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**IMPROVING RESPONSE RATES: METHODS EMPLOYED TO PROMOTE
NATIONAL HOUSEHOLD TRAVEL SURVEY PARTICIPATION
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Abstract:

It is well documented that response rates for traditional household travel surveys using random digit dial (RDD) telephone survey methods have been declining for some years. The public has become wary of unfamiliar callers conducting surveys, polls or telemarketing and is generally less willing to devote their time for important official surveys. This is especially true for multi-stage, contact/re-contact travel surveys where each household must be contacted at least two or three times in order to complete the survey. In the case of the National Household Travel Survey (NHTS), each typical sample household telephone number was:

- Called first to screen that it was in scope (i.e., a residential phone number), with a household respondent interviewed to recruit the household and accept an assigned travel date on which each household member would record all travel,
- Called again as many times as necessary to conduct extended interviews with each eligible household member to obtain detailed travel information about trips made on the assigned travel day, long-distance travel in the past month, and other travel-related information.
- Called again as necessary to obtain a baseline odometer reading for each vehicle, and
- Called one more time to obtain a follow-up odometer reading.

Such procedures provide many opportunities for household, person and item non-response. It was clear from the earliest planning stages that special measures were needed to maximize the likelihood of response at the household and person levels for the NHTS. This paper identifies and describes a number of procedures that were identified in the survey literature or based on good survey practice and proposed for the NHTS. These included:

- Pre-survey mail out to address-listed households.
- Monetary incentives at the pre-survey mail out and extended interview levels.
- Testing area sampling and in-person interviews with non-telephone and non-responding households.
- Toll-free telephone number for inquiries, call-in survey interview appointments and odometer reading data retrieval.
- Internet response option for odometer reading data retrieval.
- Procedures to manage unusual events, including mail material to alleviate public fear of Anthrax mail terrorism.
- Extensive training of interviewers to ensure good respondent contact procedures and a high level of knowledge of the survey contents.
- Interview workflow management tools to ensure balance in completing screener and extended interviews.

The paper has relevance to future household travel surveys that use both telephone and other methods, regarding development and application of successful survey methods and materials.

1. Introduction

It is difficult to achieve high response rates for household travel surveys in the United States that use multi-stage contact/re-contact list-assisted Random Digit Dialing (RDD) methods for household recruitment and travel data retrieval. There are multiple opportunities for non-response including refusals, language problems and failures to contact by telephone at both the household recruitment (screener) interview and the travel data retrieval (extended) interview stages. The fact that there was only a six-day time window available to complete all of each household's extended interviews placed the survey at a great disadvantage compared to other surveys without such a time constraint. The 1995 Nationwide Personal Transportation Survey (NPTS) of 42,033 households obtained a useable household response rate of 37.2 percent. RDD travel surveys in urban regions struggle to obtain CASRO response rates of 40 percent at the screener level and 60 percent at the extended interview level, yielding overall response rates of 25-30 percent¹. Although RDD survey methods obtain higher response rates than other methods such as mail-out/mail-back questionnaires, low response rates raise questions about potential bias in the survey results. The challenge for the design and conduct of the 2001 National Household Travel Survey (NHTS) was to obtain the highest possible response rates within reasonable budgetary constraints. Westat's role in the NHTS was to conduct data collection for the national sample and the statewide New York and Wisconsin add-on samples. The NHTS achieved that objective, obtaining a 41.2 percent weighted (40.9 percent unweighted) overall completed household response rate for the nationally representative sample of 26,038 households. The overall weighted/unweighted response rates for the New York (11,887 add-on households) and Wisconsin (17,012 add-on households) samples were 33/37 percent and 51/51 percent, respectively). This paper highlights the NHTS design features and administration procedures that contributed to the comparatively high response rates that were achieved. The paper focuses on the survey questionnaire design, data collection procedures and results for the national sample and the New York and Wisconsin add-on samples, which were conducted by Westat.

2. Overview of Survey Components and Procedures

The 2001 NHTS incorporated and expanded upon the basic survey design established in previous implementations of the Nationwide Personal Travel Survey (NPTS). The NHTS included the following design components and procedures:

- RDD telephone sample
- Computer Assisted Telephone Interview (CATI) questionnaire
- Interviewing conducted over a 1 year field period
- Pre-survey letter and brochure with monetary incentive mailed out to address-matched households
- Screener interview conducted to recruit household, obtain demographics and home/mailing address. Conducted in English or Spanish.

¹ Response rate at the extended interview level is for completed households, defined as those for which at least 50% of eligible adults completed the entire extended interview. Overall household response rate is the product of screener and extended household response rates.

- Diary package mailed shortly after screener with letter, brochure, household locator map, odometer mileage form, travel date reminder card, and for each household member a personalized travel day diary and monetary incentive
- Reminder call placed to household day before travel date
- Extended interview calls for each household member begin day after travel date (about 10 days after screener), continue for a maximum of 6 days. Conducted in English or Spanish.
- First odometer reading attempted during extended interview or with up to 5 follow-up calls after extended interview call period expired
- Second odometer reading requested by mail-out about 2 months after date of first odometer reading. Response modes included postage paid return mail, toll free fax, toll-free call in, internet, and follow-up telephone interview for those who did not respond by other modes.
- Thank-You postcard to households that completed the survey

3. Pretest of Methods and Incentives

It is extremely important to pretest major surveys to help ensure that the quality of data and response will be at the highest feasible levels. Many possible designs were developed and tested during the survey's early planning stages to investigate their effects on levels of response and costs. A pretest was conducted during spring 2000 of eight designs representing combinations of several promising concepts. The concepts were:

- Sending a pre survey letter to address-matched households
- Combining or conducting separate surveys for daily travel and long distance travel information
- For a combined survey, the sequence of questionnaire sections containing daily and long distance questions
- Asking questions about long distance travel during a specified 28-day period prospectively (with a "travel period" diary) or retrospectively (from memory)
- Level of monetary incentives at the pre-survey and post-recruitment stages
- Inclusion of a household locator map to help identify long distance trips
- RDD sampling was compared to an address sample employing in-person follow-up of households with non-listed telephone numbers
- Standard or increased number of call attempts

An RDD sampling method was recommended for the main survey. Although the list sample yielded the highest response rates, its cost was prohibitive, and the RDD sampling method provided acceptable response rates. Additional recommendations for the main survey were to include a \$5 incentive with the initial contact letter, increase the number of phone calls, include a \$2 per person incentive with the diary mail-out, combine daily and long distance travel questions in a single survey, and collect long trip information retrospectively. Recommendations also included redesigning the questionnaire and person-level data collection materials to reduce confusion and adding CATI edit checks and prompts to ensure more complete data collection. The questionnaire was extensively redesigned prior to the main survey.

4. Questionnaire Design

The 2001 NHTS questionnaire represented a major restructuring of both the 1995 NPTS and 2000 pretest. Many of the new questionnaire features were implemented to reduce burden and improve response accuracy. Key improvements included establishing linkages while collecting person-, vehicle- and trip-level data and structuring questions to reduce burden. The most important improvements were:

- Screener Interview
 - Rostering household member's name, age, sex, relationship to screener respondent driver and worker status during the screener.
 - Rostering household vehicles using pick lists containing make, model and year of nearly every vehicle identifying principal driver.
 - Assignment of expected extended interview proxy for children
 - Edit checks for age, driver status, job status, home and mailing address details
- Extended Interview
 - Automated scheduling of each desired household person, proxy interviews for children and hard-to-reach adults
 - Rostering travel day trips, which quickly obtained a structured list of each trip's time, destination and purpose and improved reporting of details at a later stage of the questionnaire
 - Rostering long distance trips destination dates, and recurring long trip frequency
 - Establishing linkages to other household member's trips to improve recall of trips and details
 - Displaying trips previously reported by other household members that included the current subject
 - Streamlined questioning to reduce burden for frequently-repeated long distance trip data collection
 - Questions, probes and edit checks for details to improve data accuracy and completeness, including trip distances and times, names of other household members on trip, name of the driver, travel modes, details of home, workplace and trip end address to improve geocoding

5. Survey Mail-out Operations

Contact by mail was an integral component of the 2001 NHTS. The mailing materials were designed to set the stage for recruitment and travel data retrieval interviews by conveying the importance of the survey and providing needed materials to the respondents. Households received up to three mailings. These included a pre survey mailing, a diary mailing and a post data collection mailing to thank respondents who participated in the study. The sections that follow discuss the pre survey and diary mailings.

5.1 Pre survey Mail-out

The 2001 NHTS called for the mail-out of a pre survey mailing to households for whom a mailing address was available. The sections below discuss the process Westat implemented to obtain mailing addresses, the contents of the pre survey mailing, the incentives used, and how the mailing was operationalized.

5.1.1 Address Matching

Once the sample of telephone numbers was drawn, the numbers were sent to vendors that specialize in providing contact information for both listed and unlisted telephone numbers. Westat requested a name and address for each sampled telephone number. Multiple vendors were used as our experience has shown that vendors have different match rates depending on geography and other demographics such as income. For the national sample, Westat was able to obtain addresses for 86 percent of the sample that was finalized as residential. About 5 percent of the pre survey mailings were returned as “undelivered” by the post office. Therefore, approximately 81 percent of residential households received the advance letter.

5.1.2 Contents

The pre survey mailing for the national, New York, and Wisconsin samples each included a letter signed by the Secretary of Transportation, Norman Y. Mineta, a cash incentive, and a brochure introducing the survey. In addition to information on the survey, the letter and brochure provided the address of the survey’s web site and phone numbers the recipient could use to ask about the study. The letter was addressed to “resident” instead of using the name of the resident provided by our vendors. The contents were placed in an envelope that displaced the logo of the study and mailed via First Class US Mail.

5.1.3 Incentive

The pretest had indicated the positive influence of small monetary incentives. Pre survey cash incentives were used for all three samples. A five-dollar incentive was used for the national and New York add-on samples. The incentive for the Wisconsin add-on sample was two-dollars. A precise accounting system was established for tracking all cash transactions. Because of the volume of letters mailed, arrangements were made with our bank ahead of time to ensure that they had cash in the denominations we needed. Approximately \$450,000 in pre-survey cash incentives was mailed by Westat.

5.1.4 Timing

The mailing of the pre survey mailing was timed to reach the sampled household a few days prior to the first telephone call to the household. To accomplish this there was close coordination between the telephone research center (TRC) manager and mailing operations. The national, New York and Wisconsin full samples were each divided into smaller release groups. The TRC manager informed the mail operations when a release

group would be made active for interviewing by the TRC staff. The mail operations used this information to determine the date when households in each release group should be mailed.

5.2 Diary Package Mail-out

Each household that completed a household interview was sent a diary package mailing. The package was sent via Priority Mail soon after the household interview was completed. The mailing was timed to reach the household a few days prior to its assigned travel day. Approximately 77,400 households in the national, New York and Wisconsin samples were sent a diary package mailing. The sections that follow provide further detail on the content of the package, the incentives used and the proportion of packages that were in Spanish.

5.2.1 Contents

The contents of each household diary package included:

- A letter from the U.S. DOT thanking the household for completing the household interview and agreeing to record their travel,
- A brochure describing the survey,
- An envelope for each household member with:
 - a one-page, 2-sided, personalized travel day diary showing the name, age and sex of the household member, and
 - a two-dollar cash incentive,

The travel day diary for the add-ons was also one-page and 2-sided but was printed on legal size paper and allowed room to record the address information for each trip. The diary for the national sample was printed on letter paper (8.5 x 11).

- A reminder card showing the household's assigned travel day,
- A map demarcating places over 50 miles from the household, and
- An odometer mileage form for recording the 1st odometer readings for each of the household vehicles obtained during the household interview.

5.2.2 Incentive

Each household that was sent the diary package received a cash incentive. The incentive was two-dollars for each household member. This incentive along with the household member's travel day diary was included in a separate envelope within the Priority Mail envelope for the household. Approximately \$400,000 in cash incentives was mailed to recruited households.

5.2.3 Bi-Lingual Diary Materials

The 2001 NHTS was conducted in both English and Spanish at both the screener and extended interview levels. If the household respondent completed the household interview in Spanish, all subsequent interviews and correspondence with the household were in Spanish. Westat produced Spanish versions of the diary cover letter, brochure,

travel diary, reminder card, locator map demarcating a radius of 50 miles from the household's home, and odometer sheet.

As mentioned earlier Westat completed household interviews with 77,374 households. 54,937 of these were considered complete and useable both at the household and person level (at least half of the adult household members (18 years and older) completed a person interview. About 1.9 percent of households in the national and New York samples completed interviews in Spanish. The percentage for the Wisconsin add-on was lower at 0.6 percent.

6. CATI Telephone Interviewing and Monitoring

Telephone interviewing was conducted during the period from March 19, 2001 through May 9, 2002. The intent of the survey schedule was to provide a uniform number of completed households for each month of the year. The extra two months permitted a ramp-up period for training of interviewers at multiple Westat TRC sites across the U.S. and a ramp-down period to close out remaining sample cases at the end of the survey. The key features of telephone interviewing relevant to promoting response and data accuracy are described below.

6.1 CATI Survey

The survey employed Westat's CHESHIRE Computer Assisted Telephone Survey system, which automated the presentation of hundreds of questions, prompts, edit checks for logical consistency and range, complex skip patterns and rostering. The CATI linked the screener and extended interview components so that all household information, such as person's names, ages, proxy requirements, vehicle, and home address was available for insertion in related extended interview questions. The CATI also linked and displayed information on trips that were conducted by multiple household members to help the interviewer prompt the respondent for a more complete set of trip reports.

6.2 Interviewer Training

A staff of 345 Westat interviewers and 58 supervisors were trained for the NHTS during 16 separate training sessions provided periodically over the 14-month field period at the various TRCs. Each interviewer completed at least 24 hours of interactive NHTS training in addition to the 8 hours of general training and CATI training Westat requires for each interviewer. Each interviewer trained at a computer terminal running a full training version of the CATI. Training included emphasis on respondent contact procedures to obtain cooperation and avoid refusals as well as detailed instruction, demonstration and practice using realistic scenarios and role-playing on each segment of the questionnaire. Initial training was conducted at the start of the NHTS field period, while refresher/replacement interviewer training was presented periodically.

6.3 Interviewers cross trained on screeners and extended interviews

When interviewers are skilled at both the screener and extended interviews, the quality of the interviews is generally improved. Westat's CATI can serve both screener and extended interviews to any interviewer logged on for a particular project. All interviewers were cross-trained on both the screener and extended interviews.

6.4 Reminder call prior to travel day

It is more likely that the extended interview will obtain more complete trip data when respondents are reminded that their assigned travel date is the next day and that they need to record their trips. The CATI system also included a segment for reminder calls, which were served to interviewers who called households on the day before their assigned travel day. The system assisted reminder call interviewers to revise the date and time for each household member's upcoming extended interview if the original appointment time was no longer workable.

6.5 Monitoring floor and remote audio/CATI)

Supervisors silently monitored approximately 10-20 percent of interviews throughout each shift as a quality assurance procedure to identify problems with the questionnaire content, interviewing procedures, and data accuracy. The CATI system provided each supervisor the ability to monitor both the audio and CATI screen for any selected interviewer, at any of Westat's TRCs. Other project and DOT staff were able to monitor Westat interviewers at any TRC from monitoring rooms at Westat's Rockville, MD location.

6.6 Refusal avoidance and conversion (present rate of conversion if known)

Refusal conversion was an important part of Westat's efforts to maximize response. A select team of highly skilled interviewers who had demonstrated exceptional ability to obtain respondent cooperation was specially trained as refusal converters. Whenever a respondent refused to participate, the interviewer completed a CATI module that identified the nature and circumstances of the refusal and placed the case in the refusal queue, which was served to the refusal conversion team. CATI determined the time available to complete the interview within the remaining response window and scheduled refusal conversion attempts accordingly. More than 20 percent of refusals were successfully interviewed by these methods.

6.7 Toll-free Contact Numbers

Toll-free contact numbers were provided for inquiries, scheduling/interviewing on demand and odometer reading data collection. Respondents could call Westat to confirm the survey's legitimacy, ask questions, request additional descriptive material, or request an interview. If an interview was requested, the incoming 800 line interviewer would obtain the respondent's case ID or other identifying information (phone number, address,

etc.) and schedule a callback to suit the respondent's needs. Frequently, an interviewer would be immediately assigned and would conduct the interview accordingly.

6.8 Bilingual CATI and interviewers

Westat provided Bilingual English-Spanish speaking interviewers and a complete Spanish version of the CATI for cases that were identified as in need of special language skills during the initial screener interview attempt or during any extended interview attempt. A team of bilingual language specialists was specially trained on the NHTS at each TRC. When a non-language specialist interviewer encountered a language barrier, the case was coded as such and automatically placed in the language queue by the CATI system and served to the bilingual interviewers for follow up. Approximately 1.9 percent of national and New York households were interviewed in Spanish, as were 0.6 percent of Wisconsin households.

6.9 Multiple TRCs across U.S.

After initial contact was made with a household, subsequent interview attempts were based on call-back appointments made with the respondent. The ability to make an appointment provides the respondent greater flexibility and further demonstrates how important the survey is, which promote higher response. To provide sufficient interviewer capacity for both appointments and unscheduled interviews throughout all needed hours, Westat used six of its nine telephone centers distributed across the U.S. The centers were located in Frederick, MD, Sarasota, FL, Sacramento and Merced, CA, Greeley, CO and Chambersburg, PA. The California and Colorado centers enabled telephone interviews to be conducted throughout Westat's normal TRC business hours until 9:00 p.m. each evening in each time zone, and later as needed for special appointments.

7. Odometer Data Collection

Accurate and comprehensive vehicle mileage data enable reliable estimation of national vehicle mileage and fuel consumption, which are critically needed results of the NHTS. Considerable effort went into providing a variety of means for respondents to provide odometer readings for each national, New York and Wisconsin household vehicle at two stages of the survey.

7.1 First Odometer Reading

The first odometer reading was requested in odometer reading form provided in the diary mail-out package, and retrieval of the information was attempted as part of the household member's extended interview. If the information was not obtained within the six-day extended interview window from households that were deemed "completed", five additional telephone attempts were made to obtain the information. Respondents also had the option of calling in the information to the toll-free phone number.

7.2 Second Odometer Reading – Multiple Options

Five response modes were available for the second odometer readings, which were sought approximately two months after the first readings were provided. The basic mode was initiated with a mail-out request that provided instructions for all response modes and a mail-back form (that showed the first odometer reading for each vehicle) and return envelope. Otherwise, respondents could call the toll-free number to directly provide the information to an interviewer, fax the form via a toll-free fax number, or use the internet to connect with a secure web-site that required the respondent's ID to display a response form. If no response was obtained after a reasonable waiting period, interviewers once again called the households. About half of the responding households did so by mail, another two-fifths responded by telephone, about two percent by internet and one percent by fax.

8. Sample Management

The 2001 NHTS was designed as a list-assisted random digit dialing survey, to yield an equal probability sample of households with telephones. The national sample was increased in New York and Wisconsin to meet the target completed interview requirements in these jurisdictions.

Proper sample management is one of the keys to maximizing response rates and ensuring that each sampled case receives the allotted number of call attempts (managing bias associated with not working each sampled case equally). The sections that follow describe some of the essential operations that Westat implemented to achieve these objectives.

8.1 Quarterly Sample Management

The target sample size was 25,000 completed households for the national sample, 10,884 completed households for the New York add-on and 16,000 completed households for the Wisconsin add-on. At the conclusion of data collection the number of households completed exceeded targets for each of these samples. They were 26,038 for the national sample, 11,887 for New York, and 17,012 for Wisconsin.

Instead of using just one sample frame at the start of the study, Westat constructed a new sampling frame each quarter. Enough sample for each frame was obtained to achieve our goal of spreading the targeted completed interviews evenly across all months during each quarter. Sampling frames were constructed as of December 2000, March 2001, June 2001, September 2001, and December 2001.

Constructing these periodic frames enabled us to update telephone numbers that change with time. For example, telephone area codes change periodically. If just one frame was constructed, a case drawn in December 2000 but called in September 2001 with no

automated message providing a new/forwarding number could end up as “non-working.” Instead, because the frame used each quarter was no more than 4 months old, a higher percentage of eligible cases and better coverage were obtained.

Operationally, once a case has been released to be called, it is worked to completion irrespective of the frame from which it was constructed. Only cases that were never released were discarded when a new frame was constructed.

8.2 Creating Sample Release Groups

Sample release groups, which are randomly-selected subsets of the entire sample, were established to manage the survey production and ensure an unbiased telephone sample. The TRC project manager and Project Director conferred regularly to determine how much sample should be released to interviewers. To help maximize response rates and reduce bias, Westat worked all released cases completely, even when we reached our targeted number of completed interviews. On the NHTS, despite the creation of sample release groups, we exceeded our targeted number of completes by over 3,000 households. This number would have been higher if we had not used release groups.

8.2.1 Balance Sample Across the Data Collection Period

For the national sample, achieving 25,000 completed interviews over a 12-month period called for completing about 2,100 interviews each month. To determine the amount of sample to release, Westat made estimates on response rates. However, response rates can vary from estimates. Therefore, each quarterly sample was divided into smaller release groups. The size of each release group varied. This methodology gave the TRC manager flexibility to release just the amount of sample needed on a weekly or bi-weekly basis. It also enabled us to time the pre survey mailing so it reached each household a few days before they received their first telephone call.

8.2.2 Fine Tune Work Flow

The amount of new sample released depends on the amount of work already available, the availability of interviewers, external events outside Westat control such as the Terrorist attacks on September 11, 2001, the fall 2001 Anthrax scare, snow storms, etc. In addition to the ability to change scheduler parameters, controlling the amount of new work available provided additional flexibility needed to manage a large telephone survey.

8.2.3 Manage Sub-sampling Parameters by Region

For the New York and Wisconsin add-ons, Westat was tasked with completing both a statewide number of completed interviews and also targets for numerous jurisdiction levels. Developing good response rate estimates at the jurisdiction level was difficult. After data collection began, Westat found that response rates varied widely by jurisdiction. Creating small sample release groups allowed us to release sample just in jurisdictions that needed additional completed interviews.

8.3 Releasing Maximum Call and Mild Refusal Screener Cases

The contract called for making a specified number of calls to complete an interview with each household. After that number of calls was made without resolution of the household, the CATI scheduler assigned a final result code of “Maximum Calls” to the household. The contract also called for making one refusal conversion attempt to convert a household. After this attempt is made the household is finalized as a “Refusal.”

Because data collection on the NHTS was conducted over a 12-month period, Westat felt it would be productive to retry Maximum calls and Refusals during a later period than the initial set of calls. In the case of maximum calls, this would enable us to reach households that were away on vacation, on a business trip, etc., and retry many of the “mild or passive” refusals (the majority of refusals are passive in that respondents avoid completing the interview but are not hostile) . Westat’s CATI system keeps track of the strength of a refusal. We felt that re-releasing mild/passive refusals would not annoy respondents, especially if they were released several months after being initially finalized as refusals.

The strategy of releasing these cases improved response rates and also kept interviewers busy during periods when they had kept all appointments and the workload was low. Our scheduler handled these releases in an automated fashion.

8.4 Balancing the Completion of Household and Person Interviews to Maximize Response Rates

On most two-stage telephone surveys where there is a screener interview followed by an extended interview, there are no time limits at the case level (except for the length of the full data collection period) for when an extended interview must be completed. However, the NHTS, like many travel surveys, required the person (extended) interview to be completed within six days after the assigned travel day. If screener and extended work are not balanced on such a travel survey, there will be a cyclical over-production of screener surveys and under production of extended interviews, and vice-versa. This imbalanced assignment of travel days and losses at the extended level result in a reduction in overall survey response rates.

When work began on the NHTS, we had just screener interviews to complete and there was great interest in completing as many screeners as possible. The entire interview staff were completing these interviews and assigning travel days approximately 7 days in the future (with the sample balancing them across all days of the week) to allow time for the diary package to reach the household. Starting the day after each assigned travel day, person interviews had to be completed with each household member. The length of each extended interview was longer than the screener and the total time varied with size of each household. Therefore, if work was not balanced (i.e., too many screeners had been completed), during the period when intensive extended data collection was being conducted, fewer screener interviews were being completed. In addition, if interviewer

staff were fully engaged to complete all the extended work during the six-day window, relatively few screener interviews were completed, setting up another cycle of over production of screeners about 7-10 days later. The result would be that there was a risk that not all of the extended interviews would be completed, reducing the overall response rate. Westat found that carefully controlling the number of screener interviews completed each day by managing both the sample releases and workforce enabled us to both assign travel days evenly across each calendar day and allow sufficient time to complete all the available person interviews within the six-day period.

9. Special Challenges during the NHTS

During the survey's field period there were several tragic events that attracted national and international attention and challenged the survey's ability to obtain high levels of response with the minimum possible bias. The two most significant events were the terrorist attacks on the World Trade Center in New York and the Pentagon near Washington, D.C. on September 11, 2001, and the national concern of contamination of mail with anthrax in Florida, New York and the District of Columbia that began later that month and continued through November. These challenges were met in ways that both respected the losses sustained in these national tragedies while continuing to move ahead with the survey.

9.1 Terrorist Attacks on September 11, 2001

In the aftermath of the attack, telephone communication service was widely diminished and completely snarled in the New York City and Washington D.C. areas. The nation's attention turned to the news reports of the attack and to attempts to get information about the welfare of family and friends. Westat ceased TRC operations immediately upon learning of the attack, curtailed national interviewing for the remainder of the day, and suspended all cases in progress and release of new sample for several days in the Washington D.C region and for one week in the State of New York.

9.2 Anthrax mailing countermeasures

As the nation's concern expanded to the growing anthrax scare, Westat began to receive some indications that people were fearful of unexpected calls and mail. We received relatively more calls on our toll-free line, a number of pre survey letters and diary packages were refused by the intended recipients and returned to Westat, and an increase in the number of police inquiries regarding the legitimacy of the survey were received. To manage the potential for increased non response, Westat implemented the following countermeasures:

- Special large-format supplemental labels were designed for pre survey mailings and diary packages. The labels further identified the mailing's relationship to the survey, provided official contact information, and invited inquiries from the public.

- The toll-free survey line's staff members were given additional training on how to respond to inquiries and to connect callers to project staff who could more fully answer questions.
- Senior NHTS project staff members were briefed to ensure that calls from respondents, public officials and law enforcement personnel would be directed to the Project Director to handle inquiries.

10. Conclusions

It is difficult to achieve high response rates for household travel surveys that use Random Digit Dialing (RDD) methods for household recruitment and travel data retrieval. The 2001 NHTS faced ever-increasing resistance to telephone surveys and a number of unique events that challenged the success of the survey. At its conclusion, the 2001 NHTS resulted in a higher response rate than the 1995 NPTS despite six years of declining RDD response rates. This improved response rate was achieved with a combination of improved survey contact procedures, materials and incentives, a well-designed CATI questionnaire, highly trained and well-monitored interviewers, attention to survey sample management, and constant close attention to survey progress. The survey features and procedures described in this paper are applicable to other local, regional and statewide travel surveys and, if implemented, may also result in improved response rates for those surveys.