Alcohol and Drug Services Study (ADSS)

Methodology Report: Phases I, II, and III

NOTE

The Alcohol and Drug Services Study (ADSS) provides an opportunity for researchers to explore and analyze a unique data base that can provide new insights into the relationships between substance abuse treatment clients and facilities. Great care has been taken by staff of SAMHSA's Office of Applied Studies (OAS) and its contractors to create ADSS public-use data sets that are as complete as possible and consistent with the statutory requirements to maintain and safeguard the confidentiality of individual and institutional records. These requirements have been balanced against the important need to make the ADSS data files available in a timely fashion and to facilitate electronic download and analysis by users. Accompanying these files is documentation that has been compiled into a series of ADSS reports. Several of these ADSS reports are being released as working documents to minimize delay. Every effort has been made to ensure the accuracy of the working documents, but errors may still remain. We request that you bring any errors to the attention of OAS staff.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Office of Applied Studies

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Introduction

This report presents the methodology for the Alcohol and Drug Services Study (ADSS), a nationally representative, multi-year sample survey of substance abuse treatment facilities and clients, sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA).

The objectives of ADSS were to collect detailed information on the characteristics of substance abuse treatment facilities and their clients and to study relationships among facility characteristics, treatment services, and clients in treatment. The data will be used to develop better estimates of client length of stay and the costs of treatment and to describe the post-treatment status of clients.

This report provides an overview of the entire ADSS methodology and, for each of the three phases of data collection, presents the survey universe, the sample design, the data collection procedures, the field response rate, and the data preparation procedures, including data editing, weighting, and for Phase I, imputation of missing data.

In addition to this ADSS methodology report, more detailed reports on the sample design, weighting, and data file preparation are available from SAMHSA.

The ADSS facility and client sample survey consisted of three phases: (I) a facility-based telephone survey with a representative sample of 2,395 substance abuse treatment facilities; (II) a site visit at a subsample of treatment facilities where client-level data were collected from the records of more than 6,700 clients sampled at the facilities; and (III) follow-up personal interviews with selected clients to determine their post-treatment status in terms of substance use, economic status, criminal justice status, and further substance abuse treatment episodes. The facility and client samples were selected using a multi-stage, stratified sampling process.

Phase I involved telephone interviews with a national sample of 2,395 substance abuse treatment facilities selected from SAMHSA's inventory of known facilities. The facilities were stratified by treatment type as follows: hospital inpatient only, non-hospital residential only, outpatient alcohol treatment only, outpatient methadone only, all other outpatient (the largest stratum), and facilities with combinations of treatment types. The Phase I facility director interviews, conducted from December 1996 through June 1997, collected point-prevalence data for October 1, 1996, and annual data for the most recent 12-month period for which data were available.

Phase II involved site visits to a subsample of 280 of the facilities that participated in Phase I, excluding hospital inpatient only facilities. The Phase II site visits, conducted from August 1997 through April 1999, included a face-to-face interview with the facility administrator and the abstraction of client-level data from a sample of client records. In total, client-level data were collected for 6,720 sampled clients, including the following subgroups: 5,005 clients in the discharged client sample group (outpatients and residential clients discharged from treatment during the 6-month period preceding the visit); 925 clients in the in-treatment methadone client

sample group (methadone clients active on the treatment roster on the site visit sample date); and 790 clients in an early-drop-out (EDO) comparison group (clients who had gone through in-take/assessment but attended no more than 1 day of treatment before dropping out).

Phase III involved follow-up personal interviews and urinalyses with selected groups of clients whose records had been sampled and abstracted in Phase II. The follow-up study excluded clients younger than 18 years of age and methadone clients in the discharged client sample (although methadone clients in the in-treatment methadone client group were included in the follow-up). Urine testing was conducted to validate self-report of drug use.

An additional experimental component of the ADSS Phase III follow-up study involved the payment of financial incentives to respondents at four different payment levels to test for differences in response based on the incentives. The incentive study required the division of the Phase II outpatient client stratum into four subgroups, with payment of financial incentives in Phase III at a different level for each subgroup. Only the outpatient subgroup receiving the standard incentive level ($15 for completion of the interview and $10 for provision of a urine specimen) is included with the residential clients in the main follow-up study data file for Phase III. The other three incentive subgroups are considered to be experimental and are not combined with the standard outpatient and residential study groups. Response rates for all four outpatient incentive subgroups are included in this methodology report. In addition, a comprehensive analysis of the response rates and response bias in the ADSS incentive study has been undertaken separately.

The remainder of the report is organized into three chapters, each of which is devoted to a phase of ADSS:

- Chapter 1 presents the methodology for the ADSS Phase I facility survey. It first presents an overview, followed by a discussion of the survey administration, planning, pilot testing, sample design, facility selection, and preparation of the data for analysis.

- Chapter 2 presents the methodology for the ADSS Phase II facility administrator interview and client record abstraction. It starts with a Phase II overview and sampling introduction and overview, followed by a discussion on data collection and weighting.

- Chapter 3 presents the methodology for the Phase III client follow-up study. It begins with a Phase III overview and a description of the Phase III follow-up study data collection methodology, followed by a discussion of the data preparation, home office quality assurance, and Phase III weighting.

Each chapter is followed by a bibliography that includes cited references and related materials used in the chapter's preparation. Phase-specific tables are grouped at the end of each chapter.

Appendix A contains copies of the ADSS consent forms, and Appendix B presents the response components for Phases I and II. Links to ADSS questionnaires and codebooks are provided in the table of contents and in various in-text callouts.

Chapter 1. Phase I Methodology—ADSS Facility Survey

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1.1 ADSS Phase I Overview

Phase I of the Alcohol and Drug Services Study (ADSS) was undertaken to collect facility-level and aggregate client data from a nationally representative sample of substance abuse treatment facilities. ADSS builds on the 1990 Drug Services Research Survey (DSRS) (Batten et al., 1993) and the Services Research Outcomes Study (SROS) (Office of Applied Studies [OAS], 1998), with a more complete sampling frame, an enhanced sampling design, and more detailed measures of the cost of treatment. The Phase I goals were (1) to describe the national substance abuse treatment system in terms of services provided and the financing of treatment, and (2) to establish the first stage of a multi-stage, nationally representative sampling mechanism for subsampling facilities and clients in Phase II of ADSS. The ADSS Phase I data collection included an initial telephone screening of facilities to determine their eligibility for ADSS, and, for eligible facilities, a full ADSS Phase I facility mail/telephone interview.

1.2 ADSS Phase I Survey Planning, Clearances, and Pilot Test

The ADSS Phase I facility survey, as the first step of a multi-year, multi-stage study, underwent extensive planning and clearance and a formal pilot test prior to fielding the full survey.

An initial ADSS planning committee was formed at the study's inception and was comprised of representatives of SAMHSA and several other agencies of the U.S. Department of Health and Human Services (DHHS), representatives of the National Association of State Alcohol and Drug Abuse Directors (NASADAD), and representatives of private treatment providers and provider associations. The planning committee reviewed and advised on the ADSS design, including the survey instruments, the sampling plan, response burden, and respondent recruitment.

A later steering group met in which members from SAMHSA, the Office of National Drug Control Policy (ONDCP), the Center for Substance Abuse Treatment (CSAT), the National Institute on Drug Abuse (NIDA), NASADAD, Lewin VHI, Inc., the Center on Addiction and Substance Abuse (CASA), and the Department of Veterans Affairs (VA) contributed further recommendations that were incorporated into the ADSS design.

The initial study design for ADSS was submitted for review and approved by the contractors' Institutional Review Board (IRB) on December 3, 1992. The IRB met annually to review ADSS, and the contractors' Office for Protection from Research Risks (OPRR) was kept advised of changes in study design, policies, and procedures.

As a national, multi-phase survey, ADSS imposed some burden on both facility administrators and sampled substance abuse clients to be contacted in the course of planned data collection. Pilot and main surveys for all three phases of ADSS were required to obtain Office of Management and Budget (OMB) clearance prior to fielding. The OMB package for the pilot study was approved on June 12, 1995 (OMB # 0930-0174, expiration 6/30/98). The ADSS Phase I main study OMB package was approved on September 5, 1996 (OMB # 0930-0179, expiration 9/30/99), for data collection to begin in October 1996. OMB clearance for ADSS Phases II and III combined was obtained separately.

The purpose of the Phase I pilot study was to test study instruments and data collection procedures in Phase I, identifying areas for improvement. A stratified random sample of 62 facilities in four geographic areas was selected for the Phase I pilot. The pilot sites were selected to represent both large and small metropolitan statistical areas (MSAs) and were chosen from among the primary sampling units (PSUs) not selected for the main study. Pilot testing was completed on all portions of the ADSS Phase I survey, including the eligibility screening, the main Phase I facility questionnaire, and a facility relationship questionnaire, which was eventually dropped as a result of the pilot test. The pilot results showed that the relationship study was not sufficiently productive to warrant its continuation. In place of a separate instrument, those questions in the facility relationship questionnaire found to be most useful were incorporated into the main Phase I questionnaire.

1.3 Phase I Facility Sample Design

1.3.1 Construction of the ADSS Facility Sample Frame

SAMHSA's 1995 Frame Enhancement Effort. The ADSS Phase I sampling plan called for the construction of a frame of all public and private, active, specialty substance abuse treatment facilities in the 50 States and the District of Columbia. Prior to 1995, SAMHSA's National Facility Register (NFR) was the core listing of substance abuse treatment facilities, identified primarily by State substance abuse agencies and several Federal agencies. In addition to using the core listing, SAMHSA undertook an enhancement effort to improve the inventory of substance abuse facilities by identifying facilities not included by the traditional sources. External listings of facilities that were searched included the Inventory of Mental Health Organizations (IMHO) (Center for Mental Health Services [CMHS], 1995), the American Hospital Association (AHA) Annual Survey of Hospitals (AHA, 1993), the *Business America* automated telephone directory (American Business International, 1995), and the Federation of American Health Systems directory (Federation of American Health Systems, 1994). Potential additions were called to assess their status as active substance abuse treatment facilities and checked against other listings to avoid duplication. SAMHSA's enhancement effort resulted in the 1996 augmentation to the NFR.

Two Major Components of the ADSS Facility Frame. The ADSS sampling frame consisted of two major components—SAMHSA's NFR and SAMHSA's 1996 augmentation to the NFR. The NFR component of the ADSS frame was based on facility listings as of September 13, 1995, made up of 13,787 facilities identified as active substance abuse treatment providers, excluding correctional facilities, DoD facilities, and Indian Health Service facilities. The

component of the ADSS frame derived from the 1996 augmentation effort contributed an additional 4,581 facilities. The two components combined for a total of 18,368 facilities. Ultimately, not all of the additional augmentation facilities were determined to be eligible treatment facilities. Facilities found to be ineligible during the course of the ADSS data collection were excluded from the survey.

1.3.2 Facility Sampling Methods

Sampling Strata. Stratified, random sampling was chosen as the ADSS sampling design to facilitate accurate, stable estimation of statistics of interest. The ADSS sampling strata were based on the type of care categories used in SAMHSA's Uniform Facility Data Set (UFDS): hospital inpatient, non-hospital residential, and outpatient. The large and varied group of facilities providing outpatient care was partitioned into three strata for the ADSS sampling process, and a combined stratum and an unknown stratum were created, resulting in the following seven strata:

1. "hospital inpatient" stratum;

2. "non-hospital residential" stratum;

3. "outpatient-almost exclusively alcohol" stratum consisting of outpatient facilities with at least 70 percent of clients treated for alcohol abuse only;

4. "outpatient-predominantly methadone" stratum consisting of outpatient facilities with at least 60 percent of clients treated with methadone;

5. "outpatient-other" stratum, the largest, consisting of the remaining outpatient facilities;

6. "combined" stratum; and

7. "unknown" stratum.

Assignment to Strata. Facilities from the two components of the ADSS frame were assigned to sampling strata based on type of care and point-prevalence counts from the facility's most recent UFDS response or, for facilities in the augmentation file, from screening that took place as part of SAMHSA's enhancement efforts. Facilities with missing type-of-care information were included in the seventh, "unknown" ADSS stratum. For sampling purposes only, missing enrollment count information was estimated based on other known characteristics of the facility.

Target Sample Sizes. In determining sampling strata target sizes, the advantage of a proportionally allocated, stratified sample had to be balanced against the need for sufficient facilities in categories of interest. Targets of 316 facilities were established for five of the seven ADSS sampling strata. The "outpatient-other" stratum, which was a larger part of the ADSS frame, had a target of 560 facilities. No target was set for the "unknown" stratum.

Measure of Size. Phase I of ADSS was intended to provide both facility-level and aggregate client count estimates. To improve the accuracy of the client count estimates, the decision was made to perform stratified, random sampling based on probability proportional to size (PPS). This ADSS design decision was to make facilities have selection probabilities for the Phase I facility sample that would equalize the selection probabilities of clients to the Phase II abstract sample. The key measure of size (MOS) used in ADSS's PPS sampling was the facility point-prevalence client count from the 1995 UFDS survey data.

The value used as facility MOS in doing PPS sampling has an important impact on the precision of derived estimates. Assigning an MOS of 1 for each ADSS facility would result in equal probability selection of facilities within strata. With such an approach, the design effects for facility-level analyses would be optimal at the expense of high variances for client-level analyses. On the other hand, selecting facilities with probability proportional to point-prevalence count would result in minimal variances for client-level analyses but high variances for facility-level analyses. ADSS calls for both facility-level and client-level analyses and places equal importance on both types. The compromise decision to define a facility's MOS to equal the 0.7-th power of the facility's last known point-prevalence count was expected to produce acceptable variances for both facility-based and client-based analyses.

MOS values were assigned to facilities in the core component of the ADSS frame (from the NFR of September 13, 1995), using point-prevalence data from the two most recent UFDS surveys. To prevent excessively large sample weights, minimum point-prevalence counts of 3 for hospital inpatient facilities and 5 for all other facilities were established for all facilities in the ADSS frame. For point-prevalence counts, facilities were assigned the larger of their UFDS-recorded value and their stratum-based minimum. Using 1992 and 1993 UFDS information, 10,827 facilities from the NFR component of the ADSS frame were assigned MOS values based on point-prevalence count.

For assignment of MOS values to the 4,581 facilities in the augmentation component of the ADSS frame, the primary sources of facility client counts were the screening calls made as part of SAMHSA's 1995-1996 enhancement effort. Again, low point-prevalence counts were raised to 3 for hospital inpatient and 5 for all other strata. Using this approach, MOS values were obtained for 3,842 facilities from the second component of the ADSS frame. In all, 14,669 out of 18,368 facilities in the ADSS frame (80 percent) were assigned MOS values based on actual client point-prevalence data.

Estimating Measure of Size. The remaining 3,703 facilities in the ADSS frame without known prior client counts had their sampling MOS estimated based on cells developed from facility characteristics of stratum, Census region, metropolitan status, and whether the facility treated clients classified as alcohol abuse only, drug abuse only, or both. These characteristics were all significant predictors of client count. Other candidate variables, including admissions per year, capacity, and ownership, were not used because they failed to be significant predictors. In many cases, facilities with missing client counts were missing these values as well.

Facilities with missing point-prevalence information were assigned estimated counts equal to twice the mean point-prevalence counts for the estimation cell. All facilities in the

ADSS frame with known client counts were used in the calculation of means. Use of the factor of 2 was a protection against the influence of outliers. The factor of 2 increased the number of facilities in the ADSS sample with estimated size values, but decreased the weight and therefore the influence of each such facility.

Within each stratum of the ADSS frame, a facility's probability for Phase I selection was directly proportional to its MOS. The constant of proportionality for this relationship had a numerator equal to the desired number of facilities in the stratum to be selected and a denominator equal to the sum of MOSs over all facilities in the stratum.

Consideration of the NESAT Survey. Phase I of ADSS was expected to be in the field at the same time and covering much the same group of treatment facilities as another large survey of substance abuse treatment facilities and clients—the National Evaluation of Substance Abuse Treatment (NESAT) (Westat, 1997). To ensure the highest possible response rate and to lessen the potential burden on any one facility, researchers at ADSS and NESAT coordinated selection of their samples. With the help of the permanent random number (PRN) method (Ohlsoon, 1995) to select ADSS facilities in the large metropolitan areas of the country, together with agreed-upon curtailments in sampling frames, both studies were able to generate national representative samples with minimal overlap.

Primary Sampling Units. In preparation for ADSS Phase I facility selection and to coordinate with facility selection for NESAT, the Nation was partitioned into approximately 400 PSUs. Two important subgroups of PSUs were identified: 24 "certainty" PSUs derived from the largest 24 MSAs in the Nation, necessitating their presence in any nationally representative sample, and another group of 76 PSUs, 68 from remaining MSAs in the country and 8 from non-MSA cities. The two groups of PSUs together formed a set of 100 PSUs that adequately represented the Nation when clustered sampling was required. The 76 non-certainty PSUs were matched on size, region, and socio-economic factors to form 38 pairs. Using the 24 certainty PSUs and 1 PSU from each of the 38 pairs also generated a set of 62 PSUs usable for clustered sampling.

To avoid overlap outside the certainty PSUs, ADSS and NESAT researchers agreed to divide in half the matched pairs of 76 PSUs and select non-certainty PSU facilities exclusively from their own half. Relying on clustered sampling, NESAT restricted its sample to facilities in the 24 certainty PSUs and in 26 of its assigned 38 non-certainty PSUs. These 26 PSUs were identified as the only ones that contained substance abuse service delivery units relevant to their study.

Phase I of ADSS used stratified, random sampling. ADSS restricted its sample to facilities outside the 26 non-certainty PSUs used by NESAT. Within the 24 certainty PSUs where ADSS and NESAT both needed to sample, a coordinated use of the PRN method of selection was employed to minimize the number of facilities selected for both samples. Computation of ADSS facility selection probabilities took into account restrictions to the sampling frame because of NESAT.

Selection of ADSS Phase I Facilities Within Certainty PSUs. ADSS researchers agreed to set to 0 the probabilities of selection of all treatment facilities in the 26 metropolitan, non-certainty PSUs assigned to NESAT and to use the PRN method of selection in the 24 certainty PSUs. To employ PRN selection, each facility was assigned a value, the PRN, selected from a uniform (0,1) distribution. A facility was included as a member of the ADSS sample if and only if its PRN was between 0 and the facility's ADSS probability of selection. A facility was included as a member of the NESAT sample if and only if its PRN was between 1 minus its NESAT probability of selection and 1. With the PRN method of selection, each sample was random, but a facility might only be in the two samples' overlap if its ADSS and NESAT probabilities of selection summed to more than 1. When the two probabilities of selection summed to more than 1, the probability of selection to both samples was minimized as the difference between the sum and 1.

Selection of ADSS Phase I Facilities Outside the Certainty PSUs. Facilities outside the 24 certainty PSUs facilities were selected for the ADSS sample using systematic random sampling based on PPS. Specific details on the design of the selection procedure are given below, but the basic steps to selection are as follows: To begin, eligible frame facilities outside the 24 certainty PSUs were separated by stratum and put into lists sorted by PSU type (large metropolitan, smaller metropolitan, non-metropolitan), region, PSU, ownership, and size (MOS). Next, a column was attached to the sorted list of facilities (k =1,2,3, ...) in each stratum (i = 1,2,3,...,7) denoting the facility's "hit range," the interval $[S_1^{k-1} (MOS)_{ij}, S_1^{k}(MOS)_{ij})]$. For each stratum, the skip interval, I_i, was defined to represent the spacing between selected facilities on the stratum's sorted list. Using n_i to represent the number of facilities selected in the i-th stratum, the formula for this spacing is as follows:

$$I_i = \sum (MOS)_{ij} \div n_i \quad \text{(sum is over all facilities } j \text{ in stratum } i\text{)} .$$

Finally, for each stratum a start point, s_i, was randomly selected based on the uniform distribution on $[0, \sum (MOS)_{ij}]$. A facility was selected for the ADSS sample if for some integer h between 0 and n_i - 1, the number $s_i + h*I_i$ fell within the facility's "hit range." This selection method chose n_i facilities from the stratum list using the skip interval, I_i, starting at position s_i. The "stratified, systematic PPS sample" method of selection has two important characteristics:

- Because each stratum list was sorted by the facility characteristics, PSU type (large metropolitan, smaller metropolitan, non-metropolitan), region, ownership, PSU, and size (MOS), this method selected an approximately proportional expected number of facilities with each characteristic or subset of characteristics from the stratum list. It acted to further stratify the sample by the characteristics used in sorting.

- To the extent that selected facilities were ineligible or did not respond, facility classifications of strata were incorrect, or facilities were "hit" twice (e.g., had an MOS greater than $2*I_i$), additional effort was needed to correctly calculate the n_i values, which would produce desired final ADSS strata counts.

Sequential Sampling in ADSS. ADSS anticipated significant strata misclassifications in its sampling frame, and eligibility and response rates somewhat less than 100 percent. To better control resulting stratum sizes, the ADSS sample selection process called for sequential release of facilities. The first wave of ADSS was to be large enough to provide information concerning stratum misclassification, eligibility rates, and responses rates, but not so large as to exceed target sizes for any stratum. Information from the first wave regarding stratum misclassification, eligibility, and response rates was to be used to calculate the number of additional facilities needed in a second wave. The sequential approach in Phase I of ADSS improved performance with respect to obtaining desired strata counts.

Because the PRN method was used to select Phase I facilities within certainty PSUs and systematic random sampling was used outside certainty PSUs, the two components of each ADSS wave were allocated and selected separately. Each stratum target of the wave was allocated between facilities within certainty PSUs and facilities outside based on corresponding facility distributions in the ADSS frame. Subsequent steps in selecting the wave were performed twice, once within certainty PSUs and again outside certainty PSUs, taking into account differences in sampling methods for the two components.

The ADSS Facility Oversample. Selection of the two waves of Phase I facilities from the ADSS frame was accomplished with the help of an oversample. Facilities of the ADSS oversample were selected by the methods described above, using target strata sizes, n_i, almost twice the targeted strata sizes needed for Phase I (in particular, oversample target strata sizes were 600 vs. 316 for all strata except "outpatient-all others" and 900 vs. 560 for the "outpatient-all others" stratum). Each facility ended up with two probabilities of selection: a probability of selection to the oversample, Prob(Oversample), and a probability of selection to Phase I of ADSS, Prob(ADSS). The facility's probability of selection to the oversample was roughly twice its probability of selection to ADSS, except when truncated to 1.

Because facilities had greatly varying MOS, the process of determining oversample selection probability needed to be iterative. With the initial value of n_i equal to the oversample target number of facilities for the stratum, a tentative list of facilities was selected. Because some facilities within certainty PSUs had formulas for probability of selection greater than 1 and some facilities outside the certainty PSUs had to be "hit" more than once during systematic sampling, the number of facilities on the tentative list was less than the original n_i. The amount the estimate fell short of the target for the stratum determined how much higher the original choice for n_i needed to be. The process was repeated with new n_i, until the target stratum size was reached. The oversample was divided into two approximately equal subsets. "ADSS certainty" facilities in the oversample were all assigned to the first subset. The remaining non-certainty facilities were listed and assigned, alternating between the two subsets. Within the 24 certainty PSUs, "ADSS certainty" facilities were those for which the formula for oversample probability of selection (prior to truncation) was greater than 2. Outside the 24 certainty PSUs, "ADSS certainty" facilities were those for which systematic sampling was certain to have at least two "hits."

The Release of Two Waves in ADSS. The first subset of the oversample, including all certainty facilities, became the first wave of the ADSS Phase I sample. Eligibility, response rates, and stratum misclassifications from the screening results of the first wave of ADSS Phase I were

used to determine the number and makeup of additionally needed facilities. Facilities in the second subset released for screening based on this information constituted the second wave of ADSS Phase I. After the release of Wave 2, each facility's overall ADSS probability of selection was calculated (Prob(ADSS)), taking into account its probability of being in Wave 1 and its probability of being in Wave 2. The inverse of a facility's probability of selection to ADSS determined its base weight in the ADSS sample.

1.4 Selection of ADSS Phase I Facilities

1.4.1 Sample Selection and Screening

Sample Selection. Table 1.1 shows the distribution of facilities by strata at each step in the ADSS sampling process, from frame creation through eligibility screening the selected sample. Column 1 of Table 1.1 gives the number of facilities in the ADSS sampling frame, which comprises the NFR facility list and the augmentation facility file for a total universe of 18,368 facilities. At the end of data collection, after excluding the many ineligible facilities in the frame, the ADSS sample was post-stratified to this original frame.

Columns 2, 3, and 4 of Table 1.1 provide the distribution of facilities identified at intermediate stages in ADSS sample selection. Wave 1 sample counts are presented in column 2, Wave 2 sample counts are in column 3, and the total facility sample is in column 4. The 3,643 facilities selected for the ADSS total sample is made up of 2,953 from the NFR part of the ADSS frame, 596 selected from the augmentation part of the ADSS frame, and an additional 94 facilities discovered in the course of the ADSS screening effort. During screening, 93 additional facilities were discovered as "children of administrative units" and a facility was added because 1 facility had split into 2 facilities. In the case of the 93 newly discovered facilities, the sampled facility in the ADSS frame did not provide treatment itself, but rather was an administrative unit reporting for one or more affiliated treatment facilities not listed in the ADSS frame. In this situation, the administrative unit was replaced in the ADSS sample by its "children." In the case of the split facility, both component facilities were included in the sample.

Screening for Eligibility. Phase I telephone screening began in early October 1996 and was conducted in two waves. The first wave began in October 1996 and the second wave in January 1997. Both waves were completed by April 1997.

Columns 5, 6, 7, and 8 of Table 1.1 provide results and response rates by strata from the telephone screening of the sampled facilities. Column 5 shows the distribution of the facilities determined to be ineligible for ADSS because (1) they had closed or were no longer providing substance abuse treatment (595 facilities), or (2) were ineligible facility types based on screener information (259 facilities). Ineligible facility types included facilities providing substance abuse prevention or intake and referral only, solo practices, halfway houses without paid counselors, correctional facilities, DoD facilities, Indian Health Service facilities, or Bureau of Prisons facilities. Column 6 shows the distribution of the 2,789 facilities eligible for the ADSS after screening, including 18 facilities that did not respond to the screener because they either could not be contacted or refused to answer. These 18 are "eligible non-responders" to the ADSS survey and remain part of the denominator in calculating response rates. Column 7 of Table 1.1

shows the numbers of responding eligible facilities, and column 8 shows the ADSS screener response rates, calculated by dividing the respondents in column 7 by the eligible universe of facilities in column 6. The total screener response rate across all strata is 99.4 percent.

1.4.2 Fielding the ADSS Phase I Survey and Phase I Response Rates

Phase I Facility Survey Field Procedures. The Phase I Facility Questionnaire survey was administered from December 1996 through June 1997 to facilities screened eligible for ADSS.

Advance questionnaire packets mailed to facility directors included a cover letter from the Director of the Office of Applied Studies (OAS), SAMHSA, and an ADSS endorsement letter from the appropriate State substance abuse agency (for all but four States). If a treatment facility director had been identified as being responsible for two or more sample facilities, a list of the facilities for which he or she would be interviewed also was included.

Within 2 days after the expected date of receipt of the mailing by the facility, interviewers attempted to contact the facility administrator by telephone to confirm that the mailing had been received and to start the data collection process. If the respondent indicated that the survey was not yet completed, interviewers collected as much information as possible at that point and scheduled an appointment to call back to complete the interview. If the package had not been received, the interviewer confirmed the address and initiated a tracing/remail process. Respondents wishing to verify the legitimacy of the study were provided with a toll-free number for the contractor's research center. The contractor field directors and supervisors routinely monitored interviewing calls to check the performance of the interviewers and to identify any common problems.

Compensation. Facilities were offered compensation for the time required to complete the interview. A token remuneration of $15 was included in the thank-you letter sent to each facility after the completed interview. In May 1997, the decision was made to raise the amount to $45 in order to increase the response rate.

Data Collection Call Counts. Over 25,000 calls were made to collect ADSS Phase I facility data. On average, 8.7 calls were required for completed cases, and 13.2 calls were made for cases that eventually refused. The overall average was 9.1 calls per case. In just over half the completed cases, questionnaires were answered by single respondents. In 45 percent of the completed cases, a second respondent answered the financial section. Almost 5 percent of facilities offered a different type of care than had been previously reported in the screener.

Phase I Response Rate. Table 1.2 shows the strata distribution and response rates for the eligible ADSS Phase I facility sample. Column 1 (which repeats column 7 of Table 1.1) provides the universe of 2,771 screener respondents eligible to be included in the Phase I survey. These 2,771 facilities were asked to respond to the ADSS Phase I Facility Questionnaire.

Columns 2, 3, 4, and 5 of Table 1.2 show the results of fielding Phase I of ADSS. Column 2 gives the distribution of the 168 facilities that, according to their Phase I responses, were ineligible for the survey and were therefore removed from the ADSS sample. Column 3

provides the distribution of the remaining 2,603 Phase I eligible facilities, which constitutes the denominator for the ADSS Phase I questionnaire response rate. Column 4 provides the distribution of the 2,395 facilities that completed the ADSS Phase I survey, and column 5 provides the Phase I response rate, 92.0 percent across all strata. In addition, column 6 provides the cumulative screener and Phase I survey response rate, calculated by multiplying the screener response rate (99.4 percent) (Table 1.1) by the questionnaire response rate (92.0 percent) (Table 1.2). Overall, the ADSS Phase I cumulative response rate across all facilities is 91.4 percent. The rates are also shown by strata.

Reclassification of Strata. A challenge confronted in designing the ADSS sample plan was the outdated classification of facility strata in the original frame. For example, the frame might still have a facility classified as hospital inpatient, even though it had ended its inpatient substance abuse program and begun treating patients in an outpatient setting. Phase I of ADSS needed facilities reclassified in terms of actual strata, not in terms of strata listed on the frame. The need to reclassify facilities after sampling was a major reason for fielding the Phase I sample in two waves. Rates of reclassification for the first wave were assumed to be representative of the remaining frame and used to determine the strata makeup of the second wave. Table 1.3 shows the impacts of strata reclassifications on the final Phase I sample. The transition frequencies of facilities from sampling classification to Phase I updated classification are documented. Note that the "unknown" stratum disappears because all facilities were able to be classified by their Phase I responses to modality of care.

The column and rows marked "Total" in Table 1.3 show the net effects of strata reclassification. The Total column shows the number of facilities chosen in terms of their original sampling strata. The Total row (row 1) shows how facilities were distributed after reclassification. Although several strata did not meet the target number of facilities (316) after reclassification, additional sampling to enlarge the numbers was considered inappropriate because it would result in unacceptably large design effects for the national estimates.

1.5 Preparation of Data for Analysis

Upon completion of the Phase I survey, the data were entered into a electronic data file for cleaning, weighting, missing value imputation, and analysis.

1.5.1 Data Cleaning

Following construction of an initial electronic data file, responses were checked for inconsistencies and outliers. Facilities with suspected inconsistencies and outliers had their original paper surveys inspected to ensure accurate data transfer. Data incorrectly transferred to the electronic file and cases in which margin comments indicated that another value more accurately represented the facility's intended response were corrected at this time and treated as originals.

Outliers. Outliers were identified as responses meeting either of two independent conditions: the response itself or the ratio of two associated responses lay more than 2.5 standard deviations from the stratum's mean. Questionnaire items subject to outlier review included point-

prevalence client counts, admissions, discharges, revenue, and costs. Ratios used to identify outliers included admissions to discharges, patient days based on admissions to patient days based on point-prevalence count, point-prevalence count to staff, revenue to admissions, revenue to patient days, costs to admissions, and costs to patient days.

Following paper questionnaire review and corrections, 200 of the 2,395 responding facilities remained with unresolved outlier responses. Of these 200 facilities, 40 had outliers on the basis of their volume items—admissions, discharges, and length of stay—and another 160 had outliers on the basis of both volume and finance items—staffing, revenue, and cost. The 40 facilities with volume-based outliers received callbacks to confirm and clarify their suspect responses. Changes made because of such callbacks replaced responses in the Phase I data file and were treated as original, in keeping with ADSS protocol that the source for all non-imputed data in the Phase I data file had to be representatives of the facility itself. In no cases were outlier or inconsistent responses in the Phase I file changed after data collection without reference to paper survey or telephone callback results.

Inconsistencies. For some key Phase I variables, flags were included in the electronic data file to denote unresolved logical inconsistencies. Table 1.4 gives a list of these added flags and the number of records affected.

1.5.2 Weighting

Upon completion of data collection, the 3,643 facilities in the Phase I screener sample were assigned weights. Creation of ADSS Phase I weights took five steps and resulted in Phase I sample weights that could provide national estimates of statistics of interest concerning the substance abuse treatment system. The first four steps led to the construction of the final ADSS Phase I full sample weights. The fifth step was construction of replicate weights for the ADSS Phase I sample. Replicate weights so constructed would be used in conjunction with the software WesVarPC for Complex Surveys (Brick & Morganstein, 1996) to provide estimates of the variance and hence measures of precision of Phase I based estimates.

Step 1: Assignment of Base Weights. Each facility in the ADSS Phase I screener sample was assigned a preliminary base weight defined as the inverse of the facility's probability of selection. Certainty facilities then had weights of 1 and represented only themselves in the ADSS sample. Non-certainty facilities had weights greater than 1 reflecting the fact that they represented not only themselves but also other facilities in the frame that were not selected for the sampling. Table 1. 5 shows the minimum, maximum, and median base weight by strata for each facility in the ADSS screener sample.

Step 2: Post-stratification. ADSS Phase I facility weights are generated in expectation of calculating nationally representative estimates of the substance abuse treatment system. As a simple example of this, the sums of facility weights over a classification should generate estimates of the true frequency distribution of ADSS eligible facilities in the frame. Certain design aspects in ADSS, however, made facility base weights, the inverses of each facility's probability of selection, unreliable for estimating ADSS frame frequencies. In consideration of NESAT, for example, some 1,600 substance abuse treatment facilities in non-certainty PSUs had

their selection probabilities for the ADSS sample reduced to 0. As a result of this decision, the expectation for the sum of base weights over sample facilities also was allowed to decrease by 1,600. In addition, the use of the PRN method of selection allowed for greater sampling variability in the number and distribution of selected facilities in each sample stratum than would have occurred if systematic sampling had been used throughout to choose the sample.

Such design decisions could be made in ADSS, despite adverse drawbacks, because subsequent post-stratification adjustment to weights had been planned. Post-stratification reduces sampling variability and enhances the precision of sample estimates. To do post-stratification adjustment, the relative base weights of all facilities in each stratum are multiplied by a constant so that their sum adds to the known count in the frame. For Phase I of ADSS, post-stratification was performed on the screener sample so that non-response and ineligibility would not be a factor. Post-stratification adjustment in ADSS increases the sum of facility weights from 15,900 to a total of 18,451. Recognizing that facilities in non-certainty PSUs had their selection probabilities reduced to 0, the ADSS post-stratification adjustment was based on cells defined by both sampling strata and PSU type. Newly discovered facilities, such as the children of administrative units, were not part of the original frame and were not used in calculating adjustment factors, but adjustment factors were applied to their weights. The sum of weights is higher than the original ADSS frame count of 18,368 because of these new facilities. Table 1.6 gives a summary of post-stratification adjustment factors by sampling strata and PSU type. Columns 1 and 2 give the sums of base weights and true cell counts by strata and PSU type, and column 3 shows the ratios of true count to base sum in each cell, which determines the multiplication factors used for post-stratification adjustment.

Step 3: Trimming Adjustment. Post-stratification adjustment makes the ADSS screener sample, with its numerous imperfections (ineligible, closed, and misclassified facilities), representative of the ADSS frame as it existed at the time the sample was drawn. Further weight adjustment, however, was done to make the final sample of responders representative of treatment facilities in the national system within the scope of ADSS. Toward this purpose, the underlying classification scheme for weight adjustments was changed from sampling stratum to reclassified stratum. A facility's reclassified stratum was based on updated information from the ADSS screener and Phase I questionnaire. Only responding facilities had the opportunity to change strata based on updated information. Subsequent weight adjustment to the ADSS sample, trimming and non-response adjustment, were done on the basis of reclassified strata.

To prepare for trimming, current facility weights in the ADSS screener sample were checked for outliers. Facilities with weights representing more than 4 times the average weight within reclassified strata were judged to have excessive influence and identified as weight outliers. Such facilities had their weights cut back to 4 times the average within the stratum, and the excess weight was redistributed among all facilities in the stratum. A major reason for weight outliers was reclassification. The different sampling strata of ADSS had different selection probabilities. For example, the relatively few residential facilities had a high probability of selection, while the numerous small "outpatient-other" facilities had a much lower probability of selection (only 1/72 in the minimum case). If a small facility, originally in the "outpatient-other" stratum, is reclassified as residential, it could have an outlying, untrimmed weight more than 4 times the average weight within the residential stratum. With the trimming adjustment, the

weight of this facility is reduced to 4 times the average, still large compared with most other residential facilities.

Table 1.7 shows the summary impact of trimming outlier weights. Column 1 shows the number of facilities in each strata that had their weights trimmed, and columns 2 and 3 show the maximum strata weights before and after trimming. Because reclassified strata are used, there is no need for the "unknown" category.

Step 4: Non-response Adjustment. Non-response adjustment to Phase I weights is necessary to account for facilities in the ADSS sample that could not be contacted or refused to answer the screener or the questionnaire. In preparation for non-response adjustment, the 3,643 facilities in the screener sample were classified into 96 cells defined by reclassified strata (6 values), Census region (4 values), and size (4 values). Non-response weight adjustment occurred in two stages. In the first stage, facilities with unknown eligibility status (because of missing responses to specific questions on the screener) had their collective weights allocated and distributed among eligible and ineligible screener respondents. In the second stage, eligible facilities, which did not respond to the ADSS survey (because of contacting problems or refusal), had their adjusted weights allocated and distributed among survey responders. After allocation and distribution, the new adjusted weights of non-responding facilities in the ADSS screener were set to 0.

In the first stage of non-response adjustment, cells were collapsed when the adjustment factor was greater than 2 or the number of eligible units was fewer than 30. Based on the stated criteria, the original 96 cells became 56. In the process of collapsing, boundaries between sizes were eliminated first, followed by boundaries between Census regions. Strata boundaries were not collapsed. In the second stage of non-response adjustment, adjustment cells were further collapsed based on the same criteria applied only to eligible facilities. In the end, a total of 43 cells were used in the allocation and distribution of non-respondent weights.

Step 5: Constructing Replicate Weights. A class of techniques called "replication methods" provided a means to estimate variances of complex sample designs, such as in ADSS Phase I. As part of the ADSS Phase I dataset, replicate weights were constructed based on the stratified jackknife (JKn) procedure (Rao & Shao, 1992). To construct replicate weights for JKn, the sample is first divided into n "variance strata"—in ADSS, the number of such strata is 12, based on the 6 reclassified strata and whether a facility was a certainty. Two hundred random groups of facilities were then generated. Replicate weights were formed by setting the full sample base weights in one random group to 0 and adjusting other facility weights within the variance stratum to compensate. To derive new final weights arising from zero-weighting a random group of facilities, the procedures of post-stratification, trimming, and non-response adjusting had to be repeated for each replicate. Estimates based on replicate weights were called replicate estimates. The variation in estimates of a statistic across the 200 replicates was used to estimate the variance of the estimate resulting from full sample weights.

Final Results—Weighted and Unweighted Distributions. Table 1.8 shows the final strata distributions, weighted and unweighted, of the ADSS Phase I facility sample. Column 1 gives the sampling strata distributions of the original ADSS frame. This includes 3,498 facilities in the

unknown stratum for which information on modality of care and client counts was not available. Column 2 provides the target strata sizes in the ADSS sample. These targets indicate the desired strata distribution after reclassification. Column 3 of Table 1.8 shows the unweighted strata distribution achieved in the ADSS sample. As already noted, major changes in the strata distribution of substance abuse treatment facilities made it impractical from a design effect standpoint to reach target numbers in all strata. Finally, column 4 gives the sums of weights by strata among eligible ADSS facilities at the end of these four weighting steps. Column 4 of Table 1.8 gives estimates of the distribution of ADSS-eligible facilities in the frame at the time of sampling. The weighted total sum of 12,387 is the estimate of ADSS-eligible, active substance abuse facilities in the nation. Differences between column 1 and column 4 of Table 1.8 represent the estimated strata distribution of the National Master Facility Inventory (NMFI) and augmentation facilities that were closed, no longer provided treatment, or were not within the scope of ADSS at the time of Phase I data collection.

1.5.3 Imputation of Missing Data

The final step in ADSS Phase I file preparation was the imputation of missing values to key response items. The variables selected for imputation had no more than 12 percent missing values across all facilities. Within inpatient facilities, the percentage with missing values for some variables is higher. Tables 1.9 and 1.10 describe the items within the ADSS Phase I Facility Questionnaire where missing values were imputed. Each imputed variable has a corresponding flag variable included in the ADSS Phase I data file to indicate whether the facility's value was imputed and, if so, the method used.

An Overview of ADSS Imputation. The goal of ADSS imputation was to fill in missing items with values that are consistent and well correlated with existing responses, and that at the same time maintain the variability of responses across the data. Imputation can be a useful method for maintaining sample size in multivariate analyses, where a single missing response value would otherwise eliminate the entire observation from use. To the extent that imputation reflects realistic sample values from the underlying population, it improves power in the analyses.

ADSS imputation involves a number of methods designed to approximate the true value of the missing item and at the same time preserve the variability and certain joint relationships among the variables. Listed in order of preference, these methods are as follows:

- logical imputations,
- imputation using external sources, and
- imputation using statistical methods.

In descending order, these methods were employed comprehensively, so that each missing value in ADSS was imputed as accurately as possible while maintaining the stated imputation goal. These methods are described in the sections below. The number of records imputed and the percentage of records imputed by each method are provided in Table 1.10. Upon completion of the entire imputation process, a number of pre-imputation to post-imputation comparisons were done to ensure that key statistics of the imputed variables remained invariant.

So-called "imputation error variance" measures indicating the amount of error introduced by the imputation process also were calculated.

Logical Imputation. Logical imputation is a procedure to impute a missing response by deducing the needed value from other responses on the same record. Such imputation is allowable when there is only one possible consistent value that can be assigned to the missing item. In ADSS, missing values were logically imputed from other responses when the same question was asked more than once (e.g., question D15D repeats question D14), and when a total or one number making up a total was missing, but all other entries were present (e.g., if a facility reported 15 total clients and 15 males but left the number of females missing, it was logically imputed to be 0). Logical imputation was done throughout the imputation process to fill in related missing values after other ones were determined.

Imputation Using External Sources. In cases where logical imputation was not possible, external sources of data were examined to determine the possibility of using them to supply missing values. Responses from external sources were collected under alternative protocols and not considered equivalent to original Phase I responses, but were considered more accurate and therefore preferable to imputed values generated by statistical imputation methods.

External sources for substitution imputations include, respectively, the 1996 UFDS survey, the ADSS Phase II administrator interview file, and the 1997 UFDS survey. To be used for substitution imputation, the question in the external source had to be the same or essentially the same as the corresponding question in ADSS Phase I. Because the 1997 UFDS survey covers a different point-prevalence date and year than Phase I of ADSS, checks were done to determine that the facility had not undergone major changes in the interim. In cases where there was no major change, a facility's 1997 UFDS response was considered a reasonable and best available estimate for a missing response in 1996.

Imputation by Statistical Methods. In cases where logical and external source methods could not be used, missing values in ADSS Phase I were imputed from other available Phase I data by statistical methods. Deterministic statistical methods (e.g., substituting means within classes or directly using the predicted value of a regression model) are known to distort the variability and joint relationships of variables in the dataset. Stochastic methods, which are not deterministic, are better for maintaining key statistics and joint relationships of variables. When possible, the statistical imputation method used in ADSS Phase I was non-deterministic, based either on random regression (Montaquila & Ponikowski, 1995) or random, within-class hot-decking (Kalton & Kish, 1984).

Blocks of Items. In preparation for ADSS imputation, blocks of items were formed to organize responses that had to be imputed as a unit. Table 1.11 lists the blocks and identifies imputed items in each. Each block of items had one grand total—total clients, total admissions, total full-time staff, total revenue, and total costs—and a number of related variables. In many cases, the related variables represent parts that sum to the block's grand total. Imputing values that maintain both "between parts" and "part to whole" relationships are of prime importance in the ADSS imputation plan. In most cases, random regression was used to impute grand totals

within the block, and random within-class hot-decking was used to impute the other items in the block.

Regression Groups. Construction of linear models for Phase I imputations was initiated by the decision to use the six-valued type-of-care classification to partition the Phase I sample into separate samples for regression modeling. Four of the six classes represented single modalities of care, and the other two represented groups of multi-modality facilities. Creating regression models among the multi-modality group was a more complicated task. There were more potential variables requiring regression imputations because grand totals of clients, admissions, revenue, and cost had to be allocated across modalities. Also, there were more constraints and more joint relationships that had to be respected.

Hot-Deck Cells. Imputation cells for random, within-class hot-decking were constructed based on three facility characteristics: a six-valued type-of-care variable, a three-valued ownership variable (private for-profit, private not-for profit, and public), and a five-valued size variable (small, medium, medium large, large, and very large). When imputation cells determined by these characteristics were smaller than 30 facilities, they were combined with neighboring cells until the minimum size was met. In combining cells, the size boundary was eliminated first, followed by the ownership boundary. The type-of-care boundary was not eliminated for any imputation because all six type-of-care categories were larger than 30.

Excluding Inconsistent and Outlier Values. For several reasons, facility responses had to be excluded from the imputation of specific variables:

1. Mathematical errors and outliers identified during data cleaning were subject to paper survey review and in some cases callbacks to the facility. Values remaining unresolved after such efforts were excluded from model building and as donors for hot-decking.

2. Some facility records had inconsistencies between type-of-care variables and quantities related to type of care (e.g., admissions, discharges, length of stay). The inconsistent quantities were excluded from model building and as donors for hot-decking.

3. Some facilities' records had mathematical inconsistencies in their data, sums that did not add to the given total or values that did not copy from one item to another as they should have. Again, inconsistent quantities were excluded from model building and as donors for hot-decking.

4. Some facilities reported at a higher organizational level because questioned values were calculated for a greater entity than their own specific site and could not be broken down. These types of facilities, referred to as "multi-site reporters," were identified by margin comments or by two checkboxes in section D of the Phase I Facility Questionnaire. Financial items of such multi-site reporters were excluded from imputation.

As an example of the frequency with which facility responses were excluded from the imputation of variables, Table 1.12 presents the type-of-care distribution of facilities that were excluded from the regression models for total revenue by reason for exclusion.

Imputation by Regression. Regression models were used to impute missing grand totals in each block of items—admissions, staffing, revenue, and costs. (No facility was missing a total value for the point-prevalence count of clients.) After missing values were assigned, tests were run to examine the impact of imputation. These tests examined the impact of imputation on key statistics, means and standard deviations, and also on ratios between the newly imputed item and other facility characteristics. Imputed values in one block could be used as regressors in models for the totals in the next block.

For the multi-modality facilities, a separate set of regressions was done to allocate missing proportions of admissions, revenue, and costs among the modalities of care the facility offered. Following assignment of imputed totals based on regressions, a new round of logical imputation was undertaken to logically deduce additional values that could be derived from the newly imputed totals.

Including Random Residual Terms. Because linear regression produces an "expected value given the covariates," substitution of a missing value by a value predicted from linear regression decreases an item's sample variance and alters correlations of the variable with other variables in the dataset. To maintain sample variances at pre-imputation levels, independent, normally distributed residual terms were added to each regressed value to form the imputed values in Phase I. Such inclusions were performed for all regression-imputed values for single-modality facilities and for the imputed grand totals regressed for multi-modality facilities. They could not be done for the regressions that produced the allocation of proportions among modalities at the multi-modality sites.

Imputation by Hot-Decking. Hot-decking was performed for non-modality specific items within each block. In performing the hot-deck operation, a random facility from the same imputation cell was selected to donate as many values as appropriate to the facility requiring imputation. For ADSS, it was the relative proportions among variables from the donor facility that were allocated to the facility requiring imputation, not the actual values themselves. That is, if facility A with $70,000 personnel costs and $30,000 non-personnel costs is the donor for facility B with total cost of $300,000 that is missing item D16 concerning the split between personnel and non-personnel costs, then facility B receives imputed values of $210,000 (70 percent of $300,000) for its personnel costs and $90,000 (30 percent of $300,000) for its non-personnel costs. A similar method was used in all hot-deck imputations.

Review of Imputation Results. After imputing each block of variables, logic checks were performed and frequencies and summary statistics were calculated to determine the impact of the imputation process. Table 1.13 provides unweighted means, unweighted standard deviations, and weighted means of observed and imputed items. Relative differences between imputed and observed statistics also are given. As Table 1.13 shows, relative differences between the original unimputed data and the total data including imputed values are 4 percent or less in almost all cases. Because imputation was implemented to minimize bias that could be caused by non-random missingness, it is assumed that statistics based on data that included imputed values are more representative of the population than statistics based on observed values only.

1.6 Phase I Survey Instruments

The two ADSS Phase I data collection instruments are summarized below. The Phase I telephone screener was used to determine each sampled facility's eligibility for the ADSS Phase I survey, and the Phase I facility questionnaire collected the detailed Phase I facility-level data.

The ADSS Phase I screener was a 10-minute telephone interview administered to all facilities selected in the ADSS sample. The purpose of the screener was to update the name and address of the selected facility, to verify that the facility delivered substance abuse treatment at the address listed, and to otherwise determine the facility's ADSS eligibility. Excluded from the ADSS survey were substance abuse treatment facilities of the following types: correctional facilities, Indian Health Service facilities, Department of Defense (DoD) facilities, solo practitioners, facilities offering prevention only or intake/referral only, and halfway houses with no paid counselors. The screener also collected information that helped refine the facility's stratum classification by treatment type and facility size.

The ADSS Phase I facility questionnaire was sent to eligible screener respondents using criteria and updated identifying information from the ADSS screener. It was mailed in advance of a telephone call from telephone interviewers to obtain responses. The questionnaire was estimated to take an average of 3 hours for a facility to gather requested information for a 50-minute data collection telephone interview later. The questionnaire collected point-prevalence information for October 1, 1996, about the facility's organizational structure, clients served, and client characteristics. It also asked for the facility's most recent 12-month data on admissions and discharges, special treatment programs, special populations served, treatment services offered, and financial data that assessed managed care participation and annual costs and revenue. A copy of the 33-page Phase I facility questionnaire (Part 1) is available at the OAS website as a PDF file: http://www.samhsa.gov/oas/ADSS/ADSS1FacilityQN.pdf. The 469-page Part 1, Phase I facility interview codebook also is available as a PDF file from the OAS website: http://www.samhsa.gov/oas/ADSS/ADSS1FacilityCB.pdf.

1.7 Summary

Phase I of ADSS was challenged to design and carry out a data collection effort that would produce accurate, stable national estimates of statistics of interest for both substance abuse treatment facilities and the clients they serve. The variety in types of care, ownership, and financial arrangements, the incompleteness and imprecision of existing substance abuse facility lists, and the presence of a similar concurrent survey in the field, all contributed to a complex and innovative process. This chapter has described the methods used to address these issues through the sampling design and procedures, the instrument development, the data collection process, the preparation of the analytic file, the imputation process, and the creation of weights, which combined to make ADSS Phase I a successful achievement. Additional information on the Phase I methodology may be requested from SAMHSA.

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Table 1.1 Facility Sampling Frame, Facility Sample Size, and Response Rate for the ADSS Phase I Eligibility Screener

ADSS Sampling Strata	Number of Facilities in ADSS Sampling Frame (1)	Number of Facilities in ADSS Phase I Screener Sample			Screener Response			Screener Response Rate (8) = (7)/(6)
		Wave 1 Sample (2)	Wave 2 Sample (3)	Total Phase I Screener Sample (4) = (2) + (3)	Number of Facilities Found Ineligible During the Screener[1] (5)	Eligible Screener Sample (denominator) (6) = (4)–(5)	Number of Eligible Screener Respondents (numerator) (7)	
Total, All Facilities	18,368	2,447	1,196	3,643	854	2,789	2,771	99.4%
Hospital Inpatient Only	1,168	323	297	620	217	403	403	100.0%
Non-Hospital Residential Only	2,329	305	224	529	122	407	406	99.8%
Outpatient—Predominantly Methadone	511	260	206	466	43	423	419	99.1%
Outpatient—Almost Exclusively Alcohol	2,063	306	300	606	114	492	488	99.2%
Outpatient—Other	6,224	521	18	539	82	457	456	99.8%
Combined	2,575	320	83	403	75	328	326	99.4%
Unknown	3,498	412	68	480	201	279	273	97.8%

[1] The ineligible category includes 595 facilities that were ineligible to complete the screener because they were determined to be duplicate listings (55 facilities), had closed (221 facilities), or were prevention only or no longer providing substance abuse treatment (319 facilities) and another 259 facilities that completed the screener but were out of scope for ADSS based on information collected in the screener. Out-of-scope facilities are those indicating that they were administrative only (35), provided intake/referral only (24), or were a solo practice (69), a half-way house with no paid counseling staff (14), a correctional facility (103), a Department of Defense facility (8), or an Indian Health Service facility (6).

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.2 Eligible Facility Sample and Response Rate for the ADSS Phase I Survey

ADSS Sampling Strata	Results ADSS Phase I Survey					
	Universe of Eligible ADSS Screener Respondents (1)	Ineligible Facilities Based on Phase I Survey Results[1] (2)	Eligible Facility Sample for ADSS Phase I Survey (denominator) (3) = (1) – (2)	ADSS Phase I Respondents (numerator) (4)	Phase I Survey Response Rate (5) = (4)/(3)	Combined Screener and Phase I Survey Response Rate[2] (6)
Total, All Facilities	2,771	168	2,603	2,395	92.0%	91.4%
Hospital Inpatient Only	403	28	375	353	94.1%	94.1%
Non-Hospital Residential Only	406	13	393	374	95.2%	95.0%
Outpatient—Predominantly Methadone	419	8	411	384	93.4%	92.6%
Outpatient—Almost Exclusively Alcohol	488	25	463	410	88.6%	87.9%
Outpatient—Other	456	23	433	389	89.8%	89.6%
Combined	326	39	287	263	91.6%	91.1%
Unknown	273	32	241	222	92.1%	90.1%

[1] The "ineligible" category includes facilities found to be ineligible during the ADSS Phase I survey because they were duplicate listings (44 facilities), had closed (9 facilities), were not providing substance abuse treatment (72 facilities), and/or were out of scope for ADSS (43 facilities). Out-of-scope facilities are those indicating that they were administrative only, provided intake/referral only, or were a solo practice, a half-way house with no paid counseling staff, a correctional facility, a Department of Defense facility, or an Indian Health Service facility.

[2] The combined screener and Phase I survey response rate (column (6)) is calculated as the product of the eligibility screener response rate (Table 1.1, column (8)) and the Phase I survey response rate (column (5)).

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.3 Reclassification of Facility Strata Based on ADSS Phase I Survey Responses

Original ADSS Sampling Strata	Total, All Facilities	Revised Strata (Based on ADSS Phase I Response)					
		Hospital Inpatient Only	Non-Hospital Residential Only	Outpatient—Methadone	Outpatient—Alcohol	Outpatient—Other	Combined
Total, All Facilities	2,395	203	428	383	208	891	282
Hospital Inpatient Only	353	194	42	0	3	37	77
Non-Hospital Residential Only	374	1	320	2	0	7	44
Outpatient—Predominantly Methadone	384	0	1	351	3	28	1
Outpatient—Almost Exclusively Alcohol	410	0	2	7	126	272	3
Outpatient—Other	389	1	3	12	32	333	8
Combined	263	4	23	4	8	83	141
Unknown	222	3	37	7	36	131	8

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.4 Data Inconsistency Flag Variables Included in Phase I Data File

Flag Name	Phase I Questionnaire Items Related to Flag	Number of Facility Records
A9FLG	A9 Staffing counts	15
B1FLG	B1 Client counts	27
B2FLG	B2 Demographic distribution	31
B12FLG	B12 Methadone client counts	3
C2FLG	C2 Admission counts	34
C4AFLG	C4a Pregnant female counts	3
C4BFLG	C4b, C2F1 SSI/SSDI client counts	16
D8FLG	D8 Revenue source	11
D12FLG	D12 Revenue type	4
D13FLG	D13 Outpatient revenue	13
D15FLG	D15 Expense category	14
D16FLG	D16 Cost type	66

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.5 Minimum, Maximum, and Median Phase I Facility Base Weights

Sampling Strata	Minimum	Maximum	Median
Hospital Inpatient	1.00	3.51	1.42
Non-Hospital Residential	1.00	13.45	3.10
Outpatient – Predominantly Methadone	1.00	5.00	1.00
Outpatient – Almost Exclusively Alcohol	1.00	20.85	1.99
Outpatient - Other	1.00	75.11	6.94
Combined	1.00	45.47	3.41
Unknown	1.00	8.80	7.45

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.6 Summary of Post-Stratification Adjustment of Phase I Weights, by Sampling Strata and PSU Type

Sampling Strata	Sum of Base Weights	True Cell Counts, ADSS Frame	Post-Strat. Adj. Factor
Hospital Inpatient	1,054	1,168	
PSU type 1 (large MSA)	308	327	1.06
PSU type 2 (other MSA)	465	572	1.23
PSU type 3 (non-MSA)	280	269	0.96
Non-Hospital Residential	2,118	2,329	
PSU type 1 (large MSA)	731	716	0.98
PSU type 2 (other MSA)	997	1246	1.25
PSU type 3 (non-MSA)	390	367	0.94
Outpatient – Predominantly Methadone	511	511	
PSU type 1 (large MSA)	282	282	1.00
PSU type 2 (other MSA)	216	216	1.00
PSU type 3 (non-MSA)	13	13	1.00
Outpatient – Almost Exclusively Alcohol	1,862	2,063	
PSU type 1 (large MSA)	513	569	1.11
PSU type 2 (other MSA)	692	824	1.19
PSU type 3 (non-MSA)	657	670	1.02
Outpatient - Other	5,928	6,224	
PSU type 1 (large MSA)	2,216	1,906	0.86
PSU type 2 (other MSA)	2,392	3,038	1.27
PSU type 3 (non-MSA)	1,320	1,280	0.97
Combined	2,134	2,575	
PSU type 1 (large MSA)	494	598	1.21
PSU type 2 (other MSA)	1,073	1,416	1.32
PSU type 3 (non-MSA)	567	561	0.99
Unknown	3,153	3,498	
PSU type 1 (large MSA)	891	936	1.05
PSU type 2 (other MSA)	1,504	1,820	1.21
PSU type 3 (non-MSA)	757	742	0.98

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.7 Summary of Trimming Adjustment of Facility Weights

Reclassified Stratum	Number Trimmed	Maximum Before	Maximum After
Hospital Inpatient	1	13.02	9.03
Non-Hospital Residential	1	44.34	23.02
Outpatient – Predominantly Methadone	2	16.80	9.03
Outpatient – Almost Exclusively Alcohol	1	49.01	27.66
Outpatient – Other	4	72.79	48.24
Combined	2	45.28	32.41

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.8 Actual and Weighted Frequencies and Percentage Distributions for the ADSS Phase I Facility Sample

ADSS Sampling Strata	Number of Facilities in ADSS Frame		Target Facility Sample Size		Actual Facility Sample Size—ADSS Phase I Respondents[1]		Weighted Number of Facilities (National Estimate)	
	N	%	N	%	N	%	N	%
Total	18,368	100.0%	2,140	100.0%	2,395	100.0%	12,387	100.0%
Hospital Inpatient Only	1,168	6.4%	316	14.8%	203	8.5%	378	3.1%
Non-Hospital Residential Only	2,329	12.7%	316	14.8%	428	17.9%	2,135	17.2%
Outpatient—Predominantly Methadone	511	2.8%	316	14.8%	383	16.0%	566	4.6%
Outpatient—Almost Exclusively Alcohol	2,063	11.2%	316	14.8%	208	8.7%	1,355	10.9%
Outpatient—Other	6,224	33.9%	560	26.2%	891	37.2%	6,234	50.3%
Combined	2,575	14.0%	316	14.8%	282	11.8%	1,719	13.9%
Unknown	3,498	19.0%						

[1] See Table 1.3 for the reclassification of facilities from their original sampling strata to these revised strata based on their responses to ADSS Phase I.

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.9 Imputed Items Within the ADSS Phase I Questionnaire

Question Number in ADSS Phase I	Item
A9	Staffing counts
B1	Point prevalence counts
B2	Client characteristics
B4	Outpatient visits
B12	Methadone clients counts
C2, column 1	Admissions
C4a	Pregnant women
C4b	SSI/SSDI admissions
D7	Total revenue
D12, D13	Revenue by modality
D14	Total costs
D15, D16	Costs by modality

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
Items pertaining to all facilities									
A9A1	2,395	5	110[1]	0.21				0.21	
A9B1	2,395	5	110[1]	0.21				0.21	
A9C1	2,395	5	110[1]	0.21				0.21	
A9D1	2,395	5	110[1]	0.21				0.21	
A9E1	2,395	5	110[1]	0.21				0.21	
A9F1	2,395	5	110[1]	0.21				0.21	
A9G1	2,395	5	110[1]	0.21				0.21	
A9H1	2,395	5	110[1]	0.21				0.21	
A9I1	2,395	4	110[1]	0.17				0.17	
A9A2	2,395	4	110[1]	0.17				0.17	
A9B2	2,395	4	110[1]	0.17				0.17	
A9C2	2,395	4	110[1]	0.17				0.17	
A9D2	2,395	4	110[1]	0.17				0.17	
A9E2	2,395	4	110[1]	0.17				0.17	
A9F2	2,395	4	110[1]	0.17				0.17	
A9G2	2,395	4	110[1]	0.17				0.17	
A9H2	2,395	4	110[1]	0.17				0.17	
A9I2	2,395	4	110[1]	0.17				0.17	
A9A3	2,395	4	110[1]	0.17				0.17	
A9B3	2,395	4	110[1]	0.17				0.17	
A9C3	2,395	4	110[1]	0.17				0.17	
A9D3	2,395	4	110[1]	0.17				0.17	
A9E3	2,395	4	110[1]	0.17				0.17	
A9F3	2,395	4	110[1]	0.17				0.17	
A9G3	2,395	4	110[1]	0.17				0.17	

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
A9H3	2,395	4	110[1]	0.17				0.17	
A9I3	2,395	4	110[1]	0.17				0.17	
B1J2	2,395	0		0.00					
B1J3	2,395	1		0.04	0.04				
B3	2,395	15		0.63				0.63	
B4	2,395	25		1.04				1.04	
B12A	2,395	9		0.38				0.38	
B12B	2,395	0		0.00					
C2F1	2,395	21		0.88	0.25	0.08	0.38	0.17	
C4A	2,395	51		2.13				2.13	
C4ANUM	2,395	150		6.26				6.26	
C4B	2,395	98		4.09				4.09	
C4BNUM	2,395	294		12.28				12.28	
D1	2,395	4	8	0.17	0.17				
D4	2,395	22	8	0.92	0.46			0.46	
D7	2,395	226		9.44	2.92	0.08	6.43		
D8A	2,395	165	67	6.89	3.09	0.04	3.76		
D8B	2,395	165	67	6.89	3.09	0.04	3.76		
D8C	2,395	164	67	6.85	3.05	0.04	3.76		
D8D	2,395	165	68	6.89	3.09	0.04	3.76		
D8E	2,395	164	67	6.85	3.05	0.04	3.76		
D8F	2,395	165	68	6.89	3.09	0.04	3.76		
D8G	2,395	164	67	6.85	3.05	0.04	3.76		
D8H	2,395	164	68	6.85	3.05	0.04	3.76		
D8I	2,395	164	67	6.85	3.05	0.04	3.76		
D8APC	2,395	34	68	1.42	1.42				
D8BPC	2,395	34	68	1.42	1.42				
D8CPC	2,395	33	68	1.38	1.38				

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
D8DPC	2,395	34	68	1.42	1.42				
D8EPC	2,395	33	68	1.38	1.38				
D8FPC	2,395	34	68	1.42	1.42				
D8GPC	2,395	33	68	1.38	1.38				
D8HPC	2,395	33	68	1.38	1.38				
D8IPC	2,395	33	68	1.38	1.38				
D14	2,395	254		10.61		0.25	10.31	0.04	
D15A	2,395	271		11.32			3.30	8.02	
D15B	2,395	269		11.23			3.55	7.68	
D15C	2,395	269		11.23			3.34	7.89	
D15APC	2,395	191		7.97				7.97	
D15BPC	2,395	183		7.64				7.64	
D15CPC	2,395	189		7.89				7.89	
D16D	2,395	163		6.81		0.04		6.76	
Items pertaining to inpatient facilities									
B2INA1	343	3		0.87				0.87	
B2INA2	343	3		0.87				0.87	
B2INA3	343	3		0.87				0.87	
B2INB1	343	3		0.87				0.87	
B2INB2	343	3		0.87				0.87	
B2INB3	343	3		0.87				0.87	
B2INB4	343	3		0.87				0.87	
B2INB5	343	3		0.87				0.87	
B2INB6	343	3		0.87				0.87	
B2INC1	343	3		0.87				0.87	
B2INC2	343	3		0.87				0.87	
B2INC3	343	3		0.87				0.87	
B2INC4	343	3		0.87				0.87	

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
B2INC5	343	3		0.87				0.87	
B2INC6	343	3		0.87				0.87	
B2IND1	343	3		0.87				0.87	
B2IND2	343	3		0.87				0.87	
B2IND3	343	3		0.87				0.87	
B2IND4	343	3		0.87				0.87	
B2IND5	343	3		0.87				0.87	
B2IND6	343	3		0.87				0.87	
B2IND7	343	3		0.87				0.87	
B2IND8	343	3		0.87				0.87	
B2INE1	343	3		0.87				0.87	
B2INE2	343	3		0.87				0.87	
B2INE3	343	3		0.87				0.87	
B2INE4	343	3		0.87				0.87	
B2INE5	343	3		0.87				0.87	
B2INE6	343	3		0.87				0.87	
B2INE7	343	3		0.87				0.87	
B2INE8	343	3		0.87				0.87	
B2INE9	343	3		0.87				0.87	
B2INE10	343	3		0.87				0.87	
B1A2	343	0		0.00					
B1B2	343	1		0.29	0.29				
B1C2	343	1		0.29	0.29				
B1A3	343	1		0.29	0.29				
B1B3	343	1		0.29				0.29	
B1C3	343	1		0.29				0.29	
C2A1	343	4		1.17			0.29		0.87
D12A	343	72		20.99	3.79		11.37		5.83

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
D12APC	343	33		9.62	1.17		2.62		5.83
D16A	343	85		24.78		0.29	5.25	7.87	11.37
Items pertaining to residential facilities									
B1D2	598	0		0.00					
B1E2	598	1		0.17	0.17				
B1F2	598	1		0.17	0.17				
B1D3	598	0		0.00					
B1E3	598	1		0.17	0.17				
B1F3	598	1		0.17	0.17				
B2REA1	598	1		0.17				0.17	
B2REA2	598	1		0.17				0.17	
B2REA3	598	1		0.17				0.17	
B2REB1	598	1		0.17				0.17	
B2REB2	598	1		0.17				0.17	
B2REB3	598	1		0.17				0.17	
B2REB4	598	1		0.17				0.17	
B2REB5	598	1		0.17				0.17	
B2REB6	598	1		0.17				0.17	
B2REC1	598	1		0.17				0.17	
B2REC2	598	1		0.17				0.17	
B2REC3	598	1		0.17				0.17	
B2REC4	598	1		0.17				0.17	
B2REC5	598	1		0.17				0.17	
B2REC6	598	1		0.17				0.17	
B2RED1	598	1		0.17				0.17	
B2RED2	598	1		0.17				0.17	
B2RED3	598	1		0.17				0.17	
B2RED4	598	1		0.17				0.17	

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
B2RED5	598	1		0.17				0.17	
B2RED6	598	1		0.17				0.17	
B2RED7	598	1		0.17				0.17	
B2RED8	598	1		0.17				0.17	
B2REE1	598	1		0.17				0.17	
B2REE2	598	1		0.17				0.17	
B2REE3	598	1		0.17				0.17	
B2REE4	598	1		0.17				0.17	
B2REE5	598	1		0.17				0.17	
B2REE6	598	1		0.17				0.17	
B2REE7	598	1		0.17				0.17	
B2REE8	598	1		0.17				0.17	
B2REE9	598	1		0.17				0.17	
B2REE10	598	1		0.17				0.17	
C2B1	598	4		0.67	0.17				0.50
D12B	598	33		5.52	1.17		2.34		2.01
D12BPC	598	18		3.01	0.50		0.50		2.01
D16B	598	31		5.18		0.17	0.84	2.01	2.17
Items pertaining to all outpatient facilities									
B1G2	1,761	0		0.00					
B1G3	1,761	0		0.00					
C2C1	1,761	3		0.17	0.17				
C2D1	1,761	4		0.23	0.06		0.06		0.11
C2E1	1,761	2		0.11	0.11				
D12C	1,761	175		9.94	2.73	0.11	5.79		1.31
D12CPC	1,761	64		3.63	0.74		1.59		1.31
D16C	1,761	201		11.41		0.17	3.29	5.34	2.61
Items pertaining to outpatient methadone facilities									

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
B1H2	418	0		0.00					
B1H3	418	0		0.00					
B2OMA1	418	1		0.24				0.24	
B2OMA2	418	1		0.24				0.24	
B2OMA3	418	1		0.24				0.24	
B2OMB1	418	1		0.24				0.24	
B2OMB2	418	1		0.24				0.24	
B2OMB3	418	1		0.24				0.24	
B2OMB4	418	1		0.24				0.24	
B2OMB5	418	1		0.24				0.24	
B2OMB6	418	1		0.24				0.24	
B2OMC1	418	1		0.24				0.24	
B2OMC2	418	1		0.24				0.24	
B2OMC3	418	1		0.24				0.24	
B2OMC4	418	1		0.24				0.24	
B2OMC5	418	1		0.24				0.24	
B2OMC6	418	1		0.24				0.24	
B2OMD1	418	1		0.24				0.24	
B2OMD2	418	1		0.24				0.24	
B2OMD3	418	1		0.24				0.24	
B2OMD4	418	1		0.24				0.24	
B2OMD5	418	1		0.24				0.24	
B2OMD6	418	1		0.24				0.24	
B2OMD7	418	1		0.24				0.24	
B2OMD8	418	1		0.24				0.24	
B2OME1	418	1		0.24				0.24	
B2OME2	418	1		0.24				0.24	
B2OME3	418	1		0.24				0.24	

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
B2OME4	418	1		0.24				0.24	
B2OME5	418	1		0.24				0.24	
B2OME6	418	1		0.24				0.24	
B2OME7	418	1		0.24				0.24	
B2OME8	418	1		0.24				0.24	
B2OME9	418	1		0.24				0.24	
B2OME10	418	1		0.24				0.24	
C2D1	418	4		0.96	0.24		0.48		0.24
D13A	418	42		10.05	2.39		5.02		2.63
D13APC	418	22		5.26	0.72		1.91		2.63
D16C2	418	49		11.72		0.24	2.15	5.98	3.35
Items pertaining to outpatient non-methadone facilities									
B1I2	1,761	0		0.00					
B1I3	1,761	0		0.00					
B2ONA1	1,435	2		0.14				0.14	
B2ONA2	1,435	2		0.14				0.14	
B2ONA3	1,435	2		0.14				0.14	
B2ONB1	1,435	2		0.14				0.14	
B2ONB2	1,435	2		0.14				0.14	
B2ONB3	1,435	2		0.14				0.14	
B2ONB4	1,435	2		0.14				0.14	
B2ONB5	1,435	2		0.14				0.14	
B2ONB6	1,435	2		0.14				0.14	
B2ONC1	1,435	2		0.14				0.14	
B2ONC2	1,435	2		0.14				0.14	
B2ONC3	1,435	2		0.14				0.14	
B2ONC4	1,435	2		0.14				0.14	
B2ONC5	1,435	2		0.14				0.14	

Table 1.10 ADSS Phase I Imputation Rates, by Imputation Method (continued)

ADSS Phase I Questionnaire Item	Total Respondents	Total Imputed	Remaining Missing Values	Percentage Imputed	Percentage of Records Imputed by Method				
					Using UFDS Data (1996-1997)	Using Phase II Data	Random Regression	Hot-Deck	Regression for Multi-Modality Facilities
B2ONC6	1,435	2		0.14				0.14	
B2OND1	1,435	2		0.14				0.14	
B2OND2	1,435	2		0.14				0.14	
B2OND3	1,435	2		0.14				0.14	
B2OND4	1,435	2		0.14				0.14	
B2OND5	1,435	2		0.14				0.14	
B2OND6	1,435	2		0.14				0.14	
B2OND7	1,435	2		0.14				0.14	
B2OND8	1,435	2		0.14				0.14	
B2ONE1	1,435	2		0.14				0.14	
B2ONE2	1,435	2		0.14				0.14	
B2ONE3	1,435	2		0.14				0.14	
B2ONE4	1,435	2		0.14				0.14	
B2ONE5	1,435	2		0.14				0.14	
B2ONE6	1,435	2		0.14				0.14	
B2ONE7	1,435	2		0.14				0.14	
B2ONE8	1,435	2		0.14				0.14	
B2ONE9	1,435	2		0.14				0.14	
B2ONE10	1,435	2		0.14				0.14	
C2E1	1,435	2		0.14	0.14				
D13B	1,435	150		10.45	2.65	0.14	5.57		2.09
D13BPC	1,435	58		4.04	0.56	0.07	1.32		2.09
D16C1	1,435	173		12.06		0.21	3.34	4.67	3.83

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.11 Blocks of Items Imputed in ADSS Phase I

Block	Items Imputed Within Block
Clients	B1 matrix, B2 matrix, B3, B12, D4
Admissions	C2 column 1, C4 row 1, C4 row 2
Staffing	A9 matrix
Revenue	D7, D12, D13
Costs	D14, D15, D16

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.12 Facilities Excluded from the Imputation of Missing Revenue Values

Reason for Exclusion[1]	Total	Type of Care				
		Hospital Inpatient Only	Non-Hospital Residential Only	Outpatient—Methadone	Outpatient—Non-Methadone	Combined
1 only	146	24	14	11	36	61
2 only	35	2	7	4	18	4
3 only	57	4	3	15	23	12
4 only	46	2	7	6	31	0
1,3	4	2	0	1	0	1
1,4	7	1	1	0	4	1
1,2,4	1	0	0	0	1	0
1,3,4	2	0	1	0	0	1
2,3	3	1	0	2	0	0
2,4	5	0	1	0	4	0
Total Number of Facilities	2,395	203	428	324	1,083	377
Total Excluded	307	36	34	39	118	80
Percentage Excluded	12.8%	17.7%	7.9%	12.0%	10.9%	21.2%

[1] See codes in Section 1.6.3, paragraph on "Excluding Inconsistent and Outlier Values."

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 1.13 Differences Between Means and Standard Deviations Based on the Unimputed Data (Observed Records Only) and Those Based on Imputed Data (Observed and Imputed Records), for Selected Counts, ADSS Phase I Data

ADSS Phase I Imputed Items	Number of Facilities		Unweighted Means			Unweighted Standard Deviations			Weighted Means		
	Observed Records	Total, Observed and Imputed Records	Observed Records	All Records	Percent Difference (All - Obs)	Observed Records	All Records	Percent Difference (All - Obs)	Observed	All Records	Percent Difference (All - Obs)
Items pertaining to all facilities											
Admissions	2,374	2,395	446	446	0%	754	752	0%	346	346	0%
Pregnant females	2,245	2,395	5	5	0%	15	15	0%	4	4	0%
SSI Admissions	2,101	2,395	39	43	10%	103	107	4%	27	32	19%
Revenue	2,169	2,395	1,003,574	1,004,449	0%	2,187,910	2,151,368	-2%	667,925	675,068	1%
Costs	2,141	2,395	872,964	882,745	1%	1,388,190	1,424,314	3%	587,165	604,849	3%
Employee costs	2,124	2,395	560,130	570,751	2%	941,032	979,107	4%	376,171	388,458	3%
Other personnel costs	2,126	2,395	33,330	33,976	2%	110,053	109,133	-1%	25,049	28,259	13%
Non-personnel costs	2,135	2,395	274,631	277,132	1%	534,356	534,924	0%	181,985	187,304	3%
Facility costs not connected with care	2,233	2,395	20,235	20,660	2%	224,179	224,913	0%	18,694	18,479	-1%
Items pertaining to inpatient facilities											
Inpatient revenue	271	343	1,987,739	1,994,909	0%	2,349,371	2,402,090	2%	1,391,579	1,417,465	2%
Inpatient costs	258	343	1,530,538	1,544,533	1%	2,142,454	2,200,300	3%	1,038,084	1,129,068	9%
Items pertaining to residential facilities											
Residential revenue	565	598	1,257,212	1,251,931	0%	3,451,278	3,365,303	-2%	874,111	898,527	3%
Residential costs	567	598	1,038,286	1,048,570	1%	1,424,235	1,412,007	-1%	758,451	792,055	4%
Items pertaining to all outpatient facilities											
Outpatient revenue	1,586	1,761	555,719	539,983	-3%	823,055	797,944	-3%	377,140	373,670	-1%
Outpatient costs	1,560	1,761	508,926	495,298	-3%	837,709	809,153	-3%	330,524	328,633	-1%

Table 1.13 Differences Between Means and Standard Deviations Based on the Unimputed Data (Observed Records Only) and Those Based on Imputed Data (Observed and Imputed Records), for Selected Counts, ADSS Phase I Data (continued)

ADSS Phase I Imputed Items	Number of Facilities		Unweighted Means			Unweighted Standard Deviations			Weighted Means		
	Observed Records	Total, Observed and Imputed Records	Observed Records	All Records	Percent Difference (All - Obs)	Observed Records	All Records	Percent Difference (All - Obs)	Observed	All Records	Percent Difference (All - Obs)
Items pertaining to outpatient methadone facilities											
Methadone revenue	376	418	874,970	854,342	-2%	792,606	780,355	-2%	776,382	773,277	0%
Methadone costs	369	418	860,009	838,412	-3%	780,032	769,510	-1%	751,615	752,654	0%
Items pertaining to outpatient non-methadone facilities											
Outpatient non-methadone revenue	1,285	1,435	418,922	409,725	-2%	765,022	738,544	-3%	333,626	333,460	0%
Outpatient non-methadone costs	1,262	1,435	383,462	374,857	-2%	787,163	754,907	-4%	293,250	293,948	0%

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Chapter 2. Phase II Methodology—Facility Administrator Interview and Client Record Abstraction

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2.1 ADSS Phase II Overview

This chapter examines the methodology used in Phase II of the Alcohol and Drug Services Study (ADSS): The Facility Administrator Interview and the Client Record Abstraction. The chapter is organized into six sections. Section 2.1 presents a brief overview of ADSS and its study components. Section 2.2 discusses the Phase II sample design and construction. Section 2.3 reviews the data collection procedures. Section 2.4 explains the weighting protocols. Section 2.5 summarizes the files submitted to the Substance Abuse and Mental Health Services Administration (SAMHSA), and Section 2.6 presents a brief conclusion. A copy of the 35-page Phase II, Part 2, administrator interview is available as a PDF file at the Office of Applied Studies (OAS) website: http://www.samhsa.gov/oas/ADSS/ADSS2AdminQN.pdf. Also available at the same website is a PDF copy of the 30-page Phase II client record abstraction form (Parts 3-5): http://www.samhsa.gov/oas/ADSS/ADSS2ClientQN.pdf.

Samples for the three phases of ADSS were selected using a multi-stage stratified sampling procedure. As the first stage of the study (Phase I), a nationally representative set of 2,395 treatment facilities was surveyed. In the second stage (Phase II), facility administrators of a subset of 280 facilities, excluding hospital inpatient facilities and facilities that treat alcohol-only clients, were surveyed in person regarding treatment practices, revenue, costs, and staffing (Phase II administrator interview). From this subset of Phase II facilities, two sets of client records were abstracted (Phase II client record abstraction). A stratified random sample of approximately 5,930 abstracts was selected to be nationally representative of clients in the major modalities of substance abuse treatment, and a sample of abstracts of 891 early-drop-out (EDO) clients was randomly selected from 44 large co-operative outpatient non-methadone facilities. This latter sample is not assumed to be nationally representative and was not weighted. As the third stage of ADSS (Phase III), a subset of Phase II clients (over 18 year old, residential and outpatient non-methadone discharge clients, in-treatment methadone clients, and EDO clients) were followed up and interviewed on issues related to treatment outcome.

The ADSS Phase II record abstract sample has four components: a main study, an incentive study, an in-treatment methadone study, and a comparison study of EDO clients. For all studies under Phase II, on-site administrator interviews were conducted and client records were abstracted. Abstracts for the main study, incentive study, and EDO study were selected from lists of clients discharged from Phase II facilities within the past 6 months. Abstracts for the in-treatment methadone study were selected from lists of current methadone clients from outpatient facilities. There were some differences in the information abstracted among the four components. For example, abstracts of in-treatment methadone clients did not include information on client discharge status or post-treatment referral, but did ask for information on methadone dose levels at various times during treatment. Also, for methadone discharge clients,

the abstract effort was restricted to a subset of 20 data elements. Although part of the main study, methadone discharge clients were sampled mainly for the purpose of supplying length of stay information.

Main Study. Data were collected from discharge abstracts to assess the treatment process and characteristics of discharged clients in non-hospital residential, outpatient methadone, and outpatient non-methadone treatment.

Incentive Study. ADSS included an incentive study that was designed to evaluate the impact of different financial payments on client response rates, response bias, and sample bias in Phase III. The array of payment groups were (interview/urine): $0/$0, $0/$10, $15/$10 (main study), and $25/$10. The incentive study collected data only for clients in outpatient non-methadone treatment. As there were no sampling or operational differences between outpatient non-methadone clients in the main and incentive studies in Phase II, data were combined for these clients for Phase II abstract analyses.

In-Treatment Methadone Client (ITMC) Study. Records were abstracted for in-treatment methadone clients to analyze the treatment process in Phase II and client outcomes for in-treatment methadone clients in Phase III.

Comparison Study of Early-Drop-Out Clients (EDO). Discharge records were abstracted for outpatient non-methadone clients who left treatment after a single day or visit. In Phase III, the EDO study was designed to compare substance abuse treatment outcomes for a comparison group of EDO clients to outcomes of outpatient non-methadone main study clients.

The main study, incentive study, and in-treatment methadone study were based on probability samples while the EDO study was based on a non-probability sample of client records.

2.2 Phase II Sample Design

The focus of this section is to describe the sample design for Phase II of ADSS. It was important to incorporate the objectives of the planned Phase III outcomes analysis into the Phase I and Phase II sample designs.

The sample design for ADSS was a multi-stage stratified clustered design. In the first stage of the study (Phase I), a nationally representative set of 2,395 treatment facilities was selected with probability proportional to size (PPS) from the National Master Facility Inventory (NMFI), a national index of specialty substance abuse treatment facilities in the United States. Phase II consisted of three stages of sampling. First, the country was partitioned in approximately 400 geographical primary sampling units (PSUs), and a representative sample of 62 PSUs were selected on the basis of demographic and economic characteristics. Within these 62 PSUs, a stratified subsample of 306 Phase I responding facilities was selected using a PPS design. The last stage in Phase II consisted of random samples of discharges or methadone in-treatment clients being chosen from within the selected facilities. In Phase III, clients abstracted in Phase II were given follow-up interviews. No further subsampling was conducted in Phase III, but minors

younger than age 18 and discharged methadone clients were ruled ineligible and excluded from Phase III follow-up efforts. For more details on the Phase I sampling and weighting processes, refer to Chapter 1 of this report, as well as Mohadjer, Yansaneh, Krenzke, and Dohrmann (2000). For more details on the Phase II sampling and weighting processes, see Krenzke and Mohadjer (2001).

2.2.1 Phase I Sample

The Phase I sampling process involved constructing a frame from a list of current treatment facilities and selecting a screener sample. All facilities in the screener sample were administered a screening interview to confirm ADSS eligibility. Eligible facilities responding to the screening interview were given the Phase I facility interview.

Phase I Sampling Frame. A sampling frame for ADSS was constructed, which contained all substance abuse treatment facilities currently providing treatment programs in any of the 50 States or the District of Columbia. The frame consisted of two major components: active facilities offering substance abuse treatment programs as listed in SAMHSA's National Facility Register (NFR) as of September 1995, and an augmentation component. The augmentation component was the result of SAMHSA's effort in 1995-1996 to list facilities that were not State licensed or otherwise recognized in the NFR, but that in fact did currently offer substance abuse treatment (refer to Section 2.2 of Mohadjer et al., 2000, for more information on the augmentation). Treatment facilities of the following types were excluded from consideration for ADSS: halfway houses without paid counselors; solo practitioners; correctional facilities; Department of Defense (DoD) facilities; Indian Health Service facilities; and intake and referral only facilities. Facilities known to be ineligible for ADSS were dropped from the ADSS sampling frame based on the associated information in the frame. Other facilities were identified as ineligible during telephone screening of sampled facilities.

Phase I Sample Selection. The Phase I sampling frame was stratified into six sampling strata and facilities were selected using PPS to achieve target strata sizes. Calculation of target strata sizes was based on a compromise in light of the multiple goals of ADSS. Proportional allocation by strata would be optimal for producing overall Phase I estimates with the lowest standard errors (SEs), but a minimum of about 300 facilities for each stratum was deemed necessary to ensure reasonably precise and stable estimates for all major variables of interest (based on the analysis of variables in tables from the 1990 Drug Services Research Study [DSRS], Batten et al., 1993). Determination of the actual allocation per stratum required balancing the per strata target with increased design effect resulting from not adhering to strict proportional allocation. Also, the sampling plan had to take into account that some facilities selected for Phase I would later be determined to be out of scope or duplicate.

More than three quarters of the facilities included in the ADSS sampling frame came from the NFR file. The remaining quarter were from the NMFI augmentation file. The first step of the sequential sampling approach was the selection of a screening sample that was about twice as large as the target sample sizes for Phase I. The oversample was then partitioned into two waves. The first wave was released for screening, and the second wave was set aside for possible later use. Following completion of the first wave's screening, a sample from the second wave

facilities was selected using sampling rates based on screening results from the first wave. This two-wave sequential sampling approach resulted in facility sample sizes that were close to the targeted numbers.

In total, 3,643 facilities were selected for the final screening sample. The seven sampling strata for Phase I were facilities with hospital inpatient clients for both detoxification and rehabilitation (stratum 1); other types of active residential facilities (stratum 2); all outpatient facilities for which the percentage of methadone clients was greater than or equal to 60 percent (stratum 3); outpatient facilities for which the percentage of alcohol-only clients was greater than or equal to 70 percent, and at the same time, the percentage of methadone clients was less than 60 percent (stratum 4); all other outpatient facilities that did not fall into stratum 3 or stratum 4 (stratum 5); and all facilities that had any other combinations of types of care defined above, but not included in the previous strata (stratum 6). Finally, stratum 7 included all the facilities for which no information on treatment modality and number of clients was available. Stratum 7 facilities were assigned to strata 1 through 6 based on results of the Phase I survey. Of the 3,643 facilities selected for screening, 2,603 were found eligible for Phase I and 2,395 facilities completed the facility survey for a response rate of 91.4 percent (see Chapter 1 of this report and Krenzke and Mohadjer, 2001).

2.2.2 Phase II Sample Frames

Phase II Sample Selection. The Phase II sampling frame consisted of the 2,395 eligible respondents to Phase I, which then were reduced according to two exclusionary criteria verified in Phase I. The Phase II sampling frame excluded those facilities in which 100 percent of the clients were treated for alcohol abuse (N = 208), and all stratum 1, hospital inpatient facilities (N = 203).

Controlling for Overlap with Another Study in the Field. Concurrent with ADSS Phase I data collection, a second study, the National Evaluation of Substance Abuse Treatment (NESAT) was to be in the field using very much the same frame of treatment facilities. ADSS and NESAT researchers agreed in advance to sample selection designs that would minimize the probability of facilities being selected for both the ADSS and NESAT surveys, and thereby reduce the number of substance abuse treatment facilities overburdened with the responsibility of answering both studies.

The first step in reducing overlap was to partition the country into three sections in a way that allowed ADSS and NESAT to draw nationally representative samples. These three sections were large metropolitan statistical areas (MSAs) that would supply facilities to both ADSS and NESAT, a random half of "other" MSAs that would supply facilities only to NESAT, and the remaining half of the "other" MSAs and all non-MSAs that would supply facilities only to ADSS. As a result of this initial partitioning, only facilities in the 24 large MSAs had a chance of being selected to the samples of the two surveys. To minimize the degree of overlap in 24 large MSAs, the permanent random number (PRN) approach (Ohlsoon, 1995) was used to select facilities for both ADSS and NESAT. The PRN approach provides a simple and straightforward method of minimizing overlap, and it is applicable even when two surveys use different measures

of size, as was the case for ADSS, which sampled facilities as they reported to SAMHSA at that time, and NESAT, which sampled service delivery units (SDUs).

Using a Monte Carlo simulation technique, the estimated overlap between the ADSS Phase I sample of 3,643 eligible facilities and the NESAT sample of 200 SDUs was computed to be between 15 and 21. After ADSS screening was completed, the true overlap between ADSS-eligible facilities and the NESAT sample was 18 facilities. The majority (11) of the overlapping facilities were in the methadone stratum. There were no respondent burden problems reported for these facilities.

Phase II Geographic PSUs for Sampling. The ADSS Phase II sample used a clustered sample to improve the efficiency of on-site data collection. The first step in sampling was the selection of 62 geographical PSUs composed of counties or groups of contiguous counties throughout the country. ADSS made use of an existing frame of such PSUs stratified on the basis of demographic and economic characteristics. The 62 PSUs selected for the ADSS Phase II sample consists of 24 metro certainty PSUs, 26 metro non-certainty PSUs, and 12 non-metro, non-certainty PSUs. The large metro PSUs represented the 24 largest MSAs in the country. The remaining ADSS PSUs were selected from within strata with probability proportionate to the population. The ADSS Phase II facility sample came exclusively from Phase I facilities within the 62 PSUs. ADSS Phase I facilities with Zip codes outside the 62 PSUs were excluded from the Phase II facility frame.

The Phase II facility frame also excluded facilities in which 100 percent of the clients were treated for alcohol abuse, and all stratum 1, hospital inpatient facilities. After excluding facilities based on geographic subsampling and exclusionary criteria, there were 1,052 Phase I facilities eligible for Phase II.

Active Facilities. Because there was a time gap between the completion of the Phase I interview and Phase II data collection, some facilities that were functioning during Phase I may have ceased operations by the time they were contacted for Phase II. Phase I facilities that closed before March 1, 1997, were considered ineligible for Phase II. At the time of Phase II sample selection, the effect of this eligibility criterion was not known, but the Phase II facility sample targeted was 2 percent larger than required to compensate for possible losses.

2.2.3 Phase II Facility Sample

The Phase II sample consisted of 306 facilities selected from the 1,052 eligible Phase I respondents. The main study sample consisted of 186 facilities from strata 2, 3, 4, 5, and 6, and the incentive sample included 120 facilities from strata 4 and 5. The facilities in stratum 3 also were used as the source of clients for the ITMC study. In addition, 44 large co-operative Phase II facilities from strata 4, 5, and 6 were used for the EDO comparison study. Of the 18 Phase I facilities that overlapped with the NESAT sample, 5 were sampled as part of Phase II.

Stratification, Target Sample Sizes, and Measure of Size. For Phase II sampling, the eligible Phase I responding facilities were placed in Phase II sampling strata based on information collected from the Phase I questionnaire. The definition of Phase II strata was the

same as in Phase I, except that the hospital inpatient stratum was dropped and the 100 percent alcohol-only facilities were excluded from the outpatient-almost exclusively alcohol stratum.

Table 2.1 provides the facility target sample sizes for all Phase II strata. The Phase II design set an overall target of 300 facilities completing the full Phase II data collection protocol. The target sample sizes were inflated to 306 facilities due to an expected facility-level eligibility rate of 97 percent. An 80 percent response rate was estimated for facilities sampled in Phase II. To compensate for non-response, shadow facilities, matching non-responders on a number of important characteristics, were selected as replacements (see following paragraphs). Therefore, there was no adjustment in sample sizes to compensate for non-response. All facilities in stratum 3 were also used for both the methadone discharges in the main study and the ITMC study. Large, co-operative facilities in strata 4 and 5 were used to provide subjects for the EDO study. The non-probability EDO sample is discussed in a following paragraph.

Within strata, the Phase II facilities were selected with PPS, where the measure of size was a function of the number of clients on October 1, 1996, as reported in the Phase I questionnaire. This replaced the total number of clients from the NFR frame, which was used in sampling for Phase I, and resulted in a more efficient sample design that incorporated useful current information about the eligible facilities.

Probability of Selection. For ADSS, a conditional probability of selection (given the Phase II sampling frame) was assigned as a function of the number of clients on October 1, 1996, as reported in the Phase I questionnaire. From the calculation of the conditional probabilities, some facilities were large enough (in terms of the number of clients) to be included in the Phase II sample with certainty (i.e., conditional probability equal to 1), while others were selected based on the conditional probability of selection, which was less than 1.[1]

Shadow Facilities. A shadow facility was assigned to each Phase II facility at the time of sample selection. Shadows assigned to selected facilities had closely matching values on the following variables: analytic stratum, type of PSU, Census region, type of ownership, and the Phase II overall probability of selection of the facility (a function of the number of clients). When a Phase II facility that was originally selected and eligible for the study failed to cooperate or had closed, it was replaced by a shadow facility. A total of 60 of the original 294 eligible Phase II facilities failed to participate and were subject to shadow replacement. Of these 60 shadow replacements, 46 were eventually successful.

Releasing Shadows to the Field. Shadows were released to the field only if their counterpart was an eligible facility with a final disposition status of non-respondent (e.g., closed or refused). The field staff did not know the identity of any shadow facility until the original facility had become a non-respondent. If a shadow facility in the main study was found to be ineligible, was closed, or refused, it was replaced by a shadow facility until a successful response was obtained or until Phase II fieldwork ended.

[1] A facility could have a conditional probability of selection (within its stratum) equal to 1; however, because of the prior stages of sampling, its overall probability of selection into ADSS Phase II could be less than 1. For instance, the facility could come from a non-certainty PSU.

When original sampled facilities completed Phase II, their pre-selected shadows could be made available for other original non-responding facilities. Use of the newly available shadows improved the quality of the final sample and presumably reduced bias associated with non-response.

In addition, some shadows were released to the field and completed while their original counterparts were being converted from final refusal status. Rather than lose the data from those shadows when the original facility completed all Phase II activities, most of these completed shadows were then retrofitted to other non-responding originals.

Throughout Phase II, the number of abstracts sampled and completed at the participating facilities was monitored. Projections were made and continually updated to determine that target Phase II sample sizes would be met.

Shadow Match Rates. The 46 completed shadows in the final database were related to their original counterparts using several, if not all, of the following five linking variables: analytic strata, type of ownership, type of PSU, Census region, and base selection probability. About 65 percent of the completed shadows used all five linking variables, about 98 percent used at least four of the linking variables, and all shadows were linked using at least three linking variables. The low numbers of available shadows within some combinations of the linking variables precluded the use of all five linking variables in some situations.

Early Drop Out (EDO) Comparison Group Facilities. A group of 44 facilities in strata 4, 5, and 6 was used to provide abstracts for the EDO study. Facilities were asked to provide EDO abstracts, only if they co-operated fully in prior Phase II data collection activities (completed administrator interview, sampling of client records, and record abstraction), and indicated in their administrator interviews that they were likely to yield useful numbers of EDO abstracts.

2.2.4 Abstract Sample

Sample Groups. Data collection at each Phase II facility consisted of interviewing the facility administrator, constructing and sampling the client discharge and in-treatment lists (when applicable), and abstracting selected treatment records. Discharge and in-treatment lists were constructed and sampled only upon completion of the Phase II administrator interview. Every eligible discharge and in-treatment methadone episode during the 6-month reference period was included on the lists to be sampled. For the purposes of ADSS, an eligible substance abuse treatment client was one who was not discharged on the same day as admitted. For non-hospital residential clients, the person must have spent one night in treatment; for outpatient clients, the person must have made at least one visit to the treatment facility after the intake/admission process. Furthermore, the person must have received substance treatment as part of the sampled episode. Persons whose treatment episode was clearly limited to mental health, family counseling, or other non-substance abuse services were not considered substance abuse treatment clients for purposes of ADSS, even though they may have had a previous history of substance abuse treatment. The client must have been the substance abuser himself or herself and not a family member or other person receiving services in relation to the substance abuser (a

co-dependent or collateral). In all, three abstract samples were selected, each with its own eligibility requirements.

Discharges. Discharged clients were those substance abuse clients, as defined above, who ended treatment in some way during the facility's specified 6-month period, regardless of when they were admitted. This included substance abuse clients who

- were formally discharged upon completion of treatment;
- dropped out of treatment or otherwise failed to return;
- were terminated by the facility (for non-compliance with rules, lack of payment, termination of type of care, etc.);
- were incarcerated and ended treatment;
- died;
- were transferred to another facility, thereby ending their treatment at the sampled facility; and
- in any other way ended treatment at the sampled facility during the 6-month reference period.

In-Treatment Methadone. In-treatment methadone clients were eligible for Phase II record abstraction if they were enrolled at the facility as of the day that the administrator interview (index day) occurred. They did not have to appear at the facility to get methadone or other treatment on the index date.

Early Drop Outs. EDO discharges were listed and sampled to create a third sample of record abstractions. EDO discharges were defined as discharges that took place within 1 day of admission or with at most one session of treatment. The EDO sample provided a cohort of substance abuse users who were similar to an identifiable group of clients in the Phase II main study. Treatment outcomes of the two cohorts then could be analyzed and compared in order to judge the effectiveness of treatment. The EDO discharges were sampled and abstracted from a subset of Phase II facilities separately after main study abstractions had been completed. Forty-four facilities from strata 4, 5, and 6 of the Phase II facility sample were used to supply EDO discharges. These facilities were selected to provide the EDO sample because they had been fully co-operative during main study abstraction and because they had indicated that they could supply a sufficient number of discharges to be worthwhile. The reference period used to create EDO discharge lists was a comparable 6-month window prior to the date of the return visit to the facility for the purpose of drawing the EDO sample.

Sampling Protocol. An ADSS on-site coordinator worked with facility administrative staff to create the lists of substance abuse treatment discharges and, when appropriate, in-treatment methadone clients. Based on the stratum and number of discharges or ITMC clients

on the list, the coordinator used a programmable calculator to compute the actual number to be selected from the facility. A systematic sample then was drawn from each list by taking a discharge record at random from the first *k* records and taking every k^{th} record thereafter. Total counts on the lists and required sample sizes determine the values of *k*. To document the sampling procedure at the Phase II facilities, specified parameters were recorded on a sampling worksheet developed for the ADSS study. These specific parameters were defined as follows.

Target Sample Size. The target sample size was defined as the number of discharges or ITMCs that initially were to be selected from the facility determined by its Phase I discharge response. For discharge samples, the target sample varied for each facility. For ITMC samples, the target was always 30.

Random Number. The random number was a 4-digit decimal number of the form 0.XXXX, assigned and unique to each facility. Programmed calculators used the facility's random number to determine the starting place for the selected sample.

Number of Discharges/ITMCs Listed. The coordinator recorded the actual total number of discharges/ITMCs on this line.

Expected Range. The expected range was used to determine if the actual number of discharges/ITMCs at the facility was within a pre-determined range. The expected range was based on the Phase I reported annual discharges/ITMCs for the facility (divided by 2 to arrive at an estimate for a 6-month period). If the number listed in Phase II differed from the Phase I estimate by more the 10 percent, the field coordinator called the home office and a statistician revised the sample size in order to maintain the within-facility sampling rate. Among the original facilities in the combined sample (main and incentive study facilities) that co-operated with Phase II, 75 percent (175 out of 234) had their sample size revised. These callbacks to the statistician also allowed the monitoring and projection of Phase II sample sizes by strata, in case adjustments had to be made.

To prevent loss of total sample size, the sample size initially assigned to the original facility was used for the shadow facility that replaced it.

Selection of Early Drop Out (EDO) Comparison Group Abstracts. Within the facilities selected for the comparison group, the coordinator constructed a list of all eligible EDOs and then abstracted all records on the list, as long as there was adequate locating information for the individual. If the list of eligible EDOs in a facility was more than 50, the coordinator called the Westat statistician to review the situation before proceeding with the record abstraction task. If there were more than 75 EDOs listed, then a sample of the first 75 EDOs was selected.

2.3 Data Collection

2.3.1 Data Collection Design

ADSS Phase II was designed as a nationally representative study to collect information on substance abuse treatment facilities and their clients by means of on-site activities. The principal components of Phase II data collection are described below.

Administrator Interview. A coordinator collected data about treatment facility programs, operations, and finances by conducting an in-person interview with a facility administrator who had sufficient knowledge and authority to answer questions about the facility. At a later point in time, a study cost analyst recalled facilities to verify information related to their cost estimates.[2]

Sampling. A statistically representative sample of substance abuse treatment episodes had to be drawn at each sampled facility. The main steps in this process were as follows:

- List Development: The on-site coordinator worked with facility staff to develop a comprehensive list frame of all eligible treatment episodes at the facility, according to the criteria developed for the Phase II sample design.

- Sampling: The coordinator drew a statistically valid sample of episodes from the list using the random number to determine a starting position.

- Record Abstraction: The coordinator obtained the treatment records for the clients whose treatment episodes were sampled and abstracted from them key data items, including demographic, criminal justice, medical, substance abuse history, substance abuse testing, substance abuse treatment history, treatment services, discharge status, and financial information. Because the overall ADSS data collection design included an in-person follow-up interview in Phase III, abstractors also completed a client locator module recording a variety of client identifying and contact information.

In addition to these fundamental design components, several other aspects of the data collection operational design are significant. These include sub-study differences. At the facility level, there were no operational differences in the data collection methods of the administrator interview for the main study, incentive study, EDO, and in-treatment methadone sub-studies. Facilities selected to provide two client samples (discharges and in-treatment methadone clients or discharges and EDO clients) required a process to request and secure two samples rather than one. There were slightly different forms and procedures for sampling the discharge, in-treatment, and the EDO clients. However, the same client record abstraction form was used for all three, with slightly different item skip patterns used for in-treatment and discharge methadone clients.

[2] Cost and revenue data are discussed in detail in the ADSS cost study report (Office of Applied Studies [OAS], 2002).

2.3.2 Instrument Design

The data collection design for Phase II required the use of three principal data collection instruments: an administrator interview questionnaire, a client record abstraction form, and a client locator module. The following sections describe the design of these instruments.

Administrator Interview Questionnaire. (A copy of the 35-page Phase II, Part 2, administrator interview is available as a PDF file at the OAS website: http://www.samhsa.gov/oas/ADSS/ADSS2AdminQN.pdf. Also available at the same website is the 341-page codebook for the Phase II, Part 2, administrator interview: http://www.samhsa.gov/oas/ADSS/ADSS2AdminCB.pdf.) As noted above, facility directors at 280 facilities were interviewed on site. The interview covered the following four areas:

- Comparison of Phase I and Phase II Identifying Information: name of the facility, type(s) of care offered, and the number of clients served on the day of the interview. Copies were requested of facility documents (i.e., audited financial statements, personnel lists, brochures describing the facility, and an example of a client bill with all identifiers removed).

- Information was gathered for each type of care the facility provided, including hospital inpatient,[3] non-hospital residential, outpatient methadone, and outpatient non-methadone care. Items included detoxification and rehabilitation services, therapeutic community, number of beds (24-hour care facilities), estimated average length of stay, typical number of individual and group counseling sessions per week, types of group counseling sessions, number of clients per type of session, average daily methadone dosage (outpatient methadone facilities), and intensive outpatient services (outpatient non-methadone facilities).

- For all facilities, data were gathered about the number of clients who left treatment per month after 1 day or one visit. This information about EDO clients was used to select facilities for the EDO study. Information was also collected about aftercare services and computerization of client records.

- Financial information was collected about staffing hours, salaries, treatment and support services, revenue, costs, and expected client payment sources for each type of care the facility offered.[4]

Record Abstraction Form. (OAS provides a PDF copy of the 30-page Phase II client record abstraction form, Parts 3-5: http://www.samhsa.gov/oas/ADSS/ADSS2ClientQN.pdf. OAS also makes available on its website the 221-page codebook for the client record abstraction

[3] Although hospital inpatient facilities were not sampled in Phase II, facilities from other strata may have reported for more than one type of care on the administrator interview. No clients were sampled from these hospital inpatient facilities for the Phase II abstracts or for Phase III follow-up.

[4] See footnote 2.

form: http://www.samhsa.gov/oas/ADSS/ADSS2ClientCB.pdf.) The client record abstraction form included the following nine sections:

- demographic and background information (type of care received for this treatment, date of admission, date of first treatment, referral and payment sources, age, gender, race, ethnicity, marital status, children, living arrangement, education, employment);
- criminal justice system information (DUI/DWI arrests, other arrests, incarceration history);
- medical and psychological history (number of prior hospitalizations, conditions, medications, pregnancy information, diagnoses);
- substance abuse history (ever used, used in last 30 days, age at first use, intravenous drug use);
- substance abuse testing information;
- prior treatment history;
- treatment services information (number of visits, services this treatment, medications excluding methadone, methadone treatment history);
- discharge information (date of last treatment, discharge date, reason for discharge, diagnoses at discharge, dual diagnosis at discharge, aftercare plan and services); and
- financial information (days/visits authorized, source of authorization, billed charges, full or partial charges).

The client record abstraction form was completed for all clients. An abbreviated form was completed for methadone discharge clients that included information on admission and discharge dates, selected demographic information, prison or jail record, psychological disorder, pregnancy status, substance abuse history (cocaine, heroin, marijuana, and alcohol), and methadone services received in treatment. Discharge information was not collected for methadone in-treatment clients.

Client Locator Module. The client locator module contained fields for recording the following:

- client's full name, any aliases/nicknames, current and past address and telephone information;
- names and contact information for other people who might know the client's whereabouts after treatment, such as relatives, friends, caseworkers, and criminal justice agent; and

- when it appeared in the record, Social Security number, Medicaid and Medicare ID numbers, criminal justice information, and case numbers.

As a confidentiality measure, no explicit or indirect client-identifying information (such as name, address, or Social Security number) appeared on the record abstraction form, which contained only the ADSS client ID as an identifier. When it was necessary to utilize client-identifying information for field operations, the information was output on forms separate from the data collection instruments. Only specifically authorized research staff could link the client ID to the information captured in the locator module.

2.3.3 Confidentiality Measures

SAMHSA, Brandeis University, and Westat are firmly committed to the principle that the privacy of individuals and organizations about which data are collected through survey methods must be protected. The confidentiality of information regarding facilities and subjects was considered to be of utmost importance throughout the research process.

Certificate of Confidentiality. A certificate of confidentiality was issued to Brandeis University and Westat to protect data from civil and criminal subpoena. The certificate protects the privacy of research participants by allowing researchers to withhold the identities of research subjects from all persons not connected with the conduct of the research.

The abstraction of facility treatment records falls under the Federal regulations guarding Confidentiality of Alcohol and Drug Abuse Patient Records (42 CFR, Part 2), which applies to the conduct of research within all drug and alcohol treatment programs that are federally assisted. In accordance with this regulation, all records and data from these programs are confidential. Records may be disclosed for purposes of this study without the respondent's consent because ADSS meets the security requirements and review of protocol stipulated by the provision. Pursuant to these regulations, interviewers became subject to fines up to $500 for the first violation of confidentiality, and fines of up to $5,000 for each subsequent offense.

Westat IRB Review. Westat submitted the ADSS project to its Institutional Review Board (IRB) at every stage of data collection and, at a minimum, annually. The ADSS study plan was reviewed and approved by the Westat IRB.

Field Operations Confidentiality Measures. The following confidentiality procedures were developed specifically for this study:

- Field operations employees and consultants who were involved in the collection or handling of the data were thoroughly trained in matters pertaining to privacy and confidentiality.

- Field operations employees and consultants were required to sign a statement affirming their commitment to maintain confidentiality and their understanding of the sanctions to be imposed for violation.

Data Management Confidentiality Measures. No facility names or individual client names were included with the data collected from facilities or clients. Only a study identification number was connected with the data forms or any data files.

All data was kept in locked files in a dedicated room. The room was only accessible to research staff. Data files were only accessible to study staff and were maintained on a password-protected computer account. To maintain confidentiality, all identifier information was keyed within the dedicated room.

2.3.4 Field Data Collection Operations

Training. A 5-day training session was held in August 1997. The training included the following topics: overview of the study design and objectives; review of drug and alcohol treatment settings, types of care, services provided, and confidentiality issues. In addition, administrative procedures, facility recruitment, and question-by-question (Q-by-Q) specifications for the administrator interview and client record abstraction form were provided. The specifications were developed to explain the intent of the question, the specific content of the question and its response categories, definitions of special terms, how to record responses, and how to handle specific situations or problems. The Q-by-Q for each item was printed in the data collector's manual on a page facing a reproduction of the page from the instrument where that item appeared. Coordinators also were taught the client sample accrual and selection procedures, including variations in abstracting from the discharged and in-treatment methadone client records. All in training participated in exercises in completing the interview, compiling and selecting the sample, and completing the abstracts.

All data collection staff received a detailed ADSS Phase II data collector manual that documented the entire data collection protocol, including interviewing and abstracting process, detailed specifications for every item in the administrator interview questionnaire and client record abstraction form, listing and sampling procedures and forms, definitions, confidentiality requirements, and reporting and administrative procedures.

Management Systems. Facilities in the 62 PSUs were divided into 4 geographical regions. Each of the regions was assigned a field supervisor who was responsible for monitoring the activities of approximately 10 coordinators and 4 abstractors. Both the coordinators and abstractors received their assignments and ongoing instruction from the field supervisor. The coordinator was the lead person in each facility and had overall responsibility for all data collection activities in the facility. The abstractors shared responsibility with the coordinator for abstracting the client treatment records.

An assistant field director was responsible for monitoring the progress of the fieldwork and reporting all activities to the field director. The supervisors provided weekly updates to the assistant field director about data collection progress, staff problems, and staff productivity. The coordinators and abstractors reported weekly during a regularly scheduled call to their assigned supervisor regarding the status of their assigned facilities. They also reported on the number of hours worked, project expenses incurred, and any outstanding issues. Both coordinators and abstractors were instructed to call their supervisor at any time if they had questions or problems.

Supervisors were responsible for assigning facilities to the coordinators and abstractors based on the facility's geographic location. To minimize project costs, staff members were assigned to facilities closest to their homes. Once assignments were made, the supervisors entered them in the computerized field management system (FMS). Following weekly conferences with field staff, the supervisors entered the current status of the three main data collection tasks: the administrator interview, client sampling, and record abstracting. Specific codes were developed to indicate the progress of each task. For example, there was a code for a facility appointment, a facility refusal, and a completed facility. Field progress reports were generated from this system each week, and these were discussed during weekly phone calls with SAMHSA.

For control and management of the case assignments and the collected data, the coordinators received hard-copy case folders containing information about the sampled facility (facility information sheet), blank copies of the data collection and sampling forms, and blank copies of other administrative forms. Each facility was assigned a unique ADSS facility ID that was recorded on every data collection instrument and other operational form utilized in data collection at that facility. The case folders were assigned to the coordinators, who returned them to the ADSS home office with the completed instruments, forms, and documents after completing data collection at each facility.

Field Data Collection. Data collection involved the following tasks: facility recruitment, interview with facility administrator, sample construction, record abstraction, and completion of a client locator module.

Facility Recruitment. Facility recruitment began with contacting a facility administrator to negotiate participation in the study. Coordinators contacted the facility directors by phone and reminded them that some Phase I facilities would be selected for on-site visits in Phase II. Phase II facilities were offered a small incentive payment to participate. Coordinators explained client confidentiality procedures and tried to set up an appointment for a site visit.

Some facilities required their own IRB approval before they would agree to participate in the study. For those facilities requiring IRB approval, Brandeis and Westat collaborated to answer IRB questions about the research and client confidentiality protections and provided the necessary documents (e.g., consent forms, questionnaires) to present to the IRB. In some cases, an ADSS manager attended an IRB meeting to provide an overview of the study and answer any questions.

When a facility director refused to participate in the study, the coordinator notified his or her supervisor. Generally, this was followed up by another call, often by a different coordinator or a staff member from the home office. If the facility director still refused participation, the home office sent a letter that included additional information about the study, including an overview of the study, a copy of the certificate of confidentiality, and a copy of the Federal regulations pertaining to confidentiality of alcohol and drug abuse records. A coordinator would follow up this letter with a phone call to the treatment facility to further discuss the study's importance and try to persuade it to participate.

As needed, additional refusal conversion letters were sent along with a letter of support from the Legal Action Center in New York and, to methadone facilities, a letter from the American Methadone Treatment Association. After sending the letters, a study manager would follow up with a phone call to the treatment facility as a last attempt to persuade them to participate in the study.

Several facilities required that they obtain the client's consent before allowing access to the treatment record for abstracting. In these cases, the facility contacted the sampled clients and asked them for their consent to have their records abstracted. Researchers worked closely with these facilities. The data collection staff then abstracted the records of only those clients who had provided consent. If the facility was unable to reach a client or a client did not want his or her records abstracted, the record was not abstracted.

Some facilities provided treatment record data but withheld locating or identifying information about the clients, or explicitly informed the ADSS project that they did not wish to participate in Phase III (i.e., they did not want the ADSS Phase III field interviewers to contact their clients). Such facilities were considered as Phase II responders but not necessarily Phase III participants. Additional information is provided in Chapter 3 of this report about the handling of these types of situations.

Administrator Interview. The coordinator conducted the administrator interview on site with an administrator, either the senior facility administrator or his or her designee, who had sufficient knowledge and authority to answer questions about the facility. The interview took approximately 45 minutes to administer. In some cases, administrators asked their financial officers to complete the revenue and cost section of the interview. Most administrators were able to provide requested facility documents (audited financial statements, personnel lists, brochures describing the facility, and an example of a client bill with all identifiers removed). If the administrator could not give these documents to the coordinator at the time of the interview, they were generally provided while sampling and record abstraction was proceeding.

Sampling of Discharge Records for Main and Incentive Studies. Discharge records were sampled for main study clients in non-hospital residential, outpatient methadone, outpatient non-methadone, and combination facilities and for incentive study clients in outpatient non-methadone facilities. On average, 20.3 discharge abstracts (5,674/280) were completed for the combined main study and incentive study samples in non-hospital residential care and outpatient non-methadone care. Fifteen abstracts were completed for the abbreviated outpatient methadone discharge records. In the ITMC sample, an average of 32.8 in-treatment records (985/30) was abstracted.[5]

Sampling of Discharge Records for EDO Study. Outpatient non-methadone facilities and combination facilities with outpatient non-methadone care were eligible for the EDO study if the facility reported a sufficient number of EDO clients in the preceding months and all prior Phase II study work (administrator interview, sampling, and discharge record abstraction) was

[5] See Table 2.3 for number of abstracts.

completed. Coordinators revisited these facilities to draw this sample after the primary sample was drawn. The target number of EDO records was 50 per facility. If the facility had between 50 and 75, all EDO discharges were abstracted. If there were more than 75 EDOs, the statistician drew a sample of 75 and gave it to the coordinator. For the EDO sample, an average of 23 discharge records (1,012/44) was abstracted.[6]

Discharge Listing and Sample Selection. The coordinators worked with the treatment facilities to obtain a list of all substance abuse treatment client discharges that met the ADSS sampling eligibility criteria. Every eligible discharge within the 6-month study period prior to the administrator interview was eligible for sampling, including multiple discharges for a single client who may have been in treatment more than once at the sample facility during that period.

In preparation for the creation of discharge sampling lists, the ADSS coordinator provided each selected Phase II facility with a list of study definitions that explained criteria for eligible discharge episodes for study. Whenever possible, the facility was requested to provide a computer listing of its discharges filtered according to the 6-month period and other eligibility criteria. More commonly, the list was constructed by the coordinator who first gathered unfiltered computer lists, Rolodexes, and facility log sheets. Then the coordinator cleaned the list by working with the facility to exclude discharges that fell outside of the 6-month reference period or did not meet the substantive eligibility criteria and by identifying and including any other eligible discharges that should have been on the list but were not.

After obtaining or refining this list, the coordinator's final step in developing the complete frame of discharges was to order the discharges first by treatment-type grouping (i.e., non-hospital residential, methadone, and outpatient non-methadone), then by date of discharge within treatment type. Once the list was in final order, the resulting lines of the list were numbered sequentially from 1 to *n*. This constituted the sampling frame for carrying out the next step, sampling of discharges (see the discussion on sampling protocol in Section 2.2.4).

The completed sample grid on the discharge sampling worksheet was the definitive sample list for the facility's discharge sample. It also was the control and information form used by the coordinator to request corresponding treatment records to abstract. Each sampled episode was assigned an ADSS client ID number that consisted of the facility ID number and a sequential serial number added to the end of the facility ID number. The client ID number was used to identify all hard-copy and electronic record forms associated with the client.

In-Treatment Methadone Records. In addition to being part of the discharge sample, outpatient methadone facilities were also sites for the selection of the ITMC sample. The same procedures were used as in drawing the discharge sample. The only difference was that the client's admission date was entered on the sampling worksheet in lieu of the discharge date. The ITMC sampling process took place at the same time as the discharge sampling in the facility. The list included all active methadone clients as of the date of the administrator interview (index

[6] See footnote 5.

day). The final step in developing the complete frame of ITMCs was to order the clients by date of admission. This constituted the sampling frame of ITMCs.

Record Abstraction Protocols. After drawing the sample of discharge episodes and ITMCs, the abstractors requested that the facility staff provide them with the treatment records for the clients who were sampled. Abstractors and coordinators followed the steps outlined below for abstracting data from the records:

- They confirmed that the record belonged to the correct client by comparing the client's name (if available) and facility treatment record number with those items as they were recorded on the sampling worksheet.

- For clients with multiple treatment episodes at the facility, the abstractor located the sampled treatment episode within the record (i.e., the one corresponding to the discharge date on the discharge sampling worksheet or the current methadone treatment episode).

- Once the sampled treatment episode was located, the abstractor examined the entire record to complete the client abstract record form.

- Abstractors referred to training materials and the data collector's manual for guidelines for how to handle such problems as absent, incomplete, or ambiguous information. When in doubt, the abstractors/coordinators checked with their supervisors on how to handle problems or ambiguities they could not resolve themselves.

The abstract form contained pre-coded items or closed-ended item categorical answer choices. The simplest type of categorical response is a "yes/no" answer. The form also contained open-ended items. These items did not list possible answers, but were followed by a line or box in which to record the answer, such as a number, a diagnosis, and the name of a drug. The forms also contained a section for comments, in which the abstractor recorded information that might be useful in determining the answer to any data item or in qualifying the abstractor's decision.

The client record abstraction form contained simple instructions on how to record certain types of information found in the record and when to omit (skip) certain items because the data in previous items rendered the current item inapplicable. In addition, the data collector's manual and the abstractor training program provided detailed guidelines on how to record information in the abstract form using standard conventions, how to record missing data, how to use the comment section, and rules for rounding numbers.

After completing each abstract, the abstractor edited it completely to ensure that every item was accounted for, that only valid values appeared in categorical and numeric fields, and that the recorded information was legible. The abstractors annotated changes they made as a result of edits.

Completion of a Client Locator Module. Abstractors completed a client locator module for all clients except methadone discharges. No contact information was required for methadone discharge clients, as they would not be followed in Phase III.

2.3.5 Quality Assurance

Facility Sampling. Once the facility sample design was created, a variety of measures were employed to ensure that the final sample corresponded to this design. The following are quality assurance measures taken in regard to the ADSS facility sample.

Verification of Sampled Facility. The ADSS home office prepared facility case folders that the coordinators used throughout the facility data collection to control the data collection process. The informational forms about the sampled facility (facility information sheet) contained detailed information about the name of the facility and the specific sampled program(s) that had been sampled. Coordinators verified this information before proceeding with the data collection. When there was an unexplainable discrepancy, the coordinators worked with study managers to resolve it. This measure was important because of the existence of multiple treatment programs within a facility and multiple facilities operated under a single administrative umbrella.

Occasionally, a facility administrator assumed that all of his or her programs or facility locations were meant to be covered by the data collection, or began to respond about the facility where his or her office happened to be physically located rather than the actual sampled facility. Correcting these situations through the verification process was an important quality control measure to ensure that the collected data actually pertained to the sampled entity. As a double check, ADSS study managers reviewed the case folder notes and the collected data upon receipt in the home office. In two instances, the managers determined that, despite the verification process, confusion over which facility had been sampled in a multi-facility system had led to the data being collected for a different facility or a superset of facilities. In both instances, all of the originally collected data were discarded, the situation was clarified, and a corrected data collection was carried out at the sampled facility.

Statistical Handling of Merged Facilities. In three cases, two sampled facilities had merged into a single facility. The statisticians adjusted their selection probabilities so that the facility weight represented by the "absorber" reflected the increased chance of selection. The selection probability of the absorbed facility received a probability equal to 0.

Client Sampling. Despite careful cleaning of the sampling frame, occasional ambiguities sometimes emerged when the actual treatment records were produced for abstracting. In some instances, the abstractors found that seemingly eligible episodes did not meet the eligibility criteria, even though facility administrative records suggested they did. Such sampled episodes were categorized as ineligible and excluded from the collected abstract data records. ADSS managers also reviewed the documentation on the various sampling and data collection forms to investigate sampled discharges/in-treatment clients that had either been flagged by coordinators or identified by home office review as being of questionable eligibility. There were a number of instances where the sampled cases were determined to be ineligible, and they were categorized as ineligible for weighting purposes. Any data associated with them were deleted from the abstract data file. This helped to ensure that the final abstract record sample was a valid representation of the treatment population in the ADSS universe.

When the frame lists, sampling worksheets, and abstracts of client records were received in the home office, ADSS managers reviewed them further to confirm that the coordinator had followed the protocol and that the frame lists, samples, and final abstracts conformed to the sampling procedures and eligibility criteria. ADSS project managers reviewed all sampling forms to confirm frame sizes and sample sizes because these sampling parameters led directly into the sample weights that factored into the statistical findings of the study.

Record Abstraction. For most of the facilities included in Phase II, a coordinator and an abstractor worked together to complete the abstraction of treatment records. Approximately 10 percent of all abstracting work done by each coordinator and abstractor was randomly selected for a duplicate re-abstraction by the other person on site, according to a random selection process developed by ADSS study managers. After the duplicate abstraction was completed, the two data collectors reviewed them together, identified any differences, determined the correct answers, and made sure that the primary abstract contained the resolved answer. The main purpose of this process was to identify any systematic problems or misunderstandings that one data collector could have developed, especially in view of the wide variations in recording formats, completeness, and clarity of the treatment records across different facilities.

Observational Visits. Field supervisors observed coordinators and their abstracting staff at work on at least one occasion. Field supervisors monitored the coordinator's interaction with the facility director, his or her conduct of the administrator interview, drawing the sample, abstracting client records, and overall quality control procedures. If problems were detected with the process or products of the data collection (e.g., if there were delays due to logistical problems or facility concerns), repeat visits were arranged.

In addition, ADSS study managers from SAMHSA and the two contractors also conducted observational visits at the start of data collection. These visits provided more opportunities for observation of the performance of individual data collectors in terms of their implementing the data collection instruments and procedures. They also helped assess whether there were any systematic problems with implementation across data collectors and whether the fundamental data collection design, instruments, and procedures were functioning as intended.

2.3.6 Results of Field Data Collection Operations

This section presents statistics summarizing the outcome of the data collection effort for both the facility- and abstract-level data. Facility-level results included three components: the administrator interview, drawing the sample, and gaining access to the sampled client records for abstracting. Abstract-level results consisted of disposition of the record abstraction process for every sampled client episode.

Facility-Level Results. Table 2.2 shows facility-level results for the ADSS Phase II sample of 306 facilities (186 facilities in the main study and 120 in the incentive study). As indicated in column 5 of Table 2.2, 234 facilities in the original Phase II facility sample (144 in the main study and 90 in the incentive study) co-operated with all three components of the Phase II facility study protocol. As shown in the far right column of Table 2.2, this represents an unweighted response rate of 79.6 percent. Other columns in Table 2.2 provide information on the

distribution of original Phase II facilities that did not co-operate with all components of the study protocol. As shown in the third column, 12 of the original facilities (7 in the main study and 5 in the incentive study) were determined to be ineligible for study. The usual reason for a facility to be ineligible for ADSS was that it did not provide substance abuse treatment (e.g., it provided prevention or mental health services only). Finally, as denoted in the fourth column, 60 eligible ADSS Phase II facilities (35 main study and 25 incentive study facilities) were non-respondents. Refusal of some component of the study protocol accounted for 50 of these 60. Facilities closing after the start of data collection activities accounted for essentially all remaining non-response.

Column 6 gives information on the distribution of Phase II shadow facilities, which increased the number of facilities available for analysis by 46 (26 main and 20 incentive study facilities). These shadow facilities represent a 20 percent increase to the number of Phase II facility observations (22 percent to the incentive study and 18 percent to the main study). These shadow facilities would make similar contributions to the number of client records in the abstract component of the Phase II study.

Operationally, the shadow facilities had a somewhat lower yield than the originals: 63.9 percent of shadows responded versus 79.6 percent of originals. This difference is attributable to higher refusal rates among the shadows: 19 of 72 eligible shadows refused to complete all or part the Phase II protocol (26 percent), while 50 of 294 eligible originals refused to complete the protocol (17 percent). There are two explanations for this difference. The research team were able to apply applied intensive refusal conversion measures to original facilities over a longer period of time. Although shadows also received refusal conversion efforts, there was less time available because shadows were released nearer the end of the data collection period. A second explanation for lower shadow response rates is that the shadows were matched to originals because they had similar characteristics. Factors for non-responding originals that might have caused them to refuse might also have been more prevalent in the shadows that were released to replace them and led to their higher refusal rate as well.

Abstract-Level Results. Table 2.3 shows the results of the Phase II abstract data collection effort. In Table 2.3, the columns titled "Phase II Targets" and "Actual Sample Sizes" give, respectively, the planned Phase II abstract target sizes and the corresponding actual number of treatment episodes selected. The column titled "Number of Completes" refers to the number of eligible, completed abstracts. The column titled "Number of Ineligibles" gives the number of sampled completed abstracts determined to be ineligible. Finally, the column titled "Number of Non-Responders" denotes the number of non-completed abstracts due to record refusal or inability to locate the records. This table shows these results broken out by the four major study groups: main study discharges, incentive study discharges, in-treatment methadone clients, and EDO discharges. Because protocols used to select the main study and incentive study abstracts were identical, they were combined to form a "combined sample," which was used in Phase II abstract analyses. Summary information about this combined sample also is included in Table 2.3.

In creating the Phase II abstract sample, data collectors employed rigorous procedures to develop a complete and accurate sampling frame of treatment episodes in each facility prior to selection. The widely varying methods, practices, and conditions of the facility record keeping

inevitably introduced a degree of error into some of the resulting frames. Of the 6,659 abstracts from the combined and in-treatment methadone samples (not including EDOs), 471 were subsequently found to be ineligible according to criteria for eligible episodes. This is an ineligibility rate of 7.1 percent. The total number of eligible abstracts (excluding EDOs) was 6,188 (6,659 – 471). The principal reasons for ineligibility were as follows:

- Client never received treatment during the sampled episode (e.g., never began; admitted and discharged on same day; intake only/never returned after intake; assessment, evaluation, diagnosis, or testing only; referred to another facility/received treatment at another facility).

- Client did not receive substance abuse treatment, as defined for ADSS, during the sampled episode (e.g., only mental health or family counseling services).

- For the discharge sample, sampled episode discharge date was outside of sampling reference period.

- For the discharge sample, person was actually still in treatment (not yet discharged) for sampled episode.

- For the ITMC sample, the person was admitted after, or discharged before, the ITMC sample date.

- Person was a collateral of a treated subject, not a treated subject.

Non-response at the abstract level is defined as eligible treatment episodes for which the data collectors were unable to obtain the treatment record. There were 258 such instances. Although Table 2.3 does not present further breakout of reasons for non-response, records maintained during data collection show that this usually occurred because the facility did not keep a record or could not locate it. For 57 of these 258, access to the record was refused because the facility required explicit consent from the sampled client before releasing the record or because the facility refused access to a specific record for its own reasons (such as a sensitive criminal justice issue). After allowing for non-response, the final sample of completed, eligible abstracts, excluding EDOs, was 5,930.

Column 6 of Table 2.3, titled "Unweighted Response Rate for Phase II," gives Phase II record abstract response rates by stratum and study. These response rates have a small adjustment in them, reflecting that some non-completed abstracts would have been ruled ineligible if they had been included. This adjusted response rate was computed as follows:

$$\textit{Phase II Adjusted Abstract Response Rate} = C / [All - I - U * I /(C + I)],$$

where C = number of completed abstracts that were known to be eligible; I = number known to be ineligible, and $All = C + I + U$. The overall, unweighted Phase II abstract response rate was 96.1 percent. Abstract response rates were consistent across studies and categories, ranging from 93.3 percent for outpatient methadone discharges to 97.6 percent for the 0/0 group in the

incentive study.[7] For the overall sample, which includes EDOs, the respective numbers are 7,671 sampled, 520 ineligible (6.8 percent ineligibility rate), 7,151 total eligible, 330 non-response, and 6,821 completed, for a 95.4 percent unweighted response rate.[8]

Weighted Cumulative Response Rates, Facility and Abstract. Table 2.4 gives weighted response rates by phase, stratum, and study for facilities and abstracts in ADSS. The table gives response rate estimates for both Phase I and Phase II and multiplies pairs of them together to produce cumulative response rates. In general, unweighted abstract response rates are appropriate to measure the success of data collection, but weighted response rates give a truer picture of the proportion of the population represented by respondents and a better gauge of the potential for non-response bias.

As shown in Table 2.4, the overall cumulative weighted Phase II facility response rate was 76.6 percent, the product of the Phase I overall weighted response rate of 91.4 percent times the Phase II overall weighted rate of 84.1 percent. By type of care, there was significant variation in weighted response rates ranging from 86.3 and 87.7 percent, respectively, for non-hospital residential and outpatient-methadone to 73.2 and 76.5 percent for outpatient non-methadone and combination facilities.

Table 2.4 also provides the overall cumulative weighted Phase II abstract response rate of 72.4 percent, the product of the above cumulative weighted facility response rate times the Phase II abstract weighted rate of 94.6 percent. Response rate differences by type of care also were pronounced. For ITMCs, the cumulative weighted response rate was highest at 83.4 percent. Among discharges, cumulative rates ranged from 82.8 and 79.7 percent, respectively, for non-hospital residential and outpatient-methadone to 69.1 and 72.4 percent for outpatient non-methadone and combination abstracts.

Table 2.5 provides the unit counts of facilities (rows 1 and 2) and abstracts (rows 4 and 5) that were used as denominators in calculating the response rates in Table 2.4. The denominator of 2,235 used for weighted Phase I facility response rate was the total number of eligible Phase I facilities, other than hospital inpatient and alcohol-only facilities that were excluded from Phase II sampling. The denominator of 294 used for weighted Phase II facility response rate was the total number of eligible Phase II facilities excluding shadows. The denominator of 5,209 used for weighted Phase II abstract response rate was the number of eligible discharge abstracts from the main and incentive studies, and the denominator of 960 was the number of eligible ITMCs.

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[7] Because ADSS could not collect any data for 258 records, it is likely that some percentage of these would be found ineligible, roughly in proportion to the rate of known ineligibles among the available records. This known ineligibility rate was 7.4 percent: 471 known ineligibles ÷ 6,401 available records (5,930 eligible, completed abstracts + 471 ineligible abstracts). In reality, the response rate reflecting the actual coverage of the eligible population would probably be higher than the stated 95.8 percent were these additional ineligibles identifiable and subtracted from the eligible denominator. In calculating the weights, the ADSS statisticians made a proportional allowance for the unknown ineligibles among the non-responding abstracts.

[8] Because the EDO sample was not a probability sample, percentages that include this sample have meaning as measures of operational yields and success rates, but do not have meaning as formal, statistical sampling coverage rates.

These denominators of eligibles included all eligible responders and most non-responders, but they were slightly adjusted to account for estimated numbers of ineligibles among non-responders.

2.3.7 Data Preparation Activities

Editing, Coding, and Data Entry. Home office data preparation staff logged the receipt of each questionnaire and abstract form upon arrival from the field. The data preparation staff reviewed the instruments for completeness, legibility, and consistency with the ADSS recording conventions and with the legitimate values allowed for data each item. As appropriate, they resolved discrepancies and clarified ambiguous handwriting.

Coding staff created codes for each unique response appearing in an "Other-Specify" item. These codes then were used to represent instances of the response. After all documents were coded, the "Other-Specify" codes were reviewed and, when possible, reassigned to pre-defined codes for the item on the source document. For example, when the review found that codes existed both for the official name of a drug and the street name, the codes for the street name of the drug were globally changed to the code for the official name of the drug. After all such collapsing of codes was completed, the code lists were redefined so that no gaps appeared in the numbering sequence for the codes.

After being edited and coded, the paper forms were passed to a key entry operation using automated data entry software. Every form was independently double-key entered for quality assurance purposes. The automated entry program compared the two entries and flagged any pair of entries that did not match. The data entry staff then checked the paper form and confirmed the correct value.

After the data were entered, a frequency distribution was prepared for each variable and reviewed by a senior analyst to ensure that there were no unusual gaps in the distribution and that minimum and maximum values seemed plausible. When unusual values were identified, they were checked against source documents. For instance, when the age of first use of a drug was improbable (above 70 years old), the source document was consulted to ensure that the data had been entered into the data file correctly. Selected cross-tabulations of related variables also were reviewed to ensure that only valid combinations of values appeared in the data.

When discrepancies were found during these reviews, source documents were checked and either global or document-specific updates were applied, as appropriate. The automated and manual checks were repeated after updates were made to ensure that no additional problems were introduced as a result of the updates.

Medical Coding. The client record abstraction form contained blank fields for recording the diagnosis of the clients upon admission and discharge. The abstractors recorded the diagnoses verbatim from the records. At the home office, a staff of trained medical coders, working under the supervision of a senior medical coder, coded all these diagnoses into standardized codes using the International Classification of Diseases, 9th revision (ICD-9). The diagnoses then were entered into the data file exclusively as ICD-9 codes.

Automated Range and Skip Pattern Checks. All values in the facility administrator file and the client abstract file were checked using an automated editing system known as COED to ensure that they were consistent with the allowed values specified in the code book for each file. All skip patterns and logical relationships specified in each data collection instrument also were checked by the COED system. Whenever discrepancies were found, they were corrected and the edits were run again.

Analytic Edits and Review. Once a preliminary data file was available, analysts identified post-codes for newly discovered responses and analytic inconsistencies in the data. To rectify inconsistencies, researchers reviewed source documents. As appropriate, either global or document-specific updates were applied. After all updates, the automated and manual checks were repeated to ensure that no additional problems were introduced as a result of the updates.

2.4 Weighting

By specific design, all procedures for selection of Phase II facilities and clients and collecting data for the main and incentive studies were the same. Facility and abstract weights were calculated for the Phase II sample without regard to classification of main study versus incentive study. After calculation, final facility weights were attached to both the Phase II administrator interview file and the Phase II cost study file. Final abstract weights were calculated and attached to two Phase II abstract files: the Phase II combined main/incentive study abstract file and the Phase II in-treatment methadone abstract file.

2.4.1 Facility Weights for Administrator Interview and Cost Study Files

Facility-level weights for the administrator interview and cost study files were processed in the following steps: facility base weights, raking procedure, trimming procedure, and replication procedure (stratified jackknife) for variance estimation purposes.

Facility Base Weights. The Phase II facility sample consisted of two components: original facilities and shadows. Each shadow facility was assigned the base weight of the original facility it replaced. Original facility base weights were computed as the reciprocal of the probability of selection of the facility Phase II. A facility's probability of selection into Phase II was the product of its probability of selection into Phase I, the probability of selection of its PSU into the PSU sample used for Phase II, and the facility's conditional probability of selection into Phase II given its PSU and Phase I selection. As constructed, facility-based weights accounted for nonsampled PSUs and for nonsampled facilities within sampled PSUs. Such weights are appropriate for providing estimates from probability samples via the standard Horvitz-Thompson estimation method (see Cochran, 1977).

Raking. Except for Phase I and Phase II non-response, Phase II weights provide unbiased estimates of parameters of interest. Conceptually, unbiasedness means that over an infinite number of independent samples, the average of the observed statistics approaches the true parameter value. Because Phase II was only one sample, resulting estimates had sampling variability. In addition, because Phase I and Phase II both had non-response, resulting estimates were biased as well. A weight adjustment procedure called "iterative post-stratification" or

"raking" helps reduce both the variability in resulting estimates and non-response bias. In raking, sampling weights are adjusted so that weighted totals within cells equal control totals based on some more reliable source (e.g., the larger ADSS Phase I sample). The assumption is that forcing weighted totals to equal more reliable values at the cell level will reduce variability and bias of other estimates that correlate with any of the factors used to define cells. Raking, it should be noted, addresses non-response and removes the need for any other form of non-response adjustment.

In the raking adjustment done for ADSS Phase II, four factors were used to define cells:

- urbanicity (metro, nonmetro);
- type of ownership (private for profit, private nonprofit, public);
- categorized number of clients on October 1, 1996 (100 or fewer, more than 100) as reported on Phase I; and
- type of care offered by facility (as reported on Phase I) / certainty of PSU.

The last factor contains seven levels. The raking procedure gave good results among the non-methadone facilities using the simpler factor of type of care offered: residential care only, outpatient non-methadone care only, or a combination of treatments not including methadone. Such a simplified factor, however, did not perform well for the methadone facilities, and a much more detailed partitioning of such facilities was necessary to provide acceptable results. The final choice of levels for this final factor is as follows:

- offered residential only;
- offered methadone only and was located in a certainty PSU;
- offered methadone only and was located in a non-certainty PSU;
- offered outpatient non-methadone only;
- offered a combination of treatment types, but did not offer methadone;
- offered a combination of treatment types, including methadone, and was located in a certainty PSU; and
- offered a combination of treatment types, including methadone, and was located in a non-certainty PSU.

The control totals used in raking were the number of facilities within defined cells (as estimated in Phase I), after removing facilities offering hospital inpatient only or with 100 percent alcohol clients (as reported in Phase I). The raking process stopped when the specified number of iterations was reached or when a stopping rule based on total differences between

iterations was satisfied. The total difference limit for stopping was set at 1 for the full sample weights and 10 for the replicate weights. Convergence was reached in 6 iterations for the full sample and 4 iterations for the replicates.

Trimming Weights. Trimming is the pragmatic operation of reapportioning high weights in a few overly influential facilities to facilities with lower weights. In moderation, trimming is an acceptable protection against a small set of facilities having too much impact on estimation results, but trimming does introduce bias to the analyses and should be done as minimally as possible.

In Phase II of ADSS, facility weights were trimmed if they contributed more than 18 percent of a trimming group's sum of weights, or more than 10 percent of a trimming group's sum of weighted number of discharges. The trimming groups were defined by the types of care offered, as recorded on the Phase II administrator interview. Using the described criteria, three Phase II facility had their weights trimmed. One facility, which offered outpatient non-methadone care only, had its facility weight reduced so that its anticipated weighted number of discharges was limited to 10 percent of the total weighted number of discharges for all outpatient non-methadone only facilities. In a second case, a Phase II facility offering methadone treatment only had its weight trimmed to equal 18 percent of the total weight for methadone-only facilities. In a third case, the single Phase II combination facility offering methadone treatment, had its weight trimmed to equal the Phase I estimate of the country's total number of combination facilities offering methadone treatment. In each case, the reduction in facility weight because of trimming was distributed weight-proportionally among all facilities in the same trimming group.

Final Facility Weights. The steps of raking and trimming converted the initial base weights into final Phase II facility weights, $w_{ij}^{II,final}$ (Phase II weight of j^{th} facility in the i^{th} PSU), which can be used to estimate statistics of interest: means, totals, and proportions of facility characteristics and client characteristics. To estimate the total number of facilities in domain *d*, one simply sums the weights across PSUs (denoted by *i*) and across facilities within (denoted by *j*), which are in domain *d*:

$$\hat{N}_d = \sum_i \sum_{j \in d} w_{ij}^{II,final} \quad .$$

To estimate the proportion of facilities in domain *d*, compute the following:

$$p_d = \frac{\sum_i \sum_j w_{ij}^{II,final}}{\sum_i \sum_j w_{ij}^{II,final}} \, .$$

For estimating totals of some other variables (y_{ij}) (e.g., number of clients, admissions, revenue, costs), compute the following:

$$\hat{Y} = \sum_i \sum_j w_{ij}^{II,\,final} y_{ij} .$$

For computing a weighted mean, compute the following:

$$P_d = \frac{\sum_i \sum_j w_{ij}^{II,\,final}}{\sum_i \sum_j w_{ij}^{II,\,final}} .$$

The distribution of the final Phase II full sample facility weights for the combined main/incentive sample is shown in Table 2.6. The table provides measures of the central tendency and spread of the Phase II facility weights by type of care offered. The lowest average weights are from the outpatient methadone treatment type, which reflects the higher sampling rates in that domain. The weights vary due to the PPS sampling design.

For the main study, most strata had 25 discharge abstracts as the initial expected (or average) sample size per facility. The exception was in the outpatient predominantly methadone stratum. A limited abstraction effort was to be done for the outpatient methadone discharge sample for the purpose of obtaining an estimation of length of stay. An average of 15 discharges per facility was computed to be adequate for this limited purpose. For the incentive study, the expected average sample size was 19 discharge abstracts. For the ITMC, the expected average sample size was 30 client abstracts.

Variance Estimation. Estimates of sampling variability provided information about how far the given statistic might be from the true population value, and how different a replicate statistic would be, if selected from an independent sample. Due to the multi-stage, complex sampling design in Phase I and II of the ADSS, proper estimation of the sampling variability was complicated and required techniques beyond those commonly available in standard statistical packages, such as SAS or SPSS. Fortunately, specialized computer software packages have been developed to analyze data from complex samples. These packages make use of two distinctly different approaches for estimating sampling variability: a jackknife procedure (see, e.g., Kish & Frankel, 1974; Rust, 1985; Wolter, 1985), which replicates the statistic over a large number of subsamples and uses their variation to estimate sample variance, and a Taylor's series method, which computes a first-order linear approximation of the sample variance. Within ADSS, a stratified jackknife procedure (i.e., JKn) was the planned method of variance estimation for all weighted analyses. In preparation for these and subsequent Phase II analyses, complete sets of replicate weights were provided on all weighted Phase II files, facility and abstract. It should be noted that a Taylor's series method also could have been successfully implemented to analyze ADSS Phase II data. The ADSS Phase II data user's manual provides specific instructions for doing Phase II analyses using any of three software packages: WesVar (WesVar Complex

Samples 3.0[9]); SUrvey DAta ANalysis, or SUDAAN[10] (Software for the Statistical Analysis of Correlated Data); and Stata.[11]

Construction and Use of Replicate Facility Weights. In ADSS Phase II, a stratified jackknife (i.e., JKn) procedure was employed to compute sample variance estimates for all weighted analyses. To construct replicate weights, the facility sample was stratified into the six sampling strata and further divided into a total of 78 substrata. The substrata were equal sized within each stratum, but the strata had different numbers of substrata. Distinct replicate samples then were produced by removing individual substrata from the facility sample. Weights for each replicate sample were constructed by reweighting the remaining facilities in a stratum to account for the excluded substratum and repeating the raking and trimming procedures used on the full sample facility weights.

The estimated sampling variance of a statistic t is the sum of squared differences over the number of replicate samples:

$$\hat{Var}(t) = \sum_{g=1}^{G} k_g (t_g - t)^2 \quad .$$

Here t_g denotes the statistic of interest, obtained using the g^{th} set of replicate weights in place of the full sample weights; and the k_g are stratified jackknife factors, computed as $k_g = (n_h - 1)/n_h$, for each replicate g, where h is the stratum associated with replicate g, and n_h is the number of substrata within stratum h (more about the derivation of this sampling variance equation is included in Krenzke and Mohadjer, 2001). Information on using the software package WesVar Complex Samples 3.0 to compute appropriate variance estimates is contained in the ADSS Phase II data user's manual.

2.4.2 Weights for the Phase II Abstract Files

Planned analyses required the construction of weights for the abstracts in two of the Phase II samples:

- the combined Phase II main and incentive study sample, and
- the ITMC sample in Phase II.

The procedures to weight the two abstract samples were essentially the same, involving a series of steps as discussed below: abstract base weights, construction of weight cells and non-response adjustment, adjustment to numerators of non-response factors because of ineligible non-responders, and trimming procedure. Weights were not constructed for the EDO sample, as it was not considered representative of any easily describable population.

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[9] WesVar is developed by Westat (www.westat.com) and distributed by SPSS, Inc. (www.spss.com).

[10] SUDAAN is developed and sold by RTI in Research Triangle Park, NC (www.rti.org).

[11] Stata is a registered trademark of Stata Corporation (www.stata.com).

Abstract Base Weights. Each abstract base weight was computed as the product of the final Phase II facility weight and the reciprocal of the abstract's probability of selection within the facility. For the discharged abstracts in the combined main and incentive study sample, the abstract's probability of selection within the facility is the ratio of the number of sampled discharges to the number of recorded discharges for the facility in its 6-month reference period. For the ITMC abstracts, the abstract's probability of selection is the ratio of the number of sampled ITMC clients to the number of all ITMC clients enrolled at the facility on the index day.

The sampling design for Phase II, in which facilities were selected with PPS and a variable number of discharges were selected from each facility proportional to the total number of discharges, was designed to minimize the variation in weights among abstracts from different facilities. Theoretically, such a design could assign the same weight to every abstract in the sample. However, due to the PSU stage in the Phase II sampling design and large variation in the selection probabilities among PSUs, such uniformity could not be achieved.

In addition, there was variation among base abstract weights because the shadow facilities were generally assigned the same sample sizes as their original counterparts and were not revised. Also, some shadow sample sizes were increased late in the data collection period in order to increase the aggregated sample size. Other causes of variation include change in facility stratum classification between Phase I and Phase II, constraining the sample sizes to a value between 6 and 45, mergers, updating the measure of size before Phase II sample selection of facilities, keeping the sample size the same when the actual number of abstracts was different from the estimated number of abstracts but within 10 percent, and combining main and incentive studies for Phase II analyses (because sampling rates within facilities were different for the main and incentive study facilities).

Construction of Weight Cells and Non-Response Adjustment. Phase II discharges and in-treatment clients for whom abstracts could not be completed were deemed non-responders. Adjustments were to be made to the base weights of completed abstracts in an attempt to reduce non-response bias in the analyses. Based on the theory that the behavior patterns and treatment experiences of non-responders would best be represented by responders from similar facilities, completed abstract base weights were non-response adjusted based on observable facility characteristics. The use of additional client-level characteristics might have made further improvement, but such characteristics were not uniformly available among all non-responders.

In preparation for non-response adjustment, the two Phase II abstract samples were partitioned into weighted cells, constructed based on observable facility characteristics. Characteristics used in the formation of the cells were selected to predict abstract data as well as possible and included the following:

- type of treatment (residential, outpatient methadone, outpatient non-methadone, combined) from the Phase II administrator interview;

- type of ownership (private for profit, private non-profit, public) from the Phase I questionnaire;

- type of PSU (metro certainty, metro non-certainty, non-metro non-certainty) from the sampling frame;

- Census region (Northeast, Midwest, South, West) from the sampling frame;

- categorized number of discharges (less than 33.3rd percentile, between 33.3rd and 66.7th percentile, greater than the 66.7th percentile) from Phase II sample management information;[12]

- type of abuse (alcohol only, drug only, both) from the Phase I questionnaire;

- categorized number of clients (0-16, 17-40, 41-100, 101-225, 226+) from Brandeis University callbacks and Phase II administrator interview; and

- categorized cost per discharge (less than 33.3rd percentile, between 33.3rd and 66.7th percentile, greater than the 66.7th percentile) from Brandeis University cost study values and Phase II sample management information for discharge values.

Non-response adjustment was performed by determining appropriate adjustment factors for all weight cells and applying them to the base weights of the cell's completed eligible abstracts. Each non-response adjustment factor was the ratio of two weight totals. The numerator was the sum of weights across all sampled discharges/in-treatment clients (modified to account for non-responding ineligibles [see the next paragraph]) in the weight cell, and the denominator was the sum of weights across the eligible, completed abstracts in the weight cell. Weight cells were collapsed if they contained fewer than 30 eligible, completed abstracts or the adjustment factor was greater than 2. For the combined main and incentive study sample, there were 30 weight cells, and the maximum non-response adjustment factor was 1.28. For the ITMC sample weights, there were 5 weight cells, and the maximum non-response adjustment factor was 1.23.

Adjustment of Numerators to Non-Response Factors Because of Ineligible Non-Responders. The true eligibility status of each non-responder was unknown. Recognizing that some non-responders would have been found ineligible, if their records had been available, a small adjustment was made to the numerators used in non-response adjustment. This added adjustment was based on the ratio of known eligible to known ineligible abstracts within each weight cell and attempted to further reduce bias in the Phase II abstract analyses.

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[12] The facility sample management system (SMS) for Phase II facilities was developed to reconcile the Phase II sampling worksheets with information that the sampling statistician received through phone calls from the field. The system was very useful for the Phase II sample management and weighting process because it had links between the original sampled facilities and shadows, their associated result codes, and within-facility weighting variables. Using this file helped to resolve which facilities were involved in the weighting process for both facility and abstract/client weights. Further quality checks were made, and the checks resulted in changes to the number of abstracts listed for the four facilities.

The abstract SMS for the Phase II abstracts was developed and contained status codes for each of the abstracts. Quality checks were processed relational to the Phase II facility SMS to check the consistency between the two files.

Trimming Weights. To identify abstracts that might exert too strong an impact on the Phase II abstract analyses, stem and leaf plots of abstract weights were constructed and examined by type-of-treatment group (i.e., residential treatment, outpatient non-methadone, and outpatient methadone). Three abstracts, determined to have overly influential weight, had their weights trimmed back to be the maximum allowable limit of 1 percent of their group's total. The excess weights (i.e., the trimmed-off portion of the weights) then were redistributed proportional to weight among all abstracts in the group.

Final Abstract Weights. The final abstract weights were computed as the result of the abstract base weights and the subsequently computed adjustment procedures. The distribution of the final Phase II full sample abstract weights is shown in Table 2.7. There was no post-stratification adjustment in the case of the abstract weights, but the combined main and incentive study abstract weight totals by type-of-treatment should reflect the weighted sums by type-of-treatment of all eligible discharges from the Phase II facilities during their 6-month reference periods. Likewise, the ITMC weight total should reflect the weighted sum of all point-prevalence counts of Phase II methadone facilities.

Estimation of Discharges by Type of Treatment—Phase I Versus Phase II. The estimate of annual discharges based on combined main and incentive study abstract weight totals in Phase II is about one quarter lower than the estimate of discharges based on aggregate counts provided by facility directors in Phase I. The following differences in survey methodology between Phase I and Phase II may account for the lower Phase II estimate.

First, Phase II of ADSS is a study of the 1995 substance abuse facilities still operating in March 1997. Although Phase II facilities were selected in March 1997, the Phase II sampling frame was developed in August 1995. A total of 11 of the 306 facilities selected for Phase II were closed by March 1997 and therefore were ineligible. Facilities opened after August 1995 were not in the frame and could not be selected. The net effect of these sampling and eligibility decisions was a decrease in Phase II estimates of the number of discharges. This decrease occurred in spite of the Phase II facility post-stratification procedure because that procedure used the whole sampling frame and correctly ignored later (i.e., after March 1997) eligibility status.

Second, facility-level comparisons showed that Phase II discharge lists were often substantially smaller than corresponding Phase I discharge estimates. There are a number of explanations for this observed tendency: Facility directors may have hoped they were treating more clients than they really were. They may have counted people inquiring about treatment but not admitted. Or, perhaps, their record systems were faulty and could not reliably produce 6-month discharge lists.

Third, a proportion of Phase II abstracts in each type-of-treatment group was ruled ineligible. Such abstracts were not included in the Phase II abstract sample and did not contribute to the Phase II discharge estimates even though the facility directors considered such clients eligible and did include them in their Phase I estimates.

Variance Estimation. Replicate Phase II facility weights were created to enable the use of a stratified jackknife approach for estimating the variances of facility-level statistics. To enable

the same jackknife approach for Phase II abstract analyses, replicate abstract weights were similarly constructed. Construction of each set of replicate weights followed the steps implemented for the full sample abstract weights but began with slightly varied sets of base weights, derived by removing various small groups of abstracts from the full abstract sample. That is, the replicate weighting procedures for the abstracts included recalculating base weights in light of the removed abstracts, adjusting the base weights for non-completed abstracts, and trimming. A description of how to use the replicate weights to compute appropriate variance estimates using WesVar Complex Samples 3.0 is contained in the ADSS Phase II user's manual.

2.5 Data Files to SAMHSA

Table 2.8 lists the data files that were the produced from the data collected in Phase II. This table presents a brief description of each file and the number of records in the file. For more information about the use of the Phase II files, refer to Chapters 3 and 4 and Appendix B of the ADSS Phase II data file codebooks available as PDF files on the OAS website:

- *Codebook, Part 2, Phase II, Administrator Interview* (341 pp.): http://www.samhsa.gov/oas/ADSS/ADSS2AdminCB.pdf; and

- *Codebook, Part 3, Phase II, Main/Incentive Study (Record Abstract)* (221 pp.): http://www.samhsa.gov/oas/ADSS/ADSS2ClientCB.pdf.

2.6 Summary

This chapter has described the methods used to address the numerous issues in the Phase II data collection process: the sampling design and procedures, the instrument development, the data collection process, and the creation of weights. The goals of Phase II of ADSS were to obtain accurate, stable national estimates of statistics of interest concerning both substance abuse treatment facilities and the clients they serve. The complexity in classifying type of care, ownership, and financial arrangements, the incompleteness of existing substance abuse facility indexes, and the challenge of obtaining facility participation required constant attention and innovation by the ADSS research team, but in the end it is believed that these goals were achieved. Separate reports have been written on the substantive findings of ADSS Phase II on the topics of client characteristics and facility costs. These reports and additional information regarding ADSS Phase II methodology can be obtained upon request from SAMHSA and the authors.

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Table 2.1 ADSS Phase II Target Facility Sample Sizes

ADSS Phase II Sampling Strata	Sample Sizes		
	Main	Incentive	Combined (Main Study and Incentive Study)
Non-Hospital Residential Only (Stratum 2)	31	0	31
Outpatient—Predominantly Methadone (Stratum 3)	31	0	31
Outpatient—Almost Exclusively Alcohol (Stratum 4)	21[1]	15	36
Outpatient—Other (Stratum 5)	72[1]	105	177
Combined (Stratum 6)	31	0	31
Total	186	120	306

[1] Initially, the targets for Strata 4 and 5 were 31 and 61, respectively. However, due to the results found in Phase I, the targets were modified.

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.2 ADSS Phase II Facility-Level Response Rates, Unweighted

ADSS Phase II Sampling Strata	Target Number of Responders (1)	Total Number of Facilities Within Original Sample (2)	Ineligibles Within Original Sample (3)	Number of Non-Responders Within Original Sample (4)	Number of Responders Within Original Sample (5)	Total Number of Shadow Responders (6)	Total Number of Responding Facilities (7) = 5 + 6	Unweighted Facility Response Rate (8) = 5 / (2 + 3)
Non-Hospital Residential Only (Stratum 2)	30	31	0	4	27	4	31	87.1%
Outpatient—Predominantly Methadone (Stratum 3)	30	31	0	3	28	3	31	90.3%
Outpatient—Almost Exclusively Alcohol (Stratum 4)	35	36	3	4	29	3	32	87.9%
Outpatient—Other (Stratum 5)	175	177	9	41	127	30	157	75.6%
Combined (Stratum 6)	30	31	0	8	23	6	29	74.2%
Total	300	306	12	60	234	46	280	79.6%

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.3 Abstract-Level Response Rates, Unweighted

ADSS Phase II Sampling Strata	Phase II Targets	Actual Sample Sizes	Number of Completes (C)	Number of Ineligibles (I)	Number of Non-Responders (U)	Unweighted Response Rate for Phase II[1]
Main Study						
Non-Hospital Residential Only	600	684	632	24	28	95.9%
Outpatient—Predominantly Methadone	360	490	446	11	33	93.3%
Outpatient—Almost Exclusively Alcohol	400	341	311	20	10	97.1%
Outpatient—Other	1,400	1,530	1,323	139	68	95.6%
Combined	600	554	495	29	30	94.6%
Total	3,360	3,599	3,207	223	169	95.3%
Incentive Study						
0/0 Group	600	678	615	47	16	97.6%
0/10 Group	600	830	691	118	21	97.4%
25/10 Group	600	567	492	59	16	97.2%
Total	1,800	2,075	1,798	228	53	97.4%
Combined Sample						
Non-Hospital Residential Only	600	684	632	24	28	95.9%
Outpatient—Predominantly Methadone	360	490	446	11	33	93.3%
Outpatient—Almost Exclusively Alcohol	625	501	460	27	14	97.2%
Outpatient—Other	2,975	3,445	2,972	356	117	96.6%
Combined	600	554	495	29	30	94.6%
Total	5,160	5,674	5,005	447	222	96.1%
In-Treatment Methadone Client Study						
Outpatient—Predominantly Methadone	800	985	925	24	36	96.3%
Early Drop-Out Study						
Outpatient—Almost Exclusively Alcohol and Outpatient—Other	1,000	1,012	891	49	72	92.9%

[1] Phase II abstract conditional response rate = C / [All - I - (U * I / [C + I])].

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.4 Weighted Cumulative ADSS Phase II Response Rates, by Contributing Phase, Study, and Facility Stratum

	Facility Stratum						
	Total	Hospital Inpatient Only	Non-Hospital Residential Only	Outpatient Methadone Only	Outpatient Non-Methadone	Combination	Unknown
	All Strata	(Stratum 1)	(Stratum 2)	(Stratum 3)	(Strata 4 & 5)	(Stratum 6)	(Stratum 7)
Phase I Facility Survey							
Weighted response rate for facility types eligible for Phase II	91.1%		95.0%	91.7%	90.2%	93.0%	90.6%
Phase II Facility Survey							
Weighted Phase II facility response rate	84.1%		90.9%	95.7%	81.2%	82.3%	
Cumulative weighted response rate	76.6%		86.3%	87.7%	73.2%	76.5%	
Phase II Record Abstracts							
A. Main/incentive study discharges							
Weighted Phase II abstract response rate	94.5%		95.9%	90.8%	94.3%	94.6%	
Cumulative weighted response rate	72.4%		82.8%	79.7%	69.1%	72.4%	
B. In-treatment methadone clients							
Weighted Phase II abstract response rate				95.0%			
Cumulative weighted response rate				83.4%			

Note: Facility response rates are weighted by the product of the facility's sampling weight and the number of clients at the facility (point prevalence as reported on the sampling frame for Phase I sampling and in Phase I data used for Phase II sampling). The response rate calculations in this table are based on the facility types that were eligible for Phase II. Therefore, the rates for Phase I in this table may differ from weighted rates in other reports.

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.5 Unit Counts Used as Denominators in Calculations of Weighted Cumulative ADSS Phase II Response Rates, by Contributing Phase, Study, and Facility Stratum

	Facility Stratum						
	Total	**Hospital Inpatient Only**	**Non-Hospital Residential Only**	**Outpatient Methadone Only**	**Outpatient Non-Methadone**	**Combination**	**Unknown**
	All Strata	**(Stratum 1)**	**(Stratum 2)**	**(Stratum 3)**	**(Strata 4 & 5)**	**(Stratum 6)**	**(Stratum 7)**
Phase I Facility Survey							
Unit counts used as denominators for response rate of facility types eligible for Phase II[1]	2,235		394	413	898	287	243
Phase II Facility Survey							
Unit counts used as denominators for Phase II facility response rate[1]	294		31	31	201	31	
Phase II Record Abstracts							
A. Main/incentive study discharges							
Unit counts used as denominators in Phase II abstract response rate[1]	5,209		659	478	3,550	523	
B. In-treatment methadone clients							
Unit counts used as denominators in Phase II abstract response rate[1]				960			

[1] The unit counts of eligibles were estimated due to an adjustment to account for non-eligible facilities among non-responders. The formula for estimating the unit counts of eligibles (i.e., the unit count that contributed to the denominator of the weighted response rate calculation) is *Estimate of unit count of eligibles = All units – Ineligibles –* (*Non-responders * Ineligibles* / [*Completed eligibles + Ineligibles*]). Individual stratum estimated counts may not add to the total due to rounding.

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.6 Distribution of the Final ADSS Phase II Full Sample Facility Weights for the Combined Sample

Facility Type	Number of Facilities	Sum of Weights	Minimum	Median	Maximum	Mean	Standard Deviation
Residential only	31	2,101.35	4.95	46.37	246.32	67.79	64.14
Outpatient Methadone only	26	463.97	4.07	11.44	75.95	17.85	16.32
Outpatient Non-Methadone only	184	7,319.52	1.00	16.54	580.56	39.78	68.72
Combination	39	1,860.52	3.86	14.25	283.82	47.71	76.01

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.7 Distribution of the Final ADSS Phase II Full Sample Abstract Weights

Sample	Type of Treatment	Number of Completed Abstracts	Sum of Weights[1]	Minimum	Median	Maximum	Mean	Standard Deviation
Combined	Residential	880	349,853	32.67	276.56	1,463.61	397.56	371.40
	Outpatient Non-Methadone	3,658	704,341	5.25	80.50	1,584.36	192.55	284.00
	Outpatient Methadone	467	60,336	12.71	107.77	586.33	129.20	114.25
	Overall	5,005	1,114,530	5.25	95.29	1,584.36	222.68	302.07
ITMC	Outpatient Methadone	925	172,795	36.77	156.94	580.45	186.81	120.54

[1] For the combined sample, the sum of weights estimates the number of discharges for the 6-month reference period for the ADSS Phase II universe. For the ITMC study, the sum of weights estimates the number of ITMC clients in Stratum 3 facilities (outpatient - predominantly methadone).

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 2.8 ADSS Phase II Data Files

File Name	Description	Number of Records
P2ABSTM	Discharge client abstract data file	5,005
P2ABSTI	In-treatment methadone client abstract data file	925
P2ABSTE1	Early drop-out outpatient, non-methadone client abstract data file	790
P2ABSTE2	Early drop-out residential discharge and outpatient, discharge methadone client abstract data file	101

Source: Alcohol and Drug Services Study (ADSS), Phase II Facility Administrator Interview and Client Record Abstraction data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Chapter 3. Phase III Methodology—Client Follow-Up Study

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3.1 ADSS Phase III Study Overview

3.1.1 ADSS Phase III Study Design

The Alcohol and Drug Services Study (ADSS), conducted by Brandeis University and Westat, Inc., under contract to the Substance Abuse and Mental Health Services Administration (SAMHSA), is a national multi-phase study of substance abuse treatment facilities, clients, and outcomes in the United States. The ADSS was conducted in three phases and involved data collection and analyses of facility- and client-level data to examine the relationships among treatment program characteristics, content of services, and treatment outcomes.

This chapter examines the methodology used in Phase III of ADSS—the client follow-up study. For the ADSS Phase III study, a subset of Phase II clients (over 18 years old, residential and outpatient non-methadone discharge clients, in-treatment methadone clients [ITMCs], and early-drop-out [EDO] clients) were followed and interviewed on issues related to their treatment outcomes. The goal of Phase III was to describe the current status of such clients and examine the characteristics and factors affecting outcomes in terms of substance use, criminal activity, health, employment, education, and living arrangement.

This chapter is organized into seven sections. This section presents a brief overview of Phase III. Section 3.2 gives the details of its study design, and Section 3.3 reviews all data collection procedures. Section 3.4 covers data preparation and quality control issues, and Section 3.5 concerns Phase III weighting procedures. A brief summary is presented in Section 3.6, and Section 3.7 describes the data files sent to SAMHSA. Appendices for this chapter include copies of the consent forms for Phase III (Appendix A) and tables of the denominators for the cumulative response rates (Appendix B), which are discussed in Section 3.3.3.

3.1.2 Study Cohorts in Phase III

The ADSS Phase III client follow-up sample consisted of clients who had their records abstracted during Phase II with two exceptions: methadone discharge clients and clients under the age of 18 at the time of the interview. The ADSS Phase III client follow-up sample had four cohorts: a main study cohort of residential and outpatient non-methadone clients, an in-treatment methadone cohort, a comparison cohort of EDO clients, and an incentive study cohort of outpatient non-methadone clients. The same client follow-up interview was administered to all clients in Phase III and, except for the amount of incentive payment within the incentive study cohort, all procedures in Phase III were the same for the four cohorts.

Main Study. The Phase III main study cohort came from the main study facilities of Phase II. Such facilities were selected from the residential, outpatient non-methadone, and combination

strata, with the added restriction that only residential and outpatient non-methadone clients could be included from combination facilities. Clients in the main study were offered an incentive of $15 to complete the client follow-up interview and $10 to provide a urine sample at the end of the interview.

In-Treatment Methadone Clients. ITMCs were a sample of clients in treatment at Phase II outpatient methadone facilities as of the day of the administrator interview. ITMCs were offered an incentive of $15 to complete the client follow-up interview and an additional $10 to provide a urine sample.

Comparison Study (Early Drop Out). In Phase II, discharge records were abstracted for a selected sample of outpatient non-methadone clients who left treatment with no more than 1 day's visit (EDO). The EDO sample was designed to approximate a non-treatment comparison group to the main study outpatient non-methadone clients. EDO clients were offered an incentive of $15 to complete the interview and $10 to provide a urine sample.

Incentive Study. Phase III of ADSS also included an incentive study designed to evaluate the impact of different financial payments with regard to client response rate, response bias, and sample bias. For the ADSS incentive study, three additional groups of outpatient non-methadone clients were selected and offered differing levels of payment to participate (interview/urine): $0/$0, $0/$10, and $25/$10. Together with main study outpatient non-methadone clients, who were offered $15/$10, the Phase III incentive study compared response rates, client characteristics of responders, and the validity of self-reported substance use (as verified by urine testing) to measure the effect of the differing financial payments.

3.2 ADSS Phase III Follow-Up Study

Phase III of ADSS consisted of two components: a follow-up interview, administered approximately 1 year after a client's Phase II record abstraction, and collection of a client's urine sample immediately following the interview. Clients were allowed to do the interview and abstain from urine testing, if they so chose.

3.2.1 Client Follow-Up Survey Questionnaire

The Phase III follow-up interview was administered using the Phase III client follow-up questionnaire, which was organized into four sections covering background information and three different time periods of the client's life: prior to admission to the sampled treatment episode (lifetime and previous year), during the sampled treatment episode, and after treatment discharge. (Phase III's client follow-up questionnaire and codebook are available on the Office of Applied Studies [OAS] website at http://www.samhsa.gov/oas/ADSS/ADSS3ClientFUqn.pdf [110 pp.] and http://www.samhsa.gov/oas/ADSS/ADSS3ClientFUcb.pdf [509 pp.].) All cohorts in Phase III used the same version of the questionnaire. A Spanish version of the questionnaire was developed for Spanish-speaking clients.

To begin the interview, each client was asked questions to anchor the beginning and end date of the three different time periods. Admission and discharge dates for the sampled treatment

episode were obtained from the Phase II client record abstract. From these questions and the record abstract information, the interviewer was able to construct a time line for reference during the interview, as necessary. ITMCs were asked whether they had been discharged from the sampled treatment episode since the date of their client record abstract. If a methadone client had not yet been discharged from the sampled treatment episode, the third time period (the post-discharge period) was empty and questions concerning it were dropped from the interview.

The types of data collected in each section of the client follow-up questionnaire are listed below. Many questions are duplicated in Sections B (before treatment), C (during treatment) and D (after treatment) to allow for analytic comparisons among these time periods. Show cards listing the categories were used for certain questions to assist the client in providing an answer and, in the case of income, to increase the client's sense of confidentiality.

Section A (background): gender, age, race, ethnicity, language, education/expulsion, marital status, number and custody of children, history of gang membership, interaction with social services, history of running away or being kicked out of home.

Section B (before sampled treatment episode—lifetime and prior year):

- history of substance use and treatment by specific substances, including alcohol, tobacco use;
- needle use and sharing;
- substances that caused the most problems in prior year;
- treatment for overdose;
- recent background (marital status, children, living arrangements, employment/ income, pregnancy/birth);
- types of and amount of time in prior substance abuse treatment, including self-help participation;
- mental and physical health and treatments, including HIV/AIDS status;
- sexual activity (number of partners; sex for money, drugs, or housing); and
- criminal justice history (illegal activities, arrests, jail/prison, probation/parole).

Section C (during sampled treatment episode):

- main substance for which entered treatment;
- main substance use during treatment;

- needle use and sharing;
- medications received in treatment;
- methadone dose (client's opinion of) and participation in dosage decisions;
- recent background (education, employment, income, pregnancy/birth, children, health care coverage);
- type of treatment received, services received, frequency of attendance and counseling, post-treatment referrals; urine testing for substance abuse during treatment;
- reasons for starting and ending treatment, and whether treatment was helpful and in what way;
- self-help participation during treatment;
- mental and physical health and treatment, including HIV/AIDS status; and
- criminal justice involvement.

Section D (after discharge from sampled treatment episode, which unless noted otherwise, does not apply to ITMCs who were still in the sampled treatment episode):

- substance use by specific substances, including alcohol, amount spent on drugs in past month, and tobacco use;
- needle use and sharing;
- treatment for overdose;
- current background (living arrangements [includes ITMCs], children, marital status, education, employment, income, pregnancy/birth, health care coverage);
- aftercare services received;
- additional treatment since discharge from sampled treatment episode (when first entered additional treatment, treatment types, number of treatment episodes, length of treatment) and current treatment;
- self-help participation;
- mental and physical health and treatment, including HIV/AIDS status;
- sexual activity (number of partners; sex for money, drugs, or housing);

- criminal justice involvement (illegal activities, arrests, jail/prison/probation/parole); and
- satisfaction with sampled treatment episode.

In addition to the interview portions of the questionnaire, the Phase III client follow-up questionnaire contained two other parts: a locator form and an interviewer questionnaire. The locator form included updated contact information for the client, as well as the names and addresses of two people close to the client and the name of another person, such as a social worker or parole officer. Because it contained identifying information on the interviewed client, the locator form was removed from the completed client follow-up questionnaire and transmitted to the home office separately.

After concluding the interview, the interviewer also completed the interviewer section of the client follow-up questionnaire. This section included the location of the interview, the likelihood that the client was under the influence of drugs or alcohol, any problems that affected the client's ability to participate, and how honestly the interviewer thought the client was answering.

3.2.2 Urine Testing Procedures

Each respondent who completed a questionnaire was asked to provide a urine sample. All main study respondents and the $0/$10 and $25/$10 subsets of incentive study respondents were offered a $10 incentive to provide the sample. The $0/$0 incentive study group was not offered an incentive to provide a urine specimen. A separate consent form for providing a urine sample was completed by those who agreed to participate. Strict chain-of-custody procedures were implemented to provide documentation of proper specimen identification and handling from the time of collection to the receipt of laboratory results. The chain-of-custody procedures ensured that the specimen was not tampered with and that the specimen tested was the specimen provided by the individual identified by client study ID number (not name) on the specimen bottle. To test for fake or diluted samples at the time of sample collection, the temperature of each specimen was checked immediately using a temperature strip on the specimen bottle. The temperature was recorded as within the normal range of 90˚ to 100˚ F or as outside that range. The specimens were packaged and sealed in view of the individual providing the specimen and shipped by Federal Express overnight delivery to the American Medical Laboratory, Inc., in Chantilly, Virginia. For quality control, blind (dummy) specimens with known concentrations of substances were also shipped to the laboratory as study cases.

Specimens were tested for contaminants and screened for the presence of seven drug families and alcohol: amphetamines, opiates, phenycyclidine (PCP), THC metabolites (marijuana), benzoylecgonine (cocaine), methadone, benzodiazepines, and alcohol. Screening was performed by a modified enzyme immunoassay using Syva enzyme multiple immunoassay technique (EMIT) reagents. Because drug test results would be used only for this research study and the identity of study subjects would never be revealed, the screening criteria were set at a lower level than for standard testing. For this study, the screening levels were calibrated at approximately 50 percent of the SAMHSA standard drug testing cutoff levels. THC-20, opiates,

and the amphetamines were calibrated at even lower concentrations because EMIT assays for such drugs were more sensitive than for other classes.

When a positive screen was detected, confirmatory testing was performed using gas chromatography/mass spectrometry. Table 3.1 lists the ADSS cutoff limits for the screening and confirmatory tests.

3.3 ADSS Phase III Data Collection Methodology

3.3.1 Interviewer Training and Management

Data for ADSS Phase III were collected from 62 primary sampling units (PSUs) in nine regions. Supervisors managed staffs of approximately eight interviewers, who carried out data collection efforts in these regions.

Training. The first interviewer training was held in February 1998. Initially, the 62 PSUs were divided into six regions. Six supervisors, one for each region, were hired to monitor the activities of 72 interviewers, who also were trained at this time. A second round of training took place in September 1998. At that time, the 62 PSUs were redistributed into nine regions and three more supervisors were hired and trained to monitor activities in the three additional regions. To staff the three new regions and make up for the attrition that had taken place since the first training, an additional 45 interviewers were hired and trained during the second training. The third training occurred in February 1999, at which time 10 new interviewers were trained.

Training encompassed an in-depth review of all tasks and procedures related to the role of an interviewer. The instruction began with general interviewer training on effective techniques for handling an interview. This was followed by an overview of the study; results of the pilot studies for Phases I, II, and III; the ADSS main study schedule; and a review of Section 505 of the Public Health Service Act, which authorized the data collection in ADSS. Other training topics included the following:

- the role of the interviewer in maintaining confidentiality;
- preparation for the interviewer, encompassing a review of the consent forms, the script to be delivered by the interviewer at the initial contact, maintaining a record of calls, case assignments, using the interviewer's manual as a resource, the respondent information sheet (RIS), the client locator module contained in the interviewer's folder, and the field edit checklist;
- client contact procedures, such as how to organize assignments, develop a work plan, locate and identify clients, and document contact attempts;
- techniques for gaining the subject's cooperation, using role plays;
- an in-depth review of the questionnaire;

- interview scripts and a demonstration on how to complete the consent forms, conduct the interview, and pay the respondent for participation;

- a review of chain-of-custody procedures surrounding the collection of specimens;

- an exercise on collecting and packing urine samples;

- techniques for editing the completed questionnaire for omissions and discrepancies; and

- administrative procedures regarding the field edit checklist; transmittal forms; Federal Express labels; and the Westat Interviewer time and expense report.

Management. Two assistant field directors managed field operations out of the home office. On a weekly basis, each regional supervisor reported the status of the data collection activities to the appropriate assistant field director.

Supervisors used a computerized field management system to assign cases on the basis of location and the current workload of the supervisor. Once completed, questionnaires were submitted to and receipted by the supervisors. The supervisor performed an initial edit of the questionnaires and shipped them to the home office for further editing, coding, and data entry. Urine samples were shipped via Federal Express to the testing laboratory directly by the interviewer.

3.3.2 Data Collection Procedures

Data collection consisted of conducting an in-person interview using a hard-copy questionnaire and obtaining a urine specimen.

Field Operational Procedures and Forms. Field personnel needed to locate clients, gain their cooperation, conduct the interviews, and keep accurate records on their activities. For each client, the interviewers kept a case folder in which they stored all the documents related to that client. The interviewers were supplied with the following materials:

- Materials to help locate and contact clients:

  Respondent information sheet (RIS) contained identifying information about the client, including name, address, and date of birth obtained from the Phase II client record abstract.

  Client locator module contained additional locating information from the Phase II client record abstract, such as possible contacts and a physical characteristics of the client.

  Record of calls provided space to record information about the client and document the outcome of each attempt to contact the client and conduct the interview.

- Materials to help gain cooperation:

  ID badge, a photo ID, identified the interviewer as a Westat employee and an authorized representative of SAMHSA and Brandeis University for ADSS.

  "Sorry I Missed You" cards were left at the client's residence when no one was at home.

  Commonly asked questions and answers were used for gaining cooperation.

  One-page information sheet briefly described the relevant Federal regulation regarding confidentiality and privacy.

- Materials for conducting the interview:

  Consent forms.

  Client follow-up questionnaire (discussed in Section 3.3.1).

  Show cards were used at prescribed points throughout the interview. They were designed to help the client understand answer categories associated with particular questions. There were special boxes printed in the questionnaire that indicated when the cards should be used.

  Urine kit, chain-of-custody material, and Federal Express shipping material were used for collecting and shipping the urine specimen.

  Checks were used for payment to respondents.

- Materials for reporting and record keeping:

  Interviewer assignment record (IAR) listed all the interviewer's cases in numerical order. The interviewer used the IAR to update and review assignment status.

  Mini-labels, a set of 12 self-adhesive labels, contained the client ID number. A label was applied to each piece of material associated with the case.

Confirming Client Identification. At the beginning of the interview, interviewers confirmed the identity of a client by confirming his or her name, place of treatment, and date of birth. Clients were "confirmed" if the month and day of the stated date of birth was the same and the year of birth varied by 2 or fewer years from the date in the Phase II abstract record. If the date of birth was not recorded as part of Phase II but age was, then identity was confirmed if the stated age was within 2 years of the age from Phase II.

Interviewer Procedures. Once the identity was confirmed, the interviewer offered the client a summary of the goals of the study, assurances of the confidentiality of the data, and an

introduction to the paper questionnaire. The consent forms were explained and completed, and the client's responses to the questionnaire were recorded on paper forms. Completed documents were then forwarded to the home office.

Four consent forms, labeled A to D, were obtained during the data collection process:

- consent form A for completion of the questionnaire,
- consent form B to provide urine sample,
- consent form C to obtain criminal justice records, and
- consent form D for the release of confidential treatment information.

Consent form A was completed prior to administering the questionnaire. Consent forms B, C, and D were completed after administering the questionnaire. Appendix A contains copies of the consent forms.

Instrument Issues: Time Line. A time line was created to allow the interviewer to plot the following time periods referenced in the questionnaire:

- lifetime period before the sampled treatment episode,
- segment 1: the year prior to the sampled treatment episode,
- segment 2: the period during the sampled treatment episode, and
- segment 3: the period after discharge from the sampled treatment episode until the day of interview.

Instrument Issues: Spanish Language. Clients identified as requiring a Spanish interpreter were referred to a bilingual fieldworker, who conducted the interview using study materials in Spanish (the Spanish-language version of the questionnaire is available upon request from OAS).

Client Payment. Clients received one of the following categories of incentive payments:

- $0/$0 (clients received no payment for the questionnaire or for the urine specimen);
- $0/$10 (clients received no payment for the interview and $10 for the urine specimen);
- $15/$10, the predominant main study incentive (clients received $15 for the interview and $10 for the urine specimen); and
- $25/$10 (clients received $25 for the interview and $10 for the urine specimen).

These incentive differences are reflected in the four variants of consent form A found in Appendix A.

Urine Collection Procedures. After administering the questionnaire, the interviewer asked the client to provide a urine sample. If the client consented, the specimen was collected, labeled, and shipped to the testing laboratory in strict accordance with protocols developed by SAMHSA, the Westat researchers, and the laboratory and conveyed to the interviewer during training. As part of this protocol, a chain-of-custody form was completed by the interviewer and accompanied the specimen to the laboratory for further custody reporting. See Sections 3.2.2 and 3.4.2 for more information on the urine testing procedures.

Confidentiality. All study personnel received training on privacy and confidentiality, including the security measures for handling completed documents, and the appropriate confidentiality and privacy regulations. These included the following:

- Privacy Act of 1974 (Public Law 93-579);
- Freedom of Information Act (Public Law 90-23);
- Confidentiality of Alcohol and Drug Abuse Patient Records regulations (42 CFR Part 2);
- ADSS confidentiality certificate, authorized by Section 301(d) of the Public Health Service Act, 42 U.S.C. 241(d);
- Paperwork Reduction Act (ADSS approval: 0930-0180); and
- DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

In compliance with DHHS Regulations for the Protection of Human Subjects, when contact was made with anyone but the verified client, the study was introduced not as the "Alcohol and Drug Services Study" but generically as a "health study by the U.S. Department of Health and Human Services." All personnel signed statements affirming their understanding of the sanctions to be imposed for confidentiality violations.

Phase III client follow-up questionnaires were shipped to the home office separately from all client-identifying information, so that client IDs and names could not be linked with responses in the questionnaires. Completed documents returned from the field were stored in a locked room, with access limited to persons involved in the study who had a demonstrated need for such access. Strict control policies were observed regarding duplication.

Confidentiality was addressed during urine collection by strict chain-of-custody procedures. Interviewers sealed each container with a pre-printed adhesive label containing a bar-coded identifier. They also filled out a chain-of-custody form identifying Westat as the collector. A pre-printed label with the ADSS client ID was used in place of the donor signature. The interviewer signed and dated the form in a row labeled "collector signature." Each time the

specimen was handled after that, it was documented with an additional dated signature and short description of the reason for handling the specimen.

Phase III Follow-Up. There was no sampling of clients for Phase III beyond that done for the Phase II abstracting. The sample for the Phase III follow-up interview consisted of the completed sample of abstracts selected in Phase II, after eliminating two groups of clients—methadone discharges and minors.

Methadone Discharges. A total of 487 methadone discharge clients were included for limited Phase II record abstraction, which focused on demographic characteristics and length of stay. These discharged methadone clients were excluded from follow-up in Phase III. However, the in-treatment methadone clients (ITMCs) were included in the follow-up.

Minors. Minors were defined as those who were not 18 years old by April 15, 1999, the latest practical date for Phase III data collection efforts to begin. The 120 minors whose records were sampled as part of ADSS Phase II were excluded from Phase III for operational considerations. The extensive amount of effort required to meet various Institutional Review Board (IRB) requirements and to implement parental consent procedures before interviewing the minors was determined to be not justifiable.

Client Tracing and Cooperation. To conduct a Phase III interview, the interviewer needed to locate the client and obtain consent. Initial locating information on clients included name, address, and phone number and were derived from locator forms, which were filled out during Phase II record abstraction. Locator forms also may have included available addresses and phone numbers for friends, relatives, social workers, doctors, criminal justice agents, and other professionals who might have been able to help locate the client.

If the client could not be reached at the address or phone number on the locator form, the interviewer would use other information sources in an attempt to trace the client from the field. If a client was not located, the tracing task was referred back to the home office for alternative locating methods. This allowed the interviewer to give priority to tracing activities that could be performed most efficiently in the field.

Field Tracing. The amount of effort an interviewer expended in field tracing a difficult to locate client varied over the course of the study. At the beginning of the study, the interviewer was instructed to make up to seven visits to the client's home address. If people at that address informed the interviewer that the client no longer lived there but they could provide information about places that the client liked to visit, the interviewer followed up on the lead. Interviewers visited neighborhoods; talked to relatives, friends, and mail carriers; contacted directory assistance; used crisscross directories; and visited alternative locales identified by friends or families.

Later in the study, the interviewer was instructed to reduce the maximum number of visits to the home to four and to follow up on only truly hopeful leads. If the interviewer did not obtain leads on the location of the client, the standard procedure was to return the case for home office tracing efforts.

Home Office Tracing. Initial efforts to conduct interviews with clients revealed a large portion of the Phase III sample comprised a transient population that were not found at the address listed in the treatment facility's records. Field-tracing methods (e.g., directory assistance, interviews with family members and prior neighbors), commonly used with success for more stable populations, often did not produce good results in Phase III of ADSS. In response, it was decided that clients not readily located should be referred back to home office for telephone tracing and several additional paper-tracing techniques, including the following:

- *Address correction letter*, a form letter that contains the client's address as recorded, was sent to the postmaster at the client's ZIP Code requesting new address information. This service is provided by the Postal Service to government agencies conducting valid health studies.

- *Credit bureau tracing*, provided by the TransUnion credit bureau, offers a listing of dated addresses for individuals if given a client's Social Security number or name and a past address. This service is provided to government agencies for valid studies.

- *Department of Motor Vehicles (DMV) tracing* is provided in some States, upon written request, in order to release address information for valid government studies. Early in Phase III, these States' DMVs were written to request address information of clients thought to be living within the State.

In preparation for such home office tracing, actual case folders were returned to the home office for two reasons:

- Telephone tracers would need as much information on each client as was available in order to conduct an efficient telephone trace.

- In many cases, clients located through home office tracing would be located in new study regions, and their case folders would have to be fielded in these new regions.

Telephone Tracing. Telephone tracing of ADSS Phase III follow-up clients was done within Westat's Telephone Research Center (TRC). The actions taken with regard to each case within the TRC depended on its classification as follows:

- *Normal Case*: Clients not located in the field going through TRC telephone tracing for the first time.

- *Right to Refuse*: Some treatment facilities stipulated that their clients chosen for the study must first be contacted by letter and given the opportunity to refuse participation. A number of these letters were returned to the assistant field managers as "undeliverable" for various reasons. These cases were sent to TRC tracing, and the telephone tracers were instructed to make note whether or not the client, when located, agreed to participate in the study.

- *Other*: All cases received at TRC not satisfying the above two descriptions were classified as "other." The paragraph below titled "A Second Round of Tracing Efforts" describes tracing efforts used for such cases.

Telephone tracing involved a standard sequence of phone calls to develop and pursue leads concerning an updated location for the client. These included the following:

- telephone contact with family members, friends, neighbors, landlords, counselors, and parole/probation officers;

- telephone directory assistance calls and electronic telephone database searches; and

- telephone contacts with records offices, such as the Social Security Administration and DMVs.

Telephone tracing was a repetitive process and consequently encompassed the follow up of leads secured through previous telephone calls, paper tracing, or updates from the field.

Paper Tracing. Early in Phase III, it was found that waiting for cases to be flagged as "not located" before instigating written requests for location updates created an unacceptable time lag. Thus, many of the first wave cases and all future waves had address correction and credit bureau requests instigated at the time the wave was released to the field. Returns from these requests were forwarded to the field interviewers as they became available, or they were added to case folders at the TRC if the case had already been referred back for home office tracing.

Results of TRC Telephone Tracing. Cases returned from TRC to the tracing manager were identified as either "found" (F), "refusal" (R), or "not located" (NL). "Found" cases were sub-classified according to whether the locating information was from actual contact with the client or from someone who knew the client's present location. In general, "found" cases were fielded again with the updated locator information and "refusers" and "not located" cases were filed in the ADSS data storage room. Certain "found" clients were located in State prisons that did not permit private interviews, either at all or without full disclosure of the nature of the interview. Reclassified as JP (jail or prison), these cases were filed with the "not located" and "refusers" in the data storage room. Clients found to be out of the country or the interviewing area (OA) or too ill to participate (TI) also were filed to await a decision on further action.

A Second Round of Tracing Efforts. An additional credit bureau request was frequently made for cases classified as NL as a result of TRC tracing or after returning unlocated from a second fielding effort. The TRC manager in charge of the Phase III tracing reviewed all such NL cases to determine whether a second round of tracing efforts was warranted. Cases determined to be acceptable candidates for additional tracing were held at the TRC. Remaining NL cases, reclassified as "Final Not Located" (FN), were filed in data storage with no further action anticipated. Cases were candidates for a second round of tracing under any of three conditions:

- There had been a time lapse since the date of NL coding, and TRC call records indicated that relatives or friends were in touch with the client on occasion.

- Credit bureau returns listed an address that was dated after the case had been coded NL.

- The client possessed a valid Social Security Number, and employment information could be traced.

At times, cases other than those classified as NL also were sent to the TRC for additional tracing efforts. Examples of such cases include the following:

- All clients who had been located in prison in States whose regulations prevented conducting Phase III interviews with prisoners. The tracing effort could determine whether the client had been released and could now be contacted.

- Clients who were contacted by a field interviewer, had refused to participate, and had moved before refusal conversion could be attempted.

Wrapping Up Tracing Efforts. As the Phase III field effort wound down, telephone tracers were asked to concentrate their tracing efforts on states and areas where field interviewers were still available or where they were being ‘traveled' for a concentrated field effort. At one point the tracing manager reviewed all second effort cases still in the TRC in order to cull those that would require more tracing effort than it was felt could be successfully done in the remaining time. Culled cases were returned to the files as FNs.

Client Access Problems. If, during field-tracing procedures, clients were identified as being incarcerated, interviewers obtained the name of the correctional facility and a point of contact (typically the warden), the address, the phone number and the facsimile number. The home office sent the correctional facility a letter requesting permission to conduct the interview and obtain a urine sample. The interviewer then followed up the letter with a phone call to request access to the client and to negotiate a time to conduct the interview.

Clients identified during field-tracing procedures as "located out of all current interviewing areas" (OA) were clustered into new geographic areas for future effort. Whenever possible, interviewers were assigned to travel to these new areas to interview as many of these clients as possible.

Client Refusal Conversions. When a client initially refused to participate in the study, interview personnel tracked the reason(s) for the refusal, characterized the strength of the refusal, and documented the steps initially taken to convert the refusal. Clients who initially refused to participate were clustered, and refusal conversion specialists were assigned to them in an effort to gain their cooperation.

Quality Assurance. Quality assurance was a priority of ADSS throughout all stages of survey operations. Steps to ensure the quality in ADSS included hiring qualified people, carefully training them, ensuring consistent use of approved procedures in the field, and double-checking of work by the interviewer, the supervisor, and editors at each stage of data collection and processing.

Interviewer Quality Assurance. As part of the effort to double-check and validate the work of Phase III interviewers, a random sample of clients who completed interviews were contacted by Westat supervisors to verify that the interview had been conducted properly. Each client was asked how the interview was completed (in person, by phone, by mail, or by other means), how long the interview took, whether it was during the day or evening, and whether the interviewer requested a urine sample. The client also was asked to repeat a number of responses to demographic questions to test for response integrity.

Generally, approximately 10 percent of each interviewer's clients, including the first two, were contacted as part of this validation process. If the validation process generated any question about an interviewer's conduct, the supervisor validated all the questionnaires completed by that interviewer. Of the total of 505 interviewed clients selected for validation, 215 could not be contacted again in the allowed time period. Of the 290 clients who could be contacted again, 274 (94.5 percent) validated interviewers' work by confirming that the interviews had taken place and by giving responses consistent with ones previously recorded. Another 11 clients (3.8 percent) refused to participate and 5 (1.7 percent) gave responses that indicated that the prior interview results were not valid. No data from interviews failing the validation check were included in the Phase III data files. One interviewer was released when the validation process indicated that he was not performing in a satisfactory manner. In two of this interviewer's cases, a new interviewer was sent to conduct the interviews again.

In-Field Data Collection Quality Assurance. Each interviewer was provided with a field procedures' manual at training and had it available for reference as necessary. This manual was supplemented by a series of field memos that informed the interviewers of any change in procedures (e.g., reducing the amount of field tracing) and re-emphasizing any topics that seemed to be causing problems (e.g., proper completion of chain-of-custody forms).

In-field data collection quality was strengthened and maintained by providing the interviewers with a field edit checklist. The checklist had four sections: locating the client, interviewing the client, collecting the urine specimens, and transmitting forms to Westat. Each section contained a short set of Yes/No questions and check boxes to help the interviewer complete all steps within the section.

Case folders of clients completing interviews were turned over to the field supervisor for review. The supervisor verified that all documents were present and properly marked with the client's ADSS ID code. The supervisor also checked questionnaire responses for completeness and legibility and completed a form indicating the results of this review. Case folders with the addition of the supervisor's completed form were shipped back to the home office for further processing. If a serious problem occurred, the supervisor immediately called the interviewer and discussed it. Minor problems were reviewed during weekly phone conversations between the supervisor and the interviewer.

If the data preparation or laboratory staff found problems with the questionnaires, the urine sample, or related documentation, the field supervisor was informed. The field supervisor then initiated the appropriate discussion with the interviewer.

Questionnaire Quality Assurance. To ensure high quality and consistency in administering the questionnaire, Westat developed question-by-question specifications for the client follow-up questionnaire and trained and reviewed staff on a question-by-question basis. In addition, interviewer training involved role-playing scenarios to test whether the interviewer understood and would react appropriately to difficulties and problems that might arise during the interviews.

Urine Collection Quality Assurance. To ensure the quality of the urine collection efforts, specimens were shipped directly from the interviewer to the contracted laboratory in shrink-wrapped specimen collection kits, using the diagnostic specimen envelope, preprinted Federal Express airbills and a protective pouch.

At the time of urine collection, the interviewer initiated a chain-of-custody form, which accompanied the urine specimen at all times. The form listed all Westat and laboratory personnel who handled the specimen and documented all procedures performed using the specimen.

3.3.3 Results of Phase III Data Collection Operations

Table 3.2 is a detailed description of the construction of the Phase III sample, from the set of Phase II record abstractions to completed Phase III surveys. It provides results for each of the four studies (main, incentive, ITMC, and EDO), and further breakdown by strata or incentive group for the main and incentive studies. Table 3.2 shows the step-down stages of the sample from the 6,821 Phase II completed, eligible abstracts (column 1) to a final yield of 2,852 completed Phase III interviews (column 12) and 2,416 collected urine specimens (column 15). It should be noted that Table 3.2 shows unweighted counts and gives results concerning the success of Phase III data collection efforts. Given that these unweighted counts are a mixture of probability and non-probability selected cohorts, and include cases offered differing payments to participate, no conclusions should be drawn from Table 3.2 concerning the overall response rate for Phase III or how well the sample represents its underlying population.

To highlight some of the more important values in Table 3.2, note that column 4 provides a breakdown of the 6,216 clients who were apparently eligible for Phase III at the start of field operations. This reduction recognizes the decision in ADSS to designate methadone discharges and minors as ineligible for Phase III follow-up. Columns 5 through 8 in Table 3.2 show a breakdown of all Phase III eligible cases held back from field activities at the beginning of follow-up efforts. These 542 cases (8.7 percent of all Phase III eligibles) are discussed below in detail. The remaining 5,674 cases fielded in Phase III are shown broken out by type in column 9. Data collection activities during fieldwork revealed that an additional 91 cases (column 10) were ineligible for Phase III for three reasons:

- *Death*: Clients who died by the time of Phase III data collection were not included in the final eligible sample. They were identified through various sources, such as contact with family or associates. During Phase III operations, there was no formal confirmation of death status through official records, but in June 2000, a formal National Death Index (NDI) search covering all Phase II eligible clients was carried out. This search queried the national death record database for 1997 and 1998, the files available at that time.

- *Duplicate*: The Phase II design sampled treatment episode discharges, not individuals. Consequently, it was possible for the same individual to be sampled more than once in Phase II. It was even possible for a person to be sampled as an ITMC case and as an earlier discharge case. When a person appeared more than once in the sample, the latest episode was defined as the index case for the Phase II follow-up and the other(s) were dropped as ineligible Phase II duplicates. Confirmation of the duplication was based on the best information on Social Security number, name, and address.

- *Minor*: Four minors were identified after release of the Phase III cases; they were released to Phase III because their treatment record lacked the date of birth information that would have caused them to be withheld.

When these 91 newly determined ineligibles were subtracted from the 6,216 eligibles noted in column 4, a final adjusted Phase III eligible total of 6,125 was obtained (column 11). A total of 2,852 clients completed the interview (column 12). Column 13, titled "Operational success rate," provides the percentages represented by such completions among cases that were fielded during Phase III follow-up. Column 14, titled "Phase III response rate," provides unweighted response rates for the entire Phase III sample of eligibles, regardless of fieldability.

Column 14 indicates that overall Phase III response for the total probability sample (main, incentive, and ITMC studies) averaged 46.7 percent, and overall response for the full Phase III sample (probability sample plus the EDOs) averaged 46.6 percent. Care should be exercised in interpreting these two statistics because they include the response results of an incentive study[1] designed to determine whether payment size had an effect on response rate. As column 14 follow-up shows, the two groups receiving lower payments had lower response rates, bringing down the averages. Response rates based only on clients used for Phase III analyses averaged 50.4 percent for the probability sample (main and ITMC studies) and 49.4 percent when including EDOs.

Column 15 shows that a total of 2,416 (84.7 percent of clients with completed interviews) also provided urine specimens meeting quality control criteria. This required that they co-operated with the request for the urine specimen and the provided specimen met strict clinical standards when tested at the laboratory. Included among these clinical standards were that the specimen was received in sufficiently good physical condition and sufficient quantity to carry out testing, and that it was confirmed to be a genuine, unadulterated urine sample.

Reasons for Phase III Non-Response. Table 3.3 shows all the reasons for Phase III non-response among the final, adjusted eligible cases noted in column 11 of Table 3.2. For

[1] In particular, the incentive study addressed the issue of whether different incentives would result in different response rates among clients to whom the respective incentive amounts were actually offered. Thus, the denominators for a meaningful response rate reflecting the coverage of eligible clients in Phase III should not include incentive study clients. By the same token, meaningful response rate calculations for the incentive study should be based on only contacted, eligible cases in the incentive groups and the outpatient non-methadone cohort of the main study.

purpose of discussion, these reasons are further divided into non-response that occurred prior to fielding, and non-response among cases that were fielded. The final row of Table 3.3 repeats column 12 of Table 3.2, showing the breakdown of Phase III completed cases.

In Table 3.3, row 1 lists the unweighted counts of Phase III eligibles, overall and by study. These counts provide the denominators for all percentages in Table 3.3. Row 5 indicates that 542 Phase III eligibles could not be fielded for Phase III. Reasons for not fielding were as follows:

- *Treatment facility decisions*: After cooperating with all Phase II data collection, some facilities decided that they did not want to allow direct access to their clients as needed for Phase III. Intensive efforts to address each facility's concerns successfully reduced the final number of clients affected, but 372 cases (6.1 percent of the eligible sample) were withheld from the field for this reason (row 2). For another 390 cases, facilities reached their decision to not allow contact with clients after interviewing efforts had begun (row 6—not included in the 542 in row 5). Fieldwork involving these clients was immediately suspended under such circumstances.

- *Insufficient information in treatment facility record*: Occasionally, the Phase II locator form contained sparse information concerning the name or location of the client. To have a reasonable chance of locating and identifying a subject as the client represented on the Phase II abstract, ADSS imposed the minimum requirement of last name, city, and State for a case to be fielded in Phase III. Where possible, ADSS data processing staff used other available information, such as client ZIP Code and treatment facility location, to impute for missing fields. A total of 67 clients were withheld from Phase III because of insufficient locator and identifier information (row 3).

- *Misclassification and other processing problems*: As a result of various data processing problems, 103 eligible cases were erroneously withheld from Phase III as ineligibles (row 4). The major cause of such problems concerned the misclassification of non-methadone clients discharged from facilities in stratum 3, where the main method of treatment involved methadone.

Rows 6 through 14 of Table 3.3 present data on the reasons that fielded clients did not participate in the Phase III follow-up. Row 6 represents the 390 clients (6.4 percent of eligibles), on whom fieldwork was suspended because facilities cancelled their permission to contact. Another 1,132 clients (18.5 percent) were non-responses because the data collection staff was ultimately unable to locate them, despite employing the information available in the facility record, various in-field tracing steps, and the home office tracing measures (row 7). Among clients located and contacted, 898 (14.6 percent) did not co-operate. This includes clients who refused, despite refusal conversion efforts, clients who could not be re-located for a refusal conversion attempt, and clients who did not outright refuse but failed to complete the interview despite repeated attempts (rows 8, 9, and 12). The categories of unlocated and refusals (facility or client) combined made up 39.5 percent of Phase III eligibles out of a total non-response from fielded clients of 44.6 percent (row 15). Reasons for non-response comprising the remaining 5.1

percent included incarceration (1.7 percent), illness (0.6 percent), moving outside the study area (2.6 percent), and other (0.3 percent).

Row 17 in Table 3.3 gives the number of completed interviews and response rates for each of the four studies: main study, 44.3 percent; incentive study, 39.2 percent; ITMC study, 68.1 percent; and EDO study, 45.4 percent. The response rate for the ITMC study (68.1 percent) was much higher than for the other three studies, possibly because the ITMCs were often still in methadone treatment at the time of the follow-up interview. Also contributing to the higher response rate was the fact that many methadone treatment facilities required their staffs to make the interview arrangements and allowed interviews to take place on the facility premises. Such factors contributed to easier access to methadone clients and less stress and uncertainty for them regarding the interview operation.

Facility-Related Non-Response Factors. As noted in Tables 3.2 and 3.3, a portion of Phase III client-level non-response was related to facility actions rather than client circumstances or decision. Early during Phase II activities, the ADSS staff informed facilities of their plan to interview sampled clients at a future date and received tacit approval to do so. Nonetheless, a number of the facilities subsequently rescinded permission to contact their clients as part of ADSS Phase III follow-up.

The total number of clients withdrawn from Phase III because of facility actions was 762, or 12.4 percent of all Phase III eligible clients. The percentages of withdrawal by study type were fairly consistent: 13.3 percent for main study clients, 11.9 percent for incentive study clients, 13.9 percent for ITMC clients, and 9.4 percent for EDO clients. More surprisingly, as indicated in row 6 of Table 3.3, 390 cases (over half of the 762 total) were withdrawn after fieldwork on them had begun. This means that the ADSS data collection operations had already expended a certain amount of effort to place the cases in the field and, in some instances, had already begun contact efforts.

In assessing the total effect of facility-related non-response, it is appropriate to include cases that were not fielded because they lacked the minimum data items to establish client identity and location (last name, city, and State). Across all studies, these accounted for another 1.1 percent of the eligible cases (row 3 of Table 3.3). In reality, this is a conservative estimate of locator information non-response. Many other cases, while fielded, had a reduced chance of being found because of the sketchiness of their locator information.

The distribution in non-response because of inadequate locator information was far more varied among the four study groups than other facility-related reasons. The ITMC group was least affected with 0.3 percent of clients having information that failed to meet minimum standards. At the opposite end, the EDO group had 3.2 percent of its cases falling in this category. This large variation was probably because facilities did not develop substantive records for their EDO clients. Their contact with EDO cases was often in the form of a brief conference, a phone call, or even simply a referral from another facility, a court system, or a penal system. Altogether, 13.6 percent of the eligible Phase III sample did not respond due to facility-related non-response issues, one fourth of all Phase III non-response. For the main study, the figure was even higher at 14.2 percent.

Urine Specimen Collection Results. Table 3.4 presents results of the urine specimen data collection, providing counts and conditional response rates for specimen collection. Percentages are based on clients who had completed the follow-up interview because completion of the interview was a precondition for requesting the urine specimen.

Of the 2,852 clients who completed the interview (row 1), 2,516 (88.2 percent) provided a urine specimen (row 2) and 336 did not (row 6). Of the 2,516 who did, only 2,416 yielded useful laboratory test results. The 100 unusable cases included 68 for which the laboratory reported a problem with the sample (e.g., insufficient quantity, leakage in shipment, or possible indications of intentional or unintentional adulteration) and 32 for which the laboratory returned no report at all. Likely explanations for these 32 unreported cases may be that their specimens were lost in shipment or were received at the laboratory but not reported back to Westat because of data processing problems. Each of these 32 cases was confirmed to have provided the specimen by the presence of a signed consent form and a valid chain-of-custody document in their hard-copy case folders.

The study groups showed the same response rate patterns for the specimen collection as for the interview. The incentive study group was somewhat lower than the others, and the ITMC group was somewhat higher. The ITMC group's very high response rate for the specimen (97.1 percent) may be partly because many were still in or had recently left methadone treatment and were conditioned to providing periodic urine samples as a pre-requisite for receiving methadone.

Rows 7 through 10 in Table 3.4 provide details on why some clients who co-operated with the interview failed to provide a urine specimen. Of the 336 who did not provide a specimen (row 6), 288 were refusals (row 7). Refusals thus accounted for 10.1 percent out of the 11.7 percent not providing urine specimens. Row 9 presents the small group of incarcerated individuals at correctional facilities, which allowed access for interviewing, but which made urine specimen collection either impossible or impractical. For example, the interview may have been conducted with a glass partition between the two participants. Row 10 (n = 25) was a mixed group that included such situations as clients who provided urine samples but did not sign consent forms.

Home Office Tracing Results. Table 3.5 shows the locating results for all Phase III cases. The table gives full sample results by study, then gives additional results limited to individuals subject to home tracing efforts. Of the 5,583 eligible, fielded Phase III clients (row 2), a total of 4,034 never required home office tracing (row 6). As previously described, this total included 390 cases that were halted after fielding because facilities withdrew permission to contact (row 4). Of the remaining 3,644 cases without home office tracing, 3,470 were located (row 3). The remaining 174 clients were identified as "not located" too late in the fieldwork period for home office tracing to be carried out prior to the end of the study period (row 5).

As Table 3.5 shows, the number of clients designated for home office tracing was 1,549 (row 7), nearly 30 percent of all fielded cases. Of these 1,549 cases, 591 were located (row 8). As expected, the "located" rate of 38 percent among home office traced cases was low. When judging the success of locating cases through home office tracing, however, it is essential to remember that home office tracing was attempted only on cases resistant to normal field-tracing

methods, such as asking neighbors and relatives for forwarding addresses and checking new listings in local phone directories. Such cases would be less tractable to home office tracing methods as well. It is not surprising then, that ADSS had only 38 percent success in locating such cases.

Table 3.6 examines the overall gain from the extensive home office tracing effort undertaken in Phase III of ADSS. Home office tracing efforts contributed a total of 258 additional completions to the final ADSS Phase III sample. These included 127 in the main study, 90 in the incentive study, 12 in the ITMC study, and 29 in the EDO study (row 4). These additions because of home office tracing represented 4.2 percent of all eligible cases and break down as 4.8 percent of eligible main study cases, 5.3 percent of eligible incentive study cases, 1.3 percent of ITMC cases, and 3.5 percent of EDO cases (row 6). The response rates without these home office traced cases can be calculated by subtracting row 6 from row 3 to create row 7. However, these low percentages do not reflect the true value of such additional cases and the home office tracing effort needed to obtain them. Prior substance abuse follow-up studies have shown that easier-to-find cases have better outcomes with regard to relapse, return to treatment, employment, living arrangements, and criminal activity. Harder-to-find cases display far less successful treatment outcomes, and the next-to-impossible-to-find cases show the worse outcomes of all (Nemes, Wish, Wraight, & Messina, 1999). By proper weighting, home office traced completions, though small in number, can play a major role in reducing bias in the analytic results derived from Phase III data.

Cumulative ADSS Response Rates. To judge target population coverage and thus better measure the potential for bias in ADSS Phase III estimates, Table 3.7 provides weighted response rates for the two nationally representative cohorts—clients in the main and the ITMC studies. Because loss in coverage and the risk of bias accumulates at each stage of data collection, these weighted response rates are cumulative, computed as the product of the preceding stage's response rate times the response rate of the current stage. For instance, the cumulative Phase III main study weighted response rate for client interviews is the product of the cumulative Phase II main study abstract completion rate times the main study client interview response rate in Phase III. Likewise, the cumulative Phase II main study abstract completion rate is the product of the cumulative Phase II main study administrator interview response rate times the main study abstract completion rate.

The Phase I client coverage response rates (row 1) were computed as the product of the facility's sampling base weight times the number of clients at the facility (reported point prevalence on October 1, 1993, as included in the Phase I sampling frame). The rates were computed for each sampling stratum studied in Phase II and across all such strata. A small adjustment was made to the Phase I outpatient non-methadone response rate carried forward for Phase II calculations because Phase II did not include facilities treating only clients with alcohol abuse or dependence.

The Phase II client coverage response rates (row 2) also were computed as the product of the facility's sampling base weights and the number of clients at the facility. These response rates were computed by stratum based on the facility's response to the Phase I questionnaire. For client counts, point prevalence was October 1, 1996, the date used in Phase I. The product by stratum

of Phase I client coverage rates (row 1) and Phase II client coverage rates (row 2) gives Phase II cumulative coverage rates (row 3). It should be noted that strata classifications of some Phase I facilities were updated due to questionnaire responses. However, no adjustment in population coverage rates was made in light of this updating because each phase's coverage rates were based on the best classification of all facilities into strata available at the time. It would be potentially biasing to update some facilities' classifications based on later information.

For the Phase II abstracts (rows 4a and 4b), response rate calculations involved the base weights of the abstracts. The calculations excluded methadone discharges and other client types (minors, deceased, and multiple episodes among clients in the main study discharge samples) that were eliminated from Phase III. The Phase II response rate computations included main and incentive study facilities and abstracts because they were combined for Phase II analyses. For the cumulative Phase II main study response rates (row 5a), it was assumed that the stratum-level Phase II abstract response rates for the incentive study were the same as for the main study. The Phase II facility response rates (rows 2 and 3) excluded shadow facilities in their computations. (For details on shadow facilities, see Section 2.2.3 in Chapter 2 on the ADSS Phase II methodology.) For the abstract response rates (rows 4a, 4b, 5a, and 5b), abstracts from shadow facilities were included in the calculations. It is assumed that abstract response rates were not different between main and shadow facilities within the same strata.

Phase III weighted response rates (rows 6a and 6b) were computed for the two nationally representative samples of Phase III—the main study and ITMC study. Cumulative Phase III response rates for Phase III follow-up interviews (rows 7a and 7b) were computed as the product of the Phase II weighted cumulative abstract response rate (rows 5a and 5b) and the Phase III weighted response rate (rows 6a and 6b). Over all strata, the weighted cumulative client response rate for the Phase III main study was 33.0 percent. The lowest stratum-level rate was 29.4 percent (strata 4 and 5), and the highest stratum-level rate was 42.0 percent (stratum 2). For the ITMC study, the weighted cumulative response rate was 58.2 percent. These response rates give some indications of the potential for bias in the Phase III main study and the Phase III ITMC study.

Phase III weighted cumulative response rates for the urine specimen collections (rows 9a and 9b) were computed as the product of the Phase III weighted cumulative response rates for the Phase III follow-up interview and the Phase III weighted response rate for the urine specimen collection (rows 8a and 8b).

Low cumulative response rates from the client samples (follow-up interview and urine) led to questions about the representativeness of the estimates produced in the Phase III study. Section 3.5 of this chapter discusses the impact of non-response in more detail. Section 3.5.3 describes the adjustment procedures used in weighting Phase III client data to reduce potential non-response bias.

3.3.4 NDI-Plus Search

Identifying information of all ADSS Phase II clients except the 487 Phase III ineligible methadone discharges was submitted to the National Death Index (NDI) for purposes of an NDI-Plus search to identify deaths among ADSS study subjects. Where applicable, the NDI-Plus

search returned information on date of death, State of death, and death certificate number together with an International Classification of Diseases, 9th revision (ICD-9), code for primary cause of death and up to 20 additional codes for underlying and multiple causes of death.

The identifying information submitted to NDI included first name, middle initial, last name, Social Security number, date of birth, sex (gender), race, marital status, and State of (last known) residence. The information provided NDI used as sources the Phase II abstract data file, the Phase III questionnaire data file, the Phase II client locator file, and the Phase III management file. Phase III files were the primary source of information, and Phase II files were used to fill in missing values. Records were submitted to NDI for the 6,334 Phase II clients with completed abstracts, excluding methadone discharges who were ineligible for Phase III.

The logic used to decide the most reliable value for date of birth was more complicated than for other variables. When all values for day, month, and year were available, this source was preferred with Phase III taking precedence over Phase II. When only two of three values were available, a date of birth variable might still be supplied for identifying purposes, if the pair was month and year or day and month. For such cases, sources supplying month and year had precedence over sources supplying day and month. In case of a tie, Phase III sources were preferred over Phase II source. When no source could supply either month and year or day and month, all three date of birth fields were set to missing because any other data was too fragmentary to be used by NDI for matching purposes.

An NDI-Plus search was requested regarding the possible deaths of ADSS clients in 1997 and 1998. NDI returned possible matches for 1,046 clients, with between 1 and 11 possible matches per client. Westat personnel reviewed the results returned by NDI to classify all Phase III eligible clients into one of the following categories:

- *1 – Confirmed Match*: Exact match on first name, last name, middle initial (if available in ADSS file) Social Security number, and date of birth. The state of residence in the ADSS file also needed to match the State of death.

- *2 – Confirmed Probable Match*: Exact match on first name and last name. Further, (1) the Social Security number matched exactly and date of birth year was within 1 year on the two records, or (2) the middle initial (if available) and the date of birth matched exactly, but the Social Security number matched in all but a few numbers.

- *3 – Reviewed as No Match*: The record was returned by NDI with potential matches, but none of them met any of the above criteria. Note in particular that if a Social Security number and only a Social Security number matched on the two records, the pair was not considered a match. This is because it is possible for a client to give a false Social Security number or for the data collection personnel to record it incorrectly.

Clients not identified by NDI as possible matches were assigned to two other categories:

- *4 – NDI No Match*: Identifying record was checked by NDI, but no possible matches were found.

- *5 – NDI Rejected*: Identifying record did not have sufficient information for NDI to attempt a comparison.

The NDI search and subsequent categorizing indicate 37 ADSS clients were confirmed deceased (code 1) and an additional 29 ADSS clients were presumed deceased based on a probable match follow-up (code 2). In addition, 980 ADSS clients, initially identified as possible NDI matches, were reviewed as non-matches (code 3), 4,747 clients did not match any NDI record (code 4), and 541 clients had insufficient identifying information to compare with NDI's files.

3.4 Data Preparation and Home Office Quality Assurance

There were two major sources of data collection during Phase III of ADSS: interview data and urinalysis data. Data preparation for each source is described in the following paragraphs.

3.4.1 Interview Data

Home office staff assigned to data preparation logged the receipt of each interview questionnaire as it arrived from the field. The data preparation staff reviewed the questionnaires for completeness, legibility, and consistency with the ADSS recording conventions and checked that data items had only legitimate values recorded. As appropriate, they resolved discrepancies and clarified any ambiguous handwriting.

Editing and Coding. Whenever a response included an "Other-Specify" category, coding staff created codes for distinct responses. After all responses were coded, other-specify codes were reviewed and, when possible, collapsed or back-coded to codes already available on the questionnaire. For example, when the review found that codes existed both for the official name and the street names of a drug, the codes for the street names were globally changed to the code for the official name of the drug. After all such collapsing of codes was completed, the code lists were renumbered so that no gaps appear in the sequence.

After being edited and coded, questionnaires were passed on for keying entry using automated data entry software. Each questionnaire was independently double-key entered. The automated entry program compared the two entries and flagged each pair that did not match. In each case of a flagged pair, the questionnaire was reviewed to ascertain the correct code and resolve the conflict.

After all responses were entered, frequency distributions were run for each variable. A senior analyst reviewed these distributions, checking for meaningful minimum and maximum values and ensuring there were no unexplainable gaps in the values. Unusual values were checked for accuracy against the original responses in the questionnaires. For instance, when the age of first use of a drug was under 10 years old, the response marked in the questionnaire was consulted to ensure that the entry in the data file was correct. Selected cross-tabulations of strongly related variables also were reviewed to ensure that only valid combinations of values were recorded.

When discrepancies were found during these reviews, specific updates were applied, as appropriate. The automated and manual checks were repeated after updates were made to ensure that no additional problems were introduced as a result of the updates.

Automated Range and Edit Checks. All values in the Phase III client follow-up questionnaire were checked using an automated editing system known as COED to ensure that they reflected only allowable values. All skip patterns and logical relationships specified in each data collection instrument also were checked by the COED system. Whenever discrepancies were found, they were corrected and the edits were run again.

Analytical Edits and Review. Once a preliminary data file was available, Brandeis analysts ran additional logic and analytic tests to further test the consistency of the data. Responses in the original questionnaires were used to resolve problems. When appropriate, specific updates were applied to the client's record to rectify any inconsistency. After all updates, the automated and manual checks were repeated to ensure that no additional problems were introduced.

3.4.2 Urinalysis Data

Receipt and Processing of Urine Samples. Urine specimens collected for ADSS Phase III were immediately forwarded to the testing laboratory for processing. Lab personnel recorded the access of the specimen for test purposes on accompanying chain-of-custody documents.[2] All specimens were frozen and stored in locked, calibrated freezers upon receipt. Only the laboratory supervisor had a key to the freezers. Freezer temperatures were monitored every 4 hours and kept at –5˚ C. All specimens were processed in a timely manner according to "Good Laboratory Practice" as defined in 21 CFR Part 58. Ninety-eight percent of the specimens were processed within 28 days of collection. All were processed within 90 days of collection.

Test results were initially reported to Westat on hard-copy reports. Later, the laboratory provided Westat with an electronic file of the data as well as hard-copy reports. The results that were received in hard copy only were double-key entered and verified at Westat. The results that were received in electronic form were converted to the same file format as the keyed records and the two data sources were combined.

Laboratory Quality Control of Urine Specimens. Stringent rules were observed regarding all access to the urine specimens from the time they were collected to their destruction after the end of the study. In addition to all possession and testing of the specimens being documented on an accompanying chain-of-custody form, a number of tests were performed by the laboratory to ensure that the specimens had not been adulterated. These included measuring creatinine, pH, and nitrite levels of each sample.

[2] In a small number of cases (approximately five), the laboratory called Westat to report that a seal was broken or that there was a defect in the chain-of-custody documentation and were then authorized to test the samples under non-chain of custody procedures.

Creatinine is a metabolite present in all human urine. Expected values for urine creatinine are greater than or equal to 20 mg/dL. A specimen with a value below 20 mg/dL is suspect and may be diluted. The laboratory still reported results for such specimens because, if a large quantity of a drug is present in the urine, it may still be detected even if the creatinine levels have been diluted to below detectable levels. Less than 5 percent of the urine specimens had creatinine values below 20 mg/dL.

The normal range for pH in human urine is 4.5 to 9. Values outside of this range indicate an adulterated sample. The laboratory found that all but six of the urine samples were in the acceptable range.

Although it was not a contractual requirement, in the middle of the study, the laboratory also began reporting nitrite levels in the urine samples. The laboratory reported the results of nitrite tests for 62.7 percent of the specimens. Values above 500 micrograms/ml (µg/ml) would have indicated strongly that the sample was adulterated. All tested specimens were in the acceptable range.

Each urine specimen was screened for the presence of eight substances: alcohol and drugs from seven drug families (amphetamines, opiates, phencyclidine [PCP], THC metabolites [marijuana], benzoylecgonine [cocaine], methadone, benzodiazepines). Testing for each substance was in two parts. Every specimen was screened for each of the eight substances to determine whether there was need for further, more accurate checking. All specimens with positive screener outcomes received confirmatory testing to determine conclusively whether a discernible quantity of some analyte from the drug family was present in the specimen.

When any confirmatory test returned positive, the laboratory set a flag for the specific drug family indicated and reported the concentrations of distinct analytes within it. For example, if the test was positive for opiates, the laboratory reported concentration levels for morphine, hydromorphone, 6-monoacetylmorphone, and codeine. If a confirmatory test returned negative, the laboratory reported the results as negative for the drug family, exactly as it reported the results for screener tests which returned negative.

The laboratory used an enzyme multiple immunoassay technique (EMIT) for the screening tests (see Section 3.2.2). These tests were performed using a Hitachi 747 with Syva reagents. The tests are very sensitive, but are subject to false positives. False negatives, on the other hand, are rare using EMIT technology. The laboratory performed a three-point calibration of the Hitachi 747 every week although the manufacturer's standard is once per month. In addition, approximately 25 percent of the samples tested with each run were controls with known concentrations of analytes, even though the manufacturer's recommendation was merely one control sample every 24 hours. The supervisor rather than the technician who set up the run read the results on the controls.

Table 3.8 gives the cutoff values to which the Hitachi 747 was calibrated in performing its screening tests. By comparison, the SAMHSA standard was generally twice as high. The laboratory also performed proficiency tests on a regular basis using test samples provided by

three different institutions. These included SAMHSA (quarterly), the College of American Pathologists (quarterly), and Forensic Testing, Inc. (weekly).

Confirmatory tests were performed using a Hewlett Packard gas chromatograph/mass spectrometer (GC/MS). This equipment is highly sensitive and can detect specific drug molecules in concentrations lower than each of the study's confirmatory levels. For example, although amphetamines and methamphetamines can be detected at a concentration as low as 50 ng/ml, the confirmatory level for positive amphetamine use was 300 ng/ml. Its results are definitive in that the measurements are not subject to cross-reactivity or other interference. Confirmatory tests with the GC/MS were quality control checked using urine samples with known analyte quantities. Test results from the GC/MS were sent directly to a data file via an RS 232 port to eliminate the possibility of transcription errors.

Westat Quality Control Testing. As a test of quality control measure, Westat periodically sent samples of urine with three known levels of drug to the laboratory. These samples were packaged and processed in the same way as urine samples collected after interviews. One set of samples was drug free. The laboratory never reported a false positive for this set of samples. The other two sets, purchased from Medical Analysis Systems and BioRad, Inc., had known concentrations of drugs at two assay levels (Levels 2 and 3), which bracketed the standard screening cutoff value of each drug but were usually higher than the ADSS cutoff level used for screening. Table 3.8 shows the two assay levels tested and the ADSS research screening cutoff value for each class of drugs.

Results from these tests were generally good, but the laboratory reported a small number of samples, mostly within the amphetamine class, as negative. When Westat investigated the reasons for the anomalous amphetamine test results, it was discovered that the laboratory correctly measured the amount of methamphetamine in each of the negative samples, but reported each free of illicit drugs because the sample did not contain any traces of amphetamines. Because methamphetamines quickly break down into amphetamines in the body, it is physiologically impossible for a urine sample from a human to contain methamphetamine without an accompanying presence of amphetamine. The laboratory coded such samples as negative regarding human drug use. Urine samples from another supplier, which did contain both amphetamines and methamphetamines, were reported positive for the amphetamine class by the laboratory.

Westat investigated two samples known to contain cocaine that were not reported as positive for cocaine. One of these was reported as "quantity not sufficient (QNS)" when there was an equipment calibration problem on the confirmatory test and the sample was not large enough for a second run. The second cocaine sample, containing 225 ng/ml of cocaine, had a false negative result, when the screening test with a cutoff of 150 ng/ml returned as "borderline negative."

Westat also investigated the laboratory's handling of one methadone sample, which nominally contained 360 ng/ml of methadone. Because of the small quantity of the sample, the result should have been reported as QNS. Instead it returned as "negative" because with agreement from Westat, it was diluted 1:10 and tested. Its returned value of 38.9 ng/ml

(indicating an original concentration of 389 ng/ml) was less than the established minimum of 50 ng/ml for cocaine testing and reset to 0.

To check that all testing protocols were properly observed, Westat submitted a small number of samples with broken seals or insufficient quantity. The laboratory properly handled each sample with a problem (e.g., a broken seal or an unsigned chain-of-custody form) or with insufficient quantity by halting its processing unless instructed to proceed by Westat. Authorization was given to proceed for five samples identified as non-chain of custody compliant.

As a final step in its review of the laboratory procedures, Westat made a surprise visit to the laboratory with 1 hour's notice. All Westat-related records (e.g., chain-of-custody forms) and general laboratory records (e.g., monitoring charts on the freezers and equipment calibration records) were in exemplary condition. A production run containing Westat samples was in process when Westat personnel arrived. This run had to have been set up prior to the phone call announcing the visit. Internal quality control samples were included in the run as specified for the ADSS project, and work was conducted in a fully professional manner. The conclusion of Westat's quality control challenges and reviews of the laboratory was that the laboratory's quality control program satisfied all project requirements.

3.5 Phase III Weighting Process for Client Follow-Up Interview Data

Except for methadone discharges and minors as previously noted, the Phase III sample consisted of all clients identified by completed Phase II abstracts. No subsampling or additional criteria existed for Phase II identified clients to become Phase III eligible. If a client appeared more than once in the Phase II sample (e.g., discharged from two facilities or from the same facility twice during the sample period), the first discharge was used for classifying client eligibility for Phase III purposes.

Despite the identification between Phase II responders and Phase III eligibles, it would be necessary to recalculate weights for the different study cohorts in Phase III, if only to account for minors and non-response. Also, it was at Phase III that incentive study clients were removed from the group of ADSS outpatient non-methadone clients used to calculate nationally representative estimates. This provided an additional reason for a Phase III reweighting.

The following is a discussion of the Phase III reweighting process. To begin, a description is provided of the steps taken to adjust the weights of clients in the main study and ITMC cohorts, the two Phase III study groups designed to be national representative. This is followed by an examination of Phase III's low cumulative response rates and their possible impact on Phase III results. For reasons noted, the true effects of low Phase III cumulative response rates may be better than it initially appears.

3.5.1 Phase III Weighting

Phase III data collection was undertaken to address important questions crossing a number of research areas. Client groups used to address these questions and make comparisons

vary from one research area to another. In the EDO study, for example, main study outpatient non-methadone clients were compared with EDO clients. In the incentive study, outpatient non-methadone clients from incentive study facilities were compared with outpatient non-methadone clients from main study facilities. In the EDO and incentive studies, no need was perceived to weight the responses. The issues being addressed and the differences observed between two groups of clients could just as easily be analyzed using unweighted data.

Phase III, however, did have one major research purpose, the calculation of national estimates, which required weighting in order to be successful. The two core study cohorts needed for Phase III national estimates, the main study clients and the ITMCs, had to be reweighted from Phase II to account for the spinoff in Phase III of incentive study outpatient non-methadone clients, who would only be used for the incentive study, and to adjust for Phase III non-response. The reweighting of these two cohorts was carried out according to procedures described in the next few sections.

3.5.2 Base Weights

Sampling weights were generated for the two Phase III study groups designed to be nationally representative of their respective client population: the main study clients and the ITMCs. The Phase III client weighting process for each study group included the following stages:

- Phase III client base weights of outpatient non-methadone main study clients had to be inflated from Phase II final abstract weights to account for the removal of incentive study discharge clients, who would not be part of the Phase III nationally representative sample because the payment of varied incentive levels could affect the Phase III responses of the experimental subsets of clients. Phase III client base weights for main study residential clients and clients in the ITMC study were equal to the Phase II final full sample abstract weights.

- A raking adjustment for client non-response was undertaken to compensate for client non-response in Phase III and attempted to reduce non-response bias due to differences between respondents and non-respondents.

- A trimming procedure was undertaken to reduce the impact of extreme weights on point estimates and variance estimates, as well as the mean squared error of survey estimates.

- Replicate weights to facilitate variance estimation under the stratified jackknife method were calculated according to the same weighting stages as used on the full sample weights.

The client base weight for client *k'* within facility *j* from PSU *i*, was computed as follows:

$$w_{ijk'}^{III} = w_{ijk}^{II,\,final}\, f_{7h}^{II,\,main};$$

where $w_{ijk}^{II,\,final}$ = final Phase II full sample weight for abstract *k* within facility *j* of PSU *i*, and $f_{7h}^{II,main}$ = reciprocal of the conditional probability of assigning a facility within stratum *h*' into the main study, given the combined sample of facilities for Phase II. The main study factors, $f_{7h}^{II,main}$, are presented in Table 3.9.

Note that the subscript *k*' is used to identify the client and the subscript *k* is used to identify the abstract. This is done in order to show the slight difference in sampling unit between Phases II and III for the main study sample. There is no difference in sampling unit between Phases II and III for the ITMC study because the client is the basis for both phases. Although different ways to account for the difference in sampling unit were explored, it was resolved to simply treat the extra discharge episodes as ineligible in the weighting process. Of the 3,207 competed abstracts in the main study sample, only 17 were ineligible due to being linked to another abstract from the same client, so the impact of any method to account for the sample unit change was considered negligible.

For the ITMC study, there was no subsampling of clients between Phase II and Phase III. As shown in Table 3.9, client base weights were equal to the final Phase II full sample abstract weights. That is, $f_{7h}^{II,main} = 1.0$ and $w_{ijk'}^{III} = w_{ijk}^{II,\,final}$.

3.5.3 Client Non-Response Adjustment

To reduce bias due to non-response, client base weights were adjusted using a raking procedure. Phase III raking consisted of computing marginal population estimates along several dimensions derived from a prior source (e.g., ADSS Phase II) and redistributing weights from the responding sample to better match marginal population estimates along all dimensions. Details of the raking procedure are presented in the following paragraphs.

Identifying Weighting Variables for Raking. To implement the raking procedure, data on both respondents and non-respondents must be available for the dimensions employed. For Phase III, potential raking dimensions included facility-level characteristics, abstract-level characteristics, and field variables (tracing/no tracing).

It was determined that no more than eight raking dimensions (one or more variables combined into a single dimension) would be used in the raking process. To reduce bias due to non-response, the set of raking variables should be correlated with response propensity and important Phase III outcome variables. Strength of relationship between potential raking variables and response propensity and treatment outcomes, therefore, was used to select the variables and subsequent dimensions used for raking. Table 3.10 provides the list of treatment outcomes, all dichotomous, used to help determine the raking variables. Because the main study clients were sampled after discharge and the ITMCs were not, different outcome variables had to be used for the two studies.

The process of identifying which factors should be used as raking variables was done in several steps:

- *Step 1*: Variables were excluded from consideration if their associated item non-response rate was more than 10 percent.

- *Step 2*: Chi-square tests of independence were processed on the set of eligible clients in Phase III to identify variables that seem to have affected the client's response propensity. Collapsing levels of potential raking variables was necessary to limit the number of levels of a raking dimension. The same procedure was implemented for the set of respondent clients in Phase III to help identify variables that were related to the client's outcome variables.

- *Step 3*: Among the list of significant variables, two-way frequencies were done to check for minimum cell sizes of 30. A minimum of 30 respondents in each level of the final raking dimension was necessary for generating reliable raking factors. More collapsing was done to meet the criteria of having at least 30 respondents for each level of each raking dimension.

- *Step 4*: A set of weighted loglinear models was processed, resulting in significant main effect and two-way interactions with regard to response propensity. Similarly, models were generated for each outcome variable.

- *Step 5*: A list of significant main effects and two-way interactions was generated based on the models from step 4. The list was reduced to eight significant interactions or main effects (i.e., raking dimensions) for the main study and five raking dimensions for the ITMC study. Prior to raking, the ratio of the sum of weights of eligible clients to that of respondent clients was computed for each level for each raking dimension, and levels were collapsed prior to raking if the anticipated average adjustment factor was more than 3.0. A variable that indicated the need for home office tracing was excluded from consideration because of its large adjustment factor.

Table 3.11 defines the final raking dimensions for the main study. Table 3.12 defines the final raking dimensions for the ITMC study.

Raking Adjustment for Non-Response. Typically, raking is the operation of adjusting weights to sum to marginal population totals along several dimensions simultaneously. To compute marginal population estimates, information was used from prior data collection, such as the ADSS Phase II administrator interview file and Phase II abstracts of both responding and non-responding Phase III eligibles. To simplify the explanation of the raking procedure, suppose there are two raking dimensions, where categories are denoted by subscript *c* for the first dimension, and categories are denoted by subscript *d* for the second dimension. The control totals are estimated using the base weights from the set of Phase III eligible clients (E^{III}) as follows:

$$\hat{N}_{c\cdot} = \sum_{\substack{k' \in c \\ k' \in E^{III}}} w_{ijk}^{III}, \text{ for dimension 1 category } c, \text{ and}$$

$$\hat{N}_{\cdot d} = \sum_{\substack{k' \in d \\ k' \in E^{III}}} w_{ijk}^{III}, \text{ for dimension 2 category } d.$$

However, the interior cells N_{cd} (defined by dimension 1 and dimension 2) are estimated by $\tilde{\tilde{N}}_{cd}$, the sums of the base weights of Phase III respondents belonging to the cells. The raking algorithm proceeds by proportionately scaling the $\tilde{\tilde{N}}_{cd}$, using adjustment ratios applied to the weights, such that the following relations are satisfied:

$$\sum_d \tilde{\tilde{N}}_{cd} = \hat{N}_{c\cdot} \text{ and } \sum_c \tilde{\tilde{N}}_{cd} = \hat{N}_{\cdot d},$$

where $\tilde{\tilde{N}}_{cd}$ are the new estimates based on the new weights. For more than two dimensions, the relations are similar. For instance, in the case of three variables, the relations become the following:

$$\sum_d \sum_e \tilde{\tilde{N}}_{cde} = \hat{N}_{c\cdot\cdot}, \sum_c \sum_e \tilde{\tilde{N}}_{cde} = \hat{N}_{\cdot d\cdot}, \sum_c \sum_d \tilde{\tilde{N}}_{cde} = \hat{N}_{\cdot\cdot e}.$$

The raking process ran a specified maximum number of iterations or until a stopping rule was satisfied, whereby all differences between cell sums and their respective margin totals were within ε. The following example shows such a stopping rule in the case of a two-dimensional matrix:

$$\left| \sum_d \tilde{\tilde{N}}_{cd} - \hat{N}_{c\cdot} \right| < \varepsilon \text{, and } \left| \sum_c \tilde{\tilde{N}}_{cd} - \hat{N}_{\cdot d} \right| < \varepsilon.$$

For Phase III raking, the value for ε was set at 1 for both the full sample weights and the replicate weights, and the maximum number of iterations was set at 99. In no case was the maximum number of iterations reached. The stopping rule was satisfied within 15 iterations for the main study and 9 iterations for the ITMC study. The average adjustment factor was 2.28 for the main study and 1.49 for the ITMC study. For simplicity, the Phase III raking factor is denoted as f_8. The distributions of the raking factors are shown in Table 3.13 for the main study and Table 3.14 for the ITMC study.

3.5.4 Trimming Weights

The last step in the weight adjustment process was to trim Phase III client weights. Trimming the weights protects against a small number of highly weighted clients exerting undue influence on the analytic results. The trimming procedure in Phase III was similar to the trimming process for Phase II abstracts (see Chapter 2 on the Phase II methodology). For the main study, residential and outpatient non-methadone clients had their weights trimmed in separate procedures. All clients in the ITMC study were trimmed together.

Clients were identified as outliers requiring trimming if their weight was more than three standard deviations above the mean for the group. Outliers had their weights adjusted downward to equal the largest observed weight that was less than three standard deviations above the mean. Excess weight (i.e., the trimmed-off portion of weight) was redistributed among all clients in the group, proportionate to current weight. Table 3.15 gives a summary of the trimming procedure for Phase III. The final trimming factor, f_{9h}, was computed as the ratio of the resulting weight after trimming to the weight before trimming.

3.5.5 Final Client Weights

The final Phase III full sample client weights were computed as follows:

$$w_{ijk}^{III,\,final} = w_{ijk}^{II,\,final} f^{III,\,main}\,7h\, f_8\, f_{9h'}.$$

The distribution of the final Phase III full sample client weights is shown in Table 3.16. The column labeled "Sum of Weights" gives the estimated number of clients meeting ADSS Phase III eligibility requirements. By design, these estimates are very similar to estimates based on the ADSS Phase II abstracts. For the main study, however, these estimates are much smaller than similar estimates derived from facility-based surveys, such as the Uniform Facility Data Set (UFDS) and ADSS Phase I. For more explanation regarding why the Phase III main study estimates are lower, see Section 2.4.2's paragraphs on the "Estimation of Discharges by Type of Treatment—Phase I Versus Phase II" in Chapter 2 on the ADSS Phase II methodology.

As Table 3.16 shows, there was large variation in Phase III client weights, even within type of treatment. Much of this variation was passed on to the client from their Phase II abstract weight, which showed equal variation within type of treatment. For more explanation on Phase II weight variation, see Section 2.4.2's paragraphs on "Abstract Base Weights" in Chapter 2 on the ADSS Phase II methodology.

3.5.6 Variance Estimation

Because of its complex sampling design, variance estimation in Phase II required more than the use of traditional statistical formulas. To assist in variance estimation, replicate weights were included in the Phase III dataset. Together with the WesVar v.3.0 software for the PC (Westat, 1998), these replicate weights can be used in a stratified jackknife procedure to compute unbiased variance estimates (see the ADSS Phase III user's manual for further information). For each record in the Phase III datasets, a total of 78 replicate weights were created. These replicate weights were calculated by the same procedures as used for the full sample weights, except that in each case one PSU in one stratum was dropped from the sample.

3.5.7 Impact of Low Response Rates in ADSS on National Estimates

Surveys like the ADSS, which include several stages of data collection, are usually subject to non-response at each stage. Because non-response gets accumulated across the stages of data collection, such surveys are likely to experience higher non-response rates in the final

stages of sampling compared with surveys using a single-stage design. This higher non-response is, of course, a serious concern, but its true impact and importance is likely to be lower compared with the same non-response rate in surveys with fewer data collection stages. It is important to remember this in judging the usefulness of estimates based on ADSS, particularly its Phase III estimates.

Survey non-response affects study results in two ways. It decreases the size of the final sample used for analysis, reducing the power to discern differences between groups as significant, and it increases the risk of bias in study estimates. Although larger sample sizes are always desirable, all four Phase III cohorts have sufficient size (at least 425 clients each) to ensure adequate power for all research issues of interest.

The impact of the Phase III non-response rate on estimate bias is harder to judge. The amount of bias in a statistic due to non-response can be represented as the product of the non-response rate and the difference between the value of the statistic for respondents and non-respondents (Groves, 1989):

$$\begin{aligned} Bias &= Full\ sample\ value - Respondent\ value, \\ &= (Non\text{-}response\ rate)*(Respondent\ value - Non\text{-}respondent\ value). \end{aligned}$$

As this equation demonstrates, bias is the product of the non-response rate with the difference between the value of the statistic based on subjects responding to the study and the value of the same statistic, which would have been obtained from non-responding sample subjects. In comparing bias between two studies, therefore, the one with a higher non-response rate does not necessarily have the greater bias. To the extent that non-respondent values are reflected by respondent values, bias will remain reasonably small.

A second representation of bias, this time as the weighted sum across a sample partition, is also informative. Beginning again with a definition of component bias due to non-response as a difference between observed and "full" values, we have:

$$Component\ bias_i = Component\ respondent\ value_i - Full\ component\ value_i.$$

The bias of the full sample can be represented as the weighted average of the biases of the individual components:

$$Bias_{Full\ sample} = \sum w_i * Component\ bias_i \div \sum w_i \quad .$$

From this equation, it is clear that a useful bias-limiting strategy would be to determine the sample partition and accompanying non-response weight adjustment scheme that minimizes bias for some outcomes, which are known for both the respondent and full samples. In single-stage surveys, this strategy probably cannot be successfully implemented because little is known about non-respondents. Often, the only information available on non-respondents is the limited information from the sampling frame. In the case of ADSS, however, there is extensive information available at each stage of data collection due to the results of the earlier stages, the

Phase II administrator interview and abstract stages in case of Phase III and the Phase I facility questionnaire in the case of Phase II.

The use of information from earlier stages to non-response adjustment gives ADSS a distinct advantage in limiting bias in its results. As noted in Section 3.5.3, the ADSS non-response weight adjustment process used facility, abstract, and even Phase III management data (e.g., did the client require home office tracing; did the client attend aftercare program?) to create weighted Phase III respondent results that matched the full sample results for a number of important statistics. However, it must be noted that bias will vary from one statistic to another, and optimization with respect to statistics for which non-respondent outcomes are known is no guarantee of similarly low bias for statistics with unknown non-respondent outcomes. The only true guard against non-response bias is still to have little or no non-response. Despite ADSS's considerable non-response adjustment efforts, there could exist important biases in some of the outcome estimates reported in Phase III.

3.6 Conclusion

In terms of coverage of substance abuse treatment facilities and their clients, ADSS, by design, tries to be comprehensive. Instead of beginning from a frame of licensed or publicly supported facilities and selecting clients, who actually appear for counseling, the ADSS's frame listed every identifiable substance abuse treatment facility in the country (except those within the special categories of the Department of Defense, the Indian Health Service, correctional facilities, half-way houses without counselors, and single practitioners), and study clients were selected from facility-generated discharge lists independent of their rate of attendance. Included in the ADSS frame were marginal facilities, which opened and closed in less than 1 year and kept few records on their clients. Also included in ADSS were exclusive, private facilities with complete records on their upscale clients, which they had absolutely no intention or obligation to share for the sake of a government research study.

Because ADSS reached out so broadly, its reported response rates were low. However, at each of its stages, ADSS accurately identified the under-represented components in its samples and corrected for this under-representation by stratified sampling at the subsequent stage. ADSS also employed post-stratification (in Phase I and Phase II) or raking (in Phase III) to further protect against bias in its analytic findings. In terms of coverage of substance abuse treatment facilities and the actual population of treatment clients, and in terms of the ability to generate meaningful national estimates, the ADSS study results, including those in Phase III, make a truly unique contribution to the field of substance abuse services research.

3.7 Data Files to SAMHSA

Table 3.17 lists the data files that were produced from the data collected during Phase III. These files contain all the data from the follow-up questionnaires and the urinalyses except the responses to three open-ended questions in the questionnaires. Table 3.18 lists four data files representing the responses to three open-ended questions in the Phase III client follow-up questionnaire. These tables present each file, a brief description of its contents, and the number of records in the file. For more information about the contents, structure, and use of these files,

refer to the 509-page ADSS Phase III codebook, Part 6, main study follow-up, which is available on OAS's website as a PDF at http://www.samhsa.gov/oas/ADSS/ADSS3ClientFUcb.pdf.

The open-ended question files contain the data collected in response to the Phase III client follow-up questionnaire items D84e, D84f, and D84g. They are introduced with the lead-in statement, "Now I would like to ask you a few questions on what you think about the treatment for alcohol or drug abuse you (received/are receiving)." The three open-ended questions are as follows:

- e. What services (were/have been) most helpful?
- f. What services do you feel you could (have benefited/benefit) from which you (did not/have not) receive(d)?
- g. How do you think treatment could be improved?

Because responses to these questions were of indeterminate length, multiple records were allowed for each respondent for each question. The responses are numbered sequentially for each question.

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Table 3.1 ADSS Phase III Urinalysis Screening and Confirmatory Cutoff Values for Each Substance Tested

Drug Family	Screening Cutoff (ng/mL)	Confirmation Cutoff (ng/mL)
Amphetamines	300	100
Opiates	300	100
Phencyclidine	12.5	5
THC metabolites	20	5
Benzoylecgonine	150	100
Methadone	150	100
Benzodiazepines	150	100
Alcohol	0.01 %	0.01 %

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.2 ADSS Phase III Sample Yields, by Study, Stratum, and Incentive Group

	Ineligible for Phase III			Not Fielded in Phase III					
Study	Number (1)	Methadone Discharges (2)	Minors (3)	Completed Abstracts Eligible for Phase III (4) = (1) - (2 + 3)	Facility Decided Against Client Access (5)	Inadequate or No Identifying/ Locating Information in Facility Records (6)	Withheld Because of Data Processing Problems (7)	Total Not Fielded (8) = (5 + 6 + 7)	Number of Cases Fielded (9) = (4) - (8)
Main Study Discharge Sample									
Residential (Stratum 2)	632	0	12	620	22	7	2	31	589
Outpatient - methadone (Stratum 3)[1]	446	427	4	15	0	0	14	14	1
Outpatient - alcohol (Stratum 4)	311	0	3	308	21	6	2	29	279
Outpatient non-methadone (Stratum 5)	1,323	8	24	1,291	133	9	8	150	1,141
Combination (Stratum 6)	495	12	11	472	34	2	3	39	433
Subtotal Main Study Discharge Sample	**3,207**	**447**	**54**	**2,706**	**210**	**24**	**29**	**263**	**2,443**
Incentive Study Discharge Sample									
0/0 Phase III incentive payment group	615	17	18	580	30	5	5	40	540
0/10 Phase III incentive payment group	691	0	23	668	17	7	3	27	641
25/10 Phase III incentive payment group	492	0	4	488	46	1	3	50	438
Subtotal Incentive Study Discharge Sample	**1,798**	**17**	**45**	**1,736**	**93**	**13**	**11**	**117**	**1,619**
Total Main/Incentive Study Discharge Sample	**5,005**	**464**	**99**	**4,442**	**303**	**37**	**40**	**380**	**4,062**
In-Treatment Methadone Sample	925	0	1	924	29	3	24	56	868
Total Probability Sample	**5,930**	**464**	**100**	**5,366**	**332**	**40**	**64**	**436**	**4,930**
Early Drop-Out Sample	891	23	18	850	40	27	39	106	744
Grand Total	**6,821**	**487**	**118**	**6,216**	**372**	**67**	**103**	**542**	**5,674**

Table 3.2 (continued)

Study	Determination of Phase III Eligibles			Completed Interviews in Phase III with Success and Response Rates			Complete Urine Specimen Protocol: Client Provided Urine Specimen Yielding Valid Urinalysis Test Data	
	Number of Cases Fielded (repeated)	Determined Ineligible During Phase III	Final Adjusted Study Totals for Phase III	Number of Completed Interviews	Operational Success Rate as Percent of Fielded Cases	Phase III Response Rate as Percent of Final Adjusted Totals for Phase III	Number of Completed Urine Specimens	Conditional Response Rate as Percent of Completed Interviews
	(9) = (4)-(8)	(10)	(11) = (4)-(10)	(12)	(13) = (12)/(9)	(14) = (12)/(11)	15	(16) = (15)/(12)
Main Study Discharge Sample								
Residential (Stratum 2)	589	11	609	305	51.8	50.1	273	89.5
Outpatient - methadone (Stratum 3)[1]	1	0	15	1	100.0	6.7	0	0.0
Outpatient - alcohol (Stratum 4)	279	3	305	136	48.7	44.6	108	79.4
Outpatient non-methadone (Stratum 5)	1,141	10	1,281	531	46.5	41.5	435	81.9
Combination (Stratum 6)	433	12	460	211	48.7	45.9	190	90.0
Subtotal Main Study Discharge Sample	**2,443**	**36**	**2,670**	**1,184**	**48.5**	**44.3**	**1,006**	**85.0**
Incentive Study Discharge Sample								
0/0 Phase III incentive payment group	540	10	570	183	33.9	32.1	116	63.4
0/10 Phase III incentive payment group	641	7	661	256	39.9	38.7	196	76.6
25/10 Phase III incentive payment group	438	5	483	233	53.2	48.2	202	86.7
Subtotal Incentive Study Discharge Sample	**1,619**	**22**	**1,714**	**672**	**41.5**	**39.2**	**514**	**76.5**
Total Main/Incentive Study Discharge Sample	**4,062**	**58**	**4,384**	**1,856**	**45.7**	**42.3**	**1,520**	**81.9**
In-Treatment Methadone Sample	868	16	908	618	71.2	68.1	587	95.0
Total Probability Sample	**4,930**	**74**	**5,292**	**2,474**	**50.2**	**46.7**	**2,107**	**85.2**
Early Drop-Out Sample	744	17	833	378	50.8	45.4	309	81.7
Grand Total	**5,674**	**91**	**6,125**	**2,852**	**50.3**	**46.6**	**2,416**	**84.7**

[1] The ADSS Phase II sample design controlled treatment mode by facility, not client. For example, any discharge in a facility stratified as an outpatient methadone facility had a chance of being sampled. Although such facilities typically provide only outpatient methadone treatment, non-methadone outpatients were occasionally encountered within this stratum. Because of processing problems resulting from the rarity of this event, 14 of the 15 non-methadone outpatient discharges sampled in this stratum were inadvertently withheld from Phase III as methadone discharges. The remaining one completed Phase III.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.3 Reasons for ADSS Phase III Non-Response

ADSS Phase III Status	Study									
	Main		Incentive		ITMC		EDO		All	
	#	%	#	%	#	%	#	%	#	%
1. Final adjusted totals of ADSS Phase III eligibles	**2,670**	**100.0**	**1,714**	**100.0**	**908**	**3.2**	**833**	**100.0**	**6,125**	**100.0**
2. Treatment facility decided against allowing access to client (before fielding for Phase III)	210	7.9	93	5.4	29	3.2	40	4.8	372	6.1
3. Insufficient information in facility record to identify or initiate tracing of client	24	0.9	13	0.8	3	0.3	27	3.2	67	1.1
4. Misclassification and other processing problems	29	1.1	11	0.6	24	2.6	39	4.7	103	1.7
5. Total non-response prior to fielding	**263**	**9.9**	**117**	**6.8**	**56**	**6.2**	**106**	**12.7**	**542**	**8.8**
6. Treatment facility decided against allowing access to client (after fielding for Phase III)	144	5.4	111	6.5	97	10.7	38	4.6	390	6.4
7. Unable to locate client	563	21.1	348	20.3	44	4.8	177	21.2	1,132	18.5
8. Client refused	299	11.2	330	19.3	74	8.1	87	10.4	790	12.9
9. Client refused initially and could not be located to attempt refusal conversion	36	1.3	51	3.0	3	.3	6	.7	96	1.6
10. Client imprisoned (prison regulations prevented access to inmates)	58	2.2	19	1.1	5	.6	22	2.6	104	1.7
11. Client too ill (physical/mental)	17	.6	10	.6	5	.6	2	.2	34	.6
12. Unable to complete interview after repeat attempts	2	.1	4	.2	0	0	1	.1	7	.1
13. Client located out of study operations area	98	3.7	44	2.6	4	.4	16	1.9	162	2.6
14. Other	6	.2	8	.5	2	.2	0	0	16	.3
15. Total non-response during fieldwork	**1,223**	**45.8**	**925**	**54.0**	**234**	**25.8**	**349**	**41.9**	**2,731**	**44.6**
16. Total non-response	**1,486**	**55.7**	**1,042**	**60.8**	**290**	**31.9**	**455**	**54.6**	**3,273**	**53.4**
17. Completed interview	**1,184**	**44.3**	**672**	**39.2**	**618**	**68.1**	**378**	**45.4**	**2,852**	**46.6**

Note: Row 5 = Rows (2 + 3 + 4); Row 15 = Rows (6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 + 14); Row 16 = Rows (5 + 15); Row 17 = Row 1 – Row 16.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.4 ADSS Phase III Urine Specimen Collection Results (Conditional Response Rates)

ADSS Phase III Results	Study									
	Main		Incentive		ITMC		EDO		All	
	#	%	#	%	#	%	#	%	#	%
1. Completed interview	**1,184**	**100.0**	**672**	**100.0**	**618**	**100.0**	**378**	**100.0**	**2,852**	**100.0**
2. Provided urine specimen	**1,049**	**88.6**	**536**	**79.8**	**600**	**97.1**	**331**	**87.6**	**2,516**	**88.2**
3. Lab report received: usable test results	1,006	85.0	514	76.5	587	95.0	309	81.7	2,416	84.7
4. Lab report received: specimen/testing problem	28	2.4	13	1.9	11	1.8	16	4.2	68	2.4
5. No lab report received	15	1.3	9	1.3	2	0.3	6	1.6	32	1.1
6. Did not provide specimen	**135**	**11.4**	**136**	**20.2**	**18**	**2.9**	**47**	**12.4**	**336**	**11.8**
7. Refused specimen	119	10.1	119	17.7	11	1.8	39	10.3	288	10.1
8. Unable to provide specimen - too ill	0	0.0	3	0.4	3	0.5	0	0.0	6	0.2
9. Not permitted to provide specimen - interviewed in correctional facility	8	0.7	4	0.6	1	0.2	4	1.1	17	0.6
10. Other	8	0.7	10	1.5	3	0.5	4	1.1	25	0.9

Note 1: Row 2 = Rows (3 + 4 + 5); Row 6 = Rows (7 + 8 + 9 + 10).

Note 2: Percentages are conditional response rates (i.e., based on those who participated in the Phase III interview), completion of which was required before the specimen could be requested.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.5 ADSS Phase III Locating Results and Home Office Tracing—Overall and by Study

Description	Study				
	Main	Incentive	ITMC	EDO	All
1. Eligible for ADSS Phase III	**2,670**	**1,714**	**908**	**833**	**6,125**
2. Eligible clients fielded for Phase III	**2,407**	**1,597**	**852**	**727**	**5,583**
3. Clients located without requiring home office tracing	1,420	916	688	446	3,470
4. Case halted; treatment facility decided against allowing access to client (after fielding for Phase III)	144	111	97	38	390
5. Case halted for other reasons	67	77	5	25	174
6. Total clients not sent to home office tracing	**1,631**	**1,104**	**790**	**509**	**4,034**
7. Clients sent to home office tracing	**776**	**493**	**62**	**218**	**1,549**
8. Clients never located	496	271	39	152	958
9. Clients located	280	222	23	66	591
9a. Completed Interview	127	90	12	29	258
9b. Not relocated after initial refusal	22	45	1	5	73
9c. Unable to convert client's refusal	131	87	10	32	260

Note: Row 6 = Rows (3 + 4 + 5); Row 7 = Row 2 - Row 6; Row 9 = Rows (9a + 9b + 9c)

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.6 ADSS Phase III Completions—The Contribution from Home Office Tracing Efforts

Description	Study				
	Main	Incentive	ITMC	EDO	All
1. Eligible for ADSS Phase III	2,670	1,714	908	833	6,125
2. Total completed interviews	1,184	672	618	378	2,852
3. Overall response rate	44.3%	39.2%	68.1%	45.4%	46.6%
Contribution from Home Office Tracing Cases					
4. Number	127	90	12	29	258
5. As percent of total completes	10.7%	13.4%	1.9%	7.7%	9.0%
6. As percent of total eligible	4.8%	5.3%	1.3%	3.5%	4.2%
7. Overall response rate without tracing completes	39.6%	34.0%	66.7%	41.9%	42.4%

Note: Row 3 = Row 2 / Row; Row 5 = Row 4 / Row 2; Row 6 = Row 4 / Row 1; Row 7 = Rows (3 - 6).

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.7 Weighted Cumulative ADSS Phase III Client Response Rates, by Contributing Phase, Study, and Facility Stratum

	Facility Stratum (Percent)					
	Total	Non-Hospital Residential Only	Outpatient Methadone Only	Outpatient Non-Methadone	Combination	Unknown
	All Strata	(Stratum 2)	(Stratum 3)	(Strata 4 and 5)	(Stratum 6)	(Stratum 7)
Phase I Facility Survey						
1. Weighted response rate for facility types eligible for Phase II	91.1	95.0	91.7	90.2	93.0	90.6
Phase II Facility Survey:						
2. Weighted Phase II facility response rate	84.1	90.9	95.7	81.2	82.3	
3. Cumulative weighted response rate (1*2)	76.6	86.3	87.7	73.2	76.5	
Phase II Record Abstracts						
A. Main study discharges						
4a. Weighted abstract response rate eliminating client types excluded from Phase III	94.4	95.7		94.1	94.2	
5a. Cumulative weighted response rate (3*4a)	72.3	82.6		69.0	72.1	
B. In-treatment methadone clients						
4b. Weighted abstract response rate eliminating client types excluded from Phase III			94.9			
5b. Cumulative weighted response rate (3*4b)			83.3			
Phase III Main Study						
Follow-Up Interviews						
A. Main study discharged clients						
6a. Weighted Phase III interview response rate	45.6	50.8		42.6	48.4	
7a. Cumulative weighted response rate (5a*6a)	33.0	42.0		29.4	34.9	
B. In-treatment methadone clients						
6b. Weighted Phase III interview response rate			69.8			
7b. Cumulative weighted response rate (5b*6b)			58.2			
Urine Specimen Collection						
A. Main study discharged clients						
8a. Weighted urine specimen response rate	87.6	90.5		85.7	89.0	
9a. Cumulative weighted urine response rate (7a*8a)	28.9	38.0		25.2	31.0	
B. In-treatment methadone clients						
8b. Weighted urine specimen response rate			94.0			
9b. Cumulative weighted urine response rate (7b*8b)			54.7			

Note: Facility response rates are based on the product of the facility's sampling weight and the number of clients at the facility (point prevalence as reported on the sampling frame for Phase I sampling and in Phase I data used for Phase II sampling). Stratum 1 (hospital inpatient) was not part of Phases II or III; it is not included in this table.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.8 Tested Levels and ADSS Phase III Screening Cutoff Value for Each Drug Family

Substance	Level 3 Assay Value	Level 2 Assay Value	ADSS Screening Cutoff	ADSS Confirmatory Cutoff
Amphetamines, ng/mL	1,200	750	300	100
Benzodiazepines, ng/mL	250	150	150	100
Cannabinoid, ng/mL	62.5	37.5	20	5
Cocaine, ng/mL	360	225	150	100
Ethanol, mg/dL	70	40	10	10
Methadone, ng/mL	360	225	150	100
Opiates, ng/mL	360	225	300	100
PCP, ng/mL	30	20	12.5	5

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.9 Main Study Factors That Account for Incentive Study Facilities in ADSS Phase III

Phase II Sampling Stratum	Certainty Status[1]	$f_{7h}^{II,main}$
2	Non-certainty	1
2	Certainty	1
3	Non-certainty	1
4	Non-certainty	2
4	Certainty	1
5	Non-certainty	2.7
5	Certainty	1
6	Non-certainty	1
6	Certainty	1

[1] The certainty status is the conditional certainty status of the facility in Phase II given the Phase I sample.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.10 ADSS Phase III Outcome Variables Used in the Raking Process

Main Study Outcome Variables	
DRUG_USE:	Illegal drug use since discharge: 1, if any item under *D1* is 'yes'; 0, otherwise.
NEW_TRT:	Subsequent substance abuse treatment since discharge: 1, if *D35* is 'yes', 0, otherwise.
ALC_USE:	Alcohol use in last 30 days: 1, if *D10* is 'yes', 0, otherwise.
CJ_INVOL:	Criminal justice involvement since discharge: 1, if any of *D69* or *D70* is 'yes'; 0, otherwise.
MH_ILL:	Mental health illness: 1, if either *D45* or *D46* is 'yes'; 0, otherwise.
SELF_HLP:	Attended self help since discharge: 1, if any item under *D39* is 'yes'; 0, otherwise.
U_ANYDRG:	Urine test result: 1, if positive for any drug family other than alcohol; 0, otherwise.
ITMC Study Outcome Variables	
DRUG_D81:	Drug use in last 7 days: 1, if any item under *D81* is 'yes'; 0, otherwise.
SELF_C31:	Attended self help during treatment period: 1, if any item under *C31* is 'yes'; 0, otherwise.
FC53:	Arrested during treatment period: 1, if *C53* is 'yes'; 0, otherwise.
U_ANYDRG:	Urine test result: 1, if positive for any drug family other than alcohol; 0, otherwise.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.11 ADSS Phase III Definitions of Raking Dimensions for the Main Study

Dimension	Level	Definition
1	1	Certainty PSU
	2	Non-certainty PSU; facility number of clients less than or equal to 100
	3	Non-certainty PSU; facility number of clients greater than 100
2	1	Male, missing gender status; married/common law, widowed, separated/divorced, other, missing marital status
	2	Male, missing gender status; never married, single
	3	Female; married/common law, widowed, separated/divorced, other, missing marital status
	4	Female; never married, single
3	1	Client abuse type: alcohol abuse only, unknown
	2	Client abuse type: both alcohol and drug abuse, drug abuse only
4	1	Source of referral: other than criminal justice system; reason for discharge: completed treatment, missing discharge reason
	2	Source of referral: other than criminal justice system; reason for discharge: client deceased, did not complete treatment, other
	3	Source of referral: criminal justice system; reason for discharge: completed treatment, missing discharge reason
	4	Source of referral: criminal justice system; reason for discharge: client deceased, did not complete treatment, other
5	1	Northeast, Midwest, South; non-methadone outpatient client
	2	Northeast, Midwest, South; residential client
	3	West; non-methadone outpatient client
	4	West; residential client
6	1	Type of ownership: private for profit, public
	2	Type of ownership: private non-profit
7	1	Non-methadone outpatient client; facility cost per discharge less than the 33.3rd percentile
	2	Non-methadone outpatient client; facility cost per discharge greater than the 33.3rd percentile
	3	Residential client; facility cost per discharge less than the 33.3rd percentile
	4	Residential client; facility cost per discharge greater than the 33.3rd percentile
8	1	Northeast, Midwest, South; type of ownership: private for profit, public
	2	Northeast, Midwest, South; type of ownership: private nonprofit
	3	West; type of ownership: private for profit, public
	4	West; type of ownership: public

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.12 ADSS Phase III Definitions of Raking Dimensions for the ITMC Study

Dimension	Level	Definition
1	1	Type of ownership: private for profit, private non-profit; employment status: employed, keeping house, retired, disabled, inmate, missing employment status
	2	Type of ownership: private for profit, private non-profit; employment status: unemployed, other
	3	Type of ownership: public; employment status: employed, keeping house, retired, disabled, inmate, missing employment status
	4	Type of ownership: public; employment status: unemployed, other
2	1	Less than 35 years of age, missing age
	2	35 years of age or older
3	1	Type of ownership: private for profit, private nonprofit; primary source of payment: no payment, self payment criminal justice system, missing payment source
	2	Type of ownership: private for profit, private nonprofit; primary source of payment: private health insurance, medicaid, medicare, other
	3	Type of ownership: public; primary source of payment: no payment, self payment criminal justice system, missing payment source
	4	Type of ownership: public; primary source of payment: private health insurance, medicaid, medicare, other
4	1	Primary source of referral: other treatment facility
	2	Primary source of referral: other than 'other treatment facility'
5	1	Northeast; facility number of clients less than or equal to 225
	2	Northeast; facility number of clients greater than 225
	3	Midwest, South, West; facility number of clients less than or equal to 225
	4	Midwest, South, West; facility number of clients greater than 225

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.13 ADSS Phase III Distribution of Client-Level Raking Factors for the Main Study

Dimension	Level	Number of Respondents	Raking Factors (f_8)		
			Minimum	Maximum	Mean
1	1	443	1.38	4.31	2.60
	2	423	1.05	3.42	1.85
	3	318	1.26	3.43	2.41
2	1	464	1.39	4.31	2.44
	2	416	1.23	3.89	2.22
	3	171	1.05	2.74	1.92
	4	133	1.28	3.55	2.35
3	1	349	1.05	3.54	2.30
	2	835	1.08	4.31	2.27
4	1	307	1.05	2.82	1.79
	2	309	1.48	4.31	2.61
	3	340	1.24	3.20	2.11
	4	228	1.57	3.89	2.75
5	1	525	1.45	3.63	2.66
	2	354	1.07	2.62	1.78
	3	232	1.05	3.42	2.17
	4	73	1.37	4.31	2.36
6	1	342	1.08	4.31	2.31
	2	842	1.05	3.63	2.27
7	1	369	1.27	3.63	2.47
	2	388	1.05	3.59	2.54
	3	102	1.29	3.55	1.93
	4	325	1.07	4.31	1.86
8	1	244	1.08	3.55	2.19
	2	635	1.07	3.63	2.35
	3	98	1.68	4.31	2.59
	4	207	1.05	3.55	2.04

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.14 ADSS Phase III Distribution of Client-Level Raking Factors for the ITMC Study

Dimension	Level	Number of Respondents	Raking Factors (f_8)		
			Minimum	Maximum	Mean
1	1	212	1.20	2.12	1.57
	2	305	1.19	2.10	1.53
	3	64	0.94	1.54	1.13
	4	37	1.17	1.68	1.40
2	1	202	1.18	2.12	1.71
	2	416	0.94	1.75	1.39
3	1	168	1.39	2.12	1.65
	2	349	1.19	1.81	1.49
	3	45	1.08	1.59	1.24
	4	56	0.94	1.68	1.22
4	1	108	0.94	2.02	1.39
	2	510	0.99	2.12	1.52
5	1	42	1.12	1.89	1.45
	2	248	1.42	2.12	1.64
	3	107	0.98	1.84	1.41
	4	221	0.94	1.77	1.37

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.15 ADSS Phase III Trimming Results for Client Weights

Sample		Client-Level Type of Treatment		
		Residential	Outpatient Non-Methadone	Outpatient Methadone
Main	Number trimmed	3	15	N/A
	Range of trimming factors	0.48 - 1.02	0.43 - 1.05	N/A
ITMC	Number trimmed	N/A	N/A	27
	Range of trimming factors	N/A	N/A	0.65 - 1.02

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.16 Distribution of the Final ADSS Phase III Full Sample Client Weights

Sample	Type of Treatment	Number of Respondent Clients	Sum of Weights	Minimum	Median	Maximum	Mean	Standard Deviation
Main	Residential	427	330,115	46.04	524.23	3,042.93	773.1	733.36
	Outpatient non-methadone	757	719,953	43.49	606.27	4,208.06	951.1	931.19
	Overall	1,184	1,050,069	43.49	577.33	4,208.06	886.9	869.97
ITMC	Outpatient methadone	618	169,337	53.42	250.71	669.71	274	142.27

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.17 ADSS Phase III Data Files

File Name	Description	Number of Records
P3QUEXM	Phase III Main Study Discharge Client Follow-Up	1,184
P3QUEXI	Phase III In-Treatment Methadone Client Study Follow-Up	618
P3QUEXE1	Phase III Early Drop-Out Comparison Study Client Follow-Up	345
P3QUEXN	Phase III Incentive Study Client Follow-Up	1,339

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table 3.18 ADSS Phase III Open-Ended Question Files

SAS File Name	Description	Number of Records
P3TEXTM	Phase III Main Study Discharge Client Follow-Up Open-Ended Questions	3,938
P3TEXTI	Phase III In-Treatment Methadone Client Study Follow-Up Open-Ended Questions	1,968
P3TEXTE1	Phase III Early Drop-Out Comparison Study Client Follow-Up Open-Ended Questions	1,107
P3TEXTN	Phase III Incentive Study Client Follow-Up Open-Ended Questions	4,496

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Appendix A

ADSS Consent Forms

OMB: 0930-0180
Exp. Date: 04/30/2000

CONSENT FORM A1

CONSENT TO COMPLETE QUESTIONNAIRE

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study or ADSS. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, Inc., a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

A treatment facility where you received treatment has agreed to participate in this study. Westat has randomly selected a group of clients discharged from treatment, a group of clients still in treatment, and a smaller group of persons not in treatment and asked them to participate in this research.

Participation will consist of:

- Answering questions on topics such as your alcohol and drug use, any treatments you have received, your general health, employment, and other aspects of your lifestyle.
- Providing a urine sample, which will be sent to a laboratory and analyzed for the presence of drugs;
- As applicable, granting permission for Westat to obtain access to any criminal justice records; and
- As applicable, granting permission for Westat to obtain information regarding treatment in other facilities.
- You may be contacted in the future for another interview.

Your taking part in this study will not help you directly, but the information you provide may help other clients at substance abuse treatment facilities.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or released to anyone without your consent in accordance with applicable laws. Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers. Disclosure of your Social Security number is voluntary and you will not be denied any government right, benefit or privilege because you may choose not to disclose it, under Section 7 of the Privacy Act of 1974. Any use of your Social Security number would be limited to this treatment research study for purposes of locating subsequent treatment data and follow up information related to treatment or the success of treatment.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information provided on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I agree to participate in an interview that will include questions about alcohol and drug use, treatment received, general health, employment, and other aspects of my lifestyle.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

CONSENT FORM A2

CONSENT TO COMPLETE QUESTIONNAIRE

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study or ADSS. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, Inc., a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

A treatment facility where you received treatment has agreed to participate in this study. Westat has randomly selected a group of clients discharged from treatment, a group of clients still in treatment, and a smaller group of persons not in treatment and asked them to participate in this research.

Participation will consist of:

- Answering questions on topics such as your alcohol and drug use, any treatments you have received, your general health, employment, and other aspects of your lifestyle.
- Providing a urine sample, which will be sent to a laboratory and analyzed for the presence of drugs;
- As applicable, granting permission for Westat to obtain access to any criminal justice records; and
- As applicable, granting permission for Westat to obtain information regarding treatment in other facilities.

You may be contacted in the future for another interview. Each time you participate, you will be paid $10.00 for the urine specimen.

Your taking part in this study will not help you directly, but the information you provide may help other clients at substance abuse treatment facilities.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or released to anyone without your consent in accordance with applicable laws. Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers. Disclosure of your Social Security number is voluntary and you will not be denied any government right, benefit or privilege because you may choose not to disclose it, under Section 7 of the Privacy Act of 1974. Any use of your Social Security number would be limited to this treatment research study for purposes of locating subsequent treatment data and follow up information related to treatment or the success of treatment.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information provided on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I agree to participate in an interview that will include questions about alcohol and drug use, treatment received, general health, employment, and other aspects of my lifestyle.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

CONSENT FORM A3

CONSENT TO COMPLETE QUESTIONNAIRE

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study or ADSS. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, Inc., a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

A treatment facility where you received treatment has agreed to participate in this study. Westat has randomly selected a group of clients discharged from treatment, a group of clients still in treatment, and a smaller group of persons not in treatment and asked them to participate in this research.

Participation will consist of:

- Answering questions on topics such as your alcohol and drug use, any treatments you have received, your general health, employment, and other aspects of your lifestyle.
- Providing a urine sample, which will be sent to a laboratory and analyzed for the presence of drugs;
- As applicable, granting permission for Westat to obtain access to any criminal justice records; and
- As applicable, granting permission for Westat to obtain information regarding treatment in other facilities.

You may be contacted in the future for another interview. Each time you participate, you will be paid $15.00 for the interview and $10.00 for the urine specimen.

Your taking part in this study will not help you directly, but the information you provide may help other clients at substance abuse treatment facilities.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or released to anyone without your consent in accordance with applicable laws. Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers. Disclosure of your Social Security number is voluntary and you will not be denied any government right, benefit or privilege because you may choose not to disclose it, under Section 7 of the Privacy Act of 1974. Any use of your Social Security number would be limited to this treatment research study for purposes of locating subsequent treatment data and follow up information related to treatment or the success of treatment.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information provided on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I agree to participate in an interview that will include questions about alcohol and drug use, treatment received, general health, employment, and other aspects of my lifestyle.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

CONSENT FORM A4

CONSENT TO COMPLETE QUESTIONNAIRE

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study or ADSS. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, Inc., a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

A treatment facility where you received treatment has agreed to participate in this study. Westat has randomly selected a group of clients discharged from treatment, a group of clients still in treatment, and a smaller group of persons not in treatment and asked them to participate in this research.

Participation will consist of:

- Answering questions on topics such as your alcohol and drug use, any treatments you have received, your general health, employment, and other aspects of your lifestyle.
- Providing a urine sample, which will be sent to a laboratory and analyzed for the presence of drugs;
- As applicable, granting permission for Westat to obtain access to any criminal justice records; and
- As applicable, granting permission for Westat to obtain information regarding treatment in other facilities.

You may be contacted in the future for another interview. Each time you participate, you will be paid $25.00 for the interview and $10.00 for the urine specimen.

Your taking part in this study will not help you directly, but the information you provide may help other clients at substance abuse treatment facilities.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or released to anyone without your consent in accordance with applicable laws. Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers. Disclosure of your Social Security number is voluntary and you will not be denied any government right, benefit or privilege because you may choose not to disclose it, under Section 7 of the Privacy Act of 1974. Any use of your Social Security number would be limited to this treatment research study for purposes of locating subsequent treatment data and follow up information related to treatment or the success of treatment.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information provided on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I agree to participate in an interview that will include questions about alcohol and drug use, treatment received, general health, employment, and other aspects of my lifestyle.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

CONSENT FORM B

CONSENT TO PROVIDE URINE SAMPLE

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or related to anyone without your consent, in accordance with applicable laws. In addition, Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I agree to provide a urine sample, which will be sent to a laboratory and analyzed for the presence of drugs. I understand that both the specimen and the analysis results will only be identified by a code number, that the results will be used for research purposes only and that the researchers will treat and maintain all such results as confidential.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

CONSENT FORM C

CONSENT TO OBTAIN CRIMINAL JUSTICE RECORDS

SUBJECT'S NAME (PRINT): _____

The United States Public Health Service is sponsoring a study entitled the Alcohol and Drug Services Study. The purpose of this study is to evaluate substance abuse treatment services at facilities throughout the United States. Westat, Inc., a health research firm located in Rockville, Maryland, is the contractor collecting the data for the Public Health Service.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). Information that would permit identification of any individual in this study will be held in strict confidence by the researchers; will be used only for the purposes stated for this study; and will not be disclosed or related to anyone without your consent, in accordance with applicable laws. In addition, Westat has obtained a special Certificate of Confidentiality for this survey. Under this certificate, the Federal government pledges that Westat study personnel cannot be compelled by any person or court of law to release your name or to identify your name with any answers that you may give to the researchers.

Participation in this study is strictly voluntary and you are free to withdraw consent and discontinue participation at any time. If you have any questions about your rights as a research subject, you may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, Maryland 20850 at 1-800-557-1225.

SUBJECT STATEMENT:

I have read the information on this form and have decided to participate as indicated below. I understand that I may participate in some parts of the study even though I may choose not to participate in others.

I give permission for Westat to obtain access to my criminal justice records, if applicable. This may involve approaching criminal justice agencies including the FBI, state agencies, local courts and law enforcement agencies. I understand that the information obtained will be used for research purposes only and will be treated and maintained as confidential.

I understand what my participation in this study will involve and I understand that I am free to withdraw from the study at any time. I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

_____ _____

Date Subject's Signature

OMB: 0930-0180
Exp. Date: 04/30/2000

CONSENT FORM D

CONSENT FOR THE RELEASE OF CONFIDENTIAL INFORMATION

I,_____, request _____
Client Name Program Name
at
_____
Program Location

to release administrative and clinical information regarding my treatment to Westat.

This survey is authorized by Section 505 of the Public Health Service Act (42 U.S.C., 290aa-4.). The purpose of this release authorized herein is to allow the information to be used in a federally funded research study. I understand that the researcher cannot be compelled to disclose any information identifying me.

I understand that my records are protected under the federal regulations governing Confidentiality of Alcohol and Drug Abuse Patient Records, 42 CFR Part 2. I also understand that I may revoke this consent at any time except to the extent that action has been taken in reliance on it.

If I have any questions about this study, I understand that I may contact Helen Price, Westat, Inc., 1650 Research Blvd., Rockville, MD 20850 at 1-800-557-1225.

_____ _____
Date Subject's Signature

Appendix B

Response Rate Components for ADSS Phase I and Phase II

Table B.1 Response Rates for the ADSS Screener and ADSS Phase I Facility Questionnaire

			Facility Stratum							
			Total	Hospital Inpatient Only	Non-Hospital Residential	Outpatient Methadone	Outpatient Almost Exclusively Alcohol	Outpatient - Other	Combined	Unknown
			All Strata	(Stratum 1)	(Stratum 2)	(Stratum 3)	(Stratum 4)	(Stratum 5)	(Stratum 6)	(Stratum 7)
Results of ADSS Screener	Number of facilities responding to ADSS screener (1)	n	3,030	427	472	432	531	480	359	329
		%	100.0	14.1	15.6	14.3	17.5	15.8	11.8	10.9
	Number of eligibles in ADSS screener [1] (2)	n	3,048	427	473	436	535	481	361	335
		%	100.0	14.0	15.5	14.3	17.6	15.8	11.8	11.0
	Response rate for ADSS Screener (3) = (2) / (1)	%	99.4	100.0	99.8	99.1	99.3	99.8	99.4	98.2
Results for Facilities in ADSS Phase I	Number of facilities responding to ADSS Phase I (4)	n	2,395	353	374	384	410	389	263	222
		%	100.0	14.7	15.6	16.0	17.1	16.2	11.0	9.3
	Number of eligibles for ADSS Phase I (5)	n	2,603	375	393	411	463	433	287	241
		%	100.0	14.4	15.1	15.8	17.8	16.6	11.0	9.3
	Response rate for ADSS Phase I (6) = (5) / (4)	%	92.0	94.1	95.2	93.4	88.6	89.8	91.6	92.1
	Overall response rate (7) = (3) * (6)	%	91.4	94.1	95.0	92.6	87.9	89.7	91.1	90.5

[1] Reasons for ineligibility based on screener include the following: facility provides prevention only, intake and referral only, or administrative only; facility is solo practice or halfway house with no paid counseling staff; facility is correctional; or facility is a Department of Defense facility or an Indian Health Service facility.

Source: Alcohol and Drug Services Study (ADSS), Phase I facilities data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.

Table B.2 Unit Counts Contributing to the Denominator of Calculations of Weighted Cumulative ADSS Phase III Client Response Rates, by Contributing Phase, Study, and Facility Stratum

	Facility Stratum						
	Total	Hospital Inpatient Only	Non-Hospital Residential Only	Outpatient Methadone Only	Outpatient Non-Methadone	Combination	Unknown
	All Strata	(Stratum 1)	(Stratum 2)	(Stratum 3)	(Strata 4 & 5)	(Stratum 6)	(Stratum 7)
Phase I Facility Survey							
1. Denominators of weighted response rate for facility types eligible for Phase II[1]	2,235		394	413	898	287	243
Phase II Facility Survey							
2. Denominators of weighted Phase II facility response rate	294		31	31	201	31	
Phase II Record Abstracts							
A. Main study discharges							
4a. **Denominators of weighted** abstract response rate eliminating client types excluded from Phase III[1]	4,541		636		3,418	488	
B. In-treatment methadone clients							
4b. **Denominators of weighted** abstract response rate eliminating client types excluded from Phase III[1]				943			
Phase III Main Study							
Follow-Up Interviews							
A. Main Study discharged clients							
6a. **Denominators of weighted** Phase III interview response rate	2,655		609		1,586	460	
B. In-treatment methadone clients							
6b. **Denominators of weighted** Phase III interview response rate				908			
Urine Specimen Collection							
A. Main Study discharged clients							
8a. **Denominators of weighted** urine specimen response rate	1,183		305		667	211	
B. In-treatment methadone clients							
8b. **Denominators of weighted** urine specimen response rate				618			

Note: Individual stratum estimated counts may not add to the total due to rounding.

[1] The denominators do not include ineligibles. Ineligibles are those known to be ineligible plus a slight adjustment for those estimated to be ineligible among non-responders. Therefore, the counts of eligibles, shown in the table, are estimates of eligibles in the sample, in most cases.

Source: Alcohol and Drug Services Study (ADSS), Phase III Client Follow-Up Study data. Office of Applied Studies, Substance Abuse and Mental Health Services Administration.