

EFFECTS OF THE SEPTEMBER 11, 2001 TERRORIST ATTACKS ON NONRESPONSE IN THE NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE

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Background¹

The terrorist attacks on September 11, 2001, and the subsequent incidents of anthrax poisoning² have had a profound impact on the behaviors and attitudes of Americans (National Institute on Drug Abuse [NIDA], 2002; Office of Applied Studies [OAS], 2002; Schlenger et al., 2002; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002). Media reports following the attacks demonstrated such disparate effects as increasingly vocal support of government, some hostility toward Arab-Americans and Muslims, and a heightened desire to be with family and friends. Travel within metropolitan New York and Washington, DC, was restricted, mail from unfamiliar sources was considered potentially harmful, and people generally placed a greater emphasis on security issues. This new social environment may have had both positive and negative effects on interviewers' ability to make contact with the National Household Survey on Drug Abuse (NHSDA)³ respondents and on those respondents' willingness to cooperate. Specifically, we perceived that response rates may have been affected in two major ways, as shown in Figure 1.

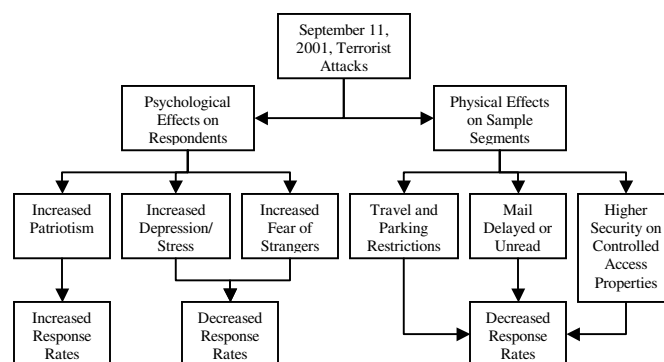


Figure 1. Perceived Influences of the September 11, 2001, Terrorist Attacks on NHSDA Response Rates

Because the NHSDA is conducted year-round, has extensive call record data in addition to interview data, and has a sample large enough to allow conclusions to be drawn about small subpopulations, it is an ideal vehicle for studying the consequences of the terrorist attacks on survey research.

Several studies have examined the effects of national tragedies on individuals' psychological well-being. For example, Sheatsley and Feldman (1964) studied the public response to the assassination of President John F. Kennedy on November 22, 1963. These researchers investigated individual behaviors and emotional responses resulting from the assassination. They found that after Kennedy's assassination, measures of positive affect ("feelings that things were going their way" or "being proud of an accomplishment") were lower than at any previous time in the 1960s. After the Oklahoma City bombing on April 19, 1995, Smith, Christiansen, Vincent, and Hann (1999) conducted a study comparing stress and psychological distress of adults in the Oklahoma City metropolitan statistical area (MSA) and adults in a control area. The study found more stress, psychological distress, posttraumatic stress disorder (PTSD) components, and intrusive thoughts in the Oklahoma City MSA than in the control area.

In the 2 weeks following the September 11th attacks on the World Trade Center and the Pentagon, the National Opinion Research Center (NORC) conducted a study called the Public Response to a National Tragedy (Smith, Rasinski, & Toce, 2001). This was a telephone study involving a national sample and subsamples in New York

¹ The research reported in this paper was supported by the Substance Abuse and Mental Health Services Administration, Office of Applied Studies, under Contract No. 283-98-9008.

² The anthrax story first broke in September 2001 when an envelope containing anthrax spores was mailed to the offices of NBC-TV approximately 1 week after the September 11th terrorist attacks. Reports of anthrax poisoning continued through November 2001 (CNN.com, n.d.).

³ The survey name was changed to the National Survey on Drug Use and Health (NSDUH) in January 2002. Because this research focuses exclusively on data from 2000 and 2001, the survey is referenced as NHSDA throughout this paper.

City, Washington, DC, and Chicago. The study focused on individuals' behavior and communications, psychosomatic and affective responses, and political attitudes. Results were compared with data from both the post-Kennedy assassination study (Sheatsley & Feldman, 1964) and the General Social Survey (Smith & Jarkko, 1998). Preliminary findings indicated that after September 11th, there were increases in positive feelings, such as national pride and faith in human nature. Results for both positive and negative effects were compared across different demographic groups, and for the most part differences observed between demographic groups before the attacks remained after the attacks. The overall study had a response rate of 52 percent, with a 56 percent response rate for the national portion of the survey, 50 percent for New York, 41 percent for Washington, DC, and 51 percent for the Chicago area.

Schuster et al. (2001) reported on a national study conducted in the days following the September 11th attacks. This study investigated the emotional reactions of U.S. adults and their perceptions of their children's emotional response to the events of September 11th. An estimated 44 percent of the adults surveyed reported at least one substantial symptom of stress; 90 percent had at least one symptom of stress to some degree. This computer-assisted telephone interviewing (CATI) study, conducted between September 14 and 16, 2001, obtained a 73 percent cooperation rate among known eligible households.

Schlenger et al. (2002) assessed psychological symptom levels in the United States following the events of September 11th using a Web-based, nationally representative survey with oversamples in the New York City and Washington, DC, metropolitan areas. The researchers found that 4.0 percent of people in the United States showed symptoms of probable PTSD, but that prevalence was much higher in the New York City area (11.2 percent). However, a broader measure of overall distress levels across the country was within expected ranges. Additionally, more than 60 percent of adults in New York City households with children reported that one or more children were upset by the attacks.

It is important to consider the perspective of potential survey respondents when measuring survey participation (Groves & Couper, 1998). The individuals whose psychological well-being and outlook are affected by an event like September 11th also are potential survey participants, so a national tragedy may potentially have an effect on survey respondents' willingness or availability to participate. The psychological effects of September 11th, as well as physical effects in the form of travel disruptions and heightened security measures, could have had real effects on our ability to contact and gain participation from respondents.

The purpose of this study is to determine whether the events of September 11th had an effect on screening and

interview response rates. Preliminary analysis by Odom and Stivers (2002) examined pre- and post-September 11th NHSDA response rates by several geographic and demographic variables, including region of the country, population density, race, age and gender. In this paper, we present a more refined analysis of response rates, including logistic regression models using potential correlates of nonresponse. We also present findings from a series of focus groups in which Field Interviewers (FIs) discussed their observations of changes in nonresponse, including the logistics of field activity, respondents' use of the lead letter, increases in controlled access problems, and changes in mode of contact with the respondents.

Overview of the NHSDA

The NHSDA is the Federal Government's primary source of statistical information on substance use in the U.S. population. The survey, conducted since 1971, has been sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) since 1992. Data collection is carried out by RTI International⁴, and SAMHSA's Office of Applied Studies (OAS) plans and manages the annual survey. The NHSDA design uses a multistage area probability sample that targets a respondent universe of noninstitutionalized civilians aged 12 or older within the 50 States and the District of Columbia.

Household screening and interview respondent selection procedures are conducted with a hand-held computer. The NHSDA questionnaire then is administered using computer-assisted interviewing (CAI) with an audio computer-assisted self-interviewing component (ACASI) for the more sensitive questions. The remainder of the interview is administered using computer-assisted personal interviewing (CAPI). The CAI instrument collects information about tobacco, alcohol, and other drug use; knowledge and attitudes about drugs; mental health; and other health-related issues. Although the survey is conducted annually, the household sample is selected and fielded quarterly.

In quarter 4 (Q4) of 2001, a New York City area sample supplement was implemented to increase the precision of prevalence estimates. The New York City area was identified as all of the New York City metropolitan areas in New York, Connecticut, and New Jersey (the New York consolidated metropolitan statistical area [CMSA]). The sample size was increased in these areas, increasing the person sample size from approximately 900 to 1,500. Due to the increased sample size in the New York City CMSA, traveling field interviewers (TFIs) were brought in to assist the local FIs in completing the additional caseload. The TFIs' overall response rates (ORRs) were considerably higher than those of the regular FI workforce (90.56 vs. 52.94 percent; see Table 1). This difference in

⁴ RTI International is a trade name of the Research Triangle Institute.

ORRs is expected in the NHSDA given that TFIs are specifically selected for their high levels of experience and proficiency. Because cases assigned to the TFIs made up a relatively small portion of the full sample, they increased the overall response rate for the area by only 1.6 percentage points to 54.54 percent.

Table 1. Weighted Response Rates, by Field Interviewer Type, Quarter 4 2001, New York City CMSA Only

FI Type	Screening		Interviewing		Overall Rate
	N	Rate	N	Rate	
TFIs	211	95.20%	78	95.13%	90.56%
Non-TFIs	4,093	81.95%	1,985	64.60%	52.94%
All FIs	4,304	82.63%	2,063	66.00%	54.54%

Methodology

Four geographic areas⁵ were identified for study of the September 11th effect:

1. national;
2. New York City consolidated metropolitan statistical area (CMSA; see Appendix);
3. Washington, DC, primary metropolitan statistical area (PMSA; see Appendix); and
4. national excluding the New York City CMSA and Washington, DC, PMSA.

The research plan applied two methodologies: a series of focus groups with FIs and a comparative analysis of response rates. Each of these methodologies is discussed in further detail below.

Focus Groups

Four focus groups were held with a sample of FIs to examine nonresponse and field activity issues related to September 11th. Each focus group included five or six interviewers. Field supervisors (FSs) from the New York City CMSA, the Washington, DC, PMSA, and other areas across the country were asked to help generate a list of FIs who had worked a considerable number of cases both before and after September 11, 2001. This was done to ensure that the participants would be able to contribute to a discussion of how their work changed after the attacks. During these conversations with FSs from the New York City CMSA and the Washington, DC, PMSA, they also were asked informally to describe the effects they perceived that September 11th had on their FIs' work patterns and response rates. Project staff called FIs from these lists, secured their agreement to participate, and gave

the participants their assigned conference line phone numbers and call-in times.

Response Rate Comparison

With the increased New York City area sample size in Q4 2001 and the annual administration of the NHSDA, it was possible to compare response rates prior to and subsequent to the events of September 11th. Several limiting factors drove the design of the analysis. First, September 11th occurred in the third month of Q3 2001, when the national field staff was in "cleanup" mode and most of the screening and interviewing work for Q3 had already been completed, so we could not expect to find noticeable effects until Q4. (This quarterly replicate design might have limited our ability to detect change in that it places our measure of change somewhat distant from the hypothesized cause.) We also could not determine whether the effects of September 11th would have persisted into 2002 data collection because survey design changes that could affect response rates were implemented in 2002, such as a \$30 incentive payment and the change in the name of the survey.⁶ Therefore, we concentrated our analysis on Q4 2001 response rates (the post-September 11th data collection period). Two comparisons using Q4 as the basis to distinguish any effects of September 11th were considered:

- $Q_{4,2001} - Q_{1-3,2001}$ and
- $(Q_4 - Q_{1-3})_{2001} - (Q_4 - Q_{1-3})_{2000}$.

However, an incentive experiment was conducted in a subset of Q1 2001 and Q2 2001 that we felt would contaminate these comparisons. To compensate for this limitation and also for seasonality effects, it was decided to analyze the September 11th effect by only comparing Q4 2001 with Q4 2000 using the equation $Q_{4,2001} - Q_{4,2000}$.

Two distinct methods were used for statistically testing the September 11th effect on response rates. Both methods used weights based on the design of the survey, and both used SAS[®]-callable SUDAAN[®], a software package that conveniently allows the user to account for the full multistage design of a survey.⁷ The first was a *t* test that directly compared the response rates between Q4 2000 and Q4 2001 without controlling for any other variables. These tests are called "difference tests" in the following text. The second statistical method was logistic regression. The response variables in the logistic regression models

⁶ For a more detailed discussion of the changes made in the 2002 survey, see Appendix C of the *Results from the 2002 NSDUH: National Findings* (OAS, 2003).

⁷ Details about the statistical methods can be found in the *SUDAAN[®] User's Manual: Release 8.0* (RTI, 2001). Additional references are provided in this user's manual. SAS[®] software is a registered trade mark of SAS Institute, Inc., and SUDAAN[®] is a registered trade mark of RTI.

⁵ Initially, the study plan included separate analyses for Manhattan and for New York City (five boroughs only), but sample sizes for these areas were too small to permit valid comparisons.

were indicators of whether the subject responded to the screening or the interview. Each model included a "September 11th" variable as a covariate, as well as several other covariates. The "September 11th" variable had two levels: one for before September 11th (i.e., Q4 2000) and one for after September 11th (i.e., Q4 2001). Examining the significance of the parameter associated with the "September 11th" variable in the model allowed a statistical test for a change in response rates while controlling for all the other covariates in the models.

The other covariates used in the logistic regression models of screening response rate (SRR) included a number of segment-level variables: concentrations of Hispanic, non-Hispanic black, and owner-occupied dwelling units, as well as census region and population density for the "National" and "National Excluding NYC CMSA and DC PMSA" models. Also included were measures of FI age⁸, race⁹, gender, number of screenings completed¹⁰ (as a proxy for FI experience), and whether the FI was a TFI. Models of interview response rate (IRR) controlled on segment-level variables (census region and population density), respondent-level variables (race, age, and gender), and interviewer-level variables (age, race, gender, number of completed screenings, and whether the FI was a TFI).

Field Interviewer Focus Groups

FIs in each focus group were asked to address a variety of issues related to September 11th, including changes in controlled access issues, mode of contact with the respondents (i.e., speaking to respondents through closed doors, screen doors, intercoms), respondents' use of the lead letter, and logistical issues, such as parking and traffic. This section presents the findings of the focus groups. Some topics of discussion are not specifically mentioned below, indicating that the FIs saw no effect of September 11th on those issues.

The FIs from outside New York City and Washington, DC, indicated that the events of September 11th temporarily increased respondents' willingness to

participate, particularly among male respondents. Other than that small difference, they saw no other real effects of September 11th.

FIs are generally encouraged to complete their assignments by the end of the second month each quarter in order to leave sufficient time for "cleanup" of the current quarter's caseload and preparation for the next quarter. Historically, the NHSDA has had lower response rates in New York City than in much of the rest of the Nation, and by September 11th their third quarter fieldwork was not yet complete. On September 11th, 12th, and 13th, no New York City area FIs went into the field; starting on September 14th, limited fieldwork began. This reduced the number of days FIs had available to them to finish their Q3 caseload. The FIs said that, because of the logistical problems they continued to encounter, they did not return to normal fieldwork until several weeks after September 11th. Because Q4 data collection began on October 1st, the events of September 11th also had a direct impact on the amount of time available for and the logistical challenges to completing the Q4 caseload.

The FIs from the New York City CMSA focus groups also indicated that September 11th had a temporary but positive effect on respondents' willingness to participate, once the FIs had been able to make contact with the households and identify the respondents. These FIs stated that they did face some additional challenges as a direct result of the events of September 11th, such as increased transportation problems immediately after the attacks. One FI thought that readership of the lead letter was greater after September 11th due to the government logo on the envelope and letterhead, but most FIs thought that more respondents were suspicious of the letter and threw it away without opening it.

Field management staff noted that once interviewing resumed, interviewers reported that finding people at home was a major problem, particularly in apartments and other single-person households. A common observation made by the New York interviewing staff was that single people wanted to be with friends, and this often would occur somewhere other than the home. They felt that controlled or restricted access problems increased, not due to more security by doormen or management, but as a result of a reluctance of individual tenants to open their doors or answer their intercoms.

Washington, DC, has a history of high NHSDA response rates, and most of its Q3 fieldwork was completed before September 11th. As a result, field management staff felt that any effect of the terrorist attacks on response rates was not seen until the Q4 2001 rates were tallied. Similar to interviewers in the New York City CMSA, interviewers in Washington, DC, and southern Maryland did not work on September 11th, 12th, and 13th. On September 15th, fieldwork began at a relatively normal rate. Management cited that increased traffic, parking restrictions, closed roads, and problems with public

⁸ Age of FI was missing for approximately 6% of all screening and interviewing cases. A "missing age" category was added to that variable in order to prevent the cases from being discarded from the analysis.

⁹ Race of FI was missing for less than 0.5% of all screening and interviewing cases. Race of FI was not missing for any cases in the New York City CMSA or the Washington, DC, PMSA; it was not included in models for the Washington, DC, PMSA because all FIs in that area were of the same race. Because missingness for the Race of FI variable was so low, a separate "missing race" category was not added to the variable; the missing cases were discarded.

¹⁰ Number of screenings was cumulative within each year only, not summed across years.

transportation had a negative impact on productivity after September 11th that lasted through November 2001.

The FIs from the Washington, DC, PMSA focus groups reported that their ability to contact certain households was somewhat reduced by heightened security on college campuses. In addition, many military reservists were called up to active duty after September 11th, making them ineligible for the survey and potentially affecting the composition of the sample in the DC area.

Other than the observations made above, the FIs noticed no real differences in their fieldwork after September 11th. Specifically, the FIs did not notice much change in the mode of contact with the respondents, and most FIs believed that households' treatment of the lead letter was not affected by the anthrax threat and investigation. The FIs found that for the most part, screening respondents seemed to open the lead letter at about the same rate as before the cases of anthrax poisoning occurred. A possible explanation for this is that the lead letter is delivered in an envelope bearing the logo of the U.S. Department of Health and Human Services, which may have increased household members' confidence that the letter was safe.

Response Rate Analysis

The effect of September 11th on response rates was calculated by comparing Q4 response rates from 2000 with Q4 response rates from 2001 ($Q4_{2001} - Q4_{2000}$) for both the screening and the interview (SRR and IRR, respectively). Sample weights were used in the analysis in order to account for the complex survey design.¹¹

In addition to the general response rate analysis, we investigated other aspects of nonresponse for the four areas of interest using the same Q4 2000 versus Q4 2001 approach. Contact rates were examined in order to establish whether these rates changed after September 11th. Also, it was hypothesized that the at-home patterns of respondents would change in the New York City and Washington, DC, areas. To investigate this, the mean number of attempts required to make initial contact with an appropriate screening respondent was calculated.

Screening Response Rate

Table 2 shows the effect of September 11th on SRR and IRR, both (1) unadjusted (i.e., the initial difference tests) and (2) after adjusting for known correlates of nonresponse (i.e., the logistic regression models).

Table 2. Odds Ratios Showing September 11th Effect for Weighted Screening and Interview Response Rates

	National	National Excl. NYC CMSA and DC PMSA	NYC CMSA	DC PMSA
SRR				
Unadjusted	0.80 ^a	0.83 ^a	0.60 ^a	0.56 ^a
Adjusted	0.79 ^a	0.83 ^a	0.73 ^a	0.68
IRR				
Unadjusted	0.91 ^a	0.93	0.73	0.63
Adjusted	0.90 ^a	0.93	0.73	0.54 ^a

^a Statistically significant at the 0.05 level.

In the full national sample, there was a significant decrease in SRR following September 11th ($p < 0.001$). This difference remained even when controlling on all variables ($p < 0.001$). Likewise, in the New York City CMSA and the "National excluding New York City and Washington, DC," models, the decline following September 11th ($p < 0.001$ for both) remained when controlling on all factors ($p = 0.010$ and $p < 0.001$, respectively). The two-sided test of differences in SRR for the Washington, DC, PMSA was marginally significant ($p = 0.048$). When controlling on all variables, the effect of September 11th became nonsignificant at the 0.05 level ($p = 0.065$).

Clearly, the effects of the September 11th tragedy had an impact on screening even after controlling for known correlates of nonresponse. This supports our hypotheses that restricted travel and other physical barriers, as well as the difficulty of making contact with and persuading respondents, would combine to make screenings much more difficult to complete.

Interview Response Rate

Controlling on the various demographic factors in the models does not greatly affect the results of the IRR analyses. In the full national sample, the significant but minor difference between pre- and post-September 11th response rates ($p = 0.036$) remained significant ($p = 0.020$) when controlling on the factors listed above. The response rate models for the New York City CMSA and the "National Excluding New York City and Washington, DC," areas show that there was no effect of September 11th when controlling on all other factors ($p = 0.122$ and $p = 0.144$, respectively). The difference test between Q4 2000 and Q4 2001 for the Washington, DC, PMSA showed no significant difference in response rates ($p = 0.137$). Interestingly, when controlling on all of the variables, this difference became significant ($p = 0.045$). The response rate modeling allowed us to detect a change that had not been evident in the simpler analysis. This might indicate that the events of September 11th had opposite effects on

¹¹ For screening rates, dwelling unit (DU) – level design weight components were used. For interview rates, in addition to DU-level design weight components, we included DU – level nonresponse, poststratification, and extreme weight treatment components and person-level design weight components.

different subpopulations in the Washington, DC, area. In the simpler *t* test, these effects would have cancelled each other out, but when the demographic variables were held constant, the "September 11th" effect would have been more evident.

In summary, here we see that, unlike the patterns seen in SRR, the effects of September 11th on IRR appear to have been mostly indirect. The apparent tendency of some people to refuse earlier in the process (i.e., at the screening stage) might have meant that the people who did participate in the screening were more disposed to participation in general. It would seem that if there were any effects of September 11th on the IRR, they actually manifested in the screening stage. Once the interviewer was successful in contacting and screening the household, the process was apparently only slightly influenced by the aftereffects of the terrorist attacks. The only exception to this is in the Washington, DC, PMSA, which showed a significant effect of September 11th on IRR.

At-Home Patterns

We investigated at-home patterns by looking at the mean number of attempts required to make first contact with screening respondents (SRs) who were eventually contacted for the study. Table 3 illustrates the results of this investigation. (Note that this differs from other analyses, such as the categories of nonresponse presented in Tables 4 and 5, in that Table 3 is unweighted and only includes calls leading up to the initial contact with the SR.) In the New York City CMSA, there was a small but significant decrease in the mean number of attempts required to make initial contact with an appropriate screening respondent. Although a smaller percentage of SRs were contacted after September 11th in the New York City CMSA (as seen in the next analysis), the SRs who were eventually contacted were easier to locate. Otherwise, there were no significant results in this analysis.

Table 3. Unweighted Mean Number of Attempts to Contact Screening Respondents

Region	Q4 2000	Q4 2001	Difference	<i>P</i> Value
National	3.09	3.04	-0.05	0.185
National Excluding NYC CMSA and DC PMSA	3.05	3.01	-0.04	0.225
NYC CMSA	3.53	3.10	-0.43	0.011
DC PMSA	3.40	4.02	0.62	0.088

Categories of Nonresponse

We examined nonresponse categories by comparing the percentages of finalized cases that had received a final code of refusal or "not-at-home" in Q4 2000 or Q4 2001 (see Tables 4 and 5). Based on the FI focus groups, we expected screening and interviewing "not-at-home" codes to increase in the New York City CMSA and the

Washington, DC, PMSA, but did not expect to see a significant change nationwide. We anticipated seeing fewer screening and interviewing refusals due to a hypothesized increase in patriotic attitudes after September 11th.

Nationally, the percentages of screening respondents who were not at home differed only slightly ($d = 0.33$ percentage points), but this difference is statistically significant. There also was a significant, much larger increase in screening not-at-home codes in the New York City CMSA ($d = 2.62$). No significant differences were observed in interview not-at-home codes. Screening refusals increased in all four areas—national ($d = 1.03$), New York City CMSA ($d = 2.42$), Washington, DC, PMSA ($d = 2.49$), and national excluding these two areas ($d = 0.91$). Increases in interview refusals were significant nationally, both including ($d = 1.95$) and excluding ($d = 1.65$) New York City and Washington, DC.

Table 4. Weighted Percentages of Screening Refusals and "Not-at-Homes"

Region	% of Refusals			% of "Not-at-Homes"		
	Q4 2000	Q4 2001	Differ- ence	Q4 2000	Q4 2001	Differ- ence
National	4.04	5.07	1.03 ^a	2.09	2.42	0.33 ^a
National Excl. NYC and DC	3.83	4.74	0.91 ^a	1.99	2.13	0.14
NYC CMSA	6.63	9.05	2.42 ^a	3.35	5.97	2.62 ^a
DC PMSA	4.69	7.18	2.49 ^a	2.36	4.07	1.71

^a Statistically significant at the 0.05 level.

Table 5. Weighted Percentages of Interview Refusals and "Not-at-Homes"

Region	% of Refusals			% of "Not-at-Homes"		
	Q4 2000	Q4 2001	Differ- ence	Q4 2000	Q4 2001	Differ- ence
National	15.60	17.55	1.95 ^a	5.76	5.74	-0.02
National Excl. NYC and DC	15.99	17.64	1.65 ^a	5.56	5.35	-0.21
NYC CMSA	13.23	18.20	4.97	8.61	10.34	1.73
DC PMSA	6.46	9.54	3.08	4.99	8.31	3.32

^a Statistically significant at the 0.05 level.

The significance of the minor national increase in screening not-at-home codes can probably be explained by the large sample size; similarly, the small size of the Washington, DC, PMSA sample could explain why the observed differences were not statistically significant. The

New York City CMSA screening not-at-home codes were as expected. The expected increases in interview not-at-home codes did not occur; this is probably due to interviewers' ability to make appointments and get "on the spot" interviews with selected respondents.

We had anticipated a decrease in refusal rates in every area, which did not occur. This seems to indicate that the apparent increase in patriotic attitudes after September 11th did not necessarily translate into increased cooperation rates with government-sponsored surveys.

Summary and Conclusions

As expected, we found that the New York City CMSA and Washington, DC, PMSA response rates suffered dramatic decreases following the September 11th terrorist attacks, though the differences in IRR in the Washington, DC, PMSA were shown to be significant only after modeling on a number of factors. The national SRR also showed a decrease even after removing the New York City CMSA and Washington, DC, PMSA from the sample. This decrease was significant but less dramatic than in the two metropolitan areas.

We must bear in mind that the New York City sample supplement in Q4 2001 produced a potentially confounding effect. The changes in response rates in the New York City CMSA might have been a result of the increased number of cases to be worked and not a direct result of September 11th. Even though TFIs were brought in to assist with the additional work, each FI still had a significantly larger caseload than usual. This could potentially have caused less attention to be paid to each case, which would have resulted in less success in contacting households and gaining cooperation. However, we feel the likelihood of this effect is minimal in that some decline had already been demonstrated in Q3 and similar results were observed in the Washington, DC, PMSA. Rather, we believe the changes in the New York City CMSA response rates were related to September 11th, and the Q4 supplement increased the sample size sufficiently for us to be able to detect the significance of those changes. Similarly, if the sample size in the Washington, DC, PMSA had been greater, the large response rate differences seen there might have more readily been proven statistically significant.

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Appendix: Definitions of New York City CMSA and Washington, DC, PMSA

The *New York City Consolidated Metropolitan Statistical Area (NYC CMSA)* is a census-defined area including and surrounding New York City. It includes the five boroughs, the southeast corner of New York State, northern New Jersey, southwest Connecticut, and a small corner of eastern Pennsylvania. More specifically, the area includes the following:

- 12 counties in New York (Dutchess, Nassau, Suffolk, Bronx, Kings, New York, Putnam, Queens, Richmond, Rockland, Westchester, and Orange);
- 14 counties in New Jersey (Bergen, Passaic, Hudson, Hunterdon, Middlesex, Somerset, Monmouth, Ocean, Essex, Morris, Sussex, Union, Warren, and Mercer);
- 4 counties in Connecticut (Fairfield, New Haven, parts of Middlesex, and parts of Litchfield); and
- 1 county in Pennsylvania (Pike).

The *Washington, DC, Primary Metropolitan Statistical Area (DC PMSA)* is a census-defined area including Washington, DC, portions of southern Maryland and northern Virginia, and the eastern tip of West Virginia. Specifically, the following counties and independent cities are included:

- Washington, DC;
- 5 counties in Maryland (Frederick, Montgomery, Prince George's, Charles, and Calvert);
- 11 counties in Virginia (Clarke, Loudoun, Fairfax, Arlington, Prince William, Warren, Fauquier, Culpeper, Stafford, King George, and Spotsylvania);
- 6 independent cities in Virginia (Falls Church, Alexandria, Fairfax, Manassas, Manassas Park, and Fredericksburg); and
- 2 counties in West Virginia (Berkeley and Jefferson).