CHAPTER 5: RESEARCH DESIGN

The primary purpose of the TRIAD project was to conduct a multi-site evaluation of the effectiveness of residential drug abuse treatment, including in-prison treatment and its extension to post-release treatment. We used a quasi-experimental design in which inmates with histories of drug use volunteered to participate in treatment designed around the therapeutic community concept. These subjects composed the treatment groups. Comparison subjects were drawn from research volunteers at DAP and non-DAP sites.

The study was prospective in that inmates were identified at the beginning of their drug treatment, or, if they were comparison subjects, at a point within a year prior to their releases. Once an inmate was identified as a treatment subject, he or she was included in the study regardless of his or her ultimate disposition. Thus, inmates who dropped out of the treatment program, were terminated, or failed in a halfway house were still included in the treatment groups.

The longitudinal design calls for measurement of background and intervening variables. For those in treatment, some of these variables were measured prior to and after treatment. In this final report, post-release outcomes include results of measures gathered, for each inmate, during a period of 3 years following his or her release from custody.

Sample Selection Process

At the outset of this project, treatment volunteers were intended to be assigned randomly to either a treatment or comparison group, thus circumventing problems with selection bias. Once the treatment programs began, however, we realized the infeasibility of implementing such a plan. First, there were insufficient numbers of treatment volunteers, which resulted in *all* volunteers being given treatment slots. This situation wouldn't work for us because random assignment requires that there be more volunteers than there are available treatment slots. In addition, treatment staff exerted tremendous pressure to control the treatment assignment process, making it impossible for researchers to exercise that same control. Thus, the TRIAD project had to adopt a quasi-experimental design and was compelled to address the issue of selection bias.

As we discussed in our previous 6-month preliminary report we used two approaches to minimize selection bias and to test the effect of treatment tainted by selection pressures. One of these approaches, implemented by William Rhodes, an econometrician at Abt Associates, modeled selection bias and tested for treatment effects following statistical procedures outlined by Heckman (1979) and Maddala (1983) (*see* Chapter 8 for a discussion of all analytical approaches used in this report). The other approach, also implemented by William Rhodes, was an instrumental variable approach.

In order to test explicitly for selection bias effects, some comparison subjects were selected from

sites in which treatment was available. Theoretically, if selection pressures compel more motivated volunteers to participate in drug treatment programs, this would diminish the number of motivated clients remaining in the comparison pool from DAP sites. Under this assumption, the comparison subjects drawn from DAP sites should have been less motivated than were treatment participants, and perhaps they would have had characteristics associated with a higher risk of recidivism.

It also is possible that selection pressures, such as external incentives, compelled less motivated inmates to participate in drug treatment programs. Under this assumption, comparison subjects drawn from DAP sites should have been more motivated than were their treatment counterparts and may have had background characteristics associated with a lower risk of recidivism.

It is important to note that comparison subjects drawn from DAP sites (*i.e.*, sites with residential treatment programs) have some probability of volunteering for treatment even if that probability is extremely low. However, control subjects drawn from sites where no treatment was available, non-DAP sites, have a zero probability of volunteering for treatment.

William Rhodes, in his presentation of the Heckman model (*see* Chapter 8 for a summary of the model and Appendix B for the statistical details) refers to the following types of subjects: DAP treatment subjects (those who volunteered for and enrolled in treatment); DAP comparison subjects (those who were offered treatment but declined); and non-DAP control subjects (those who were never incarcerated in a facility that sponsored treatment programs at a time they could volunteer for treatment). Throughout our report, we refer to these groups as DAP treatment groups, DAP comparisons, and non-DAP controls, respectively. The role of the two different groups of non-treated subjects – DAP comparison and non-DAP control – will become evident in Chapter 8 when we discuss the analytic procedures used.

Research Subjects

This report on 3-year post-release outcomes describes results concerning subjects who were treated in prison from 1991 to 1997 and released from BOP custody between August 1992 and December 1997.[1]

The report is based on outcomes for 2315 individuals (1193 treatment subjects, plus 592 comparison subjects at DAP sites and 530 control subjects at non-DAP sites) to whom, at the

---

[1] There are approximately 49 additional research subjects who were not released by December 31, 1997 and 95 subjects who have not yet been released from BOP custody. Almost all of these subjects are treatment subjects who were admitted to treatment with more than three years remaining to serve.

very least, one of two interviews was administered.[2] Results concerning research subjects, both treatment as well as DAP comparison and non-DAP control, for whom these interview data were not collected are not included in this report. The background information from these interviews was crucial to the analysis of outcomes. A detailed assessment of whether the individuals included in the report were different from those not included in the report, as well as an assessment of other possible biases resulting from subject attrition, is contained in a chapter entitled "Subject Attrition" in our 6-month preliminary report.

Individuals who had Immigration and Naturalization Service (INS) detainers or State detainers who had not been released from custody or had no supervision time available on the streets were excluded from this report. There were 242 such subjects for whom interview data were collected. Of these, 163 subjects were INS detainees (127 men and 36 women). Although some INS detainees were released to the streets, it was difficult to assess consistently whether these subjects were deported or not. The other 79 subjects (69 men and 10 women) went directly from BOP custody to another form of incarceration.[3]

The following section describes the history of site selection and the logistical problems encountered in the study.

A Chronological History of the TRIAD Subject Selection Process

Treatment Subjects

Eight sites were originally selected for the study — three 12-month programs (at FCI's Butner and Tallahassee and FMC Lexington) and five 9-month programs (at FCI's Fairton, Oxford, Seagoville, and Sheridan, plus FMC Rochester). Data collection for the three 12-month programs began with cohorts admitted after August 1, 1991, and for four 9-month programs with cohorts admitted after October 1, 1991.

FMC Rochester was dropped as a research site in the summer of 1991 even before data collection started because the program model least resembled the others. After a site visit to FCI Seagoville in November 1991, the decision was made to drop this site as well. That program had accepted many non-English speaking inmates and had developed two separate programs, one in English and one in Spanish, and many of the Spanish-speaking inmates had detainers. Because other programs were scheduled to be implemented in early 1992, another program was to be selected

---

[2]This interview — the Intake 1 interview — collected a wide range of background information on the subjects.

[3]It must be noted that admission criteria had specified that INS detainees and State detainees were not to be admitted to DAP's. At the outset of program implementation were not strictly adhered to.

as a replacement.

FCI Marianna was chosen in February 1992 because its first admission cohort, compared to the cohorts at the other new sites, had a greater percentage of inmates who were within several years of release. Programs admitting inmates with higher averages of time before release would only serve to delay follow-up data collection.

By early fall 1992, preliminary estimates of the numbers of research subjects to be available for follow-up within several years fell short of expectations. This paucity resulted from a decreasing percentage of new admissions who were within 2 to 3 years of release and from temporary delays in new admissions resulting from an insufficient number of available drug treatment staff at two of the research sites. Approximately half of the admissions between September 1991 and March 1992 at the seven research sites were within 3 years of their release dates at time of admission. This percentage decreased to approximately 27 percent for admissions between October 1992 and March 1993. At this time NIDA requested a revised research plan to accommodate this unexpected development.[4]

The revised plan increased the number of treatment subjects near release by calling for the selection of additional research sites. As of March 1993, there were 30 BOP residential drug treatment programs nationwide, including the 7 original research sites. Residential Drug Abuse Treatment Programs at 11 sites were eliminated from consideration because they (1) were at maximum-security institutions with very low percentages of inmates near release, or (2) served Cuban inmates who were INS detainees, (3) were not fully operational, or (4) were of a 4-month duration. The remaining 12 programs not already in the study were selected as research sites (these included the programs at FCI's Danbury, La Tuna, Lompoc, McKean, Morgantown, Phoenix, Seagoville,[5] Terminal Island, and Three Rivers; FPC's Yankton and Alderson; and FMC Rochester). Three of these sites were minimum-security sites (FCI Morganton and FPC's Alderson and Morgantown), unlike the original study sites. Two of the 12 newly added research sites housed female inmates (FPC Alderson and FCI Danbury), while only one of the original seven study sites housed women.

To ensure a sufficiently large sample available for follow-up in the not-too-distant future, data collection was limited to those individuals expected to be released from BOP custody by the end of fiscal year 1996. Data collection at 11 of the 12 additional sites began in April 1993. The twelfth site (FCI Danbury) was not expected to be operational until January 1994, due to its transition from a male-only to a female-only facility. Following a prison disturbance in the summer of 1993 at FCI Phoenix — a site housing male inmates — this site was dropped and

---

[4]Although priority was given to individuals close to release, the number of treatment volunteers close to release was initially too small to fill all available treatment slots.

[5] Please note that FCI Seagoville had a sufficient number of English-speaking inmates, unlike the circumstances at the time this site was dropped as a research site in 1991.

replaced with FCI Dublin (a female institution in California). Previously, FCI Dublin had not been selected because it was not fully operational.

After a review of notes about trips to various sites and of quality control reports in February 1993, the decision was made to drop FCI La Tuna as a treatment research site. Much of the DAP program at FCI La Tuna was conducted in Spanish (meaning that a high percentage of program participants were not English-speaking) and many of the participants had INS detainers. In February 1994, FMC Lexington was dropped as a research site because it was beginning the process of converting to a male-only facility.

Treatment subjects were followed after release from custody irrespective of program status upon discharge. Individuals not completing the program received the following discharge classifications: disciplinary discharges, dropouts, and incompletes (due to transfers, releases to halfway houses, or releases from BOP custody). Identification of treatment subjects from program admissions ended in the summer of 1995.

Non-Treatment Subjects

As noted above, the research design was intended to be experimental in nature. Inmates who had volunteered for treatment would be randomly assigned by research staff to either the 12-month intensive residential program or to the "control group." This control group would be composed of various comparison groups, and these subjects could choose to volunteer for a 9-month, moderate-intensity residential program, making them essentially comparison subjects exposed to lower levels of treatment. Inmates who did not opt for the 9-month program would compose a second comparison group that received no residential treatment but could have received treatment of a very low intensity. The low-intensity treatment consisted of in-prison outpatient counseling services or treatment services while in a CCC placement. All these groups (*i.e.*, the two control groups and the above-mentioned treatment group) together would provide one primary set of comparisons, that between subjects randomly assigned to a 12-month residential program and those who volunteered for this treatment but instead received lower-intensity or no treatment.

Inaccurate case flow estimates proved to be the most important reason for not implementing a randomized design within the BOP. The status of the BOP's drug abuse treatment programs in the summer of 1991 indicated that we would not have an excess of volunteers, contrary to what was originally expected. This was due both to the BOP's rapid expansion of drug treatment programs and to the fact that program expansion was not limited to one geographical region. Therefore, the BOP was able to provide treatment to most individuals who desired it, which prevented the creation of waiting lists to be used for random assignment procedures. In fact, keeping bed capacity filled required the admission of inmates who, contrary to the initial admission criteria, had more than 3 years left to serve before being released. In addition, research sites scattered nationwide created significant logistical problems for implementing a randomized design.

Therefore, two non-treated groups were selected. The first group consisted of individuals at a DAP site who did not volunteer for treatment (*i.e.*, DAP comparison subjects), and the second group consisted of individuals who did not have the opportunity to volunteer for DAP because they were housed in institutions that did not offer DAP (*i.e.*, non-DAP control subjects).

We recognized that the simple fact of being housed at an institution without a DAP did not provide sufficient rationale to conclude that such individuals did not have the opportunity to volunteer for treatment, because BOP policy did not preclude anyone from transferring to a DAP site and then volunteering for treatment. Therefore, we could not yet establish definitively that treatment was not available to individuals housed at non-DAP institutions. However, an assessment of transfer rates provided evidence that treatment rarely occurred for individuals from the non-DAP institutions. In December 1994, an analysis was undertaken to assess the extent to which those receiving DAP residential treatment had been transferred from an institution without a DAP. Of all the DAP participants to that date — not just the research subjects — only 4.6 percent had transferred within 90 days prior to being admitted to a DAP. Anecdotal information showed that at a few select DAP sites there was some effort to recruit individuals from other institutions. However, the extent of this recruitment was minimal, as substantiated by this analysis of transfers. We thus felt satisfied in concluding that individuals from non-DAP sites essentially had no DAP treatment available to them.

Toward the end of the process of identifying the non-DAP controls, passage of the 1994 Violent Crime Control and Law Enforcement Act (VCCLEA) created an opportunity for inmates to receive a one-year sentence reduction with successful completion of a drug treatment program. Thus, VCCLEA increased the likelihood that inmates from non-DAP sites would request transfers in order to participate in treatment. Although non-DAP controls were selected after passage of VCCLEA, those selected were too near to release to qualify for its early release provision. For women, it was very difficult to identify non-DAP control subjects, as there were relatively few female-only prisons, and most of them, over time, had implemented a residential DAP.

The first group of non-treated subjects was composed of DAP comparisons. All non-treated subjects — both DAP comparison subjects and non-DAP control subjects — were individuals who, according to their self-reporting, were regular users of drugs. Regular users were defined as those subjects having ever used an illicit drug at least once per week for at least one month or having ever used alcohol daily for at least one month. This would approximate meeting the minimal criteria for admission to a DAP. Other admission criteria could not easily be assessed through readily available data sources. In addition, some of these other admission criteria — such as not having a detainer — were not followed consistently.[6] The screening for drug use was accomplished through the administration of a questionnaire, the History of Drug Use (HDU) survey, developed for this purpose.

---

[6] This will be noted later in discussing the subjects not available for follow-up data collection.

The first attempt to identify non-treated individuals who would have been eligible for treatment focused upon the DAP comparisons and used matching procedures. After identifying individuals eligible for drug treatment according to the HDU survey, a sample was to be selected through prospective matching to the cohort of residential drug treatment research subjects. The matching criteria were to include sentence length, age, race, individual security level,[7] and the severity of drug use. However, this matching process proved ineffective in identifying subjects in time to plan a data collection trip before individuals were released to halfway houses or released from BOP custody. Mainly for this reason, the matching procedure was abandoned after only one set of selections, which consisted of 124 subjects.

Subsequent selection of non-treated subjects, both DAP comparison and non-DAP controls, followed a standard procedure. We identified individuals within 6 to 15 months of release who had not volunteered for DAP and for whom it was too late to volunteer. We attempted to administer the HDU to all of these individuals. Any individual who reported regular drug use became a potential non-treated comparison subject or a non-DAP control subject and was approached to participate in research.[8]

The institution from which an individual was selected did not serve as the sole determining factor in whether the subject was classified as a DAP comparison or non-DAP control subject. Individuals identified at DAP sites might have arrived just prior to release (*i.e.*, they were transferred to these sites because they were the institutions closest to their release destinations) and thus did not have time to volunteer. On the other hand, individuals selected at non-DAP institutions might have been there only a few months prior to release but had spent most of their previous few years at DAP institutions. Thus, classifying the type of comparison subject was accomplished through looking at each subject's admission and release history and determining whether the individual had been at a DAP institution at a time when a program was available and with sufficient time left to serve to volunteer and complete the DAP.

---

[7] This serves as a proxy for criminal justice history because security level is determined by information about the current offense(s) and the history of previous offenses.

[8] Details concerning subject attrition were presented in the previous report on 6-month outcomes.

Data Collection Instruments

The data collection instruments were selected by replicating measures used in previous and current drug treatment evaluations — choosing measures that in previous recidivism and treatment evaluation research had been shown to be related to either treatment outcomes or recidivism, and selecting measures that test some of the theoretical assumptions underlying the drug treatment programs. Many of these measures were used as statistical controls to ensure that possible differences in group composition did not account for differences in the outcome variables.

The measures collected for the study were as follows:

> Pre-incarceration background data — family background, employment and educational history, drug and alcohol use and treatment history, mental health treatment history, illegal activities, and incarceration and arrest histories.
>
> Psychological/cognitive measures — motivation and expectations about treatment, Change Assessment Scale (Prochaska and DiClemente, 1986) (a survey of motivation for change), DSM-III-R diagnoses of depression and antisocial personality, Attributional Style Questionnaire (ASQ) (Peterson et al., 1982), Drug-Taking Confidence Questionnaire (DTCQ) (Annis and Martin, 1985a), Inventory of Drug-Taking Situations (IDTS) (Annis and Martin, 1985b), Ways of Coping Checklist (Lazarus and Folkman, 1984), and Hope Scale (Snyder et al., 1991).
>
> Treatment structure and process — Drug Program Description Checklist (a staff survey), observations of group sessions and staff meetings (at a limited number of research sites), inmate perceptions of staff empathy and program environment, and length and type of services received.
>
> Proximal outcomes — institutional adjustment using indicators such as disciplinary actions and positive urine results, changes in pre- and post-treatment measures on Change Assessment Scale, Ways of Coping Checklist, and Drug-Taking Confidence Questionnaire.
>
> Post-release environment — indicators of poverty and employment rates from census data.

Data Collection Procedures

In-Prison Data

Inmates participating in DAP programs were approached by researchers, who explained the project and administered surveys and interviews to those inmates who signed the requisite informed consent statement. The set of pre-treatment surveys was administered within 6 weeks before or after admission to the DAP. The post-treatment surveys were administered within 4

weeks before or after program completion or termination. In addition to the surveys, two personal interviews were administered. While the two interviews — Intake1, with background information, and Intake2, with diagnoses of antisocial personality and depression — had no specified time frame for administration, they generally were administered within several weeks of the pre-treatment surveys. The surveys and interviews generally were administered within the same week for non-treatment subjects, with administration occurring as soon as possible after identification of the subject in order to ensure that the subject would still be in prison (since these subjects were selected close to their release dates). At times, this was infeasible due to the large number of research sites and the limited number of researchers.

To encourage inmate participation in the evaluation project, the BOP Executive Staff issued a memo in March 1992 informing wardens that inmates participating in the TRIAD evaluation project were not to lose their performance pay[9] or UNICOR pay while participating in surveys and interviews.

Data on services received were obtained from both treatment staff and automated databases. Staff perceptions about the programs were obtained from three annual staff surveys — 1993 through 1995 — administered to all DAP staff at the research sites. Supplementary background data and information on the subjects' current incarcerations were extracted from the automated SENTRY database.[10]

Community Corrections Center (CCC) Data

Information on employment and educational activities, urinalysis testing and results, and participation in self-help groups during CCC placement was obtained from surveys mailed to the contract CCC staff. The information on transitional drug treatment services received was obtained from the transitional drug treatment service managers and automated databases. Other information about the length of the CCC placement, disciplinary infractions, and successful completion was obtained from the BOP's automated SENTRY database.

Post-Release Data

For those subjects released to supervision, information was obtained through phone calls with Probation officers at three points in time after release: 6 months, 18 months, and 3 years (or completion of supervision at any point). The Probation officers provided information on employment, educational activities, violations of conditions of supervision, urine testing

---

[9] Performance pay refers to the minimal salaries inmates receive for work performed on assigned work details. UNICOR refers to Federal Prison Industries which provides work details at Federal prisons.

[10] SENTRY, the BOP's automated database, provides comprehensive information on currently and formerly incarcerated inmates.

frequencies and results, the numbers and types of supervisory contacts, arrests and incarceration, treatments received, self-help group participation, and living situations.

Arrest data were obtained from National Crime Information Center (NCIC) databases for non-supervised subjects. NCIC is the FBI's computerized record system that holds arrest and conviction information about Federal — and most State — crimes.

Description of Predictor Measures

Measurement indicators in this report reflected those items known to be associated with treatment outcome or recidivism and items we considered to be important control variables that have seldom, if at all, been included in previous studies. A subset of background and treatment measures from among those collected are included in this report.[11] The following identifies and defines, where necessary, the measures selected for use in our outcome analyses.[12]

Background Characteristics

The BOP's automated SENTRY database provides information on several background characteristics, including sex, race, ethnicity, prior commitments, and age upon release from incarceration.

The self-report data obtained from the two Intake interviews administered to research subjects provide other pre-incarceration background information. This information includes age at time of first commitment, employment status during the month before incarceration, history of one or more periods of unemployment of 30 or more days, history of ever having supported oneself through illegal activities, level of education, type of drugs used on a daily bases in the year before arrest, drug and alcohol treatment history, history of drug problem for spouse, and mental health treatment history.

Psychiatric Diagnoses

The Diagnostic Interview Schedule (DIS) interview using the DSM-III-R criteria (American Psychiatric Association, 1987) provided information on lifetime diagnoses of depression and antisocial personality. The DIS interview was developed under sponsorship of the National Institute of Mental Health to allow lay interviewers or clinicians to conduct diagnostic interviews and thus facilitate its large multi-site Epidemiological Catchment Area (ECA) study (Reiger et

---

[11] The subset of items included in this report exclude the use of the attitude surveys. These surveys will be used in the future to address additional research questions.

[12] Predictor variables specific to our models of treatment entry and treatment retention are described in Chapter 7 – Treatment Entry and Completion.

al., 1990).

In-Prison Behaviors/Services

Information on disciplinary infractions which occurred during the 6 months before release was obtained from the automated SENTRY database. Two types of disciplinary infractions were identified: 1) 100 and 200 level infractions[13] and 2) drug-related infractions. This database also provided information on the percent of time subjects were employed in prison industries – (UNICOR) – and participation in vocational training programs. Prison industries provides the only in-prison job assignments which are skilled occupations.

The SENTRY database also provided information on whether an individual received a CCC placement before release, the length of the placement and whether the placement was successfully completed.

Incentive for Drug Treatment Participation

The automated SENTRY data base was used to determine whether the treatment subjects could have benefitted from the sentence reduction provision of the Violent Crime Control and Law Enforcement Act of 1994. This measure captured the role of external incentives for drug treatment.[14]

Post-Release Supervision and Treatment

Differing levels of supervision may affect outcomes, as some individuals are more closely monitored than others. We identified which individuals received supervision. Among those who were supervised we collected information on the frequency of supervision as measured by offender contacts with Probation officers, collateral contacts by Probation officers, and urine testing. This information was obtained from the telephone interviews with Probation officers. We used the level of supervision which occurred during the first 6 months after release since supervision frequency and urine testing frequency decreased over time for some individuals. This ensured that our post-release outcome analyses would not confound decreases in supervision level due to exemplary post-release behaviors of an individual or increases due to violations of conditions of supervision.

We categorized individuals according to the type of treatment assigned to them by their Probation officer during their first month after release. This avoided the confusion which would

---

[13]There are four levels of disciplinary infractions – 100 to 400 – with 100 level representing the most serious type of infraction and 400 representing the least serious. The 100 level infractions include assaults and positive urinalysis tests.

[14] This was used only in our models of treatment volunteerism (*see* Chapter 7).

result when treatment was received in response to a post-release outcome behavior such as a positive urinalysis, rather than preceding the outcome of interest. Information on self-help group involvement during the first 6 months or release (e.g., Alcoholics Anonymous, Cocaine Anonymous, etc.) was also obtained from the Probation officers.

Post-Release Marital Status

Characterization of an individual's post-release living situation included in our analyses was marital status – whether or not the individual was living with a spouse or a common-law spouse. As with the other post-release information, this data was obtained from Probation officers.

Summary

The original experimental research design for the TRIAD drug treatment evaluation project was modified several times to accommodate the initial absence of waiting lists for admission to a DAP and to accommodate changes in time-left-to-serve for the drug treatment population. The lack of waiting lists during initial program implementation made the original plans for random assignment infeasible. Therefore, we instituted a research design that was quasi-experimental. In addition, the admission of inmates to treatment who were not near release early in the project required the expansion of the number of treatment research sites from 8 to 20. This change was needed to obtain sufficiently large sample sizes.

Because drug treatment was not available at all sites from which we selected research subjects, we were able to identify two types of comparison groups: one having had DAP treatment available — the DAP comparisons — and the other not having this treatment available — the non-DAP controls. These two different non-treated subjects groups allowed us to address selection bias issues.