

EFFECTS OF INCENTIVES ON DATA COLLECTION: A RECORD OF CALLS ANALYSIS OF THE NATIONAL SURVEY ON DRUG USE AND HEALTH¹

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Background

The National Survey on Drug Use and Health (NSDUH) is an annual survey of the civilian, non-institutionalized, population of the United States, aged 12 and older. It is the Nation's primary source of statistical information on the use of illicit drugs. Prior to 2002, the survey was known as the National Household Survey on Drug Abuse. The survey employs a multistage area probability sample to produce population estimates of the prevalence of substance use and other health-related issues.

Letters are sent to sample dwelling units (SDUs) to alert potential respondents of the interviewer's future visit. Interviewers then visit the residence to conduct a brief screening, which determines whether 0, 1, or 2 persons are selected from the household. To maximize response rates, interviewers may make several visits to a household to obtain cooperation. In-person interviews are conducted with selected respondents using both Computer-Assisted Personal Interviewing (CAPI) and Audio Computer-Assisted Self Interviewing (ACASI). Sensitive questions, such as those on illicit drug use, are asked using the ACASI method to encourage honest reporting. A detailed description of the NSDUH methodology is described elsewhere (OAS, SAMHSA 2003).

During the late 1990's, the NSDUH suffered a decline in response rates (see Figure 1). A closer examination of the data revealed stable noncontact patterns, but increasing refusal rates (Eyerman *et al* 2002b). This implied that sample members were increasingly unwilling to participate once they were contacted. This was compounded by the need to hire a large number of new interviewers who may not have had the confidence or skills to overcome respondent refusals. Given the decline in response rates, the NSDUH staff designed an experiment to evaluate the effectiveness of monetary incentives in improving respondent cooperation. A randomized, split-sample, experiment was conducted during the first six months of data collection in 2001. The experiment was designed to compare the impact of \$20 and \$40 incentive treatments with a \$0 control group on measures of respondent cooperation and survey costs. The results showed that

both the \$20 and \$40 incentives increased overall response rates while producing significant cost savings when compared to the \$0 control group (Eyerman *et al* 2002a). Preliminary analysis showed no statistically detectable effects of the three incentive treatments on selected substance use estimates. Subsequent analysis showed some positive and negative effects depending on the substance use measure when the \$20 and \$40 treatments were combined and compared to the \$0 control group (Wright *et al* 2002).

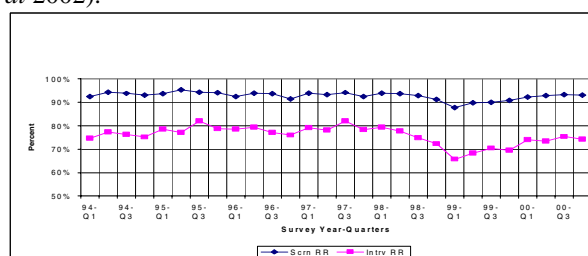


Figure 1. Screening and Interviewing Rates by Quarter, 1994-2000

Based on the outcome of the 2001 experiment, the NSDUH staff implemented a \$30 incentive payment in 2002. Their analysis showed that a \$30 incentive would strike a balance between gains in response rates and cost savings. This paper analyzes the effect of the new \$30 incentive on the data collection process as measured by record of calls (ROC) information. An ROC is generated each time an interviewer visits a household. It consists of a code that describes the outcome of the visit along with any notes an interviewer deems pertinent to a future visit. The impact of the incentives implemented in 2002 on response rates is discussed in separate paper by Kennet *et al* (2003).

Methodology

Study Populations

Two sets of study populations were available to examine the effects of incentives on the number of calls required to complete data collection processes. The first set consisted of the experimental treatment groups from the 2001 incentive experiment. This experiment was conducted in a sample of 251 of the 900 primary strata used in the 2001 survey.

The second set consisted of the annual samples for 2001 and 2002. The 251 primary strata included in the

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2001 incentive experiment were excluded from the 2001 sample for these analyses; the weights used for the 2001 data were recalculated to reflect the additional sampling and recalibrated to Census demographic control totals. The entire sample was included in the 2002 incentive treatment group.

The 2001 incentive experiment data provided the best controlled comparisons in terms of reflecting the same time period and equating other field conditions including the matching of interviewers on paired segments to which the incentive and control treatments were randomly applied. The second set of populations, 2001 non-experiment areas vs. 2002, provided a much larger sample. Since initial analysis showed consistent results for the process data addressed in this paper, only the results from the larger sample comparisons based on 2001 to 2002 comparisons are presented.

Screening Call Record
Line: 015 300 Gordon Street

◆ DATE: 1/13/01
◆ TIME: 10:06 am
◆ RESULT CODE:
◆ CONTACT:

PENDING SCREENING CODES

- 01 No one at DU
- 02 SR unavailable
- 03 Neighbor ind. occupancy
- 04 P Phys/mentally incomp
- 05 P Lang bar - Spanish
- 06 P Lang bar - other
- 07 P Refusal
- 08 Unable to locate SDU
- 09 P Other - specify

FINAL SCREENING CODES

- 10 Vacant
- 11 No one at DU - repeated
- 12 SR unavail. - repeated
- 13 Not primary residence
- 14 F Phys/mentally incomp
- 15 F Lang bar - Spanish
- 16 F Lang bar - other
- 17 F Refusal
- 18 Not a dwelling unit
- 19 GQU listed as HU
- 21 Denied access
- 22 All military
- 23 F Other - specify
- 26 Res in DU < 1/2 Qutr
- 29 Listing Error

COMMIT RECORD **CANCEL RECORD**

Figure 2. Screening Call Record As Seen by the Interviewers on Their Hand Held Computers

The Record of Calls

Since the 1999 survey, a complete call history has been maintained for each selected dwelling unit using the handheld computer employed in the screening process. Interviewers are instructed to record each attempted or actual contact with a selected dwelling unit. Figure 2 taken from the Field Interviewer's Manual (OAS, SAMHSA 2003) illustrates the computer screen display for recording

each attempted screening call. The interviewer is instructed to record the result code and the method of contact; the computer automatically generates date and time information for each call record. Figure 2 illustrates a pop-up menu of possible result codes that may be selected by the interviewer for each screening call. When a screening is completed successfully and a roster of eligible persons has been obtained, the interviewer enters a command for the hand-held computer to select the sample. The handheld computer automatically selects 0, 1, or 2 sample persons.

Interview Call Record
Line: 015 300 Gordon Street

INTERVIEW:
● A ○ B

◆ DATE: 1/13/01 DAY OF WEEK: Sa
◆ TIME: 10:14 am
◆ RESULT CODE: 50 Appointment for int
◆ CONTACT: Through an open door

COMMENTS:
[A] return at 11am on January 14th A

COMMIT RECORD **CANCEL RECORD**

Figure 3. Interview Call Record

Figure 3 shows the computer display for entering the interview call records. If only one person is selected, that person is designated as person A. If two persons are selected, call records are maintained for both persons A and B. Note that it is common to record a screening event and one or two interviewing events on a single visit to a selected dwelling unit. On subsequent follow up visits, events may be recorded for both respondents A and B.

On each day that an interviewer works, he or she transmits data to a central computer where the record of calls becomes part of a larger field control system database. This control system is also used by supervisory staff to assign or re-assign cases, to finalize pending cases, and to monitor and control the progress of field work. As a result, the control system contains many event records other than those relating to calls conducted by the field

interviewer.

Table 1. Event Codes Assigned During Screening

Pending Screening Codes	
01	No One at DU
02	Screening Respondent Unavailable
03	Neighbor Indicates Occupancy
04	Physically/Mentally Incompetent
05	Language Barrier (Spanish)
06	Language Barrier (Other)
07	Refusal to Screening Questions
08	Unable to Locate SDU
09	Other
Final Screening Codes	
Ineligible Sample Dwelling Units	
10	Vacant
13	Not a Primary Residence
18	Not a Dwelling Unit
19	GOU Listed as HU
20	HU listed as GOU
22	DU Contains Only Military Personnel
25	No Eligible SDU Members
26	In DU less than ½ of the Quarter
29	Listing Error
Screening Not Obtained	
11	No One at DU after Repeated Visits
12	SR Unavailable after Repeated Visits
14	Physically/Mentally Incompetent
15	Language Barrier (Spanish)
16	Language Barrier (Other)
17	Refusal
21	Denied Access
23	Other
Screening Completed	
30	No One Selected for Interview
31	One Selected for Interview
32	Two Selected for Interview

Table 1 shows the screening event codes which were treated as a visit to attempt or complete screening at a selected dwelling unit in 2001 and 2002. Table 1 categorizes the screening codes into pending and final categories. Final screening codes are grouped further into those indicating an ineligible sample dwelling unit, those indicating an eligible sample dwelling unit where screening was not completed successfully, or those for which screening was completed successfully at an eligible sample dwelling unit. For a successfully completed screening interview, the hand held computer automatically entered the final screening event code for no one selected (code 30), one person selected (code 31), or two persons selected (code 32).

Table 2 shows the event codes assigned during interviewing. Since the interview is conducted using a separate laptop computer, all interviewing codes (including the code for completed interviews) must be entered by the interviewer at or after the time of the visit. Interviewing event codes in Table 2 are classified as pending and final codes. Final codes are classified as interview not obtained vs. interview obtained. Final decisions about the usability

of partially completed and completed interviews are made during the editing process based on minimum item response criteria (see Kroutil and Myers 2002). For the purposes of studying the interviewing process in this paper, the initial categorization in Table 2 is applied.

Table 2. Event Codes Assigned During Interviewing

Pending Interview Codes	
50	Appointment for Interview
51	No One at DU
52	Respondent Unavailable
53	Break Off (Partial Interview)
54	Physically/Mentally Incompetent
55	Language Barrier (Spanish)
56	Language Barrier (Other)
57	Refusal (By Respondent)
58	Parental Refusal for 12-17 Year Old
59	Other
Final Interview Codes	
Interview Not Obtained	
71	No One at Home after Repeated Visits
72	Respondent Unavailable
73	Break Off (Partial Interview)
74	Physically/Mentally Incompetent
75	Language Barrier (Spanish)
76	Language Barrier (Other)
77	Final Refusal by Respondent
78	Parental Refusal for 12-17 Year Old
79	Other
Interview Obtained	
70	Interview Complete

Calls and Call Days

Interviewers are instructed to work within an area segment conducting screening and interviewing for at least four hours each day they visit the segment. Unless they are able to complete some screening or interviewing successfully, they may visit the same dwelling unit several times during the same day and record an event code for each visit. Since repeated calls on the same day do not necessarily represent a significant and effective additional effort, the concept of a *call day* was used as an alternative measure. A call day for a sample dwelling unit was defined as any day on which one or more calls were made to a selected sampling unit for any combination of screening and/or interviewing activity.

Analytic Approach

The general approach taken to assess the impact of incentives on the screening and interviewing processes was to compare the distribution of the sample by number of call days required to finalize the SDU status at the eligibility determination, screening, and interviewing processes. It is first necessary to determine whether a sample dwelling unit is eligible for screening. Only eligible sample dwelling units are then subject to finalization of the screening process. At the next step, only successfully screened dwelling units at which one or more persons are selected are followed into the interviewing process. If a sample dwelling unit is not eligible, the data collection process terminates very early. If screening cannot be completed or if no persons are selected, then the data collection process also terminates. Our initial exploratory analysis showed that the number of calls required also depended on the final outcome; as an example a successful interview will usually require fewer repeat visits than a case that eventually finalized in the “no contact” category. The call day concept is used for most of the analysis, but calls are also used to simplify the analysis of the interviewing process when one or two persons may be selected at a sample dwelling unit.

Each table shows the sample distribution and weighted sample percentages. Upper categories are collapsed. The mean number of calls or call days was not presented since it would be highly subject to a few extreme counts. These extremes are probably more closely related to the convenient travel patterns of the interviewer than to the incentive process applied. Also, medians of the count data would not generally distinguish the two study populations. The bottom section of each table shows the results of the tests of independence between the number of call days (or calls) required and the incentive treatment (2001 non-incentive areas vs. 2002 all incentive areas)². Because of the large sample sizes, statistically significant results need to be judged further to determine if the differences noted are meaningful.

Note that sample sizes for the 2001 non-incentive population are smaller because the primary strata in which the 2001 incentive experiment was conducted were excluded from these analyses.

Impact on the Screening Process

Table 3 summarizes the number of screening call days required by dwelling unit eligibility. Nonresidential dwelling units can generally be identified quickly. Residences, that are not eligible, require more personal contact. The call days shown for eligible dwelling units represent all screening call days required to finalize the screening process. Although the distributions by incentive

treatment (year) for the “not a residence” category are shown to be different by statistical testing, the differences in the distributions are quite small. This is consistent with the expectation that incentives should have little effect at this stage of the data collection process. The differences in the call distributions for eligible dwelling units include further screening and interviewing processes which are explored more fully in subsequent tables.

Table 3. Screening Call Days by Eligibility Category: 2002 (All Incentive) vs. 2001 (Non-incentive)

No. of call days	Sample Size		Weighted %	
	2002	2001	2002	2001
Not a residence				
1 day	10,948	8,501	49.2	45.8
2 days	5,240	4,423	22.6	23.0
3 days	2,479	2,001	10.9	11.0
4 days	1,260	1,115	5.7	6.3
5 to 9	2,129	1,796	9.8	11.0
10 plus	420	437	1.8	2.9
	22,476	18,273	100.0	100.0
Residence, but not eligible				
1 day	1,964	1,799	36.8	35.2
2 days	1,200	1,062	22.4	22.0
3 days	650	574	11.9	11.6
4 days	454	386	8.9	7.7
5 to 9	854	903	15.7	18.2
10 plus	252	279	4.3	5.4
	5,374	5,003	100.0	100.0
Eligible dwelling units				
1 day	59,201	48,365	39.2	39.2
2 days	32,195	25,756	21.3	21.0
3 days	18,654	14,631	12.6	12.0
4 days	11,820	9,526	8.0	7.8
5 to 9	22,071	17,962	14.9	15.3
10 plus	6,221	5,557	4.1	4.8
	150,162	121,797	100.0	100.0
All	178,012	145,073		
LLCHISQ tests of no interaction			P	
Not a residence			0.0107	
Residence, but not eligible			0.1696	
Eligible dwelling units			0.0005	

Table 4 provides more detail on the number of screening calls required by final screening outcome for the “eligible dwelling units” category summarized in Table 3. Note that over 40 percent of all completed screenings are completed on the first call day with or without incentives. Statistically significant differences in screening call day distributions are identified for the final categories of “language barrier”, “refusals”, and “screening respondents.” For “refusals” and “screening respondents”, the differences favor the 2002 incentive sample in that

² The statistical test presented is the LLCHISQ option in SUDAAN (RTI 2001, p.279) which tests for no interaction in the log-linear model fit to the estimated cell proportions.

more screening interviews are finalized on the first or second call day and fewer screening interviews require 10 or more call days. The results for finalizing “language barrier” cases appear to favor 2001 non-incentive sample, but are based on a much smaller sample.

Table 4. Screening Call Days for Eligible Dwelling Units by Final Screening Status: 2002 (All Incentive) vs. 2001 (Nonincentive)

Number of call days	Sample Sizes		Weighted %	
	2002	2001	2002	2001
No Contact				
1 day	188	89	3.1	5.3
2 days	297	165	5.7	5.7
3 days	277	108	5.3	3.3
4 days	268	169	5.5	5.1
5 to 9	1,727	1,041	37.4	34.3
10 plus	1,973	1,427	43.1	46.5
	4,730	2,999	100.0	100.0
Language Barrier				
1 day	19	20	3.7	4.9
2 days	130	172	24.8	39.1
3 days	107	76	20.1	15.6
4 days	79	55	15.6	11.5
5 to 9	158	118	29.8	23.4
10 plus	34	20	6.1	5.5
	527	461	100.0	100.0
Refusals				
1 day	63	17	0.7	0.3
2 days	523	297	5.6	5.0
3 days	1,008	565	11.5	9.3
4 days	1,231	734	14.3	12.8
5 to 9	4,189	2,725	50.6	50.4
10 plus	1,542	1,208	17.4	22.1
	8,556	5,546	100.0	100.0
Screening Respondents				
1 day	58,931	48,239	43.0	42.3
2 days	31,245	25,122	22.8	22.1
3 days	17,262	13,882	12.8	12.4
4 days	10,242	8,568	7.6	7.6
5 to 9	15,997	14,078	11.8	12.9
10 plus	2,672	2,902	1.9	2.7
	136,349	112,791	100.0	100.0
LLCHISQ tests of no interaction				P
No contact				0.1054
Language barrier				0.0389
Refusals				0.0002
Screening respondents				0.0000

In summary, the introduction of incentives had only small impacts on the screening process and most of them favored the use of incentives.

Impact on the Interviewing Process

The impact of incentives on the interviewing process was studied both in terms of call day and call distributions. Recall that when a screening interview resulted in the selection of sample persons, a screening event code was automatically entered on the handheld computer and the interviewer also entered an interview event code for each selected person. When looking at call days, this meant that no additional call days were required in order to record one (or two) interview event codes. Furthermore, if the interviews could be completed the same day, then no extra call days were required. Table 5 shows the distribution of additional interviewing call days by incentive treatment for dwelling units where one or two persons were selected³. This is a subset of the dwelling units where screening was successfully completed as shown in Table 4.

Table 5. Additional Interviewing Call Days for Dwelling Units by Persons Selected: 2002 (All Incentive) vs. 2001 (Non-incentive)

No. of extra call days	Sample Sizes		Weighted %	
	2002	2001	2002	2001
One Person Selected				
None	12,893	11,248	43.0	35.5
1 day	8,947	7,215	28.2	22.5
2 days	2,958	3,169	9.3	10.2
3 days	1,807	2,235	5.9	7.1
4 days	1,223	1,724	4.0	5.3
5 to 9	2,374	4,147	7.9	13.9
10 plus	536	1,565	1.7	5.5
	30,738	31,303	100.0	100.0
Two Persons Selected				
None	6,181	2,873	24.8	16.7
1 day	8,041	3,626	31.3	20.9
2 days	3,639	2,134	14.4	12.5
3 days	2,091	1,608	8.4	9.6
4 days	1,427	1,250	6.0	7.7
5 to 9	2,990	3,586	12.4	22.3
10 plus	685	1,634	2.7	10.3
	25,054	16,711	100.0	100.0
LLCHISQ tests of no interaction				p
One person selected				0.0000
Two persons selected				0.0000

The distribution of the sample by additional interviewing call days clearly favors the use of incentives

³ Table 5 shows a larger proportion of sample dwelling units had two persons selected in 2002 compared to 2001. This was caused by a change in selection algorithm implemented in 2002. The algorithm change preserved the person probabilities while increasing the numbers of person pairs in the sample. For more details, see Chromy and Penne (2002).

in obtaining early resolution of interviewing cases. When only one person was selected, no additional call days were required to complete interviewing 43 percent of the time with incentives, but only 36 percent of the time with no incentives. In addition, only about 2 percent required 10 or more additional call days with the use of incentives while over 5 percent required 10 or more additional call days without incentives.

As expected, more additional call days were required when two persons were selected, but the results clearly favored the incentive treatment. Almost 25 percent of cases were resolved on the date of the screening interview even when two persons were selected; just under 17 percent of cases achieved this goal with no incentives.

Table 5 does not distinguish among cases by interview outcome. To examine the interviewing process by interview outcome, the concept of a call, rather than a call day, was implemented in Table 6. At the completion of a successful screening with persons selected, the interviewer updated the record of calls for each selected person. One recorded event for each respondent coincided with the completion of screening. Events may have been entered for both persons on subsequent visits also until at least one person's interviewing status was finalized. Table 6 is also different from Table 5 in that the sample units counted are sample persons in Table 6 and sample dwelling units in Table 5. No attempt is made in Table 6 to identify which sample persons are from dwelling units with one or two persons selected.

Statistically significant interactions between the number of calls required and the use of incentives are noted for all outcomes except the "not competent to complete" outcome. The "no contact" cases were finalized sooner with incentives in 2002, possibly because other pending cases were finalized sooner and additional trips to attempt contacts with only one or two persons did not appear justified; note that the number of "no contact" cases comes to about 1 person for every two area segments in both years. Somewhat surprisingly, the persons in the "refusals, break offs, and other unexplained" category also were finalized more quickly with incentives. Persons who eventually responded did so on the first interviewing call about 36 percent of the time with incentives and about 30 percent of the time without incentive; recall that the first interviewing call in Table 6 equates with no extra calls to complete this person's interview following the Table 5 "extra call day" concept. The second call was also more productive with incentives perhaps indicating more willing participation by a selected person who was not present at the time of the screening interview when incentives were offered. Respondents requiring 10 or more calls constituted less than 3 percent of final respondents with incentives and almost 7 percent of final respondents without incentives.

Table 6. Calls to Complete Interviewing by Final Interview Status: 2002 (All Incentive) vs. 2001 (Nonincentive)

Number of calls	Sample Sizes		Weighted %	
	2002	2001	2002	2001
No Contact				
1 call	42	48	1.0	0.8
2 calls	95	70	2.8	1.4
3 calls	184	91	3.8	1.9
4 calls	625	357	17.2	9.3
5 to 9	1,361	1,239	40.4	31.1
10 plus	1,192	2,013	34.9	55.4
	3,499	3,818	100.0	100.0
Not competent to complete				
1 call	756	688	61.9	60.9
2 calls	177	164	14.9	15.0
3 calls	83	101	7.6	8.2
4 calls	50	61	4.2	4.2
5 to 9	107	120	9.6	8.6
10 plus	28	62	1.8	3.3
	1,201	1,196	100.0	100.0
Refusal, break off, other unexplained				
1 call	764	571	10.5	6.7
2 calls	1,101	853	14.0	8.9
3 calls	1,061	1,000	14.2	10.3
4 calls	932	1,027	12.5	9.3
5 to 9	2,606	3,447	34.4	37.1
10 plus	1,146	2,740	14.5	27.9
	7,610	9,638	100.0	100.0
Respondent				
1 call	24,345	14,540	35.7	30.2
2 calls	24,342	15,251	34.7	30.5
3 calls	8,003	5,871	11.6	11.6
4 calls	3,844	3,405	5.7	6.6
5 to 9	6,036	7,228	9.5	14.3
10 plus	1,701	3,405	2.8	6.9
	68,271	49,700	100.0	100.0
LLCHISQ tests of no interaction				p
Interview calls by Incentive Treatment				
No contact				0.0000
Not competent to complete				0.6749
Refusals				0.0000
Respondents				0.0000

Impact on Response Demographics

Only limited analysis was conducted to assess the impact of the number of calls on sample demographics. Table 7 shows the distribution of the sample by gender depending on the order number of the successful interviewing call. In either case, males respond in lower

proportions to the early calls with percent male generally increasing slowly (or decreasing only slightly) with the call order. With incentives, the percent male is slightly higher on the first call and increases more steadily with increasing calls.

Table 7. Percent Male by Call Order: 2002 (All Incentive vs. 2001 (Non-incentive))

Call order	2002	2001
1 st call	46.01	45.96
2 nd call	48.47	47.36
3 rd call	49.12	49.53
4 th call	50.05	49.40
5 th to 9 th calls	51.56	50.79
10 th or later calls	51.97	50.07

Summary and Conclusions

The NSDUH data show that the increases in response rates that accompany the use of incentives (Eyerman *et al* 2002a, Kennet *et al* 2003) are also accompanied by the need for fewer call days and fewer calls to finalize sample dwelling units and sample persons. Only small effects were noted for the call days associated with the screening process with substantial effects noted for the interviewing process.

The need for fewer visits to complete screening and interviewing also help to explain reduced costs (OAS, SAMHSA 2002, Eyerman *et al* 2002a).

A quick look at demographic data by call order shows that the sample distribution on demographic measures could be changed by prematurely cutting off follow up of pending cases. More study is needed to determine what effect such policies might have on the principal study measures on substance use addressed in the NSDUH.

The monitoring of record of call data provides a useful tool for insuring that adequate follow up procedures are being followed within the limits of reasonable cost management.

References

Chromy, J. R., & Penne, M. (2002). *Pair Sampling in Household Surveys*. Proceedings of the Survey Research Methods Section, American Statistical Association, New York, NY.

Eyerman, J., K. Bowman, D. Butler and D. Wright (2002a). "The Impact of Incentives on Cooperation and Data Collection Costs: Results from the 2001 National Household Survey on Drug Abuse Incentive Experiment." Presented at the annual conference of the American Association for Public Opinion Research, St. Petersburg, FL.

Eyerman, J., Odom, D., Wu, S., & Butler, D. (2002b). Nonresponse in the 1999 NHSDA. In J. Gfroerer, J.

Eyerman, & J. Chromy (Eds.), *Redesigning an Ongoing National Household Survey: Methodological Issues*, DHHS Publication No. SMA 03-3768 (pp. 23-52). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

Kennet, J. M., Gfroerer, J., Bowman, K. R., Martin, P. C., & Cunningham, D. (2003). *Effects of a \$30 Incentive on Response Rates and Costs in the 2002 National Survey on Drug Use and Health*. Paper presented at the American Association for Public Opinion Research, Nashville, TN.

Kroutil, L., & Myers, L. (2002). Development of Editing Rules for CAI Substance Use Data. In J. Gfroerer, J. Eyerman, & J. Chromy (Eds.), *Redesigning an Ongoing National Household Survey: Methodological Issues*. DHHS Publication No. SMA 03-3768 (pp. 85-109). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.

Office of Applied Studies, Substance Abuse and Mental Health Services Administration (2002). *2001 National Household Survey on Drug Abuse: Incentive Experiment, Combined Quarter 1 and Quarter 2 Analysis*. Rockville, MD: Substance Abuse and Mental Health Services, Office of Applied Studies [Also available at <http://www.samhsa.gov/oas/nhsda/methods>].

Office of Applied Studies, Substance Abuse and Mental Health Services Administration (2003). *2001 Methodological Resource Book (Questionnaire and Related Materials)*. Rockville, MD: Substance Abuse and Mental Health Services, Office of Applied Studies [Also available at <http://www.samhsa.gov/oas/nhsda/methods>].

Research Triangle Institute (2001). *SUDAAN User's Manual, Release 8.0*. Research Triangle Park, NC: Research Triangle Institute.

Wright, D., Bowman, K., Butler, D., & Eyerman, J. (2002). *Nonresponse Bias from the National Household Survey on Drug Abuse Incentive Experiment*. Paper presented at the Annual Meeting of the American Association for Public Opinion Research, St. Pete Beach, FL.