacimiento? Estas pruebas a veces se llaman pruebas de deterción para reción pacidos
Leve Moderada Grave			
¿Artritis?	2Epilepsia o trastornos convulsivos?		Otra condición genética o hereditaria?
Si No	Sí No	L Si la respuesta es si unadere este(a) niño(a) la	
Si la respuesta es si, ¿padece este(a) niño(a) la condición ACTUALMENTE?	condición ACTUALMENTE?	condición ACTUALMENTE?	→ Si la respuesta es sí, especifique:
	Si No	Sí 🗋 No	
→ Si la respuesta es sí, la condición es:	→ Si la respuesta es sí, la condición es:	→ Si la respuesta es sí, la condición es:	+ La condición es:
Leve Moderada Grave			Leve Moderada Grave
Asma?	¿Condición o problemas cardiacos?	Alle ¿Sindrome de Down?	Esta condición, ¿fue identificada por medio de
	Si No		del nacimiento? Estas pruebas a veces se
→ Si la respuesta es si, ¿padece este(a) niño(a) la	Si la respuesta es sí, ¿padece este(a) niño(a) la condición ACTUALMENTE?	Si la respuesta es si, ¿padece este(a) nino(a) la condición ACTUALMENTE?	liaman pruebas de detección para recien nacidos.
condición ACTUALMENTE?	SI No	🗆 Sí 🔲 No	
Sí No	→ Si la respuesta es sí, la condición es:	Si la respuesta es sí, la condición es:	ALGUNA VEZ un médico, otro proveedor de atención
Si la respuesta es si, la condición es:	Leve Moderada Grave	Leve Moderada Grave	médica o un educador le ha dicho a usted que este(a) niño(a) padece de
	2 Dolores de cabeza frecuentes o intensos, incluyendo	¿Trastornos sanguineos (como enfermedad de anemia depanacitica o de cálulas falciformes talesemia o de cálulas falcifo	algunos ejempios de educadores son maestros(as) y enfermeros(as) escolares.
¿Lesión cerebral, contusión o lesión en la cabeza?	migrañas?	hemofilia)?	¿Problemas de comportamiento o conducta?
		Si No	
Si la respuesta es si, ¿padece este(a) niño(a) la condición ACTUALMENTE?	Si la respuesta es sí, ¿padece este(a) niño(a) la condición ACTUALMENTE?	→ Si la respuesta es sí, la condición es:	Si la respuesta es si, ¿padece este(a) niño(a) la condición ACTUALMENTE?
🗆 Sí 🔲 No	Si INO	Leve Moderada Grave	Si 🗆 No
➡ Si la respuesta es sí, la condición es:	→ Si la respuesta es si, la condición es:	Esta condición, ¿tue identificada por medio de una prueba de sangre realizada poco después del mesimiento.	Si la respuesta es si, la condición es:
Leve Moderada Grave	Leve Moderada Grave	llaman pruebas de detección para recién nacidos.	🗆 Leve 🔲 Moderada 🗆 Grave
¿Parálisis cerebral?	Als ¿Sindrome de Tourette?	Si 🗆 No	¿Retraso en el desarrollo?
Si No	Sí No	Si la respuesta es si, ¿fue este(a) niño(a) diagnosticado(a) con:	Sí No
→ Si la respuesta es sí, ¿padece este(a) niño(a) la	Si la respuesta es sí, ¿padece este(a) niño(a) la condición ACTUALMENTE?	Enfermedad de anemia	Si la respuesta es sí, ¿padece este(a) niño(a) la condición ACTUALMENTE?
		drepanocitica	Si No
→ Si la respuesta es sí, la condición es:	→ Si la respuesta es sí, la condición es:	Talasemia	→ Si la respuesta es sí, la condición es:
Leve Moderada Grave	Leve Moderada Grave	Hemofilia	Leve 🛛 Moderada 🗆 Grave
		Otros trastornos	

NSCH-S-T1

2
















Attachment B: 2018 NSCH draft paper questionnaires - Spanish version





Module T2 (for children 6-11 years old; Spanish)



			26128223	26128215
DURANTE LOS ÚLTIMOS 12 MESES, ¿c ha tenido dificultades CRÓNICAS o FRI cualquiera de los(as) siguientes?	este(a) niñ ECUENTES	io(a) S con	ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dicho a usted que este(a) niño(a) padece de	ALGUNA VEZ un médico u otro(a) profesional de la salud le ha dicho a usted que este(a) niño(a) padece de
 DURANTE LOS ULTIMOS 17 MESES, available and contracting and total as an analysis of the second and a second and analysis of the second and a second and analysis of the second analysis of the second and analysis of the second ana	steele) ministration	io(a) Scon	ALGUNA VEZ un matice u otroja profesional de la adua de ha dicio a suba de vez devis (nincio) adace aduada de la dicio a suba de vez devis (nincio) adace aduada de la dicio aduada de d	ALGUNA VEZ un médico u otroja profesional de la calcula fait de la de la duca state que estaja innicaja parte de la duca duca state que estaja innicaja parte de la duca duca state que estaja innicaja parte de la duca duca duca state que estaja innicaja parte de la duca duca duca duca duca duca duca duc
ISCH-S-T2			3	NSCH-S-T2 4

Attachment B: 2018 NSCH draft paper questionnaires - Spanish version









Attachment B: 2018 NSCH draft paper questionnaires - Spanish version













Module T3 (for children 12-17 years old; Spanish)











	26138149		26138131
20 DURANTE LOS ÚLTIMOS 12 MESES, ¿cuántas veces fue este(a) niño(a) a la sala de emergencias de un hospital?	Si la respuesta es si, ¿qué edad tenía este(a) niño(a) cuando comenzó a recibir estos servicios especiales?	Responda las siguientes preguntas sólo si este(a) niño(a) tuvo una visita de atención médica EN LOS ULTIMOS 12 MESES. De lo contario vaya a la pregunta on an la négrina 13.	3 Si la respuesta es sí, DURANTE LOS ÚLTIMOS 12 MESES, ¿con qué frecuencia los médicos u otros proveedores de atención médica de este(a) niño(a)
Nunca	Años Y Meses	DURANTE LOS ÚLTIMOS 12 MESES, ¿con qué frecuencia los médicos u otros proveedores de	Casi Siempre Siempre A veces Nunca
2 o más veces	2 ¿Recibe este(a) niño(a) ACTUALMENTE estos servicios especiales?	atención médica de este(a) niño(a) hicieron lo siguiente Casi	de opciones a considerar para la
DURANTE LOS ÚLTIMOS 12 MESES, ¿fue este(a)	🗆 Si	a. ¿Estuvieron fiempo a veces Nunca suficiente con	atención médica o el tratamiento de este(a) niño(a)?
por lo menos una noche?	□ No	este(a) nino(a)? b. ¿Lo(a) escucharon a usted con	b. ¿Le dieron lugar para expresar sus dudas o desacuerdo
No No	D. Experiencia con los proveedores de atención	atención? c. ¿Mostraron	con las recomendaciones sobre la atención
Recibió este(a) niño(a) ALGUNA VEZ un plan de educación especial o de intervención temprana?	médica de este(a) niño(a)	sensolidad por sus valores y costumbres familiares?	médica de este(a) niño(a)?
Los(as) ninos(as) que reciben estos servicios a menudo cuentan con un Plan de Servicio Familiar Individualizado (IFSP) o Plan de Educación Individualizado (IEP).	 ¿Tiene usted a una o más personas a quienes considera como médico o enfermera(o) de cabecera de este(a) niño(a)? Un médico o enfermo(a) es un profesional 	d. ¿Le brindaron la III III III	usted para decidir cuáles serían las mejores opciones
	de la salud quien conoce bien al (a la) niño(a) y está familiarizado con la historia de salud de este(a) niño(a). Puede ser un médico de medicina general, un pediatra,	espectica que necesitaba con relación a este(a)	para este(a) niño(a) en lo que se refiere a cuidado de salud
NO 9 PASE a la pregunta	un medico especialista, un(a) entermero(a) practicante o asociado médico.	•. ¿Lo(a) hicieron sentir como un(a)	y opciones de tratamiento?
Si la respuesta es sí, ¿qué edad tenía este(a) niño(a) cuando se estableció el PRIMER plan?	 Si, a una persona Si, a más de una persona 	participante en la atención y cuidado de este(a) niño(a)?	DURANTE LOS ULTIMOS 12 MESES, ¿le ayudó alguien a organizar o coordinar el cuidado de este(a) niño(a) entre los diferentes médicos y servicios que asteria utêr(a) utêlera?
Años Y Meses	No	DURANTE LOS ÚLTIMOS 12 MESES, ¿necesitó tomar	
¿Recibe este(a) niño(a) ACTUALMENTE servicios bajo alguno de estos planes?	DURANTE LOS ÚLTIMOS 12 MESES, ¿necesitó este(a) niño(a) un referido para ver a algún médico o recibir algún servicio?	niño(a), tal como obtener medicamentos recetados, referidos o algún otro procedimiento médico?	No No vio a más de un proveedor de atención
Si Si	si	□ Si □ No → PASE a la pregunta 🖸	médica en los ÚLTIMOS 12 MESES
Recibió este(a) niño(a) ALGUNA VEZ servicios	 □ No → PASE a la pregunta os en la página 12 O3 ¿Qué tan difícil le resultó a usted obtener referidos? 		3) DURANTE LOS ULTIMOS 12 MESES, ¿sintió que podría haber usado ayuda adicional para hacer arreglos o coordinar la atención médica de este(a) niño(a) entre los diferentes proveedores o servicios de stención módica?
especiales para cumplir con sus necesidades del desarrollo, tales como terapia del había, ocupacional o de la conducta?	No fue difficil		
Si Si	Muy dificit		□ No → PASE a la pregunta no en la página 13
□ No → PASE a la pregunta 😈	No fue posible obtener referidos		Si la respuesta es si, DURANTE LOS ÚLTIMOS 12 MESES, ¿con qué frecuencia obtuvo la ayuda que deseaba para hacer arreglos o coordinar la atención
			Casi siempre
			A veces
			L Nunca
NSCH-S-T3		NSCH-S-T3	2



F. Proveyendo para el cuidado de salud de este(a)	EN UNA SEMANA PROMEDIO, ¿cuántas horas dedica usted u otros miembros de la familia a la atención médica de este(a) niño(a) en su hogar? El cuidado puede incluir cambiar vendejes o dar medicamentos y terapias	DESDE QUE COMENZO KINDERGARTEN, ¿alguna vez ha repetido este(a) niño(a) algún grado? Si	H. Acerca de usted y este(a) niño(a)
milo(d)	cuando sea necesano.	C No.	¿Nació este(a) niño(a) en los Estados Unidos?
Incluyendo co-pagos y cantidades reembolsables de las Cuentas de Aborros de Salud (HAS) y Cuentas de	hogar cada semana		Si → PASE a la pregunta H3
Gastos Flexibles (FSA), ¿cuánto dinero pagó por los cuidados médicos, de salud, dentales y de visión de este(a) niño(a) DURANTE LOS ÚLTIMOS 12 MESES?	Menos de 1 hora por semana	DURANTE LOS ÚLTIMOS 12 MESES, ¿con qué frocuencia asistió usted a eventos o actividades en las que este(a) niño(a) participaba?	□ No
No incluya las primas o los costos del seguro que fueron o serán reembolsados por el seguro u otra fuente.	De 1 a 4 noras por semana	Siempre C	Si la respuesta es no, ¿cuánto tiempo ha vivido este(a) niño(a) en los Estados Unidos?
\$0 (Sin gastos médicos o gastos	De 5 a 10 horas por semana		
relacionados con la salud) → PASE a la pregunta [3]	11 horas o más por semana		Años Y Meses
De \$1 a \$249	EN UNA SEMANA PROMEDIO, ¿cuántas horas dedica	L A veces	Cuántas voros so ha mudado osto(a) niño(a) a una
De \$250 a \$499	o coordinando la atención médica o de la salud de este(a) niño(a), tal como programar citas o localizar	En raras ocasiones	dirección nueva desde que nació?
De \$500 a \$999	servicios?	Li Nunca	Cantidad de veces
De \$1,000 a \$5,000	coordinada cada semana	G5 DURANTE LOS ÚLTIMOS 12 MESES, ¿participó este(a) piño(a) en	Con qué fraguancia acta(a) niño(a) so ur - dormio
Más de \$5,000	Menos de 1 hora por semana	Si No	aproximadamente a la misma hora durante las noches
¿Con qué frecuencia son razonables estos costos?	De 1 a 4 horas por semana	a. ¿Un equipo deportivo o clases de la escuela o los fines de semana?	entre semana?
Siempre	De 5 a 10 horas por semana	b. ¿Clubes u organizaciones después	Casi siempre
Casi siempre	11 horas o más por semana	c. ¿Alguna otra actividad organizada o	A veces
A veces	G La educación y las	idioma u otras artes?	En raras ocasiones
Nunca	actividades de este(a) niño(a)	 d. ¿Algún tipo de servicio comunitario o trabajo voluntario en la escuela, lucar de culto o comunidad? 	Nunca
DURANTE LOS ULTIMOS 12 MESES, ¿tuvo su familia problemas para pagar las facturas médicas o de atención médica de este(a) niño(a)? Sí	DURANTE LOS ULTIMOS 12 MESES, ¿aproximadamente cuántos días se ausentó de la escuela esta(a) niño(a) por una enfermedad o lesión? Si alija) niño(a) recibe eduzación formal an el hogar, incluya los días en los que el/díals se ausentó.	CAguna actividad con paga, incluyendo trabajos usuales como cuidando niñosals, contando el césped u otro trabajo ocasional?	DURANTE LA SEMANA PASADA, ¿cuántas horas durmió este(a) niño(a) la mayoría de las noches entre semana?
No No	No se ausentó ningún día	G DURANTE LA SEMANA PASADA, ¿cuántos dias hizo	
DUDANTE LOS ÚLTIMOS 42 MESES Justad II atra	De 1 a 3 días	este(a) hino(a) ejercicio, practico un deporte o participo en actividades físicas durante al menos 60 minutos?	
miembro de la familia Si No	De 4 a 6 días	0 dias	7 horas
a. ¿Dejó el trabajo o se ausentó unos	De 7 a 10 días	De 1 a 3 días	8 horas
cuantos días debido a la salud o condición(es) médica(s) de este(a)	11 dias o más	De 4 a 6 dias	9 horas
niño(a)?	Ento(a) piño(a) po ortaba inercita(a) on la operado	Todas las dias	10 horas
que trabaja debido a la salud o		Li rodos los días	11 horas o más
niño(a)? c. ¿Evitó cambiar de trabajo para	se comunicó la escuela de este(a) niño(a) con usted u otro adulto de su casa por algún problema del (de la)	En comparación con otros(as) niños(as) de la misma edad, ¿qué dificultad tiene este(a) niño(a) para hacer o mantener amistados:	
mantener el seguro de salud para	nino(a) en la escuela?	Niceura differented	
	LI Nunca		
	1 vez	Un poco de dificultad	
	2 veces o más	Mucha dificultad	



			261380	99				26138057
¿En su vecindario hay	Si	No	Además de usted o los demás adultos hay al menos otro adulto en la escuel	en su hog a, vecinda	ar, rio	J. Cuidador(es) de este(a)	ی و د	Cuál es el grado o nivel escolar más alto que usted ha mpletado? Marque (X) sólo UNA opción.
a. ¿Aceras o paseos peatonales?			al (a la) niño(a) y en quien el (la) niño(a) depender para recibir conseio u orienta	nozca bien a) pueda ación?	'	nino(a)	0	Grado 8 o menos
b. ¿Un parque o área de juegos?						Complete las siguientes preguntas hasta un máximo de dos adultos por hogar para cada uno de los		Grado 9 al 12; sin diploma
¿Un centro de recreación, centro comunitario o club "boys and girls"?						cuidadores primarios de este(a) nino(a). Si solo un adulto es el cuidador primario, conteste las preguntas	0	Completé secundaria o GED
 d. ¿Una biblioteca o biblioteca 	Π					2 Qué parentesco tiene con este(a) niño(a)?	0	Completé un programa de escuela vocacional, comercial o de negocios
e. ¿Basura o desperdicios en las	п		Las siguientes preguntas son sobre ev pueden haber ocurrido durante la vida	entos que del (de la)		Padre o madre biológica o adoptiva	0	Algunos créditos universitarios, pero sin título
f. ¿Hogares deteriorados o mal	-	-	niño(a). Estos pueden suceder en cual pero algunas personas quizás se sient con estas proguntas. Listed puede omi	quier famil an incómo	ia, das	Padrastro o madrastra	C	Título asociado universitario (AA, AS)
conservados? a. ¿Vandalismo, como ventanas		-	pregunta que no desee responder.			Abuelo(a)	0	Título de licenciatura universitaria (BA, BS, AB)
rotas o grafitis?	ц	<u> </u>	A su entender, ¿este(a) niño(a) experin VEZ algunas de las siguientes situacio	tentó ALG nes?	UNA	Padre o madre de crianza a través del programa	0	Titulo de maestría (MA, MS, MSW, MBA)
¿En qué medida está de acuerdo con	estas afirm	naciones	a. Los padres o tutores se	Si	No	Otro(a): Barianto	C	Titulo de doctorado (PhD, EdD) o titulo profesional (MD, DDS, DVM, JD)
Definitivamente Algo de	Algo en De	elinitivamente	divorciaron o separaron			Circ(a): No pariente		
a. La gente de	desacuerdo en	1 desacuerdo	b. Los padres o tutores murieron			U Otro(a): No panente	D 20	Cuál es su estado civil?
este vecindario	-	-	c. Los padres o tutores estuvieron en la cárcel			🕐 ¿Cuál es su sexo?		Casado(a)
mutuamente b En osto			d. Vio u oyó a sus padres o adultos abofetearse nolpearse natearse			Masculino		No casado(a), pero vivo con una pareja
vecindario			o pegarse en el hogar			E Fernenino		Nunca me he casado
mutuamente de nuestros(as)			 Fue victima o testigo de violencia en su vecindario 					Divorciado(a)
hijos(as)			 Vivió con alguna persona que tenía una enfermedad mental. 			43 ¿Qué edad tiene?		Separado(a)
c. Este(a) nino(a) está seguro(a)			estaba suicida o tenía depresión grave o severa			Edad en años		Viudo(a)
vecindario			g. Vivió con alguna persona con problemas de alcohol o drogas			A Donde pació?	8) EI	n general, ¿cómo está su salud física?
enfrentamos			 Fue tratado(a) o juzgado(a) injustamente por su raza o 			□ En los Estados Unidos → PASE a la progunta 🜑	T c	Excelente
sabemos a donde acudir			grupo étnico			Elevera de los Estados Unidos	C	Muy buena
para buscar avuda en							0	Buena
nuestra comunidad						د Cuándo vino a vivir a los Estados Unidos?	C	Regular
e. Este(a) niño(a)						Año	C	Deficiente
en la escuela								
ISCH-S-T3						NSCH-S-T3		





Satisfaction Results



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing. One participant did not answer the question.



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing



Source: 2018 NSCH usability testing







Source: 2018 NSCH usability testing







Source: 2018 NSCH usability testing





Source: 2018 NSCH usability testing. Six participants selected not applicable.



Source: 2018 NSCH usability testing