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**The Accuracy of Self-Reports:
Some Preliminary Findings
from Interviewing Homeless Persons**

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The Accuracy of Self-Reports:
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This paper reports the results of research undertaken by Census Bureau staff. The views expressed are attributable to the authors and do not necessarily reflect those of the Census Bureau. The data in this report are preliminary and tentative in nature.

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ABSTRACT

Many factors may play a role in the accuracy of answers given by respondents. For example, response problems can be magnified if respondents have significant reasons for hiding or distorting their true answers or see little value in cooperating. Studies that try to distinguish homeless persons from those who are domiciled often use self-reported status to a series of screening questions as the basis for determining whom to interview. The accuracy of the answers to such questions, therefore, has an impact on both the count and distribution of characteristics obtained for homeless persons.

As part of a special Census Bureau research program to design alternative procedures for enumerating the homeless population, we examined two aspects of this data accuracy issue. These included the accuracy of homeless persons' responses about where they had slept the previous night and about whether they had already been interviewed. Preliminary results suggest that procedures to guard against duplicate interviews which rely on respondents to volunteer that they have been interviewed before do not work very well among this population, particularly if respondents are interviewed while standing in a line to receive food. Some respondents may also not provide accurate information as to the type of location in which they slept the night before the interview. This suggests that screening procedures typically used to distinguish the "homeless" from the "domiciled" and/or "shelter users" from "street users" may need further refinement.

INTRODUCTION

Learning about ways to enumerate the homeless population presents a special challenge to any agency. Approaches and assumptions for counting the general population do not always apply to mobile and highly elusive individuals, because most surveys assume a fixed residence. Where one finds the homeless really depends on how one defines who the homeless are. Researchers employ different definitions of homelessness. These range from the literal homeless (e.g., persons who regularly spend the night in shelter-type facilities or on the street) to others who are precariously housed and those doubled up with other families. Even if one limits the definition of "the homeless" to just those individuals who live in shelter-type facilities or on the streets, methodological problems are not solved.

One concern that researchers have with surveys/censuses of this population is the accuracy of the responses obtained. As with studies of other groups, researchers have to assume that the information obtained via self-report interview is accurate, given that there is little possibility for verification.

Research on how respondents from the general population answer survey questions is also relevant to the accuracy of responses obtained from homeless persons. First, it is helpful to look at the cognitive task which respondents are asked to perform. As described by Martin (1983) and Tourangeau (1984), this process

involves several stages: 1) comprehension, 2) retrieval, 3) judgment of an appropriate answer, and 4) communication. Errors result in this process if respondents: misunderstand the question or key concepts, do not know or cannot recall the needed information, use an inappropriate heuristic approach for making a judgment, or prefer to hide or distort the information for any number of reasons.

Oksenberg and Cannell (1977) have noted the important role that both motivational and cognitive factors play in the response process. For example, respondents may be insufficiently motivated to retrieve the information from memory or highly motivated to purposely withhold or distort their true responses if accurate responding is incompatible with some other goal they have.

It is often argued that interview problems may be potentially magnified among the homeless population. For example, the fact that the homeless are a heterogeneous group with a variety of living arrangements suggests that standardized survey questions may not be understood in the intended way by all respondents. It is generally estimated that about one in three homeless persons has mental illness that is severe enough to affect functional activities (according to the GAO, 1988, estimates vary from 10 to 47 percent depending on the study). Some of these individuals may have problems understanding questions and recalling

information. Others may have significant reasons for hiding or distorting their true responses. There is social stigma attached to being homeless (Hombs and Snyder, 1983) and some want to keep their sleeping locations and other survival information secret. Others want to keep their past, as well as their present circumstances and whereabouts secret. Some homeless persons, for example, are parolees, some are avoiding child support payments, and others may have criminal records or survive through petty crimes (see, for example, Fischer, 1989).

The accuracy of responses may also vary depending on the context. For example, at shelters, some respondents may consider themselves "a captive informant in a captive and alien environment" (Liebow, 1967, p. 8) and tell shelter operators what they want to hear, especially if access to the facility is contingent upon certain behaviors or the lack thereof. This could affect the quality of shelter record data. Similarly, people living on the streets may have little incentive to provide accurate information. In most cases, interviewers are strangers invading their privacy, some of whom could be perceived as meaning them harm.

Some researchers who work with the homeless suggest that the level of truthfulness in answers obtained may vary with the extent of trust between interviewer and respondent (e.g., Rosenthal, 1989). This is similar to a conclusion drawn by drug

researchers (e.g., O'Malley, 1984; Akers et al., 1983), who suggest that self-reports to sensitive topics are more valid when respondents are convinced that their answers will remain confidential.

A study by Bahr and Houts (1971) compared interview data with shelter records. They found the accuracy of homeless persons' responses to be "especially sensitive to variations in the complexity of the information sought and the recency of the situation being recalled" (p. 382). They also found evidence to suggest that homeless persons may try to present themselves in a favorable light, although Bahr and Houts did not believe homeless persons were more likely to be consciously untruthful than members of other disadvantaged populations.¹

In a subsequent study, Robertson, Ropers and Boyer (1985) found evidence to suggest that homeless respondents generally give accurate information. For example, they found 92 percent agreement between interview responses and facts they could verify about the homeless women who responded to their survey. This was, however, a situation in which respondents were known personally to the interviewers and so, straying from the truth might have been somewhat more difficult in this case.

¹ The implication here is that members of disadvantaged populations are less truthful than non-disadvantaged populations, although it is not clear in the article on what basis such a conclusion can be drawn.

Background on the Census Bureau's Research on Enumerating the Homeless (REH) Project. Our work on the accuracy of self-report data among the homeless was part of a special program of research at the Census Bureau. One objective of this program was to explore alternative procedures for enumerating the homeless for possible use as part of the year 2000 decennial census. When we began our project in the summer of 1988, the plans for the 1990 Decennial Census were already in place. These included a special one-night operation called "Shelter and Street Night" (S-Night) to count selected components of the homeless population. As part of the 1990 decennial census, census takers counted persons found at emergency shelters, missions, low-cost hotels/motels, and government and private subsidized rooms for homeless persons between 6 p.m. and midnight (except for staff with a usual home elsewhere); persons who were visible at open street or public locations between 2 and 4 a.m. (except for those in uniform or engaged in money-making activities); and persons emerging from abandoned buildings between 4 and 8 a.m.

Independent research conducted during the dress rehearsal census in St. Louis, Missouri early in 1988 suggested the S-Night shelter count method worked well, but the S-Night nighttime street count was less effective, less accurate, and potentially less safe than the shelter count (McCall et al., 1989). One objective of our REH project was therefore to develop an

alternative Census Bureau method to enumerate the "street homeless" that did not involve a nighttime street count.

Using a combination of ethnographic and survey methods, our team developed an experimental daytime approach called S-Day (for Service Facility Day). This involved contacting and identifying "homeless persons" at daytime facilities where they received services such as food, clothing, medical assistance, and so forth. We believed, based on ethnographic research, that a daytime method increased the probability of finding homeless individuals who did not stay in shelters and were hidden at night and who may thus not be counted in the street phase of S-Night. We believed that counting during the day is generally safer and less threatening for both the census interviewers and the persons they enumerate (see also Salo and Campanelli, 1989, for a more thorough description of the development of the S-Day method). In addition, better quality data on respondent characteristics can be obtained from interviews with people who are awake than from observations of sleeping people, for whom it may be difficult to determine age, race, and sex. As described below, a daytime procedure requires additional methodological considerations. Two of these considerations are to 1) be able to distinguish who is homeless and 2) be sure persons are counted only once.

The Need for Screening Questions. Clients using daytime facilities include people who have homes or rooms, those who are

precariously housed and doubled up with others, as well as the literally homeless who sleep in shelter-type facilities or on the streets. A critical objective for our S-Day method was to find a way to distinguish among these various groups. Interviewers cannot determine this by just looking because many homeless persons do not fit the stereotypic image. Hombs and Snyder (1983) suggest that this is because many homeless persons need to fit in with mainstream society to acquire jobs and other resources and avoid the stigma attached to being homeless.

Major surveys of the homeless have depended on responses to screening questions to separate the "homeless" from the "domiciled" (GAO, 1988). Yet there has been no work to examine the validity of persons' answers to the screening questions (Appelbaum, 1987). The accuracy of the answers to such questions has an impact on both the count of people and the distribution of characteristics obtained.

The Need for Procedures to Avoid Duplicate Interviews. Because homeless persons generally move about more during the day than at night, an additional critical objective for our project was to develop procedures for identifying whether a person had been interviewed before.

METHOD

REH Experimental Test. At the end of June in 1989 we conducted a special pilot test to examine the operational feasibility of a daytime method and to learn about the sources of error associated with each of the three types of enumeration methods, i.e., for shelters, nighttime street locations, and daytime service facilities (see Campanelli et al., 1990). The focus of this paper, however, is limited to the interplay between the daytime procedures and respondent accuracy. Specifically this involved two sub-studies. First, we wanted to test the accuracy of the procedures to avoid duplicate interviews and the impact of inaccuracy on the total counts. Second, we wanted to ascertain how accurate respondents' answers were about the place in which they slept the night before the survey. This had an impact on our ability to discriminate between the "homeless" and the "domiciled."

Note that we're using the term "accuracy" to refer to the absence of "response error." In the psychometric literature, complete accuracy is defined as no discrepancy between the "measured" value (e.g., a person's answer to a survey question) and the latent "true value" of the answer. In our work, "accuracy" was assessed through a comparison of alternate "measurements." Thus, we are not assessing accuracy in an absolute sense.

The pilot test was conducted in a preselected portion of downtown Baltimore. The S-Night shelter component was implemented during the evening of June 27th, 1989, and the S-Night street component during the early morning hours of June 28th. The alternative S-Day method was conducted during the day of June 28th.

All nighttime shelters and daytime service facilities that served homeless persons within the pre-designated test boundaries (approximately 380 downtown blocks) were included. In addition, local police officers and service providers were asked to identify street locations and commerce places (such as all-night restaurants and theaters, bus stations, etc.) and abandoned buildings where they believed homeless people congregate at night. All such "nighttime congregating sites" that were mentioned more than once and were within the test boundaries were included in the S-Night street phase of the test.

The S-Night method and the alternative daytime method were both complete "censuses" of each facility and street location. Sampling methods were not used. All persons in shelters or daytime facilities were counted except for staff who had a usual home somewhere else. For the street count, all visible persons were counted except those in uniform or engaged in obvious money-making activities other than begging or panhandling. These rules matched the 1990 census procedures.

S-Night questionnaires included basic demographic information and questions about how frequently respondents used particular shelters and other service facilities. If respondents refused or could not be interviewed because they were asleep or unapproachable, interviewers were told to answer the questions on age, race, and sex ("last resort" information) from observation or administrative records.

Based on our pretesting, we anticipated that interviewing persons at some daytime locations, such as soup kitchens, would be difficult. An enumerator has the greatest control of the interviewing situation while respondents are waiting in line, preferably prior to the opening of the facility. When a daytime facility opens, for example, the lines usually move rapidly. Once inside, potential respondents typically eat quickly and leave. To maximize our chances of including everyone using daytime facilities under the S-Day method, we had enumerators first contact and list all people while they were waiting in line. During this initial contact, we relied on respondents to voluntarily tell us if they had been interviewed (or had participated) before.² We purposely decided not to ask respondents a direct question about whether they were interviewed before. This was to reduce the opportunity for respondents to

² We use the term "interviewed" here and later in a broad sense to mean "participated," as shelter individuals were given the option to complete their own forms.

say they were already interviewed as a way to escape from the current interview.³

The prior interview could have taken place either the evening before (as part of S-Night) or earlier that morning at another daytime facility (as part of S-Day). (As noted before, screening for duplicates is an essential part of a daytime approach, whether or not a nighttime method is also conducted.) If the respondent volunteered that he/she had already been interviewed, the enumerators were instructed to find out where and when this interview had taken place and obtain the respondent's birth date and initials. Birth dates and respondent initials were used later to verify the information provided by respondents about a previous interview. If respondents wanted to know why we asked for identifying information, we explained the purpose was to make sure they were not counted twice.

After the first contact, all respondents who did not volunteer that they were interviewed before and who agreed to talk with us were interviewed using the S-Day questionnaire. This questionnaire contained a series of questions (see Table 1) about sleeping places (including where respondents had slept the night

³ An alternative possibility is that a direct question would be advantageous. Respondents may see a direct question as "serious and official" and give a truthful answer. More will be said on this in the "Discussion" section.

before the survey), which we used in analysis to define "homeless status."

Matching. The information obtained during S-Night and S-Day was used in the first sub-study to verify whether respondents had been interviewed previously. For the second sub-study we verified, to a limited extent, respondents' reports about where they slept the night before the survey through administrative records kept by several facilities in the test area.

Our design thus allowed for a "full design" record check procedure. Such a design allows one to detect both underreporting and overreporting errors, because all positive and negative "survey" responses are compared against all positive and negative "record" responses.⁴

For the first sub-study, all persons who reported having been interviewed before as well as those who had not volunteered this information were compared with all census forms (those for the shelter, street, and daytime counts) and vice versa. Thus, in

⁴ Such a design is superior to one-directional designs, such as a "prospective" design in which survey responses are obtained and "yes" responses are then verified against records or a "retrospective" design in which records are selected for persons with the positive attribute of interest and then survey responses are obtained for comparison. For a discussion of the values of the "full design" approach, see Marquis, 1978.

essence, we looked not only at the location where the person said he/she had been interviewed, but at all other locations.⁵

Persons who refused or who had been counted by observation or administrative records were technically not "interviewed" and therefore should not have said that they had participated previously. These cases were therefore excluded from the matching analyses for this sub-study. The potential impact of excluding these "noninterview cases" from matching is discussed in the "Results" section.

For this first sub-study, the matching was based on birth dates and name (or initials), supplemented by information on the respondent's sex, race, and age. Other researchers have also found the combination of birth date and initials useful as unique identifiers among this population (see, for example, the use of this method by Dockett, 1989; Robinson, 1986). Matching was accomplished by loading all of the data records into a single computer file and conducting birth date and name sorts followed by clerical review. Each clerical review was done twice by different team members. As a minimum, birth date and/or initials had to be present and match exactly, in addition to characteristics (sex, race, and age), before a comparison would

⁵ Note that cases where a person may have been contacted multiple times within the same facility are not considered here. The few "within-facility" duplications which were found were excluded from the data prior to the current matching operation.

be considered a match. Although cases with either birth date or initials missing were considered matchable, all of the data records used for matching (with the exception of one) had both birth dates and initials present. Note also that in many cases, we had respondents' full names to aid in the match process.

Matching of the "where slept" data for the second sub-study was conducted mainly through a comparison of respondent names (or initials), as that was all the information that was available on most facility rosters. This was supplemented with identification of the respondents' sex through knowledge of whether a facility served only men or only women. Additionally, at two large missions, birth date and race were available.

The second sub-study was restricted by not having access to the administrative records of all possible shelters in Baltimore where a person could have spent the night. We did have records for 84 percent of the population who spent the night at shelters within our test boundaries. In addition, we had records for the test night for a major shelter just outside of our test boundaries. Our analyses focused on a comparison of two groups: those who reported having spent the night in a shelter (for which we had access to records) versus everyone else.

It is important to note that any "record-check" study used to measure respondent error is subject to its own sources of error.

These include errors in the "record" data and errors in matching. This will be discussed further in the "Results" and "Discussion" sections.

Analyses. We were interested in determining, to the extent possible, the proportion of cases where the respondents' answers did not match the administrative records, i.e., the off-diagonal cells shown in Table 2. These include the proportion of daytime interview cases in which respondents:

- 1) Volunteered that they had been interviewed before but no matching census forms were found (Cell c).
- 2) Did not volunteer that they had been interviewed before, but matching census forms were found for them (Cell b).
- 3) Were interviewed and reported having spent "last night" in one of the shelters (for which we have record data) but no match could be made with those listed at the shelter (Cell g).
- 4) Were interviewed and reported having spent "last night" in a place other than a shelter from which we had record data, when a match was made with shelter records (Cell f).

The data in these cells will be used to estimate rates of overreporting (false positives: $c/a+b+c+d$) and underreporting

(false negatives: $b/a+b+c+d$). The net bias estimate is given by $c-b/a+b+c+d$.⁶

Table 2 represents the "ideal" comparisons to be made. Some cases did not cleanly fit into one of the cells in Table 2. Tables documenting these situations are also presented in the next section.

RESULTS

In the preliminary results of the Baltimore test, 233 persons were counted at nine shelters, 52 at twenty-five nighttime congregating locations, and 451 at nine daytime service facilities.⁷ Table 3 shows the source of the data. For example, for the S-Night shelter count, 23 persons appear to have

⁶ Examination of a net bias statistic may seem odd in this context. For questionnaire screening procedures, one is typically concerned with getting accurate responses, not simply balancing false positives and false negatives. For our census work, however, we were interested in the effect of inaccuracy on "total" counts.

⁷ Any inferences based on a comparison of the counts achieved under the three different methods (shelters, nighttime street locations, and daytime service facilities) should be made cautiously. The counts were affected by the number of each type of facility or street sites included. In addition, between one count and the next persons may have left or entered the boundaries of the study area. Some shelters in the test area had their own meal programs so it is unlikely that residents at these shelters would be found at daytime soup kitchens. The total counts for all three procedures include persons who may be considered "domiciled." We believe these types of persons make up a larger proportion of the S-day than the S-Night counts. In other analyses of these data for other reports, domiciled persons are excluded.

been "counted" via enumerator observation, 59 were counted via administrative records, and 151 were interviewed in person or filled out a form. For the S-Night street count, 20 persons were counted via observation and 32 were interviewed.⁸

Of the 451 homeless and domiciled persons counted at daytime shelters, 287 completed the full interview process. The 164 other cases include 28 persons who were eligible for the full interview but only appear on our initial contact list (attrition cases), 29 who refused the full interview but gave their birth dates and initials at the time of initial contact, 32 who completely refused, and 75 individuals who were screened out because they said they were interviewed before.

As mentioned earlier, persons who refused, or who had been counted by observation or administrative records were technically not "interviewed" and have been excluded from the matching analyses for the first sub-study. This includes 82 S-Night shelter cases, 20 S-Night street location cases, and 61 S-Day refusal cases.

⁸ These divisions were estimated based on the pattern of data present on the questionnaire. For persons counted by observation, enumerators were instructed to fill in information on age, race, and sex. Questionnaires filled from administrative records had only the respondent's full name, race, and sex. If the person was interviewed or filled out the form himself/herself, other information should in principle also be present (such as year of birth, name, marital status, Hispanic origin, place of birth, etc.)

Reports of Having Been Interviewed Before. In this section we will focus on the subset of people in Cell c of Table 2. Seventy-five persons encountered at daytime facilities volunteered that they had been interviewed the night before or earlier on June 28th as part of the daytime interviewing. Enumerators gathered information on the location of this "previous interview" from all but 1 respondent. Of the remaining 74, only 6 (8 percent) reported to have been interviewed at a location and time that was not part of the test. Three of the 6 identified a facility which had been used for enumerator training just prior to the test. It is possible that the other 3 had also mistaken some other situation for the current Census Bureau interview in which we were interested. As described earlier, we had not asked a direct question and probed to see if there was any respondent confusion as to what constituted "participation" in the test. Overall, the small number of discrepancies of this kind suggested that the procedure was reasonable, but further examination of the data was needed.

We did not have birth dates and initials for 18 of these 75 persons. Seventeen of the 18 were interviewed by just two enumerators. This suggests that the missing information was more an enumerator problem than a respondent refusal problem. After we excluded the 18 cases with missing data, we conducted matching comparing the remaining 57 individuals to the 151 shelter cases,

32 street cases, and 287 daytime cases who were interviewed and the 28 daytime cases who should have been interviewed.

The fact that some detective work may be necessary in this type of matching is illustrated with the following example. A cluster of 3 individuals had given a particular street name as the location of their previous interview. We initially thought this was a false reply until we examined a Baltimore map and noticed that in part of the city a street is renamed and we did have a facility at that location (Facility #205). All 3 individuals were matched to the enumerators' initial contact listing for that facility. Curiously enough, however, these individuals had not been interviewed at Facility #205. Instead, they had been listed as "noneligible" because they had claimed yet a prior interview at "church."⁹ The response of "church" brought to mind "a church," but in Baltimore there is a Church Street, again with a facility (Facility #203). (It was unclear whether or not they were interviewed at Facility #203. This point is discussed later; see page 23.)

Table 4 contains the match results for the 75 people who reported a prior interview. As can be seen in the last column, there were 25 persons who specified a daytime location for the previous interview, 25 who identified a nighttime location, and as already

⁹ Pseudonym used to protect confidentiality of test location.

discussed, 6 who gave an ineligible location, 1 who did not give a location, and 18 for whom match information was missing.

Overall, 22 of the 57 respondents with match information (39 percent) were matched to where they said they had been. Another 3 respondents (5 percent) were matched to census forms, but at another location than the one they gave.

44%
match

We could not match another 13 who reported being at a daytime facility and 12 who reported being at a nighttime facility. These 25 nonmatches (44 percent) gave a correct date for the interview, but we could not match them to a shelter, street, or daytime questionnaire. Table 5 shows our initial hypotheses for reasons for the 25 discrepancies. We then examined the data further to determine the most likely possibilities. In general, hypotheses #1 (nonmatches due to missing data or missing interview questionnaires) and #2 (initial contact confused as an interview) can be ruled out. All respondents who were interviewed, with the exception of one, gave either their initials (and in many cases their full name) and birth dates. All forms were numbered sequentially by interviewers and there are no gaps in the sequence of forms we have. Some people were contacted multiple times, but in each case they mentioned their previous interview and did not confuse the first contact as an interview.

Hypothesis #4 (different name) also seems unlikely. We had been concerned that obtaining names (or simply initials) would be a sensitive question and might lead respondents to refuse or give aliases. We were pleasantly surprised by the willingness of respondents to provide their names; initials and/or names were obtained for all S-Day questionnaire respondents. Even half of the S-Day respondents who had refused the full interview still gave us their initials and birth dates. In addition, there were only two obvious cases where respondents may have used "pseudo" names: "Calvin Klein" and "Jeri Curl." There may be others we have not detected. It is also possible that respondents may sign into a mission using one name but use a different name for official forms like a census questionnaire. To compensate for this, we included "nickname" as one of the items on the S-Day questionnaire.

Individuals who probably fall under Hypothesis #3 (at the facility but not interviewed) are the three "church" individuals described earlier. They were accurate about their encounter at facility #205, so it is unlikely they would fall under Hypothesis #5 (false answer). It seems most likely that they were at the facility and knew census interviewing was occurring, but just did not participate.¹⁰ There was only one person on the initial

¹⁰ Based on evaluation work, we know this facility had a particularly large undercoverage rate (approximately 54 percent) for persons not even being contacted by census enumerators. The facility director had requested that enumeration take place after the meal only. After the meal, individuals had no incentive to

contact list for the "church" facility who did not provide his birth dates and initials. It's possible that one of three "church" individuals is this person, but that does not account for the other two.

25?
Hypothesis #3 or #5 would appear to be the most likely explanations for the remaining nonmatches. As described below, we next conducted a more thorough review of the nonmatches to isolate the origin of some of the discrepancies. We found an interesting clustering effect¹¹ for the nonmatches which was not present to the same extent among the matches. For example, 17 of the 32 people whom we could not match (53 percent) were physically clustered¹² into five distinct groups within facilities 202, 204, and 205. The other nonmatched people appeared to be randomly distributed among all of the facilities. Of note here is the fact that persons who were waiting next to each other in line actually gave the same nonmatching responses. As shown in Table 6, this occurred in 15 of the 17 clustered

stay and be interviewed by the Census Bureau when participation was voluntary.

11 This could be called "spatial autocorrelation."

12 This clustering could be determined because of the consecutive numbers assigned to respondents by daytime enumerators. Thus, the clustering of numbers reflects the physical clustering of people. For this analysis, a cluster is considered as those individuals who had either adjacent numbers or were no more than one number apart. Respondents at facilities 201, 202, and 204 were interviewed in line outside of the facility. Respondents at facilities 205 and 207 were interviewed in a waiting area inside the facility.

cases (47 percent of all of the nonmatched cases). This clustering could be due to the fact that persons travel together; certainly the "church" group traveled together. But it could also represent some of the dynamics of the interview situation (i.e., the first person in a cluster specifies a mission as the place of previous interview, the next person sees that that response allows one to be free from the burden of being interviewed and makes the same claim, and so on). In contrast, only 11 of the 25 matched cases (44 percent) were standing next to each other in line and only 4 of these (16 percent) gave identical responses.

Impact of Excluding Noninterview Cases. As already mentioned, "noninterview" cases were excluded from this matching process. Because of the possibility that some refusal cases might consider their initial contact with an enumerator as "an interview" and the possibility that the excluded cases we had classified as "enumerator observation" or "administrative record" cases (on the basis of patterns of missing data) were indeed interview cases, we felt it was important to find out how many potential matches would be found between those who reported a prior interview and all of the "noninterview" cases. This was done by first comparing the number of unmatched prior-interview cases for each facility to the number of noninterview cases at that facility. (The number of potential matches can not exceed the number of noninterview cases.) Individual cases were then examined to see

if a noninterview person possessed the same age-race-sex pattern as the unmatched person. (This further limited the number of potential matches.) Facility administrative record data were also examined to see whether the unmatched person was at the facility. Based on this process, it was determined that at most 7 more persons could be added.

Persons NOT Reporting to Have Been Interviewed Before, When in Fact They Had Been. We were interested in determining how many people consented to a second complete interview without mentioning the first (Table 2, Cell b). This matching, in essence, involved a comparison of all of the S-Day cases with each other and a comparison of all of the S-Day cases with all of the S-Night shelter and street cases. As with the match among those who had reported a previous interview, noninterview cases (i.e., refusals and persons counted via record data or observation) were excluded. It was not necessary to compare S-Night data with themselves because there was no formal S-Night procedure which allowed respondents to volunteer that they had been interviewed before. As a result of this matching, we identified 7 instances where persons consented to a second interview without mentioning the first (see Table 7).

Impact of Excluding Noninterview Cases. It is possible that some of the refusal cases at daytime facilities were refusals because they had already been interviewed and are thus undetected

matches. We know, however, that this is not the case for any of the 29 refusals for whom we have matching information. When these were compared with the other daytime cases and the S-Night interviews, no matches were found. It therefore seems unlikely that many matches would be found with the 32 daytime refusal cases for whom we do not have identifying information, especially as it would have been relatively easy for them to report that they had already participated.

If it is assumed that the proportion of refusal cases who failed to report a prior interview is the same as the portion of S-Day and S-Night interview cases who failed to report a prior interview (i.e., $7/498=1.4\%$), then 1 ($32 \times 1.4\%$) additional undetected match would be present.

To be thorough, we also examined the potential for undetected matches with the other noninterview cases (i.e., the 59 shelter cases obtained via records and the 45 shelter and street cases obtained via observation). In a comparison of the 59 shelter cases obtained via records with all of the S-Day cases, two additional matches were found. If it is assumed that the proportion of the 45 S-Night observation cases who failed to report that they were interviewed before is the same as the proportion of S-Day and S-Night interview cases who failed to report that they were interviewed before (i.e., $7/498=1.4\%$), then 1 ($45 \times 1.4\%$) additional undetected match would be present.

In total, then, 4 matches could have potentially been missed by the main matching process.

Summary of Results on "Interviewed Before" Issue. As shown in Table 7, for over half of the respondents (32 out of 57: 56 percent) who said they had been interviewed before and for whom we conducted matching, no questionnaire could be found (false positive replies). In comparison, about one-fifth of respondents (7 out of 32: 22 percent) for whom matches to questionnaires were made did not report they had been interviewed before when in fact the data suggest they had (false negative replies). A conclusion to be drawn from this table is that if respondents realize they can escape the interview by reporting they've already been interviewed, significant undercounting is likely. On the other hand, if a person does not mention a previous interview, it is likely that they were not interviewed before and that double counting is thus less of a problem.

While these figures suggest that our indirect screening procedure did not produce very "accurate" results, our total count was minimally affected. The majority of the study cases did not report a previous interview and were not interviewed before (the "No/No" cell, Cell d of Table 2 is proportionally very large). Thus, there was an overall overreporting rate of 6 percent, an underreporting rate of 1 percent, and a net positive bias of 5 percent.

These results are fairly robust even in the presence of missing data and potential undetected matches. For example, Table 4 excluded the 18 cases with a prior interview and missing identifiers for whom we could not conduct matching. If we assumed that the same match rate (44 percent) applies to these 18 people as to the 57 cases, then the results only change slightly (i.e., new overreporting rate=8 percent and new net bias index=7 percent).

If the potential undetected matches among noninterview cases were also taken into account,¹³ we would have an overreporting rate of 5 percent, and underreporting rate of 2 percent, and a net bias index of 3 percent.

Where Persons Reported to Have Spent the Night Before the Survey.

This section examines how well daytime respondents report their sleeping location for the night before the survey. We compared their reports with the sign-in rosters facilities used to determine who was present when the S-Night operation was conducted.

Sleeping location is a screening question topic that is often used to distinguish between the "homeless" and the "domiciled." It is also used to distinguish between those who slept in a

¹³ This refers to the 7 possible false positive matches and the 4 possible false negative matches described in the "Impact of Excluding Noninterview Cases" sections for this sub-study.

shelter and those who slept in the street or an open public location. Most research to date assumes that responses about the type of location where a person slept are accurate.

Determining respondents' accuracy to the "where slept" questions also gave us figures to compare with those discussed in the "interviewed before" sub-study. We hypothesized a higher degree of accuracy among respondents' answers to the "where slept" questions than to the "prior interview" issue, because of the different placement of this information in the interview process. For example, the questions about where a person slept the night before the survey occurred about half-way through the daytime interview and were therefore less blatant. In addition, giving a particular response to the "where slept" questions did not substantially shorten or lengthen the interview, as claims to a "prior interview" did.

Overall, 62 daytime respondents mentioned sleeping in a shelter the night before, 173 in a house, apartment, or room, and 42 identified some other type of location (e.g., open or public street location, place of commerce, a hospital, etc.) Among the 62 respondents who mentioned sleeping in a shelter the night before, 39 specified facilities for which we had sign-in rosters. For the remainder, 15 identified locations where we were unable to obtain sign-in rosters. Eight did not provide enough information to determine the specific shelter. We compared the

names of all of these respondents (n=287) with all persons listed in the shelter rosters we had available.

Ideally, we would have liked to have shelter rosters for all Baltimore shelters, but several shelters were concerned about violating their clients' privacy and refused to provide this information. This limited our comparisons, as we could not verify every person's report. For persons who reported being at one of the facilities for which we had administrative records, we checked that facility as well as other facilities. For persons who reported a facility or other type of location for which we did not have information, we checked to see whether a match could be made to the records we had.

Student evaluators who were working at these shelters as part of an independent evaluation project of the University of Maryland indicated that the sign-in rosters for these facilities were fairly accurate. There is, however, the possibility for errors in the "record data." In addition, we may have incorrectly deciphered handwriting on some of the rosters.¹⁴ There were 16 illegible entries on one mission roster which could not be deciphered (4 percent of total record names, 12 percent of entries for that facility). Other potential errors include the

¹⁴ This possibility is minimized by the fact that one of the authors had worked among this population for approximately a year and knew many of the clients' names.

possibility that individuals use an informal name on a facility roster and a formal name on a census questionnaire.

Bearing these caveats in mind, the results of this part of the matching effort are shown in Table 8. Where shelter records were available, 23 of 39 respondents (59 percent) were matched to the shelter they reported. One respondent (3 percent) was found at a location other than the one specified. For 15 of the 39 cases (38 percent), matches were not found in the record data for the night of June 27th.

Persons Reporting Spending the Night Someplace Other than a Shelter with Records, But Found in Shelter Records. We reviewed the data for persons who said they did not sleep at a "record data" shelter on June 27th even though they were found in shelter records for that night (Cell f in Table 2). First we reviewed all cases where respondents reported having spent the night in a house, apartment, or room to see whether the address listed was actually the address of a shelter. There were no instances of this. We next compared the name of every respondent for whom we had a completed S-Day interview with the names on all of the June 27th shelter records. Where available, we also checked respondent characteristics and birth dates. This process yielded 5 matches among respondents who reported to have spent the night in a house, but who were listed in the June 27 shelter records.

Summary of Results on the "Where Slept" Issue. Table 9 shows the underreporting, overreporting, and net bias statistics for our analysis of respondents' answers about where they slept the night before the survey. This comparison was between those who mentioned spending the night in a shelter for which we have rosters (39 people) and those who reported spending the night in some other location. This second group includes 215 people who reported a house, apartment, or room and 15 who reported a shelter for which we do not have records. Those who gave a nonspecific shelter location or who did not give a location are excluded from Table 9. These data show a 6 percent false positive rate, a 2 percent false negative rate, and a net bias rate of 4 percent.

and other type location

An hypothesis for future testing is that some persons who sleep in secret street locations and are concerned about revealing these locations may prefer to give a more neutral response such as the name of a shelter. Similarly, some persons who sleep in a shelter who consider this a socially undesirable response may choose to list a house or apartment address.

DISCUSSION

In the first sub-study we explored the issue of how well our "interviewed before" procedure worked. This was done by comparing respondents' volunteered statements to census forms. For the second, we explored the issue of the accuracy of

responses to the "where slept" question. This was done by comparing census forms to facility records. As with any record check study, nonmatches in these comparisons may be the result of many different factors. For example, there may be errors in the record data, in the way illegible information was deciphered, or in the matching process itself. It could have been caused in part by enumerator error, missing data on questionnaires, errors in computer files, and so forth. Thus, there are caveats connected with drawing firm conclusions from the results of these sub-studies and saying anything about validity in an absolute sense. Similarly, this paper reflects our preliminary review of the data.

Despite these caveats, the data do suggest some patterns. These findings are useful for the design of new procedures and suggest hypotheses for further research. First, with respect to procedures to guard against duplicate interviews, we found that volunteered reports by respondents as to whether they had been interviewed before were not accurate enough to be useful as a screening procedure for a census. For example, many people (25 of 57; or 44 percent) reported to have been interviewed before when in fact this appears not to have been the case. This high rate also suggests the need to obtain matching information as well as answers to any key survey items at the time of screening. In this way, matching can be done during analysis and anyone for whom a duplicate questionnaire is found can be excluded from the

count. (Note, however, that if responses are incomplete an/or matching is not thorough, such a procedure could lead to an overcount.) Overall, with the small proportion of persons in our study who appear to have been interviewed more than once, our indirect screening procedure to avoid duplicate interviews, although inaccurate, did not have a large impact on total counts, e.g., the net bias figure was 5 percent.

As described below, this problem probably could be reduced through more control of the interviewing environment, where this is possible, so that respondents don't hear each others' answers. Another line for further research is to investigate the use of a direct question to obtain previous interview status. A direct survey approach may be preferable as indirect survey approaches (such as allowing people to volunteer information) do not always lead to good measurements. With an indirect approach, respondents may act under a different set of expectations including the idea that the screening interviewer would prefer that the respondent lie about being interviewed before. The clustering effect described could be the result of failing to make our interview expectations clear. On the other hand, one could hypothesize that a direct question could lead to even more overreporting as it could be relatively easy to report a "yes" response to a previous interview and the direct question could alert the respondent to this possibility.

There appears to have been some kind of group dynamic with respect to behavior in lines. It is true that people travel together, but the fact that persons who were clustered in line gave the same response and that a large proportion of these resulted in nonmatches suggests that response error due to motivational factors is working. It's plausible that respondents figured out that if they said that they had been interviewed before, they could escape further questioning. This is supported, in part, by the different match rates for the two sub-studies examined in this paper, i.e., a 44 percent match rate among persons reporting to have been interviewed before as compared to a 62 percent match rate among those respondents identifying their sleeping places. Particular responses to the sleeping place questions did not release respondents from the rest of the interview, as volunteering a previous interview did. Secondly, there is evidence from other research literature to suggest that respondents will learn to take the easy way through skips to end an interview quickly. For example, early work on screening methods for crime victimization suggested that respondents learned the pattern of the interview and that a "yes" response to a screening question led to a long series of detailed questions and therefore began to avoid giving a "yes" response (Biderman et al., 1967). Data from the test suggest that we should investigate alternative interviewing strategies that avoid the use of lines and allow interviews to be more private. It

also suggests that screening questions that stop an interview should be used judiciously.

The data also suggest some evidence that a small proportion of response errors (nonmatches) are due to communication ambiguity. Three respondents, for example, mentioned being interviewed before at a facility some census interviewers had visited during training. These respondents probably thought they were giving us information that we needed, although technically this information was out-of-scope for our needs. It is also possible that the other three respondents who gave out-of-scope locations for a previous interview also had different definitions of what constituted a previous interview than we did.

A small handful of respondents gave the right date for a previous interview but specified the wrong location. In addition, there were a few who gave the right location but specified a slightly different date. These may indicate inaccuracy due to memory problems, but this can not be determined from these data.

Our results suggest that some respondents may also be inaccurate as to the "type" of location at which they slept (i.e., a house, shelter, street, etc.) as well as to their specific sleeping location. Further work on the validity issue is needed, especially as screening questions which use type of sleeping

place are often used by researchers among this population to determine whom to interview.

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TABLE 1

S-Day Sleeping Place Questions

- B1a. Where do you USUALLY spend the night?
- b. During the LAST 2 WEEKS, have you spent the night at ANY OTHER type of place?
- c. Where did you spend LAST NIGHT?
- d. (IF APPROPRIATE) What was the name of the place you stayed last night?
- e. Where is it located?
- f. (FOR HOUSES, APARTMENTS, MOTELS, ROOMS, OR SHELTERS) How long have you been staying there?
- g. (FOR HOUSES OR APARTMENTS) Whose place is it?
- h. (IF YES) Is there any limit to how long you can stay there?
- i. (IF YES) How long is that?

TABLE 2

Cross Classifications for Accuracy Comparisons

A. Match of Respondents' Reports of Being Interviewed Before

Volunteered Response of Interviewed Before	Matched Census Interview Form?		
	<u>Yes</u>	<u>No</u>	<u>Total</u>
Yes	a	c	a+c
No	b	d	b+d
Total	a+b	c+d	a+b+c+d

B. Match of Respondents' Responses of Where They Slept 'Last Night'

Responses about Where Slept Night Before Survey	Listed in Shelter Records?		
	<u>Yes</u>	<u>No</u>	<u>Total</u>
Shelter w/ data	e	g	e+g
Other	f	h	f+h
Total	e+f	g+h	e+f+g+h

Table 3

Source of Data for Homeless and Domiciled Persons Counted in the
1989 Baltimore Pilot Test

<u>Count Obtained From:</u>	<u>Shelters</u>	<u>Street</u>
Enumerator Observation	23	20
Administrative Records	59	NA*
Interview or Self-Administration	151	32
	---	---
Total	233	52

<u>Counted Obtained From:</u>	<u>Daytime Facilities</u>
Questionnaire Interview	287
Enumerator Initial Contact List Only	
- Attrition Cases:	
S-Day questionnaire expected based on initial contact, but none obtained	28
- Refusals	
- Provided identifying info at time of initial contact, but refused main interview	29
- Completely refused	32
- Claimed Prior Interview	75
	--
Total	451

9 of these gave info. / 57

* NA = Not Applicable

TABLE 4

Match Results by Type of Location of Previous Interview

	Match		No Match		Total
	At Expctd Loc.	At Other Loc.	Match Info Present	No Match Info	
Daytime Location	12	-	13	-	25 + 9 = 34
Nighttime Location	10	3	12	-	25 + 1 = 26
Out-of-scope Loc.	-	-	6	-	6
No Location Given	-	-	1	-	1
No B-Date/Initials	-	-	-	18	18
TOTAL	22	3	32	18	75

TABLE 5

Reports of Having Been Interviewed Before:
Hypotheses for Nonmatches

- #1 Truthful answer, nonmatches due to missing data or missing census forms - Respondents' answers were truthful but they did not provide enough information at the time of the first interview to allow us to conduct matching; Census forms were lost.
- #2 Truthful answer, but confusion w/ listing event - Respondents may have confused an initial contact with an S-Day listing enumerator (collecting initials and birth dates) as "having participated."
- #3 Partially truthful, at the facility but were not interviewed.
- #4 Partially truthful, interviewed but under a different name.
- #5 False answer - Their reports to have been interviewed and have been at the facility were false.

TABLE 6
 Reports of Having Been Interviewed Before:
 Clustering* of Nonmatched Cases

<u>Facility</u>	<u>R#</u>	<u>Facility # Where R Reported Previous I'view</u>
201	5	214
202	5	215
	6	Bogus date and place
	7	Bogus date and place
	40	Mission but later said house
	41	Mission but later said house
	42	Mission but later said house
	43	Mission but later said house
203	10	214
	16	214
	22	No location given
204	44	202
	45	202
	46	202
	89	217
	94	203
	98	205
	305	217
	308	202
	331	Bogus date and place
	337	Pretest facility
338	Pretest facility	
340	Pretest facility	
342	205	
205	5	Park
	6	Park
	7	Park
	16	202
206	29	202
207	5	217
208	1	203
209	5	225

* A cluster is considered as those individuals who had either adjacent numbers or were no more than one number apart. It is possible that others could have also potentially overheard.

TABLE 7

Accuracy of Respondents' Reports of Being Interviewed Before ^a

Volunteered Response of Interviewed Before	Census Interview Form?		
	<u>Yes</u>	<u>No</u>	<u>Total</u>
Yes	25 ^b	32	57
No	7	491	498
Total	32	523	555

Percent overreporting = 6%

Percent underreporting = 1%

Net Bias Index = 5% overreporting

^a As described in Table 4, there were 18 people who indicated that they had been interviewed before for which we cannot conduct matching. These persons have been excluded from the overreporting, underreporting, and net bias calculations.

^b Includes all respondents matched to census forms, whether this was at the location specified or at a different location.

TABLE 8

Results of Matching Shelter Records with Respondent Reports
of Where they Slept the Night Before the Survey

Reports by Respondents	<u>Match</u>			<u>No Match</u>	<u>Total</u>
	At Expctd Loc.	At Other Loc.	Sub- total	Sub- total	
Shelter, records available	23	1	24	15	39
Shelter, records not available	NA	1	1	14 ^a	15
Shelter, nonspecific	NA	NA	5	3	8
Other location	NA	5	5	210 ^a	215
No location given	NA	NA	0	10	10
TOTAL	23	7	35	252	287

} 62

^a In cases where respondents reported to have been at a shelter for which records were not available or at some other type of location, matching at that particular location could not be conducted. However, we did conduct matching to see if these persons matched to any of the shelter records we had.

TABLE 9

Accuracy of Respondents' Reported of Where
They Slept the Night Before the Survey

Where Reported Sleeping the Night Before the Survey	In Shelter Records?		<u>Total</u>	
	<u>Yes</u>	<u>No</u>		
Shelter w/ records avail.	24	15	39 a	62%
Other	6	224	230 b	
Total	30	239	269 c	

Percent overreporting = 6%

Percent underreporting = 2% ^c

Net Bias Index = 4% overreporting ^c

a Includes all respondents who reported to have spent the night in a shelter for which we had records.

b Includes 15 people who reported to have stayed at a shelter for which we did not have records as well as persons reporting some other type of location.

c Excludes 8 persons who did not give the name of the specific shelter (the 3 nonmatches for these latter persons may have occurred because they stayed at a shelter for which we do not have records). Also excludes the 10 persons for whom we do not have any location information.