

# When Do “Do it Yourself-ers” Really Do It Themselves? Using Paradata to Explore the Preference for Self- completion Modes in a Multi-mode Survey

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## Abstract

The NSLTCP includes a mixed mode (mail, web, telephone) survey of approximately 17,000 residential care facilities and adult day services centers in the U.S. The survey is planned to be conducted biennially, and its analytic goal is to collect information from these providers which is unavailable from other sources. We hypothesized that, of the modes available to complete the survey, respondents would prefer self-completion modes (mail, web) over telephone. In this analysis we used paradata from the call record (e.g., action taken, outcome after action, final outcome) to gain empirical evidence to test our hypothesis. As other projects have done, we will use the results of this analysis to optimize our data collection strategy for future years of the survey (Kreuter et.al., 2010). We first examined mode completion choices and assessed whether they varied by provider size or type (adult day versus residential care). We then focused on the effectiveness of protocols that telephone interviewers followed that were intended to bring two groups of respondents to completion: 1) respondents who started by web but broke off (“web breakoffs”), and 2) cases that did not start but when contacted by telephone interviewers stated their intention to self-complete by web or paper (“Do-it Yourself-ers.”)

**Key Words:** paradata, mixed mode, establishment surveys, response rate

## 1. Introduction

The National Center for Health Statistics (NCHS) launched the National Study of Long-Term Care Providers (NSLTCP) in 2012, which is a new strategy for obtaining and providing statistical information about paid, regulated long-term care providers in the United States. NSLTCP replaces NCHS’ previously conducted long-term care provider surveys that include the National Nursing Home Survey, the National Home and Hospice Care Survey, and most recently, the National Survey of Residential Care Facilities (NSRCF).

The NSLTCP is designed to (1) broaden NCHS’ coverage of paid, regulated long-term care providers by including nursing homes, assisted living and similar residential care communities, home health care agencies, hospices, and adult day services centers; (2) use existing administrative data on long-term care providers and users where available (i.e., nursing homes, home health agencies, and hospices); and (3) collect primary data from cross-sectional, nationally representative surveys of long-term care providers for which administrative data do not exist (i.e., residential care communities and adult day services

centers). The NSLTCP surveys will be fielded every 2 years to help monitor the diverse long-term care field and inform long-term care planning and policy making.

NCHS contracted with RTI International to field the first NSLTCP survey in 2012. NSLTCP uses a mixed-mode survey protocol, following the common practice of offering mixed modes on establishment surveys because doing so may create goodwill and raise response rates, (de Leeuw, 2005, Nicholls et.al, 2000). It began, with mailouts which included a hard-copy questionnaire and also provided information to log in to the website to complete the online questionnaire. After about 10 weeks of non-response follow-up through the mail, telephone interviewers contacted nonrespondents to complete the questionnaire over the telephone.

## 2. Research Questions

### 2.1 Background

Like most surveys, the NSLTCP began with some expectations about the study population. NCHS anticipated that the study population would prefer self-completion modes over interviewer-administered modes. This expectation was grounded, firstly, in the response process model for establishment surveys. This model recognizes that, within an establishment, the organizational culture and structure, and the way in which it stores information, influence the establishment's motivation to respond to the survey request (Sudman, 2000, Willimack 2007, Willimack 2010). The model also recognizes that although the establishment is the unit of response, in actuality a person within the establishment is the respondent (Tuttle, 2008). In the view of the authors of this paper, a self-completion mode gives the respondent a few tools that help them proceed along in the response process. With a hardcopy questionnaire, a respondent can review the questionnaire to examine its subject matter and identify the most appropriate people who possess the requested information; send the questionnaire to others in the organization to obtain approval; forward it to subject matter experts within the organization to answer particular questions or sections in that area; and, use it as a document to cohesively assemble all answers gathered from others before submitting. Furthermore, the respondent can perform these tasks over the course of days or weeks, allowing time for back-and-forth communications, and very importantly, the flexibility to fit these tasks into their busy work schedules.

The expectation about the preference for self-completion modes was informed, secondly, by observations from NCHS' national in-person survey of residential care facilities (the NSRCF) conducted 2 years earlier. Just like the NSLTCP, the respondent in the NSRCF was the director or administrator of the facility, and the NSRCF highlighted the paramount importance of time and schedule flexibility. The NSRCF found that among all the facilities which would not participate in the interview, 60% cited "lack of time" as their reason for not participating. That survey also experienced: frequent (and often, repeated) rescheduled appointments, cancelled appointments, and breakoffs because the facilities needed to attend to emerging facility or residents' needs; and, frequent requests from directors for a hard-copy version of the questionnaire they could complete instead of doing the face-to-face interview appointment. When fielding the NSRCF, other clues emerged suggesting that respondents would have been more flexible and agreeable if a different survey mode had been available. Prior to the NSRCF appointment, a self-administered worksheet was sent to all respondents to allow them to look up key figures across a variety of facility information areas (e.g., costs, staffing levels, resident functioning and disabilities) in advance of the interview. The instructions on the

worksheet described it as optional, but explained that it would make the in-person interview proceed more rapidly. Three-quarters (74%) of respondents completed this pre-interview worksheet, suggesting that (1) they were motivated to reduce the in-person interview time; (2) they could find time in their busy schedules to complete a do-it-yourself worksheet, possibly by working on it a few questions at a time, over lunch, or when they had downtime; and (3) they may have used it to obtain information from subject matter experts within their organization.

Apart from respondents' preferences, self-administered modes are more cost-effective than interviewer-administered modes. Therefore, when planning the NSLTCP, which would involve a large sample of nearly 17,000 providers, obtaining a high percentage of completes through self-administered modes was an important cost containment strategy. It was also hoped that these modes would promote participation because they present respondents with tools for helping them progress through the steps of the response process model and ways of completing the survey that were less intrusive on their busy schedules.

## **2.2 Three Research Questions**

With respect to self-completion mode preferences, three Research Questions were designated. These were important both for understanding if the preference was, in fact, present, and whether project protocols could encourage self-completion even among respondents who did not initially use these modes.

### *2.2.1 Research Question 1: What were the mode completion preferences of NSLTCP respondents?*

Based on the understanding that the authors of this paper have of the response process model and the NSRCF experience, it was hypothesized that providers who participated in the study would prefer the self-administered option (i.e. hard-copy or web survey) over the telephone interview. To answer this question, the results at the end of the survey were examined to see whether the hypothesis about respondents was accurate. This examination also looked at how these preferences varied by provider type (residential care communities vs. adult day services centers), and by provider size (measured in number of people served).

### *2.2.2 Research Question 2: Were NSLTCP's prompting protocols effective in getting web breakoffs to resume and complete their web instrument?*

As mentioned above, after approximately 10 weeks of non-response follow up through the mail, interviewers attempted to reach the directors who had not completed the survey by either mail or web, and asked them to participate in a computer-assisted telephone interview (CATI). The reasoning behind this approach is that a director who has not completed the survey by mail or web after several reminders over a period of time needs the push and persistence from a live interviewer; otherwise, the director will never complete the survey on his or her own. However, given the expectation that NSLTCP respondents would eschew live interviewing and favor self-administered modes, NCHS thought it would be useful to embrace this expected preference, in specific situations, by using the telephone protocols to encourage self-administration. It was felt that respondents who started but broke off the web survey were ideal candidates to encourage finishing the survey in this mode; these respondents had already demonstrated their initial preference to complete the survey by web and had already invested time in completing some questions.

Instead of the CATI interviewers trying to complete the survey by telephone among these cases that had started the survey by web but had not completed it, the protocol was that CATI interviewers prompted these cases to return to their web survey and complete it. The prompts stated that NCHS appreciated their responses but would like to remind them to return to the web questionnaire to complete the answers so that they would be included in the dataset. A respondent was considered prompted if the CATI interviewer spoke to the respondent directly or left a message on the respondent's voicemail. If the respondent needed the URL and their credentials to log back into the web survey, the CATI interviewer provided that information, as well as the project's toll-free number to call if they had any questions. A few weeks after the telephone prompt to these cases, a letter was sent to these respondents asking them to complete the unfinished web survey.

The second Research Question looked at the effectiveness of these prompting protocols for web breakoffs. The percentage of the prompted respondents who ultimately completed the survey by web, by other modes, or did not complete, was examined.

### *2.2.3 Research Question 3: Were NSLTCP's telephone-based protocols effective in getting people who expressed a desire to self-complete to complete by either hard-copy or web?*

When CATI interviewers called residential care communities and adult day services centers that had not completed or started the surveys and asked to speak with the director, NCHS expected that a number of the directors would express their preference to self-complete by web or paper, eschewing the thought of remaining on the phone with an interviewer for the estimated 30 minutes. Since these people were not giving an outright "no", the NSLTCP team did not want to risk their support by pushing them too hard for a CATI interview that might be too overwhelming for their schedules. Nevertheless, NCHS wanted to develop a protocol to encourage their response while embracing their desire to self-complete. In the protocol, if the director said they intended to complete by web, the director was emailed the URL and log in and password credentials to log into the survey. If the director said they intended to complete by hard-copy and they said they needed another copy of it, the hard-copy and postage-paid reply envelope was re-mailed to the director. It was expected that this would be viewed by respondents as polite and respectful and would promote a response. Among the directors who, when contacted to complete by CATI, said they wanted to complete by web or paper, the analysis looked at the percentage who ultimately completed the survey by these modes.

## **3. Measures and Methods of Analysis**

Paradata are "automatic data collected about the survey data collection process captured during computer-assisted data collection, and include call records, interviewer observations, time stamps, keystroke data, travel and expense information, and other data captured during the process." (Kreuter, Couper, & Lyberg, 2010). On NSLTCP, the type of paradata analyzed is called "event records." Event records are similar to call records in that every time an interviewer makes an outgoing call the event records the date, time, and details of the call as well as the outcome immediately after the call. However, the event records on NSLTCP—and perhaps on mixed mode surveys more broadly—capture the full array of potential events for each case across all modes, such as the mailout of hard-copy questionnaires; the return of a hard-copy; the opening, starting, breaking off, or completing of a web questionnaire; the e-mailing of information to a respondent, or the receipt of an incoming call from a respondent to the project's information line. Kreuter et al. categorize the use of paradata into three types: post-survey use, process control, and

monitoring and managing ongoing surveys. During data collection on NSLTCP paradata was used for process control purposes by monitoring outcome rates and the frequency of certain event codes. Spikes or trends in either the rates or the frequency of certain events would have alerted the NSLTCP project team to possible quality problems in the survey. For the Research Questions, however, paradata was used for post- survey use.

For Research Question 1—the hypothesis about mode choices—at the end of the survey the mode of completion among the completed and partially completed cases was observed

For Research Questions 2 and 3 paradata was used to isolate cases with a particular chain of events. In the case of Research Question 2, web breakoffs were isolated. Then, the completion rate among web breakoffs where the prompting protocol was implemented was compared to the completion rate among web breakoffs where it was not implemented due to being unable to speak with the director or leave a message. In the case of Research Question 3, the cases that CATI interviewers called because they had been nonresponsive to the web and hardcopy survey requests were isolated. Then the completion rates of CATI cases which stated their intention to self-complete and to whom survey information was subsequently sent were compared to the balance of the cases that CATI interviewers called. Note that the NSLTCP team did not randomly assign cases to a protocol, but applied a given protocol (either prompting in the case of Research Question 2, or sending the survey information in the case of Research Question 3) where the events of the case dictated it, as described under *Research Question 2* and *Research Question 3*, above. Because there was no random assignment, this research examination did not use statistical testing; it simply compared completion rates.

## 4. Findings

### 4.1 Research Question 1

It was hypothesized that providers who participated in the study would prefer the self-administered option (i.e., hard-copy or web survey) over the phone interview. To assess whether this assumption was accurate, data for all responders were examined: those who completed the survey, whether eligible or not, as well as those who returned either a partially completed or fully completed survey. The NSLTCP sample consisted of 11,690 residential care communities and 5,254 adult day services centers, for a total sample of 16,944 providers. Table 1 presents the number of completes as well as the percentage completed by mode. As the table shows, of the 16,944 cases fielded, 10,088 providers completed surveys, and a majority of these respondents (79.9%) completed the survey using a self-administered mode. Specifically, more than half of the questionnaires (53.0%) were completed by hard-copy (mail) and more than a quarter (26.9%) were completed by web. Only a fifth (20.1%) of respondents completed the survey via CATI.

<b>Mode</b>	<b>Total Number of Completes</b>	<b>Percentage of Total Completes</b>
Web	2,710	26.9%
Mail	5,349	53.0%
CATI	2,029	20.0%
Total	10,088	100%

The NSLTCP team also sought to explore whether the mode preference varied by provider type. Although directors of both types of establishments are busy people, operating businesses that provide long-term care services to elderly and disabled individuals, they may have different survey-taking behaviors.

Table 2 presents the number and percent of completes by mode for each provider type. As with the overall findings, data show that the self-administered options are the preferred mode for completion for both provider types. About 86.8% of the adult day services centers used a self-administered mode to complete the survey compared with just over three-quarters (76.3%) of the residential care communities. Comparatively a greater proportion of the adult day services centers (32.5%) than residential care communities (24.2%) completed by web while a comparable percentage completed by hard-copy (54.3% among adult day services centers and 52.4% among residential care communities). Almost twice as many residential care communities as adult day services centers completed the interview by phone (23.4% compared with 13.1%). However, it should be noted that near the end of data collection there was a push to complete CATI interviews with residential care communities because the response rate for this group was lower than for the adult day services centers. Specifically 522 residential care community completes were obtained in this CATI push compared to 158 adult day services center completes. This differential in effort may have impacted the overall results for completes by CATI.

The lower portion of Table 2 presents the results by size for the residential care community providers. The sampling frame for the residential care communities had a variable indicating the number of licensed beds and this allowed the project to categorize the cases into four size strata: small (4 to 10 beds), medium (11 to 25 beds), large (26 to 100 beds) and very large (more than 100 beds). The sampling frame for the adult day services centers did not have a variable about license capacity. The examination of mode choice by provider size looks only at the providers which are residential care communities. The preference for all sized residential care communities was mail, but the small residential care communities seemed to prefer mail at a higher rate than the residential care communities of any other size. The choice of mail begins to decrease as the size increases, but a higher proportion of providers in the larger facilities still chose mail over web or CATI. The least-used mode for small residential care communities is web, possibly because they do not have internet access. Less than a fifth (16.6%) of the small residential care communities chose the web mode, while more than half (59.3%) preferred hard-copy mode. Examining the mode choice within the medium strata, the results show that similar proportions of the medium residential care communities completed by web (23.8%) and telephone (23.5%), but more than half (52.8%) completed the survey using the hard-copy questionnaire. The large and very large facilities still

preferred mail to the other modes, but the preference was not as pronounced. Respondents in very large residential care communities were almost twice as likely as respondents in small residential care communities to complete by web (31.7% versus 16.6%).

**Table 2.** Completes by Mode for Provider Type and Provider Size  
(Numbers do not total 100% due to rounding)

	<b>Web Percentage of Total Completes</b>	<b>Mail Percentage of Total Completes</b>	<b>CATI Percentage of Total Completes</b>
<b><i>Provider Type</i></b>			
Adult Day Services Center (ADSC), n = 3,212	32.5%	54.3%	13.1%
Residential Care Community (RCC), n = 6,876	24.2%	52.4%	23.4%
<b><i>Provider Size (Residential Care Communities Only)</i></b>			
Small (1 – 10 beds), n = 2,260	16.6%	59.3%	24.1%
Medium (11 – 25 beds) n = 1,629	23.8%	52.8%	23.5%
Large (26 – 100 beds) n = 2,419	29.9%	47.7%	22.5%
Very Large (above 100 beds) n = 568	31.7%	44.4%	23.9%

These results support the hypothesis that providers who participated in the study favored a self-administered mode. However, the results are not surprising. The reality of a mixed mode survey is that the starting modes of mail and web target the cooperative cases while CATI strives after the least cooperative cases which did not complete earlier. Showing a majority of completes through mail and web is to be expected and emerges largely from the design of the survey. Although the results are not surprising, they are still useful for planning purposes and to see the magnitude of the preference for these modes.

Research Questions 2 and 3 examined NSLTCP's attempts to make use of the self-completion preference as part of the protocol to encourage nonresponders to participate.

#### **4.2 Research Question 2**

NSLTCP attempted to prompt web responders who had only partially completed their web questionnaire to return to their web questionnaire and complete it. Paradata showed that there were 122 adult day services centers and 176 residential care communities that fell into this group. Interviewers were able to telephone prompt 104 of the adult day services centers (85%) and 162 of the residential care communities (92%). There were 32 breakoff cases that interviewers were unable to reach for prompting. Two weeks after this telephone prompt, prompting letters were sent to all the cases who had received the telephone prompt but had not finished the web survey. Prompting did not result in a large portion of these respondents finalizing their web questionnaire. Paradata showed that among these respondents that were prompted, only 26 (25.0%) adult day services centers and 30 (18.5%) residential care communities went on to complete their web questionnaire

after being prompted over the telephone. A small number of these telephone-prompted respondents opted to submit a mail questionnaire instead. Once they received the prompting letter, an additional 14 (13.5%) adult day services center respondents cases and 17 (10.5%) residential care community respondents completed their web questionnaires. None of the respondents receiving the prompting letter opted to submit a mail questionnaire. In total, about 35.0% of the prompted cases (that is, 93 out of 266) submitted completed web or mail questionnaires.

	<b>Adult day services centers</b>		<b>Residential care communities</b>	
	<b>Number of Cases</b>	<b>% of Cases Prompted</b>	<b>Number of Cases</b>	<b>% of Cases Prompted</b>
Cases successfully prompted over the phone	104		162	
Cases completed web after being prompted over the phone	26	25.0%	30	18.5%
Cases completed mail after being prompted over the phone	2	1.9%	4	2.5%
Cases completed web after receiving prompting letter	14	13.5%	17	10.5%
Cases completed by mail after receiving prompting letter	0	0.0%	0	0.0%
Total cases that completed after being prompted	42	40.4%	51	31.5%

Returning to the Research Question, “*Were NSLTCP’s prompting protocols effective in getting web breakoffs to resume and complete their web instrument,*” there were 32 breakoff cases which should have prompted but was unable to be prompted and consequently did not receive the prompting letter. These cases were compared with cases that were successfully prompted, to assess whether the protocol of prompting was associated with a higher response rate. Among the 32 cases which broke off the web survey but were not prompted, 17, or 53.1%, ultimately completed the questionnaire. This is higher than the 35.0% who completed after the prompting protocol, suggesting that the prompting protocol was not effective.

### **4.3 Research Question 3**

NSLTCP developed a protocol to be applied during the CATI stage as interviewers were calling nonrespondents who had not begun the survey (as opposed to respondents who needed prompting to complete a survey already in process). As explained earlier, if the respondent indicated they already had the hard-copy questionnaire or web questionnaire log in credentials and stated their intention to self-complete by either of these modes instead of CATI, the CATI interviewers accepted that and gave the respondent the project’s toll-free number to call in case they had any questions. They also informed the respondent that they would be called back in two weeks if their survey had not been received by then. If the respondent indicated they would like to self-complete the web



questionnaire but did not have the log in credentials, the interviewer provided the URL and credentials to the web questionnaire. This was provided either by phone or by email using appropriate security protocol. If the respondent indicated they would like to receive a hardcopy questionnaire, interviewers collected the address where the respondent indicated they would like to receive it, and within 3 business days the questionnaire packet was mailed via FedEx.

Table 4 shows the number of adult day services centers and residential care communities for which, during a telephone call attempt to complete the survey by CATI, the respondent ever requested the URL and credentials for the web survey or the hard-copy questionnaire mailing. A total of 509 adult day services centers and 923 residential care communities requested the web survey information. Out of these, 32.6% of the adult day services centers and 25.2% of the residential care communities requesting this information completed a self-administered web questionnaire. For hard-copy questionnaire mailing requests, a total of 102 adult day services centers and 261 residential care communities requested the hard-copy questionnaire. Out of these, 28.4% of the ADSCs and 25.3% of the residential care communities completed a self-administered hard-copy questionnaire.

	ADSCs		Residential care communities	
	Number of Cases	% of Cases	Number of Cases	% of Cases
Cases that ever requested URL/User ID/Password for web questionnaire	509		923	
Cases that completed web questionnaire	166	32.6%	233	25.2%
Cases that ever requested hard-copy questionnaire	102		261	
Cases that completed hard-copy questionnaire	29	28.4%	66	25.3%

Returning to the Research Question, “*Were NSLTCP’s telephone-based protocols effective in getting people who expressed a desire to self-complete to complete?*” taking both adult day services centers and residential care communities together, 27.5% of the cases receiving these protocols completed a self-administered questionnaire after they were sent the URL and password log in or the hard-copy. To assess whether this was effective, this was compared to the wider group of cases which also proceeded to the CATI stage yet were not sent this information because they did not express a desire to self-complete. The 27.5% completion rate was slightly higher than the wider CATI completion rate of 26%. Another measure of the effectiveness of this protocol is that it resulted in 494 more completions (195 adult day services centers and 299 residential care facilities) than might otherwise have been obtained if these directors simply refused to complete by CATI and the NSLTCP team did not encourage their expressed preference

to complete by web or hard-copy. Furthermore, they were self-completed in a less expensive mode than CATI.

## 5. Limitations

Although this examination concluded that NSLTCP respondents favored self-administered modes, this finding represents the behavior of a specific type of establishment, i.e., residential care communities and adult day services centers, and may not be readily applicable to other types of establishments or health care providers. However, the behavior exhibited in mode choice may be similar to other types of establishments where the person who possesses the information to answer the survey is extremely busy with their day-to-day responsibilities, and the establishment does not have another acceptable respondent. In those situations, the respondent needs to use a mode that offers the greatest schedule flexibility and gives them tools for completing the steps in the response process model.

Regarding Research Question 1, another limitation is that the extra CATI effort with residential care communities makes it difficult to conclude whether the mode differences between the two provider types were real or related to this extra effort.

Regarding Research Questions 2 and 3, it would have been helpful to see how soon after the treatment the case completed, as well as characteristics of the cases where the treatment resulted in a complete versus a non-complete. This information could possibly help to target the protocol in the future to similar kinds of cases where it was more successful in the past.

Finally, the NCHS is aware of the potential for self-completion modes to negatively impact data quality, primarily because of the freedom respondents have to leave questions unanswered or enter inconsistent answers. This issue is being studied separately.

## 6. Summary and Conclusions

The examination of the data confirmed the preference for self-administered modes among residential care communities and adult day services centers (Research Question 1). When NSLTCP embraced this preference and used it to gain cooperation during the CATI phase by helping the respondent to self-complete in web or hard-copy rather than persuading them to complete over the telephone (Research Question 3), the protocol was not associated with gains in completion rate relative to the completion rate of similar cases where the protocol was not used. However, the protocol resulted in additional completed cases than might otherwise have occurred, and these completions were by less expensive modes (i.e., mail or web versus CATI). Regarding Research Question 2, prompting web breakoffs to complete by web appeared to worsen their completion rate compared to not prompting them.

## References

De Leeuw, E.D. (2005) To mix or not to mix data collection modes in surveys. *Journal of Official Statistics*, Vol. 21, No. 2. Pp. 233-255.

Kreuter, F., Couper, M., & Lyberg, L. (2010) The use of paradata to monitor and manage survey data collection. *Proceedings of the Joint Statistical Meetings, Section on Survey Research Methods*, Vancouver, British Columbia, Canada, July 2010, pp. 282-296.

Nicholls, W.L. II, Mesenbourg, T.L. Jr., Andrews, S.H. and De Leeuw, E. (2000). Use of New Data Collection Methods in Establishment Surveys. In J. Kovar et al., *Proceedings of the Second International Conference on Establishment Surveys*, American Statistical Association, Buffalo.

Sudman, S., Willimack, D., Nichols, E., & Mesenbourg, T. (2000, June). *Exploratory research at the U.S. Census Bureau on the survey response process in large companies*. Paper presented at Second International Conference on Establishment Surveys (ICES II), Buffalo, New York.

Tuttle, A.D. (2008) "Establishment Respondents as Survey Managers: Evaluating and Applying an Organizational Model of Survey Response." Poster presented at American Association of Public Opinion Research 63<sup>rd</sup> Annual Conference, New Orleans, Louisiana, USA.

Willimack D. K. (2007) "Considering the Establishment Survey Response Process in the Context of the Administrative Sciences." Paper presented at the Third International Conference on Establishment Surveys, Montreal, Quebec, Canada.

Willimack, D.K . Nichols, E. (2010) A Hybrid Response Process Model for Business Surveys *Journal of Official Statistics*, Vol. 26, No. 1, pp. 3–24