SAMPLE DESIGN AND WEIGHTING REPORT FOR PHASE II AND PHASE III OF ADSS

Final Report

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Substance Abuse and Mental Health Services Administration

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SUBSTANCE ABUSE AND MENTAL HEALTH SERVICES ADMINISTRATION
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1. INTRODUCTION AND OVERVIEW

The Alcohol and Drug Services Study (ADSS) of substance abuse treatment facilities was conducted in three phases. The focus of this report is to describe the sample design and weighting processes for Phase II and Phase III of the Alcohol and Drug Services Study (ADSS). The purpose of Phase I was to provide a description of the substance abuse treatment system at the facility level. The purpose of Phase II was to further describe the substance abuse treatment system at the facility level, to describe the client population, length in stay of treatment, and the process of substance abuse treatment. The purpose of Phase III was to describe the post-treatment status of clients, to assess reentry into treatment, and to examine treatment and client factors that might affect treatment outcomes.

It was important to incorporate the objectives of the planned Phase III analysis into the Phase I and Phase II sample designs. There were four general studies planned for Phase III:

1. Main Study – designed to assess the status of discharged clients after treatment. Clients were offered $15 to complete the interview and $10 to submit a urine sample. These main study clients also serve as the $15/$10 group for the incentive study;

2. Incentive Study – designed to examine the impacts of different financial payments on response rates, response bias, and sample bias. The array of payment groups were (interview/urine): 0/0, 0/10, 15/10 (main study), 25/10;

3. In-Treatment Methadone Client Study (ITMC) – designed to follow-up a cross section sample of methadone clients in treatment on the date of the facility site visit; and

4. Comparison Study – designed to compare client status for a comparison group of early dropout (EDO) clients (clients that left treatment after a single day or visit) to the status of the main study clients.

The sample design for ADSS was a multi-stage stratified clustered design. It began with a stratified national frame and probability proportionate-to-size (pps) selection of substance abuse treatment facilities as the first stage (Phase I). Phase II consisted of three stages of sampling. First, 62 geographical primary sampling units (PSUs) were selected, then a subsample of Phase I responding facilities within the 62 PSUs was selected using a stratified pps design. The last stage of sampling in Phase II consisted of a random selection of client discharge or methadone in-treatment records from within the selected facilities. No further sampling was conducted in Phase III, where clients, whose records were abstracted in Phase II, were given follow-up interviews. For more details on the Phase I sampling and weighting processes, refer to Mohadjer, et al (2000). This document focuses on details of the Phase II and III sampling and weighting activities.

1.1 Phase I Sample

An overview of the ADSS sampling and weighting activities begins with the ADSS sampling frame. The frame was constructed with the objective of covering all substance abuse treatment facilities that have active treatment programs in all fifty states and the District of Columbia. The Phase I sample was a stratified probability proportionate to size (pps) sample, resulting in 2,395 responding facilities from seven sampling strata. The sampling strata for Phase I were defined as: Stratum 1 included facilities with hospital inpatient clients. Stratum 2 included non-hospital residential facilities. Stratum 3 included all outpatient facilities for which the percent of methadone clients was greater than or equal to 60 percent. Facilities assigned to stratum 4 were outpatient facilities for which the percent of alcohol-only clients was greater than or equal to 70 percent, and at the same time, the percent of methadone clients was less than 60 percent. Stratum 5, the largest group of facilities, consisted of all other outpatient facilities that did not fall into stratum 3 or stratum 4. Stratum 6 included all facilities that had any other combinations of types of care defined above, but not included in the previous strata. Finally, stratum 7 included all the facilities for which no information on treatment modality and number of clients was available.

1.2 Phase II Sample

Facilities that were in-scope for Phase I but out-of-scope for Phase II were excluded prior to the Phase II selection of facilities. These out-of-scope facilities included hospital inpatient facilities (stratum 1) and facilities where all their substance abuse clients were treated for alcohol abuse only. Before the Phase II sample selection of facilities, the Phase I responding facilities were re-stratified based on their responses to the Phase I questionnaire. Next, the responding facilities were subset to 62 randomly selected Primary Sampling Units (PSUs), which were basically counties or groups of counties. Subsequently, the Phase II sample of 306 facilities was selected using a stratified pps design. The Phase II sample of facilities was split into the main sample consisting of 186 facilities from strata 2, 3, 4, 5, and 6, and the incentive sample consisting of 120 facilities from strata 4 and 5. The incentive study facilities were split further into three groups of 40 facilities each, for which clients in Phase III were offered the corresponding group's incentive payment. The stratum 3 sampled facilities were the basis for the ITMC study. A subsample of Phase II sampled facilities from strata 4, 5, and 6 was purposively selected for the comparison study. For each sampled Phase II facility, a shadow facility was assigned and replaced its corresponding original sample facility if the original facility was eligible for the study, but failed to

cooperate. Shadow facilities were used for the main purpose of maintaining the client sample sizes for Phase III.

In Phase II, once the facilities were selected and the facility administrators interviewed, client records were listed, sampled, and abstracted. Within all Phase II interviewed facilities, a sample of client discharge records from the most recent 6-month period was randomly selected and the data were recorded on a Phase II abstract form. For stratum 3 facilities (treating primarily methadone clients), a sample of in-treatment client records was also randomly selected for the ITMC. Within the comparison study facilities, a sample of early dropout clients was selected.

1.3 Phase II Weighting

Three weighted samples were created in Phase II (and one unweighted sample, the comparison group). For Phase II, the combined sample of 306 main and incentive study facilities was used to collect and analyze administrator interview data and cost study data. The main and incentive discharge abstract (MIDA) data from the combined sample of facilities were analyzed together in Phase II. The ITMC abstract data were analyzed separately. Therefore, three sets of weights were generated for Phase II analysis.

The Phase II facility weights were constructed for the analysis of administrator interview and cost study data. The Phase II facility base weights were computed as the product of the Phase I final facility weight, the reciprocal of the PSU selection probability, and the reciprocal of the conditional Phase II facility selection probability. To reduce bias due to nonresponse, and to reduce sampling error, a raking procedure (i.e., iterative poststratification) was applied to the Phase II facility weights so that certain highly aggregated sums were equal to the corresponding Phase I estimates of the number of facilities. Some facility weights were truncated in order to protect against a small number of facilities dominating some domain estimates.

Two sets of Phase II abstract weights were constructed for analyzing the MIDA and ITMC abstracts separately. There were no weights generated for the comparison study. The abstract base weights were computed as the product of the final Phase II facility weight and the reciprocal of the within-facility selection probability for the abstracted record. For each sample of abstracts, there were some incomplete abstracts (i.e., non-abstracted) for which their eligibility status was unknown. The weights for abstracts with known eligibility status were adjusted in order to account for a proportion of those with unknown eligibility status. The weighted proportion of all abstracts with known eligibility

status (either eligible or ineligible) that were known to be eligible was used in the adjustment. Next, to reduce the bias due to nonresponse, weights of completed abstracts known to be eligible were adjusted to account for incomplete eligible abstracts. Lastly, to protect against a small number of abstracts dominating domain estimates, a trimming procedure was conducted.

1.4 Phase III Sample

In Phase III, follow-up interviews were conducted on all Phase II completed abstracts that were in-scope for Phase III. Therefore there were no Phase III sampling activities. Clients that were out-of-scope for Phase III included methadone discharges, minors, and deceased.

1.5 Phase III Weighting

For Phase III, the samples were analyzed separately according to the analysis study described in Section 1. However, weights were not produced for the incentive study and the comparison study. Therefore, two sets of weights were produced – one set for the main study and one set for the ITMC study. The Phase III client base weights for the main study account for the split of the Phase II facility sample into the main study and the incentive study. The Phase III ITMC base weights were not affected by the main and incentive study split since the facilities were contained in stratum 3 (main study only), therefore, the final Phase II ITMC abstract weight was equal to the Phase III ITMC base weight.

The weighting procedures include raking adjustments to account for client nonresponse. Prior to the raking procedure, several Phase II abstract and tracing variables were identified as important weighting variables, based on their correlation with Phase III response propensity of clients and Phase III outcomes. The weighting variables were used in the iterative proportional fitting procedure to help reduce the nonresponse bias.

1.6 Variance Estimation

To facilitate variance estimation in Phases II and III, replicate weights were generated from the stratified jackknife technique. There were 78 replicate samples produced by forming large subsets of the full sample of Phase II facilities. The replicate samples were re-weighted to account for the sampled facilities not included in the replicate. Then all subsequent weighting procedures conducted on the full sample were repeated for each replicate. Therefore, the resulting variances will reflect the effects from the weight adjustments.

Section 2 provides an overview of the Phase I sampling frame creation and selection of the Phase I sample. Section 3 discusses the creation of the Phase II conditional sampling frame. Sections 4 and 5 discuss the selection of facilities, and the sampling of abstracts within sampled facilities. Sections 6 and 7 provide a discussion of the weighting of the administrator interview data and the Phase II abstract data, respectively. Lastly, Section 8 provides details of the Phase III weighting procedure.

2. OVERVIEW OF PHASE I SAMPLING

The Phase I sampling process consisted of the selection of a screening sample from a list of treatment facilities. The eligible facilities that responded to the screening interview were given the Phase I facility interview.

2.1 Phase I Sampling Frame

The ADSS sampling frame was constructed with the objective of covering all substance abuse treatment facilities that have active treatment programs in all fifty states and the District of Columbia. The frame consisted of two major components: active facilities offering substance abuse treatment programs as listed in Substance Abuse and Mental Health Services Administration's (SAMHSA) National Facility Register (NFR) as of September 1995, and the enhancement file. The enhancement file was the result of an effort to improve coverage of the ADSS sampling frame prior to the selection of Phase I facilities (refer to Section 2.2 of Mohadjer et al, 2000 for more information on the frame enhancement). More than three-quarters of the facilities to be included in the ADSS sampling frame come from the NFR file and the remaining facilities are from the enhancement file. Treatment facilities of the following types are excluded from consideration for ADSS:

- Halfway Houses, with no paid treatment staff;
- Solo Practitioners;
- Jails/Prisons;
- Military/DoD;
- Indian Health Service; and
- Intake and Referral only.

Facilities known to be ineligible for ADSS, for instance, facilities operated by the Bureau of Prisons (BOP), the Department of Defense (DoD), and the Indian Health Service (IHS) were dropped from the ADSS sampling frame using the associated information in the frame, and the rest were designated as ineligible during the screening of sampled facilities in Phase I.

2.2 Phase I Sample Selection

The sample selection for Phase I of ADSS was conducted in two stages. First, a sample of records, approximately twice the size required for Phase I, was selected from the ADSS sampling frame. Second, the selected records were screened sequentially in two waves. All the facilities assigned to Wave 1 were screened for participation in ADSS. However, only a subsample of facilities assigned to Wave 2 were screened. Responding facilities that were eligible for Phase I during screening were included in the Phase I sample.

Phase I facilities were selected with probability proportional to size within each of seven sampling strata (refer to Section 1.1 for stratum definitions). Basically, the probability of selection for a given Phase I facility (i) in a given stratum (h) is as follows,

$$P_{hi}(I) = \frac{n_h^I x_{hi}^{7/10}}{\sum_{i \in h} x_{hi}^{7/10}} = I_{Ih}^{-1} x_{hi}^{7/10};$$

where, n_h^I the Phase I screening sample size within sampling stratum h adjusted for ineligibility and nonresponse, $x_{hi}^{7/10}$ = facility i's actual number of clients in treatment (from the NFR frame) raised to the $^{7}/_{10}$ power, and $I_{Ih} = \frac{\sum_{i \in h} x_{hi}^{7/10}}{n_h^I}$ is the Phase I sampling interval for sampling stratum h (for h=7, four different sampling intervals were used to bring the probabilities of selection of facilities closer to those in other strata based on the minimal information available about facilities in stratum 7).

The final probability of selection of each record in each ADSS stratum (for the sample of records released for screening) was determined and assigned to all records on the frame. This probability of selection reflects the original probability of selection into the screener sample, and the subsampling of the sample selected for Wave 2. Each unique sampled record was then associated with a set of duplicates on the sampling frame, if such duplicates existed. The final probabilities of selection for the sampled records were adjusted to account for duplicate records that were identified. For further details on the Phase I sampling procedure, see Mohadjer, et al (2000).

3. PHASE II CONDITIONAL SAMPLING FRAME

This section documents the procedures that were completed in preparation for the Phase II selection of facilities. In particular, the Phase II sampling frame consisted of 2,395 eligible respondents to Phase I, which were then reduced according to modality and geographic exclusionary criteria, described below.

3.1 Excluded Treatment Modalities

The Phase II sampling frame excluded those facilities in which 100 percent of the clients were treated for alcohol abuse, and hospital inpatient facilities (stratum 1). The data from the Phase I questionnaire were used as the basis for the exclusionary criteria.

3.2 Sample of 62 PSUs

The Phase II sampling frame includes 62 geographical primary sampling units (PSUs). Westat has grouped all U.S. counties into PSUs and stratified them on the basis of their demographic and economic characteristics. Entire Metropolitan Statistical Areas (MSAs) were treated as single PSUs except the New York MSA, which, because of its size, was split into three PSUs. For the same reason, Los Angeles and Chicago were each divided into two PSUs. In New England, whole-county approximations to MSAs were used. Counties outside MSAs were grouped so as to make PSUs large enough to provide sufficient sample size for most national surveys, and as internally heterogeneous as feasible, yet still small enough geographically to facilitate interviewer travel. Stratification was based on region of the country, whether or not the counties were in a metropolitan statistical area, the size of the metropolitan area, percentages of Blacks and Hispanics in the area, and per capita income. These items are obviously very relevant to a study of clients of drug treatment facilities. Sixty-two strata were formed. Twenty-four strata consist of single PSUs, referred to as certainty strata. The remaining 38 strata contain three or more PSUs. The 24 PSUs from the certainty strata ensure that the largest 20 metropolitan areas are in the sample. These, of course, have the most massive and probably unique problems, and automatically having them in the sample prevents them from influencing cluster effects. A sample of 100 PSUs had been selected, one PSU from each of the 24 certainty strata and two from each of the remaining 38 strata. Of the 100 PSUs in the Westat Master Sample, 24 are metro certainty PSUs, 52 are metro non-certainty PSUs, and 24 are non-metro, non-certainty PSUs. Westat's 62 PSU Sample consists of the

24 metro certainty PSUs, 26 metro non-certainty PSUs (a randomly selected half-sample of the original 52 metro non-certainty PSUs), and 12 non-metro, non-certainty PSUs (a randomly selected half-sample of the original 24 non-metro non-certainty PSUs). The PSUs in the Westat Master Sample were selected with probability proportionate to the population. The overall probability of selection of any PSU is the probability of selection in the Westat sample.

3.3 Phase I Responding Facilities

The Phase II sampling frame did not include Phase I responding facilities outside of Westat's sample of 62 PSUs, those in which 100 percent of the clients are treated for alcohol abuse only, and hospital inpatient only facilities (stratum 1). After removing such facilities, there were 1,062 facilities eligible for Phase II.

Among the group of Phase I responding facilities, 29 ineligible treatment facilities (i.e., solo practitioners) were identified. Table 3-1 gives a summary of the characteristics of the 29 ineligible facilities.

Table 3-1. Characteristics of 29 ineligible facilities

In 62 PSUs?	In stratum 1?	100 percent alcohol treatment?	Frequency
No	No	No	15
No	No	Yes	1
Yes	No	Yes	2
Yes	No	No	11

At the time of removing these ineligibles, only 11 of the 29 facilities were found in the existing frame (and they were removed) since facilities were already excluded due to being outside the 62 PSUs, in stratum 1, or 100 percent alcohol treatment facilities. After this change, there were 1,051 facilities in the Phase II sampling frame. The frame initially did not include a facility that had split from another facility. This facility (from stratum 5) was added to the sampling frame files to make 1,052 facilities in the frame.

3.4 Definition of Eligibility

To be eligible for Phase II, the Phase I facilities had to meet one more criterion in addition to the geographical and modality criteria. Since 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. For Phase II, facilities that closed before March 1, 1997 (the earliest date for discharge client sampling) were to be considered ineligible and facilities that were open any time after March 1, 1997 were considered eligible (including those closed subsequent to March 1, 1997). There were no such facilities declared ineligible (or closed) due to this criterion.

3.5 Influence of NESAT Study

While ADSS was in progress, Westat began conducting the National Evaluation of Substance Abuse Treatment (NESAT) with the Center on Addiction and Substance Abuse (CASA) at Columbia University, for the Office of National Drug Control Policy (ONDCP). As agreed with SAMHSA, the ADSS facility sampling frame was also used for NESAT, and the sample design for ADSS Phase I was revised to minimize the overlap between the ADSS and NESAT surveys to reduce the respondent burden that would be imposed on substance abuse treatment facilities selected in both surveys, and thereby increase the response rate.

The 50 PSUs selected for NESAT consisted of the 24 metro certainty PSUs and 26 metro non-certainty PSUs that were in the half-sample of metro non-certainty PSUs not in ADSS 62 PSU sample. Thus only facilities in the 24 metro certainty PSUs had a chance of overlapping between the initial samples of the two surveys. In order to minimize the degree of overlap, the Permanent Random Number approach was used to select facilities in the certainty PSUs for both ADSS and NESAT. The Permanent Random Number approach (Ohlsoon, 1995) 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 and NESAT. The approach was implemented as follows: First, a variable *PRN* was created, assigning a random number from the Uniform (0, 1) distribution, to each facility in each stratum. This is the permanent number associated with each facility. The values of *PRN* were then compared to the probabilities of selection of each facility into the ADSS and NESAT samples. The selection of a facility for inclusion into the ADSS or NESAT sample depended on the relationship between *PRN* and the probabilities of selection.

The resulting Phase I sample had the following characteristics. There was no overlap in the initial samples of the two surveys for those facilities in the metro certainty PSUs where the probabilities of selection for both surveys were less than 0.5. Those facilities with probabilities of selection in both surveys greater than or equal to one were in the initial samples of both surveys with certainty. The estimated overlap between the ADSS Phase I screener sample of 2,771 facilities and the NESAT sample of 200 programs was computed as the maximum possible overlap between ADSS Phase I and NESAT. The maximum possible overlap between Phase I and NESAT is 18 facilities. The majority (11) of the overlapping facilities were in the methadone stratum.

4. PHASE II SAMPLE SELECTION OF FACILITIES

The Phase II sample consisted of 306 facilities selected from the 1,052 eligible Phase I respondents. It was split into the main study sample consisting of 186 facilities from strata 2, 3, 4, 5, and 6, and the incentive sample consisting of 120 facilities from strata 4 and 5. The incentive study facilities were split further into three groups of 40 facilities each, for which clients in Phase III were offered the corresponding group's incentive payment. In addition, the stratum 3 sampled facilities were the basis for the ITMC study, and a subsample of Phase II responding facilities from strata 4, 5, and 6 was purposively selected for the comparison study.

4.1 Stratification of Facilities

The sampling strata for Phase II were defined the same as in Phase I (Section 1.1). However, some facilities may have changed strata based on their responses in Phase I. Facilities were placed in Phase II sampling strata (defined as Phase I analytic strata) based on information collected from the Phase I questionnaire. The process for constructing the strata was the same as for Phase I. Table 4-1 summarizes the movement of facilities from the initial sampling stratum derived for each eligible Phase I facility to the Phase I analytic strata. A decrease of 76 stratum 4 facilities resulted from this movement, and the number of facilities in stratum 5 almost doubled. For Phase I, this led to a smaller set of respondents in stratum 4 and a larger set of respondents in stratum 5.

Table 4-1. Stratum migration in Phase I among Phase II eligibles

Phase I sampling strata	Phase I analytic strata					
	Other residential	Outpatient-PM	Outpatient-AEA	Outpatient-AO	Combined	Total
1. Hospital Inpatient	14	0	0	13	28	55
2. Other Residential	172	0	0	4	18	194
3. Outpatient – PM[1]	0	243	0	18	0	261
4. Outpatient – AEA[2]	0	7	29	103	0	139
5. Outpatient – AO[3]	1	8	15	176	5	205
6. Combined	12	3	4	31	55	105
7. Unknown	18	4	15	54	2	93
Total	217	265	63	399	108	1,052

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.

4.2 Target Sample Sizes

The Phase II design set a target of 300 facilities completing the full Phase II data collection protocol. The target sample sizes were inflated due to an expected Phase II facility-level eligibility rate of around 97 percent. We also expected an 80 percent response rate, for which we expected to compensate by replacing nonrespondents with shadow facilities (see Section 4.7), therefore there was no inflation of sample sizes due to nonresponse. All main study discharge sample facilities in stratum 3 were also used for the ITMC study. Table 4-2 provides the facility initial sample sizes by analytic strata.

Table 4-2. Phase II initial sample sizes

Phase I analytic stratum	Sample sizes			
	Main	Incentive	Combined (main study and incentive study)	In-treatment methadone
2. Other Residential	31	0	31	0
3. Outpatient – PM[1]	31[5]	0	31	31[5]
4. Outpatient – AEA[2]	21[4]	15	36	0
5. Outpatient – AO[3]	72[4]	105	177	0
6. Combined	31	0	31	0
Total	186	120	306	31

[1]PM – Predominantly Methadone.
[2]AEA – Almost Exclusively Alcohol.
[3]AO – All Other.
[4]Initially the targets for stratum 4 and 5 were 31 and 61, respectively. However, due to stratum migration during Phase I, the targets were modified.
[5]The same 31 facilities were selected to provide both discharges and in-treatment methadone clients in stratum 3.

4.3 Phase II Measure of Size

Within strata, the Phase II facilities were selected with probability proportional to size, where the measure of size was a function of the number of clients on October 1, 1996 (x'), as reported in the Phase I questionnaire. This replaced the total number of clients from the NFR frame (x), which was used in sampling for Phase I. This resulted in a more efficient sample design that incorporated useful current information about the eligible facilities. If these two variables were highly correlated, the use of x could be justified. However, since they were not highly correlated, continued use of x would have resulted in an inefficient sample design that would not have incorporated useful current information about the eligible facilities. The use of x' in the Phase II measure of size calculations is justified, even though the

weighting scheme will be further from the self-weighting design, which was initially intended. Ordinary least squares regression was used to analyze the correlation between x' and x. The dataset used for the regression analysis was the initial sampling frame for Phase II of 1,062 facilities, which included 11 ineligible cases whose identities were not available at the time of the analysis. For the model, x' was the dependent variable, and x was the independent variable. Seven extreme observations were excluded from the modeled dataset so they would not influence the results of the regression. The resulting $R^2 = 0.45$, which shows moderate correlation between x' and x.

A minimum measure of size for x' was set at 5 to protect against large weights dominating estimates within a domain. Using the total number of clients reported from the Phase I questionnaire, the probability of selection for a given Phase II facility (i) in a given analytic stratum (h') is as follows:

$$P_{h'i}(II) = \frac{n_{h'}^{II} I_{Ih} x'^{3/10}_{h'i} P_j^{-1}}{\sum_{i \in h'} I_{Ih} x'^{3/10}_{h'i} P_j^{-1}} = I_{IIh'}^{-1} I_{Ih} x'^{3/10}_{h'i} P_j^{-1};$$

where, $n_{h'}^{II}$ = the Phase II sample size within analytic stratum h' (see Table 4-2), $x'^{3/10}_{h'i}$ = facility i's number of clients reported in the Phase I questionnaire raised to the 3/10 power, $I_{IIh'} = \frac{\sum_{i \in h'} I_{Ih} x'^{3/10}_{h'i} P_j^{-1}}{n_{h'}^{II}}$ is the Phase II sampling interval for analytic stratum h', and $P_j =$ the probability of selection for PSU j.

4.4 Identifying Certainty Facilities

One characteristic of establishment-based surveys, such as ADSS, is that their populations are highly skewed, that is, there are a small number of large facilities, and a large number of small facilities. An efficient sample design with the primary goal of computing size-based estimates (e.g., total number of clients) will require that some facilities be stratified into a take-all stratum (i.e., certainty stratum) and some into a take-some stratum (i.e., noncertainty stratum). All facilities in the take-all strata are selected with certainty (i.e., probability equal to one), and facilities in the take-some stratum are selected with some probability (e.g., probability proportionate to size). To understand the benefit of such a design, consider the following scenarios. Under an equal probability design of a highly skewed population (i.e., no certainty stratum), if one repeats the sample selection several times and compares the resulting estimates across the samples, the resulting estimates would be highly variable since the largest contributors to estimates are not always selected. One can imagine that under a probability proportionate

to size sample where certainty facilities are identified, that since largest contributors (i.e., certainty facilities) would be included in each repeated sample, that the resulting variances would be much less variable.

For ADSS, we assigned a conditional probability of selection (given the Phase II sampling frame) as a function of the number of clients on October 1, 1996, as reported in the Phase I questionnaire. Given the Phase II sampling frame, 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[1] equal to one), while others were selected based on the conditional probability of selection, which was less than one.

Certainty facilities (conditionally, that is, given the Phase I sample and the PSU sample) were identified by an iterative procedure. Initial values of $P_{h'i}(II)$ were computed. The certainties were identified as having a conditional probability greater than or equal to one. The next iteration involved taking out the certainty cases, then recomputing $P_{h'i}(II)$ for the noncertainty cases without the contribution of the certainties, then identifying more certainties. The cycle continued until no more certainties were identified, which occurred after three iterations. The results are summarized in Table 4-3. Facilities selected with certainty were assigned to the main study.

Table 4-3. Number of Phase II certainty facilities

Analytic stratum	Number of certainties
2. Other Residential	2
3. Outpatient – PM[1]	0
4. Outpatient – AEA[2]	6
5. Outpatient – AO[3]	11
6. Combined	10
Total	29

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.

[1] A facility could have a conditional probability of selection (within its stratum) equal to one, however, from prior stages of sampling, its overall probability of selection into ADSS Phase II could be less than one. For instance, the facility could come from a noncertainty PSU, or could have been selected as a noncertainty in Phase I.

4.5 Selecting the Noncertainty Facilities

From the noncertainty universe, the sample sizes (shown in Table 4-4) were derived from subtracting the number of Phase II certainties (Table 4-3) from the initial sample sizes for the combined study (Table 4-2). The facilities were selected systematically with probability proportionate to size, however, with the new sample sizes, and without contributing measures of size from the certainty cases. The facilities were selected from a sorted list on the variables: Phase I ownership (private-for-profit/ private nonprofit/ public), census region (Northeast/Southeast/Midwest/West), type of PSU (metro certainty, metro noncertainty, nonmetro noncertainty), PSU, and number of clients on October 1, 1996 as reported in Phase I.

Table 4-4. Sample sizes for the noncertainty sample

Analytic stratum	Target sample sizes for noncertainty sample
2. Other Residential	29
3. Outpatient – PM[1]	31
4. Outpatient – AEA[2]	30
5. Outpatient – AO[3]	166
6. Combined	21

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.

4.6 Assigning Noncertainty Sample to Either the Main or Incentive Study

This section documents the random assignment of the noncertainty sampled cases into the main sample and the incentive sample. For the purposes of weighting Phase II, this discussion can basically be ignored since the main and incentive samples were combined for Phase II analysis. However, a discussion is necessary for the purpose of explaining the sampling process of abstracts and for the purpose of describing part of the sampling procedure leading to the main study client sample for Phase III.

For this procedure, a portion of the noncertainty sample was randomly assigned to the main study, then the remaining cases were assigned to the incentive study. All sampled noncertainty stratum 3 facilities assigned to the main study were also assigned to the in-treatment methadone study.

Table 4-5. Sample sizes for noncertainty main study sample

Analytic stratum	Sample sizes for noncertainty main study sample
2. Other Residential	29
3. Outpatient – PM[1]	31
4. Outpatient – AEA[2]	15
5. Outpatient – AO[3]	61
6. Combined	21

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.

The sample sizes for the noncertainty main study sample came from subtracting the number of certainty facilities (Table 4-3) from the main study initial sample sizes shown in Table 4-2. The sampling rate among noncertainty sample cases for the main study, conditional on being selected to either the main or incentive studies were assigned as: 1, for strata 2, 3, and 6; ½, for stratum 4; and 61/166, for stratum 5. The remaining noncertainty sample cases were assigned to the incentive study. Each facility selected to the incentive study was randomly assigned to one of three incentive study groups, such that there were 40 facilities assigned to each group. Within each group, five facilities were assigned from stratum 4 and 35 from stratum 5.

4.7 Assigning Shadow Facilities

Obviously it would be best to have responses from all of the original sampled facilities. In that unlikely occurrence, shadow facilities were assigned to all Phase II sampled facilities, and they replaced the original sample facility at the time of final refusal. The shadowing process was implemented for three reasons:

1. To maintain sample sizes of completed abstracts;

2. To control the expenses of following up with the clients; and

3. To reduce the bias due to nonresponse.

Shadows were assigned to sampled facilities based on the following linking variables: analytic stratum, type of PSU, region, type of ownership, and the Phase II unconditional probability of selection of the facility. For facility pairs that used all five linking variables, the survey estimates will still be biased to the extent that the true values of the survey items (and subsequently for the Phase II abstracts and Phase III client interviews) differ between the shadow and the original facility. The shadowing procedure is analogous to imputation for item nonresponse, except that whole questionnaires, abstract data, and client interviews are replaced. For a general discussion on shadows in the literature, refer to Vehovar (1999).

The priority for shadow assignments was for main study facilities first, then incentive study facilities. The assignment of shadows was done in three passes. The first pass was for the main study sample, which involved all strata (2,3,4,5, or 6). The procedure involved searching for an available shadow closest to the sampled record with respect to a sort order based on the above characteristics, and assigning the shadow to its closest match.

The second pass involved selecting shadows for the incentive study sampled cases, which involved only strata 4 and 5 (outpatient - almost exclusively alcohol, and outpatient - all other). The procedure was done in the same manner as for the main study shadow procedure. Potential shadows were those records that had not been selected as main study shadows, sample cases, or shadows previously identified in this pass. At the end of this pass there were nine sample cases that did not have shadows. In stratum 4 there were not enough shadows to assign to each sampled facility. Table 4-6 gives a summary of the number of shadows available by actual stratum.

Table 4-6. Number of shadows available for selection

Analytic stratum	Main sample size	Incentive sample size	Number in Phase II sampling frame	Number of shadows available
2. Other Residential	31	0	217	186
3. Outpatient – PM[1]	31	0	265	234
4. Outpatient – AEA[2]	21	15	63	27
5. Outpatient – AO[3]	72	105	399	222
6. Combined	31	0	108	77
Total	186	120	1,052	746

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.

The third pass involved only the nine incentive study sample cases that were not assigned shadows in stratum 4. For this pass, all nonsampled cases were available to be shadows. As a result, in cases of shortfall, shadows were shared with a main study or incentive study facility, with the release of the shadow depending on the status of the main study original facility. This procedure was monitored carefully between statisticians and the field staff.

The sample sizes assigned to the shadows were the same as the sampled facility to which it was linked since each shadow facility had close to the same unconditional probability of selection as the sample facility.

4.7.1 Releasing Shadows to the Field

Shadows were assigned prior to implementing field operations on the original sample. To protect against relaxing their efforts to secure cooperation from an original facility in order to replace it with a more convenient shadow, the field staff did not know the identity of any shadow facility until the original facility had become a nonrespondent. Shadows were released to the field only if their original sampled counterpart was an eligible facility with a final nonrespondent status, such as refusal or closed. Shadows were not released for facilities found to be ineligible during Phase II data collection.

4.7.2 Retrofitting the Shadows

Some original sampled facilities that had completed Phase II had shadows that could be made available for nonresponding facilities with shadows that had not been contacted yet. Some pending original facilities had shadow matches that could be improved upon because the low number of available shadows, especially in strata 4, 5 and 6, meant that some originals had been paired with somewhat less than ideal matches. By manually retrofitting the newly available shadows to facilities with pending status, the quality of the final sample was improved and the bias due to nonresponse was presumably reduced.

In addition, some shadows were released to the field and completed while their original counterparts were being converted from final refusal status. Most of these completed shadows were then retrofitted to nonrespondent originals. Throughout Phase II the number of abstracts sampled and completed at the participating facilities was monitored. Periodic projections were made to determine if target Phase II sample sizes would be met. Midway through the data collection process, it was noticed that in certain domains, abstract sample size shortfalls were occurring. Late in the data collection, in an effort to increase the total sample size of abstracts in the incentive study, new shadows facilities were assigned to nonrespondent originals whose initial shadows did not respond. Therefore, in theory, the second closest matching facility was assigned to these incentive study facilities. The effect on introducing more bias was minimal to none, since there were several good shadows available since their original counterparts had completed.

4.7.3 Shadow Match Rates

The 46 completed shadows in the final datafile were linked 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. The shadows are all from the same analytic strata as their original counterpart. Furthermore, the weighted (using the Phase II facility base weight) mean number of clients over the 294 Phase II eligible originally selected facilities is 98.5. Whereas, replacing the nonresponding original sample facilities with their responding shadows, the weighted average is nearly the same (99.4).

Given nonresponse occurs at the facility-level, the shadowing process most likely reduced the bias due to nonresponse beyond that of applying a weight adjustment. Due to the low number of sampled facilities, the facility weight adjustment would only be able to use one or two of the linking variables, where as the shadowing process used at least three linking variables. Furthermore, a continuous variable (base probability of selection, which is highly correlated to the number of clients) was used for shadowing, and helped reduce the bias due to nonresponse.

4.8 Non-Probability Selection of Facilities for Comparison Group Abstracts (EDOs)

The set of facilities from which the comparison group abstracts (i.e., early dropouts (EDOs)) were drawn, was selected as a purposive (or nonprobability) sample. There were 44 main study comparison group facilities, which came from strata 4, 5, and 6. The purposive criteria used to choose those facilities included previous full cooperation with all three Phase II data collection components and indication from the information collected during the main study that the facility was likely to yield a useful number of EDOs.

4.9 Facility-Level Response Rates

The facility-level response rates were computed using the definition of a responding facility being one that cooperated with the administrator interview, the drawing of the discharge (and in-treatment for stratum III facilities) sample, and the abstracting of the sampled records. Cooperating with the abstracting was defined as yielding at least one completed abstract, except for three responding facilities that had zero discharge records within the 6-month reference period. Table 4-7 shows unweighted response rates for the combined original sample (main study facilities and incentive study facilities combined). Table 4-8 shows the response rates for the main study sample only. Table 4-9 shows the response rates for the incentive study only.

We consider the original facility response rates to be lower bounds and the response rates including shadows as the upper bounds. The true response rate is somewhere in between, since a shadow is an improvement over the alternative (total nonresponse) but is not a totally perfect replacement for the original that it replaced. Shadows are not identical to their matched facility since they are assumed to differ in their (1) responses to the administrator interview; (2) sampled abstracts; and (3) clients' responses to their Phase III interview. The response rates in Tables 4-7, 4-8, and 4-9 are conditional rates, that is, they do not reflect the response rates inherited from Phase I. In general, the unweighted rates

should be used to gauge the success of data collection. As shown in Table 4-7, the Phase II unweighted response rate for the combined study, excluding shadows, is 79.6 percent, which is the official Phase II response rate. When including the shadows in the response rate, that is, treating it as an original sampled case, the corresponding unofficial rate is 95.2 percent. These numbers show how well the field operations were able to help maintain the sample size of facilities.

For the Phase II and Phase III calculation of weighted response rates, Phase I weighted response rates, as shown in Table 4-10, were computed specifically for facility types eligible for Phases II and III (2,042 respondent facilities), since the Phase I weighted response rates were components used in computing the cumulative response rates for the later two phases. The Phase I facility response rates were weighted by the product of the facility's sampling weight and the number of clients at the facility (point prevalence (10/1/93) from the sampling frame). Therefore, the weighted Phase I response rates estimate the coverage of the target client population from the sample of Phase I respondent facilities. The stratum-level Phase I weighted response rates are shown in Table 4-10. Overall strata, the weighted response rate was 91.1 percent, therefore, it is estimated that the 2,042 Phase I respondents represent about 91 percent of the client population (as defined by Phase II and III client eligibility criteria). The stratum-level rates ranged from 90.2 percent (strata 4 and 5) to 95.0 percent (stratum 2). To reduce the bias due to nonresponse, nonresponse adjustment and poststratification weighting procedures, as discussed in Mohadjer et al (2000) were conducted so that the Phase I respondent facilities would more closely resemble the target facility population. The table in Appendix A provides the corresponding unit counts that correspond to the number of units that contribute to the denominator of the calculation of the weighted response rates. The table is provided to help the reader gauge the reliability of the weighted response rates.

Phase II weighted cumulative facility response rates were computed as the product of the Phase I weighted response rate and the Phase II weighted facility response rate. These Phase II facility response rates were weighted by the product of the facility's sampling weight and the number of clients at the facility (point prevalence (10/1/96) from the Phase I questionnaire). Therefore, the Phase II weighted cumulative response rates estimate the coverage of the target client population from the sample of Phase II respondent facilities. The Phase II rates were computed for the combined Main and Incentive sample, while excluding shadow facilities. The stratum-level Phase II weighted cumulative facility response rates are shown in Table 4-10. Overall strata, the weighted cumulative facility response rate for Phase II was 76.6 percent; therefore, it is estimated that the 234 Phase II respondent facilities represent about 77 percent of the client population (as defined by Phase II and III client eligibility criteria). The lowest stratum-level cumulative rate was 68.9 percent (strata 4 and 5) and the highest cumulative rate was 82.6

percent (stratum 2). To help reduce the bias due to nonresponse, a raking procedure was applied so that the Phase II respondent facilities would more closely resemble the target facility population.

Table 4-7. Phase II facility-level response rates by stratum for the combined sample

	Analytic stratum					Total
	2	3	4	5	6	
Original Sample						
Number of respondents (row 1)	27	28	29	127	23	234
Number of nonrespondents (row 2)	4	3	4	41	8	60
Number of ineligibles* (row 3)	0	0	3	9	0	12
Total number of original facilities (row4=row1+row2+row3)	31	31	36	177	31	306
Shadow Facilities						
Number of respondents (row5)	4	3	3	30	6	46
Total number of respondents (row1+row5)	31	31	32	157	29	280
Target number of respondents	30	30	35	175	30	300
Unweighted facility response rate excluding shadows (row1/(row1+row2)**	87.1%	90.3%	87.9%	75.6%	74.2%	79.6%

* The number of ineligibles includes three facilities that were absorbed through a merger with three other sampled facilities.

** The response rate excluding shadows is the official Phase II facility response rate. If the shadow facilities were included in the rate as an unofficial test of goodness of the Phase II facility respondent sample, the overall unweighted facility rate including shadow facilities would be 95.2% (row1 + row5) / (row1 + row2).

Table 4-8. Phase II facility-level response rates by stratum for the main study sample only

	Stratum					Total
	2	3	4	5	6	
Original Sample						
Number of respondents (row 1)	27	28	15	51	23	144
Number of nonrespondents (row 2)	4	3	3	17	8	35
Number of ineligibles* (row 3)	0	0	3	4	0	7
Total number of original facilities (row4=row1+row2+row3)	31	31	21	72	31	186
Shadow Facilities						
Number of respondents (row5)	4	3	2	11	6	26
Total number of respondents (row1+row5)	31	31	17	62	29	170
Target number of respondents	30	30	20	70	30	180
Unweighted facility response rate excluding shadows (row1/(row1+row2)**	87.1%	90.3%	83.3%	75.0%	74.2%	80.4%

* The number of ineligibles includes three facilities that were absorbed through a merger with three other sampled facilities.

** The response rate excluding shadows is the official Phase II facility response rate. If the shadow facilities were included in the rate as an unofficial test of goodness of the Phase II facility respondent sample, the overall unweighted facility rate including shadow facilities would be 95.0% (row1 + row5) / (row1 + row2).

Table 4-9. Phase II facility-level response rates by stratum for the incentive study sample only

	Incentive group			Total
	0/0	0/10	25/10	
Original Sample				
Number of respondents (row1)	30	30	30	90
Number of nonrespondents (row2)	8	8	9	25
Number of ineligibles* (row3)	2	2	1	5
Total number of original facilities (row1+row2+row3)	40	40	40	120
Shadow Facilities				
Number of respondents (row4)	6	7	7	20
Total number of respondents (row1+row4)	36	37	37	110
Unweighted facility response rate excluding shadows (row1/(row1+row2))**	78.9%	78.9%	76.9%	78.3%

* The number of ineligibles includes three facilities that were absorbed through a merger with three other sampled facilities.

** The response rate excluding shadows is the official Phase II facility response rate. If the shadow facilities were included in the rate as an unofficial test of goodness of the Phase II facility respondent sample, the overall unweighted facility rate including shadow facilities would be 95.7% (row1 + row5) / (row1 + row2).

Table 4-10. Weighted cumulative Phase III client response rates by contributing phase, study, and facility stratum*

	Facility stratum						
	Total all strata	Hospital inpatient only** (Stratum 1)	Non-Hospital residential only (Stratum 2)	Outpatient methadone only (Stratum 3)	Outpatient non-methadone (Strata 4 & 5)	Combination (Stratum 6)	Unknown (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, excluding shadows****	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%		68.9%	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%			

* 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).

** Hospital inpatient Phase I facility survey response rate is excluded here because the hospital inpatient facilities and clients were not included in Phase II and Phase III.

*** Phase II shadow facilities were excluded from the calculation of cumulative response rates.

5. SAMPLE SELECTION OF ABSTRACT RECORDS

5.1 Definitions: Sample Groups, Reference Period, Substantive Eligibility Criteria

In Phase II, once the facilities were selected and the facility administrators interviewed, client treatment episodes were listed and sampled, and the corresponding treatment records abstracted. There were three sampling groups. Within all Phase II interviewed facilities, a sample of all client discharges from the most recent 6-month period was randomly selected and the client's data were recorded from the record on a Phase II abstract form. For stratum 3 facilities (treating primarily methadone clients), a sample of all currently in-treatment methadone clients was also randomly selected for the ITMC study. Within the comparison study facilities, a sample of early dropout clients was selected.

The first sample group consists of client discharge events from the most recent 6-months of discharges (the reference period). Every eligible discharge during the 6-month reference period was included on the list of discharges to be sampled. The discharge events were sampled only after the facility completed the Phase II administrator interview. For the purposes of ADSS, a substance abuse treatment client was a person who was admitted to substance abuse treatment in the sample facility and spent at least one day in treatment (i.e., the discharge date was at least one day after the admission date). For outpatient clients, the person must have made at least one visit to the treatment facility after the intake/admission process. The person must have received substance treatment as part of the sampled episode. Persons whose treatment episode was clearly limited exclusively 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 (often called a co-dependent or collateral). 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.

The second sample group consisted of in-treatment methadone clients (ITMC) who were receiving treatment as of the day that the Administrator Interview (index day) occurred. The methadone clients were sampled from outpatient-methadone main study facilities. An in-treatment methadone client was eligible for the ADSS study if he or she was enrolled in an outpatient methadone program on the index day, regardless of whether he or she actually appeared at the facility to get methadone or other treatment.

The third sample group, the comparison group clients, were early dropout (EDO) discharges, who had been discharged during the 6-month reference period prior to the return visit to chose the EDO sample. Early dropout clients were defined as clients who had been through assessment or intake battery but completed no more than one day or one session of treatment (i.e., the person may never have shown up for any treatment). The EDO discharges were taken from outpatient nonmethadone or combination facilities (strata 4, 5, and 6).

The reference period for the discharge-sample group included the last full 6 months prior to the date of facility interview. For example, if the facility interview occurred in August, 1997, the 6-month sampling period included the full calendar months of February through July 1997. It was a rolling sampling period. For instance, facility interviews in March 1998 had a reference period of September 1997 through February 1998. The reference period for the comparison group was the comparable 6-month window prior to the date of the return visit to the facility for the purpose of drawing the comparison group sample.

5.2 Assigning Sample Sizes

This section documents how sample sizes for sampling abstract records were computed. Phase II abstract records were selected with equal probability within each Phase II sample facility with the goal of arriving at a "close to equal probability" sample of discharge records within analytic stratum for the main study, and within incentive group for the incentive study. This was accomplished by allowing the number of discharges selected within a facility to vary around the expected average. The amount to which the sample sizes could vary was limited to between 6 and 45, inclusive, because of concern for burdening the facility. The expected average sample sizes per facility for the main and incentive studies are shown in the table below. The sample sizes were computed separately by main and incentive studies because combining the samples for Phase II analysis was not planned at the time of assigning sample sizes.

Table 5-1. Expected samples sizes of discharges for the main and incentive studies

Main		Incentive	
Analytic stratum	Expected sample size per facility	Payment Group (interview/urine)	Expected sample size per facility
2. Other Residential	25	1. $0/$0	19
3. Outpatient – PM[1]	15 (30[4])	2. $0/$10	19
4. Outpatient – AEA[2]	25	3. $25/$10	19
5. Outpatient – AO[3]	25		
6. Combined	25		

[1] PM – Predominantly Methadone.
[2] AEA – Almost Exclusively Alcohol.
[3] AO – All Other.
[4] for the ITMC study.

For the discharge sample, the exact number of records to sample within a facility was pre-determined using the Phase I reported number of discharges. The Phase I reported number of discharges is for a 12-month period. This 12-month figure was divided by two in order to estimate the number of discharges in the 6-month reference period. If the actual number of discharges differed from the Phase I number of discharge records by more than 10 percent, then the actual number of discharge records at the facility was used for determining the Phase II sample sizes for discharge records. Using the Phase I information allowed us to efficiently manage the sample size assignment to facilities prior to sending interviewers to the facility. Interviewers called the home office if the actual number of discharges differed

from the number of discharges reported in the Phase I questionnaire by more than 10 percent. The following explains the derivation of sample sizes.

The probability of selection for a given Phase II discharge record (*j*) was:

$$P_{h'ij}\left(II, disch\arg e\right)=\frac{m_{h'i}}{y_{h'i}};$$

where $m_{h'i}$ = the number of discharge records selected within facility *i* from analytic stratum *h′*, and $y_{h'i}$ = the total number of discharge records available within facility *i*.

The non-truncated number of selected discharge records was computed as $m'_{h'i}=\frac{K_{h'}}{R_{h'i}}\cdot c_{h'}$, where $R_{h'i}$ is a function of the facility *i*'s ratio of actual clients in treatment to discharges, specifically, $R_{h'i}=\left(I_{IIh'}^{-1}\right)\frac{x'_{h'i}}{\hat{y}_{h'i}}$, where, $K_{h'}=\frac{n_{h'}^{II}}{\sum_{i\in h'}\frac{1}{R_{h'i}}}$, and where $c_{h'}$ is the expected sample size per facility within stratum *h*'.

Subsequently, the initial sample size of discharge records assigned to facility (*i*) in stratum *h*' was:

$$m_{h'i}=\begin{cases}6, \text{if } m'_{h'i}\le 6\\ m'_{h'i}, \text{if } 6<m'_{h'i}\le 45\\ 45, \text{if } m'_{h'i}>45\end{cases}.$$

Due to the sample sizes being truncated, the excess sample size was redistributed proportionately to the initial sample size of discharge records. This procedure was done iteratively until all sample sizes were within 6 and 45, inclusive. This procedure maintained the aggregated number of expected sampled discharge records within each stratum.

The overall probability of selection for a given discharge record is as follows:

$$P_{h'ij}\left(O\right)=P_{hi}\left(I\right)\times P_j\times P_{h'i}\left(II\right)\times P_{h'ij}\left(II, disch\arg e\right);$$

$$P_{h'ij}\left(O\right)=\left(I_{Ih}^{-1}x_{hi}^{7/10}\right)\times P_j\times\left(I_{Ih}\, I_{IIh'}^{-1}x_{h'i}^{3/10}\, P_j^{-1}\right)\times\left(\frac{m_{h'i}}{y_{h'i}}\right);$$

Assuming that $6 \le m'_{h'i} \le 45$, then one of the following two results will hold. Since Phase I data was used to estimate discharges, then

$$P_{h'ij}(O) = \left(I_{Ih}^{-1} x_{hi}^{7/10}\right) \times P_j \times \left(I_{IIh'}^{-1} I_{Ih} x'^{3/10}_{h'i} P_j^{-1}\right) \times \left(\frac{K_{h'} c_{h'}}{\left(I_{IIh'}^{-1}\right) \frac{x'_{h'i}}{\hat{y}_{h'i}}} \frac{1}{y_{h'i}} \right) = \frac{K_{h'} \cdot c_{h'} \cdot \hat{y}_{h'i}}{y_{h'i}} \times \frac{x_{hi}^{7/10} x'^{3/10}_{h'i}}{x'_{h'i}}.$$

The Westat field representative phoned the statisticians in Rockville to get the sampling guidelines when the estimated number of discharges differed from the actual number of discharges by more than 10 percent. The interviewers were given the revised sample size of $m_{hi} \cdot \frac{y_{h'i}}{\hat{y}_{h'i}}$, to adhere to the goal of attaining constant probabilities within strata. If the actual number of discharge records was used, then

$$P_{h'ij}(O) = \left(I_{Ih}^{-1} x_{hi}^{7/10}\right) \times P_j \times \left(I_{IIh'}^{-1} I_{Ih} x'^{3/10}_{h'i} P_j^{-1}\right) \times \left(\frac{K_{h'} c_{h'}}{\left(I_{IIh'}^{-1}\right) \frac{x'_{h'i}}{y_{h'i}}} \frac{1}{y_{h'i}} \right) = K_{h'} c_{h'} \times \frac{x_{hi}^{7/10} x'^{3/10}_{h'i}}{x'_{h'i}}.$$

The calculation of sample sizes for discharge records for the incentive study was done in the same manner as the main study except that the expected sample sizes were controlled at the incentive group level instead of the stratum level.

The in-treatment methadone client (ITMC) study involved a sample of clients from facilities in stratum 3 that were selected to the Phase II main study. There were 31 facilities from stratum 3 selected for the main study, and a sample of 30 clients was selected from each facility. The total number of sampled clients was expected to be 930. Interviewers called Westat statisticians if the actual number of clients differed from the expected number of clients by more than 10 percent. The initial sample size of 30 assigned to the methadone facility was adjusted by $\frac{x''_{h'i}}{x'_{h'i}}$, where the numerator contains the actual number of clients and the denominator contains the Phase I reported number of clients.

The shadow facilities were generally assigned the same sample sizes as their original counterparts and were not revised. This was done out of concern for maintaining the sample sizes of abstracts. There were some shadow sample sizes that were increased late in the data collection period in order to increase the aggregated sample size. Therefore, this procedure causes an increase to the variation of the abstract selection probabilities. Other causes of variation in the abstract probabilities include: stratum migration of facilities, constraining the sample sizes to a value within 6 and 45, mergers, updating the measure of size before Phase II sample selection of facilities, when the actual number of abstracts was different from the estimated number of abstracts but within 10 percent (since the sample size is not revised), and combining main and incentive studies in Phase II analysis.

5.3 Operational Frame Development and Sampling Procedures in the Facility

To perform sampling tasks, the ADSS on-site coordinator worked with facility administrative staff to create a complete list of all substance abuse treatment discharges/in-treatment methadone clients from the sampled substance abuse treatment units or programs of the facility during the 6-month reference period/in-treatment index day. For coordinators to construct the list themselves, the Discharge Listing Form (see Appendix B) was provided. The types of record systems that were in each of the facilities varied. In some facilities, there may have been one person responsible for maintaining lists of admissions and discharges. These lists may have been computerized or maintained in manual record keeping systems or card files.

The sampled facility might have included two or more treatment modalities. This sometimes involved collecting lists from two or more treatment programs. It also involved working with several staff persons or with several different systems. To assist the home office at Westat in understanding how the sampling task was completed in each facility, the coordinator filled out a "Documentation Sheet for Discharge Listing Problems" (see Appendix B) for each facility where a sample of client records was abstracted.

If the facility generated a list, the coordinators were to request the discharges be listed in chronological order, earliest to most recent dates. In sampled facilities that provide multiple treatment modalities, if possible, the eligible discharge events were to be listed on the Discharge Listing Form in the following order:

1. Sorted by type of care order as they appeared on the facility information sheet that was provided to the coordinators. The order was as follows:

   - Non-hospital residential (includes detox and rehab);
   - Methadone outpatient; and
   - Non-methadone outpatient (includes alcohol).

2. Within the modality grouping, discharges were to be sorted in date order, starting with the earliest date and ending with the most recent date of discharge.

To select the sample of discharges, the coordinator used a programmable calculator, the Discharge Listing Form or facility list and the Discharge Sampling Worksheet (see Appendix B). The Sampling Worksheet had the parameters that were necessary to select the systematic random sample. The systematic sample was selected by taking a discharge record at random from the first *k* records and taking every *k*-th record thereafter. The actual number of discharges, the random number and the sample size were used to determine the value of *k*. Therefore, the parameters on the Sampling Worksheet were the target sample size, random number, and expected range. ADSS statisticians recorded these parameters on the sampling worksheet before it was sent to the coordinator. An item was left blank on the sampling worksheet so that the coordinator could fill-in the actual number of listed discharges. The following defines the parameters for the sampling worksheet.

Target Sample Size. The target sample size was defined as the number of discharges/ITMCs that initially were to be selected in the sample at the facility. This number varied for each facility and was determined by the data collected in Phase I. For ITMC samples, the target was always 30.

Random Number. The random number was used by the programmed calculator to determine the starting line number for the selected sample. It was a 4-digit number to the right of the decimal, 0.XXXX, unique to the facility.

Expected Range. The expected range was used to determine if the actual number of discharges/ITMCs at the facility was within a predetermined range. The expected range was assigned as the Phase I reported 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, then the sample size was revised in order to maintain the within-facility sampling rate.

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

If the total number of discharges listed was outside the expected range, the coordinator confirmed that the discrepancy was not the result of an error or a misunderstanding of the criteria for developing the list, stopped the sampling process, and called the home office. The statistician revised the sample size as needed. For shadow facilities, the sample size initially assigned to the original facility was used. This sample size was not revised for shadows, due to the emerging importance of maintaining the sample sizes due to sample size loss. Among the original facilities in the combined sample (main and incentive study facilities) that cooperated with Phase II, 75 percent (175 out of 234) had their sample size revised.

There were 31 methadone (stratum 3) facilities in the study that were designated as the sites for the additional selection of the in-treatment methadone client (ITMC) sample. The target sample size was 30 in each facility. The ITMC sampling was conducted at the same time as the discharge sampling in the selected facility. The sampling list for ITMC was generated from a facility list of active methadone clients on the day of the coordinator visit. As with the discharge list, the list was either constructed by the coordinator or the facility. The list included all ITM clients and contained the desired information. The list included both clients who physically attended the methadone clinic to receive their dose that day and clients who were enrolled and may have had a take-home dosage for that day. In preparing to select the ITMC sample, the one-page Documentation Sheet for In-Treatment Methadone Client (ITMC) Listing Problems (see Appendix B) was completed. This process of completing the ITMC Listing Form (see Appendix B) was similar to completing the discharge listing form, except that the in-treatment client's admission date was entered instead of their discharge date in the last column. Clients were ordered according to their admission date, with earliest first. The ITMC Listing Form or the list provided by the facility contained only one entry for each eligible methadone client.

The actual selection process and the use of the programmed calculator and the In-treatment Methadone Client Sampling Worksheet (see Appendix B) were the same as those used in the discharge sample. The total number of clients was recorded instead of the total number of discharges.

5.4 Abstract-Level Response Rates

Table 5-2 shows the impact of certain events on the Phase II abstract sample sizes. The table provides the samples sizes by main study sample, incentive study sample, and the in-treatment methadone client sample. For the main study sample, the 'Phase II Target' was initially 600 for stratum 4 and 1200 for stratum 5, however, due to the decrease in the sample size of facilities in stratum 4 and the increase in stratum 5, the targets could be viewed as 400 for stratum 4, and 1400 for stratum 5.

Initial abstract sample sizes were assigned as explained in Section 5.2. The assigned sample sizes, which contain oversampling for nonresponse, is included under the column 'Initial Sample Sizes Assigned'. The column 'Loss from Ineligible Facilities' shows the sample size loss due to the facility being ineligible as determined by Phase II data collection activities. The column 'Sample size after removing ineligible facilities' reflects the sample sizes accounting for abstract sample size loss associated with ineligible facilities. The column 'Loss from facilities with 0 discharges, mergers, refusing abstracting, NR original w/ NR shadow' (where NR means 'nonrespondent') shows the sample size loss associated with facilities that had zero discharges in the 6-month window, facilities that were absorbed by another facility, facilities that cooperated with the administrator interview but did not allow for sampling abstracts, and facilities that did not cooperate in Phase II (all activities) and also had a nonresponding shadow facility. The column 'Initial sample sizes from participating facilities' reflects the loss of sample size from the previous column. The column 'Actual sample size after revisions during field operations' reflects the sample size that actually resulted after any revisions were made due to call homes or increases to samples sizes for some shadow facilities. The actual sample size is before abstracting, and therefore includes completed abstracts, eligible incomplete abstracts, ineligible abstracts, and abstracts for which their eligibility status is unknown. Lastly, the column 'Difference due to revising sample sizes during field operations' reflects the change in the sample size to the revisions from calls to the Westat statisticians, as discussed in Sections 5.2 and 5.3.

In the main study, the sample size was reduced by 19.2 percent overall. The ineligible facilities accounted for 14.6 percent of the sample size loss, 35.7 percent was due to sample size revisions, the remaining 49.6 percent was due to facilities with zero discharges, mergers, refusing abstracting, nonresponding original with a nonresponding shadow facility. The largest losses in sample size occurred in strata 4 and 6 (36 percent and 30 percent, respectively). The loss in stratum 6 was mostly due to sample size revisions, which results because of differences between data on the number of discharges provided by the facilities in Phase I and II data collection. The loss in stratum 4 was spread fairly evenly across the three reasons for sample size loss.

In the incentive study, the sample size was reduced by 12.2 percent overall. The 25/10 incentive group shows a 27.6 percent decrease in sample size. The 0/10 group shows a 4.7 percent gain in sample size due to increases when revising sample sizes. The 0/0 group shows a 14 percent reduction in sample size. The loss in the 25/10 group is mostly due to sample size revisions and due to facilities with zero discharges, mergers, refusing abstracting, nonresponding original with a nonresponding shadow facility. For the ITMC study, there was a 5.9 percent gain in sample size due to sample size revisions.

Table 5-3 displays the conditional Phase II record abstract response rates, unweighted, by stratum for the main study, by incentive group for the incentive study, by stratum for the combined sample (main and incentive study), and by the ITMC study. The table accounts for loss after sampling, due to nonresponse, and for loss after abstracting, due to eligible incomplete abstracts, ineligible abstracts, and abstracts for which eligibility status was undetermined. The columns "Phase II Targets" and "Actual Sample Sizes" are the planned Phase II abstract target sample sizes and the actual resulting completed eligible sample sizes, respectively. The column "Number of Completes" refers to the number of completed abstracts. The number of completes can be compared to the target sample sizes under the column heading "Phase II Targets." The column "Number of Incompletes Known to be Eligible" includes abstracts that are known to be eligible but the abstract form was incomplete. There are only two such abstracts. These are a result of a review of ineligible abstracts by SAMHSA, Brandeis University, and Westat. The review confirmed all but a few of the ineligibles as being ineligible. The switch of the two cases to incomplete but known eligible was based on qualitative notes recorded by the abstractor. The column "Number of Known Ineligibles" includes abstracts that are known to be ineligible. As noted in Carusi (1999), the principal reasons for ineligibility were that the client never received treatment during the sampled episode; the client did not receive substance abuse treatment during the sampled episode; the person was not the treated subject (collateral); the sampled episode was not within the sampling reference period; the person was actually still in-treatment (applies to discharge sample only); or the person was actually admitted after, or discharged before, the ITMC sample date (applies to ITMC sample only). The column "Number of Unknown Eligible Status" includes abstracts for which their eligibility status is unknown. This includes incomplete abstracts due to record refusal or not being able to locate the records. The response rates under the column heading "Unweighted Conditional Response Rate" are computed so that the abstract completion rate is adjusted for abstracts with unknown eligibility status. The response rates were computed as:

Phase II abstract conditional response rate = C/(All - I - (U * I / (C + E + I)));

where, C = number of respondents that were known to be eligible; E = number of nonrespondents (i.e., incomplete abstracts) that were known to be eligible; I = number known to be ineligible; U = number with unknown eligibility status; and All = C+ E+ I+ U. The same general formula was used for the weighted conditional response rates (where the abstract base weights (Section 7.2) were used in the calculation). The response rates in this report may not match those in other reports due to estimating the number of eligible abstracts from the abstracts with unknown eligibility status.

Table 5-2. Arriving at the actual abstract sample sizes

	End of Phase II target number of abstracts	(c1) Initial abstract sample sizes assigned	(c2) Loss from ineligible facilities	(c3=c1-c2) Sample size after removing ineligible facilities	(c4) Loss from facilities with 0 discharges, mergers, refusing abstracting, NR original w/ NR shadow	(c5=c3-c4) Initial sample sizes from participating facilities	(c5+c6) Actual sample size after revisions during field operations	(c6) Difference due to revising sample sizes during field operations
Main Study								
Analytic Stratum								
2. Other Residential	600	783	0	783	0	783	684	-99
3. Outpatient – PM[1]	360	488	0	488	0	488	490	2
4. Outpatient – AEA[2]	400[4]	533	75	458	45	413	341	-72
5. Outpatient – AO[3]	1,400[5]	1,855	50	1,805	301	1,504	1,530	26
6. Combined	600	796	0	796	79	717	554	-163
Total	3,360	4,455	125	4,330	425	3,905	3,599	-306
Incentive Study								
Incentive Group								
0/0	600	788	8	780	87	693	678	-15
0/10	600	793	32	761	58	703	830	127
25/10	600	783	0	783	87	696	567	-129
Total	1,800	2,364	40	2,324	232	2,092	2,075	-17
In-Treatment Study								
Analytic Stratum								
3. Outpatient – PM[1]	800	930	0	930	0	930	985	55

[1]PM – Predominantly Methadone.
[2]AEA – Almost Exclusively Alcohol.
[3]AO – All Other.
[4]Initially 600, but changed due to Phase I stratum migration of facilities.
[5]Initially 1200, but changed due to Phase I stratum migration of facilities.

Table 5-3. Abstract-level response rates, unweighted

	End of Phase II target number of abstracts	Actual abstract sample sizes	C. Number of completed abstracts	E. Number of incompletes known to be eligible	I. Number of known ineligibles	U. Number of unknown eligibility status	Unweighted Conditional response rate[4]
Main Study							
Analytic Stratum							
2. Other Residential	600	684	632	0	24	28	95.9%
3. Outpatient – PM[1]	360	490	446	0	11	33	93.3%
4. Outpatient – AEA[2]	400	341	311	0	20	10	97.1%
5. Outpatient – AO[3]	1,400	1,530	1,323	0	139	68	95.6%
6. Combined	600	554	495	1	29	29	94.6%
Total	3,360	3,599	3,207	1	223	168	95.3%
Incentive Study							
Incentive Group							
0/0	600	678	615	0	47	16	97.6%
0/10	600	830	691	1	118	20	97.4%
25/10	600	567	492	0	59	16	97.2%
Total	1,800	2,075	1,798	1	224	52	97.4%
Combined Sample							
Analytic Stratum							
2. Other Residential	N/A[5]	684	632	0	24	28	95.9%
3. Outpatient – PM[1]	N/A	490	446	0	11	33	93.3%
4. Outpatient – AEA[2]	N/A	501	460	0	27	14	97.2%
5. Outpatient – AO[3]	N/A	3,445	2,972	1	356	116	96.6%
6. Combined	N/A	554	495	1	29	29	94.6%
Total	N/A	5,674	5,005	2	447	220	96.1%
In-Treatment Methadone Client Study							
Analytic Stratum							
3. Outpatient – PM[1]	800	985	925	0	24	36	96.3%

[1]PM – Predominantly Methadone.
[2]AEA – Almost Exclusively Alcohol.
[3]AO – All Other.
[4]Phase II abstract conditional response rate = C / (All - I - (U * I / (C + E + I))).
[5]Phase II targets were not set for the combined sample analytic strata

In general, the unweighted abstract response rates, as shown in Table 5-3, should be used to gauge the success of data collection. The Phase II unweighted abstract response rate for the combined sample is 96.1 percent. The abstracts from completed shadow facilities were included in the response rate calculations.

Abstract-level Phase II weighted cumulative response rates, shown in Table 4-10, were computed as the product of the Phase II cumulative weighted facility response rate and the Phase II weighted abstract response rate. The Phase II abstract response rates were computed for the combined Main and Incentive discharge sample and separately for the ITMC sample. The weighted cumulative abstract rates excluded shadow facilities from the Phase II facility response rates, while including abstracts from shadow facilities in the Phase II abstract response rates, and also excluding client types that were ineligible for Phase III (e.g., methadone discharges). There were 4,369[1] completed abstracts in the combined discharge sample and 908 in the ITMC sample with client types eligible for Phase III. The weighted cumulative abstract response rates for the combined discharge sample estimate the coverage of the target client discharge population from completed discharge sample abstracts. For the ITMC study, the weighted cumulative abstract response rates estimate the coverage of the target client population from the ITMC completed abstracts. Over all strata, the weighted cumulative abstract response rate for the Phase II combined discharge sample was 72.3 percent (accounting for facilitiy nonresponse in Phases I and II); therefore, it is estimated that the 4,369 completed discharge abstracts represent about 72 percent of the discharged client population (defined by Phase III client eligibility criteria). The lowest stratum-level rate was 68.9 percent (strata 4 and 5) and the highest stratum-level rate was 82.6 percent (stratum 2). For the ITMC sample, the weighted cumulative response rate was 83.3 percent; therefore, it is estimated that the 908 completed ITMC abstracts represent about 83% of the in-treatment methadone population. To reduce the bias due to nonresponse, a nonresponse adjustment weighting procedure was applied so that the completed abstracts would more closely resemble their respective target populations. The table in Appendix A provides the unit counts that correspond to the number of units that contribute to the denominator in the calculation of the weighted response rates. The table is provided to help the reader gauge the reliability of the weighted response rates.

[1] The number of completed abstracts excludes 15 uncharacteristic non-methadone discharge abstracts from the predominantly methadone stratum (stratum 3). These technically eligible cases were removed since there were so few of them within the methadone stratum.

5.5 Monitoring the Sample

The Westat field coordinator phoned the ADSS statisticians to get the sampling guidelines when the actual number of discharges differed from the estimated number of discharges by more than 10 percent. Before making adjustments to sample sizes, the statistician asked probing questions as to why there were differences between Phase I and Phase II reported numbers and made corrections in the listings if possible.

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, since it had links between 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 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.

5.6 Selection of Comparison Group Abstracts (EDOs)

Within the facilities selected for the comparison group, a list of all eligible early drop outs (EDOs) was constructed and all records on the list were abstracted, as long as there was adequate locating information on the individual. If the list of eligible early drop outs in a facility was more than 50, the interviewer was asked to call 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 75 EDOs was to be selected, so as not to burden the facility. For the definition of an EDO, refer to Section 5.1.

6. WEIGHTING PROCESS FOR ADMINISTRATOR INTERVIEW DATA

The estimation process for Phase II and III analyses involved generating the following sets of sampling weights:

- Final Phase II facility weights for the Phase II administrator interview and cost study data (discussed in Section 6);
- Final Phase II abstract weights for the Phase II MIDA (discussed in Section 7);
- Final Phase II abstract weights for the Phase II ITMC (discussed in Section 7);
- Final Phase III client weights for main study clients (discussed in Section 8); and
- Final Phase III client weights for ITMC (discussed in Section 8);

The Phase II facility weights were processed in several stages to accomplish the following objectives:

- The facility base weights computation accounted for the nonsampled PSUs, and the nonsampled facilities within the sampled PSUs. Such weights are those appropriate for providing estimates from probability samples via the standard Horvitz-Thompson estimator (see Cochran, 1977) under complete response;
- The trimming procedure attempted to reduce the impact of extreme weights on point estimates and variance estimates, as well as the mean squared error of survey estimates;
- The raking procedure adjusted weighted estimates to selected Phase I weighted estimates in order to improve the precision of Phase II survey estimates and to reduce the bias due to nonresponse; and
- The replication procedure (stratified jackknife) produced replicate weights that may be used to compute sampling error estimates.

6.1 Base Weights

The facility base weights for original sample facilities of the Phase II combined sample were computed as the product of the inverse of the probability of selection of the PSU, the Phase I final full sample weight, and the inverse of the conditional probability of selection of the facility into Phase II, given its selection into Phase I and its membership in the selected PSU. That is,

$$w_{ij}^{II} = w_i \times w_j^I \times w_{j|i,j\in R_I}^{II};$$

where

w_i = the inverse of the probability of selection for PSU *i*;

w_j^I = the Phase I final weight for facility *j*;

$w_{j|i,j\in R_I}^{II}$ = the inverse of the Phase II conditional probability of selection of facility *j* given the sampled PSU *i*, and given facility *j* is in set R_I, where R_I is the set of facilities that responded in Phase I;

Shadow facilities received the resulting Phase II facility base weight of its corresponding original sample facility.

In addition, there were three merger situations and their selection probabilities were adjusted so that the facility weight represented by the 'absorber' reflected the increased chance of selection. The selection probability of the 'absorbee' facility received a probability equal to zero. To adjust the weight for the absorbing facility, the following formula was applied:

$$p_{ij} = p_{1ij} + p_{2ij} - p_{1ij}p_{2ij};$$

where, p_{1ij} and p_{2ij} are the probabilities of selection for the absorber and absorbee facilities, respectively, estimated by $\frac{1}{w_{ij}^{II}}$.

6.2 Trimming Weights

The nonresponse adjusted facility weights of responding facilities were trimmed only if necessary since trimming introduces bias into the survey estimates. Facilities were grouped by type of treatment, as determined by the Phase II administrator interview. Weights were trimmed if they contributed more than 10 percent of the trimming group's sum of weights, or more than 10 percent of the trimming group's sum of weighted number of discharges. Trimming was done in one iteration. The trimming factor was computed as the minimum of the two trimming factors (i.e., for the full sample weights and the weighted number of discharges). Let,

$$CUTOFF1 = 0.10 \sum_{i} \sum_{j \in h} w_{ij}^{II} \; ;$$

$$CUTOFF2 = 0.10 \sum_{i} \sum_{j \in h} w_{ij}^{II} y_{ij} \; ;$$

where, y_{ij} the number of recorded discharges listed in facility j of PSU i, and h is the facility treatment type as determined by the Phase II administrator interview.

Then the trimming factor was computed as:

$$f_{1h} = \min\left(\frac{CUTOFF1}{w_{ij}^{II}}, \frac{CUTOFF2}{w_{ij}^{II} y_{ij}}\right).$$

The trimming procedure results are given in Table 6-1. The table shows the number of facilities trimmed and the minimum trimming factor.

Table 6-1. Facility-level trimming results

Facility treatment type	Combined sample	
	Number of facility weights trimmed	Minimum trimming factor
Residential	4	0.41
Outpatient Methadone only	4	0.44
Outpatient Nonmethadone only	0	N/A
Combination	3	0.34

In addition to those accounted for in Table 6-1, there were two additional facility weights that were truncated. One facility belonged to the outpatient nonmethadone only facility type. Its anticipated abstract weights were to be very large in relation to all other abstract weights. Therefore the facility weight was adjusted with the objective of reducing the weight of the abstracts. In the second facility, the base weight was trimmed to the Phase I estimated number of facilities in the combination stratum that offered methadone treatment. This adjustment was justified due to the overwhelming contribution that the facility was making to this important domain.

6.3 Raking

In ADSS Phase II, as in most surveys, the facility weights are random variables that are subject to sampling variability. Even if there were no nonresponse (for Phase I and Phase II), the respondent weights would at best provide unbiased estimates of the various subgroup proportions. However, since unbiasedness refers to average performance over a conceptually infinite number of replications of the sampling, it is unlikely that any given estimate, based on the achieved sample, will exactly equal the population value. Since there had been nonresponse in Phase I and Phase II, and since some extreme weights had been reduced in size, the resulting estimates are biased to some extent. Weight adjustment procedures have been developed to help reduce the bias due to nonresponse, and to help reduce the sampling error in the resulting estimates. The objective of weighting procedures is to reduce the mean squared error, which is a function of the sampling variance and bias.

To reduce the mean squared error of estimates, the sampling weights were adjusted so that weighted totals would equal subgroup estimates of the number of facilities from the larger ADSS Phase I sample. This adjustment, called raking (i.e., iterative poststratification), is intended especially to reduce the mean squared error of estimates relating to facility characteristics. A separate nonresponse adjustment was dropped since all variables that would have been used in the nonresponse adjustment and more were used in raking.

Raking is used to poststratify to marginal population totals of several variables simultaneously. Raking was proposed by Deming and Stephan (1940) as a way to ensure consistency between complete count and sample data from the 1940 U.S. Census of Population. Typically, raking is used in situations where the interior cells of a cross tabulation are either unknown or sample sizes in some cells are too small for efficient estimation. Oh and Scheuren (1987) provide a concise description of the raking procedure and its properties.

For ADSS Phase II, the marginal population totals were computed as the estimated number of facilities in Phase I, after removing hospital inpatient facilities (analytic stratum 1) and facilities with 100 percent alcohol clients, as determined by the Phase I questionnaire. To simplify the explanation of the procedure, suppose we rake to two dimensions, type of ownership (categories denoted by subscript c) and type of treatment (categories denoted by subscript d). The control totals are estimated from the modified set of Phase I respondents (R^I) as:

$$\hat{N}_{c.} = \sum_{\substack{j \in c \\ j \in R^I}} w_j^I \qquad \text{for type of ownership } c\text{; and}$$

$$\hat{N}_{.d} = \sum_{\substack{j \in d \\ j \in R^I}} w_j^I \qquad \text{for type of treatment } d.$$

However, the interior cells of the cross-tabulation N_{cd} (the type of ownership by type of treatment cells) are estimated from the Phase II sample by $\widetilde{N}_{cd}$, where these are the sum of the weights in the cells. The raking algorithm proceeds by proportionately scaling the $\widetilde{N}_{cd}$, using adjustment ratios applied to the weights, such that the following relations are satisfied:

$$\sum_d \widetilde{N}_{cd} = \hat{N}_{c.} \text{ and } \sum_c \widetilde{N}_{cd} = \hat{N}_{.d} \text{ ;}$$

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

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

It has been shown (Ireland and Kullback, 1968; Deville and Särndal, 1992) that under some regularity conditions, if only the $N_{c.}$ and $N_{.d}$ are known (which is not the case in ADSS), then the estimates obtained by raking to convergence, $\widetilde{N}_{cd}$, are asymptotically unbiased, are normally distributed, and have minimum variance.

The raking process stopped when the specified number of iterations was reached or the stopping rule was satisfied. An absolute difference value, ε, that each relation satisfies was defined for the full sample and replicate weights, separately. The value was set at 1 for the full sample weights and 10 for the replicate weights. For example, for the two-variable case, the following convergence checks would be used on the full sample and replicate weights,

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

Convergence was reached in 6 iterations for the full sample and 4 iterations for the replicates. The number of dimensions was limited to four. The following defines each dimension.

- Type of PSU (metro, nonmetro);
- Type of ownership (private for profit, private nonprofit, public);
- Categorized number of clients (100 or less, more than 100) using the Phase I reported number of clients on October 1, 1996; and
- Type of treatment/PSU, where the type of treatment was based on Phase I data. The variable contains seven-levels defined as:

    1. Offered residential only;
    2. Offered methadone only and was located in a certainty PSU;
    3. Offered methadone only and was located in a noncertainty PSU;
    4. Offered outpatient nonmethadone only;
    5. Offered a combination of treatment types, but does not offer methadone;
    6. Offered a combination of treatment types, including methadone, and was located in a certainty PSU; and
    7. Offered a combination of treatment types, including methadone, and was located in a noncertainty PSU.

There were small numbers of Phase II facilities in some domains defined by type of treatment/PSU. The small domains were allowed because of the importance of the methadone domain, and the objective of generating weights that produced estimates close to Phase I estimates. Furthermore, the adjustment factors were allowed to be larger than 3 since the raking procedure not only forced several estimates to be close to Phase I estimates, but also accounted for facility nonresponse. Because of the trimming and the rigorous raking procedure, an unintuitive result of having 13 Phase II weights slightly smaller than the Phase I weights occurred. All of the 13 facilities had a Phase II conditional weight component close to one. One other facility with a Phase II weight smaller than a Phase I weight was the facility noted at the end of Section 6.2. We left this result as is, due to the importance of generating Phase II weights so that several Phase II estimates were close to Phase I estimates. For simplicity, the raking factor is denoted as f_2. The distributions of the raking factors are shown in Table 6-2.

Table 6-2. Distribution of facility-level raking factors

	Control total	Weighted sum before raking	Number of respondents	Raking factors		
				Minimum	Maximum	Mean
Phase II treatment/PSU type:						
Residential only	2,101	1,757	31	0.50	2.79	1.16
Methadone only/certainty PSU	270	222	20	0.89	2.12	1.15
Methadone only/noncertainty PSU	194	202	6	0.48	2.02	0.81
Outpatient nonmethadone only	7,295	6,410	183	0.51	3.24	1.05
Combination, no methadone	1,661	1,418	23	0.45	2.54	1.04
Combination, methadone, certainty PSU	93	64	8	1.18	2.49	1.67
Combination, methadone noncertainty PSU	131	170	9	0.60	1.43	1.00
Type of ownership:						
Private-for-profit	2,655	2,609	58	0.48	1.36	0.85
Private nonprofit	7,465	6,847	179	0.45	1.54	0.97
Public	1,625	787	43	0.95	3.24	1.86
Type of PSU:						
Certainty	3,382	3,507	146	0.45	2.49	0.95
Noncertainty	8,363	6,736	134	0.48	3.24	1.22
Categorized number of clients:						
Less than or equal to 100	8,897	6,919	122	0.80	3.24	1.30
Greater than 100	2,848	3,324	158	0.45	2.49	0.91

6.3.1 Alternative Weighting Procedures

Prior to using raking, the generalized regression estimator (GREG) was investigated for adjusting the weights to Phase I estimates of the number of facilities, and also to adjust the weights so that the weighted number of clients would equal that of Phase I. The procedure would have reduced the sampling error variance resulting from Phase II. However, the GREG estimator was not used for ADSS because of convergence problems due mostly to the low number of observations per stratum. The resulting weight adjustments varied much more than expected. In addition, when the upper and lower bound of the adjustment factors were moved closer, the weights tended to vary just as much, if not more, so that outlier weights were created within strata, and the algorithm would not converge in all the replicates and the full sample.

Another alternative was to do a nonresponse adjustment, in conjunction with a poststratification procedure to stratum-level Phase I estimated number of facilities (refer to as Method 1).

The raked weights (refer to as Method 2) produced Phase II estimates that were closer to Phase I. The Phase I sample was an unclustered sample of facilities distributed across the US, proportional to a measure of size that was appropriate for both facility and client level estimates. The Phase I sample also had the advantage of a much larger sample size, which yielded more precise statistics than the Phase II sample. The Phase II clustered sample was selected from a limited number of geographic PSUs, which were selected proportional to the population of the US. The Phase II sample was much smaller in size, and in addition, it was clustered in a rather small number of PSUs. This, of course, resulted in a sample that was much less efficient (in terms of producing accurate statistics) than the Phase I sample. The above factors were all considered when the weighting design was finalized for the Phase II facility sample.

There were certainly tradeoffs between Method 1 and Method 2. Method 1 was geared toward using the Phase II sample and weights with minimal adjustment relating to Phase I. Method 2 involved using more of the data from the larger Phase I sample, and using more variables in the adjustment. In raking or poststratification, the variance estimator treats the control totals as the 'truth' and results in variances equal to zero. Since the control totals were Phase I estimates, there truly is an associated sampling error, which is not estimable. Therefore, variance estimates for lower level domains are more reliable than for the highest aggregated facility-based estimates. This is more of a problem with Method 2, since more variables were used in the adjustment. The tradeoff is that even though the Method 2 variance estimates are more highly negatively biased for more highly aggregated point estimates for facility characteristics, those point estimates might be closer to the truth.

When Method 1 weights were investigated, estimates of clients in the population were larger than the corresponding estimates coming from the Phase I sample, especially in the methadone domain. Method 2 was geared toward using variables in such a way to bring the client estimates down to Phase I levels while arriving at the Phase I facility-level estimates. This resulted in more variation in the facility weights. The maximum weights from Method 2 were somewhat larger than in Method 1, which might be a concern when analyzing domains, since one or two facilities may dominate Phase II administrator interview estimates more so with weights from Method 2. However, since it was much more appealing to force several estimates to be close to Phase I estimates, Method 2 was selected.

6.4 Adjustment to Methadone Domain Weights

An additional adjustment to the weights was implemented on the set of facilities that offered methadone treatment only. It was necessary to trim a relatively large weight that resulted from the raking procedure. The weight was trimmed so that it would contribute less than 18 percent to the weighted sum

across methadone only facilities. The excess weight (i.e., trimmed off weight) was redistributed to the facilities of the same domain proportionate to their weight. The resulting trimming factor is denoted by f_{3h}, which was computed as the ratio of the resulting weight after trimming to the weight before trimming (i.e., raked weight). For all other domains, the trimming factor was set equal to one.

6.5 Final Facility Weights

The final facility weights are a product of the facility base weight and each of the adjustment factors:

$$w_{ij}^{II,final} = w_{ij}^{II} f_{1h} f_2 f_{3h} .$$

The final weights can be used to estimate several types of statistics, including means, totals, proportions of facility characteristics, client characteristics, etc. To estimate the total number of facilities in domain *d*, one simply sums the weights across PSUs and across facilities in domain *d*:

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

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

$$\hat{P}_d = \frac{\sum_i \sum_{j \in d} w_{ij}^{II,final}}{\sum_i \sum_j w_{ij}^{II,final}} .$$

For estimating totals of some other variables (x), for instance, number of clients, admissions, revenues, or costs, compute the following:

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

For computing a weighted mean, compute the following:

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

The distribution of the final Phase II full sample facility weights for the combined sample is shown in Table 6-3.

Table 6-3. Distribution of the final 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 Nonmethadone 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

6.6 Variance Estimation

A major source of uncertainty in survey estimates exists because information about the survey items was obtained on only a sample of the population. To reflect this fact, it is important to attach to any statistic (e.g., a mean) an estimate of the sampling variability to be expected. Estimates of sampling variability provide information about how much the value of a given statistic would likely change if the statistic had been based on another sample of facilities drawn in exactly the same manner as the achieved sample.

The sampling error estimate for any statistic must take into account the sample design. In particular, because of the effects of cluster selection (facilities within PSUs) and because of effects of trimming and raking adjustments, observations made on different facilities cannot be assumed to be independent of each other (and are, in fact, generally positively correlated). Furthermore, to account for the differential probabilities of selection (and the various weight adjustments), each facility has an associated sampling weight, which should be used in the computation of any statistic and which is itself subject to sampling variability. Ignoring the special characteristics of the sample design and treating the data as if the observations were independent and identically distributed, will produce underestimates of the true sampling variability in ADSS Phase II estimates, due to the clustering and unequal sampling weights.

6.6.1 Jackknife Method

The proper estimation of the sampling variability of a statistic based on the ADSS data is complicated and requires techniques beyond those commonly available in standard statistical packages. Fortunately, the jackknife procedure (see, e.g., Wolter, 1985; Kish & Frankel, 1974; Rust, 1985) provides good quality estimates of the sampling variability of most statistics, at the expense of increased computation. As an alternative to the replication method, the Taylor series method can be used to approximate variances under complex sample designs. Computer software packages have been developed to analyze data from complex samples using the replication and/or Taylor series methods. Please refer to the ADSS data user's manual for more information about software packages which offer replication and Taylor's series methods, specifically WesVar[1], SUDAAN[2] (Software for the Statistical Analysis of Correlated Data), and Stata[3]. Any of the three packages can be used in the analysis of the ADSS data. The information in the ADSS data user manuals includes a discussion on software capabilities and is presented to help users select the software most appropriate for their analysis.

Through the creation of replicate weights (defined below), the jackknife procedure allows the measurement of variability attributable to the use of raking and other weight adjustment factors that are dependent upon the observed sample data. Once these replicate weights are derived, it is a straightforward matter to obtain the jackknife variance estimate of any statistic. It should be noted that the Phase II variances may not reflect well the variance contributions from the sampling of Phase I facilities. It is assumed in the replication scheme that the dominating contributions to the Phase II variances are from Phase II sampling of facilities and from the PSU sampling. Variance estimation under a complex two-phase sampling, such as for ADSS, is an on-going research item (Kott and Stukel (1997)).

As it was mentioned in Section 6.3.1, because the control totals for raking were Phase I estimates, the resulting variance of the Phase II estimates for the control total domains are highly negatively biased. The variance estimates for smaller domains or other characteristics are much less biased. It is suggested that when publishing standard errors for Phase II estimated number of facilities for the 'raking' variables, that the Phase I variance estimates, shown in Table 6-4, be used.

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[1] For more information on WesVar, contact the WesVar phoneline at (301) 517-2006 or send e-mail to wesvar@westat.com.

[2] SUDAAN is developed and sold by the Research Triangle Institute (www.rti.org).

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

Table 6-4. Phase I standard errors for raking variables

	Control total	Standard error for estimated total
Phase II treatment/PSU type:		
Residential only	2,101	107.93
Methadone only/certainty PSU	270	20.71
Methadone only noncertainty PSU	194	15.96
Outpatient nonmethadone only	7,295	241.58
Combination, no methadone	1,661	109.98
Combination, methadone, certainty PSU	93	15.76
Combination, methadone noncertainty PSU	131	23.82
Type of ownership:		
Private-for-profit	2,655	174.76
Private nonprofit	7,465	255.74
Public	1,625	105.29
Type of PSU:		
Certainty	3,382	124.78
Noncertainty	8,363	247.33
Categorized number of clients:		
Less than or equal to 100	8,897	260.26
Greater than 100	2,848	127.77

The jackknife procedure in this application is based upon the development of a set of jackknife replicate weights for each sampled facility. The estimated sampling variance of a parameter estimator t is the sum of *G* squared differences (where *G* is the number of replicate weights developed):

$$\hat{V}ar(t) = \sum_{g=1}^{G} k_g (t_g - t)^2 ;$$

where, t_g denotes the estimator of the parameter of interest, obtained using the *g*-th set of replicate weights in place of the original sample of full sample estimates; and $k_g =$ stratified jackknife factors, computed as $k_g = (n_h - 1)/n_h$, for each replicate *g*, where *h* is the variance stratum associated with replicate *g*, and n_h is the number of variance units within variance stratum *h* (the definition of the variance strata and variance units is described below).

6.6.2 Forming Replicates

For the combined sample, of the 78 replicate weights formed for each record from the facility sample, 33 act to reflect the amount of sampling variance contributed by the noncertainty strata of PSUs, with the remaining 45 replicate weights reflecting the variance contribution of the certainty PSU samples. For the noncertainty PSUs, one PSU was dropped at a time to generate the replicates resulting in the 33 replicates. The definition of variance units for the noncertainty PSUs differs somewhat from the actual design. For noncertainty PSUs, PSUs were grouped together into one stratum and the variance units were the PSUs. In the actual PSU selection process, PSUs were selected from several strata. The procedure increased the degrees of freedom for the resulting variance estimates while likely giving a small positive bias to estimates of sampling error. Several ways of replicating the sample under the stratified jackknife method were examined and resulting variance estimates were fairly stable across the various replication schemes.

For the certainty PSUs, groups of facilities were formed so that they resulted in a number of replicates that was in proportion to the proportion of clients in that stratum's population (the number of groups formed within a stratum is equal to the number of replicates generated for that stratum). Within the certainty PSUs, facilities were grouped within analytic stratum. The facilities within certainty PSUs were sorted in the order of the Phase II sampling of facilities. For certainty PSUs, the variance strata were the analytic strata and the variance units within each analytic stratum were constructed by giving sequential numbers to the sorted records. For instance, within analytic stratum 5, the sequential numbers were assigned as 1, 2, …, 14, 1, 2, …, 14, 1, etc, where 14 was the number of variance units assigned (based on the combined sample). Facilities that were assigned the sequential number 1 were placed in variance unit 1, and so on.

Table 6-5 shows the number of replicates that contribute to variance estimates for each analytic stratum. The ADSS PSUs stretch across analytic strata so that facilities within a PSU could be from differing analytic strata. To approximate the degrees of freedom in an analysis, use the variables for variance strata (VST_PSU) and variance unit (VUN_PSU). For the facilities (or abstracts) in the domain of interest, count the number of unique combinations of VST_PSU crossed with VUN_PSU (e.g., number of active replicates) and subtract off the number of unique values of VST_PSU (number of variance strata). For instance, for an analysis involving all Phase II facilities in the combined sample, the number of active replicates is 76, and the number of variance strata is 6, so the approximate degrees of freedom is 70. In general for any domain of interest in the Phase II analysis of facilities or abstracts, and for Phase III analysis of clients, degrees of freedom should be computed.

Table 6-5. Number of replicates generated for the combined sample (Phase II)

QFSTRAT	Number of replicates from noncertainty PSUs	Number of replicates from certainty PSUs
2	12	8
3	8	11
4	17	7
5	25	14
6	19	5
Total	33	45

Replicate weights were computed using the variance strata and variance units described above. The facility replicate weights were computed as follows:

- Let w_{ij}^{II} be the base weight of an originally sampled facility, as described in Section 6.1, which accounts for the various components of the selection probability for the facility; and
- Within each variance stratum h, one variance unit was denoted as number 1, another variance unit was designated number 2, and so on for the n_h variance units within variance stratum h. The g-th replicate base weight w_{ijg}^{II} is given by:

$$w_{ijg}^{II} = \begin{cases} 0 & \text{if the original facility belonged to variance unit } g \text{ of variance stratum } h \\ \dfrac{n_h}{n_h - 1} \times w_{ijg}^{II} & \text{if the original facility belonged to a variance unit other than } g \\ & \text{with in variance stratum } h \\ w_{ij}^{II} & \text{if the original facility was from a variance stratum other than } h \end{cases}$$

- The shadow facility replicate weight, w_{ijg}^{II}, was set equal to that of the original to which it was linked.
- The g-th facility replicate weight was obtained by applying the facility weight trimming and the raking to the g-th set of replicate base weights, using procedures identical to those used to obtain the final facility weights from the set of facility base weights. By repeating the various weight adjustment procedures in each set of replicate base weights, the impact of these procedures on the sampling variance of the estimator, t, is appropriately reflected in the variance estimator, $\hat{Var}(t)$, defined above.

7. WEIGHTING PROCESS FOR ABSTRACT DATA

The main and incentive discharge abstract (MIDA) data from the combined sample of facilities were analyzed together in Phase II. The ITMC abstract data were analyzed separate from the MIDA. Therefore, the estimation process for Phase II analyses of abstracts involved generating the following sets of sampling weights:

- Final abstract weights for the Phase II MIDA; and
- Final abstract weights for the Phase II ITMC.

The general weighting process was similar for each sample. The following are the general stages of weighting the abstracts:

- The abstract base weights accounted for the nonsampled episodes within the selected facility;
- An adjustment was made by distributing the weights associated with abstracts with unknown eligibility status to the abstract weights for which the eligibility status was known, proportionally to the weighted distribution of known eligible and known ineligible abstracts. By assuming that some nonresponse abstracts with unknown eligibility status would have been determined as ineligible had their records been available, this procedure attempted to reduce bias due to nonresponse during the nonresponse adjustment;
- The adjustment for abstract nonresponse compensated for abstract nonresponse with known eligibility status in Phase II and attempted to reduce nonresponse bias due to differences between respondents and nonrespondents;
- The trimming procedure attempted to reduce the impact of extreme weights on point estimates and variance estimates, as well as the mean squared error of survey estimates; and
- Replicate weights, under the stratified jackknife method, were created to facilitate variance estimation.

The following discussion is applicable to both samples, unless otherwise noted. The comparison group abstracts (i.e., early dropout discharges) were collected through a nonprobability-based sample, and therefore, sampling weights were not appropriate.

7.1 Base Weights for Abstracts

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

$$w_{ijk}^{II} = w_{ij}^{II,final} w_{k|ij,j\in R_{II}}^{II};$$

where, $w_{k|ij,j\in R_{II}}^{II}$ = the inverse of the *k*-th abstract's probability of selection within facility *j* of PSU *i*, given that facility *j* is a member of R_{II}, which is the set of respondent facilities in Phase II.

7.1.1 Discharge Samples

For the discharged abstracts from main and incentive study facilities (either combined sample or main study sample only), in the formula for the abstract base weight, the weighting component $w_{k|ij,j\in R_{II}}^{II}$ is the ratio of the number of recorded discharges in the 6-month reference period to the number of sampled discharges.

7.1.2 In-Treatment Methadone Client Sample

For the ITMC abstracts, in the formula for the abstract base weight in Section 7.1, the weighting component $w_{k|ij,j\in R_{II}}^{II}$ is the ratio of the number of recorded ITMCs on the sampling index day, to the number of sampled ITM clients.

7.2 Abstract Nonresponse Adjustment

Two adjustments were made to the abstract base weights. The first adjustment was done to account for abstracts with unknown eligibility status (i.e., record refusals or abstracts that were not located). The second adjustment accounted for incomplete abstracts that were known to be eligible.

7.2.1 Forming Nonresponse Adjustment Cells

Abstract weighting classes were formed using CHAID software for each sample independently. The methodology used by the software incorporates a hierarchical tree structure for modeling. The dependent variable in the model was the binary response variable, and the independent variables were facility characteristics. Abstract characteristics were not used in the modeling process since abstract-level data was not collected for all sampled abstracts. The method creates a new branch by identifying the 'best' variable that had not been used along that branch. The weighting classes were formed so that the eligibility status was as different as possible across classes. The dominating portion of the loss of sample cases was due to unknown eligibility status. The variables used to form the weighting classes included:

- Type of treatment (residential, outpatient methadone, outpatient nonmethadone, combined) from the Phase II administrator interview;
- Type of ownership (private for profit (PFP), private nonprofit (PNP), public) from the Phase I questionnaire;
- Type of PSU (metro certainty, metro noncertainty, nonmetro noncertainty) 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 the Phase II SMS;
- 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 SMS for discharge values.

7.2.2 Unknown Eligibility Status Adjustment

For some abstracts the eligibility status was unknown. For example, the eligibility status was unknown for abstracts of records that the facility did not have, could not locate, or refused access to. An adjustment was made by distributing the weights associated with abstracts with unknown eligibility status to the abstract weights for which the eligibility status was known, proportionally to the weighted distribution of known eligible and known ineligible abstracts.

Weighting classes were collapsed if there were less than 30 abstracts with known eligibility status or the adjustment factor was greater than 2. For the combined sample weights, there were 30 weighting classes and the maximum adjustment factor for unknown eligibility status was 1.28. For the ITMC sample weights, there were 5 weighting classes and the maximum adjustment factor was 1.23. Table 7-1 shows the weighting classes and the adjustment factors for unknown eligibility and nonresponse for the combined sample. Table 7-2 shows the same information for the ITMC sample.

The adjustment factor to account for unknown eligibility of abstracts was computed as:

$$f_{4s'} = \frac{\sum_{C_{s'}} w_{ijk}^{II}}{\sum_{A_{s'}} w_{ijk}^{II}};$$

where,

$C_{s'}$ = the set of all abstracts within completed facilities in weighting class s';
$A_{s'}$ = the set of abstracts with known eligibility status within completed facilities in weighting class s'.

7.2.3 Nonresponse Adjustment

Abstract weights for the completed abstracts were adjusted to account for incomplete (known to be eligible) abstracts. For more information about the classification of incomplete, but known eligible abstracts, or known ineligible abstracts, refer to Section 5.4. The weighting classes, s', used for the unknown eligibility status adjustment were to be collapsed if the weighting class' number of completed abstracts was less than 30 or the adjustment factor was greater than 2. The process resulted in no further collapsing in weighting classes. The abstract-level adjustment factors for incomplete abstracts were computed within the weighting classes s'.

For each weighting class s', the abstract-level nonresponse adjustment factor, $f_{5s'}$, was computed as:

$$f_{5s'} = \frac{\sum_{A_{s'}} w_{ijk}^{II} f_{4s'}}{\sum_{B_{s'}} w_{ijk}^{II} f_{4s'}};$$

Table 7-1. Abstract weighting class and factor for unknown eligibility status adjustment and nonresponse adjustment for the combined sample

Cell number	Facility type of treatment	Type of ownership	Number of discharges	Type of PSU	Cost per discharge	Number of clients	Census region	$f_{4s'}$	$f_{5s'}$
1	Residential		low					1.01	1.00
2	Residential		medium	certainty				1.02	1.00
3	Residential		medium	noncertainty				1.28	1.00
4	Residential		high		low			1.00	1.00
5	Residential		high		medium/ high			1.02	1.00
6	Methadone		low					1.06	1.00
7	Methadone		medium					1.08	1.00
9	Nonmethadone	PFP				0-100		1.00	1.00
10	Nonmethadone	PFP				100+		1.07	1.00
11	Nonmethadone	PNP	low/medium			0-16		1.00	1.00
12	Nonmethadone	PNP	low/medium		low	17-40		1.00	1.00
13	Nonmethadone	PNP	low/medium		medium/high	17-40		1.04	1.00
14	Nonmethadone	PNP	low/medium		low	41-100	Northeast	1.02	1.00
15	Nonmethadone	PNP	low/medium		low	41-100	Midwest/South/West	1.00	1.00
16	Nonmethadone	PNP	low/medium		medium	41-100		1.08	1.00
17	Nonmethadone	PNP	low/medium		high	41-100		1.00	1.00
18	Nonmethadone	PNP	low			101-225		1.01	1.00
19	Nonmethadone	PNP	medium			101-225		1.00	1.00
20	Nonmethadone	PNP	low/medium			226+		1.08	1.00
21	Nonmethadone	PNP	high	certainty				1.03	1.00
22	Nonmethadone	PNP	high	metro noncertainty			Northeast/Midwest/South	1.22	1.01
23	Nonmethadone	PNP	high	metro noncertainty	low		West	1.07	1.00
24	Nonmethadone	PNP	high	metro noncertainty	medium/high		West	1.28	1.00
25	Nonmethadone	PNP	high	nonmetro noncertainty				1.01	1.00
26	Nonmethadone	Public						1.02	1.00
27	Combination						Northeast	1.17	1.00
28	Combination			certainty			Midwest/West	1.05	1.00
29	Combination			noncertainty			Midwest/West	1.11	1.00
30	Combination						South	1.00	1.00

where, $A_{s'}$ consists of abstracts that were known to be eligible in class s' within completed facilities; and $B_{s'}$ consists of completed abstracts in class s' within completed facilities.

For the combined sample weights, the maximum abstract-level adjustment factor was 1.01. For the main study sample weights, the maximum abstract-level adjustment factor was 1.00. For the ITMC sample weights, there were no incomplete abstracts that were known to be eligible.

Table 7-2. Abstract weighting class and factor for unknown eligibility status adjustment and nonresponse adjustment for the ITMC sample

Cell number	Facility type of treatment	Type of ownership	Type of abuse	Number of clients	$f_{4s'}$	$f_{5s'}$
1	Methadone	PFP, Public			1.00	1.00
2	Methadone	PNP	drug only		1.00	1.00
3	Methadone	PNP	both	101-225	1.00	1.00
4	Methadone	PNP	both	226+	1.05	1.00
5	Combination				1.23	1.00

7.3 Trimming Weights

The last step was to trim the abstract weights to protect against a small number of abstracts from dominating analyses due to the size of their abstract weight. This step followed abstract weight adjustments for unknown eligibility status and nonresponse. Outlier weights were trimmed within weighting groups defined by a type of treatment variable based on the completed abstracts (only completed abstracts were processed in the step). The abstract-level variable had three levels: residential, outpatient nonmethadone, and outpatient methadone. The outlying weights were identified through stem and leaf plots. The objective was to trim as little as possible, but to identify any outlier weights in order to protect against a small number of abstracts dominating estimates due to the size of the weight. The result of the trimming procedure is shown in Table 7-3.

Table 7-3. Trimming results for abstract weights

Sample		Abstract-level type of treatment		
		Residential	Outpatient nonmethadone	Outpatient methadone
Combined	Number Trimmed	1	26	2
	Range of Trimming Factors	0.73 – 1.00	0.44 - 1.03	0.29 – 1.05
ITMC	Number Trimmed	N/A	N/A	26
	Range of Trimming Factors	N/A	N/A	0.67 – 1.05

In this procedure, trimming factors could be greater than one since after weights were trimmed, the excess weights (i.e., the trimmed-off portion of the weights) were redistributed proportionate to the weights of the abstract. The final trimming factor, $f_{6h'}$, was computed as the ratio of the resulting weight after trimming to the weight before trimming (that is, after nonresponse adjustment).

7.4 Final Abstract Weights

The final Phase II full sample abstract weights were computed as:

$$w_{ijk}^{II,final} = w_{ijk}^{II} f_{4s'} f_{5s'} f_{6h'}.$$

There was no poststratification adjustment due to the lack of control totals available relating to numbers of discharges. The distribution of the final Phase II full sample abstract weights is shown in Table 7-4.

There are several reasons for the variation in the final abstract weights. One reason is that the weighting adjustments cause the weights to vary. The weighting adjustments in Phase I, Phase II facility and abstract weighting processes all effect the variation in the weights. Furthermore, as mentioned in Section 5.2, the shadow facilities were generally assigned the same sample sizes as their original counterparts and were not revised. This was done out of concern for maintaining the sample sizes of abstracts. There were some shadow sample sizes that were increased late in the data collection period in order to increase the aggregated sample size. These procedures cause an increase to the variation of the abstract selection probabilities. Other causes of variation include: stratum migration of facilities, constraining the sample sizes to a value within 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 in Phase II analysis (since sampling rates within facilities were different for the main and incentive study facilities).

Table 7-4. Distribution of the final Phase II full sample abstract weights

Sample	Type of treatment	Number of completed abstracts	Sum of weights*	Minimum	Median	Maximum	Mean	Standard deviation
Combined	Residential	880	349,853	32.67	276.56	1,463.61	397.56	371.40
	Outpatient Nonmethadone	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

*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).

7.5 Variance Estimation

Replicate weights were created for facilities under the stratified jackknife method as discussed in Section 6.5. For the replicate weights relating to the abstracts, the *g*-th abstract replicate weight was obtained by using the facility final replicate weight for replicate g for Phase II, and applying the same procedures that were implemented for the full sample abstract weighting. The replicate weighting procedures for the abstracts included generating the base weights, adjusting the base weights for unknown eligibility status, adjusting the weights for incomplete abstracts, and lastly trimming the weights. By repeating the various weight adjustment procedures in each set of replicate weights, the impact of these procedures on the sampling variance of the estimator, *t*, is appropriately reflected in the variance estimator $\hat{V}ar(t)$ defined in Section 6.5.1. When analyzing subgroups of interest, it is recommended to approximate the degrees of freedom using the guidelines specified in Section 6.6.2. A discussion of how to use the replicate weights to compute appropriate variance estimates using WesVar is contained in the data user's manual.

8. PHASE III SAMPLE AND WEIGHTING PROCESS FOR CLIENT FOLLOW-UP INTERVIEW DATA

In Phase III, follow-up interviews were conducted on all Phase II completed abstracts that were in-scope for Phase III. Therefore there were no Phase III sampling activities. However, it is necessary to use sample weights in the analyses of Phase III ADSS data to account for the various sampling stages that occurred prior to Phase III and to account for the nonresponse in Phase III. The following discussion provides details on how the sample weights were developed for use with Phase III data for the main study and the in-treatment methadone client study.

8.1 Phase III Samples

8.1.1 Sample Groups and Eligibility Criteria

During the sample selection of Phase II facilities, facilities were randomly assigned to either the main study or the incentive study (refer to Section 4.6 for more details). In Phase II, the discharge client abstracts from main and incentive study facilities were combined for weighting and the analysis of Phase II client discharge abstracts. For Phase III, the clients were separated into those associated with main study facilities and those associated with incentive study facilities for the purpose of their respective analyses.

The first sample group consisted of main study clients discharged during their associated facility's Phase II reference period. In Phase II, every eligible discharge episode during the 6-month reference period was included on the list of discharges to be sampled. Section 5.1 provides details about the definitions, sample groups, reference period, and eligibility criteria for Phase II.

In Phase II, the sample unit was the discharge episode during the facility's reference period. For instance, a client may have had more than one discharge episode in the same reference period. In Phase III, the sample unit was the client who was discharged at least once during the facility's reference period. If a client had multiple discharge episodes in Phase II, only one episode was eligible for Phase III. Therefore, a subtle switch in sampling unit occurred between Phase II and Phase III from client discharge episode to client.

Furthermore, some clients were ineligible for Phase III interviews. These clients included:

- Clients whose discharge episode occurred at a predominately methadone facility (stratum 3);

- Clients whose age was less than 18 (minors) at the time of Phase III interview. More specifically, a client was specified as a minor if one of the following were true;

  - **Before the fact:** If the birth date on the abstract indicated that the client not achieved his or her 18th birthday by April 15, 1999 (the latest practical date to release cases and still have a reasonable chance to complete them by 6/30/99, the last day of Phase III data collection). In other words, if the birth date on the abstract was after April 15, 1981, the client was classified as a minor;

    or

  - **After the fact:** In a few cases, the birth date was not available on the abstract or was later found to be in error and the client told the interviewer that he or she was under 18 as of the actual date of the interview.

- Clients who died.

Therefore, the target population for the Phase III main study is the set of clients 18 years of age or older in the 50 states and the District of Columbia, that were discharged at least once during their associated facility's Phase II 6-month reference period[1], which occurred during the period from March 1997 and January 1999. The date of March 1997 is determined by the month six-months prior to the time the sampling process began. The date of January 1999 is determined by the month preceding that when the last discharge sample was drawn. The target population does not include clients discharged from predominantly methadone treatment facilities, hospital inpatient facilities, or facilities that treated all their clients for alcohol abuse as of the Phase I facility interview. The target population also does not include clients from the following sets of facilities (as listed in Section 2.1): halfway houses without paid treatment staff, solo practitioners, jails/prisons, military/DoD, Indian Health Service, and facilities that provided intake and referral only. Exclusion rules for abstracts, as provided in Section 5.1, carried through to the target population for the Phase III main study.

The second sample group consisted of the incentive study clients discharged during the facility's Phase II reference period. In Phase II, 120 outpatient nonmethadone facilities were assigned to the incentive study, and were further assigned to three incentive groups (refer to Section 4 for the assignment of facilities to the main and incentive studies). Clients sampled from each group of 40 facilities were offered the following array of payments at the time of the followup interview

[1] The administrator, not client, interview determined the sampling reference period.

(interview/urine): 0/0, 0/$10, $15/$10 (main study), $25/$10. The probability-based samples of incentive study facilities and client discharge records were selected to be representative of the nation when combined with the main study facilities and client discharge records in Phase II. The incentive study groups of clients by themselves are not representative of the nation since all Phase II certainty facilities were assigned to the main study. The eligibility criteria for the incentive study clients is consistent with that described for the main study clients (the first sample group).

The third sample group consisted of in-treatment methadone clients (ITMC) who were receiving treatment as of the day that the Administrator Interview (index day) occurred. The methadone clients were sampled from outpatient-predominately-methadone main study facilities. An in-treatment methadone client was eligible for the ADSS study if he or she was enrolled in an outpatient methadone program on the index day, regardless of whether he or she actually appeared at the facility that day to get methadone or other treatment. There is no change in sampling unit (client) for this sample group between Phase II and Phase III, as there was for the discharge samples discussed above. The target population for the Phase III ITMC study is the set of clients, 18 years of age and older, that were in-treatment on their associated facilities' index day, from predominately-methadone facilities, which occurred during the period from August 1997 and January 1999. The date of August 1997 is determined by the month that the sampling process for ITMC clients began. The date of January 1999 is determined by the month when the last ITMC client sample was drawn.

The fourth sample group was the comparison group clients or early dropout (EDO) discharge clients, who had been discharged during the 6-month reference period prior to the return visit to chose the EDO sample. Early dropout clients were defined as clients who had been through assessment or intake battery but completed no more than one day or one session of treatment (i.e., the person may never have shown up for any treatment). The EDO discharges were taken from outpatient nonmethadone or combination facilities (strata 4, 5, and 6). The sample of EDOs was not probability-based. Minors and deceased individuals were out-of-scope for Phase III.

8.1.2 Response Rates

Table 8-1 displays the unweighted Phase III client response rates, by stratum for the main study and for the ITMC study. The table accounts for loss due to nonresponse and ineligible clients. In general, the unweighted client response rates should be used to gauge the success of data collection. As shown in Table 8-1, the Phase III unweighted client response rate for the main study is 44.3 percent and

68.1 percent for the ITMC study. These numbers show the difficulty in collecting data in the challenging and mobile client populations.

Table 8-1. Phase III client-level response rates, unweighted

	Number of Phase II completed abstracts	Number of Phase III completed interviews	Number of Phase III nonrespondents	Number of Phase III ineligibles	Unweighted response rate[4]
Main study					
Analytic stratum					
2. Other Residential	632	305	304	23	50.1%
3. Outpatient – PM[1]	446	1	14	431	6.7%
4. Outpatient – AEA[2]	311	136	169	6	44.6%
5. Outpatient – AO[3]	1,323	531	750	42	41.5%
6. Combined	495	211	249	35	45.9%
Total	3,207	1,184	1,486	537	44.3%
In-Treatment Methadone Client Study					
Analytic Stratum					
3. Outpatient – PM[1]	925	618	290	17	68.1%

[1]PM – Predominantly Methadone.

[2]AEA – Almost Exclusively Alcohol.

[3]AO – All Other.

[4] The methadone discharge group (431 cases) was purposely excluded from the Phase III follow-up study (the in-treatment methadone group was followed instead). However, 14 of the 15 non-methadone cases in the predominately methadone facilities were mistakenly not fielded in Phase III, even though they were eligible for Phase III.

The Phase III weighted response rates were computed for the Main study and ITMC study clients, separately. The stratum-level Phase III weighted cumulative response rates are shown in Table 4-10. The weighted cumulative Phase III response rate for the follow-up interviews was computed as the product of the Phase II weighted cumulative abstract response rate and the Phase III weighted response rate. There were 1,184 respondent clients in the Main study sample and 618 in the ITMC study. The weighted cumulative client response rates for the Main study estimate the coverage of the target discharge client population from Main study respondent clients. For the ITMC study, the weighted cumulative client response rate estimates the coverage of the target ITMC population from the ITMC respondent clients. Over all strata, the weighted cumulative client response rate for the Phase III Main study was 33.0 percent; therefore, it is estimated that the 1,184 Phase III respondent clients represent about 33 percent of the discharged client population. 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 response rate was 58.2 percent; therefore, it is estimated that the 618 completed ITMC client interviews represent about 58 percent of the in-treatment methadone client population. To reduce the bias due to nonresponse, a raking procedure was applied so that the respondent clients would more closely resemble their target client population.

The low response rates from the client sample led to questions about the representativeness of the data. Section 8.1.3 provides a discussion of nonresponse bias, cautionary notes, and a discussion of why the client interview data were weighted. Section 8.3 describes the weight adjustment procedure for reducing the bias due to nonresponse.

8.1.3 Impact of Low Nonresponse Rates on ADSS Estimates

The impact of the low Phase III weighted cumulative response rates (e.g., 33 percent for the Phase III Main study discharge client sample, Table 4-10) is truly unknown. The amount of bias due to nonresponse in the value of a statistic is a function of the response rate and the difference between the value of the statistic for respondents and nonrespondents (Groves 1989). The bias is the second term on the right-hand side in the following equation.

$$\text{Respondent Value} = \text{Full Sample Value} + (\text{Nonresponse Rate}) * (\text{Respondent Value} - \text{Nonrespondent Value}) .$$

Surveys like ADSS that include several stages of data collection are usually subject to nonresponse at each stage. Since nonresponse gets accumulated across the stages of data collection, such surveys are likely to experience higher nonresponse rates at the final stages of sampling when compared with surveys with single stage data collection.

The higher nonresponse is, of course, a serious concern, but the effective nonresponse is likely to be lower when compared to a survey with fewer data collection stages. The reason is that in most surveys, little is known about the nonrespondents because survey data have not been successfully collected from them. Therefore, the only information that is available is from the frame used for selecting the sample. However, in the case of nonresponse for Phase III of ADSS, an extensive amount of information about the Phase III target population is available from the responses at the Phase II abstract stage, and the Phase I and II facility questionnaires. This information was used to assess the potential for nonresponse bias and to develop nonresponse adjustments to reduce such bias. Investigation into the differences between respondents and nonrespondents was conducted by Ritter, G. et al. (2000). The

analysis compared facility-level and abstract-level data available for both respondent and nonrespondent clients in the Phase III Main study. Ritter, et al found few important differences.

In addition, using the information collected at the early stages makes it possible to make more effective steps to reduce the bias in the analysis of the Phase III data. Attempts to reduce nonresponse bias through a weight adjustment is described in Section 8.3. The conclusion, by Ritter, et al., that there are few differences between respondents and nonrespondents, and the abundance of data available for nonresponse adjustment, supports the decision to weight the Phase III data. Nonresponse adjusted weights (using facility, abstract, and outcome data) were computed in an attempt to make the Phase III sample more resemble the target population. However, it must be noted that there may exist a significant amount of bias in some of the outcome statistics. Even though few differences were found in the facility- and abstract-level data, and even though there is a wealth of facility- and abstract-level data available for a weight adjustment to account for nonresponse, there is still no basis to conclude that there are few differences in Phase III interview data or treatment outcomes. Given that fact, the inferences from resulting Phase III estimates should be stated with much caution.

8.2 Base Weights

The estimation process for Phase III analyses of clients involved generating the following sets of sampling weights:

- Final client weights for the Phase III main study clients; and
- Final client weights for the Phase III in-treatment methadone client (ITMC) study.

Phase III client weights were not generated for the incentive study clients or the comparison group of clients. As mentioned in Section 8.1, the incentive study sample groups of clients were not representative samples of the nation's client population. In addition, weighting the comparison sample group is not appropriate due to the non-probability-based sampling procedure.

The Phase III client weighting process for each sample (main study and ITMC study) included the following stages:

- The client base weights, for the main study, accounted for the incentive study discharge client records that were part of the combined study (main and incentive studies together) in Phase II. The Phase III client base weights for the ITMC study were equal to the Phase II final full sample abstract weights;

- The raking adjustment for client nonresponse compensated for client nonresponse in Phase III and attempted to reduce nonresponse bias due to differences between respondents and nonrespondents;

- The trimming procedure attempted to reduce the impact of extreme weights on point estimates and variance estimates, as well as the mean squared error of survey estimates; and

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

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

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

where, $w_{ijk}^{II,final}$ = the final Phase II full sample weight for abstract *k* within facility *j* of PSU *i,* and $f_{7h}^{II,main}$ = the 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, $f_{7h}^{II,main}$, which account for the assignment of the combined Phase II facility sample into the main and incentive studies, are presented in Table 8-2. Note that the Phase II sample of facilities was split further into main and incentive study sample in strata 4 and 5 (refer to Section 4.6 for more details).

Table 8-2. Main study factors that account for incentive study facilities in Phase III

Phase II sampling stratum	Certainty status*	$f_{7h}^{II,main}$
2	noncertainty	1.0
2	certainty	1.0
3	noncertainty	1.0
4	noncertainty	2.0
4	certainty	1.0
5	noncertainty	2.7
5	certainty	1.0
6	noncertainty	1.0
6	certainty	1.0

*The certainty status is the conditional certainty status of the facility in Phase II, given the Phase I sample.

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, since 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, the client base weights were equal to the final Phase II full sample abstract weights. As in the main study, there was no subsampling of clients between Phase II and Phase III for the ITMC study. In addition, the methadone stratum (stratum 3) was not affected by the split of Phase II sample facilities into the main study and incentive study (only strata 4 and 5 were affected since all stratum 3 facilities were part of the main study), therefore, as shown in Table 8-2, $f_{7h}^{II,main} = 1.0$, and $w_{ijk'}^{III} = w_{ijk}^{II,final}$.

8.3 Client Nonresponse Adjustment

To reduce the bias due to the set of nonrespondents in the samples, the client base weights were adjusted using a raking procedure. Phase III raking basically consisted of computing several marginal population estimates from the sample of clients. Then the weights from respondent clients were 'raked' to the marginal population estimates so that the sum of the adjusted weights would equal the marginal population estimates. Details of the raking procedure are presented in the following sections.

8.3.1 Identifying Weighting Variables for Raking

To implement the raking procedure, data must be available for both respondents and nonrespondents. The data available as potential raking variables included:

- Facility-level characteristics;
- Abstract-level characteristics; and
- Field variable (tracing/no tracing).

It was determined that no more than eight raking dimensions (one or more variable combined into a single variable) would be used in the raking process. Since there were several variables available to use, it was necessary to use a subset of variables. To reduce the bias due to nonresponse, the set of raking variables should be correlated with response propensity and with Phase III outcome variables. The relationship between the potential raking variables and response propensity and treatment outcomes drove the selection of raking variables and subsequently the development of the raking dimensions.

The variable used to measure response propensity is simply defined as whether or not the client responded to the Phase III interview. The significance of modeling response propensity on the potential raking variables is to identify raking dimensions, which groups clients with the same characteristics (based on the level of the raking dimension) and adjusts the weights of the respondents so that they represent the nonrespondents. For the raking dimensions, the weights were adjusted so that the distribution among the set of respondent clients after the adjustment was the same as the distribution of the set of eligible clients before the adjustment. The extent of the bias reduction depends on how correlated the study outcomes are correlated with the raking dimensions.

Study outcomes were also modeled on the potential raking variables in order to determine a final set of raking dimensions. Table 8-3 provides the list of study outcomes used to help determine the raking variables. Note that all outcome variables are two levels, defining either a positive or negative result.

Table 8-3. 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.

The identification process of the raking variables was done in several steps.

1. Variables were excluded from consideration if their associated item nonresponse rate was more than 10%;

2. CHAID, described in Section 7.2.1, was processed on the set of eligible clients in Phase III, to help identify variables that seem to have affected the client's response propensity. The p-values from the resulting chi-square tests of independence were observed. It was very useful to use CHAID to help collapse levels of variables. Collapsing was necessary to limit the number of levels of a raking dimension, anticipating that some variables were going to be combined with others to define the raking dimensions. CHAID was also processed on the set of respondent clients in Phase III, to help identify variables that were related to the client's outcome variables;

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;

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; and

5. A list of significant main effects and two-way interactions were generated based on the models from 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. The tracing was excluded from the raking process due to the extremely large adjustment factors that would result from its use in the raking process. Table 8-4 defines the final raking dimensions for the main study. Table 8-5 defines the final raking dimensions for the ITMC study.

Table 8-4. Definitions of raking dimensions for the main study

Dimension	Level	Definition
1	1	Certainty PSU
	2	Noncertainty PSU; facility number of clients less than or equal to 100
	3	Noncertainty 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; nonmethadone outpatient client
	2	Northeast, midwest, south; residential client
	3	West; nonmethadone outpatient client
	4	West; residential client
6	1	Type of ownership: private for profit, public
	2	Type of ownership: private nonprofit
7	1	Nonmethadone outpatient client; facility cost per discharge less than the 33.3rd percentile
	2	Nonmethadone 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

Table 8-5. Definitions of raking dimensions for the ITMC study

Dimension	Level	Definition
1	1	Type of ownership: private for profit, private nonprofit; employment status: employed, keeping house, retired, disabled, inmate, missing employment status
	2	Type of ownership: private for profit, private nonprofit; 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

8.3.2 Raking Adjustment for Nonresponse

As mentioned in Section 6.3 as it was applied in the Phase II facility weighting process, typically raking is used to poststratify to marginal population totals of several variables simultaneously. The marginal population totals, in ADSS Phase III, were computed as the estimated number of eligible clients in Phase III from the set of respondents and nonrespondents. Instead of using population totals from an external source (for which there were none), the totals for Phase III were generated from the Phase III sample. To simplify the explanation of the raking procedure, suppose there are two raking dimensions, where categories are denoted by subscript *c* for dimension 1, and categories are denoted by subscript *d* for dimension 2. The control totals are estimated using the base weights from the set of Phase III eligible clients $\left(E^{III}\right)$ as:

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

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

However, the interior cells of the cross-tabulation N_{cd} (the dimension 1 by dimension 2) are estimated from the Phase III respondents by $\widetilde{N}_{cd}$, where these are the sum of the base weights in the cells. The raking algorithm proceeds by proportionately scaling the $\widetilde{N}_{cd}$, using adjustment ratios applied to the weights, such that the following relations are satisfied:

$$\sum_d \widetilde{N}_{cd} = \hat{N}_{c.} \text{ and } \sum_c \widetilde{N}_{cd} = \hat{N}_{.d};$$

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

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

The raking process stopped when the specified number of iterations was reached or the stopping rule was satisfied. An absolute difference value, ε, that each relation satisfies was defined for the full sample and replicate weights, separately. The value was set at 1 for the full sample weights and also for the replicate weights. The maximum number of iterations was set at 99. For example, for the two-variable case, the following convergence checks would be used on the full sample and replicate weights,

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

Convergence was reached in 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 8-6 for the main study and Table 8-7 for the ITMC study.

Table 8-6. 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

Table 8-7. 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

8.4 Trimming Weights

The last step was to trim the client weights to protect against a small number of clients from dominating analyses due to the size of their client sampling weight. This step followed the raking weight adjustments for nonresponse. The procedure was similar to the abstract weight trimming process. For the main study, outlier weights were trimmed within weighting groups defined by a type of treatment variable based on the respondent clients (only respondent clients were processed in the step). For the main study, the client-level variable had two levels: residential and outpatient nonmethadone. For the ITMC study, all clients were grouped together. The outlying weights were identified through box plots. The objective was to trim as little as possible, but to identify any outlier weights in order to protect against a small number of clients dominating estimates due to the size of the weight. A guideline of trimming to the nearest weight that was less than three standard deviations from the mean was followed. The result of the trimming procedure is shown in Table 8-8. In this procedure, trimming factors could be greater than one since after weights were trimmed, the excess weights (i.e., the trimmed-off portion of the weights) were redistributed proportionate to the weights of the clients. The final trimming factor, $f_{9h'}$, was computed as the ratio of the resulting weight after trimming to the weight before trimming (that is, after raking for nonresponse).

Table 8-8. Trimming results for client weights

Sample		Client-level type of treatment		
		Residential	Outpatient nonmethadone	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

8.5 Final Client Weights

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

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

There was no poststratification adjustment due to the lack of known control totals available relating to numbers of clients in the ADSS Phase III target population (as defined in Section 8.1). The distribution of the final Phase III full sample client weights is shown in Table 8-9.

There are several reasons for the variation in the final client weights. These reason are also listed in Section 7.4 since they also explain the variation in the abstract weights. One reason is that the weighting adjustments cause the weights to vary. The weighting adjustments in Phase I, Phase II facility, Phase II abstract, and Phase III client weighting processes all effect the variation in the weights. Furthermore, as mentioned in Section 5.2, the shadow facilities were generally assigned the same sample sizes as their original counterparts and were not revised. This was done out of concern for maintaining the sample sizes of abstracts. There were some shadow sample sizes that were increased late in the data collection period in order to increase the aggregated sample size. These procedures cause an increase in the variation of the client selection probabilities. Another important reason for the variation in weights is the impact of sampling some small PSUs with proportionate to size probabilities of selection. These PSUs carried large weight components that impacted the base weights of abstracts. Other causes of variation include: stratum migration of facilities, constraining the sample sizes to a value within 6 and 45 (refer to Section 5.2), 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 in Phase II analysis (since sampling rates within facilities were different for the main and incentive study facilities).

Table 8-9. Distribution of the final 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	773.10	733.36
	Outpatient Nonmethadone	757	719,953	43.49	606.27	4,208.06	951.06	931.19
	Overall	1184	1,050,069	43.49	577.33	4,208.06	886.88	869.97
ITMC	Outpatient Methadone	618	169,337	53.42	250.71	669.71	274.01	142.27

* For the main sample, the sum of weights estimates the number of clients 18 years of age or older in the 50 states and the District of Columbia, that were discharged at least once during their associated facility's Phase II 6-month reference period[2], which occurred during the period from March 1997 and January 1999. The date of March 1997 is determined by the month six-months prior to the time the sampling process began. The date of January 1999 is determined by the month preceding that when the last discharge sample was drawn. The target population does not include clients discharged from predominantly methadone treatment facilities, hospital inpatient facilities, or facilities that treated all their clients for alcohol abuse as of the Phase I facility interview. The target population also does not include clients from the following sets of facilities: halfway houses, solo practitioners, jails/prisons, military/DoD, and Indian Health Service. Also excluded were clients in facilities that provided intake and referral only. Exclusion rules for abstracts carried through to the target population for the Phase III main study. For the ITMC study, the sum of weights estimates the number of ITMC clients, 18 years of age and older, that were in-treatment on their associated facilities' index day, from predominately-methadone facilities, which occurred during the period from August 1997 and January 1999. The date of August 1997 is determined by the month that the sampling process for ITMC clients began. The date of January 1999 is determined by the month when the last ITMC client sample was drawn.

8.6 Variance Estimation

Replicate weights were created for Phase II facilities under the stratified jackknife method as discussed in Section 6.5. For the replicate weights relating to the Phase III clients, the *g*-th client replicate weight was obtained by using the facility final replicate weight for replicate g for Phase II, and applying the same procedures that were implemented for the Phase II full sample abstract weighting process and also the Phase III full sample client weighting process. The replicate weighting procedures for the abstracts included generating the base weights, adjusting the base weights for unknown eligibility status, adjusting the weights for incomplete abstracts, and lastly trimming the weights. The replicate weighting procedure for the clients included generating base weights (including the adjustment for the split into the main and incentive studies), raking for nonresponse, and weight trimming.

[2] The administrator, not client, interview determined the sampling reference period.

The Phase III raking procedure properly maintained the ability to estimate variances relating to the raking variables. In a typical raking procedure, known marginal population control totals from external sources are used, and the replicate weights each sum to the marginal population control totals, therefore producing sample variance estimates near zero for estimates relating directly to the raking variables. In ADSS Phase III, the goal of the raking procedure was to account for nonresponse in the sample. In addition, marginal population control totals were unknown for the target populations. Since the control totals were created from the sample itself, the control totals were different for each replicate (treated as independent samples), thus maintaining the variation existing prior to the raking procedure.

By repeating the various weight adjustment procedures in each set of replicate weights, the impact of these procedures on the sampling variance of the estimator, *t*, is appropriately reflected in the variance estimator $\hat{V}ar(t)$ defined in Section 6.5.1. A discussion of how to use the replicate weights to compute appropriate variance estimates using WesVar is contained in the data user's manual.

8.6.1 Approximating the Degrees of Freedom

To approximate the degrees of freedom in an analysis, use the variables for variance strata (*VST_PSU*) and variance unit (*VUN_PSU*). For the Phase III clients in the domain of interest, count the number of unique combinations of *VST_PSU* crossed with *VUN_PSU* (e.g., number of active replicates) and subtract the number of unique values of *VST_PSU* (number of variance strata). For instance, for an analysis involving all Phase III clients in the main sample, the number of active replicates is 61 and the number of variance strata is 5, so the approximate degrees of freedom is 56. In general, for any domain of interest in the Phase III analysis of clients, degrees of freedom should be computed.

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APPENDIX A

Unit Counts contributing to the Denominator of Calculations of Weighted Cumulative Phase III Client Response Rates by Contributing Phase, Study, and Facility Stratum

Unit Counts Contributing to the Denominator of Calculations of Weighted Cumulative Phase III Client Response Rates by Contributing Phase, Study, and Facility Stratum

	Facility stratum						
	Total all strata	Hospital inpatient only (Stratum 1)	Non-Hospital residential only (Stratum 2)	Outpatient methadone only (Stratum 3)	Outpatient non-methadone (Strata 4 & 5)	Combination (Stratum 6)	Unknown (Stratum 7)
Phase I Facility Survey:							
*1. Weighted response rate for facility types eligible for Phase II**	2235		394	413	898	287	243
Phase II Facility Survey:							
2. Weighted Phase II facility response rate	294		31	31	201	31	
Phase II Record Abstracts:							
A. Main study discharges							
*4a. Weighted abstract response rate eliminating client types excluded from Phase III**	4541		636		3418	488	
B. In-treatment methadone clients							
*4b. Weighted abstract response rate eliminating client types excluded from Phase III**				943			
Phase III Main Study Follow-up interviews:							
A. Main study discharged clients							
6a. Weighted Phase III interview response rate	2655		609		1586	460	
B. In-treatment methadone clients							
6b. Weighted Phase III interview response rate				908			

*The unit counts of eligibles were estimated due to the presence of sample units with unknown eligibility status. 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 = all units – known ineligibles – (unknown eligibility status * known ineligibles / (completes + known eligible, but incomplete + known ineligibles).

Individual stratum estimated counts may not add to the total due to rounding.

APPENDIX B

Phase II Field Operation Forms for Sampling Discharges and in-Treatment Methadone Clients

Date: |__|__| - |__|__| - |__|__|

ADSS

Documentation Sheet for Discharge Listing Problems

Facility ID#: [ATTACH LABEL]

Facility Name: _____

Interviewer Name: _____

1. What is the 6-month reference period for discharges at this facility?

   ____/____/____ through ____/____/____

   MO DA YR MO DA YR

2. Describe the source used for listing clients (computer list, rolodex, logs, etc.):

   _____

   _____

3. Title and department of person contacted for listing:

   Name: _____

   Title: _____

   Phone #: _____

4. Describe any problems in listing clients at this facility:

   _____

   _____

   _____

   _____

5. Discharged Substance Abuse Client Checklist:

	Yes	No	DK
A. Does this Discharge Listing contain:			
1. All discharged substance abuse clients from Reference Period ___/___/___ through ___/___/___	1	2	8
1a. (IF NO) Can these clients be added to the list?	1	2	8
2. Every discharge for those clients who were discharged more than once from Reference Period ___/___/___ through ___/___/___	1	2	8
2a. (IF NO) Can these clients be added to the list?	1	2	8
3. Clients who died while in treatment	1	2	8
3a. (IF NO) Can these clients be added to the list?	1	2	8
4. Clients who dropped out of treatment during the Reference Period	1	2	8
4a. (IF NO) Can these clients be added to the list?	1	2	8
5. Clients who were admitted and discharged on the same day	1	2	8
5a. (IF YES) Can these clients be identified and excluded from the list?	1	2	8
6. Clients who were admitted and discharged without making at least one visit	1	2	8
6a. (IF YES) Can these clients be identified and excluded from the list?	1	2	8
7. Clients not treated for substance abuse, e.g., family/support persons	1	2	8
7a. (IF YES) Can these clients be identified and excluded from the list?	1	2	8
B.1. Do all the discharge dates on this list refer to discharges from (SAMPLED FACILITY ON FIS)?	1	2	8
1a. (IF NO) Can the ineligible discharges be identified and excluded from the list?	1	2	8

OMB#: 0930-0180
Expiration Date: 04/30/2000
Date: |__|__| - |__|__| - |__|__|
Start Time: _____am/pm
End Time: _____am/pm
Page 1 of ___

ADSS
DISCHARGE LISTING FORM

Facility ID#: ATTACH LABEL
Facility Name: _____
6-month Reference Period ____/____/____ to ____/____/____
MO DA YR MO DA YR

LINE #	CLIENT NAME	TYPE RES METH OPT	RECORD NUMBER	DISCHARGE DATE (MO/DA/YR)

OMB#: 0930-0180
Expiration Date: 04/30/2000
Date: |__|__|-|__|__|-|__|__|
Start Time: _____am/pm
End Time: _____am/pm
Coordinator: _____
Page 1 of ___

ADSS
DISCHARGE SAMPLING WORKSHEET

Facility ID#:
Facility Name: _____

A-1. Target Sample Size: _____

A-2. Random Number: _____

A-3. Expected Range: _____

A-4. Number of Discharges Listed: _____

A-5. Line Numbers Selected	Client Name	Record Number	Discharge Date	Study ID#
1. =				
2. =				
3. =				
4. =				
5. =				
6. =				
7. =				
8. =				
9. =				
10.=				
11. =				
12. =				
13. =				
14. =				
15. =				
16. =				
17. =				
18. =				
19. =				
20. =				

ADSS
CALL HOME WORKSHEET

Facility ID#: _____

Facility Name: _____

Date: _____

1. Since the Phase I data collection, has there been a change in the size of the facility, for example, has it expanded to serve more clients, decreased in size, added or closed any units or types of care?

   Yes 1
   What change has been made? RECORD VERBATIM:

   _____

   _____

   No 2

2. Has there been a change in the types of clients served since the Phase I data collection?

   Yes 1
   What is the change? RECORD VERBATIM:

   _____

   _____

   No 2

COORDINATOR: Complete form before calling Ibrahim Yansaneh at (800) 937-8281.

CALL HOME RESULT

3. Continue with sampling?

   Yes 1
   How were problems resolved? RECORD VERBATIM:

   _____

   _____

   No 2
   Why not? RECORD VERBATIM:

   _____

   _____

Date: |__|__| - |__|__| - |__|__|

ADSS

Documentation Sheet for In-Treatment Methadone Client (ITMC)
Listing Problems

Facility ID#: [ATTACH LABEL]

Facility Name: _____

Interviewer Name: _____

1. What is the day for which you requested the in-treatment methadone client listing?

____/____/____
MO DA YR

2. Describe the source used for listing in-treatment methadone clients (computer list, rolodex, logs, etc.):

_____

_____

3. Title and department of person contacted for in-treatment methadone client listing:

Name: _____

Title: _____

Phone #: _____

4. Describe any problems in listing in-treatment methadone clients at this facility:

_____

_____

_____

OMB#: 0930-0180
Expiration Date: 04/30/2000
Date: |__|__| - |__|__| - |__|__|
Start Time: _____am/pm
End Time: _____am/pm
Page 1 of ___

ADSS

IN-TREATMENT METHADONE CLIENT (ITMC)
LISTING FORM

Facility ID#: ATTACH LABEL
Facility Name: _____
Date of In-Treatment Methadone Listing: ____/____/____
MO DA YR

LINE #	CLIENT NAME	METH (M)	RECORD NUMBER	ADMISSION DATE (MO/DA/YR)

OMB#: 0930-0180
Expiration Date: 04/30/2000
Date: |__|__| - |__|__| - |__|__|
Start Time: _____am/pm
End Time: _____am/pm
Coordinator: _____
Page 1 of ___

ADSS
IN-TREATMENT METHADONE CLIENT (ITMC)
SAMPLING WORKSHEET

Facility ID#:
Facility Name: _____

A-1. Target Sample Size: _____

A-2. Random Number: _____

A-3. Expected Range: _____

A-4. Number of In-Treatment Methadone Clients Listed: _____

A-5. Line Numbers Selected	Client Name	Record Number	Admission Date	Study ID#
1. =				
2. =				
3. =				
4. =				
5. =				
6. =				
7. =				
8. =				
9. =				
10.=				
11. =				
12. =				
13. =				
14. =				
15. =				
16. =				
17. =				
18. =				
19. =				
20. =				